Bussmann electrical full line catalog

Leadership in Circuit Protection

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by EATON

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The only company

that can provide a complete circuit protection solution for all applications.

Only Eaton can deliver...

- The most diverse solutions to mitigate arc flash energy to keep people and equipment safe
- The smallest and most cost effective way to meet selective coordination requirements
- The most experienced, time-tested solutions to meet national & local code requirements
- The easiest specifications with the most tested fuse/circuit breaker and circuit breaker/circuit breaker series rated combinations
- The only one-stop shop to solve your design challenges using our expertise and an unmatched portfolio

The Eaton advantage.

Powering business worldwide

As a global diversified power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2012 sales of $16.3 billion, Eaton has approximately 103,000 employees around the world and sells products in more than 175 countries.

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3 TIERS OF PROTECTION

Speed up Specification and Selection

Ultimate Protection– The best worry free protection in virtually any application. A powerful combination of all performance options in one fuse.

Advanced Protection– Application specific protection for sensitive devices and critical components or motors and transformers.

Basic Protection– Basic single-element protection for service, feeder and branch circuit applications.

4 FUSE FAMILIES

Make Fuse Selection and Replacement Easy

LOW-PEAK	FUSETRON	LIMITRON	GENERAL
1	2	2	3
ULTIMATE PROTECTION	**ADVANCED PROTECTION**	**ADVANCED PROTECTION**	**BASIC PROTECTION**
Delivers 50% more protection than any other UL or CSA Listed fuse*	23% more energy efficient*** and the best time-delay performance	10X better current limitation**	Economical, general purpose fuse for basic circuit protection

* 50% higher IR (300kA) than any other UL and CSA Listed Fuse. Includes Class J, L and R fuses.
** Does not include current limiting circuit breakers or current limiting fuses. Protection determined by comparing published values for let-through for Class CC, J, R, and T fuses versus a symmetrical RMS waveform at 200kA.
*** Test results are based on weighted sales volume of FUSETRON and Ferraz Shawmut (Mersen) fuses by selected amp and volt rating combination. Next leading brand refers to Ferraz Shawmut based on third-party fuse market share data for a twenty-seven month period (July 2008 through September 2010)

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56 PVM Midget & PV Fuses

57 CUBEFuse™ PVCF & WCF

59 PVS-R RK5 PV Fuses

60 Ferrule Photovoltaic Fuses

62 NH Fuses & Fuse Blocks

63 XL Photovoltaic Fuses and Blocks

121 Square Body, BS and UL High Speed Fuses

266 Quik-Spec™ Coordination Panelboard

270 Safety Switches AC & DC

274 Modular Fuse Holders

289 Modular Knifeblade Fuse Blocks

325 Power Distribution Blocks

442 Surge Protection Solutions Photovoltaic and Wind

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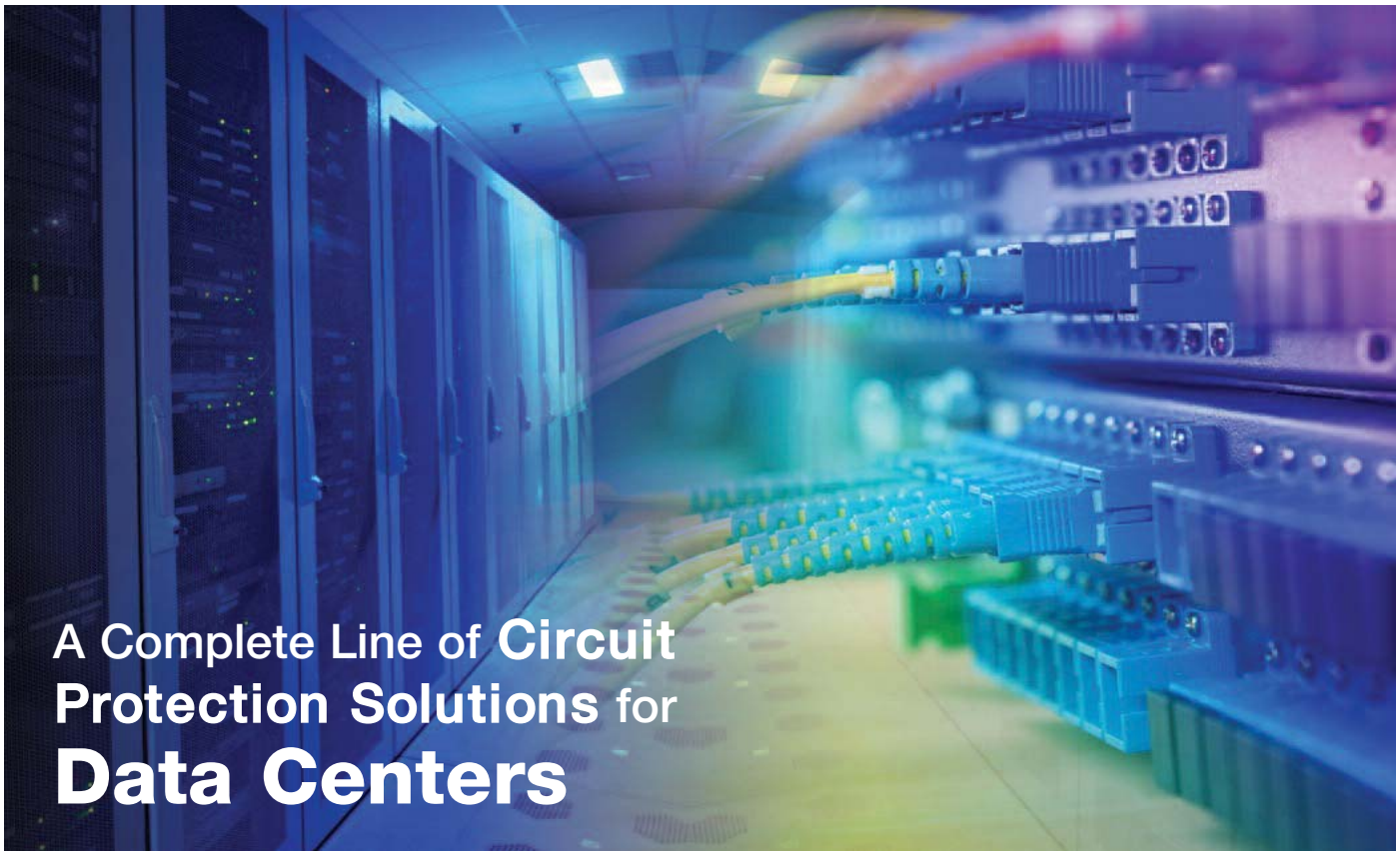


23 Low-Peak™ CC Fuses

28 CUBEFuse™ TCF & FCF

121 Square Body, BS and UL High Speed Fuses

125 DFJ High Speed Fuses

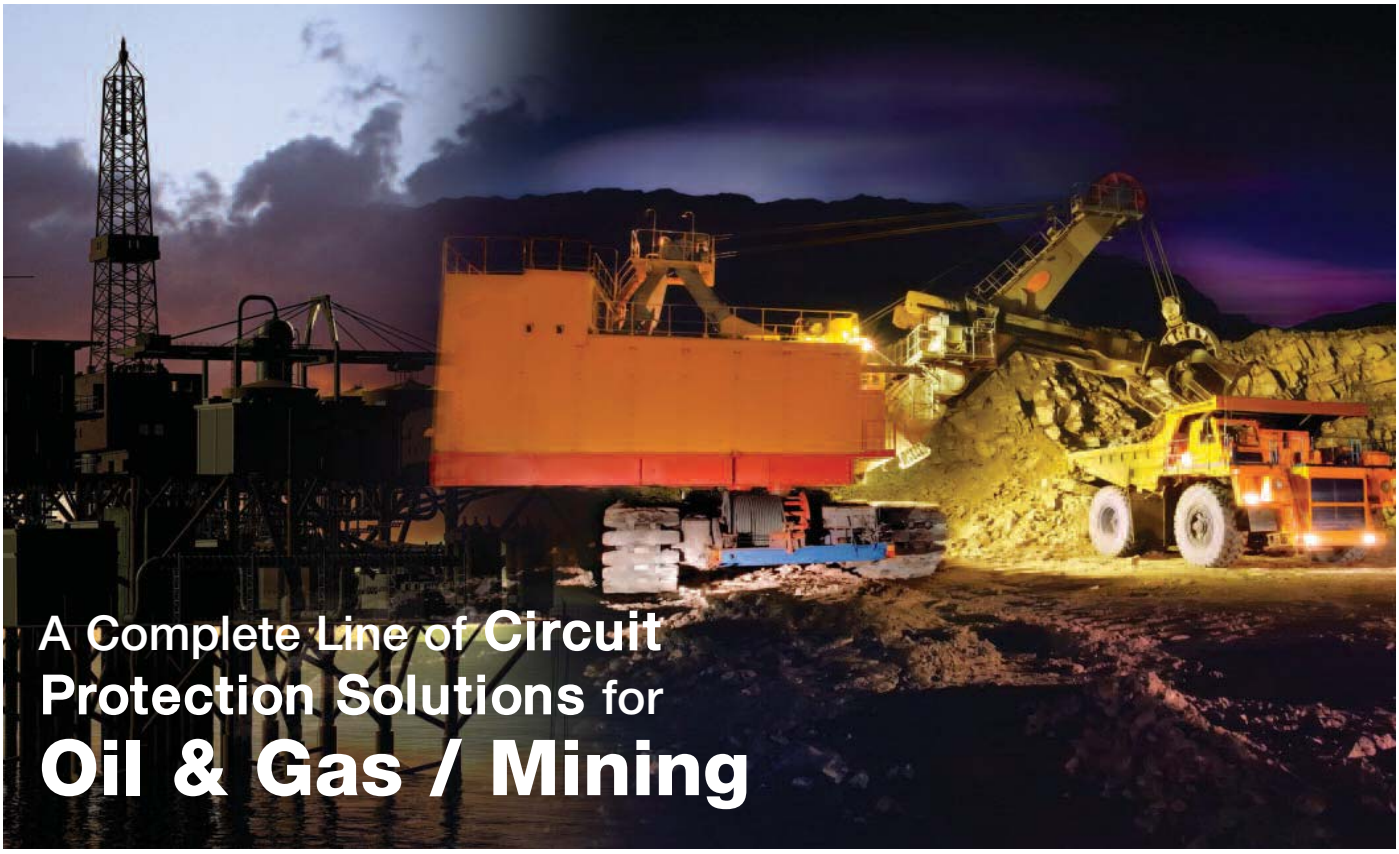
266 Quik-Spec™ Coordination Panelboard

325 Power Distribution Blocks

333 DIN-Rail Terminal Blocks and Connectors

380 Compact Circuit Protectors

441 Surge Protection Solutions – UL, IEC and LV



A Complete Line of Circuit Protection Solutions for Oil & Gas / Mining

23 Low-Peak™ Fuses

26 CUBEFuse™ TCF & FCF

46 Fusetron™ Energy Efficient Fuses

62 NH Fuses & Fuse Blocks

99 Medium Voltage Fuses

121 Square Body, BS and UL High Speed Fuses

125 DFJ High Speed Fuses

266 Quik-Spec™ Coordination Panelboard

274 Modular Fuse Holders

289 Modular Knifeblade Fuse Blocks

327 Power Distribution Blocks

380 Compact Circuit Protectors

441 Surge Protection Solutions – UL, IEC and LV

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Bussmann circuit protection solutions comply with major industrial standards and agency requirements such as: BS, IEC, DIN, UL, NEMA, CSA, CE, C-UL, etc. and are manufactured at facilities that are ISO 9000 certified.

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PEEL & STICK TABS

Mark the products that are important to you.

Index by Part Number

New Product

New Product

New Product

Write Your Own Descriptions Here

Fuse Holders & Blocks

Power Distribution & Terminal Blocks

Connectors

Disconnects

Telecom Protection Devices

Surge Protection Devices

Accessories

Services & Application Guide

Low Voltage Branch Circuit

Solar Products

Low Voltage Supplementary

Electronic Fuses

Medium Voltage Fuses

High Speed Fuses

IEC & British Standard Fuses

Quik-Spec™ Electrical Gear

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Selecting Circuit Protection

The following fuse selection guides are based on the 2011 NEC® and provided fuse recommendations for the various applications listed.

These are only suggestions. Final fuse selection should be performed only by qualified personnel able to fully assess an application's circuit protection requirements. If you need assistance in selecting a fuse for a particular application, call the Cooper Bussmann Application Engineering team for technical and application support Monday – Friday, 8:00 a.m. – 5:00 p.m. Central Time.

Application Engineering can be reached via phone and e-mail:

- Toll-free phone: 855-287-7626 (855-BUSSMANN)
- E-mail: fusetech@cooperindustries.com

Ballasts

Indoor → Fluorescent → Consult fixture manufacturer for size and type.

Fuse & Holder Recommendations

Fuse	Holder(s)	Fuse	Holder(s)
GLR	HLR	GLQ	HLQ
GMF		GMQ	
GRF			

Indoor → All Other (Mercury, Sodium, etc.) → Consult fixture manufacturer for size and type.

Fuse & Holder Recommendations

Fuse	Holder(s)	Fuse	Holder(s)	Fuse	Holder(s)
BAF	HPF	KTK-R	HPS-RR	SC 0-15	HPF-EE
KTK	HPS	FNQ-R	HPF-RR		HPS-EE
FNM		LP-CC		SC 20	HPF-JJ
FNQ					HPS-JJ
		KTQ	HPS-L	SC 25-30	HPF-FF
		BBS	HPF-L		HPS-FF

Outdoor → Mercury, Sodium, etc. → Consult fixture manufacturer for size and type.

Fuse & Holder Recommendations

Fuse	Holder(s)	Fuse	Holder(s)
BAF	HEB	KTK-R	HEY
KTK	HEX	FNQ-R	
FNM	HPC-D	LP-CC	
FNQ			

Capacitors (NEC® 460)

Protected by Time-Delay Fuses. → 150% to 175% of Full Load Current

Fuse Recommendations

Volts	Fuse(s)
0-250	LPN-RK_SP, FRN-R
0-600	LPS-RK_SP, FRS-R LPJ_SP, LP-CC, FNQ-R, TCF

Protected by Non-Time-Delay Fuses. → 250% to 300% of Full Load Current.

Fuse Recommendations

Volts	Fuse(s)
0-250	KTN-R, NON
0-300	JJN
0-600	KTS-R, NOS JKS, KTK-R JJS, FCF_RN

On Load Side of Motor Running Overcurrent Device. → Protection recommended as shown, but not required.

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Selecting Circuit Protection

Electric Heat (NEC® 424)

Electric Space Heating

Size at 125% or next size larger but in no case larger than 60 amps for each subdivided load.

Electric Boilers with Resistance Type Immersion Heating Elements in an ASME Rated and Stamped Vessel

Size at 125% or next size larger but in no case larger than 150 amps for each subdivided load.

Fuse Recommendation

Volts	Fuse(s)
0-250	LPN-RK_SP
	FRN-R, NON
0-300	JJN
0-480	SC 25 to SC 60
0-600	LPS-RK_SP
	FRS-R, NOS
0-600	JJS
0-600	LPJ_SP, LP-CC
	FNQ-R, JKS, KTK-R,
	TCF, SC ½ to SC 20,
	FCF_RN

Mains, Feeders, Branches (NEC® 430)

Feeder Circuits (600A & Less)

No Motor Load

100% of non-continuous load plus 125% of continuous load.

Fuse Recommendations

Volts	Fuse(s)
0-250	LPN-RK_SP, FRN-R
0-300	JJN
0-600	LPS-RK_SP, FRS-R
0-600	JJS
0-600	LPJ_SP, LP-CC
	JKS, KTK-R, LPT

Combination Motor Loads and Other Loads

150%* of the FLA of largest motor (if there are two or more motors of same size, one is considered to be the largest) plus the sum of all the FLA for all other motors plus 100% of non-continuous, non-motor load plus 125% of continuous, non-motor load.

Motor Loads

150%* of the FLA of largest motor (if there are two or more motors of same size, one is considered to be the largest) plus the sum of all the FLA for all other motors.

Fuse Recommendations

Volts	Fuse(s)
0-250	LPN-RK_SP, FRN-R
0-600	LPS-RK_SP, FRS-R
0-600	LPJ- SP, LP-CC

*A max. of 175% (or the next standard size if 175% does not correspond to a standard size) is allowed for all but wound rotor and all dc motors.

Main, Branch & Feeder Circuits (601-6000A)

150% to 225% of full load current of largest motor plus 100% of full load current of all other motors plus 125% of continuous non-motor load plus 100% of non-continuous non-motor load.

Fuse Recommendation

Volts	Fuse(s)
0-600	KRP-C_SP

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Selecting Circuit Protection

Motor Loads (NEC® 430)

600V & Less

Protected by Time-Delay Fuses

Fuse Sized For:

Backup Overload w/ Motor Starter & Short-Circuit Protection

125% of motor FLA or next size larger.

Fuse Recommendations

Volts	Fuse(s)
0-250	FRN-R
0-600	FRS-R

130% of motor FLA or next size larger.

Fuse Recommendations

Volts	Fuse(s)
0-250	LPN-RK_SP
0-600	LPS-RK_SP

Short-Circuit Only

175%* of motor FLA or next size larger. (If 175% does not correspond to a standard size). If this will not allow motor to start, due to higher than normal inrush currents or longer than normal acceleration times (5 sec. or greater), fuse may be sized up to 225% or next size smaller.

Fuse Recommendations

Volts	Fuse(s)
0-250	LPN-RK_SP, FRN-R
0-600	LPS-RK_SP, FRS-R LPJ_SP, TCF

Protected by Non-Time Delay Fuses & all Class CC Fuses

Short-Circuit Only

Max. of 300%* of motor FLA or next size larger (if 300% does not correspond to a standard size). If this will not allow motor to start due to higher than normal inrush currents or longer than normal acceleration times (5 sec. or greater), fuses through 600 amps may be sized up to 400% or next size smaller.

*150% for wound rotor and all DC motors.

Fuse Recommendations

Volts	Fuse(s)
0-250	KTN-R, NON
0-300	JJN
0-600	KTS-R, NOS JJS LP-CC, JKS, KTK-R, LPT, FCF_RN

Above 600V

Compare the min. melting time-current characteristics of the fuses with the time-current characteristics of the overload relay curve. The size fuse which is selected should be such that short.circuit protection is provided by the fuse and overload protection is provided by the controller overload relays.

Fuse Recommendations

Volts	Fuse(s)
2400	JCK, JCK-A, JCH
4800	JCL, JCL-A, JCG
7200	JCR, 7.2 WKMSJ

Solenoids (Coils)

Branch Circuit Fuses

Size at 125% or next size smaller.

Fuse Recommendation

Volts	Fuse(s)
0-250	Best: LPN-RK_SP FRN-R
0-600	LPS-RK_SP FRS-R
0-600	LPJ_SP, LP-CC FNQ-R, TCF

Supplementary Fuses

Size at 125% or next size larger.

Fuse Recommendation

Volts	Fuse(s)
0-32	MDL 9-30A, FNM 20-30A
0-125	MDA 25-30A, FNM 12-15A
0-250	MDL 1/16-8A, MDA 3/10-20A, FNM 1/10-10A, MDQ 1/100-7A
0-500	FNQ 1/10-30A

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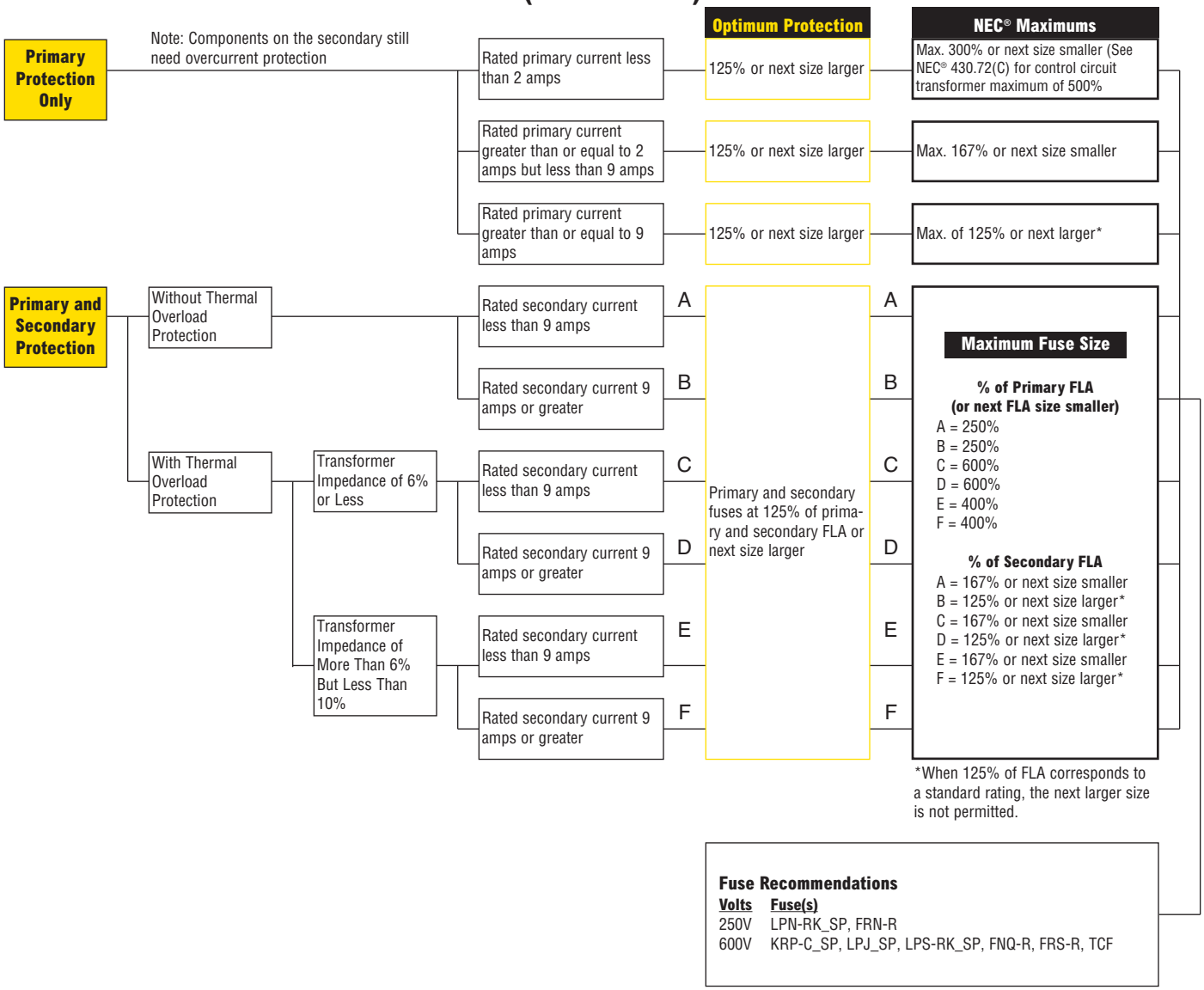
Selecting Circuit Protection

Transformers 600V Nominal or Less (NEC® 450.3)



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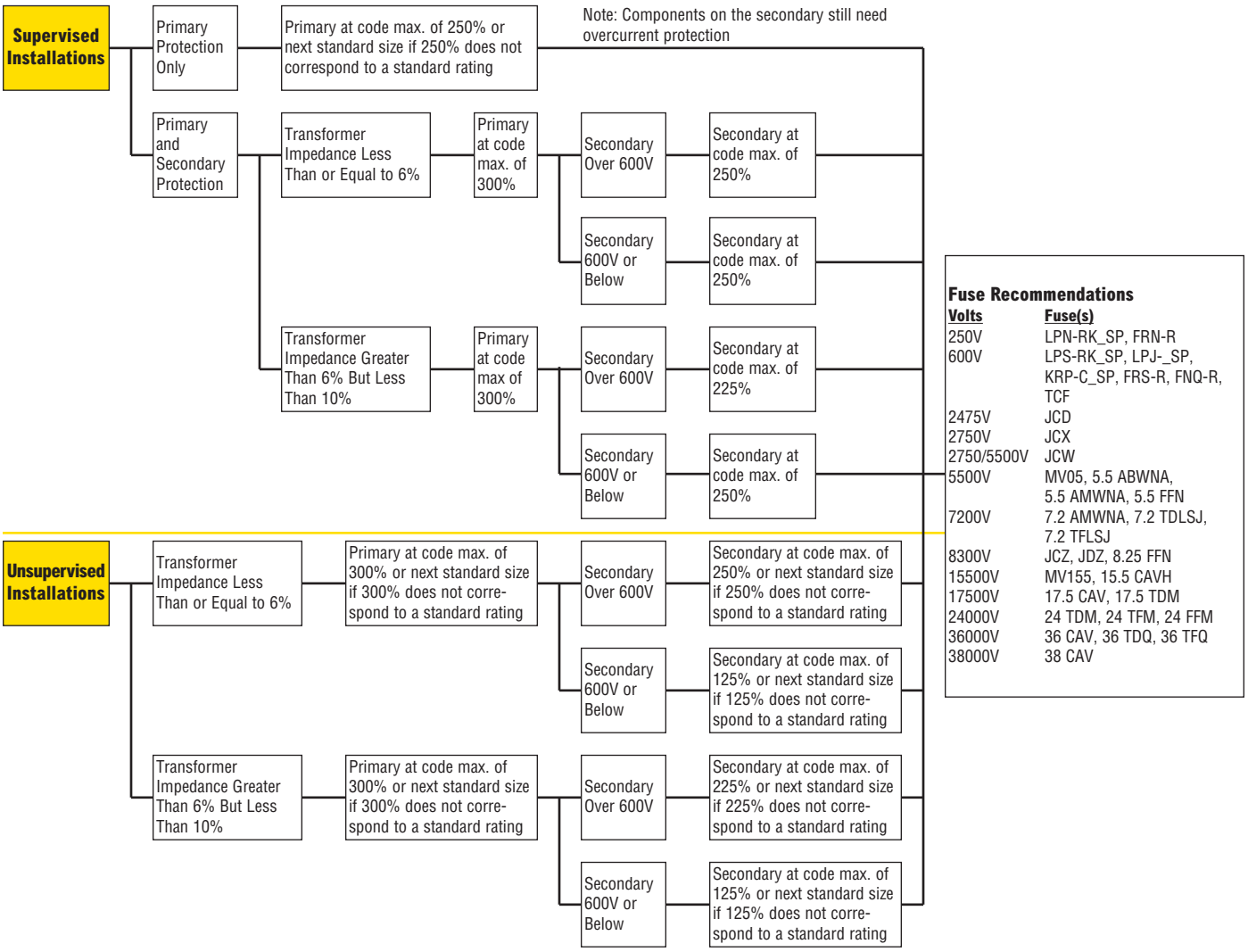
Selecting Circuit Protection

Transformers Over 600V Nominal (NEC® 450.3)



Fuse Recommendations

Volts	Fuse(s)
250V	LPN-RK_SP, FRN-R
600V	LPS-RK_SP, LPJ-_SP, KRP-C_SP, FRS-R, FNQ-R, TCF
2475V	JCD
2750V	JCX
2750/5500V	JCW
5500V	MV05, 5.5 ABWNA, 5.5 AMWNA, 5.5 FFN
7200V	7.2 AMWNA, 7.2 TDLSJ, 7.2 TFLSJ
8300V	JCZ, JDZ, 8.25 FFN
15500V	MV155, 15.5 CAVH
17500V	17.5 CAV, 17.5 TDM
24000V	24 TDM, 24 TFM, 24 FFM
36000V	36 CAV, 36 TDQ, 36 TFQ
38000V	38 CAV

Solid State Devices (Diodes, SCRs, Triacs, Transistors)

Fuse Recommendations

Volts	Fuse(s)
0-130	FWA
0-250	FWX
0-500	FWH
0-600	FWC, KAC, KBC
0-700	FWP, 170M Series, SPP
0-1000	FWJ, 170M Series, SPJ

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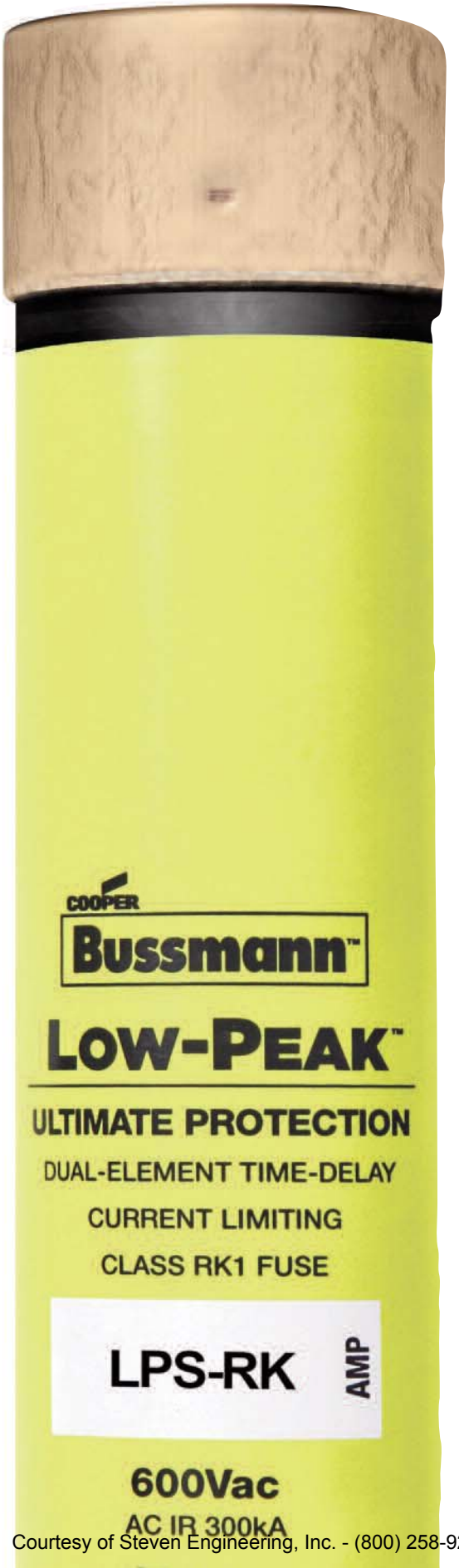

Low Voltage, Branch Circuit Rated Fuses

	Page
Fuse Holder & Block Selection Guide	**18-20**
Class Fuse Dimensions	**21-22**
Fuses By Fuse Class	

Class	Fuses	Volts	Page
CC	LP-CC	600V	23
	FNQ-R	600V	24
	KTK-R	600V	25
CF	TCF*	600V	26-27
	FCF	600V	28-29
	WCF	600V	30-31
	*Class J performance		
CF	Holder System	600V	32-33
G	SC	600/480V	34
J	LPJ-_SP	600V	35
	LPJ-_SPI Indicator	600V	35
	JKS	600V	36
K5 & H	NON	250V	37
	NOS	600V	37
L	KRP-C_SP	600V	38-39
	KRP-CL	600V	39
	KLU	600V	40
	KTU	600V	40
RK1	LPN-RK_SP	250V	41-43
	LPN-RK_SPI Indicator	250V	41-43
	LPS-RK_SP	600V	41-43
	LPS-RK_SPI Indicator	600V	41-43
	KTN-R	250V	44
	KTS-R	600V	45
RK5	FRN-R (Energy Efficient)	250V	46
	FRN-R_ID (Energy Efficient)	600V	46
	FRS-R (Energy Efficient)	600V	47
	FRS-R_ID (Energy Efficient)	600V	47
T	JJN	300V	48
	JJS	600V	49
Plug Fuses	W, SL, TL, S, T, P, TC Series & MB Edison Base Circuit Breakers, SA	125V	50-52

RED indicates NEW information

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Holders & Blocks For Branch Circuit Rated Fuses

Class	Fuses	Volts	Page
CC	LP-CC	600V	23
	FNQ-R	600V	24
	KTK-R	600V	25

Holders

- OPM-NG-SC3 3-pole, panel/DIN rail mount 284
- OPM-1038R 3-pole, panel/DIN rail mount 283
- OPM-1038RSW 3-pole w/ switch, panel/DIN rail mount . . 282
- CHCC_D 1 to 3-pole, DIN rail mount 274
- HPF-RR, front panel mount 317
- HPS-RR, front panel mount 317

Blocks

- BC Series, panel mount 305

OPM-NG-SC3

OPM-1038R & OPM-1038RSW

CHCC_D

HPF-RR

HPS-RR

BC Series

Class	Fuses	Volts	Page
G	SC	600/480V	34

Holders

- HP Series front panel accessible, front panel mount 317

Blocks

- BG Series, panel/DIN rail with adapters 305
- G Series, panel/DIN rail with adapters 305

HP Series

BG & G Series

Class	Fuses	Volts	Page
K5 & H	NON	250V	37
	NOS	600V	37

Blocks

- Modular Knifeblade Fuse Blocks 250/600V, panel mount . . 289
- Modular Type Fuse Blocks 250/600V, panel mount 306
- H250 Series 1 to 3-pole 250V, panel mount 294
- H600 Series 1 to 3-pole 600V, panel mount 296

Modular Knifeblade

Modular Type

H250 Series

H600 Series

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Holders & Blocks For Branch Circuit Rated Fuses

Class	Fuses	Volts	Page
L	KRP-C_SP	600V	38
	KRP-CL	600V	39
	KLU	600V	40
	KTU	600V	40

Blocks

- 51215 1-pole, panel mount*
- 51235 3-pole, panel mount*

*Call our customer satisfaction team at 636-527-3877 for more information.

51215

51235

Class	Fuses	Volts	Page
RK1	LPN-RK_SP	250V	41
	LPS-RK_SP	600V	41
	KTN-R	250V	44

Blocks

- Modular Knifeblade Fuse Blocks 250/600V, panel mount . . . 289
- R250 Series 1- to 3-pole 250V, panel mount 294
- R600 Series 1- to 3-pole 600V, panel mount 296

Modular Knifeblade

R250 Series

R600 Series

Class	Fuses	Volts	Page
RK5	FRN-R	250V	46

Blocks

- Modular Knifeblade Fuse Blocks 250/600V, panel mount . . . 289
- R250 Series 1- to 3-pole 250V, panel mount 294
- R600 Series 1- to 3-pole 600V, panel mount 296

Modular Knifeblade

R250 Series

R600 Series

Class	Fuses	Volts	Page
T	JJN	300V	48
	JJS	600V	49

Blocks

- BH Series modular-style, panel mount (<60A) 306
- T300 Series 1 to 4-pole 300V, panel mount 300
- T600 Series 1 to 3-pole 600V, panel mount 302

BH Series

T300 Series

T600 Series

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Holders & Blocks For Branch Circuit Rated Fuses

Class	Fuses	Volts	Page
J, CF	TCF*, FCF, WCF	600V	31
	LPJ-SP	600V	35
	JKS	600V	36

*Class J performance

Holders

- TCFH CUBEFuse holder, panel/DIN-Rail mount 32-33
- CH Series Class J modular 1- to 3-pole, panel/ DIN rail mount 281
- Safety J™ Series modular holders, panel/DIN rail mount 286

Blocks

- Modular Knifeblade Fuse Blocks 250/600V, panel mount . . 289
- Modular Type Fuse Blocks 600V, panel mount 306
- J600 Series, panel mount 298
- JP Series pyramid blocks, panel mount 299
- BH Series modular-style open blocks, panel mount 306

TCFH

CH Series

Safety J™ Series

Modular Type

Modular Knifeblade

J600 Series

JP Series

BH Series

Class	Fuses	Volts	Page
Plug Fuses	W, SL*, TL, S*, T, P and TC Series	125V	50-52

Box Cover Units

- Standard electrical box mounting 307

*Use of SL & S rejection fuses requires SA adapters, see page 52

Fuse Only

With Grounded Outlet

With Switch

Fuse Reducers For Class R Fuses 250V

Equipment Fuse Clip Amps	Desired Fuse (Case) Amp Size	Catalog No. (Pairs) 250V
60	30	NO.263-R
100	30	NO.213-R
	60	NO.216-R
200	60	NO.226-R
	100	NO.2621-R
400	100	NO.2641-R
	200	NO.242-R
600	100	NO.2661-R
	200	NO.2662-R
	400	NO.2664-R*

*Single reducer only (pair not required).

Fuse Reducers For Class R Fuses 600V

Equipment Fuse Clip Amps	Desired Fuse (Case) Amp Size	Catalog No. (Pairs) 600V
60	30	NO.663-R
100	30	NO.216-R
	60	NO.616-R
200	60	NO.626-R
	100	NO.2621-R
400	100	NO.2641-R
	200	NO.642-R
600	100	NO.2661-R
	200	NO.2662-R
	400	NO.2664-R*

*Single reducer only (pair not required).

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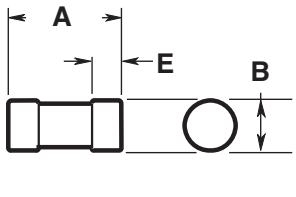
Branch Circuit Rated Fuse Dimensions

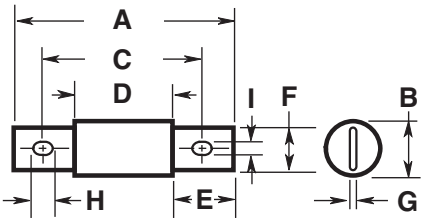
Class J Dimensions - in (mm)

Low-Peak and Limitron Fuses
LPJ & JKS — 600V

Amp Range	A	B	C	D	E	F	G	H	I
1-30	2.25 (57.2)	0.81 (20.6)	—	—	0.50 (12.7)	—	—	—	—
35-60	2.38 (60.3)	1.06 (27.0)	—	—	0.63 (15.9)	—	—	—	—
65-100	4.63 (117.5)	1.13 (28.6)	3.63 (92.1)	2.63 (66.7)	1.00 (25.4)	0.75 (28.6)	0.13 (3.2)	0.41 (10.4)	0.28 (7.1)
110-200	5.75 (146.1)	1.63 (41.4)	4.38 (111.1)	3.00 (76.2)	1.38 (34.9)	1.13 (28.6)	0.19 (4.8)	0.38 (9.5)	0.28 (7.1)
225-400	7.12 (181.0)	2.11 (53.6)	5.25 (133.3)	3.26 (82.8)	1.87 (47.6)	1.62 (41.2)	0.25 (6.4)	0.56 (14.2)	0.40 (10.3)
450-600	8.00 (203.2)	2.60 (66.0)	6.00 (152.4)	3.31 (84.0)	2.12 (54.0)	2.00 (50.8)	0.53 (13.5)	0.72 (18.3)	0.53 (13.5)

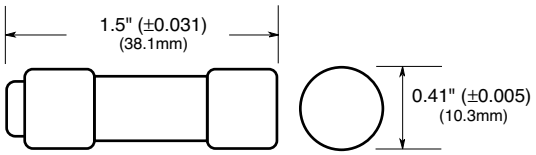


1A to 60A



65A to 600A

Class CC Dimensions - in (mm)

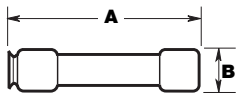


Class RK1 & RK5 Dimensions - in (mm)

Basic dimensions are same as Class H (formerly NEC) One-Time (NON & NOS) and Superlag Renewable RES & REN fuses.
NOTE: These fuses can be used to replace existing Class H, RK1 and RK5 fuses relating to dimensional compatibility.

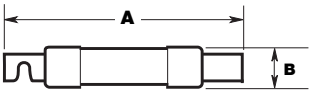
Ferrule Styles

Amp Range	250V A	250V B	600V A	600V B
1/10-30	2 (50.8)	0.56 (14.3)	5.0 (127.0)	0.81 (20.6)
35-60	3 (76.2)	0.81 (20.6)	5.5 (139.7)	1.06 (27.0)



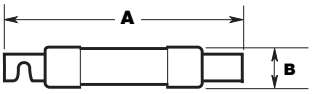
Fusetron — (FRN-R & FRS-R)& Limitron — (KTN-R & KTS-R)

Amp Range	250V A	250V B	600V A	600V B
70-100	5.88 (149.2)	1.06 (26.9)	7.88 (200.0)	1.34 (34.0)
110-200	7.13 (181.0)	1.56 (39.6)	9.63 (244.5)	1.84 (46.7)
225-400	8.63 (219.1)	2.38 (60.5)	11.63 (295.3)	2.59 (65.8)
450-600	10.38 (263.5)	2.88 (73.2)	13.38 (339.7)	3.13 (79.5)



Low-Peak — (LPN-RK & LPS-RK)

Amp Range	250V A	250V B	600V A	600V B
70-100	5.88 (149.2)	1.16 (29.5)	7.88 (200.0)	1.16 (29.5)
110-200	7.13 (181.0)	1.66 (42.2)	9.63 (244.5)	1.66 (42.2)
225-400	8.63 (219.1)	2.38 (60.5)	11.63 (295.3)	2.38 (60.5)
450-600	10.38 (263.5)	2.88 (73.2)	13.38 (339.7)	2.88 (73.2)



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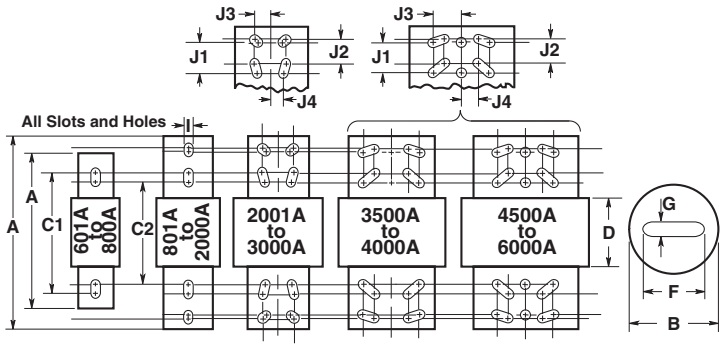
Branch Circuit Rated Fuse Dimensions

Class L Dimensions - in (mm)

Low-Peak and Limitron Fuses

Amp Range	A	B	C1	C2	D	F	G	I	J1	J2	J3	J4
601-800	8.63 (219.1)	2.40 (61.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.00 (50.8)	0.38 (9.5)	0.63 (15.9)	—	—	—	—
801-1200	10.75 (273.1)	2.40 (61.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.00 (50.8)	0.38 (9.5)	0.63 (15.9)	—	—	—	—
1350-1600	10.75 (273.1)	3.00 (76.2)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.38 (60.3)	0.44 (11.1)	0.63 (15.9)	—	—	—	—
1800-2000	10.75 (273.1)	3.50 (88.9)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	2.75 (69.9)	0.50 (12.7)	0.63 (15.9)	—	—	—	—
2001-2500	10.75 (273.1)	4.80 (122.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	3.50 (88.9)	0.75 (19.1)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	0.88 (22.2)	0.81 (20.6)
3000	10.75 (273.1)	5.00 (127.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	4.00 (101.6)	0.75 (19.1)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	0.88 (22.2)	0.81 (20.6)
3500-4000	10.75 (273.1)	5.75 (146.1)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	4.75 (120.7)	0.75 (19.1)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	1.63 (41.3)	0.88 (22.2)
4500-5000	10.75 (273.1)	6.25 (158.8)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	5.25 (133.4)	1.00 (25.4)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	1.63 (41.3)	0.88 (22.2)
6000	10.75 (273.1)	7.13 (181.0)	6.75 (171.5)	5.75 (146.1)	3.75 (95.3)	5.75 (146.1)	1.00 (25.4)	0.63 (15.9)	1.75 (44.5)	1.38 (34.9)	1.63 (41.3)	0.88 (22.2)

NOTE: KRP-CL (150A to 600A) fuses have same dimensions as 601-800A case size. KTU (200-600A) have same dimensions, except tube 3" length x 2" diameter (76.2 x 50.8mm); terminal 1⅛" width x 1¼" thick (41.3 x 31.8mm).



Class T Dimensions - in (mm)

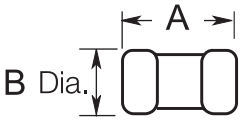
T-Tron Fuses

JJN — 300V

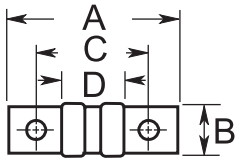
Amp Range	A	B	C	D
1-30	0.88 (22.2)	0.41 (10.3)	—	—
35-60	0.88 (22.2)	0.56 (14.3)	—	—
70-100	2.16 (54.8)	0.75 (19.1)	1.56 (39.7)	0.84 (21.4)
110-200	2.44 (61.9)	0.88 (22.2)	1.69 (42.9)	0.84(21.4)
225-400	2.75 (69.9)	1.00 (25.4)	1.84 (46.8)	0.86 (21.8)
450-600	3.06 (77.8)	1.25 (31.8)	2.03 (51.6)	0.88 (22.2)
601-800	3.38 (85.7)	1.75 (44.5)	2.22 (56.4)	0.89 (22.6)
801-1200	4.00 (101.6)	2.00 (50.8)	2.53 (64.3)	1.08 (27.4)

JJS — 600V

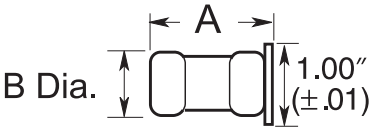
Amp Range	A	B	C	D
1-30	1.50 (14.3)	0.56 (38.1)	—	—
35-60	1.56 (20.6)	0.81 (39.7)	—	—
70-100	2.95 (19.1)	0.75 (75.0)	2..36 (59.9)	1.64 (41.7)
110-200	3.25 (22.2)	0.88 (82.6)	2.50 (63.5)	1.66 (42.1)
225-400	3.63 (25.4)	1.00 (92.1)	2.72 (69.1)	1.73 (44.1)
450-600	3.98 (31.8)	1.25 (101.2)	2.96 (75.0)	1.78 (45.2)
601-800	4.33 (44.5)	1.75 (109.9)	3.17 (80.6)	1.88 (47.6)



JJN 1A to 60A
JJS 1A to 30A



JJN 70A to 1200A
JJS 70A to 800A



JJS 35A to 60A

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle
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Low-Peak™ Time-delay, Rejection-Type Fuses

LP-CC Class CC

Specifications
Description: Time-delay, current-limiting, rejection-type fuse – 12 seconds (minimum) at 200% rated amps.
Dimensions: 13/32″ x 1 1/2″ (10.3 x 38.1mm).
Ratings:

Volts — 600Vac (or less)
— 300Vdc (½-2½A & 20-30A)
— 150Vdc (2 9/10-15A)
Amps — ½-30A
IR — 200kA RMS Sym.
— 20kA DC

Agency Information: CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273, CSA Certified; Class 1422-02, File 53787.

Features and Benefits

- Time-delay coupled with Class CC current-limiting response provides close sizing on small motor and relay circuits, and maximum component short-circuit current rating protection.
- 200kA interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.
- Inventory consolidation of 13/32 x 1 1/2 inch supplementary fuses reduces SKU investment and minimizes potential for misapplying fuse.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.

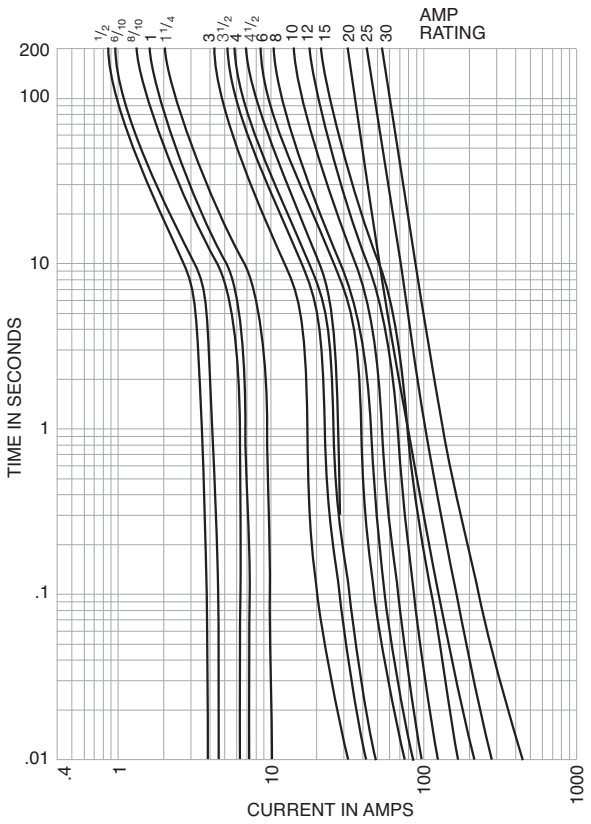
Typical Applications

- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holder

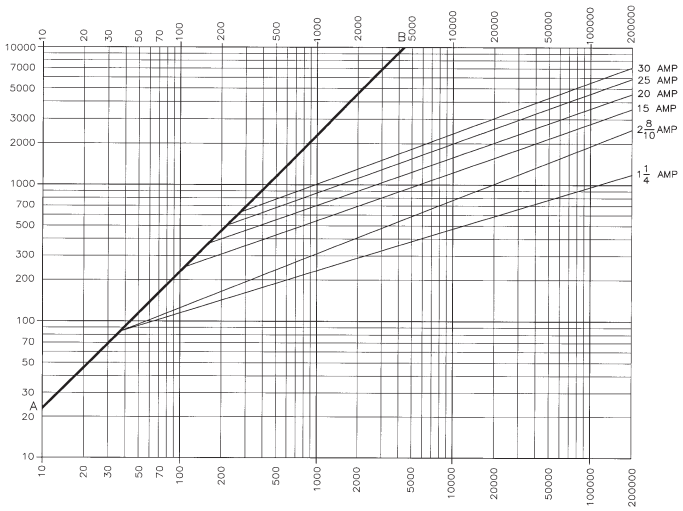
Catalog Numbers (Amps)

LP-CC-½	LP-CC-2-½	LP-CC-7 ½
LP-CC-9/10	LP-CC-2-9/10	LP-CC-8
LP-CC-9/10	LP-CC-3	LP-CC-9
LP-CC-1	LP-CC-3-2/10	LP-CC-10
LP-CC-1-⅛	LP-CC-3-½	LP-CC-12
LP-CC-1-¼	LP-CC-4	LP-CC-15
LP-CC-1-4/10	LP-CC-4-½	LP-CC-20
LP-CC-1-½	LP-CC-5	LP-CC-25
LP-CC-1-6/10	LP-CC-5-6/10	LP-CC-30
LP-CC-1-8/10	LP-CC-6	
LP-CC-2	LP-CC-6-¼	
LP-CC-2-¼	LP-CC-7	

Time Current Characteristics—Average Melt



Current Limitation Curves



Recommended Fuse Holders & Blocks For Class CC Fuses
• See page 18

Data Sheet: 1023

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CC-Tron Rejection-type Fuses

FNQ-R Class CC

Specifications

Description: Time-delay, branch circuit, rejection-type fuse.

Dimensions: 13/32″ x 1 ½″ (10.3 x 38.1mm).

Ratings:

Volts — 600Vac (or less)
— 300Vdc (15-20A)
— 32Vdc (Self Certified)

Amps — ¼-30A

IR — 200kA RMS Sym.
— 20kA DC (15 & 20A only)

Agency Information: CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273 CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Time-delay compatible with inrush characteristic of small control transformers.
- Current limitation at Class CC levels provides maximum component short-circuit current rating protection.
- 200kA interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.

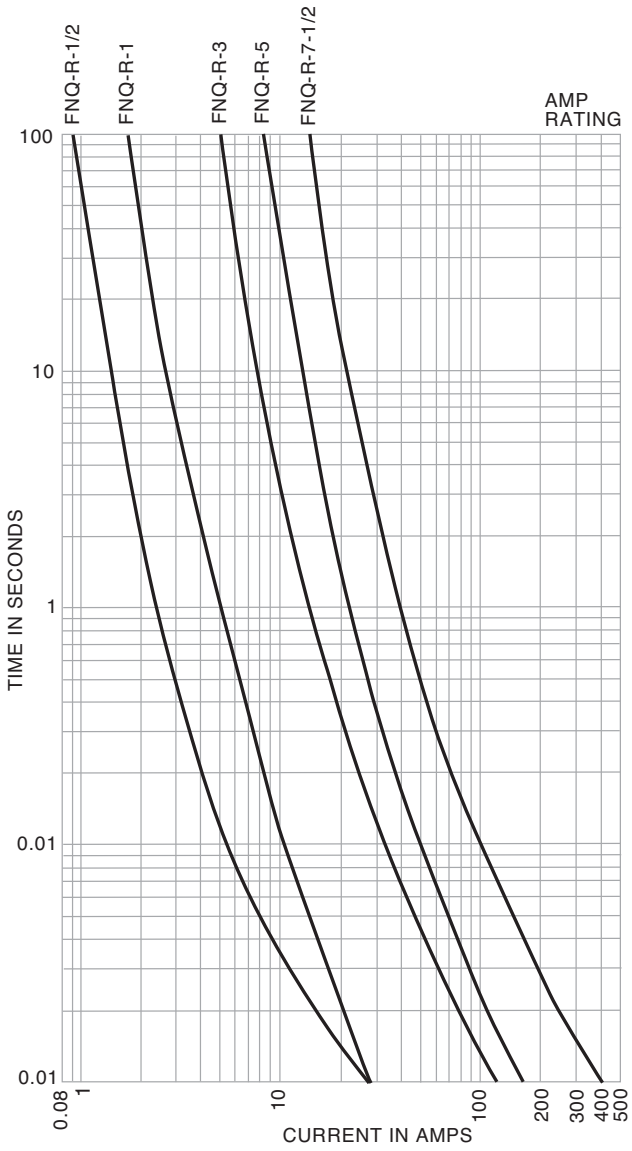
Typical Applications

- Line Protection, Small Control Transformers
- Industrial Control
- Isolated, In-Line Fuse Holders

Catalog Numbers (Amps)

FNQ-R-¼	FNQ-R-1-⅝	FNQ-R-6
FNQ-R-⅜	FNQ-R-1-⅞	FNQ-R-6-¼
FNQ-R-½	FNQ-R-2	FNQ-R-7
FNQ-R-½	FNQ-R-2-¼	FNQ-R-7-½
FNQ-R-⅝	FNQ-R-2-½	FNQ-R-8
FNQ-R-¾	FNQ-R-2-⅝	FNQ-R-9
FNQ-R-⅞	FQN-R-3	FNQ-R-10
FNQ-R-1	FNQ-R-3-⅜	FNQ-R-12
FNQ-R-1-⅛	FNQ-R-3-½	FNQ-R-15
FNQ-R-1-¼	FNQ-R-4	FNQ-R-17-½
FNQ-R-1-⅜	FNQ-R-4-½	FNQ-R-20
FNQ-R-1-⅝	FNQ-R-5	FNQ-R-25
FNQ-R-1-½	FNQ-R-5-⅝	FNQ-R-30

Time-Current Characteristic Curves—Average Melt



For superior electrical protection, Bussmann recommends upgrading FNQ-R fuse applications to Low-Peak LP-CC fuses See page 17.

Recommended Fuse Holders & Blocks For Class CC 600V Fuses

• See page 18

Data Sheet: 1014

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Limitron™ Rejection-type Fuses

KTK-R Class CC

Specifications

Description: Fast-acting, branch circuit, rejection-type fuse.

Dimensions: 13/32″ x 1 1/2″ (10.3 x 38.1mm).

Ratings:

Volts — 600Vac (or less)

Amps — 1/10-30A

IR — 200kA RMS Sym.

Agency Information: CE, Std. 248-4, Class CC, UL Listed, Guide JDDZ, File E4273 CSA Certified, File 53787, Class 1422-02.

Features and Benefits

- Current limitation at Class CC levels provides maximum component short-circuit current protection.
- 200kA interrupting rating provides high ratings for control circuit locations.
- Class CC rejection feature, with appropriate fuse block, prevents inserting lesser-rated supplementary fuses.

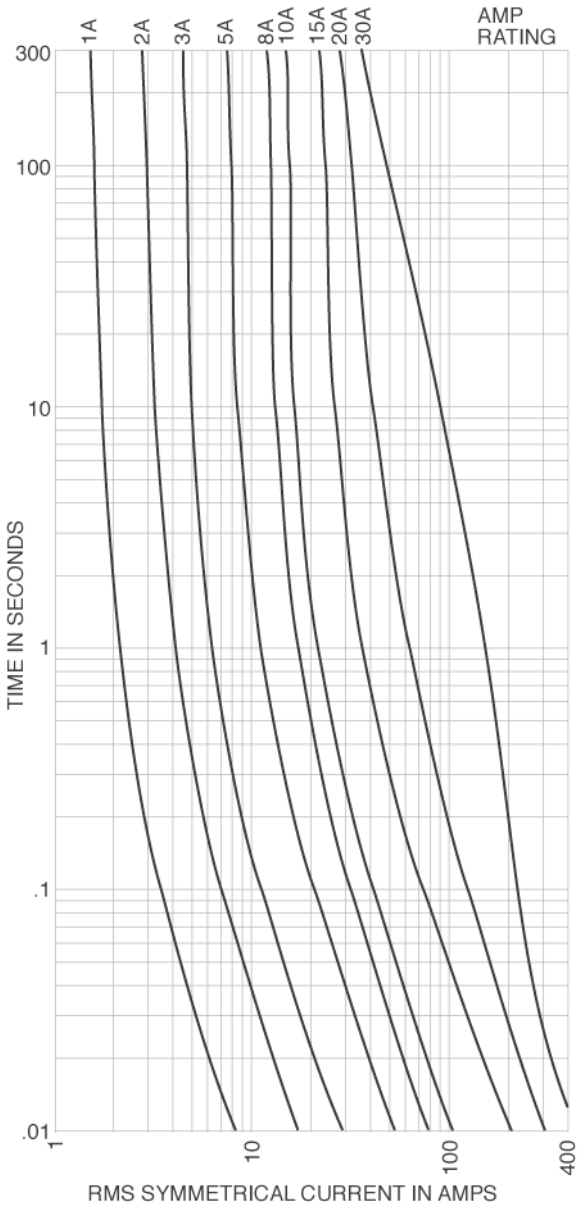
Typical Applications

- Specialized Circuits
- Industrial Control
- Isolated, In-Line Fuse Holders (street lighting)

Catalog Numbers (Amps)

KTK-R-1/10	KTK-R-1	KTK-R-7
KTK-R-1/8	KTK-R-1-1/2	KTK-R-8
KTK-R-2/10	KTK-R-2	KTK-R-9
KTK-R-1/4	KTK-R-2-1/2	KTK-R-10
KTK-R-3/10	KTK-R-3	KTK-R-12
KTK-R-4/10	KTK-R-3-1/2	KTK-R-15
KTK-R-1/2	KTK-R-4	KTK-R-20
KTK-R-6/10	KTK-R-5	KTK-R-25
KTK-R-3/4	KTK-R-6	KTK-R-30

Time-Current Characteristic Curves—Average Melt



For superior electrical protection, Bussmann recommends upgrading KTK-R fuse applications to Low-Peak LP-CC fuses See page 23.

Recommended Fuse Holders & Blocks For Class CC Fuses

• See page 18

Data Sheet: 1015

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Time-Delay Low-Peak CUBEFuse™ Finger-safe Fuse and Fuse Holder System

TCF Class CF

Available With Indication

Specifications

Description: Finger-safe fuse and fuse holder system; dual-element, time-delay fuse; 10 seconds minimum operating time at 500% rated amps.

Dimensions: See Dimensions illustration.

Poles: 1-pole (gangable)

Ratings:

Volts — 600Vac (or less)
— 300Vdc (or less)
Amps — 1-100A
IR — 300kA RMS Sym. (UL)
— 200kA RMS Sym. (CSA)
— 100kA DC (UL & CSA)

Agency Information: CE, UL Listed Guide JFHR, File E4273, CSA Certified Fuse: Class 1422- 02, File 53787, UL Listed Fuse holder: Guide IZND, File E214079, CSA Certified Fuse holder: Class 6225-01, File 47235.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing of high inrush loads linked with Class J current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Smallest footprint of any Class CC, J, T or RK fuse provides substantial space savings and installation flexibility.
- IEC 60529 and finger-safe rating provides enhanced workplace safety.

Typical Applications

- Electrical Panelboards
- Machinery Disconnects
- Industrial Control
- Required Finger-Safe Systems

Fuse Catalog Numbers Indicating (Amps)

TCF6	TCF25	TCF50	TCF100
TCF10	TCF30	TCF60	
TCF15	TCF35	TCF70	
TCF17-½	TCF40	TCF80	
TCF20	TCF45	TCF90	

Fuse Catalog Numbers Non-Indicating (Amps)

TCF1RN	TCF17-½RN	TCF40RN	TCF80RN
TCF3RN	TCF20RN	TCF45RN	TCF90RN
TCF6RN	TCF25RN	TCF50RN	TCF100RN
TCF10RN	TCF30RN	TCF60RN	
TCF15RN	TCF35RN	TCF70RN	

Carton Quantity and Weight

Amp Rating	Carton Qty.	Weight Per Carton lbs	Weight Per Carton kg
TCF1-30A	12	1.39	0.63
TCF35-60A	12	1.42	0.65
TCF70-100A	6	1.74	0.79

Scan this tag to get the latest product information for the TCF CUBEFuse.

Recommended Fuse Holders For Class CF Fuses

• See pages 32 and 33

Data Sheet: 9000 (fuses) and 9007 (holders)

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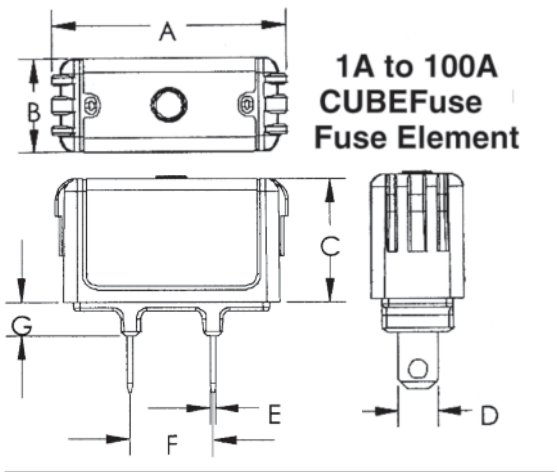
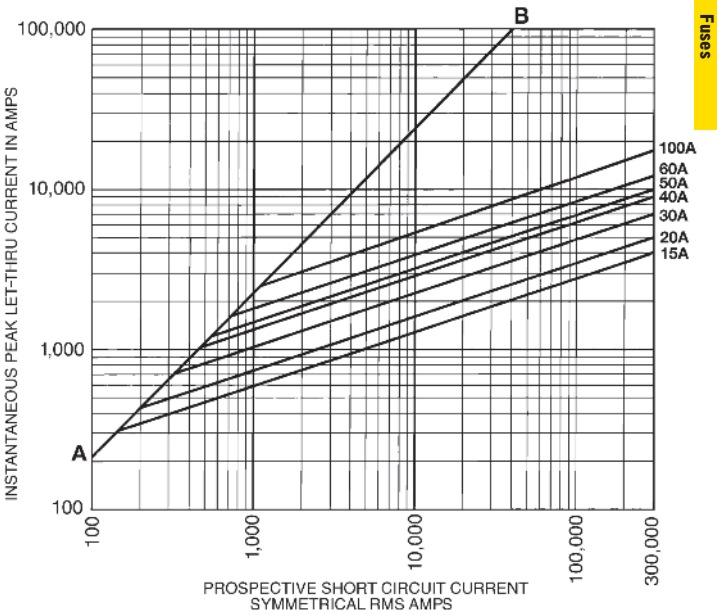
Time-Delay Low-Peak CUBEFuse™ Finger-safe Fuse and Fuse Holder System

Dimensions for CUBEFuse Fuse and Fuse Holder

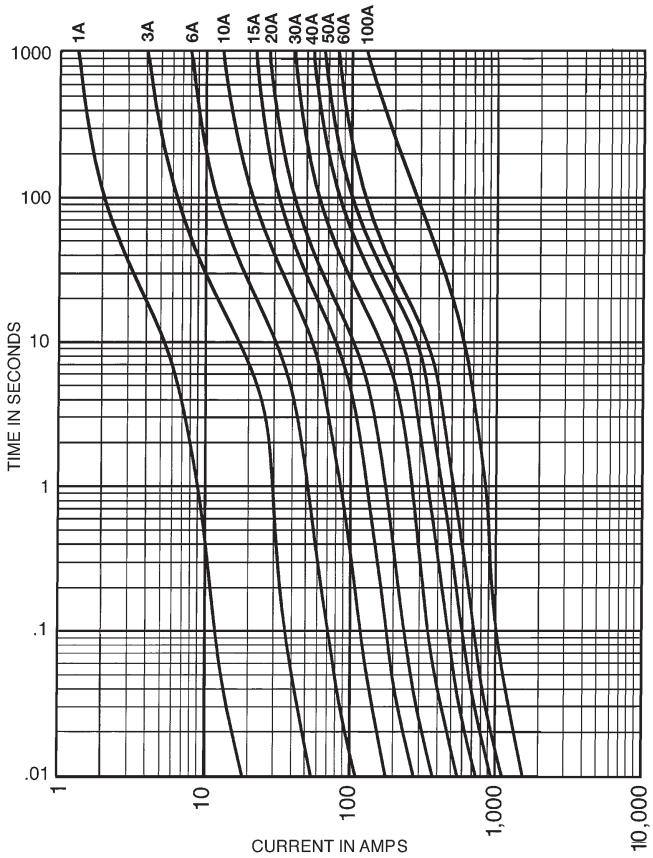


Fuse Amps	Dimensions - in (mm)						
	A	B	C	D	E	F	G
1-15	1.88 (47.75)	0.75 (19.05)	1.00 (25.40)	0.23 (5.84)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
17 ½	1.88 (47.75)	0.75) (19.05)	1.00 (25.40)	0.31 (7.87)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
20	1.88 (47.75)	0.75) (19.05)	1.00 (25.40)	0.31 (7.87)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
25-30	1.88 (47.75)	0.75 (19.05)	1.00 (25.40)	0.31 (7.87)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
35-40	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.36 (9.10)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
45-50	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
60	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
70	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
80-90	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
100	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.57 (14.48)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)

Current Limitation Curves



Time-Current Characteristic Curves–Average Melt



Data Sheet: 9000 (fuses) and 9007 (holders)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

UPS & Critical Application Fast-Acting CUBEFuse™ Finger-safe Fuse

FCF Class CF Fuse

Catalog Symbol: FCF_RN
Fast-Acting Fuse: 4 minutes maximum clearing time at 200% rated current for 1 to 30A fuse
6 minutes maximum clearing time at 200% rated current for 35 to 60A fuse

Dimensions: See Dimensions illustration.

Poles: 1-pole (gangable)

Ratings:

Volts — 600Vac (or less)
— 300Vdc (or less)
Amps — 1-100A
IR — 300kA RMS Sym. (UL)
— 200kA RMS Sym. (CSA)
— 50kA DC (UL & CSA)

Agency Information:

- UL Listed Fuse: Guide JFHR, File E4273
- CSA Certified Fuse: Class 1422- 02, File 53787
- CE compliance for the European Union low voltage directive

Other Ratings/Specifications:

Watts Loss at rated current: FCF15RN: 3.48W
FCF30RN: 5.45W
FCF60RN: 7.27W

Operating and Storage Temperature Range:
-40 to 80°C

Material Specifications:

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

Carton Quantity and Weight

Amp Rating	Carton Qty.	Weight Per Carton	
		lbs	kg
FCF-1-30A	12	1.39	0.63
FCF-35-60A	12	1.42	0.65
FCF-70-100A	6	1.74	0.79

Data Sheet: 2147

Features and Product Benefits

- The world's first finger-safe power fuse system.
- Smallest footprint of any class fuse including Class J, CC, T and RK.
- Class CF meets Class J fast-acting electrical performance requirements.
- Faster response to damaging faults to help reduce destructive thermal and magnetic forces.
- True fast-acting fuse construction.
- High interrupting rating to safely interrupt faults up to 300kA.
- No venting of arc or molten metal and gases during opening.
- Low let-through currents under fault conditions.

Fuse Catalog Numbers Non-Indicating (Amps)

FCF1RN	FCF20RN	FCF45RN	FCF90RN
FCF3RN	FCF25RN	FCF50RN	FCF100RN
FCF6RN	FCF30RN	FCF60RN	–
FCF10RN	FCF35RN	FCF70RN	–
FCF15RN	FCF40RN	FCF80RN	–

Scan this tag to get the latest product information for the New FCF CUBEFuse.

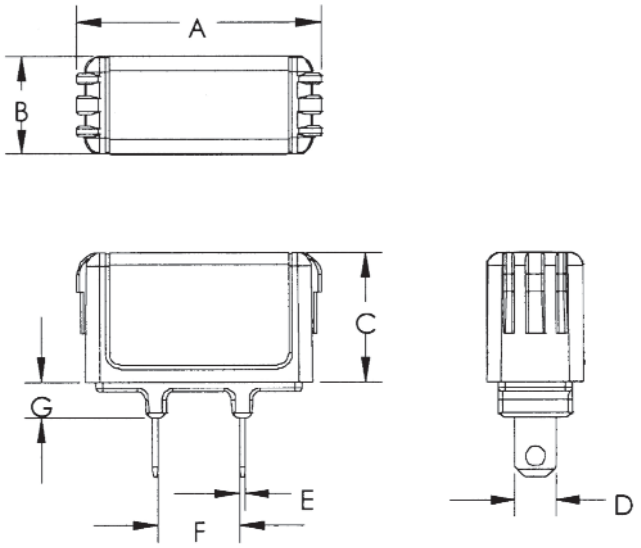
Recommended Fuse Holders For Class CF Fuses

• See pages 32 and 33

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

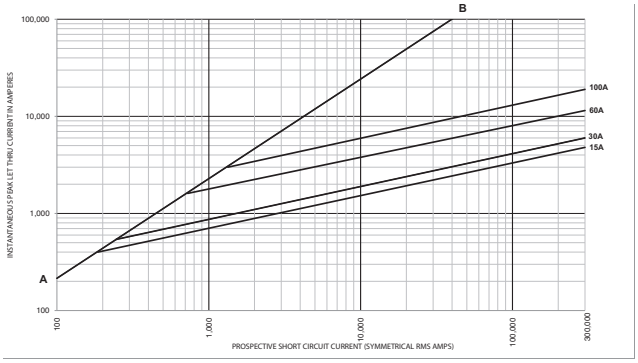
UPS & Critical Application Fast-Acting CUBEFuse™ Finger-safe Fuse

FCF_RN Dimensions – in (mm)

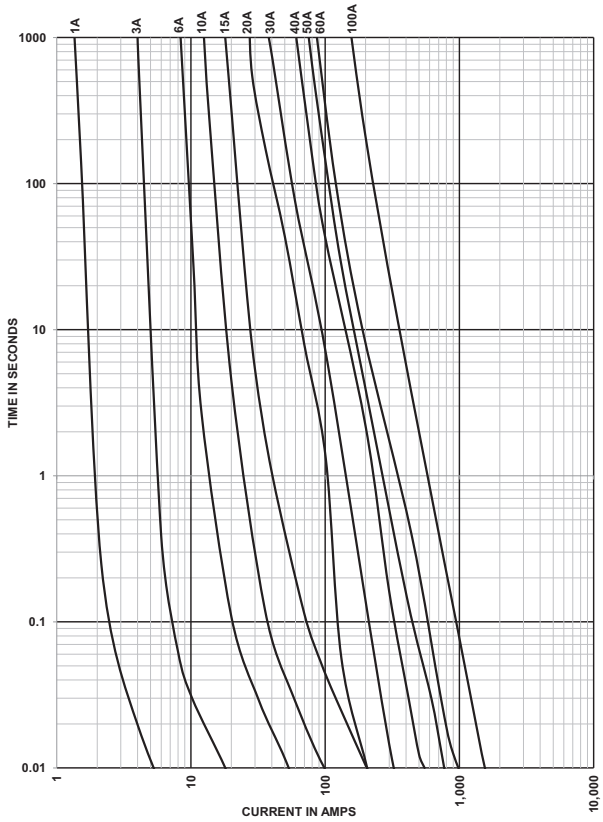


Fuse Amps	Dimensions - in (mm)						
	A	B	C	D	E	F	G
1-15	1.88 (47.75)	0.75 (19.05)	1.00 (25.40)	0.23 (5.84)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
20	1.88 (47.75)	0.75 (19.05)	1.00 (25.40)	0.31 (7.87)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
25-30	1.88 (47.75)	0.75 (19.05)	1.00 (25.40)	0.31 (7.87)	0.04 (1.02)	0.63 (15.93)	0.28 (7.11)
35-40	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.36 (9.10)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
45-50	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
60	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
70	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
80-90	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
100	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.57 (14.48)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)

Current Limitation Curves



Time-Current Characteristic Curves–Average Melt



Data Sheet: 2147

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Wind Fast-Acting CUBEFuse™ – Finger-safe Fuse

WCF Class CF Fuse

Catalog Symbol: WCF_RN
Description: Finger-safe, fast-acting CUBEFuse for wind power generation.
Electrical Characteristics: Maximum clearing time at 200% rated current:

- 4 Minutes for 1 to 30A fuses
- 6 Minutes for 35 to 60A fuses
- 8 Minutes for 70 to 100A fuses

Ratings:
Volts — 690Vac
Amps — 1-100A
IR — 50kA AC (1-60A)
IR — 30kA AC (70-100A)

Agency Information:

- UL Recognized Fuse: Guide JFHR, File E56412
- cURus component certified C22.2
- CE compliance for the European Union low voltage directive

Other Ratings/Specifications:

Watts Loss at Rated Current: WCF15RN: 3.48W
WCF30RN: 5.45W
WCF60RN: 7.27W
WCF100RN: 11.50W

Operating and Storage Temperature Range: -40 to 90°C

Material Specifications:

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

Installation:
Fits 690V WCF holders as listed in the table

Application:

- Wind Systems:
  - Transformer protection
  - Pitch and speed control
  - Turbine HVAC and lighting

Features and Product Benefits

- Maximize uptime and reliability using fuses designed and listed to UL 248-1.
- Minimize chances of equipment failure and personnel injury when using full range fuses having the industry's fastest response time to low-magnitude faults.
- Maximize return on investment with fuses proven to withstand harsh temperatures.
- Minimize design time, operating outage time and replacement cost with fuses qualified in excessively changing enviromental conditions.
- Simplify compatibility with readily available industry standard Class CF holders.
- Temperature Derating: Designed to maximize rated capacity in elevated environmental temperatures.
- Overload Protection: Proven to clear faults faster than the UL requirement.
- Power Loss: Minimal energy consumption leading to increased efficiency.

Catalog Numbers (amp rating)

Non-Indicating Wind CUBEFuse				
WCF1RN	WCF15RN	WCF35RN	WCF60RN	WCF100RN
WCF3RN	WCF20RN	WCF40RN	WCF70RN	—
WCF6RN	WCF25RN	WCF45RN	WCF80RN	—
WCF10RN	WCF30RN	WCF50RN	WCF90RN	—

Carton Quantity and Weight

Amp Rating	Carton Qty.	Weight Per Carton lbs	Weight Per Carton kg
WCF1-30A	12	1.39	0.63
WCF35-60A	12	1.42	0.65
WCF70-100A	6	1.74	0.79

Scan this tag to get the latest product information for the New WCF CUBEFuse.

Recommended Fuse Holders For Class CF Fuses

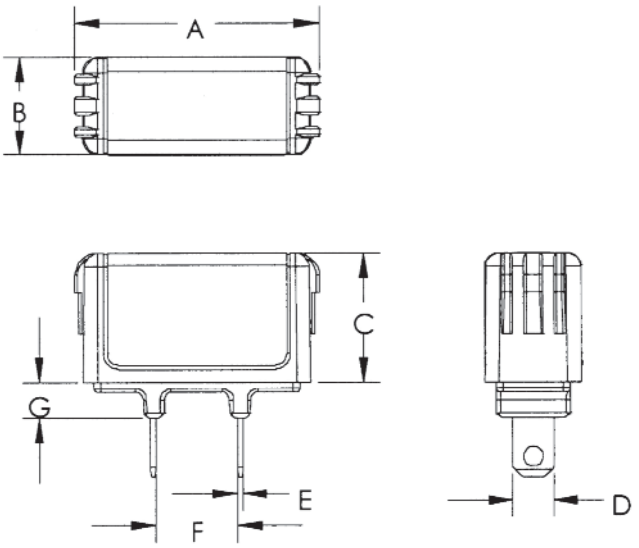
• See pages 32 and 33

Data Sheet: 9009

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

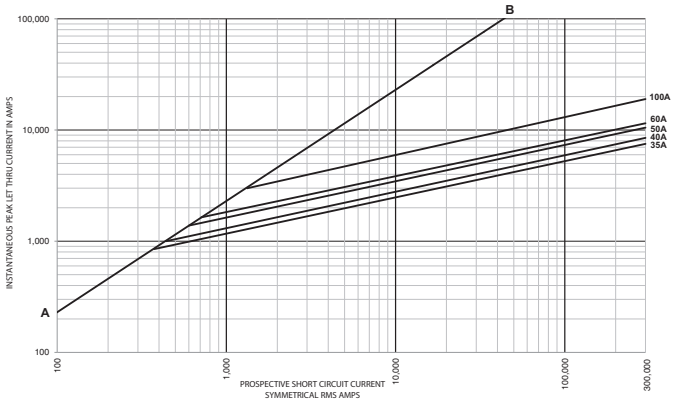
Wind Fast-Acting CUBEFuse™ – Finger-safe Fuse

WCF_RN Dimensions – in (mm)

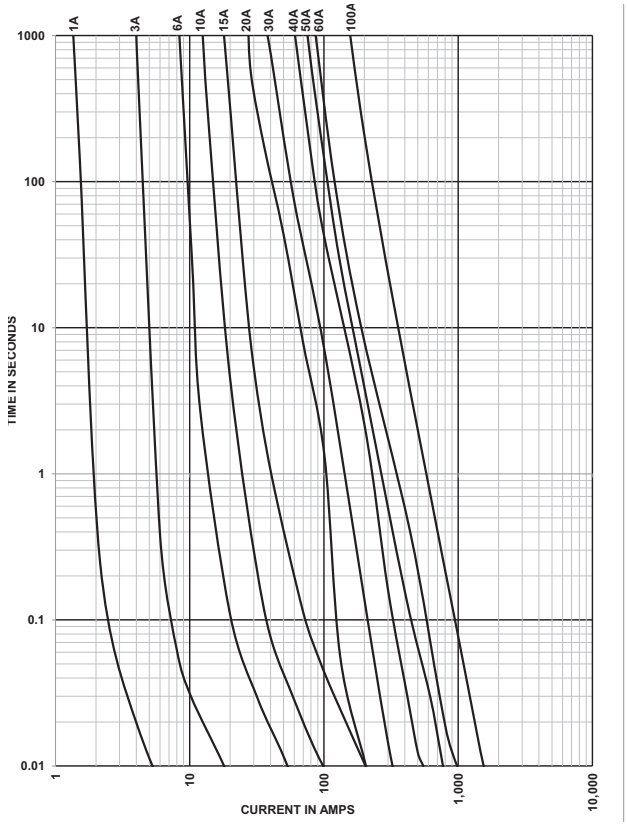


Fuse Amps	Dimensions - in (mm)						
	A	B	C	D	E	F	G
35-40	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.36 (9.10)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
45-50	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
60	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
70	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
80-90	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
100	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.57 (14.48)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)

Current Limitation Curves



Time-Current Characteristic Curves–Average Melt



Data Sheet: 2155

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CUBEFuse™ Finger-safe Fuse Holder System

CUBEFuse Fuse Holder

Catalog Symbols:

600V	690V (Wind)	Ampacity (holds any CUBEFuse)
TCFH30N	TCFH30NW	(1-30A)
TCFH60N	TCFH60NW	(1-60A)
TCFH100N	TCFH100NW	(1-100A)

Construction: Finger-safe

Mounting: 35mm DIN-Rail or panel mount

Ratings:

Volts: 600V (UL, CSA)
690V (cURus - Wind version)
Withstand Rating: 300kA RMS Sym. (UL)
200kA RMS Sym. (CSA)
100kA DC (UL & CSA)
50kA AC (cURus, 1-60A Wind version)

Agency Information:
- UL Listed Fuse Holder: Guide IZLT, File E14853
- CSA Certified Fuse Holder: Class 6225-01, File 47235
- cURus component Certified
- CE compliance for the European Union low voltage directive

Operating and Storage Temperature Range:
-40 to 80°C

Material Specifications:
- Holder case: Glass filled PBT
- Interface clips: Copper alloy
- Interface clip plating: Tin
- Terminals: Steel
- DIN Rail spring: Stainless steel

CUBEFuse™ Holder Applications

CUBEFuse Holder Catalog Number	Volts	CUBEFuse Type and Ampacity Range Per CUBEFuse Holder				
		Non-Indicating Time-Delay TCF_RN	Indicating Time-Delay TCF_	Fast-Acting FCF_RN	Photovoltaic PVCF_RN	Wind WCF_RN
TCFH30N	600	1-30	6-30	1-30	—	—
TCFH60N	600	1-60	6-60	1-60	35-60	—
TCFH100N	600	1-100	6-100	1-100	35-100	—
TCFH30NW	690	—	—	—	—	1-30
TCFH60NW	690	—	—	—	—	1-60
TCFH100NW	690	—	—	—	—	1-100

Terminal Torque Ratings by Conductor and Holder Size (75°C Cu only)

TCFH30N / TCFH30NW		TCFH60N / TCFH60NW		TCFH100N / TCFH100NW	
Single	Dual	Single	Dual	Single	Dual
10-8AWG 25Lb-In	18-10AWG 25Lb-In*	14-10AWG 20Lb-In	18-10AWG 20Lb-In	18-10AWG 25Lb-In**	6AWG 45Lb-In†
18-12AWG 20Lb-In		8-4AWG 35Lb-In	8-6AWG 35Lb-In	8-1AWG 40Lb-In†	

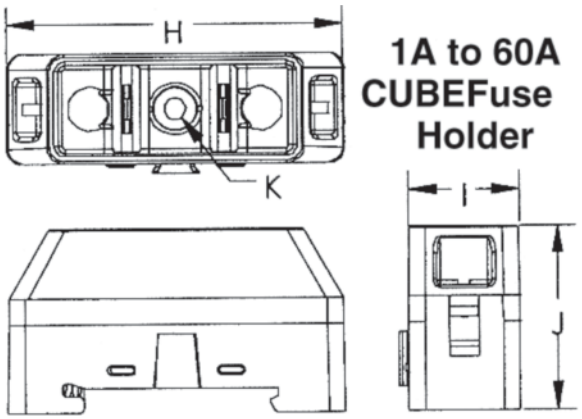
* 18-10AWG Stranded, 14-18AWG solid
** Solid and stranded
† Stranded

Data Sheet: 9007

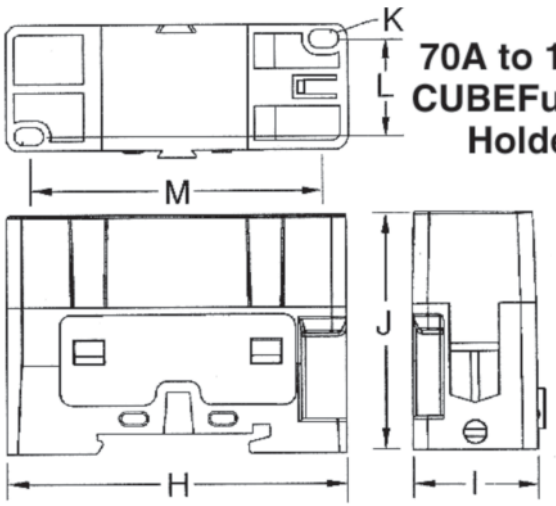
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CUBEFuse™ Finger-safe Fuse Holder System

Diamensions for CUBEFuse Fuse Holder



1A to 60A CUBEFuse Holder



70A to 100A CUBEFuse Holder

CUBEFuse™ Holder Catalog Numbers

Catalog Number	CUBEFuse Amp Range	Wire Range (Cu/AWG)		Dimensions - in (mm)					
		Single	Dual	H	I	J	K	L	M
TCFH30N TCFH30NW	1-30	14-8	14-10	2.30 (58.5)	0.76 (19.37)	1.36 (34.24)	0.15 (3.76)	— —	— —
TCFH60N TCFH60NW	1-60	14-4	10-6	2.60 (66.12)	1.03 (26.23)	1.60 (40.64)	0.17 (4.34)	— —	— —
TCFH100N TCFH100NW	1-100	10-1	6	2.91 (73.81)	1.05 (26.74)	2.01 (50.93)	0.15 (3.81)	0.80 (20.39)	2.51 (63.65)

Data Sheet: 9007

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Time-delay Fuses

SC Class G

Specifications
Description: Fast-acting (½-6A), time-delay (7-60A)fuse.

Dimensions: See dimensions illustration.

Ratings:
Volts — 600Vac (½-20A)
— 480Vac (25-60A)
— 170Vdc (½-20A)
— 300Vdc (30 & 60A only)
Amps — ½-60A
IR — 100kA RMS Sym.
— 10kA DC

Agency Information: CE, Std. 248-5, Class G, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Current limiting for component protection, providing Class G energy-limitation for branch circuit protection.
- 100kA interrupting rating provides cost-effective branch circuit fusing.
- Variations in length help prevent overfusing.

Typical Applications

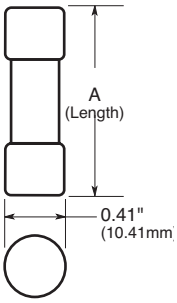
- Fusible Branch Panelboards
- HVAC Branch Circuit Protection

Catalog Numbers (Amps)

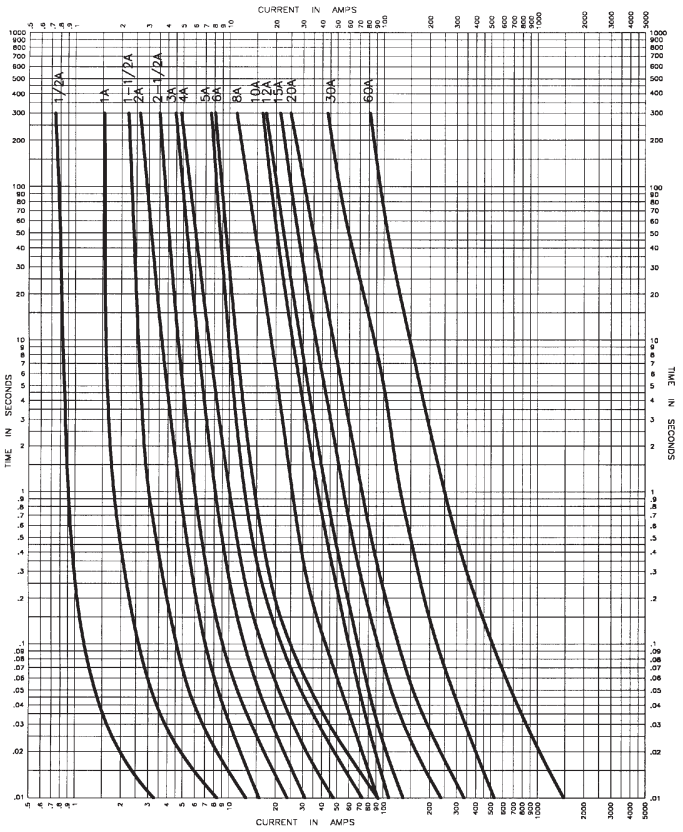
SC-½	SC-2-½	SC-6	SC-12	SC-30	SC-50
SC-1	SC-3	SC-7	SC-15	SC-35	SC-60
SC-1-½	SC-4	SC-8	SC-20	SC-40	
SC-2	SC-5	SC-10	SC-25	SC-45	

Dimensions -in (mm)

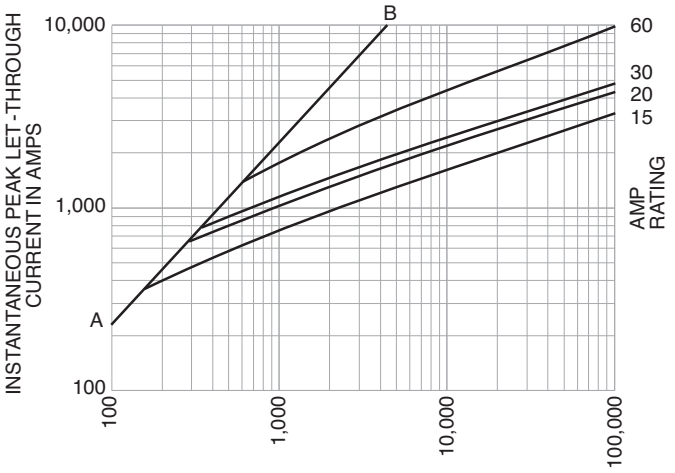
Fuse Amps	Length	Diameter
SC-½ to -15	1.31 (33.3)	0.41" (10.4)
SC-20	1.41 (35.8)	0.41" (10.4)
SC-25 to -30	1.62 (41.2)	0.41" (10.4)
SC-35 to -60	2.25 (57.1)	0.41" (10.4)



Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Recommended Fuse Holders & Blocks For Class G Fuses
• See page 18

Data Sheet: 1024

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Low-Peak™ Dual-element, Time-delay Fuses

LPJ_SP Class J

Available With Indication

Specifications
Description:
Dual-element, time-delay fuse;
10 seconds (minimum) at 500% rated amps. Now available with optional indication on select ratings (see Catalog Numbers table).

Dimensions: See page 11 for Class J dimensions.

Ratings:

Volts — 600Vac (or less)
— 300Vdc (or less)
Amps — 1-600A
IR — 300kA RMS Sym.
— 100kA DC

Agency Information: CE, UL Listed - Special Purpose*, Guide JFHR, File E56412, CSA Certified (200k AIR) Class J per CSA-22.2 No. 248.8, Class 1422-02, File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing of high inrush loads linked with Class J current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.

Typical Applications

- Power Panelboards
- Branch Circuit Breaker Panelboard Mains
- Machinery Disconnects
- Industrial Control

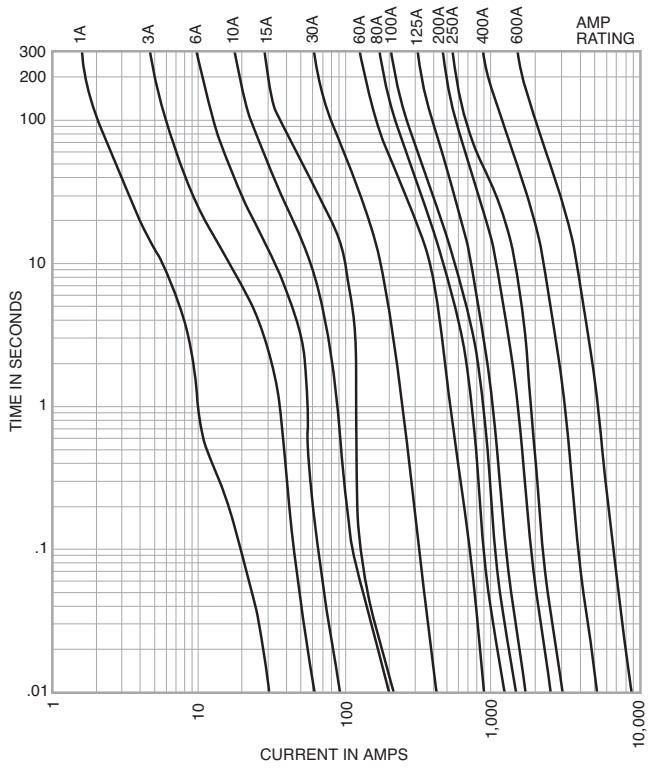
Catalog Numbers (Amps)

LPJ-1SP	LPJ-4-½SP	LPJ-25SP**	LPJ-125SP**
LPJ-1-½SP	LPJ-5SP	LPJ-30SP**	LPJ-150SP**
LPJ-1-6/10SP	LPJ-5-6/10SP	LPJ-35SP**	LPJ-175SP**
LPJ-1-8/10SP	LPJ-6SP**	LPJ-40SP**	LPJ-200SP**
LPJ-2SP	LPJ-7SP**	LPJ-45SP**	LPJ-225SP**
LPJ-2-¼SP	LPJ-8SP**	LPJ-50SP**	LPJ-250SP**
LPJ-2-½SP	LPJ-9SP**	LPJ-60SP**	LPJ-300SP**
LPJ-2-8/10SP	LPJ-10SP**	LPJ-70SP**	LPJ-350SP**
LPJ-3SP	LPJ-12SP**	LPJ-80SP**	LPJ-400SP**
LPJ-3-4/10SP	LPJ-15SP**	LPJ-90SP**	LPJ-450SP**
LPJ-3-½SP	LPJ-17-½SP**	LPJ-100SP**	LPJ-500SP**
LPJ-4SP	LPJ-20SP**	LPJ-110SP**	LPJ-600SP**

*Meets all performance requirements of UL Standard 248-8 for Class J fuses.
**Available with optional permanent replace fuse indication. To order, place "I" at end of catalog number. Example: LPJ-6SPI.
Available with silver plated terminals. Add SP/ in front of Catalog Number.

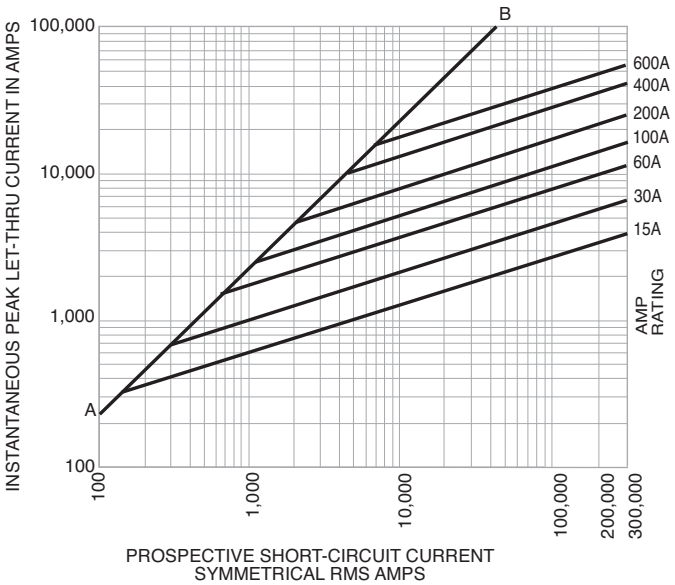
Data Sheets: 1006 (0-60) and 1007 (70-600)
With indication 1062 (6-60) and 1063 (70-600)

Time-Current Characteristic Curves–Average Melt



Current Limitation Curves

LPJ Current Limitation Curves



Recommended Fuse Holders & Blocks For Class J Fuses
• See page 20

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Limitron™ Fast-acting Fuses

JKS Class J

Specifications
Description: Fast-acting, current-limiting fuse.
Dimensions: See page 15 for Class J dimensions.
Ratings:
Volts — 600Vac (or less)
Amps — 1-600A
IR — 200kA RMS Sym.
Agency Information: CE, Std. 248-8, Class J, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits
- Current limitation for non-inductive circuits provides Class J current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

Typical Applications
- Power Panelboards
- Machinery Disconnects

Catalog Numbers (Amps)

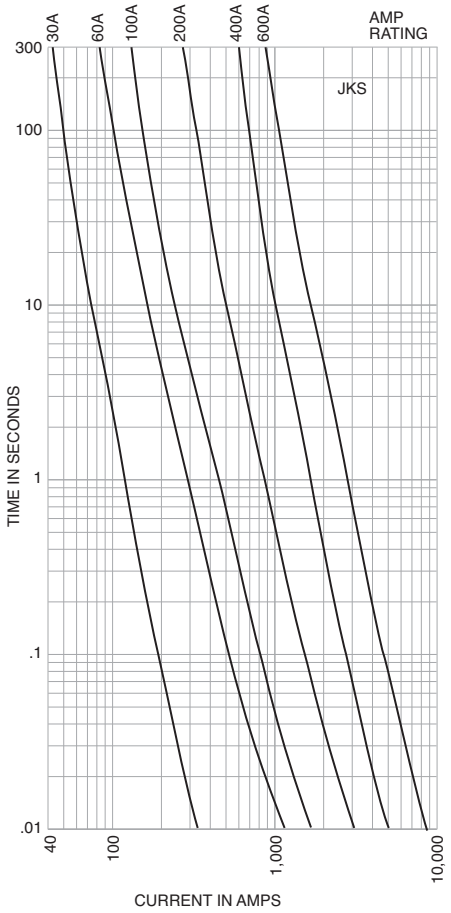
JKS-1	JKS-15	JKS-70	JKS-225
JKS-2	JKS-20	JKS-80	JKS-250
JKS-3	JKS-25	JKS-90	JKS-300
JKS-4	JKS-30	JKS-100	JKS-350
JKS-5	JKS-35	JKS-110	JKS-400
JKS-6	JKS-40	JKS-125	JKS-450
JKS-8	JKS-45	JKS-150	JKS-500
JKS-10	JKS-50	JKS-175	JKS-600
JKS-12	JKS-60	JKS-200	

For superior electrical protection, Bussmann recommends upgrading JKS fuse applications to Low-Peak LPJ fuses See page 35.

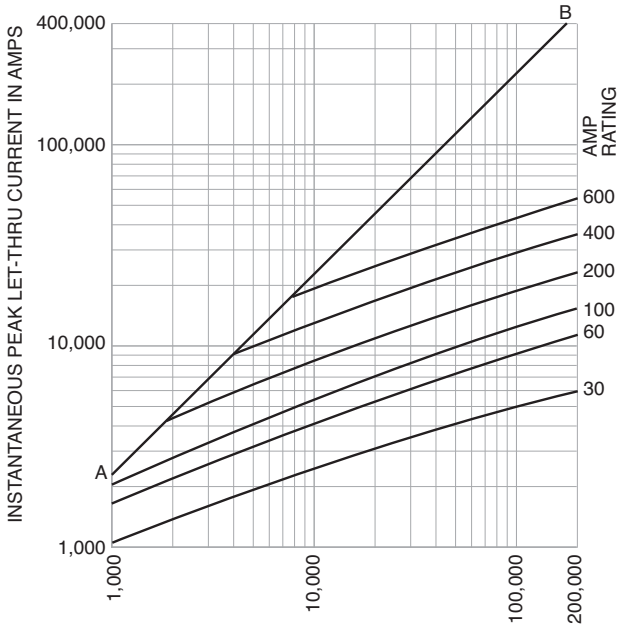
Recommended Fuse Holders & Blocks For Class J Fuses
- See page 20

Data Sheet: 1026 (1-60) and 1027 (70-600)

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

One-time General Purpose Fuses

NON (250Vac/125Vdc) Class K5 & H
NOS (600Vac) Class K5 & H

Specifications
Description: General purpose, non-current-limiting fuses.

Dimensions: See page 15 for dimensions.

Ratings:

Volts — **NON:**
— 250Vac
— 125Vdc (0-100A)
— **NOS:**
— 600Vac

Amps — ⅛-600A

IR — 50kA RMS Sym. (NON & NOS Class K5 0-60A)
— 10kA RMS Sym. (NON & NOS Class H65-600A)
— 50kA @ 125Vdc (NON Class K5 0-60A)
— 10kA @ 125Vdc (NON Class H 65-100A)

Agency Information: CE, UL Listed – 250V: Class K5 (0-60A), Std. 248-9, Class H (65-600A), Std. 248-6, (125Vdc: NON 0-100), 600V: Class K5 (0-60A), Std. 248-9, Class H (70-600A), Std. 248-6, Guide JDDZ, File E4273, CSA Certified – 250V: (0-12, 65-600)†, 600V: (0-600), Class 1421-01, File 53787.

† *For CSA Certified 15-60A Ratings, see PON Data Sheet 4126*

Features and Benefits
- Original fuse providing circuit protection.

Typical Applications
- Light Duty Circuit Locations

NON (250Vac) Catalog Numbers (Amps)

NON-⅛	NON-5	NON-40	NON-175
NON-½	NON-6	NON-45	NON-200
NON-¾	NON-6-¼	NON-50	NON-225
NON-⅘	NON-7	NON-60	NON-250
NON-1	NON-8	NON-65	NON-300
NON-1-¼	NON-9	NON-70	NON-350
NON-1-½	NON-10	NON-75	NON-400
NON-1-⅘	NON-12	NON-80	NON-450
NON-2	NON-15	NON-90	NON-500
NON-2-½	NON-20	NON-100	NON-600
NON-3	NON-25	NON-110	
NON-3-⅘	NON-30	NON-125	
NON-4	NON-35	NON-150	

NOS (600Vac) Catalog Numbers (Amps)

NOS-1	NOS-12	NOS-70	NOS-200
NOS-2	NOS-15	NOS-75	NOS-225
NOS-3	NOS-20	NOS-80	NOS-250
NOS-4	NOS-25	NOS-90	NOS-300
NOS-5	NOS-30	NOS-100	NOS-350
NOS-6	NOS-35	NOS-110	NOS-400
NOS-7	NOS-40	NOS-125	NOS-450
NOS-8	NOS-45	NOS-150	NOS-500
NOS-9	NOS-50	NOS-175	NOS-600
NOS-10	NOS-60		

Recommended Fuse Reducers

250V Fuse Amp Size	Clip Amp Size	Catalog Number (Pair)	600V Fuse Amp Size	Clip Amp Size	Catalog Number (Pair)
30	60	NO.263	30	60	NO.663
30	100	NO.213	30	100	NO.216
60	100	NO.216	60	100	NO.616
60	200	NO.226	60	200	NO.626
100	200	NO.2621	100	200	NO.2621
100	400	NO.2641	100	400	NO.2641
200	400	NO.2642	200	400	NO.2642
100	600	NO.2661	100	600	NO.2661
200	600	NO.2662	200	600	NO.2662
400	600	NO.2664	400	600	NO.2664

For superior electrical protection, Bussmann recommends upgrading NON (250Vac) and NOS (600Vac) fuse applications to Low-Peak LPN-RK (250Vac) and LPS-RK (600Vac) fuses See page 41.

Recommended Fuse Holders & Blocks For Class K5 & H 250V & 600V Fuses
• See page 18

Data Sheet: 1030

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Low-Peak™ Time-delay Fuses

KRP-C_SP Class L

Specifications
Description: Time-delay fuse – 4 seconds (minimum) at 500% rated amps.

Dimensions: See page 16 for Class L dimensions.

Ratings:

Volts — 600Vac (or less)
— 300Vdc (601-2000A)
Amps — 601-6000A
(use KRP-CL for current ratings under 601A)
IR — 300kA RMS Sym.
— 100kA DC

Agency Information: CE, UL Listed-Special Purpose (meets all performance requirements of UL Standard 248-10 for Class L fuses),Guide JFHR, File E56412, CSA Certified (200k AIR), Class 1422-02, File 53787, Class L per CSA C22.2, No. 248.10.

Features and Benefits

- Time-delay of four seconds at five times rating allows closer sizing on large motor loads combined with Class L current limitation.
- Selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Interrupting rating of 300kA RMS symmetrical provides adequate ratings without obsolescence for all electrical systems, big or small.
- Quality construction, using high-grade materials, provides lower watts loss and operating temperatures with superior arc quenching during current-limiting action.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Large Machinery Disconnects

Catalog Numbers (Amps)

KRP-C-601SP	KRP-C-1000SP	KRP-C-1800SP	KRP-C-3500SP
KRP-C-650SP	KRP-C-1100SP	KRP-C-1900SP	KRP-C-4000SP
KRP-C-700SP	KRP-C-1200SP	KRP-C-2000SP	KRP-C-4500SP
KRP-C-750SP	KRP-C-1350SP	KRP-C-2001SP	KRP-C-5000SP
KRP-C-800SP	KRP-C-1400SP	KRP-C-2400SP	KRP-C-6000SP
KRP-C-801SP	KRP-C-1500SP	KRP-C-2500SP	
KRP-C-900SP	KRP-C-1600SP	KRP-C-3000SP	

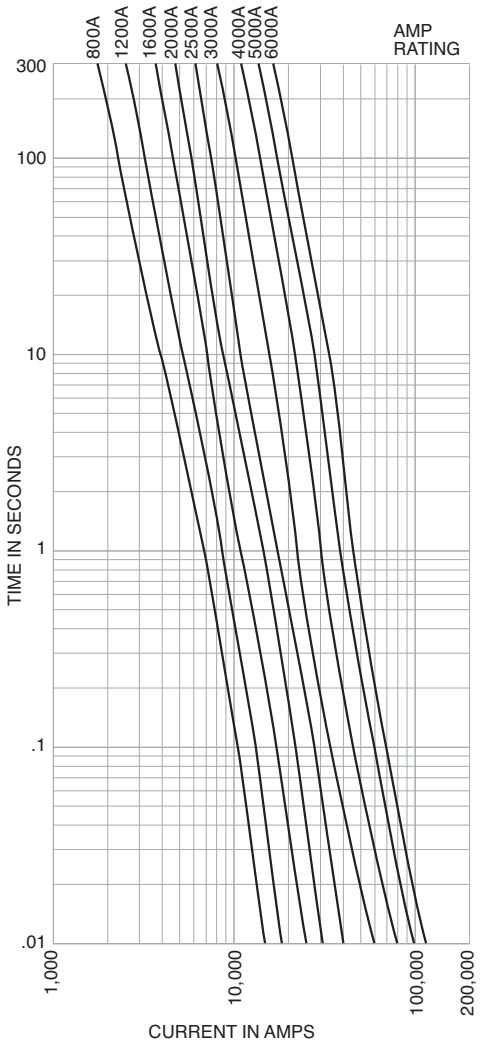
Recommended Fuse Holders & Blocks For Class L Fuses
• See page 19

Data Sheets: 1008 and 1009

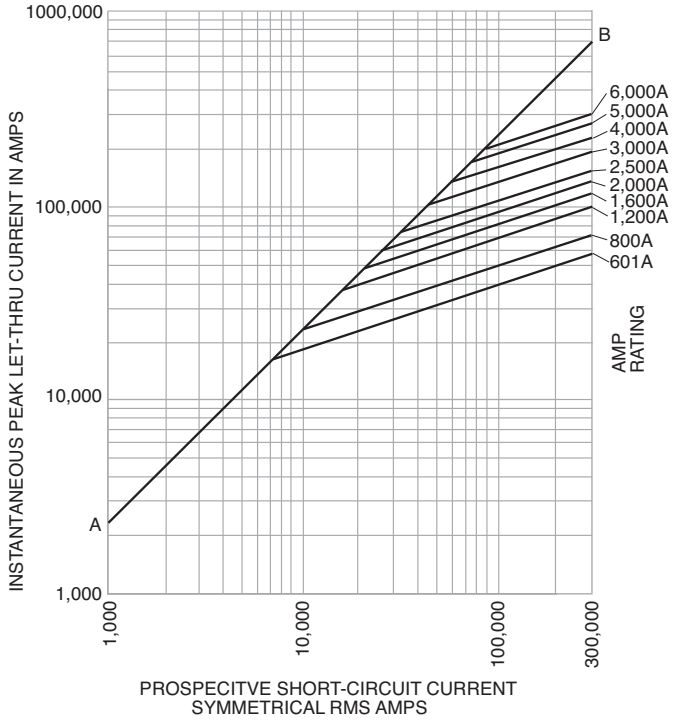
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Low-Peak™ Time-delay Fuses

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Data Sheets: 1008 and 1009

KRP-CL Current-limiting, Time-delay Fuses

Specifications
Description: Current-limiting, time-delay fuse.

Dimensions: See page 16 for Class L dimensions.
Ratings:

Volts — 600Vac (or less)
Amps — 225-600A
IR — 200kA RMS Sym.

Features and Benefits

- Time-delay of four seconds at five times rating allows closer sizing inductive loads coupled with an equivalent Class L current limitation.
- Class L case size for amp ratings from 225 to 600A allows downsize fusing of large Class L fused switches for improved circuit protection.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Machinery Disconnects

Catalog Numbers (Amps)

KRP-CL-225	KRP-CL-350	KRP-CL-500
KRP-CL-250	KRP-CL-400	KRP-CL-600
KRP-CL-300	KRP-CL-450	

Recommended Fuse Holders & Blocks For Class L Fuses

• See page 19

Data Sheet: 1016

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Limitron™ Fuses

KTU Class L

Specifications
Description: Fast-acting, bolt-mount fuse.
Dimensions: See page 22 for Class L dimensions.
Ratings:
Volts — 600Vac (or less)
Amps — 601-6000A
IR — 200kA RMS Sym.
Agency Information: CE, Std. 248-10, Class L, UL Listed, Guide JDDZ, File E4273 CSA Certified, Class 1422-02, File 53787.

Features and Benefits
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.
- Quality construction using high-grade materials provides lower watts loss and operating temperatures with superior arc quenching during current-limiting action.

Typical Applications
- Large Distribution Switchboards
- Power Panelboards

Catalog Number (Amps)

KTU-601	KTU-1000	KTU-2001
KTU-650	KTU-1100	KTU-2400
KTU-700	KTU-1200	KTU-2500
KTU-750	KTU-1400	KTU-3000
KTU-800	KTU-1500	KTU-3500
KTU-801	KTU-1600	KTU-4000
KTU-850	KTU-1800	KTU-5000
KTU-900	KTU-2000	KTU-6000

For superior electrical protection, Cooper Bussmann recommends upgrading KTU fuse applications to Low-Peak KRP-C fuses See page 38.

Recommended Fuse Holders & Blocks For Class L Fuses
• See page 19

Data Sheet: 1010

KLU Class L

Specifications
Description: Time-delay, bolt-mount fuse - 5 seconds (minimum) at 500% rated amps. See KRP-CL for amp ratings below 601A.
Dimensions: See page 22 for Class L dimensions.
Ratings:
Volts — 600Vac (or less)
Amps — 601-4000A
IR — 200kA RMS Sym.
Agency Information: CE, Std. 248-10, Class L, UL Listed, Guide JDDZ, File E4273, CSA Certified, CSA Class 1422-02, File 53787.

Features and Benefits
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high fault circuits.

Typical Applications
- Large Distribution Switchboards
- Power Panelboards
- Large Machinery Disconnects

Catalog Numbers (Amps)

KLU-601	KLU-1200	KLU-2500
KLU-650	KLU-1500	KLU-3000
KLU-700	KLU-1600	KLU-4000
KLU-800	KLU-1800	
KLU-1000	KLU-2000	

For superior electrical protection, Cooper Bussmann recommends upgrading KLU fuse applications to Low-Peak KRP-C fuses See page 38.

Recommended Fuse Holders & Blocks For Class L Fuses
• See page 19

Data Sheet: 1013

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Low-Peak™ Dual-element, Time-delay Fuses

LPN-RK_SP (250V) Class RK1
LPS-RK_SP (600V) Class RK1

Available With Indication

Specifications
Description: Current-limiting, dual-element, time-delay fuse; 10 seconds (minimum) at 500% rated amps (8 seconds for 0-30A sizes). Now available with optional indication on select ratings (see Catalog Numbers table).

Dimensions: See page 15 for Class RK1 dimensions.

Ratings:

Volts **LPN-RK:**
— 250Vac (or less)
— 125Vdc (0-60A)
— 250Vdc (70-600A)

LPS-RK:
— 600Vac (or less)
— 300Vdc

Amps — 1/10-600A

IR — 300kA RMS Sym.
— 100kA DC

Agency Information: CE, UL Listed – Special Purpose*, Guide JFHR, File E56412, CSA Certified (200k AIR), Class RK1 per CSA C22.2, No. 248.12, Class 1422-02, File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for close sizing of high inrush loads linked with RK1 current-limitation and selective coordination ratio of 2:1 (within Low-Peak fuse family) prevents widespread blackouts.
- Inventory consolidation of Class RK1, RK5 and H fuses for reduced SKU investment and minimizing potential for misapplying fuse.
- 300kA RMS symmetrical interrupting rating provides adequate ratings without obsolescence for all electrical systems, big or small.
- Insulated end caps reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

Typical Applications

- Large Distribution Switchboards
- Power Panelboards
- Motor Control Centers
- Machinery Disconnect Switches

LPN Catalog Numbers (Amps)

LPN-RK-1/10SP	LPN-RK-3-1/2SP	LPN-RK-60SP**
LPN-RK-15/100SP	LPN-RK-4SP	LPN-RK-70SP**
LPN-RK-3/10SP	LPN-RK-4-1/2SP	LPN-RK-80SP**
LPN-RK-3/10SP	LPN-RK-5SP	LPN-RK-90SP**
LPN-RK-4/10SP	LPN-RK-5-6/10SP	LPN-RK-100SP**
LPN-RK-1/2SP	LPN-RK-6SP	LPN-RK-110SP**
LPN-RK-5/10SP	LPN-RK-6-1/2SP	LPN-RK-125SP**
LPN-RK-5/10SP	LPN-RK-8SP	LPN-RK-150SP**
LPN-RK-1SP	LPN-RK-9SP	LPN-RK-175SP**
LPN-RK-1-1/8SP	LPN-RK-10SP	LPN-RK-200SP**
LPN-RK-1-1/4SP	LPN-RK-12SP	LPN-RK-225SP**
LPN-RK-1-4/10SP	LPN-RK-15SP	LPN-RK-250SP**
LPN-RK-1-5/10SP	LPN-RK-17-1/2SP	LPN-RK-300SP**
LPN-RK-1-7/10SP	LPN-RK-20SP	LPN-RK-350SP**
LPN-RK-2SP	LPN-RK-25SP	LPN-RK-400SP**
LPN-RK-2-1/4SP	LPN-RK-30SP	LPN-RK-450SP**
LPN-RK-2-1/2SP	LPN-RK-35SP**	LPN-RK-500SP**
LPN-RK-2-9/10SP	LPN-RK-40SP**	LPN-RK-600SP**
LPN-RK-3SP	LPN-RK-45SP**	
LPN-RK-3-3/10SP	LPN-RK-50SP**	

*Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.
**Available with optional indication. To order, place "I" at end of Catalog Number. Example: LPN-RK-35SPI.
0-60A fuses available with Nickel plate option. (Ex: LPS-RK30SPNP) 70-600A fuses available with Tin plate option. Example: LPS-RK-100SP-TP.

LPS Catalog Numbers - (Amps)

LPS-RK-1/10SP	LPS-RK-2-1/2SP	LPS-RK-10SP**	LPS-RK-100SP**
LPS-RK-3/10SP	LPS-RK-2-1/2SP	LPS-RK-12SP**	LPS-RK-110SP**
LPS-RK-3/10SP	LPS-RK-2-9/10SP	LPS-RK-15SP**	LPS-RK-125SP**
LPS-RK-4/10SP	LPS-RK-3SP	LPS-RK-17-1/2SP**	LPS-RK-150SP**
LPS-RK-1/2SP	LPS-RK-3-3/10SP	LPS-RK-20SP**	LPS-RK-175SP**
LPS-RK-5/10SP	LPS-RK-3-1/2SP	LPS-RK-25SP**	LPS-RK-200SP**
LPS-RK-7/10SP	LPS-RK-4SP	LPS-RK-30SP**	LPS-RK-225SP**
LPS-RK-1SP	LPS-RK-4-1/2SP	LPS-RK-35SP**	LPS-RK-250SP**
LPS-RK-1-1/8SP	LPS-RK-5SP	LPS-RK-40SP**	LPS-RK-300SP**
LPS-RK-1-1/4SP	LPS-RK-5-6/10SP	LPS-RK-45SP**	LPS-RK-350SP**
LPS-RK-1-4/10SP	LPS-RK-6SP**	LPS-RK-50SP**	LPS-RK-400SP**
LPS-RK-1-1/2SP	LPS-RK-6-1/2SP**	LPS-RK-60SP**	LPS-RK-450SP**
LPS-RK-1-7/10SP	LPS-RK-7SP**	LPS-RK-70SP**	LPS-RK-500SP**
LPS-RK-1-9/10SP	LPS-RK-8SP**	LPS-RK-80SP**	LPS-RK-600SP**
LPS-RK-2SP	LPS-RK-9SP**	LPS-RK-90SP**	

*Meets all performance requirements of UL Standard 248-12 for Class RK1 fuses.
**Available with optional replace fuse indication. To order, place "I" at end of Catalog Number. Example: LPS-RK-15SPI.

Data Sheets: **LPN-RK — 1003 (0-60) and 1004 (70-600)**
LPN-RK with indication — 1066 (70-600)
LPS-RK — 1001 (0-60) and 1002 (70-600)
LPS-RK with indication — 1061 (0-60) and 1064 (70-600)

Recommended Fuse Holders & Blocks For Class RK1 Fuses
• See page 19

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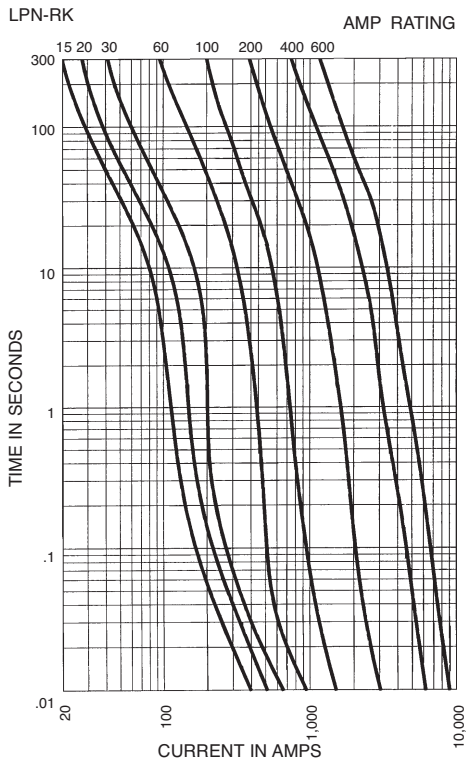
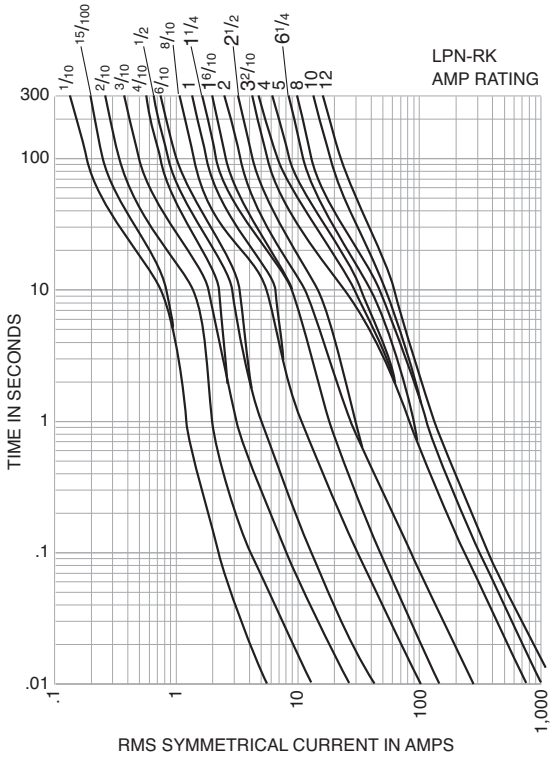
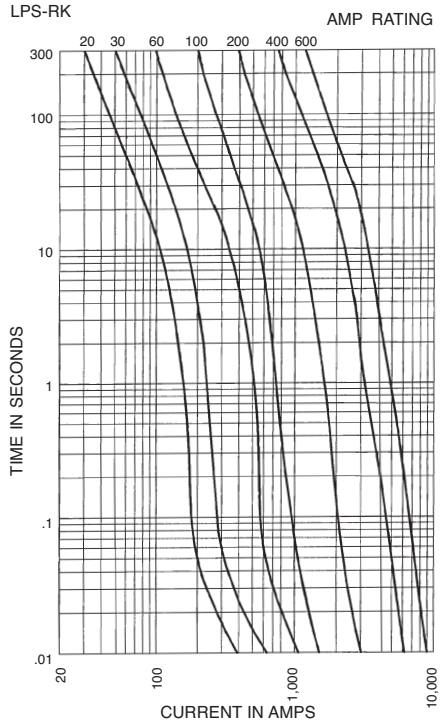
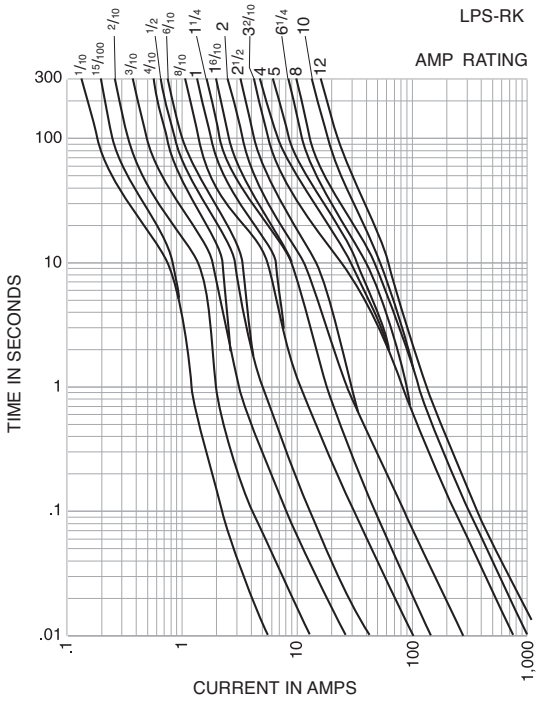
Low-Peak™ Dual-element, Time-delay Fuses

Time-Current Characteristic Curves—Average Melt









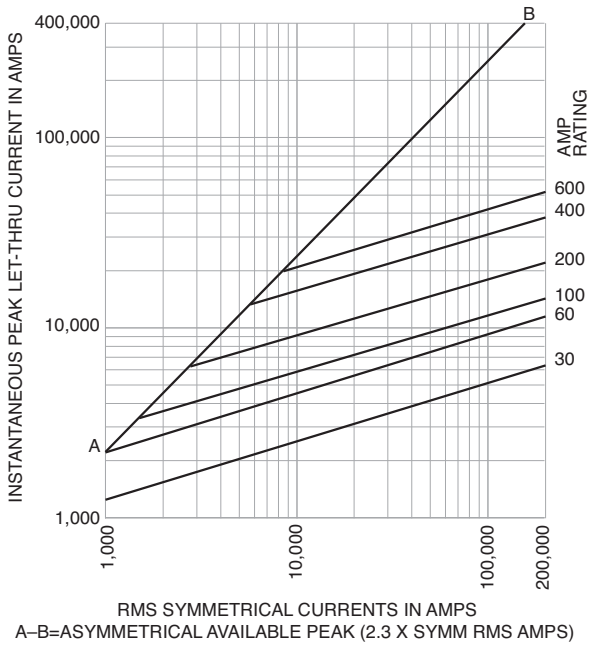
Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)
Data Sheets: LPS-RK — 1001 (0-60) and 1002 (70-600)

Recommended Fuse Holders & Blocks For Class RK1 Fuses
• See page 19

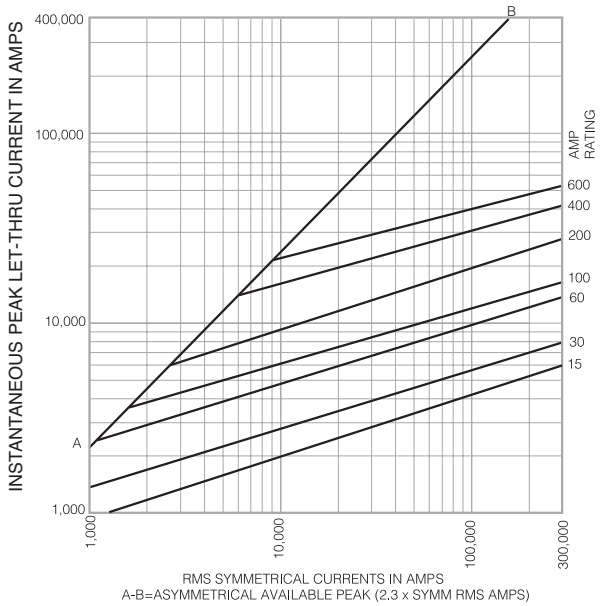
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Low-Peak™ Dual-element, Time-delay Fuses

Current Limitation Curves—LPN-RK



Current Limitation Curves—LPS-RK



Data Sheets: LPN-RK — 1003 (0-60) and 1004 (70-600)
Data Sheets: LPS-RK — 1001 (0-60) and 1002 (70-600)

Recommended Fuse Holders & Blocks For Class RK1 Fuses
• See page 19

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Limitron™ Fast-acting Fuses

KTN-R (250V) Class RK1

Specifications

Description: Fast-acting, current-limiting fuse.

Dimensions: See page 21 for Class RK1 dimensions.

Ratings:

Volts — 250Vac (or less)

Amps — 1-600A

IR — 200kA RMS Sym.

Agency Information: CE, Std. 248-12, Class RK1, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Current limitation for non-inductive circuits provides Class RK1 current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

Typical Applications

- Panelboards

Catalog Numbers (Amps)

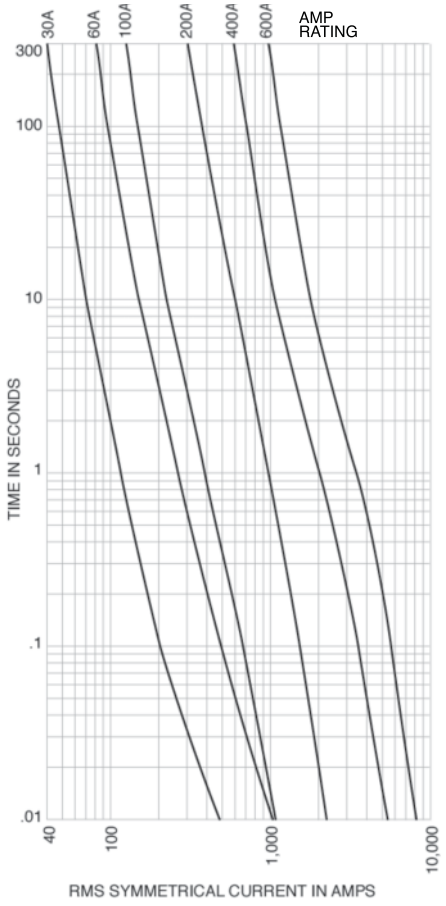
KTN-R-1	KTN-R-30	KTN-R-125
KTN-R-2	KTN-R-35	KTN-R-150
KTN-R-3	KTN-R-40	KTN-R-175
KTN-R-4	KTN-R-45	KTN-R-200
KTN-R-5	KTN-R-50	KTN-R-225
KTN-R-6	KTN-R-60	KTN-R-250
KTN-R-8	KTN-R-70	KTN-R-300
KTN-R-10	KTN-R-75	KTN-R-350
KTN-R-12	KTN-R-80	KTN-R-400
KTN-R-15	KTN-R-90	KTN-R-450
KTN-R-20	KTN-R-100	KTN-R-500
KTN-R-25	KTN-R-110	KTN-R-600

For superior electrical protection, Bussmann recommends upgrading KTN-R fuse applications to Low-Peak LPN-RK fuses See page 41.

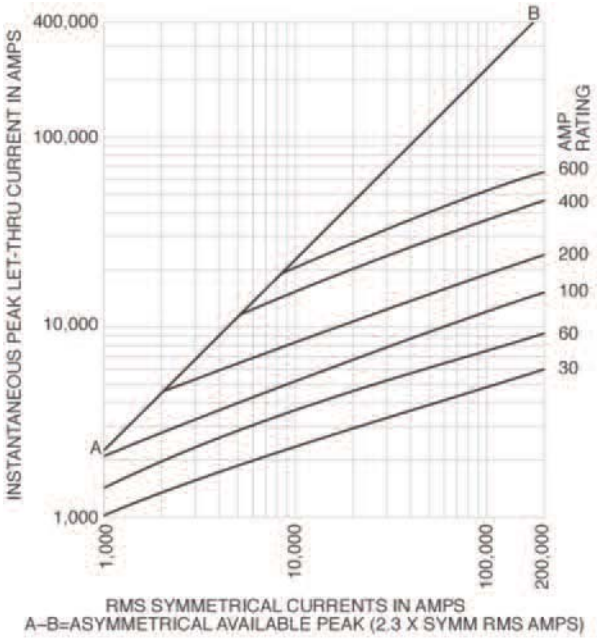
Recommended Fuse Holders & Blocks For Class RK1 Fuses

• See page 19

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Data Sheet: 1043

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Limitron™ Fast-acting Fuses

KTS-R (600V) Class RK1

Specifications

Description: Fast-acting, current-limiting fuse.

Dimensions: See page 21 for Class RK1 dimensions.

Ratings:

Volts — 600Vac (or less)

Amps — 1-600A

IR — 200kA RMS Sym.

Agency Information: CE, Std. 248-12, Class RK1, UL Listed, Guide JDDZ, File E54273, CSA Certified, C22.2 No. 248.12, Class 1422-02, File 53787.

Features and Benefits

- Current limitation for non-inductive circuits provides Class RK1 current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Economical solutions for high-fault circuits.

Typical Applications

- Panelboards

Catalog Numbers (Amps)

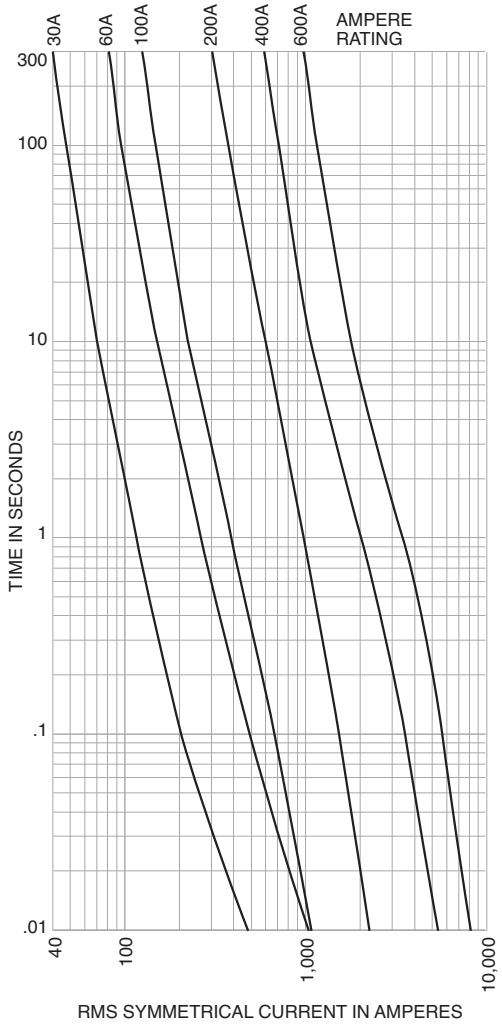
KTS-R-1	KTS-R-30	KTS-R-125
KTS-R-2	KTS-R-35	KTS-R-150
KTS-R-3	KTS-R-40	KTS-R-175
KTS-R-4	KTS-R-45	KTS-R-200
KTS-R-5	KTS-R-50	KTS-R-225
KTS-R-6	KTS-R-60	KTS-R-250
KTS-R-8	KTS-R-70	KTS-R-300
KTS-R-10	KTS-R-75	KTS-R-350
KTS-R-12	KTS-R-80	KTS-R-400
KTS-R-15	KTS-R-90	KTS-R-450
KTS-R-20	KTS-R-100	KTS-R-500
KTS-R-25	KTS-R-110	KTS-R-600

For superior electrical protection, Bussmann recommends upgrading KTN-R fuse applications to Low-Peak LPN-RK fuses See page 41.

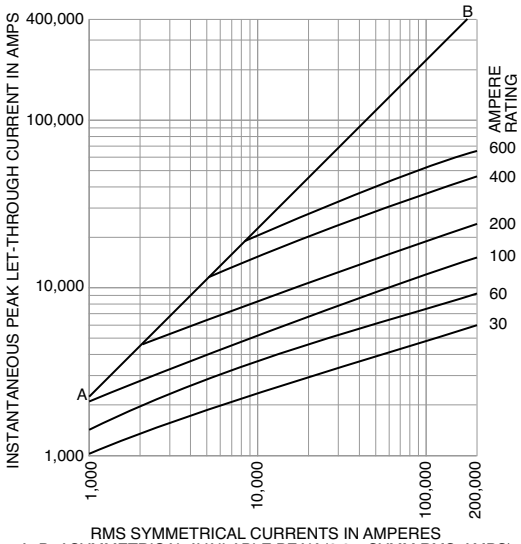
Recommended Fuse Holders & Blocks For Class RK1 Fuses

- See page 19

Time-Current Characteristic Curves–Average Melt



Current-Limitation Curves



Data Sheet: 1044

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Fusetron™ Energy Efficient, Dual-element, Time-delay Fuses

FRN-R (250V) Class RK5

Specifications

Description: Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps (8 seconds for 0-30A sizes). Available with indication on select ratings (see Catalog Numbers table).

Dimensions: See page 15 for Class RK5 dimensions.

Ratings:

Volts — 250Vac (or less)
— 125Vdc (1/10-60A, 110-200A)
— 250Vdc (225-600A)

Amps — 1/10-600A

IR — 200kA RMS Sym.
— 20kA DC

Available With Indication

Agency Information: CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Separate overload and short-circuit elements provide time delay for sizing as close as 125% of motor FLA.
- 2:1 selective coordination amp ratio (within the Cooper Bussmann RK5 fuse family) prevents overcurrent events from opening upstream Fusetron fuses.
- Insulated end caps for 225A-600A fuses reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

Typical Applications

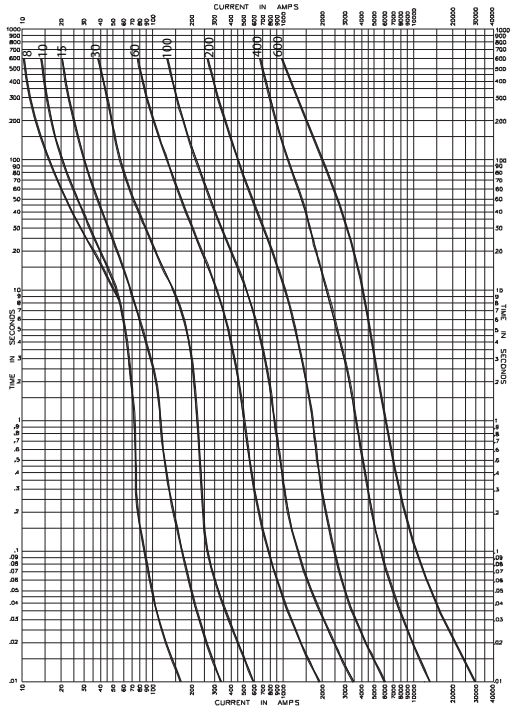
- Power Panelboards
- Motor Control Centers
- Combination Starters
- Machinery Disconnects

Catalog Numbers (Amps)

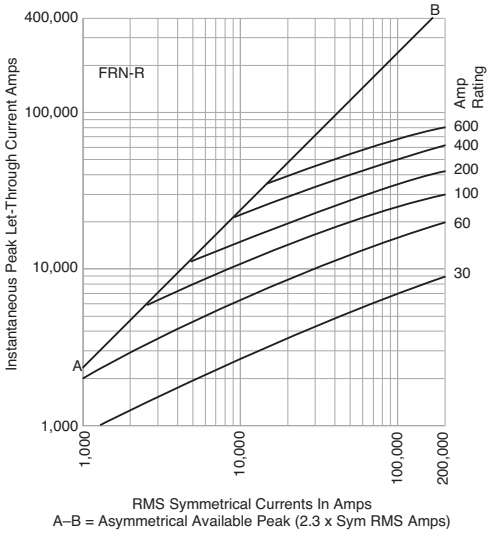
FRN-R-1/10	FRN-R-2	FRN-R-10*	FRN-R-100
FRN-R-1/8	FRN-R-2-1/4	FRN-R-12*	FRN-R-110
FRN-R-15/100	FRN-R-2-1/2	FRN-R-15*	FRN-R-125
FRN-R-3/10	FRN-R-2-3/10	FRN-R-17-1/2*	FRN-R-150
FRN-R-1/4	FRN-R-3	FRN-R-20*	FRN-R-175
FRN-R-3/10	FRN-R-3-3/10	FRN-R-25*	FRN-R-200
FRN-R-4/10	FRN-R-3-1/2	FRN-R-30*	FRN-R-225
FRN-R-1/2	FRN-R-4	FRN-R-35*	FRN-R-250
FRN-R-5/10	FRN-R-4-1/2	FRN-R-40*	FRN-R-300
FRN-R-6/10	FRN-R-5	FRN-R-45*	FRN-R-350
FRN-R-1	FRN-R-5-6/10	FRN-R-50*	FRN-R-400
FRN-R-1-1/8	FRN-R-6	FRN-R-60*	FRN-R-450
FRN-R-1-1/4	FRN-R-6-1/4	FRN-R-70	FRN-R-500
FRN-R-1-4/10	FRN-R-7	FRN-R-75	FRN-R-600
FRN-R-1-1/2	FRN-R-7-1/2	FRN-R-80	
FRN-R-1-8/10	FRN-R-8*	FRN-R-85	
FRN-R-1-9/10	FRN-R-9*	FRN-R-90	

*Available with indication. To order, place "ID" at the end of the catalog number.
Example: FRN-R-30ID

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



For superior electrical protection, Bussmann recommends upgrading FRN-R fuse applications to Low-Peak LPN-RK fuses. See page 41.

Recommended Fuse Holders & Blocks For Class RK5 Fuses

- See page 19

Recommended Fuse Reducers For Class R Fuses

- See page 20

Data Sheets: 1019 (1/10-60) and 1020 (70-600)
Data Sheet: 1169 (8-60) FRN-R with indication

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Fusetron™ Energy Efficient, Dual-element, Time-delay Fuses

FRS-R (600V) Class RK5

Specifications

Description: Dual-element, time-delay fuse – 10 seconds (minimum) at 500% rated amps. Now available with optional indication on select ratings (see Catalog Numbers table).

Dimensions: See page 15 for Class RK5 dimensions.

Ratings:

Volts — 600Vac (or less)
Amps — 1/10-30A
IR — 200kA RMS Sym.
— 20kA @300Vdc
Amps — 35-60A
IR — 200kA RMS Sym.
— 20kA @250Vdc
Amps — 65-600A
IR — 200kA RMS Sym.
— 20kA @250Vdc

Available With Indication

Agency Information: CE, Std. 248-12, Class RK5, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- 2:1 selective coordination ratio (within RK5 fuse family) prevents electrical shutdowns from extending beyond the failed circuit.
- Insulated end caps for 65-600A fuses reduces exposure to live parts and extends air gap to distance between blades of adjacent mounted fuses or to housing.

Typical Applications

- Power Panelboards
- Motor Control Centers
- Combination Starters
- Machinery Disconnects

Catalog Numbers (Amps)

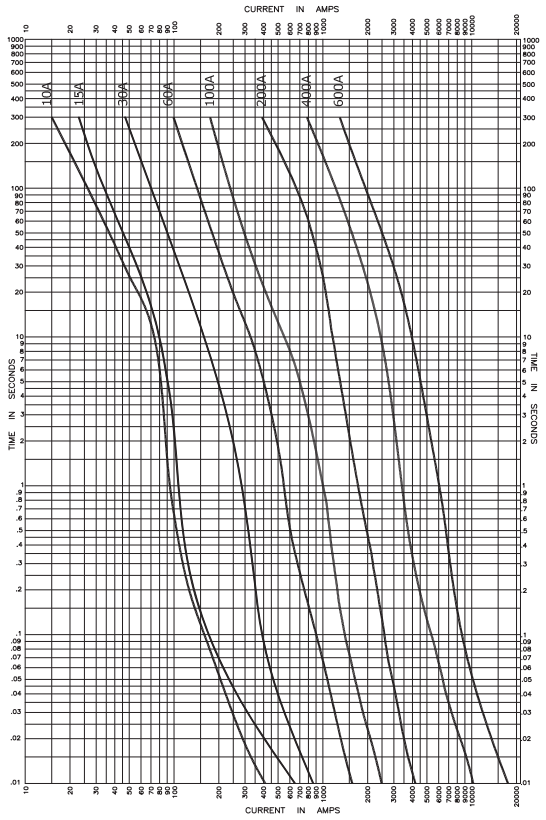
FRS-R-1/10	FRS-R-2	FRS-R-10*	FRS-R-100
FRS-R-1/8	FRS-R-2-1/4	FRS-R-12*	FRS-R-110
FRS-R-15/100	FRS-R-2-1/2	FRS-R-15*	FRS-R-125
FRS-R-2/10	FRS-R-2-8/10	FRS-R-17-1/2*	FRS-R-150
FRS-R-1/4	FRS-R-3	FRS-R-20*	FRS-R-175
FRS-R-3/10	FRS-R-3-2/10	FRS-R-25*	FRS-R-200
FRS-R-4/10	FRS-R-3-1/2	FRS-R-30*	FRS-R-225
FRS-R-1/2	FRS-R-4	FRS-R-35*	FRS-R-250
FRS-R-5/10	FRS-R-4-1/2	FRS-R-40*	FRS-R-300
FRS-R-8/10	FRS-R-5	FRS-R-45*	FRS-R-350
FRS-R-1	FRS-R-5-6/10	FRS-R-50*	FRS-R-400
FRS-R-1-1/8	FRS-R-6*	FRS-R-60*	FRS-R-450
FRS-R-1-1/4	FRS-R-6-1/4*	FRS-R-65	FRS-R-500
FRS-R-1-4/10	FRS-R-7*	FRS-R-70	FRS-R-600
FRS-R-1-1/2	FRS-R-7-1/2*	FRS-R-75	
FRS-R-1-8/10	FRS-R-8*	FRS-R-80	
FRS-R-1 9/10	FRS-R-9*	FRS-R-90	

*Available with indication. To order, place "ID" at the end of the catalog number. Example: FRS-R-7ID.

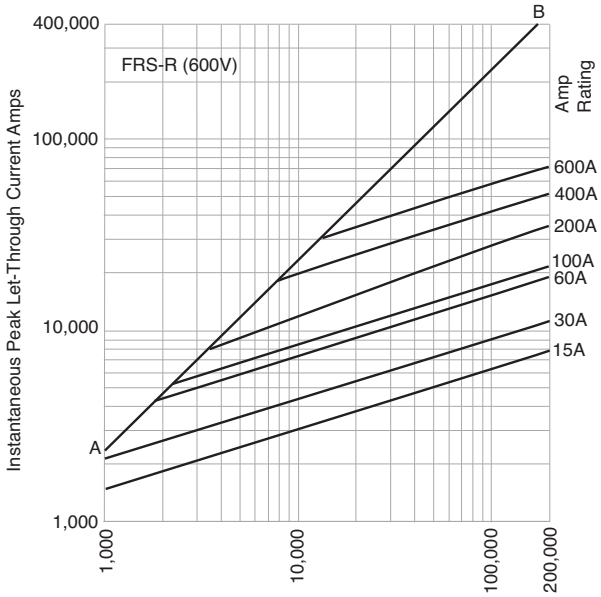
For superior electrical protection, Bussmann recommends upgrading FRS-R fuse applications to Low-Peak LPS-RK fuses. See page 41.

Data Sheet: 1017 (1/10-60), 1018 (65-600)
Data Sheet: 1070 (6-60) FRS-R with Indication

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



RMS Symmetrical Currents In Amps
A–B = Asymmetrical Available Peak (2.3 x Sym RMS Amps)

Recommended Fuse Holders & Blocks For Class RK5 Fuses
• See page 19

Recommended Fuse Reducers For Class R Fuses
• See page 20

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T-Tron™ Fast-acting Fuses

JJN Class T

Specifications

Description: Fast-acting, current-limiting fuse.

Dimensions: See page 16 for Class T dimensions.

Ratings:

Volts — 300Vac (or less)
— 160Vdc (15-600A)
— 170Vdc (601-1200A)

Amps — 1-1200A

IR — 200kA RMS Sym.
— 20kA DC @ 160Vdc
— 100kA DC @ 170Vdc

Agency Information: CE, Std. 248-15, Class T, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.
- Current limitation for non-inductive circuits provides Class T current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Small footprint allows more efficient use of available space.

Typical Applications

- Large Apartment Complexes
- Multi-Family Meter Stacks
- VFD Line Protection

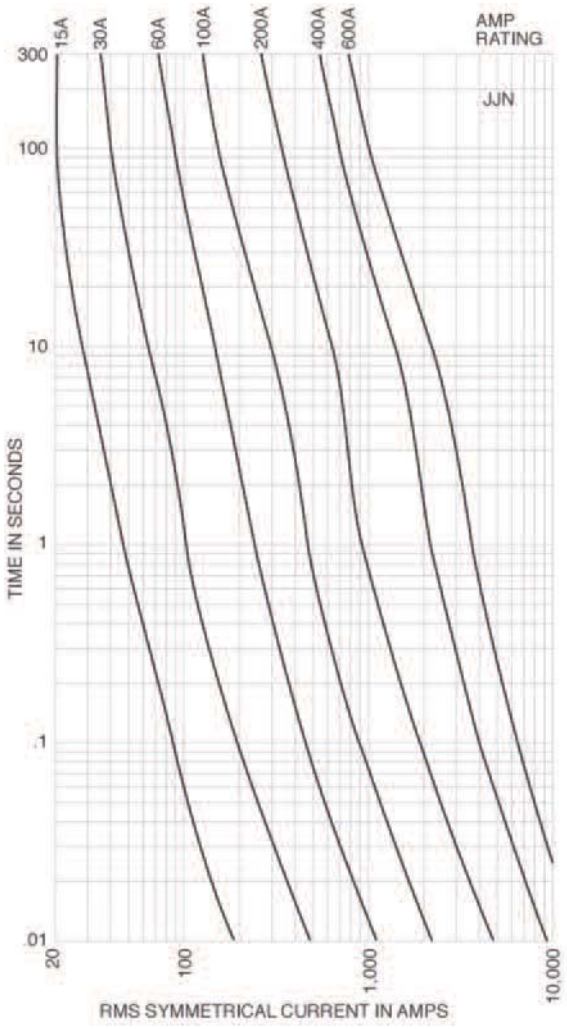
Catalog Numbers (Amps)

JJN-1	JJN-15	JJN-40	JJN-80	JJN-150	JJN-300	JJN-600
JJN-2	JJN-20	JJN-45	JJN-90	JJN-175	JJN-350	JJN-700
JJN-3	JJN-25	JJN-50	JJN-100	JJN-200	JJN-400	JJN-800
JJN-6	JJN-30	JJN-60	JJN-110	JJN-225	JJN-450	JJN-1000
JJN-10	JJN-35	JJN-70	JJN-125	JJN-250	JJN-500	JJN-1200

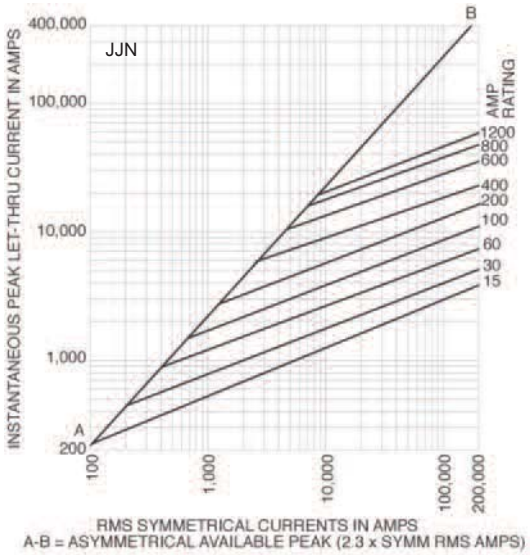
Recommended Fuse Holders & Blocks For Class T Fuses

• See page 19

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Data Sheet: 1025

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

T-Tron™ Fast-acting Fuses

JJS Class T

Specifications
Description: Very fast-acting, current-limiting fuse.

Dimensions: See page 16 for Class T dimensions.

Ratings:
Volts — 600Vac (or less)
Amps — 1-800A
IR — 200kA RMS Sym.

Agency Information: CE, Std. 248-15, Class T, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Series combination ratings with branch circuit breakers allows broad range of coverage, independent of breaker manufacturer.
- Current limitation for non-inductive circuits provides Class T current-limiting response to maximum ground fault and short-circuit conditions.
- 200kA interrupting rating provides high ratings at all circuit locations.
- Small footprint allows more efficient use of available space.

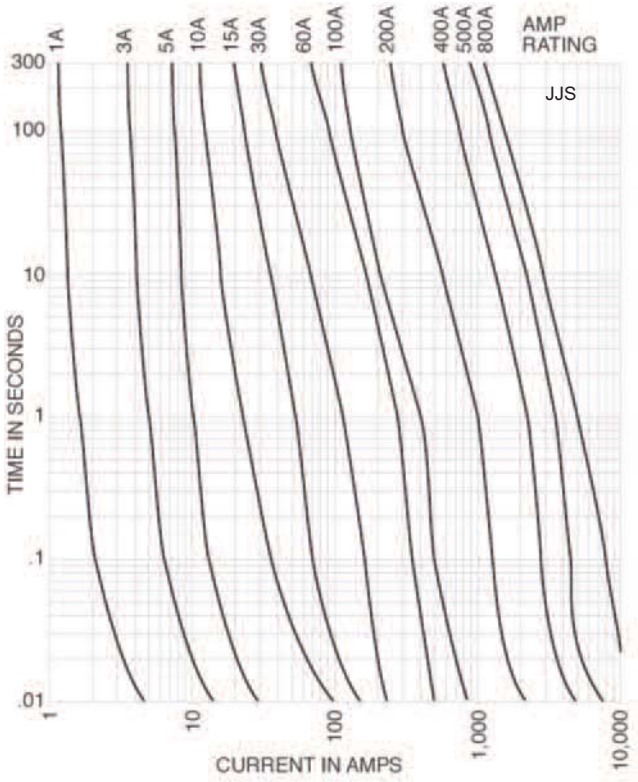
Typical Applications

- Large Apartment Complexes
- Multi-Family Meter Stacks
- VFD Line Protection

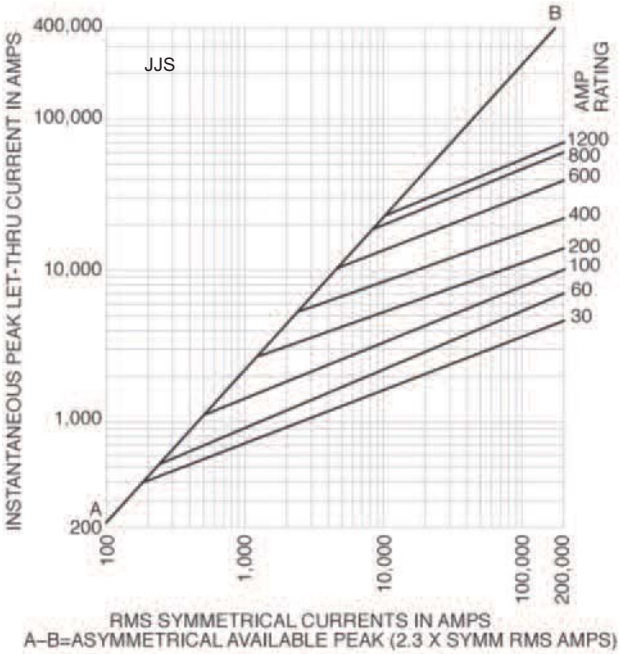
Catalog Numbers (Amps)

JJS-1	JJS-15	JJS-40	JJS-80	JJS-150	JJS-300	JJS-600
JJS-2	JJS-20	JJS-45	JJS-90	JJS-175	JJS-350	JJS-800
JJS-3	JJS-25	JJS-50	JJS-100	JJS-200	JJS-400	
JJS-6	JJS-30	JJS-60	JJS-110	JJS-225	JJS-450	
JJS-10	JJS-35	JJS-70	JJS-125	JJS-250	JJS-500	

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Recommended Fuse Holders & Blocks For Class T Fuses

• See page 19

Data Sheet: 1029

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Plug Fuses

W Series

Specifications
Description: Fast-acting plug fuse.
Dimensions: Edison base plug.
Construction: Brass threads with plastic body.
Ratings:
Volts — 125Vac
Amps — ½-12A
IR — 10kA RMS Sym.
Agency Information: CE, Std. 248-11, UL Listed, Guide JEFV, File E12112.

Features and Benefits
- Dependable, fast-acting circuit protection with 10kA interrupting rating for added safety when applied to existing plug fuse systems and 125-volt single-phase control circuits.

Typical Applications
- Replacement only in existing systems.
- For general purpose circuit protection.
- Use for lighting and other non-motor circuits.

Catalog Numbers* (Amps)

W-½	W-2 ½	W-6	W-10
W-1	W-3	W-6 ½	W-12
W-1 $\frac{8}{10}$	W-4	W-7	W-DUMMY**
W-2	W-5	W-8	

*W-15, W-20, W-25, and W-30 plug fuses obsoleted. Suggest replacing with either T-(Amp) or TL-(Amp) plug fuses.

** Non-conductive dummy base. Not a fuse.

Data Sheet: 1036

Recommended Fuse Holders For W Series Plug Fuses
• See page 20

SL and TL Series

Specifications
Description: Time-delay, loaded link plug fuse.
Dimensions:
SL — Rejection base
TL — Edison base
Construction:
SL — Plastic base with rejection threads
TL — Brass threads with plastic body
Ratings:
Volts — 125Vac
Amps — 15-30A
IR — 10kA RMS Sym.
Agency Information: CE, Std. 248-11, UL Listed, Guide JEFV, File E12112.

Features and Benefits
- Time-delay loaded link TL Series Edison base plug fuses pass motor overload starting currents without opening and allow closer sizing to motor load for added protection.
- Time-delay loaded link SL Series fuses provide a rejection feature (when used alone or with Fustat adapters to retrofit Edison base holders) to help prevent overfusing.

Typical Applications
- Small motor and inductive load circuits with high in-rush current levels.
- Used with box cover units to provide equipment protection.
- Applications benefiting from fuse rejection (SL Series only).

SL Catalog Numbers (Amps)

SL-15	SL-20	SL-25	SL-30

TL Catalog Numbers (Amps)

TL-15	TL-20	TL-25	TL-30

Data Sheets: 1033 (SL) & 1035 (TL)

Recommended Fuse Holders For SL & TL Series Plug Fuses
• See page 20
• See page 52 for Fustat adapters for use with SL Series

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Plug Fuses

S and T Series

Specifications

Description: Dual-element, time-delay plug fuse.

Dimensions:

S — Rejection base

T — Edison base

Construction:

S — Plastic base with rejection threads

T — Brass threads with plastic body

Ratings:

Volts — 125Vac

Amps — S Series: ¼-30A

— T Series: 3/10-30A

IR — 10kA RMS Sym.

Agency Information: CE, Std. 248-11, Type S and T: UL Listed (0-6¼) Guide JFHR, File E56412 (7-30A) Guide JEFV, File E12112; CSA Certified, Class 1423-01, File 53787.

Features and Benefits

- Time-delay, dual-element T Series Edison base plug fuses provide small motor overload protection when used with box cover units.
- Time-delay, dual-element S Series plug fuses provide a rejection feature (when used alone or with Fustat adapters to retrofit Edison base holders) to prevent overfusing of branch circuits.

Typical Applications

- S Series — Residential Load Centers
- T Series — Box Cover Units for small motor overload protection
- Applications benefiting from fuse rejection (S Series only)

S Series Catalog Numbers (Amps)

S-¼	S-3/10	S-1-3/10	S-2-½	S-4	S-7	S-14
S-3/10	S-1	S-1-8/10	S-2-8/10	S-4-½	S-8	S-15
S-4/10	S-1-⅛	S-2	S-3	S-5	S-9	S-20
S-½	S-1-¼	S-2-¼	S-3-2/10	S-6	S-10	S-25
S-6/10	S-1-3/10	S-5-6/10	S-3-½	S-6-¼	S-12	S-30

T Series Catalog Numbers (Amps)

T-3/10	T-1-⅛	T-2-¼	T-4	T-7	T-15
T-4/10	T-1-¼	T-2-½	T-4-½	T-8	T-20
T-½	T-1-4/10	T-2-8/10	T-5	T-9	T-25
T-6/10	T-1-6/10	T-3	T-5-6/10	T-10	T-30
T-8/10	T-1-8/10	T-3-2/10	T-6	T-12	
T-1	T-2	T-3-½	T-6-¼	T-14	

Data Sheet: 1032 (S) & 1034 (T)

Recommended Fuse Holders For S & T Series Plug Fuses

- See page 20
- See page 52 for Fustat adapters for use with S Series

P & TC Series

Specifications

Description:

P Series - Type P dual-element fuse

TC Series - Type D dual-element, time-delay fuse

Dimensions: Edison base

Construction: Brass threads with plastic body.

Ratings:

Volts — 125Vac or less

Amps — 15-30A

IR — 10kA

Agency Information:

P Series - CSA Certified

TC Series - CSA Certified (Class 1423-01, File # 53787)

Features and Benefits

P Series

- "P" Rating for Canadian applications.
- Non-time delay for non-inductive loads

TC Series

- "D" Rating for Canadian applications
- Heavy duty TC fuses are industrial strength products, featuring dual-element construction.
- This spring loaded design provides superior short-circuit and overload protection.
- The TC fuses have more time-delay than the medium duty fuses in order to better protect industrial motors and residential circuits.

Typical Applications

- P Series — Non-inductive loads, residential load centers
- TC Series — Box Cover Units for small motor overload protection

P Series Catalog Numbers (Amps)

P-15	P-20	P-25	P-30

TC Series Catalog Numbers (Amps)

TC-15	TC-20	TC-25	TC-30

Data Sheet: 1039 (TC Series only)

Recommended Fuse Holders For P & TC Series Plug Fuses

- See page 20
- See page 52 for Fustat adapters for use with S Series

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Plug Fuses

MB Edison Base Circuit Breakers

Specifications
Description: Edison base manual reset circuit breakers.
Dimensions: Edison base
Construction: Brass threads with plastic body
Ratings:
Volts — 125Vac only
Amps — 15-20A
IR — 10kA RMS Sym.
Agency Information: UL Listed, File E14942

Features and Benefits
- Fit standard Edison base fuse receptacles.
- Resettable upon overload event.

Typical Applications*
- Replacing Edison base plug fuses in residential fuse panels.

Catalog Numbers* (Amps)

MB-15
MB-20

* Not for use in box cover units or for inductive loads.

SA Fustat Fuse Adapters

Specifications
Description: Adapters for using Type S and SL rejection fuses in Edison base fuse sockets.
Agency Information: UL Listed, File E12853; CSA Certified File #6225-01, File #47235.

Features and Benefits
- Fustat adapters screw into the “Edison” thread fuse sockets of standard fuse boxes making it easy to retrofit existing fuse installations
- Available in various amp ratings to cover a wide range of rating requirements

Typical Applications
- Plug fuse installations where it is desirable to restrict fuse amp ratings

Catalog Numbers (Amps)

SA-1*	SA-3-$\frac{3}{10}$*	SA-10*
SA-1-$\frac{1}{4}$*	SA-4*	SA-15**
SA-1-$\frac{5}{10}$*	SA-5*	SA-20**
SA-2*	SA-6-$\frac{1}{4}$*	SA-30**
SA-2-$\frac{1}{2}$*	SA-8*	

* Single motor circuits.
** Branch circuits.

Fustat® Adapters for Small Motor Protection*

Adapter	Accepts Fuses
SA-1	S-1 or smaller
SA-1-$\frac{1}{4}$	S-1-$\frac{1}{4}$ or smaller
SA-1-$\frac{5}{10}$	S-1-$\frac{5}{10}$ or smaller
SA-2	S-2 or S-1-$\frac{5}{10}$
SA-2-$\frac{1}{2}$	S-2-$\frac{1}{2}$ to S-1-$\frac{5}{10}$
SA-3-$\frac{3}{10}$	S-3-$\frac{3}{10}$ to S-1-$\frac{5}{10}$
SA-4	S-4 to S-3-$\frac{1}{2}$
SA-5	S-5 to S-3-$\frac{1}{2}$
SA-6-$\frac{1}{4}$	S-6-$\frac{1}{4}$ to S-3-$\frac{1}{2}$
SA-8	S-8 to S-7
SA-10	S-10 to S-7
SA-15	S-15 to S-7
SA-20	S-20
SA-30	S-30 to S-20

* Both motor running and short-circuit protection.

Fustat® Adapters for Branch Circuit Protection

Adapter	Accepts Fuses
SA-15	S-15 to S-7
SA-20	S-20
SA-30	S-25
SA 30	S-30 to S-20

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Solar Fuse Products

Scan this tag to get the latest product information for Solar Products.

Fuse Holder & Block Selection Guide			Page 54-55
Volt	**Fuses**	**Size**	
600Vdc	**PVM**	13/32″ x 1 ½″	56
600Vac /300Vdc	**PVCF**	CUBEFuse	57-58
600Vac/dc	**PVS-R**	RK5	59
1000Vdc	**PV**	10x38mm	60
1000/1100Vdc	**PV**	14x51mm	61
1000Vdc	**NH1**	NH Size 1	62
1000Vdc	**XL PV**	XL Size 01, 1, 2, 3	63-65
1300/1500Vdc	**PV**	14x65mm	66
1200/1500Vdc	**XL PV**	XL Size 01, 1, 2, 3	67-69

RED indicates NEW information

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Holders & Blocks For Branch Circuit Rated Fuses

600 Volts	Fuses	Volts	Page
Midget	PVM	600V	56
CF	CFPV	600V	57
RK5	PVS-R	600V	59

Holders

- TCFH Series CUBEFuse holder 32
- CHM Series DIN-Rail mount holders 274
- HEB Series in-line holders 310

Blocks

- Modular Knifeblade Fuse Blocks 250/600V, panel mount . . 289
- R600 Series RK5 open fuse blocks 296
- BM Series midget open fuse blocks 305

CHM Series

HEB Series

TCFH Series

BM Series

Modular Knifeblade

R600 Series

1000 Volts	Fuses	Volts	Page
10x38mm	PV-_A10	1000V	60
14x51mm	PV-_A14	1000/1100V	61
NH1	PV-_ANH	1000V	62
01XL	PV-_A-01XL	1000V	63
1XL	PV-_A-1XL	1000V	63
2XL	PV-_A-2XL	1000V	63
3L	PV-_A-3L	1000V	63

Holders

- CHPV Series 10x38 DIN-Rail mount holders 274-277
- CH14 Series 14x51 DIN-Rail mount holders 274-277
- HEB Series* 10x38 in-line holders 310
- SD1 Series** NH1 holders 63

* Self certified to 1000Vdc.

** IEC only to 1000Vdc.

Blocks

- SD1XL-S Series 01XL & 1XL blocks 63
- SD2XL-S Series 2XL blocks 63
- SD3L-S Series 3L blocks 63

CHPV Series

CH14 Series

HEB Series

SD1-D-PV Series

SD1XL-S Series

SD2XL-S Series

SD3L-S Series

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Holders & Blocks For Branch Circuit Rated Fuses

1500 Volts	Fuses	Volts	Page
01XL	PV-_A-01XL-15	1500V	63
1XL	PV-_A-1XL-15	1500V	63
2XL	PV-_A-2XL-15	1500V	63
3L	PV-_A-3L-15	1500V	63
14x65mm	PV-_A14*	1300/1500V	66

Blocks

- SD1XL-S Series** 01XL & 1XL blocks 63
- SD2XL-S Series** 2XL blocks 63
- SD3L-S Series** 3L blocks 63

* Available with tags for bolt mounting or 10mm fixings for mounting in modular blocks for 10mm diameter fuses.

** IEC only to 1500Vdc.

SD1XL-S Series

SD2XL-S Series

SD3L-S Series

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13/32″ x 1 ½″ Midget PV Fuses

PVM

Specifications

Description: A range of UL 2579 fast-acting 600Vdc Midget fuses specifically designed to protect solor power systems in extreme ambient temperature, high cycling and low level fault current conditions (reverse current, multi-array fault).

Dimensions: 13/32″ x 1 ½″ (10.3 x 38.1mm).

Ratings:

Volts — 600Vdc to UL 2579

Amps — 4-30A

IR — 50kA DC (4-30A)

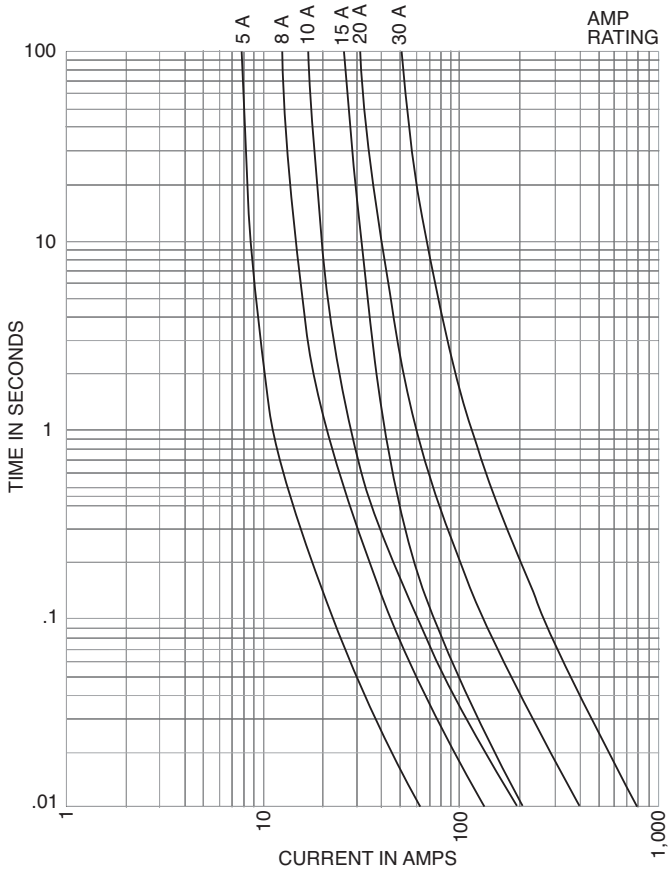
Agency Information: UL Listed 2579, Guide JFGA, File E335324, CSA Component Certified C22.2.

Features and Benefits

- Specifically designed to protect solar power systems in extreme ambient temperature per UL 2579 listed
- Capable of withstanding high cycling and low level fault current conditions

Typical Applications

- Solar Combiner Boxes
- Solar String Protectors



Power Loss (Watts)

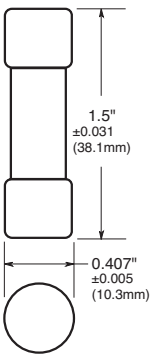
Catalog Number	Amp Rating	Power Loss (Watts)	
		0.8 x I_n	1.0 x I_n
PVM-10	10	1.04	1.86
PVM-15	15	1.00	1.72
PVM-30	30	1.65	2.91

I_n = Rated current

Catalog Numbers (Amps)

PVM-4	PVM-7	PVM-10	PVM-20
PVM-5	PVM-8	PVM-12	PVM-25
PVM-6	PVM-9	PVM-15	PVM-30

Dimensions - (mm)



Recommended Fuse Holders & Blocks For the PVM Fuse

• See page 54

Data Sheet: 2153

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Fast-Acting CUBEFuse™

PVCF Class CF Fuse

Catalog Symbol: PVCF_RN
Fast-Acting Fuse: 6 minutes maximum clearing time at 200% rated current for 30 to 60A fuse
8 minutes maximum clearing time at 200% rated current for 70 to 100A fuse

Ratings:

Volts — 600Vac (Photovoltaic applications)
— 300Vdc
Amps — 35-100A
IR — 300kA RMS Sym. (UL)
— 200kA RMS Sym. (CSA)
— 50kA DC (UL & CSA)

Agency Information:

- UL 2579 Listed Fuse: Guide JFGA, File E335324
- CSA Certified Fuse: Class C22.2

Other Ratings/Specifications:

Watts Loss at Rated Current: PVCF35RN: 5.45W
PVCF60RN: 7.27W
PVCF100RN: 11.50W
Operating and Storage Temperature Range: -40 to 90°C
Material Specifications:

- Case: Glass filled PES (Polyethersulfone)
- Terminals: Copper alloy
- Terminal plating: Electroless tin

Carton Quantity and Weight

Amp Rating	Carton Qty.	Weight Per Carton lbs	Weight Per Carton kg
PVCF-35-60A	12	1.42	0.65
PVCF-70-100A	6	1.74	0.79

Features and Product Benefits

- Maximize uptime and reliability using fuses designed and listed to UL 2579: *Low Voltage Fuses - Fuses for Photovoltaic Systems*.
- Minimize chances of equipment failure and personnel injury when using full range fuses having the industry's fastest response time to low-magnitude faults.
- Maximize return on investment with fuses proven to withstand harsh temperatures.
- Minimize design time, operating outage time and replacement cost with fuses qualified in excessively changing enviromental conditions.
- Simplify compatibility with readily available industry standard Class CF holders.
- Temperature Derating: Designed to maximize rated capacity in elevated environmental temperatures.
- Overload Protection: Proven to clear faults faster than the UL requirement.
- Power Loss: Minimal energy consumption leading to increased efficiency.

Fuse Catalog Numbers Non-Indicating (Amps)

PVCF35RN	PVCF50RN	PVCF80RN
PVCF40RN	PVCF60RN	PVCF90RN
PVCF45RN	PVCF70RN	PVCF100RN

Scan this tag to get the latest product information for the New PVCF CUBEFuse.

Recommended Fuse Holders For Class CF Fuses

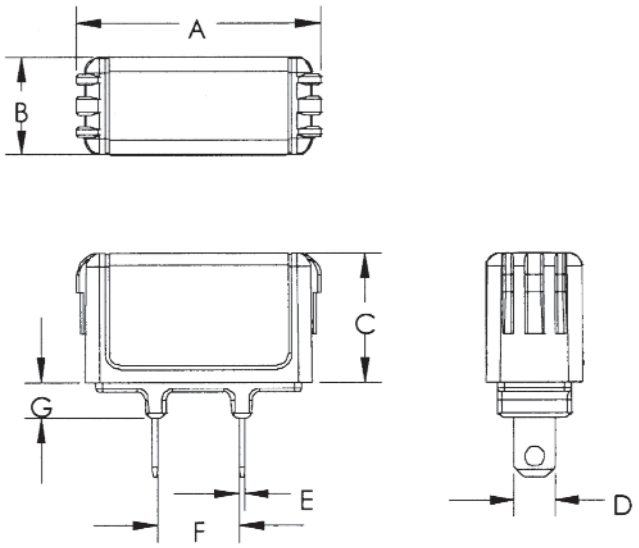
- See pages 32 and 33

Data Sheet: 2155

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

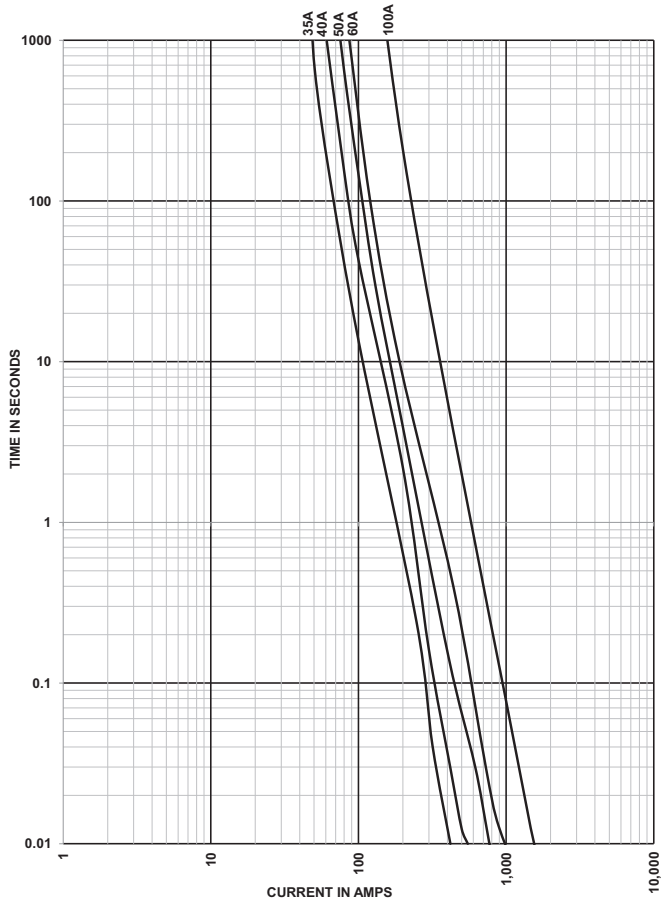
Fast-Acting CUBEFuse™

PVCF_RN Dimensions – in (mm)

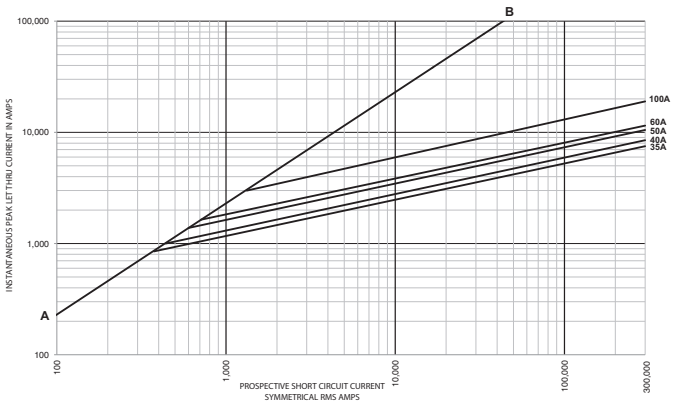


Fuse Amps	Dimensions - in (mm)						
	A	B	C	D	E	F	G
35-40	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.36 (9.10)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
45-50	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
60	2.13 (54.10)	1.00 (25.40)	1.13 (28.58)	0.44 (11.13)	0.04 (1.02)	0.63 (15.93)	0.38 (9.65)
70	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
80-90	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.49 (12.45)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)
100	3.01 (76.45)	1.00 (25.40)	1.26 (32.00)	0.57 (14.48)	0.06 (1.60)	0.58 (14.78)	0.38 (9.65)

Time-Current Characteristic Curves–Average Melt



Current Limitation Curves



CUBEFuse Holders

Catalog Numbers (amps)	Fits Fuse Holder	
Non-Indicating	TCFH60N	TCFH100N
PVCF35RN	X	X
PVCF40RN	X	X
PVCF45RN	X	X
PVCF50RN	X	X
PVCF60RN	X	X
PVCF70RN		X
PVCF80RN		X
PVCF90RN		X
PVCF100RN		X

Data Sheet: 2155

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Limitron™ Fast-acting Fuses

PVS-R (600Vac/dc) Class RK5

Specifications

Description: A range of UL 2579 fast-acting 600Vdc Class RK5 fuses specifically designed to protect solar power systems in extreme ambient temperature, high cycling and low level fault current conditions (reverse current, multi-array fault).

Dimensions: See page 15 for Class RK5 dimensions.

Ratings:

Volts — 600Vac to UL 248-12
600Vdc to UL 2579

Amps — 20-400A

IR — 200kA RMS Sym. AC
20kA DC (20-60A)
10kA DC (70-400A)

Designed to meet the new UL Photovoltaic Fuse Standard

Agency Information: UL Std. 248-12, Class RK5, UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, CSA Component Certified C22.2.

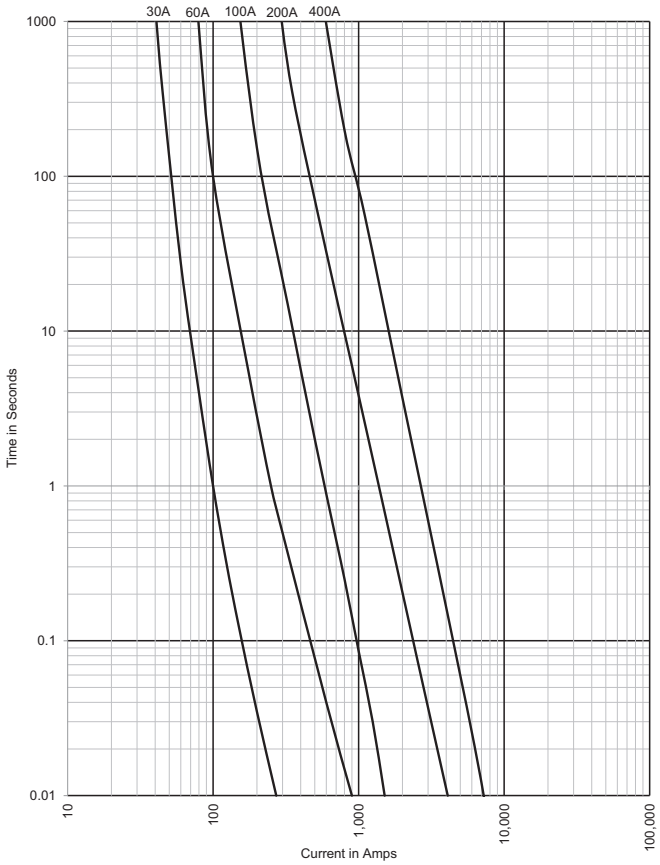
Features and Benefits

- Current limitation for non-inductive circuits provides Class RK5 current-limiting response to ground fault and short-circuit conditions.
- Designed for the protection and isolation of photovoltaic systems.

Typical Applications

- Photovoltaic systems
- Inverters
- Solar DC Safety Switches
- Recombiner Boxes

Time-Current Characteristic Curves—Average Melt



Catalog Numbers (Amps)

PVS-R-20	PVS-R-70	PVS-R-175
PVS-R-25	PVS-R-80	PVS-R-200
PVS-R-30	PVS-R-90	PVS-R-225
PVS-R-35	PVS-R-100	PVS-R-250
PVS-R-40	PVS-R-110	PVS-R-300
PVS-R-50	PVS-R-125	PVS-R-350
PVS-R-60	PVS-R-150	PVS-R-400

Recommended Fuse Holders & Blocks For Class RK5 Fuses

• See page 19

Data Sheet: 4203

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

10x38mm Photovoltaic Fuses

PV

Specifications
Class: gPV

Description: A range of fuses specifically designed for the protection and isolation of photovoltaic strings.

Dimensions: 13/32" x 1½" (10.3 x 38.1mm).

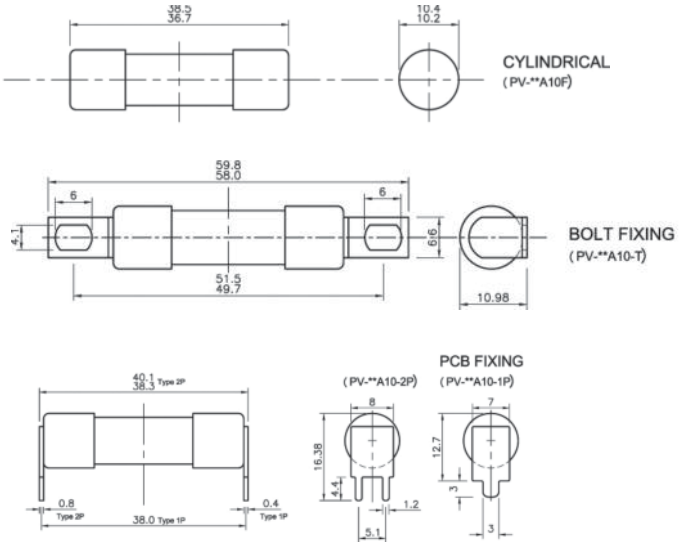
RoHS

Ratings:
Volts — 1000Vdc
Amps — 1-20A
IR — 33kAdc
IR (Min) — 1.3 x I_n

Agency Information: CCC pending, UL Listed E335324, IEC 60269-6, UL 2579, CSA.

Features and Benefits
- Capable of interrupting low over currents associated with faulted PV strings.
- High DC voltage rating.
- Variety of mounting options for flexibility.

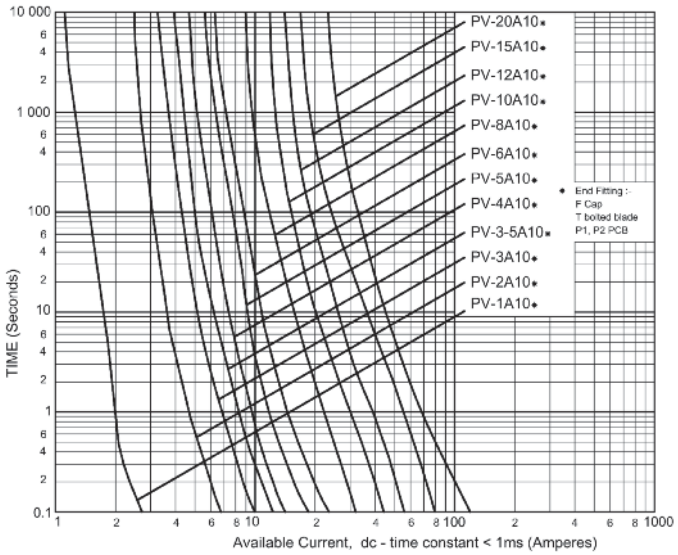
Dimensions - mm



Catalog Numbers (Amps)

Part Number	Current Rating (Amps)	Energy Integrals I^2t (A^2s)		Watts Loss	
		Pre-Arcing	Total at 1000V	0.8 I_n	I_n
PV-1A10F	1	0.15	0.4	0.8	1.5
PV-2A10F	2	1.2	3.4	0.6	1.0
PV-3A10F	3	4	11	0.8	1.3
PV-3-5A10F	3.5	6.6	18	0.9	1.4
PV-4A10F	4	9.5	26	1.0	1.5
PV-5A10F	5	19	50	1.0	1.6
PV-6A10F	6	30	90	1.1	1.8
PV-8A10F	8	3	32	1.2	2.1
PV-10A10F	10	7	70	1.2	2.3
PV-12A10F	12	12	120	1.5	2.7
PV-15A10F	15	22	220	1.7	2.9
PV-20A10F	20	34	350	2.1	3.6

Time-Current Characteristic Curves—Average Melt



Recommended Fuse Holders & Blocks For Class RK5 Fuses
• See page 19

Data Sheet: 720110

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

14x51mm Photovoltaic Fuses

14x51mm

Specifications

Description: A range of 14x51mm package fuse links specifically designed for protecting and isolating photovoltaic strings. These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

Dimensions: See dimension illustration.

Construction: Melamine tube with silver fuse element.

Ratings:

Rated Volts — 1000Vdc (25 & 32A)
1100Vdc (15 & 20A)

Rated Breaking Capacity: 10kA

Amps — 15-32A

Agency Information: UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579,IEC 60269-6 gPV, CSA. CCC pending.

Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Demonstrated performance in extreme temperature cycling conditions

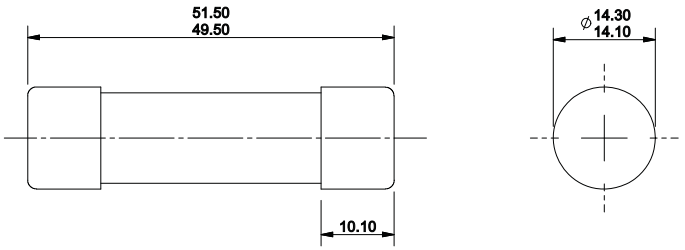
Typical Applications

- Photovoltaic systems

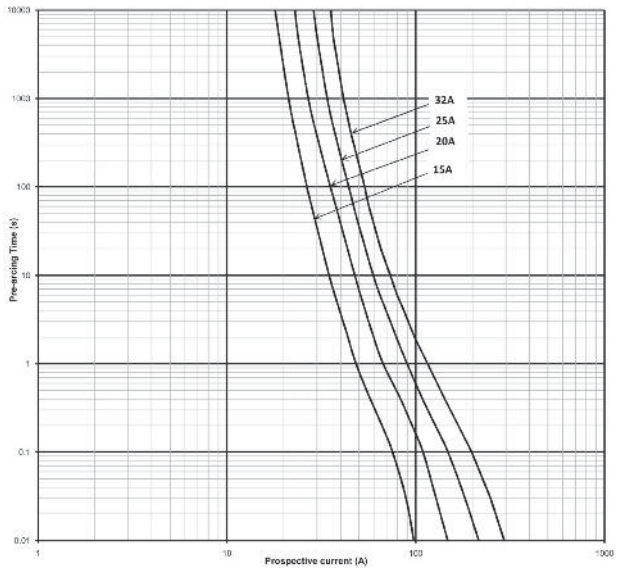
Catalog Numbers

Part Number	Current Rating (Amps)	Rated Voltage	Energy Integrats I^2t (A^2s)		Watts Loss	
			Pre-Arcing	Total at Rated Voltage	$0.8I_n$	I_n
PV-15A14F	15	1100Vdc	14	265	2.1	4
PV-20A14F	20		27	568	2.7	5
PV-25A14F	25	1000Vdc	65	943	2.7	5.1
PV-32A14F	32		120	1740	3.3	6.2

Dimensions - mm



Time-Current Characteristic Curves—Average Melt



Available Current (Amps), DC-Time Constant 1-3ms

Recommended Fuse Holders & Blocks For Class RK5 Fuses

• See page 19

Data Sheet: 720132

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

NH1 Photovoltaic Fuses

Specifications

Description: A range of NH fuse links specifically designed for protecting and isolating photovoltaic array combiners and disconnects. These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

Dimensions: See dimension illustration.

Construction: Melamine tube with silver fuse element.

Ratings:

Rated Volts — 1000Vdc

Rated Breaking Capacity: 50kA

Amps — 32-160A

Agency Information: UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579,IEC 60269-6 gPV, CSA. CCC pending.

Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Variety of mounting options for flexibility
- Demonstrated performance in extreme temperature cycling conditions

Typical Applications

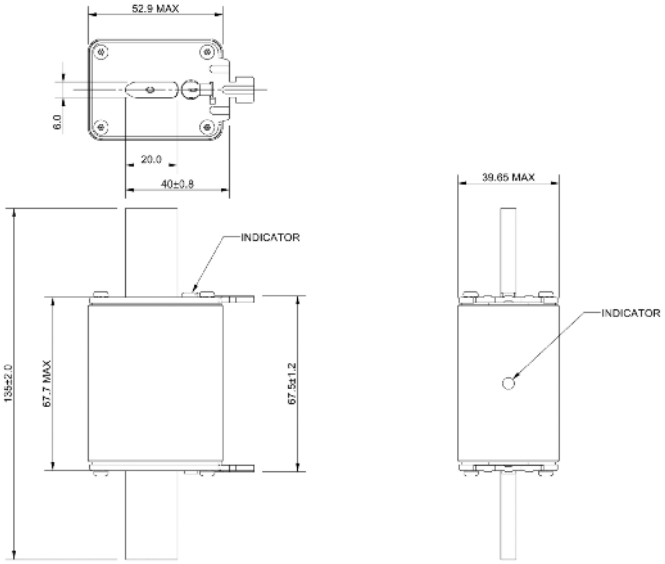
- Photovoltaic systems
- Inverters

Catalog Numbers

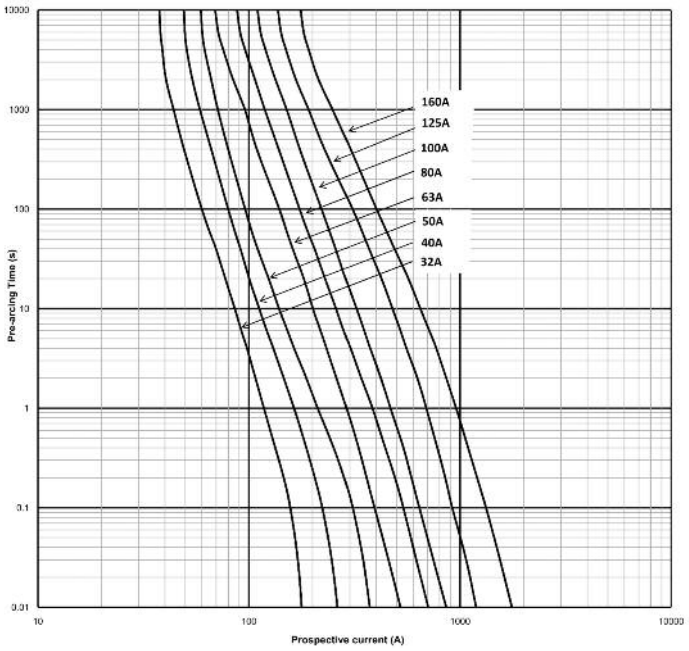
Part Number	Current Rating (Amps)	Energy Integrals I^2t (A^2s)		Watts Loss	
		Pre-Arcing	Total at 1000V	$0.8I_n$	I_n
PV-32ANH1	32	80	720	4.3	8.5
PV-40ANH1	40	185	1670	4.6	9
PV-50ANH1	50	400	3600	5.4	10.5
PV-63ANH1	63	470	4300	6.1	12
PV-80ANH1	80	640	5760	7.9	15.5
PV-100ANH1	100	1300	11,700	8.4	16.5
PV-125ANH1	125	2600	23,400	8.9	17.5
PV-160ANH1	160	5200	46,800	12.2	24

Dimensions - mm

Size 1



Time-Current Characteristic Curves—Average Melt



Available Current (Amps), DC-Time Constant 1-3ms

Recommended NH1 Fuse Holders - SD(size)-D

• See page 54

Data Sheet: 720133

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

XL Photovoltaic Fuses

1000Vdc XL Style Photovoltaic Fuses

Specifications

Description: A range of XL package fuses specifically designed for protecting and isolating photovoltaic array combiners and disconnects.

These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

Dimensions: See dimension illustration.

Ratings:

Volts — 1000Vdc

Amps — 63 to 630A:

IR — 50kA @ 63 to 160A

— 33kA @ 200 to 315A

— 50kA @ 350 to 630A

Agency Information: — IEC 60269-6

— RoHS compliant

— UL 2579

— CSA

— CCC (pending

Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Variety of mounting options for flexbility
- Demonstrated performance in extreme temperature cycling conditions

Typical Applications

- Photovoltaic systems
- Inverters

Recomended Fuse Holders

- SD1XL-S (suitable for 01 and 1XL)
- SD2XL-S (suitable for 2XL)
- SD3L-S (suitable for 3L)

See Data Sheet 720146 for information on the SD__-S Fuse Holders.

Part Number/Style		Body	Current		Energy Integrals I^2t (A^2s)		Watts Loss	
Bladed	Bolted	Size	Rating (Amps)	Volts	Pre-Arcing	Total @ 1000V	$0.8I_n$	I_n
PV-63A-01XL	PV-63A-01XL-B	01	63	1000Vdc	350	2520	12	24
PV-80A-01XL	PV-80A-01XL-B		80		660	4752	14	27
PV-100A-01XL	PV-100A-01XL-B		100		1350	9720	15	30
PV-125A-01XL	PV-125A-01XL-B		125		1930	13,896	20	40
PV-160A-01XL	PV-160A-01XL-B		160		3900	28,080	25	44
PV-200A-1XL	PV-200A-1XL-B	1	200	1000Vdc	9400	27,260	31	60
PV-200A-2XL	PV-200A-2XL-B	2	200	1000Vdc	4152	31,000	29	62
PV-250A-2XL	PV-250A-2XL-B		250		7721	57,000	35	70
PV-315A-2XL	PV-315A-2XL-B		315		17,600	130,000	40	75
PV-350A-3L	PV-350A-3L-B	3	350	1000Vdc	30,885	160,700	41	90
PV-400A-3L	PV-400A-3L-B		400		44,000	230,000	63	100
PV-500A-3L	PV-500A-3L-B		500		48,300	251,200	71	138
PV-630A-3L	PV-630A-3L-B		630		100,000	520,000	92	180

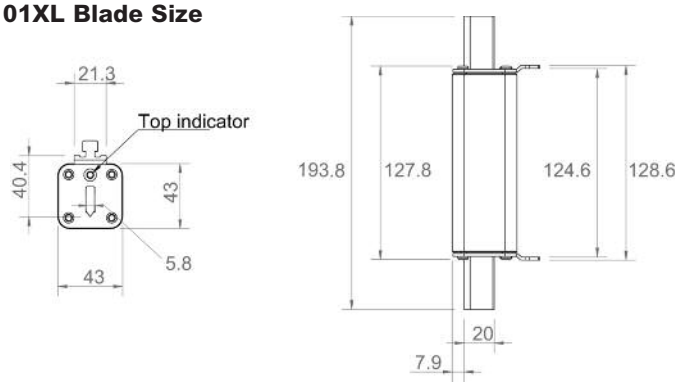
Data Sheet: 720134

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

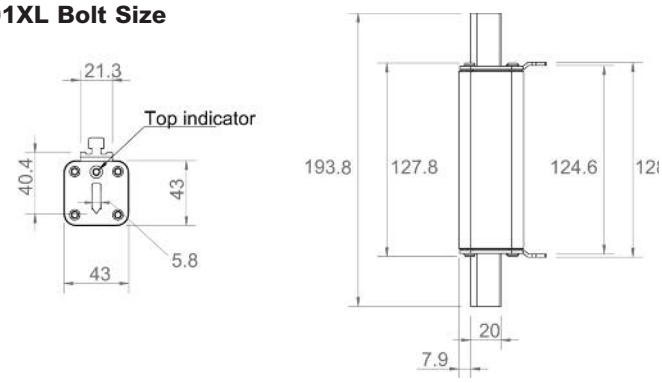
XL Photovoltaic Fuses for Solar Applications

Dimensions - mm (not to scale)

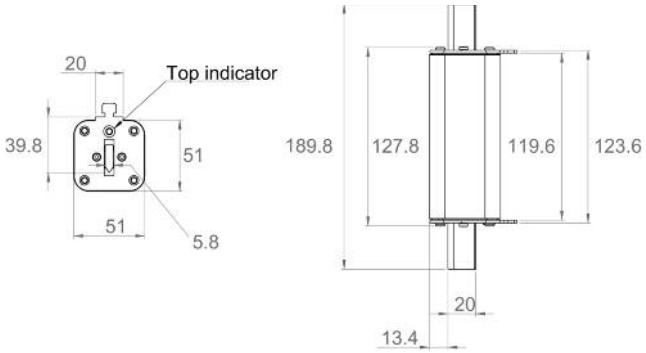
01XL Blade Size



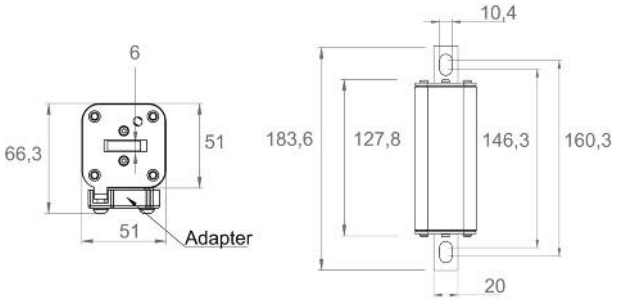
01XL Bolt Size



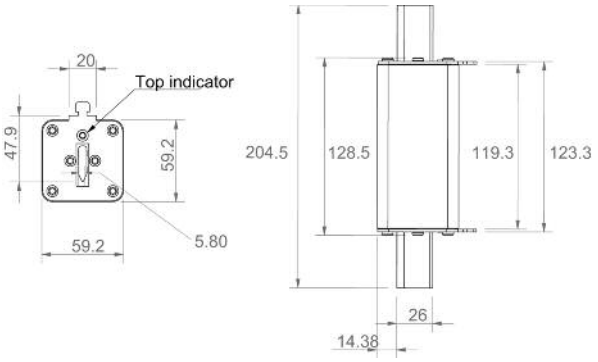
1XL Blade Size



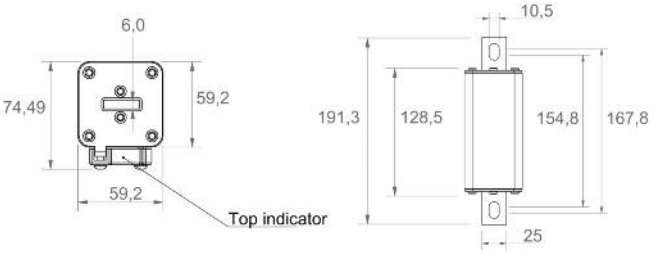
1XL Bolt Size



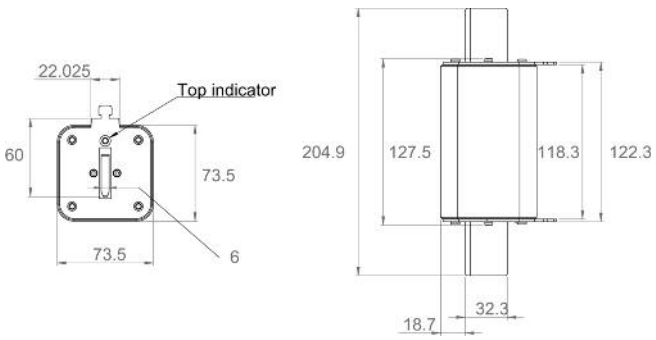
2XL Blade Size



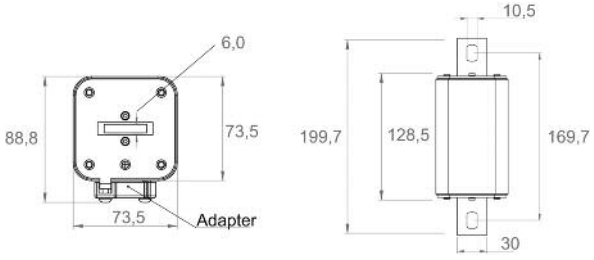
2XL Bolt Size



3L Blade Size



3L Bolt Size

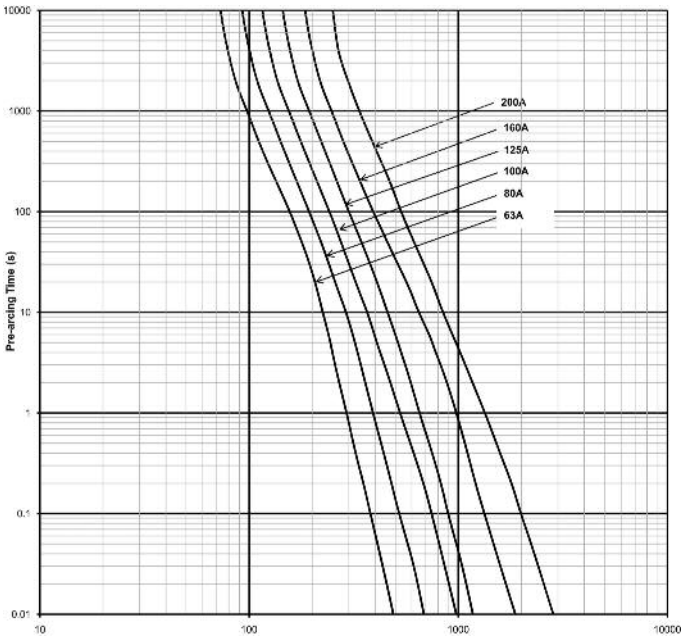


Data Sheet: 720134

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

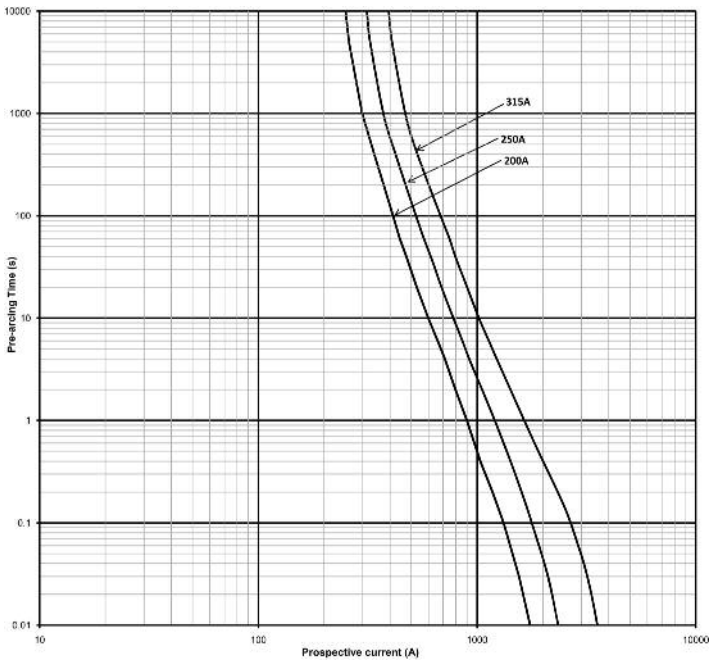
XL Photovoltaic Fuses for Solar Applications

Time Current Curves for 01XL and 1XL



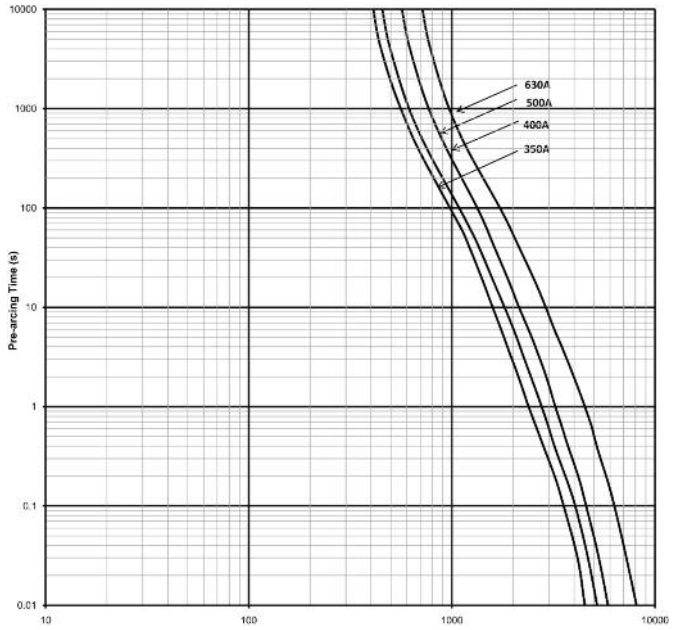
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 2XL



Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 3L



Available Current (Amps), DC-Time Constant 1-3ms

Data Sheet: 720134

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

14x65mm Photovoltaic Fuses

Specifications

Description: A range of 14x65mm package fuse links specifically designed for protecting and isolating photovoltaic strings. These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

Dimensions: See dimension illustration.

Construction: Melamine tube with silver fuse element.

Ratings:

Rated Volts — 1300Vdc (25 & 32A)
1500Vdc (15 & 20A)

Rated Breaking Capacity: 10kA

Amps — 15-32A

Agency Information: UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579,IEC 60269-6 gPV, CSA. CCC pending.

Features and Benefits

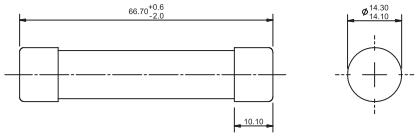
- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Demonstrated performance in extreme temperature cycling conditions

Typical Applications

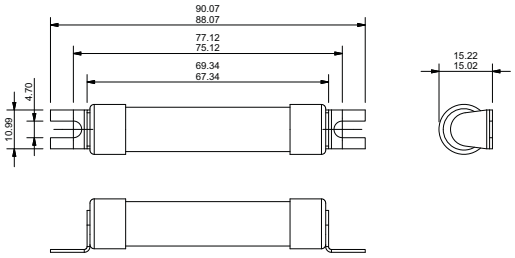
- Photovoltaic systems

Dimensions - mm

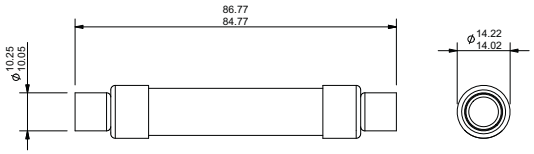
Cylindrical PV - (amp rating) A14LF



Cylindrical with Tags PV - (amp rating) A14L-T



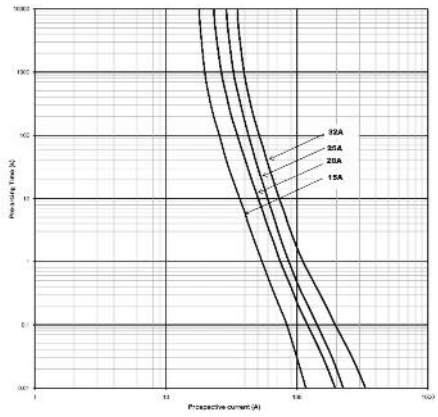
Cylindrical with 10mm Fixings PV - (amp rating) A14LF10F



Catalog Numbers

Part Number			Current	Rated	Energy Integrats I^2t (A^2s)		Watts Loss	
Cylindrical	Cylindrical with Tags	Cylindrical with 10mm Fixings	Rating (Amps)	Voltage	Pre-Arching	Total at Rated Voltage	0.8 I_n	I_n
PV-15A14LF	PV-15A14L-T	PV-15A14LF10F	15	1500Vdc	14	160	3.2	5.8
PV-20A14LF	PV-20A14L-T	PV-20A14LF10F	20		34	400	3.6	6.5
PV-25A14LF	PV-25A14L-T	PV-25A14LF10F	25	1300Vdc	65	550	4.1	7.5
PV-32A14LF	PV-32A14L-T	PV-32A14LF10F	32		105	900	5.7	10.4

Time-Current Characteristic Curves—Average Melt



Available Current (Amps), DC-Time Constant 1-3ms

Data Sheet: 720139

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

XL Photovoltaic Fuses

1500Vdc XL Style Photovoltaic Fuses

Specifications

Description: A range of XL package fuses specifically designed for protecting and isolating photovoltaic array combiners and disconnects.

These fuse links are capable of interrupting low overcurrents associated with faulted PV systems (reverse current, multi-array fault).

Dimensions: See dimension illustration.

Ratings:

Volts — 1200Vdc (160A)
— 1500Vdc (50-125A, 200-400A)

Amps — 63 to 400A:
IR — 33kA

Agency Information: UL Listed, Guide JFGA, File E335324. Photovoltaic to UL 2579, IEC 60269-6 gPV, CSA. CCC pending.

Features and Benefits

- Specifically designed to provide fast-acting protection under low fault current conditions associated with PV systems
- High DC voltage rating
- Variety of mounting options for flexbility
- Demonstrated performance in extreme temperature cycling conditions

Typical Applications

- Photovoltaic systems
- Inverters

Recomended Fuse Holders

- SD1XL-S (suitable for 01 and 1XL)
- SD2XL-S (suitable for 2XL)
- SD3L-S (suitable for 3L)

See Data Sheet 720146 for information on the SD__-S Fuse Holders.

Part Number/Style		Body	Current		Energy Integrals I^2t (A^2s)		Watts Loss	
Bladed	Bolted	Size	Rating (Amps)	Volts	Pre-Arcing	Total @ 1000V	$0.8I_n$	I_n
PV-50A-01XL-15	PV-50A-01XL-B-15	01	50	1500Vdc	280	1450	6	26
PV-63A-01XL-15	PV-63A-01XL-B-15		63		420	2250	17	28
PV-80A-01XL-15	PV-80A-01XL-B-15		80		950	5000	18	30
PV-100A-01XL-15	PV-100A-01XL-B-15		100		1250	6500	22	38
PV-125A-01XL-15	PV-125A-01XL-B-15		125		2200	11,500	27	48
PV-160A-01XL-12	PV-160A-01XL-B-12		160	1200Vdc	5000	19,500	24	48
PV-100A-1XL-15	PV-100A-1XL-B-15	1	100	1500Vdc	1250	6000	24	43
PV-125A-1XL-15	PV-125A-1XL-B-15		125		1950	9360	25	52
PV-160A-1XL-15	PV-160A-1XL-B-15		160		4200	20,160	30	58
PV-200A-1XL-15	PV-200A-1XL-B-15		200		9400	45,120	31	61
PV-125A-2XL-15	PV-125A-2XL-B-15	2	125	1500Vdc	2200	11,000	23	43
PV-160A-2XL-15	PV-160A-2XL-B-15		160		5000	25,000	26	50
PV-200A-2XL-15	PV-200A-2XL-B-15		200		9300	36,000	28	56
PV-250A-2XL-15	PV-250A-2XL-B-15		250		13,700	68,000	38	72
PV-250A-3L-15	PV-250A-3L-B-15	3	250	1500Vdc	20,000	61,000	35	62
PV-315A-3L-15	PV-315A-3L-B-15		315		38,000	116,000	40	72
PV-355A-3L-15	PV-355A-3L-B-15		355		44,000	136,000	46	84
PV-400A-3L-15	PV-400A-3L-B-15		400		58,000	177,000	50	91

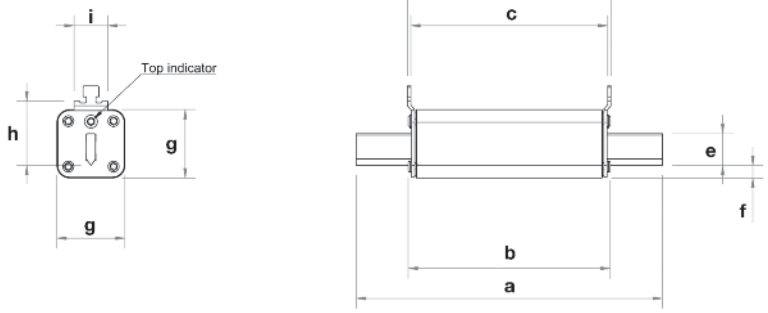
Data Sheet: 720134

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

XL Photovoltaic Fuses

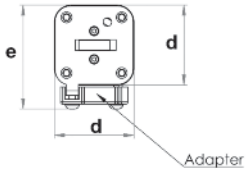
Dimensions - mm

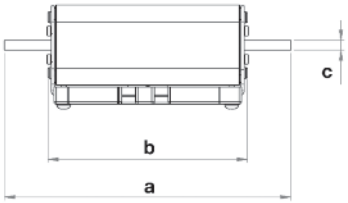
Bladed - Size 01XL, 1XL, 2XL and 3L

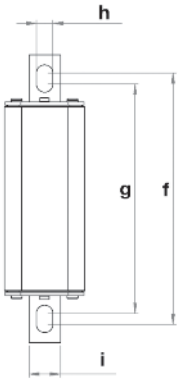


Size	a	b	c	d	e	f	g	h	i	j
01XL	193.8	127.8	124.6	128.6	20	7.9	43	40.4	21.3	5.8
1XL	189.8	127.8	119.6	123.6	20	13.4	51	39.8	20	5.8
2XL	204.5	128.5	119.3	123.3	26	14.38	59.2	47.9	20	5.8
3L	204.9	127.5	118.3	122.3	32.3	18.7	73.5	60	22	6

Bladed - Size 01XL, 1XL, 2XL and 3L

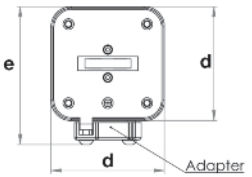


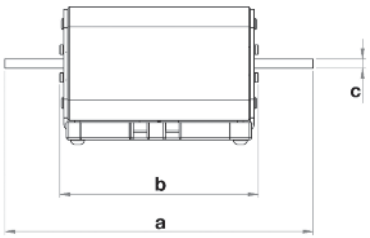


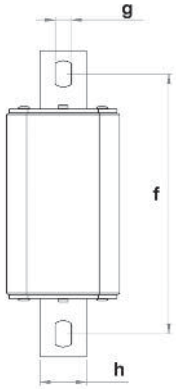


Size	a	b	c	d	e	f	g	h	i
01XL	187.6	127.8	6	43	58.3	164.3	150.3	10.4	20
1XL	183.6	127.8	6	51	66.3	160.3	146.3	10.4	20
2XL	191.3	128.5	6	59.2	74.5	167.8	154.8	10.5	25

Bladed - Size 01XL, 1XL, 2XL and 3L







Size	a	b	c	d	e	f	g	h
3L	199.7	128.5	6	73.5	88.8	169.7	10.5	30

Data Sheet: 720134

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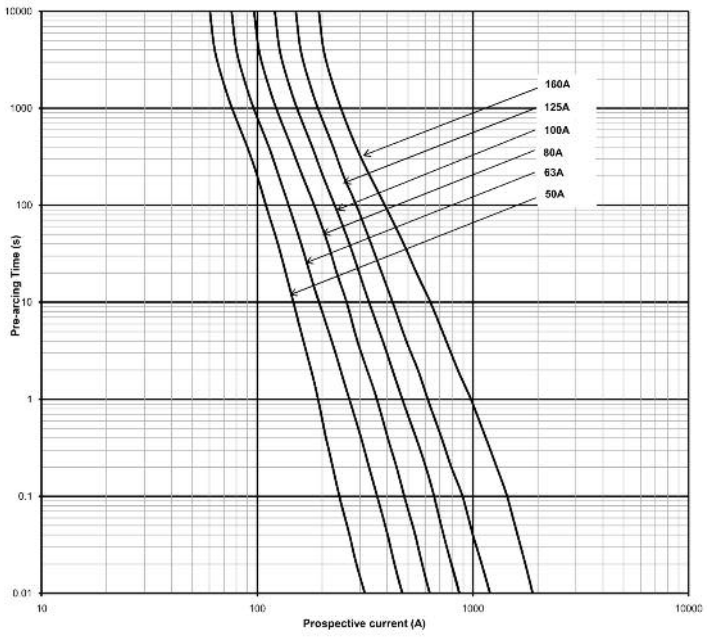
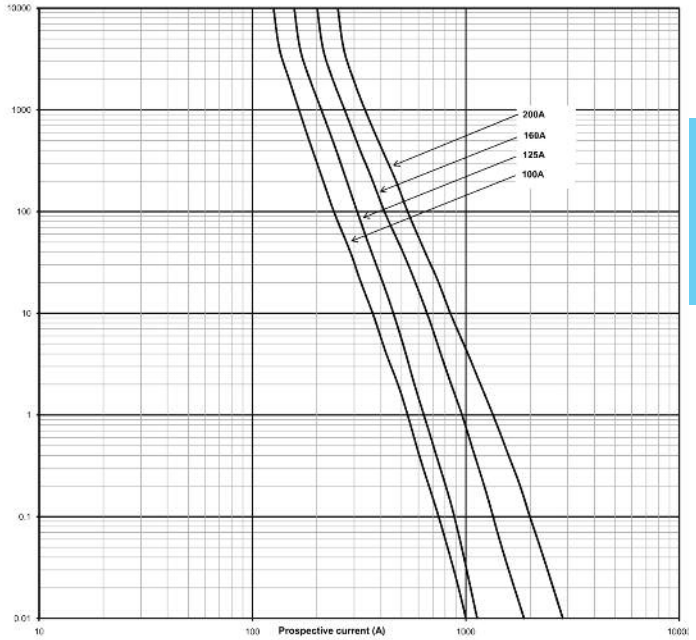
XL Photovoltaic Fuses

Time Current Curves for 01XL - 1500Vdc



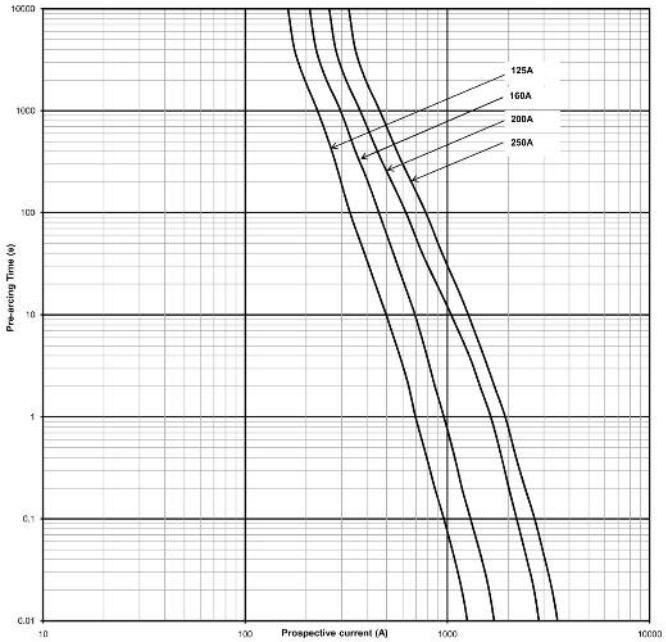
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 1XL - 1500Vdc



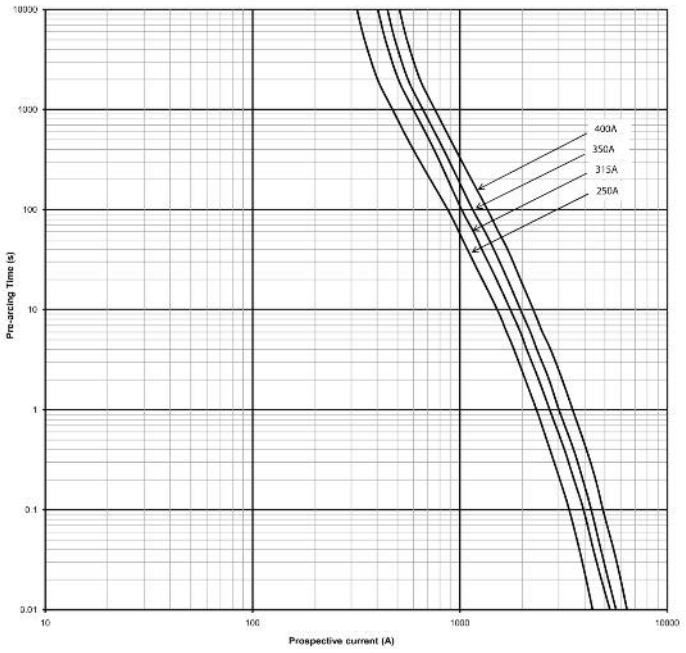
Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 2XL - 1500Vdc



Available Current (Amps), DC-Time Constant 1-3ms

Time Current Curves for 3L - 1500Vdc



Available Current (Amps), DC-Time Constant 1-3ms

Data Sheet: 720134

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*easy*ID™ fuses and fuse holders

Find blown fuses fast and easy. Utilize LED technology to indicate a blown fuse.

Bussmann
by EATON

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RED indicates NEW information

Low Voltage Supplementary Fuses

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Holders & Blocks for Low Voltage Supplementary Fuses

Limiters

Catalog Number	Volts	Page
K Series	600V	74
68000 Series	600V	74
64000 Series	600V	74
ANN Fast acting limiter	125Vac/80Vdc	79
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Holders

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Blocks

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- Modular Type Fuse Blocks 600V, panel mount 311
- J600 Series, panel mount 302
- JP Series pyramid blocks, panel mount 304
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Limiter Blocks - ANN & ANL

- Blocks for 4164 & 4164-FR 79

CH Series

Safety J™ Series

Modular Type

H250 Series

Modular Knifeblade

H600 Series

J600 Series

JP Series

BH Series

4164 & 4164-FR

13/32″ X 1 ½″ Fuses

Catalog Number	Volts	Page
BAF	250V	75
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Holders

- OPM-NG-SC3 3-pole, panel/DIN-Rail mount 286
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OPM-NG-SC3

OPM-1038R & OPM-1038RSW

CH Series

HPG

HPC-D

HPM

HPS

HPF

HEB Series

HEX & HEY Series

NDNF1-WH

BM Series

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Holders & Blocks for Low Voltage Supplementary Fuses

13/32" X 1 3/8" Fuses

Catalog Numbers	Volts	Page
BBS	600V	77

Holder
- HPS-L Panel mount holder 322

Blocks
- BM Series, panel/DIN rail with adapters 310
- 3723, 3742 and 3743 multi-pole add-on fuse blocks 326

HPS-L

BM Series

Pin Indicating Fuses

1/4" X 1 1/4" Fuse Catalog Numbers	Volts	Page
GBA 1/4" X 1 1/4"	125V	78
GLD 1/4" X 1 1/4"	125V	78
MIC 13/32" X 1 1/2"	250V	78
MIN 13/32" X 1 1/2"	250V	78
FNA 13/32" X 1 1/2"	250V	78
MIS 13/32" X 2"	600V	79
KAZ 13/32" X 2"	600V	79

Holders
- 1/4" X 1 1/4": HLD Panel mount visual indication 321
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Blocks
- 1/4" X 1 1/4": Series 8000 for visual indication 324
- 13/32" X 1 1/2": 1-Pole signal block cat. # 3839 (not shown in catalog)*
- 13/32" X 2": 1-Pole signal block cat. # 2778 (not shown in catalog)*
- 13/32" X 2": 2-Pole signal block cat. # 2837 (not shown in catalog)*
- 13/32" X 2": 3-Pole signal block cat. # 2838 (not shown in catalog)*

*Call our customer satisfaction team at 636-527-3877 for more information.

HLD

HK Series

Series 8000

Automotive Blade-type Fuses

Catalog Numbers	Volts	Page
ATC	32Vdc	82
ATM	32Vdc	82
MAX	32Vdc	83

Holders
- ATC: HHC, HHD, HHF, HHG & ATC-FHID In-line holders 82
- ATM: HHL, HHM & ATM-FHID In-line holders 83
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*easy*ID™ Illuminating Holders

HHC, HHD, HHF & HHG

HHL & HHM

HHX

In-Line Rejecting and Non-Rejecting Fuses

Catalog Number	Volts	Page
GLQ rejecting fuse	300V	80
GMQ rejecting fuse	300V	80
GLR non-rejecting fuse	300V	81
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GRF non-rejecting fuse	300V	81

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HLQ[3] Fuse Holders

HLR Fuse Holder

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Cable Limiters & Welder Limiters

K Series

Specifications

Description: Cable limiters.

Ratings:

Volts — 600Vac

IR — 200kA RMS Sym. @ 600Vac

Agency Information: UL Listing: KDM, KDR, KDP and KFM, KCM, KCM-B and KCR.

Features and Benefits

- Sizes and ratings available to meet many applications.

Typical Applications

- Protecting low voltage distribution and service entrance cables against short-circuit currents.

Catalog Numbers

Copper Cable Limiter — 600 Volts

Catalog Number	Cable Size	Catalog Number	Cable Size
Tubular Terminals			
KCY	#4	KCF	4/0
KCZ	#3	KCH	250 MCM
KCA	#2	KCJ[1, 2]	350 MCM
KCB	#1	KCM[1, 2, 3], KCM-B[1]	500 MCM
KCC	1/0	KCV	600 MCM
KCD[1, 2]	2/0	KCR[1, 2]	750 MCM
KCE	3/0	KCS	1000 MCM
Tubular Terminal and Offset Bolt-Type Terminal			
KQV	#12	KDD[1]	2/0
KQT	#10	KDE	3/0
KFZ	#8	KDF	4/0
KIG	#6	KDH	250 MCM
KDY	#4	KDJ[1, 2]	350 MCM
KDA	#2	KDM[1], [2], [3]	500 MCM
KDB	#1	KDU	600 MCM
KDC	1/0	KDR[1],[2]	750 MCM
Compression Connector Rod and Tubular Terminals			
KEX	4/0	KQO	350 MCM
KFH-A	250 MCM	KDT[2]	500 MCM
***Center Bolt-Type Terminal and Off-Set Bolt-Type Terminal**			
KPF	4/0	KDP[1]	500 MCM
KFT[1]	250 MCM	KFM[1]	750 MCM
KEW[1]	350 MCM		

*Copper or aluminum cable; sizes of all other limiters pertain to copper only. KFM copper only.

[1]UL Listed (File E90818).

[2]Available with shrink tube "_V" suffix.

[3]Available with molded rubber boots. Add "–B" to end of part number.

Accessories

Boots can be purchased separately.

For KCM BOOT-KCM

For KDM BOOT-KDM

Installation tools can be purchased separately from Thomas and Betts

- Crimp Tool: TBM-14M
- Die: 15506 KDM/15515 KDR

Data Sheet: 1042

64000 & 68000 Series

Specifications

Description: Welder limiters.

Ratings:

Volts — 600Vac (or less)

IR — 200kA RMS Sym.

Features and Benefits

- Current-limiting devices designed specially for use on welder circuits only
- Time-current characteristics are designed to hold on the intermittent overloading encountered in welder operation, while providing short-circuit protection to the circuit and equipment
- Welder limiters have excess current capacity in the operating range as needed for this type of service

Typical Applications

- Welder circuits
- Because welder limiters have special characteristics, they are not intended for application on general-use circuits

Catalog Numbers

Catalog Numbers	Fuse Holder Type	Nominal Amp Rating
68300	Class H	300
68600	Class H	600
64200	Class J	200
64300	Class J	300

Recommended Fuse Blocks For 68000 & 64000 Series limiters

• See page 72

Data Sheet: 1045

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13/32″ x 1 ½″ Fast-acting Fuses

BAF

Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 13/32″ x 1 ½″ (10.3 x 38.1mm).
Ratings:
Volts — 250Vac (or less)
Amps — 3/10-30A
IR — 10kA @ 125Vac (3/10-30A)
— 35A (3/10-1A @ 250Vac)
— 100A (1½-3A @ 250Vac)
— 200A (4-10A @ 250Vac)
— 750A (12A- 15A @ 250Vac)
— 200A (20-30A @ 250Vac)

Agency Information: CE, Std. 248-14, UL 0-15/250V, Guide JDYX, File E19180 CSA Certified, 0-15/250V, Class 1422-01, File 53787.

Features and Benefits
- Low cost supplemental protection of 125V and 250V non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc-flash hazards. (and minimize potential for misapplying fuse.)

Typical Applications
- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

BAF-¼	BAF-2-½	BAF-9
BAF-½	BAF-3	BAF-10
BAF-9/10	BAF-4	BAF-12
BAF-3/10	BAF-5	BAF-15
BAF-1	BAF-6	BAF-20
BAF-1-½	BAF-6-¼	BAF-25
BAF-1-9/10	BAF-7	BAF-30
BAF-2	BAF-8	

*All have interrupting rating of 10,000A at 125V.

For superior electrical protection, Bussmann recommends upgrading BAF and fuse applications to Low-Peak LP-CC fuses See page 23.

Data Sheet: 2011 (0-30)

KTK

Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 13/32″ x 1 ½″ (10.3 x 38.1mm).
Ratings:
Volts — 600Vac (or less)
Amps — 1/10-30A
IR — 100kA RMS Sym. (UL)

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180.

Features and Benefits
- Low cost supplemental protection of 600V or less non-inductive circuits.
- Upgrade with LP-CC product to reduce SKU investment and minimize potential arc flash hazards.

Typical Applications
- Control Circuits
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

600Vac - UL Listed and CSA

KTK-1/10	KTK-¾	KTK-4	KTK-12	KTK-50*
KTK-⅛	KTK-1	KTK-5	KTK-15	
KTK-3/10	KTK-1-¼	KTK-6	KTK-20	
KTK-¼	KTK-1-½	KTK-7	KTK-25	
KTK-3/10	KTK-2	KTK-7-½	KTK-30	
KTK-4/10	KTK-2-½	KTK-8	KTK-35*	
KTK-½	KTK-3	KTK-9	KTK-40*	
KTK-9/10	KTK-3-½	KTK-10	KTK-45*	

*Rated for no more than 24A continuous.

For superior electrical protection, Bussmann recommends upgrading KTK fuse applications to Low-Peak LP-CC fuses See page 23.

Data Sheet: 1011

KLM

Specifications
Class: Supplemental
Description: Full range, fast-acting, DC midget fuse.
Dimensions: 13/32″ x 1 ½″ (10.3 X 38.1mm).
Ratings:
Volts — 600Vac/dc
Amps — 1/10-30A
IR — 100kA AC
— 50kA DC

Agency Information: CE, UL Listed: STD. 248-14, (FILE #E19180), CSA Certified, C22.2 NO. 248. 14 (CLASS #1422-01, FILE #53787).

Features and Benefits
- Full range, fast-acting, 600Vac/dc midget fuse.
- Minimum interrupting rating or 200% rated current at 600Vdc.

Typical Applications
- DC Control Circuits Requiring Fast-Acting Fuses.
- Solar power energy sources - use the Bussmann PVM fuse for DC ratings up to 600Vdc.

Catalog Numbers (Amps) - KLM

KLM-1/10	KLM-¾	KLM-5	KLM-20
KLM-⅛	KLM-1	KLM-6	KLM-25
KLM-3/10	KLM-1-½	KLM-8	KLM-30
KLM-¼	KLM-2	KLM-10	
KLM-3/10	KLM-3	KLM-12	
KLM-½	KLM-4	KLM-15	

Data Sheet: 2020

Recommended fuse blocks/fuse holders for 13/32" x 1 ½" fuses
• See page 72

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13/32″ x 1 ½″ Time-delay Fuses

FNM

Specifications
Class: Supplemental
Description: Time-delay supplementary fuse.
Dimensions: 13/32″ x 1½″ (10.3 x 38.1mm).
Ratings:
Volts — 250Vac (or less)
Amps — 1/10-30A
IR — 35A (1/10-1A @ 250Vac)
— 100A (1⅛-3½A @ 250Vac)
— 200A (4-10A @ 250Vac)
— 10kA (1/10-10A @ 125Vac)
— 10kA (12-30A @ 250Vac)
Agency Information: CE, Std. 248-14, UL Listed, 0-30/250Vac; File E19180, Guide JDYX, CSA Certified, 1-30/250Vac; Class 1422-01, File 53787.

Features and Benefits
- Low cost supplemental protection of 125V and 250V inductive circuits.

Typical Applications
- General Purpose Circuits
- Lighting Circuit Protection
- Meter Circuits
- Upgrading to LP-CC product will reduce SKU investment and minimize potential for misapplying fuse

Catalog Numbers (Amps)

FNM-1/10	FNM-½	FNM-1-½	FNM-3	FNM-6	FNM-15
FNM-⅛	FNM-6/10	FNM-1-6/10	FNM-3-2/10	FNM-6-¼	FNM-20
FNM-15/100	FNM-¾	FNM-1-8/10	FNM-3-½	FNM-7	FNM-25
FNM-2/10	FNM-1	FNM-2	FNM-4	FNM-8	FNM-30
FNM-¼	FNM-1-⅛	FNM-2-¼	FNM-4-½	FNM-9	
FNM-3/10	FNM-1-¼	FNM-2-½	FNM-5	FNM-10	
FNM-4/10	FNM-1-5/10	FNM-2-8/10	FNM-5-6/10	FNM-12	

For superior electrical protection, Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 23.

Recommended fuse blocks and fuse holders for 13/32″ x 1 ½″ fuses
• See page 72

Data Sheet: 2028

FNQ

Specifications
Class: Supplemental
Description: Time-delay supplementary fuse.
Dimensions: 13/32″ x 1½″ (10.3 x 38.1mm).
Ratings:
Volts — 500Vac (or less)
Amps — 1/10-30A
IR — 10kA RMS Sym.
Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180 CSA Certified, Class 1422-01, File 53787.

Features and Benefits
- Low cost supplemental protection of transformers and relays at 500V or less.

Typical Applications
- Control Transformer 480V Primary Protection
- Lighting Circuit Protection
- Meter Circuits

Catalog Numbers (Amps)

FNQ-1/10	FNQ-4/10	FNQ-1-½	FNQ-3-½	FNQ-7	FNQ-20
FNQ-⅛	FNQ-½	FNQ-1-6/10	FNQ-4	FNQ-8	FNQ-25
FNQ-15/100	FNQ-6/10	FNQ-2	FNQ-4-½	FNQ-9	FNQ-30
FNQ-3/16	FNQ-8/10	FNQ-2-¼	FNQ-5	FNQ-10	
FNQ-2/10	FNQ-1	FNQ-2-½	FNQ-5-6/10	FNQ-12	
FNQ-¼	FNQ-1-⅛	FNQ-3	FNQ-6	FNQ-14	
FNQ-3/10	FNQ-1-¼	FNQ-3-2/10	FNQ-6-¼	FNQ-15	

For superior electrical protection, Bussmann recommends upgrading FNM and FNQ fuse applications to Low-Peak LP-CC fuses See page 23.

Recommended fuse blocks and fuse holders for 13/32″ x 1 ½″ fuses
• See page 72

Data Sheet: 1012

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

13/32″ x 1 3/8″ Fast-acting Fuses

BBS

Specifications
Class: Supplemental
Description: Fast-acting supplementary fuse.
Dimensions: 13/32″ x 1 3/8″ (10.3 x 34.9mm).
Construction: Fiber cartridge.
Ratings:
Volts — 600Vac (1/10-5A)
— 250Vac (6 - 10A)
— 48Vac (12-30A)
Amps — 1/10-30A
IR — 10kA RMS Sym.
Agency Information: CE, Std. 248-14, UL Listed, 0-5A/600V, Guide JDYX, File E19180, CSA Certified, 0-5A/600V, Class 1422-01, File 53787.

Features and Benefits
- Low cost supplemental protection of non-inductive circuits
- Reduced interchangeability with other supplemental fuses minimizes misapplication

Typical Applications
- Control Circuits
- Lighting Ballasts
- Meter Circuits

Catalog Numbers (Amps)

BBS-1/10	BBS-8/10	BBS-4	BBS-15
BBS-2/10	BBS-1	BBS-5	BBS-20
BBS-1/4	BBS-1-1/2	BBS-6	BBS-25
BBS-3/10	BBS-1-8/10	BBS-7	BBS-30
BBS-1/2	BBS-1-9/10	BBS-8	
BBS-5/10	BBS-2	BBS-10	
BBS-3/4	BBS-3	BBS-12	

Recommended fuse blocks/fuse holders for 13/32″ x 1 3/8″ fuses
• Page 73

Data Sheet: 2010 (0-30A)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Pin Indication Fuses

GBA

GLD

Specifications
Class: Supplemental

Description: Fast-acting, pin indication fuse.

Dimensions: ¼″ x 1 ¼″ (6.6 x 31.7mm) 3AG.

Ratings:

Volts — See Agency Info below

Amps — ½-15A

IR — See Agency Info below

Agency Information: CE, Std. 248-14, UL Listed, 0-5A/125Vac, 10,000 AIC, Guide JDYX, File E19180, UL Recognized, 6A/125Vac, 1000AIC 8-15A/50Vac/dc, 300 AIC Guide JDYX2, File E19180, CSA Certified: 0-5A/125Vac, 10,000 AIC Class 1422-01, File 53787.

Features and Benefits

- Type GBA has a “red” pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type GLD has a plated pin to activate transmitting a electrical signal to indicate the location of opened circuits, resulting in reduced downtime.

Typical Applications

- Control Circuits
- Electronic Circuits

GLD Catalog Numbers (Amps)

GLD-½	GLD-2	GLD-6
GLD-¾	GLD-3	GLD-10
GLD-1	GLD-4	GLD-12
GLD-1-½	GLD-5	GLD-15

GBA Catalog Numbers (Amps)

GBA-½	GBA-2	GBA-8
GBA-¾	GBA-3	GBA-10
GBA-1	GBA-4	GBA-15
GBA-1-½	GBA-5	

Recommended fuse blocks/fuse holders for ¼″ x 1 ¼″ indicating fuses
• Page 73
Data Sheet: 2012

MIC & MIN

Specifications
Class: Supplemental

Description: Fast-acting, pin indication fuse.

Dimensions: 13/32″ x 1 ½″ (10.3 x 38.1mm) 5AG.

Ratings:

Volts — 250Vac (1-15A)
— 32Vac (20-30A)

Amps — 1-30A

IR — 35A (1A @250Vac)
— 100A (2-3A @250Vac)
— 200A (5-10A @250Vac)
— 750A (15A @250Vac)
— 10kA (20-30A @32V)
— 35A (1A @250Vac)

Agency Information: CE, Std. 248-14, MIC—0-15A UL Listed, 125Vac/10kA IR Guide JDYX, File E19180, MIN—1-5A CSA Certified, Class 1422-01, File 53787.

Features and Benefits

- Type MIN has a “red” pin indicator providing visual identification of failed circuits, resulting in faster trouble shooting (reduced circuit downtime).
- Type MIC has silver-plated pin transmitting an electrical signal indicating location of a failed circuit, resulting in faster troubleshooting (reduced circuit downtime).

Typical Applications

- Control Circuits
- PLC Circuits
- Electronic Circuits

MIC Catalog Numbers (Amps)

MIC-1	MIC-5	MIC-20
MIC-2	MIC-10	MIC-25
MIC-3	MIC-15	MIC-30

MIN Catalog Numbers (Amps)

MIN-1	MIN-5	MIN-20
MIN-2	MIN-10	MIN-25
MIN-3	MIN-15	MIN-30

Recommended signal block for 13/32″ x 1 ½″ indicating fuses
• Page 73
Data Sheet: 2047

FNA

Specifications
Class: Supplemental

Description: Time-delay, pin indication fuse.

Dimensions: 13/32″ x 1 ½″ (10.3 x 38.1mm).

Ratings:

Volts — 250Vac (1/10-8/10A)
— 125Vac (1-15A)
— 32Vac (20-30A)

Amps — 1/10-30A

IR — 35A (1/10-8/10A @ 250Vac)
— 10kA (1/10-15A @ 125Vac)
— 1kA (20-30A @ 32V)

Agency Information: CE, Std. 248-14, UL Listed 1/10-8/10A, IR 35A@ 250V, IR 10kA@ 125V , 1-15A, IR 10kA@ 125V, Guide JDYX, File 19180, CSA Certified, 0-8/10A/250V, 1-10A/125V, Class 1422-01, File 53787.

Features and Benefits

- FNA has a pin indicator providing visual identification of failed circuits, resulting in reduced circuit downtime.
- Time-delay response allows close sizing on control transformers and relays

Typical Applications

- Control Circuits
- Electronic Circuits

Catalog Numbers (Amps)

FNA-1/10	FNA-8/10	FNA-2-1/2	FNA-6-1/4
FNA-1/8	FNA-1	FNA-2-8/10	FNA-7
FNA-15/100	FNA-1-1/8	FNA-3	FNA-8
FNA-2/10	FNA-1-1/4	FNA-3-2/10	FNA-9
FNA-1/4	FNA-1-4/10	FNA-3-1/2	FNA-10
FNA-3/10	FNA-1-1/2	FNA-4	FNA-12*
FNA-4/10	FNA-1-6/10	FNA-4-1/2	FNA-15*
FNA-1/2	FNA-1-8/10	FNA-5	FNA-20*
FNA-6/10	FNA-2	FNA-5-6/10	FNA-25*
FNA-3/4	FNA-2-1/4	FNA-6	FNA-30

*12-30A versions are dual-tube construction

Recommended signal block for 13/32″ x 1 ½″ indicating fuses
• Page 73
Data Sheet: 2029

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Pin Indication Fuse and Actuator, and Limiters

ANN & ANL Limiters

Specifications
Description: Circuit limiters.
ANN: Very fast-acting limiter.
ANL: Non-time delay limiter.
Dimensions: ⅞″ x 3 ⁹⁄₁₆″ (22.2 x 81.0mm).
Ratings:

ANN:
Volts — 125Vac
— 80Vdc
Amps — 10-800A
IR — 2500A @ 125Vac
— 2700A @ 80Vdc

ANL:
Volts — 80Vdc
Amps — 35-750A
IR — 2700A @ 80Vdc

Agency Information:
ANN: 35-400A @ 125Vac, IR=2500A and 500A @ 80Vdc, IR=2700A: UL Recognized Guide JFHR2, File E56412; CSA Certified Class 1422-30, File 53787, CE for 35-400A.
ANL: UL Recognized, CSA Certified, 35-750A @ 80Vdc, IR = 2700A, Guide JFHR2, File E56412, Class 1422-30, File 53787, SAE J1171.

Features and Benefits
- Fast-acting circuit protection (ANN).
- Time-delay sizing for inductive circuits (ANL).
- Window shows limiter status.

Typical Applications
- Fork lifts, Marine, Aviation

ANN Catalog Numbers (Amps)

ANN-10	ANN-90	ANN-225	ANN-400
ANN-35	ANN-100	ANN-250	ANN-500
ANN-40	ANN-125	ANN-275	ANN-600
ANN-50	ANN-150	ANN-300	ANN-700
ANN-60	ANN-175	ANN-325	ANN-800
ANN-80	ANN-200	ANN-350	

ANL Catalog Numbers (Amps)

ANL-35	ANL-125	ANL-250	ANL-500
ANL-40	ANL-130	ANL-275	ANL-600
ANL-50	ANL-150	ANL-300	ANL-675
ANL-60	ANL-175	ANL-325	ANL-750
ANL-80	ANL-200	ANL-350	
ANL-100	ANL-225	ANL-400	

Data Sheets: 2023 (ANN), 2024 (ANL)

MIS

Specifications
Class: Supplemental
Description: Non time-delay pin indication fuse.
Dimensions: ¹³⁄₃₂″ x 2″ (10.3 x 50.8mm).
Ratings:
Volts — 600Vac
Amps — 1-12A
IR — 200kA

Features and Benefits
- Type MIS has a pin indicator providing visual identification of failed circuits, resulting in faster troubleshooting (reduced circuit downtime).
- Type MIS can be used in circuits rated 600V or less.
- Type MIS has an interrupting rating of 200kA.

Typical Applications
- 480V Control Circuits
- PLC Circuits

Catalog Numbers (Amps)

MIS-1	MIS-4	MIS-10
MIS-2	MIS-5	MIS-12
MIS-3	MIS-8	

Test Specifications

Fuse	Load	Opening Time
All	110%	0 4 hrs. (min.)
1-5A	150%	0 6 min. (max.)
6-12A	150%	12 min. (max.)

Recommended signal block for ¹³⁄₃₂″ x 2″ indicating fuses
• Page 73

Data Sheet: 2133

KAZ

Specifications
Description: Non-fuse actuator.
Dimensions: ¹³⁄₃₂″ x 2″ (10.3 x 50.8mm).
Ratings:
Volts — 600Vac
Amps — N/A
IR — 200kA

Agency Information: CE, UL Listed, Guide JDVS, File E58836.

Features and Benefits
- Bussmann signal blocks 2778, 2837 or 2838 with KAZ actuators mounted in parallel with fuses having a rating of 50A or larger to provide blown fuse dropout of shunt-trip fused switches.
- Type KAZ can be used in circuits rated 600V or less.
- Type KAZ has an interrupting rating of 200kA.

Typical Applications
- Large, Shunt-Trip Fused Switches
- Fuse Protected Circuits Rated 50A or Larger With Shunt-Trip Devices.

Catalog Number: KAZ

Recommended signal block for ¹³⁄₃₂″ x 2″ indicating fuses
• Page 73

Data Sheet: 2021

4164 & 4164-FR Limiter Blocks

Specifications
Description: Limiter fuse blocks for ANL & ANN.
- 4164 furnished with nylon inserted locknuts
- 4164-FR furnished with standard hex nuts

Dimensions: Length: 3.38″
Width: 0.95″
Height: 1.62″
Studs center to center: 2.43″

Ratings:
Volts — 125Vac
— 80Vdc
— 32Vdc (Self Certified)
Amps — 10-800A
Poles: 1 - stud terminal

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

In-line Size Rejecting Fuses and Fuse Holders

GLQ

Specifications

Class: Supplemental

Description: Fast-acting, size-rejecting in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — 1-10A

IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits

- In-Line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

Typical Applications

- In-line Lighting Ballast Protection

Catalog Numbers (Amps) and Rejection Holders

Fuse	Holder[1, 2]	Fuse	Holder[1, 2]
GLQ-1	HLQ-1-6/10	GLQ-3	HLQ-3-2/10
GLQ-1-½	HLQ-1-6/10	GLQ-4	HLQ-5
GLQ-1-6/10	HLQ-1-6/10	GLQ-5	HLQ-5
GLQ-2	HLQ-3-2/10	GLQ-9	HLQ-10
GLQ-2-½	HLQ-3 -2/10	GLQ-10	HLQ-10

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.
2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043"to 0.062" or #4909 for thickness 0.030" to 0.042".
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2033

GMQ

Specifications

Class: Supplemental

Description: Time-delay, size-rejecting in-line fuse.

Construction: Ceramic tube.

Ratings:

Volts — 300Vac (or less)

Amps — ½-6¼A

IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787)

Features and Benefits

- In-line, fast-acting circuit protection.
- Rejection feature prevents overfusing.

Typical Applications

- In-Line Lighting Ballast Protection

Catalog Numbers (Amps) and Rejection Holders

Fuse	Holders[1, 2]	Fuse	Holders[3, 4]
GMQ-½	HLQ-½	GMQ-2-½	HLQ-3-3/10
GMQ-6/10	HLQ-1-6/10	GMQ-3	HLQ-3-3/10
GMQ-8/10	HLQ-1-8/10	GMQ-3-3/10	HLQ-3-3/10
GMQ-1	HLQ-1-8/10	GMQ-4	HLQ-5
GMQ-1-¼	HLQ-1-8/10	GMQ-6	HLQ-8
GMQ-1-8/10	HLQ-1-8/10	GMQ-6-¼	
GMQ-2	HLQ-3-3/10		

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 10A, 300Vac.
2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043"to 0.062" or #4909 for thickness 0.030" to 0.042"
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2030

HLQ[3] Fuse Holders for both GLQ & GMQ fuses.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

In-line Non-rejecting Fuses and Fuse Holders

GLR

Specifications
Class: Supplemental

Description: Fast-acting, non-rejection, in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — 3/16-15A

IR — 10kA

Agency Information: CE, Std. 248-14, UL Listed, 0-15A/300Vac (Guide JDYX, File E19180), CSA Certified, 0-10A/300V (Class 1422-01, File 53787).

Features and Benefits

- In-line, fast-acting circuit protection.

Typical Applications

- In-Line Lighting Ballast Protection

Catalog Numbers (Amps) and Non-Rejection Holders

Fuse	Holder[1, 2*]	Fuse	Holder[1, 2*]
GLR-1/2	HLR	GLR-6	HLR
GLR-1	HLR	GLR-7	HLR
GLR-1-1/2	HLR	GLR-8	HLR
GLR-1-6/10	HLR	GLR-9	HLR
GLR-2	HLR	GLR-10	HLR
GLR-3	HLR	GLR-12	HLR
GLR-4	HLR	GLR-15	HLR-2A
GLR-5	HLR		

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.
2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043"to 0.062" or #4909 for thickness 0.030˝ to 0.042˝.

*** For two leads (one each for line and loadside) order HLR-2A, 15A, 300V**

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2032

GMF

GRF

Specifications
Class: Supplemental

Description: Time-delay, non-rejection, in-line fuse.

Construction: Glass tube.

Ratings:

Volts — 300Vac (or less)

Amps — 3/10-10A

IR — 10kA

Agency Information: CE, Std. 248-14 0-10A, UL Listed (Guide JDYX, File E19180), CSA Certified, (Class 1422-01, File 53787).

Features and Benefits

- In-line, time-delay circuits protection.

Typical Applications

- In-Line Lighting Ballast Protection

Catalog Numbers (-Amps) and Non-Rejection Holders

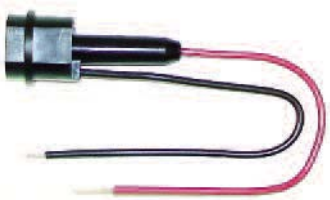
Fuse	Holder[1, 2*]	Fuse	Holder[1, 2*]
GMF-3/10	HLR	GMF-3	HLR
GMF-1/2	HLR	GMF-3-2/10	HLR
GMF-6/10	HLR	GMF-4	HLR
GMF-8/10	HLR	GMF-5	HLR
GMF-1	HLR	GMF-6-1/4	HLR
GMF-1-1/4	HLR	GMF-10	HLR
GMF-1-6/10	HLR	GRF-7	HLR
GMF-2	HLR	GRF-8	HLR
GMF-2-1/2	HLR	GRF-10	HLR
GMF-2-8/10	HLR		

1) Carrier is UL Recognized, Guide IZLT2, File E14853 and CSA Certified, Class 6225-01, File 47235 12A, 300Vac.
2) Units can be panel-mounted either in a knockout hole with a separate steel clip (BK/A-104) or in a keyhole punch using separate mounting clip #6374 for panels of thickness 0.043"to 0.062" or #4909 for thickness 0.030˝ to 0.042˝.

***For two leads order HLR-2A, 15A, 300V**

- An alternative to the HLR fuse holder is the A fuse holder. The A fuse holder comes *WITHOUT* leads. The customer inserts #18 insulated solid copper wire into the line side receptacle as well as into the load side receptacle. It has the same body dimensions, utilizes the same mounting hole, and takes the same mounting clips as the HLR. The A fuse holder is UL Recognized, 10A, 300Vac, Guide IZLT2, File E14853 and CSA Certified, 10A, 300Vac, Class 6225-01, File 47235.
- Do not put tension on line (rear) terminal of fuse holder.

Data Sheet: 2031



HLR-2A Fuse Holder

HLR Fuse Holder

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Automotive Blade-type Fuses & Holders

ATC Fuse

Available With Indication

(Actual Size)

Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc

Amps — 1-40A

IR — 1000A

Agency Information: UL Recognized, (3-40A) (Guide JFHR2, File E56412), SAE Standard J1284.

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

Non-Indicating	*Indicating	Color
ATC-1		Black
ATC-2		Gray
ATC-3	ATC-3ID	Violet
ATC-4		Pink
ATC-5	ATC-5ID	Tan
ATC-7-1/2	ATC-7-1/2ID	Brown
ATC-10	ATC-10ID	Red
ATC-15	ATC-15ID	Blue
ATC-20	ATC-20ID	Yellow
ATC-25	ATC-25ID	Clear
ATC-30	ATC-30ID	Green
ATC-35	ATC-35ID	Blue-Green
ATC-40	ATC-40ID	Orange

*Call Bussmann Customer Satisfaction for ordering information.

Data Sheet: 2009

HHC, HHD, HHF, HHG & ATC-FHID

***easy*ID™ LED Indicating Holder**

Specifications

Description: In-line fuse holders for ATC™ Blade-Type fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 32Vdc

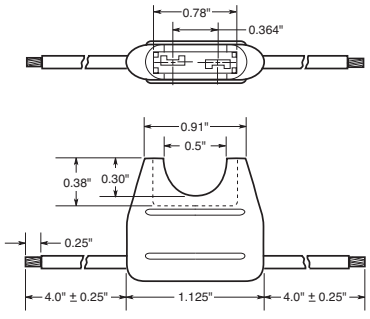
Amps:— 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHC	Yellow	1-20	#16 black leadwire
HHD	Black	1-30	#12 yellow leadwire
HHF	Black w/ cover	1-20	#16 yellow leadwire
HHG	Black w/ cover	1-30	#12 yellow leadwire
ATC-FHID	Indicating Holder Black w/ cover	1-20	#16 black leadwire

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

HHC & HHD Dimensions - in



Data Sheet: 2107

ATM Fuse

Available With Indication

ATM (Actual Size)

ATM-LP

Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc

Amps — 2-30A

IR — 1000A

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

Non-Indicating	*Indicating	Low-Profile	Color
ATM-2			Gray
ATM-3	ATM-3ID		Violet
ATM-4			Pink
ATM-5	ATM-5ID	ATM-5LP	Tan
ATM-7-½	ATM-7-½ID	ATM-7-½LP	Brown
ATM-10	ATM-10ID	ATM-10LP	Red
ATM-15	ATM-15ID	ATM-15LP	Blue
ATM-20	ATM-20ID	ATM-20LP	Yellow
ATM-25	ATM-25ID	ATM-25LP	Clear
ATM-30	ATM-30ID	ATM-30LP	Green

*Call Bussmann Customer Satisfaction for ordering information.

Data Sheet: 2048

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Automotive Blade-type Fuses & Holders

HHL, HHM & ATM-FHID

***easy*ID™ LED Indicating Holder**

Specifications

Description: In-line fuse holders for ATM Fuses.

Ratings:

Volts: — 32Vdc

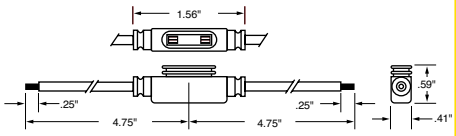
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHL	Black w/ cover	2-20	#16 black leadwire, 4″ length stripped to ¼″
HHM	Black w/ cover	2-30	#12 red leadwire, 4″ length stripped to ¼″
ATM-FHID	Indicating Holder Black w/ cover	2-20	#16 black leadwire

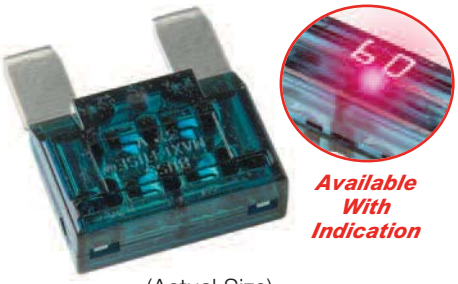
A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

HHL & HHM Dimensions - in



Data Sheet: 2128

MAX Maxi–Fuse



Available With Indication

(Actual Size)

Specifications

Description: Fast-acting blade fuse.

Construction: Colored plastic housing with zinc fuse element.

Ratings:

Volts — 32Vdc

Amps — 20-80A (non-indicating)
20-100A (indicating)

IR — 1000A

Features and Benefits

- Color coded plastic housing for easy identification of fuse ratings

Typical Applications

- Automotive

Catalog Numbers (Amps)

Non-Indicating	*Indicating	Color
MAX-20	MAX-20ID	Yellow
MAX-25		Gray
MAX-30	MAX-30ID	Green
MAX-35		Brown
MAX-40	MAX-40ID	Orange
MAX-50	MAX-50ID	Red
MAX-60	MAX-60ID	Blue
MAX-70	MAX-70ID	Tan
MAX-80	MAX-80ID	Clear
	MAX-100ID	Purple

*Call Bussmann Customer Satisfaction for ordering information.

Recommended in-line fuse holder for blade type fuses

• Page 83

Data Sheet: 2049

HHX

Specifications

Description: In-line fuse holders for MAXI Fuses.

Ratings:

Volts: — 32Vdc

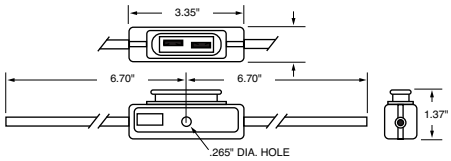
Amps: — 80% continuous of fuse rating. See Catalog Numbers table for individual fuses sizes.

Catalog Numbers

Catalog Numbers	Fuse Holder Description	Fuse Amps	Electrical Connection
HHX	Black w/ cover	20-60	#6 red leadwire, 5″ with blunt ends

A fuse must be properly and fully inserted into the holder to provide a solid connection. Poor or improper insertion of the fuse can result in failure of the fuse and holder, thus not protecting the device for which it was intended.

Dimensions - in



Data Sheet: 2129

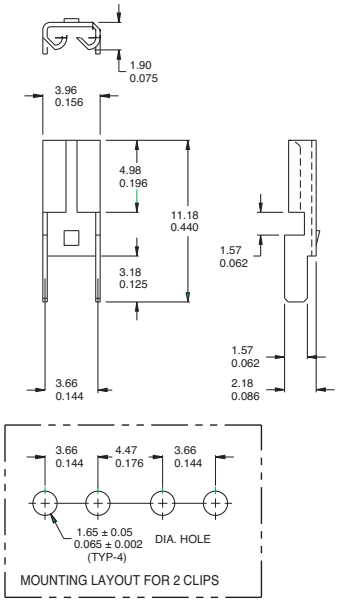
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Automotive Blade-type PCB Fuseclips

ATM Fuses

1A5778 Series

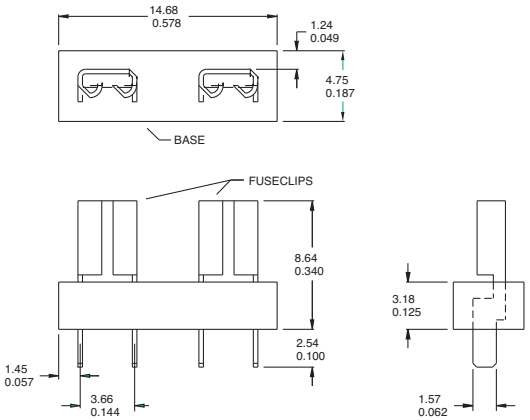
Dimensional Data

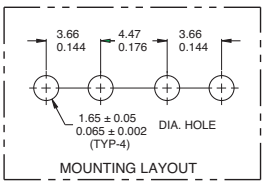


MATERIAL: BRASS, NICKEL PLATED, $^{0.30}_{0.012}$ THICK

Data Sheet: 2131

1A5779 Series





SPECIFICATIONS

FUSECLIPS	BRASS, NICKEL PLATED
BASE MATERIAL	GLASS FILLED NYLON, UL RATED 94V-0
CURRENT RATING	15 AMPS
VOLTAGE RATING	500V AC
TEMPERATURE RATING	-50°C TO 145°C -58°F 292°F

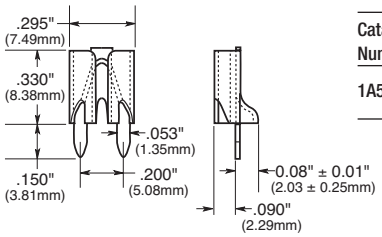
Data Sheet: 2131

ATC Fuses (0 to 20 Amps)

1A5600 Series

Dimensional Data

RoHS

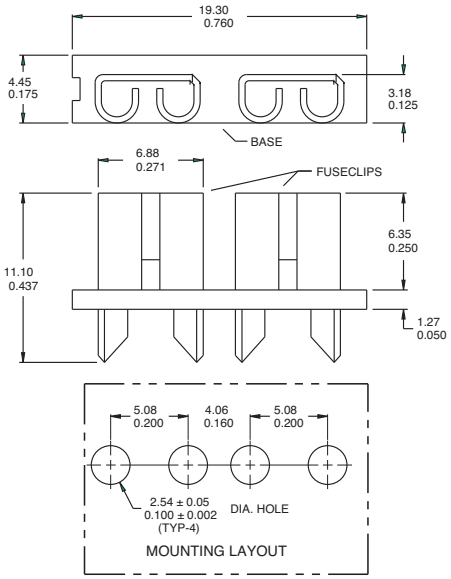


Catalog Number	Clip Mat.*	Finish
1A5600	Cart. Brass	Satin Finish Tin

Data Sheet: 2131

1A5780 Series

Dimensional Data



SPECIFICATIONS

FUSECLIPS	BRASS, NICKEL PLATED
BASE MATERIAL	GLASS FILLED NYLON, UL RATED 94V-0
CURRENT RATING	15 AMPS
VOLTAGE RATING	500V AC
TEMPERATURE RATING	-50°C TO 145°C -58°F 292°F

*Spg. Br. - Spring Bronze; BeCu - Beryllium Copper; Cart. Brass - Cartridge Brass

***For RoHS compliant version add "-R" option code suffix to part number.

Data Sheet: 2131

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Electronic - PC Board and Small Dimension Fuses & Accessories

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Scan this tag to get the latest product information for Electronic Fuses and Accessories.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

5 x 15mm Ferrule Fuses

C515 (axial leads)

C519

Specifications
Description: Time-delay fuse.
Dimensions: 5 x 15mm (0.197" X 0.591").
Construction: Glass tube.
Ratings:

Volts — 125Vac (3.5-7A)
— 250Vac (125mA-3A)
— 32Vdc (Self Certified)
Amps — 125mA-7A
IR — 25A (350mA @ 600Vac)
— 35A (125mA-1A @ 250Vac)
— 100A (1.25-3A @ 250Vac)
— 400A (3.5-7A @ 125Vac)
— 10kA (125mA-3A @ 125Vac)

RoHS

Agency Information: CE, UL Listed File E19180, Guide JDYX 125mA-250mA and 375mA-3A, UL Recognized, File E19180, Guide JDYX2, 350mA and 3.5A-7A, CSA Certification File 53787, Class 1422-01, 125mA-250mA and 375mA-3A.

Features and Benefits

- Time-delay for closer sizing on inductive circuits.

Typical Application

- Electronic Circuits
- Printed Circuit Boards

Catalog Numbers (Amps)

With Axial Leads		
C515-125-R	C515-800-R	C515-2.5-R
C515-250-R	C515-1-R	C515-3-R
C515-350-R	C515-1.25-R	C515-3.5-R
C515-375-R	C515-1.5-R	C515-4-R
C515-500-R	C515-1.6-R	C515-5-R
C515-600-R	C515-2-R	C515-6-R
C515-750-R	C515-2.25-R	C515-7-R
Without Axial Leads		
C519-125-R	C519-750-R	C519-2.25-R
C519-250-R	C519-1-R	C519-2.5-R
C519-350-R	C519-1.25-R	C519-3-R
C519-375-R	C519-1.5-R	C519-3.5-R
C519-500-R	C519-1.6-R	C519-4-R
C519-600-R	C519-2-R	C519-5-R

Data Sheet: 2006 (C515) & 2007 (C519)

C518 (axial leads)

C520

Specifications
Description: Fast-acting fuse.
Dimensions: 5 x 15mm (0.197" X 0.591").
Construction: Glass tube.
Ratings:

Volts — 250Vac
— 32Vdc (Self Certified)
Amps — 100mA-5A
IR — 35A (100mA-750mA @ 250Vac)
— 10kA (100mA-5A @ 125Vac)
— 100A (1.5-3.5A @ 250Vac)
— 200A (4-5A @ 250Vac)

RoHS

Agency Information: CE, UL Recognized File E19180, Guide JDYX2CSA Certification File 53787, Class 1422-01.

Features and Benefits

- Small footprint saves space in equipment.
- Fast-acting for maximum component protection.
- Available in ferrule and axial leaded configurations

Typical Applications

- Electronic Circuits
- Printed Circuit Boards

Catalog Numbers (Amps)

With Axial Leads		
C518-100-R	C518-750-R	C518-4-R
C518-125-R	C518-2-R	C518-5-R
C518-250-R	C518-2.5-R	
C518-375-R	C518-3-R	
C518-500-R	C518-3.5-R	
Without Axial Leads		
C520-100-R	C520-750-R	C520-3.5-R
C520-125-R	C520-1.5-R	C520-4-R
C520-250-R	C520-2-R	C520-5-R
C520-375-R	C520-2.5-R	
C520-500-R	C520-3-R	

Data Sheet: 2026 (C518) & 2027 (C520)

C517 (axial leads)

Specifications
Description: Fast-acting fuse.
Construction: Glass tube.
Ratings:

Volts — 350Vac*
— 32Vdc (Self Certified)
Amps — 3A
IR — 100A @ 350Vac
— 100A @ 250Vac
— 10kA @ 125Vac

RoHS

*350Vac/100A IR is UL Recognized

Agency Information: CE, UL Listing File E19180, Guide JDYX, CSA Certification File 53787, Class 1422-01, UL Recognized, File E19180, Guide JDYX2.

- Small footprint saves space in equipment.
- Fast-acting for maximum component protection.
- 350Vac rating for 277V ballast circuit protection.

Typical Applications

- Electronic Circuits
- Printed Circuit Boards
- Electronic Ballast Protection

Catalog Number (Amps)

With Axial Leads
C517-3-R

Data Sheet: 2025

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

5 x 20mm European (IEC) Ferrule Fuses

S500-V (GDB-V)* (axial leads)

S500 (GDB)*

Specifications

Description: Fast-acting, low-breaking capacity fuse.

Construction: Glass tube, nickel-plated brass endcaps (silver-plated end-caps, 32-125mA).

Ratings:

Volts — 250Vac (or less)
— 32Vdc (Self Certified)

Amps — 32mA-10A

IR — See catalog table

Agency Information: CE, cURus, SEMKO, VDE, BSI, IMQ, CCC.
See data sheet for complete agency information. Not all approvals apply to all ratings.

Features and Benefits

- Fast-acting for maximum protection, conforms to IEC 60127-2 (160mA-10A).

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	IR (Amps)	I^2t	Max Voltage Drop (mV)
S500-32-R	35	0.000047	3200
S500-40-R	35	0.00011	2500
S500-50-R	35	0.00020	2400
S500-63-R	35	0.00057	2000
S500-80-R	35	0.0012	1200
S500-100-R	35	0.003	1100
S500-125-R	35	0.005	1000
S500-160-R	35	0.008	2000
S500-200-R	35	0.016	1700
S500-250-R	35	0.028	1400
S500-315-R	35	0.058	1300
S500-400-R	35	0.018	1100
S500-500-R	35	0.018	220
S500-630-R	35	0.035	220
S500-800-R	35	0.067	190
S500-1-R	35	0.60	200
S500-1.25-R	35	0.84	200
S500-1.6-R	35	1.6	190
S500-2-R	35	4.2	150
S500-2.5-R	35	6.1	150
S500-3.15-R	35	13	130
S500-4-R	40	22	130
S500-5-R	50	42	120
S500-6.3-R	63	69	120
S500-8-R	80	-	120
S500-10-R	100	—	120

Options

Axial leads, put “V” in P/N,
*When ordering GDB version, do not add “-R” suffix to part number.

Data Sheet: 2052 (S500), 2015 (GDB)

S501-V (GDA-V)* (axial leads)

S501 (GDA)*

Specifications

Description: Fast-acting, high-breaking capacity fuse.

Construction: Ceramic tube, nickel-plated brass endcaps (silver-plated endcaps 50mA-400mA).

Ratings:

Volts — 250Vac (or less)
— 32Vdc (Self Certified)

Amps — 50mA-10A**

IR — 1500A @ 250Vac

Agency Information: CE, cURus, SEMKO, VDE, IMQ, CCC, CSA, BSI.

See data sheet for complete agency information. Not all approvals apply to all ratings.

Features and Benefits

- Fast-acting for maximum protection.
- High break capacity for use in higher fault energy electronic circuitry.
- Conforming to IEC standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	I^2t	Typical Voltage Drop (mV)
S501-50-R	0.0017	9000
S501-63-R	0.0005	3300
S501-80-R	0.0011	2600
S501-100-R	0.0018	2300
S501-125-R	0.0037	1900
S501-160-R	0.008	1600
S501-200-R	0.020	1350
S501-250-R	0.027	1300
S501-315-R	0.010	1400
S501-400-R	0.018	1200
S501-500-R	0.038	1050
S501-630-R	0.064	1200
S501-800-R	0.097	490
S501-1-R	0.146	330
S501-1.25-R	0.313	297
S501-1.6-R	0.748	239
S501-2-R	2.0	205
S501-2.5-R	3.9	190
S501-3.15-R	8.1	160
S501-4-R	14	160
S501-5-R	25	155
S501-6.3-R	48	150
S501-8-R	N/A	N/A
S501-10-R	N/A	N/A

Options

Axial leads, put “V” in P/N.
*When ordering GDA version, do not add “-R” suffix to part number.
**GDA is not available above 6.3A.

Data Sheet: 2051 (S501), 2014 (GDA)

S505-V (axial leads)

S505

Specifications

Description: Time-delay, high-breaking capacity fuse.

Construction: Ceramic tube, silver-plated brass endcaps.

Ratings:

Volts — 250Vac (or less)
— 32Vdc (Self Certified)

Amps — 500mA-12A

IR — 1500A @ 250Vac

Agency Information: UL, CSA, SEMKO, VDE, BSI, IMQ, PSE/JET, CCC, EK, FIMKO.

See data sheet for complete agency information. Not all approvals apply to all ratings.

Features and Benefits

- Time-delay performance ideal for inductive circuits.
- Conforming to IEC standards.

Typical Applications

- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	Typical I^2t	Max Voltage Drop (mV)
S505-500-R	0.188*	295
S505-800-R	0.632*	189
S505-1-R	1.28	152.5
S505-1.25-R	2.22	150
S505-1.6-R	6.78	125
S505-2-R	9.60	118.5
S505-2.5-R	16.60	115
S505-3.15-R	36.60	102.5
S505-4-R	38.45*	86.5
S505-5-R	71.30*	77.5
S505-6.3-R	197	75
S505-8-R	311	75
S505-10-R	397	72
S505-12-R	713.7*	77

*The typical I^2t value was measured at 10 times of rated current under DC.

Options

Axial leads, put “V” in P/N.

Data Sheet: 2037

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

5 x 20mm European (IEC) Ferrule Fuses

S505H (S505H-V)* (axial leads)

Specifications
Description: Time-delay, high-breaking capacity fuse.
Construction: Ceramic tube, nickel-plated brass endcaps.
Ratings:
Volts — 600Vac/400Vdc
— 500mA-5A
— 6.3A-10A
— 500Vac/400Vdc
Amps — 500mm-10A
IR — 35A @ 250Vac

RoHS

Agency Information: cURus, CCC, CQC, TUV, PSE/JET.

See data sheet for complete agency information. Not all approvals apply to all ratings.

Features and Benefits
- Time-delay, high breaking capacity
- Conforming to IEC standards

Typical Applications
- Power supplies - adapters
- Desktops/notebooks

Catalog Numbers (Amps)

Catalog Numbers	Typical I^2t (A^2s)[1]	Max Voltage Drop (mV)[3]
S505H-500-R	0.188	295
S505H-800-R	0.632	189
S505H-1-R	1.28	153
S505H-1.25-R	2.22	150
S505H-1.6-R	6.78	125
S505H-2-R	11.44	128
S505H-2.5-R	24.23	126
S505H-3.15-R	43.55	121
S505H-4-R	38.45	90
S505H-5-R	71.3	89
S505H-6.3-R	111.4	80
S505H-8-R	228.2	76
S505H-10-R	349.5	72

1. Typical Pre-Arc I^2t: Measured at $10I_n$ DC.
2. - Breaking Capacity of 250VAC/1500A is tested by all agency approvals, test condition is 250Vac, PF: 0.7-0.8.
   - Breaking Capacity of Max. voltage is tested by UL, PF:1.
   - Breaking Capacity Test of DC is tested by UL under Capacitor Bank 4800mF (for 400V, 1500A) 2400mF (for 400V, 500A).
3. Typical Voltage Drop: Voltage drop is measured under ambient 20°C with rated current.

Options
Axial leads, put "V" in P/N.

Data Sheet: 4406

S506-V (GDC-V)* (axial leads)
S506 (GDC)*

Specifications
Description: Time-delay, low-breaking capacity fuse.
Construction: Glass tube, nickel-plated brass endcaps.
Ratings:
Volts — 250Vac (or less)
— 32Vdc (Self Certified)
Amps — 32mA-15A**
IR — 35A @ 250Vac

RoHS

Agency Information: UR, CSA, cURus, SEMKO, VDE, BSI, IMQ, PSE/JET, CCC.

See data sheet for complete agency information. Not all approvals apply to all ratings.

Features and Benefits
- Time-delay compatibility for inductive circuits
- Conforming to IEC standards

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

Catalog Numbers	Typical I^2t	Max Voltage Drop (mV)
S506-32-R	0.0051	1050
S506-40-R	0.0072	920
S506-50-R	0.0095	800
S506-63-R	0.021	760
S506-80-R	0.038	580
S506-100-R	0.045	490
S506-125-R	0.063	390
S506-160-R	0.093	320
S506-200-R	0.114	340
S506-250-R	0.265	270
S506-315-R	0.621	250
S506-400-R	0.872	210
S506-500-R	0.827	140
S506-630-R	1.33	150
S506-800-R	2.78	75
S506-1-R	6.45	87.5
S506-1.25-R	10.05	86
S506-1.6-R	21.7	82
S506-2-R	31.6	77
S506-2.5-R	59.4	72.5
S506-3.15-R	96.4	68.5
S506-4-R	71.8	67
S506-5-R	142.5	60.5
S506-6.3-R	237.6	54
S506-8-R	255.8	55
S506-10-R	450	54
S506-12.5-R	1019.5	45
S506-15-R	1091.7	65.5

Options
Axial leads, put "V" in P/N.
*When ordering GDC version, do not add "-R" suffix to part number.
**GDC series is not available above 6.3A.

Data Sheet: 2016 (GDC), 4332 (S506)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

5 x 20mm North American (UL) Ferrule Fuses

GMA-V (axial leads)

GMA

Specifications
Description: Fast-acting fuse.
Dimensions: 5 x 20mm (0.197" x 0.788").
Construction: Glass tube, nickel-plated brass endcaps.
Ratings:

Volts — 250Vac (63mA-2.5A)
— 125Vac (3.15-15A)
— 32Vdc (Self Certified)
Amps — 63mA-15A
IR — 35A (63mA- 1A @ 250Vac, p.f. = 0.7-0.8)
— 10kA (63mA-6A @ 125Vac, p.f. = 0.7-0.8)
— 100A (1.25-2.5A @ 250Vac, p.f. = 0.7-0.8)
— 200A (7-8A @ 125Vac, p.f. = 1.0)
— 150A (10-15A @ 125Vac, p.f. = 1.0)

Agency Information: CE, Std. 248-14 UL Listed Guide JDYX, File E19180, 0-6A, UL Recognized, Guide JDYX2, File E19180, 7-15A, CSA Certified, Class 1422-01,File 53787, 0-6.

Features and Benefits
- Fast-acting for maximum protection.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads		
GMA-V-63-R	GMA-V-800-R	GMA-V-4-R
GMA-V-100-R	GMA-V-1-R	GMA-V-5-R
GMA-V-125-R	GMA-V-1.25-R	GMA-V-6-R
GMA-V-200-R	GMA-V-1.5-R	GMA-V-7-R
GMA-V-250-R	GMA-V-1.6-R	GMA-V-8-R
GMA-V-300-R	GMA-V-2-R	GMA-V-10-R
GMA-V-500-R	GMA-V-2.5-R	GMA-V-15-R
GMA-V-600-R	GMA-V-3.15-R	
GMA-V-750-R	GMA-V-3.5-R	
Without Axial Leads		
GMA-63-R	GMA-800-R	GMA-4-R
GMA-100-R	GMA-1-R	GMA-5-R
GMA-125-R	GMA-1.25-R	GMA-6-R
GMA-200-R	GMA-1.5-R	GMA-7-R
GMA-250-R	GMA-1.6-R	GMA-8-R
GMA-300-R	GMA-2-R	GMA-10-R
GMA-500-R	GMA-2.5-R	GMA-15-R
GMA-600-R	GMA-3.15-R	
GMA-750-R	GMA-3.5-R	

Data Sheet: 2017

GMC-V (axial leads)

GMC

Specifications
Description: Medium time-delay fuse.
Dimensions: 5 x 20mm (0.197" x 0.788").
Construction: Glass tube, nickel-plated brass endcaps.
Ratings:

Volts — 250Vac (63mA-3.15A)
— 125Vac (3.5-10A)
— 32Vdc (Self Certified)
Amps — 63mA-10A
IR — 35A (63mA- 1A @ 250Vac, p.f. = 0.7-0.8)
— 10kA (63mA-6A @ 125Vac, p.f. = 0.7-0.8)
— 100A (1.25-3.15A @ 250Vac, p.f. = 0.7-0.8)
— 200A (6.3-10A @ 125Vac, p.f. = 1.0)

Agency Information: CE, Std. 248-14, UL Listed Guide JDYX, File E19180, 0-6.3A, UL Recognized, Guide JDYX2, File E19180, 7-8A, CSA Certified, Class 1422-01, File 53787, 0-6.3A.

Features and Benefits
- Conforming to UL standards.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads		
GMC-V-63-R	GMC-V-500-R	GMC-V-2.5
GMC-V-80-R	GMC-V-600-R	GMC-V-3.15
GMC-V-100-R	GMC-V-630-R	GMC-V-3.5
GMC-V-125-R	GMC-V-750-R	GMC-V-4
GMC-V-150-R	GMC-V-800-R	GMC-V-5
GMC-V-200-R	GMC-V-1-R	GMC-V-6
GMC-V-250-R	GMC-V-1.25-R	GMC-V-6.3
GMC-V-300-R	GMC-V-1.5-R	GMC-V-7
GMC-V-315-R	GMC-V-1.6-R	GMC-V-8
GMC-V-400-R	GMC-V-2-R	GMC-V-10
Without Axial Leads		
GMC-63mA	GMC-500-R	GMC-2.5-R
GMC-80mA	GMC-600-R	GMC-3.15-R
GMC-100mA	GMC-630-R	GMC-3.5-R
GMC-125mA	GMC-750-R	GMC-4-R
GMC-150mA	GMC-800-R	GMC-5-R
GMC-200mA	GMC-1-R	GMC-6-R
GMC-250mA	GMC-1.25-R	GMC-6.3-R
GMC-300mA	GMC-1.5-R	GMC-7-R
GMC-315mA	GMC-1.6-R	GMC-8-R
GMC-400mA	GMC-2-R	GMC-10-R

Data Sheet: 4395

GMD-V (axial leads)

GMD

Specifications
Description: Time-delay fuse.
Dimensions: 5 x 20mm (0.197" x 0.788").
Construction: Glass tube, nickel-plated brass endcaps.
Ratings:

Volts — 250Vac
— 32Vdc (Self Certified)
Amps — 125mA-4A
IR — 10kA (125mA-3A @ 125Vac, p.f. = 0.7-0.8)
— 10kA (4A @ 125Vac, p.f. = 1.0)
— 35A (125mA-1A @ 250Vac, p.f. = 0.7-0.8)
— 100A (1.2A-3.A @ 250Vac, p.f. = 0.7-0.8)
— 200A (4A @ 250Vac, p.f. = 1.0)

Agency Information: CE, UL Listed Guide JDYX, File E19180, 125mA-3A, UL Recognized, Guide JDYX2, File E19180, 4A, CSA Certified, Class 1422-01, File 53787, 0-4A, PSE/JET. File 1641-31003-1001, 1.2A-4A.

Features and Benefits
- Time-delay compatibility for inductive circuits.
- Conforming to UL standards.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads		
GMD-V-125-R	GMD-V-500-R	GMD-V-1.5-R
GMD-V-150-R	GMD-V-600-R	GMD-V-1.6-R
GMD-V-200-R	GMD-V-630-R	GMD-V-2-R
GMD-V-250-R	GMD-V-750-R	GMD-V-2.5-R
GMD-V-300-R	GMD-V-800-R	GMD-V-3-R
GMD-V-315-R	GMD-V-1-R	GMD-V-4-R
GMD-V-375-R	GMD-V-1.2-R	
GMD-V-400-R	GMD-V-1.25-R	
Without Axial Leads		
GMD-125-R	GMD-500-R	GMD-1.5-R
GMD-150-R	GMD-600-R	GMD-1.6-R
GMD-200-R	GMD-630-R	GMD-2-R
GMD-250-R	GMD-750-R	GMD-2.5-R
GMD-300-R	GMD-800-R	GMD-3-R
GMD-315-R	GMD-1-R	GMD-4-R
GMD-375-R	GMD-1.2-R	
GMD-400-R	GMD-1.25-R	

Data Sheet:2019

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

¼″ Dia. x ⅝″ to 1″ Length Ferrule Fuses

AGA

Specifications
Description: Fast-acting fuse.
Dimensions: ¼″ x ⅝″ (6.4 x 15.9mm).
Construction: Glass tube.
Ratings:
Volts — 125Vac (or less)
— 32Vdc (Self Certified)
Amps — 1-30A
IR — 10kA (1-1½A @ 125Vac)
— 200A (2-5A @ 125Vac)
— 1000A (6-30A @ 32Vac)
Agency Information: CE, Std. 248-14, UL File E19180, UL Listed, Guide JDYX 0-3½A UL Recognized, Guide JDYX2 12-30A.

Features and Benefits
- Fast-acting for maximum protection.
- Size rejects insertion of other fuse types.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

AGA-1	AGA-5	AGA-15
AGA-1-½	AGA-6	AGA-20
AGA-2	AGA-7	AGA-25
AGA-2-½	AGA-7-½	AGA-30
AGA-3	AGA-10	

Data Sheet: 2039

AGW

Specifications
Description: Fast-acting fuse.
Dimensions: ¼″ x ⅞″ (6.4 x 22.2mm).
Construction: Glass tube.
Ratings:
Volts — 32Vac
— 32Vdc (Self Certified)
Amps — 1-30A

Features and Benefits
- Fast-acting for maximum protection.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

AGW-1	AGW-4	AGW-15
AGW-1-½	AGW-5	AGW-20
AGW-2	AGW-6	AGW-25
AGW-2-½	AGW-7-½	AGW-30
AGW-3	AGW-10	

Data Sheet: 2040

AGX

Specifications
Description: Fast-acting fuse.
Dimensions: ¼″ x 1″ (6.4 x 25.4mm).
Construction: Glass tube.
Ratings:
Volts — 250Vac (1/16-20A)
— 125Vac (25-30A)
— 32Vdc (1/16-30A)
Amps — 1/16-30A
IR — 35A (1/16-1A @ 250Vac)
— 10kA (1/16-10A @ 125Vac)
— 200A (15-20A @ 125Vac)
— 100A (25-30A @ 125Vac)
— 1000A (8-30A @ 32Vac)
Agency Information: cULus: AGX 0-10A (Guide JDYX, File E 19180 and Guide JDYX7, File E19180), UL Recognized Card: AGX 15-30A (Guide JDYX2, File E19180), CSA Component Acceptance Card : AGX 15-30A (Class No. 1422-01, File 53787)

Features and Benefits
- Size rejects insertion of other fuse types.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

AGX-¼	AGX-1-½	AGX-8
AGX-3/10	AGX-2	AGX-10
AGX-⅜	AGX-2-½	AGX-15
AGX-4/10	AGX-3	AGX-20
AGX-½	AGX-4	AGX-25
AGX-¾	AGX-5	AGX-30
AGX-1	AGX-6	
AGX-1-¼	AGX-7	

Data Sheet: 2041

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

¼″ Dia. x 1 ¼″ Length Fast-acting Ferrule Fuses

AGC (AGC-V axial leads)

Specifications
Description: Fast-acting fuse.
Dimensions: ¼″ x 1 ¼″ (6.4 x 31.7mm).
Construction: Glass tube with nickel-plated brass endcaps.
Ratings:
Volts — 250Vac (1/20-10A)
— 32Vac (12-30A)
— 32Vdc (Self Certified)
Amps — 1/20-30A
IR — 35A (1/20-1A @ 250Vac)
— 100A (1¼-3A @ 250Vac)
— 200A (4-10A @ 250Vac)
— 10kA (1/20-10A @ 125Vac)
— 1000A (12-30A @ 32Vac)

RoHS

Agency Information: CE, UL Listed, Guide JDYX, File E19180, 0-10A UL Recognized, Guide JDYX2, File E19180, 12-30A CSA Certification, Class 1422-01, File 053787, 1/20-30A.

Features and Benefits
- Original electronic glass tube fuse.
- Fast-acting for maximum protection.
- Wide amp/volt ratings allow versatility of protecting electronic circuits.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

AGC-V-1/20-R	AGC-V-1-¼-R	AGC-V-8-R
AGC-V-1/10-R	AGC-V-1-½-R	AGC-V-9-R
AGC-V-⅛-R	AGC-V-2-R	AGC-V-10-R
AGC-V-3/16-R	AGC-V-2-¼-R	AGC-V-12-R
AGC-V-¼-R	AGC-V-2-½-R	AGC-V-14-R
AGC-V-¼-R	AGC-V-3-R	AGC-V-15-R
AGC-V-3/10-R	AGC-V-4-R	AGC-V-20-R
AGC-V-⅜-R	AGC-V-5-R	AGC-V-25-R
AGC-V-½-R	AGC-V-6-R	AGC-V-30-R
AGC-V-¾-R	AGC-V-7-R	
AGC-V-1-R	AGC-V-7-½-R	

Without Axial Leads

AGC-1/20-R	AGC-1-¼-R	AGC-8-R
AGC-1/10-R	AGC-1-½-R	AGC-9-R
AGC-⅛-R	AGC-2-R	AGC-10-R
AGC-3/16-R	AGC-2-¼-R	AGC-12-R
AGC-¼-R	AGC-2-½-R	AGC-14-R
AGC-¼-R	AGC-3-R	AGC-15-R
AGC-3/10-R	AGC-4-R	AGC-20-R
AGC-⅜-R	AGC-5-R	AGC-25-R
AGC-½-R	AGC-6-R	AGC-30-R
AGC-¾-R	AGC-7-R	
AGC-1-R	AGC-7-½-R	

Data Sheet: 2001

ABC (ABC-V axial leads)

Specifications
Description: Fast-acting fuse.
Dimensions: ¼″ x 1 ¼″ (6.4 x 31.7mm).
Construction: Ceramic tube with nickel-plated brass endcaps.
Ratings:
Volts — 250Vac/125Vdc (¼-15A, 20-30A)*
— 250Vac (18A)
— 32Vdc (Self Certified)
Amps — ¼-30A
IR** — 35A (¼-1A @ 250Vac)
— 100A (1½-3A @ 250Vac)
— 200A (4-10A @ 250Vac)
— 750A (12-15A @ 250Vac)
— 400A (18-20A @ 250Vac)
— 10kA (¼-15A @ 125Vac)
— 1kA (18-30A @ 125Vac)
— 10kA (¼-15, 20A @ 125Vdc)
— 400A (25-30A @ 125Vdc)
— 200A (25-30A @ 250Vac)

RoHS

*CSA approvals for 25A and 30A are at 125Vac – IR 1000A and Vdc – IR 400A (IR 1000A at 75Vdc)
**Interrupting ratings measured at 70% – 80% power factor on AC. The interrupting ratings for 18A and 20A were measured at 85%-95% power factor on AC. The interrupting ratings for 25A and 30A were measured at 89% power factor on AC.

Agency Information: CE, Std. 248-14 UL Listed, Guide JDYX File E19180, ¼-15A; UL Recognized, Guide JDYX2, File E19180, 18-30A; CSA Certification, Class 1422-01 & 1422-30, File 53787, ¼-30A.

Features and Benefits
- Ceramic body allows for higher amp/volt rating combinations.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

ABC-V-¼-R	ABC-V-3-R	ABC-V-12-R
ABC-V-½-R	ABC-V-4-R	ABC-V-15-R
ABC-V-¾-R	ABC-V-5-R	ABC-V-18-R
ABC-V-1-R	ABC-V-6-R	ABC-V-20-R
ABC-V-1-½-R	ABC-V-7-R	ABC-V-25-R
ABC-V-2-R	ABC-V-8-R	ABC-V-30-R
ABC-V-2-½-R	ABC-V-10-R	

Without Axial Leads

ABC-¼-R	ABC-3-R	ABC-12-R
ABC-½-R	ABC-4-R	ABC-15-R
ABC-¾-R	ABC-5-R	ABC-18-R
ABC-1-R	ABC-6-R	ABC-20-R
ABC-1-½-R	ABC-7-R	ABC-25-R
ABC-2-R	ABC-8-R	ABC-30-R
ABC-2-½-R	ABC-10-R	

Data Sheet: 2000

GBB (GBB-V axial leads)

Specifications
Description: Very fast-acting fuse.
Dimensions: ¼″ x 1 ¼″ (6.4 x 31.7mm).
Construction: Ceramic cartridge with nickel-plated brass endcaps.
Ratings:
Volts — 250Vac/125Vdc
Amps — 1-30A
IR — 200A @ 250Vac
— 200A (20-30A @ 125Vac/dc)
— 10,000A (1A -15A @ 125Vac/dc)

RoHS

Agency Information: CE, Std. 248-14, UL Recognized, 1-30,125Vdc/250Vac, File E56412, Guide JFHR2, CSA Accepted, 1-30, 125Vdc/250Vac, File 53787, Class 1422-30.

Features and Benefits
- Very fast-acting performance allows protection of highly sensitive electronic circuitry.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads

GBB-V-1-R	GBB-V-6-R	GBB-V-15-R
GBB-V-1-¼-R	GBB-V-7-R	GBB-V-20-R
GBB-V-2-R	GBB-V-8-R	GBB-V-25-R
GBB-V-3-R	GBB-V-9-R	GBB-V-30-R
GBB-V-4-R	GBB-V-10-R	
GBB-V-5-R	GBB-V-12-R	

Without Axial Leads

GBB-1-R	GBB-6-R	GBB-15-R
GBB-1-¼-R	GBB-7-R	GBB-20-R
GBB-2-R	GBB-8-R	GBB-25-R
GBB-3-R	GBB-9-R	GBB-30-R
GBB-4-R	GBB-10-R	
GBB-5-R	GBB-12-R	

Data Sheet: 2013

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

¼″ Dia. x 1 ¼″ Length Time-delay Ferrule Fuses

MDL-V (axial leads)

MDL

Specifications
Description: Time-delay fuse.

Dimensions: ¼″ x 1 ¼″ (6.4 x 31.7mm).

Construction: Glass tube with nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (1/16-8A)
— 32Vac (9-30A)
— 32Vdc (Self Certified)

Amps — 1/16-30A

IR* — 35A (1/16-1A @ 250Vac)
— 100A (1¼-3A @ 250Vac)
— 200A (4-8A @ 250Vac)
— 10000A (1/16-8A @ 125Vac)
— 1000A (9-30A @ 32Vac)

RoHS

*Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 198L.

Agency Information: CE, UL Listed, Guide JDYX, File E19180, 1/16-8A; CSA Certification Class 1422-01, 1/16-8A; UL Recognized, Guide JDYX2, File E19180, 9-30A; CSA Component Acceptance, Class 142230, 9-30A.

Features and Benefits
- Time-delay allows close sizing on inductive circuits.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads		
MDL-V-1/16-R	MDL-V-1-R	MDL-V-7-R
MDL-V-1/10-R	MDL-V-1-¼-R	MDL-V-8-R
MDL-V-⅛-R	MDL-V-1-½-R	MDL-V-9-R
MDL-V-2/10-R	MDL-V-2-R	MDL-V-10-R
MDL-V-3/16-R	MDL-V-2-¼-R	MDL-V-12-R
MDL-V-¼-R	MDL-V-2-½-R	MDL-V-15-R
MDL-V-3/10-R	MDL-V-3-R	MDL-V-20-R
MDL-V-⅜-R	MDL-V-4-R	MDL-V-25*
MDL-V-½-R	MDL-V-5-R	MDL-V-30*
MDL-V-¾-R	MDL-V-6-R	
Without Axial Leads		
MDL-1/16-R	MDL-1-R	MDL-7-R
MDL-1/10-R	MDL-1-¼-R	MDL-8-R
MDL-⅛-R	MDL-1-½-R	MDL-9-R
MDL-2/10-R	MDL-2-R	MDL-10-R
MDL-3/16-R	MDL-2-¼-R	MDL-12-R
MDL-¼-R	MDL-2-½-R	MDL-15-R
MDL-3/10-R	MDL-3-R	MDL-20-R
MDL-⅜-R	MDL-4-R	MDL-25*
MDL-½-R	MDL-5-R	MDL-30*

*MDL-25 & MDL-30 are not available in RoHS compliant construction.

Data Sheet:2004

MDQ-V (axial leads)

MDQ

Specifications
Description: Dual-element, time-delay fuse.

Dimensions: ¼″ x 1 ¼″ (6.4 x 31.7mm).

Construction: Glass tube with nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (1/100-7A)
— 32Vac (7½-15A)
— 32Vdc (Self Certified)

Amps — 1/100-15A

IR — 35A (1/100-1A @ 250Vac)
— 100A (1¼-3A @ 250Vac)
— 200A (4-7A @ 250Vac)
— 1000A (7½-12A @ 32Vac)

Agency Information: Std. 248-14, UL Listed, File E19180; Guide JDYX, 1/16-7A CSA Certification, File 47233, Class 1422-01, 1/16-7A, UL Recognized, Guide JDYX2, File E19180, 7.1-30A.

Features and Benefits
- Dual-element design allows closer sizing to inductive circuits than any other fuses.

Typical Applications
- Electronic Relay and Control Circuits

Catalog Numbers (Amps)

With Axial Leads			
MDQ-V-1/100	MDQ-V-3/10	MDQ-V-1-½	MDQ-V-5
MDQ-V-1/32	MDQ-V-⅜	MDQ-V-1-5/10	MDQ-V-6
MDQ-V-1/16	MDQ-V-4/10	MDQ-V-1-8/10	MDQ-V-6-¼
MDQ-V-1/10	MDQ-V-½	MDQ-V-2	MDQ-V-7
MDQ-V-⅛	MDQ-V-5/10	MDQ-V-2-¼	MDQ-V-7-½
MDQ-V-15/100	MDQ-V-¾	MDQ-V-2-½	MDQ-V-8
MDQ-V-175/1000	MDQ-V-8/10	MDQ-V-2-8/10	MDQ-V-9
MDQ-V-3/16	MDQ-V-1	MDQ-V-3	MDQ-V-10
MDQ-V-3/10	MDQ-V-1-3/10	MDQ-V-3-3/10	MDQ-V-12
MDQ-V-¼	MDQ-V-1-¼	MDQ-V-4	MDQ-15
Without Axial Leads			
MDQ-1/100	MDQ-3/10	MDQ-1-½	MDQ-5
MDQ-1/32	MDQ-⅜	MDQ-1-5/10	MDQ-6
MDQ-1/16	MDQ-4/10	MDQ-1-8/10	MDQ-6-¼
MDQ-1/10	MDQ-½	MDQ-2	MDQ-7
MDQ-⅛	MDQ-5/10	MDQ-2-¼	MDQ-7-½
MDQ-15/100	MDQ-¾	MDQ-2-½	MDQ-8
MDQ-175/1000	MDQ-8/10	MDQ-2-8/10	MDQ-9
MDQ-3/16	MDQ-1	MDQ-3	MDQ-10
MDQ-3/10	MDQ-1-3/10	MDQ-3-3/10	MDQ-12
MDQ-¼	MDQ-1-¼	MDQ-4	MDQ-15

Data Sheet: 2044

MDA-V (axial leads)

MDA

Specifications
Description: Time-delay fuse.

Dimensions: ¼″ x 1 ¼″ (6.35 x 31.75mm).

Construction: Ceramic tube with nickel-plated brass endcaps.

Ratings:

Volts — 250Vac (or less)
— 125Vdc (20A- 30A)
— 32Vdc (Self Certified)

Amps — ¼-30A

IR** — 35A (¼-1A @ 250Vac)
— 100A (1½-2A @ 250Vac)
— 200A (2½-10A @ 250Vac)
— 750A (12-15A @ 250Vac)
— 1500A (20-30A @ 250Vac)
— 10kA (¼-30A @ 125Vac)
— 10kA (20-30A @ 125Vdc)

RoHS

**Interrupting ratings were measured at 70% – 80% power factor on AC, and at a time constant described in UL 248.

Agency Information: CE, Std. 248-14, UL Listed, Guide JDYX, File E19180, 0-20A CSA Certification, Class 1422-01, File 53787, 0-20A. UL Recognized, Guide JDYX2, File E19180, 25-30A, CSA Component Acceptance, Class 1422-30, 25-30A

Features and Benefits
- Ceramic body allows for higher amp/volt rating combinations.
- Inventory consolidation by replacing MDL fuses allows for reduced SKU investment and minimizing potential for misapplying fuse.

Typical Applications
- Electronic Circuits

Catalog Numbers (Amps)

With Axial Leads		
MDA-V-¼-R	MDA-V-3-R	MDA-V-12-R
MDA-V-½-R	MDA-V-4-R	MDA-V-15-R
MDA-V-¾-R	MDA-V-5-R	MDA-V-20-R
MDA-V-1-R	MDA-V-6-R	MDA-V-25-R
MDA-V-1-½-R	MDA-V-7-R	MDA-V-30-R
MDA-V-2-R	MDA-V-8-R	
MDA-V-2-½-R	MDA-V-10-R	
Without Axial Leads		
MDA-¼-R	MDA-3-R	MDA-12-R
MDA-½-R	MDA-4-R	MDA-15-R
MDA-¾-R	MDA-5-R	MDA-20-R
MDA-1-R	MDA-6-R	MDA-25A-R
MDA-1-½-R	MDA-7-R	MDA-30A-R
MDA-2-R	MDA-8-R	
MDA-2-½-R	MDA-10-R	

Data Sheet: 2002

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

PC Board Mount Fuse Holders

HTC-45M

PCB Vertical Mount

Specifications
Description: PCB vertical mount bayonet cap and fuse holder.

Dimensions: See Dimensions illustration.

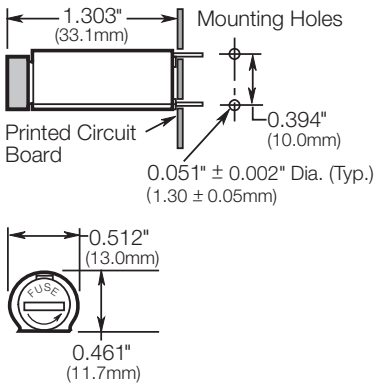
Ratings:

See Specifications table.

Agency Information:

See Specifications table notes 1, 2, 5.

Dimensions - in (mm)



RoHS

Data Sheet 2110

HTC-50M

PCB Horizontal Mount

Specifications
Description: PCB horizontal mount bayonet cap and fuse holder.

Dimensions: See Dimensions illustration.

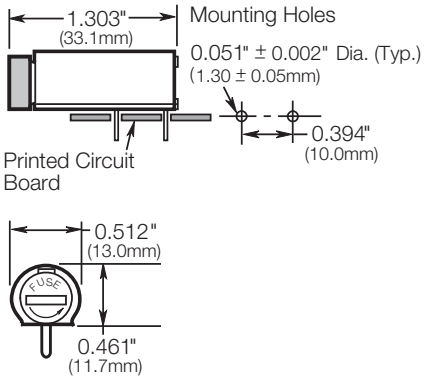
Ratings:

See Specifications table.

Agency Information:

See Specifications table notes 1, 2.

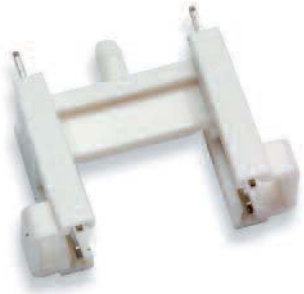
Dimensions - in (mm)



RoHS

Data Sheet 2110

HTC-60M



PCB Stand-Off Mount

Specifications
Description: Four-leg PCB stand-off fuse holder.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

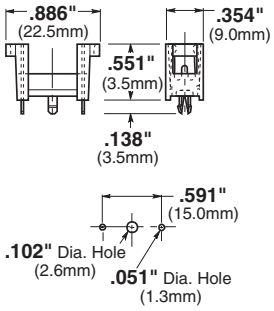
Amps: — 6.3A

Agency Information:

See Specifications table notes 1, 4.

Dimensions - in (mm)

HTC-65M (4-Leg)



RoHS

Data Sheet 2110

Specifications

Terminals — Tin-plated brass with 3mm (HTC-35M, -55M) and 4.8mm (HTC-70M).

Molded Materials — High temperature thermoplastic that meets the flammability ratings of UL 94VO; Glow Wire Test: 960°C per IEC 695-2-1.

Solderability — In accordance with IEC 68-2-20.

Electrical — Contact Resistance: ≤10mW; Insulation Resistance: ≥10MW; Dielectric Strength ≥2000Vac.

Shock Safety — PC2 (fuse holders).

Agency Information:

1) cURus: Guide 1ZLT2 & IZLT8, File E14853
2) VDE: 40004457
3) VDE: 40004458
4) VDE: 40004459
5) VDE: 40004463

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

PC Board Mount Fuse Holders

HBH-I (for ¼˝ x 1 ¼˝ fuses)

HBH-M (for 5 x 20mm fuses)

PCB Horizontal Mount

Specifications

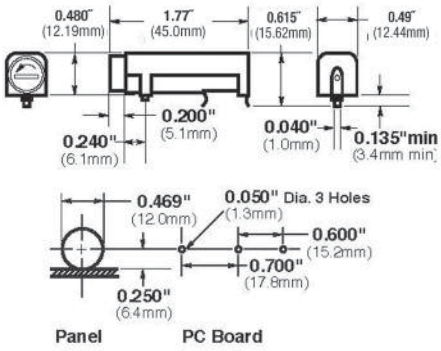
Description: PCB horizontal mount fuse holder.

Dimensions: See Dimensions illustration.

Ratings:

See Specifications table.

Dimensions - in (mm)



Data Sheet: 2118

HBV-I (for ¼˝ x 1 ¼˝ fuses)

HBV-M (for 5 x 20mm fuses)

PCB Vertical Mount with Stability Pins

Specifications

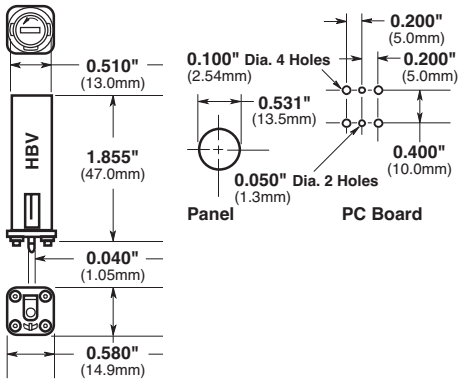
Description: PCB vertical mount fuse holder with stability pins.

Dimensions: See Dimensions illustration.

Ratings:

See Specifications table.

Dimensions - in (mm)



Data Sheet: 2118

HBW-I (for ¼˝ x 1 ¼˝ fuses)

HBW-M (for 5 x 20mm fuses)

PCB Vertical Mount without Stability Pins

Specifications

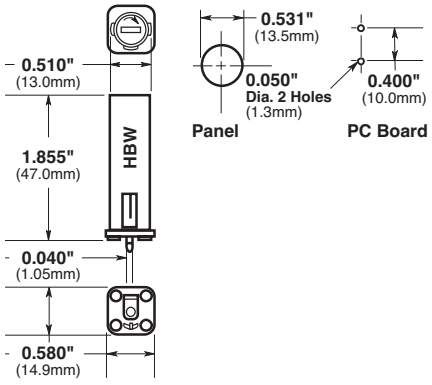
Description: PCB vertical mount fuse holder without stability pins.

Dimensions: See Dimensions illustration.

Ratings:

See Specifications table.

Dimensions - in (mm)



Data Sheet: 2118

FBI

FBM

Fuse Holder Caps (Fit all three shown above)

Specifications

Electrical Ratings: UL — 16A @ 250V; CSA — 12A @ 250V; VDE — 6.3A @ 250V; SEMKO — 10A @ 250V
Insulation resistance — 10 megohm at 500Vdc. Contact resistance — less than 0.005 ohms @ 200mV. Dielectric strength — over 200V/mil.

Molded Material: High dielectric molded phenolic with a UL 94V0 flammability rating.

Fuse Carrier & Knob: Spring-loaded, bayonet-type. Tin plated brass. Screwdriver slotted.

Mounting: "Kicked" terminals (all models) and stabilizer pins on HBV & HBW models for increased stability.

Temperature Rating (RTI): Body: 150ºC, Knob: 130ºC

Agency Information: CE, UL Recognized — Guide IZLT2, File EI4853;
CSA Certified — Class 6225-01, File 47235
VDE — 4009241 (HBV, HBW)
SEMKO — 800444

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PC Board Fuseclips for 5mm Diameter Fuses

HTC-15M, HTC-140M

PCB Mounted Fuse Holder & Snap-On Cover

Voltage Rating: 250V, 6.3A, 1.6W

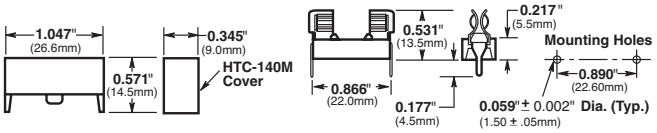
HTC-15M (fuse holder), HTC-140M (natural cover), HTC-150M* (transparent cover)

Agency Information: See Specifications table notes 1, 3 on bottom of page 65

*Available in bulk only. Use this format: BK/HTC-150M

Data Sheet: 2110

RoHS



HTC-200M

PCB Mounted Fuseclip

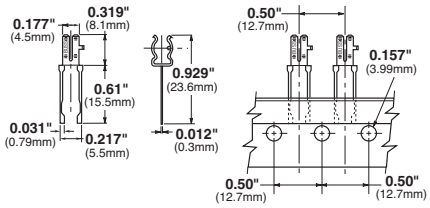
Construction: Tin-plated bronze

Tape and Fan Fold packed

Ammo Pack (AP/HTC-200M) 1000 pieces per box

Data Sheet: 2110

RoHS

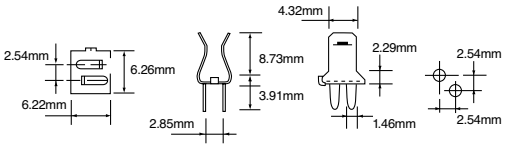


HTC-210M

PCB Mounted Fuseclip with End Stops

Data Sheet: 2110

RoHS



1A3399 Series

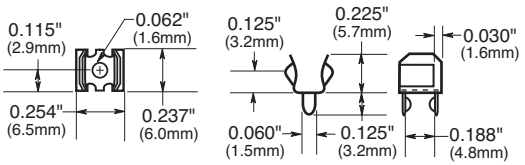
PCB Fuseclips with End Stops & Straight Leads

Catalog Numbers	Clip Material*	Finish
1A3399-01	Beryllium copper*	Silver
1A3399-04-R	Beryllium copper*	Bright tin
1A3399-10-R	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15 amps.

Data Sheet: 2131

RoHS



1A5018 Series

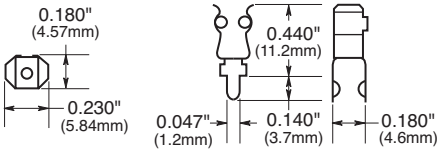
PCB High Profile Fuseclips with End Stops & Straight Leads

Catalog Numbers	Clip Material*	Finish
1A5018-7	Spring bronze	Silver
1A5018-10-R	Spring bronze	Bright tin

*Beryllium copper recommended for amps higher than 15 amps.

Data Sheet: 2131

RoHS



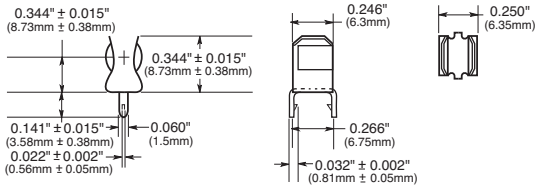
1A5601 Series

PCB Fuseclips (0-7A)

Catalog Number	Clip Material	Finish
1A5601	Cartridge brass	Bright tin

Data Sheet: 2131

RoHS



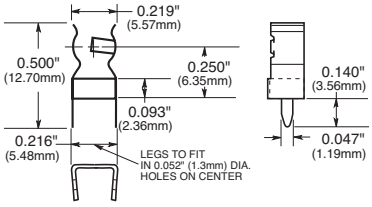
1A5602 Series

PCB Fuseclips (0-7A)

Catalog Number	Clip Material	Finish
1A5602	Cartridge brass	Bright tin

Data Sheet: 2131

RoHS



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PC Board Fuseclips for ¼″ Diameter Fuses

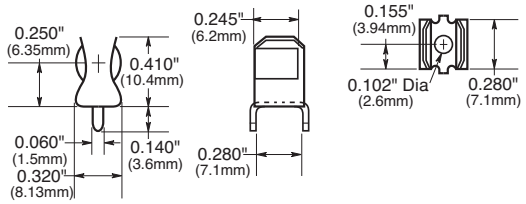
1A3398 Series

PCB Fuseclips without End Stops with Straight Leads

Catalog Numbers	Clip Material	Finish
1A3398-07-R	Cartridge brass	Bright tin

RoHS

Data Sheet: 2131



1A1907 Series

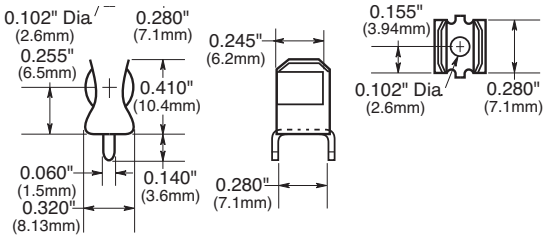
PCB Fuseclips with End Stops & Straight Leads

Catalog Numbers	Clip Material*	Finish
1A1907-02	Cartridge brass	None/bright dipped
1A1907-03-R	High Performance Copper*	Bright tin
1A1907-05	High Performance Copper*	Silver
1A1907-06-R	Cartridge brass	Bright tin

*High Performance Copper recommended for amps higher than 15A.

RoHS

Data Sheet: 2131



1A4533 Series

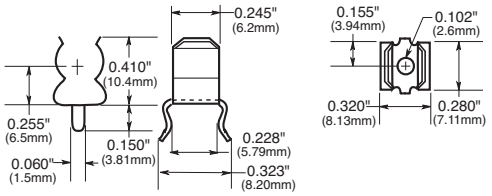
PCB Fuseclips without End Stops or Angled Out Leads

Catalog Numbers	Clip Material*	Finish
1A4533-01-R	High Performance Copper*	Bright tin
1A4533-06-R	Cartridge brass	Bright tin

*High Performance Copper recommended for amps higher than 15A.

RoHS

Data Sheet: 2131



1A4534 Series

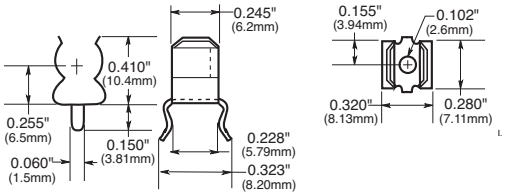
PCB Fuseclips with End Stops & Angled Out Leads

Catalog Numbers	Clip Material*	Finish
1A4534-01-R	High Performance Copper*	Bright tin
1A4534-06-R	Cartridge brass	Bright tin

*High Performance Copper recommended for amps higher than 15A.

RoHS

Data Sheet: 2131



1A1119 Series

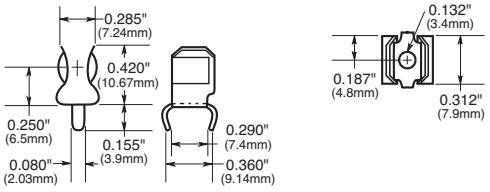
Fuseclips with End Stops & Angled In Leads

Catalog Numbers	Clip Material*	Finish
1A1119-04-R	High Performance Copper*	Bright tin
1A1119-05	High Performance Copper*	Silver
1A1119-10-R	Cartridge brass	Bright tin

*High Performance Copper recommended for amps higher than 15A.

RoHS

Data Sheet: 2131



1A1120 Series

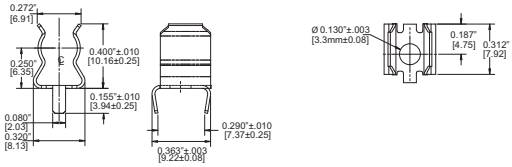
PCB Fuseclips without End Stops or Angled In Leads

Catalog Numbers	Clip Material*	Finish
1A1120-02	Cartridge brass	None/bright dipped
1A1120-05	High Performance Copper*	Silver
1A1120-06-R	High Performance Copper*	Bright tin
1A1120-09-R	Cartridge brass	Bright tin

*High Performance Copper recommended for amps higher than 15A.

RoHS

Data Sheet: 2131



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PC Board Fuseclips for ¼″ Diameter Fuses

5681 & 5682 Series

PCB Fuseclips with Mounting Holes For ¼″ Diameter Fuses

Catalog Number	End Stop	Clip Mat.**	Finish	Dimensions (Inches) B (To End Stop)	C (Contact)	D (Height)	E (Width)	Hole Dia.	Ref.
5681-01		BeCu	Silver						
5681-08	No	Spg. Br.	Nickel	†	0.265	0.41	0.32	0.132	Fig. 2
5681-15-R		Spg. Br.	Bright Tin						
5682-01		BeCu	Silver	0.108					
5682-02		BeCu	Silver						
5682-11-R	Yes	BeCu	Bright Tin	0.131	0.262	0.41	0.32	0.132	Fig. 1
5682-41-R		Spg. Br.	Bright Tin	0.106					
5682-44-R		Spg. Br.	Bright Tin	0.132					

RoHS

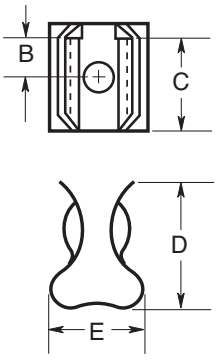


Figure 1

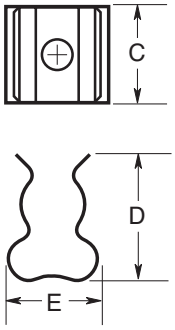


Figure 2

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

PC Board Fuseclips for 9/32″, 13/32″ and 9/16″ Diameter Fuses

5672 & 5674 Series

PCB Fuseclips with Mounting Holes For 9/32″ Diameter Fuses

RoHS

Catalog Number	End Stop	Clip Mat.**	Finish	Dimensions (Inches) B (To End Stop)	C (Contact)	D (Height)	E (Width)	Hole Dia.	Ref.
5672-11	No	Spg. Br.	Bright Tin	†	0.362	0.52	0.38	0.172	Fig. 2
5674-01		BeCu	Silver						
5674-10	Yes	BeCu	Bright Tin	0.168	0.356	0.52	0.38	0.172	Fig. 1
5674-41		Spg. Br.	Bright Tin						

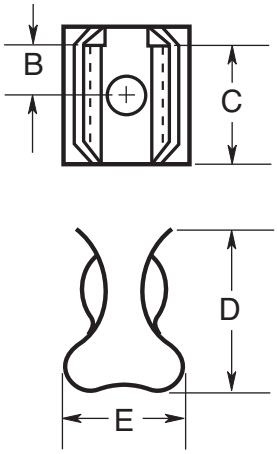


Figure 1

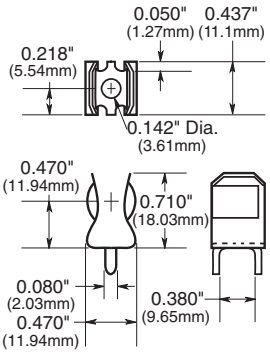
1A3400 Series***

For 13/32″ Diameter Fuses

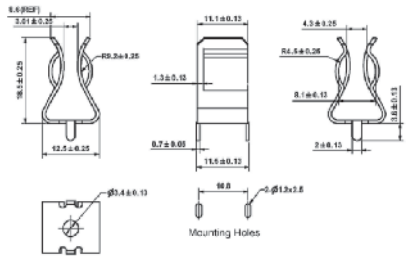
With End Stops & Straight Leads

RoHS

Dimensional Data



1A3400-09 & 1A3400-10



1A3400-12

Specifications:

Catalog Number	Clip Material	Finish	Amp Rating
1A3400-09	Spring Bronze	Bright Tin	20A Max.
1A3400-10	Beryllium Copper	Silver	30A Max.
1A3400-12	Spring Brass	Bright Tin	15A Max.

***For RoHS compliant version add "-R" option code suffix to part number.

5956 & 5960 Series

PCB Fuseclips with Mounting Holes For 13/32″ Diameter Fuses

Catalog Number	End Stop	Clip Mat.**	Finish	Dimensions (Inches) B (To End Stop)	C (Contact)	D (Height)	E (Width)	Hole Dia.	Ref.
5956-16	No	Spg. Br.	Bright Tin	†	0.312	0.71	0.47	0.172	Fig. 2
5960-07		BeCu	Silver	0.168				0.196	
5960-09		BeCu	Silver	0.20				0.172	
5960-44		Spg. Br.	Nickel	0.20				0.197	
5960-51	Yes	Spg. Br.	Bright Dip*	0.168	0.387	0.71	0.47	0.196	Fig. 1
5960-53		Spg. Br.	Bright Dip*	0.20				0.172	
5960-61-R		Spg. Br.	Bright Tin	0.168				0.196	
5960-62-R		Spg. Br.	Bright Tin	0.168				0.132	
5960-63-R		Spg. Br.	Bright Tin	0.20				0.172	
5960-64-R		Spr. Br.	Bright Tin	0.20				0.128	

RoHS

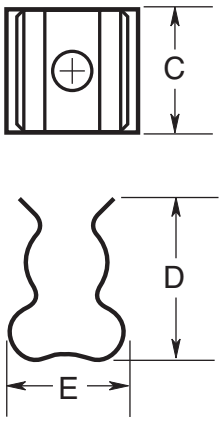


Figure 2

5591 & 5592 Series

PCB Fuseclips with Mounting Holes For 9/16″ Diameter Fuses

Catalog Number	End Stop	Clip Mat.**	Finish	Dimensions (Inches) B (To End Stop)	C (Contact)	D (Height)	E (Width)	Hole Dia.	Ref.
5591-42	Yes	Spg. Br.	Bright Dip*	0.26	0.51	0.89	0.60	0.172	Fig. 1
5591-52-R		Spg. Br.	Bright Tin						
5592-01	No	BeCu	Silver	0.252	0.56	0.875	0.60	0.20	Fig. 2

RoHS

* Bright Dip is actually treated bare metal with no plating.
** Spg. Br. — Spring Bronze; BeCu — Beryllium Copper.
† Hole in center of both clip and contact area.

Data Sheet: 2132

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Medium Voltage Fuses

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Medium Voltage Fuses

Worldwide Circuit Protection Solutions

Bussmann is a world-leading supplier of medium voltage fuses. Each product is backed by an efficient worldwide distribution network with unrivaled service and technical support. Bussmann circuit protection solutions comply with major international standards: ANSI, BS, DIN, IEC and UL.

Fuse Types

Medium voltage fuses generally fit into two categories – expulsion fuses and current limiting fuses. The definitions per ANSI C37.40 are:

Expulsion Fuse: “A vented fuse in which the expulsion effect of the gases produced by internal arcing, either alone or aided by other mechanisms results in current interruption.” Expulsion fuses will limit the duration of an overcurrent event, but they will not limit the magnitude of fault current.

Current Limiting Fuse: “A fuse unit that, when in its current-responsive element is melted by a current within the fuse’s specified current-limiting range, abruptly introduces a high resistance to reduce current magnitude and duration, resulting in subsequent current interruption.” A current limiting fuse will reduce the magnitude a fault current as well as limit the duration of the overcurrent event when operating in its current limiting range. Bussmann offers a broad range of current limiting fuses for protection of feeders, transformers and motor circuits designed to ANSI, BS, DIN and IEC standards.

Medium Voltage Current Limiting Fuses

Current limiting fuses are classified into three categories:

1. Full Range – defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the minimum continuous current that causes the melting of the fusible element(s), when the fuse is applied at the maximum ambient temperature specified by the manufacturer.” It is able to interrupt any current that will melt its element.

2. General Purpose – defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum rated interrupting current down to the current that causes melting of the fusible element(s) in one hour.” Not all currents fall within this range. It is possible for the fuse to be exposed to an overcurrent lower than the value given by the one hour criteria. In that case, a different overcurrent protection device would be required to interrupt the overcurrent.

3. Back-up – defined by ANSI C37.40 as “a fuse capable of interrupting all currents from the maximum interrupting rating current down to the minimum interrupting current.” The minimum interrupting current is the lowest current that the fuse will be able to clear properly. This creates a need to place a low current interrupting device, such as motor overloads, in series with the back-up rated fuse.

E- and R-Rated Fuses

In North America, current limiting fuses typically fall into the category of E-Rated fuses and R-Rated fuses. Bussmann also offers a wide range of current limiting fuses designed to BS, DIN and IEC standards.

E-Rated fuses are used to protect feeder circuits, power transformers and potential transformers. E-Rated fuses have defined current response times specified by ANSI C37.46. E-Rated fuses 100A and below must melt in 300sec at an rms current within the range of 200% to 240% of the continuous current rating. E-Rated fuses above 100A must melt in 600sec at an rms current within the range of 240% to 264% of the continuous current rating of the fuse. Bussmann offers a wide variety of full range and general purpose E-Rated fuses from 2.4kV up to 38kV.

R-Rated fuses are back-up fuses that provide short-circuit protection for motor circuits. They are applied with MV motor starters which provide the overload protection for the circuit. R-Rated fuses also have defined current response times specified by ANSI C37.46. R-Rated fuses will melt in a range of 15 – 35sec at a current equal to 100 times the “R” rating. Bussmann offers 2.4kV, 5.08kV, 7.2kV and 8.3kV R-Rated fuses for motor circuit protection.

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E-Rated Fuses for Transformers and Feeders

MV055

Specifications

Description: E-rated medium, voltage current-limiting fuses for transformer and feeder protection.

Dimensions: See Catalog Numbers table.

Construction: Silver ribbon element surrounded by silica filler housed in a fiberglass tube and plated endcaps. An epoxy paint protects the fuse tube from the surrounding environment.

Ratings:

Volts: — 5.5kV (10-450A)

Amps: — 5-450A (5.5kV)

IR: — 50kA Sym. Max

Agency Information: Meets E requirements per ANSI C37.46, Meets full range requirements per ANSI C37.40.

Features and Benefits

- MV055 Standard clip center distance of 12 inches with 2 and 3 inch barrel diameters for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range rating with 50KA Interrupting Rating
- Double pulsed at 90% of minimum I^2t to establish manufacturing reliability

MV055 Typical Applications

- 5.0kV Transformer Primary Protection
- 5.0kV Feeder Circuit Protection
- 5.0kV Voltage Switches
- 5.0kV Metal-enclosed Switchgear

Dimensions - in

Diagram 1

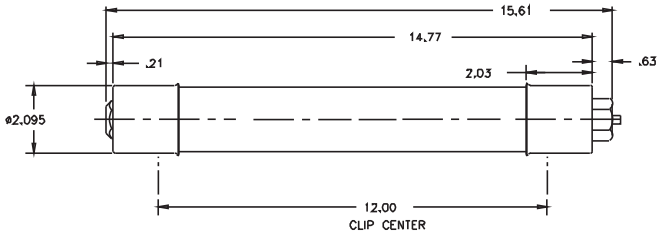
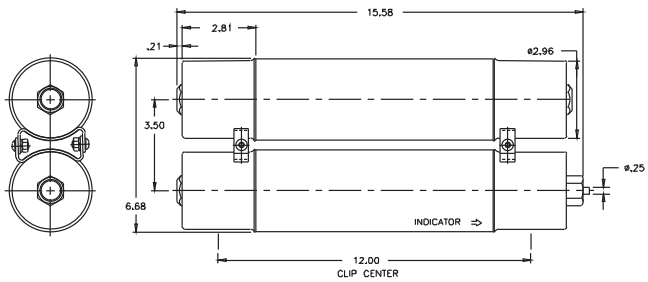


Diagram 2



5.5kV Catalog Numbers

Catalog Numbers	Amp Rating	Min Melt I^2t	Max Clear I^2t	Dimensions (in)* Length	Dia.	Clip Center	Barrels
MV055F1CAX10E	10	850	8,000	15.75	1	12	1
MV055F1CAX15E	15	2,070	11,000				
MV055F1CAX20E	20	2,370	23,000				
MV055F1CAX25E	25	4,650	31,000				
MV055F1CAX30E	30	9,490	45,000				
MV055F1CAX40E	40	9,490	45,000				
MV055F1CAX50E	50	13,600	90,000				
MV055F1CAX65E	65	30,700	181,000				
MV055F1DAX10E	10	850	8,000		2		
MV055F1DAX15E	15	2,070	12,000				
MV055F1DAX20E	20	2,370	23,000				
MV055F1DAX25E	25	4,650	31,000				
MV055F1DAX30E	30	9,490	45,000				
MV055F1DAX40E	40	9,490	45,000				
MV055F1DAX50E	50	13,600	90,000				
MV055F1DAX65E	65	30,700	181,000				
MV055F1DAX80E	80	54,600	270,000				
MV055F1DAX100E	100	116,200	580,000				
MV055F1DAX125E	125	167,400	600,000				
MV055F1DAX150E	150	218,700	786,000				
MV055F1DAX175E	175	227,900	1,100,000				
MV055F1DAX200E	200	297,600	1,520,000				
MV055F2DAX250E	250	669,600	2,400,000				2
MV055F2DAX300E	300	874,800	3,149,000				
MV055F2DAX350E	350	911,600	4,376,000				
MV055F2DAX400E	400	1,190,400	6,071,000				
MV055F2DAX450E	450	1,555,000	9,796,000				

1" = 25.4mm

Recommended Fuse Clips - see page 120

Data Sheet: 6700

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

E-Rated Fuses for Transformers and Feeders

MV155

Specifications

Description: E-rated medium, voltage current-limiting fuses for transformer and feeder protection.

Dimensions: See Catalog Numbers table.

Construction: Silver ribbon element surrounded by silica filler housed in a fiberglass tube and plated endcaps. An epoxy paint protects the fuse tube from the surrounding environment.

Ratings:

Volts: — 15.5kV (5-200A)

Amps: — 5-200A (15.5kV)

IR: — 50kA Sym. Max

Agency Information: Meets E requirements per ANSI C37.46, Meets full range requirements per ANSI C37.40.

Features and Benefits

- MV155 Standard clip center distance of 15 and 18 inches with 2 and 3 inch barrel diameters for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range rating with 50kA Interrupting Rating
- Double pulsed at 90% of minimum I^2t to establish manufacturing reliability

MV155 Typical Applications

- 15.0kV Transformer Primary Protection
- 15.0kV Feeder Circuit Protection
- 15.0kV Voltage Switches
- 15.0kV Metal-enclosed Switchgear

Dimensions - in

Diagram 1

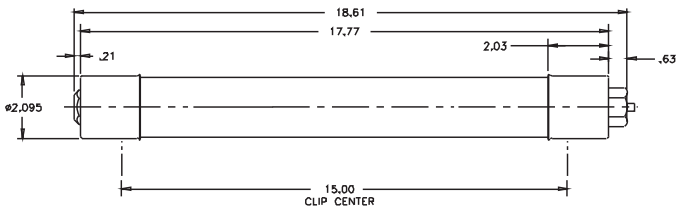
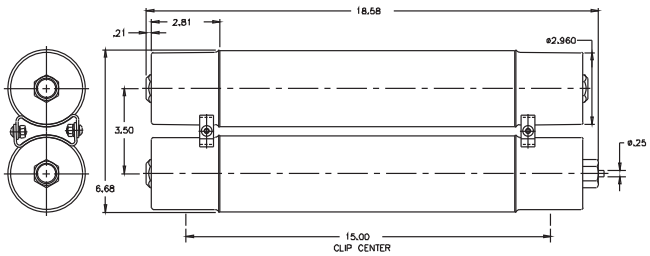


Diagram 2



Data Sheet: 6700

15.5kV Catalog Numbers

Catalog Numbers	Amp Rating	Min Melt I^2t	Max Clear I^2t	Dimensions* Length	Dia.	Clip Center	Barrels
MV155F1CBX5E	5	180	2,900	18.75	1	15	1
MV155F1CBX7E	7	850	8,000				
MV155F1CBX10E	10	850	8,000				
MV155F1CBX15E	15	2,070	12,000				
MV155F1CBX20E	20	2,370	23,000				
MV155F1CBX25E	25	4,650	31,000				
MV155F1CBX30E	30	9,490	45,000				
MV155F1DBX10E	10	850	8,000		2		
MV155F1DBX15E	15	2,070	12,000				
MV155F1DBX20E	20	2,370	23,000				
MV155F1DBX25E	25	4,650	31,000				
MV155F1DBX30E	30	9,490	45,000				
MV155F1DBX40E	40	9,490	45,000				
MV155F1DBX50E	50	13,600	90,000				
MV155F1DBX65E	65	30,700	181,000				
MV155F1DBX80E	80	54,600	270,000				
MV155F1DBX100E	100	116,200	600,000				
MV155F2DBX125E	125	123,000	677,000				2
MV155F2DBX150E	150	218,700	1,287,000				
MV155F2DBX175E	175	314,700	1,689,000				
MV155F2DBX200E	200	465,100	2,405,000				
MV155F1DCX65E	65	30,700	181,000	21.75		18	1
MV155F1DCX80E	80	54,600	270,000				
MV155F1DCX100E	100	116,200	600,000				
MV155F2DCX125E	125	123,000	677,000				2
MV155F2DCX150E	150	218,700	1,287,000				
MV155F2DCX175E	175	314,700	1,689,000				
MV155F2DCX200E	200	465,100	2,405,000				

*1" = 25.4mm.

Recommended Fuse Clips - see page 120

Data Sheet: 6701

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

E-Rated Fuses for Transformer & Feeders

JCX, JCY, JCU, JCZ and JDZ

Specifications

Description: Indoor/enclosure E-rated medium voltage, current-limiting fuses for feeders and power transformers with blown fuse indication.

Dimensions: See Catalog Numbers table.

Construction: plated ferrules.

Ratings:

Volts: — 2750-8300V - See Catalog Numbers table for details

Amps: — ½-750A

IR: — 40-63kA Sym

— 60-100kA ASYM

— See Catalog Numbers table for details

Features and Benefits

- Physically dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Full range ANSI classification

Typical Applications

- Medium Voltage Transformer Primary Protection
- Medium Voltage Feeder Circuit Protection
- Medium Voltage Switches
- Medium Voltage Metal-enclosed Switchgear

Catalog Numbers

Catalog Numbers	Amp Rating	Maximum Design Voltage	Construction	Maximum Interrupting Capacity		Dimensions - in (mm)	
				Amps (Asym.)	Amps (Sym.)	Length	Diameter
2400V; E-Rated; Indoor/Enclosure							
JCX-1E	1	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-2E	2	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-3E	3	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-5E	5	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-7E	7	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-10E	10	2750	Single	60,000	40,000	9.19 (233.38)	2 (50.8)
JCX-15E	15	2750	Single	80,000	50,000	9.5 (241.3)	2.1 (53.34)
JCX-20E	20	2750	Single	80,000	50,000	9.5 (241.3)	2.1 (53.34)
JCX-25E	25	2750	Single	80,000	50,000	9.5 (241.3)	2.1 (53.34)
JCX-30E	30	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-40E	40	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-50E	50	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-65E	65	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-80E	80	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-100E	100	2750	Single	80,000	40,000	10.81 (276.35)	3 (76.2)
JCX-125E	125	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-150E	150	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-200E	200	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-225E	225	2750	Single	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-250E/280X	250/280	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-300E/325X	300/325	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-350X	350	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-400X	400	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
JCX-450X	450	2750	Double	80,000	50,000	10.81 (276.35)	3 (76.2)
5500V; E-Rated; Indoor/Enclosure							
JCY-½E	0.5	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-1E	1	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-2E	2	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-3E	3	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-5E	5	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-7E	7	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-10E	10	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-15E	15	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-20E	20	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)
JCY-25E	25	5500	Single	60,000	40,000	11.19 (284.18)	2 (50.8)

Contact Bussmann for the latest product information on E-Rated fuses for transformer and feeder protection.
Recommended fuseclips: see page 120 - 1A0065, 9078A67G04, A3354730

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

E-Rated Fuses for Transformer & Feeders

Catalog Numbers: E-Rated; Indoor/Enclosure

Catalog Numbers	Amp Rating	Maximum Design Voltage	Construction	Maximum Interrupting Capacity		Dimensions - in (mm)	
				Amps. (Asym.)	Amps. (Sym.)	Length	Diameter
5500V; E-Rated; Indoor/Enclosure							
JCU-10E	10	5500	Single	80,000	50,000	17.81 (452.4)	3 (76.2)
JCU-15E	15	5500	Single	80,000	50,000	12.88 (327.0)	2.1 (53.34)
JCU-20E	20	5500	Single	80,000	50,000	12.88 (327.0)	2.1 (53.34)
JCU-25E	25	5500	Single	80,000	50,000	12.88 (327.0)	2.1 (53.34)
JCU-30E	30	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-40E	40	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-50E	50	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-65E	60	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-80E	80	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-100E	100	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-125E	125	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-150E	150	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-175E	175	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-200E	200	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-250E	250	5500	Single	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-300E	300	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-350E	350	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-400E	400	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-450E	450	5500	Double	100,000	63,000	17.88 (454.15)	3 (76.20)
JCU-600E	600	5500	*	80,000	50,000	28.81 (731.77)	4 (101.60)
JCU-750E	750	5500	*	80,000	50,000	28.81 (731.77)	4 (101.60)
8300V; E-Rated; Indoor/Enclosure							
JCZ-15E	15	8300	Single	80,000	50,000	15.51 (393.95)	2.1 (53.34)
JCZ-20E	20	8300	Single	80,000	50,000	15.51 (393.95)	2.1 (53.34)
JCZ-25E	25	8300	Single	80,000	50,000	15.51 (393.95)	2.1 (53.34)
JCZ-30E	30	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-40E	40	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-50E	50	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-65E	65	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-80E	80	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-100E	100	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-125E	125	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-150E	150	8300	Single	80,000	50,000	17.88 (454.15)	3 (76.2)
JCZ-200E	200	8300	Double	80,000	50,000	17.88 (454.15)	3 (76.2)
JDZ-20E	20	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-25E	25	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-30E	30	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-40E	40	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-50E	50	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-65E	65	8300	Single	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-80E	80	8300	Double	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-100E	100	8300	Double	80,000	50,000	15.88 (403.2)	3 (76.2)
JDZ-125E	125	8300	Double	80,000	50,000	15.88 (403.2)	3 (76.2)

Recommended fuseclips: see page 120 - 1A0065, 9078A67G04, A3354730

General Notes:

1. All fuses are fitted with a striker pin which can be used for indication or tripping purposes.
2. The fuses are suitable for use either indoors or outdoors.
3. These fuses are interchangeable with corresponding fuses produced by most other leading North American manufacturers.

Contact Bussmann for the latest product information on E-Rated fuses for transformer and feeder protection.

*Bolt on mounting

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

E-Rated Fuses: CL-14 & Bolt-In

ECL055

Specifications

Description: E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

Construction: Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

Ratings:

Volts: — 5.5kV

Amps: — 10-900A

IR: — 63kA Sym. Max

Agency Information: Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

Features and Benefits

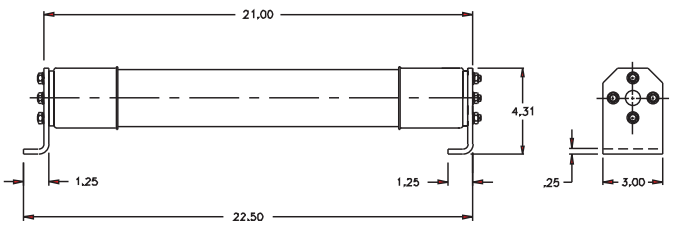
- Clip-lock and bolt-in style available in double and triple barrel fuse designs for application flexibility
- The filament wound, glass epoxy fuse tube provides moisture protection for the fuse. This makes Cooper Bussmann medium voltage fuses suitable for both indoor and outdoor application (outdoor applications require installation inside an appropriate enclosure)
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60Hz operating frequency make these fuses applicable world-wide

Typical Applications

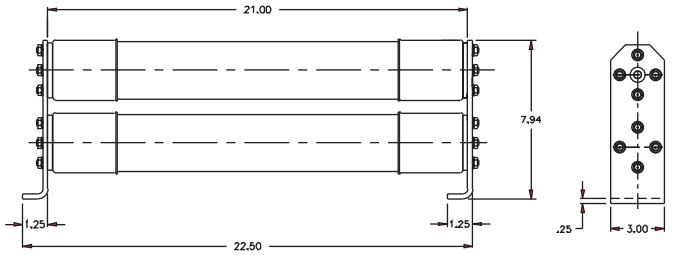
- 5.0kV Transformer Primary Protection
- 5.0kV Feeder Circuit Protection
- 5.0kV Voltage Switches
- 5.0kV Metal-enclosed Switchgear

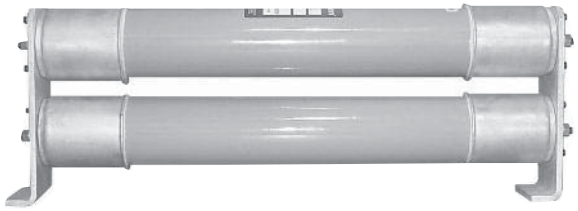
Dimensions - in

Single Barrel



Double Barrel





Catalog Numbers

Catalog Numbers	Amp Rating	Voltage	IR Max Sym.	# of Barrels	Style
ECL055-10E	10	5.5kV	63kA	1	Clip-Lock
ECL055-15E	15	–			
ECL055-20E	20	–			
ECL055-25E	25	–			
ECL055-30E	30	–			
ECL055-40E	40	–			
ECL055-50E	50	–			
ECL055-65E	65	–			
ECL055-80E	80	–			
ECL055-100E	100	–			
ECL055-125E	125	–			
ECL055-150E	150	–			
ECL055-200E	200	–			
ECL055-250E	250	–			
ECL055-300E	300	–		2	Clip-Lock
ECL055-400E	400	–			
ECL055-450E	450	–			
ECL055-500E	500	–			
ECL055-600E	600	–			
ECL055-750E	750	–		3	Bolt-In
ECL055-900E	900	–			

Catalog Number Construction (Example)

Catalog Number	Voltage Rating	Amp Rating
ECL	055 055 = 5.5 kV	500E

Catalog Number Cross Reference

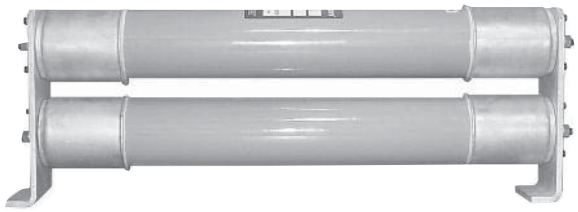
Bussmann Catalog Numbers	Mersen New Catalog #	Mersen Old Catalog #
ECL055-10E	A055C1DORO-10E	225-007-937
ECL055-15E	A055C1DORO-15E	225-007-938
ECL055-20E	A055C1DORO-20E	225-007-939
ECL055-25E	A055C1DORO-25E	225-007-940
ECL055-30E	A055C1DORO-30E	225-007-941
ECL055-40E	A055C1DORO-40E	225-007-942
ECL055-50E	A055C1DORO-50E	225-007-943
ECL055-65E	A055C1DORO-65E	225-007-944
ECL055-80E	A055C1DORO-80E	225-007-945
ECL055-100E	A055C1DORO-100E	225-007-946
ECL055-125E	A055C1DORO-125E	225-007-947
ECL055-150E	A055C1DORO-150E	225-007-948
ECL055-200E	A055C1DORO-200E	225-007-949
ECL055-250E	A055C1DORO-250E	225-007-950
ECL055-300E	A055C1DORO-300E	225-007-951
ECL055-400E	A055C1DORO-400E	225-007-952
ECL055-450E	A055C2DORO-450E	225-007-953
ECL055-500E	A055C2DORO-500E	225-007-954
ECL055-600E	A055C2DORO-600E	225-007-955
ECL055-750E	A055B3DORO-750E	A055X750E-4
ECL055-900E	A055B3DORO-900E	A055X900E-4

Data Sheet: 9002

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

E-Rated Fuses: CL-14 & Bolt-In

ECL083



Specifications

Description: E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

Construction: Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

Ratings:

Volts: — 8.3kV

Amps: — 65-350A

IR: — 50kA

Agency Information: Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

Features and Benefits

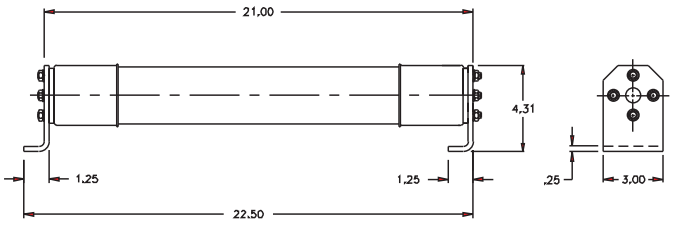
- Clip-lock and bolt-in style available in double and triple barrel fuse designs for application flexibility
- The filament wound, glass epoxy fuse tube provides moisture protection for the fuse. This makes Cooper Bussmann medium voltage fuses suitable for both indoor and outdoor application (outdoor applications require installation inside an appropriate enclosure)
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60Hz operating frequency make these fuses applicable world-wide

Typical Applications

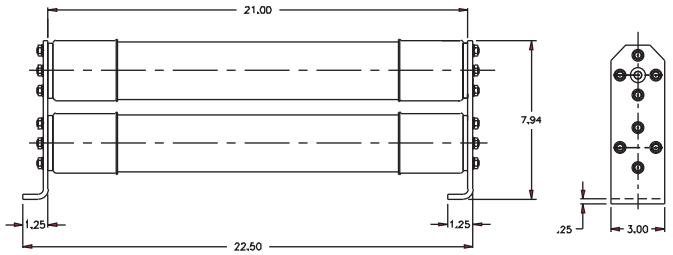
- 8.0kV Transformer Primary Protection
- 8.0kV Feeder Circuit Protection
- 8.0kV Voltage Switches
- 8.0kV Metal-enclosed Switchgear

Dimensions - in

Single Barrel



Double Barrel



Catalog Number Construction (Example)

Catalog Number	Voltage Rating	Amp Rating
ECL	083 083 = 8.3 kV	300E

Electrical Characteristics

Part Number	Amps	Volts	IR Max Sym.	# of Barrels	Figure #	Style
ECL083-65E	65	8.3kV	50kA	1	1	Clip-Lock
ECL083-80E	80	8.3kV	50kA	1	1	Clip-Lock
ECL083-100E	100	8.3kV	50kA	1	1	Clip-Lock
ECL083-125E	125	8.3kV	50kA	1	1	Clip-Lock
ECL083-150E	150	8.3kV	50kA	1	1	Clip-Lock
ECL083-175E	175	8.3kV	50kA	1	1	Clip-Lock
ECL083-200E	200	8.3kV	50kA	2	2	Clip-Lock
ECL083-250E	250	8.3kV	50kA	2	2	Clip-Lock
ECL083-300E	300	8.3kV	50kA	2	2	Clip-Lock
ECL083-350E	350	8.3kV	50kA	2	2	Clip-Lock

Catalog Number Cross Reference

Bussmann Catalog Numbers	Mersen New Catalog #	Mersen Old Catalog #
ECL083-65E	N/A	N/A
ECL083-80E	N/A	N/A
ECL083-100E	N/A	N/A
ECL083-125E	N/A	N/A
ECL083-150E	N/A	N/A
ECL083-175E	N/A	N/A
ECL083-200E	N/A	N/A
ECL083-250E	N/A	N/A
ECL083-300E	N/A	N/A
ECL083-350E	N/A	N/A

Data Sheet: 9007

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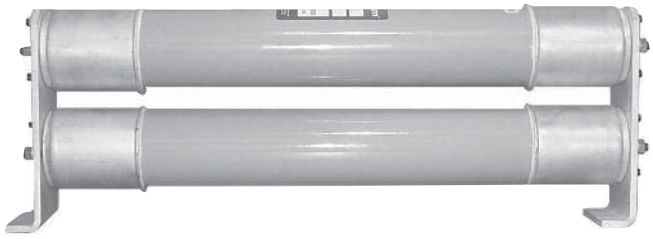
E-Rated Fuses: CL-14

ECL155



Specifications

Description: E-rated medium voltage, current-limiting fuses for transformer and feeder protection.

Construction: Filament wound, glass epoxy fuse tube, with silica filler, and silver-plated copper terminals and endcaps containing a silver element in a double concentric helical configuration.

Ratings:

Volts: — 15.5kV

Amps: — 10-300A

IR: — 63kA Sym. (10-200A)

— 50kA Sym. (250-300A)

Agency Information: Meets E requirements per ANSI C37.46, Meets General Purpose requirements per ANSI C37.40.

Features and Benefits

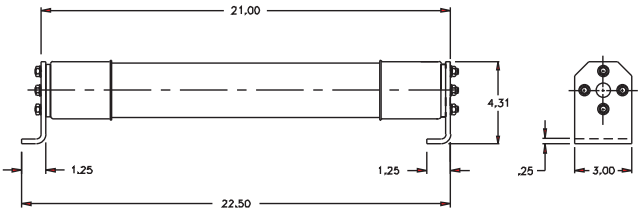
- Clip-lock double barrel fuse design assures positive installation
- The filament wound, glass epoxy fuse tube provides moisture protection for the fuse. This makes Cooper Bussmann medium voltage fuses suitable for both indoor and outdoor application (outdoor applications require installation inside an appropriate enclosure)
- Open fuse indication (indicator travel distance is 16mm) easily integrates into automation schemes
- 50/60Hz operating frequency make these fuses applicable world-wide

Typical Applications

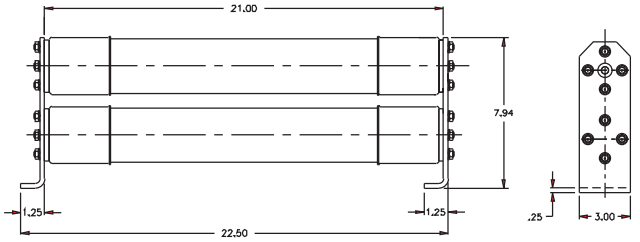
- 15.0kV Transformer Primary Protection
- 15.0kV Feeder Circuit Protection
- 15.0kV Voltage Switches
- 15.0kV Metal-enclosed Switchgear

Dimensions - in

Single Barrel



Double Barrel



Catalog Numbers

Catalog Numbers	Amp Rating	Voltage	IR Voltage Max Sym.	# of Barrels	Style
ECL155-10E	10	15.5kV	63kA	1	Clip-Lock
ECL155-15E	15				
ECL155-20E	20				
ECL155-25E	25				
ECL155-30E	30				
ECL155-40E	40				
ECL155-50E	50				
ECL155-65E	65				
ECL155-80E	80				
ECL155-100E	100				
ECL155-125E	125				
ECL155-150E	150			2	
ECL155-200E	200				
ECL155-250E	250		50kA		
ECL155-300E	300				

Catalog Number Construction (Example)

Catalog Number	Voltage Rating	Amp Rating
ECL	155 155 = 15.5 kV	300E

Catalog Number Cross Reference

Bussmann Catalog Numbers	Mersen New Catalog #	Mersen Old Catalog #
ECL155-10E	A155C1DORO-10E	225-007-967
ECL155-15E	A155C1DORO-15E	225-007-968
ECL155-20E	A155C1DORO-20E	225-007-969
ECL155-25E	A155C1DORO-25E	225-007-970
ECL155-30E	A155C1DORO-30E	225-007-971
ECL155-40E	A155C1DORO-40E	225-007-972
ECL155-50E	A155C1DORO-50E	225-007-973
ECL155-65E	A155C1DORO-65E	225-007-974
ECL155-80E	A155C1DORO-80E	225-007-975
ECL155-100E	A155C1DORO-100E	225-007-976
ECL155-125E	A155C2DORO-125E	225-007-977
ECL155-150E	A155C3DORO-150E	225-007-978
ECL155-200E	A155C3DORO-200E	225-007-979
ECL155-250E	A155C3DORO-250E	225-007-980
ECL155-300E	A155C3DORO-300E	225-007-981

Data Sheet: 9004

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E-Rated Fuses for Potential & Small Power Transformers

AB, AD, AM and CAV

Specifications

Description: Indicating and non-indicating E-Rated medium voltage, current-limiting fuses for potential and small power transformers.

Dimensions: See Catalog Numbers table.
Dimension Illustration on the following page

Ratings:

Volts: — 5.5-38kV
Amps: — 0.5-15A
IR: — 40kA-80kA Sym.
— See Catalog Numbers table for details

Features and Benefits

- Sized for retrofitting in existing hardware
- Space saving size

Typical Applications

- Primary protection of medium voltage potential transformers
- Primary protection of small medium voltage service transformers
- Primary protection of small medium voltage control transformers

Catalog Numbers: E-Rated PT Fuses, Indicating & Non-Indicating

3.6kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
3.6CAV2	2	3.6kV	50kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
3.6ABWNA3.15	3.15	3.6kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
3.6ABWNA6.3	3.15	3.6kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
3.6ABCNA3.15	3.15	3.6kV	50kA	7.69 (195.3)	1 (25.4)	6.51 (165.3)	A3354705
3.6ABCNA6.3	6.3	3.6kV	50kA	7.69 (195.3)	1 (25.4)	6.51 (165.3)	A3354705
3.6ABCNA10	10	3.6kV	50kA	7.69 (195.3)	1 (25.4)	6.51 (165.3)	A3354705

5.5kV; E-Rated PT Fuse; Indicating & Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
5.5CAVH0.5E	0.5	5.5kV	63kA	7.375 (187.3)	1.63 (41.3)	6.18 (156.84)	1A0835
5.5CAVH1E	1	5.5kV	63kA	7.375 (187.3)	1.63 (41.3)	6.18 (156.84)	1A0835
5.5CAVH2E	2	5.5kV	63kA	7.375 (187.3)	1.63 (41.3)	6.18 (156.84)	1A0835
5.5CAV15E	15	5.5kV	63kA	7.375 (187.3)	1.63 (41.3)	6.18 (156.84)	1A0835
5.5ABWNA0.5E	0.5	5.5kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
5.5ABWNA1E	1	5.5kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
5.5ABWNA2E	2	5.5kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
5.5ABWNA3E	3	5.5kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
5.5ABWNA5E	5	5.5kV	50kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
5.5AMWNA0.5E	0.5	5.5kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
5.5AMWNA1.0E	1	5.5kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
5.5AMWNA2.0E	2	5.5kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
5.5AMWNA3.0E	3	5.5kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
5.5AMWNA4.0E	4	5.5kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
5.5AMWNA5.0E	5	5.5kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837

Type CAVH are fitted with a striker pin for indication

7.2kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
7.2CAV2	2	7.2kV	63kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
7.2CAV4	4	7.2kV	63kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
7.2CAV6	6	7.2kV	63kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
7.2CAV10	10	7.2kV	63kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
7.2ABWNA3.15	3.15	7.2kV	45kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
7.2ABWNA6.3	6.3	7.2kV	45kA	5.6 (142.2)	1 (25.4)	4.42 (112.2)	A3354705
7.2ABCNA3.15	3.15	7.2kV	45kA	7.69 (195.3)	1 (25.4)	6.51 (165.3)	A3354705
7.2ABCNA6.3	6.3	7.2kV	45kA	7.69 (195.3)	1 (25.4)	6.51 (165.3)	A3354705
7.2AMWNA0.5E	0.5	7.2kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
7.2AMWNA1.0E	1	7.2kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
7.2AMWNA2.0E	2	7.2kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
7.2AMWNA3.0E	3	7.2kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
7.2AMWNA4.0E	4	7.2kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837
7.2AMWNA5.0E	5	7.2kV	50kA	5.6 (142.2)	0.81 (20.6)	4.79 (121.6)	1A1837

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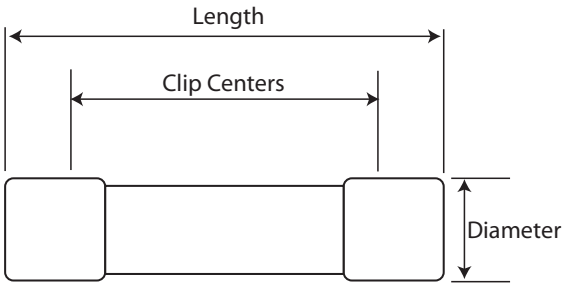
E-Rated Fuses for Potential & Small Power Transformers

Dimension Illustration



Catalog Numbers: E-Rated PT Fuses, Indicating & Non-Indicating

12kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
12CAV2	2	12kV	40kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
12ABCNA3.15	3.15	12kV	45kA	7.69 (195.3)	1 (25.4)	6.51 (165.3)	A3354705

15.5kV; E-Rated PT Fuse; Indicating & Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
15.5CAV(H)0.5E	0.5	15.5kV	80kA	12.87 (326.9	1.63 (41.3)	1.2 (30.5)	1A0835
15.5CAV(H)1E	1	15.5kV	80kA	12.87 (326.9	1.63 (41.3)	1.2 (30.5)	1A0835
15.5CAV(H)2E	2	15.5kV	80kA	12.87 (326.9	1.63 (41.3)	1.2 (30.5)	1A0835
15.5CAV3E	3	15.5kV	80kA	12.87 (326.9	1.63 (41.3)	1.2 (30.5)	1A0835
15.5CAV5E	5	15.5kV	80kA	12.87 (326.9	1.63 (41.3)	1.2 (30.5)	1A0835
15.5CAV7E	7	15.5kV	80kA	12.87 (326.9	1.63 (41.3)	1.2 (30.5)	1A0835

Type CAVH are fitted with a striker pin for indication

17.5kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
17.5CAV2	2	17.5kV	40kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
17.5CAV4	4	17.5kV	40kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
17.5CAV6	6	17.5kV	40kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
17.5CAV10	10	17.5kV	40kA	8.66 (220)	1.63 (41.3)	7.46 (189.48)	1A0835
17.5ABGNA3.15	3.15	17.5kV	35kA	14.13 (358.9)	1 (25.4)	12.95 (328.9)	A3354705

24kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
24CAV2	2	24kV	40kA	13.39 (340.1)	1.63 (41.3)	12.19 (309.62)	1A0835
24CAV3	3	24kV	40kA	13.39 (340.1)	1.63 (41.3)	12.19 (309.62)	1A0835
24CAV4	4	24kV	40kA	13.39 (340.1)	1.63 (41.3)	12.19 (309.62)	1A0835
24ABGNA3.15	3.15	24kV	25kA	14.13 (358.9)	1 (25.4)	12.95 (328.9)	A3354705

36kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
36CAV2	2	36kV	40kA	17.32 (439.9)	1.63 (41.3)	16.12 (409.44)	1A0835
36CAV4	4	36kV	40kA	17.32 (439.9)	1.63 (41.3)	16.12 (409.44)	1A0835
36ABGNA3.15	3.15	36kV	31.5kA	14.13 (358.9)	1 (25.4)	12.95 (328.9)	A3354705

38kV; E-Rated PT Fuse; Indicating & Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
38CAVH0.5E	0.5	38kV	40kA	17.32 (439.9)	1.63 (41.3)	16.12 (409.44)	1A0835
38CAVH1E	1	38kV	40kA	17.32 (439.9)	1.63 (41.3)	16.12 (409.44)	1A0835
38CAVH2E	2	38kV	40kA	17.32 (439.9)	1.63 (41.3)	16.12 (409.44)	1A0835
38CAV4E	4	38kV	40kA	17.32 (439.9)	1.63 (41.3)	16.12 (409.44)	1A0835

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E-Rated, PT Fuses for Potential & Small Power Transformers

JCD, JCW, JCQ, JCI & JCT

Specifications

Description: Indicating and non-indicating E-rated medium voltage, current-limiting fuses for potential and small power transformers.

Dimensions: See Catalog Numbers table.

Construction: Plated ferrules.

Ratings:

Volts: — 2.4-15.5kV (See Catalog Numbers table for details)

Amps: — ½-10A

IR: — 25-80kA Sym

— 40-130kA ASYM

— See Catalog Numbers table for details

Features and Benefits

- Sized for retrofitting in existing hardware
- Space saving size

Typical Applications

- Primary protection of medium voltage potential transformers
- Primary protection of small medium voltage service transformers
- Primary protection of small medium voltage control transformers

2.4kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
JCD-1-2E	0.5	2.4kV	63kA	4.49 (114)	0.8 (20)	3.86 (98)	1A1837
JCD-1E	1	2.4kV	40kA	4.49 (114)	0.8 (20)	3.86 (98)	1A1837
JCD-2E	2	2.4kV	40kA	4.49 (114)	0.8 (20)	3.86 (98)	1A1837
JCD-5E	5	2.4kV	25kA	4.49 (114)	0.8 (20)	3.86 (98)	1A1837

2.4/5.5kV; E-Rated PT Fuse; Non-indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
JCW-1/2E	0.5	2.4kV/5.5kV	40kA	7.31 (185)	1.56 (39.7)	5.93 (150.6)	1A0835
JCW-1E	1	2.4kV/5.5kV	40kA	7.31 (185)	1.56 (39.7)	5.93 (150.6)	1A0835
JCW-2E	2	2.4kV/5.5kV	40kA	7.31 (185)	1.56 (39.7)	5.93 (150.6)	1A0835
JCW-3E	3	2.4kV/5.5kV	40kA	7.31 (185)	1.56 (39.7)	5.93 (150.6)	1A0835
JCW-4E	4	2.4kV/5.5kV	40kA	7.31 (185)	1.56 (39.7)	5.93 (150.6)	1A0835
JCW-5E	5	2.4kV/5.5kV	40kA	7.31 (185)	1.56 (39.7)	5.93 (150.6)	1A0835

5.5kV; E-Rated PT Fuse; Indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
JCQ-3E	3	5.5kV	130kA	9.5 (241.3)	1.6 (40.6)	8.12 (206)	1A0835
JCQ-5E	5	5.5kV	130kA	9.5 (241.3)	1.6 (40.6)	8.12 (206)	1A0835
JCQ-10E	10	5.5kV	130kA	9.5 (241.3)	1.6 (40.6)	8.12 (206)	1A0835

8.3kV; E-Rated PT Fuse; Indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
JCI-3E	3	8.3kV	80kA	12.88 (327)	1.6 (40.6)	11.5 (292)	1A0835
JCI-5E	5	8.3kV	80kA	12.88 (327)	1.6 (40.6)	11.5 (292)	1A0835
JCI-10E	10	8.3kV	80kA	12.88 (327)	1.6 (40.6)	11.5 (292)	1A0835

15.5kV; E-Rated PT Fuse; Indicating

Catalog Number	Amp Rating	Rated Voltage	IR RMS Sym.	Dimensions			Spare Parts (Clips)
				Length	Diameter	Clip Centers	
JCT-3E	3	15.5kV	80kA	17.5 (444.5)	1.6 (40.6)	16.12 (409.4)	1A0835
JCT-5E	5	15.5kV	80kA	17.5 (444.5)	1.6 (40.6)	16.12 (409.4)	1A0835
JCT-10E	10	15.5kV	80kA	17.5 (444.5)	1.6 (40.6)	16.12 (409.4)	1A0835

Data Sheet: 6002

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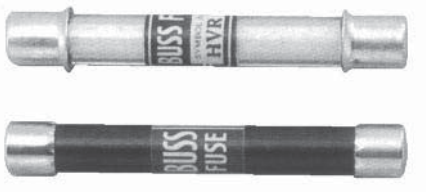
PT Fuses

HVA, HVB, HVJ, HVL, HVR, HVT, HVU, HVW & HVX



Specifications

Description: Medium voltage, non-time delay, fast-acting fuses.

Dimensions: See Basic Catalog Numbers table.

Ratings:

Volts: — 1-10kV (See Basic Catalog Numbers table)

Amps: — 1/16-10A (See Basic Catalog Numbers table)

Features and Benefits

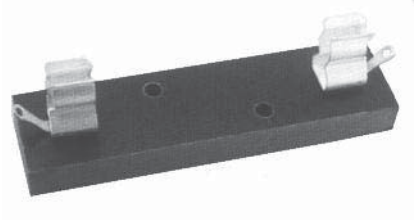
- Physical size varies with electrical rating of fuse to prevent over-fusing.
- Space saving size.

Typical Applications

- Medium Voltage Instrument Protection
- Medium Voltage Circuit Protection

Test Specifications

Basic Catalog Numbers	Load / Opening Time
HVA, HVB, HVJ, HVL	110% / 4 Hours (min) 135% / 1 Hour (max)
HVR, HVT, HVU, HVW, HVX	100% / 4 Hours (min) 150% / 1 Hour (max)



Fuse blocks: 4528, 4529

Voltage Rating: 1000 to 10,000V

Basic Catalog Numbers	Fuse Block Catalog Number	Fuse Clip Catalog Number
HVA, HVR	4528	5960
HVB, HVT	4529	5960
HVJ, HVU	N/A	4180
HVL, HVX	N/A	4180

Use #8 screws on blocks 4528 and 4529.

Basic Catalog Number	kV	Amp Ratings	Maximum S.C.	Dimensions - in (mm) Diameter	Length
HVA	1	1/16, 1/10, 1/8, 3/10, 1/4, 3/10, 3/8, 1/2, 3/4, 1, 1 1/2, 2, 3, 4, 6, 10	20kW DC/30kVA AC	0.41 (10.4)	3 (76.1)
HVB	2.5	1/2, 3/4, 1, 1 1/2, 2, 3	20kW DC/30kVA AC	0.41 (10.4)	4.5 (114.2)
HVJ	5	1/16, 1/8, 1/4, 1/2, 3/4, 1 1/2, 2, 4, 6, 10	20kW DC/30kVA AC	0.81 (20.6)	5 (126.9)
HVL	10	1/16, 1/8, 1/4, 1/2, 1, 1 1/2, 2, 3	20kW DC/30kVA AC	0.81 (20.6)	10 (254)
HVR	1	1/2, 1, 2, 3, 4, 5	kVA-500 AC only	0.41 (10.4)	3 (76.2)
HVW	1.2	1, 2, 3, 4, 5, 8	kVA-12,000 AC only	0.41 (10.4)	2.25 (57.1)
HVT	2.5	1/2, 1, 2, 3, 5	kVA-1250 AC only	0.41 (10.4)	4.5 (114.2)
HVU	5	1/2, 1, 2, 3, 4, 5	kVA-2500 AC only	0.81 (20.6)	5 (126.9)
HVX	10	1/2, 1, 3, 5	kVA-5,000 AC only	0.41 (10.4)	10.0 (253.8)

Catalog Number Build-A-Code

Basic Catalog Number _ _ _

Amps _ _ _

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

R-Rated Fuses for Motor Circuit Protection

JCG, JCH, JCK, JCK-A, JCK-B, JCL, JCL-A, JCL-B, JCR-A, & JCR-B

Specifications

Description: Indoor/enclosure R-Rated medium voltage, current-limiting fuses for motor circuit protection.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 2.4-7.2kV (See Catalog Numbers table for details)

Amps: — 25-450A (See Catalog Numbers table for details)

IR: — 50kA Sym

— 80kA ASYM

— See Catalog Numbers table for details

Agency Information: UL Recognized: 2540Vac — JCK, JCK-A, 5080Vac — JCL, JCL-A, UL Recognized (Guide #MSSS2, File #E96676).

Features and Benefits

- Physically dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Available with optional Cutler Hammer® hookeye for ease of insertion and removal
- Classified as back-up fuses for current-limited protection of medium voltage motor controllers

Typical Applications

- Medium Voltage Motor Controllers

Dimensions - mm (in)

Figure 1

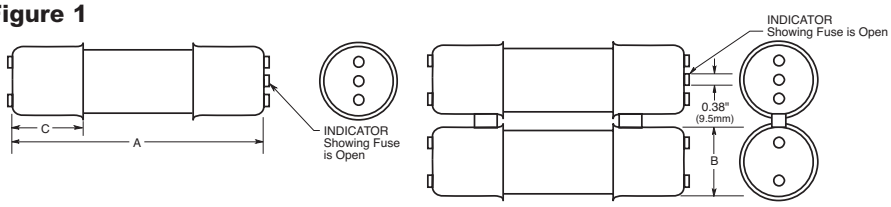


Figure 2

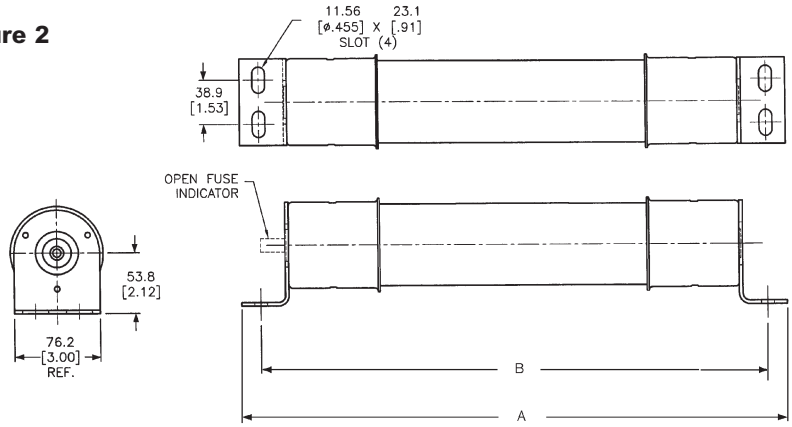
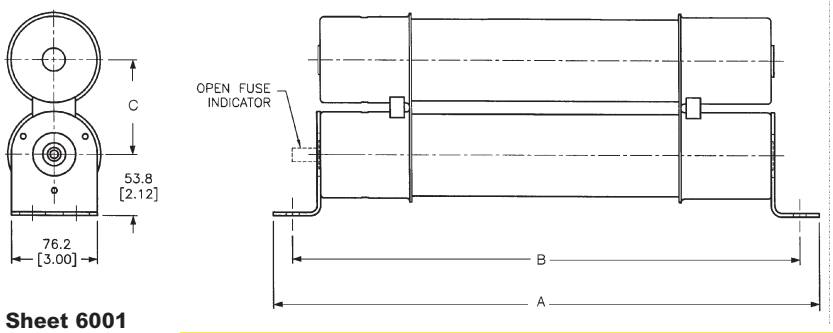


Figure 3



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R-Rated Fuses for Motor Circuit Protection

Catalog Numbers: R-Rated; Indoor/Enclosure

Catalog Numbers	Amp Ratings	Maximum Design Voltage	Dimensions - in (mm)* A	B	C	Construction	Max Int. Cap. Amps (Asym.)	Amps (Sym.)	Min Int. Cap. Amps (Sym.)
2400V (See Figure 1)									
JCK-2R	70	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCK-3R	100	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCK-4R	130	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCK-5R	150	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCK-6R	170	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCK-9R	200	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCK-12R	230	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCK-18R	390	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCK-24R	450	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880
2400V — With Westinghouse Ampguard Hookeye (See Figure 1)									
JCK-A-2R	70	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCK-A-3R	100	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCK-A-4R	130	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCK-A-5R	150	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCK-A-6R	170	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCK-A-9R	200	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCK-A-12R	230	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCK-A-18R	390	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCK-A-24R	450	2540	11.24 (285.5)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880
2400V — Bolt-On (See Figures 2 & 3)									
JCK-B-30	25	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	90
JCK-B-2R	70	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	170
JCK-B-3R	100	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	245
JCK-B-4R	130	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	340
JCK-B-5R	150	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	430
JCK-B-6R	170	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	500
JCK-B-9R	200	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	1,000
JCK-B-12R	230	2540	14.18 (360.2)	12.81 (325.4)	-	Single	80,000	50,000	1,250
JCK-B-18R	390	2540	14.18 (360.2)	12.81 (325.4)	3.56 (90.4)	Double	80,000	50,000	1,700
JCK-B-24R	450	2540	14.18 (360.2)	12.81 (325.4)	3.56 (90.4)	Double	80,000	50,000	1,210
2400V — Hermetically Sealed, For Use with Ampguard Motor Starters (See Figure 1)									
JCH-30	25	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	90
JCH-2R	70	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	170
JCH-3R	100	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	245
JCH-4R	130	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	340
JCH-5R	150	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	430
JCH-6R	170	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	500
JCH-9R	200	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,000
JCH-12R	230	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,250
JCH-18R	390	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,700
JCH-24R	450	2540	10.81 (275.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	2,100
4800V (See Figure 1)									
JCL-2R	70	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCL-3R	100	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCL-4R	130	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCL-5R	150	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCL-6R	170	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCL-9R	200	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCL-12R	230	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCL-18R	390	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCL-24R	450	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880

• See previous page Figure 2 for single construction and Figure 3 for double construction information.
Recommended fuseclips: see page 120 - 1A0065, A3354730, 9078A67G04.

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R-Rated Fuses for Motor Circuit Protection

Catalog Numbers: R-Rated; Indoor/Enclosure

Catalog Numbers	Amp Ratings	Maximum Design Voltage	Dimensions - in (mm) A	B	C	Construction	Max Int. Cap. Amps (Asym.)	Amps (Sym.)	Min Int. Cap. Amps (Sym.)
4800V — With Westinghouse Ampguard Hookeye (See Figure 1)									
JCL-A-2R	70	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	165
JCL-A-3R	100	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	220
JCL-A-4R	130	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	320
JCL-A-5R	150	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	410
JCL-A-6R	170	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	480
JCL-A-9R	200	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	720
JCL-A-12R	230	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	970
JCL-A-18R	390	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,430
JCL-A-24R	450	5080	15.76 (400.3)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,880
4800V — Bolt-On (See Figures 2 & 3)									
JCL-B-30	30	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	95
JCL-B-2R	70	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	180
JCL-B-3R	100	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	270
JCL-B-4R	130	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	350
JCL-B-5R	150	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	450
JCL-B-6R	170	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	540
JCL-B-9R	200	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	700
JCL-B-12R	230	5080	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	1,000
JCL-B-18R	390	5080	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	1,450
JCL-B-24R	450	5080	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	2,000
4800V — Hermetically Sealed, For Use with Ampguard Motor Starters (See Figure 1)									
JCG-30	30	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	95
JCG-2R	70	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	180
JCG-3R	100	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	270
JCG-4R	130	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	350
JCG-5R	150	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	450
JCG-6R	170	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	540
JCG-9R	200	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	700
JCG-12R	230	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,000
JCG-A-18R	390	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,450
JCG-A-24R	450	5080	15.91 (404.1)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	2,000
7200V — With Ampguard Hookeye (See Figure 1)									
JCR-A-2R	70	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	160
JCR-A-3R	100	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	250
JCR-A-4R	130	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	325
JCR-A-5R	150	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	390
JCR-A-6R	170	8300	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	500
JCR-A-9R	200	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	750
JCR-A-12R	230	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Single	80,000	50,000	1,000
JCR-A-18R	390	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	1,450
JCR-A-24R	450	7200	15.85 (402.6)	3.0 (76.2)	3.0 (76.2)	Double	80,000	50,000	2,500
7200V — Bolt-On (See Figures 2 & 3)									
JCR-B-2R	70	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	160
JCR-B-3R	100	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	250
JCR-B-4R	130	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	325
JCR-B-5R	150	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	390
JCR-B-6R	170	8300	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	500
JCR-B-9R	200	7200	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	750
JCR-B-12R	230	7200	19.25 (488.9)	17.88 (454.1)	-	Single	80,000	50,000	1,000
JCR-B-18R	390	7200	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	1,450
JCR-B-24R	450	7200	19.25 (488.9)	17.88 (454.1)	3.31 (84.1)	Double	80,000	50,000	2,500

Recommended fuseclips: see page 120 - 1A0065, A3354730, 9078A67G04.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

British Standard Dimensioned IEC Fuses for Motor Circuit Protection

The Bussmann range of motor fuses are designed to meet the specific requirements necessary for motor protection. During the starting cycle of direct on-line motors, the fuse elements will reach a considerably higher temperature than during normal operation; (this is due to the high amount of current the motor will draw as it starts, typically, six times its normal load current value). This results in expansion and contraction of the fuse elements and could cause premature operation of the fuse.

Bussmann motor fuses encompass an advanced design to minimize this effect. This therefore, negates the need to over specify the fuse rating due to high values of motor starting current.

Bussmann motor fuses operate extremely quickly under heavy fault currents, resulting from the time / current characteristic. Low power dissipation ensures low temperature rise, important in multi-tier starters for example. Switching (arc), voltages are lower than permitted values, therefore, 5.5kV fuses are also suitable for 4.8kV and 2.4kV circuits.

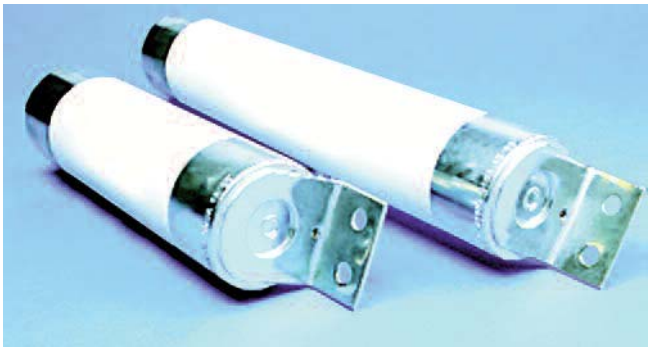


Table of Ratings

Basic Cat. Number	Volts	Breaking Capacity	Amp Ratings	Dimensions - in (mm)		Dimensional Standard
				Length	Diameter	
3.6WJON6	3.6kV	50kA	5, 6.3, 10, 16, 20, 25, 31.5, 40, 50	7.56 (192)	1.4 (35.6)	BS 2692 (TA1) Interchangeable with GEC Type K2 PA
3.6WDOH6	3.6kV	50kA	50, 63, 80, 100, 125	7.56 (192)	2 (50.8)	BS 2692 (TA1) or DIN 43625
3.6WFOH6	3.6kV	50kA	160, 200	7.56 (192)	3 (76.2)	BS 2692 (TA1) or DIN 43625
3.6WDLSJ	3.6kV	50kA	50, 63, 80, 100, 125	11.5 (292.1)	2 (50.8)	DIN 43625
3.6WFLSJ	3.6kV	50kA	160, 200	11.5 (292.1)	3 (76.2)	DIN 43625
3.6WDFHO	3.6kV	50kA	50, 63, 80, 100, 125	10 (254)	2 (51)	BS 2692 (TA2)
3.6WFFHO	3.6kV	50kA	160, 200	10 (254)	3 (76.2)	BS 2692 (TA2)
3.6WKFHO	3.6kV	50kA	250, 315, 355, 400	10 (254)	3 (76.2)	BS 2692 (TA2)
5.5VFNHA	5.5kV	60kA	2R-6R	15.86 (402.8)	3 (76.2)	ANSI R-Rated
5.5VKNHA	5.5kV	60kA	9R-24R	15.86 (402.8)	3 (76.2)	ANSI R-Rated
7.2WFNHO	7.2kV	40kA	25, 31.5, 40, 50, 63, 80, 100, 125, 160	15.86 (402.8)	3 (76.2)	BS 2692 (TA4)
7.2WKNHO	7.2kV	40kA	200, 224, 250, 315	15.86 (402.8)	3 (76.2)	BS 2692 (TA4)
7.2WFMSJ	7.2kV	63kA	25, 31.5, 40, 50, 63, 80, 125, 160	17.40 (442)	3 (76.2)	DIN 43625
7.2WKMSJ	7.2kV	63kA	200, 224, 250, 315, 355	17.40 (442)	3 (76.2)	DIN 43625

Catalog Number Build-A-Code

kV	Basic Catalog Number	Amps
_ _ _	_ _ _ _ _	_ _ _

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

DIN Dimensioned IEC Fuses for Transformer Protection

DIN Dimension Fuses

To Spec. DIN 43625

Specifications

Catalog Symbol: See Basic Catalog Numbers table.

Description: DIN dimension fuses to Specification DIN 43625 covering current-limiting fuses with performance in compliance with IEC 60282-1. These are in accordance with the R10 and, in some cases, the R20 series of preferred numbers.

Dimensions: See Catalog Numbers table.

Catalog Number Build-A-Code

kV	Basic Catalog Number	Amps
_ _ _	_ _ _ _ _	_ _ _

Volts: — See voltage associated with the Basic Catalog Numbers in the table.

Amps: — See amp rating associated with the Basic Catalog Numbers in the table.

IR: — See IR associated with the Basic Catalog Numbers in the table.

Agency Information: Comply with DIN dimensional standard DIN 43625, VDE 0670 part 4, VDE 0670 part 40Z and with IEC 60282-1 (2005).

Features and Benefits

- DIN dimensioned for retrofitting in existing hardware
- Open fuse indicator for ease in troubleshooting
- Designed for use in IEC equipment

Typical Applications

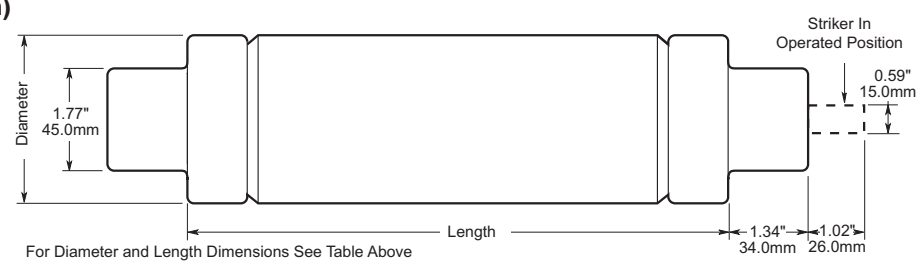
- Medium Voltage IEC designed equipment

Catalog Numbers

kV	Catalog Numbers	Amp Ratings	Dimensions - in (mm) Diameter x Length	IR RMS Sym
3.6	3.6ADOSJ(amp)	6.3, 10, 16, 20, 25, 31.5, 40	2.00 x 7.56 (51 x 192)	40kA
	3.6WDOSJ(amp)	50, 63, 80, 100, 125	2.00 x 7.56 (51 x 192)	50kA
	3.6WFOSJ(amp)	160, 200	3.00 x 7.56 (76 x 192	
	3.6ADLSJ(amp)	25, 40	2.00 x 11.50 (51 x 292)	
	3.6WDLSJ(amp)	50, 63, 80, 100, 125	2.00 x 11.50 (51 x 292)	
	3.6WFLSJ(amp)	160, 200	3.00 x 11.50 (76 X 292)	
	3.6WKLSJ(amp)	250, 315, 400	3.00 x 11.50 (76 X 292)	
7.2	7.2TDLSJ(amp)	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63	2.00 x 11.50 (51 x 292)	40kA
	7.2TFLSJ(amp)	80, 100, 125, 160	3.00 x 11.50 (76 x 292)	
	7.2WKMSJ(amp)	200, 225, 250, 315, 355	3.00 x 17.41 (76 x 442)	
12	12TDLEJ(amp)	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63	2.00 x 11.50 (51 x 292)	63kA
	12THLEJ(amp)	80, 100	2.52 x 11.50 (64 x 292)	
	12TKLEJ(amp)	125	3.00 x 11.50 (76 x 292)	
	12TXLEJ(amp)*	160, 200	3.50 x 11.50 (88 x 292)	
17.5	17.5TDLSJ(amp)*	6.3, 10, 16, 20, 25, 31.5, 40	2.00 x 11.50 (51 x 292)	35.5kA
	17.5TFLSJ(amp)*	50	3.00 x 11.50 (76 x 292)	
	17.5TDMEJ(amp)	6.3, 10, 16, 20, 25, 31.5, 40, 50, 63	2.00 x 17.41 (51 x 442)	50kA
	17.5THMEJ(amp)	80, 100	2.52 x 17.41 (64 x 442)	
	17.5TKMEJ(amp)	125	3.00 x 17.41 (76 x 442)	
24	24TDMEJ(amp)	6.3, 10, 16, 20, 25, 31.5, 40, 50	2.00 x 17.41 (51 x 442)	50kA
	24THMEJ(amp)	63	2.52 x 17.41 (64 x 442)	
	24TFMEJ(amp)	80, 100*[1]	3.00 x 17.41 (76 x 442)	
	24TXMEJ(amp)*	125[2], 160	3.46 x 17.41 (88 x 442)	31.5kA
36	36TDQSJ(amp)	3.15[3], 6.3, 10, 16, 20, 25	2.00 x 21.16 (51 x 537)	35.5kA
	36TFQSJ(amp)	31.5, 40, 50	3.00 x 21.16 (76 x 537)	
	36TXQEJ(amp)*	63	3.46 x 21.16 (88 x 537)	20kA

Recommended fuseclips for DIN style fuses – 270303, A3354745 see page 120.
*Not compliant with VDE 0670, part 402.
[1]-IR RMS Sym is 63kA
[2]-IR RMS Sym is 40kA
[3]-IR RMS Sym is 20kA

Dimensions - In (mm)



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Expulsion Fuse Links for Use in High Voltage Distribution Cut-Outs

Specifications

Description: Expulsion fuse links available in a wide range of options from 15kV to 72kV in ANSI T&K characteristics.

Ratings:
Volts: — 15 to 72kV
Amps: — 1 to 100A
Breaking Capacity: depends on voltage but is approximately 8kA

Agency Information:
Type T: complies with ANSI C37-42
Type K: complies with ANSI C37-42

Features and Benefits

- Wide range of options available from 15kV to 72kV in ANSI T & K characteristics.
- Extra rapid option also available.

Packaging:
Up to and including 50A: 25 in a carton
From 60A to 100A: 10 in a carton
To avoid incorrect replacement the fuse links have colour coded labels:
Pink label: Type XA
Yellow label: Type K
Green label: Type T

Typical Applications:
- Primary side transformer protection
- Feeder protection
- Capacitor bank protection

Use of Application

Expulsion fuse links current ratings should be selected on the basis of maximum expected transient no damage currents rather than on full load current. In addition, the selection of higher current ratings will reduce the possibility of supply interruption due to transient surges such as those due to lightning strikes.

Links should be handled with a reasonable degree of care when installing. Excessively rough handling may damage the element.

It is normal, under certain fault conditions, for arc extinguishing material and/or metal particles to be expelled from the fuse assembly. It is therefore recommended that reasonable precautions be taken to prevent the installation being approached by unauthorised persons.

How to order - Parts Referencing System

Rated Voltage (kV)	1st Letter Type of Current Characteristics	2nd Letter Type of Termination	Rated Current (A)
15 25 46 72	T = complies with ANSI C 37-42 requirements for slow acting T characteristics K = complies with ANSI C 37-42 requirements for fast acting K characteristics XA = this type of expulsion fuse link has an extra rapid characteristic. It is suitable for applications where a high degree of system protection is required at the expense of discrimination S = Solid links rated at 100A are also available in both button head and universal versions for fitting into expulsion fuse carriers where required. These can be ordered in a similar way using the abbreviation S, e.g. 15SB, etc	B = a fixed NEMA button head link U = a universal link, with double tail and slip off NEMA button head D = double tailed link without NEMA button head BR = as pattern B but the button head is attached via a 1/4 UNF thread to allow use of an extension rod. See outline drawings opposite page for reference	1, 2, 3, 4, 5, 6, 7.5, 8, 10, 12, 15, 20, 25, 30, 40, 50, 60, 65, 75, 80, 100

Thus a typical ordering reference for a 15kV NEMA Type K, button head 30A fuse link would be 15KB30 expulsion fuse link.

The fuse link assembly for a given range is standard to all rated voltages. The exception is that the tail length is varied to suit the dimensions of expulsion carrier of different ratings.

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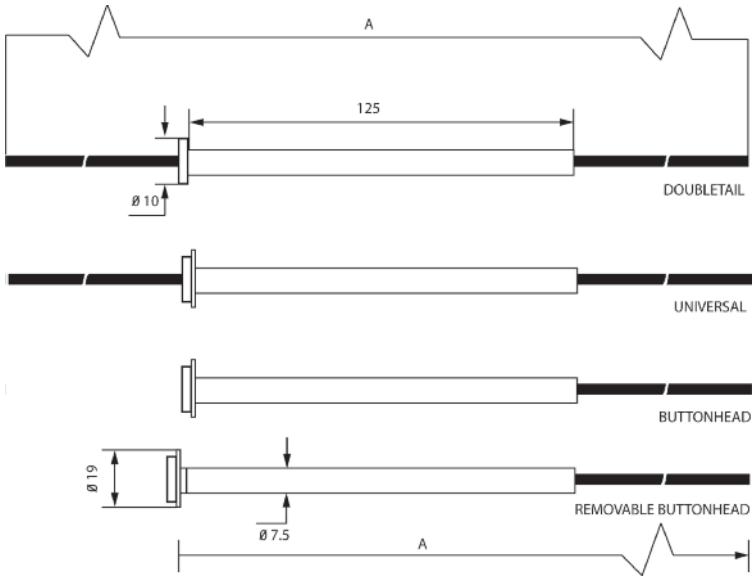
Expulsion Fuse Links for Use in High Voltage Distribution Cut-Outs

Dimensions - mm (in)

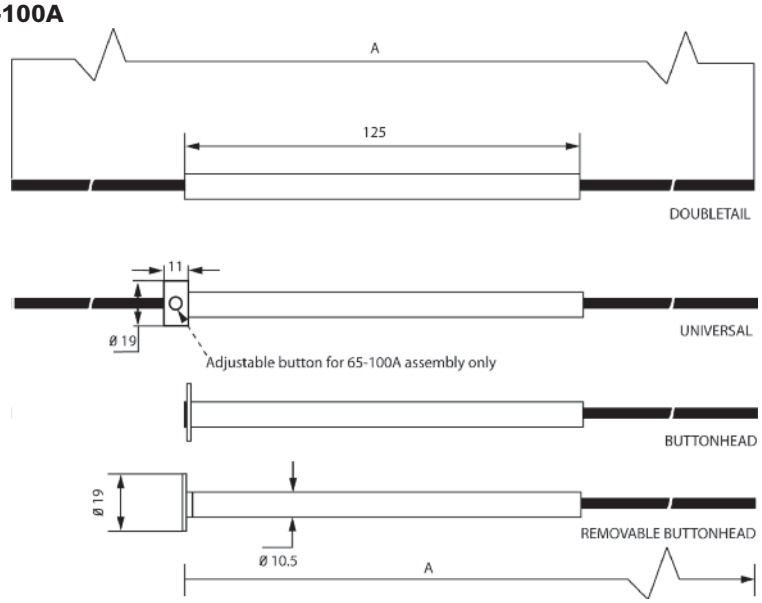
Type kV	A
15kV	533 (21”)
25kV	660 (26”)
46kV	787 (31”)
72kV	1016 (40”)

Notes: Type BR is similar to button head shown, except that the button head is attached via a ¼ UNF thread. Tails can be cut to any length.

1-50A



60-100A



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EEI-NEMA Type K & T and Type H & N

FL: Type H and EEI-NEMA Type K & T Fuses

Specifications

Description: Medium voltage fuses: Type H (high surge), EEI-NEMA Type K (fast-acting), EEI-NEMA Type T (slow-acting).

Ratings:

Amps: — 1-200A (See Catalog Numbers tables)

Features and Benefits

- Wide range of EEI-NEMA type fuse links for use in open fuse cutouts
- Voltage ratings up to 27kV.
- Can be coordinated with other overcurrent protective devices for sectionalizing to isolate feeder branches.

Typical Applications

- Medium Voltage Fused Cutouts

High-Surge Type H Fuses

High-surge, Type H fuses are manufactured in ratings of 1, 2, 3, 5, and 8A. They have been developed principally for primary fusing of small-sized transformers. Type H links are manufactured in the universal buttonhead design.

Type N Fuses

Type N fuses conform to previous NEMA standards and have been superseded by Type K and T links. Type N fuses are manufactured in the universal button design in ratings of 5 through 200A for use in NEMA standard dimensioned cutouts rated through 27kV.

Catalog Numbers

EEI-NEMA and High-Surge Universal Tin Element Fuses for Cutouts — Rated to 27kV

Non-Removable Button-Head For Standard Open or Enclosed Cutouts

Catalog Numbers

Type H (High Surge)	EEI-NEMA Type K (Fast)	EEI-NEMA Type T (Slow)	Amps
FL11H1	FL11K1	FL11T1	1
FL11H2	FL11K2	FL11T2	2
FL11H3	FL11K3	FL11T3	3
FL11H5	FL11K5	FL11T5	5
—	FL11K6	FL11T6	6
FL11H8	FL11K8	FL11T8	8
—	FL11K10	FL11T10	10
—	FL11K12	FL11T12	12
—	FL11K15	FL11T15	15
—	FL11K20	FL11T20	20
—	FL11K25	FL11T25	25
—	FL11K30	FL11T30	30
—	FL11K40	FL11T40	40
—	FL11K50	FL11T50	50
—	FL11K65	FL11T65	65
—	FL11K80	FL11T80	80
—	FL11K100	FL11T100	100
—	FL11K140	FL11T140	140
—	FL11K200	FL11T200	200

Removable Button-Head For Cutouts Requiring Removable-Button Links

Catalog Numbers

EEI-NEMA Type K (Fast)	EEI-NEMA Type T (Slow)	Amps
FL3K1	FL3T1	1
FL3K2	FL3T2	2
FL3K3	FL3T3	3
FL3K5	FL3T5	5
FL3K6	FL3T6	6
FL3K8	FL3T8	8
FL3K10	FL3T10	10
FL3K12	FL3T12	12
FL3K15	FL3T15	15
FL3K20	FL3T20	20
FL3K25	FL3T25	25
FL3K30	FL3T30	30
FL3K40	FL3T40	40
FL3K50	FL3T50	50
FL3K65	FL3T65	65
FL3K80	FL3T80	80
FL3K100	FL3T100	100
FL3K140	FL3T140	140
FL3K200	FL3T200	200

Adapter-type removable-button links with ferrule adapter to convert to double-leader links are available in K and T types. Order by description.

EEI-NEMA Type K Universal Silver-Element Fuses for Cutouts — Rated through 27kV

Non-Removable Button-Head For Standard Open or Enclosed Cutouts

Catalog Numbers

EEI-NEMA Type K	Amps
FL12K8	8
FL12K10	10
FL12K12	12
FL12K15	15
FL12K25	25
FL12K50	50

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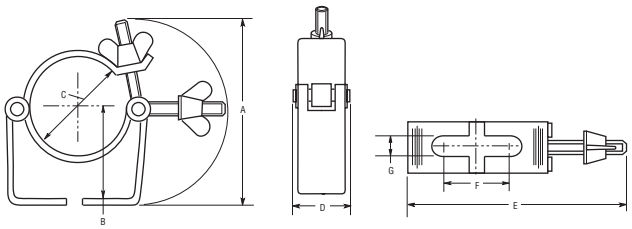
Fuseclips for Medium & High Voltage Fuses

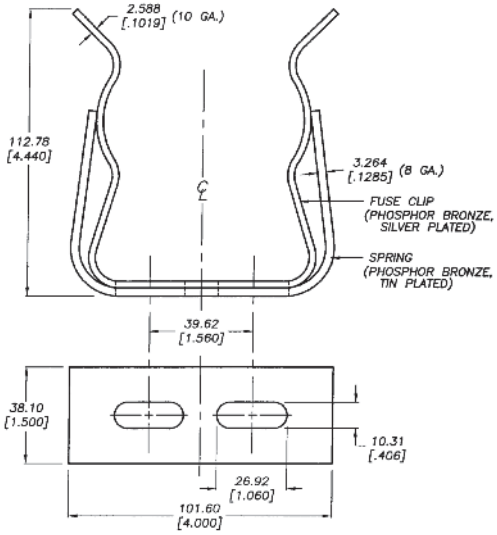
Recommended Fuseclips for Medium Voltage Fuses

Catalog Numbers	Fuse Diameter - in (mm)	Clip Dimensions (in)						
		A	B	C	D	E	F	G
A3354710	2 (50.8)	3.749	1.979	2.009	1.189	4.539	1.509	0.399
A3354730	3 (76)	4.139	2.449	3.009	1.189	5.639	1.509	0.399
A3354745	1.77 (45)	3.50	2.50	1.77	1.19	4.50	1.50	0.38

Fuseclips are for single barrel applications only. Are not sold in pairs.

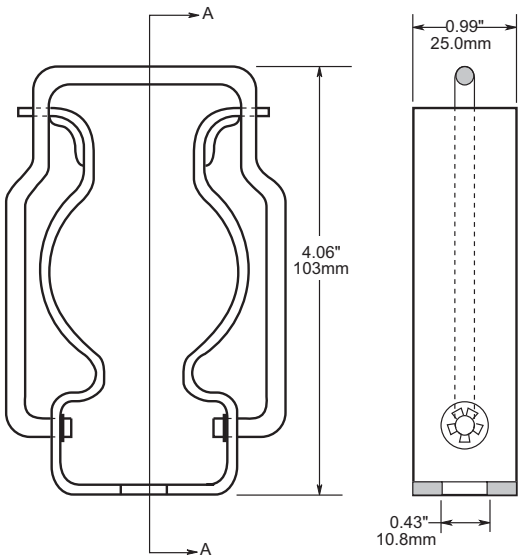


1A0065
3″ Diameter Clip

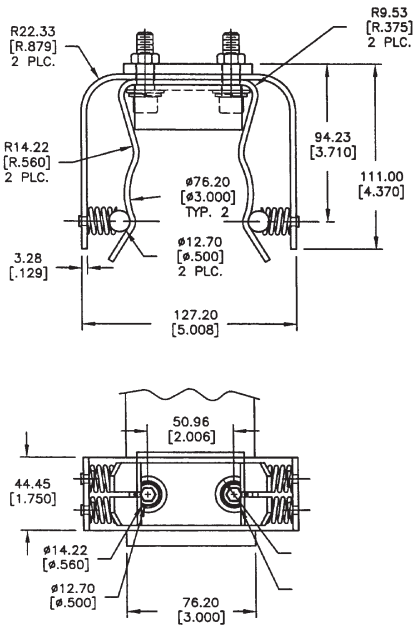


2 CLIP ASSEMBLIES PER PACKAGE.
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

270303
DIN Fuseclip



9078A67G04
3″ Diameter Clip



2 Cup assemblies per package.
Dimensions shown are for reference only.

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High Speed Fuses

Section Contents

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North American fuses & accessories	124-141
DFJ - High speed Class J fuse	125
Square Body fuses & accessories	142-213
BS 88 fuses & accessories	214-222
Ferrule fuses & accessories.	223-243

Scan this tag to get the latest product information for High Speed Fuses.

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General Applications

Rated Voltage

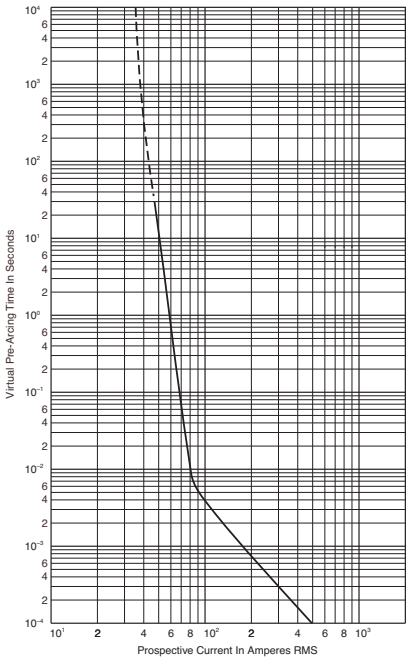
The AC voltage rating of Bussmann fuses is given in volts rms. Fuses tested to IEC are tested at 5% above their rated voltage. British Style BS 88 fuses are tested at 10% above its rated voltage. UL recognition tests are performed at the rated voltage.

Rated Current

Rated current is given in amps rms. Bussmann fuses can continuously carry the rated current.

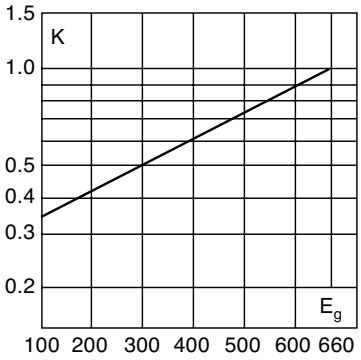
Melting Characteristic

The melting characteristic shows the virtual melting time in seconds as a function of the prospective current in amps rms. The fuses are specially constructed for short-circuit protection against high level fault currents. Loading and operation of the fuse in the non-continuous/dashed section of the melt curve must be avoided. The curve can also be read as the real melting time as a function of the RMS value of the pre-arc current.



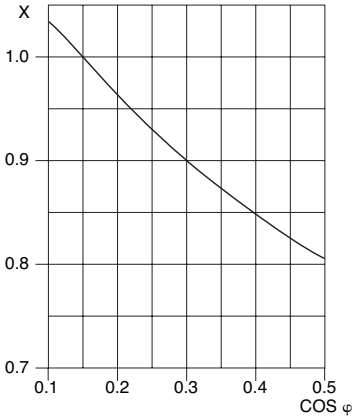
Clearing Integrals

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



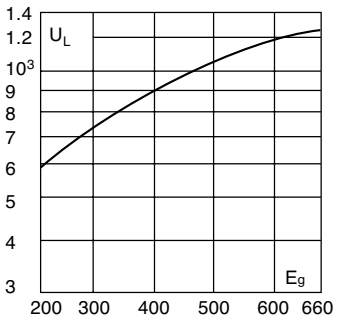
Power Factor

For other power factor values, the total clearing integral can be calculated as a multiple of the clearing integrals, the correction factor K and the correction factor X.



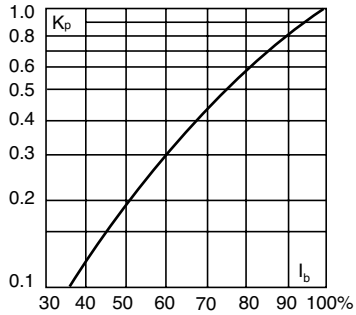
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



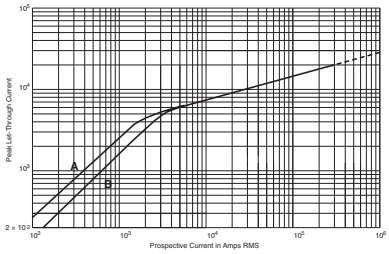
Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Cut-Off Current

A fuse operation relating to short-circuits only. When a fuse operates in its current-limiting range, it will clear a short-



circuit in less than ½ cycle. Also, it will limit the instantaneous peak let-through current to a value substantially less than

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General Applications

that obtainable in the same circuit if that fuse were replaced with a solid conductor of equal impedance.

A asymmetrical current
B symmetrical current

Parallel Connection

When fuses are connected in parallel it is recommended that the applied voltage does not exceed 0.9 U_N (the rated voltage of the fuse). This is due to the fact that the energy released within the fuses may be unevenly shared between the parallel connected barrels.

When fuses are connected in parallel, one must take into account that the current sharing is not necessarily equal. And it must be checked, that the maximum load current is not exceeded.

Series Connection

Fuses in series may not equally divide the applied voltage. It is recommended that series connected fuses should only be operated at fault currents that yield melting times less than 10 ms and a recovery voltage per fuse of less than or equal to 0.9 U_N (the rated voltage of the fuse).

Mounting Guidance

The recommendations below have to be followed when mounting a Bussmann fuse with end plate threaded holes.

1. Screw in studs: 5 N•m Max, 3 N•m Min
2. Attachment of the fuse to bussbar by means of nut and washer:

Thread Configuration	Torque (N•m)* Max	Min
5/16" – 18, M8	25	20
3/8" – 16, M10	45	40
3/8" – 24	45	40
1/2" – 13, M12	65	50
1/2" – 20	65	50

*1 N•m = 0.7375 lb-ft

Overloads

The design of Bussmann fuses is such that they can be operated under rather severe operating conditions imposed by overloads (any load current in excess of the maximum permissible load current).

In applications, there will be a maximum overload current, Imax, which can be imposed on the fuse with a corresponding duration and frequency of occurrence.

Time durations fall into two categories:

1. Overloads longer than one second
2. Overloads less than one second termed "impulse" loads.

The following table gives general application guidelines which, in the expression Imax < (% factor) x I_t. I_t is the melting current corresponding to the time "t" of the overload duration as read from the time-current curve of the fuse. The guidelines in the table below determine the acceptability of the selected fuses for a given I_{max}.

Frequency of Occurrence	Overloads (> 1 sec)	Impulse Loads (< 1 sec)
Less than once per month	$I_{max} < 80\% \times I_t$	$I_{max} < 70\% \times I_t$
Less than twice per week	$I_{max} < 70\% \times I_t$	$I_{max} < 60\% \times I_t$
Several times per day	$I_{max} < 60\% \times I_t$	—

When impulse loads are an intrinsic/normal parameter of the load current either as single pulse or in trains of pulses or when their level is higher than the melting current at 0.01 seconds (per time-current curve), contact Bussmann for application assistance.

In addition to the parameters set forth in the preceding table, the RMS value of the load current as calculated for any period of 10 minutes or more should not exceed the maximum permissible load current.

Furthermore, it is important that a fuse should not be applied in the non-continuous/dashed portion of the associated time-current curve.

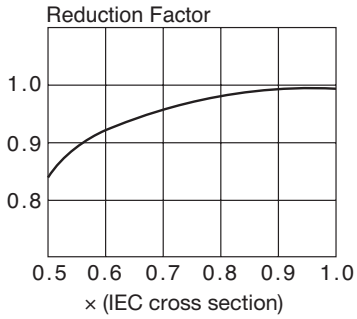
Any time-current combination point which falls in the non-continuous/dashed portion of the time-current curve is beyond the capability of the fuse to operate properly.

DC Operation

Depending upon the short-circuit time constant and the magnitude of the prospective short-circuit current, the dc voltage at which a fuse can be applied may be less than its ac rating. Long time constants require a lower dc voltage. Conversely, however, higher available prospective short-circuit currents result in faster fuse openings and thus permit a fuse to be operated at a higher DC voltage.

Consult Bussmann for additional information and application assistance when fuses have to operate under DC conditions.

Load Current Versus Conductor Cross Section



Reduction of permissible load current when the conductor cross section is less than that given in IEC Publication 269-1 & 4 valid for Bussmann high speed fuses.

Application Assistance

If you have application problems or need a fuse outside our standard program, please contact the nearest Bussmann representative. Phone numbers are shown on the back cover.

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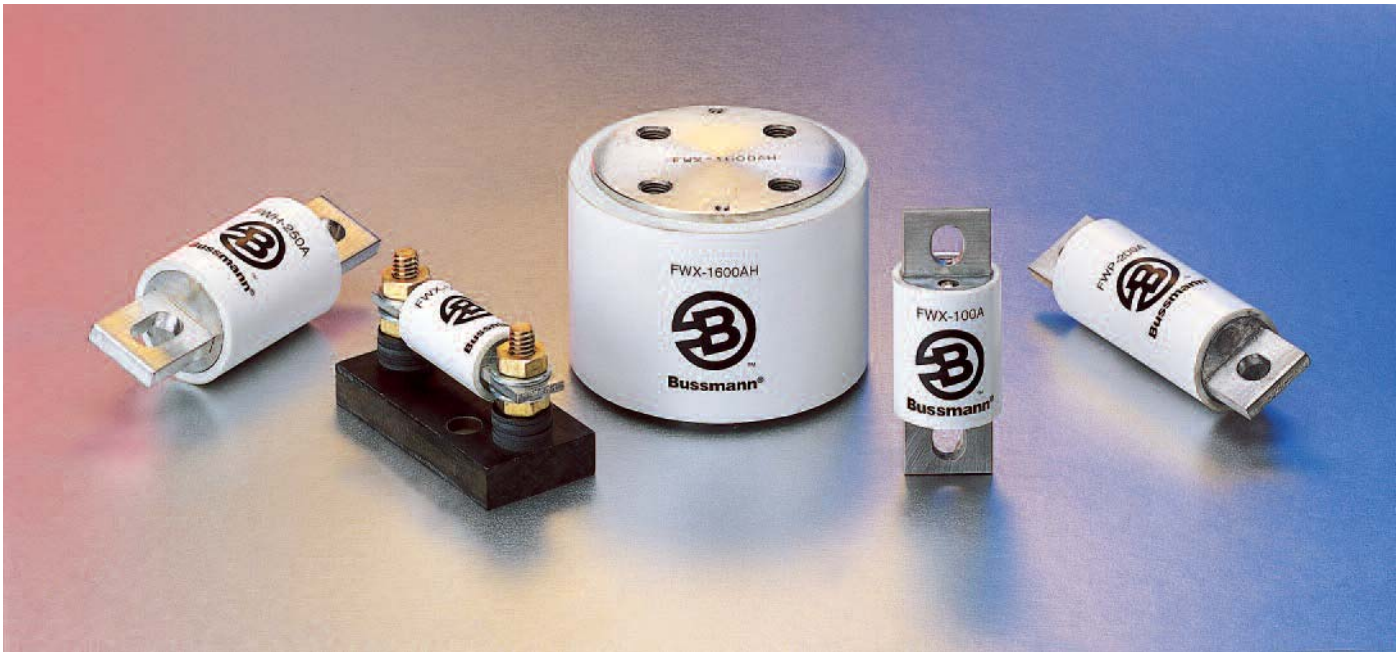
North American Fuses



Introduction

North American Contents

Catalog Number	Volts	Amp Range	Page
DFJ	600	1-600	125
FWA	130	1000-4000	126-127
FWA	150	70-1000	128-129
FWX	250	35-2500	130-131
FWH	500	35-1600	132-133
KAC	600	1-1000	134
KBC	600	35-800	135
FWP	700	5-1200	136-138
FWJ	1000	35-2000	139-140

Accessories

Fuse Bases 141

North American Fuse Ranges

Amps	Volts	AC	DC
1000-4000	130	X	X
70-1000	150	X	X
35-2500	250	X	X
35-1600	500	X	X
1-1000	600	X	—
5-1200	700	X	X
40-600	800	—	X
35-2000	1000	X	—

General Information

Bussmann offers a complete range of North American blade and flush-end style fuses and accessories. Their design and construction were optimized to provide:

- Low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability
- Low arc voltage
- Excellent DC performance

North American style fuses provide an excellent solution for medium power applications. While there are currently no published standards for these fuses, the industry has standardized on mounting centers that accept Bussmann fuses.

Voltage Rating

All Bussmann North American style fuses are tested at their rated voltage. Bussmann should be consulted for applications exceeding those values.

Accessories

External and internal open fuse indication is available for selected portions of the North American line. Fuse blocks are available for most applications.

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Drive Fuse High Speed Fuses

DFJ Class J

Specifications

Description: High speed, current-limiting fuse. The Bussmann Drive Fuse will provide maximum protection for AC and DC drives and controllers and meet NEC® branch circuit protection requirements. The Drive Fuse has the lowest I^2t of any branch circuit fuse to protect power semiconductor devices that utilize diodes, GTOs, SCRs and SSRs.

Dimensions: See page 21 for Class J dimensions.

Construction: Melamine tube with silver fuse element.

Ratings:

Volts — 600Vac (or less), 450Vdc (or less)

Amps — 1-600A

IR — 200kA RMS Sym., 100kA DC

Agency Information: CE, Std. 248-8, Class J, UL Listed, Guide JDDZ, File E4273, CSA Certified, Class 1422-02, File 53787.

Features and Benefits

- Easily coordinated with existing and new variable speed drives and electric controllers.
- Standard Class J dimensions allowing the use of readily available fuse blocks, holders, and switches.
- Allows the lowest let-thru energy of any branch circuit overcurrent protective device.

Typical Applications

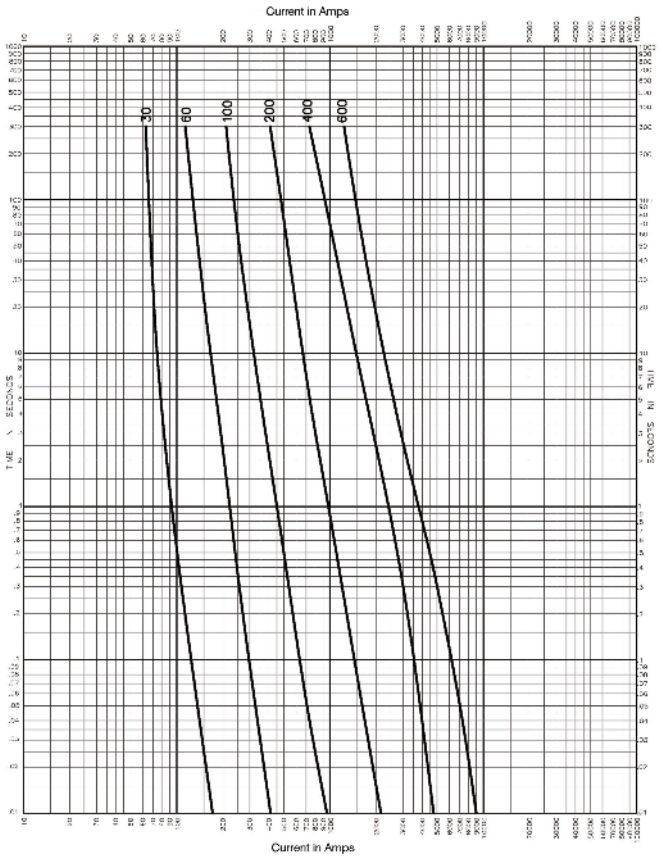
- Protection of AC and DC drives
- Equipment using power semiconductor devices

Catalog Numbers (Amps)

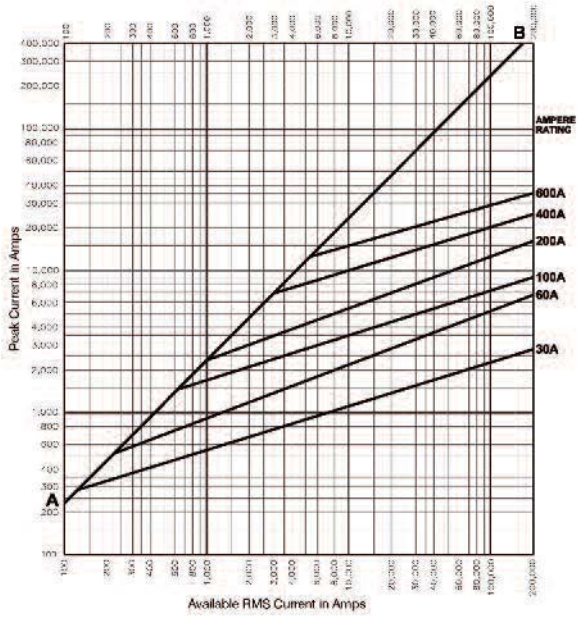
DFJ-1	DFJ-15	DFJ-70	DFJ-225
DFJ-2	DFJ-20	DFJ-80	DFJ-250
DFJ-3	DFJ-25	DFJ-90	DFJ-300
DFJ-4	DFJ-30	DFJ-100	DFJ-350
DFJ-5	DFJ-35	DFJ-110	DFJ-400
DFJ-6	DFJ-40	DFJ-125	DFJ-450
DFJ-8	DFJ-45	DFJ-150	DFJ-500
DFJ-10	DFJ-50	DFJ-175	DFJ-600
DFJ-12	DFJ-60	DFJ-200	

Data Sheet: 1048

Time-Current Characteristic Curves—Average Melt



Current Limitation Curves



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — FWA 130V: 1000-4000A

FWA

Specifications

Description: North American style flush-end high speed fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 130Vac

Amps: — 1000-4000A

IR: — 200kA RMS Sym.

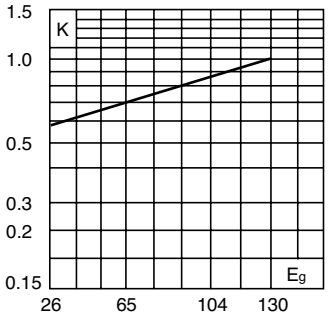
— 50kA @130Vdc

Agency Information: CE, UL Recognized JFHR2.E91958 on 1000-2000A fuses

Electrical Characteristics

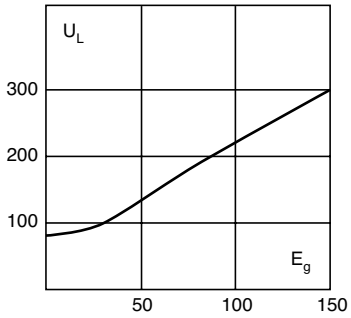
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



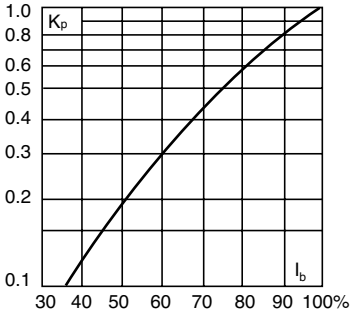
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Electrical Characteristics			
	Rated Current RMS-Amps	I^2t (A^2 Sec)		Watts Loss
		Pre-arc	Clearing at 130V	
FWA-1000AH	1000	170000	460000	60
FWA-1200AH	1200	270000	730000	70
FWA-1500AH	1500	520000	1400000	78
FWA-2000AH	2000	860000	2400000	108
FWA-2500AH	2500	1500000	4100000	130
FWA-3000AH	3000	2100000	5700000	150
FWA-4000AH	4000	3400000	9200000	257

• Watts loss provided at rated current.

• See accessories on page 141.

Dimensions - in

Catalog Number	Fig.	B	C	D	Thread Depth
FWA-1000AH-2000AH	1	2.0	1.0	—	Tapped ⅜"-24 x ½"
FWA-2500AH-3000AH	1	3.0	1.5	—	Tapped ½"-20 x ½"
FWA-4000AH	2	3.5	1.5	1.5	Tapped ½"-20 x ½"

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 1000-3000A

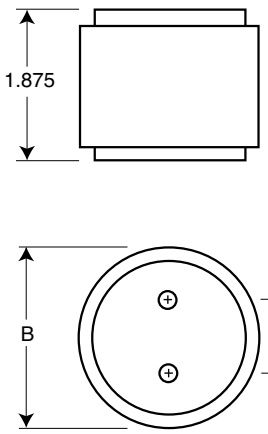
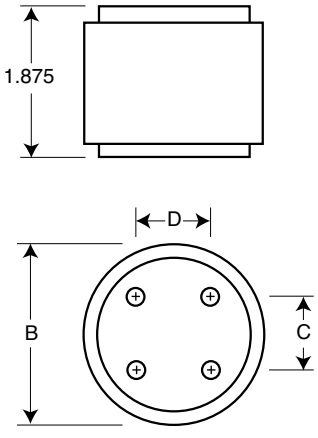


Fig. 2: 4000A



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

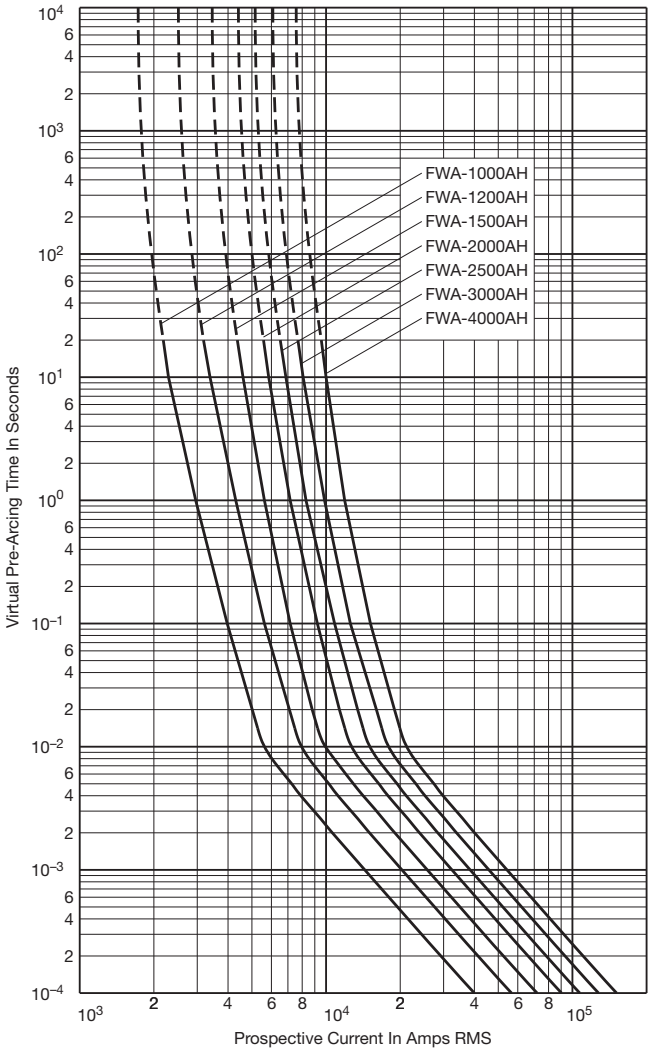
Data Sheet: 720001

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

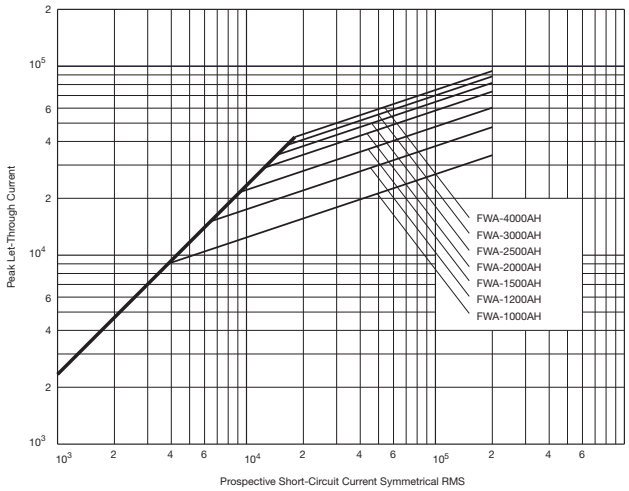
North American — FWA 130V: 1000-4000A

FWA 1000-4000A: 130V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785301

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — FWA 150V: 70-1000A

FWA

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 150Vac/dc*

Amps: — 70-1000A

IR: — 100kA Sym. (70-400A)

— 200kA Sym. (450-1000A)

— 20kA @150Vdc (70-800A)

— 100kA @ 80Vdc (70-1000A)

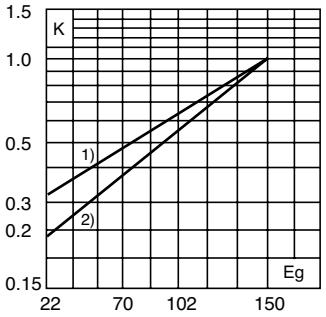
*1000A rated @ 80Vdc.

Agency Information: CE, UL Recognized JFHR2.E91958

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) 500-1000A Range
2) 70-400A Range

Dimensions - in

Fig. 1: 70-400A

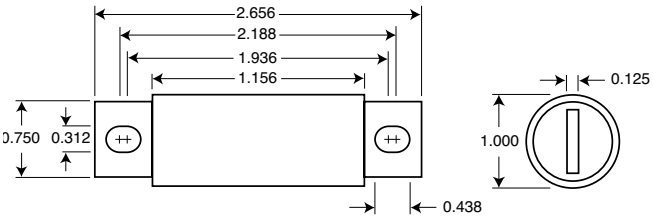
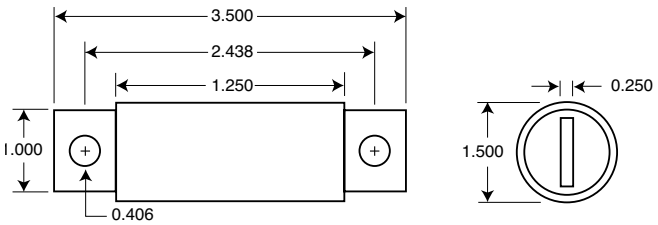


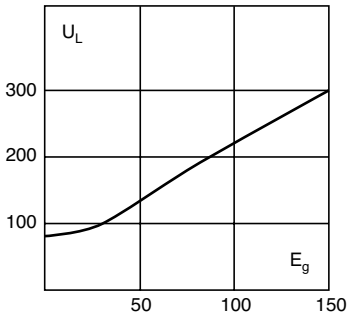
Fig. 2: 500-1000A



1mm = 0.0394" / 1" = 25.4mm

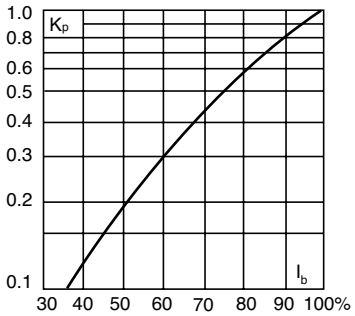
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Number	Electrical Characteristics: Rated Current RMS-Amps	I²t (A² Sec): Pre-arc	I²t (A² Sec): Clearing at 150V	Watts Loss
FWA-70B	70	470	4000	6.9
FWA-80B	80	670	6000	7.7
FWA-100B	100	1200	12000	9.0
FWA-125B	125	1870	18000	11.2
FWA-150B	150	2700	26000	13.5
FWA-200B	200	4780	45000	17.6
FWA-250B	250	7470	70000	22.5
FWA-300B	300	10760	100000	27.0
FWA-350B	350	15700	140000	30.6
FWA-400B	400	20300	180000	35.2
FWA-500A	500	39000	120000	35.0
FWA-600A	600	46000	140000	47.0
FWA-700A	700	75000	220000	49.0
FWA-800A	800	92000	280000	58.0
FWA-1000A	1000	170000	510000	60.0

• Watts loss provided at rated current.
• See accessories on page 141.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

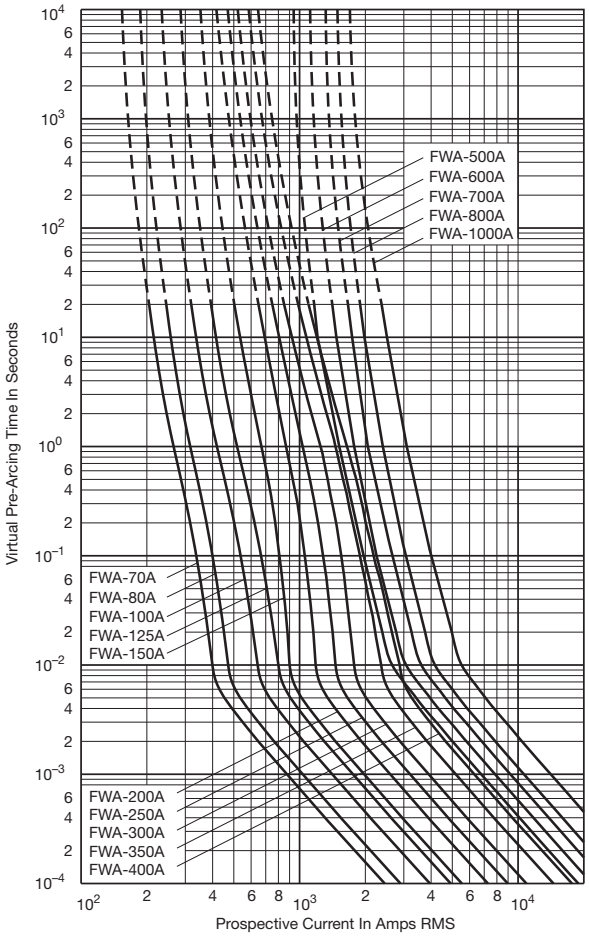
Data Sheet: 720002

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

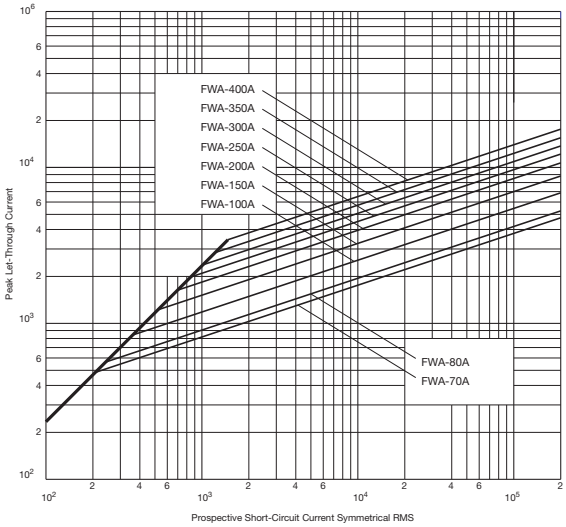
North American — FWA 150V: 70-1000A

FWA 70-1000A: 150V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785310

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — FWX 250V: 35-2500A

FWX

Specifications

Description: North American style stud-mount and flush-end fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 250Vac/dc

Amps: — 35-2500A

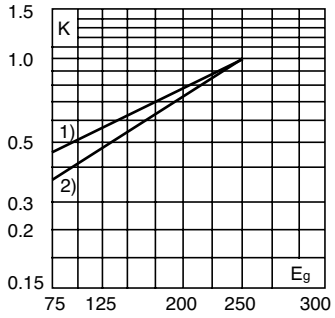
IR: — 200kA RMS Sym.
50kA@250Vdc (35-800A)

Agency Information: CE, UL Recognized JFHR2.E56412 & CSA Component Acceptance file Class 1422-30, (53787) on 35-800A fuses (50kA IR @250Vdc).

Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) 35-800A Range
2) 1000-2500A Range

Dimensions - in

Amp Range	Fig.	A	B	C	D	E	F	G	H	J	Tapped Thread Depth
35-60	1	3.19	0.81	1.59	2.59	2.25	0.34	0.63	0.13	0.52	—
70-200	1	3.13	1.22	1.59	2.44	2.19	0.34	1.00	0.19	0.47	—
225-600	1	3.84	1.50	1.59	2.94	2.25	0.41	1.00	0.25	0.75	—
700-800	1	3.84	2.00	1.59	3.03	2.28	0.41	1.50	0.25	0.78	—
1000-1200	2	2.59	3.00	1.50	—	—	—	—	—	—	⅜"-24 x ½"
1500-2500	3	2.59	3.50	1.50	1.50	—	—	—	—	—	⅜"--24 x ½"

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-800A

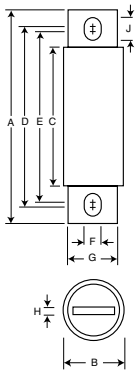


Fig. 2: 1000-1200A

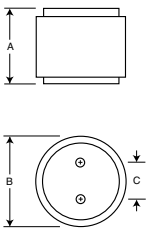
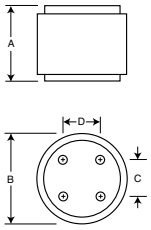
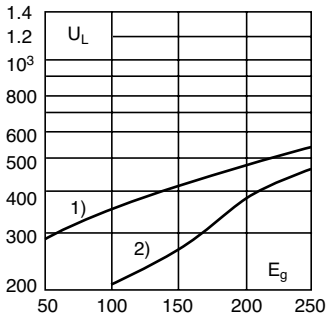


Fig. 3: 1500-2500A



Arc Voltage

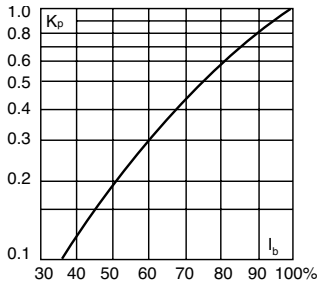
This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



1) 35-800A Range
2) 1000-2500A Range

Power Losses

Watts loss at rated current is given in the electrical char acteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Number	Electrical Characteristics: Rated Current RMS-Amps	I^2t (A^2 Sec): Pre-arc	I^2t (A^2 Sec): Clearing at 250V	Watts Loss
FWX-35A	35	50	230	4.2
FWX-40A	40	60	310	5.2
FWX-45A	45	80	390	5.7
FWX-50A	50	100	520	6.0
FWX-60A	60	140	740	8.1
FWX-70A	70	330	1400	7.2
FWX-80A	80	430	1850	8.1
FWX-90A	90	570	2450	9.0
FWX-100A	100	740	3150	10.0
FWX-125A	125	1130	4850	12.5
FWX-150A	150	1620	6950	15.7
FWX-175A	175	2170	9300	18.5
FWX-200A	200	2790	12000	22
FWX-225A	225	3210	14700	24
FWX-250A	250	3960	18100	27
FWX-275A	275	4720	21600	31
FWX-300A	300	6000	27300	32
FWX-350A	350	10600	48600	39
FWX-400A	400	14500	66100	44
FWX-450A	450	22100	101000	49
FWX-500A	500	28000	128000	54
FWX-600A	600	41100	188000	62
FWX-700A	700	48800	190000	72
FWX-800A	800	59000	230000	84
FWX-1000AH	1000	44000	360000	100
FWX-1200AH	1200	92000	750000	103
FWX-1500AH	1500	120000	880000	140
FWX-1600AH	1600	160000	1200000	140
FWX-2000AH	2000	320000	2300000	151
FWX-2500AH	2500	670000	4700000	163

• Watts loss provided at rated current. • See accessories on page 141.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

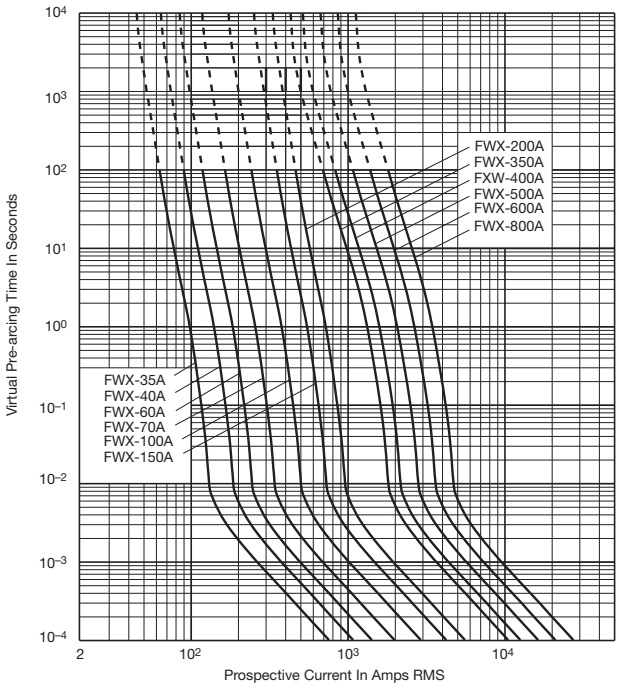
Data Sheet: 720005

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

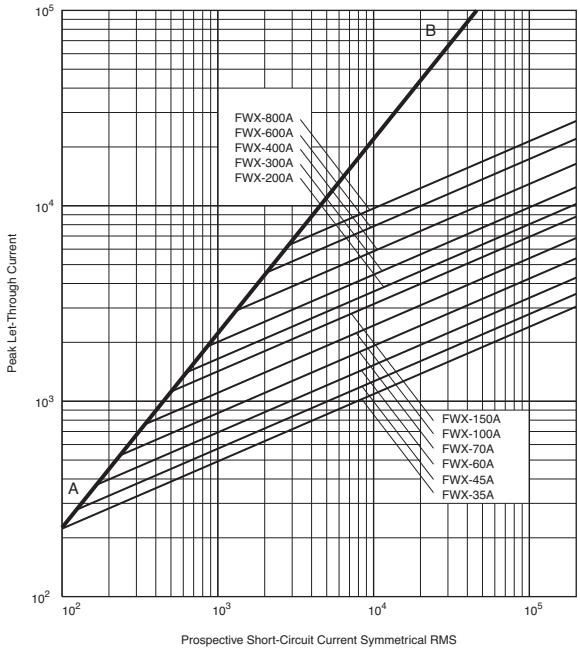
North American — FWX 250V: 35-2500A

FWX 35-800A: 250V

Time-Current Curve



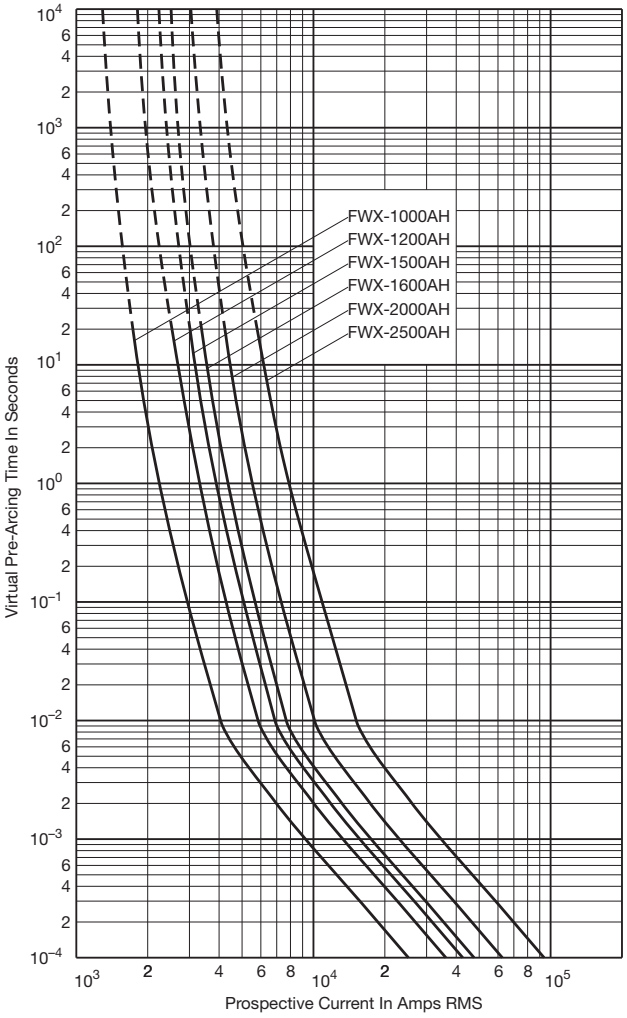
Peak Let-Through Curve



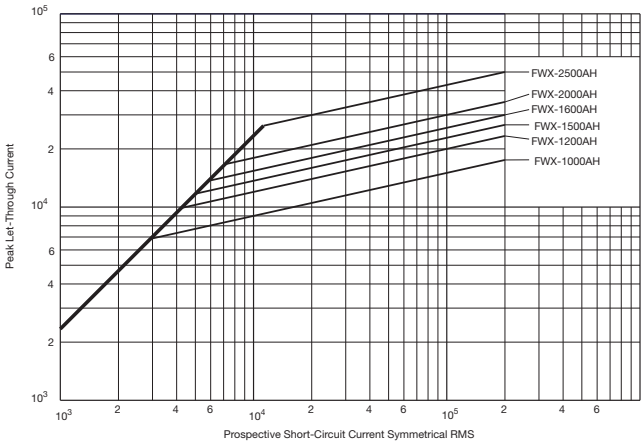
Data Sheet: 359

FWX 1000-2500A(H): 250V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785299

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — FWH 500V: 35-1600A

FWH

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 500Vac/dc (35-800A only)

Amps: — 35-1600A

IR: — 200kA Sym.

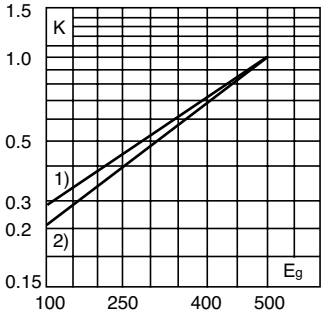
— 50kA @ 500Vdc (35-800A)

Agency Information: CE, UL Recognition JFHR2.E91958 FWH-_B (35-200A, 1000-1200A), JFHR2.E56412 FWH-_A (225-600A), CSA Component Acceptance Class 1422-30, File 53787 (35-1600A).

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) 35-800A Range
2) 1000-1600A Range

Dimensions - in

Amp Range	Fig.	A	B	C	D	E	F	G	H	J
35-60	1	3.188	0.813	1.593	2.541	2.193	0.344	0.719	0.125	0.518
70-100	1	3.625	0.947	1.736	2.853	2.807	0.352	0.750	0.125	0.375
125-200	1	3.625	1.156	1.836	2.892	2.768	0.344	1.000	0.188	0.406
225-400	1	4.340	1.500	2.090	3.440	2.750	0.410	1.000	0.250	0.750
450-600	1	4.340	2.000	2.090	3.530	2.780	0.410	1.500	0.250	0.780
700-800	1	6.340	2.500	2.090	4.970	3.440	0.530	2.000	0.380	1.300
1000-1200	1	6.969	3.000	3.219	5.465	4.475	0.625	2.375	0.438	1.120
1400-1600	2	See Drawing								

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-1200A

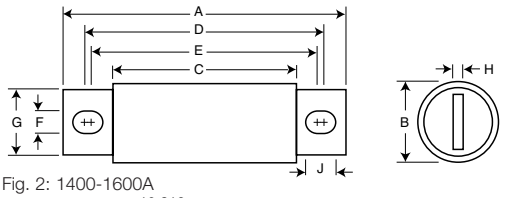
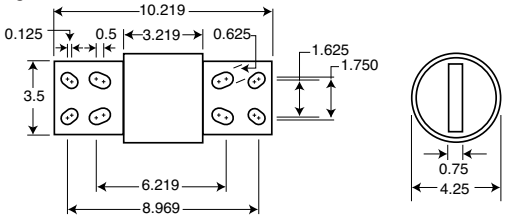
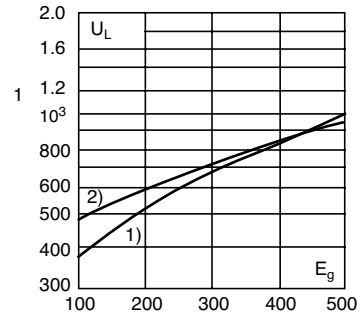


Fig. 2: 1400-1600A



Arc Voltage

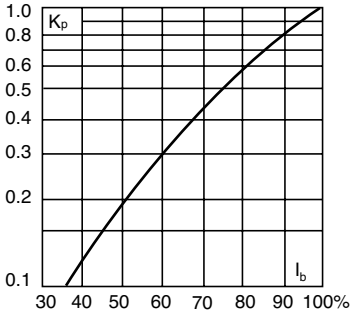
This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



1) 35-200 & 1000-1600A Range
2) 225-800A Range

Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, Ib, in % of the rated current.



Catalog Numbers

Catalog Numbers	Electrical Characteristics: Rated Current RMS-Amps	I²t (A² Sec): Pre-arc	I²t (A² Sec): Clearing at 500V	Watts Loss
FWH-35B	35	34	150	8
FWH-40B	40	76	320	7.5
FWH-45B	45	105	450	7.5
FWH-50B	50	135	670	7.5
FWH-60B	60	210	900	9.9
FWH-70B	70	210	900	10.6
FWH-80B	80	305	1400	12.7
FWH-90B	90	360	1600	15
FWH-100B	100	475	2000	17
FWH-125B	125	800	3500	25
FWH-150B	150	1100	4600	30
FWH-175B	175	1450	6200	35
FWH-200B	200	1900	8500	40
FWH-225A	225	4600	23300	39
FWH-250A	250	6300	32200	41
FWH-275A	275	7900	40300	46
FWH-300A	300	9800	49800	51
FWH-325A	325	13700	63800	53
FWH-350A	350	14500	72900	58
FWH-400A	400	19200	96700	65
FWH-450A	450	24700	127000	74
FWH-500A	500	29200	149000	84
FWH-600A	600	41300	206000	108
FWH-700A	700	55000	298000	120
FWH-800A	800	76200	409000	129
FWH-1000A	1000	92000	450000	145
FWH-1200A	1200	122000	600000	180
FWH-1400A	1400	200000	1000000	210
FWH-1600A	1600	290000	1400000	230

• Watts loss provided at rated current. • See accessories on page 141.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720007

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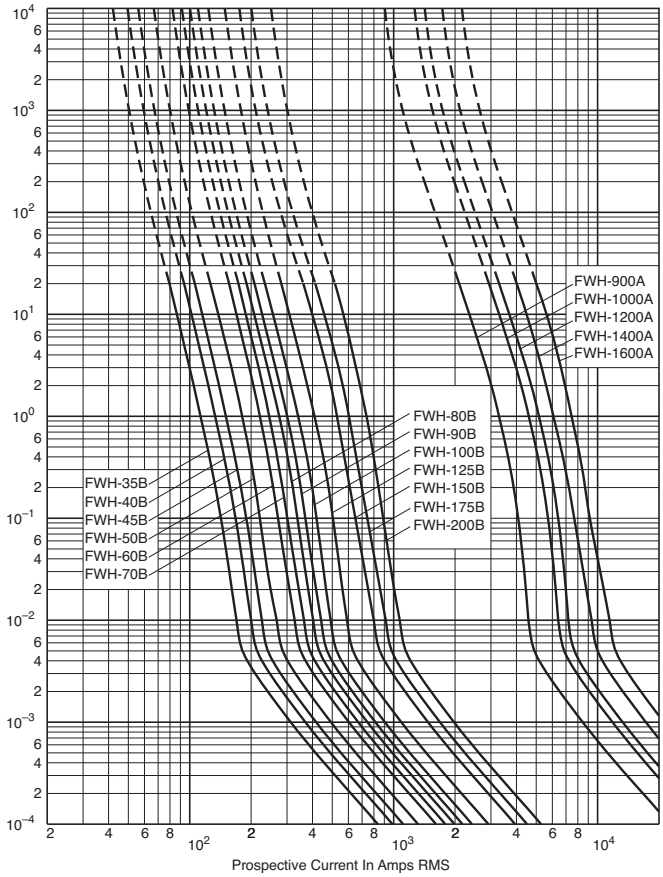
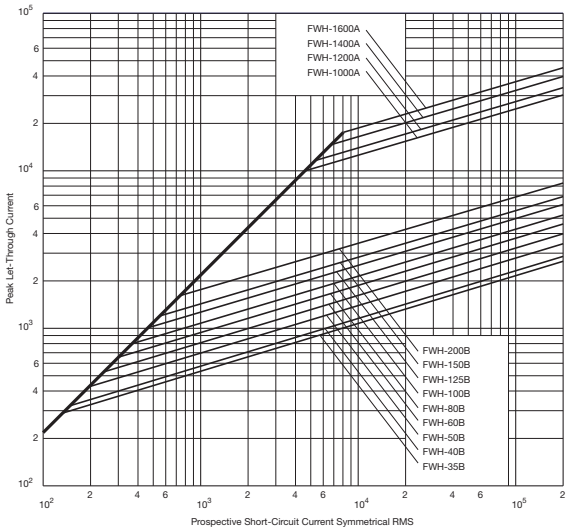
North American — FWH 500V: 35-1600A

FWH 35-200A(B) & 900-1600A(A): 500V

Time-Current Curve



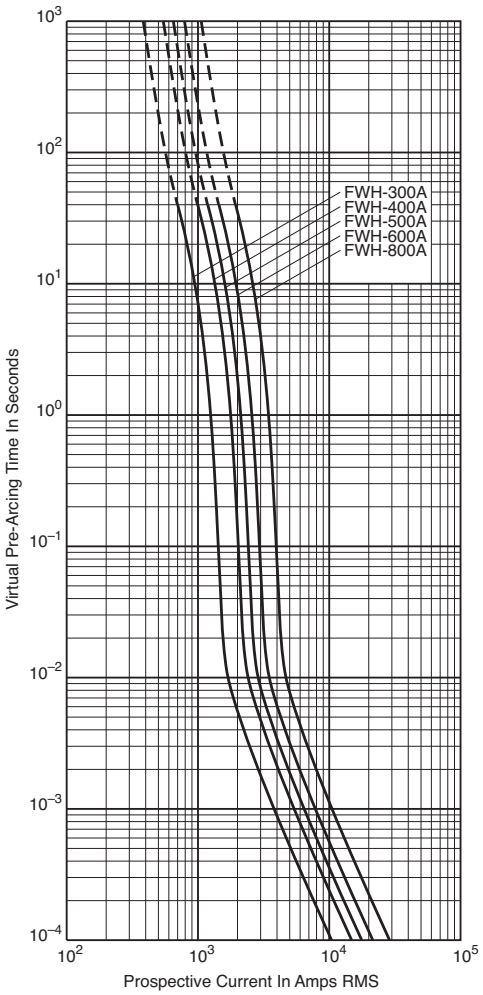
Peak Let-Through Curve



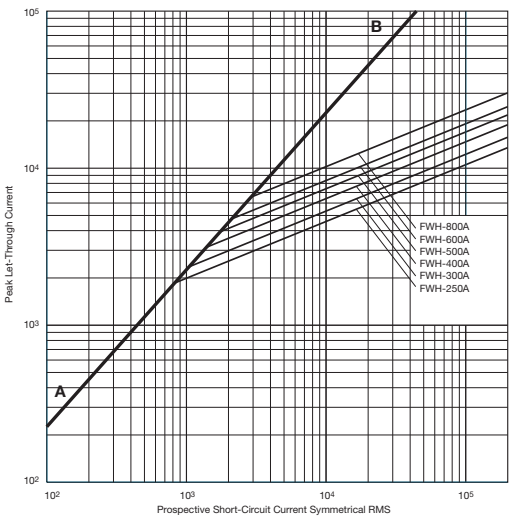
Data Sheet: 35785304

FWH 250-800A: 500V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 360

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — KAC 600V: 1-1000A

KAC

Specifications

Description: North American style stud-mount fuses. These 600V fuses are supplied as replacements only. For new installations, Bussmann recommends the 700V FWP Series fuse.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac

Amps: — 1-1000A

IR: — 200kA RMS Sym.

Agency Information: CE, UL Recognition JFHR2.E56413 on 1-600A only.

Catalog Numbers (Amps)

KAC-1	KAC-25	KAC-175
KAC-2	KAC-30	KAC-200
KAC-3	KAC-35	KAC-225
KAC-4	KAC-40	KAC-250
KAC-5	KAC-45	KAC-300
KAC-6	KAC-50	KAC-350
KAC-7	KAC-60	KAC-400
KAC-8	KAC-70	KAC-450
KAC-9	KAC-80	KAC-500
KAC-10	KAC-90	KAC-600
KAC-12	KAC-100	KAC-700
KAC-15	KAC-110	KAC-800
KAC-17.5	KAC-125	KAC-1000
KAC-20	KAC-150	

• See accessories on page 141.

Features and Benefits

- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

Dimensions - in

Amp Range	Fig.	A	B1	B2	B3	C	D	E	F	G	H
1-30A	1	2.875	2.500	–	–	1.875	0.406	–	0.563	0.063	0.257
35-60A	2	4.375	–	3.750	3.500	2.750	0.625	0.343	0.813	0.094	0.468
70-100A	2	5.000	–	4.063	3.656	2.750	0.750	0.406	1.000	0.125	0.609
110-200A	2	5.140	–	4.390	3.766	2.906	1.000	0.406	1.500	0.188	0.718
225-400A	2	6.182	–	4.815	4.565	3.000	1.625	0.562	2.000	0.250	0.687
450-800A	1	6.250	4.750	–	–	3.063	2.000	–	2.500	0.250	0.563
1000A	1	7.250	4.750	–	–	3.063	2.750	–	3.500	0.375	0.563

1mm = 0.0394″ / 1″ = 25.4mm

Fig. 1: 1-30 & 450-1000A

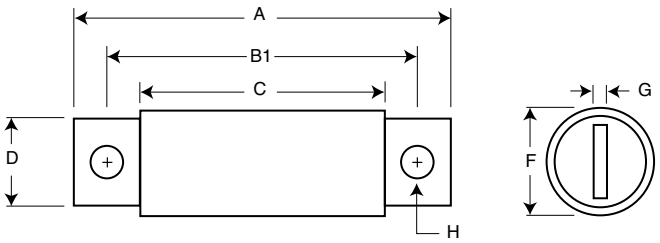
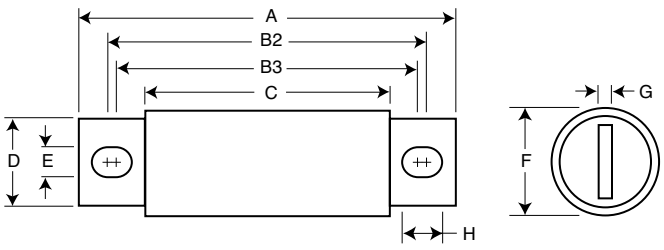


Fig. 2: 35-400A



Data Sheet: 720009

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — KBC 600V: 35-800A

KBC

Specifications

Description: North American style stud-mount and flush-end fuses. These 600V fuses are supplied as replacements only. For new installations, Bussmann recommends the 700V FWP Series fuse.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac

Amps: — 35-800A

IR: — 200kA RMS Sym.

Agency Information: CE, UL Recognition JFHR2.E56412 on 35-600A only.

Catalog Numbers (Amps)

KBC-35	KBC-100	KBC-300
KBC-40	KBC-110	KBC-350
KBC-45	KBC-125	KBC-400
KBC-50	KBC-150	KBC-450
KBC-60	KBC-175	KBC-500
KBC-70	KBC-200	KBC-600
KBC-80	KBC-225	KBC-800
KBC-90	KBC-250	

• See accessories on page 141.

Features and Benefits

- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

Dimensions - in

Amp Range	Fig.	A	B	C	D	E	F	G	H	I
35-60A	1	4.375	3.750	3.500	2.750	0.343	0.625	0.813	0.094	0.468
70-100A	2	See Drawing								
110-200A	1	4.406	3.719	3.594	2.906	0.312	0.875	1.219	0.187	0.375
225-400A	1	5.125	4.188	3.563	2.906	0.406	1.000	1.500	0.250	0.719
450-600A	1	5.125	4.389	3.687	2.875	0.406	1.500	2.000	0.250	0.757
800A	3	See Drawing								

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-60 and 110-600A

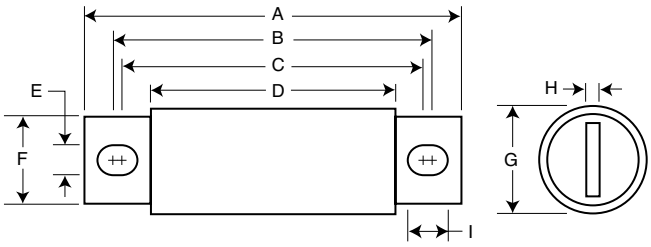


Fig. 2: 70-100A

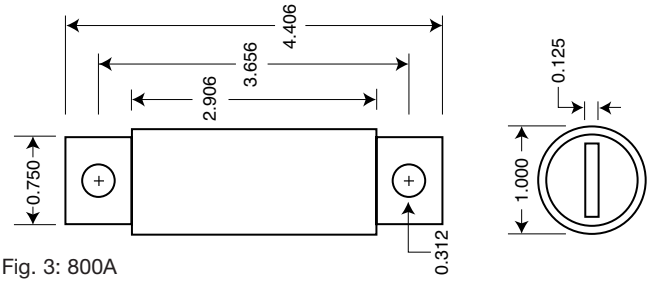
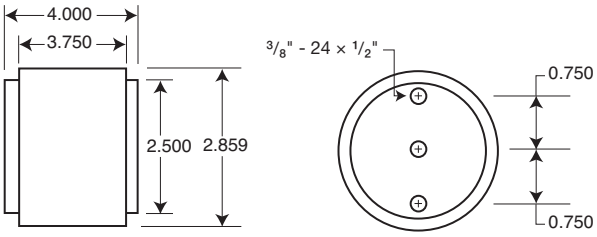


Fig. 3: 800A



Data Sheet: 720010

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — FWP 700V: 5-1200A

FWP

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 700Vac/dc

Amps: — 5-1200A

IR: — 200kA RMS Sym.

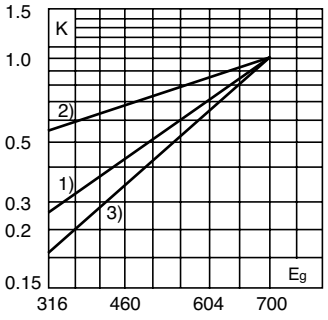
— 50kA @700Vdc

Agency Information: CE, UL Recognition JFHR2.E91958 FWP-_B (5-100A, 700-1200A), JFHR2.E56412 FWP-_A (125-600A) & CSA Component Acceptance file Class 1422-30, (53787) on 5-800A

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) 35-100A Range
2) 125-600A Range
3) 700-1200A Range

Dimensions - in

Amp Range	Fig.	A	B	C	D	E	F	G	H	I
5-30	1	2.870	0.563	1.855	2.477	2.477	0.250	0.405	0.063	0.250
35-60	1	4.375	0.813	2.750	3.708	3.312	0.344	0.725	0.125	0.542
70-100	1	4.406	0.947	2.594	3.625	3.563	0.344	0.750	0.125	0.375
125-200	1	5.090	1.500	2.840	4.190	3.500	0.410	1.000	0.250	0.750
225-400	1	5.090	2.000	2.840	4.280	3.530	0.410	1.500	0.250	0.780
450-600	1	7.090	2.500	2.840	5.720	4.190	0.530	2.000	0.380	1.300
700-800	1	6.630	2.000	2.844	5.562	5.062	0.625	1.500	0.250	0.875
900-1000	2	See Drawing								
1200	3	See Drawing								

1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 5-800A

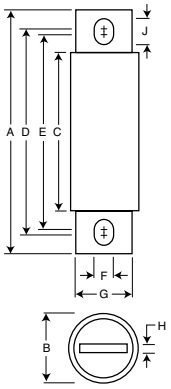


Fig. 2: 900-1000A

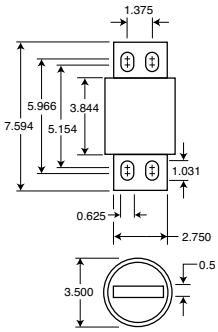
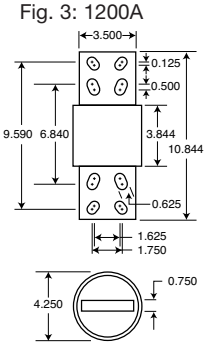
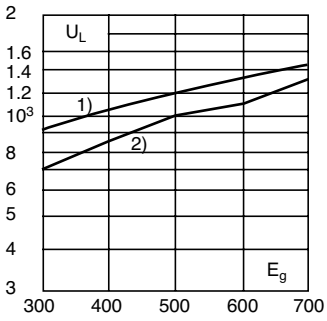


Fig. 3: 1200A



Arc Voltage

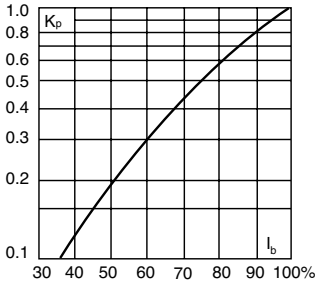
This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



1) 125-600A Range
2) 35-100 & 700-1200A Range

Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Electrical Characteristics: Rated Current RMS-Amps	I²t (A² Sec): Pre-arc	I²t (A² Sec): Clearing at 700V	Watts Loss
FWP-5B	5	1.6	10	1.5
FWP-10B	10	3.6	20	4
FWP-15B	15	10	75	5.5
FWP-20B	20	26	180	6
FWP-25B	25	44	340	7
FWP-30B	30	58	450	9
FWP-35B	35	34	160	12
FWP-40B	40	76	320	12
FWP-50B	50	135	600	12
FWP-60B	60	210	950	15.5
FWP-70B	70	305	2000	18
FWP-80B	80	360	2400	21
FWP-90B	90	415	2700	25
FWP-100B	100	540	3500	27
FWP-125A	125	1800	7300	28
FWP-150A	150	2900	11700	32
FWP-175A	175	4200	16700	35
FWP-200A	200	5500	22000	43
FWP-225A	225	7700	31300	45
FWP-250A	250	10500	42500	48
FWP-300A	300	17600	71200	58
FWP-350A	350	23700	95600	65
FWP-400A	400	31000	125000	78
FWP-450A	450	36400	137000	94
FWP-500A	500	45200	170000	107
FWP-600A	600	66700	250000	122
FWP-700A	700	54000	300000	125
FWP-800A	800	78000	450000	140
FWP-900A	900	91500	530000	150
FWP-1000A	1000	120000	600000	170
FWP-1200A	1200	195000	1100000	190

• Watts loss provided at rated current. • See accessories on page 141.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720012

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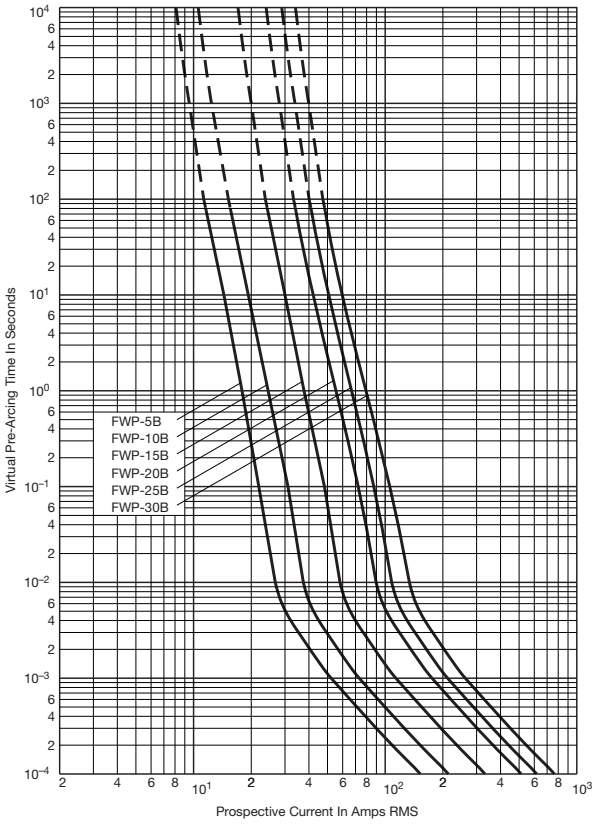
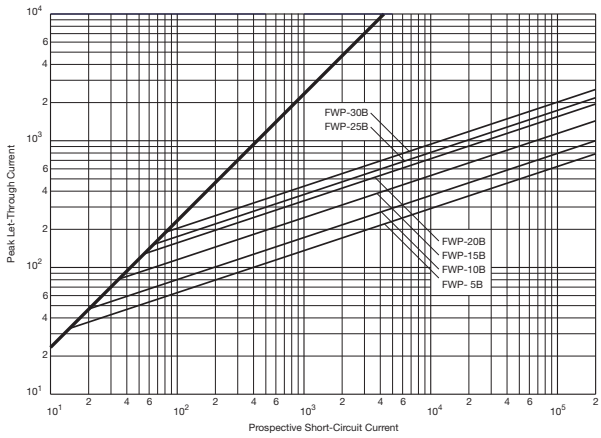
North American — FWP 700V: 5-1200A

FWP 5-30A(B): 700V

Time-Current Curve



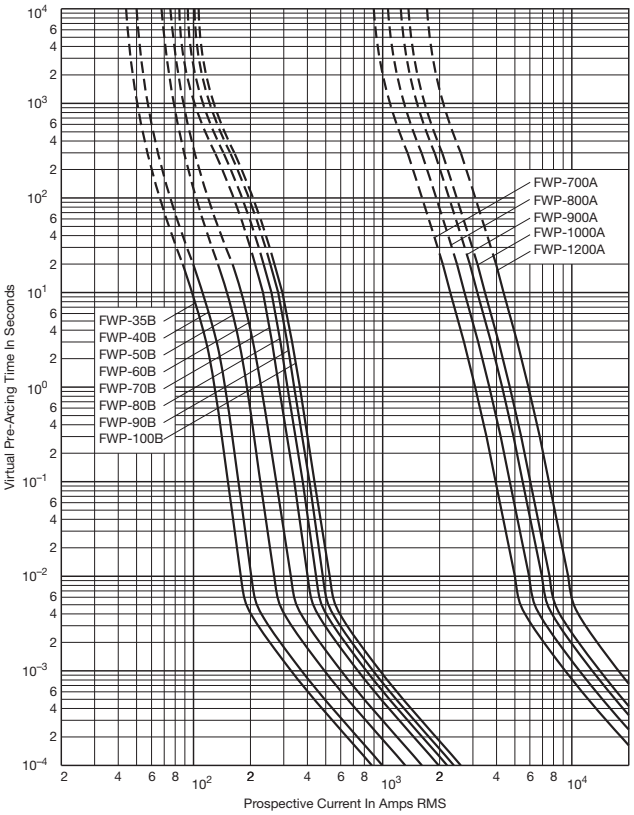
Peak Let-Through Curve



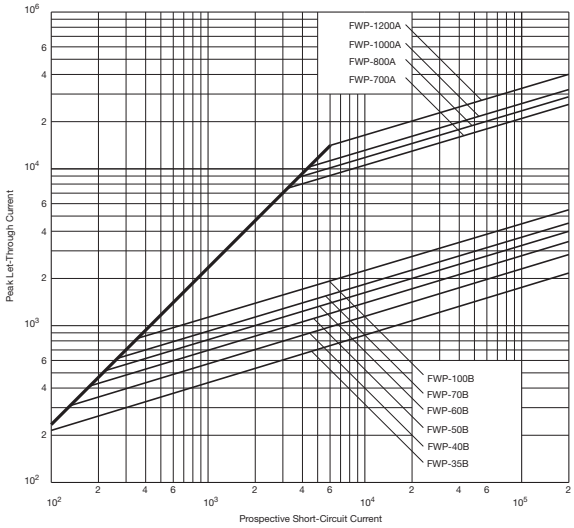
Data Sheet: 35785316

FWP 35-100A(B) & 700-1200A(A): 700V

Time-Current Curve



Peak Let-Through Curve



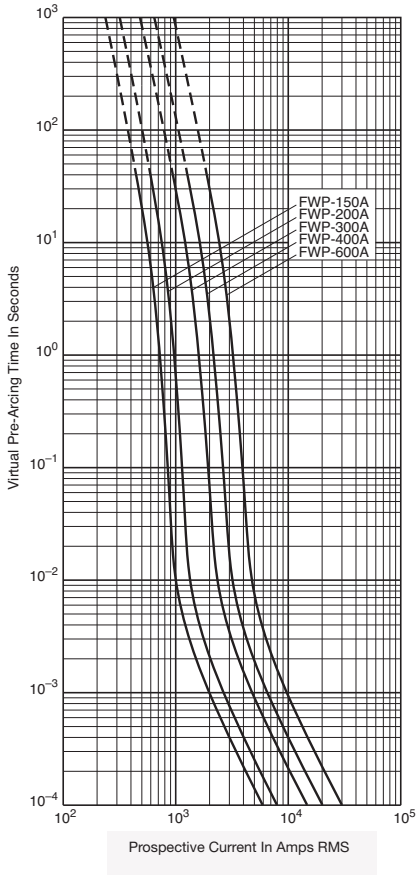
Data Sheet: 35785308

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

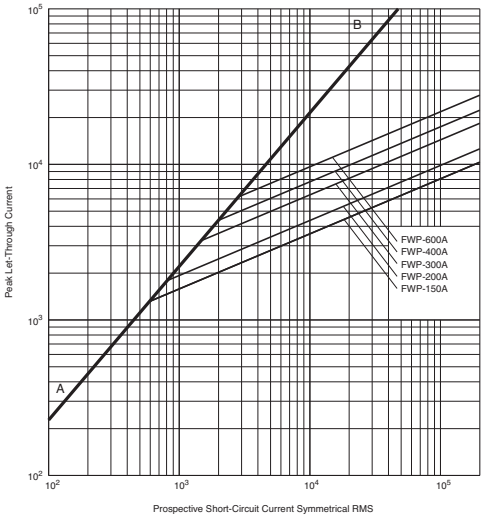
North American — FWP 700V: 5-1200A

FWP 150-600A: 700V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 361

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

North American — FWJ 1000V: 35-2000A

FWJ

Specifications

Description: North American style stud-mount fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 1000Vac/800Vdc

Amps: — 35-2000A

IR: — 25kA (35-200A)

— 100kA (250-2000A)

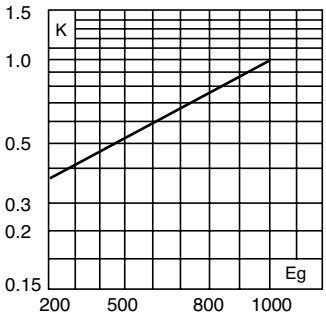
— 50kA @ 800Vdc (35-200A, 450-600A)

Agency Information: CE, UL Recognition JFHR8.E91958 on 35-600A only.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

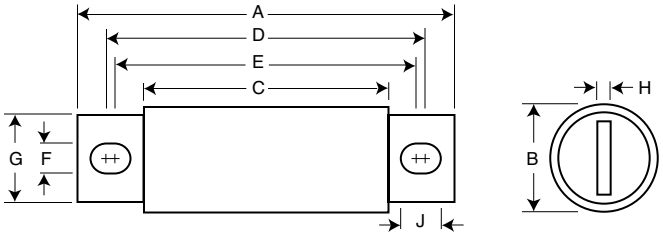


Dimensions - in

Amp Range	Fig.	A	B	C	D	E	F	G	H	I
35-60	1	5.000	0.940	3.110	4.235	4.180	0.352	0.750	0.125	0.380
70-100	1	4.932	1.125	3.085	4.266	4.156	0.352	1.000	0.188	0.407
125-200	1	5.685	1.526	3.261	4.803	4.055	0.445	1.000	0.250	0.819
250-400	1	5.768	2.000	3.500	4.811	4.150	0.433	1.500	0.250	0.764
500-600	1	7.201	2.500	3.465	5.984	4.706	0.562	2.000	0.375	1.201
800-2000	1	6.811	3.500	3.312	5.472	4.962	0.625	2.750	0.500	0.880

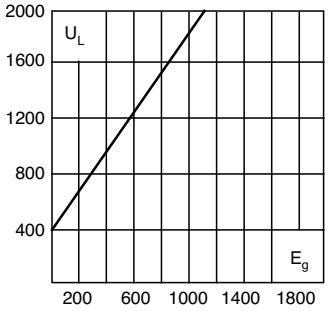
1mm = 0.0394" / 1" = 25.4mm

Fig. 1: 35-2000A



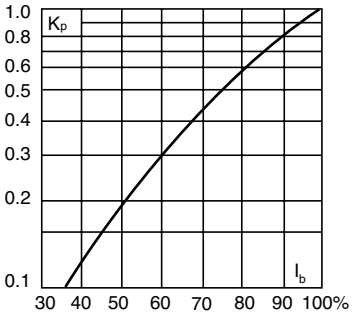
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Electrical Characteristics: Rated Current RMS-Amps	I2t (A2 Sec): Pre-arc	I2t (A2 Sec): Clearing at 1000V	Watts Loss
FWJ-35A	35	210	2000	7
FWJ-40A	40	300	2500	8
FWJ-50A	50	470	3500	10
FWJ-60A	60	670	5000	11
FWJ-70A	70	1100	6900	12
FWJ-80A	80	1550	9700	13
FWJ-90A	90	1900	12000	14
FWJ-100A	100	2800	17500	15
FWJ-125A	125	4800	35000	16
FWJ-150A	150	6300	45000	25
FWJ-175A	175	7500	65000	30
FWJ-200A	200	11700	80000	32
FWJ-250A	250	16000	112000	50
FWJ-300A	300	23500	164000	56
FWJ-350A	350	33000	231000	62
FWJ-400A	400	47000	330000	67
FWJ-500A	500	39500	329000	95
FWJ-600A	600	61000	520000	105
FWJ-800A	800	87000	500000	182
FWJ-1000A	1000	190000	1100000	206
FWJ-1200A	1200	370000	2100000	240
FWJ-1400A	1400	470000	2700000	248
FWJ-1600A	1600	700000	4000000	267
FWJ-1800A	1800	925000	5300000	239
FWJ-2000A	2000	1330000	7600000	244

• Watts loss provided at rated current.

• See accessories on page 141.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720027

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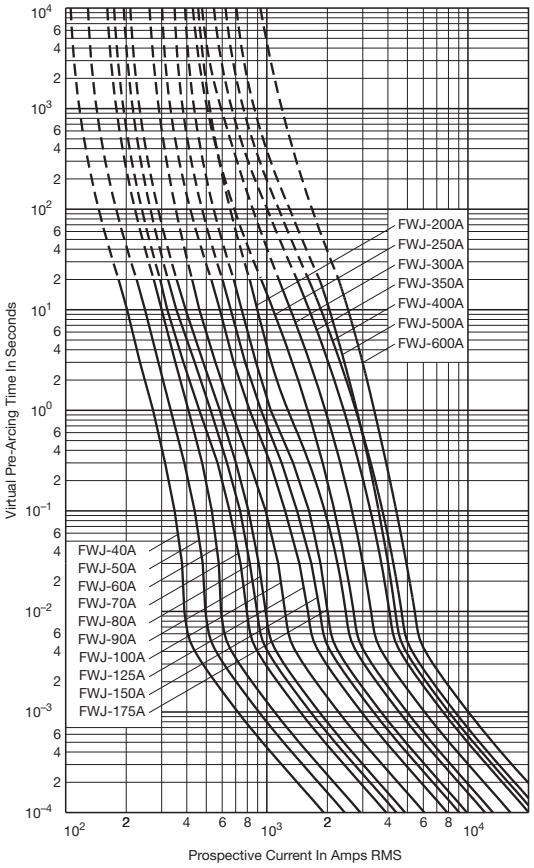
North American — FWJ 1000V: 35-2000A

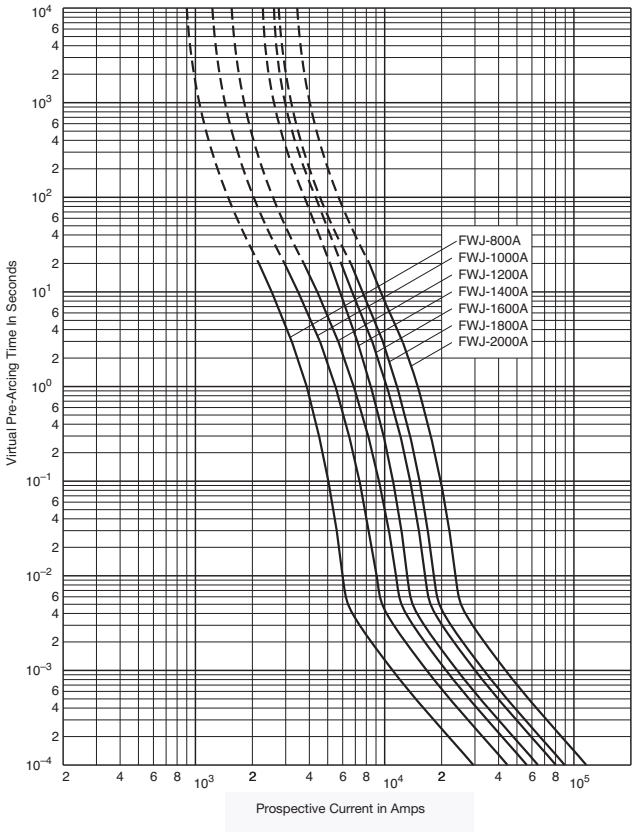
FWJ 35-600A: 1000V

Time-Current Curve



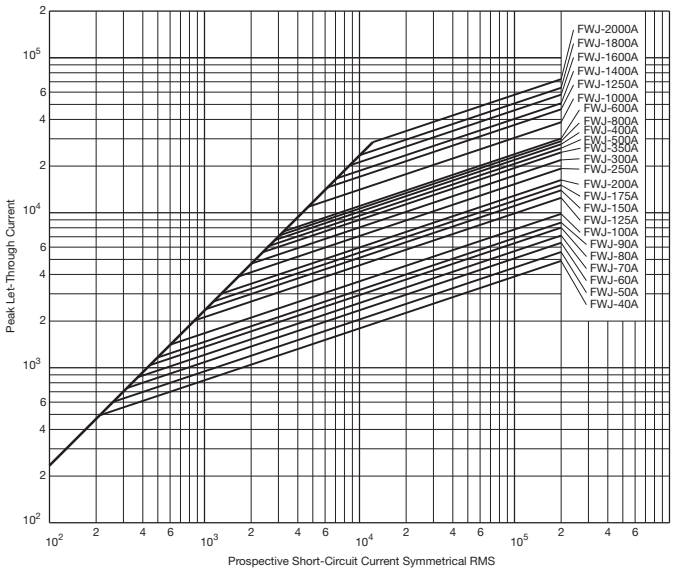
FWJ 800-2000A: 1000V

Time-Current Curve



Data Sheet: 35785309

Peak Let-Through Curve



Data Sheet: 35785303

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North American Fuse Accessories

Fuse Bases (Blocks)

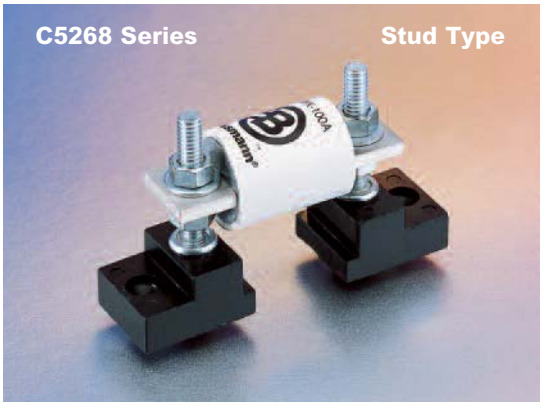
Modular Style

Bussmann offers a comprehensive line of fuse bases that provide the user with design and manufacturing flexibility. Two identical half bases make up a Bussmann modular fuse base. These "split" units can be panel mounted any distance apart to accommodate any length fuse.

Stud Type (Not sold in pairs)

The simpler design is the C5268 Series modular fuse base. With this design, the fuse terminal and cable (with termination) are mounted on the same stud, minimizing labor needed for installation. The stud type base is available in the configuration shown in the table below.

Catalog Number	Max Fuse Amp Rating	Stud Height (in)	Stud Dia. & Threads
C5268-1	200	1.00	5/16"-18
C5268-2	200	1.75	5/16"-18
C5268-3	200	0.75	5/16"-18
C5268-4	100	1.00	1/4"-20
C5268-5	100	1.75	1/4"-20

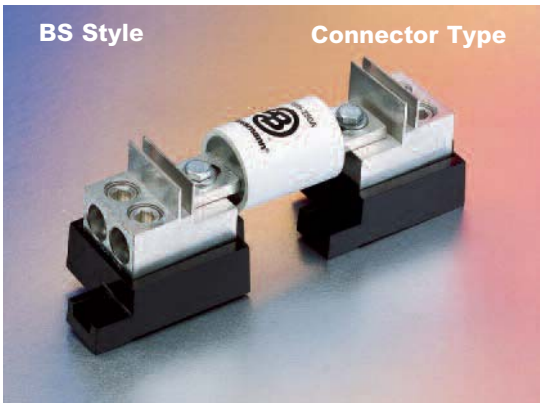


Connector Type

Bussmann also offers a modular style fuse base that utilizes a tin-plated connector (for wire termination and heat dissipation) and a plated-steel stud (for fuse mounting). The connector type fuse base is available in the configurations shown below. Consult Bussmann for additional product details.

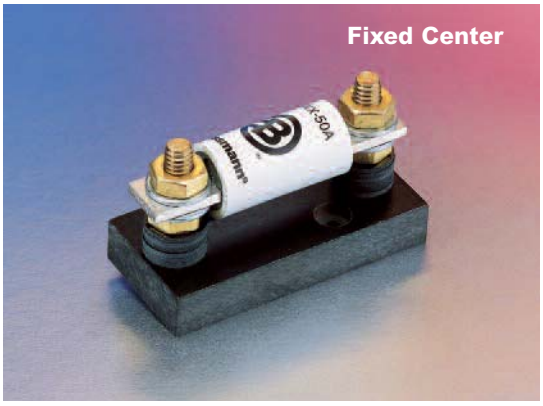
Modular Base Style	Max Voltage	Max Fuse Amp Rating	Data Sheet Number
1BS101	600	100	1206
1BS102	600	400	1207
1BS103	600	400	1208
1BS104	600	600	1209
BH-0xxx	700	100	1200
BH-1xxx	2500	400	1201
BH-2xxx	5000	400	1202
BH-3xxx	1250	700	1203

Refer to page 306 for BH style holders.



Fixed Center Base Style

Bussmann offers a comprehensive line of fixed mount style fuse bases under the trademark TRON™ rectifier fuse blocks. The cable and fuse connections are similar to the stud type fuse base — both are mounted on the same stud. Consult Bussmann for complete product details.



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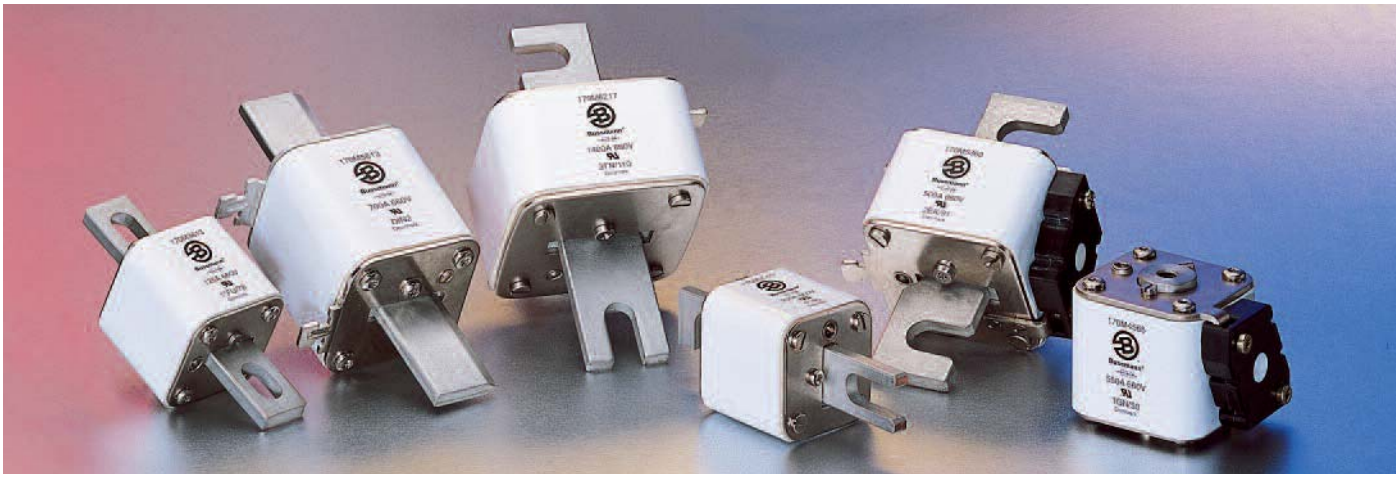
Square Body Fuses



Introduction

Square Body Contents	Page
Application Information	143-144

Volts (IEC/UL)	Size	Class	Fuse Style	Page
690/700	000,00	aR	DIN 43 653	145-147
		aR	Flush End Contact	145-147
		aR	DIN 43 620	148-149
	1*, 1, 2, 3	aR	DIN 43 653	150-151
		aR	Flush End Contact	152-153
		aR	US Style	154-155
		aR	French Style	156-157
		aR	Fuse Curves	158-159
	1*, 2, 3	aR	DIN 43 620	160-162
	4	aR	Flush End Contact	163-164
	23, 24	aR	Flush End Contact	165-166
	00, 1, 2, 3	aR	DIN 43 620	168-171
1000	00	aR	DIN 43 653	172-173
	1*, 1, 2, 3	aR	DIN 43 653	174-175
		aR	Flush End Contact	176-177
		aR	US Style	178-179
		aR	Fuse Curves	180-181
	4	aR	Flush End Contact	182-184
	24	aR	Flush End Contact	185-186
1250/1300	1*, 1, 2, 3	aR	DIN 43 653	187-188
		aR	Flush End Contact	189-190
		aR	US Style	191-192
		aR	Fuse Curves	193-194
	4	aR	Flush End Contact	195-197
	23	aR	Flush End Contact	198-199
1000-2000	5	aR	Flush End Contact	200
DC Fuses				201-211

Accessories	Page
Indicator System	212
Fuse Bases	213

Square Body Fuse Ranges

Amps	Volts	AC	DC
10-7500	690	X	—
50-1400	1250	X	—

General Information

Designed and tested to:
- IEC 60269: Part 4
- UL Recognized

Bussmann offers a complete range of square body style fuses and accessories. Their unique design and construction provide:
- Minimal energy let-through (I^2t)
- Low operating temperature
- Low watts loss

Square body style fuses are a very attractive solution for high power applications which require a compact design with superior performance. The construction and design of square body style fuses make it easy for Bussmann to manufacture custom products. Our cataloged offering provides only a sample of the wide variety of product which is available.

Each square body style fuse is available with a number of different end fittings. Options include:
- DIN 43 653
- DIN 43 620
- Flush End (Metric/US)
- French Style
- US Style

Voltage Rating

All Bussmann square body style fuses are tested to IEC 60269: Part 4. This standard requires a test voltage which is 5% higher than the rated voltage. In North America, fuses are required to clear only their rated voltage.

Accessories

Square Body style fuses are available with three different open fuse indicator systems. Options include visual indication and indication utilizing a microswitch. Fuse blocks are also available for most applications.

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Square Body Applications

Maximum Permissible Load Current

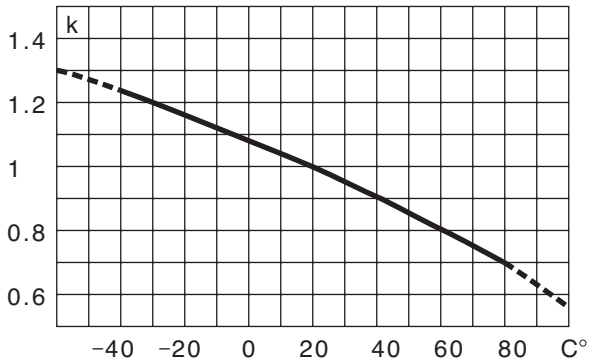
The rated current value of Bussmann fuses is based on the ambient temperature in the space immediately below the fuse of 20°C. The following graph gives correction factors (k) for a range of temperatures (–40°C to +80°C). Maximum permissible continuous load currents can be calculated by applying the following formula:

$I_b \leq I_n \approx k \approx (1 + 0.05\ V) \times K_b$

where

I_b = Maximum permissible continuous load current
I_n = Rated current of fuse
k = Temperature correction factor
v = Velocity of cooling air in m/s (max. 5 m/s).
K_b = Fuse load constant 1.0

Temperature Correction Curve



The maximum permissible continuous load current Ib of a fuse can be checked empirically (i.e., by satisfying the formula below) by making simple voltage and temperature measurements under actual operating conditions after the fuse has been installed in its operating location and loaded at the calculated Ib value:

$\frac{E_2}{E_1} \approx (0.92 + 0.004t) \leq N$

where

E_1 = Voltage drop across fuse after 5 seconds
E_2 = Voltage drop across fuse after 2 hours
t = Air temperature at start of test (°C)
N = Constant

Fuse Rated Voltage (IEC)	N
690	1.5
1250	1.6

Body Cross Section

Standard fuse program includes barrels with different cross sections.

Size	000	00	1	1	2	3	4
Maximum Cross-section (mm)	21 × 36	30 × 47	45 × 45	53 × 53	61 × 61	76 × 76	105 × 105

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Square Body Applications

Example Application of Square Body High Speed Fuses Subject to Overload and Impulse Loading

Select a short-blade indicating fuse with indicator/adapter to permit the use of a single-pole microswitch for remote indication and determine if the fuse selected will meet the following application parameters.

Application Parameters

Load Currents Expected

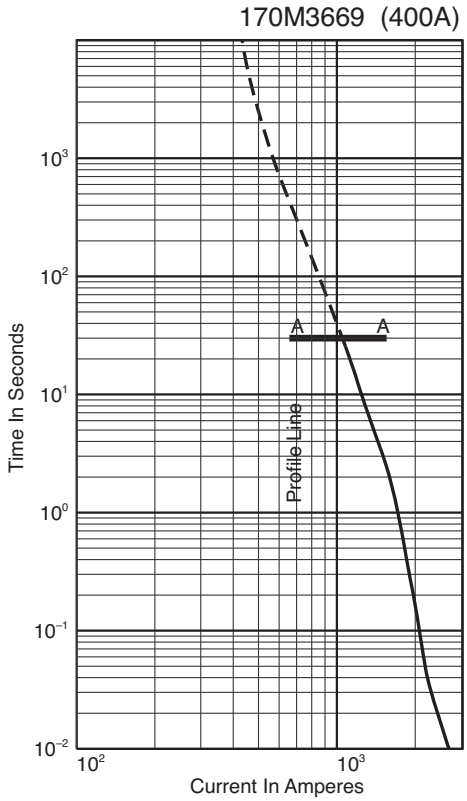
Load Type	Duration	Frequency of Occurrence	Amps
(1) Normal	Continuous	—	300A
(2) Overload	60 Seconds	Once Per Hour	500A
(3a) (3b) Overload	10 Seconds 20 Seconds (max.)	2-3 Times Per Week Once Per Month	700A
(4) Impulse	0.5 Seconds	Less Than Once Per Month	1100A
Voltage Data			
(5) Voltage Applied to Fuse During Fault Conditions (+10%)			400V
Temperature Data			
(6) Temperature Inside Cubicle in Which Fuse is Located (Natural Convection Cooling Only) 60°C			
Thyrister Data			
(7) Thyrister Peak Voltage Withstand			1000V
(8) Thyrister I^2t Withstand at 10 Milliseconds*			90,000A²s

*Note: The I^2t withstand of the thyrister may be given for other impulse durations (i.e., 1.5 ms, 3.5 ms, or 8.3 ms); however, the stated fuse I^2t is valid for all impulse durations of 10 ms or less.

Application Procedure

Step	Procedure	Remarks
(1) Select a short-blade fuse to permit mounting of microswitch 170H0069	1.1 Taking into consideration only the continuous load current and ambient temperature, from Table on page 127 tentatively select fuse 170M3669 400A, 690V).	—
(2) Determine I^2t (total clearing) at 440V.	2.1 See Table, page 127. Note I^2t is 105,000A²s at rated voltage of 690V. 2.2 From the figure on page 126, note that correction factor K = 0.65. 2.3 $I^2t_{660V} \times K = I^2t_{440V}$ 105,000 × 0.65 = 68,250	OK
(3) Determine maximum arc voltage at 440V	3.1 From the figure on page 126, note that maximum voltage at 440V is 900V	OK
(4) Determine maximum permissible continuous load current I_b.	4.1 Per page 115 data, $I_b = I_n \times k \times (1 + 0.05V) \times K_b$ I_b = 400A × 0.8 × (1 + 0) × 1 I_b = 320A	—
(5) Plot a "line profile" showing the expected load and overload currents. Determine that overload and impulse load currents do not exceed their maximum permissible values.	5.0 Calculate I_{max} per Table, High Speed Fuse Application Guide page 16, for each overload and impulse load.	—
(Item 2)	5.1 $I_{max} < 60\% \times I_t$ 500A < 60% × 950A 500A < 570A	OK
(Item 3a)	5.2 $I_{max} < 60\% \times I_t$ 700A < 60% × 1360A 700A < 780A	OK
(Item 3b)	5.3 $I_{max} < 70\% \times I_t$ 700A < 70% × 1150A 700A < 805A	OK
(Item 4)	5.4 $I_{max} < 70\% \times I_t$ 1100A < 70% × 1800A 1100A < 1260A	OK

The tentatively selected fuse 170M3669 with microswitch 170H0069 meets all application parameters; no further selection would be necessary.



Calculation of Watt Loss

From the Table on page 127, watt loss at 400 amps is 60 watts. The continuous load current of 300A is 75% of rated current (400A). From page 126, the correction factor K_p = 0.5.

$$\text{Watt Loss}_{75\%} = \text{Watt Loss}_{100\%} \times K_p$$
$$= 60\text{W} \times 0.5$$
$$= 30 \text{ watts}$$

Special Fuses

Other high speed fuses are available from Bussmann with voltage ratings of 380 to 10,000V and current ratings up to 10,000A in a single unit configuration. Fuses can be supplied with open fuse, "pin" indicators. Various types of microswitches are also available (see page 212).

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Square Body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

690V/700V (IEC/UL) 10-400A

Specifications

Description: Square body DIN 43-653 stud mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 10-400A

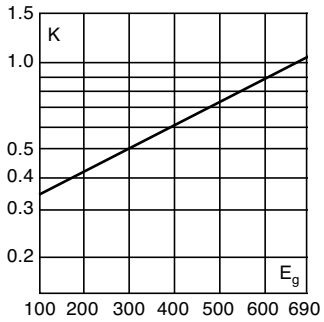
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30 on Size 000.

Electrical Characteristics

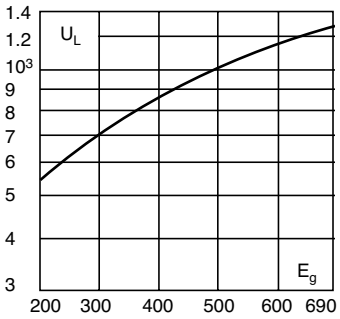
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



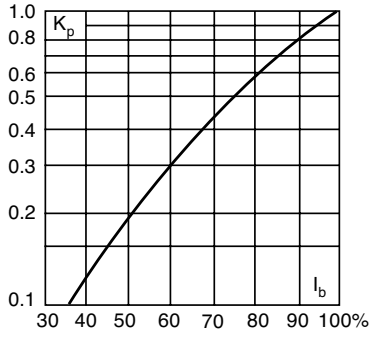
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers

For Other Voltage Ratings in This Body Style

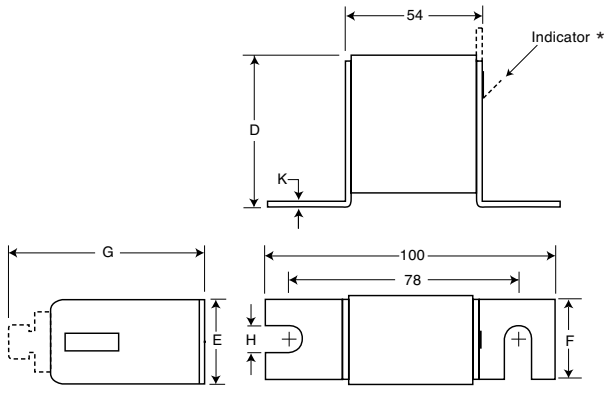
• See page 172 (1000V)

Dimensions - mm

Type -U/80, -/80, -TN/80

Size	D	E	F	G	H	K
000	40	21	20	51	8	2
00	51	30	28	67	10	2

1mm = 0.0394" / 1" = 25.4mm

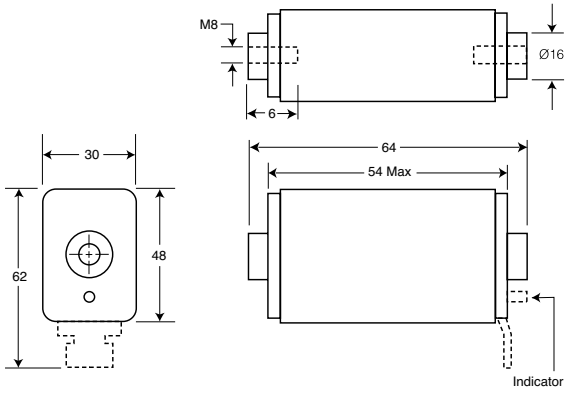


* Indication for Size 00 fuses is a red pin.

Dimensions (mm)

Type 00B/60, 00BTN/60

1mm = 0.0394" / 1" = 25.4mm



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Square Body DIN 43 653 — 690V/700V (IEC/UL): 10-400A

Catalog Numbers

Catalog Numbers					Size	Electrical Characteristics			
							I^2t (A^2 Sec)		
-U/80 Without Indicator	-/80 Visual Indicator	-TN/80 Type T Indicator for Micro	00B/60 Visual Indicator	00BTN/60 Type T Indicator for Micro		Rated Current RMS-Amps	Pre-arc	Clearing at 660V	Watts Loss
170M1308	170M1358	170M1408				10	3.8	25.5	3.0
170M1309	170M1359	170M1409				16	7.2	48	5.5
170M1310	170M1360	170M1410				20	11.5	78	7
170M1311	170M1361	170M1411				25	19	130	9
170M1312	170M1362	170M1412				32	40	270	10
170M1313	170M1363	170M1413				40	69	460	12
170M1314	170M1364	170M1414				50	115	770	15
170M1315	170M1365	170M1415			000	63	215	1450	16
170M1316	170M1366	170M1416				80	380	2550	19
170M1317	170M1367	170M1417				100	695	4650	24
170M1318	170M1368	170M1418				125	1200	8500	28
170M1319	170M1369	170M1419				160	2300	16000	32
170M1320	170M1370	170M1420				200	4200	28000	37
170M1321	170M1371	170M1421				250	7750	51500	42
170M1322	170M1372	170M1422				315	12000	80500	52
	170M2608	170M2658	170M2708	170M2758		25	19	130	6
	170M2609	170M2659	170M2709	170M2759		32	28.5	195	7
	170M2610	170M2660	170M2710	170M2760		40	50	360	9
	170M2611	170M2661	170M2711	170M2761		50	95	640	10
	170M2612	170M2662	170M2712	170M2762		63	170	1200	12
	170M2613	170M2663	170M2713	170M2763		80	310	2100	15
	170M2614	170M2664	170M2714	170M2764	00	100	620	4150	20
	170M2615	170M2665	170M2715	170M2765		125	1000	6950	25
	170M2616	170M2666	170M2716	170M2766		160	1900	13000	30
	170M2617	170M2667	170M2717	170M2767		200	3400	23000	35
	170M2618	170M2668	170M2718	170M2768		250	6250	42000	45
	170M2619	170M2669	170M2719	170M2769		315	10000	68500	55
	170M2620	170M2670	170M2720	170M2770		350	13500	91500	60
	170M2621	170M2671	170M2721	170M2771		400	18000	125000	70

- Watts loss provided at rated current.
- Microswitch indicator ordered separately.
- See accessories on pages 212-213.
- For fuse curves see page 147.

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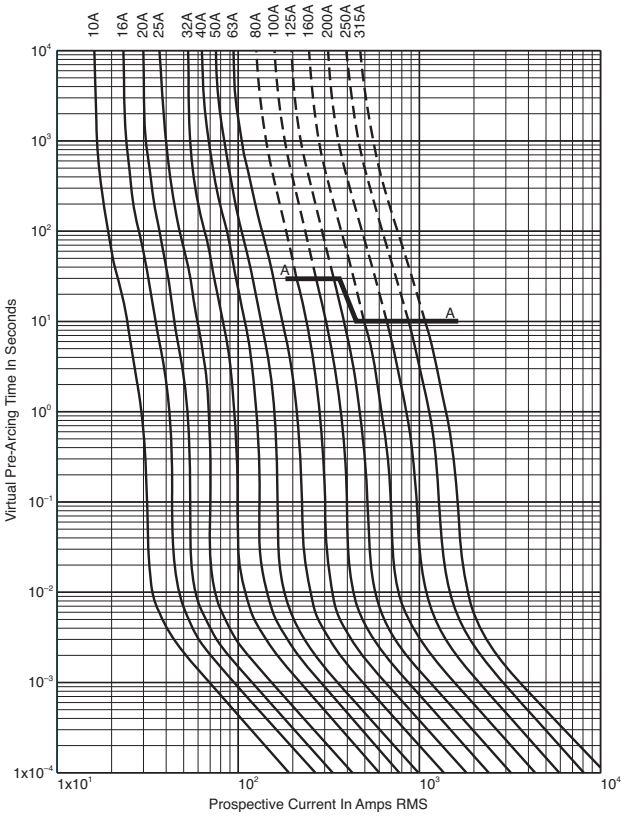
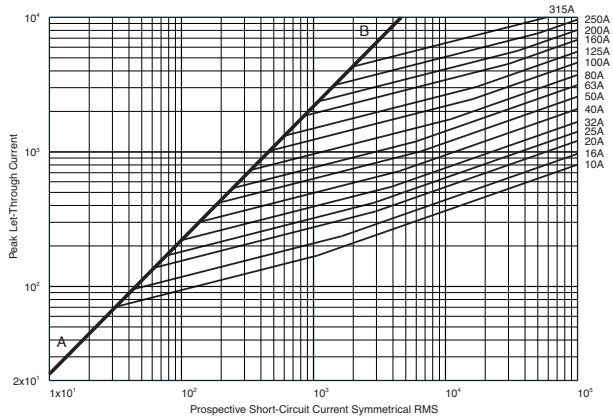
Square Body Size 000, 00 — 690V/700V (IEC/UL): 10-400A

Size 000 — 10-315A: 690V

Time-Current Curve



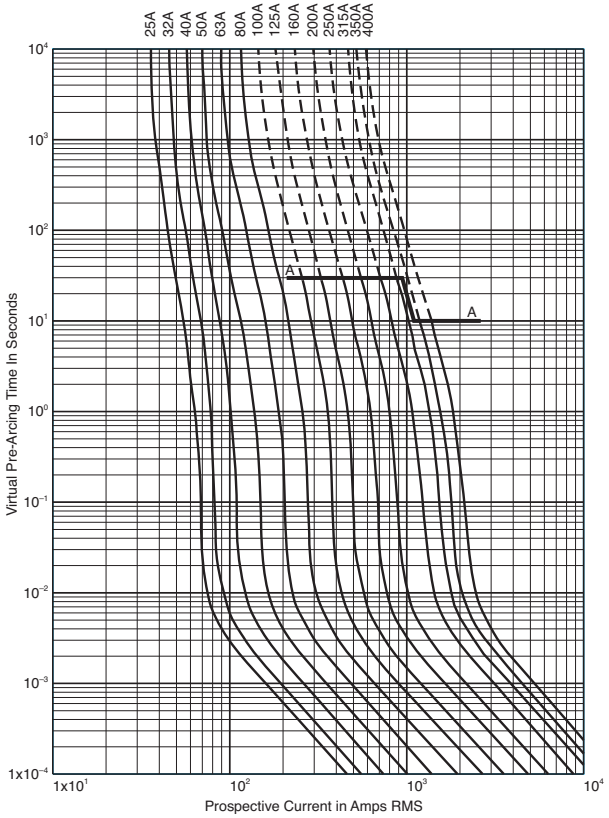
Peak Let-Through Curve



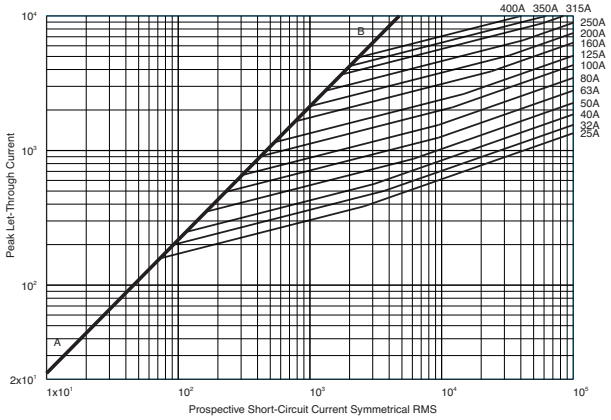
Data Sheet: 17056310

Size 00 — 25-400A: 690V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 172056312

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Square Body DIN 43 620 — 690V (IEC/UL): 10-315A

690V (IEC/UL) 10-315A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac

Amps: — 10-315A

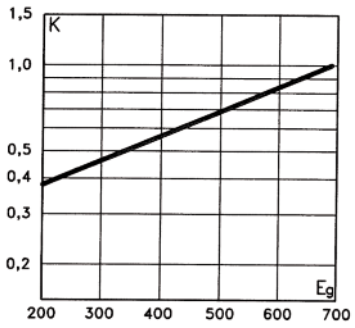
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2. & CSA Component Acceptance file Class 1422-30, (53787)

Electrical Characteristics

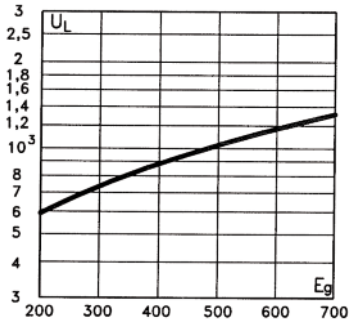
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



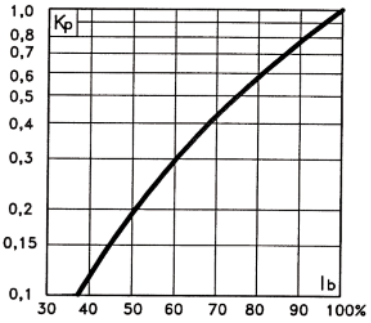
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

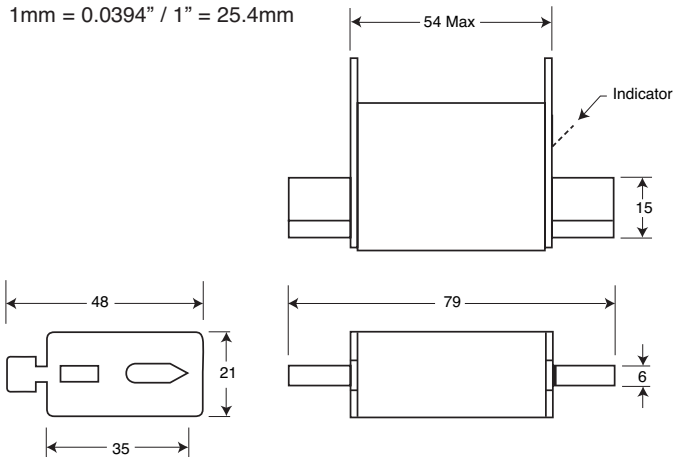
Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm

DIN 000 Type T

1mm = 0.0394" / 1" = 25.4mm



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Square Body DIN 43 620 — 690V (IEC/UL): 10-315A

Catalog Numbers

Catalog Numbers DIN Type T Indicator for Micro	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 660V	Watts Loss
170M1558D		10	4	27	2.5
170M1559D		16	7	51	4
170M1560D		20	11.5	82.5	5
170M1561D		25	19	140	6
170M1562D		32	40	285	7
170M1563D		40	65	490	8.5
170M1564D	000	50	115	815	9.5
170M1565D		63	215	1550	11.5
170M1566D		80	380	2700	15
170M1567D		100	695	4950	16.5
170M1568D		125	1180	8250	21.5
170M1569D		160	2300	16500	25
170M1570D		200	4350	31000	29.5
170M1571D		250	7900	56000	35.5
170M1572D	00	315	12000	84500	45

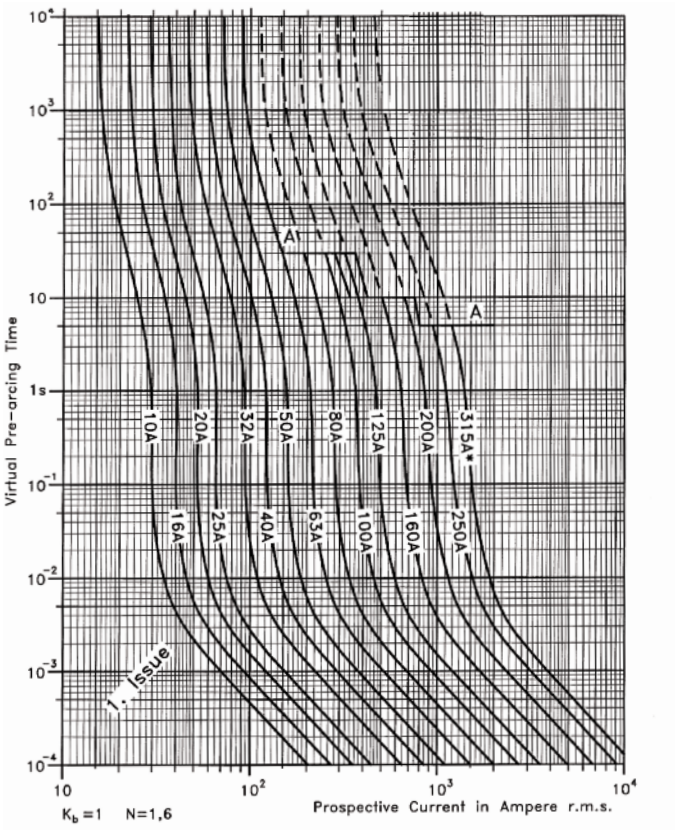
- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 212-213.

Rated Current

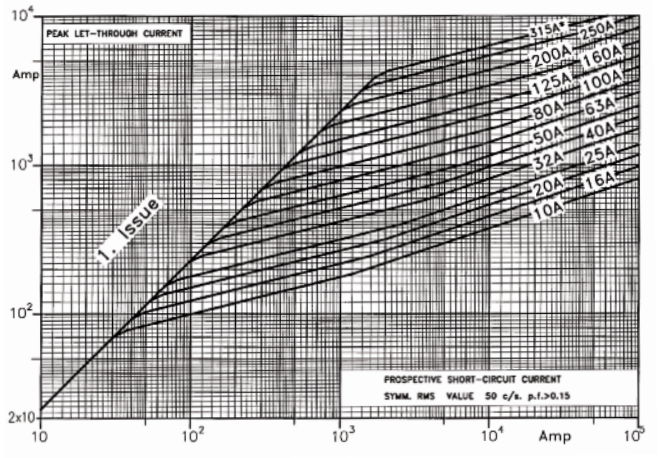
The rated current of this fuse range has been given with copper conductors that have a current density of 1.3A/mm² (IEC 60269-4). For conductor cross section according to IEC 60269-1, the fuses with a rated current higher than 125A must be derated. Please contact Bussmann for application assistance.

Size 000 — 10-315A: 690V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 72056310

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Square Body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

690V/700V (IEC/UL) 40-2000A

Specifications
Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

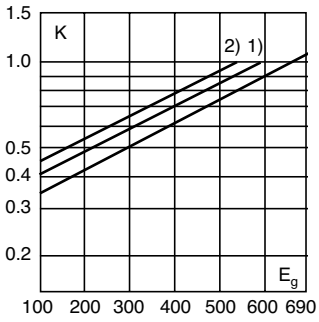
Volts: — 690Vac (IEC)
— 700Vac (UL)
Amps: — 40-2000A
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



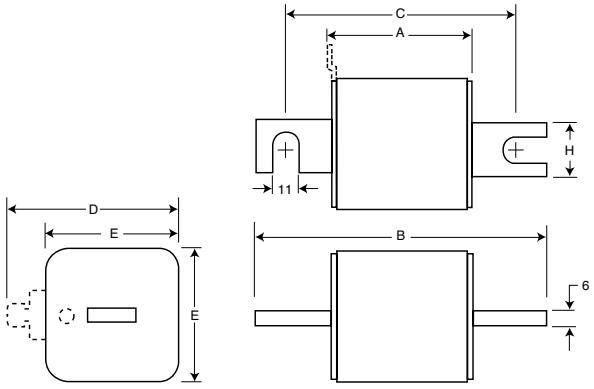
1) Rated voltage 600V
2) Rated voltage 550V

Dimensions - mm

Size	A	B	B**	C	C**	D***	E	H
1*	50	104	134	78	108	58	45	22
1	50	108	138	78	108	66	53	25
2	50	108	138	78	108	75	61	25
3	51	109	139	78	108	90	76	30

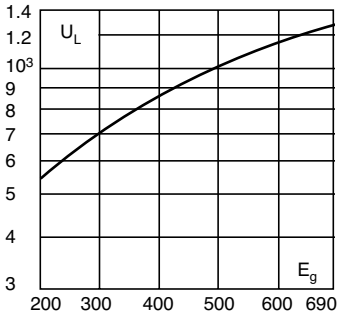
**Valid for fuses type -/110, -TN/110.
***Microswitch.
1mm = 0.0394" / 1" = 25.4mm

Type -/80, -TN/80, -/110, -TN/110.



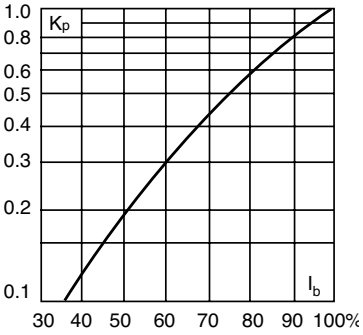
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

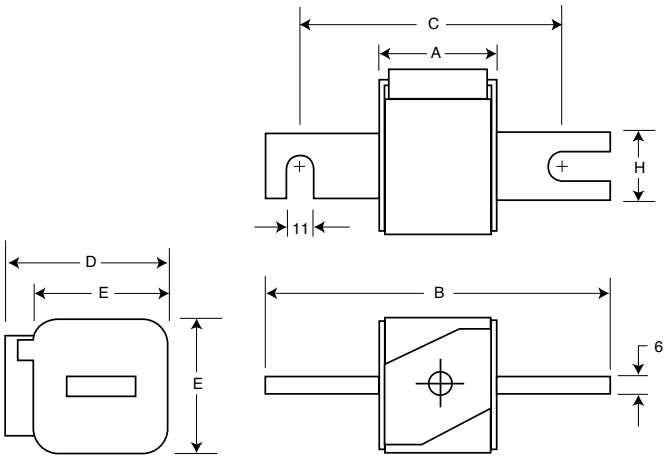
Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 174 (1000V) and 187 (1250V/1300V)

Type -KN/80, -KN/110



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body DIN 43 653 — 690V/700V (IEC/UL): 40-2000A

Catalog Numbers

Catalog Numbers						Size	Electrical Characteristics			
-/80 Visual Watts Indicator	-TN/80 Type T Indicator for Micro	-KN/80 Type K Indicator for Micro	-/110 Visual for Micro	-TN/110 Type T Indicator for Micro	-KN/110 Type K Indicator -KN/80		Rated RMS-Amps	I²t (A² Sec) Current Pre-arc	I²t (A² Sec) at 660V	Clearing Loss
170M3008	170M3058	170M3108	170M3158	170M3208	170M3258		40	40	270	9
170M3009	170M3059	170M3109	170M3159	170M3209	170M3259		50	77	515	11
170M3010	170M3060	170M3110	170M3160	170M3210	170M3260		63	115	770	14
170M3011	170M3061	170M3111	170M3161	170M3211	170M3261		80	185	1250	18
170M3012	170M3062	170M3112	170M3162	170M3212	170M3262		100	360	2450	21
170M3013	170M3063	170M3113	170M3163	170M3213	170M3263		125	550	3700	26
170M3014	170M3064	170M3114	170M3164	170M3214	170M3264		160	1100	7500	30
170M3015	170M3065	170M3115	170M3165	170M3215	170M3265		200	2200	15000	35
170M3016	170M3066	170M3116	170M3166	170M3216	170M3266	1*	250	4200	28500	40
170M3017	170M3067	170M3117	170M3167	170M3217	170M3267		315	7000	46500	50
170M3018	170M3068	170M3118	170M3168	170M3218	170M3268		350	10000	68500	55
170M3019	170M3069	170M3119	170M3169	170M3219	170M3269		400	15000	105000	60
170M3020	170M3070	170M3120	170M3170	170M3220	170M3270		450	21000	140000	65
170M3021	170M3071	170M3121	170M3171	170M3221	170M3271		500	27000	180000	70
170M3022	170M3072	170M3122	170M3172	170M3222	170M3272		550	34000	230000	75
170M3023	170M3073	170M3123	170M3173	170M3223	170M3273		630	48500	325000	80
170M4008	170M4058	170M4108	170M4158	170M4208	170M4258		200	1650	11500	45
170M4009	170M4059	170M4109	170M4159	170M4209	170M4259		250	3100	21000	55
170M4010	170M4060	170M4110	170M4160	170M4210	170M4260		315	6200	42000	58
170M4011	170M4061	170M4111	170M4161	170M4211	170M4261		350	8500	59000	60
170M4012	170M4062	170M4112	170M4162	170M4212	170M4262		400	13500	91500	65
170M4013	170M4063	170M4113	170M4163	170M4213	170M4263		450	17000	120000	70
170M4014	170M4064	170M4114	170M4164	170M4214	170M4264	1	500	25000	170000	72
170M4015	170M4065	170M4115	170M4165	170M4215	170M4265		550	34000	230000	75
170M4016	170M4066	170M4116	170M4166	170M4216	170M4266		630	52000	350000	80
170M4017	170M4067	170M4117	170M4167	170M4217	170M4267		700	69500	465000	85
170M4018	170M4068	170M4118	170M4168	170M4218	170M4268		800	105000	725000	95
170M4019	170M4069	170M4119	170M4169	170M4219	170M4269		‡900	155000	‡850000	100
170M5008	170M5058	170M5108	170M5158	170M5208	170M5258		400	11000	74000	65
170M5009	170M5059	170M5109	170M5159	170M5209	170M5259		450	15500	105000	70
170M5010	170M5060	170M5110	170M5160	170M5210	170M5260		500	21500	145000	75
170M5011	170M5061	170M5111	170M5161	170M5211	170M5261		550	28000	190000	80
170M5012	170M5062	170M5112	170M5162	170M5212	170M5262		630	41000	275000	90
170M5013	170M5063	170M5113	170M5163	170M5213	170M5263	2	700	60500	405000	95
170M5014	170M5064	170M5114	170M5164	170M5214	170M5264		800	86000	575000	105
170M5015	170M5065	170M5115	170M5165	170M5215	170M5265		900	125000	840000	110
170M5016	170M5066	170M5116	170M5166	170M5216	170M5266		1000	180000	1250000	115
170M5017	170M5067	170M5117	170M5167	170M5217	170M5267		1100	245000	1600000	120
170M5018	170M5068	170M5118	170M5168	170M5218	170M5268		1250	365000	2400000	130
170M6008	170M6058	170M6108	170M6158	170M6208	170M6258		500	14000	95000	95
170M6009	170M6059	170M6109	170M6159	170M6209	170M6259		550	19500	135000	100
170M6010	170M6060	170M6110	170M6160	170M6210	170M6260		630	31000	210000	105
170M6011	170M6061	170M6111	170M6161	170M6211	170M6261		700	44500	300000	110
170M6012	170M6062	170M6112	170M6162	170M6212	170M6262		800	69500	465000	115
170M6013	170M6063	170M6113	170M6163	170M6213	170M6263		900	100000	670000	120
170M6014	170M6064	170M6114	170M6164	170M6214	170M6264	3	1000	140000	945000	125
170M6015	170M6065	170M6115	170M6165	170M6215	170M6265		1100	190000	1300000	130
170M6016	170M6066	170M6116	170M6166	170M6216	170M6266		1250	290000	1950000	140
170M6017	170M6067	170M6117	170M6167	170M6217	170M6267		1400	370000	2450000	155
170M6018	170M6068	170M6118	170M6168	170M6218	170M6268		1500	460000	3100000	160
170M6019	170M6069	170M6119	170M6169	170M6219	170M6269		1600	580000	3900000	160
170M6020	170M6070	170M6120	170M6170	170M6220	170M6270		†1800	880000	†5250000	165
170M6021	170M6071	170M6121	170M6171	170M6221	170M6271		‡2000	1150000	‡6350000	175

†Rated voltage (IEC) 600V.
‡Rated voltage (IEC) 550V.
• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on pages 212-213.
• For fuse curves see pages 158 and 159.

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Square Body Flush End Contact — 690V/700V (IEC/UL): 40-2000A

690V/700V (IEC/UL) 40-2000A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-2000A

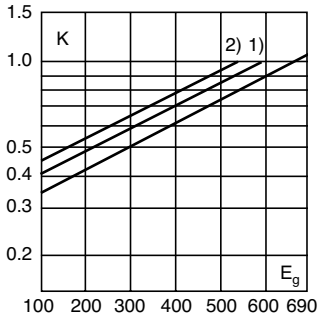
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

Electrical Characteristics

Total Clearing I²t

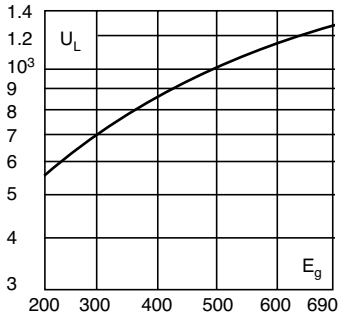
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) Rated voltage 600V.
2) Rated voltage 550V

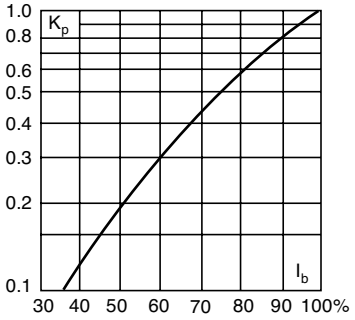
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

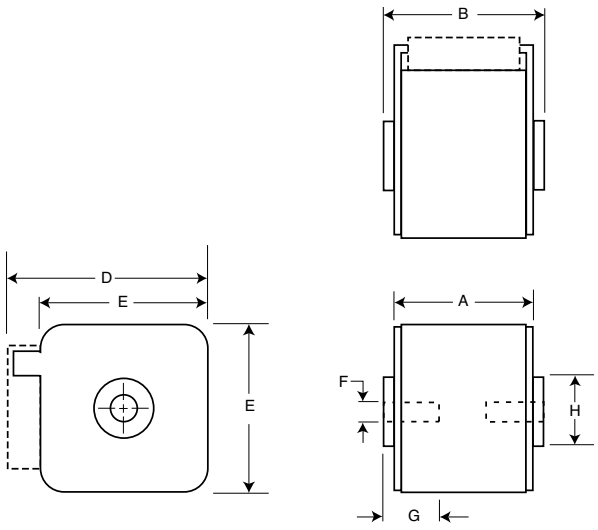
• See pages 176 (1000V) and 189 (1250V/1300V)

Dimensions - mm

Type -B/-, -BKN/-, -G/-, -GKN/-

Size	A	B	D	E	F	F** (in)	G	H
1*	50	51	59	45	M8	5/16" - 18 UNC-2B	5	ø17
1	50	51	69	53	M8	5/16" - 18 UNC-2B	8	ø20
2	50	51	77	61	M10	3/8" - 16 UNC-2B	10	ø24
3	51	53	92	76	M12	1/2" - 13 UNC-2B	10	ø30

**Valid for fuses type -G/- & -GKN/-.
NB: B = 65 for: Size 2, 1100-1250A
Size 3, 1600-2000A
1mm = 0.0394" / 1" = 25.4mm



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body Flush End Contact — 690V/700V (IEC/UL): 40-2000A

Catalog Numbers

Catalog Numbers				Size	Electrical Characteristics			
-B/- Visual Indicator	-BKN/- Type K Indicator for Micro	-G/- Visual Indicator	-GKN/- Type K Indicator for Micro		Rated Current RMS-Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 660V	Watts Loss
170M3408	170M3458	170M3508	170M3558		40	40	270	9
170M3409	170M3459	170M3509	170M3559		50	77	515	11
170M3410	170M3460	170M3510	170M3560		63	115	770	14
170M3411	170M3461	170M3511	170M3561		80	185	1250	18
170M3412	170M3462	170M3512	170M3562		100	360	2450	21
170M3413	170M3463	170M3513	170M3563		125	550	3700	26
170M3414	170M3464	170M3514	170M3564		160	1100	7500	30
170M3415	170M3465	170M3515	170M3565		200	2200	15000	35
170M3416	170M3466	170M3516	170M3566	1*	250	4200	28500	40
170M3417	170M3467	170M3517	170M3567		315	7000	46500	50
170M3418	170M3468	170M3518	170M3568		350	10000	68500	55
170M3419	170M3469	170M3519	170M3569		400	15000	105000	60
170M3420	170M3470	170M3520	170M3570		450	21000	140000	65
170M3421	170M3471	170M3521	170M3571		500	27000	180000	70
170M3422	170M3472	170M3522	170M3572		550	34000	230000	75
170M3423	170M3473	170M3523	170M3573		630	48500	325000	80
170M4408	170M4458	170M4508	170M4558		200	1650	11500	45
170M4409	170M4459	170M4509	170M4559		250	3100	21000	55
170M4410	170M4460	170M4510	170M4560		315	6200	42000	58
170M4411	170M4461	170M4511	170M4561		350	8500	59000	60
170M4412	170M4462	170M4512	170M4562		400	13500	91500	65
170M4413	170M4463	170M4513	170M4563		450	17000	120000	70
170M4414	170M4464	170M4514	170M4564	1	500	25000	170000	72
170M4415	170M4465	170M4515	170M4565		550	34000	230000	75
170M4416	170M4466	170M4516	170M4566		630	52000	350000	80
170M4417	170M4467	170M4517	170M4567		700	69500	465000	85
170M4418	170M4468	170M4518	170M4568		800	105000	725000	95
170M4419	170M4469	170M4519	170M4569		‡900	155000	‡850000	100
170M5408	170M5458	170M5508	170M5558		400	11000	74000	65
170M5409	170M5459	170M5509	170M5559		450	15500	105000	70
170M5410	170M5460	170M5510	170M5560		500	21500	145000	75
170M5411	170M5461	170M5511	170M5561		550	28000	190000	80
170M5412	170M5462	170M5512	170M5562		630	41000	275000	90
170M5413	170M5463	170M5513	170M5563	2	700	60500	405000	95
170M5414	170M5464	170M5514	170M5564		800	86000	575000	105
170M5415	170M5465	170M5515	170M5565		900	125000	840000	110
170M5416	170M5466	170M5516	170M5566		1000	180000	1250000	115
170M5417	170M5467	170M5517	170M5567		1100	245000	1600000	120
170M5418	170M5468	170M5518	170M5568		1250	365000	2400000	130
170M6408	170M6458	170M6508	170M6558		500	14000	95000	95
170M6409	170M6459	170M6509	170M6559		550	19500	135000	100
170M6410	170M6460	170M6510	170M6560		630	31000	210000	105
170M6411	170M6461	170M6511	170M6561		700	44500	300000	110
170M6412	170M6462	170M6512	170M6562		800	69500	465000	115
170M6413	170M6463	170M6513	170M6563		900	100000	670000	120
170M6414	170M6464	170M6514	170M6564	3	1000	140000	945000	125
170M6415	170M6465	170M6515	170M6565		1100	190000	1300000	130
170M6416	170M6466	170M6516	170M6566		1250	290000	1950000	140
170M6417	170M6467	170M6517	170M6567		1400	370000	2450000	155
170M6418	170M6468	170M6518	170M6568		1500	460000	3100000	160
170M6419	170M6469	170M6519	170M6569		1600	580000	3900000	160
170M6420	170M6470	170M6520	170M6570		†1800	880000	†5250000	165
170M6421	170M6471	170M6521	170M6571		‡2000	1150000	‡6350000	175

†Rated voltage (IEC) 600V.
‡Rated voltage (IEC) 550V.
• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on pages 212-213.
• For fuse curves see pages 158 and 159.

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Square Body US Style — 690V/700V (IEC): 40-2000A

690V/700V (IEC) 40-2000A

Specifications

Description: Square body US style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-200A

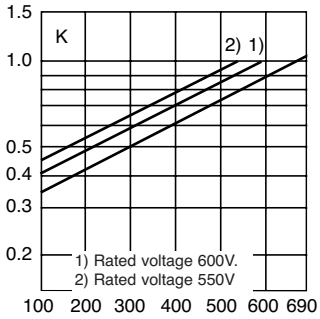
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

Electrical Characteristics

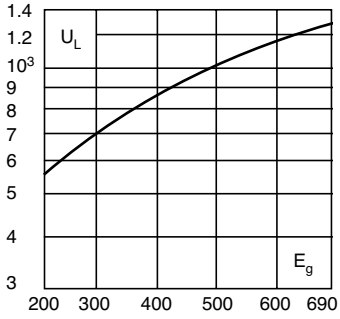
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



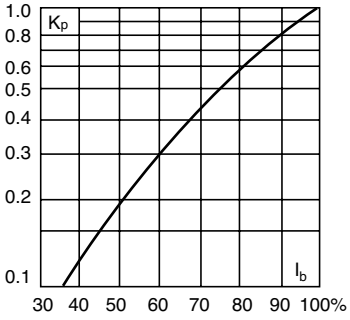
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

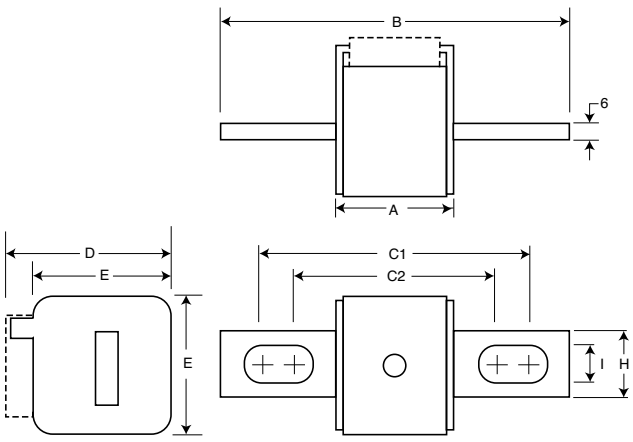
• See pages 178 (1000V) and 191 (1250V/1300V)

Dimensions - mm

Type -FU/-, -FKE/-, FU/115-, -FKE/115

Size	A	B	B**	C1	C1**	C2	C2**	D	E	H	I
1*	50	110	148	85	123	72	110	59	45	20	10
1	50	136	157	104	126	78	100	69	53	25	14
2	50	135	159	105	125	78	99	77	61	25	14
3	51	135	155	106	125	77	97	92	76	36	16

**Valid for fuses type -FU/115 & -FKE/115.
1mm = 0.0394" / 1" = 25.4mm



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body US style — 690V/700V (IEC): 40-2000A

Catalog Numbers

Catalog Numbers				Size	Electrical Characteristics			
-FU/- Without Indicator	-FKE/- Type K Indicator for Micro	-FU/115 Without Indicator	-FKE/115 Type K Indicator for Micro		Rated Current RMS-Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 660V	Watts Loss
170M3608	170M3658	170M3708	170M3758		40	40	270	9
170M3609	170M3659	170M3709	170M3759		50	77	515	11
170M3610	170M3660	170M3710	170M3760		63	115	770	14
170M3611	170M3661	170M3711	170M3761		80	185	1250	18
170M3612	170M3662	170M3712	170M3762		100	360	2450	21
170M3613	170M3663	170M3713	170M3763		125	550	3700	26
170M3614	170M3664	170M3714	170M3764		160	1100	7500	30
170M3615	170M3665	170M3715	170M3765		200	2200	15000	35
170M3616	170M3666	170M3716	170M3766	1*	250	4200	28500	40
170M3617	170M3667	170M3717	170M3767		315	7000	46500	50
170M3618	170M3668	170M3718	170M3768		350	10000	68500	55
170M3619	170M3669	170M3719	170M3769		400	15000	105000	60
170M3620	170M3670	170M3720	170M3770		450	21000	140000	65
170M3621	170M3671	170M3721	170M3771		500	27000	180000	70
170M3622	170M3672	170M3722	170M3772		550	34000	230000	75
170M3623	170M3673	170M3723	170M3773		630	48500	325000	80
170M4608	170M4658	170M4708	170M4758		200	1650	11500	45
170M4609	170M4659	170M4709	170M4759		250	3100	21000	55
170M4610	170M4660	170M4710	170M4760		315	6200	42000	58
170M4611	170M4661	170M4711	170M4761		350	8500	59000	60
170M4612	170M4662	170M4712	170M4762		400	13500	91500	65
170M4613	170M4663	170M4713	170M4763	1	450	17000	120000	70
170M4614	170M4664	170M4714	170M4764		500	25000	170000	72
170M4615	170M4665	170M4715	170M4765		550	34000	230000	75
170M4616	170M4666	170M4716	170M4766		630	52000	350000	80
170M4617	170M4667	170M4717	170M4767		700	69500	465000	85
170M4618	170M4668	170M4718	170M4768		800	105000	725000	95
170M4619	170M4669	170M4719	170M4769		‡900	155000	‡850000	100
170M5608	170M5658	170M5708	170M5758		400	11000	74000	65
170M5609	170M5659	170M5709	170M5759		450	15500	105000	70
170M5610	170M5660	170M5710	170M5760		500	21500	145000	75
170M5611	170M5661	170M5711	170M5761		550	28000	190000	80
170M5612	170M5662	170M5712	170M5762		630	41000	275000	90
170M5613	170M5663	170M5713	170M5763	2	700	60500	405000	95
170M5614	170M5664	170M5714	170M5764		800	86000	575000	105
170M5615	170M5665	170M5715	170M5765		900	125000	840000	110
170M5616	170M5666	170M5716	170M5766		1000	180000	1250000	115
170M5617	170M5667	170M5717	170M5767		1100	245000	1600000	120
170M5618	170M5668	170M5718	170M5768		1250	365000	2400000	130
170M6608	170M6658	170M6708	170M6758		500	14000	95000	95
170M6609	170M6659	170M6709	170M6759		550	19500	135000	100
170M6610	170M6660	170M6710	170M6760		630	31000	210000	105
170M6611	170M6661	170M6711	170M6761		700	44500	300000	110
170M6612	170M6662	170M6712	170M6762		800	69500	465000	115
170M6613	170M6663	170M6713	170M6763		900	100000	670000	120
170M6614	170M6664	170M6714	170M6764		1000	140000	945000	125
170M6615	170M6665	170M6715	170M6765	3	1100	190000	1300000	130
170M6616	170M6666	170M6716	170M6766		1250	290000	1950000	140
170M6617	170M6667	170M6717	170M6767		1400	370000	2450000	155
170M6618	170M6668	170M6718	170M6768		1500	460000	3100000	160
170M6619	170M6669	170M6719	170M6769		1600	580000	3900000	160
170M6620	170M6670	170M6720	170M6770		†1800	880000	†5250000	165
170M6621	170M6671	170M6721	170M6771		‡2000	1150000	‡6350000	175

†Rated voltage (IEC) 600V.
‡Rated voltage (IEC) 550V.
• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on pages 212-213.
• For fuse curves see pages 158 and 159.

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Square Body French Style — 690V/700V (IEC/UL): 40-1500A

690V/700V (IEC/UL) 40-1500A

Specifications

Description: Square body French style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-1500A

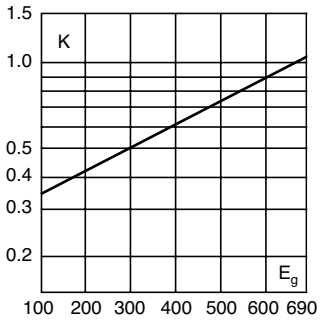
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2 & CSA Component Acceptance file Class 1422-30, (53787) on Sizes (1, 2, 3) only

Electrical Characteristics

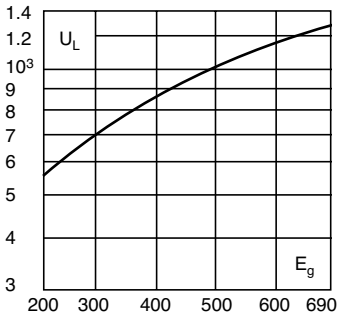
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



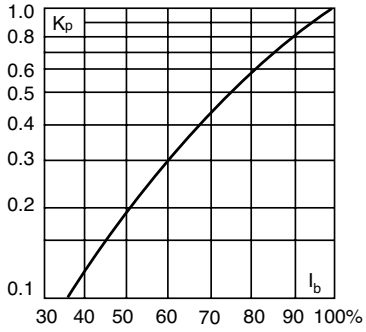
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

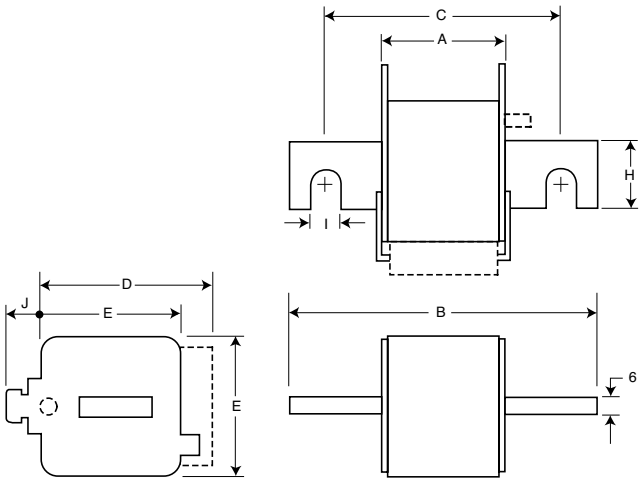
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm

Type -E/-, -EKN/-

Size	A	B	C	D	E	H	I	J
1*	50	102	76	59	45	18	9	13
1	50	111	86	69	53	25	11	11
2	50	126	91	77	61	30	13	12
3	51	126	91	92	76	36	13	13

1mm = 0.0394" / 1" = 25.4mm



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Square Body French Style — 690V/700V (IEC/UL): 40-1500A

Catalog Numbers

Catalog Numbers			Electrical Characteristics			
-E/ Type T Indicator For Micro	-EKN/- Type K Indicator for Micro	Size	Rated Current RMS-Amps	I2t (A2 Sec) Pre-arc	I2t (A2 Sec) Clearing at 660V	Watts Loss
170M3308	170M3358		40	40	270	9
170M3309	170M3359		50	77	515	11
170M3310	170M3360		63	115	770	14
170M3311	170M3361		80	185	1250	18
170M3312	170M3362		100	360	2450	21
170M3313	170M3363		125	550	3700	26
170M3314	170M3364		160	1100	7500	30
170M3315	170M3365	1*	200	2200	15000	35
170M3316	170M3366		250	4200	28500	40
170M3317	170M3367		315	7000	46500	50
170M3318	170M3368		350	10000	68500	55
170M3319	170M3369		400	15000	105000	60
170M3320	170M3370		450	21000	140000	65
170M3321	170M3371		500	27000	180000	70
170M4308	170M4358		200	1650	11500	45
170M4309	170M4359		250	3100	21000	55
170M4310	170M4360		315	6200	42000	58
170M4311	170M4361		350	8500	59000	60
170M4312	170M4362		400	13500	91500	65
170M4313	170M4363	1	450	17000	120000	70
170M4314	170M4364		500	25000	170000	72
170M4315	170M4365		550	34000	230000	75
170M4316	170M4366		630	52000	350000	80
170M4317	170M4367		700	69500	465000	85
170M4318	170M4368		800	105000	725000	95
170M5308	170M5358		400	11000	74000	65
170M5309	170M5359		450	15500	105000	70
170M5310	170M5360		500	21500	145000	75
170M5311	170M5361		550	28000	190000	80
170M5312	170M5362	2	630	41000	275000	90
170M5313	170M5363		700	60500	405000	95
170M5314	170M5364		800	86000	575000	105
170M5315	170M5365		900	125000	840000	110
170M5316	170M5366		1000	180000	1250000	115
170M6308	170M6358		500	14000	95000	95
170M6309	170M6359		550	19500	135000	100
170M6310	170M6360		630	31000	210000	105
170M6311	170M6361		700	44500	300000	110
170M6312	170M6362		800	69500	465000	115
170M6313	170M6363	3	900	100000	670000	120
170M6314	170M6364		1000	140000	945000	125
170M6315	170M6365		1100	190000	1300000	130
170M6316	170M6366		1250	290000	1950000	140
170M6317	170M6367		1400	370000	2450000	155
170M6318	170M6368		1500	460000	3100000	160

- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 212-213.
- For fuse curves see pages 158 and 159.

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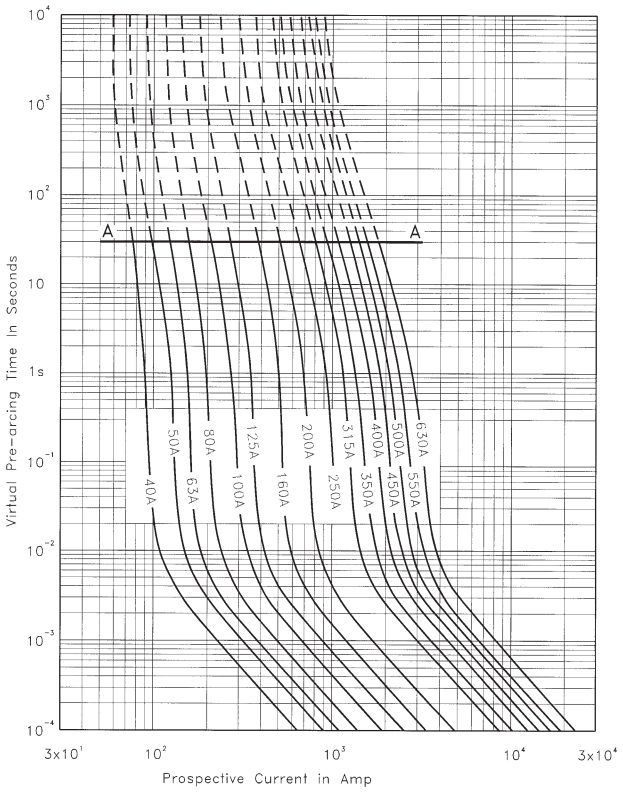
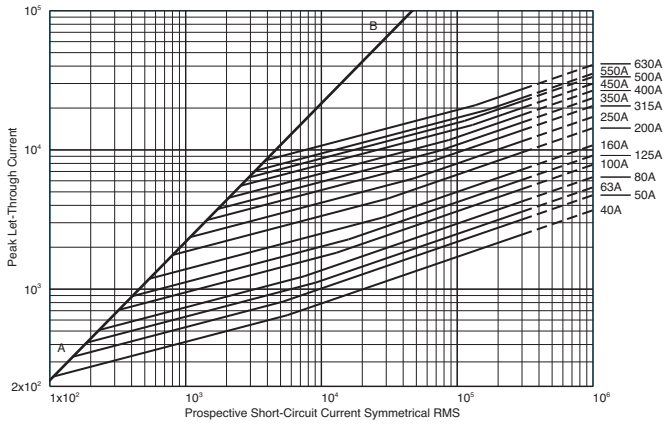
Square Body, French Style - Size 1*, 1 — 690V/700V (IEC/UL): 40-2000A

Size 1* — 40-630A: 690V

Time-Current Curve



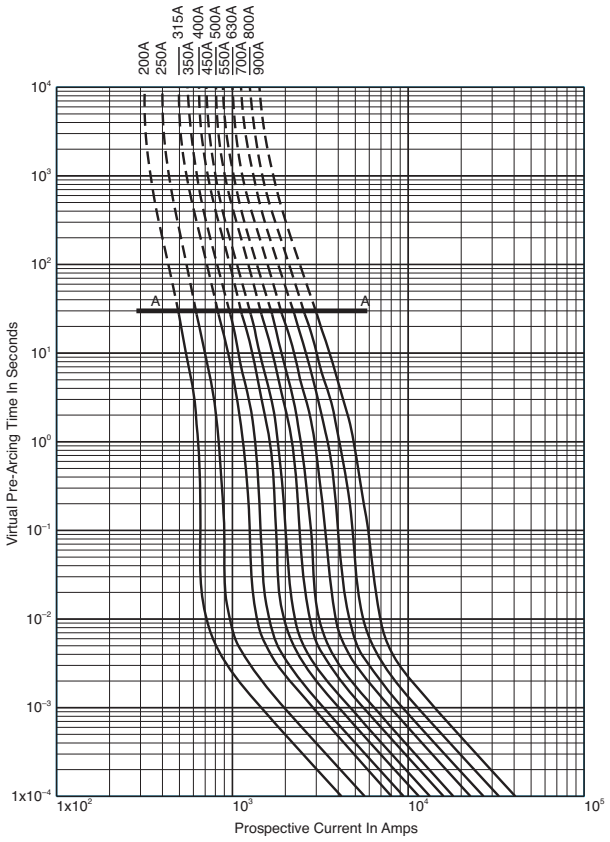
Peak Let-Through Curve



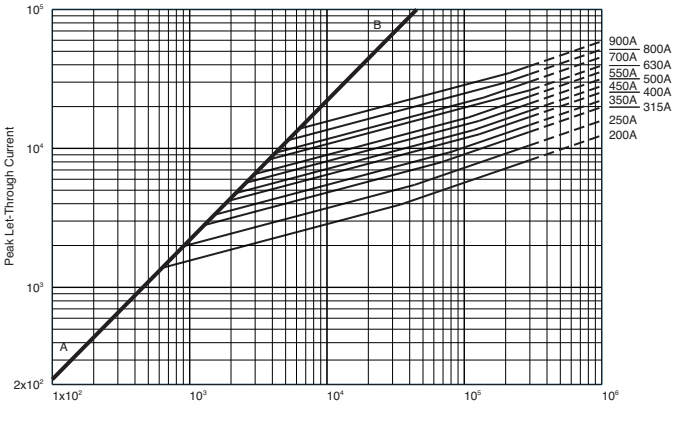
Data Sheet: 17056314

Size 1 — 200-900A: 690V

Time-Current Curve



Peak Let-Through Curve



900 amp fuse is derated to 550V (IEC).

Data Sheet: 17056316

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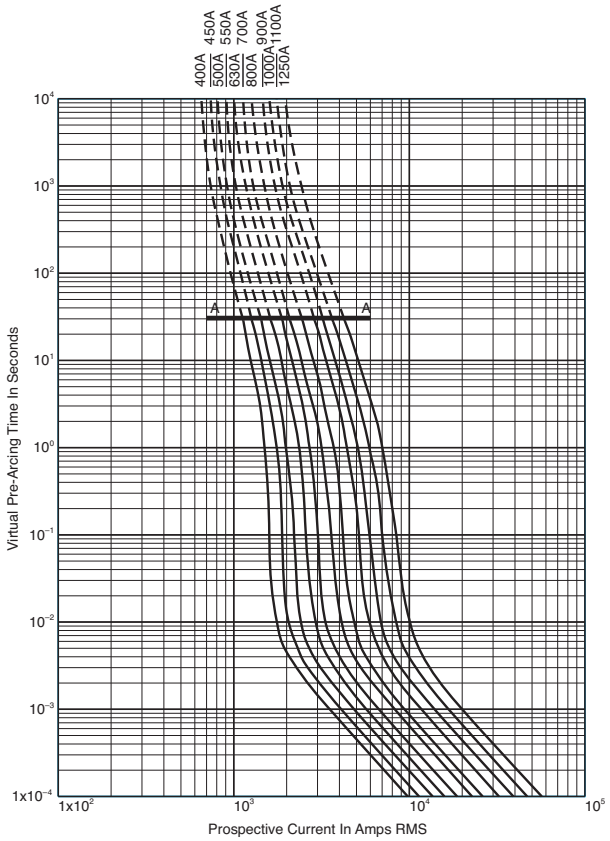
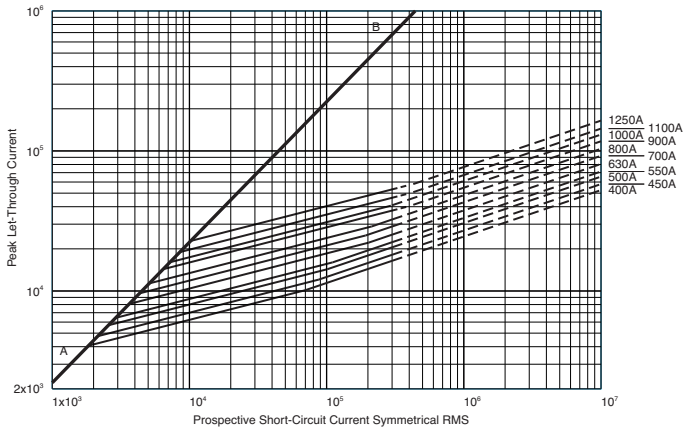
Square Body, French Style - Size 2, 3 — 690V/700V (IEC/UL): 40-2000A

Size 2 — 400-1250A: 690V

Time-Current Curve



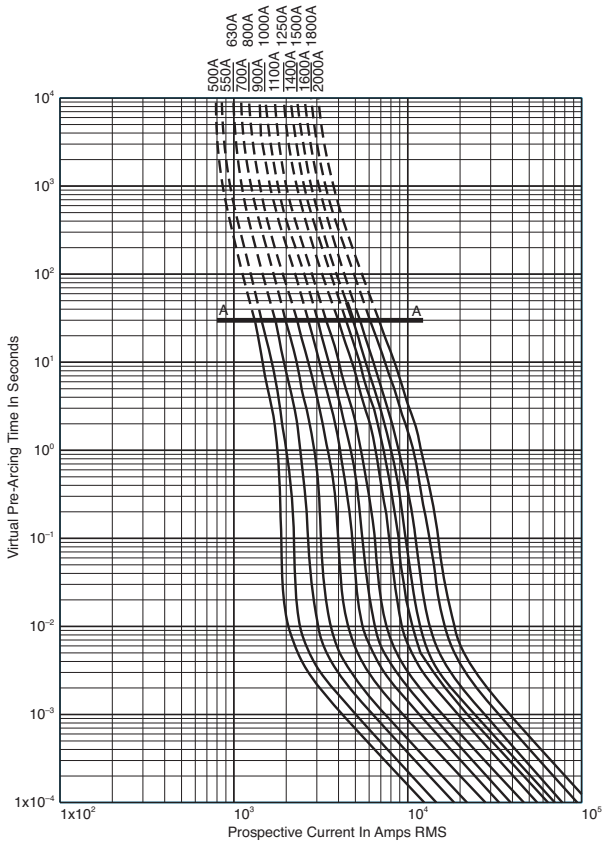
Peak Let-Through Curve



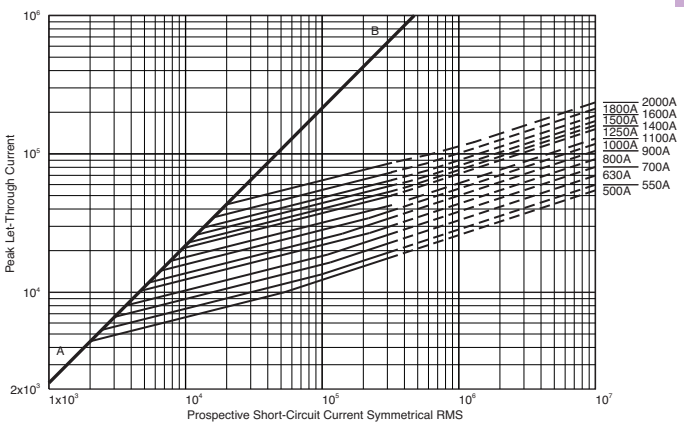
Data Sheet: 17056318

Size 3 — 500-2000A: 690V

Time-Current Curve



Peak Let-Through Curve



1800A fuse is derated to 600V (IEC).
2000A fuse is derated to 550V (IEC).

Data Sheet: 17056320

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

690V/700V (IEC/UL) 40-1000A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)

Amps: — 40-1000A

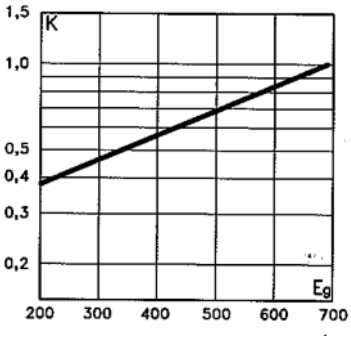
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

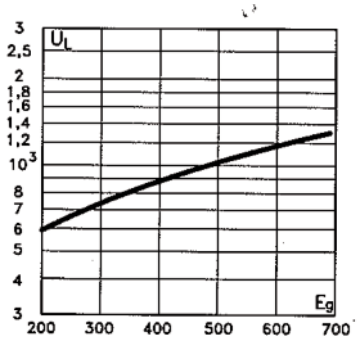
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



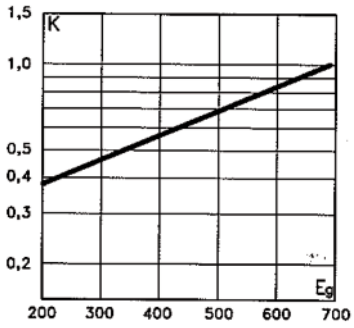
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Full Range Fuses in This Body Style

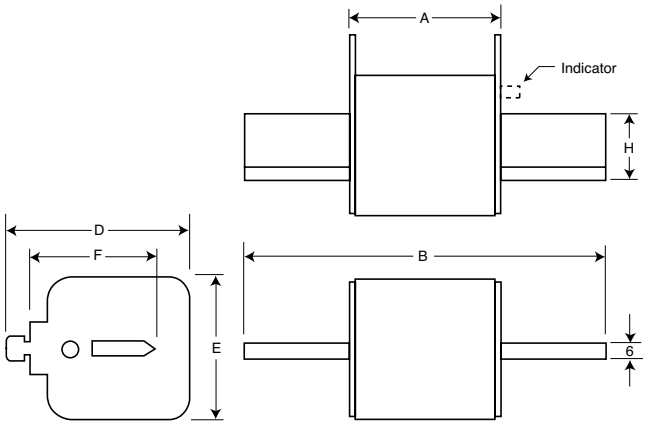
• See page 168

Dimensions (mm)

Type DIN 1*, DIN 2, DIN 3

Size	A	B	D	E	F	H
1*	69	135	58	45	40	20
2	69	150	71	55	48	26
3	68	150	88	76	60	33

1mm = 0.0394" / 1" = 25.4mm



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 620 — 690V/700V (IEC/UL): 40-600A

Catalog Numbers

Catalog Numbers DIN Type T Indicator for Micro	Size	Electrical Characteristics Rated Current RMS-Amps	I²t (A²Sec) Pre-arc	I²t (A²Sec) Clearing at 660V	Watts Loss
170M3808D		40	40	285	4
170M3809D		50	78	550	4.5
170M3810D		63	120	850	6.5
170M3811D		80	185	1350	8.5
170M3812D		100	360	2600	10
170M3813D		125	550	3900	11
170M3814D		160	1150	8250	12
170M3815D		200	2300	16500	12.5
170M3816D	1*	250	4350	31000	16
170M3817D		315	7300	52000	20
170M3818D		350	10000	73000	21.5
170M3819D		400	16000	115000	60
170M4863D		450	21500	155000	26.3
170M4864D		500	27000	190000	28.5
170M4865D		550	33500	240000	33
170M4866D		630	48500	345000	37.5
170M4867D		700	69500	495000	39
170M5808D		400	11000	79000	29
170M5809D		450	16000	115000	32
170M5810D		500	21500	155000	34
170M5811D		550	29000	215000	36
170M5812D	2	630	41000	295000	42
170M5813D		700	60500	430000	43
170M5814D		800	86000	610000	48
170M5820D		900	125000	895000	52
170M5816D		1000	180000	1300000	53
170M5817D		1100	245000	1750000	56
170M6808D		500	14000	99500	43
170M6809D		550	19500	140000	44
170M6810D		630	31000	220000	45
170M6811D		700	45000	320000	46
170M6812D		800	69500	490000	48
170M6813D	3	900	100000	720000	50
170M6814D		1000	140000	985000	56
170M6892D		1100	190000	1400000	57
170M8554D		1250	300000	2150000	61
170M8555D		1400	380000	2700000	70
170M8556D		1500	470000	3350000	72
170M8557D		1600	585000	4150000	74

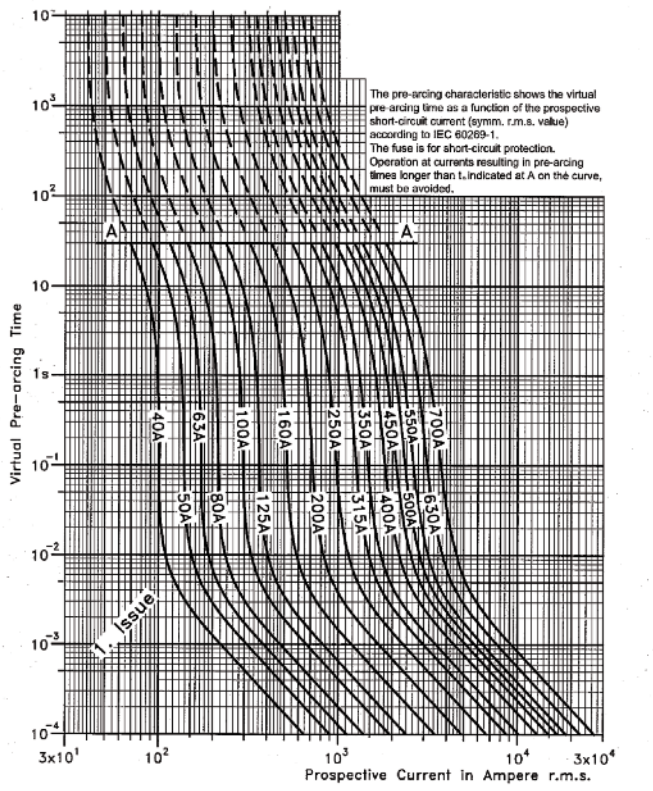
- Watts loss provided at rated current.
- Microswitch indicator ordered separately. See accessories on pages 212-213.
- For fuse curves see page 162.

Rated Current

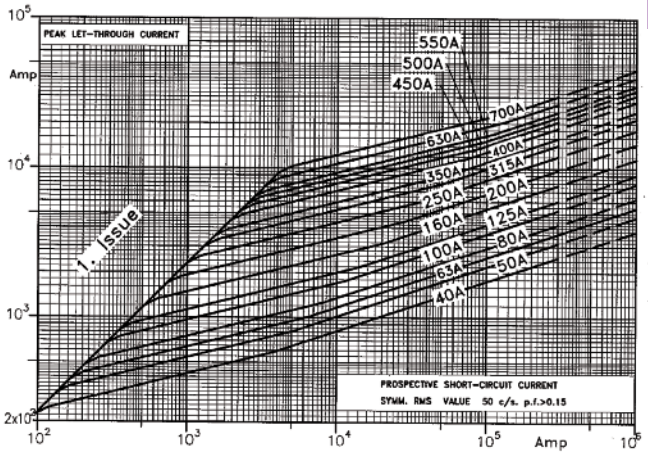
The rated current of this fuse range has been given with copper conductors that have a current density of 1.3A/mm² (IEC 60269-4). For conductor cross section according to IEC 60269-1, the fuses must be derated. Please contact Bussmann for application assistance.

Size 1* — 40-630A: 690V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 17056314

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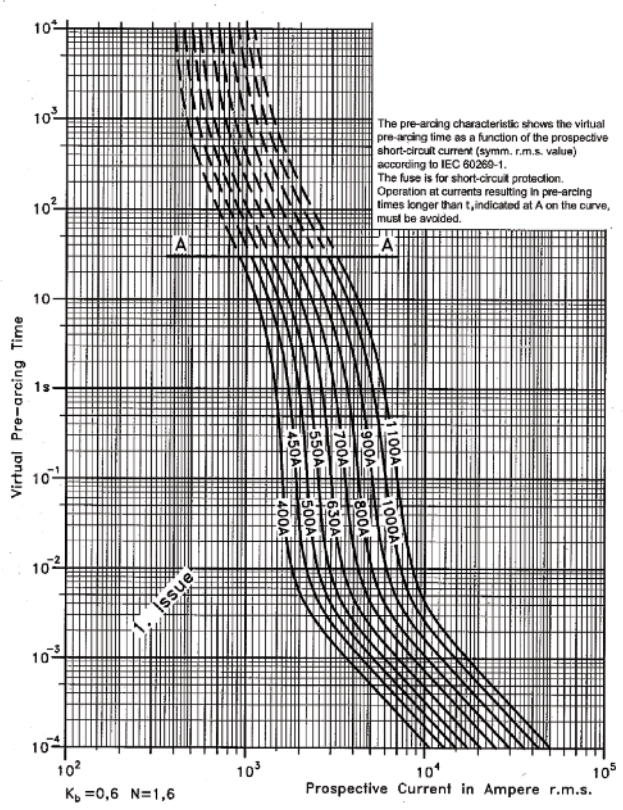
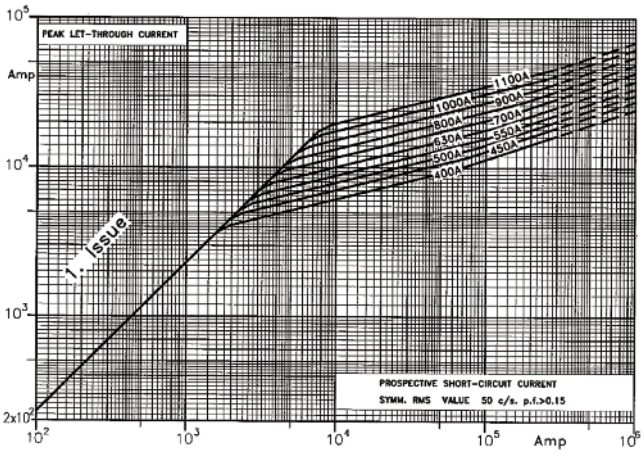
Square Body DIN 43 620 — 690V/700V (IEC/UL): 40-1000A

Size 2 — 400-1250A: 690V

Time-Current Curve



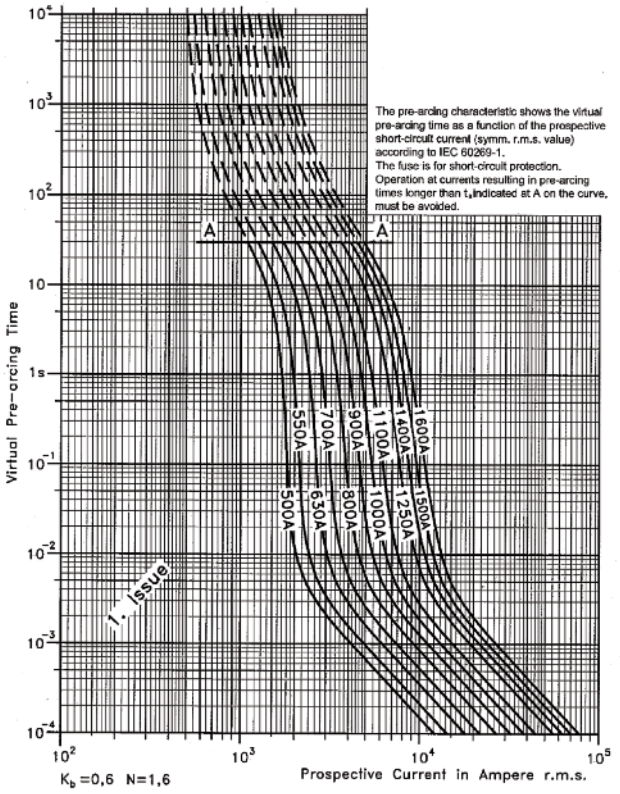
Peak Let-Through Curve



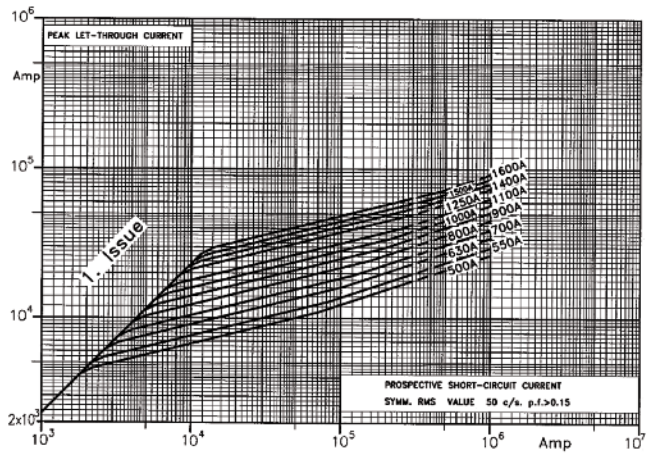
Data Sheet: 17056318

Size 3 — 500-2000A: 690V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 17056320

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact — 690/700V (IEC/UL): 1000-4000A

690V (IEC) 1000-4000A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 690Vac

Amps: — 1000-4000A

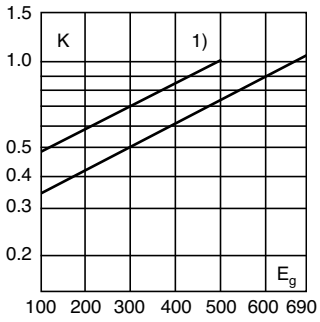
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total Clearing I²t

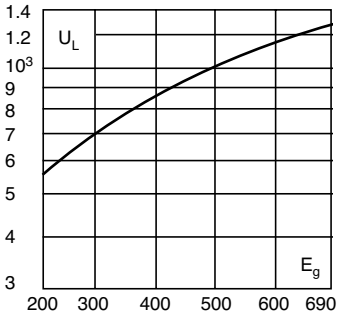
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) Rated voltage 500V

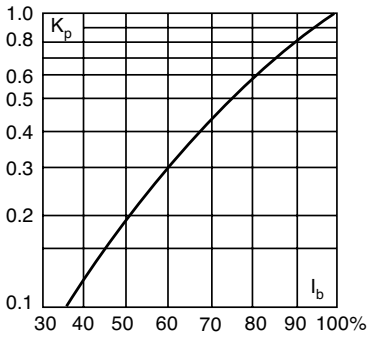
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

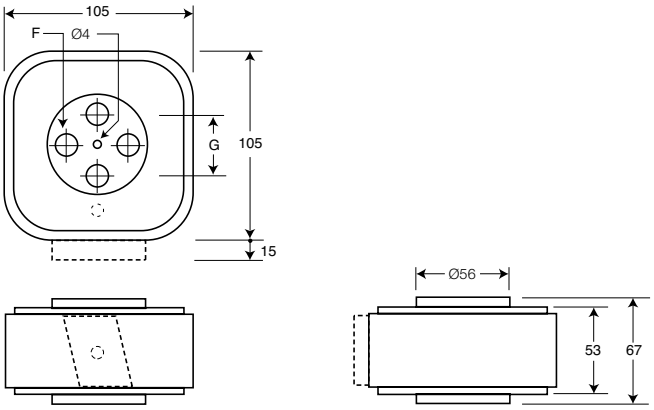
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm

Type 4B/-, 4BKN/-, 4G/-, 4GKN/-

Size	F (in)	G
4B	M10 10 deep	33
4G	½" -13 UNC-2B 10 deep	38

1mm = 0.0394" / 1" = 25.4mm



For Other Voltage Ratings in This Body Style

• See pages 182 (1000V) and 195 (1250V)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact — 690V (IEC): 1000-4000A

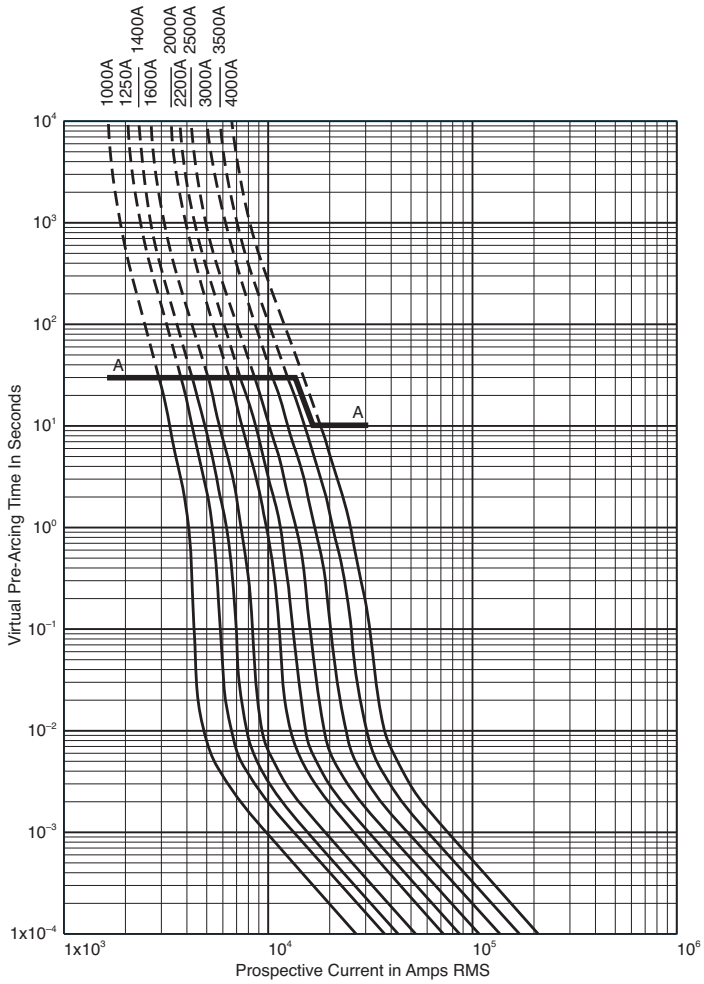
Catalog Numbers

Catalog Numbers				Size	Electrical Characteristics					
					Rated Current RMS		I^2t (A^2 Sec)		Watts Loss	
-B/- Visual Indicator	-BKN/- Type K Indicator for Micro	-G/- Visual Indicator	-GKN/- Type K Indicator for Micro		Norm. Cool.	Liquid Cool.	Pre-arc	Clearing at 660V	Norm. Cool.	Liquid Cool.
170M7058	170M7078	170M7098	170M7118		1000	1350	76000	505000	175	315
170M7059	170M7079	170M7099	170M7119		1250	1700	145000	965000	195	355
170M7060	170M7080	170M7100	170M7120		1400	1900	205000	1400000	205	375
170M7061	170M7081	170M7101	170M7121		1600	2200	305000	2050000	220	405
170M7062	170M7082	170M7102	170M7122	4	2000	2700	600000	3950000	245	445
170M7063	170M7083	170M7103	170M7123		2500	3400	1200000	7800000	275	495
170M7064	170M7084	170M7104	170M7124		3000	4100	2000000	13500000	305	555
170M7065	170M7085	170M7105	170M7125		3500	4700	3250000	22000000	325	585
170M7066	170M7086	170M7106	170M7126		†4000	†5400	4700000	†28000000	355	640

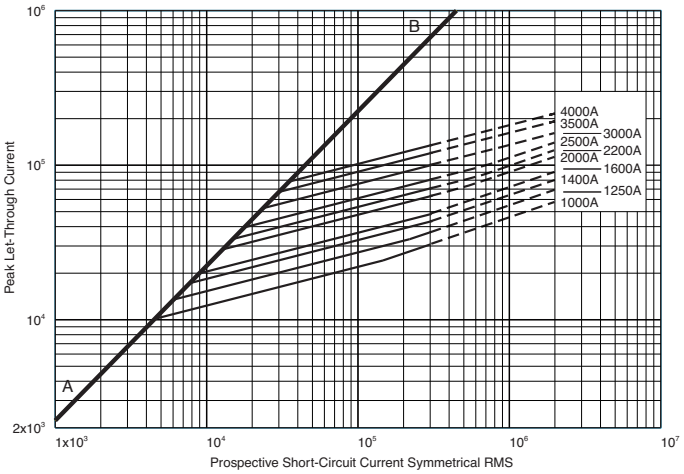
†Rated voltage (IEC) 500V.
• Watts loss provided at rated current.
• Liquid Cool. = Liquid cooling. Temperature on the terminals not to exceed 60°C.
• Microswitch indicator ordered separately. See accessories on pages 212-213.

Size 4 — 1000-4000A: 690V

Time-Current Curve



Peak Let-Through Curve



4000A fuse is derated to 500V (IEC).

Data Sheet: 17056328

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact Size 23, 24 — 660V (IEC): 1000-7500A

660V (IEC) 1000-7500A

Specifications

Description: High speed square body fuses, for the protection of the power rectifier section of the equipment.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 660Vac

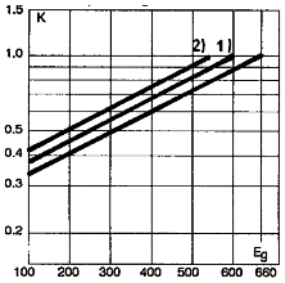
Amps: — 1000-4000A

IR: — 300kA RMS Sym.

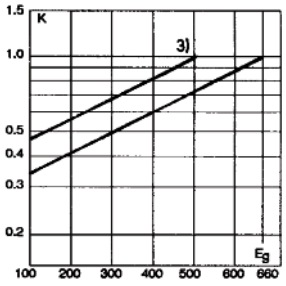
Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total clearing I²t



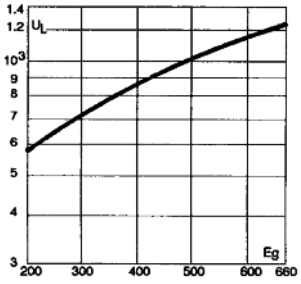
Size 23



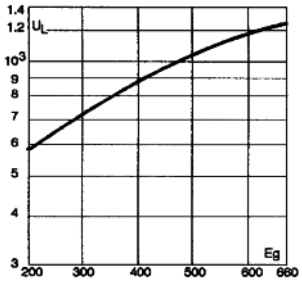
Size 24

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

Arc Voltage



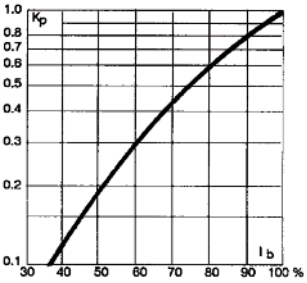
Size 23



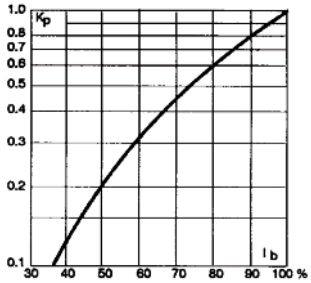
Size 24

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.

Power Losses



Size 23



Size 24

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

Features and Benefits

- Low watts loss
- Superior cycling capability

Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 185 (1000V) and 198 (1250V)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact Size 23, 24 — 660V (IEC): 1000-7500A

Fuse Size	Catalogue Number						Electrical Characteristics				
	-BU/55 Visual Indicator	-BKE/55 Type K Indicator	-BKN/55 Type K Indicator	-GU/55 Visual Indicator	-GKE/55 Type K Indicator	-GKN/55 Type K Indicator	Rated Voltage (V)	Rated Current RMS-Amp	I^2t (A^2Sec) Pre-arc	I^2t (A^2Sec) Clearing at 660V	Watt Loss (W)
23	170M6858	170M6898	170M6878	170M6918	170M6958	170M6938	660	1000	79,000	530,000	170.0
	170M6859	170M6899	170M6879	170M6919	170M6959	170M6939		1100	95,000	635,000	185.0
	170M6860	170M6900	170M6880	170M6920	170M6960	170M6940		1250	155,000	1,050,000	190.0
	170M6861	170M6901	170M6881	170M6921	170M6961	170M6941		1400	200,000	1,350,000	210.0
	170M6862	170M6902	170M6882	170M6922	170M6962	170M6942		1500	240,000	1,650,000	215.0
	170M6863	170M6903	170M6883	170M6923	170M6963	170M6943		1600	315,000	2,150,000	220.0
	170M6864	170M6904	170M6884	170M6924	170M6964	170M6944		1800	450,000	3,050,000	230.0
	170M6865	170M6905	170M6885	170M6925	170M6965	170M6945		2000	625,000	4,200,000	240.0
	170M6866	170M6906	170M6886	170M6926	170M6966	170M6946		2200	805,000	5,400,000	255.0
	170M6867	170M6907	170M6887	170M6927	170M6967	170M6947		2500	1,250,000	8,350,000	265.0
	170M6868	170M6908	170M6888	170M6928	170M6968	170M6948		3000	2,250,000	15,500,000	285.0
	170M6869	170M6909	170M6889	170M6929	170M6969	170M6949	600	3500	3,450,000	21,000,000	315.0
	170M6870	170M6910	170M6890	170M6930	170M6970	170M6950	550	4000	5,000,000	27,500,000	340.0

Data Sheet: 170K6326

Catalog Numbers:

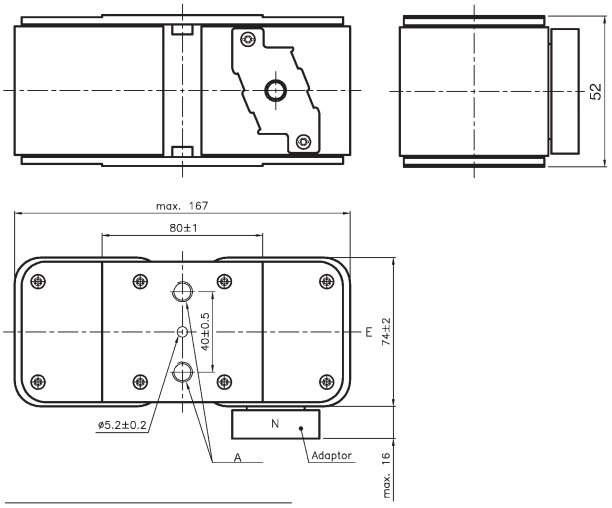
Fuse Size	Catalogue Number				Electrical Characteristics				
	-BU/60 without Indicator	-BKN/60 Type K Indicator	-GU/60 without Indicator	-GKN/60 Type K Indicator	Rated Voltage (V)	Rated Current RMS-Amp	I^2t (A^2Sec) Pre-arc	I^2t (A^2Sec) Clearing at 660V	Watts Loss (W)
24	170M7138	170M7158	170M7198	170M7218	690	2000	340000	2300000	340
	170M7139	170M7159	170M7199	170M7219		2500	650000	4350000	390
	170M7140	170M7160	170M7200	170M7220		3000	1100000	7300000	430
	170M7141	170M7161	170M7201	170M7221		3500	1800000	12000000	460
	170M7142	170M7162	170M7202	170M7222		4000	2700000	18000000	490
	170M7143	170M7163	170M7203	170M7223		4500	3800000	25500000	520
	170M7144	170M7164	170M7204	170M7224		5000	5450000	36500000	540
	170M7145	170M7165	170M7205	170M7225		5500	7400000	49500000	560
	170M7146	170M7166	170M7206	170M7226		6000	9600000	64000000	580
	170M7147	170M7167	170M7207	170M7227		6500	12500000	83000000	600
	170M7148	170M7168	170M7208	170M7228		7000	15000000	100000000	630
	170M7149	170M7169	170M7209	170M7229	500	7500	18500000	†93000000	660

† A^2s @ 500V
Data Sheet: 170K6332

Dimensions - mm

Size 23

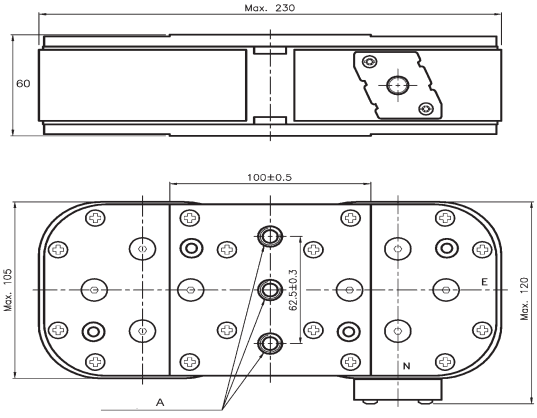
Type – BU/55, -BKE/55, -BKN/55, -GU/55, -GKE/55, -GKN/55



Size	A
23G	2x2 M10
23B	3/8" 16UNC-2B

Size 24

Type – BU/55, -BKE/55, -BKN/55, -GU/55, -GKE/55, -GKN/55



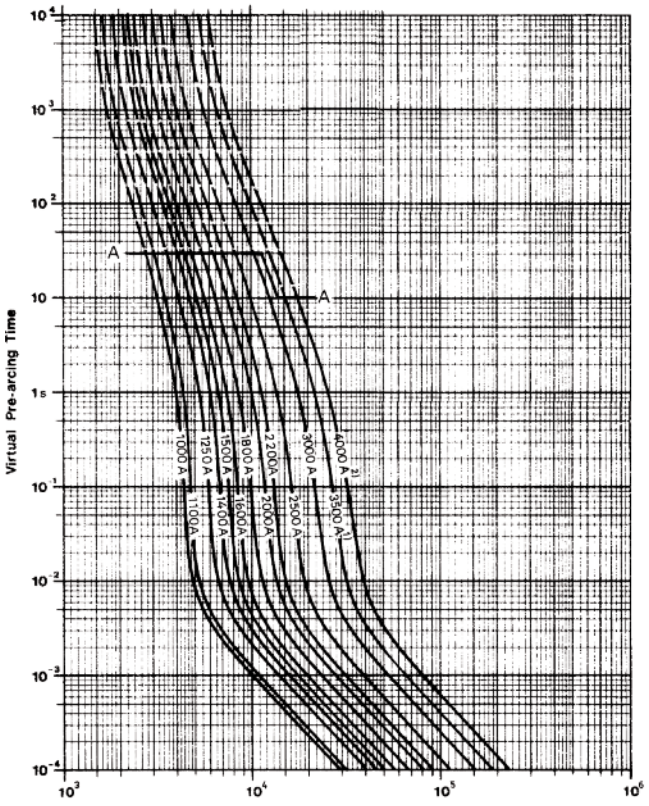
Size	A
24BKN	2x3 M12
24GKN	2x3 1/2" 16UNC-2B

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact Size 23, 24 — 660V (IEC): 1000-7500A

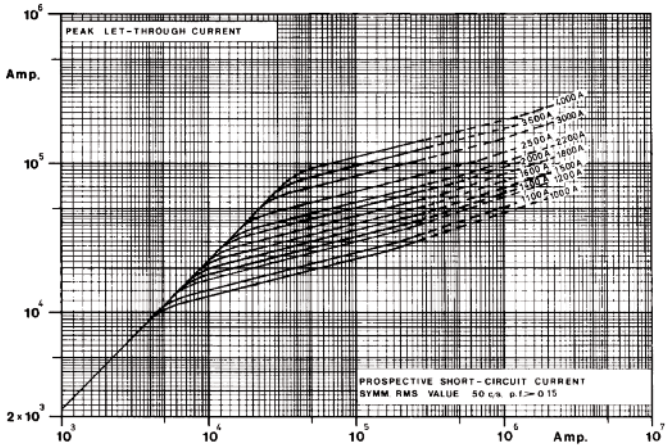
Size 23 — 10000-4000A: 660V

Time-Current Curve



Prospective Current in Amps RMS

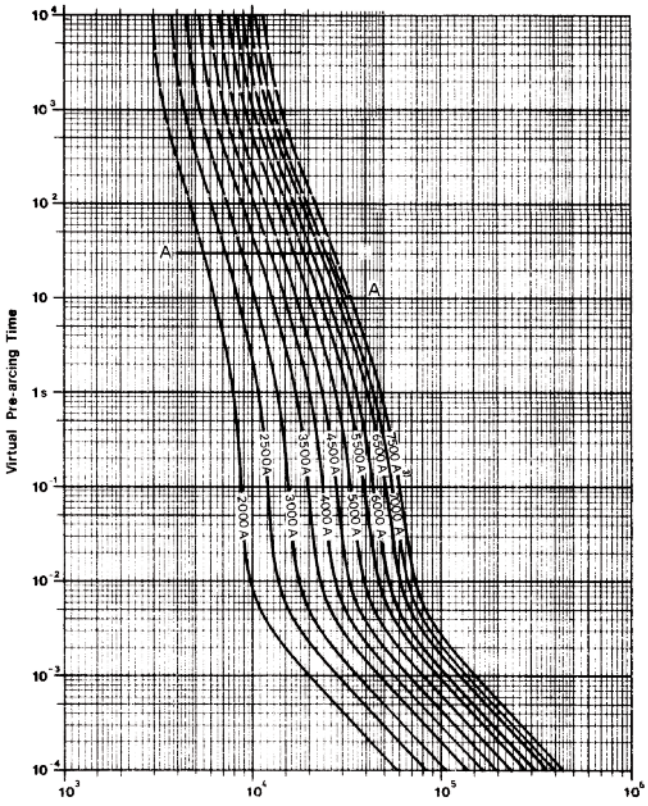
Peak Let-Through Curve



Data Sheet: Available upon request

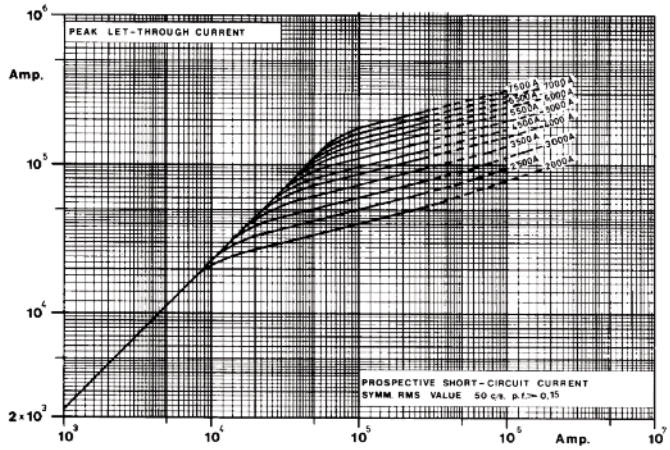
Size 24 — 2000-7500A: 660V

Time-Current Curve



Prospective Current in Amps RMS

Peak Let-Through Curve



Data Sheet: Available upon request

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 620 — 690V (IEC): 10-800A Class gR — Full Range Fuses

690V (IEC) 10-800A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)

Amps: — 10-800A

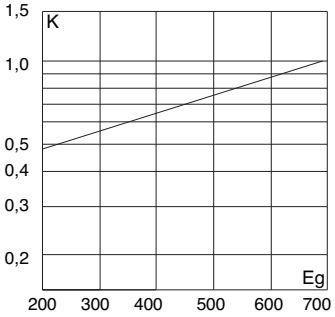
IR: — 300kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

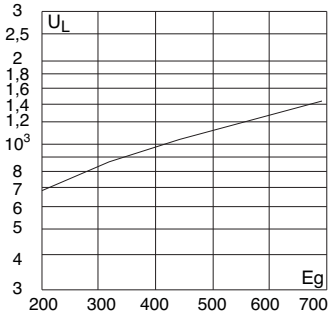
Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



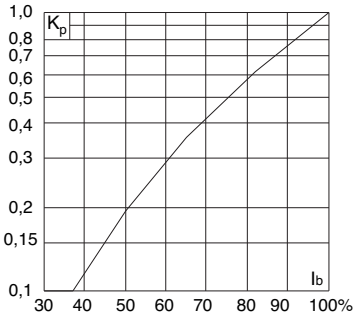
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Operating Class aR Fuses in This Body Style

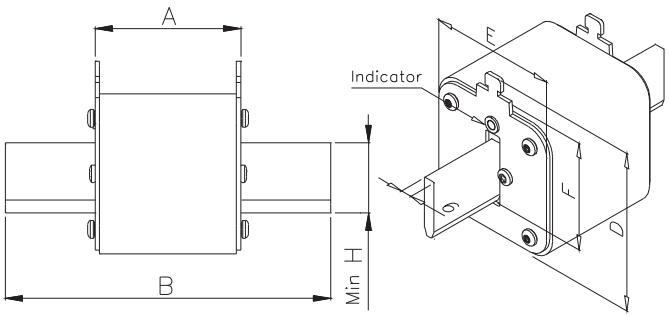
• See page 160

Dimensions - mm

Type DIN 00, DIN 1, DIN 2, DIN 3

Size	A	B Max	D Max	E	F Min	H
00	49	78.5	60	30	35	15
1	68	135	66	52	40	20
2	68	150	74	60	48	25
3	68	150	89	75	60	32

1 mm = 0.0394" 1" = 25.4 mm



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 620 — 690V (IEC): 10-800A Class gR — Full Range Fuses

Catalog Numbers

Catalog Numbers		Electrical Characteristics			
Type T Indicator For Micro	Size	RMS Amp Rating*	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 600V	Watts Loss
170M2691		10	3.8	20	3.5
170M2692		16	7.2	38	5.5
170M2693		20	13	70	6
170M2694		25	24	125	8
170M2695		32	53	275	9
170M2696		40	95	490	10
170M2697	00	50	185	1000	11
170M2698		63	345	1800	14
170M2699		80	695	3600	16
170M2700		100	1250	6650	19
170M2701		125	2300	12000	23
170M2702		160	4350	22500	29
170M4176		50	135	705	12
170M4177		63	245	1300	15
170M4178		80	500	2600	17
170M4179		100	950	4850	20
170M4180		125	1850	9500	23
170M4181	1	160	3450	18000	28
170M4182		200	6750	34500	31
170M4183		250	13500	70500	35
170M4184		315	26000	135000	41
170M4185		350	34000	175000	45
170M4186		400	48500	250000	48
170M5881		200	5650	29000	33
170M5882		250	10000	52500	40
170M5883		315	19500	105000	46
170M5884		350	26000	135000	50
170M5885	2	400	39500	205000	53
170M5886		450	55500	290000	59
170M5887		500	73000	375000	66
170M5888		550	100000	515000	70
170M5889		630	150000	770000	79
170M6080		350	23000	120000	55
170M6081		400	34000	175000	59
170M6082		450	48500	250000	62
170M6083		500	64000	330000	67
170M6084	3	550	84500	435000	70
170M6085		630	125000	645000	85
170M6086		700	160000	840000	93
170M6087		800	245000	1300000	99

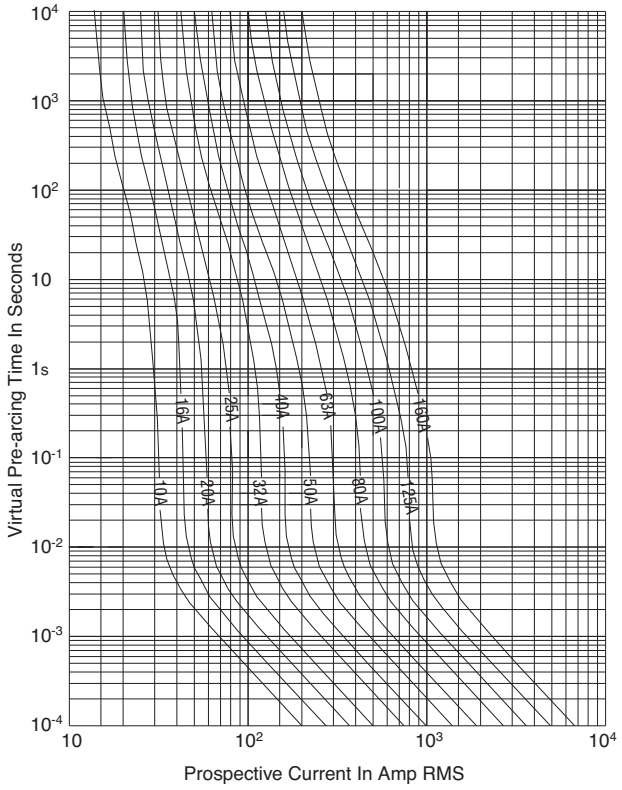
*The RMS amp rating of this fuse range is given with open fuse bases connected to copper conductors according to IEC 60269, Part 1, table 10. When used in enclosed fuse bases/ disconnects, derating factors have to be observed.
Please contact Bussmann for application assistance.
• Watts loss provided at rated current.
• Microswitch ordered separately. See accessories on page 212-213.
• For fuse curves see pages 170 and 171.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

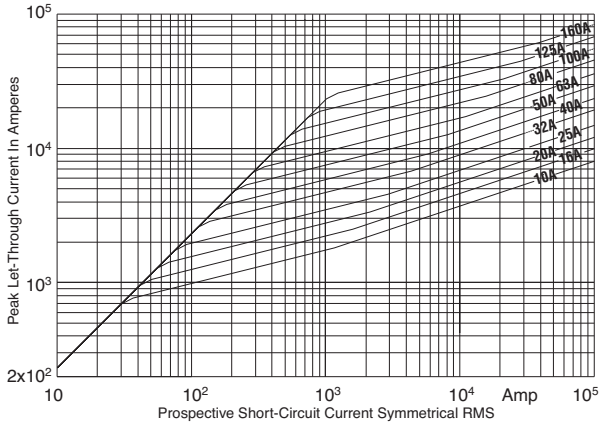
Square Body, DIN 43 620 - Size 00, 1 — 690V (IEC): 10-800A Class gR — Full Range Fuses

Size 00 — 10-160A: 690V

Time-Current Curve

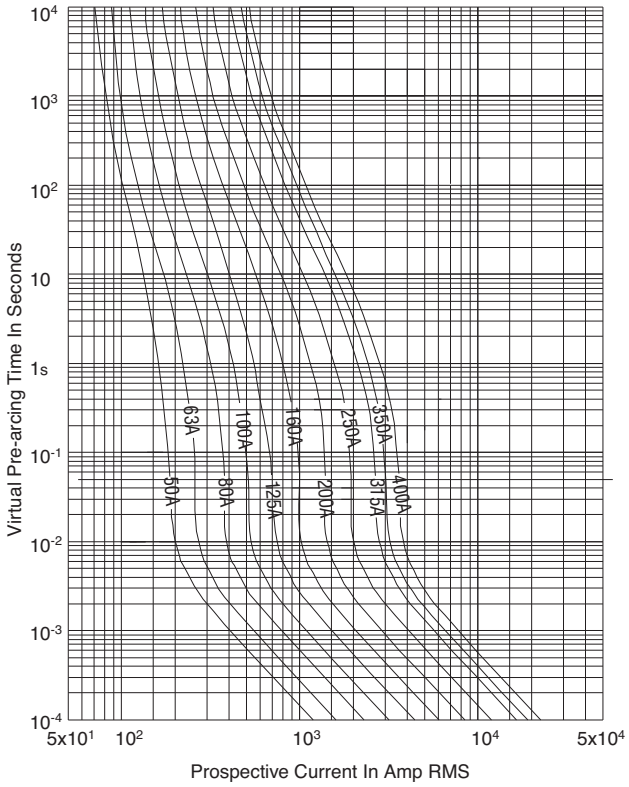


Peak Let-Through Curve

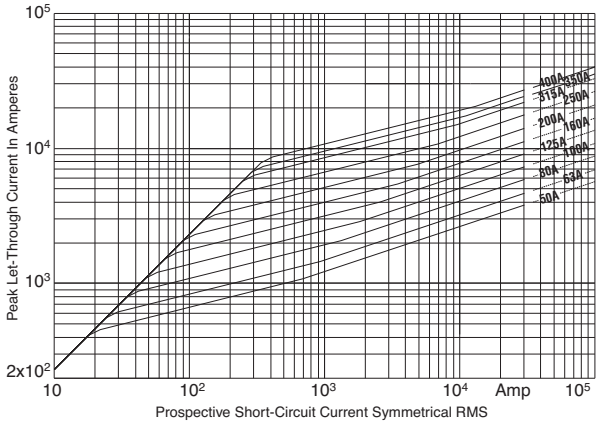


Size 1 — 50-400A: 690V

Time-Current Curve



Peak Let-Through Curve

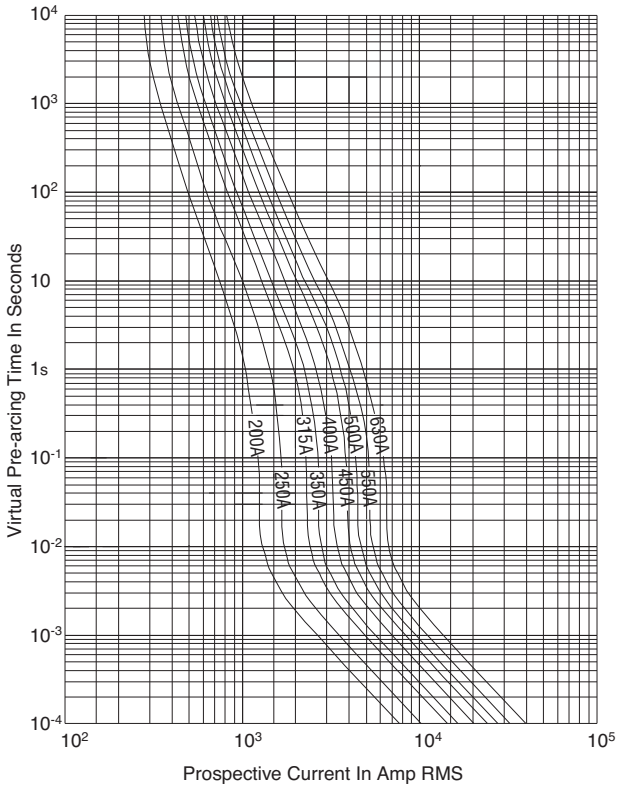


Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

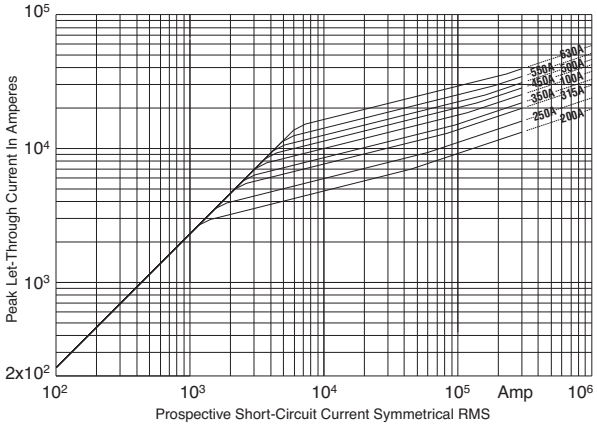
Square Body, DIN 43 620 - Size 2, 3 — 690V (IEC): 10-800A Class gR — Full Range Fuses

Size 2 — 200-630A: 690V

Time-Current Curve

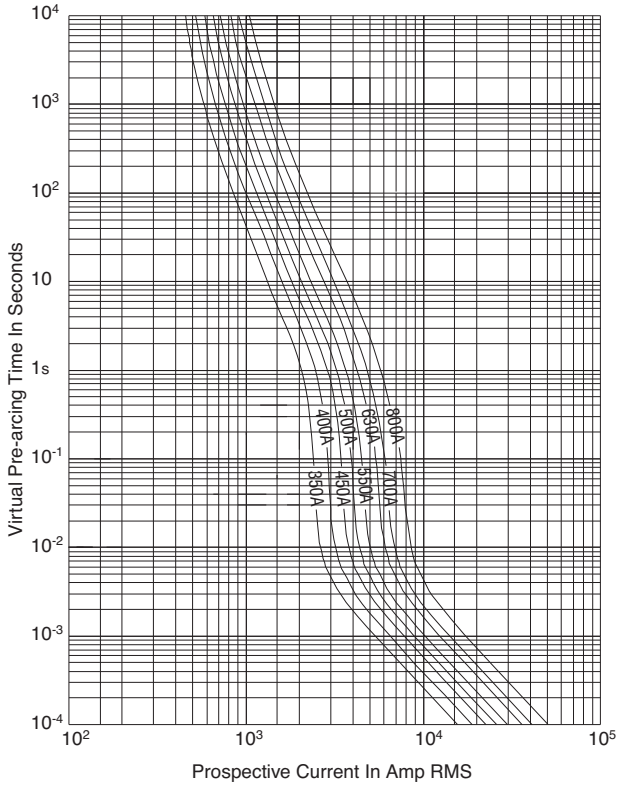


Peak Let-Through Curve

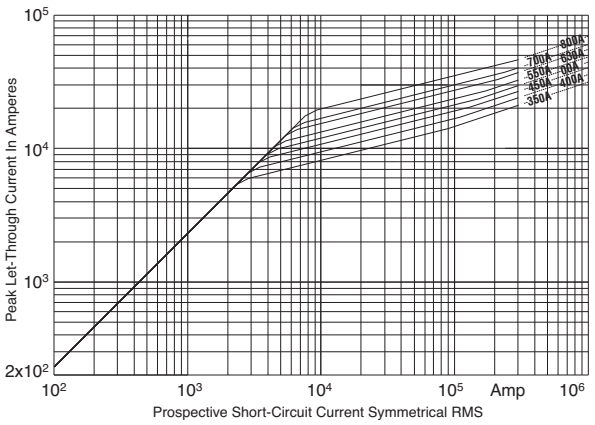


Size 3 — 350-800A: 690V

Time-Current Curve



Peak Let-Through Curve



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 653 — 1000V (IEC): 20-315A

1000V (IEC) 20-315A

Specifications
Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

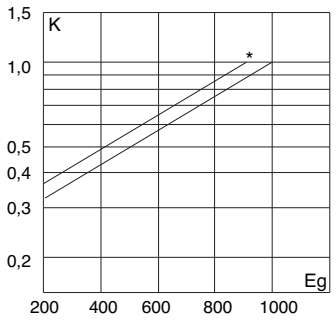
Volts: — 1000Vac (20-250A)
— 900Vac (315A)
Amps: — 20-315A
IR: — 150kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total clearing I^2t

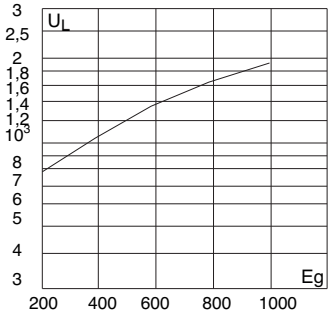
The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multi-plying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



*Rated voltage 900V

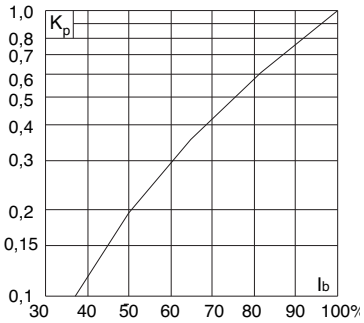
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

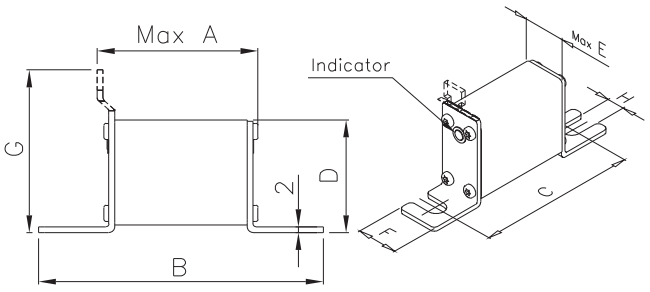
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm

Type 00TN/80 – 00/80

Size	Max A	B	C	D	Max E	F	G	H
00/80	54	98	78	51	30	28		10
00TN/80	54	98	78	51	30	28	67	10

1mm = 0.0394" / 1" = 25.4mm



For Other Voltage Ratings in This Body Style

• See page 145 (690V/700V)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 653 — 1000V (IEC): 20-315A

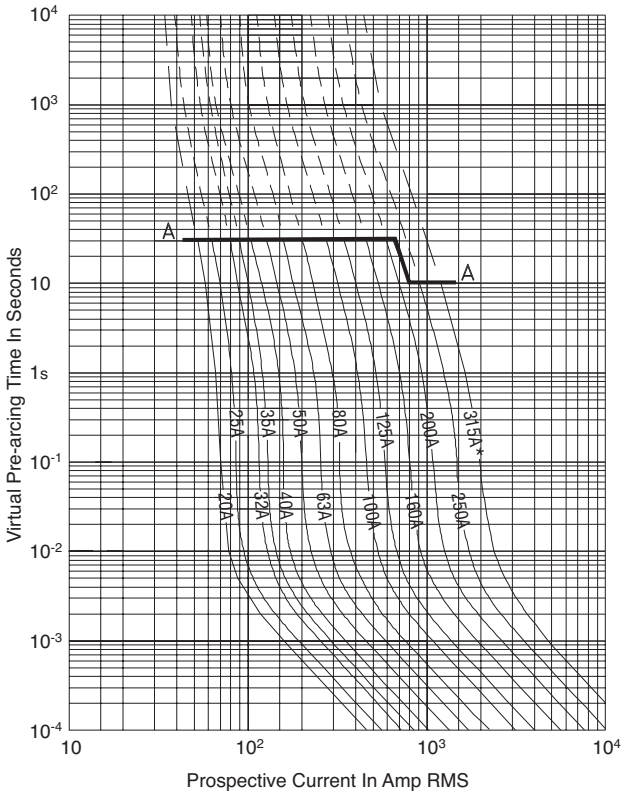
Catalog Numbers

Catalog Numbers			Electrical Characteristics				
00/80 Visual Indicator for Micro	00TN/80 Type T Indicator for Micro	Size	Rated Voltage	Rated Current RMS Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at Rated Voltage	Watts Loss
170M4802	170M4822		1000	20	20	140	5
170M4803	170M4823		1000	25	30	210	7
170M4804	170M4824		1000	32	55	390	9
170M4805	170M4825		1000	35	69	500	10
170M4806	170M4826		1000	40	100	690	11
170M4807	170M4827		1000	50	170	1200	13
170M4808	170M4828		1000	63	280	2000	18
170M4809	170M4829	00	1000	80	500	3500	22
170M4810	170M4830		1000	100	950	6850	25
170M4811	170M4831		1000	125	1500	11500	33
170M4812	170M4832		1000	160	3000	22000	37
170M4813	170M4833		1000	200	5600	40500	40
170M4814	170M4834		1000	250	10000	74000	48
170M4815	170M4835		900	315	18000	115000	58

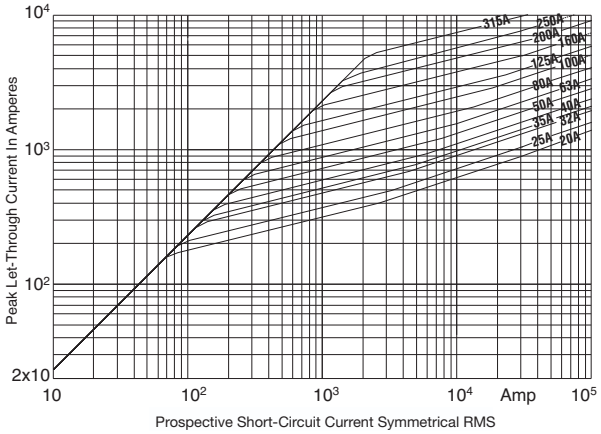
• Watts loss provided at rated current.
• Microswitch ordered separately. See accessories on page 212-213.

Size 00 — 20-315A: 1000V

Time-Current Curve



Peak Let-Through Curve



* 315A fuse is derated to 900V

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DIN 43 653 — 1000V (IEC): 50-1400A

1000V (IEC) 50-1400A

Specifications

Description: Square body mount high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 1000Vac.

Amps: — 50-1400A

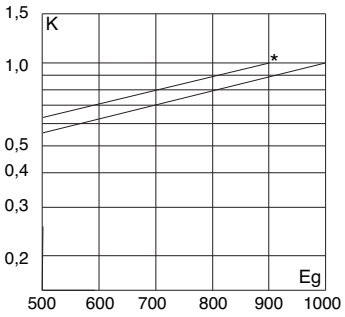
IR: — 125kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total clearing I^2t

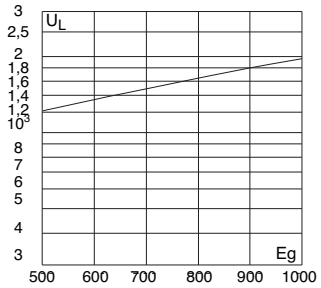
The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



*Rated voltage 900V

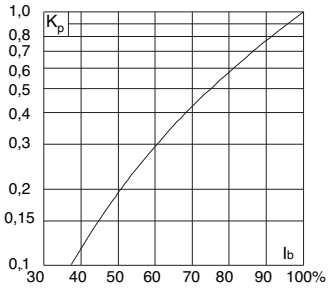
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 150 (690V/700V) and 187 (1250V/1300V)

Dimensions - mm

Type –KN/110

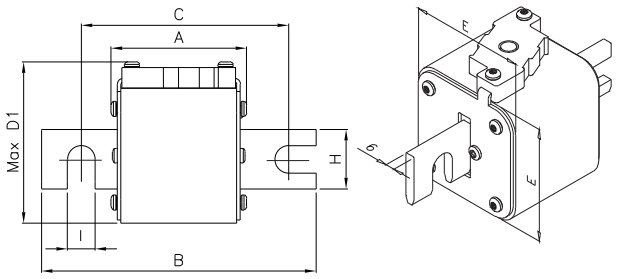
Size	A	B	C	Max D1	E	G	H	I
1*KN/110	80	138	108	61	43	6	22	11
1KN/110	80	138	108	69	51	6	25	11
2KN/110	80	138	108	77	59	6	25	11
3KN/110	81	139	108	92	74	6	30	11

Type –TN/110

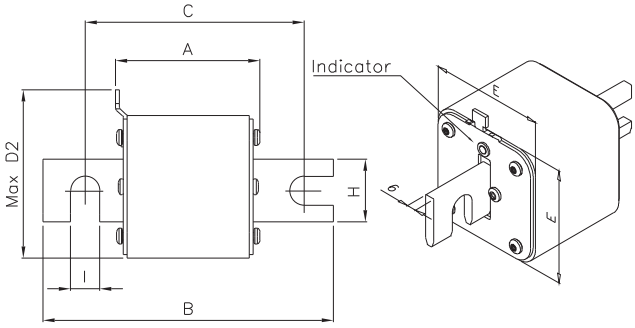
Size	A	B	C	Max D2	E	G	H	I
1*TN/110	80	138	108	61	43	6	22	11
1TN/110	80	138	108	69	51	6	25	11
2TN/110	80	138	108	75	59	6	25	11
3TN/110	81	139	108	90	74	6	30	11

1mm = 0.0394" / 1" = 25.4mm

Type-KN/110



Type-TN/110



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body DIN 43 653 — 1000V (IEC): 50-1400A

Catalog Numbers

Catalog Numbers			Electrical Characteristics				
-KN/110 Type K Indicator for Micro	-TN/110 Type T Indicator for Micro	Size	Rated Voltage	Rated Current RMS Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at Rated Voltage	Watts Loss
170M3965	170M3981		1000	50	135	815	20
170M3966	170M3982		1000	63	215	1300	25
170M3967	170M3983		1000	80	460	2750	30
170M3968	170M3984		1000	100	860	5100	35
170M3969	170M3985		1000	125	1450	8600	40
170M3970	170M3986	1*	1000	160	2850	17500	45
170M3971	170M3987		1000	200	4950	29500	48
170M3972	170M3988		1000	250	9550	57000	50
170M3973	170M3989		1000	315	21500	130000	60
170M3974	170M3990		1000	350	29000	175000	65
170M3975	170M3991		1000	400	42000	250000	70
170M4965	170M4980		1000	160	2200	13500	40
170M4966	170M4981		1000	200	4150	24500	45
170M4967	170M4982		1000	250	7750	46000	52
170M4968	170M4983		1000	315	16500	98500	60
170M4969	170M4984	1	1000	350	21500	130000	65
170M4970	170M4985		1000	400	31000	185000	70
170M4971	170M4986		1000	450	44500	265000	80
170M4972	170M4987		1000	500	63000	375000	85
170M4973	170M4988		1000	550	84500	500000	90
170M4974	170M4989		1000	630	125000	755000	98
170M5966	170M5981		1000	250	6750	40000	65
170M5967	170M5982		1000	315	13500	81500	75
170M5968	170M5983		1000	350	16500	99000	80
170M5969	170M5984		1000	400	26000	155000	85
170M5970	170M5985		1000	450	35500	210000	90
170M5971	170M5986	2	1000	500	49500	295000	95
170M5972	170M5987		1000	550	66000	390000	100
170M5973	170M5988		1000	630	93500	555000	110
170M5974	170M5989		1000	700	130000	770000	115
170M5975	170M5990		1000	800	195000	1200000	125
170M8614	170M8629		1000	315	9200	54500	90
170M8615	170M8630		1000	350	13000	77500	95
170M8616	170M8631		1000	400	19000	115000	105
170M8617	170M8632		1000	450	27000	160000	107
170M8618	170M8633		1000	500	37500	225000	110
170M8619	170M8634		1000	550	52000	310000	115
170M8620	170M8635	3	1000	630	82500	490000	120
170M8621	170M8636		1000	700	115000	700000	125
170M8622	170M8637		1000	800	170000	1050000	135
170M8623	170M8638		1000	900	250000	1500000	145
170M8624	170M8639		1000	1000	340000	2050000	150
170M8625	170M8640		1000	1100	460000	2750000	155
170M8626	170M8641		1000	1250	575000	3400000	175
170M8627	170M8642		900	1400	795000	4200000	185

- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on page 212-213.
- For fuse curves see pages 180 and 181.

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Square Body Flush End Contact — 1000V (IEC): 50–1400A

1000V (IEC) 50–1400A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac.

Amps: — 50-1400A

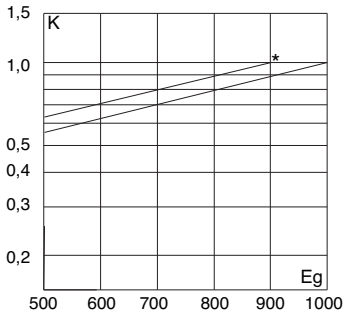
IR: — 150kA (Est. 300kA) RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total clearing I^2t

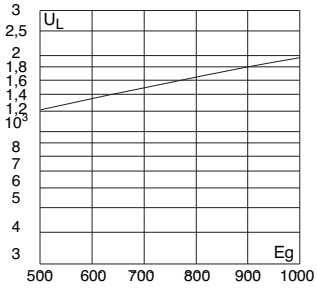
The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



*Rated voltage 900V

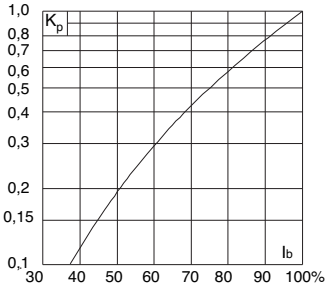
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 152 (690V/700V) and 189 (1250V/1300V)

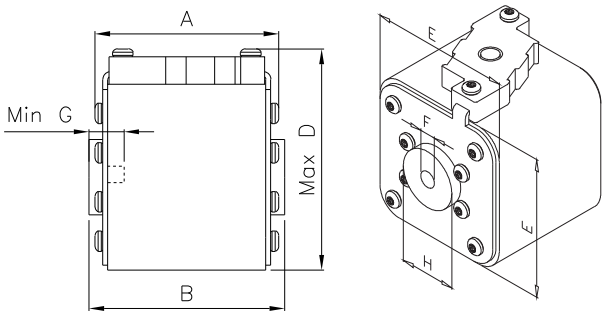
Dimensions - mm

Type –BKN/- and –GKN/-

Size	A	B	Max D	E	F	F* (in)	Min G	H
1*BKN/75+GKN/75	72.5	74	61	43	M8	5/16" – 18 UNC-2B	5	ø17.5
1BKN/75+GKN/75	73.2	74	69	52	M8	5/16" – 18 UNC-2B	8	ø20
2BKN/75+GKN/75	73.2	74.4	77	59	M10	3/8" – 16 UNC-2B	10	ø24
3BKN/75+GKN/75	73.3	75.4	92	74	M12	1/2" – 13 UNC-2B	10	ø30
3BKN/90+GKN/90	80.3	91.4	92	74	M12	1/2" – 13 UNC-2B	10	ø30

* Valid for fuses type –GKN/-.

1mm = 0.0394" / 1" = 25.4mm



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body Flush End Contact — 1000V (IEC): 50–1400A

Catalog Numbers

Catalog Numbers			Electrical Characteristics				
					I^2t (A^2 Sec)		
-BKN/- Type K Indicator for Micro	-GKN/- Type K Indicator for Micro	Size	Rated Voltage	Rated Current RMS-Amps	Pre-arc	Clearing at Rated Voltage	Watts Loss
170M3951	170M3921		1000	50	135	815	20
170M3952	170M3922		1000	63	215	1300	25
170M3953	170M3923		1000	80	460	2750	30
170M3954	170M3924		1000	100	860	5100	35
170M3955	170M3925		1000	125	1450	8600	40
170M3956	170M3926	1*	1000	160	2850	17500	45
170M3957	170M3927		1000	200	4950	29500	48
170M3958	170M3928		1000	250	9550	57000	50
170M3959	170M3929		1000	315	21500	130000	60
170M3960	170M3930		1000	350	29000	175000	65
170M3961	170M3931		1000	400	42000	250000	70
170M4951	170M4921		1000	160	2200	13500	40
170M4952	170M4922		1000	200	4150	24500	45
170M4953	170M4923		1000	250	7750	46000	52
170M4954	170M4924		1000	315	16500	98500	60
170M4955	170M4925	1	1000	350	21500	130000	65
170M4956	170M4926		1000	400	31000	185000	70
170M4957	170M4927		1000	450	44500	265000	80
170M4958	170M4928		1000	500	63000	375000	85
170M4959	170M4929		1000	550	84500	500000	90
170M4960	170M4930		1000	630	125000	755000	98
170M5952	170M5922		1000	250	6750	40000	65
170M5953	170M5923		1000	315	13500	81500	75
170M5954	170M5924		1000	350	16500	99000	80
170M5955	170M5925		1000	400	26000	155000	85
170M5956	170M5926		1000	450	35500	210000	90
170M5957	170M5927	2	1000	500	49500	295000	95
170M5958	170M5928		1000	550	66000	390000	100
170M5959	170M5929		1000	630	93500	555000	110
170M5960	170M5930		1000	700	130000	770000	115
170M5961	170M5931		1000	800	195000	1200000	125
170M8600	170M8500		1000	315	9200	54500	90
170M8601	170M8501		1000	350	13000	77500	95
170M8602	170M8502		1000	400	19000	115000	105
170M8603	170M8503		1000	450	27000	160000	107
170M8604	170M8504		1000	500	37500	225000	110
170M8605	170M8505		1000	550	52000	310000	115
170M8606	170M8506	3	1000	630	82500	490000	120
170M8607	170M8507		1000	700	115000	700000	125
170M8608	170M8508		1000	800	170000	1050000	135
170M8609	170M8509		1000	900	250000	1500000	145
170M8610	170M8510		1000	1000	340000	2050000	150
170M8611	170M8511		1000	1100	460000	2750000	155
170M8612**	170M8512**		1000	1250	575000	3400000	175
170M8613**	170M8513**		900	1400	795000	4200000	185

**Overall length is 90mm, for all other fuses the overall length is 75mm.

- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on page 212-213.
- For fuse curves see pages 180 and 181.

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Square Body US style — 1000V (IEC): 50-1400A

1000V (IEC) 50-1400A

Specifications

Description: Square body US style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac.

Amps: — 50-1400A

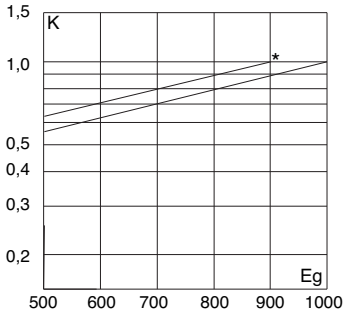
IR: — 150kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total clearing I^2t

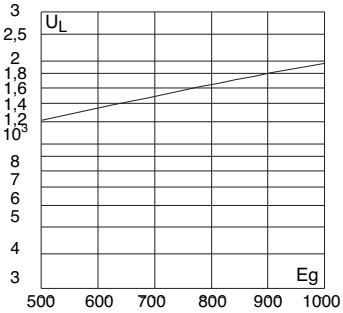
The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



*Rated voltage 900V

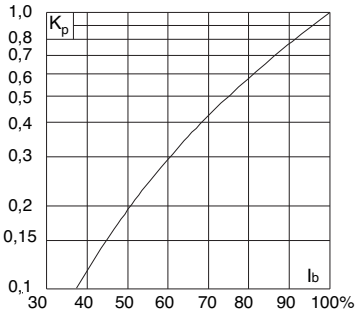
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

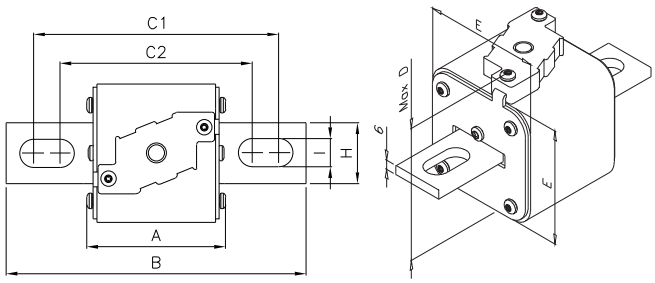
• See pages 154 (690V/700V) and 191 (1250V/1300)

Dimensions - mm

Type –FKE/115

Size	B	C1	C2	D	E	H	I
1*FKE/115	156	130	101	59	45	20	10
1FKE/115	160	127	102	69	53	25	14
2FKE/115	160	127	102	77	61	25	14
3FKE/115	159	128	101	92	76	36	16

1mm = 0.0394" / 1" = 25.4mm



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body US style — 1000V (IEC): 50-1400A

Catalog Numbers

Catalog Numbers -FKE/115 Type K Indicator for Micro	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 1000V	Watts Loss
170M3531		50	135	815	20
170M3532		63	215	1300	25
170M3533		80	460	2750	30
170M3534		100	860	5100	35
170M3535		125	1450	8600	40
170M3536	1*	160	2850	17500	45
170M3537		200	4950	29500	48
170M3538		250	9550	57000	50
170M3539		315	21500	130000	60
170M3540		350	29000	175000	65
170M3541		400	42000	250000	70
170M4531		160	2200	13500	40
170M4532		200	4150	24500	45
170M4533		250	7750	46000	52
170M4534		315	16500	98500	60
170M4535		350	21500	130000	65
170M4536	1	400	31000	185000	70
170M4537		450	44500	265000	80
170M4538		500	63000	375000	85
170M4539		550	84500	500000	90
170M4540		630	125000	755000	98
170M5531		250	6750	40000	65
170M5532		315	13500	81500	75
170M5533		350	16500	99000	80
170M5534		400	26000	155000	85
170M5535		450	35500	210000	90
170M5536	2	500	49500	295000	95
170M5537		550	66000	390000	100
170M5538		630	93500	555000	110
170M5539		700	130000	770000	115
170M5540		800	195000	1200000	125
170M8531		315	9200	54500	90
170M8532		350	13000	77500	95
170M8533		400	19000	115000	105
170M8534		450	27000	160000	107
170M8535		500	37500	225000	110
170M8536		550	52000	310000	115
170M8537	3	630	82500	490000	120
170M8538		700	115000	700000	125
170M8539		800	170000	1050000	135
170M8540		900	250000	1500000	145
170M8541		1000	340000	2050000	150
170M8542		1100	460000	2750000	155
170M8543		1250	575000	3400000	175
170M8544*		1400	795000	4200000*	185

* Rated voltage 900V.
- Watts loss provided at rated current.
- Microswitch ordered separately. See accessories on pages 212-213.
- For fuse curves see pages 180 and 181.

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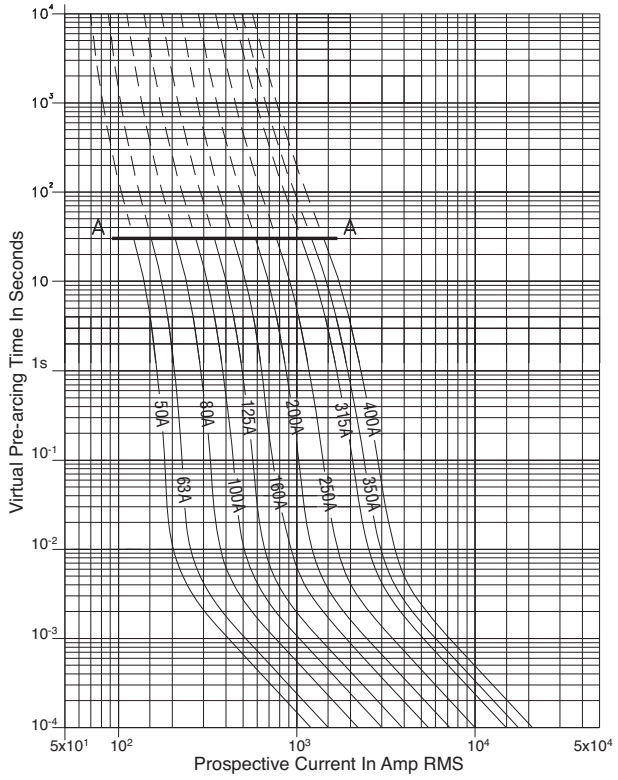
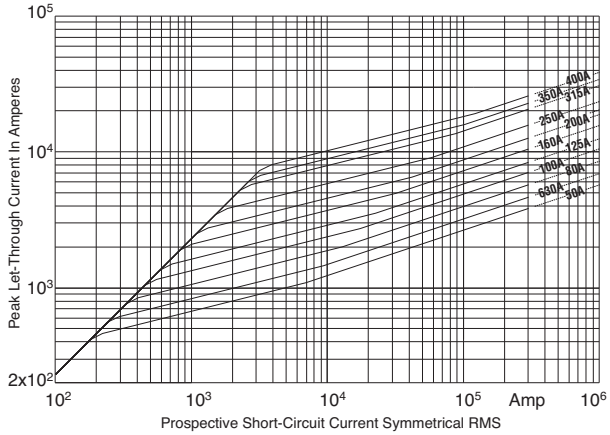
Square Body, US style - Size 1*, 1 — 1000V (IEC): 50-1400A

Size 1* — 50-400A: 1000V

Time-Current Curve

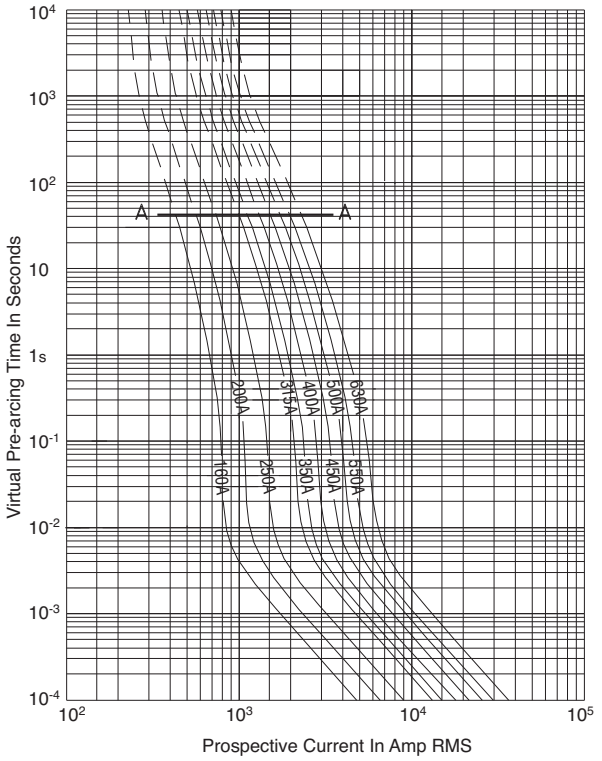


Peak Let-Through Curve

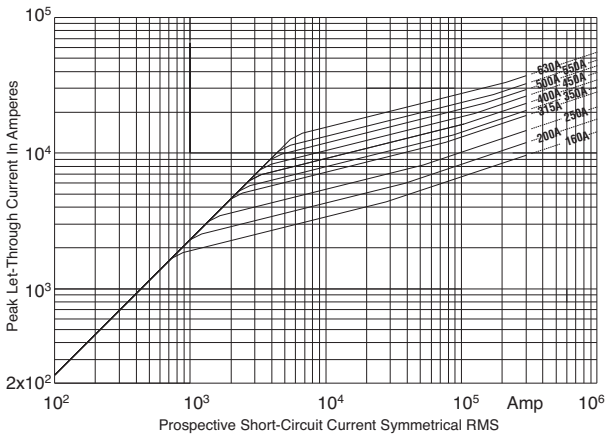


Size 1 — 160-630A: 1000V

Time-Current Curve



Peak Let-Through Curve



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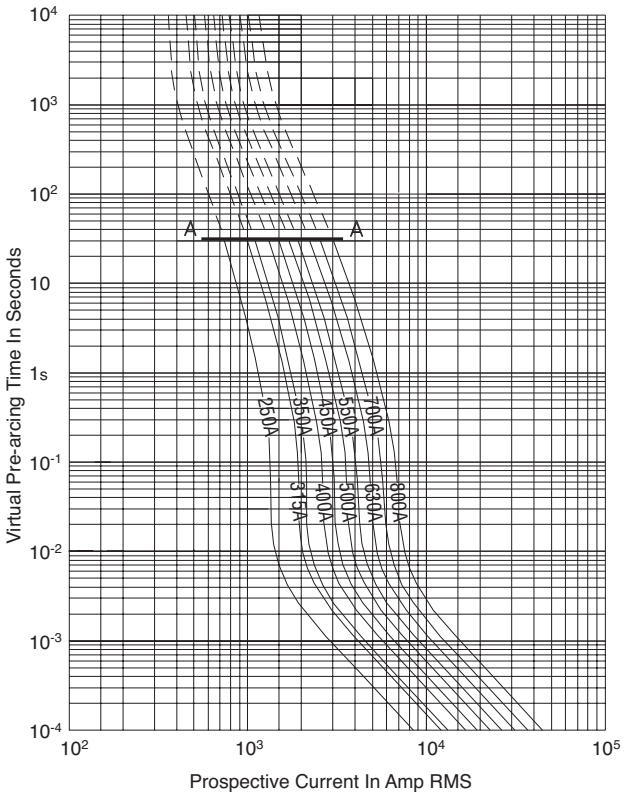
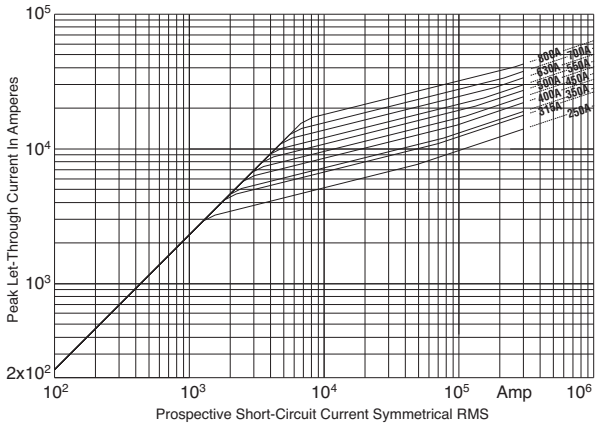
Square Body, US style - Size 2, 3 — 1000V (IEC): 50-1400A

Size 2 — 250-800A: 1000V

Time-Current Curve

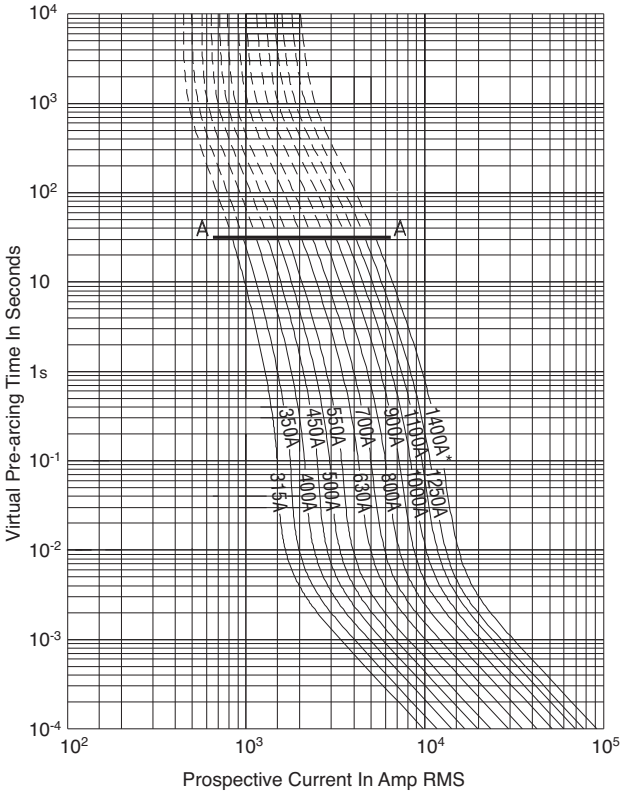


Peak Let-Through Curve

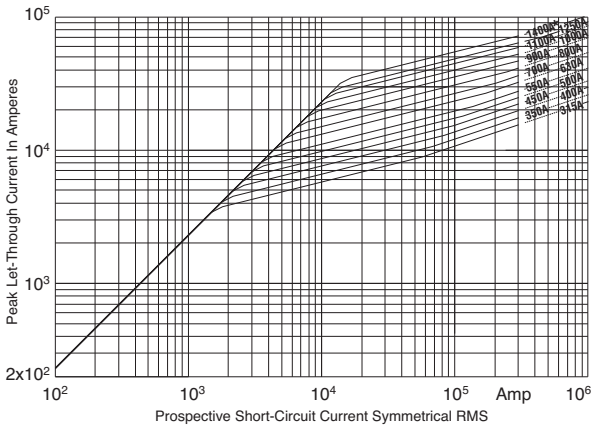


Size 3 — 315-1400A: 1000V

Time-Current Curve



Peak Let-Through Curve



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Square Body Flush End Contact Size 4 — 1000V (IEC): 1000-2700A

1000V (IEC) 1000-2700A

Specifications

Description: Square body DIN 43 620 blade style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac (IEC)

Amps: — 1000-2700A

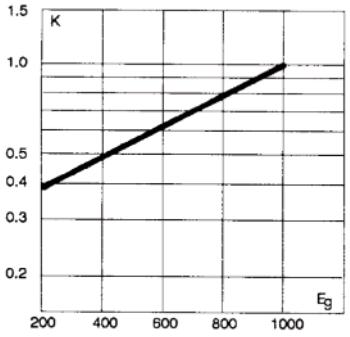
IR: — 125kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

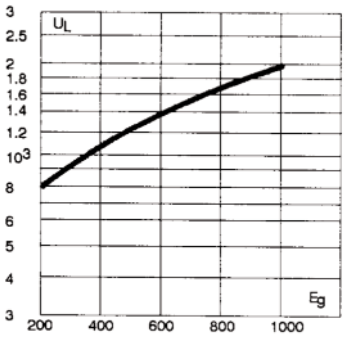
Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



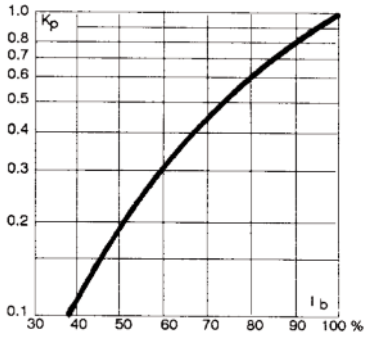
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 163 (690V/700V) and 195 (1250V)

Catalog Numbers

Fuse Size	Catalog Number		Electrical Characteristics				
	-BKN/95 Type K Indicator	-SBKN/90 Type K Indicator	Rated Voltage (V)	Rated Current RMS-Amp	I^2t (A^2Sec)		Watt Loss (W)
					Pre-arc	Clearing at 1000V	
4	—	170M7542	1000	1000	180000	1100000	195
	—	170M7031		1100	250000	1500000	200
	170M7636	170M7548		1500	600000	3600000	250
	170M7639	170M7034		1700	850000	5000000	260
	170M7963	170M7544		2000	1450000	8600000	270
	170M7090	170M7035		2200	2000000	12000000	280
	170M7640	170M7036		2500	3000000	18000000	295
	170M7658	170M7037		2700	3700000	22000000	310

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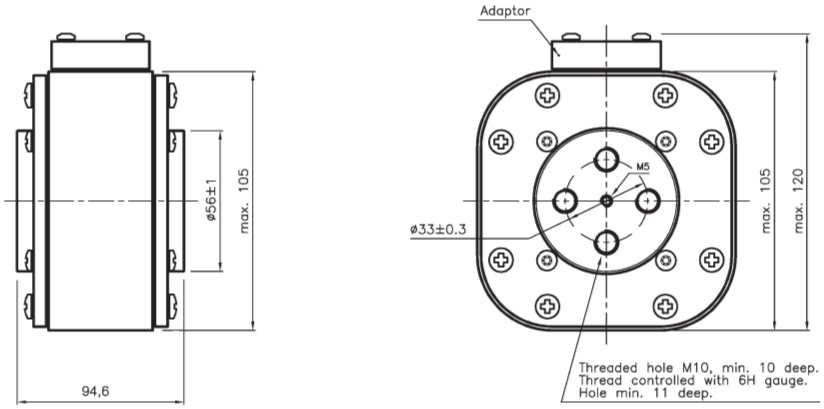
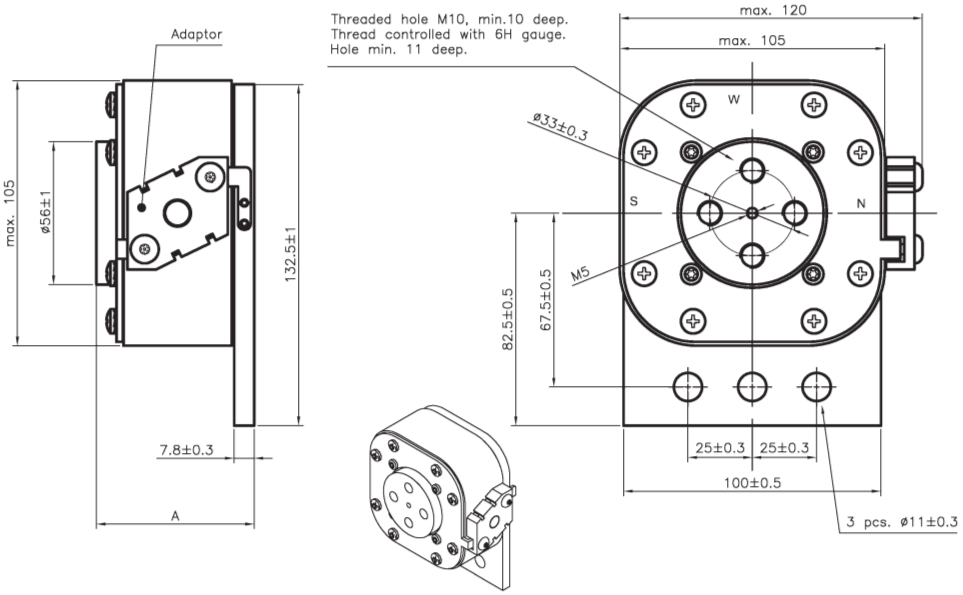
Square Body Flush End Contact Size 4 — 1000V (IEC): 1000-2700A

Dimensions - mm

Type 4BKN/95



Type 4SBKN/95



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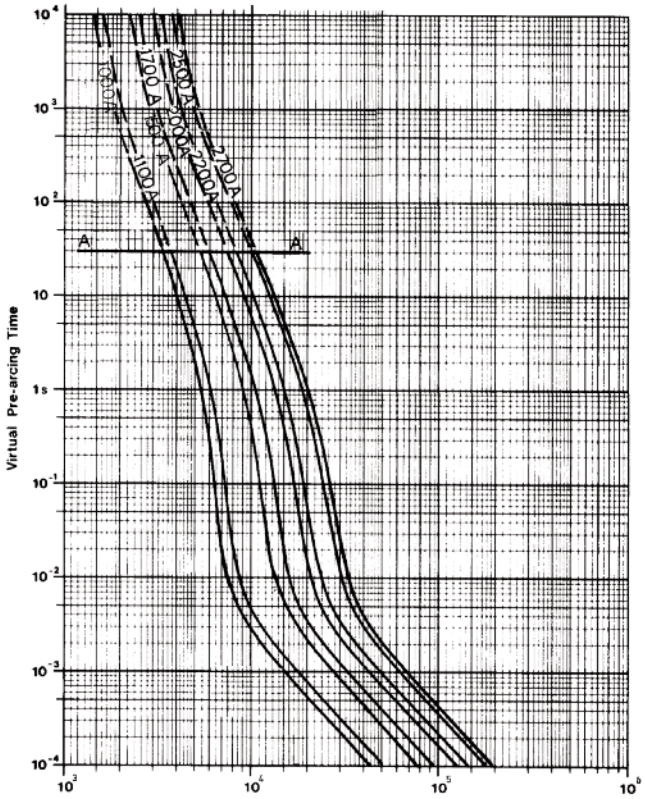
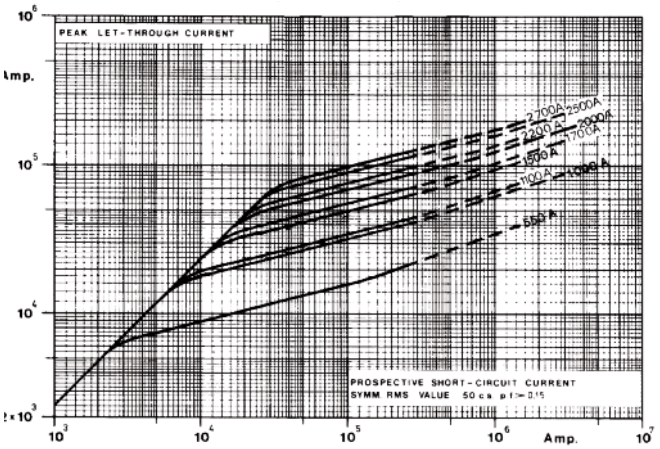
Square Body Flush End Contact Size 4 — 1000V (IEC): 1000-2700A

Size 4 — 1000-2700A: 660V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: Available upon request

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact Size 24 — 1000V (IEC): 2000-5000A

1000V (IEC) 2000-5000A

Specifications

Description: High speed square body fuses, for the protection of the power rectifier section of the equipment.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac

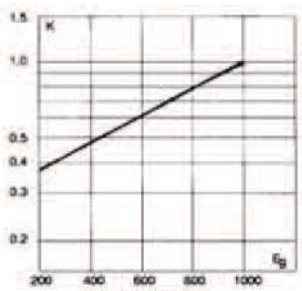
Amps: — 2000-5000A

IR: — 300kA RMS Sym.

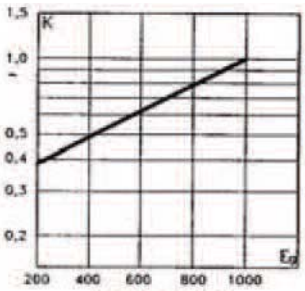
Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

Total clearing I²t



2000-3500A



4200-5000A

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

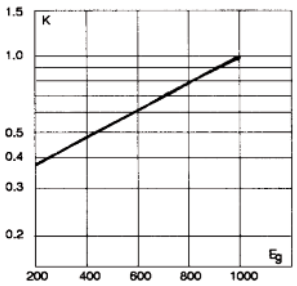
Features and Benefits

- Low watts loss
- Superior cycling capability

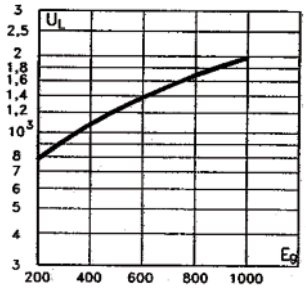
Typical Applications

- Power converters/rectifiers
- Reduced voltage starters

Arc Voltage

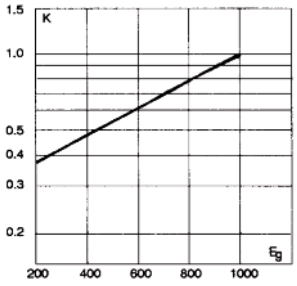


2000-3500A

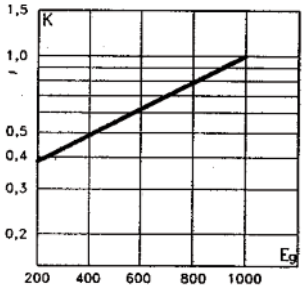


4200-5000A

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



2000-3500A



4200-5000A

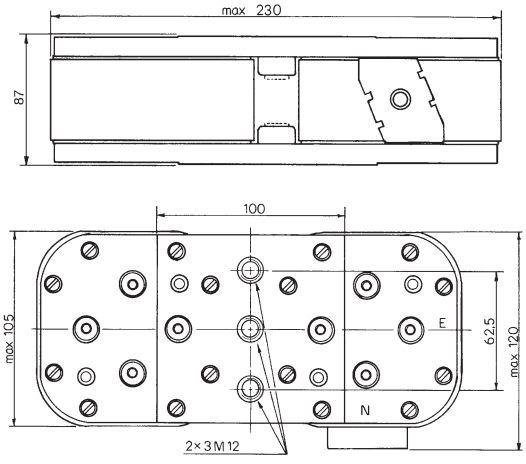
Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

For Other Voltage Ratings in This Body Style

- See pages 165 (660V) and 198 (1250V)

Dimensions - mm



Catalog Numbers

Fuse Size	Cat. Number -BKN/85 Type K Indicator	Electrical Characteristics: Rated Voltage (V)	Rated Current RMS-Amp	I²t (A²Sec) Pre-arc	I²t (A²Sec) Clearing at 1000V	Watt Loss (W)
24	170M7608	1000	2000	885000	5700000	345
	170M7680		3000	2900000	19000000	430
	170M7567		3200	3300000	20000000	440
	170M7568		3500	4500000	27000000	450
	170M7569		4000	6800000	40000000	475
	170M7498		4200	8000000	47500000	485
	170M7488		4500	10000000	59000000	495
	170M7622		5000	14000000	82500000	540

Data Sheet: 170K7540, 170K8514

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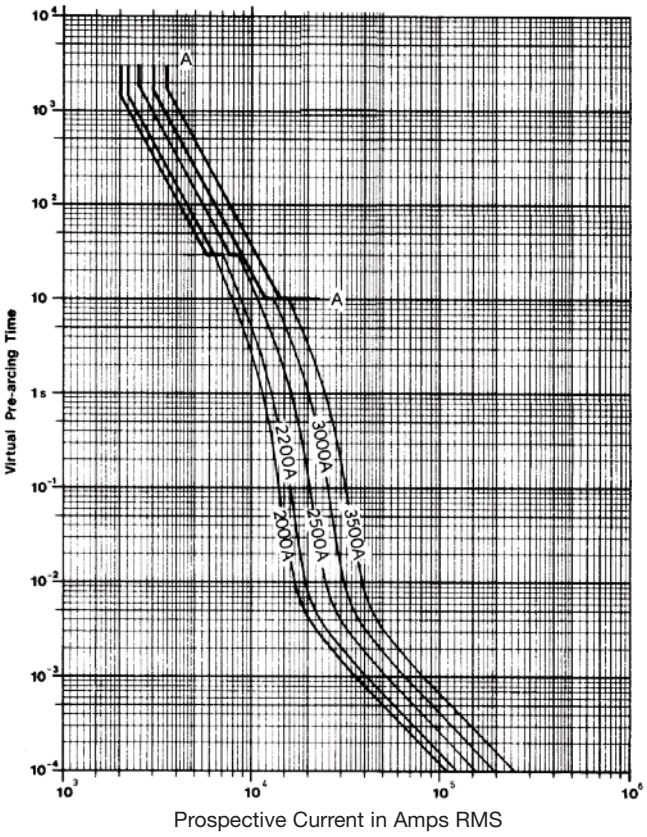
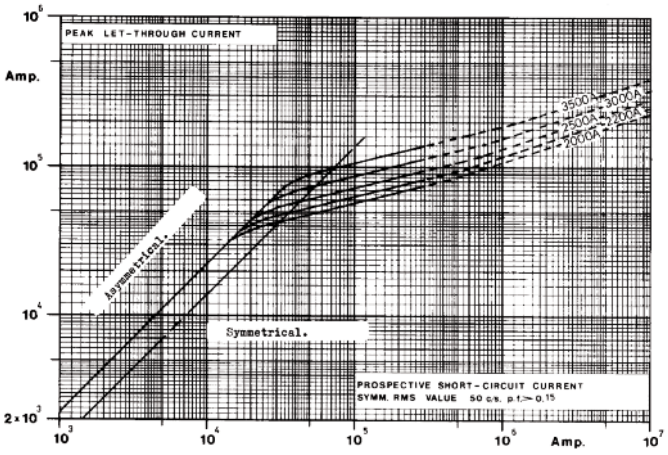
Square Body Flush End Contact Size 24 — 1000V (IEC): 2000-5000A

Size 24 — 2000-3500A: 1000V

Time-Current Curve



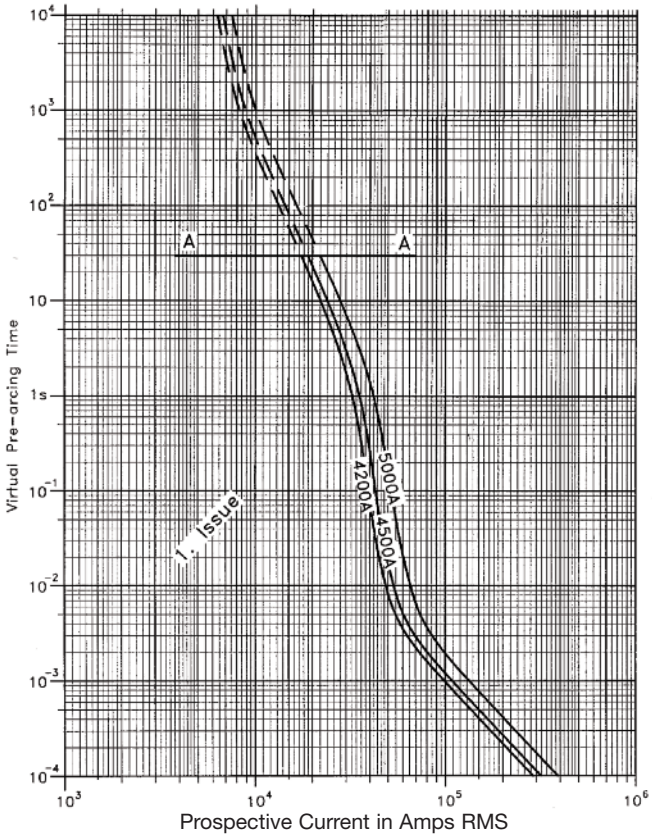
Peak Let-Through Curve



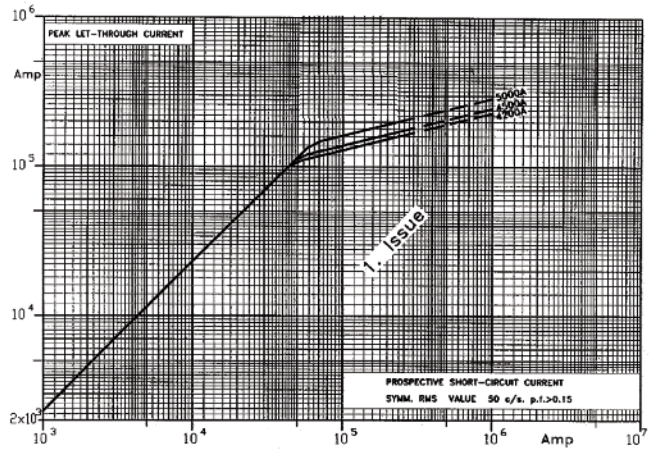
Data Sheet: Available upon request

Size 24 — 4200-5000A: 1000V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: Available upon request

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Square Body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body DIN 43 653 stud-mount high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1250Vac (IEC)
— 1300Vac (UL)

Amps: — 50-1400A

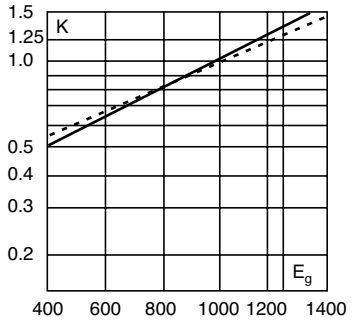
IR: — 100kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

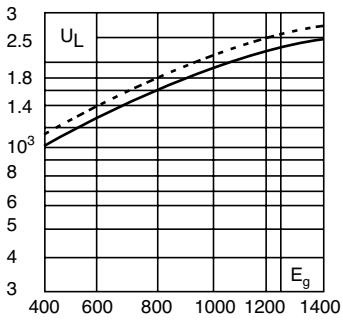


Dashed lines (- - - - - -) apply to the following amperages:.

Size	Amps.
1*	400A
1	500-630A
2	630-1000A
3	800-1400A

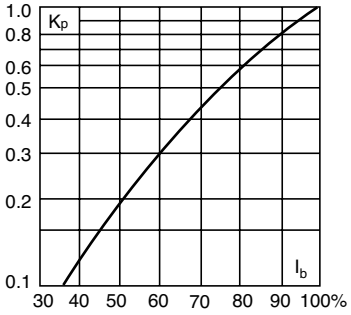
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

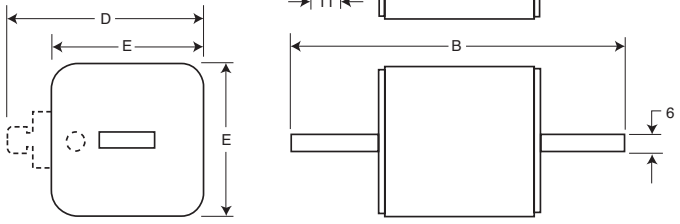
• See pages 150 (690V/700V) and 176 (1000V)

Dimensions - mm

Type -/110, -TN/110

Size	A	B	D**	E	H
1*	80	138	58	45	20
1	80	138	66	53	25
2	80	138	75	61	25
3	81	139	90	76	30

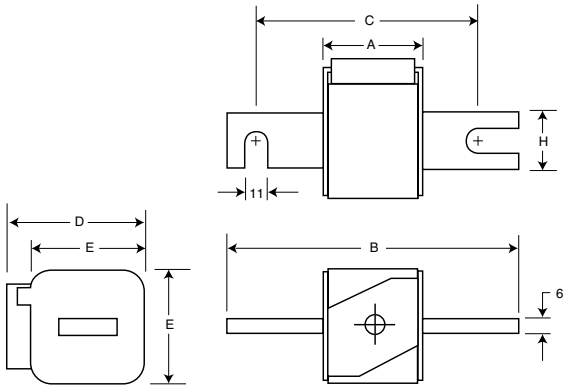
**Microswitch.
1mm = 0.0394" / 1" = 25.4mm



Type -KN/110

Size	A	B	D	E	H
1*	80	138	58	45	20
1	80	138	66	53	25
2	80	138	75	61	25
3	81	139	90	76	30

1mm = 0.0394" / 1" = 25.4mm



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Square Body DIN 43 653 — 1250V/1300V (IEC/UL): 50-1400A

Catalog Numbers

Catalog Numbers				Electrical Characteristics				
					I^2t (A^2 Sec)			
-/110 Visual Indicator	-TN/110 Type T Indicator for Micro	-KN/110 Type K Indicator for Micro	Size	Rated Current RMS-Amps	Pre-arc	Clearing at 1000V	Clearing at 1250V	Watts Loss
170M3138	170M3188	170M3238		50	135	815	1100	15
170M3139	170M3189	170M3239		63	215	1300	1750	20
170M3140	170M3190	170M3240		80	420	2500	3350	25
170M3141	170M3191	170M3241		100	750	4450	5950	30
170M3142	170M3192	170M3242		125	1450	9000	11500	35
170M3143	170M3193	170M3243	1*	160	2600	16000	21000	40
170M3144	170M3194	170M3244		200	5150	31000	41000	45
170M3145	170M3195	170M3245		250	9200	54500	73000	55
170M3146	170M3196	170M3246		315	18500	115000	150000	60
170M3147	170M3197	170M3247		350	27000	165000	220000	65
170M3148	170M3198	170M3248		400	53000	265000	335000	70
170M4138	170M4188	170M4238		160	1900	11500	15500	45
170M4139	170M4189	170M4239		200	3800	22500	30000	50
170M4140	170M4190	170M4240		250	7750	46000	61500	60
170M4141	170M4191	170M4241		315	15000	90000	120000	65
170M4142	170M4192	170M4242	1	350	20000	125000	165000	70
170M4143	170M4193	170M4243		400	29500	175000	235000	75
170M4144	170M4194	170M4244		450	42000	250000	335000	80
170M4145	170M4195	170M4245		500	69500	340000	435000	85
170M4146	170M4196	170M4246		550	95000	465000	590000	95
170M4147	170M4197	170M4247		630†	130000	660000		100
170M5138	170M5188	170M5238		250	6500	38500	51500	65
170M5139	170M5189	170M5239		280	9350	55500	74500	70
170M5140	170M5190	170M5240		315	13000	77500	105000	75
170M5141	170M5191	170M5241		350	16500	97500	135000	80
170M5142	170M5192	170M5242		400	23000	140000	180000	85
170M5143	170M5193	170M5243		450	34000	205000	270000	90
170M5144	170M5194	170M5244	2	500	48000	285000	380000	95
170M5145	170M5195	170M5245		550	62000	370000	495000	100
170M5146	170M5196	170M5246		630	115000	575000	730000	110
170M5147	170M5197	170M5247		700	160000	795000	1050000	115
170M5148	170M5198	170M5248		800	245000	1200000	1550000	120
170M5149	170M5199	170M5249		900†	360000	1750000		125
170M5150	170M5200	170M5250		1000†	480000	2350000		135
170M6138	170M6188	170M6238		315	9500	58000	77500	85
170M6139	170M6189	170M6239		350	13500	81500	110000	90
170M6140	170M6190	170M6240		400	19500	120000	160000	95
170M6141	170M6191	170M6241		450	31000	185000	245000	100
170M6142	170M6192	170M6242		500	39000	235000	310000	105
170M6143	170M6193	170M6243		550	55000	325000	435000	110
170M6144	170M6194	170M6244	3	630	83500	495000	665000	115
170M6145	170M6195	170M6245		700	115000	705000	940000	120
170M6146	170M6196	170M6246		800‡	205000	995000	1300000	125
170M6147	170M6197	170M6247		900‡	305000	1500000	1900000	130
170M6148	170M6198	170M6248		1000‡	450000	2150000	2750000	135
170M6149	170M6199	170M6249		1100‡	575000	2800000	3600000	140
170M6150	170M6200	170M6250		1250†	810000	3950000		145
170M6151	170M6201	170M6251		1400†	1250000	6000000		150

†Rated voltage (IEC) 1100V.
‡Rated voltage (IEC) 1250V.
• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on pages 212-213.
• For fuse curves see pages 193 and 194.

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Square Body Flush End Contact — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body flush end contact high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 1250Vac (IEC)
— 1300Vac (UL)

Amps: — 50-1400A

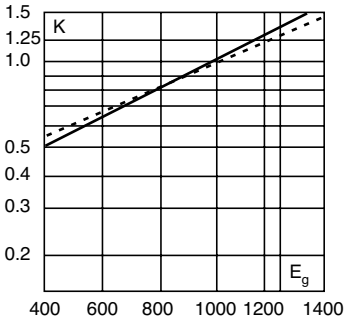
IR: — 100kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

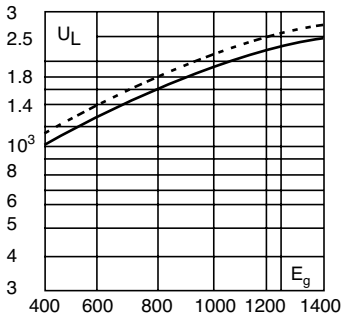


Dashed lines (- - - - - -) apply to the following amperages:.

Size	Amps.
1*	400A
1	500-630A
2	630-1000A
3	800-1400A

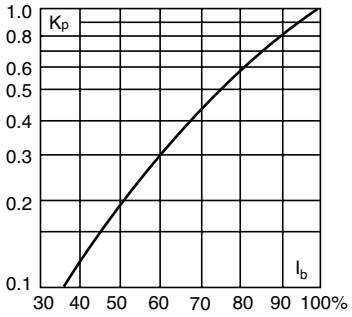
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

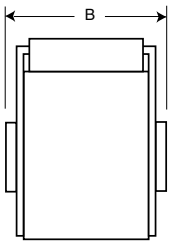
• See pages 152 (690V/700V) and 176 (1000V)

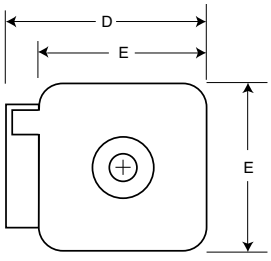
Dimensions - mm

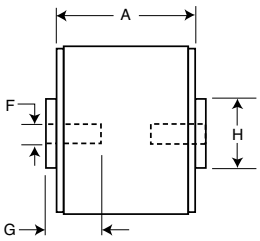
Type -BKN/-, -GKN/-

Size	Type	A	B	D	E	F	F** (in)	G	H
1*	BKN + GKN/75	74	75	59	45	M8	5/16" - 18 UNC-2B	5	Ø17
1*	BKN/80	80	81	59	45	M8		5	Ø17
1	BKN + GKN/75	74	75	69	53	M8	5/16" - 18 UNC-2B	8	Ø20
1	BKN/80	80	81	69	53	M8		8	Ø20
2	BKN + GKN/75	74	75	77	61	M10	3/8" - 16 UNC-2B	10	Ø24
2	BKN/80	80	81	77	61	M10		10	Ø24
2	BKN + GKN/90	80	91	77	61	M10	3/8" - 16 UNC-2B	10	Ø24
3	BKN + GKN/75	74	76	92	76	M12	1/2" - 13 UNC-2B	10	Ø30
3	BKN/80	81	83	92	76	M12		10	Ø30
3	BKN + GKN/90	81	91	92	76	M12	1/2" - 13 UNC-2B	10	Ø30

**Valid for fuses type -GKN/-.
1mm = 0.0394" / 1" = 25.4mm







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Square Body Flush End Contact — 1250V/1300V (IEC/UL): 50-1400A

Catalog Numbers

Catalog Numbers						Electrical Characteristics				
-BKN/75 Type K Indicator for Micro	-BKN/80 Type K Indicator for Micro	-BKN/90 Type K Indicator for Micro	-GKN/75 Type K Indicator for Micro	-GKN/90 Type K Indicator for Micro	Size	Rated Current RMS-Amps	I²t (A²Sec) Pre-arc	I²t (A²Sec) Clearing at 1000V	I²t (A²Sec) Clearing at 1250V	Watts Loss
170M3388	170M3438		170M3488			50	135	815	1100	15
170M3389	170M3439		170M3489			63	215	1300	1750	20
170M3390	170M3440		170M3490			80	420	2500	3350	25
170M3391	170M3441		170M3491			100	750	4450	5950	30
170M3392	170M3442		170M3492			125	1450	9000	11500	35
170M3393	170M3443		170M3493		1*	160	2600	16000	21000	40
170M3394	170M3444		170M3494			200	5150	31000	41000	45
170M3395	170M3445		170M3495			250	9200	54500	73000	55
170M3396	170M3446		170M3496			315	18500	115000	150000	60
170M3397	170M3447		170M3497			350	27000	165000	220000	65
	170M3448					400	53000	265000	335000	70
170M4388	170M4438		170M4488			160	1900	11500	15500	45
170M4389	170M4439		170M4489			200	3800	22500	30000	50
170M4390	170M4440		170M4490			250	7750	46000	61500	60
170M4391	170M4441		170M4491			315	15000	90000	120000	65
170M4392	170M4442		170M4492			350	20000	125000	165000	70
170M4393	170M4443		170M4493		1	400	29500	175000	235000	75
170M4394	170M4444		170M4494			450	42000	250000	335000	80
170M4395†	170M4445		170M4495†			500	69500	340000	435000	85
170M4396‡	170M4446		170M4496‡			550	95000	465000	590000	95
170M4397‡	170M4447†		170M4497‡			630	130000	660000		100
170M5388	170M5438		170M5588			250	6500	38500	51500	65
170M5389	170M5439		170M5589			280	9350	55500	74500	70
170M5390	170M5440		170M5590			315	13000	77500	105000	75
170M5391	170M5441		170M5591			350	16500	97500	135000	80
170M5392	170M5442		170M5592			400	23000	140000	180000	85
170M5393	170M5443		170M5593			450	34000	205000	270000	90
170M5394	170M5444	170M5494	170M5594	170M5644	2	500	48000	285000	380000	95
170M5395	170M5445	170M5495	170M5595	170M5645		550	62000	370000	495000	100
170M5396†	170M5446	170M5496	170M5596†	170M5646		630	115000	575000	730000	110
170M5397‡	170M5447†	170M5497	170M5597‡	170M5647		700	160000	795000	1050000	115
170M5398‡	170M5448‡	170M5498	170M5598‡	170M5648		800	245000	1200000	1550000	120
		170M5499		170M5649		900†	360000	1750000		125
		170M5500		170M5650		1000†	480000	2350000		135
170M6338	170M6538		170M6588			315	9500	58000	77500	85
170M6339	170M6539		170M6589			350	13500	81500	110000	90
170M6340	170M6540		170M6590			400	19500	120000	160000	95
170M6341	170M6541		170M6591			450	31000	185000	245000	100
170M6342	170M6542		170M6592			500	39000	235000	310000	105
170M6343	170M6543		170M6593			550	55000	325000	435000	110
170M6344	170M6544	170M6494	170M6594	170M6644		630	83500	495000	665000	115
170M6345	170M6545	170M6495	170M6595	170M6645	3	700	115000	705000	940000	120
170M6346†	170M6546	170M6496¥	170M6596†	170M6646¥		800	205000	995000	1300000	125
170M6347‡	170M6547†	170M6497¥	170M6597‡	170M6647¥		900	305000	1500000	1900000	130
170M6348‡	170M6548†	170M6498¥	170M6598‡	170M6648¥		1000	450000	2150000	2750000	135
170M6349‡	170M6549‡	170M6499¥	170M6599‡	170M6649¥		1100	575000	2800000	3600000	140
		170M6500		170M6650		1250†	810000	3950000		145
		170M6501		170M6651		1400†	1250000	6000000		150

†Rated voltage (IEC) 1100V.
‡Rated voltage (IEC) 1000V.
¥Rated voltage (IEC) 1250V.
• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on pages 212-213.
• For fuse curves see pages 193 and 194.

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Square Body US Style — 1250V/1300V (IEC/UL): 50-1400A

1250V/1300V (IEC/UL) 50-1400A

Specifications

Description: Square body US style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1250Vac (IEC)
— 1300Vac (UL)

Amps: — 50-1400A

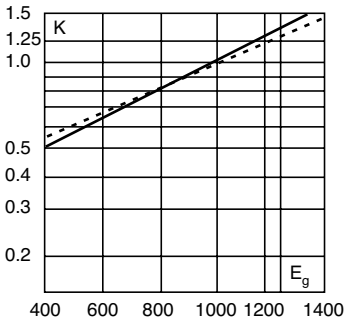
IR: — 100kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2, CSA Certified: Class 53787, File 1422-30.

Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

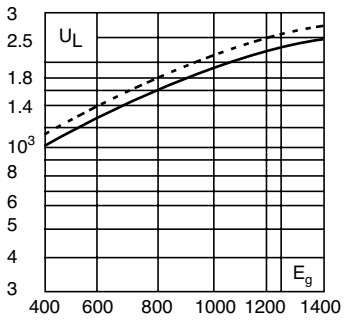


Dashed lines (- - - - - -) apply to the following amperages:.

Size	Amps.
1*	400A
1	500-630A
2	630-1000A
3	800-1400A

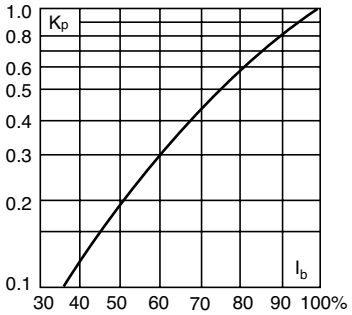
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

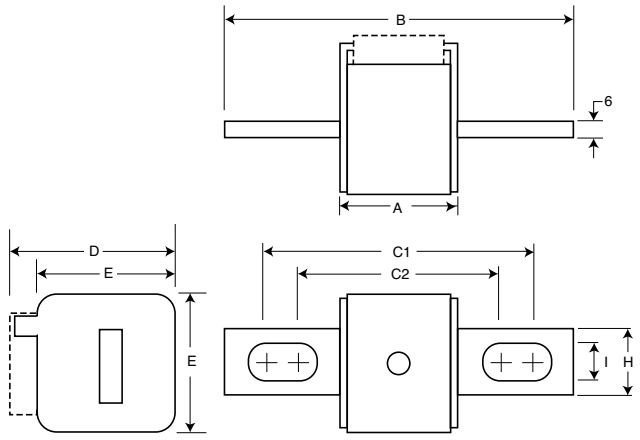
• See pages 153 (690V/700V) and 178 (1000V)

Dimensions - mm

Type -FU/115, -FKE/115

Size	B	C1	C2	D	E	H	I
1*	156	130	101	59	45	20	10
1	160	127	102	69	53	25	14
2	160	127	102	77	61	25	14
3	159	128	101	92	76	36	16

1mm = 0.0394" / 1" = 25.4mm



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Square Body US Style — 1250V/1300V (IEC/UL): 50-1400A

Catalog Numbers

Catalog Numbers			Electrical Characteristics				
				I^2t (A^2 Sec)			
-FU/115 Without Indicator	-FKE/115 Type K Indicator for Micro	Size	Rated Current RMS-Amps	Pre-arc	Clearing at 1000V	Clearing at 1250V	Watts Loss
170M3688	170M3738		50	135	815	1100	15
170M3689	170M3739		63	215	1300	1750	20
170M3690	170M3740		80	420	2500	3350	25
170M3691	170M3741		100	750	4450	5950	30
170M3692	170M3742		125	1450	9000	11500	35
170M3693	170M3743	1*	160	2600	16000	21000	40
170M3694	170M3744		200	5150	31000	41000	45
170M3695	170M3745		250	9200	54500	73000	55
170M3696	170M3746		315	18500	115000	150000	60
170M3697	170M3747		350	27000	165000	220000	65
170M4688	170M4738		160	1900	11500	15500	45
170M4689	170M4739		200	3800	22500	30000	50
170M4690	170M4740		250	7750	46000	61500	60
170M4691	170M4741		315	15000	90000	120000	65
170M4692	170M4742	1	350	20000	125000	165000	70
170M4693	170M4743		400	29500	175000	235000	75
170M4694	170M4744		450	42000	250000	335000	80
170M4695	170M4745		500†	69500	340000		85
170M4696	170M4746		550†	95000	465000		95
170M4697	170M4747		630‡	130000	660000		100
170M5688	170M5738		250	6500	38500	51500	65
170M5689	170M5739		280	9350	55500	74500	70
170M5690	170M5740		315	13000	77500	105000	75
170M5691	170M5741		350	16500	97500	135000	80
170M5692	170M5742		400	23000	140000	180000	85
170M5693	170M5743		450	34000	205000	270000	90
170M5694	170M5744	2	500	48000	285000	380000	95
170M5695	170M5745		550	62000	370000	495000	100
170M5696	170M5746		630	115000	575000	730000	110
170M5697	170M5747		700†	160000	795000		115
170M5698	170M5748		800†	245000	1200000		120
170M5699	170M5749		900‡	360000	1750000		125
170M5700	170M5750		1000‡	480000	2350000		135
170M6688	170M6738		315	9500	58000	77500	185
170M6689	170M6739		350	13500	81500	110000	90
170M6690	170M6740		400	19500	120000	160000	95
170M6691	170M6741		450	31000	185000	245000	100
170M6692	170M6742		500	39000	235000	310000	105
170M6693	170M6743		550	55000	325000	435000	110
170M6694	170M6744	3	630	83500	495000	665000	115
170M6695	170M6745		700	115000	705000	940000	120
170M6696	170M6746		800	205000	995000	1300000	125
170M6697	170M6747		900	305000	1500000	1900000	130
170M6698†	170M6748†		1000¥	450000	2150000		135
170M6699†	170M6749†		1100¥	575000	2800000		140
170M6700‡	170M6750‡		1250¥	810000	3950000		145
170M6701‡	170M6751‡		1400¥	1250000	6000000		150

†Rated voltage (IEC) 1100.
‡Rated voltage (IEC) 1000V.
¥ UL Recognition at 1000V.
• Watts loss provided at rated current.
• Microswitch indicator ordered separately. See accessories on pages 212-213.
• For fuse curves see pages 193 and 194.

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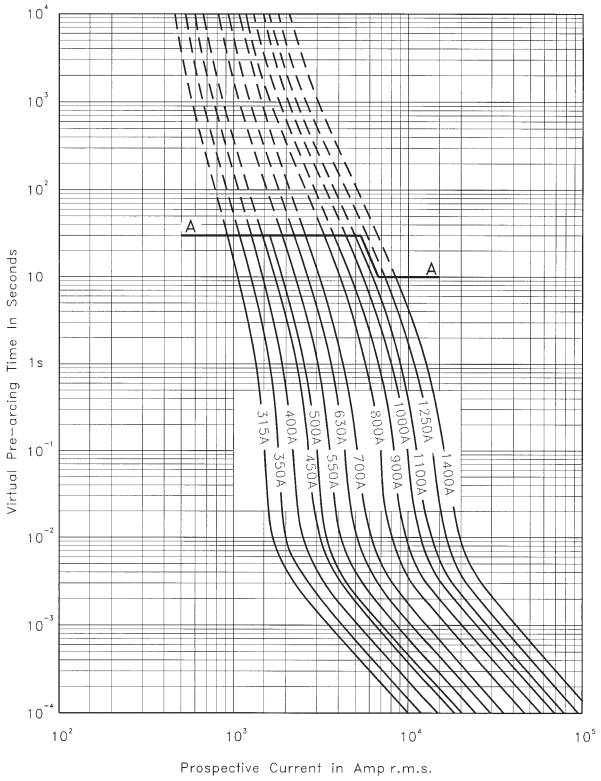
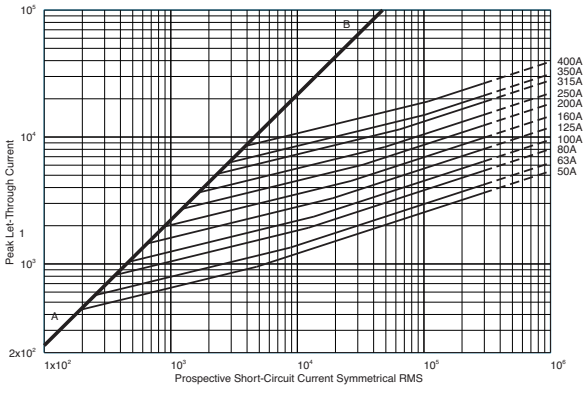
Square Body Size 1*, 1 — 1250V/1300V (IEC/UL): 50-1400A

Size 1* — 50-400A:1250V

Time-Current Curve

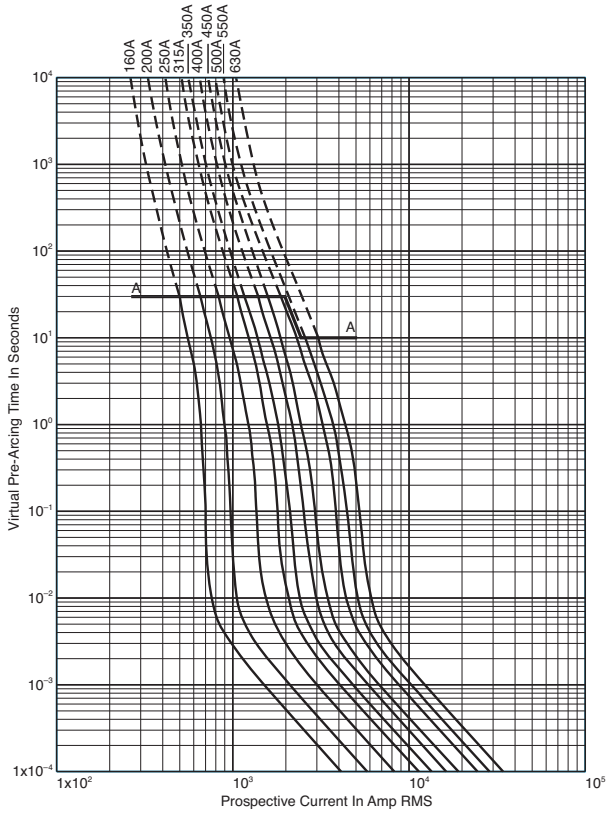


Peak Let-Through Curve

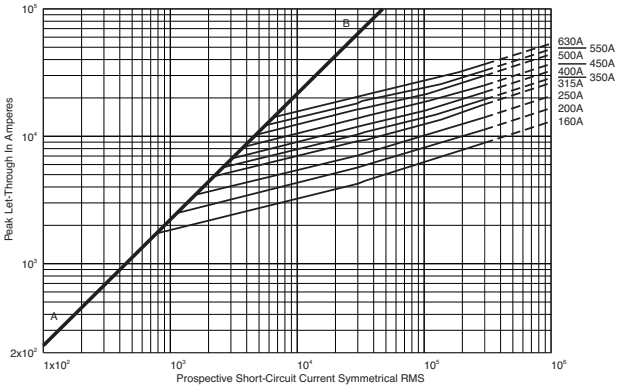


Size 1 — 160-630A: 1250V

Time-Current Curve



Peak Let-Through Curve



630A fuse is derated to 1100V (IEC).

Data Sheet: 17056630

Data Sheet: 17056632

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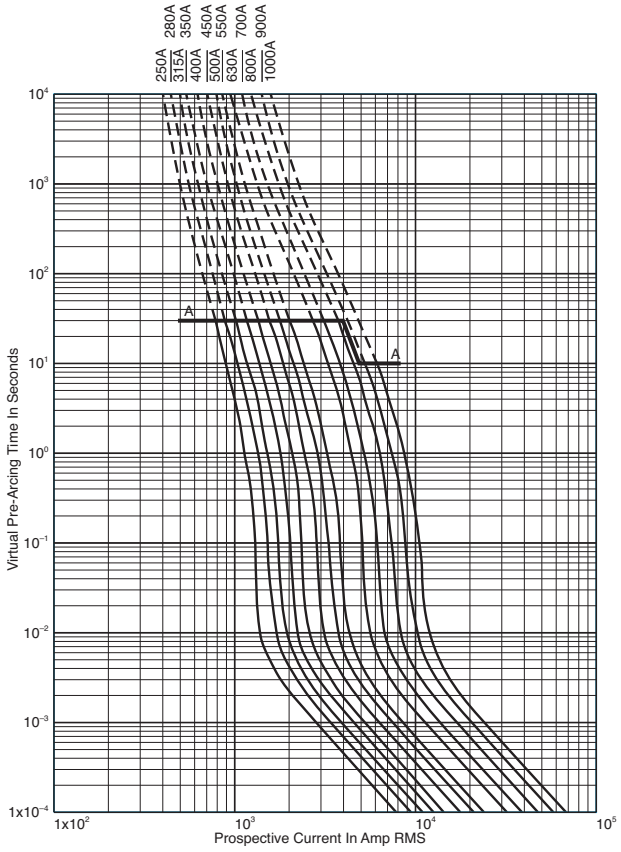
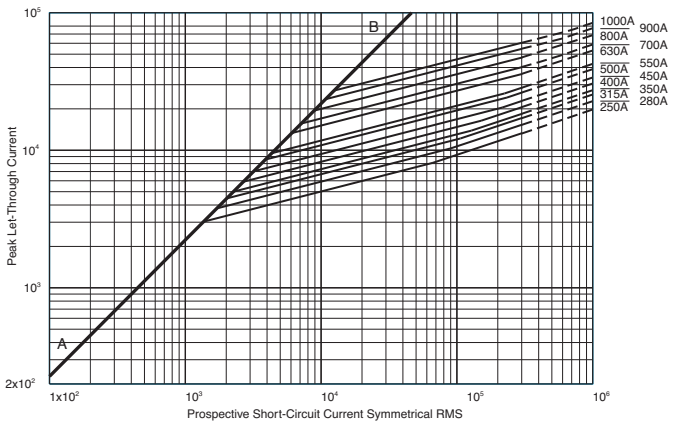
Square Body Size 2, 3 — 1250V/1300V (IEC/UL): 50-1400A

Size 2 — 250-1000A: 1250V

Time-Current Curve



Peak Let-Through Curve

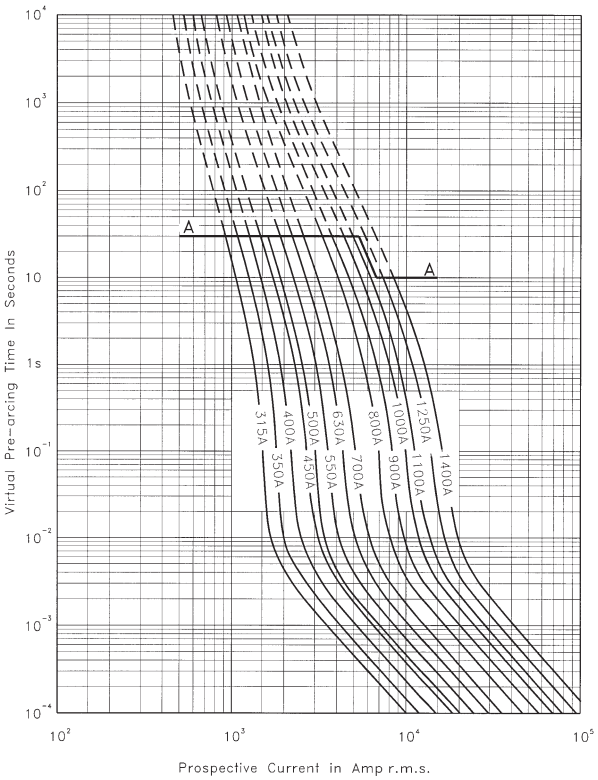


900-1000A fuses are derated to 1100V (IEC).

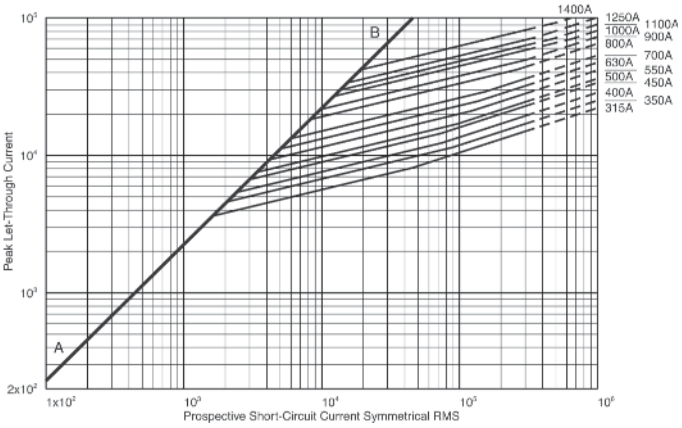
Data Sheet: 17056634

Size 3 — 315-1400A: 1250V

Time-Current Curve



Peak Let-Through Curve



1250-1400A fuses are derated to 1100V (IEC).

Data Sheet: 17056636

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Square Body Flush End Contact Size 4 — 1250V (IEC): 1400-2500A

1250V (IEC) 1400-2500A

Specifications

Description: High speed square body fuses, for the protection of the power rectifier section of the equipment.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1250Vac (IEC)

Amps: — 1400-2500A

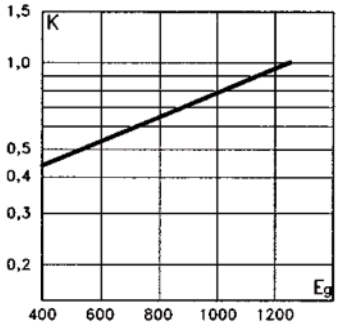
IR: — 125kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized E125085.JFHR2.

Electrical Characteristics

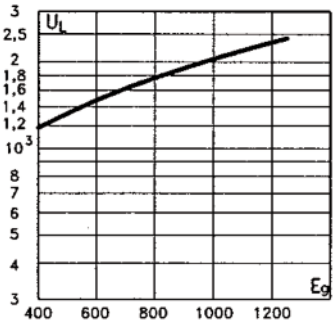
Total clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



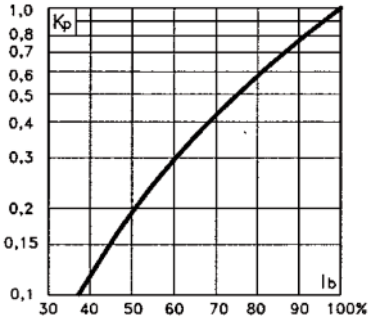
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 163 (690V/700V) and 182 (1000V)

Catalog Numbers

Fuse Size	Catalog Number		Electrical Characteristics				
	-BKN/105 Type K Indicator	-SBKN/105 Type K Indicator	Rated Voltage (V)	Rated Current RMS-Amp	I²t (A²Sec)		Watt Loss (W)
					Pre-arc	Clearing at 1250V	
4	170M7217	170M7512	1250	1400	800000	5000000	195
	170M7597	170M7510		1500	1000000	6200000	200
	170M7676	170M7511		1700	1400000	8700000	220
	170M7532	170M7976		1800	1700000	11000000	225
	170M7633	170M7513		2000	2300000	14500000	235
	170M7592	170M7546		2200	3100000	19500000	245
	170M7107	170M7516		2400	4000000	25000000	255
	170M7595	170M7978		2500	4500000	28000000	260

Data Sheet: 170K6640 , 170K6642

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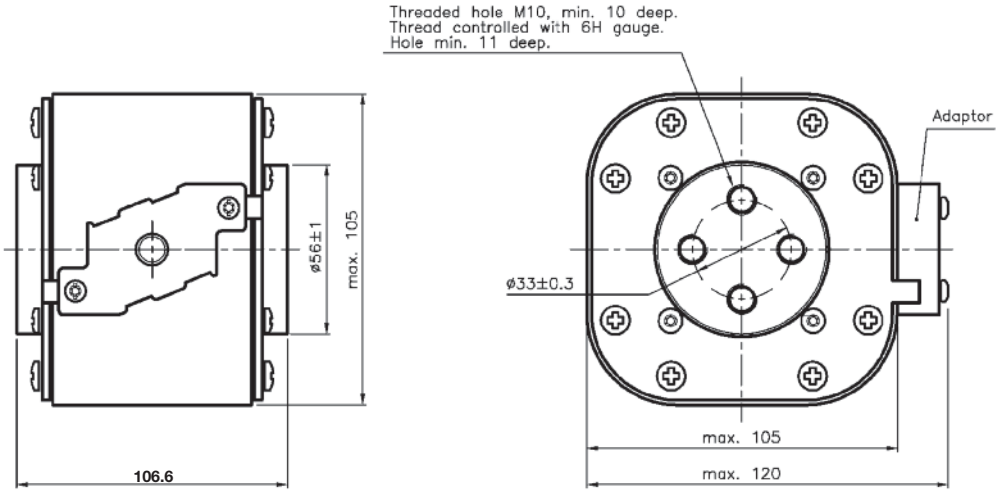
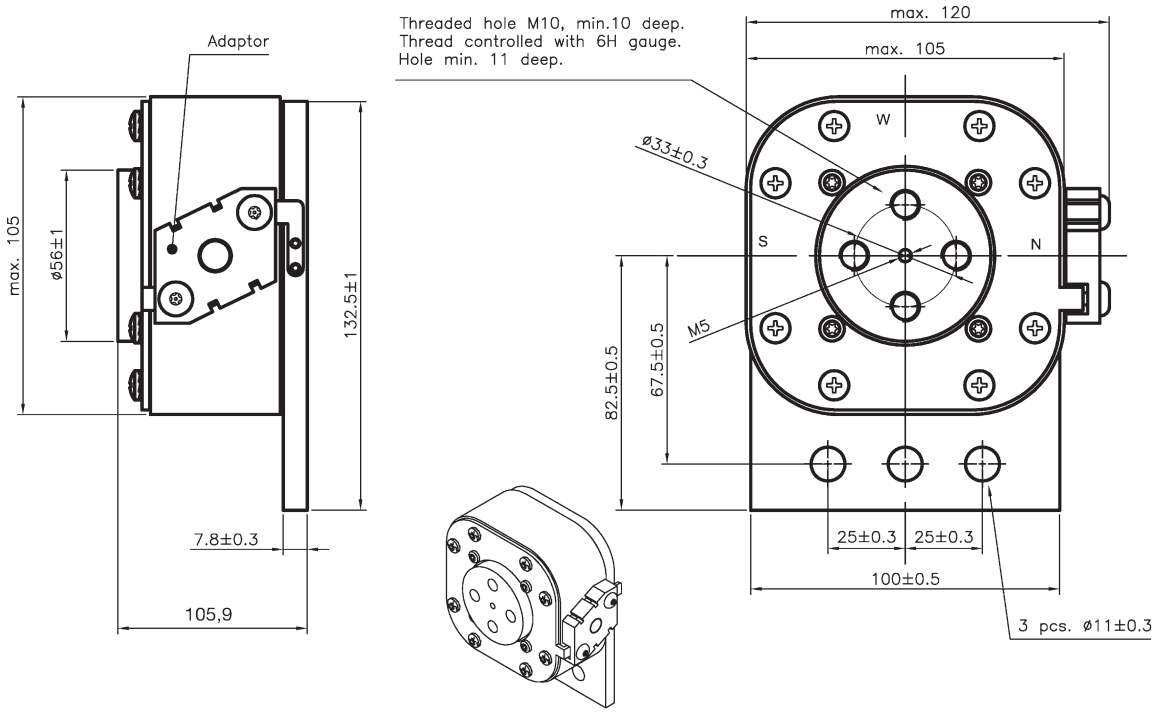
Square Body Flush End Contact Size 4 — 1250V (IEC): 1400-2500A

Dimensions - mm

Type 4BKN/105



Type 4SBKN/105

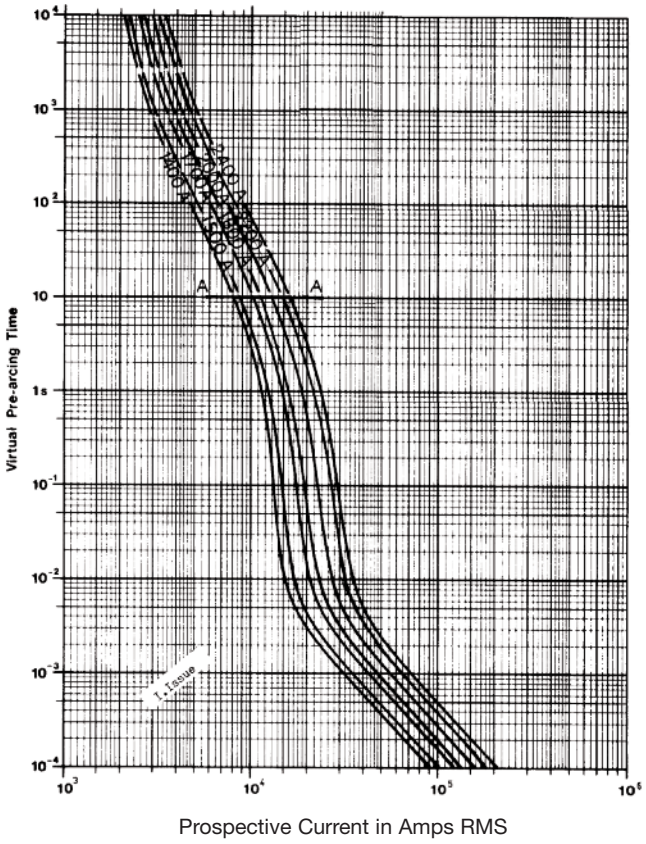


For product data sheets, visit www.cooperbussmann.com/DatasheetsEle
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body Flush End Contact Size 4 — 1250V (IEC): 1400-2500A

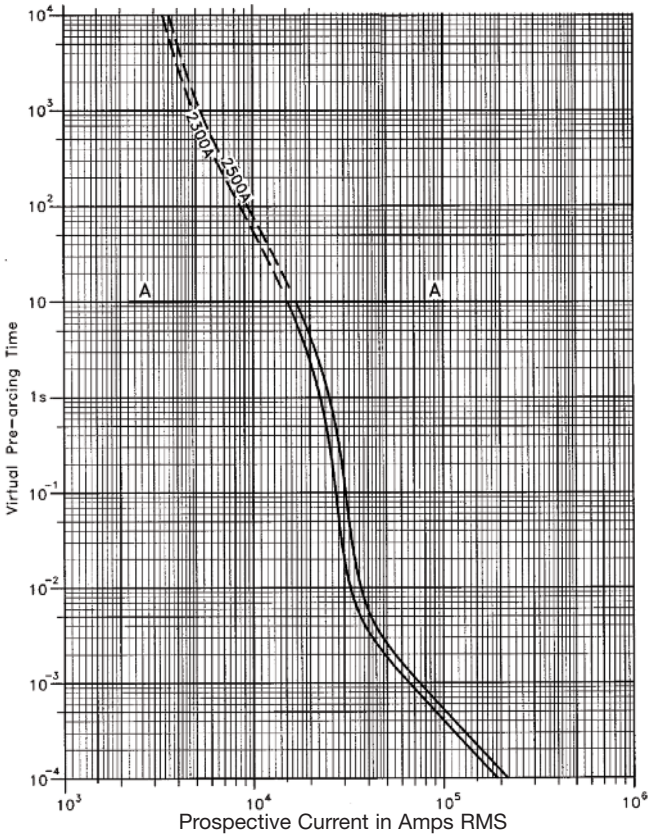
Size 4 — 1400-2400A: 1250V

Time-Current Curve

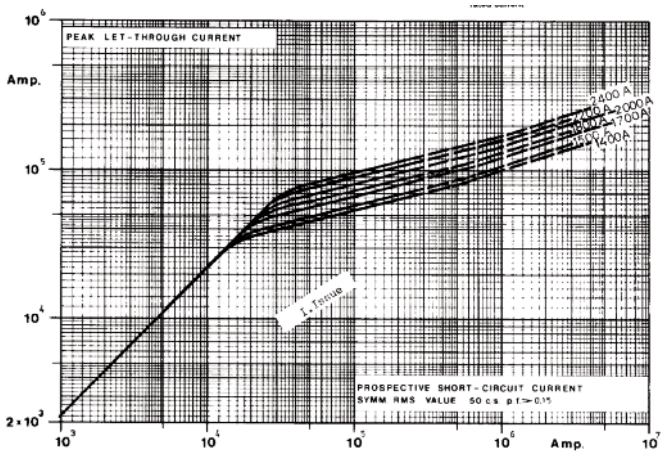


Size 4 — 2300-2500A: 1250V

Time-Current Curve

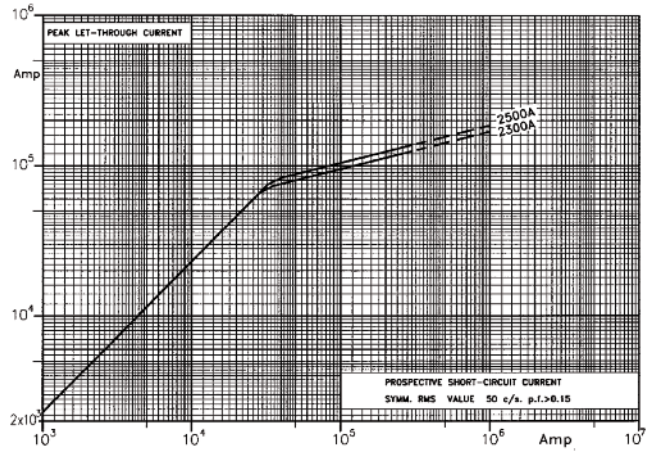


Peak Let-Through Curve



Data Sheet: Available upon request

Peak Let-Through Curve



Data Sheet: Available upon request

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Square Body Flush End Contact Size 23— 1250V (IEC/UL): 630-2800A

1250V (IEC) 630-2800A

Specifications

Description: High speed square body fuses, for the protection of the power rectifier section of the equipment.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1250Vac (IEC)

Amps: — 630-2800A

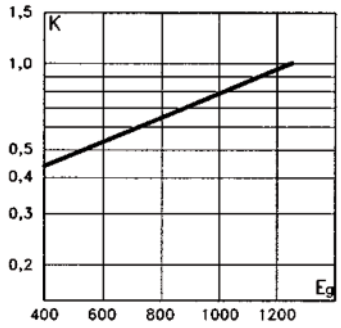
IR: — 125kA RMS Sym.

Agency Information: CE, Designed and tested to IEC 60269: Part 4. UL Recognized.

Electrical Characteristics

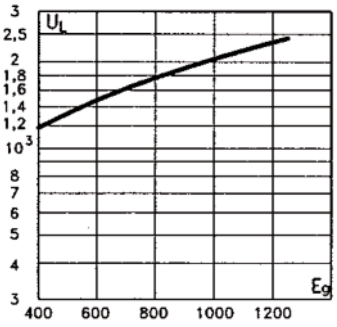
Total clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



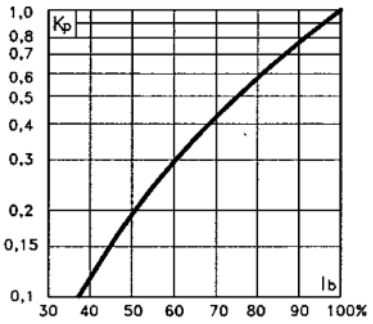
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g , (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

For Other Voltage Ratings in This Body Style

• See pages 165 (660V) and 185 (1000V)

Catalog Numbers

Fuse Size	Catalog Number						Electrical Characteristics				
	-BU/75 without Indicator	-BKE/75 Type K Indicator	-BKN/75 Type K Indicator	-BU/80 without Indicator	-BKE/80 Type K Indicator	-BKN/80 Type K Indicator	Rated Voltage (V)	Rated Current RMS-Amp	I^2t (A^2Sec) Pre-arc	I^2t (A^2Sec) Clearing at 1250V	Watts Loss (W)
23	170M6775	170M6795	170M6785				1250	630	38000	310000	170
	170M6776	170M6796	170M6786					700	54000	440000	180
	170M6777	170M6797	170M6787					800	78000	640000	190
	170M6805	170M6807	170M6806					900	120000	980000	200
	170M6778	170M6798	170M6788					1000	155000	1250000	210
	170M6779	170M6799	170M6789					1100	220000	1750000	220
	170M6780	170M6800	170M6790					1250	330000	2700000	230
	170M6781	170M6801	170M6791					1400	460000	3800000	240
	170M6782	170M6802	170M6792					1600	820000	5200000	250
	170M6783	170M6803	170M6793					1800	1200000	7600000	260
				170M6784	170M6804	170M6794		2000	1800000	11000000	270
				170M6815	170M6833	170M6827		2200	2300000	14500000	280
				170M6816	170M6834	170M6828	1100	2500	3200000	†16000000	290
				170M6817	170M6835	170M6829		2800	5000000	†24000000	300

† A^2s @ 1000V

Data Sheet: 170K6638

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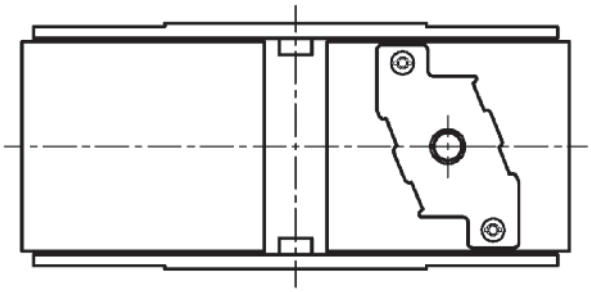
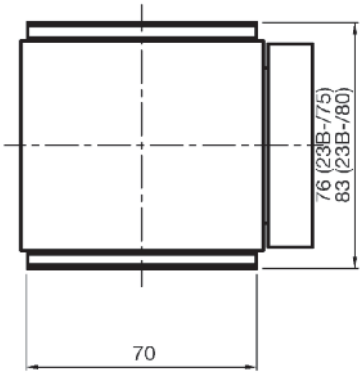
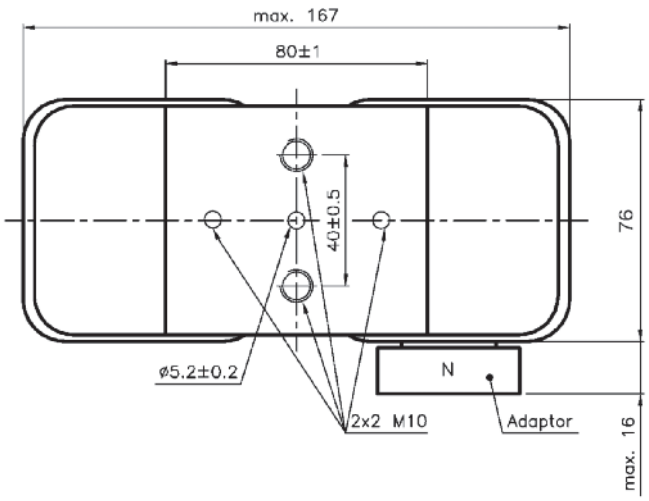
Square Body Flush End Contact Size 23— 1250V (IEC/UL): 630-2800A

Dimensions - mm

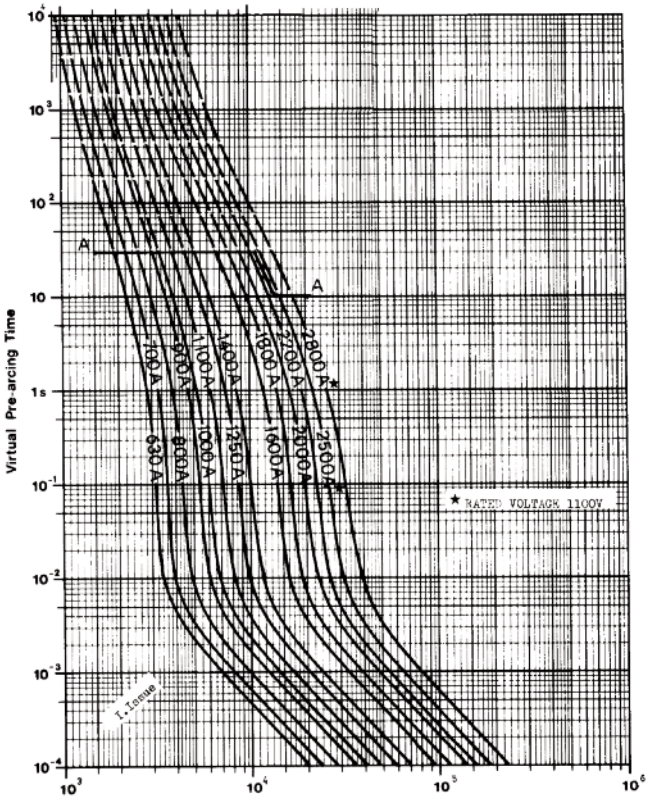






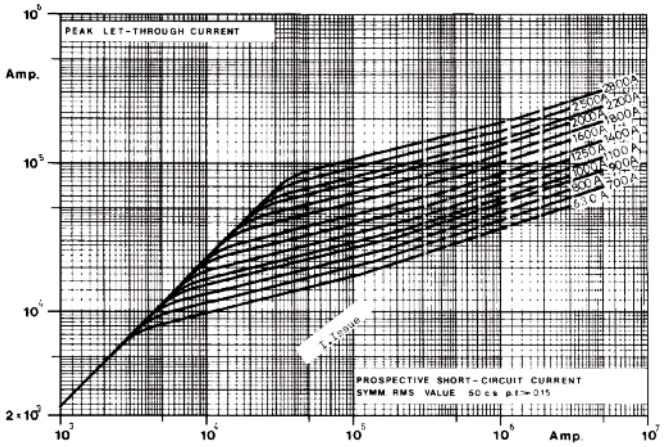
Size 23 — 630-2800A: 1250V

Time-Current Curve



Prospective Current in Amps RMS

Peak Let-Through Curve



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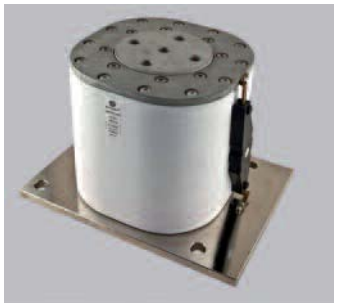
Square Body Flush End Contact Size 5— 1000V-2000V: 1800-5000A

1000V (IEC) 1800-5000A



Specifications

Description: High speed square body fuses, for the protection or isolation for components such as diodes, silicon controlled rectifiers (SCRs), Gate torn-Off Thyristors (GTOs) and IGBTs.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000-2000Vac (IEC)

Amps: — 1800-5000A

IR: — 300kA RMS Sym. estimated, 197kA tested

Agency Information: Consult Bussmann. bulehighspeedtechnical@cooperindustries.com

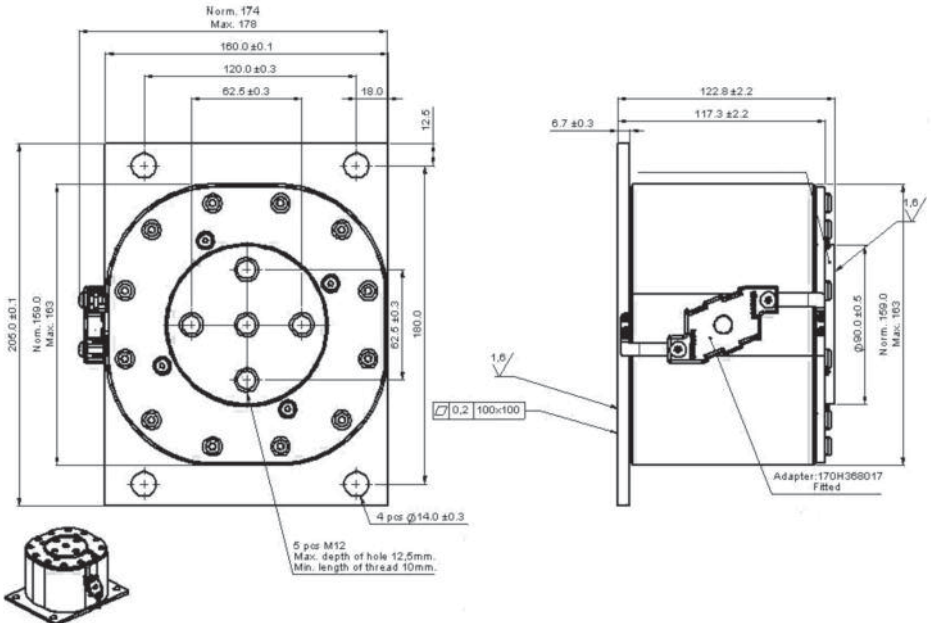
Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- AC and DC drives
- High power converters/rectifiers

Dimensions - mm (in)



This dimension drawing is an example of the range of size 5 fuses available.

Contact Bussmann for available parts and technical information.

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Square Body DC Fuses — 750Vdc: 63-500A

750Vdc 63-500A

Specifications

Description: High speed fuses, for the protection of DC circuits in equipment.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 750Vdc

Amps: — 63-500A

IR: — 750Vdc IR: 100kA, L/R = 100 ms.

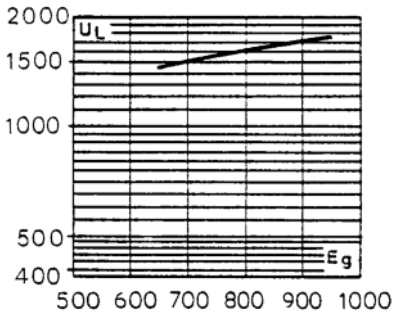
— 1000Vdc IR: 100kA, L/R = 40 ms

Agency Information: Consult Cooper Bussmann.

Electrical Characteristics

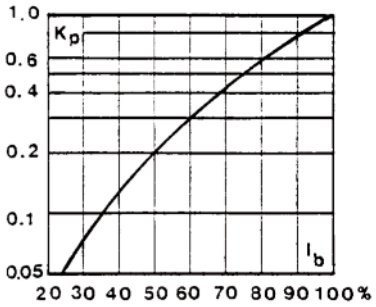
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

Catalog Numbers

Fuse Size	Catalog Numbers		Electrical Characteristics		
	-BK/130	-EK/-	Rated Voltage (Vdc)	Rated Current RMS-Amp	Watt Loss (W)
1*	170E3577	170E3583	750	63	10.0
	170E3578	170E3584		80	13.0
	170E3579	170E3585		100	16.0
	170E3580	170E3586		125	21.0
	170E3581	170E3587		160	26.0
1	170E5417	170E5420		200	37.0
	170E5418	170E5421		250	46.0
2	170E8335	170E8345		250	47.0
	170E8336	170E8346		315	57.0
	170E8337	170E8347		400	73.0
3	170E9681	170E9685		500	91.0

Data Sheet: Size 1*: 170K3620
Size 1: 170K3622
Size 2: 170K3624
Size 3: 170K3626
Microswitch: 170H0069, 170H3027 (gold)

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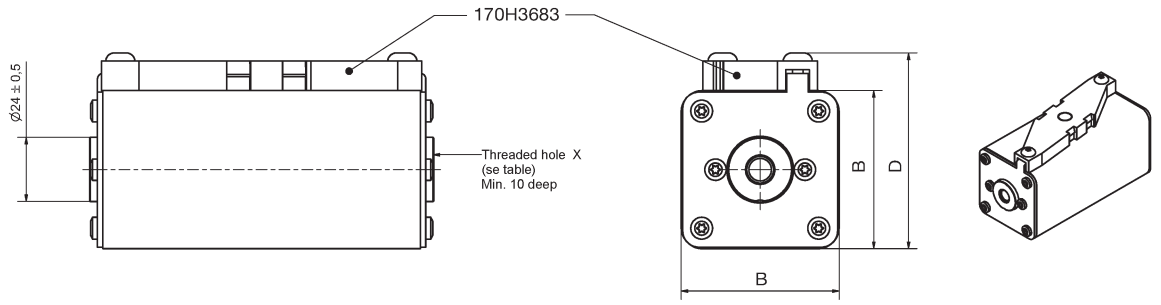
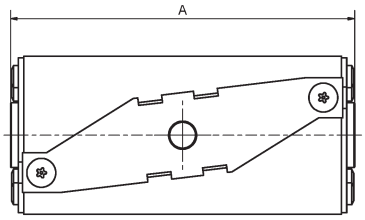
Square Body DC Fuses — 750Vdc: 63-500A

Dimensions - mm

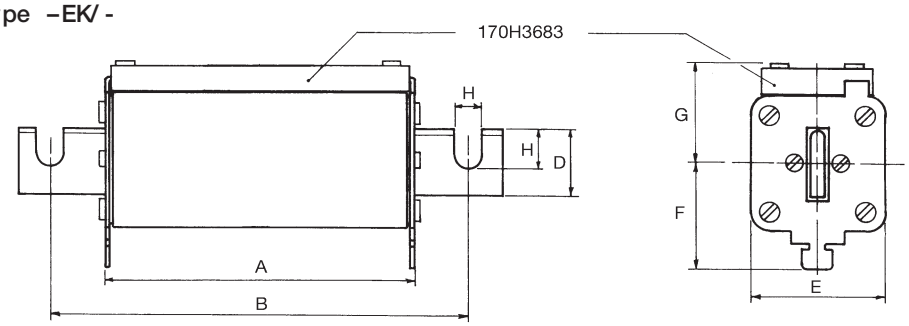
Type –BK/ 130

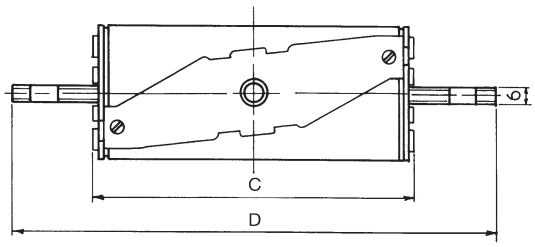




Size/Type	A	B	D
1* BK/130	129	43	61
1 BK/130	130	51	69
2 BK/130	130	59	77
3 BK/130	131	74	90

Type –EK/ -





Size/Type	A	B	C	D	E	F	G	H	I	J
1* EK/155	124	156	129	180	43	36	41	9	9	18
1 EK/165	124	166	129	191	51	37	41	11	14	25
2 EK/170	124	170	129	205	59	42	48	13	21	30
3 EK/170	125	170	130	206	74	51	56	13	20	36

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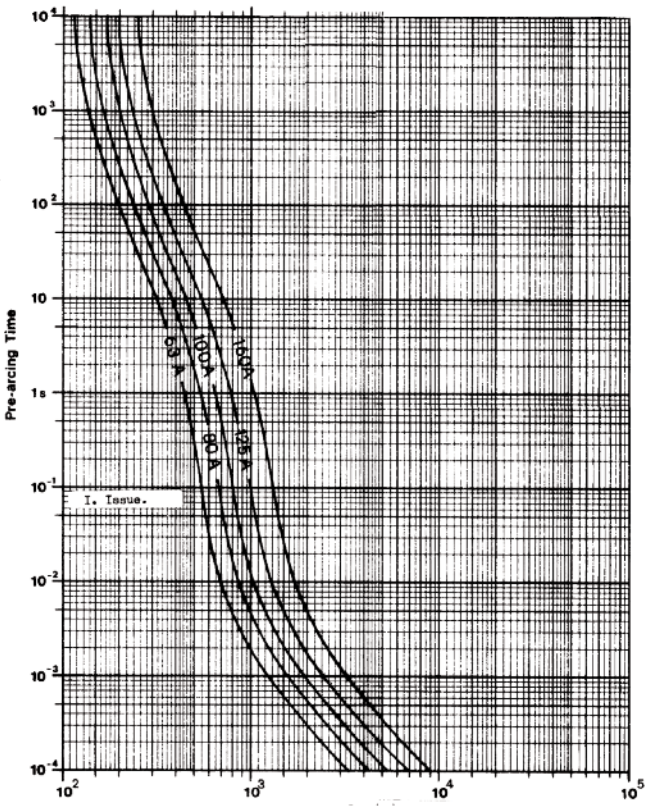
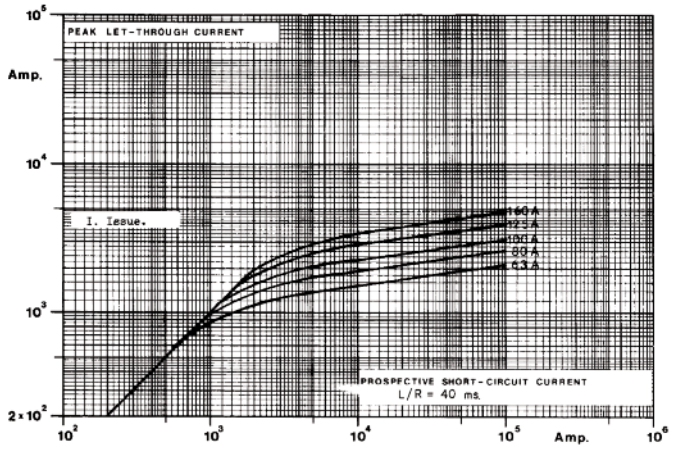
Square Body DC Fuses — 750Vdc: 63-500A

Square Body DC Fuse — 63-160A: 750V

Time-Current Curve



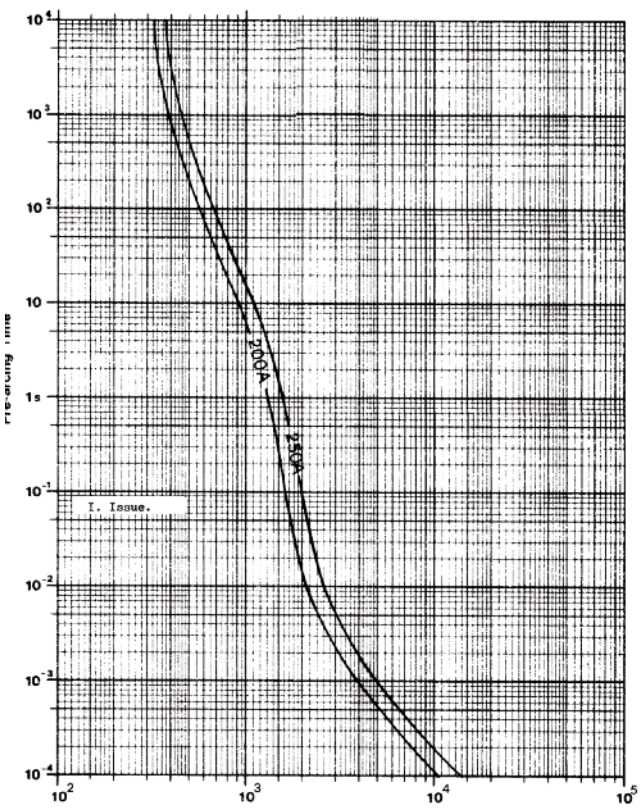
Peak Let-Through Curve



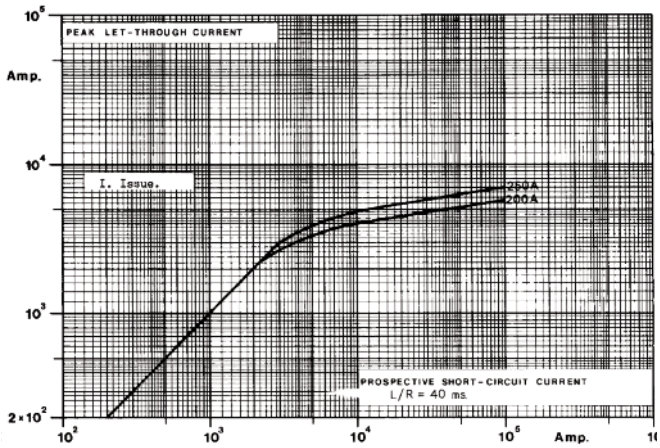
Data Sheet: Available upon request

Square Body DC Fuse — 200-250A: 750V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: Available upon request

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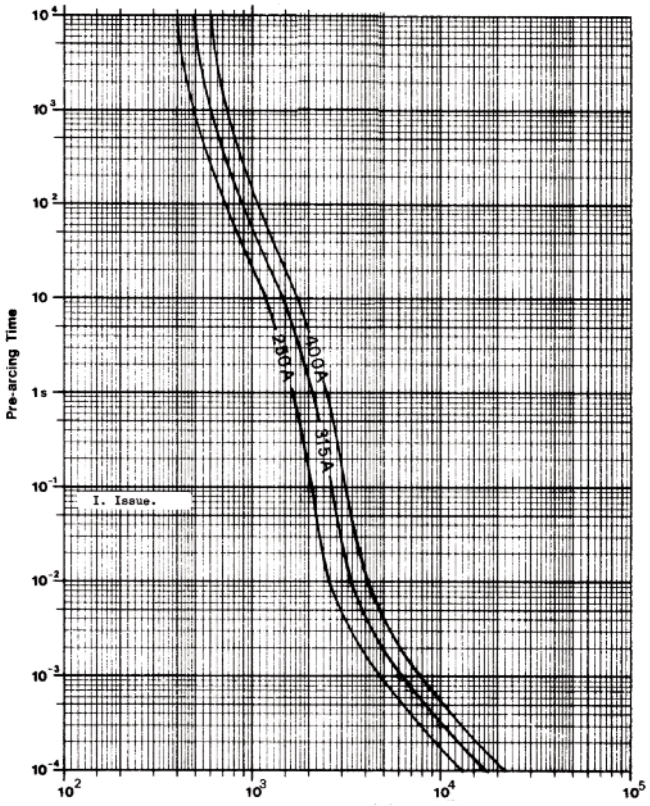
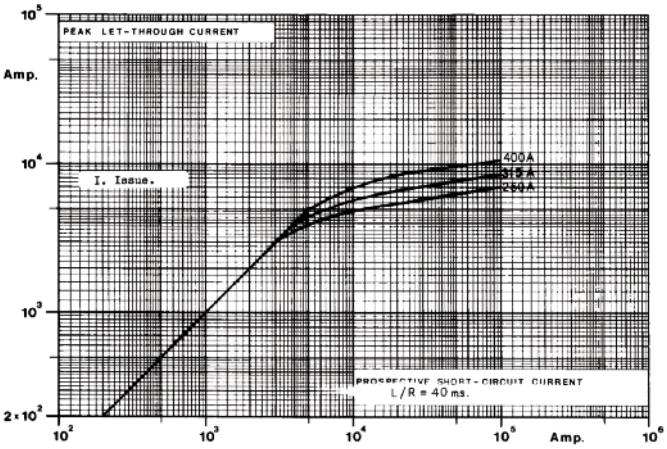
Square Body DC Fuses — 750Vdc: 63-500A

Square Body DC Fuse — 250-400A: 750V

Time-Current Curve



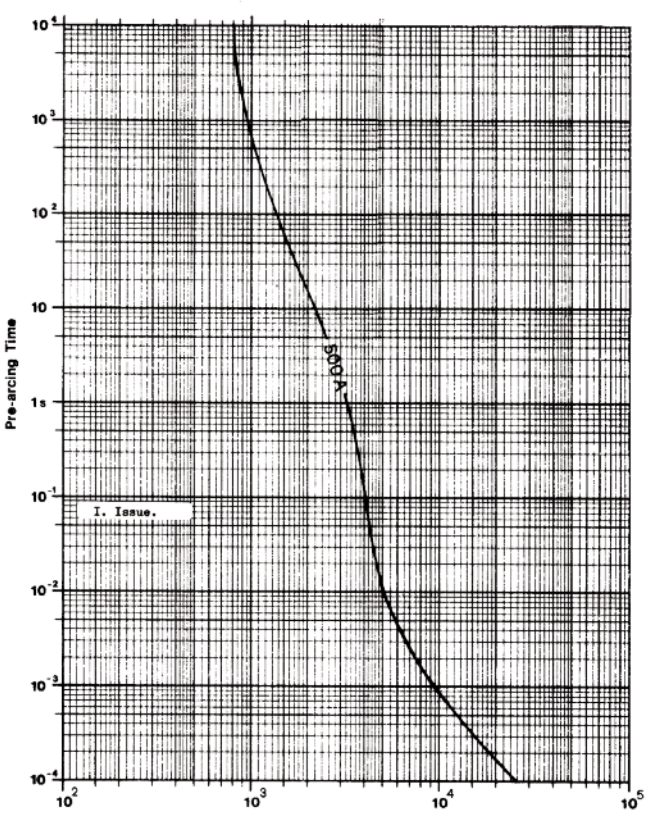
Peak Let-Through Curve



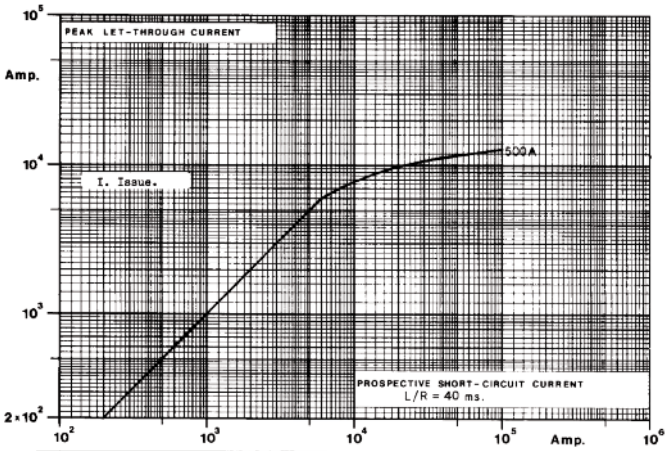
Data Sheet: Available upon request

Square Body DC Fuse — 500A: 750V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: Available upon request

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DC Fuses — 1200Vdc: 160-420A

1200Vdc 160-420A

Specifications

Description: High speed fuses that provide superior protection in light and heavy harsh DC traction applications as 1200Vdc and below circuits, and as DC link/power converters.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1200Vdc

Amps: — 160-420A

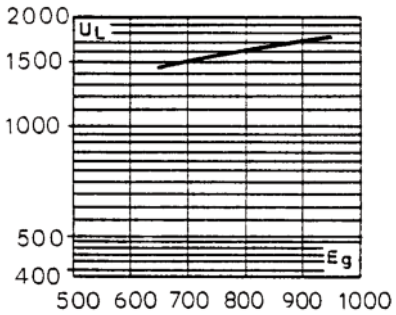
IR: — 1200Vdc = 100kA L/R: 15 ms.

Agency Information: Consult Cooper Bussmann.

Electrical Characteristics

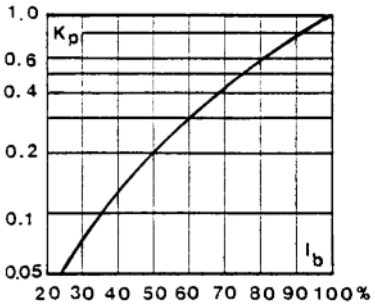
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

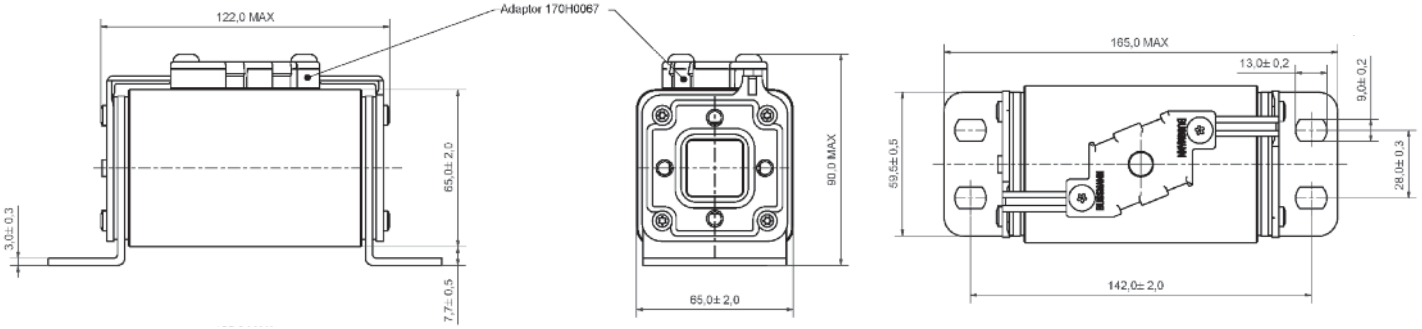
- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Catalog Numbers

Fuse Type	Cat. Numbers -SKNB/140 Type K Indicator	Electrical Characteristics: Rated Voltage (Vdc)	Rated Current RMS-Amp	Max I^2t (A^2Sec) @ 1000Vdc L/R = 15ms	Max I^2t (A^2Sec) @ 1000Vdc L/R = 45ms	Watts Loss (W)
2SKN / 140	170F8230	1200	160	12000	20000	75.0
	170F8231		200	20000	35000	85.0
	170F8232		250	43000	75000	94.0
	170F8233		315	87000	150000	104.0
	170F8234		400	180000	310000	120.0
	170F8235		420	215000	375000	122.0

Data Sheet: 170K5520
Microswitch: 170H0069, 170H3027 (gold)

Dimensions - mm



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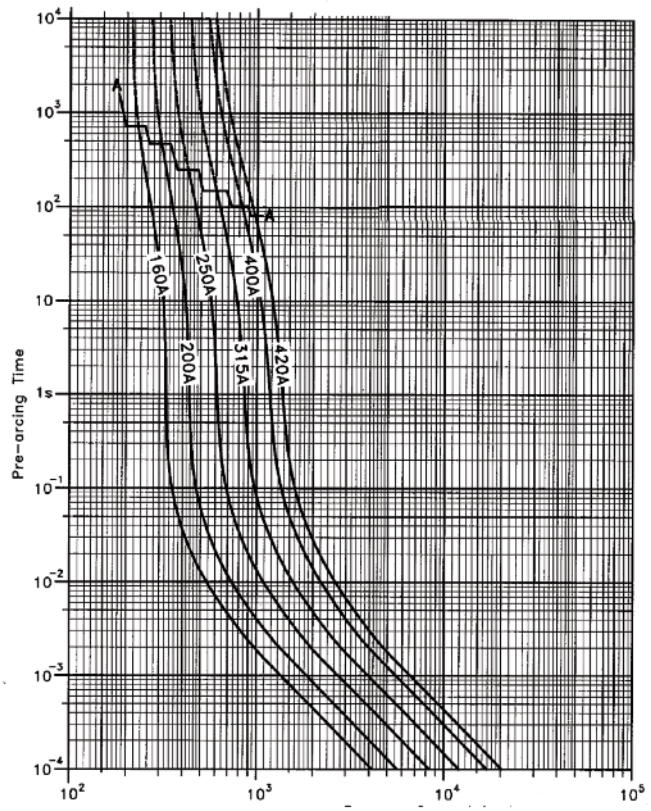
Square Body DC Fuses — 1200Vdc: 160-420A

Square Body DC Fuse — 160-420A: 1200V

Time-Current Curve



Data Sheet: Available upon request

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Square Body DC fuses — 2000Vdc: 10-125A

2000Vdc 10-125A

Specifications

Description: High speed fuses for the protection of DC circuits in equipment.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1200Vdc

Amps: — 160-420A

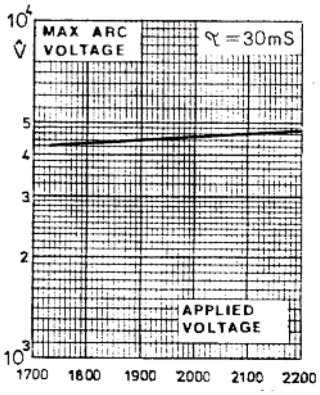
IR: — 1200Vdc = 100kA L/R: 15 ms.

Agency Information: Consult Bussmann.

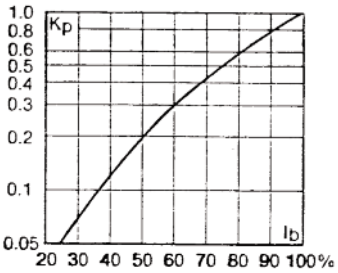
Electrical Characteristics

Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g.



Power Losses



Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

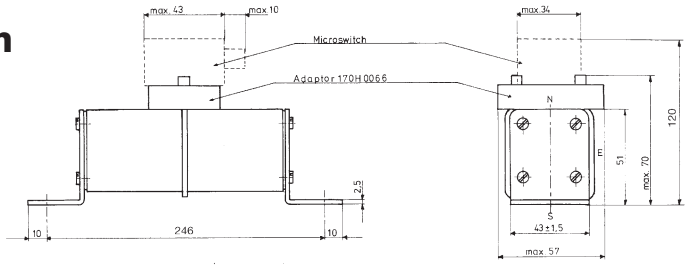
Catalog Numbers

Fuse Type	Cat. Number -SKN/246 Type K Indicator	Electrical Characteristics Rated Voltage (Vdc)	Rated Current RMS-Amp	Watt Loss (W)
1*SKN/246	170E3976	2000	10	7
	170E3970		16	11
	170E3950		20	13
	170E3951		25	17
	170E3952		32	22
	170E3953		40	27
	170E3954		50	34
	170E3955		63	43
	170E3956		80	50

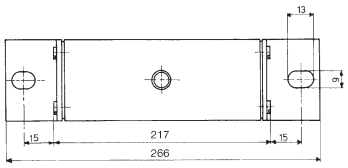
Fuse Type	Cat. Number -SKN/246 Type K Indicator	Electrical Characteristics Rated Voltage (Vdc)	Rated Current RMS-Amp	Watt Loss (W)
1*SKN/246	170E3937	2000	20	13
	170E3938		25	16
	170E3939		32	20
	170E3940		40	25
	170E3941		50	32
	170E3942		63	40
	170E3943		80	51
	170E3944		100	64
	170E3945		125	80

Dimensions - mm

Data Sheet: 170K4538
Microswitch: 170H0239, 170H3030 (gold)



Data Sheet: 170K4900
Microswitch: 170H0239, 170H3030 (gold)



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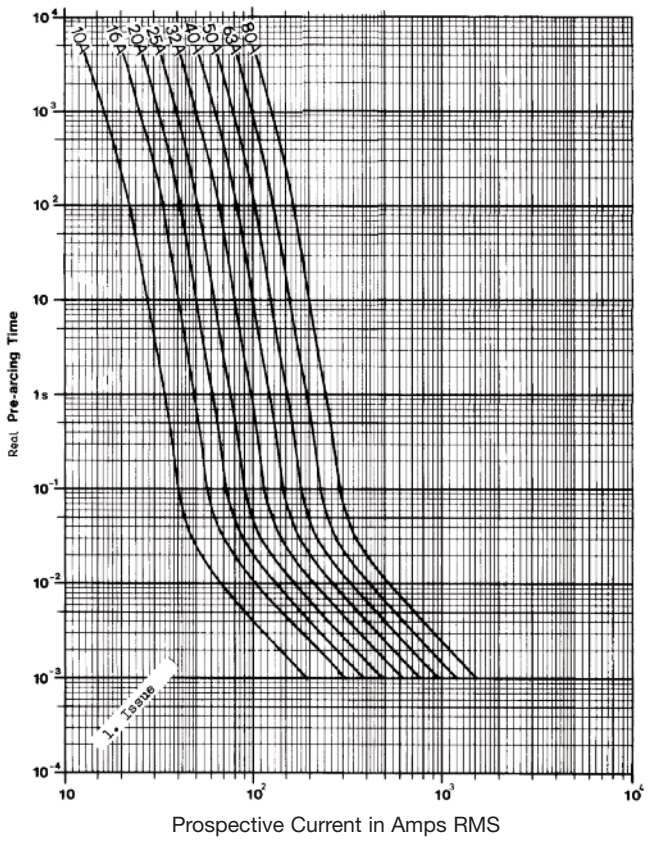
Square Body DC fuses — 2000Vdc: 10-125A

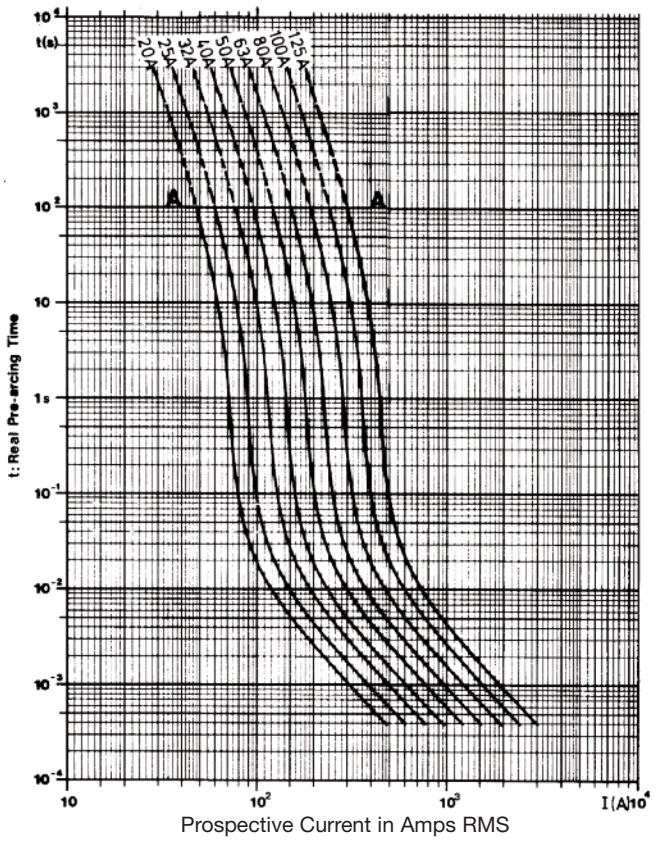
Square Body DC Fuses — 10-80A: 2000V

Time-Current Curve

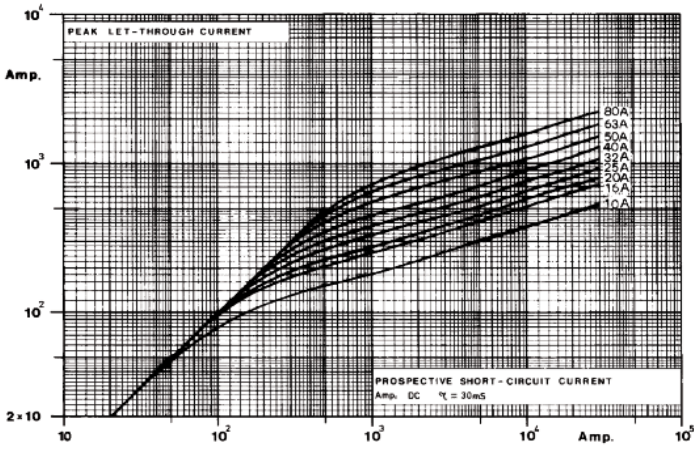


Square Body DC Fuses — 20-125A: 2000V

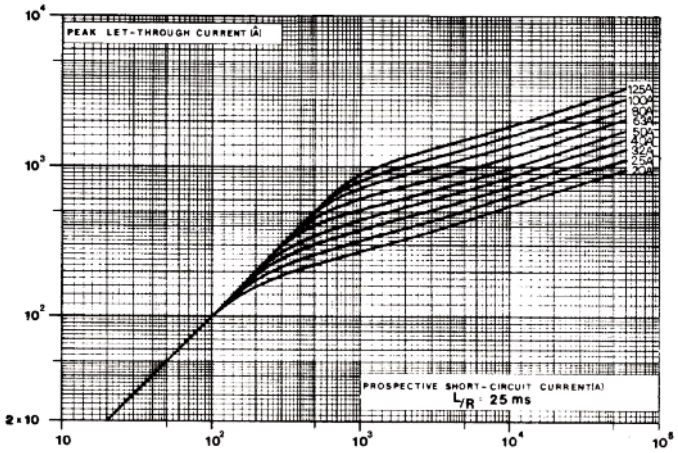
Time-Current Curve



Peak Let-Through Curve



Peak Let-Through Curve



Data Sheet: Available upon request

Data Sheet: Available upon request

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Square Body DC Fuses — 4000Vdc: 20-450A

4000Vdc 20-450A

Specifications

Description: High speed fuses for the protection of DC circuits in equipment.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 4000Vdc

Amps: — 20-450A

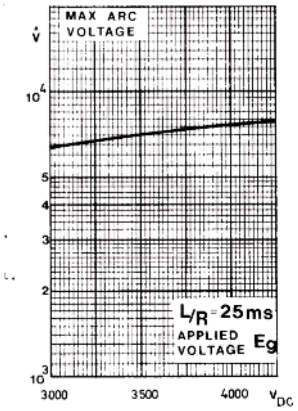
IR: — 60kA L/R: 25 ms.

Agency Information: Consult Bussmann.

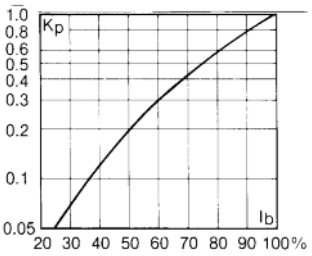
Electrical Characteristics

Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage E_g.



Power Losses



Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

Features and Benefits

- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss
- Superior cycling capability

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Catalog Numbers

Fuse Type	Cat. Numbers -SKN/394 Type K Indicator	Rated Voltage (Vdc)	Electrical Characteristics Rated Current RMS-Amp	Watts Loss (W)
1*SKN/394	170E3914	4000	20	23
	170E3915		25	28
	170E3916		32	34
	170E3917		40	45
	170E3918		50	57
	170E3919		63	72
	170E3984		80	91
	170E3933		100	114
	170E3922		125	143
2 SKN/394	170E8882		160	182
	170E8883		200	228
	170E8884		250	285
2//2SKN/394	170E8885		315	360
	170E8886		350	400
	170E8887		400	455
	170E8888		450	515

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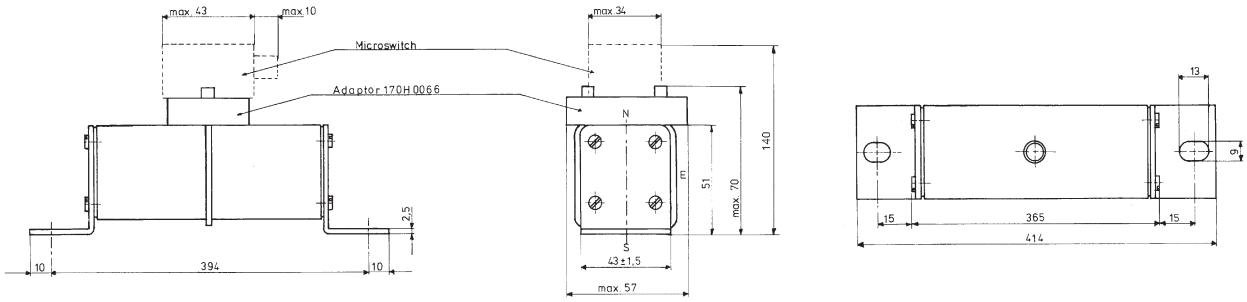
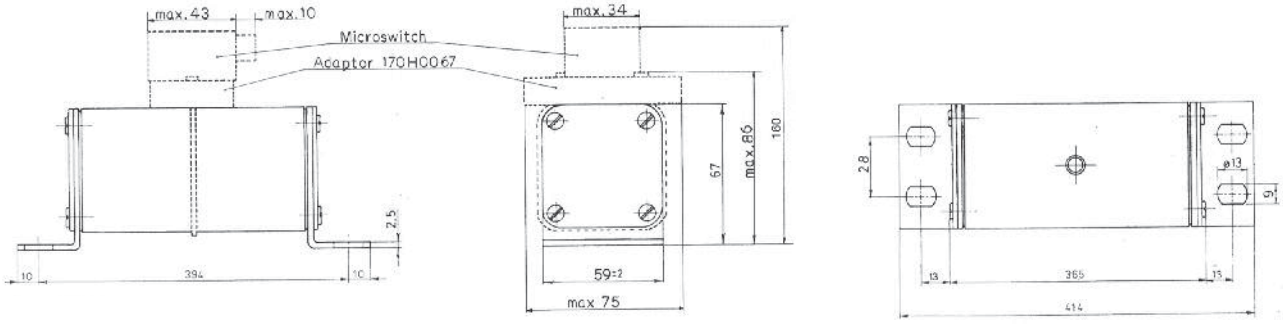
DC Fuses — 4000Vdc: 20-450A

Dimensions - mm

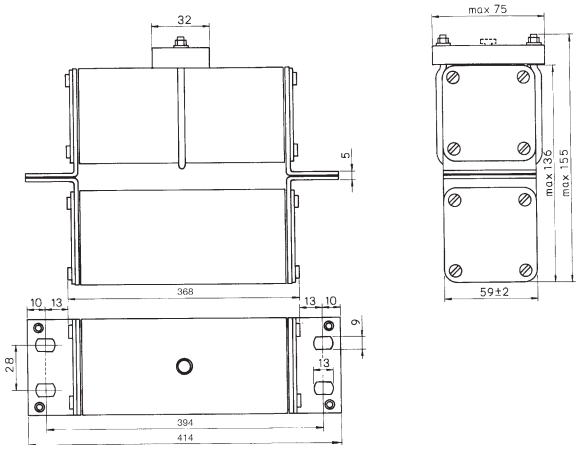
Type 1* SKN/ 394



Type 2SKN/ 394



Type 2/ / SKN/ 394



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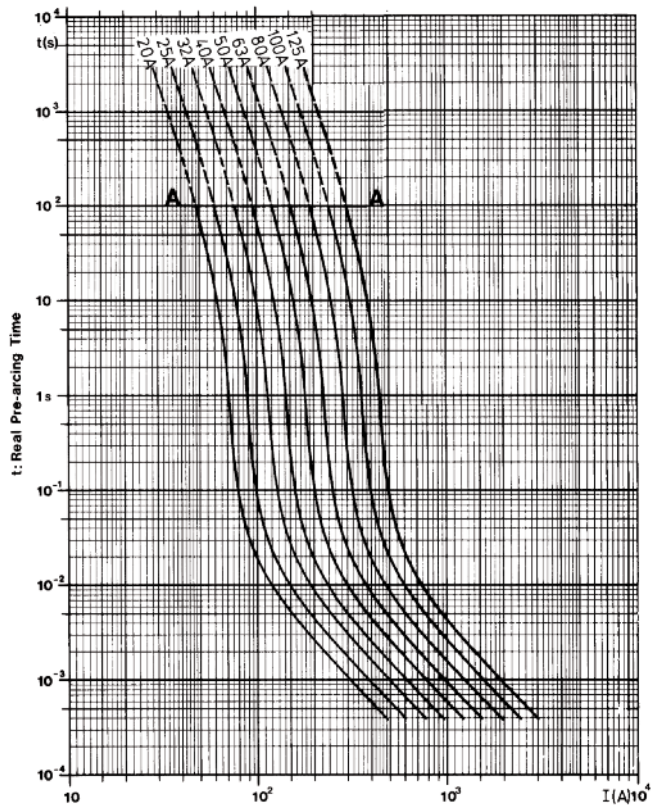
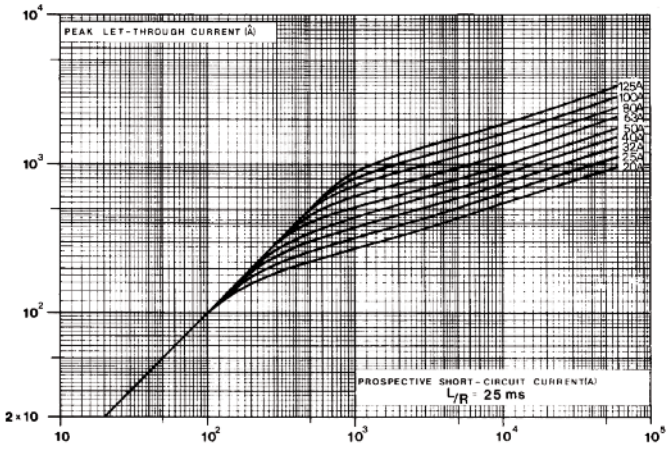
Square Body DC Fuses — 4000Vdc: 20-450A

Square Body DC Fuses — 20-125A: 2000V

Time-Current Curve



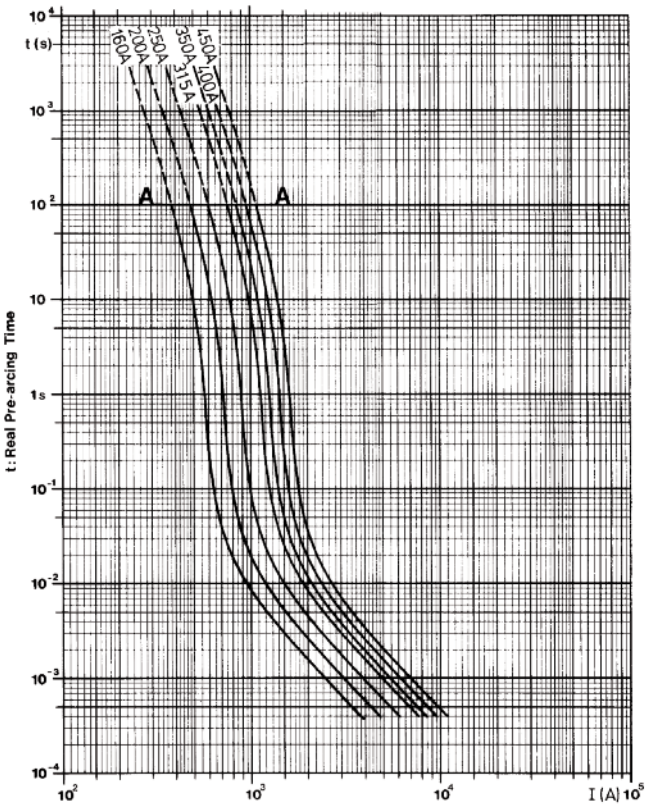
Peak Let-Through Curve



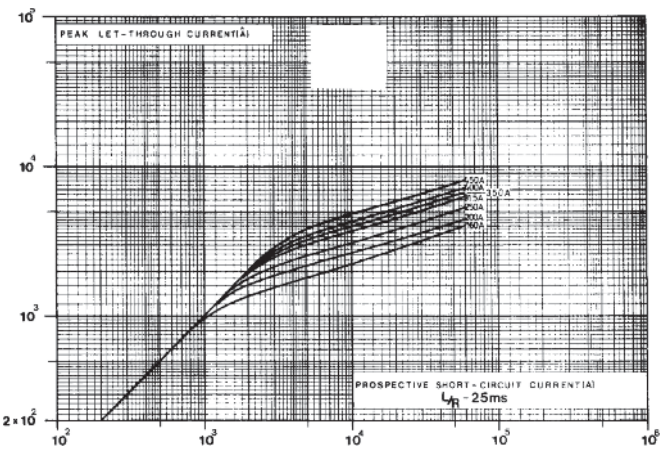
Data Sheet: Available upon request

Square Body DC Fuses — 160-450A: 4000V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: Available upon request

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Square Body Fuse Accessories

Indicator Systems

Typower ZILOX fuses are available with three different indicator systems.

1. Visual Indicator

The indicator situated in one cover plate is clearly visible as soon as the fuse has operated. The minimum voltage for operating the indicator is 20V.

2. Type T Indicator

The indicator is situated on one cover plate with a cover plate tag to accommodate an auxiliary switch. The minimum voltage for operating the indicator is 20V. A special low voltage indicator (1.5V) is available on request.

3. Type K Indicator

This indicator is situated on the fuse body. It is covered by an adapter for snap-on mounting of an auxiliary switch. The operating voltage of the indicator is 1.5V. As a matter of safety, the factory mounted adapter must not be removed from the fuse.

Microswitch

The Typower ZILOX fuses with either type T indicator or type K indicator can be equipped with a microswitch for remote electrical indication of fuse operations. All microswitches have one normally open and one normally closed contact. Ratings are 2A, 250Vac.

Microswitch	6.3 x 0.8mm Lugs	2.8 x 0.5mm Lugs	Indicator Type
170H0235	X		T
170H0236	X		T
170H0237		X	T
170H0238		X	T
170H0069	X		K

Size	DIN 43 653 Type T	Type K	DIN 43 620 Type T	Type K	French Style Type T	Type K	Flush End Type T	Type K	US Style Type K
000	170H0236		170H0236						
	170H0238		170H0238						
00	170H0235						170H0235		
	170H0237						170H0237		
1*	170H0235	170H0069	170H0235		170H0236	170H0069		170H0069	170H0069
	170H0237		170H0237		170H0238				
1	170H0235	170H0069			170H0236	170H0069		170H0069	170H0069
	170H0237				170H0238				
2	170H0235	170H0069	170H0235		170H0236	170H0069		170H0069	170H0069
	170H0237		170H0237		170H0238				
3	170H0235	170H0069	170H0236		170H0236	170H0069		170H0069	170H0069
	170H0237		170H0238		170H0238				
4								170H0069	
23								170H0069	
24								170H0069	

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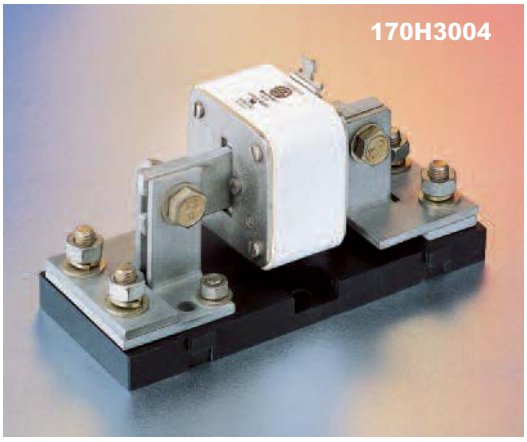
Square Body Fuse Accessories

Fuse Bases (Blocks)



DIN 43 653 Fuse Bases

For the Typower ZILOX fuses according to DIN 43 653, the following fuse bases are available:

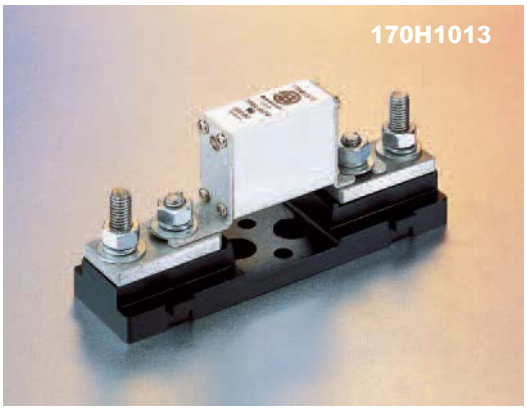
Catalog Number	Max Volts	Amp Rating	Center Distance
170H3003	1000	630	80mm
170H3004	1000	1250	80mm
170H3005	1400	630	110mm
170H3006	1400	1250	110mm

The fuse bases rated 1250A can also be used for the fuses with higher rated current if the maximum load current is derated according to the table below:

Fuse Amp Rating	Max Amp Load In Fuse Base
1400	1325
1500	1400
1600	1500
1800	1650
2000	1800

Fixed Center Base Style	Max Volts	Max. Fuse Amp Rating	Fuse Size
170H1007	1000	400	00, 000
170H1013	660	200	0000,000

UL Recognized to UL 512.

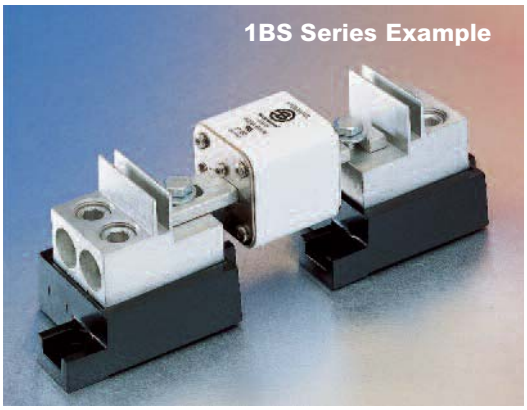


Universal Fuse Bases

For the Typower ZILOX fuses according to DIN 43 653, French style and North American style, the following fuse bases are available:

Modular Base Style	Max Volts	Max. Fuse Amp Rating	Data Sheet
1BS101	600	100	1206
1BS102	600	400	1207
1BS103	600	400	1208
1BS104	600	600	1209
BH-0xxx	700	200	1200
BH-1xxx	2500	400	1201
BH-2xxx	5000	400	1202
BH-3xxx	1250	700	1203

Modular fuse bases are UL Recognized to UL 512 and meet the spacing requirements of UL 347. Contact your Bussmann sales representative for more complete ordering information.



DIN 43 620 Fuse Bases

Size	Part Number
000-00	SB00-D
1*, 1	SB1-D
2,3	SB2-D

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British BS 88 Fuses

Introduction

British BS 88 Contents

Fuse Volts	Amp Range	Page
240	6-900	215-217
690	6-710	218-221

Accessories	
Indicator System & Fuse Bases	222

British BS 88 Fuse Ranges

Amps	Vac	Vdc
6-900	240	150
6-710	690	500

General Information

Designed and tested to:
- BS 88: Part 4
- IEC 269: Part 4
- UL Recognized

Bussmann offers the industry's widest range of British style semiconductor fuses and accessories.

Bussmann British style products use innovative arc quenching techniques and high grade materials to provide:
- Minimal energy let-through (I^2t)
- Excellent DC performance
- Good surge withstand profile

British style fuses are typically found in equipment manufactured in the United Kingdom or British Commonwealth countries. However, North American manufacturers have begun to specify British style fuses — particularly in UPS applications at 240V or less — to take advantage of their size, performance and cost benefits.

Voltage Rating

All Bussmann British style fuses are tested to IEC 269: Part 4. This standard requires a test voltage which is 5% higher than the rated voltage. In North America, fuses are required to clear only their rated voltage.

Accessories

Trip-indicator fuses are available for use in parallel with the main fuse. Indicator fuses can be attached to the associated fuselink, or mounted separately in panel-mounted fuseclips. In addition, a push-on adapter and microswitch attachment are available, to provide remote indication. Fuse blocks are also available for most applications.

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British BS 88 — 240V: 6-900A

LCT, LET, LMT, LMMT

Specifications

Description: BS 88 style stud-mount fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 240Vac/150Vdc

Amps: — 6-900A

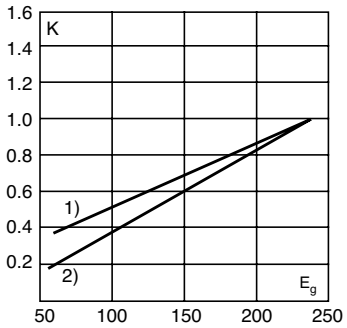
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to: BS 88 Part 4, IEC 269 Part 4, UL Recognized. All fuses above have been tested at 318Vac. Consult Bussmann for specific UL Recognition status.

Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) LCT
2) LET, LMT, LMMT

Dimensions - mm

Fig. 1: LCT

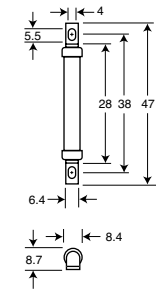


Fig. 2: LET

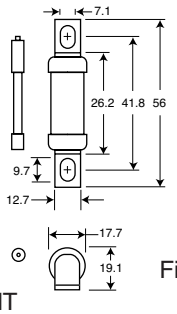
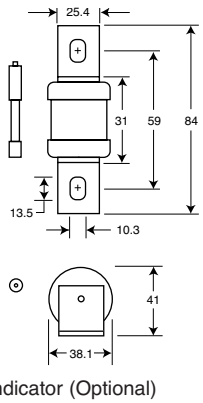
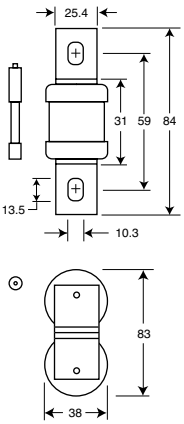


Fig. 3: LMT



Indicator (Optional)

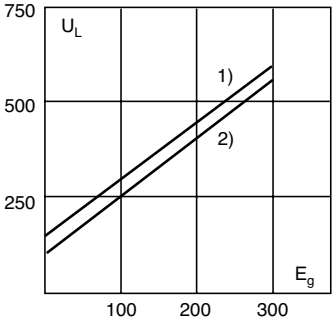
Fig. 4: LMMT



1mm = 0.0394" / 1" = 25.4mm

Arc Voltage

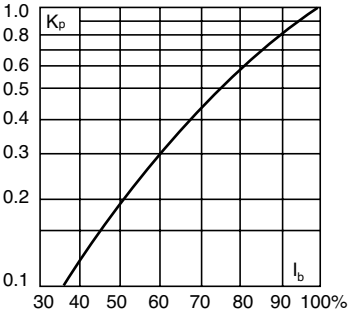
This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



1) LCT
2) LET, LMT, LMMT

Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Electrical Characteristics

Catalog Numbers	Type	Rated Current RMS-Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 120V	I^2t (A^2 Sec) Clearing at 240V	Watts Loss
6LCT		6	2	6	9	1.0
10LCT		10	3.8	12	22	2.5
12LCT	LCT	12	7	22	32	2.5
16LCT		16	20	50	100	2.5
20LCT		20	25	80	160	4.0
25LET		25	18	120	250	4.0
32LET		32	32	200	450	5.0
35LET		35	50	320	600	5.0
50LET		50	100	500	1400	7.0
63LET	LET	63	180	1100	2200	9.0
80LET		80	300	1900	3800	10.0
100LET		100	600	3800	7500	10.0
125LET		125	600	3800	7500	16.0
160LET		160	1100	7000	16000	20.0
180LETa		180	1600	12000	29000	21.0
160LMT		160	1100	7000	16000	17.0
200LMT		200	1500	10000	20000	28.0
250LMT		250	3200	20000	40000	28.0
315LMT	LMT	315	6000	35000	75000	35.0
355LMT		355	8000	50000	100000	35.0
400LMT		400	14000	70000	160000	40.0
450LMT		450	18000	100000	220000	42.0
400LMMT		400	6000	35000	80000	60.0
500LMMT		500	14000	80000	170000	64.0
630LMMT	LMMT	630	24000	150000	300000	75.0
710LMMT		710	32000	200000	460000	77.0
800LMMT		800	52000	300000	600000	82.0
900LMMT		900	75000	400000	800000	97.0

- Watts loss provided at rated current.
- Note: 7LET, 10LET, 12LET and 16LET are available for replacement purposes on existing equipment.
- See accessories on page 222.

Features and Benefits

- Excellent cycling capability
- Excellent DC performance
- Low arc voltage and low energy let-through (I^2t)

Typical Applications

- DC Common bus
- AC and DC drives
- Power converters/rectifiers
- Reduced voltage starters

Data Sheet: 720004

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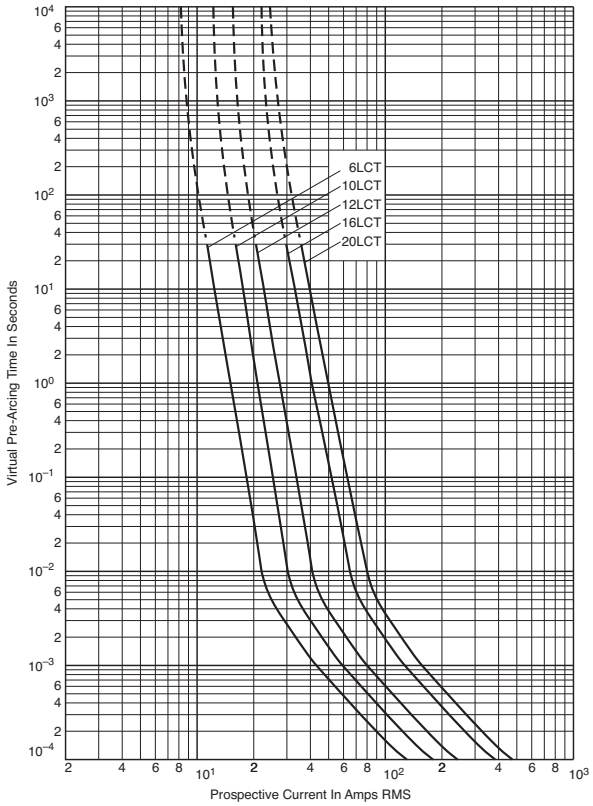
British BS 88 — 240V: 6-900A

LCT 6-20A: 240V

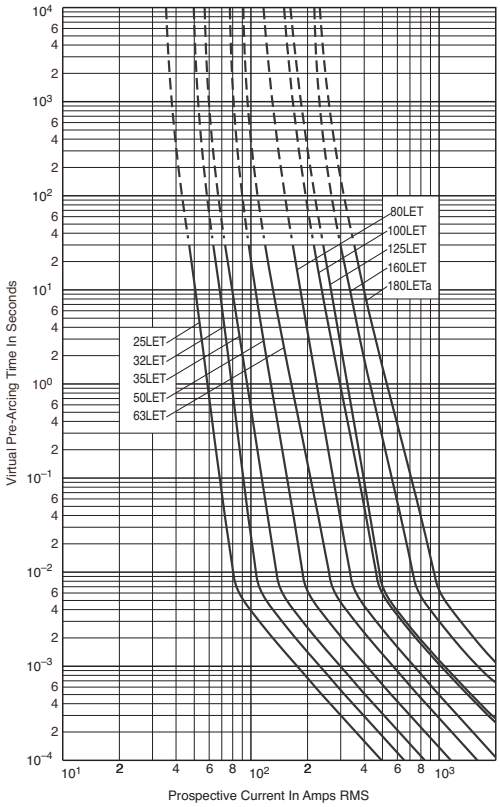
Time-Current Curve



Data Sheet: 35785296

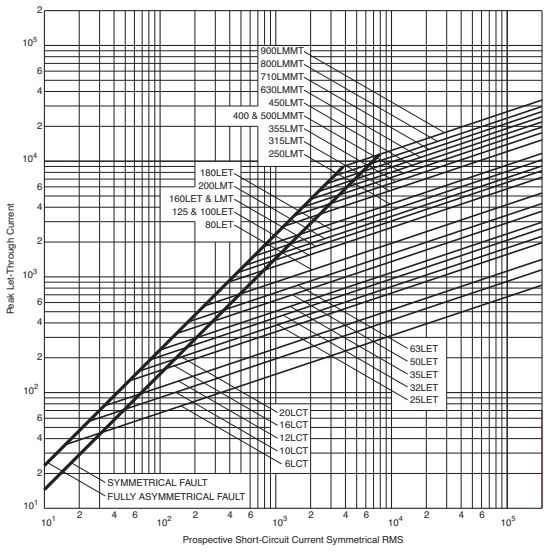
LET 25-180A: 240V

Time-Current Curve



Data Sheet: 35785293

Peak Let-Through Curve



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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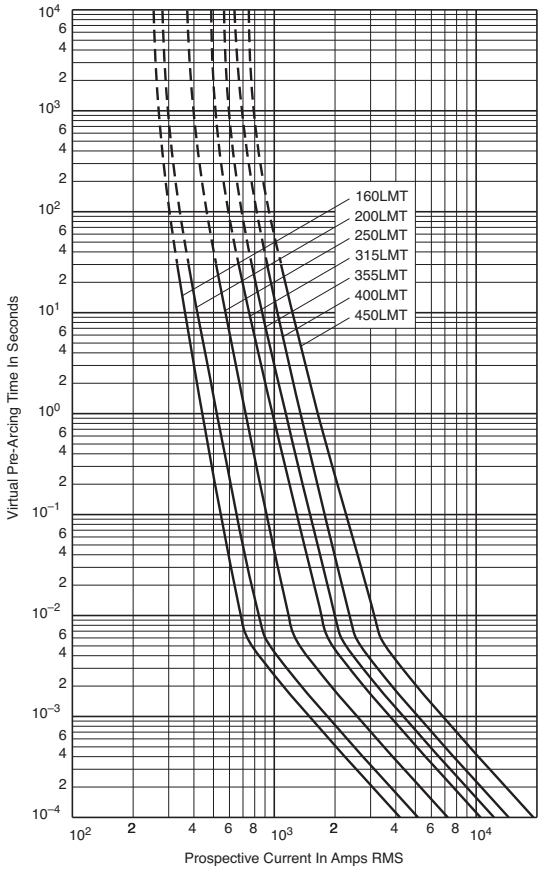
British BS 88 — 240V: 6-900A

LMT 160-450A: 240V

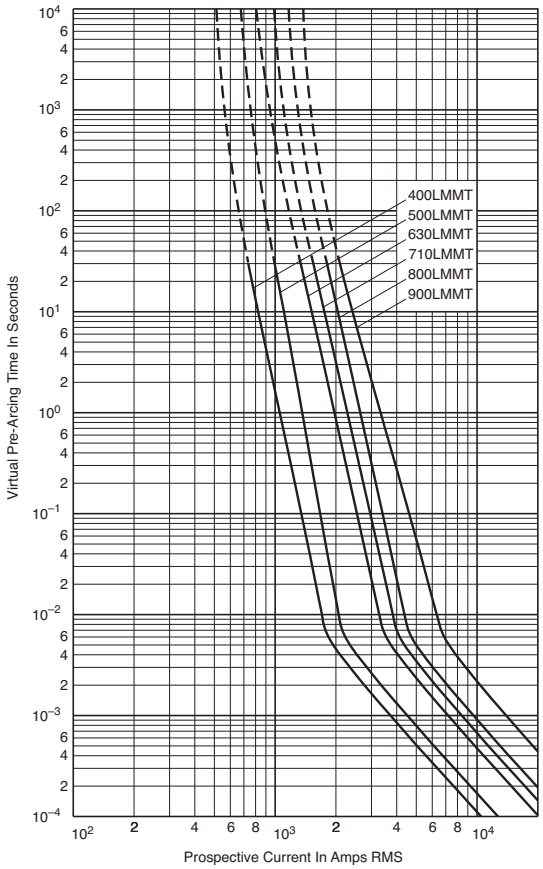
Time-Current Curve



Data Sheet: 35785294

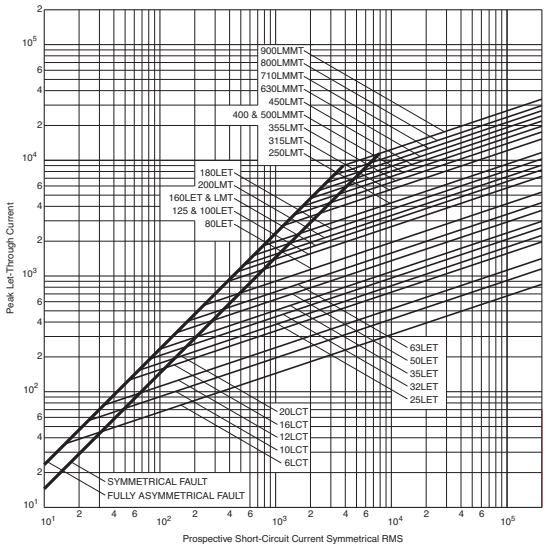
LMMT 400-900A: 240V

Time-Current Curve



Data Sheet: 35785295

Peak Let-Through Curve



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British BS 88 — 690V: 6-710A

CT, ET, FE, EET, FEE, FM, FMM, MT, MMT

Specifications

Description: BS 88 style stud-mount fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 690Vac/500Vdc

Amps: — 6-710A

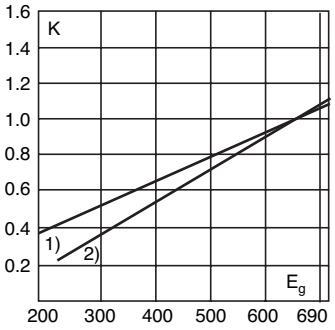
IR: — 200kA RMS Sym.

Agency Information: CE, Designed and tested to: BS 88 Part 4, IEC 269 Part 4, UL Recognized. MT and MMT — 350Vdc (IEC) rating. Consult Bussmann for UL Recognition status.

Electrical Characteristics

Total Clearing I²t

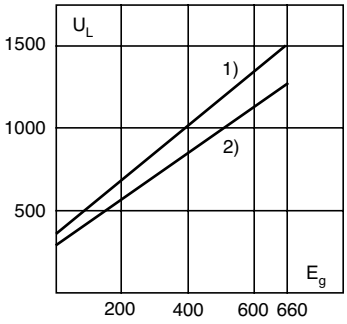
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) CT, ET, EET, FE, FEE, MT, MMT
2) FM, FMM

Arc Voltage

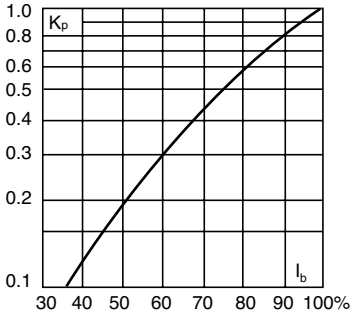
This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



1) CT
2) ET, FE, EET, FEE, FM, FMM

Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, Ib, in % of the rated current.



Features and Benefits

- Excellent cycling capability
- Excellent DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm

Fig. 1: CT

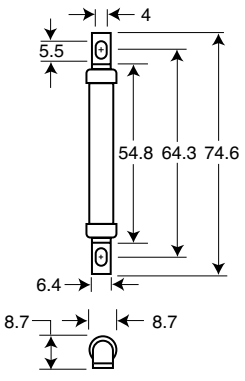


Fig. 2: ET, FE

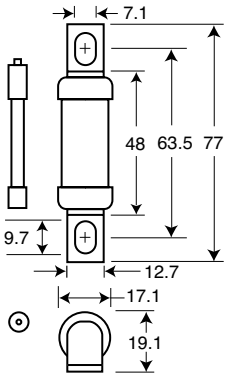


Fig. 3: EET, FEE

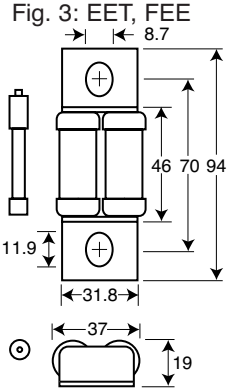


Fig. 4: FM, MT

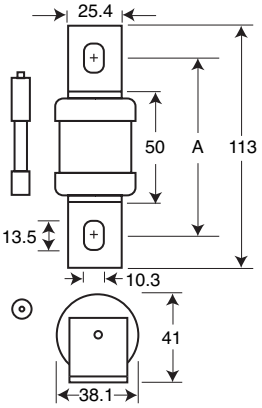
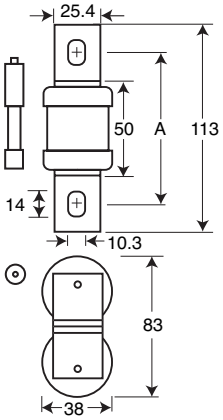


Fig. 5: FMM, MMT



1mm = 0.0394" / 1" = 25.4mm

Figs. 4 & 5 "A" Dimensions

Type	"A"
FM	80-85mm
FMM	80-85mm
MT	85mm
MMT	85mm

Data Sheet: 720024

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British BS 88 — 690V: 6-710A

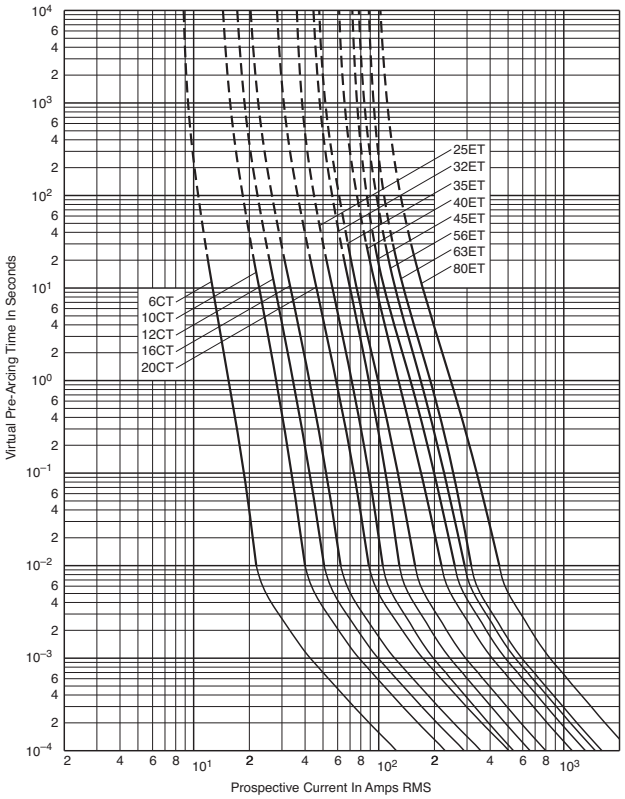
Catalog Numbers

Catalog Numbers	Type	Electrical Characteristics				
		Rated Current RMS-Amps	I²t (A² Sec)			Watts Loss
			Pre-arc	Clearing at 415V	Clearing at 660V	
6CT	CT	6	1.8	8.5	12	2
10CT		10	7	30	48	3
12CT		12	10	40	65	3
16CT		16	16	66	110	7
20CT		20	32	150	220	7
25ET	ET	25	25	150	250	7
32ET		32	32	190	350	11
35ET		35	52	310	500	11
40ET		40	103	600	900	9
45ET		45	103	680	1100	11
56ET		56	135	950	1500	14
63ET		63	171	1200	2000	16
80ET		80	360	2500	4000	18
35FE	FE	35	33	130	200	9
40FE		40	52	180	300	9
45FE		45	76	270	450	11
50FE		50	103	380	600	11
63FE		63	135	480	750	12
71FE		71	210	600	950	17
80FE		80	250	900	1500	20
90FE		90	360	1300	2100	20
100FE		100	470	1800	2800	23
90EET	EET	90	490	3000	4500	19
110EET		110	600	4000	6500	27
140EET		140	1050	7000	12000	35
160EET		160	1500	10000	17000	39
100FEE	FEE	100	400	1600	2400	24
120FEE		120	540	1900	3100	32
140FEE		140	850	2500	3800	36
160FEE		160	1000	3700	5700	46
180FEE		180	1400	5300	8400	46
200FEE		200	1900	7100	11400	52
180FM	FM	180	1400	7500	13500	40
200FM		200	2600	10500	18500	40
225FM		225	3700	14500	26500	44
250FM		250	5200	20500	37500	48
280FM		280	7000	30500	55000	48
315FM		315	10000	40000	77000	55
350FM		350	15000	60000	105000	55
400FMM	FMM	400	10000	40000	72500	85
450FMM		450	15000	60000	105000	90
500FMM		500	20000	82000	150000	100
550FMM		550	30000	120000	215000	100
630FMM		630	45000	180000	310000	100
700FMM		700	60000	245000	420000	120
160MT	MT	160	2400	15000	25000	26
180MT		180	3800	25000	38000	26
200MT		200	6000	40000	58000	27
250MT		250	11500	80000	110000	32
280MT		280	16500	100000	150000	35
315MT		315	19000	125000	180000	42
355MT		355	22000	160000	200000	51
180MMT	MMT	180	1650	12000	18000	42
200MMT		200	2200	16000	23000	42
225MMT		225	3700	26000	40000	42
280MMT		280	6600	47000	70000	47
315MMT		315	8600	62000	91000	51
355MMT		355	13500	97000	140000	54
400MMT		400	21000	150000	220000	60
450MMT		450	30000	220000	320000	57
500MMT		500	42000	300000	450000	64
560MMT		560	60000	430000	640000	64
630MMT		630	68500	500000	720000	86
710MMT		710	78000	600000	850000	105

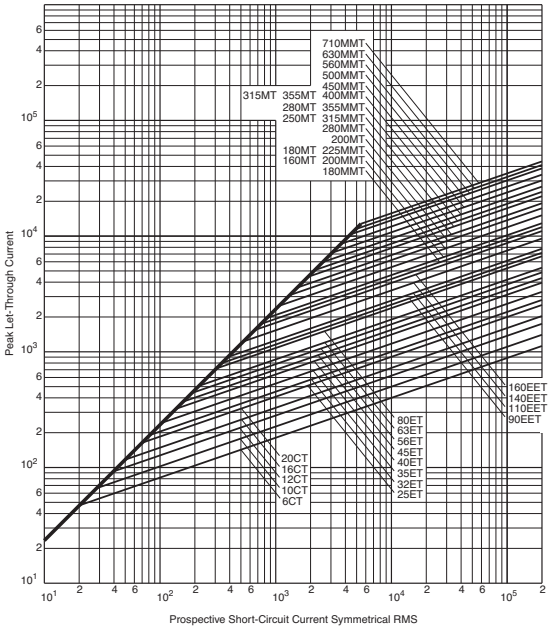
- Watts loss provided at rated current.
- Note: FC, 8ET, 12ET, 15ET, 20ET, 65EET and 75EET are available for replacement purposes on existing equipment.
- See accessories on page 222.

CT 6-20, ET 25-80A: 690V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785312

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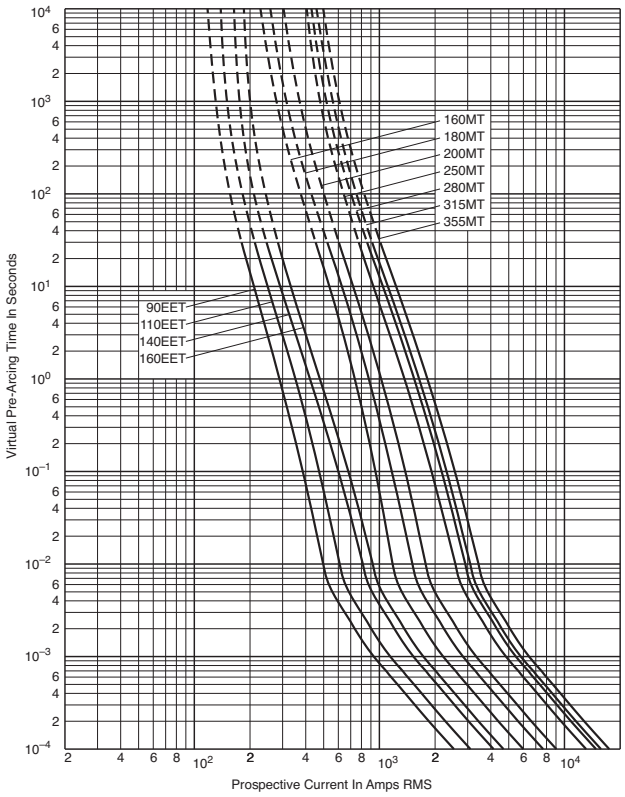
British BS 88 — 690V: 6-710A

EET 90-160A, MT 160-355A: 690V

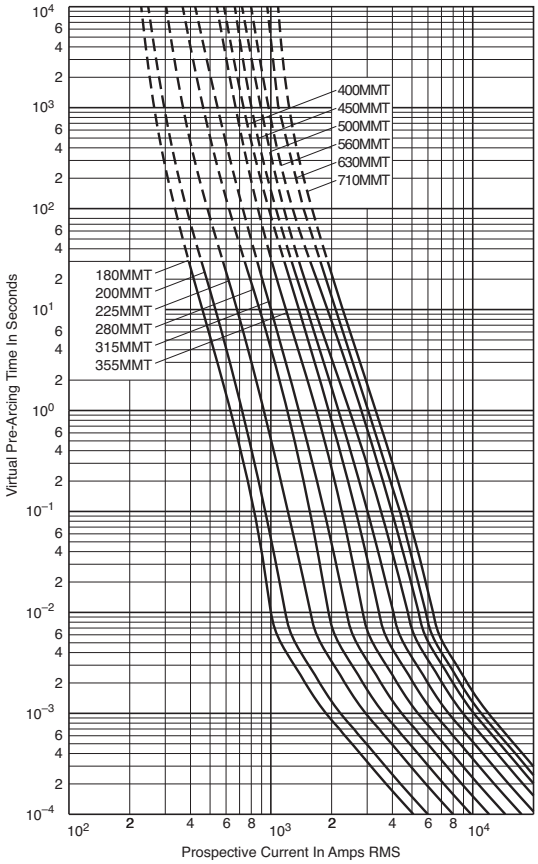
Time-Current Curve



Data Sheet: 35785313

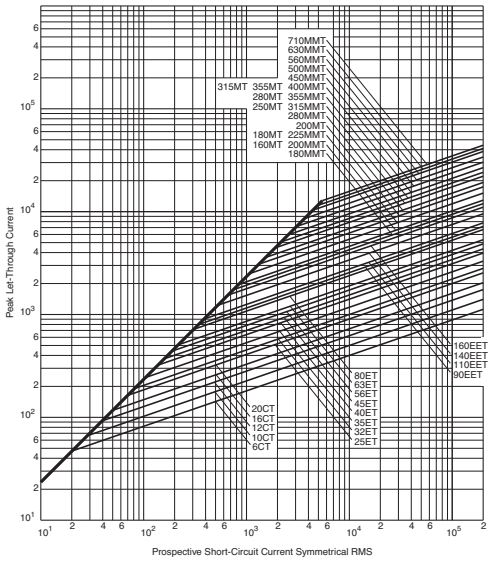
MMT 180-710A: 690V

Time-Current Curve



Data Sheet: 35785311

Peak Let-Through Curve



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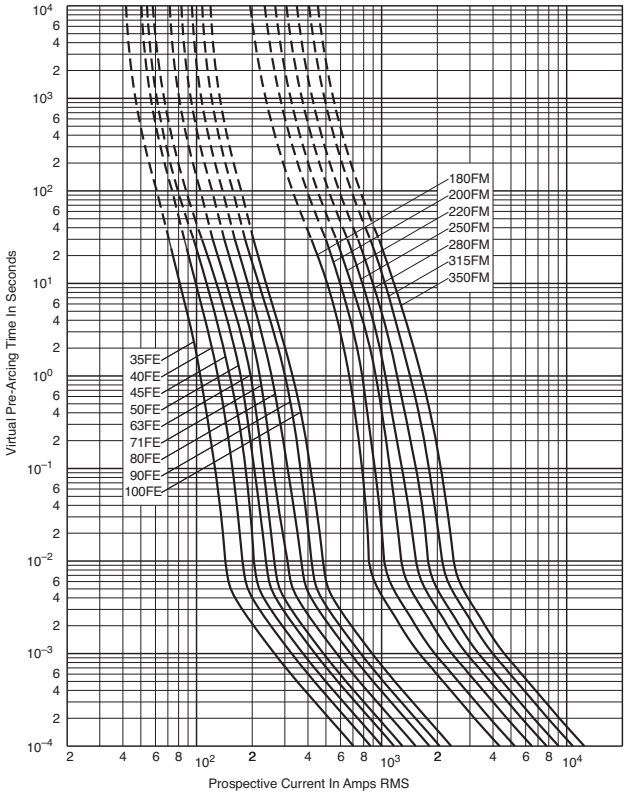
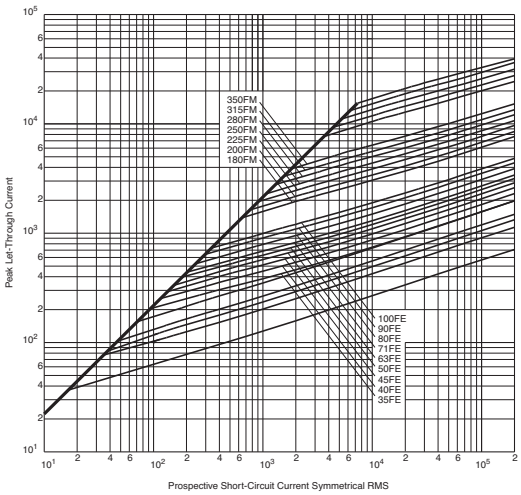
British BS 88 — 690V: 6-710A

FE 35-100A & FM 180-350A: 690V

Time-Current Curve



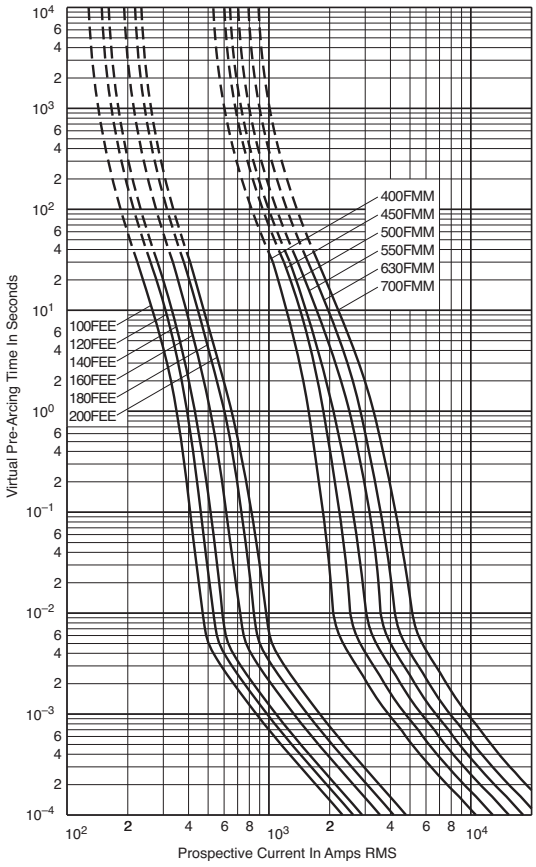
Peak Let-Through Curve



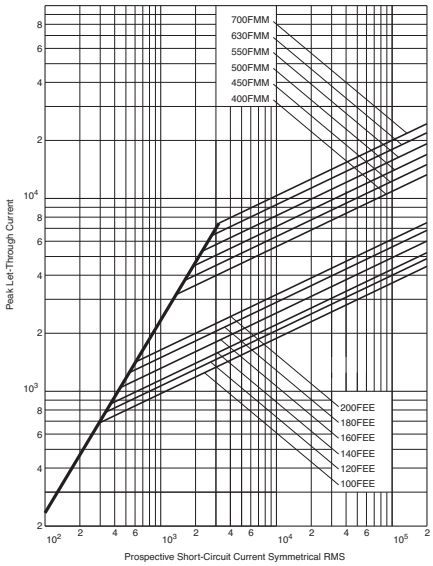
Data Sheet: 35785314

FEE 100-200A & FMM 400-700A: 690V

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785292

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British BS 88 Fuse Accessories

Indicator System

Trip-Indicators

Trip-indicators are available for use in parallel with the main fuse. They can either be attached to the associated fuse or mounted separately in panel mounted fuse clips, reference CL1. A push-on adapter and microswitch attachment is available for use with the trip indicator to give the facility of remote indication, reference MAI.

Fuse ratings of 20A and below cannot usually accommodate a trip-indicator.

When a trip-indicator is to be attached to the main fuse an accessory pack comprising a pair of mounting clips and an appropriate trip indicator would be required. The clips are snapped onto the fuse end caps and the indicator is pressed into clips as shown.

Electrical Specifications

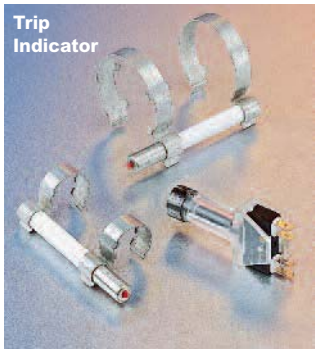
Type	TI500	TI700
Maximum RMS Voltage	500	700
Maximum Peak Voltage	700	1000
Maximum DC Voltage	130	350
Cold Resistance (ohms)	0.3	0.45
Maximum permissible steady-state current	1.5A	1.5A
Interrupting Capacity (RMS Symm.)	100,000	100,000
Pre-Arcing I^2t	23	23
Total I^2t (max volts)	46	46

Fuse Indicator Kits

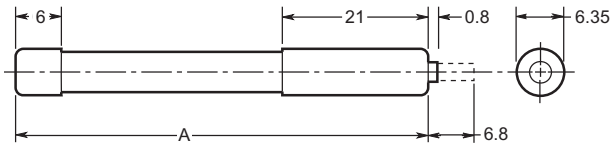
Kit. Ref.	Details	RMS Volts	For use with Fuse Ref.
EC-250	Fuse Mount	250	LET
MC250	Indicator Kits	250	LMT & LMMT
EC-600	(Includes one	660	FE, FEE & ET
MC600	indicator	660	FM & FMM
MC700	and two clips)	700	MT & MMT

CL1 Panel Mount Clips

CL1 Panel mount fuse clips are available for mounting a trip-indicator when mounting directly on the fuse is impractical. Order part number CL1.

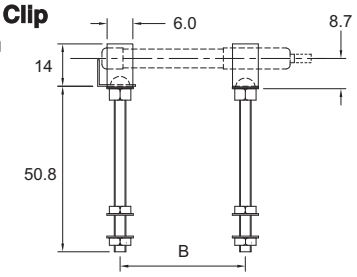


Trip-Indicator Dimensions - mm



Ref.	Dim. "A" (mm)	RMS Volts
TI250	37.6	250
TI500	47.5	500
TI600	55.7	600
TI700	61.8	700
TI1100	98.4	1100
TI1500	120.6	1500
TI2000	147.5	2000
TI2500	198.3	2500

CL1 Panel Mount Clip Dimensions - mm



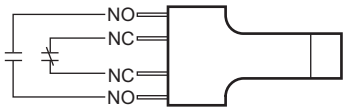
Microswitch Adapter – MAI

We offer a microswitch, complete with adapter for securing the indicator. The microswitch is provided with double pole, single throw contacts, having both a normally open and a normally closed position. A special material has been employed in the construction of the adapter to provide reliable operation in the range of temperatures associated with standard operating conditions and during fuse operation.

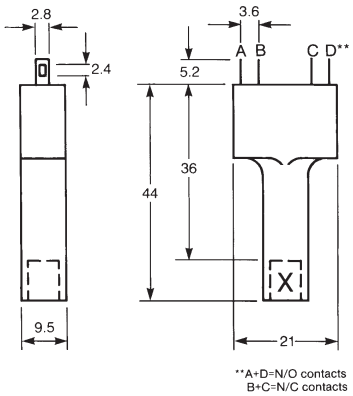
Microswitch and Adapter Type MAI

Current Rating:	
AC 50/60Hz resistive load @ 250V RMS	4A
AC 50/60Hz resistive load @ 127V RMS	6A
DC, resistive load @ 110Vdc	0.7A DC
DC, resistive load @ 30Vdc	2A DC
Maximum Working Voltage:	
Contact-to-contact (RMS)	1000V
Contact-to-contact (RMS)	1500V
Maximum DC Volts:	110Vdc

Terminal Arrangement



Dimensions in mm



**A+D=N/O contacts
B+C=N/C contacts

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Ferrule Fuses

Table of Contents

Basic Catalog Number	Volts	Amp Range	Page
FWA	150	5-60	224-225
FWX	250	1-50	226-227
FWH	500	0.25-30	228-231
FWC	600	6-32	232-233
FWP	690V/700	1-100	234-237
FWK	750	5-60	238-239
FWJ	1000	20-30	240-241
FWL/FWS	1250/1500/2000	2-30	242

Accessories

Fuse Holders	241

Ferrule Fuse Ranges

Volts	Amps	AC	DC
150	5-60	X	X
250	1-50	X	X
500	0.25-30	X	X
600	6-32	X	X
700 (22 x 58mm)	20-100	X	—
700 (14 x 51mm)	1-50	X	X
750	5-60	X	X
1000	20-30	X	X (800Vdc)
1250	20-30	X	X (1000Vdc)
1500	8-15	X	X (1000Vdc)
2000	2-6	X	X (1000Vdc)

General Information

Bussmann offers a full line of ferrule style (cylindrical clip-mounted) fuses, designed and tested to meet standards and requirements in various locations around the world. Their unique design and construction provide:

- Superior cycling capability
- Low energy let-through (I^2t)

Ferrule fuses provide an excellent solution for small UPS, small ac drives and other low power applications where space is at a premium.

Voltage Rating

All Bussmann ferrule fuses — except 690V — have been tested at their rated voltage. The 690V ferrule fuse has been tested to the IEC 60269 standard, which requires clearing at the rated voltage +5%.

Accessories

Ferrule fuses may be mounted in fuseclips, fuse holders, fuse blocks or fused switches. A variety of products are available. Please consult Bussmann Application Engineering to discuss your requirement.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWA 150V: 5-60A

FWA 5-30A (10 x 38mm)
35-60A (21 X 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 150Vac/dc

Amps: — 5-60A

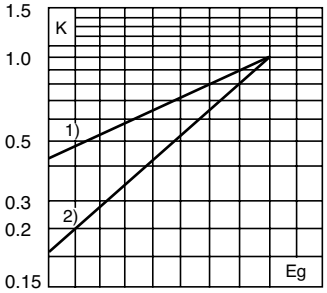
IR: — 100kA Sym.

Agency Information: CE, UL Recognition JFHR2.E91958

Electrical Characteristics

Total Clearing I²t

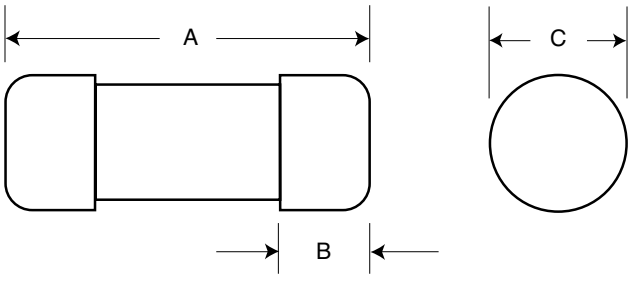
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



1) 5-30A Range
2) 35-60A Range

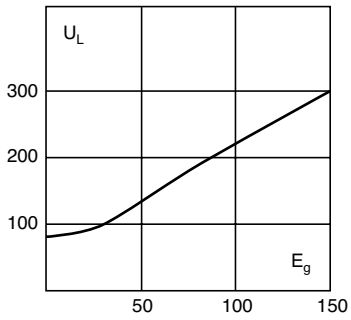
Dimensions - in (mm)

Amp Range	Dimensions A	B	C
5-30	1.5 (38.1)	0.375 (9.5)	0.406 (10.3)
35-60	2.0 (50.8)	0.625 (15.9)	0.811 (20.6)



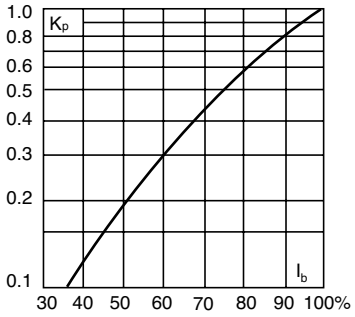
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics: Rated Current RMS-Amps	I²t (A² Sec): Pre-arc	I²t (A² Sec): Clearing at 150V	Watts Loss
FWA-5A10F	10 x 38mm (13/32" x 1½")	5	1.6	8	1
FWA-10A10F		10	3.6	16	2.7
FWA-15A10F		15	14	55	3.3
FWA-20A10F		20	33	130	3.8
FWA-25A10F		25	58	220	4.9
FWA-30A10F		30	100	400	4.9
FWA-35A21F	21 x 51mm (13/16" x 2")	35	75	800	4.5
FWA-40A21F		40	100	1000	5.1
FWA-45A21F		45	130	1300	6
FWA-50A21F		50	170	1600	7.3
FWA-60A21F		60	250	2400	8.0

• Watts loss provided at rated current.
• See accessories on page 243.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

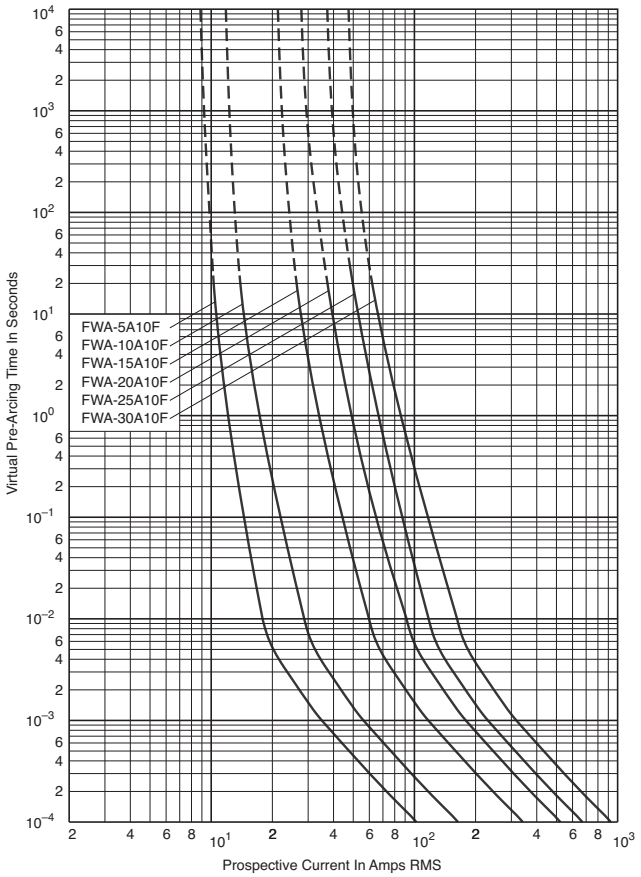
Data Sheet: 720003

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

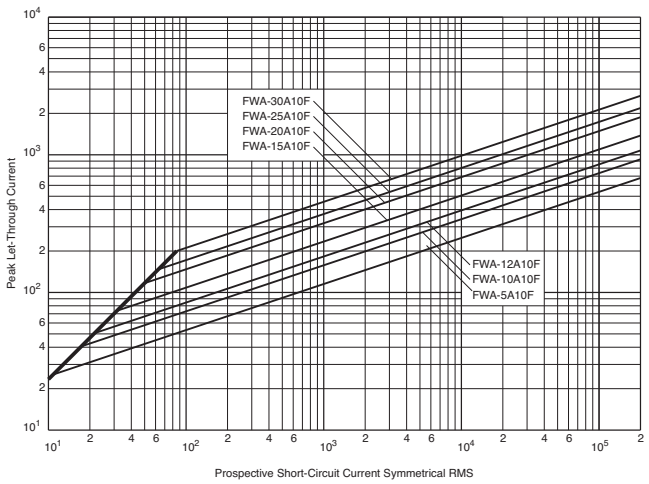
Ferrule — FWA 150V: 5-60A

FWA 5-30A: 150V (10 x 38mm)

Time-Current Curve



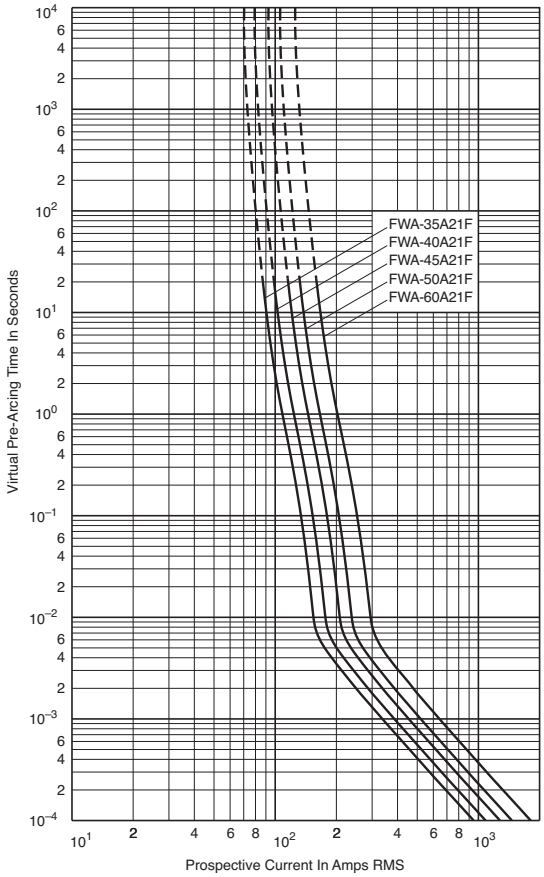
Peak Let-Through Curve



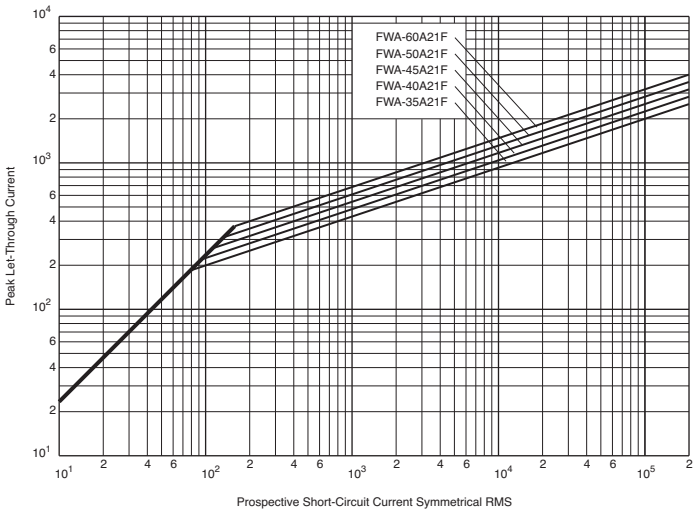
Data Sheet: 35785317

FWA 35-60A: 150V (21 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785305

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWX 250V (UL): 1-50A

FWX (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 250Vac/dc

Amps: — 1-50A

IR: — 200kA RMS Sym.

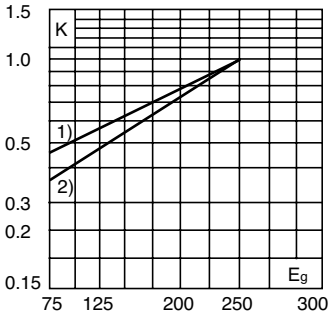
— 50kA @ 250Vdc

Agency Information: CE, UL Recognition JFHR2.E91958 1-50A & CSA Component Acceptance file Class 1422-30, 1422-90 (53787) 5-30A

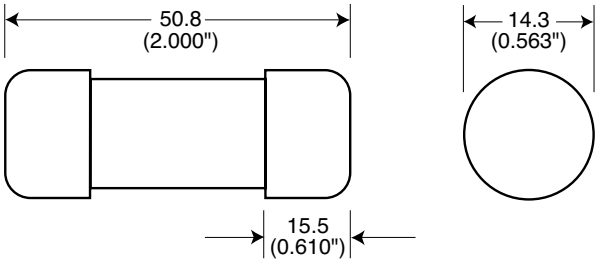
Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

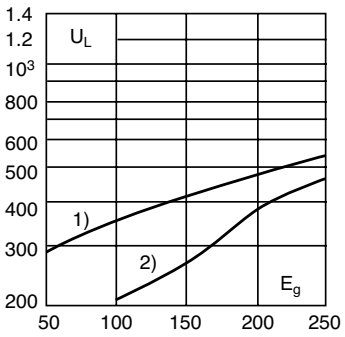


Dimensions - mm (in)



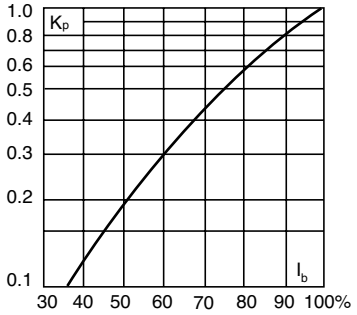
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Number	Size	Electrical Characteristics: Rated Current RMS-Amps	I^2t (A^2Sec): Pre-arc	I^2t (A^2Sec): Clearing at 250V	Watts Loss
FWX-1A14F		1	—	—	—
FWX-2A14F		2	—	—	—
FWX-3A14F		3	—	—	—
FWX-4A14F		4	—	—	—
FWX-5A14F	14 x 51mm	5	1.6	13	1.3
FWX-10A14F	(9/16" x 2")	10	3.6	24	3.4
FWX-15A14F		15	14	83	3.8
FWX-20A14F		20	33	200	4.6
FWX-25A14F		25	58	300	5.3
FWX-30A14F		30	100	500	5.9
FWX-50A14F		50	200	1800	5.7

• Watts loss provided at rated current.

• (250Vdc/Interrupting rating 50kA) UL Recognition & CSA Component Acceptance on 5 through 30A only. Consult Bussmann for additional ratings.

• See accessories on page 243.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

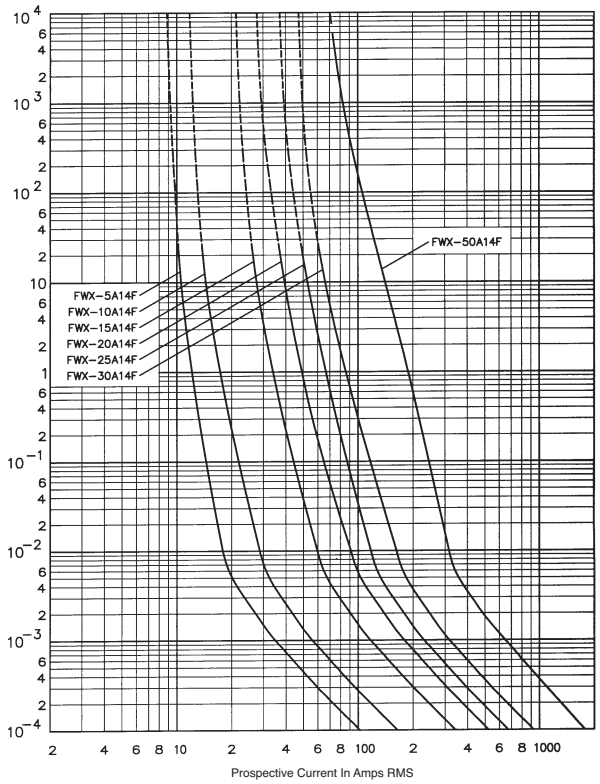
Data Sheet: 720006

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

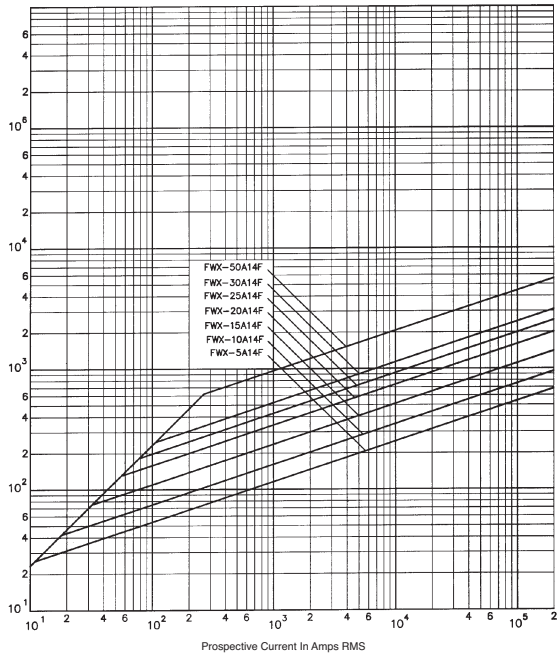
Ferrule — FWX 250V (UL): 1-50A

FWX 1-30A: 250V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785302

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWH 500V: 0.25-30A

FWH (6 x 32mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 500Vac (0.25-6.3A)
500Vdc (2-5A)

Amps: — 0.25-30A

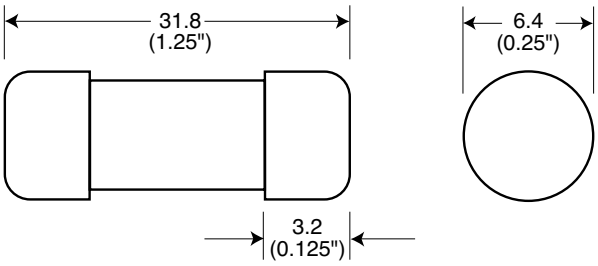
IR: — 50kA at ≥ 20% pf (0.25-20A)
— 20kA at ≥ 20% pf (25-30A)

Agency Information: CE, UL Recognition JFHR2.E91958 0.25-30A, CSA Component Acceptance file Class 1422-30, 1422-90 (53787) 0.25-7A

Opening Times

Amp Ratings	150%	200%	300%
0.25-7	> 30 min	< 30 min	≤ 10 sec
10-30	< 30 min	< 30 min	≤ 10 sec

Dimensions - mm (inches)



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I²t (A² Sec) Pre-arc	I²t (A² Sec) Clearing at 500V	Watts Loss
FWH-.250A6F		0.25*	0.01	0.05	2.7
FWH-.500A6F		0.5*	0.05	0.25	1.2
FWH-001A6F		1*	0.4	2	1.7
FWH-002A6F		2*	1.3	3.5	3.2
FWH-3.15A6F		3.15*	3.1	7.7	2.9
FWH-005A6F		5*	15	40	2.1
FWH-6.30A6F	6 x 32mm	6.3*	36	90	2.3
FWH-007A6F	(¼" x 1¼")	7*	50	125	2.5
FWH-010A6F		10**	9.9	139	2.86
FWH-12.5A6F		12.5**	20	60	3.53
FWH-015A6F		15**	44	146	3.08
FWH-016A6F		16**	48	177	4.48
FWH-020A6F		20**	75	259	4.26
FWH-025A6F		25**	126	345	—
FWH-030A6F		30**	145	430	—

*300% minimum opening current at rated voltage.
**200% minimum opening current at rated voltage.
• Consult Bussmann for DC ratings.
• See accessories on page 243.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

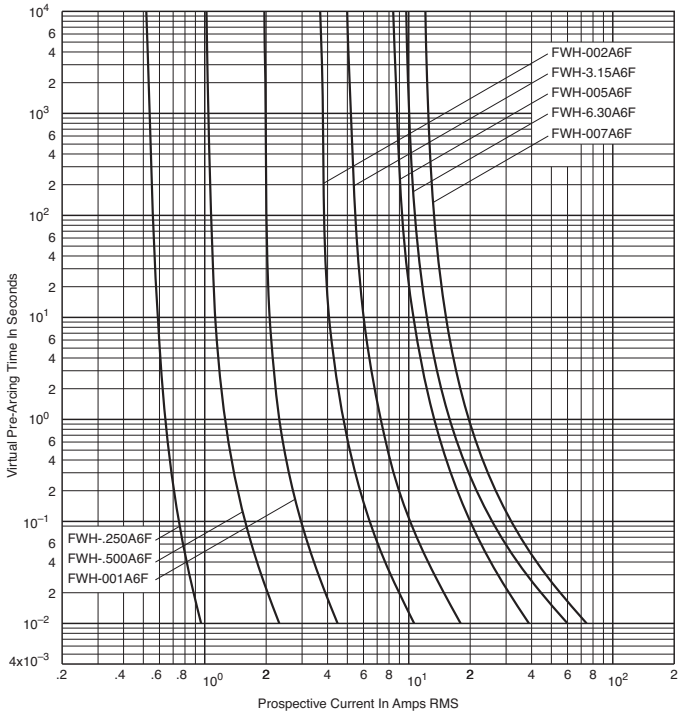
Data Sheet: 720038

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWH 500V: 0.25-30A

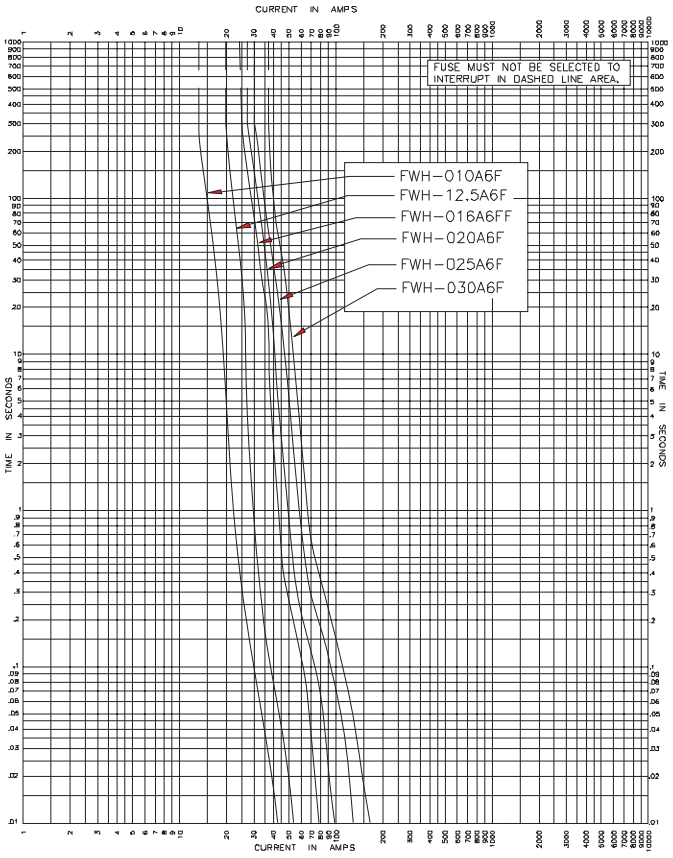
FWH 0.25-7A: 500V (6 x 32mm)

Time-Current Curve



FWH 10-30A: 500V (6 x 32mm)

Time-Current Curve



Data Sheet: 35785256

Data Sheet: 50955

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWH 500V: 1-30A

FWH (14 x 51mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 500Vac

Amps: — 1-30A

IR: — 200kA RMS Sym.

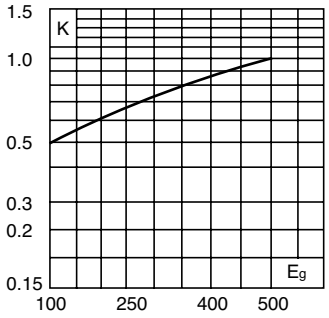
— 50kA @500Vdc

Agency Information: CE, UL Recognition 1- 30A & CSA Component Acceptance file Class 1422-30, (53787) on: 5 - 30A.

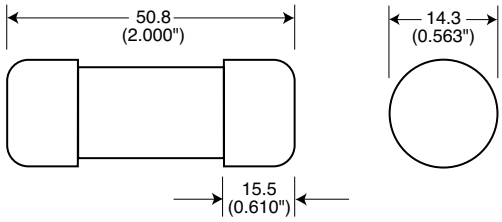
Electrical Characteristics

Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

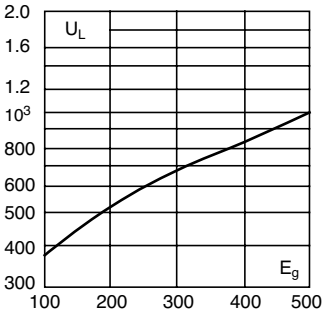


Dimensions - mm (inches)



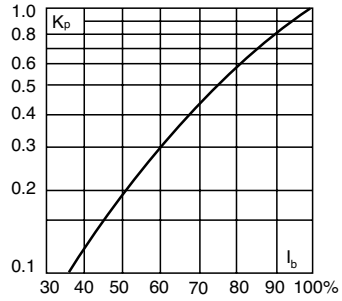
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of the applied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I^2t (A^2 Sec) Pre-arc	I^2t (A^2 Sec) Clearing at 500V	Watts Loss
FWH-1A14F	14 x 51mm	1	—	—	—
FWH-2A14F	(9/16" x 2")	2	—	—	—
FWH-3A14F		3	—	—	2.3
FWH-4A14F		4	—	—	—
FWH-5A14F		5	1.6	6.4	1.5
FWH-6A14F		6	1.6	6.4	1.5
FWH-10A14F		10	3.6	13	4
FWH-12A14F		12	—	—	—
FWH-15A14F		15	10	40	5.5
FWH-20A14F		20	26	96	6
FWH-25A14F		25	49	191	7
FWH-30A14F		30	58	232	9

• Watts loss provided at rated current.

• See accessories on page 243.

Features and Benefits

- Excellent cycling capability and dc performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC common bus
- DC drives
- Power converters/rectifiers
- Reduced voltage starters

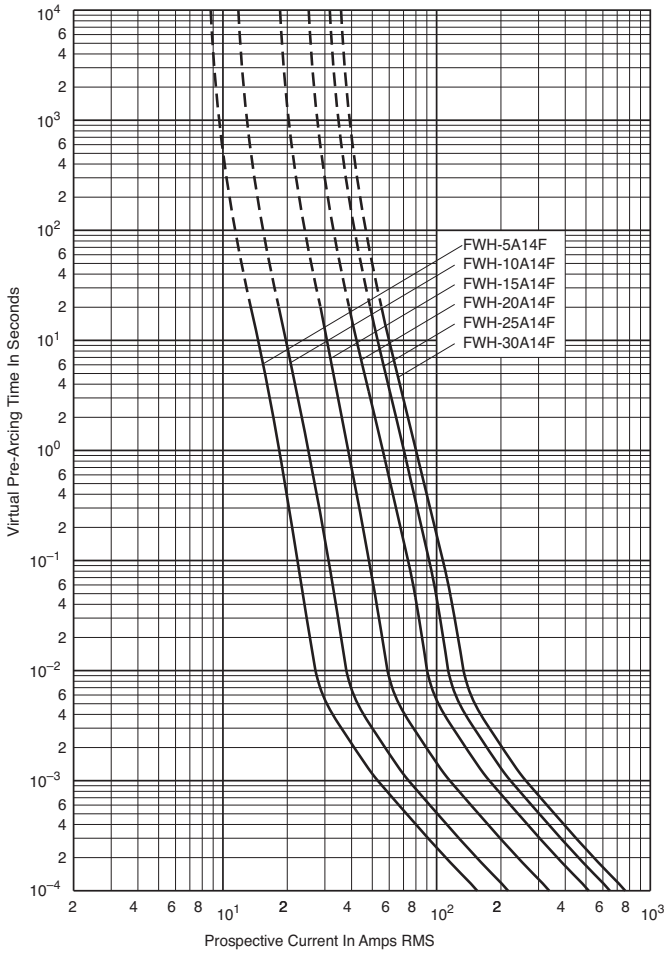
Data Sheet: 720008

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

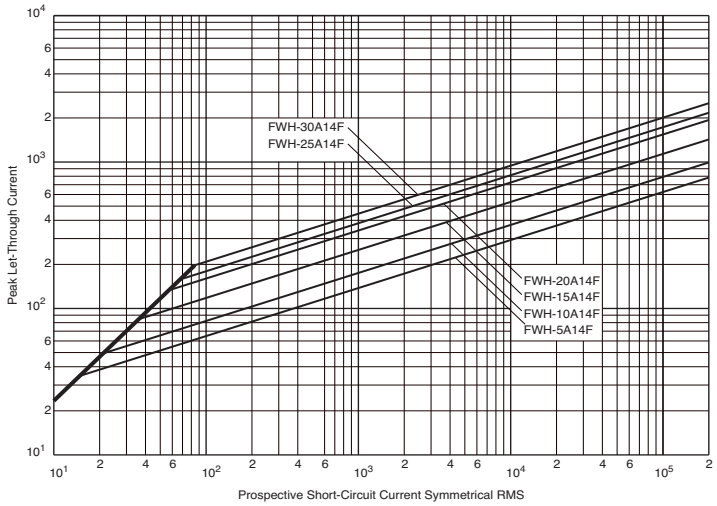
Ferrule — FWH 500V: 1-30A

FWH 1-30A: 500V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785298

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWC 600V: 6-32A

FWC (10 x 38mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 600Vac/700Vdc (6-25A)
600Vac (30-32A)

Amps: — 6-32A

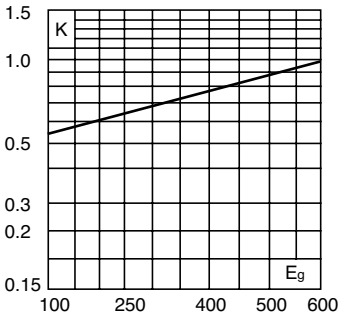
IR: — 200kA RMS Sym.
— 50kA @ 700Vdc (6-25A)

Agency Information: CE, UL Recognition JFHR8.E91958 6-32A. & CSA Component Acceptance file Class 1422-30, (53787) on (6-32A)

Electrical Characteristics

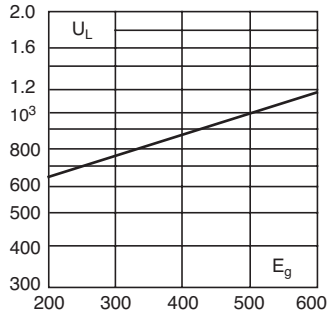
Total Clearing I^2t

The total clearing I^2t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



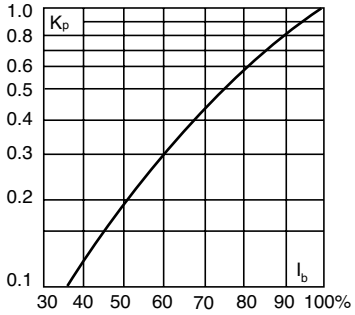
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.

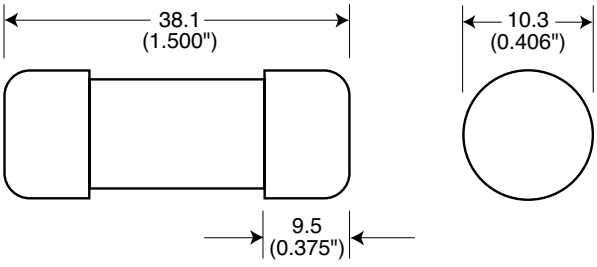


Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics: Rated Current RMS-Amps	I^2t (A^2 Sec): Pre-arc	I^2t (A^2 Sec): Clearing at 600V	Watts Loss
FWC-6A10F		6	4	30	1.5
FWC-8A10F		8	6	50	2.0
FWC-10A10F		10	9	70	2.5
FWC-12A10F	10 x 38mm	12	15	120	3.0
FWC-16A10F	(13/32" x 1½")	16	25	150	3.5
FWC-20A10F		20	34	260	4.8
FWC-25A10F		25	60	390	6.0
FWC-30A10F		30	95	600	7.5
FWC-32A10F		32	95	600	7.5

• Watts loss provided at rated current.
• See accessories on page 243.

Dimensions - mm (in)



Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

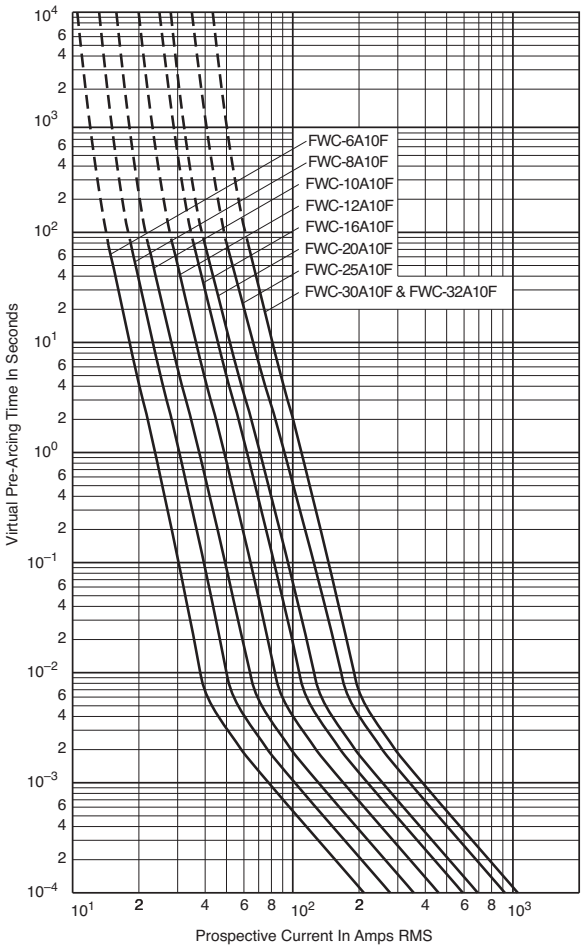
Data Sheet: 720011

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

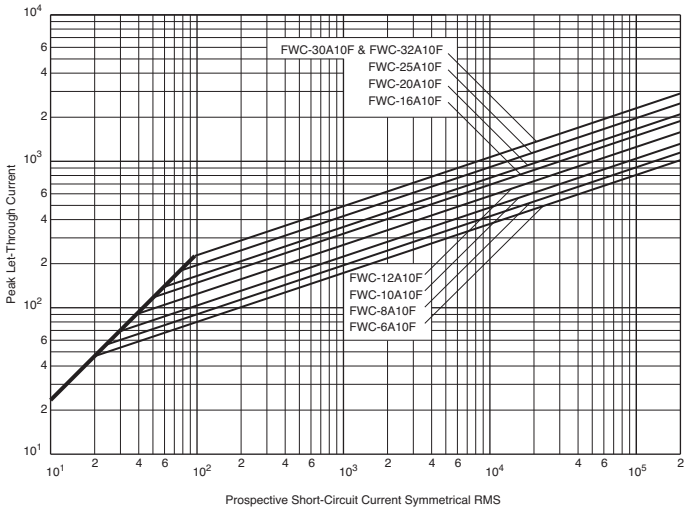
Ferrule — FWC 600V: 6-32A

FWC 6-32A: 600V (10 x 38mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785306

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWP 690V/700V (IEC/UL): 1-50A, Striker Optional

FWP (14 x 51mm)

FWP with striker option.

Specifications

Description: Ferrule style high speed fuses with and without indicating striker.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)
— 800Vdc (5-50A)

Amps: — 1-50A

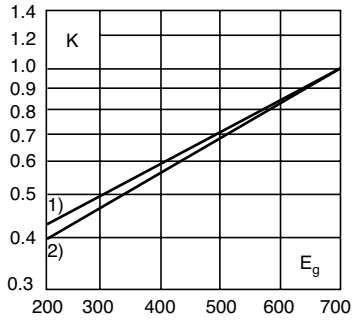
IR: — 200kA RMS Sym.
— 50kA @800Vdc

Agency Information: CE, UL Recognition JFHR2.E91958, CSA Component Acceptance file Class 1422-30, 1422-90 (53787) for versions without indicator only. Designed and tested to IEC 60269: Part 4.

Electrical Characteristics

Total Clearing I²t

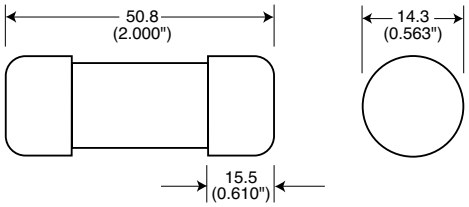
The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



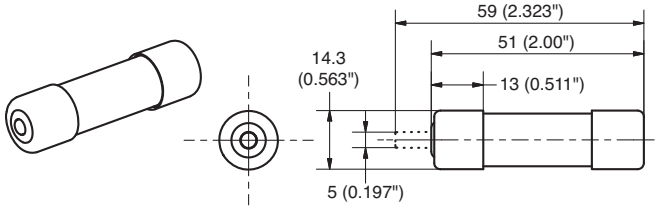
1) 5-30A Range
2) 32-50A Range

Dimensions - mm (in)

Without Striker

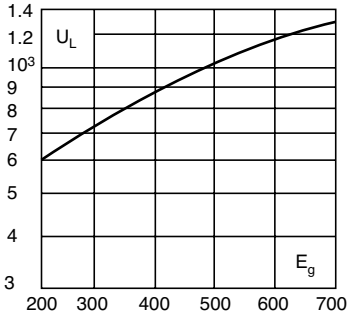


With Striker



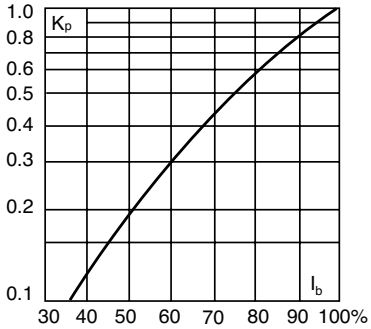
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics: Current RMS-Amps	Rated I²t (A² Sec): Minimum Melting	Rated I²t (A² Sec): Clearing At Rated Voltage	Watts Loss
Without Striker					
FWP-1A14F		1	—	—	—
FWP-2A14F		2	—	—	—
FWP-2.5A14F		2.5	—	—	—
FWP-3A14F		3	—	—	—
FWP-4A14F		4	—	—	—
FWP-5A14F	14 x 51mm	5	1.6	11.0	1.5
FWP-10A14F	(9/16" x 2")	10	3.6	38.5	4
FWP-15A14F		15	8.6	70	5.5
FWP-20A14F		20	26.0	230	6
FWP-25A14F		25	46.5	375	7
FWP-30A14F		30	58	485	9
FWP-32A14F		32	68	600	7.6
FWP-40A14F		40	84	750	8
FWP-50A14F		50	200	1800	9
With Striker*					
FWP-10A14FI		10	3.6	38.5	4
FWP-15A14FI		15	8.6	70	5.5
FWP-20A14FI	14 x 51mm	20	26.0	230	6
FWP-25A14FI	(9/16" x 2")	25	46.5	375	7
FWP-30A14FI		30	58	485	9
FWP-32A14FI		32	68	600	7.6
FWP-40A14FI		40	84	750	8
FWP-50A14FI		50	200	1800	9

*Striker range is 600Vdc only
• Watts loss provided at rated current.
• See accessories on page 243.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

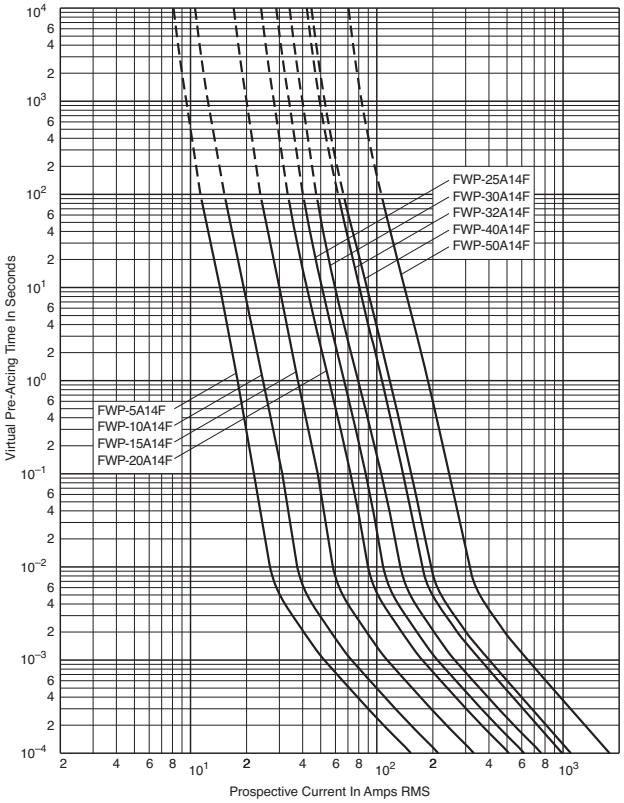
Data Sheet: 720025

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

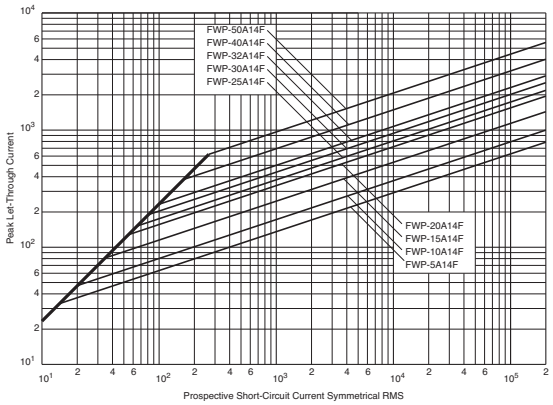
Ferrule — FWP 690V/700V (IEC/UL): 1-50A, Striker Optional

Without Striker
FWP 5-50A: 660V/700V (14 x 51mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785307

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWP 690V/700V (IEC/UL): 20-100A, Striker Optional

FWP (22 x 58mm)

FWP with striker option.

Specifications

Description: Ferrule style high speed fuses with and without indicating striker.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 690Vac (IEC)
— 700Vac (UL)
— 500Vac
— 500Vdc (20-100A)

Amps: — 20-100A

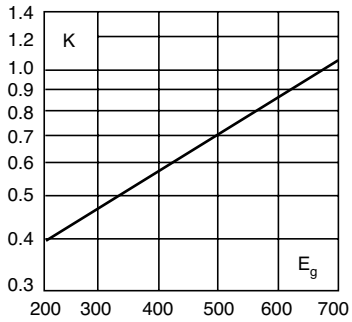
IR: — 200kA RMS Sym.
— 50kA @ 500Vdc

Agency Information: CE, UL Recognition JFHR2.E91958, CSA Component Acceptance file Class 1422-30, 1422-90 (53787)

Electrical Characteristics

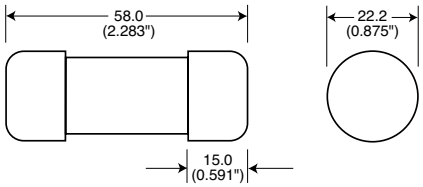
Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).

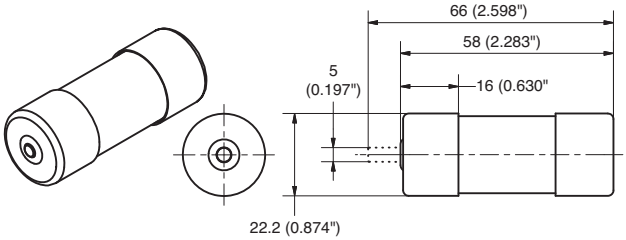


Dimensions - mm (in)

Without Striker

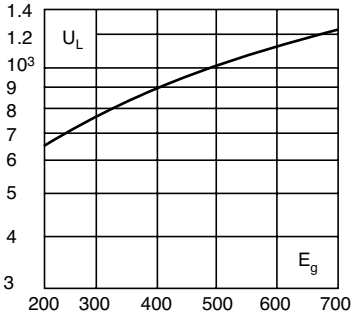


With Striker



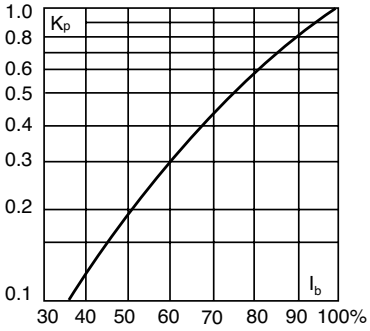
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, K_p, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics: Rated Current RMS-Amps	I²t (A² Sec): Minimum Melting	I²t (A² Sec): Clearing At Rated Voltage	Watts Loss
Without Striker					
FWP-20A22F		20	19.0	260	5
FWP-25A22F		25	34.0	410	6
FWP-32A22F	22 x 58mm	32	53.5	605	8
FWP-40A22F	(⅞" x 2³⁄₃₂")	40	68	750	9
FWP-50A22F		50	135	1600	9.5
FWP-63A22F		63	280	3080	11
FWP-80A22F		80	600	6600	13.5
FWP-100A22F		100*	1100	12500	16
With Striker					
FWP-20A22FI		20	19.0	260	5
FWP-25A22FI		25	34.0	410	6
FWP-32A22FI	22 x 58mm	32	53.5	605	8
FWP-40A22FI	(⅞" x 2³⁄₃₂")	40	68	750	9
FWP-50A22FI		50	135	1600	9.5
FWP-63A22FI		63	280	3080	11
FWP-80A22FI		80	600	6600	13.5
FWP-100A22FI		100*	1100	12500	16

*IEC/UL Voltage rating 690/700

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

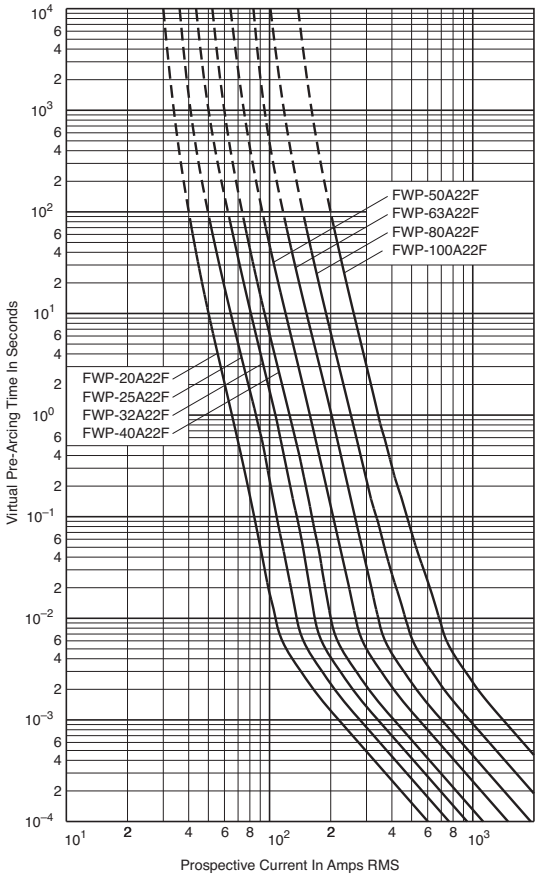
Data Sheet: 720026

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

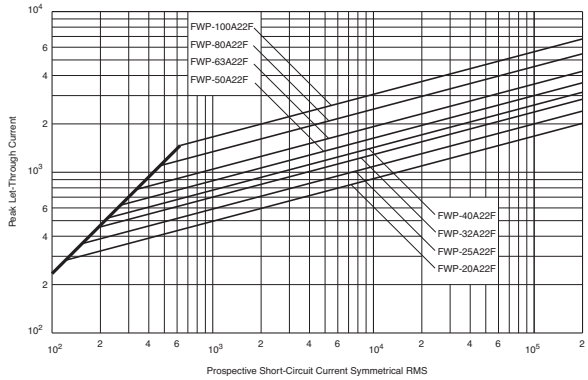
Ferrule — FWP 690V/700V (IEC/UL): 20-100A, Striker Optional

Without Striker
FWP 20-100A: 660V/700V (22 x 58mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785291

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWK 750V: 5-60A

FWK 5-30A (20 x 127mm)
35-60A (25 x 146mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 750Vac
— 750Vdc (Time constant = 10-15mS)

Amps: — 5-60A

IR: — 45kA RMS Sym.

Agency Information: CE

Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics		
		Rated Current RMS-Amps	I²t (A² Sec)	
			Pre-arc	Clearing at 750Vdc
FWK-5A20F	20 x 127mm (13/16" x 5")	5	8.5	16
FWK-8A20F		8	50	100
FWK-10A20F		10	95	200
FWK-15A20F		15	100	240
FWK-20A20F		20	125	315
FWK-25A20F		25	400	1100
FWK-30A20F		30	800	2600
FWK-35A25F	25 x 146mm (1" x 5¾")	35	1300	4300
FWK-40A25F		40	1600	5300
FWK-50A25F		50	3100	12000
FWK-60A25F		60	5900	24000

Recommended fuseholders for 20x127, -2, -3
Recommended fuseclips for 20x127, 1A1837
Recommended fuseclips for 25x146, A3354705

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

Dimensions - mm (in)

Fig. 1: 5-30A

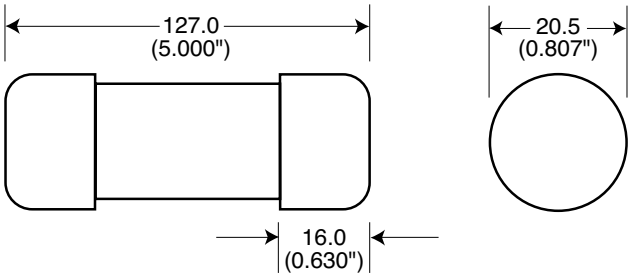
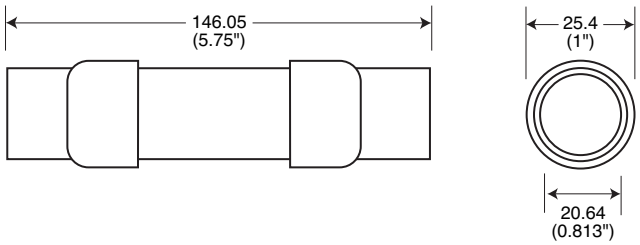


Fig. 2: 35-60A



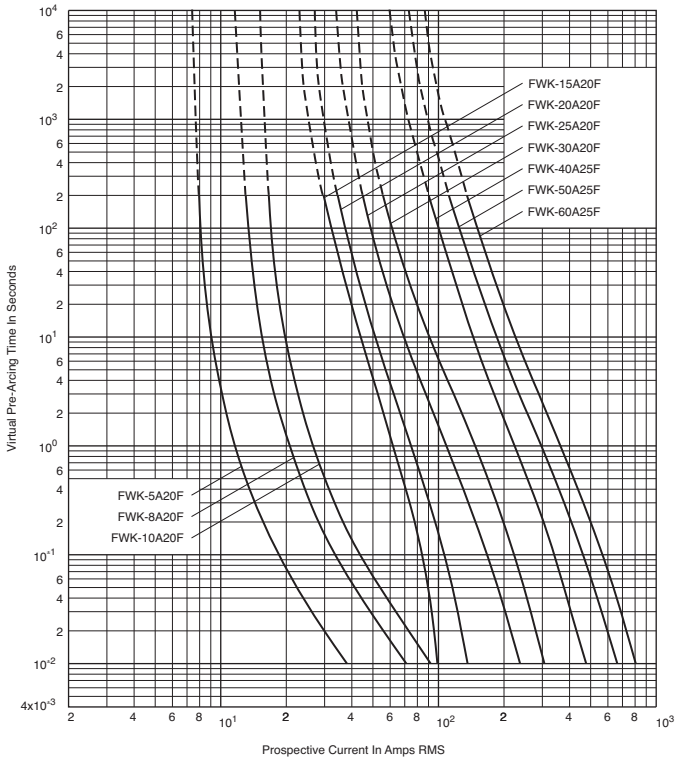
Data Sheet: 720039

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWK 750V: 5-60A

FWK 750V: 5-30A (20 x 127mm)
35-60A (25 x 146mm)

Time-Current Curve



Data Sheet: 720028

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWJ 1000V: 20-30A

FWJ (14 x 67mm)

Specifications

Description: Ferrule style high speed fuses.

Dimensions: See dimensions illustration.

Ratings:

Volts: — 1000Vac/800Vdc

Amps: — 20-30A

IR: — 25kA RMS Sym.

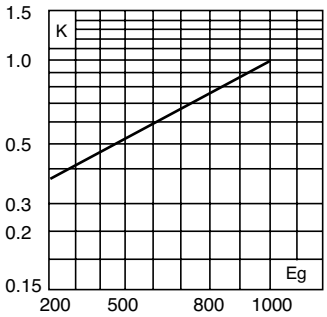
— 20kA @ 800Vdc

Agency Information: CE, UL Recognized JFHR2.E91958

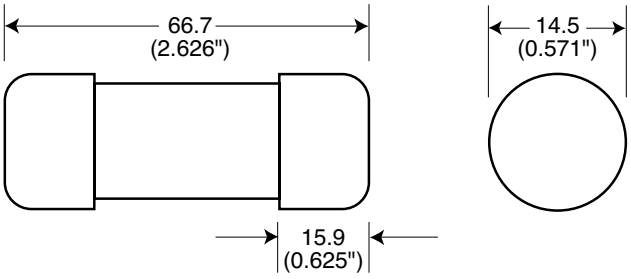
Electrical Characteristics

Total Clearing I²t

The total clearing I²t at rated voltage and at power factor of 15% are given in the electrical characteristics. For other voltages, the clearing I²t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g, (rms).



Dimensions - mm (in)

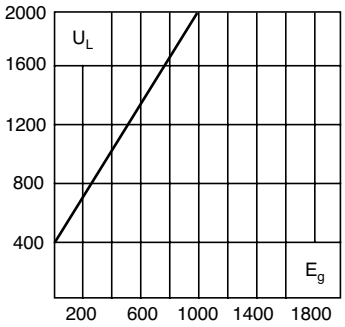


Fuseclips:

• Catalog Number: 5591 (see data sheet 2132)

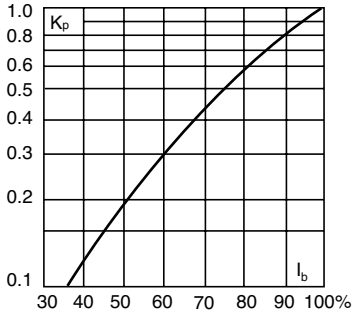
Arc Voltage

This curve gives the peak arc voltage, U_L, which may appear across the fuse during its operation as a function of theapplied working voltage, E_g, (rms) at a power factor of 15%.



Power Losses

Watts loss at rated current is given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated current. The correction factor, Kp, is given as a function of the RMS load current, I_b, in % of the rated current.



Catalog Numbers

Catalog Numbers	Size	Electrical Characteristics			
		Rated Current RMS-Amps	I²t (A² Sec)		Watts Loss
			Pre-arc	Clearing at 1000V	
FWJ-20A14F	14 x 67mm	20	25	220	9
FWJ-25A14F	(9/16" x 2 5/8")	25	33	350	11
FWJ-30A14F		30	52	450	14

• Watts loss provided at rated current.

• See accessories on page 243.

Features and Benefits

- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I²t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters

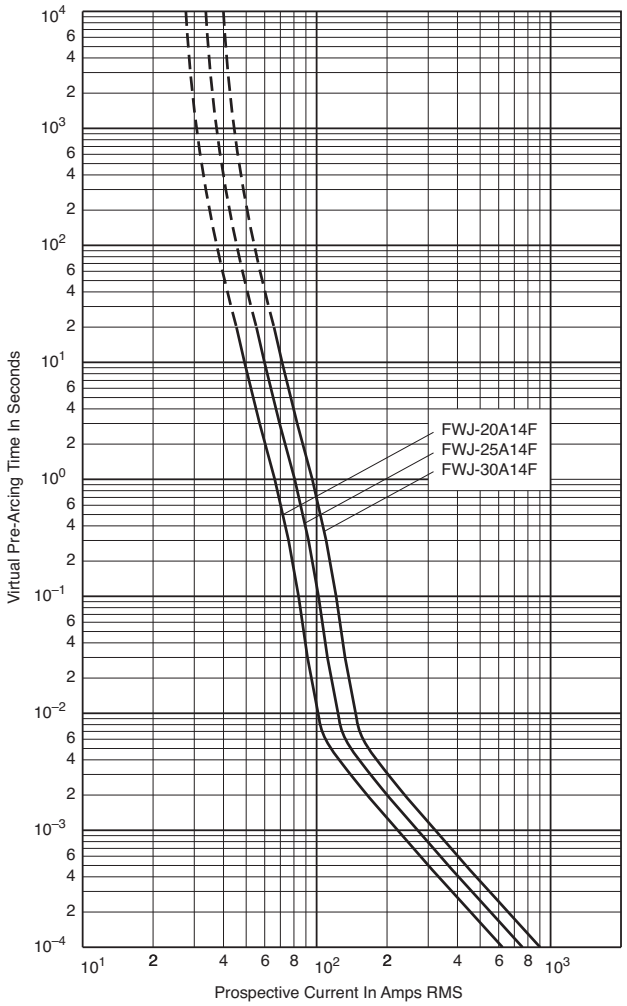
Data Sheet: 35785031

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

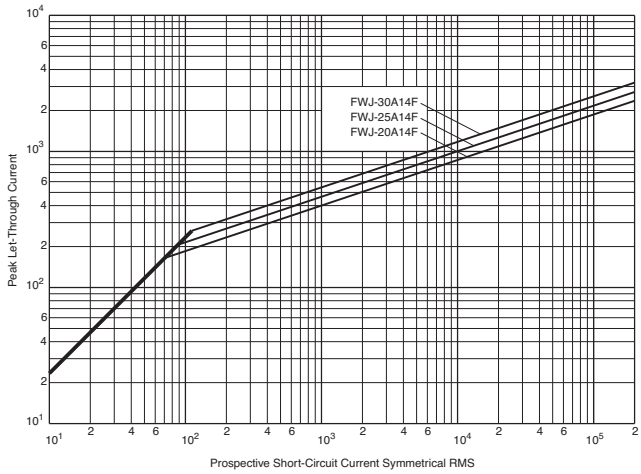
Ferrule — FWJ 1000V: 20-30A

FWJ 20-30A: 1000V (14 x 67mm)

Time-Current Curve



Peak Let-Through Curve



Data Sheet: 35785315

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Ferrule — FWS/FWL 1000Vdc: 2-30A

FWS 2-15A (20 x 127mm)
FWL 20-30A (20 x 127mm)

Specifications

Description: Ferrule style full range fuses.

Dimensions: See dimensions illustrations.

Ratings:

Volts: — 1200Vac (FWL 20-30A)
— 1400Vac (FWS 8-15A)
— 2100Vac (FWS 2-6A)
— 1000Vdc (FWL/FWS 2-30)

Amps: — 2-30A

IR: — 45kA RMS Sym.
— 30kA @ 1000Vdc

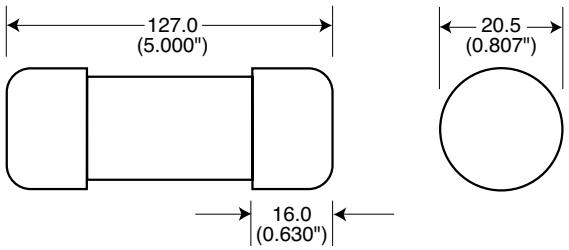
Agency Information: CE, IEC 60077

Catalog Numbers

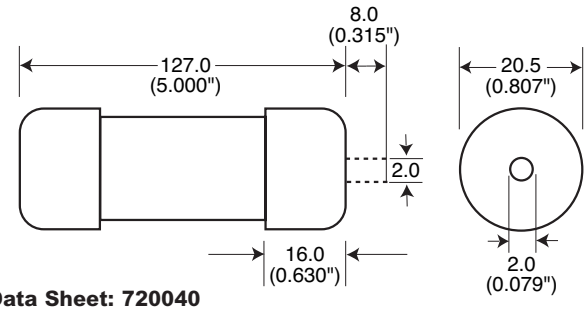
Catalog Numbers	Size	Electrical Characteristics: Rated Current RMS-Amps	I²t (A² Sec): Pre-arc	I²t (A² Sec): Clearing at 1000Vdc	Watts Loss
FWS-2A20F	20 x 127mm (13/16" x 5")	2	0.8	2.4	4.4
FWS-6A20F		6	27	81	6.7
FWS-8A20F		8	64	192	7.6
FWS-10A20F		10	118	277	3.0
FWS-12A20F		12	170	380	3.4
FWS-15A20F		15	209	500	5.0
FWL-20A20F	20 x 127mm (13/16" x 5")	20	675	1550	5.9
FWL-25A20F		25	1200	2760	6.5
FWL-30A20F		30	1850	4300	7.5

• ADD "I" to catalog number for indicating version.
• Enclosed finger-safe fuse holder – CH127
• See accessories on page 243.
• Watts loss provided at rated current.

Dimensions - mm (in)



Indicating Version – Dimensions - mm (in)



Data Sheet: 720040

Features and Benefits

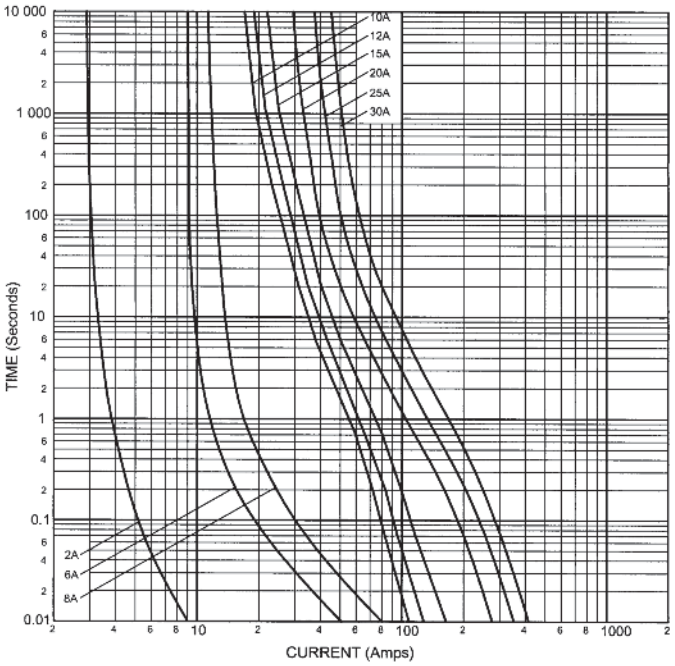
- Excellent cycling capability and DC performance
- Low arc voltage and low energy let-through (I^2t)
- Low watts loss in a compact size
- Used with finger-safe holders/blocks

Typical Applications

- DC Common bus
- DC Drives
- Power converters/rectifiers
- Reduced voltage starters
- Traction aux circuits
- Capacitor protection

FWL/FWS 2-30A: 1000Vdc 2-30A (20 x 127mm)

Time-Current Curve



For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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Ferrule Fuse Accessories

Fuse Holders

Specifications
Catalog Symbol: CH Series
Description: DIN-Rail mount fuse holders
Agency Information: UL File E14853, Guide IZLT Listed, IZLT2 Recognized CSA: File 47235, CHPV and CHM - Class 6225-30, CHCC - Class 6225-01
Ratings: 600V/30A (UL) 690V/32A (IEC)

Features and Benefits
- Finger-safe design - No exposed contacts
- DIN-Rail mount (35mm) - Fits standard mounting rails
- Optional open fuse indication lights tells fuse status at a glance
- Handle/fusepuller easily installs and removes fuses
- Available in single and multi-pole configurations
- Wire ready lugs and spade terminal connections save installation time
- CE marking
- Available up to 1000Vdc
- PLC device available for remote monitoring

Typical Applications
- Switchboard panel, control consoles, small motors, transformers, and similar applications

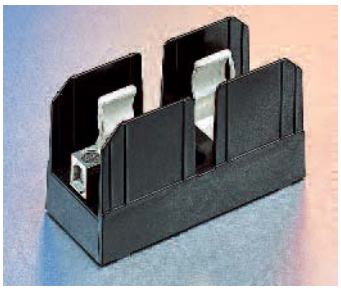
Recommended Cooper Bussmann Fuse Types

Class CC	North American Class CC Fuses - LP-CC, FNQ-R, KTK-R
10 x 38	North American Midget Fuses - FNQ, KTK, AGU, BAF, BAN, FNM, FWA, FWC, & PV
14 x 51	FWX, FWH, FWP & NON
22 x 58	FWP

See pages 274-280 for CH Series fuse holder information.

Data Sheet: 2053

Fuse Blocks



Specifications
Catalog Symbol: J70100, J70032
Description: Fuse blocks for 22x58mm & 14x51mm fuses.
Ratings:
Volts: — 700Vac/dc
Amps: — 32-100A
Withstand: — 200kA RMS Sym.
Agency Information: CE, UL Recognized, Guide IZLT2, File E14853
Flammability Rating: UL 94V0

Catalog Numbers

Catalog Numbers	Fuse Size	Amps	Poles	Max Wire Size	Terminations
J70032-1CR	14x51	32	1	#2	Box Lug w/ Retaining Clip
J70032-2CR		32	2	#2	
J70032-3CR		32	3	#2	
J70100-1CR	22x58	100	1	#2	
J70100-2CR		100	2	#2	
J70100-3CR		100	3	#2	

Data Sheet: 1211

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High speed fuses

Faster lead-time.
Better protection.
More energy efficient.

Bussmann
by EATON

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IEC and British Standard Fuses

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CAMaster 263

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Scan this tag to get the latest product information for IEC and British Standard Fuses.

Application Data

The standard range of fuses for low voltage industrial and general purpose applications meet the requirements of BS 88 and IEC 60269. By using advanced fuse technology, current ratings up to 400A have compact dimensions, but retain standard dimensional and performance requirements. These designs are for 315/240V systems. The standard range of fuses are available from 2-1250A in the following tag forms: Offset Blade - Offset Bolted - Center Bolted.

Supplementary ranges cover applications up to 660Vac and 500Vdc including those with nonstandard tag fixings.

Bussmann fuses are manufactured under quality systems independently assessed to BS 5750 (ISO 9002) and appropriate ratings carry the ASTA 20 endorsement.

Selecting fuses is relatively simple and effective. The following notes cover the majority of applications. For further information contact our Application Engineers at toll free phone: 855-287-7626 (855-BUSSMANN).

Circuit Loading

The current rating of the fuse should not be less than the full load current of the circuit. The circuit should be so designed that small overloads of long duration will not be of frequent occurrence.

Cable Ratings & Protection

There is an increasing move away from 70°C PVC insulation to materials that are more environmentally friendly, for example 90°C XLPE. The ratings of fusegear, switches, accessories, etc. are generally based upon the equipment being connected to conductors intended to be operated at a temperature not exceeding 70°C in normal service.

In view of the above, it is recommended that the practice of designs based upon conductor temperatures of 70°C be regarded as the norm. The equipment manufacturer should be consulted to ascertain the reduction of nominal current rating of the equipment if conductor temperatures exceeding 70°C are used. In addition, an overriding factor is often voltage drop.

Fuses with gG characteristics protect associated cables against both overload and short-circuit current, provided that the current rating of the fuse 1_N is equal or less than the current carrying capacity of the cable 1_Z.

In motor circuits, the motor starter will provide the overload protection and the fuses will provide the short-circuit protection. The maximum fuse size that can be used depends upon the type of cable used and is determined using the appropriate K factor. The following table gives the maximum sizes of fuses that are recommended for two popular cables with copper conductors, 70°C PVC (K = 115) and 90°C thermosetting (K = 143).

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Application Data for BS Low Voltage Fuses

Cable Size (mm²)	Max. Fuse Rating (amps) K = 115	K = 143
1	16	16
1,5	20	25*
2.5	32*	32*
4	50*	50*
6	63*	63*
10	100*	125*
16	125*	160*
25	200*	250*
35	315*	355*
50	400*	500
70	560	630
95	710	800
120	800	1000

* Extended Motor Circuit dual ratings can be used.

Protection Against Electrical Shock

For a TN System, a disconnecting time not exceeding 5s is permitted for a distribution circuit. The maximum values of earth fault loop impedance (Zs) of 240V for Bussmann gG fuses to BS 88: Parts 2 and 6 are:

Rating (A)	Zs (Ohms)	Rating (A)	Zs (Ohms)	Rating (A)	Zs (Ohms)
6	14	50	1.1	250	0.16
10	7.7	63	0.86	315	0.13
16	4.3	80	0.60	400	0.096
20	3.0	100	0.44	500	0.073
25	2.4	125	0.35	630	0.054
32	1.9	160	0.27	800	0.044
40	1.4	200	0.20		

Ambient Temperature

The derating, in terms of current, of 0.5% per °C above an ambient of 35°C is recommended.

Interrupting Rating

The standardized interrupting rating values are 80kA for voltages of 415Vac and above, and 40kA for DC applications. The 240Vac designs have an interrupting rating of 50kA.

Coordination Ratio

All fuses to BS 88 Parts 2 and 6 will give a coordination ratio of 2:1; and for most practical situations a ratio of 1.6:1 (two steps in the R10 series). Example: an upstream fuse rated at 160A will coordinate with a downstream fuse rated at 100A.

Current and Energy Limitation

The range of fuses have pre-arcing I^2t values towards the bottom limits of BS 88 Parts 2 and 6. This ensures excellent current and energy limitation. They also have lower power losses at rated current. This assists in the appropriate interchangeability with other makes of fuses.

Transformers

When fuses are used on the primary side of transformers, the normal fuse current rating should be at least twice the nominal transformer primary current.

Fluorescent Lighting

The normal fuse current rating should be at least twice the normal full load current of the maximum number of lights to be simultaneously switched.

Capacitor Circuits

For power factor correction in capacitor circuits, the fuse should be chosen with a current rating greater than 1.5 times the rated capacitor current. This takes into account the high inrush current, circuit harmonics and capacitor tolerances.

Motor Circuits

In motor circuits, the fuse has to withstand the motor's starting current and often requires a higher rating than the motor's full load current. Coordination recommendations are made by the manufacturers of motor starters in accordance with IEC 60947-4-1. To get Type 2 coordination with fuses, tests are performed with the latest gG or gM fuses to BS 88 or IEC 60269 that have pre-arcing I^2t values towards the bottom of specified limits. This means that Bussmann fuses are suitable to provide Type 2 coordination.

Extended dual ratings of motor circuit protection fuses with gM characteristics are available in most popular fuse sizes to extend the use of associated equipment with appropriate economies. In the majority of applications, gG fuses are used. It is not essential to use gM fuses for motor circuit protection, they simply extend the utilization of standard equipment.

Below is a table of recommended fuses at 415V. In most applications, the run-up time is less than 5 seconds and duty is infrequent - no more than twice per hour. The next larger rating should be used for more demanding applications.

Rating Motor		Direct On-line Standard (gG)	Direct On-line Motor Circuit (gM)	Asst. Start Standard (gG)
kW	A	A	A	A
0.25	0.8	4	-	2
0.37	1.1	4	-	2
0.55	1.5	6	-	4
0.75	2.0	6	-	4
1.1	3 0	10	-	6
1.5	3.6	16	-	0 1
2.2	5.0	16	-	0 1
3.0	6.5	20	-	6 1
4.0	8.4	20	-	6 1
5.5	11.0	25	20M25	2 20
7.5	15.0	40	32M40	25
11.0	20.0	50	32M50	32
15.0	27.0	63	32M63	40
18.5	33.0	80	63M80	50
22.0	38.0	80	63M80	50
30.0	54.0	100	63M100	80
37.0	66.0	125	100M125	80
45.0	79.0	160	100M160	100
55.0	98.0	160	100M160	100
75.0	135.0	250	200M250	160
90.0	155.0	250	200M250	160
110.0	185.0	315	200M315	200
132.0	220.0	355	315M400	250
150.0	250.0	355	315M400	315
185.0	310.0	450	400M500	355
200.0	335.0	500	4 00M500	400
225.0	375.0	560	-	400
250.0	415.0	560	-	450
280.0	460.0	630	-	500
335.0	562.0	710	-	630
355.0	596.0	800	-	710

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CSA Type P and Type D Fuses

CDS, CDN & PON Type P & D

Specifications

Description: CSA time-delay Type D & P fuses.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Ratings:

Volts: — 250Vac (CDN & PON)
— 600Vac (CDS)
Amps: — 10-600A
IR: — 10kA minimum

Agency Information: CE, CSA Certified to C22.2 No. 59.1.

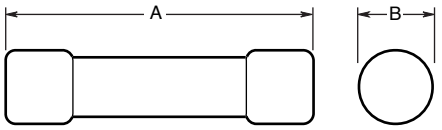
Features and Benefits

- Economical fuse in a variety of ratings for applications not requiring time-delay.

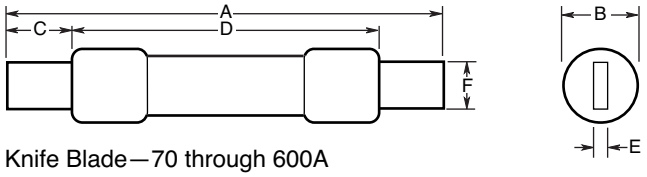
Typical Applications

- Lighting, heating and other circuits not subject to temporary surges and where available short-circuit current are relatively low.

Dimensions



Ferrule Design—1 through 60A



Knife Blade—70 through 600A

Basic Catalog Numbers

Time-Delay CSA Type "D" Fuses

Catalog Numbers	Volts	Amp Ratings
CDN	250Vac	Below 10A use FRN-R 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
		110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600
		Below 10A use FRS-R 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60
CDS	600Vac	70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600

One-Time CSA Type "P" Fuses

Catalog Number	Volts	Amp Ratings
PON	250Vac	15, 20, 25, 30, 35, 40, 45, 50, 60

Catalog Numbers

Basic Catalog Number and Volts	Dimensions in (mm)						
	Amp Ratings	A Overall	B Max Diameter	C Min Blade Length	D Min Barrel Length	E Blade Thickness	F Blade Width
CDN/PON 250Vac	1-30	2.0 (50.8)	0.56 (14.3)	—	—	—	—
	35-60	3.0 (76.2)	0.81 (20.6)	—	—	—	—
	70-100	5.88 (149.4)	—	1.0 (25.4)	—	0.13 (3.2)	0.75 (19.1)
	110-200	7.3 (185.4)	—	1.38 (34.9)	4.13 (104.8)	0.19 (4.8)	1.13 (28.6)
	225-400	8.63 (219.2)	—	1.88 (47.6)	4.63 (117.5)	0.25 (6.4)	1.63 (41.3)
	450-600	10.38 (263.7)	—	2.25 (57.2)	5.19 (131.8)	0.25 (6.4)	2 (50.8)
CDS 600Vac	1-30	5.0 (127.0)	0.81 (20.6)	—	—	—	—
	35-60	5.5 (139.7)	1.06 (27.0)	—	—	—	—
	70-100	7.88 (200.2)	—	1.0 (25.4)	—	0.13 (3.2)	0.75 (19.1)
	110-200	9.63 (244.6)	—	1.38 (34.9)	6.13 (115.6)	0.19 (4.8)	1.13 (28.6)
	225-400	11.63 (295.4)	—	1.88 (47.6)	7.13 (118.1)	0.25 (6.4)	1.63 (41.3)
	450-600	13.38 (339.9)	—	2.25 (57.2)	8.19 (208.0)	0.25 (6.4)	2 (50.8)

To Order

To order, specify Basic Catalog Number and amp rating. Example: CDN-30

Data Sheet: 4126

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Tron™ HRC Form II Class C Fuses

CGL Form II Class C

Specifications

Description: Current-limiting HRCII-C fuses designed to withstand inrush currents on typical motor start-ups while offering high current limitation in the short-circuit region.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac/250Vdc (1-30A)

Amps: — 1-600A

IR: — 200kA (40,000A DC)

Agency Information: CE, CSA Certified, C22.2 No. 106.

Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

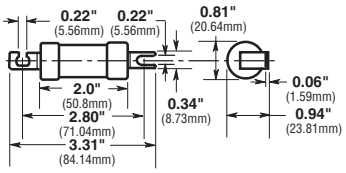
Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

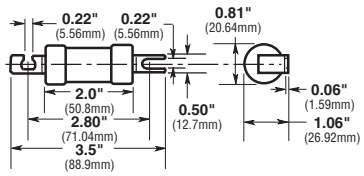
Catalog Numbers (-Amps)

CGL-1	CGL-40	CGL-175
CGL-2	CGL-45	CGL-200
CGL-3	CGL-50	CGL-225
CGL-4	CGL-60	CGL-250
CGL-6	CGL-70	CGL-300
CGL-10	CGL-80	CGL-350
CGL-15	CGL-90	CGL-400
CGL-20	CGL-100	CGL-450
CGL-25	CGL-110	CGL-500
CGL-30	CGL-125	CGL-600
CGL-35	CGL-150	

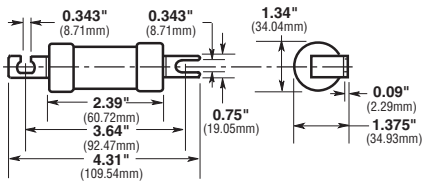
Dimensions



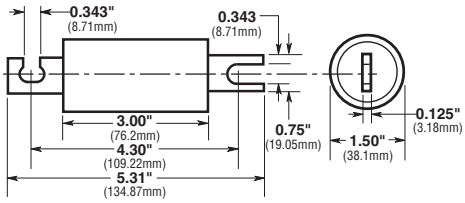
CGL 1-30



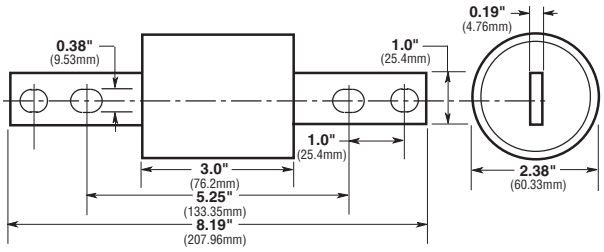
CGL 35-60



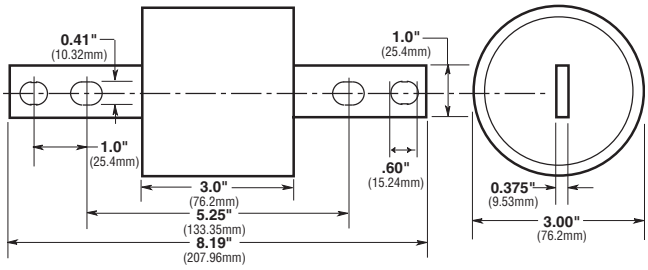
CGL 70-100



CGL 110-200



CGL 225-400



CGL 450-600

Data Sheet: 4125

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HRCI Industrial Ceramic Body Fuses

CIF21 HRCI-CA

Specifications

Description: The HRCI-CA fuse provides both overload and short-circuit protection to HRCI requirements. Offset blades for bolt-on mounting. CIF21 fuse fits the Cooper Bussmann CAMaster fuse holder (see data sheet 4132).

Dimensions: See Dimensions illustration.

Construction: Ceramic body.

Ratings:

Volts: — 600Vac/250Vdc

Amps: — 1-30A

IR: — 200kA RMS Sym.

Agency Information: CE, CSA C22.2, No. 106-M92.

Mounting: Bolt-on.

Catalog Numbers

Catalog Numbers	Amp Ratings
1CIF21	1
3CIF21	3
6CIF21	6
10CIF21	10
15CIF21	15
20CIF21	20
25CIF21	25
30CIF21	30

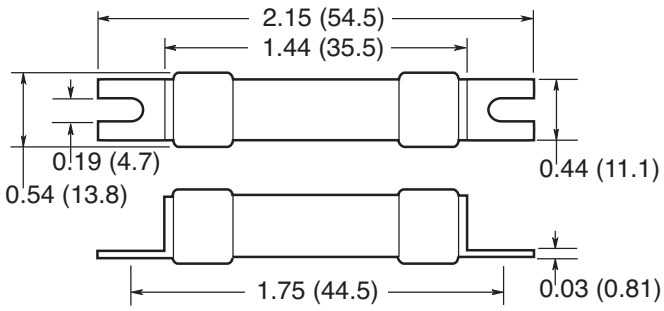
Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

Dimensions - in (mm)



Data Sheet: 4127

CIF06 HRCI-CB

Specifications

Description: A miniature industrial fuse that provides both short-circuit and overload protection and the CIF06 fits the 30A SAFEloc fuse holder.

Dimensions: See Dimensions illustration.

Construction: Ground ceramic body with plated end caps.

Ratings:

Volts: — 600Vac/250Vdc

Amps: — 1-30A

IR: — 200kA RMS Sym.

Agency Information: CE, CSA C22.2 No. 106-M92 (3-30A only).

Mounting: Clip-in offset blades.

Catalog Number

Catalog Numbers	Amp Ratings
1CIF06	1
3CIF06	3
6CIF06	6
10CIF06	10
15CIF06	15
20CIF06	20
25CIF06	25
30CIF06	30

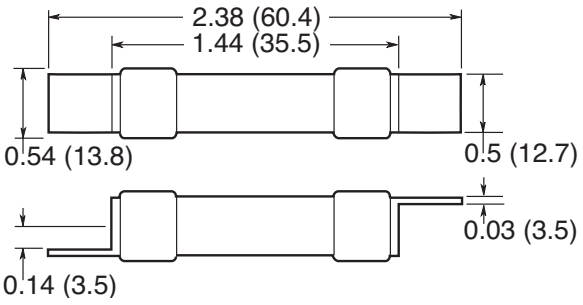
Features and Benefits

- Close sizing to loads allows using smaller and less costly switches
- Provides a higher degree of short-circuit protection
- Helps protect motors against burnout from overloads

Typical Applications

- For use in circuits subject to surge currents such as those caused by motors, transformers and other inductive loads

Dimensions - in (mm)



Data Sheet: 4128

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HRCI-J Fast-acting Fuses

CJ HRCI-J

Specifications

Description: HRCI-J fast-acting fuses are industrial duty fuses with the excellent current-limiting characteristics of fast-acting HRCI-J fuses to limit damage to equipment and installations by the thermal and magnetic energy associated with a large short-circuit fault current. Overload characteristics limit cable damage due to low overload currents.

Dimensions: See Catalog Numbers table and Dimensions illustrations.

Construction: Ceramic body fuse.

Ratings:

Volts: — 600Vac (or less), 250Vdc

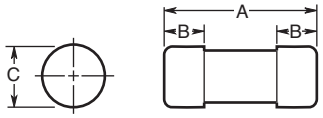
Amps: — 1-600A

IR: — 200kA

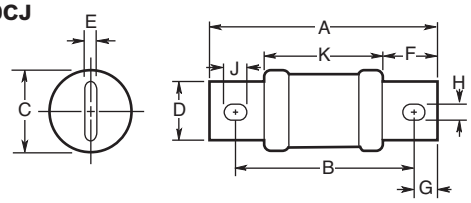
Agency Information: CSA C22.2 No. 106 M92; Designed to BS 88:2, IEC 60269-2.

Dimensions

1CJ to 60CJ



70CJ to 600CJ



Catalog Numbers

Catalog Numbers	Amp Ratings	Dimensions - in (mm)									
		A	B	C	D	E	F	G	H	J	K
1CJ 3CJ 6CJ 10CJ 15CJ 20CJ 25CJ 30CJ	1 3 6 10 15 20 25 30	2.25 (57)	0.5 (12.7)	0.81 (20.6)	—	—	—	—	—	—	—
35CJ 40CJ 45CJ 50CJ 60CJ	35 40 45 50 60	2.38 (60)	0.63 (16)	1.06 (27)	—	—	—	—	—	—	—
70CJ 80CJ 90CJ 100CJ	70 80 90 100	4.63 (117)	3.63 (92)	1.13 (28)	0.75 (19)	0.13 (3.2)	1 (25.4)	0.5 (12.7)	0.28 (7.1)	0.38 (9.5)	2.63 (67)
110CJ 125CJ 150CJ 175CJ 200CJ	110 125 150 175 200	5.75 (146)	4.38 (111)	1.63 (41)	1.13 (28.6)	0.19 (4.8)	1.38 (35)	0.69 (17.5)	0.28 (7.1)	0.38 (9.5)	3 (76)
225CJ 250CJ 300CJ 350CJ 400CJ	225 250 300 350 400	7.13 (181)	5.25 (133)	2.13 (54)	1.63 (41)	0.25 (6.3)	1.88 (47.6)	0.94 (24)	0.41 (10.3)	0.53 (13.5)	3.38 (86)
450CJ 500CJ 600CJ	450 500 600	8 (203)	6 (152)	2.63 (66)	2 (51)	0.38 (9.5)	2.13 (54)	1 (25.4)	0.53 (13.5)	0.69 (17.5)	3.75 (96)

Data Sheet: 4129

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HRCI - Miscellaneous Type K Fuses

CIH, CIK & CIL HRCI-MISC

Specifications

Description: HRI fuses provide both overload and short-circuit protection, featuring offset blades for bolt down mounting.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Construction: Ceramic body.

Ratings:

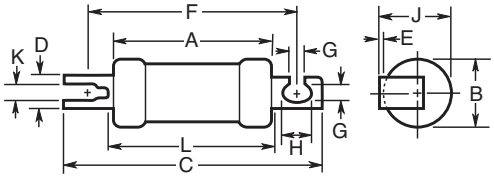
Volts: — 600V

Amps: — 1-100A

IR: — 200kA@600V

Agency Information: CE, CSA C22.2 No. 106 M92.

Dimensions



(The CIL14 has a rejection hole, not a slot as shown above.)

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimensions - in (mm)										
		A Max	B Max	C Max	D Nom	E Nom	F Nom	G Nom	H Nom	J Max	K Nom	L Max
1CIH07	1	2.25 (57)	0.94 (24)	3.38 (86)	0.38 (9.2)	0.04 (1.0)	2.88 (73)	0.21 (5.2)	0.31 (8)	1 (25.4)	0.10 (2.6)	2.38 (60)
3CIH07	3											
6CIH07	6											
10CIH07	10											
15CIH07	15											
20CIH07	20											
25CIH07	25											
30CIH07	30											
35CIK07	35	2.28 (58)	1.06 (27)	3.56 (91)	0.5 (12.7)	0.05 (1.2)	2.88 (73)	0.21 (5.2)	0.41 (10.5)	1.09 (28)	0.13 (3.2)	2.38 (61)
40CIK07	40											
50CIK07	50											
60CIK07	60											
80CIL14	80	2.75 (70)	1.44 (37)	4.38 (111)	0.75 (19)	0.09 (2.5)	3.69 (94)	0.34 (8.7)	0.41 (10.5)	1.5 (38.5)	—	2.91 (74)
90CIL14	90											
100CIL14	100											

Recommended Fuse Holders

Fuse	Fuse Holder
1-30A	CM30CF
35-60A	CM60CF

Data Sheet: 4130

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HRC Form II Current-limiting Fuses

HRC Form II

Specifications

Description: HRC Form II current-limiting fuses.

Dimensions: See Catalog Numbers table and Dimensions illustrations.

Construction: Ceramic body.

Ratings:

Volts: — 600Vac (or less)
— 250Vdc

Amps: — 2-600A

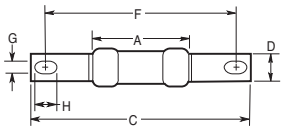
IR: — 200kA RMS Sym.

Agency Information: CE, CSA C22.2 No.106M1992; BS 88:2, IEC 60269:2.

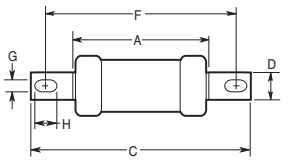
Typical Applications

- Used to protect motor control circuits, together with contactors and overload protection relays to provide Type 2 coordination - per IEC 60947-4.

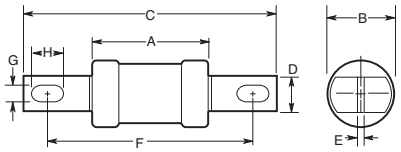
Dimensions



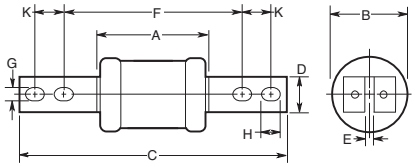
H07C (Offset Blades)



K07C/K07CR/ L14C/M14C (Offset Blades)



L09C/M09C/P09C (Center Blades)



P11C/R11C (Center Blades)

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimensions - in (mm) A	B	C	D	E	F	G	H	J	K	CSA Category
2H07C	2	1.38 (35)	0.56 (14)	3.38 (85)	0.38 (9)	0.06 (1.2)	2.88 (73)	0.22 (5.6)	0.31 (8)	0.56 (14)	—	HRCII-C
4H07C	4											
6H07C	6											
10H07C	10											
15H07C	15											
20H07C	20											
25H07C	25											
30H07C	30											
40K07C	40	2.19 (56)	0.88 (22)	3.44 (87)	0.5 (13)					0.88 (22)	—	
50K07C	50											
60K07C	60											
80K07CR	80			3.75 (95)							—	HRCII-MISC
100K07CR	100											
80L14C	80	2.38 (60)	0.88 (21.4)	4.38 (111)	0.56 (14.3)	0.13 (3.2)	3.69 (94)	0.34 (8.7)	0.44 (11)	1 (25.4)	—	HRCII-C
100L14C	100											
125M14C	125	2.56 (65)	1.5 (38)		0.75 (19)	0.09 (2.4)				—	—	HRCII-MISC
150M14C	150											
200M14C	200											
80L09C	80	2.38 (60)	0.88 (21.4)	5 (127)	0.56 (14)	0.13 (3.2)	4.38 (111)			—	—	
100L09C	100											
125M09C	125	2.56 (65)	1.5 (38)	5.38 (136)	0.75 (19)				0.56 (14)	—	—	HRCII-C
150M09C	150											
200M09C	200											
250P09C	250	3.06 (178)	2.31 (59)		1 (25.4)	0.19 (4.8)			0.5 (13)	—	—	HRCII-MISC
300P09C	300											
350P09C	350											
400P09C	400											
250P11C	250			8.25 (210)		0.19 (5)	5.25 (133)	0.41 (10)	0.63 (16)	—	1 (25)	HRCII-C
300P11C	300											
350P11C	350											
400P11C	400											
450R11C	450	3.19 (81)	2.88 (73)			0.25 (6.3)				—	1 (25)	
500R11C	500											
600R11C	600											

Data Sheet: 4131

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BS 88 British Standard Low Voltage Fuses

SSD, NSD, ESD BS 88 Part 1

Specifications

Description: The NSD and ESD are low voltage fuses complying with general purpose gG characteristics.

Construction: Ceramic body.

Ratings:

Volts: — 240-550Vac (See Catalog Numbers table)

Amps: — 2-63A (See Catalog Numbers table)

— 20M25-63M100A Motor Starter ratings (See Catalog Numbers table)

IR: — 33kA (SSD)

— 80kA (NSD, ESD)

Agency Information: CE, Meets the requirements of BS 88 Part 1 and IEC 60269-1.

Mounting: Offset blades.

Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Max AC Voltage Ratings	BS 88 Ref.
SSD	2, 4, 6, 10, 16, 20, 25, 32	240	E1
NSD	2, 4, 6, 10, 16, 20, 25, 32,	550	F1
	20M25*, 20M32*, 20M36*, 32M36*, 32M40*,	415	F1
	32M50*, 32M63*	415	F1
ESD	2, 4, 6, 10, 16, 25, 32	550	F2
	40, 50, 63, 63M80, 63M100*	415	F2

*"M" indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: SSD-20

Recommended Fuse Holders

Basic Fuse Catalog Numbers	Holder Catalog Numbers
NSD	32NNSF
ESD	63ENSF

Data Sheets 4105 (SSD), 4100 (NSD) and 4101 (ESD)

STD, NITD, AAO, BAO, OSD, CEO, DEO BS 88 Part 1

Specifications

Description: The STD to DEO types are low voltage fuses complying with general purpose gG characteristics.

Construction: Ceramic body.

Ratings:

Volts: — 240-550Vac (See Catalog Numbers table)

Amps: — 2-200A (See Catalog Numbers table)

— 20M25-200M315A Motor Starter ratings (See Catalog Numbers table)

IR: — 33kA (STD)

— 80kA (NITD, AAO, BAO, CEO, DEO)

Agency Information: CE, Meets the requirements of BS 88 Part 1 and IEC 60269-1.

Mounting: Offset bolted blades.

Typical Applications

- The STD type are used in 240V street lighting cut-outs
- NITD to DEO types used for industrial and general purpose applications

Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Max AC Voltage Ratings	BS 88 Ref.
STD	2, 4, 6, 10, 16, 20, 25, 32	240	—
NITD	2, 4, 6, 10, 16, 20, 25, 32	550	—
	20M25*, 20M32*, 32M40*, 32M50*, 32M63*	415	—
AAO	2, 4, 6, 10, 16, 20, 25, 32, 32M40*, 32M50*, 32M63*	550	—
BAO	40, 50, 63, 63M80*, 63M100*	550	A3
CEO	32, 40, 50, 63, 80, 100	550	A4
	100M125*, 100M160*, 100M200*	415	A4
DEO	125, 160, 200, 200M250*, 200M315*	415	—
OSD	80, 100	550	—
	100M125*, 100M160*	415	—

*"M" indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: BAO-16

Recommended Fuse Blocks & Holders

Basic Fuse Catalog Numbers	Block/Holder Catalog Numbers
NITD	CM32FC
AAO	CM32F
BAO	CM63F
OSD	CM100F
CEO	BH-0111

Data Sheets 4123 (STD), 4106 (NITD), 4109 (AAO), 4112 (BAO), 4107 (OSD), 4115 (CEO) and 4117 (DEO)

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BS 88 British Standard Low Voltage Fuses

AC, AD, BC, BD, CD, DD, ED, EFS BS 88

Specifications

Description: Low voltage fuses that comply with general purpose gG characteristics and available up to 400A with two hole mount and up to 1250A with four hole mount.

Construction: Ceramic body.

Ratings:

Volts: — 415/550Vac, 250Vdc (See Catalog Numbers table)

Amps: — 2-400A (See Catalog Numbers table)

— 63M80-400M500A Motor Starter ratings (See Catalog Numbers table)

IR: — See Catalog Numbers table

Agency Information: CE, Meets the requirements of BS 88 Parts 1 and 2 and IEC 60269-1.

Mounting: Center bolted blades, two-hole mount.

Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Interrupting Ratings AC	Interrupting Ratings DC	Max Voltage Ratings AC	Max Voltage Ratings DC	BS 88 Ref.
AC	2, 4, 6, 10, 16, 20, 25, 32	80kA	40kA	550	250	—
AD	2, 4, 6, 10, 16, 20, 25, 32	80kA	40kA	550	250	—
BC	40, 50, 63	80kA	40kA	550	250	—
	63M80*, 63M100*	80kA	—	550	—	—
BD	40, 50, 63	80kA	40kA	550	250	—
CD	80, 100, 100M125*, 100M160*, 100M200*, 100M200*	80kA	—	415	—	B1
DD	125, 160, 200, 200M250*, 200M315*	80kA	—	415	—	B2
ED	250, 315, 355, 400, 315M400*	80kA	—	415	—	B3
	400M500*	80kA	—	550	—	B4
EFS	125, 160, 200, 250, 315	80kA		415	—	—

*"M" indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: BC-40

Recommended Fuse Blocks & Holder

Basic Fuse Catalog Numbers	Block/Holder Catalog Numbers
AC	BH-0111 Modular fuse block
AD	200DF Fuse holder
BC	BH-0111 Modular fuse block
BD	200DF-L
CD	200DF-L
DD	200DF-L
ED	BH-1131 Modular fuse block

Data Sheets 4110 (AC), 4111 (AD), 4113 (BC), 4114 (BD), 4116 (CD), 4118 (DD), 4119 (ED) and 4121 (EFS)

EF, FF, FG, GF, GG, GH BS 88

Specifications

Description: Low voltage fuses complying with general purpose gG characteristics and available up to 400A with two hole mount and up to 1250A with four hole mount.

Construction: Ceramic body.

Ratings:

Volts: — 415/550Vac, 250/400Vdc (See Catalog Numbers table for details)

Amps: — 355-1250

IR: — See Catalog Numbers table

Agency Information: CE, Meets the requirements of BS 88 Parts 1 and 2 and IEC269-1.

Mounting: Center bolted blades, four-hole mount.

Basic Catalog Numbers

Basic Catalog Numbers	Amp Ratings	Interrupting Ratings AC	Interrupting Ratings DC	Max Voltage Ratings AC	Max Voltage Ratings DC	BS 88 Ref.
EF	355, 400	80kA	—	415	—	C1
	400M500*	80kA	—	550	—	—
FF	450, 500, 560, 630	80kA	40kA	550	400	C2
FG	450, 500, 560, 630	80kA	40kA	550	400	—
GF	710, 800	80kA	40kA	550	250	C3
GG	710, 800	80kA	40kA	550	250	—
	1000, 1250	80kA	—	550	—	—
GH	710, 800, 1000, 1250	80kA	—	550	—	—

"M" indicates motor starter ratings."M" indicates motor starter ratings.

To Order

To order, specify Basic Catalog Number and amp rating. Example: FG-450

Data Sheets 4120 (EF), 4102 (FF), 4122 (FG), 4103 (GF), 4104 (GG) and 4108 (GH)

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DIN Style Type D and Neozed Low Voltage Fuses

D16, D27, D33, D125 Type D

Specifications

Description: DIN style Type D low voltage fuses.

Dimensions: See Catalog Numbers table and Dimensions illustrations.

Construction: Ceramic body.

Ratings:

Volts: — 500Vac

Amps: — 2-100A

IR: — 100kA

Agency Information: CE, "D" type fuses complying with DIN 49360 Part 2 and DIN 49515, operating class gL.

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimension "D" (mm)	Color Code	Figure Number
2D16	2	6	Pink	
4D16	4	6	Brown	
6D16	6	6	Green	
10D16	10	8	Red	1
16D16	16	10	Grey	
20D16	20	12	Blue	
25D16	25	14	Yellow	
2D27	2	6	Pink	
4D27	4	6	Brown	
6D27	6	6	Green	
10D27	10	8	Red	2
16D27	16	10	Grey	
20D27	20	12	Blue	
25D27	25	14	Yellow	
35D33	35	16	Black	
50D33	50	18	White	3
63D33	63	20	Copper	
80D125	80	5	Silver	4
100D125	100	7	Red	

Additional Fuse links: Quick acting fuselinks in body sized D16, D27, D33 and D125 rated 2-100A. Reference number suffixed Q, i.e. 10D27Q. Voltage rating 500V. Gauge rings and keys can also be supplied.

Dimensions - mm

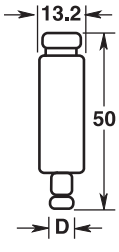


Figure 1

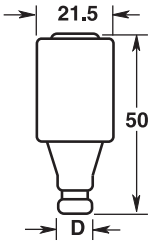


Figure 2

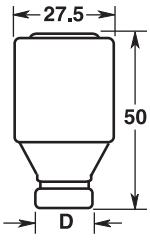


Figure 3

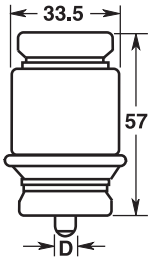


Figure 4

Data Sheet: 4124

NZ01, NZ02 Type D0

Specifications

Description: Low voltage Neozed fuses suitable for use on 250Vdc systems.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Construction: Ceramic body.

Ratings:

Volts: — 400Vac

Amps: — 2-63A

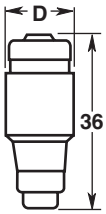
IR: — 100kA

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Ratings	Dimension "D" (mm)	Color Code
2NZ01	2	11	Pink
4NZ01	4	11	Brown
6NZ01	6	11	Green
10NZ01	10	11	Red
16NZ01	16	11	Grey
20NZ02	20	15	Blue
25NZ02	25	15	Yellow
35NZ02	35	15	Black
50NZ02	50	15	White
63NZ02	63	15	Copper

Dimensions - mm



Data Sheet: 4124

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NH HRC Fuses

___NHG___B

Specifications
Class: gG/gL

Description: DIN square bodied, dual indication industrial fuses.

Construction: Steatite insulator, corrosion-proof (aluminum) metal parts with full-contact, silver-plated copper blades.

Sizes: DIN 000 to 4.

Selectivity Ratio: 1:1.6 up to 500Vac.

Ratings:

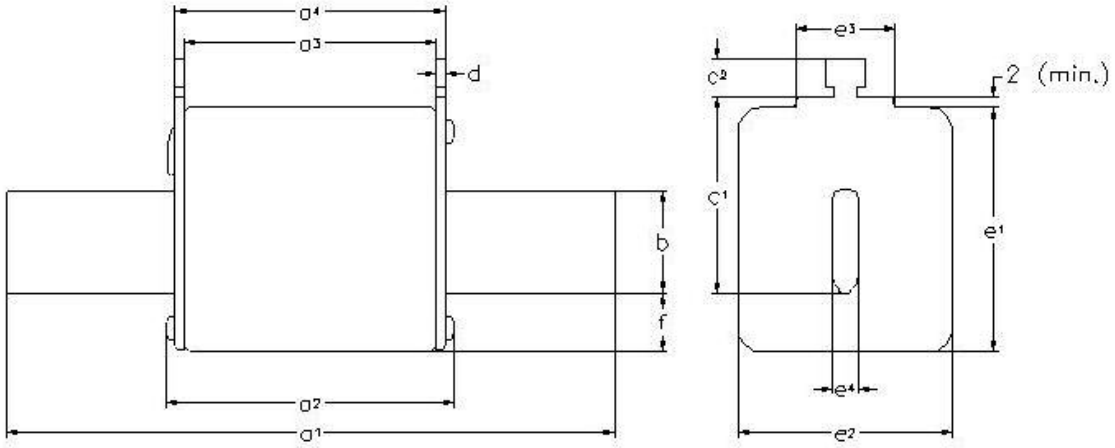
Volts: — 500Vac/250Vdc
— 690Vac/250Vdc
Amps: — 2-1250A
IR: — 120kA
Frequency: — 50Hz
Operating Frequency: — 45-62Hz

Agency Information: IEC 60269, VDE0636, DIN 43620 Part 1 to 4, VDE Mark and CE.

Fuse Blocks	Size
SB00-D	000-00
SB1-D	1*, 1
SB2-D	02, 2, 03, 3

Dimensions - mm

Fuse Size	a^1	a^2 (max)	a^3	a^4	b (nom)	c^1 (± 8)	c^2 (nom)	D (nom)	e^1 (max)	e^2 (max)	e^3 (max)	e^4 (nom)	f (max)
000	78.5 ± 1.5	54	45 ± 1.5	49 ± 1.5	15	35	10	2 ± 0.5	41	21	16	6	8
00	78.5 ± 1.5	54	45 ± 1.5	49 ± 1.5	15	35	11	7.0 ± 0.5	48	30	25	6	15
0	125 ± 2.5	68	62 +3/-1.5	68 +1.5/-3	15	35	11	2.5 ± 0.5	48	30	25	6	15
01	135 ± 2.5	75	62 ± 2.5	68 ± 2.5	15	40	11	2.5 ± 0.5	48	30	25	6	15
1	135 ± 2.5	75	62 ± 2.5	68 ± 2.5	20	40	11	2.5 ± 0.5	53	52	25	6	15
02	150 ± 2.5	75	62 ± 2.5	68 ± 2.5	20	48	11	2.5 ± 0.5	53	52	25	6	15
2	150 ± 2.5	75	62 ± 2.5	68 ± 2.5	25	48	11	2.5 ± 0.5	61	60	25	6	15
03	150 ± 3	75	62 ± 2.5	68 ± 2.5	25	60	11	2.5 ± 0.5	61	60	25	6	15
3	150 ± 3	75	62 ± 2.5	68 ± 2.5	32	60	11	3.0 ± 0.5	75	70	25	6	18
4	200	84	80	90	50	85	11	3	120	87	—	8	30



Data Sheet 4173

For detailed information, visit the Electrical IEC section at www.cooperbussmann.com

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NH HRC Fuses

500Vac / 250Vdc	Size	Rated Current (Amps)	gG/gL Dual Indicator Voltage Conducting Metal Gripping Lugs	Carton Quantity
		2	2NHG000B	3
		4	4NHG000B	3
		6	6NHG000B	3
		10	10NHG000B	3
		16	16NHG000B	3
		20	20NHG000B	3
		25	25NHG000B	3
	000	32	32NHG000B	3
		35	35NHG000B	3
		40	40NHG000B	3
		50	50NHG000B	3
		63	63NHG000B	3
		80	80NHG000B	3
		100	100NHG000B	3
	00	125	125NHG00B	3
		160	160NHG00B	3
		10	10NHG0B	3
		16	16NHG0B	3
		20	20NHG0B	3
		25	25NHG0B	3
		32	32NHG0B	3
		35	35NHG0B	3
	0	40	40NHG0B	3
		50	50NHG0B	3
		63	63NHG0B	3
		80	80NHG0B	3
		100	100NHG0B	3
		125	125NHG0B	3
		160	160NHG0B	3
		10	10NHG01B	3
		16	16NHG01B	3
		20	20NHG01B	3
		25	25NHG01B	3
		32	32NHG01B	3
		35	35NHG01B	3
	01	40	40NHG01B	3
		50	50NHG01B	3
		63	63NHG01B	3
		80	80NHG01B	3
		100	100NHG01B	3
		125	125NHG01B	3
		160	160NHG01B	3
		200	200NHG1B	3
	1	224	224NHG1B	3
		250	250NHG1B	3
		35	35NHG02B	3
		40	40NHG02B	3
		50	50NHG02B	3
		63	63NHG02B	3
		80	80NHG02B	3
	02	100	100NHG02B	3
		125	125NHG02B	3
		160	160NHG02B	3
		200	200NHG02B	3
		224	224NHG02B	3
		250	250NHG02B	3
		315	315NHG2B	3
	2	355	355NHG2B	3
		400	400NHG2B	3
		250	250NHG03B	3
		315	315NHG03B	3
	03	355	355NHG03B	3
		400	400NHG03B	3
	3	500	500NHG3B	3
		630	630NHG3B	3
		500	500NHG4G	1
	4	630	630NHG4G	1
	Single Indicator	800	800NHG4G	1
	Slotted End	1000	1000NHG4G	1
	Tags	1250	1250NHG4G	1

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NH HRC Fuses

690Vac / 250Vdc	Size	Rated Current (Amps)	gG/gL Dual Indicator Voltage Conducting Metal Gripping Lugs	Carton Quantity
	000	2	2NHG000B-690	3
		4	4NHG000B-690	3
		6	6NHG000B-690	3
		10	10NHG000B-690	3
		16	16NHG000B-690	3
		20	20NHG000B-690	3
		25	25NHG000B-690	3
		32	32NHG000B-690	3
		35	35NHG000B-690	3
		40	40NHG000B-690	3
	00	50	50NHG00B-690	3
		63	63NHG00B-690	3
		80	80NHG00B-690	3
		100	100NHG00B-690	3
	0	6	6NHG0B-690	3
		10	10NHG0B-690	3
		16	16NHG0B-690	3
		20	20NHG0B-690	3
		25	25NHG0B-690	3
		32	32NHG0B-690	3
		35	35NHG0B-690	3
		40	40NHG0B-690	3
		50	50NHG0B-690	3
		63	63NHG0B-690	3
		80	80NHG0B-690	3
		100	100NHG0B-690	3
	1	50	50NHG1B-690	3
		63	63NHG1B-690	3
		80	80NHG1B-690	3
		100	100NHG1B-690	3
		125	125NHG1B-690	3
		160	160NHG1B-690	3
		200	200NHG1B-690	3
	2	63	63NHG2B-690	3
		80	80NHG2B-690	3
		100	100NHG2B-690	3
		125	125NHG2B-690	3
		160	160NHG2B-690	3
		200	200NHG2B-690	3
		224	224NHG2B-690	3
		250	250NHG2B-690	3
		315	315NHG2B-690	3
	3	250	250NHG3B-690	3
		315	315NHG3B-690	3
		355	355NHG3B-690	3
		400	400NHG3B-690	3
		425	425NHG3B-690	3
		500	500NHG3B-690	3

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NH Fuse Bases

SB*-D, SB*-S
Up to 690V / 160 - 1250A
Sizes 00, 0, 1, 2, 3, 4

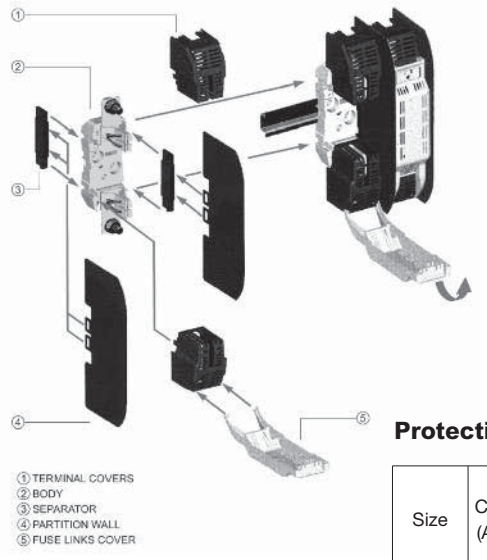
Description: NH fuse bases with thermoplastic bodies. DIN-Rail and screw mounting (size 4 screw fix). Range of protection accesories for live parts in order to obtain IP20 protection standard.

Ratings:

- Volts: up to 690Vac
- Amps: 2 to 1250A

Applications: Protection of industrial circuits and electrical apparatus

Standards and Approvals: IEC 60269, DIN 43620



Part Numbers

Size	Poles	Current (Amps)	Part Numbers DIN Screw	Carton Quantity	Compatible Fuse Size
00	1	160A	SB00-D	3	000 & 00
	3		TB00-D TB00-D-IP20	1	
0	1	160A	SB0-D	3	0
	3		TB0-D	1	
1	1	250A	SB1-D	3	01 & 1
	3		TB1-D	1	
2	1	400A	SB2-D	3	02 & 2
	3		TB2-D	1	
3	1	630A	SB3-D	3	03 & 3
	3		TB3-D	1	
4	1	1250A	SB4-S (Screw Connection only)	3	4

Neutral

Size	Current (Amps)	Part Ref	Carton Quantity
NH00	160	SL00	3
NH0	160	SL0	
NH1	250	SL1	
NH2	400	SL2	
NH3	630	SL3	
NH4	1000	SL4	

Fuse extraction handle

Size	Part Ref	Carton Quantity
C00-3	FEH	1

Protection accessories

Size	Current (Amps)	Separation Partition ④		Fuse Casing ⑤		Terminal Cover ①		Separator ③	
		Part Ref	Carton Quantity	Part Ref	Carton Quantity	Part Ref	Carton Quantity	Part Ref	Carton Quantity
NH00*	160A	SP00*	2	FC00*	3	CS00*	6	BC00*	2
NH0	160A	SP0	2	FC0	3	CS0	6	BC0	2
NH1	250A	SP1-2	2	FC1-2	3	CS1	6	BC1-2	2
NH2	400A	SP1-2	2	FC1-2	3	CS2	6	BC1-2	2
NH3	630A	SP3	2	FC3	3	CS3	6	BC3	2

* For single pole only

IP Protection Kits

Part Reference	Description
TB00-D-IP20	Complete triple pole fuse base IP20 rated
FPK0-3P	IP20 kit for TB0-D fuse base
FPK1-3P	IP20 kit for TB1-D fuse base
FPK2-3P	IP20 kit for TB2-D fuse base
FPK3-3P	IP20 kit for TB3-D fuse base

Microswitch

Part Ref	Carton Quantity
BVL-50	1

Microswitch suitable for the following NH Fuse links:
- 400 Volts gG/gL
- 500 Volts gG/gL and aM
- 690 Volts gG/gL and aM

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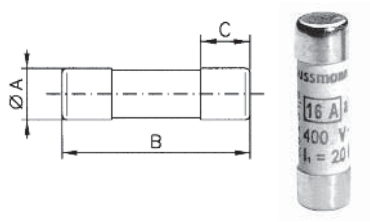
Class gG/gL IEC 60269 Industrial Ferrule Fuses

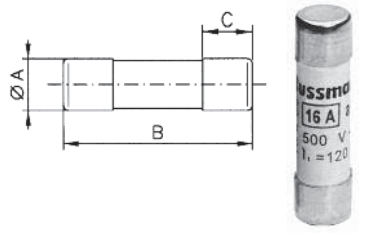
8 x 31mm: 400Vac, 0.5 - 25A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm) A	B	C
C08G0-5	0.5	400Vac	8.5	31.5	6.3
C08G1	1				
C08G2	2				
C08G4	4				
C08G6	6				
C08G8	8				
C08G10	10				
C08G12	12				
C08G16	16				
C08G20	20				
C08G25	25				



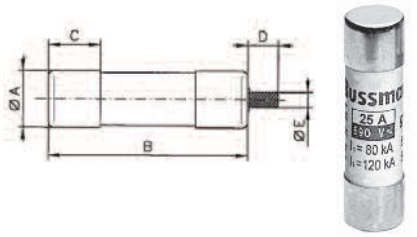
10 x 38mm: 500Vac, 0.5 - 32A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm) A	B	C
C10G0-5	0.5	500Vac	10.3	38	10
C10G1	1				
C10G2	2				
C10G4	4				
C10G6	6				
C10G8	8				
C10G10	10				
C10G12	12				
C10G16	16				
C10G20	20				
C10G25	25				
C10G32	32	400Vac			



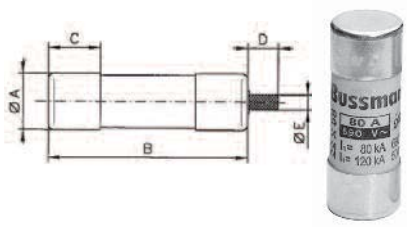
14 x 51mm: 400Vac - 500Vac - 690Vac, 1 - 50A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm) A	B	C	D	E
C14G1	1	690Vac	14.3	51	13	8	4
C14G2	2						
C14G4	4						
C14G6	6						
C14G8	8						
C14G10	10						
C14G12	12						
C14G16	16						
C14G20	20						
C14G25	25						
C14G32	32	500Vac					
C14G40	40						
C14G50	50	400Vac					



22 x 58mm: 400Vac - 500Vac - 690Vac, 2 - 125A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm) A	B	C	D	E
C22G2	2	690Vac	22.2	58	16	8	4
C22G4	4						
C22G6	6						
C22G8	8						
C22G10	10						
C22G12	12						
C22G16	16						
C22G20	20						
C22G25	25						
C22G32	32						
C22G40	40						
C22G50	50						
C22G63	63						
C22G80	80	500Vac					
C22G100	100						
C22G125	125	400Vac					



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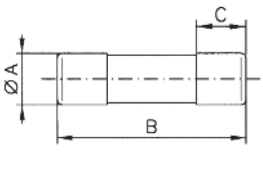
Class aM IEC Industrial Ferrule Fuses - Class aM IEC 60269

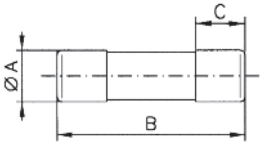
8 x 31mm: 400Vac, 1 - 8A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm)		
			A	B	C
C08M1	1	400Vac	8.5	31.5	6.3
C08M2	2				
C08M4	4				
C08M6	6				
C08M8	8				



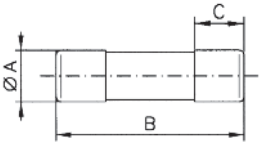
10 x 38mm: 400Vac - 550Vac, 0.16 - 25A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm)		
			A	B	C
C10M0-16	0.16	550Vac	10.3	38.0	10.0
C10M0-25	0.25				
C10M0-5	0.5				
C10M1	1				
C10M2	2				
C10M4	4				
C10M6	6				
C10M8	8				
C10M10	10				
C10M12	12				
C10M16	16				
C10M20	20	400Vac			
C10M25	25				



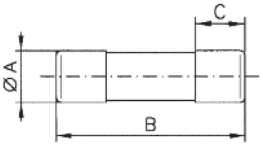
14 x 51mm: 690Vac - 500Vac, 0.25 - 50A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm)		
			A	B	C
C14M0-25	0.25	690Vac	14.3	51	13
C14M1	1				
C14M2	2				
C14M4	4				
C14M6	6				
C14M8	8				
C14M10	10				
C14M12	12				
C14M16	16				
C14M20	20				
C14M25	25				
C14M32	32				
C14M40	40	400Vac			
C14M50	50				



22 x 58mm: 400Vac - 500Vac - 690Vac, 2 - 125A

Catalog Number	Rated Amps	Rated Voltage	Dimensions (mm)		
			A	B	C
C22M2	2	690Vac	22.2	58	16
C22M4	4				
C22M6	6				
C22M8	8				
C22M10	10				
C22M12	12				
C22M16	16				
C22M20	20				
C22M25	25				
C22M32	32				
C22M40	40				
C22M50	50				
C22M63	63				
C22M80	80	500Vac			
C22M100	100				
C22M125	125	400Vac			



Neutral Links

Catalog Number	Product Class
C8NL C10NL C14NL C22NL	QR

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Class aM & gG/gL IEC Industrial Ferrule Fuses with Striker

Class gG/gL with Striker

14 X 51

22 X 58

Catalog Number With Striker	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C14G2S	2	0.24	500	120
C14G4S	4	0.45		
C14G6S	6	0.42		
C14G8S	8	0.70		
C14G10S	10	0.53		
C14G12S	12	0.88		
C14G16S	16	1.16		
C14G20S	20	1.23		
C14G25S	25	1.46		
C14G32S	32	2.04		
C14G40S	40	3.34		
C14G50S	50	3.04		
Catalog Number With Striker	**Amp Rating**	**Watts Loss (W)**	**Voltage (AC)**	**Interrupting Rating (kA)**
C22G4S	4	0.48	690	80
C22G6S	6	0.47		
C22G8S	8	0.73		
C22G10S	10	0.74		
C22G12S	12	0.83		
C22G16S	16	1.21		
C22G20S	20	1.29		
C22G25S	25	1.53		
C22G32S	32	2.13		
C22G40S	40	3.40		
C22G50S	50	3.48		
C22G63S	63	4.46	500	120
C22G80S	80	5.86		
C22G100S	100	6.61		
C22G125S	125	8.42	400	

Class aM with Striker

14 X 51

22 X 58

Catalog Number With Striker	Amp Rating	Watts Loss (W)	Voltage (AC)	Interrupting Rating (kA)
C14M1S	1	0.14	500	120
C14M2S	2	0.24		
C14M4S	4	0.45		
C14M6S	6	0.42		
C14M8S	8	0.70		
C14M10S	10	0.53		
C14M12S	12	0.88		
C14M16S	16	1.16		
C14M20S	20	1.23		
C14M25S	25	1.46		
C14M32S	32	2.04		
C14M40S	40	3.34		
C14M50S	50	3.04	400	
Catalog Number With Striker	**Amp Rating**	**Watts Loss (W)**	**Voltage (AC)**	**Interrupting Rating (kA)**
C22M2S	2	0.29	690	80
C22M4S	4	0.48		
C22M6S	6	0.47		
C22M8S	8	0.73		
C22M10S	10	0.74		
C22M12S	12	0.83		
C22M16S	16	1.21		
C22M20S	20	1.29		
C22M25S	25	1.53		
C22M32S	32	2.13		
C22M40S	40	3.40		
C22M50S	50	3.48	500	120
C22M63S	63	4.46		
C22M80S	80	5.86		
C22M100S	100	6.61		
C22M125S	125	8.42	400	

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HRC Fuse Holders

CAMaster

Specifications
Catalog Symbol:
See table below.

Description: The CAMaster HRC fuse holder features a unique cam-action for easy fuse removal while allowing significantly improved contact pressure between fuse carrier and base contact that enhances electrical performance. A range of lockable safety carriers for the fuse holder (catalog reference: LSC), are available.

Ratings:

Volts: — 690V

Amps: — 30-100A (See Catalog Number table for details)

Agency Information: CE, CSA C22.2 No. 39; IEC 269 AND BS 88.

Mounting: 35mm DIN-Rail or single screw mounting.

Catalog Numbers

Catalog Numbers	Amp Ratings	Details For:	Fuse Accepted
CM20CF	30	HRCI-CA Applications	_CIF21
CM30CF	30	HRCII Applications	_H07C
CM60CF	60		_K07C
CM100CF	100		_K07CR

Accessory Catalog Numbers for CAMaster Units

Catalog Numbers	Amp Ratings	Details	Fuse Holder Accepted
20BS	30	Back Stud	CM20CF
32BS	30		CM30CF
60/100BS	60/100		CM60/100CF
GLP	All	Ganging Link Kit	3-Pole
NI	All	660V Neon Indicator	—
20LSC	30	Security Carrier with Clip	CM20CF
30LSC	30		CM30CF
60/100LSC	60/100A		CM60/100CF

Data Sheet: 4132

SAFEloc

Specifications
Catalog Symbol:
See table below.

Description: The SAFEloc HRC fuse holders (for use with HRCI-CB fuses) provides a positive, stress-free fuse fitting and locks it in position to ensure safe insertion and withdrawal from the base. Base contacts are fully shrouded to help protect against electric shock. Shrouds utilize simple slide/snap action allowing access to the contact terminal screws.

Ratings:

Volts: — 600V

Amps: — 30-60A (See Catalog Number table for details)

Agency Information: CE, Designed to accommodate the compact range of offset blade fuse to CSA C22.2 No. 106, HRCI-CB.

Mounting: 35mm DIN-Rail or single screw mounting.

Catalog Numbers*

Catalog Numbers	Amp Ratings	Connection	Fuse Accepted
C30F	30	Front	_CIF06
C30BS		Back	
C30FBS		Front-Back	
C60F	60	Front	EK-Amp
C60BS		Back	
C60FBS		Front-Back	

*For use with HRCI-CB Fuses.

Data Sheet: 4133

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Quik-Spec coordination panelboards

Bussmann
by EATON

The new Quik-Spec coordination panelboard with a footprint up to 40% smaller than other fusible panelboards is now available up to 1200A

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Quik-Spec™ Electrical Gear

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Quik-Spec AC Safety Switches	271
A/C Disconnects - Fused and Non-Fused	272

RED indicates NEW information

Scan this tag to get the latest product information for Quik-Spec Coordination Panel Boards.

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30-400A Quik-Spec™ Coordination Panelboard

Specifications

Description: Configurable fusible panelboard with 30-400A mains and branches from 1-100A rated 600Vac.

Ratings:

Volts: — 600Vac (or less), 125Vdc (or less)**

Bus Amps: — 30, 60, 100, 200, 225 or 400A

Options:

Main: — MLO (main lug only)
— Fused disconnect switch
— Non-fused disconnect switch

Enclosure: — NEMA 1 or 3R
— Standard size panelboard (20″ W x 5″ D x various heights)*
— For other ratings consult factory

Panel: — Feed; Top & Bottom***
— Mounting; Surface or Flush****
— Door/Trim; Regular or Door-in-Door****

Branch: — Circuits; Up to 18, 30 and 42*
— Amps; Up to 100A
— Type; 1-, 2- and 3-Pole

Fuse: — Six-fuse spare fuse compartment
— Time-delay or UPS/critical applications (fast-acting) CUBEFuse™

Assembly

SCCR: — 200kA, 100kA or 50kA AC,100kA or 20kA@125Vdc*

Through-Lugs & Loadside

Disconnect: — Feed-Through - single and double
— Fused loadside disconnect, ≥100A-≤200A (400A panels only)

Neutrals: — 200A and 400A Unbonded and Bonded

Ground: — Non-Isolated or Isolated

*Depending on configuration
**125Vdc rating applicable to 40 amp or less CCPBs on MLO panels only.
***Top feed not available on NEMA 3R enclosure
****Flush mount and Door-in-Door not available with NEMA 3R enclosure

QuikShip Made To Order

Agency Information: UL Listed to UL 67, complies with NFPA 70 (NEC®; National Electric Code),

Features and Benefits:

- UL and CSA listing makes it easy to address NEC® selective coordination requirements in an all fused system
- Value-engineered for greater flexibility with up to 400A mains, 200kA SCCR, 100A branches with 18, 30 and 42 branch positions
- Same size footprint as traditional circuit breaker panelboards and 40% smaller than standard fusible panelboards: 20″ W x 5 ¾″ D x various heights (depending on configuration)
- Increase safety with current-limiting finger-safe Low-Peak CUBEFuse that reduces arc flash hazard levels
- Quik-Quote online configurator makes specifying and ordering easy – delivers a full bill of material and submittal drawings for an entire project
- Available for 10 day shipment with QuikShip™ service

Ordering:

The QSCP is factory configured to the specific electrical system. Contact your Bussmann distributor or representative to place your order. Have all relevant electrical and circuit information on hand.

QuikShip – 10 Business Day Shipment

Data Sheet: 1159

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

600-1200A Quik-Spec™ Coordination Panelboard

Specifications

Description: Fusible panelboard with 600, 800 and 1200A mains and branches from 1-600A, rated 600Vac.

Ratings:

Volts: — 600Vac (or less), 125Vdc

Amps: — 600, 800 and 1200A

Options:

Main: — Main lug only

Enclosure: — NEMA 1 floor mount

Branch: — 1-, 2- and 3-pole, 15-600A branch disconnect

Fuse: — Time-delay, non-indicating (Class CF TCF_R and/or Class J LPJ_SP)
— Time-delay, indicating (Class CF TCF_ and/or Class J LPJ_SPI)
— Fast-acting, non-indicating (Class CF TCF_RN and/or Class J JKS)
— DFJ high speed Class J fuses

Agency Information: Complies with NFPA 70 (NEC®; National Electrical Code®) UL Listed to UL 67,

Features and Benefits:

- Configurable panelboards with options for 600, 800 and 1200A mains and branches from 1-600A all rated 200kA SCCR at 600Vac
- Smallest standard fusible panelboards in the industry
- Featuring the finger-safe UL Class CF CUBEFuse with 1-600A ampacity rejection features (1-100A)
- Available with time-delay or UPS/Critical application fast-acting fuses

- UL listing makes it simple to address NEC® selective coordination system requirements in an all fused system
- Quik-Quote online configurator makes specifying and ordering easy – delivers a full bill of material and submittal drawings for an entire project

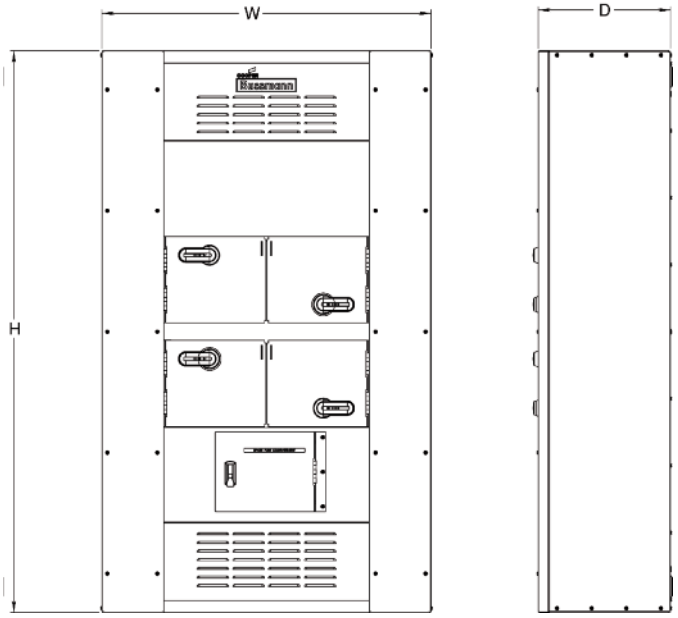
Ordering:

The QSCP is factory configured to the specific electrical system. Contact your Bussmann distributor or representative to place your order. Have all relevant electrical and circuit information on hand.

QuikShip – 10 Business Day Shipment

Configuration and Dimension Chart

Panel Ampacity	Branch Configurations	Dimension (inches)		
		H	W	D
600A	(18) 1-100A	65	27	15
	(18) 1-100A + 200A single			
	(18) 1-100A + 200A twin			
	200A single + 200A single			
	200A single + 200A twin			
	200A twin + 200A twin			
	(2) 300A single	89	38	15
800A	(18) 1-100A + 200A single	65	38	15
	(18) 1-100A + 200A twin			
	(2) 200A twin			
	(18) 1-100A + 400A single	89	38	15
	200A twin + 400A single			
	(2) 400A single			
1200A	(18) 1-100A + 600A single	89	38	15
	(3) 200A twin			
	200A twin + 600A single			
	(2) 200A twin + 400A single			
	(3) 400A single	102	38	15
	600A single + 400A single + 200A single			
	600A single + 400A single + 200A twin			
	(2) 600A single			



Data Sheet: 1171

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Quik-Spec™ Power Module — All-in-one Elevator Disconnect

PS & PMP

Bussmann Quik-Spec Power Module

Specifications

Description: Fusible power switch or panel with shunt trip and fire safety interface to allow for single point tie in with fire alarm system.

Ratings:

Volts: — 600Vac, 3Ø

Amps: — 30-400A (PS)

— 30-200A (PMP feeder switches)

— 400-800A (PMP main switches*)

Assembly

SCCR: — 200kA RMS

*Contact Bussmann for applications greater than 800A.

Agency Information: Complies with NFPA 70 (NEC®; National Electrical Code®),

- Elevator Shutdown – ANSI/ASME A17.1, 2.8.3.3.2
  – NEC® 620.51(B) (Elevator Shutdown)
  – NEC® 240.12 (Orderly Shutdown)
- Shunt Trip Voltage Monitoring – NFPA 72, 6.16.4.4
- Selective Coordination – NEC® 620.62
- Auxiliary Contact (Hydraulic Elevator) – NEC® 620.91(C)

— Power Module Switch (PS); UL Listed (UL 98) Enclosed and Dead front switch Guide 96NK3917, File E182262, NEMA 1, UL 50 Listed enclosure**, cUL per Canadian Standards C22.2, No. 0-M91-CAN/CSA C22.2, No. 4-M89 Enclosed switch.

**NEMA 12, 3R, and 4 enclosures also available

— Power Module Panel (PMP); UL 98 Enclosed and Deadfront Switches.

Features and Benefits:

- Internally powered, relay activated shunt trip system
- Mechanically interlocked auxiliary contact
- Self-contained adherence to elevator consensus standards, NFPA 70 (NEC®). NFPA 72, ANSI/ASME 17.1
- Shunt trip capability
- Selective coordination
- Fire safety signal interface
- Shunt trip voltage monitoring
- Component protection via Bussmann Low-Peak™ Class J fuses
- UL 98 Listed for 200kA short-circuit current rating
- Lockable in the open position with three-lock capability
- Optional key-test switch and optional pilot light for easy inspection
- No annual calibration or testing of overcurrent protection required
- Padlockable for service-work safety and open-door "override" for troubleshooting

Typical Applications:

- Elevator Disconnects
- Computer Room Shunt Trip Disconnect
- Fire Safety Interface Relay

Accessories:

- For added safety, use the Bussmann SAMI™ fuse covers to improve maintenance personnel protection (OSHA 1910.333, paragraph C)

Ordering:

The Bussmann Quik-Spec™ Power Module Switch and Panel are factory configured to the specific application. Contact your Bussmann representative to place your order. Have all relevant electrical and circuit information on hand.

PS*

The Quik-Spec™ Power Module Switch (PS) for single elevator applications.

PMP*

Power Module™ Panel (PMP) for multiple elevator applications.

Scan this tag to get the latest videos for the Power Module.

*Fused main disconnect requires Class J fuses, not supplied with switch.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Quik-Spec™ Power Module — All-in-one Elevator Disconnect

Hydraulic Elevators

Hydraulic elevators need battery backup to help prevent stranding passengers. To keep the elevator from moving when it's been manually shut down for maintenance, the NEC® requires battery backup be connected to the elevator disconnecting means through an auxillary contact.

However, an unintended consequence can be passengers getting stranded because of devices that open automatically (circuit breakers and disconnects utilizing a molded case switch with a trailing fuse block) will operate with a fault on their loadside. That operation also disables the battery backup and strands passengers. That's why the Power Module has a non-automatic fusible shunt trip switch. If the Power Module has a fault on its loadside, the fuses open and the battery stays enabled. Thus the Power Module ensures that battery power is enabled when the passengers need it to exit - and disabled to allow safe maintenance of the elevator and hoistway.

Scenario	Battery Lowering Required	Reason	Offered By Power Module™	Offered By Other Elevator Disconnects
Power failure	Yes	Need to lower elevator to allow passengers to exit.	Yes	Yes
Fire in shaft or machine room	No	Recall is initiated by smoke detector and lowers elevator to a safe floor. Battery not needed.	Yes	Yes
Disconnect manually opened	No	Worker to perform maintenance. Elevator must remain stationary to prevent injury.	Yes	Yes
Fault on loadside of disconnect	Yes	Need to lower elevator to allow passengers to exit.	Yes	No

Quik-Spec™ Power Module Switch Catalog Numbering System

Power Module Switch Catalog Number System — **PS 1 T48 R1 K G N1 B F1 U**

PS = Power Module Switch

Amp Rating†
3 = 30A, 6 = 60A, 1 = 100A, 2 = 200A, 4 = 400A

Control Transformer*†
T20 = 208 Volt, T24 = 240 Volt, T48 = 480 Volt, T60 = 600 Volt

Fire Safety Interface Relay (3PDT, 10A, 12V)†
R1 = 120Vac Coil, R2 = 24Vdc Coil

Optional Key Test Switch
K = Key

Optional Pilot Light ON
G = Green, R = Red, W = White

Optional Neutral Lug††
N6 = 30-60A, N1 = 100A, N2 = 200A, N4 = 400A

Auxiliary Contacts†
B = 2 NO/NC

Fire Alarm Voltage Monitoring Relay (To Monitor Shunt Trip Voltage)
F1 = Single-Pole, F3 = Three-Pole**

Optional NEMA Enclosures (Type 1 Standard With No Suffix Designation Required)
U = Type 3R, Z = Type 12, Y = Type 4

* 100Va with Primary and Secondary fusing (120V Secondary)
† Required equipment.
** Only for use with R1 option
†† Neutral lug rating should be equal to or greater than the switch amp rating.

Quik-Ship Program: Switch - 3 Days, Panel - 10 Days!

Ship-direct service within three business days for Power Module Switches (PS_) and 10 business days for Power Module Panels (PMP_).

* Three day PS_ shipment requires ordering from catalog numbers shown.
** 10 Day PMP_ shipment covers NEMA 1 enclosures with the ampacities shown and all requirements for relay type (AC or DC), accessory options and number of switches. To order PMP_, contact your Bussmann representative with all relevant electrical and circuit information, we do the rest.

Power Module Switch*			Power Module Panel**	
Cat Numbers	Amps	Volts	Cat. Numbers	Amps
PS6T48R1KGBF3-X	60A	480V	PMP-400-X	400A
PS1T48R1KGBF3-X	100A	480V	PMP-600-X	600A
PS1T20R1KGBF3-X	100A	208V	PMP-800-X	800A
PS2T48R1KGBF3-X	200A	480V		
PS2T20R1KGBF3-X	200A	208V		

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Quik-Spec™ DC Safety Switch

Isolating DC Circuits Has Never Been Easier *or* Safer

- Flexibility of Application
- Enhanced Finger-Safe Design
- Meets UL and NEC® Requirements
- Flange Handle Operation
- Current-Limiting Fuses Reduce Arc Flash Hazard

NEC 690.17 Compliant Label

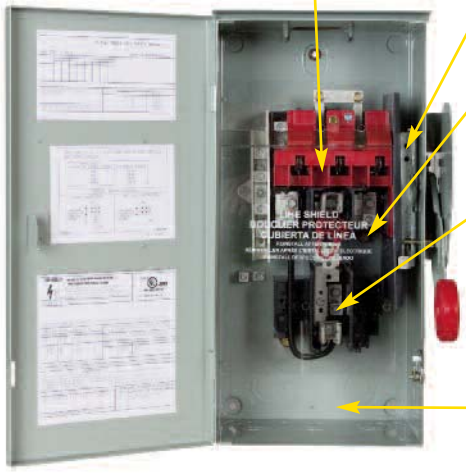
Warns that the switch terminals may be energized in the open position

High Visibility Padlockable Handle

Easy to operate with gloves and up to three padlocks to protect maintenance personnel

Visible Switch Contacts

Positive visual identification of switch state



NEMA 3R, 12 & 4X Enclosures

Meet many application requirements. 3R and 4X stainless steel well suited for isolating outdoor solar power installations

Door Interlock

Prevents opening door while energized, but can be manually overridden for testing or inspection.

Clear Polycarbonate Deadfront

Covers energized parts to provide added protection against electrical hazards. Lineside stays in place during fuse servicing.

Fused Version For Added Protection

Fuse clips located on switch center pole to ensure both clips are de-energized in OFF position. Meets NEC® Article 690.16 that requires isolating the fuse from all potential supply sources. Cooper Bussmann recommends using the Limitron fast-acting, current limiting PVS-R Class RK5 fuse (order separately.)

Conduit Knockouts

For easy conductor installation

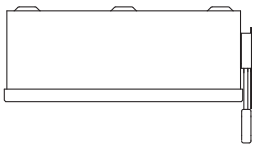
Type 3R Dimensions

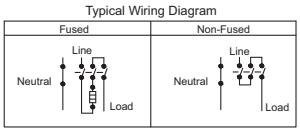
Amps	A	B	C	Main Lug Capacity	Neutral Lug Capacity	I_{SC}
30	16.35	8.87	9.89	#2 AWG - #14 AWG Al/Cu	#4 AWG - #14 AWG Al/Cu	19.2
60	16.35	8.87	9.89	#2 AWG- #14 AWG Al/Cu	#4 AWG - #14 AWG Al/Cu	38.4
100	22.15	11.84	9.89	1/0 AWG- #14 AWG Al/Cu	#4 AWG - #14 AWG Al/Cu	64.0
200	28.27	16.66	11.26	250kcmil - #6 AWG Al/Cu	#2 AWG - #14 AWG Al/Cu	128.0

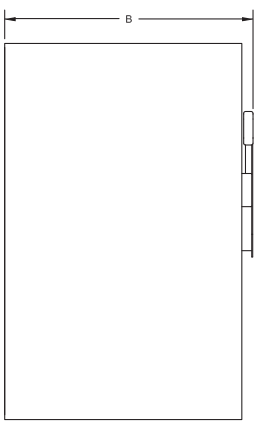
Type 12 & 4X Dimensions

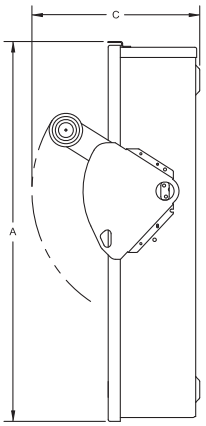
Amps	A	B	C	Main Lug Capacity	Neutral Lug Capacity	I_{SC}
30 & 60 Non-fusible	14.14	8.76	10.22	#2 AWG - #14 AWG Al/Cu	#4 AWG - #14 AWG Al/Cu	19.2
30 & 60 Fusible	19.08	8.76	10.22	#2 AWG - #14 AWG Al/Cu	#4 AWG - #14 AWG Al/Cu	19.2
100	24.95	11.79	10.22	1/0 AWG- #14 AWG Al/Cu	#4 AWG - #14 AWG Al/Cu	64.0
200	35.38	16.95	11.63	250kcmil - #6 AWG Al/Cu	#2 AWG - #14 AWG Al/Cu	128.0

Dimensions - in









DC Safety Switch Catalog Numbering System

Use this build-a-code to specify the exact Quik-Spec DC Safety Switch you need.

BD	1	6	1	F	R
Prefix	Poles	Voltage	Amps	Type	Enclosure Type
BD = Heavy Duty DC Safety Switch	**1** = 1-Pole	**6** = 600Vdc	**1** = 30A **2** = 60A **3** = 100A **4** = 200A	**F** = Fusible with neutral **N** = Non-fusible with neutral	**R** = NEMA 3R **D** = NEMA 12 **W** = NEMA 4X Stainless

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Quik-Spec™ Safety Switch

Bussmann Quik-Spec™ Safety Switch

Standard Features:

- Extended line terminal shield and finger-safe 30, 60, or 100A Bussmann CUBEFuse
- 200kA short-circuit current rating
- Visible double break quick-make, quick-break rotary blade mechanism
- Triple padlocking capability
- Mechanically interlocked door
- 600Vac/250Vdc maximum

Optional Features:

- Viewing window for visible blades and open fuse indication
- NEMA 1, 3R, 12, 4X (stainless)
- Suitable for use as service equipment (with neutral kit)

Specifications

Description: The Bussmann Quik-Spec™ Safety Switch equipped with finger-safe Low-Peak CUBEFuse provides superior safety and reliability for industrial customers.

Utilizing the Bussmann Class CF Low-Peak CUBEFuse, the Quik-Spec Safety Switch provides Class J fuse performance characteristics that can help mitigate incident energy and arc-flash hazard, and offers excellent component protection.

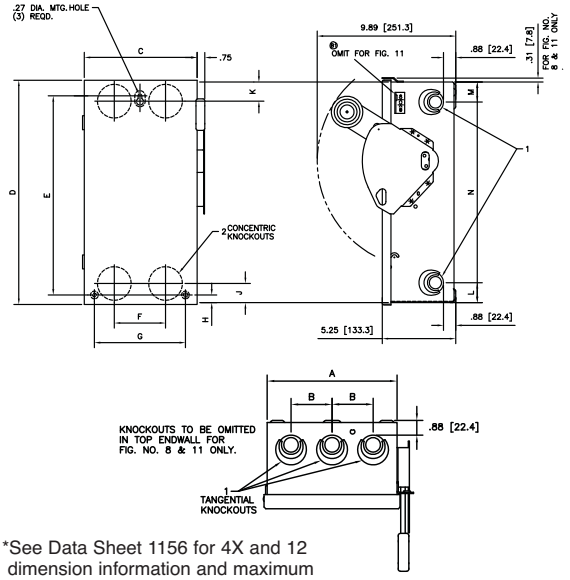
The Bussmann CUBEFuse requires no tools to install or replace.

Agency Information:

- UL 98 standard for enclosed deadfront switches.
- UL 50 standard for enclosures for electrical equipment.
- NEMA KS 1.
- UL Listed, File E5239.
- cUL Listed to C22.2 No.4-M89.

Dimensions - inches (mm)*

NEMA 1 & 3R



*See Data Sheet 1156 for 4X and 12 dimension information and maximum horsepower ratings.

Quik-Spec™ Safety Switch Catalog Numbering System

CF 3 6 1 F G K W

Switch Type	Voltage	Fusible	Series	Window (Optional)
CF =Heavy Duty CUBEFuse™ Safety Switch	**6** =600Vac	**F** = Fusible **N** =Fusible with Neutral*	**K** = Switch	**W** = Window

Poles	Amp	Enclosure Type
3 = 3-Pole	**1** = 30A **2** = 60A **3** = 100A	**G** = NEMA 1 **R** = NEMA 3R **D** = NEMA 12 **W** = NEMA 4X Stainless

*Suitable for service entrance use with neutral kit installed.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

A/C Disconnects — Fused and Non-fused

Series B22__

Specifications

Description: Fused and non-fused rainproof pullout air conditioner units.

Dimensions: See Catalog Numbers table.

Construction: NEMA 3R metal housing with weather resistant coating.

Wire Range: 14-3 AWG, Al/Cu

Ratings:

Phase: — Single, 2-wire

Volts: — 240Vac

Amps: — 30-60A

Agency Information: UL Listed to UL 1429, cUL Certified, UL Guide WGEW

Metallic Fused Disconnect

Metallic Non-Fused Disconnect

Metallic Non-Fused Disconnect with Weather Resistant-Tamper Resistant GFCI Receptacle.

Features and Benefits

- A/C disconnects meet NEC® Code Requirements under articles 440.14. GFCI units meet NEC® Code Requirements under articles 210.63, 210.8, and 406.8(B)(1).
- NEMA 3R rainproof enclosures withstand outdoor environment.
- Padlockable with two-position pullout handle to lock safety shield when in the ON position. (Not available on GF or NA units.) For added safety, pullout handle can be stored in the compartment in the off position.

Typical Applications

- Residential, light industrial/commercial A/C and heat pump service.
- Spas/whirlpools, swimming pools, pump houses.
- Suitable for service entrance equipment applications with field installable ground bar, kit number DPFG.

Catalog Numbers

Fused

Catalog Numbers	Description	Disconnect Rating	Max Hp Rating 120V	Max Hp Rating 240V	Wire Range 60 or 75°C Cu/Al	Enclosure Type	Fuse Class	Approx. Dimensions (in) Height	Width	Depth
B221-30F	30A, Pullout	30A	1.5	3	#14-3	NEMA 3R	H or R	8 ¾	5 ⅜	2 ⅞
B221-30FGF	30A, Pullout w/ GFCI	30A	1.5	3	#14-3	NEMA 3R	H or R	13	7 ½	4 ¾
B221-30FGFWRTR	30A, Pullout w/ WRTR-Rated GFCI	30A	1.5	3	#14-3	NEMA 3R	H or R	13	7 ½	4 ¾
B222-60F	60A, Pullout	60A	3	10	#14-3	NEMA 3R	H or R	8 ¾	5 ⅜	2 ⅞
B222-60FGF	60A, Pullout w/ GFCI	60A	3	10	#14-3	NEMA 3R	H or R	13	7 ½	4 ¾
B222-60FGFWRTR	60A, Pullout w/ WRTR-Rated GFCI	60A	3	10	#14-3	NEMA 3R	H or R	13	7 ½	4 ¾
Non-Fused										
B222-60NF	60A, Pullout	60A	3	10	#14-3	NEMA 3R	*	8 ¾	5 ⅜	2 ⅞
B222-60NFGF	60A, Pullout w/ GFCI	60A	3	10	#14-3	NEMA 3R	*	11 ¾	6 ½	4 ½
B222-60NFGFWRTR	60A, Pullout w/ WRTR-Rated GFCI	60A	3	10	#14-3	NEMA 3R	*	11 ¾	6 ½	4 ½
B222-60NFNA	60A, Switch	60A	*	10	#14-3	NEMA 3R	*	8 ¾	5 ⅜	3 ⅝

30 and 60A pullout replacement handle: 96-3258-4.

*Upstream overcurrent protective device (OPCD) not to exceed 60A.

Data Sheet: 1143

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Fuse Holders and Blocks

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RED indicates NEW information

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Global Modular Fuse Holders

CH Series - 8x32, 10x38, 14x51, 22x58, Class CC

Specifications

Description: The 'CH' line of modular fuse holders accommodates many fuses from around the world, including North American Class-CC, Midget, Class gR, aR HSF, and IEC Industrial Ferrule (Class gG and aM) in four physical sizes: 8x32, 10x38, 14x51 and 22x58mm.

Agency Information: UL File E14853
Guide IZLT Listed, IZLT2 Recognized
CSA: File 47235, CHPV and CHM - Class 6225-30, CHCC - Class 6225-01

Ratings:
600V/30A (UL)
690V/32A (IEC)

Wire Range:
#18 to #4 (0.8mm^2 to 21.1mm^2)

Torque Ratings:
30 Lb-In (3.4 N•m) maximum

Flammability Ratings:
UL 94V0, self-extinguishing

Storage & Operating Temperature Range:
-20ºC to +90ºC (indicating)
-20ºC to +120ºC (non-indicating)

Features/Benefits

- High SCCR rated, UL Listed Class CC holder with indicator option for 600Vac/dc and 48Vdc.
- UL Recognized midget and 10 x 38 holders with factory assembled neutral pole option.
- Agency ratings up to 1000Vdc for use with solar PV fuses.
- Available remote PLC indication with the CH-PLC module.
- Terminals rated for use with 75ºC or 90ºC wire, fine stranded wire, spade terminals and comb-bus bars. Use any higher temperature rated wire with appropriate derating.
- Complete range of UL Listed and high SCCR rated 1-phase and 3-phase finger-safe comb-bus bars and power feed lugs.

Series & Size	Catalog Number		Voltage & Current	Agency Markings	Number of Poles	Terminal Rating	SCCR Rating	Cooper Bussmann Fuses
	With Indicator	Without Indicator						
CHM 10x38 and Midget	CHM1DIU	CHM1DU	UL 600V/30A; IEC 690V/32A	cURus; IEC 60269-2	1	Solid, Stranded, Fine Stranded, Spade Lug, Comb Bus Bar; Single and Dual Wire; 75ºC and 90ºC Cu wire	100kA rms sym	FNQ, KLM, FNM, KTK, BAF, FWA, DCM, C10 SERIES, AGU, BAN, FWC
	CHM2DIU	CHM2DU			2			
	CHM3DIU	CHM3DU			3			
	CHM4DIU	CHM4DU			4			
	CHM1DNIU	CHM1DNU		60269-2	1 pole + 1 neutral			
	CHM3DNIU	CHM3DNU			3 poles + 1 neutral			
	CHM1DI-48U		UL 48Vdc/30A; IEC 48Vdc/32A		1			
		CHM1DNXU	IEC 690V/32A	IEC60269-2	1 neutral		n/a	n/a
CHPV	CHPV1IU	CHPV1U	UL & IEC; 1000Vdc/30A	UR, CSA, UL4248-18, IEC60269-1	1		33kA rms sym	Solar PV series
	CHPV2IU	CHPV2U			2			
CHCC Class CC	CHCC1DIU	CHCC1DU	UL 600V/30A	cULus	1		200kA rms sym	LP-CC, FNQ-R, KTK-R
	CHCC2DIU	CHCC2DU			2			
	CHCC3DIU	CHCC3DU			3			
		CHCC1DI-48U	UL 48Vdc/30A		1			

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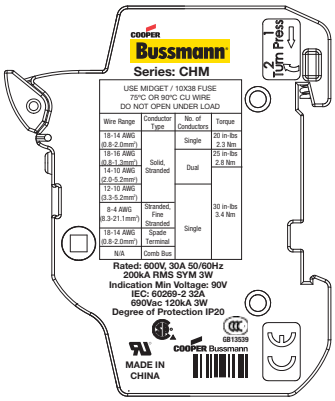
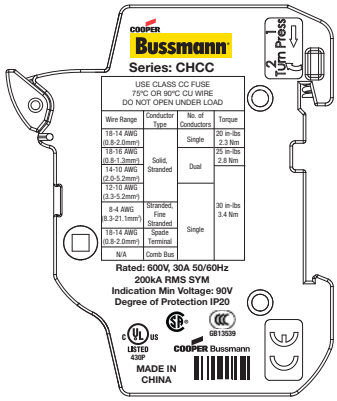
Rail Mount Fuse Blocks and Holders

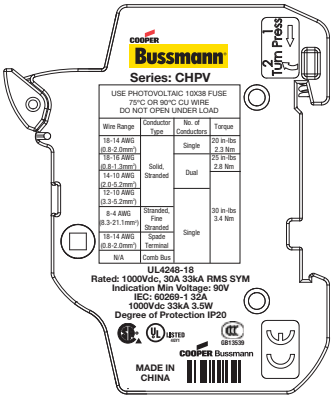
CHM & CHMI



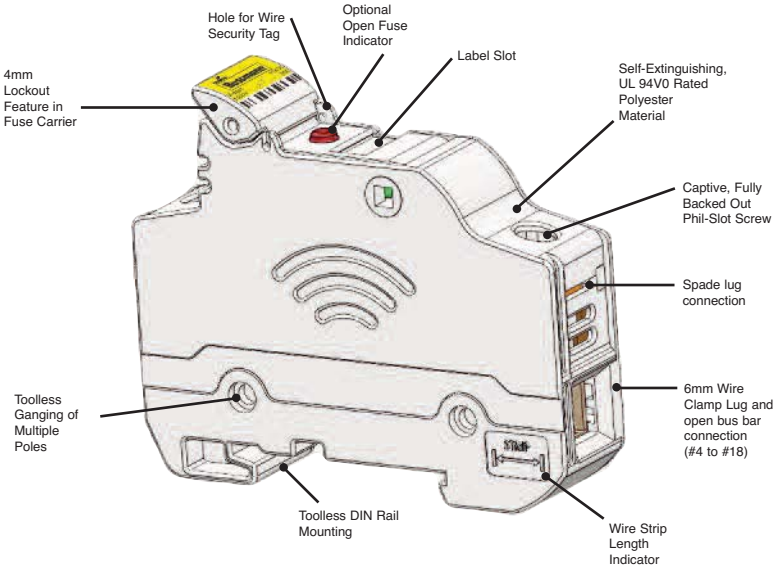
CHCC & CHCCI



CHPV & CHPVI

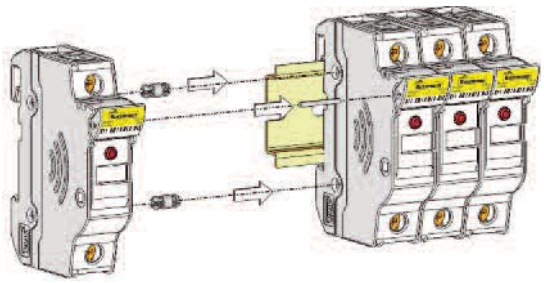


Features



Multi-Pole Ganging

Use multi-pole connection kit part number JV-L to gang multiple poles together. One JV-L kit is sufficient to gang up to 4 poles.



For additional information see reorder #3185

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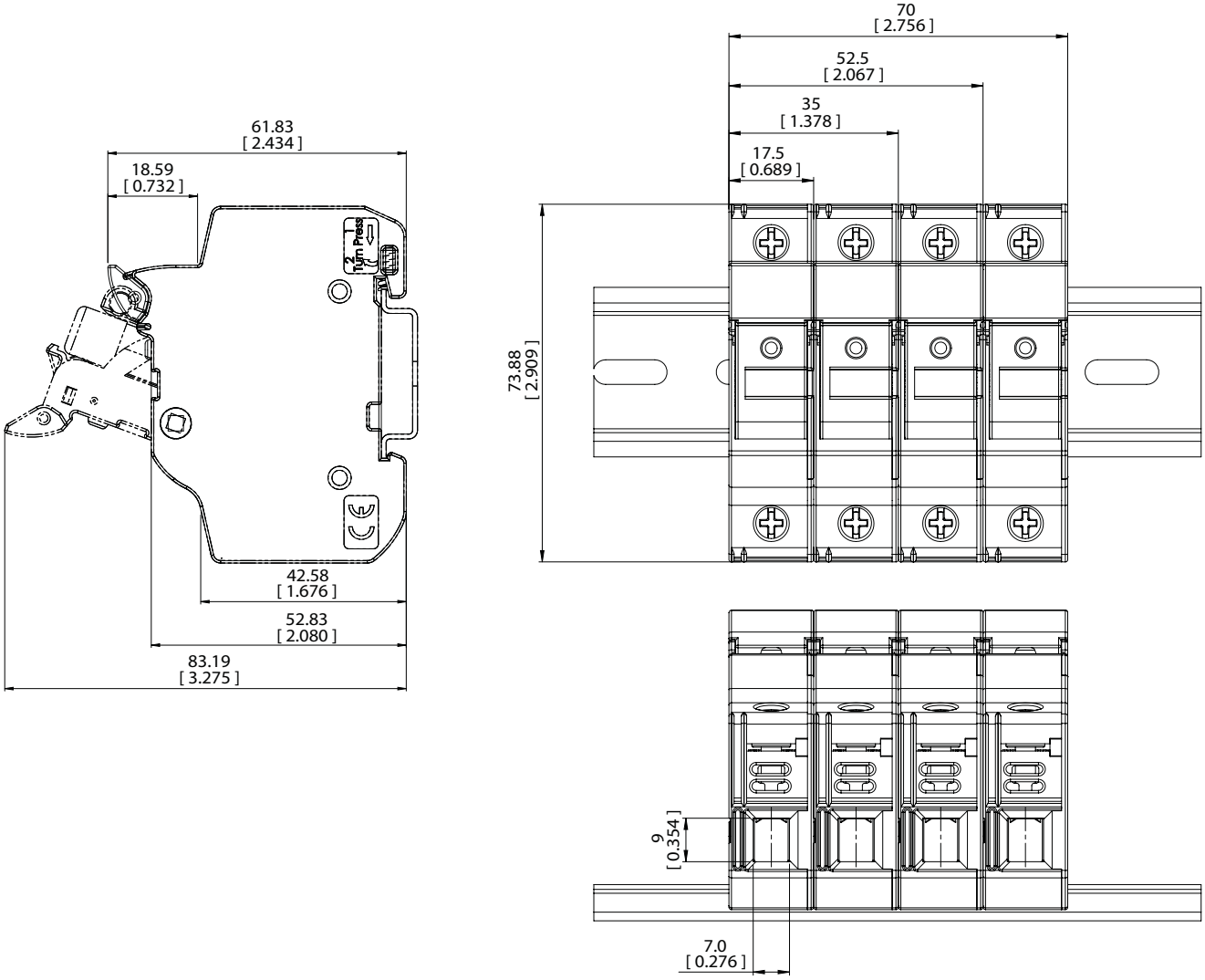
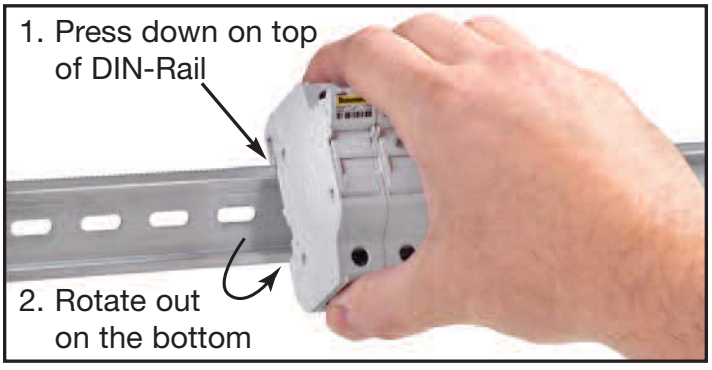
Rail Mount Fuse Blocks and Holders

Dimensional Data - mm (in)



Removing Instructions



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Global Modular Fuse Holders

PV

UL

IEC

Class J 30A

8x32 IEC

14x51 IEC

22x58 IEC

Catalog Numbers

Without Indication	With* Indication	Size	Max Voltage & Current	IEC	UL	Phase Configuration	No. of 17.5mm Modules	Wire Range	Maximum Torque
CH081D	CH081DI	CH08 8x32	IEC 400Vac 25A	•		1-pole	1	1-16mm² (18-8 AWG)	2.5 N•m (22LB-In)
CH081DNX	-			•		1 Neutral Pole	1		
CH081DNS	CH081DNSI			•		1-pole + Neutral	1	1-10mm² (18-8 AWG)	2.0 N•m (17.5LB-In)
CH081DN	CH081DNI			•		1-pole + Neutral	2		
CH082D	CH082DI			•		2-pole	2		
CH083D	CH083DI			•		3-pole	3	1-16mm² (18-8 AWG)	2.5 N•m (22LB-In)
CH083DNS	CH083DNSI			•		3-pole + Neutral	3		
CH083DN	CH083DNI			•		3-pole + Neutral	4		
CH084D	CH084DI			•		4-pole	4		
CHM1DU	CHM1DIU	CHM 10X38 and Midget	UL 600V/30A; IEC 690V/32A	•	*	1-pole	1		
CHM2DU	CHM2DIU			•	*	2-pole	2		
CHM3DU	CHM3DIU			•	*	3-pole	3		
CHM4DU	CHM4DIU			•	*	4-pole	4		
CHM1DNU	CHM1DNIU			•	*	1-pole + Neutral	2		
CHM3DNU	CHM3DNIU			•	*	3-pole + Neutral	4	1-21mm² (18-4 AWG)	3.4 N•m (30LB-In)
–	CHM1DI-48U		UL 48Vdc/30A; IEC 48Vdc/32A	•	*	1-pole	1		
CHM1DNXU	–		IEC 690V32A	•		1-pole + Neutral	2		
CHPV1U	CHPV1IU	CHPV	UL & IEC; 1000Vdc/30A	•	†††	1-pole	1		
CHPV2U	CHPV2IU			•	†††	2-pole	2		
CHCC1DU	CHCC1DIU	CHCC Class CC	UL 600V/30A		**	1-pole	1		
CHCC2DU	CHCC2DIU				**	2-pole	2	1-21mm² (18-4 AWG)	3.4 N•m (30LB-In)
CHCC3DU	CHCC3DIU				**	3-pole	3		
CHCC1DI-48U	–		UL 48Vdc/30A		**	1-pole	1		
CH141D	CH141DI	CH14 14x51	UL 600Vac/dc 40A (5 Watt) IEC 690Vac, 50A	•		1-pole	1.5		
CH141DMS	-			•		1-pole + Microswitch	1.5		
CH141DNX	-			•		1 Neutral Pole	1.5		
CH141DN	CH141DNI			•		1-pole + Neutral	3		
CH142D	CH142DI			•	†	2-pole	3	2.5-16mm² (14-6 AWG)	3.0 N•m (26LB-In)
CH143D	CH143DI			•	†	3-pole	4.5		
CH143DMS	-			•		3-pole + Microswitch	4.5		
CH143DN	CH143DNI			•		3-pole + Neutral	6		
CH143DNMS	-			•		3-pole + Neutral + Microswitch	6		
CH144D	CH144DI			•		4-pole	6		
CH221D	Not Available with local neon indication (remote microswitch only)	CH22 22x58	UL 600Vac/dc, 100A (9.5 Watt) IEC 690Vac, 125A	•	†	1-pole	2		
CH221DMS				•		1-pole + Microswitch	2		
CH221DNX				•		1 Neutral Pole	2		
CH221DN				•		1-pole + Neutral	4		
CH222D				•	†	2-pole	4	2.5-50mm² (14-1 AWG)	4.0 N•m (35LB-In)
CH223D				•	†	3-pole	6		
CH223DMS				•		3-pole + Microswitch	6		
CH223DN				•	†	3-pole + Neutral	8		
CH223DNMS				•		3-pole + Neutral + Microswitch	8		
CH224D				•		4-pole	8		
Class J *easy*ID™ Indication	Neon Indication								
CH30J1	CH30J1I	CH30J 30A Class J	UL/CSA 600Vac		††	1-pole	—	1-50mm² (18-1 AWG)	1-8 AWG 4.0 N•m (35LB-In)
CH30J2	CH30J2I				††	2-pole	—		10-18 AWG 2.7N•m (24LB-IN)
CH30J3	CH30J3I				††	3-pole	—		
CH60J1	CH60J1I	CH60J 60A Class J	UL/CSA 600Vac		††	1-pole	—	1-50mm² (18-1 AWG)	1-8 AWG 4.0 N•m (35LB-In)
CH60J2	CH60J2I				††	2-pole	—		10-18 AWG 2.7N•m (24LB-In)
CH60J3	CH60J3I				††	3-pole	—		

† UL Recognized (cURus) †† UL LIsted (cULus) ††† UL Recognized, Standard 4248-18, CSA
For further details see Data Sheets 2053 (CH08, CHM, CHCC, CH14 AND CH22) and 2144 (CHJ Class J)
*90V miminum required for illumination
***12V mininum required for illumination

For additional information see reorder #3185

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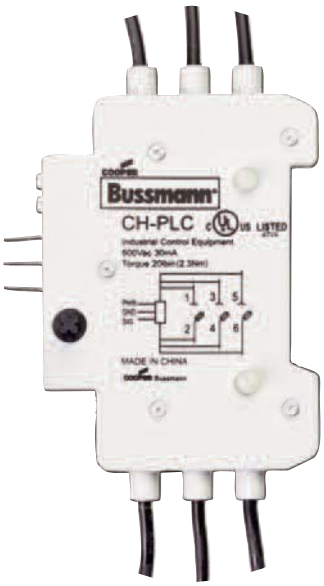
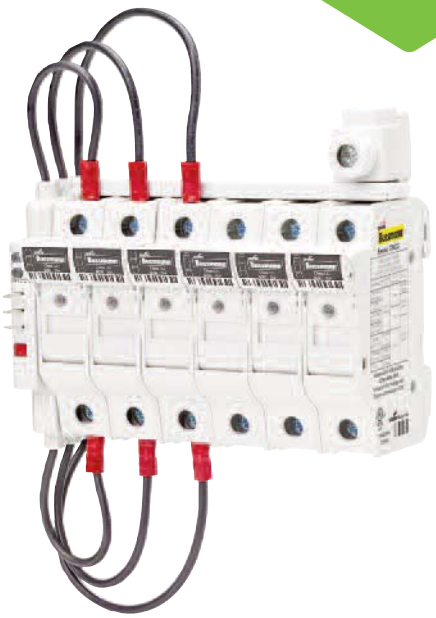
Global Modular Fuse Holders - Remote Fuse Monitoring Accessory CH-PLC

Make it Simple with Bussmann resettable three-phase remote fuse monitor that integrates with a Programmable Logic Controller (PLC) or other monitoring and control equipment.



RoHS



Specifications:

- **Power Input**: 24Vdc / 5mA
- **Sensing Voltage**: 600V/30mA
- **Output Signals**: Digital 0Vdc (Low), 24Vdc (High)
  - 0Vdc Low – Fuse is good
  - 24Vdc High – Fuse has opened

  When the fuse opens, the output signal is sent high and will remain high until the unit is reset
- **Rated Impulse Voltage**: 8kV
- **Local Indication**: Two distinct LEDs indicate unit power (green) and open fuse (red). Upon the replacement of the fuse, the actuation of the reset switch will reset the open fuse LED
- **Flammability Rating**: UL 94V0

Wiring:

- For power, signal and ground connections use 22-24AWG (0.25mm^2) 300V rated wire

Emissions and Immunity Testing:

- Electrostatic Discharge IEC 61000-4-2
- Electrical Fast Transient/Burst IEC 6100-4-4
- Surge Immunity IEC61000-4-5

Packaging:

- The CH-PLC is packaged individually
- A single unit monitors up to three phases
- Package includes 0.11" (2.8mm) quick connects for power, signal and ground connections

Minimum Circuit Voltage:

- Minimum circuit voltage required across the CH holder is 100Vac for the remote indication device to operate

Installation Technique:

- Mounts on the left side of the fuse holder and mechanically interlocks with the fuse holder switch handle with hardware provided

IP20 Rating: Yes

Environmental Data:

- Storage and Operating Temperature: -20°C to 75°C

Agency Information:

- UL 508
- cULus to CSA Standard 22.2 No.14

PLC Programming:

- The CH-PLC signal line is designed to provide a digital input to a PLC I/O card.
- Programmable Logic Control program must be written to properly interpret the input signal to the PLC.
- The PLC program should check for consecutive high signals before taking action on a critical process.

De-energize all circuits before installing or removing any CH-PLC devices and follow all prescribed safety procedures.

For additional information see reorder #3185

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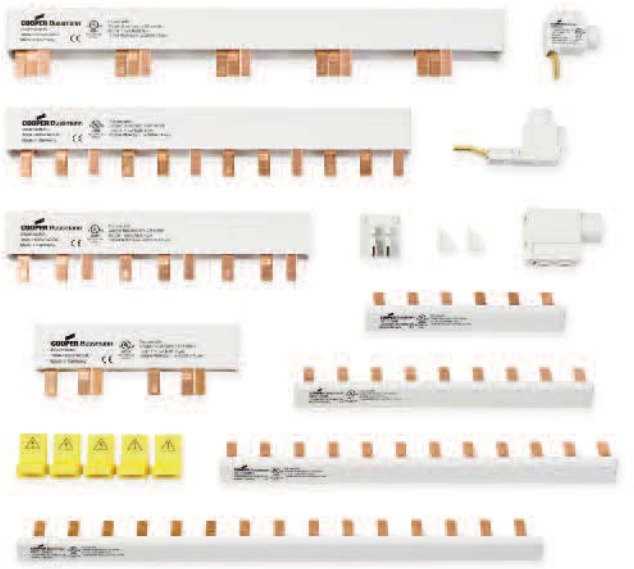
Global Modular Fuse Holders - Comb-Bus Bar Specifications and Selection Guide

Specifications

Agency Information: UL 508, File E195399
Pitch: 17.8mm
SCCR: 10kA (default)
100kA (with upstream Class J 200A fuses)
Max Current: 100A (power feed from end;
200A (power feed from center)
Max Voltage: 600Vac/dc (three phase)
1000Vdc/600Vac (single phase)



Features and Benefits

- Easily distribute power in single-phase or three-phase configurations
- Flexible cut-to-length solutions without compromising on the product's finger-safe features
- 100kA SCCR (Short-Circuit Current Rating) when protected by a 200A Class J fuse
- Single-phase bus bars rated to 1000Vdc and 100A in end-fed configuration (200A for center-fed configuration)
- Three-phase bus bars rated to 600Vac/dc and 100A in end-fed configuration (200A for center-fed configuration)
- Power feed terminals for single-phase and three-phase service

RoHS

Selection Guide

Part Number	Description
BB1P100M3	Single-phase 1000Vdc busbar, 100A, 3 pins, assembled endcap
BB1P100M6	Single-phase 1000Vdc busbar, 100A, 6 pins, assembled endcap
BB1P100M9	Single-phase 1000Vdc busbar, 100A, 9 pins, assembled endcap
BB1P100M12	Single-phase 1000Vdc busbar, 100A, 12 pins, assembled endcap
BB1P100M15	Single-phase 1000Vdc busbar, 100A, 15 pins, assembled endcap
BB1P100M57	Single-phase 1000Vdc cuttable busbar, 100A, 57 pins, without endcap
BB3P100M6	Three-phase 600V busbar, 100A, 6 pins, assembled endcap
BB3P100M9	Three-phase 600V busbar, 100A, 9 pins, assembled endcap
BB3P100M12	Three-phase 600V busbar, 100A, 12 pins, assembled endcap
BB3P100M15	Three-phase 600V busbar, 100A, 15 pins, assembled endcap
BB3P100M57	Three-phase 600V cuttable busbar, 100A, 57 pins, without endcap
ECAP1P	Single-phase busbar endcap
ECAPMP	Three-phase busbar endcap
PWR35MM	35mm² feeder terminal for three-phase busbar (115A, 1000Vac/dc)
FSCVR	Spare contact safety protection covers
PWR1PLP	Single-phase low-profile feeder terminal (115A, 1000Vac/dc)
PWR50MM	50mm² direct feed terminal (1000Vac/dc)

For additional information see reorder #3185

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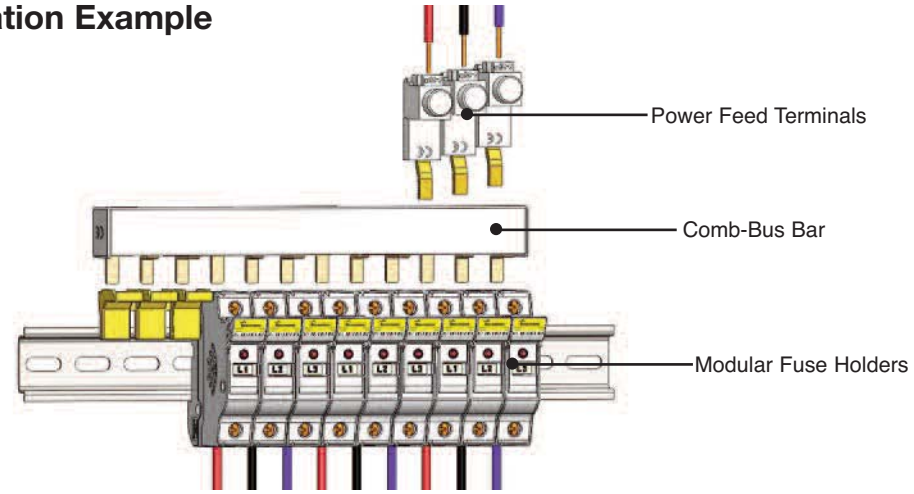
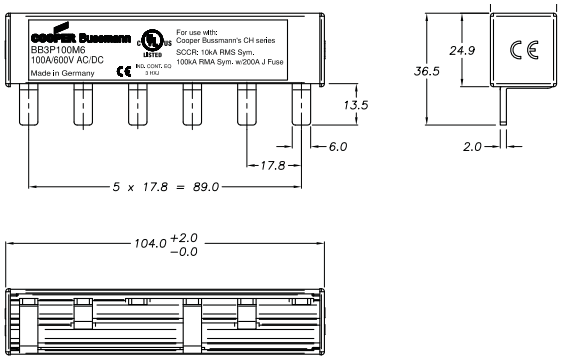
Global Modular Fuse Holders - Comb-Bus Bar Features and Installation Guide

Typical Installation Example

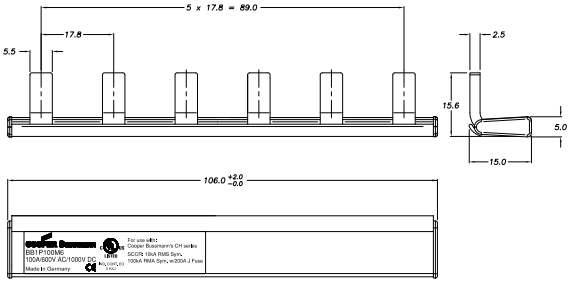


Typical Dimensional Data

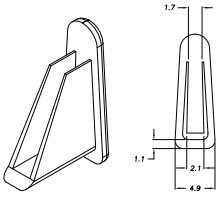
Three-phase



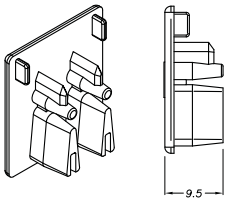
Single-phase



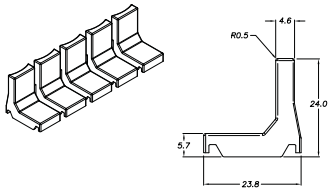
ECAP1P



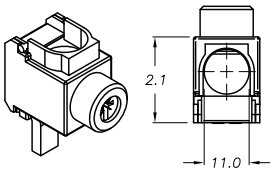
ECAPMP



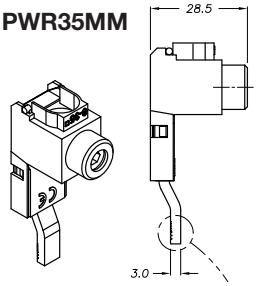
FSCVR



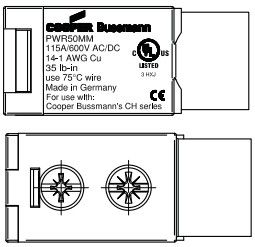
PWR1PLP

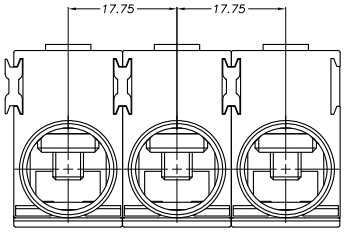


PWR35MM



PWR50MM





For additional information see reorder #3185

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Class J Modular Fuse Holders

CH _ _ J _

Specifications

Description: IP20 finger-safe, 1- to 3-pole Class J fuse holder with DIN-Rail or panel mounting.

Ratings:

Volts: — 600Vac/dc (or less)

Amps: — 30A (30A version)

— 60A (60A version)

SCCR: — 200kA

Wire Range: Cu solid and stranded conductors with single (1-18AWG) and dual (3-18AWG) wire ratings. See Catalog Numbers table for details.

Torque Rating: 10-18AWG 24 lb-in.

1-8AWG 35 lb-in.

Poles: 1-, 2- or 3-Pole.

Storage & Operating Temperature Range*:

-20°C to 75°C.

Agency Information: CE, UL 4248/CSA 22.2 No. 4248.P UL Listed, Guide IZLT, File E14853.

Flammability Rating: UL 94V0.

Catalog Numbers

See Catalog Numbers table below.

Features and Benefits

- Choice of local fuse indication; *easy*ID™ viewing window (for seeing indicator on LPJ-SPI indicating fuse) or neon lamp.
- Versatile 1-, 2- and 3-pole versions for 0-30A and 35-60A fuses with dual wire rated connections simplify wiring.
- Improved electrical safety with IP20 finger-safe construction with lock-out/tag-out feature. 3-phase fuse extraction assures all phases are opened for service work.
- Flexible panel/35mm DIN-Rail mounting mounting options

*For fuse selection on applications above or below 25°C, consult derating charts in Bussmann publication "Selecting Protective Devices" (SPD).

30 Amp Version

60 Amp Version

Dimensions (mm):

Fuse Size	Poles	W	D	H
0-30A	1	32	70	115
	2	64	70	115
	3	96	70	115
35-60A	1	40	83	125
	2	80	83	125
	3	120	83	125

Catalog Numbers

Catalog Numbers	# of Poles	Local Indication	Amp Rating	Volts (AC/DC)	IP20 Finger-Safe	AWG Single Wire Range	Padlockable	Mounting
CH30J1	1	*easy*ID**	30	600	Yes	1-18	Yes	35mm DIN/ Panel
CH30J1I	1	Neon Lamp***						
CH30J2	2	*easy*ID**						
CH30J2I	2	Neon Lamp***						
CH30J3	3	*easy*ID**						
CH30J3I	3	Neon Lamp***						
CH60J1	1	*easy*ID**	60	600	Yes	1-18	Yes	35mm DIN/ Panel
CH60J1I	1	Neon Lamp***						
CH60J2	2	*easy*ID**						
CH60J2I	2	Neon Lamp***						
CH60J3	3	*easy*ID**						
CH60J3I	3	Neon Lamp***						

** *easy*ID™ viewing window, requires use of Bussmann LPJ_SPI permanent indication fuses.
*** Indication non-fuse dependent, minimum voltage 90Vac/115Vdc.

Data Sheet: 2144

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Optima™ Fuse Holder Module and Disconnect Switch

OPM-1038 With Disconnect Switch

Catalog Number Build-A-Code

Series					Fuse Type			Communication
O	P	M	-	1	0	3	8			S	W	

Blank = 10 x 38mm or 13/32" x 1-½"
R = Class CC

C = Communication Feature

Specifications

Description: 3-pole load break modular fuse holder and disconnect switch for 13/32 x 1½" (10 x 38mm) fuses.

Dimensions: See Dimensions illustration.

Poles: 3

Agency Information: CE, UL (see table), CSA Certified, C22.2 No. 39, Class 6225-01, File 47235, IEC (see table).

Flammability Rating: UL 94V0.

Horsepower Rating of Switch

3-Phase	Volts	240	480	600
	HP	5	10	15

Recommended Fuse Types

Class CC	Midget (Non-Rejection)	European
LP-CC	KTK	C10M
KTK-R	FNM	C10G
FNQ-R	FNQ	

Physical Characteristics

- Small size matches 45mm IEC starter width
- Accepts #8-18 AWG stranded, #10-18 AWG solid wire
- 3-pole
- Handle and shaft required for through the door operation

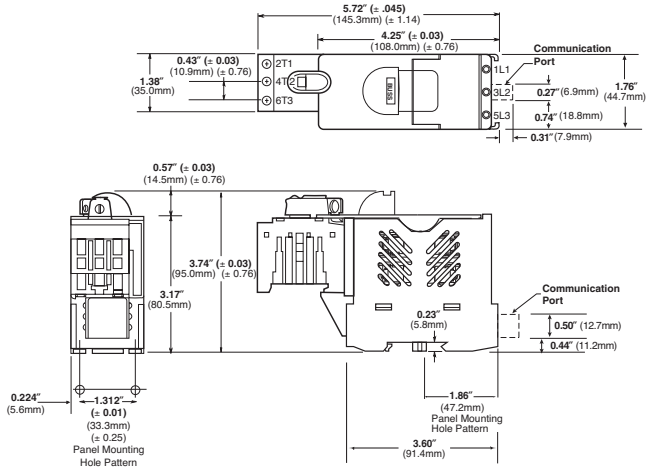
Features/Benefits

- Padlockable with finger-safe terminals for safety. Qualified as IP20 per IEC 60529.
- Cam-action handle for easy module removal, offered with Class CC rejection clips or European 10 x 38mm clips to meet global needs
- Wire ready with 35mm DIN-Rail or screw panel mounting (#8 screw, 1¼" long) saves installation time
- Fuse indication lights with option for remote fuse status available. See Data Sheet for additional wiring details.

Typical Applications

- Industrial Control
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

Dimensions



Catalog Numbers

Catalog Numbers	Electrical Rating	SCCR** Rating	Clips	Remote Open Fuse Indication	UL Information Std.	File	Guide	IEC	CE
OPM-1038SW	30A, 600Vac UL/CSA 32A, 660Vac IEC	*	Non-rejection, 10x38mm or 13/32" x 1 ½"	No	Recognized UL 508	E161278	NLRV2	IEC 60947-3	Yes
OPM-1038RSW	30A, 600Vac UL/CSA	100kA	Rejection, Class CC	No	Listed UL 508	E161278	NLRV		Yes
OPM-1038SWC	30A, 600Vac UL/CSA 32A, 660Vac IEC	*	Non-rejection, 10x38mm or 13/32" x 1 ½"	Yes	Recognized UL 508	E161278	NLRV2	IEC 60947-3	No
OPM-1038RSWC	30A, 600Vac UL/CSA	100kA	Rejection, Class CC	Yes	Listed UL 508	E161278	NLRV		No

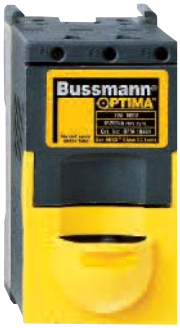
*Rating varies depending on fuse used in module; 100kA maximum
**Short-Circuit Current Rating

Data Sheet: 1103

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Optima™ Fuse Holder Module

OPM-1038



Features/Benefits

- Padlockable with finger-safe terminals for safety. Qualified as IP20 per IEC 529.
- Cam-action handle for easy module removal.
- Offered with Class CC rejection clips or European 10 x 38mm clips to meet global needs
- Wire ready with 35mm DIN-Rail or screw panel mounting (#8 screw, 1 ¼″ long) saves installation time
- Fuse indication lights with option for remote fuse status indication. See Data Sheet for additional wiring details.

Typical Applications

- Industrial Control
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

Catalog Number Build-A-Code

Series					Fuse Type	Communication
O	P	M	-	1	0	3	8		

Blank = 10 x 38mm or 13/32″ x 1 ½″

R = Class CC

C = Communication Feature

Specifications

Description: 3-pole modular fuse holder for 13/32" x 1 ½" (10 x 38mm) fuses.

Dimensions: See Dimensions illustration.

Poles: 3

Agency Information: CE, UL (see table), CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235, IEC (see table).

Flammability Rating: UL 94V0.

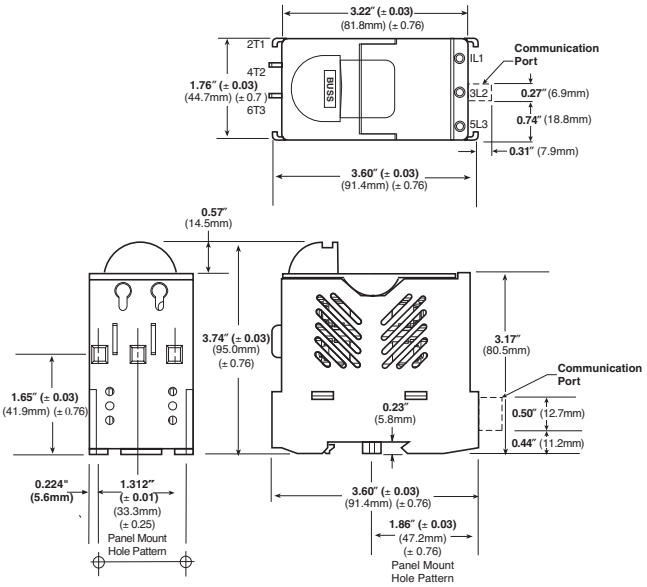
Recommended Fuse Types

Class CC	Midget (Non-Rejection)	European
LP-CC	KTK	C10M
KTK-R	FNM	C10G
FNQ-R	FNQ	

Physical Characteristics

- Small size matches 45mm IEC starter width
- Accepts #8-18 AWG stranded, #10-18 AWG solid wire
- 3-pole

Dimensions



Catalog Numbers

Catalog Numbers	Electrical Rating	SCCR** Rating	Clips	Remote Open Fuse Indication	UL Information Std.	File	Guide	IEC	CE
OPM-1038	30A, 600Vac/dc UL/CSA (Max 3 Watts per fuse) 32A, 660V IEC	*	Non-rejection, 10 x 38mm or 13/32″ x 1 ½″	No	Recognized UL 4248	E14853	IZLT2	IEC 60269-2-1	Yes
OPM-1038R	30A, 600Vac/dc UL/CSA	200kA	Rejection, Class CC	No	Listed UL 4248	E14853	IZLT		Yes
OPM-1038C	30A, 600Vac/dc UL/CSA (Max 3 Watts per fuse) 32A, 660V IEC	*	Non-rejection, 10 x 38mm or 13/32″ x 1 ½″	Yes	Recognized UL 4248	E14853	IZLT2	IEC 60269-2-1	No
OPM-1038RC	30A, 600Vac/dc UL/CSA	200kA	Rejection, Class CC	Yes	Listed UL 4248	E14853	IZLT		No

*Rating varies depending on fuse used in module; 200kA maximum.

**Short-Circuit Current Rating

Data Sheet: 1102

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Optima™ Three-pole Overcurrent Protection Module

OPM-NG-

Specifications
Description:

OPM-NG-SC3: 3-pole Class CC fuse holder for use with Class CC fuses (Bussmann Types LP-CC, FNQ-R, KTK-R).

OPM-NG-SM3: 3-pole fuse holder for use with 13/32″ x 1½″ and 10.3 x 38mm fuses (Bussmann Types: 13/32″ x 1½″; KTK, FNQ, KLM, 10 x 38mm; FWA, FWC, C10G_ _, C10M_ _).

Ratings:

Volts: — OPM-NG-SC3: 600Vac (or less)
— OPM-NG-SM3: 600Vac (or less) UL and CSA 30A
— OPM-NG-SM3: 690Vac (or less) IEC 32A

Amps: — OPM-NG-SC3: 0-30A
— OPM-NG-SM3: 0-30A

SCCR: — OPM-NG-SC3: 200kA
— OPM-NG-SM3: Same as fuse IR, 200kA maximum

Agency Information: CE, UL; OPM-NG-SC3 UL Listed, UL 4248, File E14853, Guide IZLT. OPM-NG-SM3, UL Recognized, UL 4248, File E14853, Guide IZLT2. CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235. IEC 60947-3 Utilization Category AC20B.

Handling & Storage Temperature: -10° to 65°C.

Features/Benefits

- 45mm width matches IEC starters
- 35mm DIN-Rail or panel mounting feature. Maximum screw size #8 (M4)
- Pressure plate terminations with dual-wire rated terminals (see Wire Table) and optional auxiliary contacts
- Integrated collapsible handle and fuse carrier cannot be removed from holder base
- Padlockable and IP20 finger-safe to IEC60529

Typical Applications

- Mass Produced Control Systems
- Process Control Systems
- Automated Warehouse Systems
- Individual Control Circuits

Fuse Holder Wire Range:

— 75°Cu Only
— #18-12 Single/Dual, torque 15lb-in
— #10-8 Single/Dual, torque 20lb-in
— Dual wire with same gauge and type

		75° Cu Only		c
		AWG	[mm2]	(N•m)/lb-in
Solid		#18-8 x 1 #18-8 x 2	1-6 x 1 1-6 x 2	18-12 Single/Dual 15lb-in (1.7 N•m)
Stranded		#18-8 x 1 #18-8 x 2	1-6 x 1 1-6 x 2	 10-8 Single/Dual
Ferrules			1-4 x 1 1-4 x 2	20lb-in (2.5 N•m)

Input Power Terminal Wire Range:

Wiring	Solid Conductor	(1) #14 to #2 (1.5 to 25mm²) conductor or (2) #14 to #6 (1.5 to 10mm²) conductors
	Stranded Conductor	(1) #14 to #2 (1.5 to 25mm²) conductor or (2) #12 to #6 (2.5 to 10mm²) conductors
Tightening Torque:	Connector Screw Clamp	20lb-in (2.2 N•m) 15lb-in (1.7 N•m)

Materials:

— **Housing:** Thermoplastic - ULV2
— **Clip:** Tin-plated copper alloy
— **Contact lubricant:** Fluoroether grease
— **Saddle screw:** Plated steel
— **DIN rail springs:** Stainless steel

Optional Accessories:

Comb Bar (Max current rating = 63A)

GV2G245A46	2 circuit, 45mm between same phases
GV2G254A46	2 circuit, 54mm between same phases
GV2G272A46	2 circuit, 72mm between same phases
GV2G345A46	3 circuit, 45mm between same phases
GV2G354A46	3 circuit, 54mm between same phases
GV2G445A46	4 circuit, 45mm between same phases
GV2G454A46	4 circuit, 54mm between same phases
GV2G472A46	4 circuit, 72mm between same phases
GV2G554A46	5 circuit, 54mm between same phases

Input Terminal Block (Max current rating = 63A)

GV2G05	Input/Feed Through Power Terminal, Supports feed through to another system, DIN-Rail mount only
GVG09	Input Power Terminal

Cover

GV1G10	Protective Cover for unused terminals on comb bar

Auxiliary Contacts

GVAE11	NO/NC
GVAE20	NO/NO

Data Sheet: 1109

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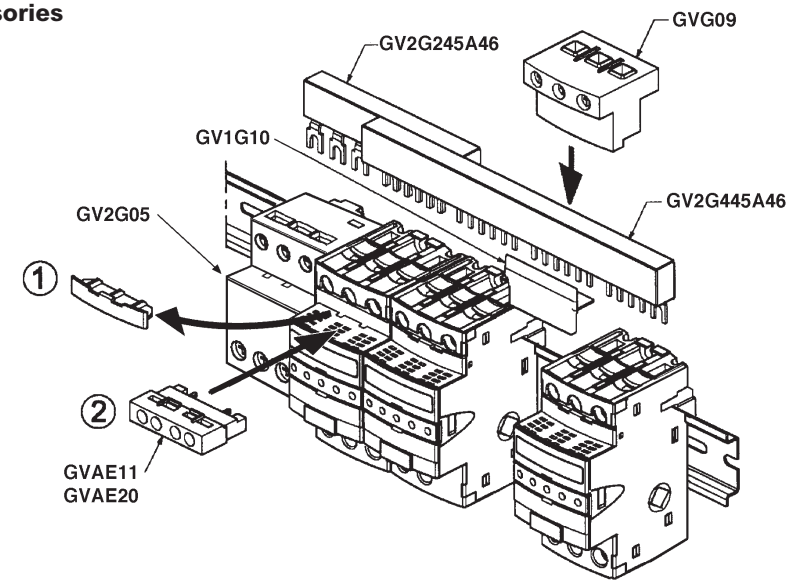
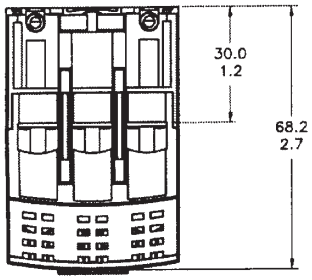
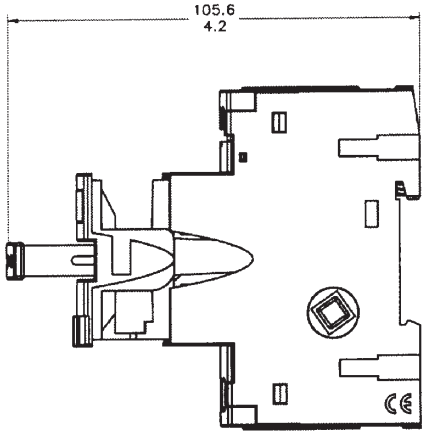
Optima™ Three-pole Overcurrent Protection Module

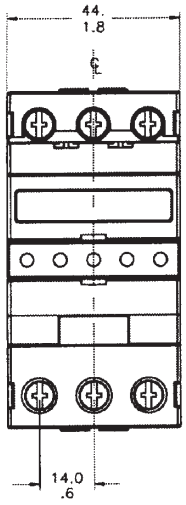
Optional Accessories

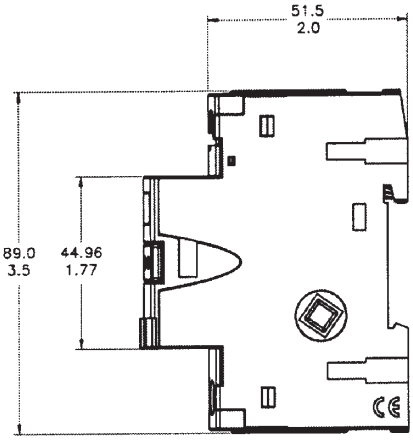


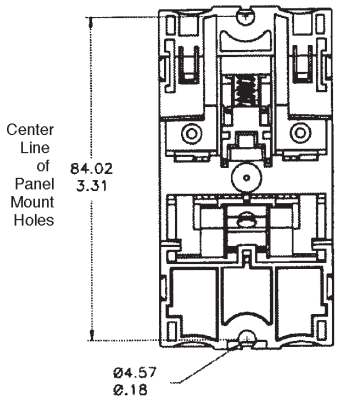
Dimensions - mm (± 0.38) / in (± .015)











Data Sheet: 1109

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Class J (Finger-safe) Fuse Holders

Safety J™ — JT(N)60030 & JT(N)60060

30 Amp Version

60 Amp Version

Specifications

Description: Indicating and non-indicating finger-safe, DIN-Rail mount fuse holders for use with Class J fuses - (Bussmann LPJ, JKS).

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac

Amps: — 0-60A (JT(N)60060)

— 0-30A (JT(N)60030)

SCCR: — 200kA RMS Sym.

— 300kA self certified using Bussmann LPJ_SP fuses

Agency Information: CE, Listed to UL 4248: Guide IZLT, File 14853, CSA Certified: Class 6225-01, File 47235. IP20 per IEC 60529.

Flammability Rating: UL 94V0.

Indication: Min voltage: 90Vac, 115Vdc; neon lamp "ON" when fuse opens, voltage source and current path are present.

Terminations: 30A dual port torque 20lb-in, 60A single port torque 45lb-in, terminal construction, tin-plated copper alloy.

Wire Size: JT(N)60030 - rated for 75°C, AWG#18-#8; Cu only, JT(N)60060 - rated for 75°C, AWG#14-#4; Cu only.

(Note: For JT(N)60030 use both stranded or solid, in a variety of dual wire combinations of same wire size and type.)

Features and Benefits

- Short-Circuit Current Rating of 300kA with Bussmann LPJ___SP fuses.
- Rapid, flexible 35 mm DIN-Rail mounting.
- One piece interlocking design for assembling multiple pole blocks reduces inventory costs.
- Removable fuse carrier allows fuse replacement away from base while maintaining finger-safe rating.

Typical Applications

- Industrial Controls
- Process Controls
- Small HP VFDs

Catalog Numbers

Catalog Numbers	Amps	Indication
JT60030	30	Non-indicating
JT60060	60	Non-indicating
JTN60030	30	Indicating (Neon)
JTN60060	60	Indicating (Neon)

Data Sheet: 1152

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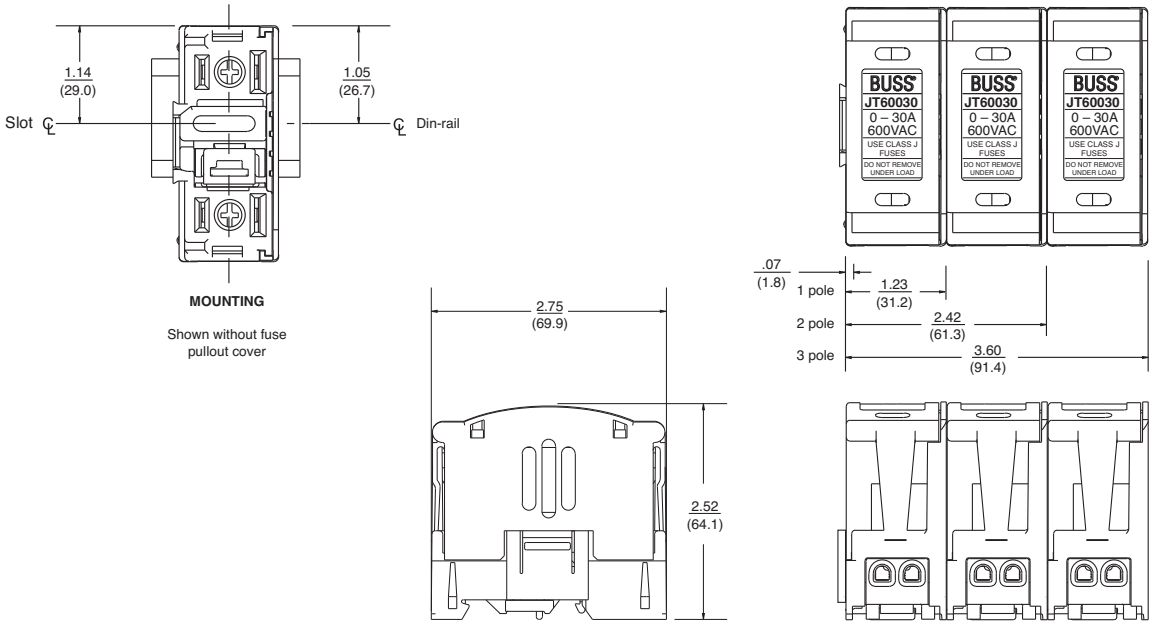
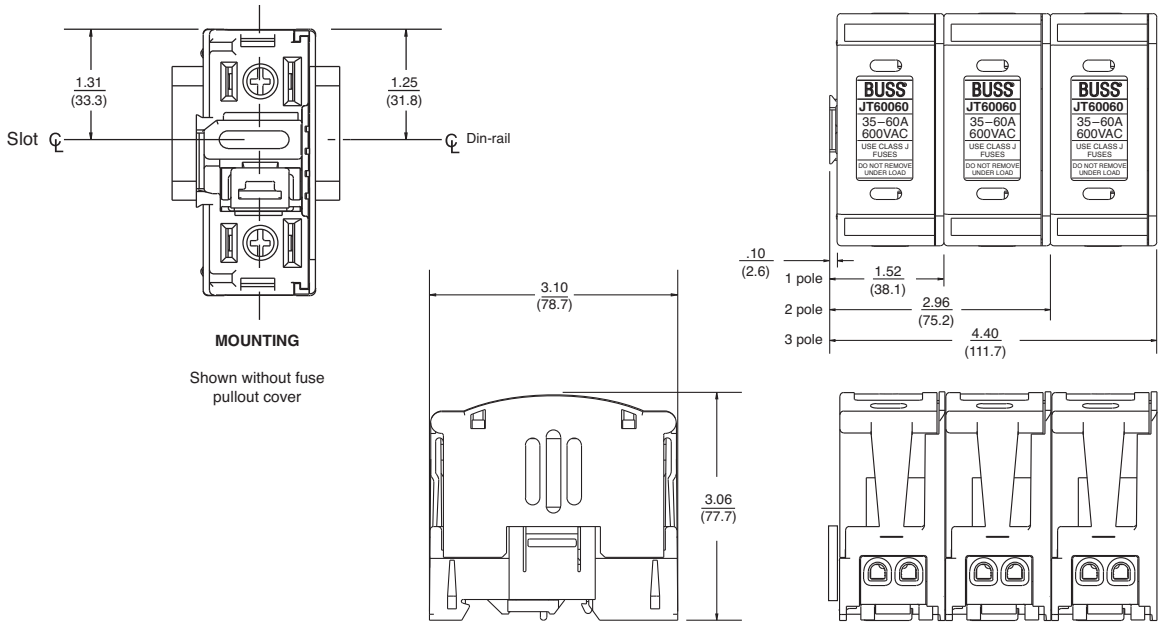
Class J (Finger-safe) Fuse Holders

Dimensions for JT60030 & JTN60030 — in (mm)



Dimensions for JT60060 & JTN60060 — in (mm)



JT(N)600 Series fuse blocks can be dovetailed together within the same current rating to provide multiple pole block configurations.

NOTE: JT(N)60030 cannot be dovetailed to JT(N)60060.

Data Sheet: 1152

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

SAMI™ Fuse Covers

SAMI™ Series

Specifications

Description: Indicating and non-indicating fuse covers for Class J, RK1, RK5, H, K5, CC, G (0-30A) and midget-type fuses. Indicating feature requires a minimum of 90Vac or 115Vdc to illuminate lamp. One cover required for each pole.
WARNING: To avoid electrical shock, turn power off before installing, removing or servicing.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — Non-Indicating - 0-600Vac/dc
— Indicating - 90 to 600Vac
-115 to 600Vdc

Amps: — 0-100A

Agency Information: CE, UL Listed; SAMI-1I through SAMI-6I, SAMI-8I and SAMI-9I, SAMI-1N through SAMI-6N, SAMI-8N and SAMI-9N, UL Recognized; Guide JDVS2, File E58836, SAMI-7I and SAMI-7N, CSA Certified, File LR47235-93C.

Features and Benefits

- Insulated cover allows field conversion of fuses mounted in open fuse blocks to dead front configuration.
- Optional open fuse indicating light aids in system troubleshooting.
- Units are re-usable.
- Allows visual marking of line and load side of fuses.

Typical Applications

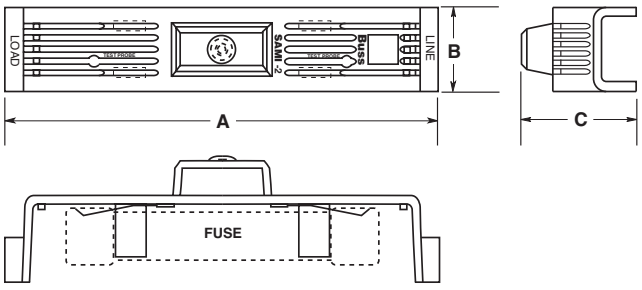
- Class H, R and J fuse blocks up to 100A
- Class T fuse blocks up to 60A
- Class CC, G and Midget, 30A fuse blocks

Catalog Numbers

Catalog Numbers*	Description	Dimensions - in A	B	C
SAMI-1_	600V, J (0-30A) and 600V, T (35-60A)** 250V, RK, K5, H (35-60A)	5.02	1.03	1.94
SAMI-2_	600V, RK, K5, H (0-30A)	7.03	1.30	2.07
SAMI-3_	600V, J (65-100A)	7.03	1.30	2.33
SAMI-4_	250V, RK, K5, H (65-100A)	8.20	1.30	2.18
SAMI-5_	600V, RK, K5, H (35-60A)	8.20	1.30	2.18
SAMI-6_	600V, J (35-60A)	4.98	1.17	2.14
SAMI-7_	600V, Midget, Class CC, G (0-30A)	3.82	0.75	1.72
SAMI-8†_	600V, RK††, K5, H (65-100A)	10.38	1.50	2.33
SAMI-9_	250V, RK, K5, H (0-30A) and 600V, T (0-30A)	3.82	0.75	1.72

*For indicating cover, add suffix "I", for non-indicating cover, add suffix "N".
Example: SAMI-7I = Indicating, SAMI-7N = Non-indicating.
**Available in non-indicating only.
†SAMI-8A adapter available for small Fusetron™ body design. SAMI-8I and SAMI-8N come standard with adapter (SAMI-8A).
††Not for use with KTS-R fuses.

Dimensions



Data Sheet: 1204 (Trimming Guides: 12041, 12042, 12043, 12044, 12045, 12046, 12048, 12049)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Modular Knifeblade Fuse Blocks

Class R, H(K), & J Applications up to 600 Amps

Specifications

Ratings:
Volts: — 250V, 600V
Amps: — 70-600A
SCCR: — 200kA (Class R & J)
10kA (Class H & K)

Agency Information:

Blocks: UL - Listed cULus
E14853 – IZLT & IZLT7
CSA - Certified 47235 – 6225-01

Covers: UL - Listed UL
E58836 – JDVS2
CSA - Certified 47235 – 6225-01

RoHS

Flammability Ratings:

Blocks: UL 94V0, self-extinguishing

Covers: UL 94HB, self-extinguishing

Operating & Storage Temperature Range:

Blocks -40°C to 120°C

Covers non-indicating covers -40°C to 120°C
indicating covers -20°C to 90°C

Materials:
Base – Thermoplastic
Box Lug – Tin-plated aluminum

Wire:*
Cu/Al – 75°C/90°C (100 - 200A)
Cu/Al – 75°C only (400 - 600A)

*Higher temperature rated wire can be used with appropriate derating.

Features and Benefits

- Integral dovetails allow snapping together multiple poles at point-of-use for greater application flexibility
- Factory assembled two- and three-pole configurations available
- Up to four mounting holes per pole increase installation flexibility
- Standard phase barriers between poles for additional safety
- Design meets UL creep and clearance requirements for Industrial Control Circuits (UL 508 and UL 845)
- 200 to 600A blocks meet the higher UL creep and clearance requirements for Industrial Power Distribution Standards (UL 98, UL 69, UL 489, UL 891 and UL 869A)
- Optional IP20 finger-safe covers available on entire knifeblade fuse block product line:
  - High-clarity see-through covers allow for inspecting wire terminations or thermography measurements without removing cover
  - Probe holes included for easy, safer testing and troubleshooting
  - Built-in lockout/tagout feature improves safety
- Standard fuse clip reinforcing springs enhance electrical contact

Typical Applications

- Critical power, factory automation, renewable energy, HVAC, building/elevator controls, building entrance, process industries

Scan this tag to get the latest product information for the Modular Knifeblade Fuse Blocks.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Modular Knifeblade Fuse Blocks Part Number Table

250V Class R & H(K)

600V Class R & H(K)

Class J

Catalog Number		Covers*		Volts	Fuse Range (amps)	Number of Poles	Wire Range (solid and stranded)***	Wire Range (fine stranded Cu)	Torque N•m (Lb-in)	Cooper Bussmann Fuses
Class H(K)	Class R	w/o Indication	w/ Indication							
HM25100-1CR	RM25100-1CR	CVR-RH-25100	CVRI-RH-25100	250	70-100	1	–	1-3 AWG	6.2 (55)	Class H(K): NON
HM25100-2CR	RM25100-2CR					2	1/0-3 AWG; (2) Cu 4-6 AWG 4-6 AWG; (2) Cu 8 AWG	4-6 AWG 8 AWG	5.6 (50) 5.1 (45)	
HM25100-3CR	RM25100-3CR					3	8 AWG; (2) Cu 10-14 AWG Cu 10-14 AWG; Al 10-12 AWG	– –	4.5 (40) 4.0 (35)	
HM25200-1CR	RM25200-1CR	CVR-RH-25200	CVRI-RH-25200		110-200	1	250 MCM-1 AWG 2-6 AWG; (2) Cu 2-6 AWG	3/0-1 AWG 2-6 AWG	42 (375) 31 (275)	Class R: LPN-RK_SP PN-RK_SPI** FRN-R KTN-R
HM25200-2CR	RM25200-2CR					2				
HM25200-3CR	RM25200-3CR									
HM25400-1CR	RM25400-1CR	CVR-RH-25400	CVRI-RH-25400		225-400	1	600kcmil 500kcmil-4 AWG (2) Cu 3/0 - 4 AWG (2) Al 3/0 - 4 AWG	N/A	57 (500) 51 (450) 57 (500) 34 (300)	
HM25400-2CR	RM25400-2CR					2				
HM25400-3CR	RM25400-3CR					3				
HM25600-1CR	RM25600-1CR	CVR-RH-25600	CVRI-RH-25600		450-600	1	(2) 500kcmil-4 AWG	N/A	51 (450)	
HM25600-2CR	RM25600-2CR					2				
HM25600-3CR	RM25600-3CR					3				
HM60100-1CR	RM60100-1CR	CVR-RH-60100	CVRI-RH-60100	600	70-100	1	–	1-3 AWG	6.2 (55)	Class H(K): NOS
HM60100-2CR	RM60100-2CR					2	1/0-3 AWG; (2) Cu 4-6 AWG 4-6 AWG; (2) Cu 8 AWG	4-6 AWG 8 AWG	5.6 (50) 5.1 (45)	
HM60100-3CR	RM60100-3CR					3	8 AWG; (2) Cu 10-14 AWG Cu 10-14 AWG; Al 10-12 AWG	– –	4.5 (40) 4.0 (35)	
HM60200-1CR	RM60200-1CR	CVR-RH-60200	CVRI-RH-60200		110-200	1	250 MCM-1 AWG 2-6 AWG; (2) Cu 2-6 AWG	3/0-1 AWG 2-6 AWG	42 (375) 31 (275)	Class R: LPS-RK_SP PS-RK_SPI** FRS-R KTS-R KWS-R PVS-R
HM60200-2CR	RM60200-2CR					2				
HM60200-3CR	RM60200-3CR									
HM60400-1CR	RM60400-1CR	CVR-RH-60400	CVRI-RH-60400		225-400	1	600kcmil 500kcmil-4 AWG (2) Cu 3/0 - 4 AWG (2) Al 3/0 - 4 AWG	N/A	57 (500) 51 (450) 57 (500) 34 (300)	
HM60400-2CR	RM60400-2CR					2				
HM60400-3CR	RM60400-3CR					3				
HM60600-1CR	RM60600-1CR	CVR-RH-60600	CVRI-RH-60600		450-600	1	(2) 500kcmil-4 AWG	N/A	51 (450)	
HM60600-2CR	RM60600-2CR					2				
HM60600-3CR	RM60600-3CR					3				

Catalog Number	Covers*		Volts	Fuse Range (amps)	Number of Poles	Wire Range (solid and stranded)	Wire Range (fine stranded)	Torque N•m (Lb-in)	Cooper Bussmann Fuses
Class J	w/o Indication	w/ Indication							
JM60100-1CR	CVR-J-60100	CVRI-J-60100	600	70-100	1	–	1-3 AWG	6.2 (55)	LPJ_SP PJ_SPI** JKS DFJ
JM60100-2CR					2	1/0-3 AWG; (2) Cu 4-6 AWG 4-6 AWG; (2) Cu 8 AWG	4-6 AWG 8 AWG	5.6 (50) 5.1 (45)	
JM60100-3CR					3	8 AWG; (2) Cu 10-14 AWG Cu 10-14 AWG; Al 10-12 AWG	– –	4.5 (40) 4.0 (35)	
JM60200-1CR	CVR-J-60200	CVRI-J-60200		110-200	1	250 MCM-1 AWG 2-6 AWG; (2) Cu 2-6 AWG	3/0-1 AWG 2-6 AWG	42 (375) 31 (275)	
JM60200-2CR					2				
JM60200-3CR									
JM60400-1CR	CVR-J-60400	CVRI-J-60400		225-400	1	600kcmil 500kcmil-4 AWG (2) Cu 3/0 - 4 AWG (2) Al 3/0 - 4 AWG	N/A	57 (500) 51 (450) 57 (500) 34 (300)	
JM60400-2CR					2				
JM60400-3CR					3				
JM60600-1CR	CVR-J-60600	CVRI-J-60600		450-600	1	(2) 500kcmil-4 AWG	N/A	51 (450)	
JM60600-2CR					2				
JM60600-3CR					3				

*Covers sold serarately. Blown fuse indication requires 90 volts minimum and closed circuit to operate.
**With *easy*ID™ blown fuse indication. ***Ratings for copper and aluminum wire except where otherwise noted.

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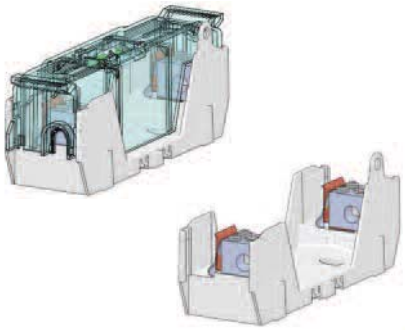
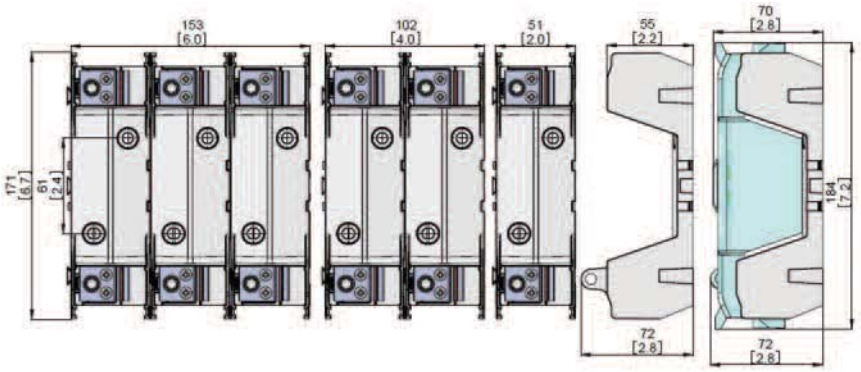
250V Class R & H(K) Dimensional Specifications

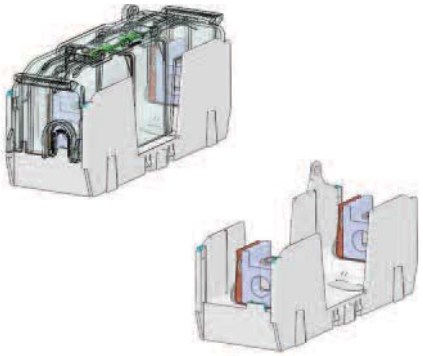
Dimensions - mm (in)

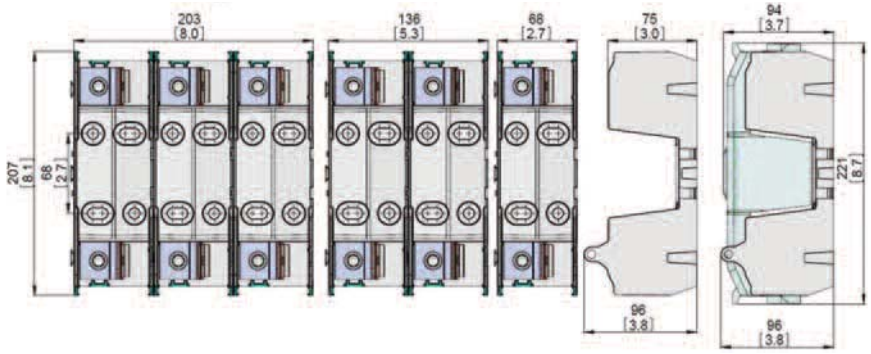
70- 100A



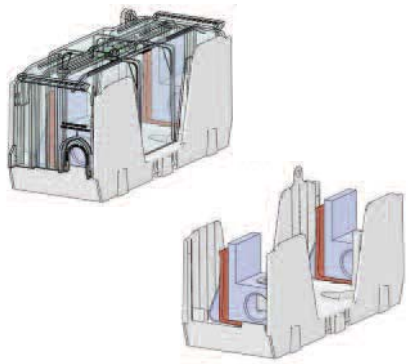


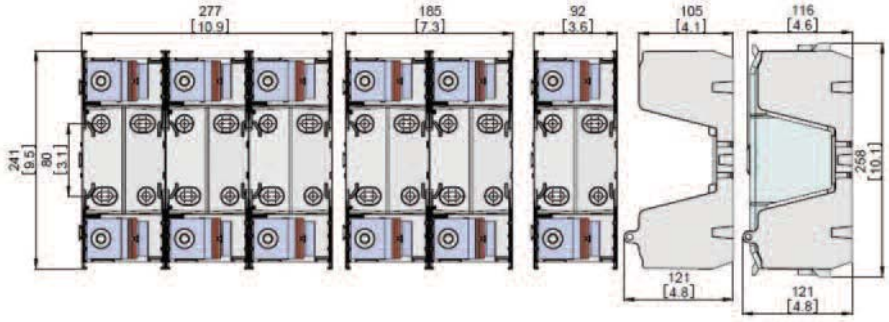
110- 200A



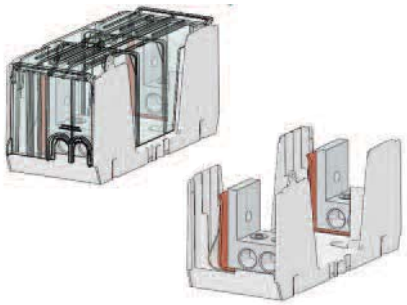


225- 400A





450- 600A



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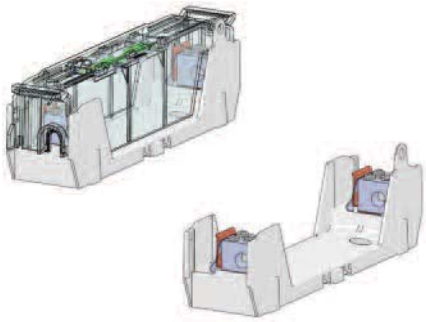
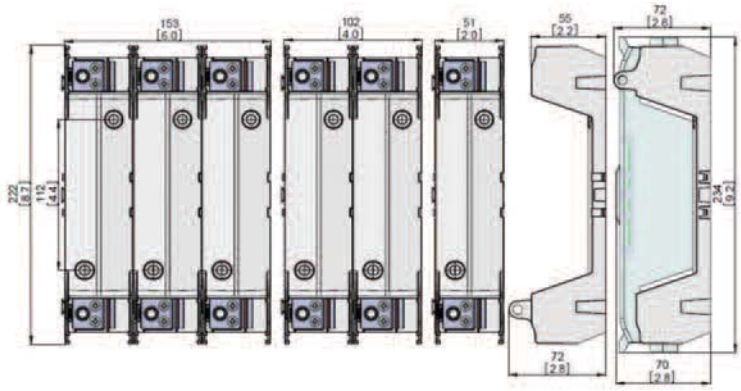
600V Class R & H(K) Dimensional Specifications

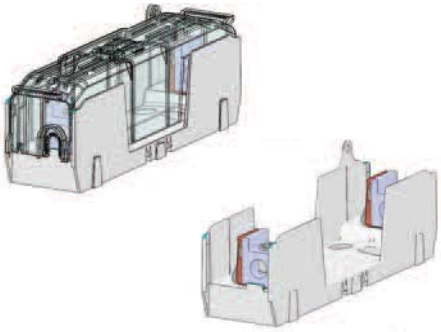
Dimensions - mm (in)

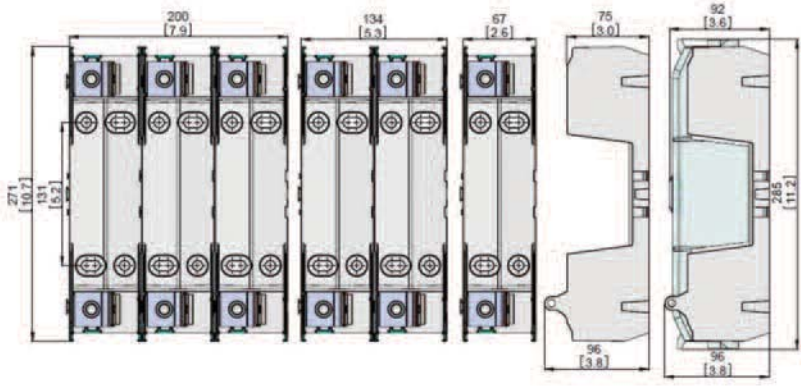
70- 100A



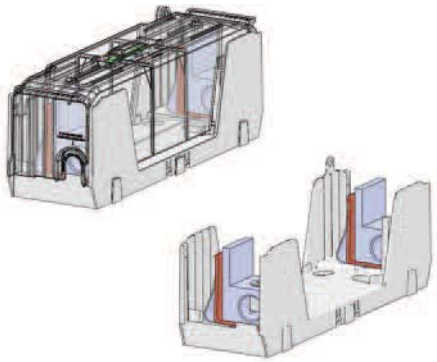


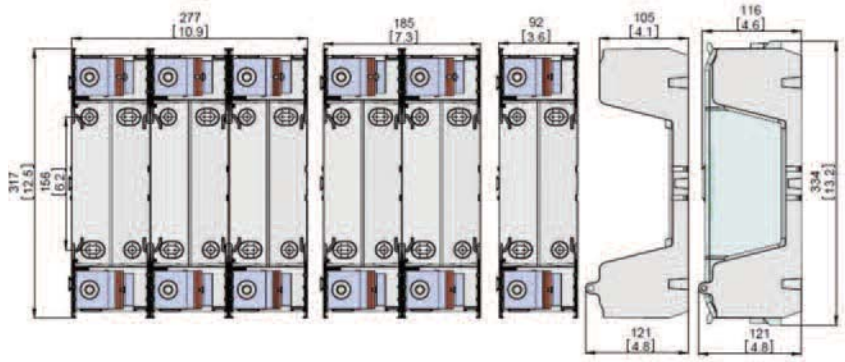
110- 200A



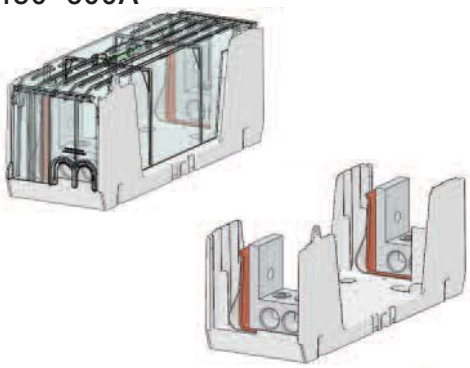


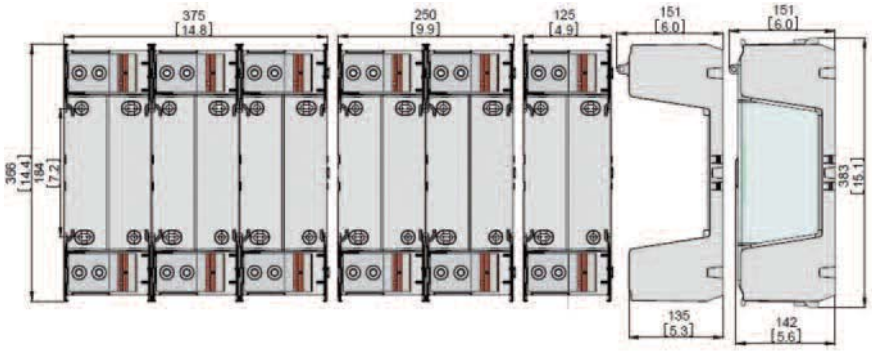
225- 400A





450- 600A





For engineering drawings, go to www.cooperbussmann.com/KnifebladeFuseBlocks

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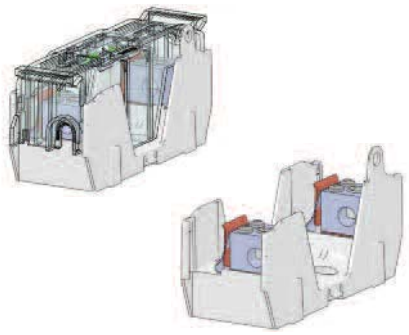
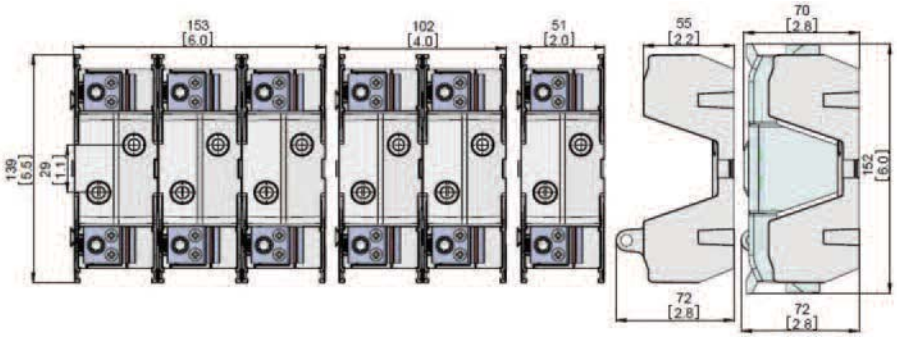
Class J Dimensional Specifications

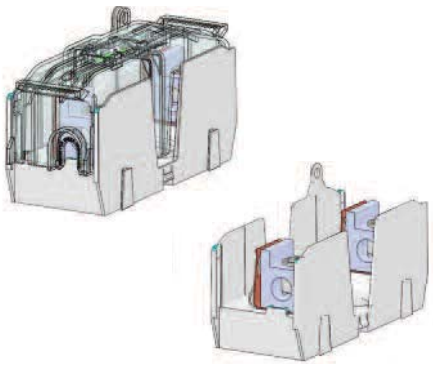
Dimensions - mm (in)

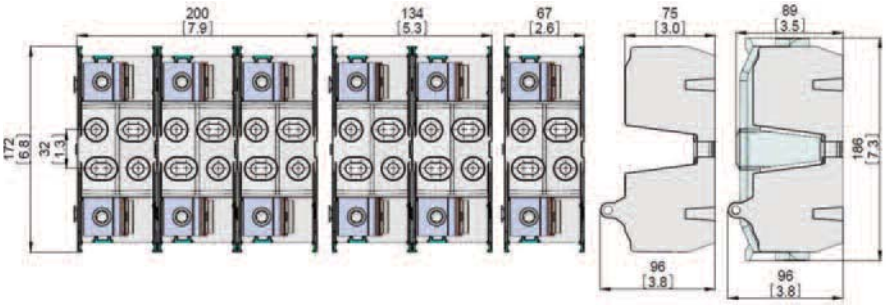
70- 100A



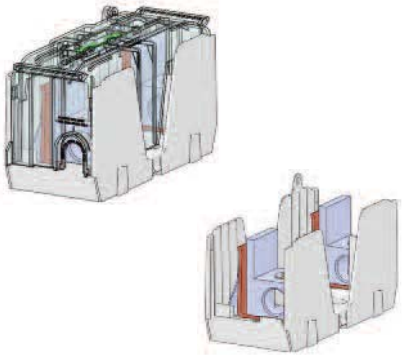


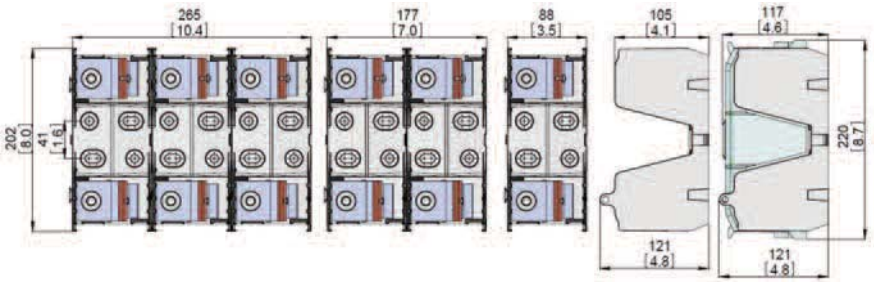
110- 200A



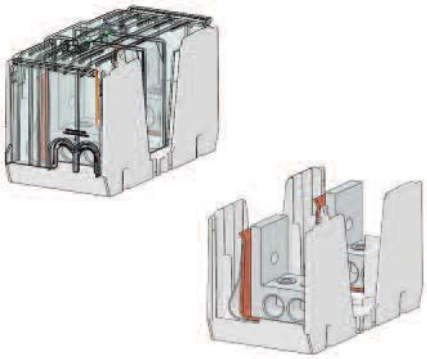


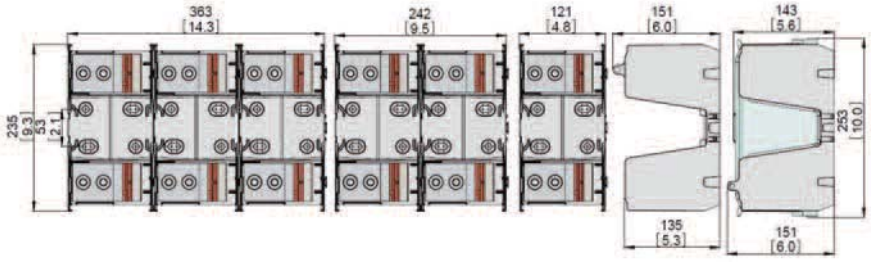
225- 400A





450- 600A





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Class H(K) and R Fuse Blocks – 250V

H250 & R250 Series

Specifications

Descriptions:

H250 Series: 1-, 2- and 3-pole fuse blocks for use with Class H fuses.

R250 Series: 1-, 2- and 3-pole fuse blocks for use with Class R fuses (Bussmann LPN-RK and FRN-R and KTN-R fuses).

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 250Vac/dc (H250 & R250 Series)

Amps: — ⅒-100A

SCCR: — H250 Series; 10kA RMS Sym.

— R250 Series; 200kA RMS Sym.

Agency Information: CE, UL Listed UL 4248, Guide IZLT, File E14853; CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

Features and Benefits

- H250 fuse blocks provide one, two and three pole housing for Class H, K and R fuses at 250Vac.
- H250 fuse blocks are listed with a Short-Circuit Current Rating of 10kA RMS Sym.
- R250 fuse blocks provide 1-, 2- and 3-pole housing for Class R fuses at 250Vac.
- R250 fuse blocks are listed with a Short-Circuit Current Rating of 200kA RMS Sym.

Typical Applications

- 250Vac/dc or less Control Systems
- 250Vac/dc or less Industrial Control
- 250Vac/dc or less Industrial Control Circuits

Recommended DIN-Rail adapters for the ⅒-30A series

- see page 509.

Class H Fuseblocks (250V) Catalog Data (for NON and REN Fuses)

Amps	Poles	Terminal Type (Suffix No.)									Figure Number	Wire Range
		Screw					Box Lug w/					
		Catalog Number	—	Clip with Reinforced Spring	Pressure Plate	Pressure Plate & Clip with Reinforced Spring	—	Clip with Reinforced Spring	Copper Only	0.25˝ Quick Connect		
⅒	1	H25030-1	S	SR	P	PR	C	CR	—	Q	1	C, CR #2-14 Cu, #2-12 Al
to	2	H25030-2	S	SR	P	PR	C	CR	—	—	2	P, PR #10-18 Cu Only
30	3	H25030-3	S	SR	P	PR	C	CR	—	—	3	Q N/A S, SR #10-18 Cu Only
31	1	H25060-1	—	—	—	—	C	CR	CO	—	4	C, CR #2-14 Cu, #2-8 Al CO #2-14 Cu Only
to	2	H25060-2	—	—	—	—	C	CR	CO	—	5	
60	3	H25060-3	—	—	—	—	C	CR	CO	—	6	
61	1	H25100-1	—	SR	—	—	—	CR	—	—	7	CR #1/0-8 Cu/Al SR #8W/ Ring Terminal
to	2	H25100-2	—	SR	—	—	—	CR	—	—	8	
100	3	H25100-3	—	SR	—	—	—	CR	—	—	9	

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Class H(K) and R Fuse Blocks – 250V

Class R Fuseblocks (250V) Catalog Data (for LPN-RK, FRN-R and KTN-R Fuses)

Amps	Poles	Catalog Number	Terminal Type (Suffix No.)					Fig. No.	Wire Range
			Screw w/		Box Lug w/		0.25" Quick-Connect		
			—	Pres. Plate	—	Clip Cu Only			
1/10	1	R25030-1	SR	PR	CR	COR	QR*	1	COR #6-14 Cu Only
to	2	R25030-2	SR	PR	CR	COR	—	2	CR #2-14 Cu, #2-12 Al
30	3	R25030-3	SR	PR	CR	COR	—	3	PR #10-18 Cu Only QR N/A SR #10-18 Cu Only
31	1	R25060-1	—	—	CR	—	—	4	CR #2-14 Cu, #2-8 Al
to	2	R25060-2	—	—	CR	—	—	5	
60	3	R25060-3	—	—	CR	—	—	6	
61	1	R25100-1	—	—	CR	—	—	7	CR 1/0-8 Cu/Al
to	2	R25100-2	—	—	CR	—	—	8	
100	3	R25100-3	—	—	CR	—	—	9	

Dimensions – in
250V 1/10 to 30A

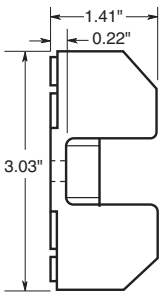
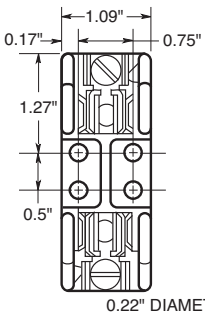


FIGURE 1.



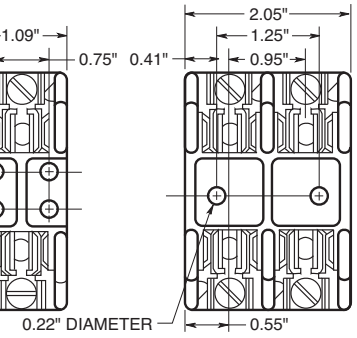


FIGURE 2.

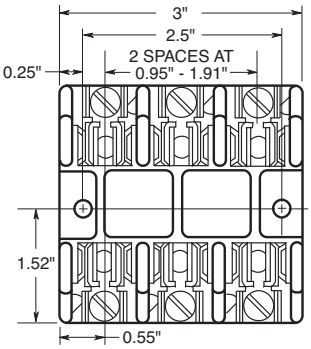
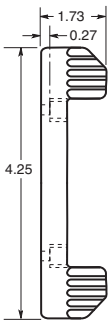


FIGURE 3.

250V, 31A to 60A



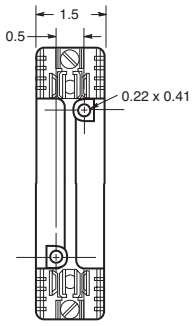


FIGURE 4.

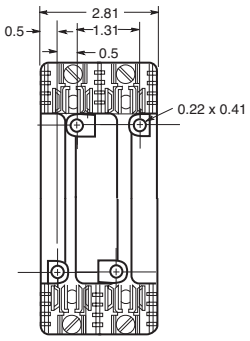


FIGURE 5.

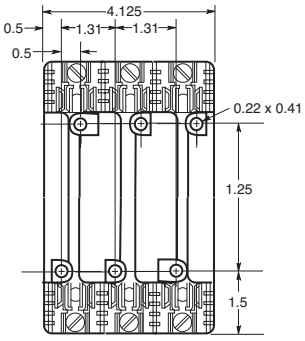
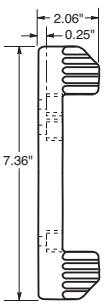


FIGURE 6.

250V, 61A to 100A



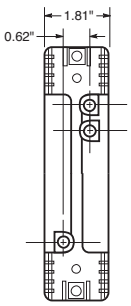


FIGURE 7.

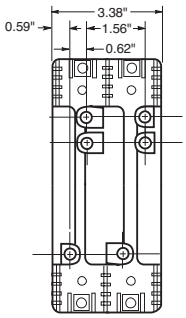


FIGURE 8.

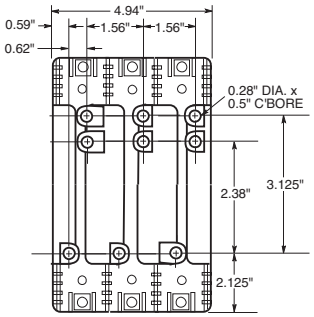


FIGURE 9.

Data Sheet: H250 Series, 1112; R250 Series, 1110

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Class H(K) and R Fuse Blocks – 600V

H600 & R600 Series

Specifications
Descriptions:
H600 Series: fuse blocks for use with 1-, 2- and 3-pole Class H fuses.
R600 Series: fuse blocks for use with 1-, 2- and 3-pole Class R fuses (Bussmann LPS-RK, FRS-R, PVS-R and KTS-R fuses).

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac/dc (H600 & R600 Series)
Amps: — 1/10-100A
SCCR: — H600 Series; 10kA RMS Sym.
— R600 Series; 200kA RMS Sym.

Agency Information: CE, UL Listed UL 4248, Guide IZLT, File E14853; CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

H60030-3C

H60030-2PR

Features and Benefits

- H600 fuse blocks provide one-, two- and three-pole housing for Class H, K and R fuses at 600Vac.
- H600 fuse blocks are listed with a Short-Circuit Current Rating of 10kA RMS Sym.
- R600 fuse blocks provide one-, two- and three-pole housing for Class R fuses at 600Vac.
- R600 fuse blocks are listed with a Short-Circuit Current Rating of 200kA RMS Sym.

Typical Applications

- 600Vac/dc or less Control Systems
- 600Vac/dc or less Industrial Control
- 600Vac/dc or less Individual Control Circuits

Class H Fuseblocks (600V) Catalog Data (for NOS and RES Fuses)

Amps	Poles	Terminal Type (Suffix No.)							Figure Number	Wire Range
		Screw					Box Lug w/			
		Catalog Number	—	Clip with Reinforced Spring	Pressure Plate	Pressure Plate & Clip with Reinforced Spring	—	Clip with Reinforced Spring		
1/10	1	H60030-1	S	SR	P	PR	C	CR	1	C, CR #2-14 Cu, #2-12 Al P, PR, S, SR #10-18 Cu Only
to	2	H60030-2	S	SR	P	PR	C	CR	2	
30	3	H60030-3	S	SR	P	PR	C	CR	3	
31	1	H60060-1	—	—	—	—	C	CR	4	C, CR #2-14 Cu, #2-8 Al
to	2	H60060-2	—	—	—	—	C	CR	5	
60	3	H60060-3	—	—	—	—	C	CR	6	
61	1	H60100-1	—	—	—	—	—	CR	7	CR #1/0-8 Cu/Al
to	2	H60100-2	—	—	—	—	—	CR	8	
100	3	H60100-3	—	—	—	—	—	CR	9	

Data Sheet: H600 Series, 1113; R600 Series, 1111

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Class H(K) and R Fuse Blocks – 600V

Class R Fuseblocks (600V) Catalog Data (for LPS-RK, FRS-R, PVS-R and KTS-R Fuses)

Amps	Poles	Catalog Number	Terminal Type (Suffix No.)				Fig. No.	Wire Range
			Screw w/		Box Lug w/			
			—	Pres. Plate	—	Clip Cu Only		
1/10	1	R60030-1	SR	PR	CR	—	1	COR #6-14 Cu Only
to	2	R60030-2	SR	PR	CR	COR	2	CR #2-14 Cu, #2-12 Al
30	3	R60030-3	SR	PR	CR	COR	3	PR, SR #10-18 Cu Only
31	1	R60060-1	—	—	CR	—	4	CR #2-14 Cu, #2-8 Al
to	2	R60060-2	—	—	CR	—	5	
60	3	R60060-3	—	—	CR	—	6	
61	1	R60100-1	—	—	CR	—	7	CR, 1/0-8 Cu/Al
to	2	R60100-2	—	—	CR	—	8	
100	3	R60100-3	—	—	CR	—	9	

Dimensionals – in

600V, 1/10 to 30A

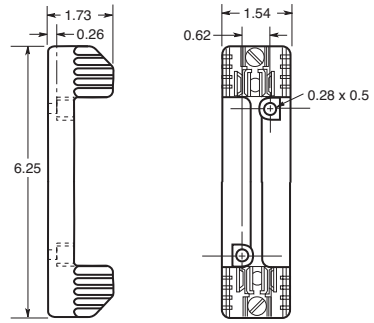


FIGURE 1.

FIGURE 2.

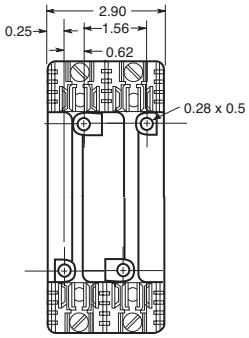
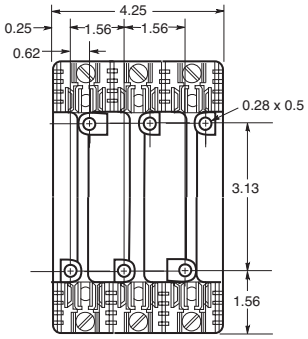


FIGURE 3.



600V, 31 to 60A

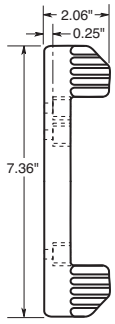


FIGURE 4.

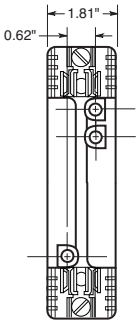


FIGURE 5.

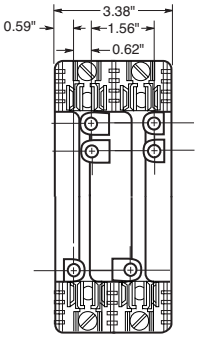
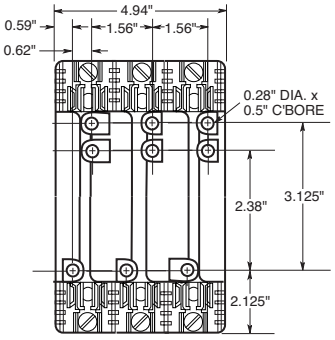


FIGURE 6.



600V, 61 to 100A

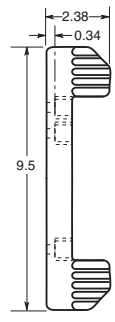


FIGURE 7.

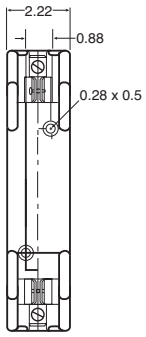


FIGURE 8.

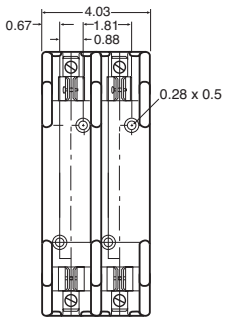
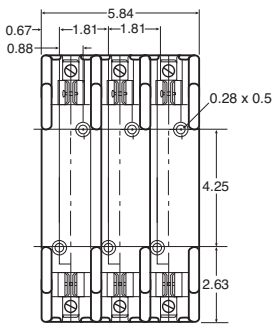


FIGURE 9.



Data Sheet: H600 Series, 1113; R600 Series, 1111

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Class J Fuse Blocks

J600 Series

Specifications

Description: 1-, 2- or 3-pole fuse blocks for use with Class J fuses (Bussmann LPJ, DFJ and JKS).

Dimensions: See Dimensions illustrations.

Construction: Thermoplastic.

Poles: 1 to 3

Ratings:

Volts: — 600Vac/dc

Amps: — ½-100A

SCCR: — 200kA RMS Sym.

Agency Information: CE, UL Listed, UL 4248, Guide IZLT, File E14853, CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

Mounting: Accepts DIN-Rail adapter DRA-1. See page 507.

Features and Benefits

- J600 fuse blocks provide one-, two- and three-pole housing for Class J fuses at 600Vac.
- J600 fuse blocks are listed with a Short-Circuit Current Rating of 200kA RMS Sym.

Typical Applications

- 600Vac/dc or less Control Systems
- 600Vac/dc or less Industrial Control
- 600Vac/dc or less Individual Control Circuits

Catalog Numbers

Catalog Numbers							
Screw†	Pressure Plate†	Box Lug	Box Lug w/ Retaining Clip	Amps	Poles	Fig. No.	Wire Range
J60030-1S*	J60030-1P	J60030-1C	J60030-1CR††	½-30	1	1	C, CR #2-14 Cu, #2-8 Al
J60030-2S*	J60030-2P	J60030-2C	J60030-2CR††		2	2	COR #2-14 Cu Only
J60030-3S*	J60030-3P	J60030-3C	J60030-3CR††		3	3	P, PR, S, SR #10-14 Cu Only
—	—	J60060-1C	J60060-1CR††	31-60	1	1	C, CR, #2-14 Cu/Al
—	—	J60060-2C	J60060-2CR††		2	2	COR #4-14 Cu Only
—	—	J60060-3C	J60060-3CR††		3	3	
—	—	—	J60100-1CR	61-100	1	4	COR 1/0-8 Cu Only
—	—	—	J60100-3CR††		3	5	CR, CRQ 1/0-8 Cu/Al

†Clip reinforcing springs are standard on fuse blocks rated 100A and above. Available on 30A and 60A blocks by adding the letter "R" to the end of the part number.

††Copper only connections available by changing "CR" suffix to "COR".

*No UL, No CSA Certification

Dimensions - in (±0.015)

½ - 60A

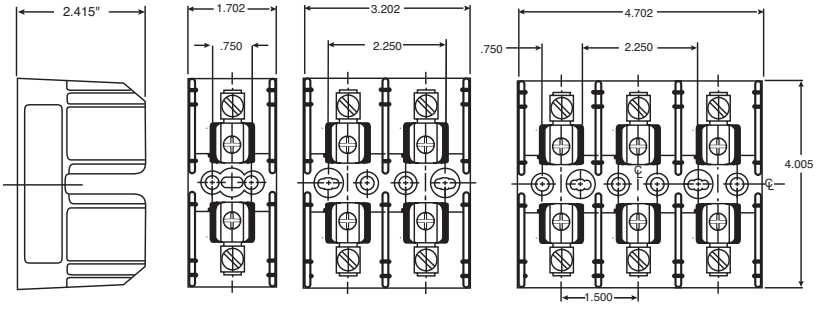

FIGURE 1. FIGURE 2. FIGURE 3.

61-100A

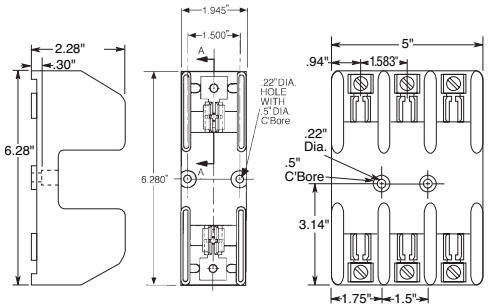

FIGURE 4. FIGURE 5.

Data Sheet: 1114

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Class J Fuse Blocks

JP Series

Specifications

Description: Pyramid style 3-pole fuse block for use with Class J fuses (Bussmann LPJ, DFJ, JKS).

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 600Vac/dc

Amps: — 0-30A

SCCR: — 200kA RMS Sym.

Agency Information: CE, UL Listed, UL 4248, Guide IZLT, File E14853, CSA Certified, C22.2 No. 39, Class 4225-04, File 47235.

Flammability Rating: UL 94V0.

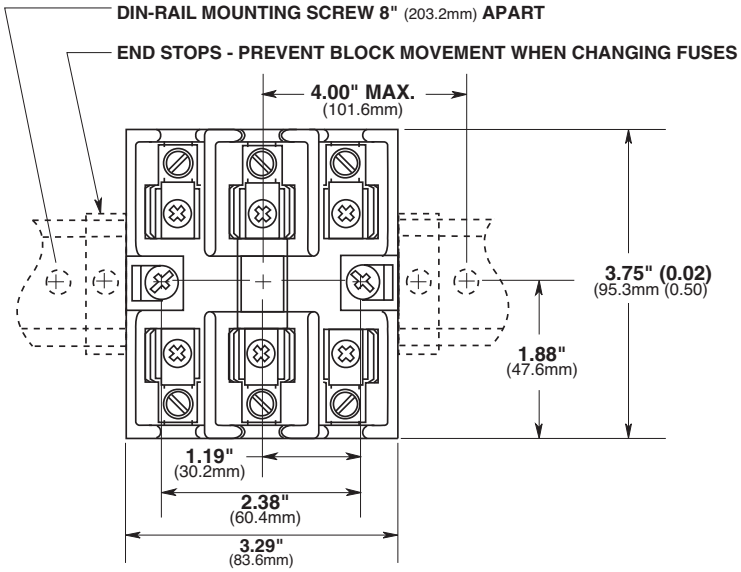
Mounting: Panel or 35mm DIN-Rail mount.
To order DIN-Rail: Part# NDNA 100 (1 meter) or NDNA 200 (2 meter).

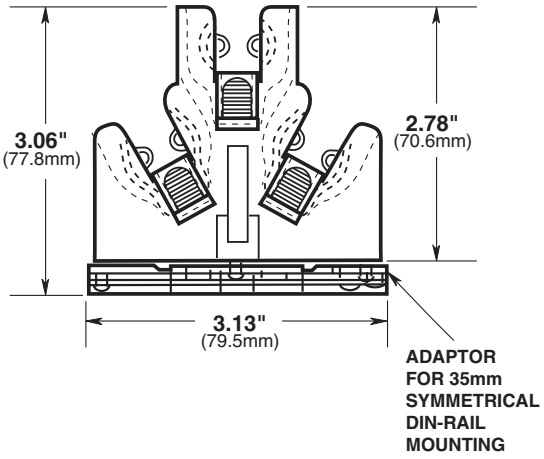
Catalog Numbers

Catalog Numbers	Mounting					
	Panel	With DIN Rail Adapter*	Screws with Pressure Plate	Box		
				Aluminum	Copper Only	Wire Range
JP60030-3PR	X		X			#10-14 Cu Only
JP60030-3CR	X			X		#2-14 Cu/Al
JP60030-3COR	X				X	#2-14 Cu Only
JP60030-3PRA		X	X			#10-14 Cu Only
JP60030-3CRA		X		X		#2-14 Cu/Al
JP60030-3CORA		X			X	#2-14 Cu Only

*Adapter only for DIN-Rail - Cat No. JPA-3.

Dimensions - in ± 0.015" (± 0.40mm)





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Class T Fuse Blocks – 300V

T300

Specifications

Description: T300 (300V) fuse blocks for use with Class T fuses (Bussmann JJN).

Dimensions: See Dimensions illustrations.

Poles: 1 to 4

Ratings:

Volts: — 300Vac/dc

Amps: — ½ - 600A

SCCR: — 200kA RMS Sym.

Agency Information: CE, UL Listed UL 4248, Guide IZLT, File E14853, CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94V0.

T30100-1CR

T30030-2CR

T30600-1C

Features and Benefits

- Provide 1-, 2- and 3-pole housing for 300Vac Class T fuses.
- Short-Circuit Current Rating of 200kA RMS Sym.
- Class T fuse blocks have a small foot print, providing substantial space savings in equipment

Typical Applications

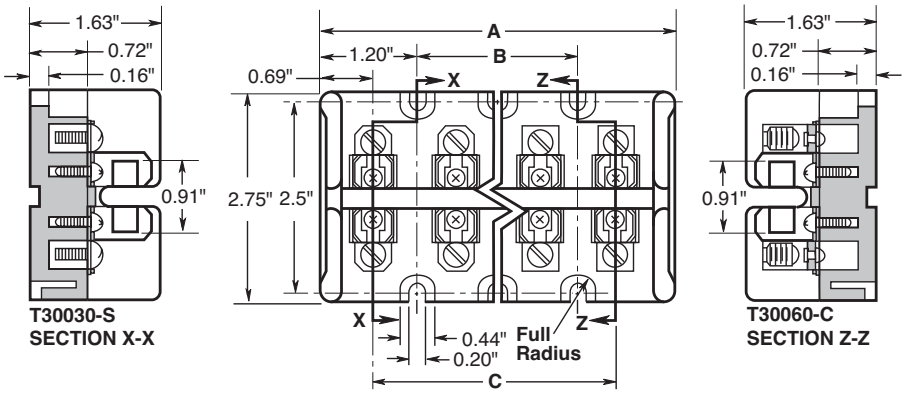
- 300Vac/dc or less Control Systems
- 300Vac/dc or less Individual Control Circuits

Catalog Numbers

Catalog Numbers

Screw	Box Lug	Amps	Poles	Fig. No.	Wire Range
T30030-2SR	T30030-2CR	½-30	2	1	SR #10-18 Cu CR #6-14 Cu/Al
T30030-3SR	T30030-3CR		3		
T30030-4SR	T30030-4CR		4		
T30060-2SR	T30060-2CR	31-60	2		CR #2-14 Cu/Al SR #10-18 Cu Only
T30060-3SR	T30060-3CR		3		
T30060-4SR	T30060-4CR		4		
—	T30100-1CR	61-100	1	2	1/0-8 Cu/Al
—	T30100-2CR		2		
—	T30100-3CR		3		
—	T30200-1C	101-200	1	3	250kcmil-6 Cu/Al
—	T30200-3C		3	4	
—	T30400-1C	201-400	1	5	600kcmil-2/0 Cu/Al
—	T30600-1C	401-600	1	6	(2) 600kcmil-4/0 Cu/Al

Dimensions - in **Figure 1. ½-60A**



Catalog Number	Dimensions - in A	B	C
T30030-2	2.41	—	1.03
T30060-2	2.41	—	1.03
T30030-3	3.44	1.03	2.06
T30060-3	3.44	1.03	2.06
T30030-4	4.47	2.06	3.09
T30060-4	4.47	2.06	3.09

Data Sheet: 1115

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Class T Fuse Blocks – 300V

Figure 2. 61 to 100A

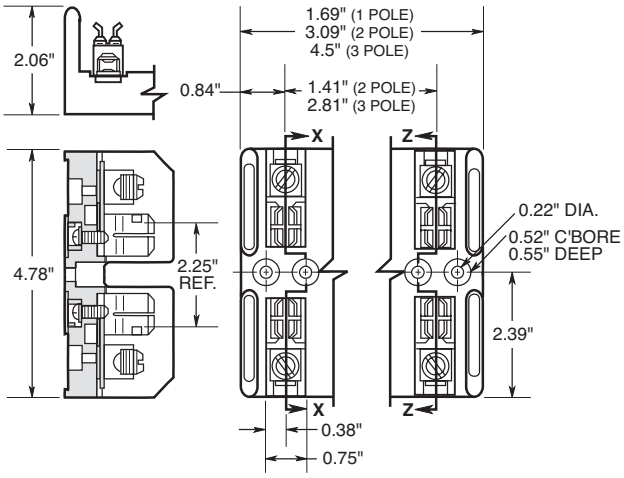


Figure 3. 101 to 200A

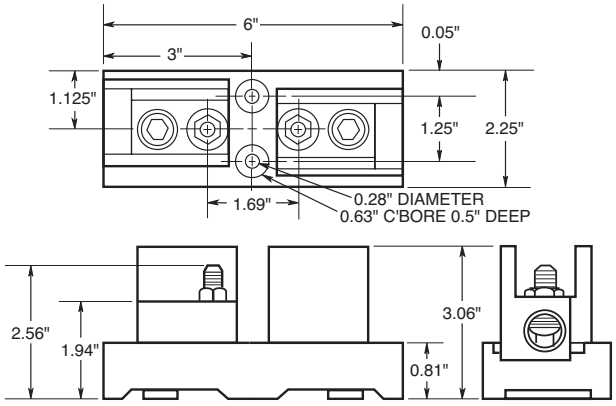


Figure 4. 200A

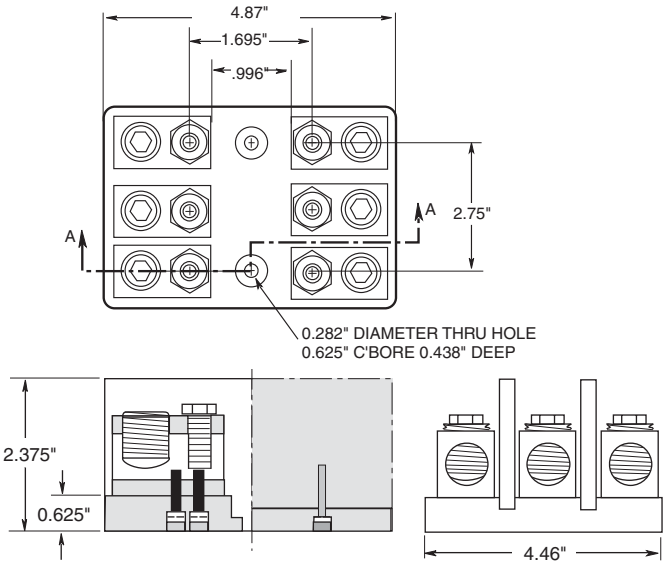


Figure 5. 201 to 400A

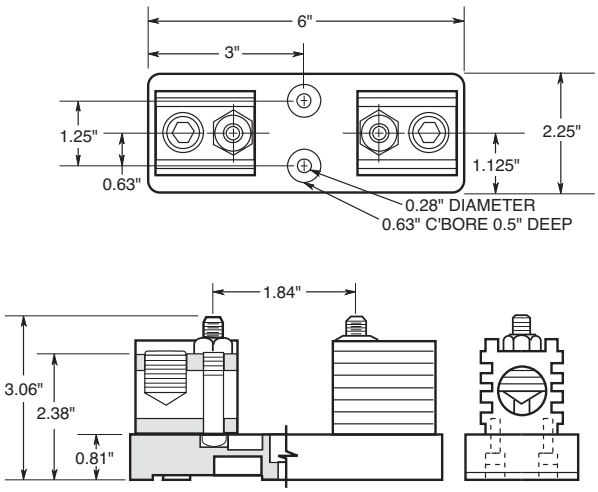
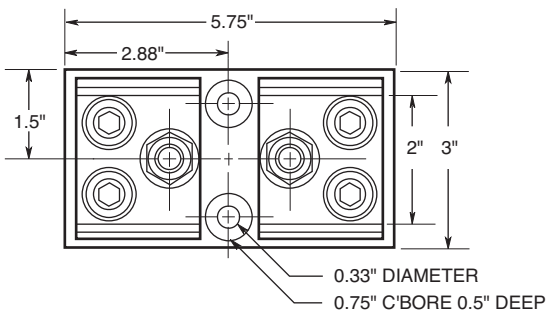
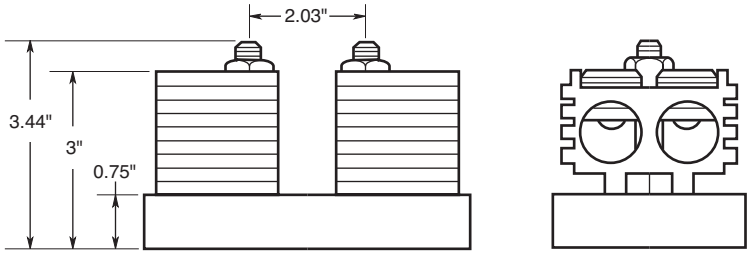


Figure 6. 401 to 600A





Data Sheet: 1115

Class T Fuse Blocks – 600V

T600

Specifications

Description: T600 (600V) fuse blocks for use with Class T fuses (Bussmann JJS).

Dimensions: See Dimensions illustrations.

Poles: 1 to 3

Ratings:

Volts: — 600Vac/dc

Amps: — ½ - 600A

SCCR: — 200kA RMS Sym.

Agency Information: CE, UL Listed UL 4248, Guide IZLT, File E14853, CSA Certified, Class 6225-01, File 47235.

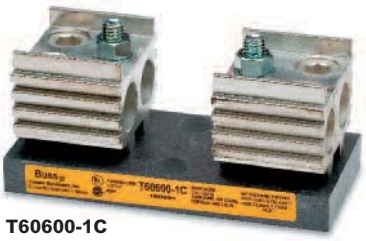
Flammability Rating: UL 94V0.

Features and Benefits

- Provide 1-, 2- and 3-pole housing for 600Vac Class T fuses.
- Short-Circuit Current Rating of 200kA RMS Sym.
- Class T fuse blocks have a small foot print, providing substantial space savings in equipment

Typical Applications

- 600Vac/dc or less Control Systems
- 600Vac/dc or less Individual Control Circuits



T60600-1C

T30030-2CR

Catalog Numbers

Screw	Box Lug	Amps	Fig. Poles	No.	Wire Range
T60030-1SR	T60030-1CR	½-30	1	1	SR #10-18 Cu CR #2-14 Cu/Al
T60030-2SR	T60030-2CR		2		
T60030-3SR	T60030-3CR		3		
T60060-1SR	T60060-1CR	31-60	1	2	CR #2-14 Cu/Al SR #10-18 Cu Only
T60060-2SR	T60060-2CR		2		
T60060-3SR	T60060-3CR		3		
—	T60100-1C	61-100	1	3	2/0-14 Cu/Al
—	T60100-2C		2		
—	T60100-3C		3		
—	T60200-1C	101-200	1	4	250kcmil-6 Cu/Al
—	1B0089*		3		
—	T60400-1C	201-400	1	5	600kcmil-2/0 Cu/Al
—	T60600-1C	401-600	1	6	(2) 600kcmil-4/0 Cu/Al

* UL Listed, Guide IZLT, File E14853, CSA Certified Class 6225-01, File 21455M18

Dimensions - in

Figure 1. ½ to 30A

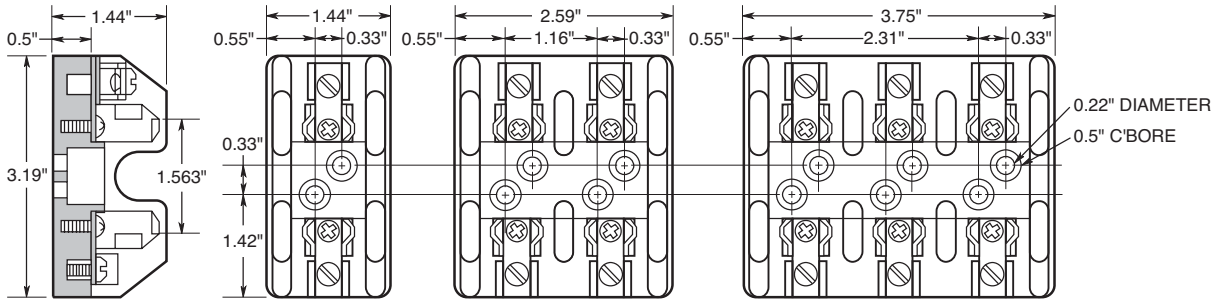
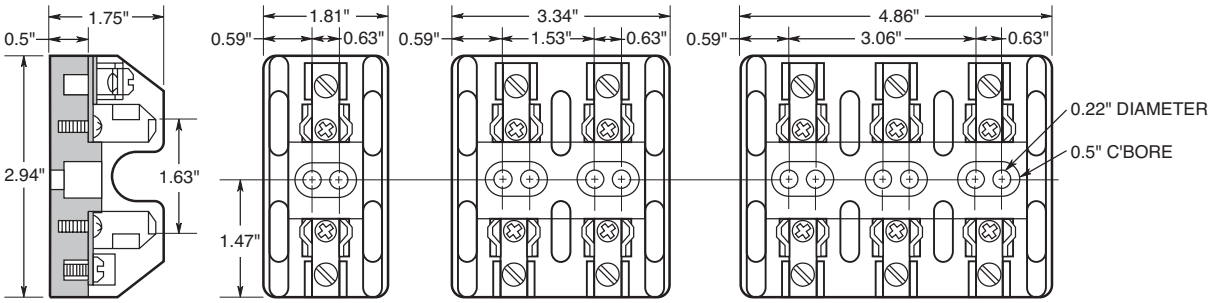


Figure 2. 31 to 60A



Data Sheet: 1116

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Class T Fuse Blocks – 600V

Figure 3. 61 to 100A

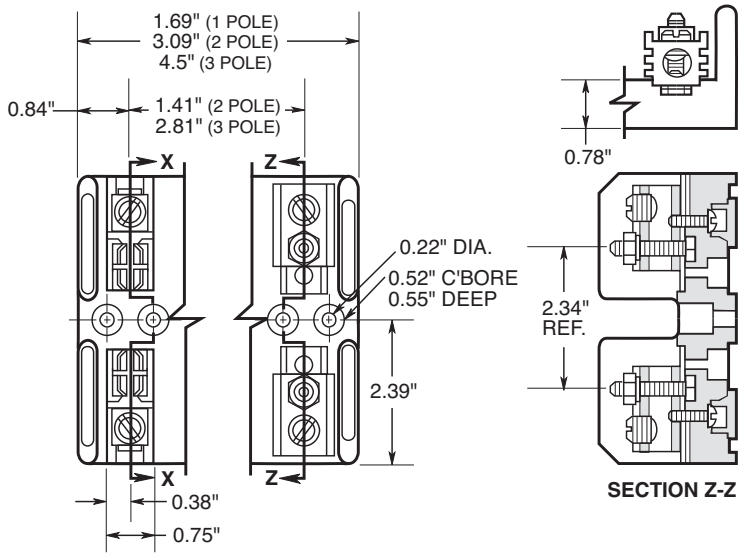


Figure 4. 101 to 200A

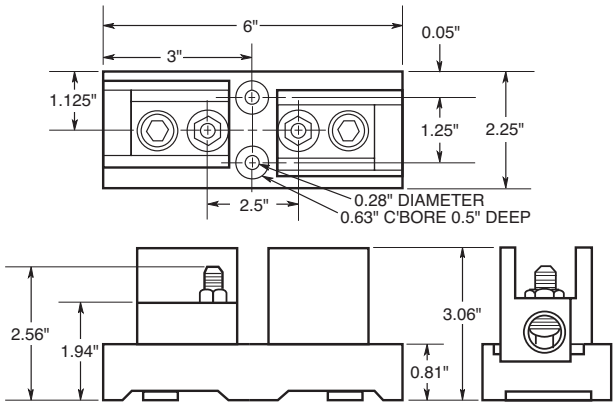


Figure 5. 201 to 400A

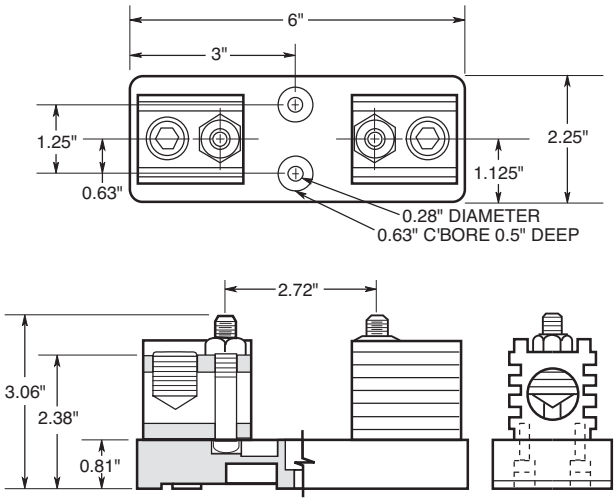
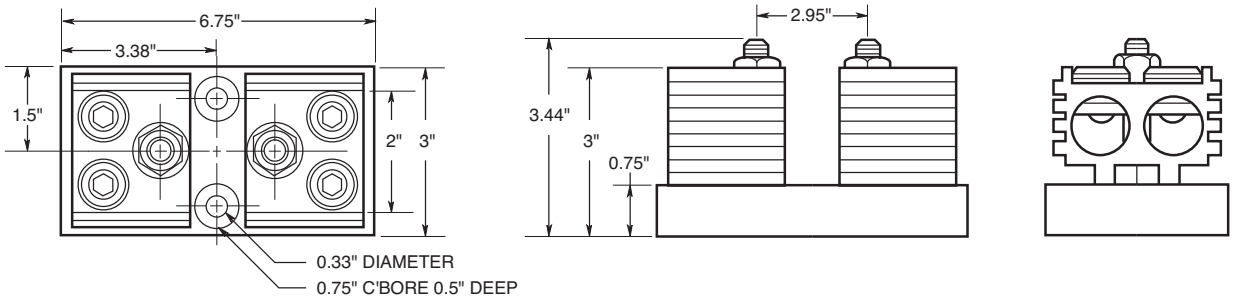


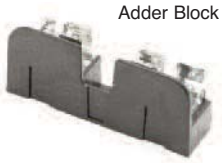
Figure 6. 401 to 600A



Data Sheet: 1116

Add-a-pole Fuse Blocks

BCA Series - Class CC fuses
BMA Series - 13/32" X 1 1/2" fuses


Adder Block

1-Pole

2-Pole

3-Pole

Specifications

Description: 1-, 2 and 3-pole fuse blocks for use with Class CC fuses (BCA Series use Bussmann LP-CC, KTK-R, and FNQ-R), or with standard 13/32" x 1 1/2" fuses (BMA Series use Bussmann KTK, FNQ, PVN, FNM, BAF, PV and AGU) Both Series use an "adder block" to form multi-pole segmented blocks to achieve the desired number of poles.

Dimensions: See Dimensions illustration.

Poles: 1 to 3.

Wire Range: #10-#18 Cu only.

Terminals: Screw/quick connect* or pressure plate/quick connect*.

Ratings:

Volts: — 600Vac/dc

Amps: — 1/10-30A

SCCR: — BCA Series: 200kA RMS Sym.
BMA Series: 10kA RMS Sym.

Agency Information:

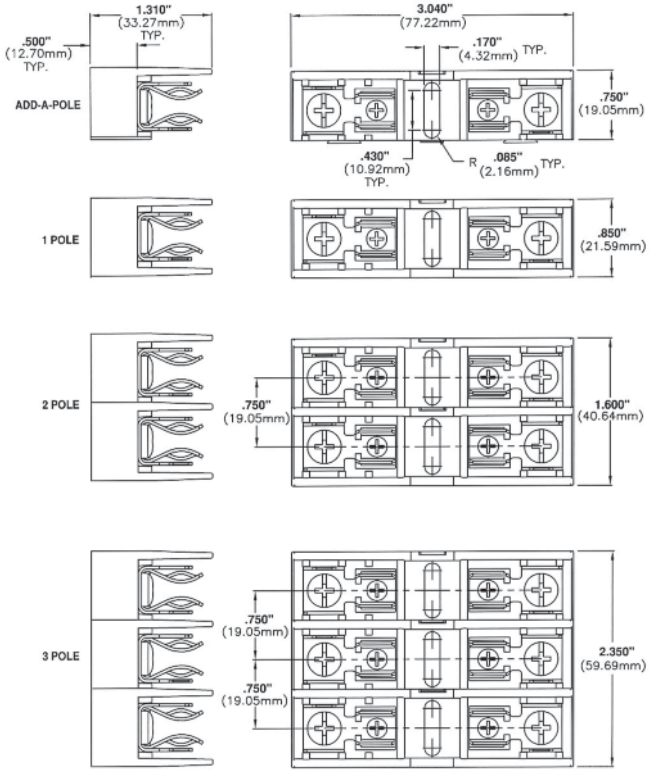
BCA Series: CE, UL Listed, UL 4248, Guide IZLT, File E14853. CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235.

BMA Series: CE, UL Recognized, UL 4248, Guide IZLT2, File E14853. CSA Certified, C22.2 No. 4248, Class 6225-01, File 47235.

Flammability Rating: UL 94V0

*Quick connect rated for 20A maximum.

Dimensions in ± 0.015" (0.38mm)



Catalog Numbers

BCA Series

Catalog Numbers	Poles	Terminal Type
BCA603ASQ	Adder Block	Screw w/ quick connect
BCA6031SQ	1	Screw w/ quick connect
BCA6032SQ	2	Screw w/ quick connect
BCA6033SQ	3	Screw w/ quick connect
BCA603APQ	Adder Block	Pressure plate w/ quick connect
BCA6031PQ	1	Pressure plate w/ quick connect
BCA6032PQ	2	Pressure plate w/ quick connect
BCA6033PQ	3	Pressure plate w/ quick connect

BMA Series

Catalog Numbers	Poles	Terminal Type
BMA603ASQ	Adder Block	Screw w/ quick connect
BMA6031SQ	1	Screw w/ quick connect
BMA6032SQ	2	Screw w/ quick connect
BMA6033SQ	3	Screw w/ quick connect
BMA603APQ	Adder Block	Pressure plate w/ quick connect
BMA6031PQ	1	Pressure plate w/ quick connect
BMA6032PQ	2	Pressure plate w/ quick connect
BMA6033PQ	3	Pressure plate w/ quick connect

Data Sheets: BCA Series 1154, BMA Series 1155

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Class CC, Type M and Class G Fuse Blocks

BC Series

Specifications

Description: Class CC fuse blocks for use with Class CC fuses (Bussmann LP-CC, KTK-R, and FNQ-R).

Dimensions: See Data Sheet 1105

Poles: 1 to 3

Ratings:

Volts: — 600V

Amps: — 1/10-30A

SCCR:— 200kA RMS Sym.

Agency Information: CE, UL Listed (Guide IZLT, File E14853), CSA (Class 6225-01, File 47235)

Flammability Rating: UL 94V0

DIN-Rail Adapters: See page 413 for DRA-1 & DRA-2

Catalog Numbers

Terminal Type					
Screw	Screw with Quick Connect*	Pressure Plate	Pressure Plate w/ Quick Connect*	Box Lug	Poles
BC6031S	BC6031SQ	BC6031P	BC6031PQ	BC6031B	1
BC6032S	BC6032SQ	BC6032P	BC6032PQ	BC6032B	2
BC6033S	BC6033SQ	BC6033P	BC6033PQ	BC6033B	3

Data Sheet: 1105

BCCM Series

Description: 3-pole fuse block for use with (2) Class CC fuses and (1) 13/32" x 1½" fuse

Catalog Numbers

Catalog Numbers	Terminal Type
BCCM6033SQ	Screw with Quick-Connect*
BCCM6033PQ	Pressure Plate w/Quick-Connect*

*Quick-connect terminal rated for 20A max.

Recommended Cover Puller

- PF1-WH (White)
- PF1-BK (Black)

BM Series Type M

Specifications

Description: Supplementary fuse blocks for use with any 13/32" x 1½" fuses (Bussmann KTK, PVM, FNQ, FNM, BAF, PV, and AGU).

Dimensions: See Data Sheet 1104

Poles: 1 to 3

DIN-Rail Adapters: See page 413 for DRA-1 & DRA-2

Ratings:

Volts: — 600Vac/dc

Amps: — 1/10-30A

SCCR:— 10kA RMS Sym.

Agency Information: CE, UL Recognized (Guide IZLT2, File E14853), CSA (Class 6225-01, File 47235).

Flammability Rating: UL 94V0.

Catalog Numbers

Terminal Type			
Screw with Quick Connect*	Pressure Plate w/ Quick Connect*	Box Lug	Poles
BM6031SQ	BM6031PQ	BM6031B	1
BM6032SQ	BM6032PQ	BM6032B	2
BM6033SQ	BM6033PQ	BM6033B	3

Recommended Cover Puller

- PF1-WH (White)
- PF1-BK (Black)

Data Sheet: 1104

BG & G Series

Specifications

Description: Class G fuse blocks for use with Class G fuses (Bussmann SC).

Dimensions: See Data Sheet 1106

Poles: 1 to 3

Ratings:

Volts: — 600Vac/dc (0-20A)

— 480Vac/dc (25-60A)

Amps: — 1-60A (See Catalog Numbers table)

SCCR: — 100kA RMS Sym.

Agency Information: CE, UL Listed 35-60A (Guide IZLT, File E14853), UL Recognized 1-30A, (Guide IZLT2, File E14853), CSA (Class 6225-01, File 47235).

DIN-Rail Adapters: See page 413 for DRA-1 & DRA-2.

Catalog Numbers

Terminal Type					
Screw with Quick Connect*	Pressure Plate w/ Quick Connect*	Box Lug	Box Lug w/retaining clip	Amps	Poles
BG3011SQ	BG3011PQ	BG3011B	—	1-15	1
BG3012SQ	BG3012PQ	BG3012B	—		2
BG3013SQ	BG3013PQ	BG3013B	—		3
BG3021SQ	BG3021PQ	BG3021B	—	20	1
BG3022SQ	BG3022PQ	BG3022B	—		2
BG3023SQ	BG3023PQ	BG3023B	—		3
BG3031S	BG3031P	BG3031B	—	25-30	1
BG3032S	BG3032P	BG3032B	—		2
BG3033S	BG3033P	BG3033B	—		3
—	—	—	G30060-1CR	35-60	1
—	—	—	G30060-2CR		2
—	—	G30060-3C	G30060-3CR		3

Recommended Cover Puller

- PF1-WH (White)
- PF1-BK (Black)

Data Sheet: 1106

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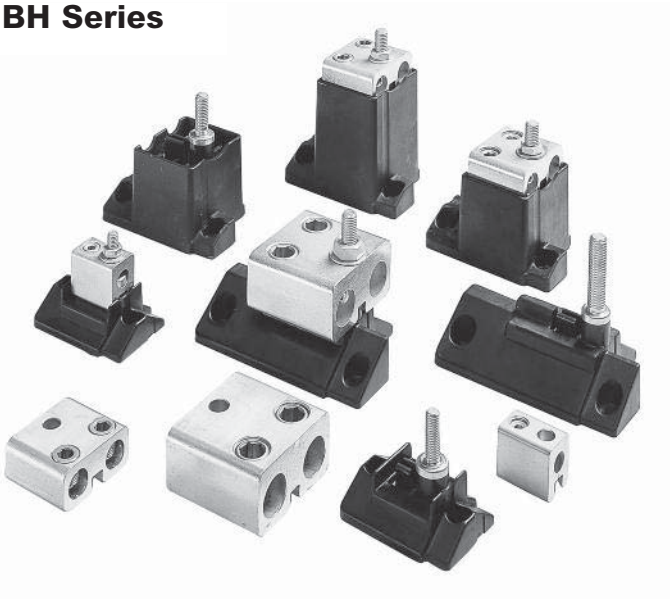
Modular Fuse Blocks

BH Series



Specifications

Description: For use with Bussmann high speed fuses.

Ratings:

SCCR: — 200kA RMS Sym. or fuse IR, whichever is lower.

Agency Information: CE, UL Recognized, Guide EZLT2, File No. E14853 up to 700V, CSA Certified, Class 6225-01, File No. 47235 up to 700V.

BH Series Features and Benefits

- BH fuse blocks provide a wide range of mounting configurations for Bussmann high speed fuses.
- BH fuse blocks have a Short-Circuit Current Rating of any installed fuse up to 200kA RMS Sym.

Typical Applications

- Solid State Control Circuits
- VFDs
- UPS Systems

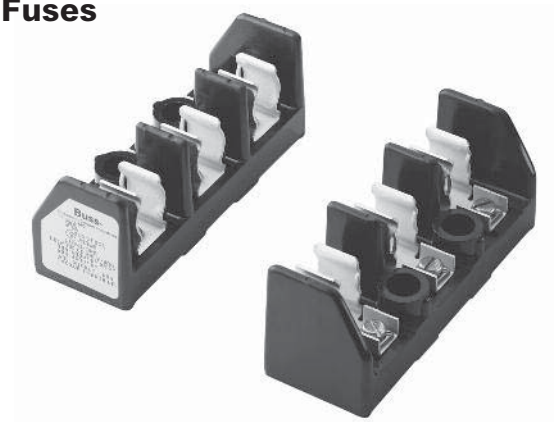
Catalog Numbers

BH-0001	BH-0122	BH-2001	BH-3004
BH-0002	BH-1001	BH-2002	BH-3033
BH-0003	BH-1002	BH-2003	BH-3144
BH-0111	BH-1003	BH-2031	BH-3145
BH-0112	BH-1131	BH-2032	
BH-0113	BH-1132	BH-2033	
BH-0121	BH-1133	BH-3003	

Refer to the data sheet numbers below for the catalog code description information.

Data Sheet: (BH-0) 1200; (BH-1) 1201; (BH-2) 1202; (BH-3) 1203

Modular Type Fuse blocks for Class H & J Fuses



Specifications

Description: 3-Pole only, modular type fuse blocks for Class H & J fuses with standard reinforced retaining clips.

Ratings:

Volts: — 250V (0-60A See Catalog Numbers table)
— 600V (35-60A See Catalog Numbers table)

Amps: — 0-60A @ 250Vac/dc (See Catalog Numbers table)
— 35-60A@600V (See Catalog Numbers table)

SCCR: — Class J 200kA, Class H 10kA

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853, CSA Certified, Class 6225-01, File 47235.

Class H & J Features and Benefits

- H & J modular fuse blocks provide three pole 30 and 60 amp ratings for specific client requirements for separate line and load fuse clip configurations.

Typical Applications

- Up to 60A, space confined, control circuits

Catalog Numbers

Screw	Pressure Plate	Fuse Class	Volts	Amps	Fig. No.
11241-3SR*	11241-3PR*	H	250	60	1
11242-3SR	11242-3PR				2
11241-3SR	11241-3PR		600	35	1
11242-3SR**	11242-3PR**				2
11239-3SR	11239-3PR			60	1
11240-3SR**	11240-3PR**				2
11241-3SR	11241-3PR	J		35	1
11239-3SR*	11239-3PR*			60	1

Note: Order two blocks per fuse (matched or mixed.)
*11239 and 11241 have wire terminals and mounting holes located under fuse. (Figure 1)
**11240 and 11242 have wire terminals and mounting holes located at end of fuse. (Figure 2)

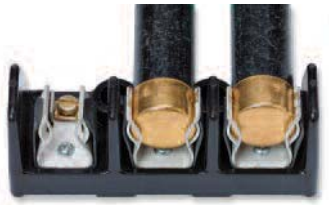


Figure 1

Figure 2

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Box Cover Units for Plug Fuses

SOU, SRU, SSN, SSU, SOW, SRW, SSW, SOX, SRX, SSX, SOY, SRY, SSY, SSY-RL, SSY-L, STY, SCY & SOY-B

Specifications

Description: Box covers for standard electrical boxes that provide fused outlet, fused switch or circuit fuse protection.

Ratings:

Volts: — 125V/250V (See Catalog Numbers table)

Amps: — 0-15A (See Catalog Numbers table)

Agency Information: CE, See Catalog Numbers table.

Features/Benefits

- Bussmann Box Cover Units provide a low-cost method of controlling and protecting small motors when used with Bussmann Type T, Fusetron™, dual-element fuses.
- Provide low-cost supplementary protection and disconnection of 125V or less, single phase circuits.

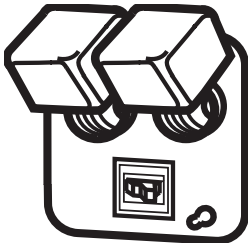
Typical Applications

- Fractional Horsepower, 125 Volt Single-Phase Motor Circuits
- General 125 Volt Supplemental Circuits

SOU

SRU

SSU



STY

SSN

Catalog Numbers

Catalog Numbers	Type Box	Fuse holder[3]		Receptacle Outlet to Load		Switch Control[1]	Switch Light[2]	Motor Size (Max)	General Data	Agency[4] Listing/ Certification
		Single	Double	125V	250V					
SOU	2¼" Handy	X						¾hp	125V, 15A	UL, CSA
SRU		X		X				½hp	125V, 15A	UL
SSU		X				X		½hp	125Vac, (do not use on dc), 15A	UL, CSA
SOW	2¾" Switch	X						¾hp	125V, 15A	UL, CSA
SRW		X		X				½hp	125V, 15A	UL
SSW		X				X		½HP	125Vac, (do not use on dc), 15A	UL, CSA
SOX	4" Octagon	X						¾hp	125V, 15A	UL, CSA
SRX		X		X				½hp	125V, 15A	UL
SSX		X				X		½hp	125Vac, (do not use on dc), 15A	UL, CSA
SOY	4" Square	X						¾hp	125V, 15A	UL, CSA
SRY		X		X				½hp	125V, 15A	UL
SSY		X				X		½hp	125Vac, (do not use on dc), 15A	UL, CSA
SSY-RL		X		X		X	X	½hp	125Vac, (do not use on dc), 15A	—
STY[3]			X			X		½hp	125Vac, (do not use on dc), 15A	UL
SCY			X			X(2)		½hp (2)	125Vac, (do not use on dc), can protect two motors, 15A	UL
SOY-B			X					¾hp	125V, protects two motors, 15A	UL
SSN	Single Gang	X		X		X		½hp	Weatherproof model, 15A	UL

1 Switch turns power to fused load OFF or ON.
2 Switch light indicates power to load (dark when switch OFF or fuse open).
3 Double pole switch opens both sides of circuit. Can be used for two separate motors with common switch or a single motor (¾Hp, 250Vac max.).
4 UL Guide JAMZ, File IE6491; CSA Class 6225-01, File 47235.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

In-line Fuse Holders for ¼" x ⅞" to 1¼" Fuses

HFB & HFB-10

Specifications

Description: Water-resistant in-line fuse holder for ¼" x 1¼" fuses.

Dimensions: See Dimensions illustration.

Construction: Thermoplastic rubber body with tin-plated, copper contacts.

Ratings:

Volts: — 32V

Amps: — 30A max

Catalog Numbers

Catalog Numbers	Description
HFB*	Standard Pack (10-in)
BK/HFB	Bulk Pack (100-in)
BK/1A2294	HFB Replacement Contact Clip
1A2294-01	HFB-10** Replacement Contact Clip

*HFB accepts #12 to #18 wire leads (not provided). See Data Sheet for recommended crimp tools.
**HFB-10 accepts #10 wire leads (not provided). See Data Sheet for recommended crimp tools.

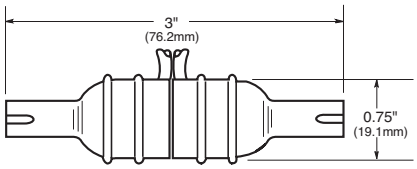
Features/Benefits

- Simple assembly with one-piece thermoplastic (important information molded into body)
- High visibility yellow color for easy identification in dark or hard-to-access locations
- Ideal for shock and vibration environments; withstands many organic solvents; temperature range -40/+150°C

Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Dimensions - in (mm)



Data Sheet: 2102

HHB

Specifications

Description: Universal in-line fuse holder for ¼" x ⅞", 1" and 1¼" fuses.

Dimensions: See Dimensions illustration.

Construction: Nylon body with tin-plated, copper contacts.

Ratings:

Volts: — 32V

Amps: — 30A max

Flammability Rating: UL 94V2.

Pull Force: 5lbs minimum to separate fuse holder housing with fuse installed.

Features and Benefits

- HHB Universal in-line fuse holder for ¼" x ⅞", 1" and 1 ¼" fuses.

Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Numbers

Holder — without leads* - RoHS compliant

Catalog Numbers	Description
HHB-R	Standard Pack (10-in)
BK/HHB-R	Bulk Pack (100-in)

*Accepts #12 to #16 wire leads (not provided with basic fuse holder). See Data Sheet for recommended crimp tools.

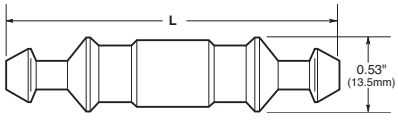
Holder — with pre-attached #14 Insulated lead wires - Not RoHS compliant unless noted

Catalog Numbers 19" Length	8" Length	Wire Color
BK/HHB-Y419	BK/HHB-Y408	Yellow
BK/HHB-R419	BK/HHB-R408**	Red
BK/HHB-B419	BK/HHB-B408	Black

**RoHS compliant.

Dimensions - in (mm)

Fuse Length	Fuse Holder Length "L"
⅞" (AGW)	2.100 Max
1" (AGX)	2.250 Max
1¼" (AGC, MDL)	2.420 Max



Data Sheet: 2103

HRK

Specifications

Description: Universal in-line fuse holder for ¼" x ⅞" to 1 ¼" fuses.

Dimensions: See Dimensions illustration.

Construction: 8" (203mm) #14 lead wires.

Ratings:

Volts: — 32V

Amps: — 15A max

Features and Benefits

- HRK Universal in-line fuse holder for ¼" x ⅞", 1" and 1¼" fuses with #14 lead wires.
- RoHS compliant

Typical Applications

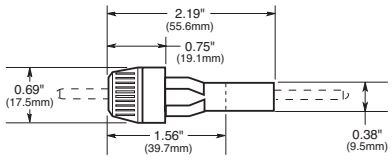
- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Number

Catalog Number	Amp Rating	Volts	Fuse Description
HRK-R*	15	32	¼" diameter fuses of different lengths.

*Three springs furnished with fuse holder to accommodate different length ¼" fuses.

Dimensions - in (mm)



Data Sheet: 2111

For product data sheets, visit www.cooperbussmann.com/DatasheetsEle

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In-line Fuse Holders

HR and HM Series

Specifications

Description: In-line fuse holders for SFE and ¼" dia. x various length fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 32V

Amps: — 20A

Features and Benefits

- HR and HM Universal in-line fuse holder for SFE and various length ¼" diameter fuses with #14 lead wires.

Typical Applications

- Supplemental, Low Voltage, Low Amperage Control Circuits

Catalog Numbers

Catalog Numbers	Includes Fuse	Wire Length & Size
HRJ*	SFE-20	19" of #14
HRI	SFE-14	
HRH	SFE-9	
HRE	SFE-7½	
HRG	SFE-6	
HRF	SFE-4	
HMJ**	SFE-20	8" of #14
HMI	SFE-14	
HMH	SFE-9	
HME	SFE-7½	
HMG	SFE-6	
HMF	SFE-4	

* Also available as in-line fuse holder only with lead wire contacts, HRJ-LESS-Fuse.

** Also available as in-line fuse holder only with lead wire contacts, HMJ-LESS-Fuse.

HHJ-A For ¼" x 1¼" fuse, no wire or fuse included, accepts #18 - #22 wire.

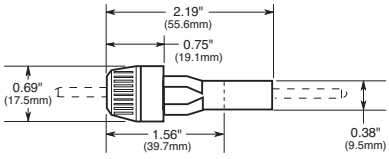
HHJ-B For ¼" x 1¼" fuse, no wire or fuse included, accepts #12 - #16 wire.

HHI-B For ¼" x 1⅛" fuse, no wire or fuse included, accepts #12 - #16 wire.

Replacement Contacts

Catalog Number	Symbol
9838	HHJ-A
9841	HHJ-B

Dimensions - in (mm)



Data Sheet: 2122

HFA Series

Specifications

Description: In-line water-resistent fuse holders for ¼" x 1¼" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 20A

Refer to data sheet for recommend crimp tools

Catalog Numbers

Catalog Numbers	Terminals
HFA	Crimp #12 - #16
HFA-HH*	¼" Quick Connect

*No UL Recognition.

Data Sheet: 2115

HHT Series

Specifications

Description: In-line fuse holders for 5 x 15mm or 5 x 20mm fuses.

Dimensions: See Dimensions illustration.

Construction: Black thermoplastic body with brass contacts, wire: 16 AWG, red.

Ratings:

Volts: — 32V

Amps: — 5A (5 x 15mm)

— 10A (5 x 20mm)

Catalog Numbers

Catalog Number	Fuse Size
HHT	5 x 15mm & 5 x 20mm

Data Sheet: 2138

HEG Series

Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC fuses, 480V (or less).

Ratings:

Volts: — 600V

Amps: — 0-15A

Fuse Size: 13/32" x 1.31"

Catalog Number

HEG-AA

Optional Boots:

2A0660 Single Conductor

2A0661 Two Conductor

Data Sheet: 2124

HEH Series

Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC fuses (Also fuse types BBS & KTQ, nominal size 13/32" x 1 3/8").

Ratings:

Volts: — 600V

Amps: — 0-20A

Agency Information: CSA - 15A.

Catalog Numbers

HEH-AA, HEH-AD

Optional Boots:

2A0660 Single Conductor

2A0661 Two Conductor

Data Sheet: 2124

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Tron™ In-line Fuse Holders

HEC Series

Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC-25, & SC-30 fuses, size 13/32" x 1 5/8".

Ratings:

Volts: — 480V

Amps: — 0-30A

Catalog Numbers

HEC-AA, HEC-RW-RLB-R

Optional Boots:

2A0660 Single Conductor
2A0661 Two Conductor

Data Sheet: 2124

HEJ Series

Specifications

Description: Single-pole, non-breakaway, in-line fuse holders for Type SC and Type HVW fuses, size 13/32" x 2 1/4".

Ratings:

Volts: — 480V

Amps: — 35-60A Type SC
— 1/2-6A Type HVW

Catalog Numbers

HEJ-AA, HEJ-AB, HEJ-AC, HEJ-BB, HEJ-JJ, HEJ-JK, HEJ-LL, HEJ-LLB, HEJ-CC, HEJ-DD, HEJ-WW, HEJ-PP, HEJ-QQ

Optional Boots:

2A0660 Single Conductor
2A0661 Two Conductor

Data Sheet: 2123

HEB Series

Specifications

Description: Single-pole in-line fuse holders for any 13/32" x 1 1/2" fuses (typically fuse types: BAF, FNM, FNQ, and KTK 1/10 - 30A).

Ratings:

Volts: — 600V

Amps: — 0-30A

Catalog Numbers

See Page 311

Optional Boots:

2A0660 Single Conductor
2A0661 Two Conductor

Data Sheet: 2127

HEX Series

Specifications

Description: Double-pole in-line fuse holders for 13/32" x 1 1/2" fuses (typically fuse types BAF, FNM, FNQ, and KTK 1/10 - 30A).

Ratings:

Volts: — 600V

Amps: — 0-30A

Catalog Numbers

HEX-AA, HEX-AB, HEX-AC, HEX-AD, HEX-AE, HEX-AW, HEX-AW-DRLC-A, HEX-AW-DRYC, HEX-AW-RLC-A, HEX-AW-RYC, HEX-AY, HEX-BB, HEX-CC, HEX-JJ, HEX-JK, HEX-JW-DRYC, HEX-KK

Data Sheet: 2126

HEZ Series

Specifications

Description: Waterproof (IPX7), single-pole Class CC in-line fuse holders. Holds Bussmann fuse types: LP-CC, FNQ-R and KTK-R.

Ratings:

Volts: — 600V (or less)

Amps: — Up to 30A*

Conductors: Lineside & Loadside**

#12 to #8 Crimp terminal
#12 to #3 Setscrew terminal

*Amp rating limited by conductor size and fuse sizing when used with insulating boots

**See details in non-breakaway and breakaway specifications

Data Sheet: 2130

HEY Series

Specifications

Description: Double-pole in-line fuse holders for KTK-R fuses with optional break-away receptacle, polarized, and accepting Class CC branch circuit fuses (Bussmann KTK-R, FNQ-R & LP-CC; 600V or less, 200kA IR).

Ratings:

Volts: — 600V

Amps: — 0-30A

Catalog Numbers

HEY-AA, HEY-AB, HEY-AC, HEY-AD, HEY-AE, HEY-AL, HEY-AW-DRLC-A, HEY-AW-DRLC-B, HEY-AW-DRYC, HEY-BB, HEY-JJ

Data Sheet: 2126

HET Series

Specifications

Description: Single-pole in-line fuse holders for 13/32" x 1 1/2" fuses with a permanently solid neutral identified by white plastic coupling nut.

Catalog Numbers

HET-AA, HET-AB, HET-AW, HET-AW-RLC-A, HET-AW-RLC-B, HET-AW-RLC-C, HET-AW-RLC-J, HET-AW-RYC, HET-BB, HET-BW-RLC-B, HET-BW-RYC, HET-JJ, HET-JK, HET-JW, HET-JW-RLC-J, HET-JW-RYC, HET-KK

Data Sheet: 2125

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For HEB Holders Only

Directions: To select complete holder P/N, work from left to right starting with loadside terminal options and then lineside terminal options. Then determine breakaway or non-breakaway style.

Loadside Terminal					Lineside Terminal					Available P/N's	
Terminal Type	Wire Size	No. of Wires per Terminal	Solid Wire	Stranded Wire	Terminal Type	Wire Size	No. of Wires per Terminal	Solid Wire	Stranded Wire	Non-Breakaway P/N (Boots not included)	Breakaway P/N (Boots included)
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	HEB-AA(1)(2)(3)	HEB-AW-RLC-A(1)(2)(3)
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#6 #10	1 2	Y Y	Y Y	HEB-AB(2)	HEB-AW-RLC-B
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp (4)	#4 #8	1 2	N Y	Y Y	HEB-AC(2)	HEB-AW-RLC-C(4)
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	#2 #6	1 2	N Y	Y Y	HEB-AD(2)	N/A
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Crimp	2/0 #3	1 2	N N	Y Y	HEB-AE(2)	N/A
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Setscrew	#12 to #3	1	Y	Y	HEB-AJ	HEB-AW-RLC-J
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Copper Setscrew	#12 to #3	2	Y	Y	HEB-AK	HEB-AW-RYC
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Aluminum Setscrew	#12 to #2	1	Y	Y	HEB-AL	HEB-AW-RLA
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Aluminum Setscrew	#12 to #2	2	Y	Y	HEB-AY	HEB-AW-RYA
Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	Aluminum Crimp	#1, #2	1	N	Y	HEB-AR	N/A
Copper Crimp	#6 #10	1 2	Y Y	Y Y	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	HEB-BA(2)	HEB-BW-RLC-A
Copper Crimp	#6 #10	1 2	Y Y	Y Y	Copper Crimp	#6 #10	1 2	Y Y	Y Y	HEB-BB(2)	HEB-BW-RLC-B
Copper Crimp	#6 #10	1 2	Y Y	Y Y	Copper Crimp	#4 #8	1 2	N Y	Y Y	HEB-BC(2)	N/A
Copper Crimp	#6 #10	1 2	Y Y	Y Y	Copper Crimp	#2 #6	1 2	N Y	Y Y	HEB-BD(2)	N/A
Copper Crimp	#4 #8	1 2	N Y	Y Y	Copper Crimp	#4 #8	1 2	N Y	Y Y	HEB-CC(2)	N/A
Copper Crimp	#2 #6	1 2	N Y	Y Y	Copper Crimp	#2 #6	1 2	N Y	Y Y	HEB-DD(2)	N/A
Copper Crimp	#20, #18	1	Y	Y	Copper Crimp	#12 to #8 #12	1 2	Y Y	Y Y	HEB-ZA	N/A
Copper Setscrew	#12 to #3	1	Y	Y	Copper Setscrew	#12 to #3	1	Y	Y	HEB-JJ	HEB-JW-RLC-J
Copper Setscrew	#12 to #3	1	Y	Y	Copper Setscrew	#12 to #3	2	Y	Y	HEB-JK	HEB-JW-RYC
Copper Setscrew	#12 to #3	1	Y	Y	Aluminum Setscrew	#12 to #2	1	Y	Y	HEB-JL	N/A
Copper Setscrew	#12 to #3	1	Y	Y	Aluminum Setscrew	#12 to #2	2	Y	Y	HEB-JY	N/A
Aluminum Setscrew	#12 to #2	1	Y	Y	Aluminum Setscrew	#12 to #2	1	Y	Y	HEB-LL	HEB-LW-RLA
Aluminum Crimp	#8 #6	1 1	N Y	Y N	Aluminum Crimp	#8 #6	1 1	N Y	Y N	HEB-NN	N/A
Aluminum Crimp	#6 #4	1 1	N Y	Y N	Aluminum Crimp	#6 #4	1 1	N Y	Y N	HEB-PP(2)	N/A
Aluminum Crimp	#3, #4 #2	1 1	N Y	Y N	Aluminum Crimp	#3, #4 #2	1 1	N Y	Y N	HEB-QQ(2)	N/A
Aluminum Crimp	#1, #2	1	N	Y	Aluminum Crimp	#1, #2	1	N	Y	HEB-RR(2)	N/A
Aluminum Crimp	1/0	1	N	Y	Aluminum Crimp	1/0	1	N	Y	HEB-TT(2)	N/A
SolidTerminal for aluminum connector	#8 to #12 #10 to #14	1 1	Y N	N Y	SolidTerminal for aluminum connector	#8 to #12 #10 to #14	1 1	Y N	N Y	HEB-SS	N/A

(1)UL Recognized, Guide IZLT2, File E14853
(2)CSA Certified, Class 6225-01, File 47235
(3)CE
(4)HEB-AW-RLC-C is for (1) #4 stranded wire only.

Insulating boots for single conductor-2A0660
Dual conductor-2A0661

Contact your local Bussmann representative for other possible terminations not listed.

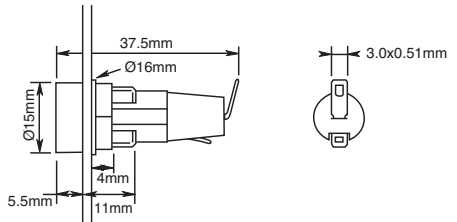
Data Sheet: 2127

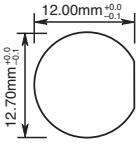
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for 5 x 20mm Fuses

HTC-35M

Ratings:
Volts: — 250Vac
Amps: — 10A UL, 6.3A VDE
Fuse Access: Threaded cap

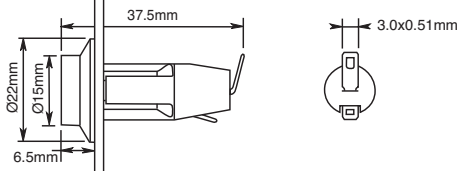


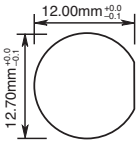


Data Sheet: 2110

HTC-40M

Ratings:
Volts: — 250Vac
Amps: — 10A UL, 6.3A VDE
Fuse Access: Screwdriver slot

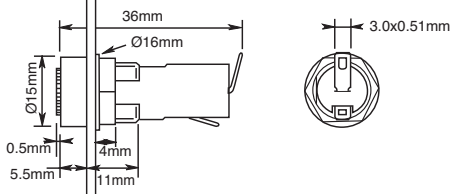


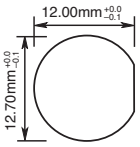


Data Sheet: 2110

HTC-55M

Ratings:
Volts: — 250Vac
Amps: — 10A UL, 6.3A VDE
Fuse Carrier: Bayonet type

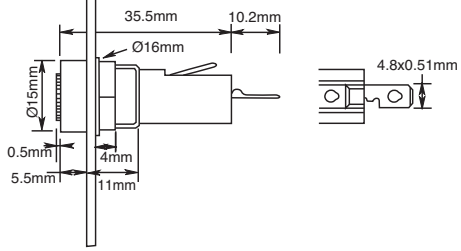


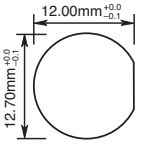


Data Sheet: 2110

HTC-70M

Ratings:
Volts: — 250Vac
Amps: — 10A UL, 6.3A VDE
Fuse Carrier: Bayonet type





Data Sheet: 2110

Specifications

Terminals:	Tin-plated brass.
Molded Materials:	High temperature thermoplastic that meets the flammability ratings of UL 94V0; Glow Wire Test: 960°C per IEC 60695-2-1.
Solderability:	In accordance with IEC 68-2-20.
Agency Information:	cURus, VDE
Electrical:	Contact Resistance: ≤ 10 megohm; Insulation Resistance: ≥ 10MΩ; Dielectric Strength ≥ 2000Vac.
Shock Safety:	PC2 (fuse holders).
Packaging:	Standard Qty 10 (No Prefix), Bulk Qty 100 (Prefix Catalog Number with BK/).

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for ¼" x 1¼" Fuses

HKP, HKP-L, HKP-W

Specifications

Description: Standard fuse holders.

Dimensions: See Dimensions illustration.

Ratings:

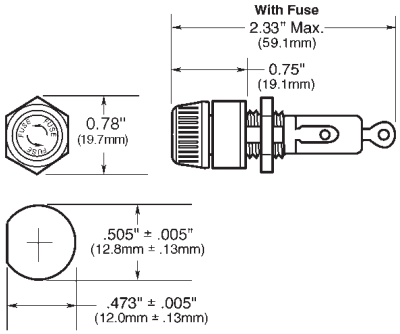
Volts: — 250V

Amps: — 30A

Catalog Numbers

Catalog Numbers	Fuse Description
HKP	—
HKP-L	HKP w/ 2250V stand-off barrier
HKP-W	HKP w/ drip-proof knob

Dimensions - in (mm)



Data Sheet: 2106

HKP-BBHH, HKP-HH and HKP-LW-HH

Specifications

Description: Fuse holders with ¼" quick-connects.

Dimensions: See Dimensions illustration.

Ratings:

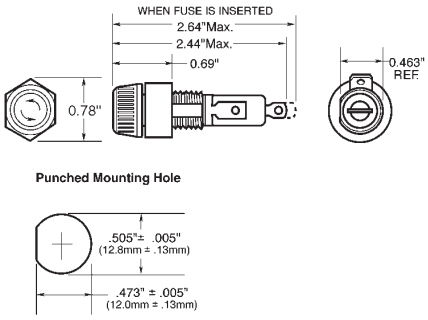
Volts: — 250V

Amps: — 15A

Catalog Numbers

Catalog Numbers	Fuse Description
HKP-BBHH	HKP w/ ¼" quick-connects, nut and washer assembled.
HKP-HH	HKP w/ ¼" quick-connect.
HKP-LW-HH	HKP w/ drip-proof knob, 2250V stand-off barrier and ¼" quick-connects.

Dimensions - in (mm)



Data Sheet: 2106

HKP-OO

Specifications

Description: Snap-lock fuse holders.

Dimensions: See Dimensions illustration.

Ratings:

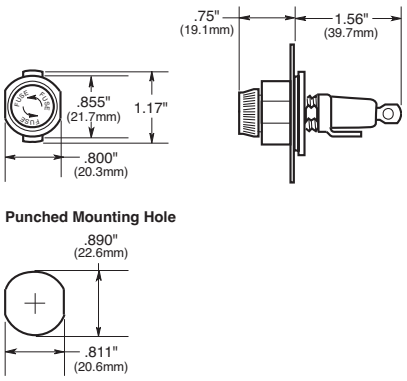
Volts: — 250V

Amps: — 30A

Catalog Numbers

Catalog Number	Fuse Description
HKP-OO	HKP with snap-lock

Dimensions - in (mm)



Data Sheet: 2106

Specifications

Terminals: Bayonet-type knob.
Vibration resistant.
For panels up to 5/16" (7.9mm) thick.

Agency Information: CE (HKP, HKP-L, HKP-W, HKP-OO), UL Recognized — Guide IZLT2, File E14853, CSA Certified — Class 6225-01, File 47235

Replacement Parts: Cap: 9435-1/2
Plastic Nut: BK/1A4287 (100 pieces minimum)
Metal Nut: BK/1A4806-2 (100 pieces minimum)
Washer: 9732

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for 5 x 20mm and ¼" x 1 ¼" Fuses

HTB Series

Specifications
Description: Fuse holders with knob-type carriers.

RoHS

Dimensions: See Dimensions illustrations.

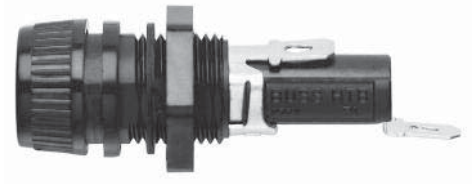
Construction: High temperature, flame retardant thermoplastic; UL Component Recognized; UL 94V0; mounting nut, spacer-black polycarbonate. Terminals: tin-plated brass.

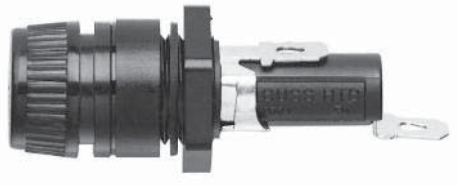
Electrical Data: Insulation resistance (per IEC #257) — 10,000 ohms @ 500Vdc; contact resistance (per IEC #257) — 0.005 ohms Max @ 1A; standoff voltage (per IEC #257) — 480V/Mil @ 0.125" thickness.

Agency Information: CE, UL Recognized — Guide IZLT2, File E14853, ¼" dia fuse @ 20A, 5mm dia fuse @16A @ 250V, CSA — 16A @ 250V Class 6225-01 File 47235; VDE Certified: 136128, HTB-XXM, SEMKO Certification: Ref. #0146149/01, HTB-XXM.

Mounting: Withstands 15 to 20 Lb-In torque to mounting nut when mounting fuse holder to panel.

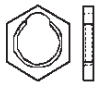
Environmental: Operating temperature range -55°C to 85°C.





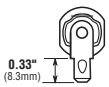
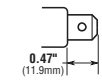
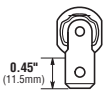
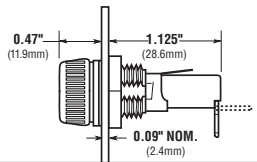
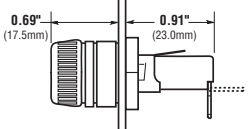
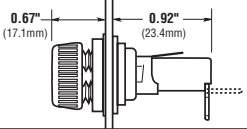
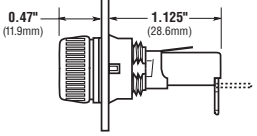
Replacement Parts

HTB-2, -3, -4, -5 and -8
BK/1A4287-1
Plastic Nut


HTB-2, -3, -4, and -5
BK/1A4806-2
Metal Nut

HTB-6
BK/1A3322
Metal Nut

Dimensional Data - in (mm)

Knob Type Carrier	Maximum Panel Thickness	Terminal Options: Solder/ 3/16" Quick-Connect In-Line	Terminal Options: Solder/ 3/16" Quick-Connect Rt. Angle	Terminal Options: ¼" Quick-Connect In-Line	Terminal Options: ¼" Quick-Connect Rt. Angle	Carrier Options: ¼" x 1¼" ("I" Equals Inches) Knob	Carrier Options: 5 x 20mm ("M" Equals Metric) Knob
Common Dimensions: Length (Knob Type) - 1.69" (42.9mm) Plus In-Line Terminal NOTE: Plus In-Line Terminal		0.34" (8.7mm)	 0.33" (8.3mm)	 0.47" (11.9mm)	 0.45" (11.5mm)		
 0.47" (11.9mm) 1.125" (28.6mm) 0.09" NOM. (2.4mm)	0.30"	HTB-22I-R	HTB-24I-R	HTB-26I-R	HTB-28I-R	X	
	7.62mm	HTB-22M-R	HTB-24M-R	HTB-26M-R	HTB-28M-R		X
 0.69" (17.5mm) 0.91" (23.0mm)	0.125"	HTB-42I-R	HTB-44I-R	HTB-46I-R	HTB-48I-R	X	
	3.18mm	HTB-42M-R	HTB-44M-R	HTB-46M-R	HTB-48M-R		X
 0.67" (17.1mm) 0.92" (23.4mm)	0.30"	HTB-62I-R	HTB-64I-R	HTB-66I-R	HTB-68I-R	X	
	7.62mm	HTB-62M-R	HTB-64M-R	HTB-66M-R	HTB-68M-R		X
 0.47" (11.9mm) 1.125" (28.6mm)	0.125"	HTB-82I-R	HTB-84I-R	HTB-86I-R	HTB-88I-R	X	
	3.18mm	HTB-82M-R	HTB-84M-R	HTB-86M-R	HTB-88M-R		X

Fuse holders and fuse carriers may be ordered separately.

Data Sheet: 2119

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for 5 x 20mm and ¼" x 1 ¼" Fuses

HTB Series

Dimensional Data - in (mm)

Screwdriver Type Carrier Common Dimensions: (Screwdriver Slotted) 1.75" (44.5mm) NOTE: Plus In-Line Terminal	Maximum Panel Thickness	Terminal Options: Solder/ 3/16" Quick-Connect In-Line	Terminal Options: Solder/ 3/16" Quick-Connect Rt. Angle	Terminal Options: ¼" Quick-Connect In-Line	Terminal Options: ¼" Quick-Connect Rt. Angle	Carrier Options: ¼" x 1 ¼" ("I" Equals Inches) Screwdriver	Carrier Options: 5 x 20mm ("M" Equals Metric) Screwdriver
		0.34" (8.7mm)	0.33" (8.3mm)	0.47" (11.9mm)	0.45" (11.5mm)		
HTB-3 (0.17" (4.37mm), 1.58" (40.03mm))	0.30"	HTB-32I-R	HTB-34I-R	HTB-36I-R	HTB-38I-R	X	
	7.62mm	HTB-32M-R	HTB-34M-R	HTB-36M-R	HTB-38M-R		X
HTB-5 (0.41" (10.31mm), 1.34" (34.13mm))	0.125"	HTB-52I-R	HTB-54I-R	HTB-56I-R	HTB-58I-R	X	
	3.18mm	HTB-52M-R	HTB-54M-R	HTB-56M-R	HTB-58M-R		X
HTB-9 (0.17" (4.37mm), 1.59" (40.08mm))	0.125"	HTB-92I-R	HTB-94I-R	HTB-96I-R	HTB-98I-R	X	
	3.18mm	HTB-92M-R	HTB-94M-R	HTB-96M-R	HTB-98M-R		X

Catalog Number Build-A-Code

Packing
Blank (Std.) – 10 fuse holders in a carton
BK – 100 fuse holders in a cardboard shelf package

HTB-
Product Symbol

Body Configuration and Mounting Knob Holders
2 — Low Profile (Rear Panel Hex-Nut)
4 — High Profile
6 — * (Front Panel Hex-Nut)
8 — Low Profile (Snap-In)
Screwdriver Slotted Holders
3 — Low Profile
5 — High Profile
9 — Low Profile (Snap-In)

Rear Terminal Configuration
2 — Solder / 3/16″ Quick-Connect (In-Line)
4 — Solder / 3/16″ Quick-Connect (Right Angle)
6 — 1/4″ Quick-Connect (In-Line)
8 — 1/4″ Quick-Connect (Right Angle)

Fuse Carrier
I — 1/4″ x1 1/4″
M — 5 x 20mm

S **P**
Splash Proof
Cap with O-Ring (Optional on Knob Holders Only)

-R
RoHS Compliant

FUSE CARRIER ONLY

Packaging
(Blank) – Std.
BK/ – Bulk

Product Symbol
FT — Knob Type (For 20, 40, 60, and 80 Series Only)
ST — Screwdriver Slotted (For 30, 50, and 90 Series Only)

Fuse Carrier
I — 1/4″ x1 1/4″
M — 5 x 20mm

*Profile varies with panel thickness. Holder installs through rear of panel.

Data Sheet: 2119

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for Indicating Type Fuses

HLD

Specifications

Description: Pin indicating for ¼" x 1¼" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 15A

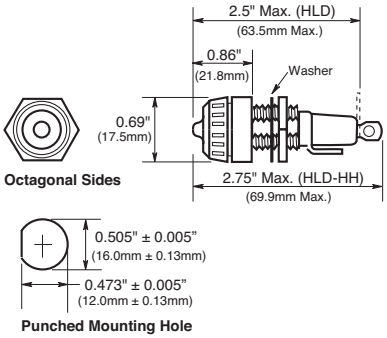
Agency Information: CE, UL Recognized, File E14853, Guide IZLT2.

Catalog Numbers

Catalog Numbers*	Terminals
HLD	Solder terminals
HLD-HH	¼" quick-connect terminals

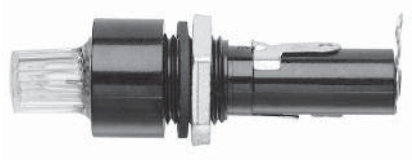
*Use w/GBA, GLD Fuses.

Dimensions - in (mm)



Data Sheet: 2120

HJL



Specifications

Description: Neon lamp indicating for ¼" x 1" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 15A

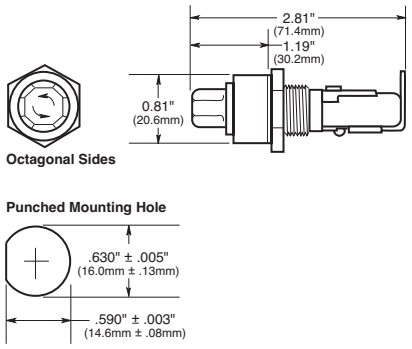
Agency Information: None

Catalog Number

Catalog Number*	Volts	Lamp Color	Knob Type
HJL	90 to 250	Clear	Oct

*Use with AGX or MKB fuses, for panels up to ⅛" thick.

Dimensions - in (mm)



Data Sheet: 2121

HK Series

Specifications

Description: Neon and incandescent lamp indicating for ¼" x 1¼" fuses

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: —15A (HKL, HKL-X)

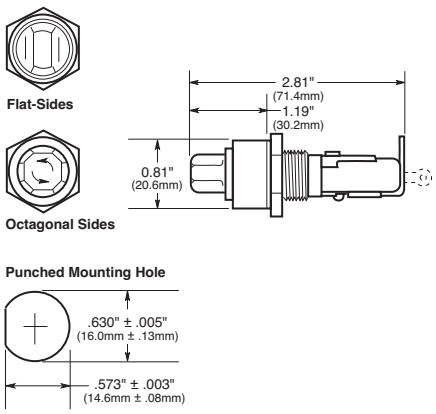
— 20A (HKR, HKT, HKU, HKX)

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853), CSA Certified (Class 6225-01, File 47235).

Catalog Numbers

Catalog Numbers	Lamp Volts	Knob Color/Type
HKL*	90-250	Clear/Oct
HKL-X*	90-250	Clear/FS
HKR**	22-30	Amber/Oct
HKT**	13-22	Amber/Oct
HKU**	4-6	Red/Oct
HKX**	22-33	Amber/FS

* Neon lamp — UL Recognized and CSA Certified.
** Incandescent lamp.



Data Sheet: 2105

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for 13/32" x 1 5/16" to 1 1/2" Fuses

HPF

#10 wire max
for solder connection

Specifications

Description: Standard fuse holders with ***screw-type knob*** for 13/32" x 1 5/16" to 1 1/2" Fuses.

Dimensions: See Dimensions illustration.

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853; CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94HB.

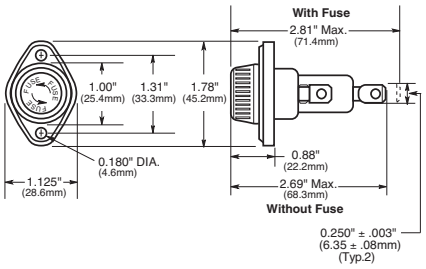
Terminals: Combination 1/4" quick-connect/solder terminals.

Catalog Numbers

Catalog Numbers	Amp Ratings	Volts AC	Fuse Description
HPF	30[2]	600	1 1/2" (38.1mm)
HPF-C	30[3]	600[3]	1 1/2" (38.1mm) clear knob.
HPF-L	5	600	BBS, 13/32" x 1 3/8" fuses.
HPF-EE	15	600	SC 0-15, 13/32" x 1 5/16" fuses.
HPF-JJ	20	600	SC 20, 13/32" x 1 13/32" fuses.
HPF-FF[1]	30[2]	480	SC 25 & 30, 13/32" x 1 5/8" fuses.
HPF-RR	30[2]	600	KTK-R, LP-CC & FNQ-R Class CC fuses.
HPF-WT	30[2]	600	Splash-proof knob. 13/32" x 1 1/2" (38.1mm)

[1] No CSA Certification
[2] 20A max when used with quick-connect terminals.
[3] HPF-C ratings for CSA-15A, 250V

Dimensions - in (mm)



Data Sheet: 2114

HPS

Specifications

Description: Standard fuse holders with ***bayonet-type knob*** for 13/32" x 1 5/16" to 1 1/2" fuses.

Dimensions: See Dimensions illustration.

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853; CSA Certified, Class 6225-01, File 47235.

Flammability Rating: UL 94HB.

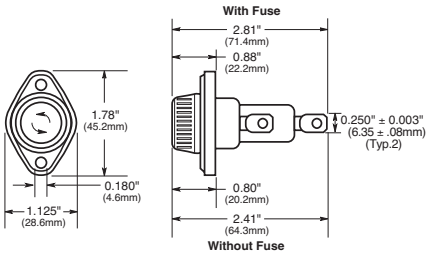
Terminals: Combination 1/4" quick-connect/solder terminals.

Catalog Numbers

Catalog Symbol	Amp Ratings	Volts AC	Fuse Description
HPS	30[2 3]	600	13/32" x 1 1/2"
HPS-L	5	600	BBS, 13/32" x 1 3/8" fuses.
HPS-EE*	15	600	SC 0-15, 13/32" x 1 5/16" fuses.
HPS-JJ*	20	600	SC 20, 13/32" x 1 13/32" fuses.
HPS-F-EE[1]	15	600	Sleeve on body, leaded for 13/32" x 1 5/16" fuses.
HPS-FF*[1]	30[2]	480	SC 25 & 30, 13/32" x 1 5/8" fuses.
HPS-RR*[1]	30[2]	600	KTK-R, LP-CC, FNQ-R Class CC fuses.

*-EE, -JJ, -FF and -RR versions are UL Recognized for applications requiring branch circuit protection.
[1] No CSA Certification
[2] 20A max when used with quick-connect terminals.
[3] HPS rated at 250V for CSA

Dimensions - in (mm)



Data Sheet: 2113

HPG

HPD

Specifications

Description: Standard fuse holders with ***bayonet-type knob*** for 13/32" x 1 1/2" fuses.

Dimensions: See Dimensions illustrations.

Agency Information: CE, UL Recognized, (Guide IZLT2, File E14853).

Flammability Rating: UL 94V0 - fuse holder body UL 94HB - Knob.

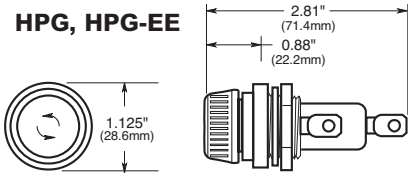
Catalog Numbers

Catalog Numbers	Amp Ratings	Volts AC	Fuse Description
HPG*	30[1]	600	13/32" x 1 1/2" fuses
HPG-EE*	15	600	SC 0-15, 13/32" x 1 5/16" fuses.
HPD**	30[1]	600	13/32" x 1 1/2" fuses

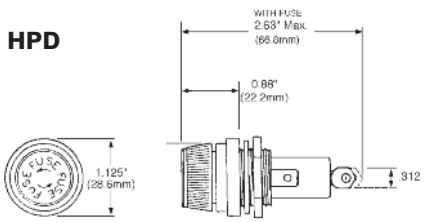
[1] 20A max when used with quick-connect terminals.
*HPG and HPG-EE has combination 1/4" quick-connect/solder terminals on both side (load) and rear (line) terminals.
**HPD has combination 1/4" quick-connect/solder terminal on side (load) terminal only. Rear (line) terminal is 3/16" shorter than HPG. Rear terminal solder only.

Dimensions - in (mm)

HPG, HPG-EE



HPD

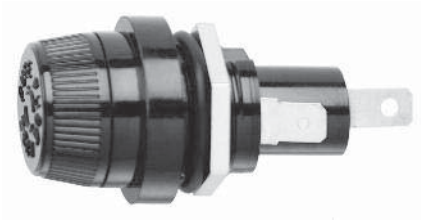


Data Sheet: 2108

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Panel Mounted Fuse Holders for 13/32" x 1 1/2" Fuses

HPM



Specifications

Description: Standard fuse holder with ***screw-type knob*** for 13/32" x 1½" fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600Vac/dc

Amps: — 30A[1]

[1] 20A max when used with quick-connect terminals.

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853; CSA Certified, Class 6225-01, File 47235.

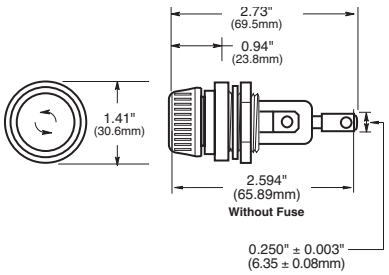
Flammability Rating: UL 94HB.

Catalog Numbers

Catalog Numbers	Description
HPM	¼" quick-connect/solder
HPM-D	Splash-resistant knob[2]

[2] HPM-D has ¼" quick-connect/solder terminal on rear (load) terminal only. The side (line) terminal is ¼" quick-connect only.

Dimensions - in (mm)

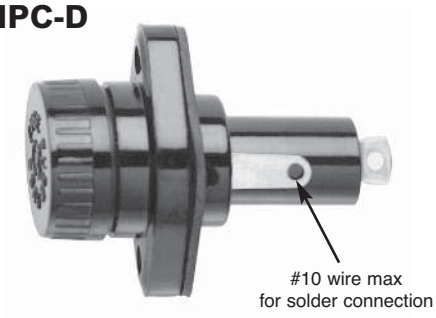


Nut Torque: 30 lb-in.

Replacement Knob:
Catalog Number: BK/9789-Y2
(50 pieces)

Data Sheet: 2112

HPC-D



Specifications

Description: Fuse holder with ***screw-type knob*** for 13/32" x 1½" fuses. Supplied with O-ring and panel gasket.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600Vac/dc

Amps: — 30A[1]

[1] 20A max when used with quick-connect terminals.

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853.

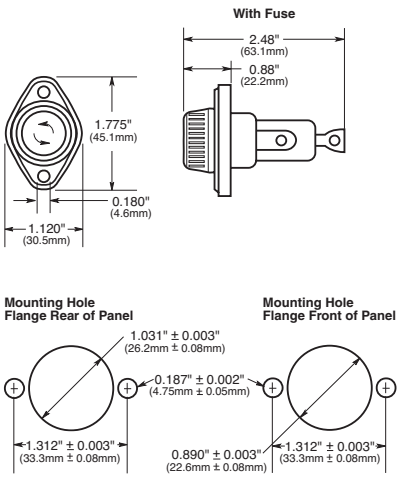
Flammability Rating: UL 94HB.

Catalog Numbers

Catalog Number	Description
HPC-D	Mount in panels up to ¼" thick.

Replacement knob - BK/9987SA

Dimensions - in (mm)



Data Sheet: 2109

HPS2

Specifications

Description: For fuse size 13/32" x 1½", meeting UL 1598 requirement that both poles be removed simultaneously.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 600V@30A

Amps: — 0-30A [1]

[1] 20A max when used with quick-connect terminals.

Agency Information: UL 4248 recognized, (Guide IZLT2, File E14853), CSA certified: (Class 6225-01, File 47235).

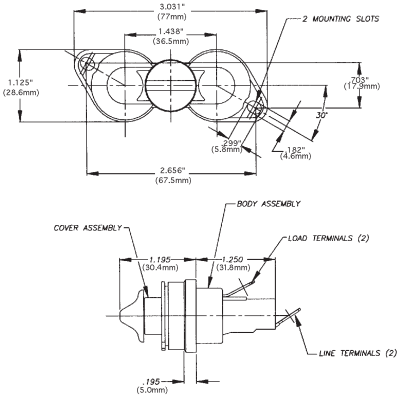
Flammability Rating: UL 94V0.

Terminals: ¼" quick-connect/solder.

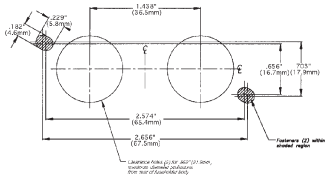
Catalog Numbers

Catalog Numbers	
HPS2	Standard 10-in carton
BK/HPS2	Bulk 100-in carton

Dimensions - in (mm)



Panel Mount Hole Dimensions



Data Sheet: 2140

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Fuse Blocks for ¼" x 1 ¼" Fuses

Series 8000

Specifications

Description: Bolt-in and snap-in mounting for ¼" x 1¼" fuses.

Construction: Blocks are molded flame retarded thermoplastic. Clips are spring-bronze.

Ratings:

Volts: — 300V

Amps: — 25A (See Catalog Numbers table)

Agency Information: CE, UL Recognized ; File E14853, Guide IZLT2, CSA Certified Class 6225-01, File 47235.

Anti-Rotation Pin: Single-pole blocks may be ordered without the anti-rotational pin simply by adding an "X" to the number of poles (Example: BK/S-8000-1X).

Carton Quantity: 10; shelf package: 100.

Bulk Carton: Single-pole and 2-pole fuse blocks – 1,000; Multiple-pole fuse blocks – 3- to 8-pole: 200; 9- to 12-pole: 50. When ordering bulk quantities, prefix "BK/" to catalog number: (Example: BK/S-8001-1-SNP).

Catalog Numbers

Bolt-in Mounting

Basic Catalog Numbers	Series	Terminal	Angle	Agency Maximums	Poles (Suffix)
S-8001-	8000	Solder	0°	UL 25A	1 - 12
S-8002-			40°	CSA 21A	
S-8101-	8100	3/16" Quick Connect	0°	UL 20A	
S-8102-			40°	CSA 13A	
S-8201-	8200	¼" Quick Connect Side	0°	UL 20A	
S-8202-			40°	CSA 16A	
S-8203-					
S-8301-	8300	Screw	—	UL 30A CSA 25A	

Snap-in Mounting

Catalog Numbers	Series	Terminal	Angle	Agency Maximums	Poles (Suffix)
S-8001-1-SNP	8000	Solder	0°	UL 25A	Available only in single pole
S-8002-1-SNP			40°	CSA 21A	
S-8101-1-SNP	8100	3/16" Quick Connect	0°	UL 20A	
S-8102-1-SNP			40°	CSA 13A	
S-8201-1-SNP	8200	¼" Quick Connect	0°	UL 20A	
S-8203-1-SNP			Side	CSA 16A	

Catalog Number Build-A-Code

Catalog Code

BK/ S-8 0 00 -00

- BK/ — Prefix for Bulk Packing
- S-8 — Series 8000 Product Line
- 0 — Type Terminal "0"-Solder "1"- 3/16" Quick Connect "2" - ¼" Quick Connect "3" - Screw
- 00 — Terminal Angle "01" - straight (0,) "02"- 40 "03" - side*
- -00 — Number of Poles (1-12)

*Available only in single pole

Data Sheet: 2101

Single-Pole Fuse Blocks

Specifications

Description: Single-pole fuse block for ¼" x 1¼" (6.4 x 31.8mm) size fuses.

Dimensions: See Dimensions illustrations.

Construction: Bakelite base width ½" (12.7mm); spring-bronze, bright tin-lead plate clips.

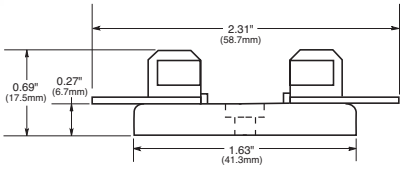
Ratings:

Volts: — 250V

Amps: — 30A

4405 - 0° Solder terminals with integral terminal and clip

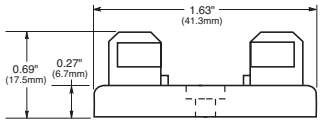
Dimensions - in (mm)



4406 - Side solder terminal

4574 - Spare fuse block

Dimensions - in (mm)

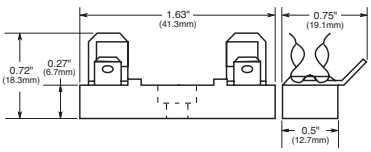


2499 - Side quick-connect

Agency Information: UL Recognized, Guide IZLT2, File E14853

Terminals: ¼" (6.4mm); 15A, 250V

Dimensions - in (mm)



Note: Mounting screw hole diameter is 0.147" (3.7mm). Counterbore diameter, 0.636" (8.0mm). Max Mounting Screw No. 6.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Fuse Blocks for ¼" x 1" Fuses

3828 Series

Specifications

Description: Fuse block for ¼" x 1" (6.4 x 25.4mm) fuses with solder terminals.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250V

Amps: — 30A

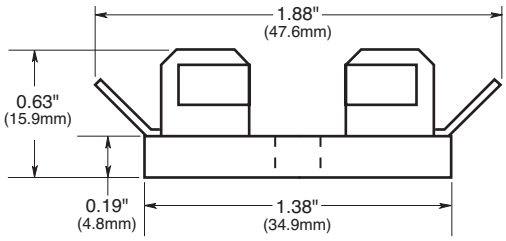
Mounting: Mounting screw hole diameter is 0.147" (3.7mm), diameter. Max mounting screw No. 6.

Catalog Numbers

Catalog Numbers	Poles	*Base Length - in (mm)
3828-1	1	½ (12.7)
3828-2	2	1 ⅛ (28.6)
3828-3	3	1 ¾ (44.5)
3828-4	4	2 ⅜ (60.3)
3828-5	5	3 (76.2)
3828-6	6	3 ⅝ (92.1)
3828-7	7	4 ¼ (108.0)
3828-8	8	4 ⅞ (123.8)
3828-10	10	6 ⅛ (155.6)
3828-12	12	7 ⅜ (187.3)

*Small phenolic base, base width 1 ⅜" (34.9mm)

Dimensions - in (mm)



4520 and 4393

Specifications

Description: Single-pole fuse block for ¼" x 1" fuses.

Dimensions: See Dimensions illustrations.

Construction: Bakelite with ½" (12.7mm) width base. Spring-bronze, bright tin-lead plated clips.

Ratings:

Volts: — 250V

Amps: — 30A

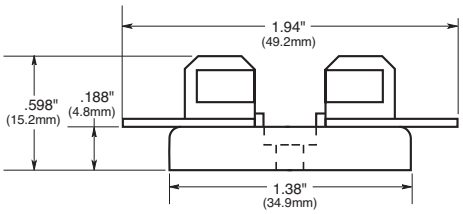
Mounting: Mounting screw hole diameter is 0.147" (3.7mm), counterbore 0.636" (8.0mm) diameter. Max mounting screw No. 6.

Catalog Numbers

Catalog Numbers	Description
4520	Integral clip and straight solder terminals
4393	Spare fuse block

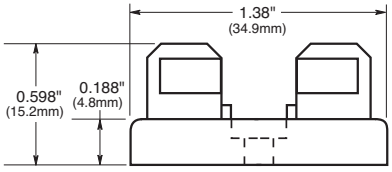
No. 4520 - Integral clip and straight solder terminals

Dimensions - in (mm)



No. 4393 - Spare fuse block

Dimensions - in (mm)



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Blocks for 13/32" X 1½" Fuses

3743

Specifications

Description: Add-on fuse blocks for 13/32" X 1 ½" (10.3 X 38.1mm) fuses. Single pole blocks lock into each other and can be added at any time. Each has a single end barrier.

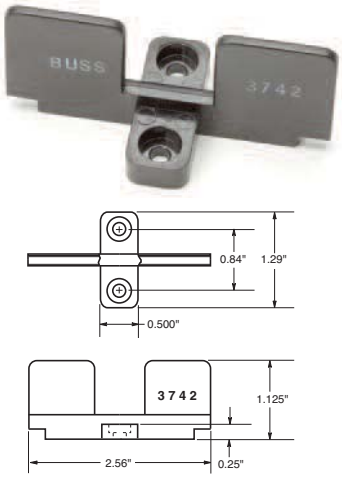
Dimensions: See Dimensions illustration.

Ratings:

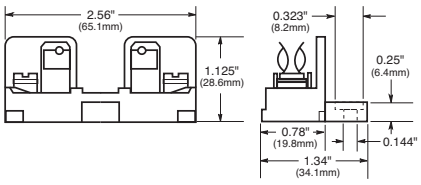
Volts: — 600Vac/dc

Amps: — 30A

Agency Information: CE, UL Recognized Guide IZLT2, File E14853.



3742—End Barrier Only

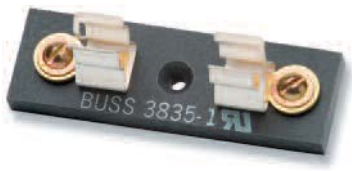


3723—Block and end barrier marking strip. Length is 9⅜" (23.8cm).

Note: Mounting screw hole is 0.147" (3.7mm) dia. Counterbore, 0.636" (8mm) dia. Max. mounting screw No. 6.

Data Sheet: 2104

3835 Series



Specifications

Description: Multiple pole fuse blocks for 13/32" X 1 ½" (10.3 X 38.1mm) fuses.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250Vac/dc

Amps: — 30A

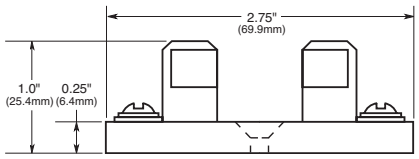
Agency Information: CE

Catalog Numbers

Catalog Numbers	Poles	Base* Width In (mm)
3835-1	1	27/32 (21.4)
3835-2	2	1 13/16 (46.0)
3835-3	3	2 25/32 (70.6)
3835-4	4	3 ¾ (95.2)
3835-5	5	4 23/32 (119.9)
3835-6	6	5 11/16 (144.5)
3835-7	7	6 21/32 (169.0)
3835-8	8	7 ⅝ (193.7)
3835-9	9	8 19/32 (218.8)
3835-10	10	9 9/16 (242.9)
3835-12	12	11 ½ (292.1)

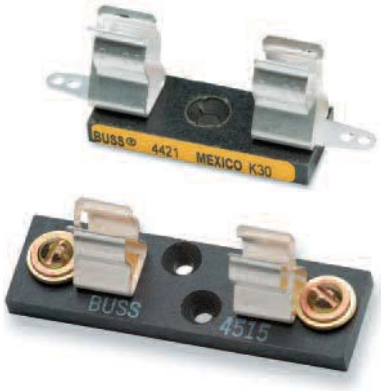
*Base length: 2 ¾" (69.9mm)

Dimensions - in (mm)



Note: Mounting screw hole diameter is 0.148" (3.7mm). Countersink, 0.313" (7.9mm). Max. mounting screw No. 6.

4421 and 4515



Specifications

Description: Single pole fuse blocks for 13/32" X 1 ½" (10.3 X 38.1mm) fuses.

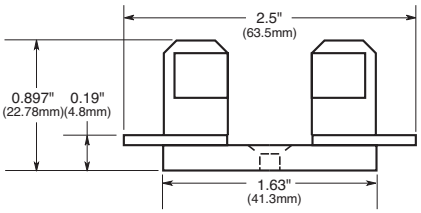
Dimensions: See Dimensions illustration.

Ratings:

Volts: — 250Vac/dc (or less)

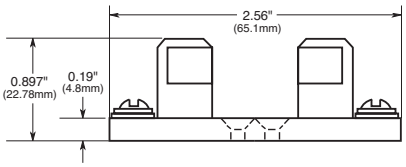
Amps: — 30A

Agency Information: CE



4421—Solder Terminals

Base width ⅝" (15.9mm)



4515—Screw Terminals

Base width ¾" (19mm)

Note: Mounting screw hole diameter is 0.147" (3.7mm). Countersink, 0.312" (7.9mm). Max. mounting screw No. 6.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Rail Mount Fuse Blocks and Holders

NDNF1-WH

Specifications

Description: Fuse holding rail mount terminal block.

Circuit Jumper: JF1, 2 circuits

Fuse Size: 13/32" X 1½"* (KTK, FNQ, PVM).

Poles: 1

Wire Range: AWG #8-22 Cu.

Ratings:

Volts: — 600V

Amps: — 30A

Mounting Options: 35mm DIN-Rail, C-rail

Fuse Pullers: • PF1 (standard)
• neon or incandescent bulb

*LPF1 (lighted neon or incandescent bulb).

Torque Rating: 18 lb-in

Operating Temperature: 105°C

Catalog Numbers

Catalog Number	Color
NDNF1-WH	White

Fuse Pullers (Optional): PF1

Lighted neon or incandescent lamp:

Catalog Numbers	Voltage
LPF1-24	24
LPF1-120	120
LPF1-120-C	120
LPF1-220	220
LPF1-440	440

NDNLFD1-WH

Specifications

Description: Rail mount fuse holder.

Circuit Jumper: JF1, 2 circuits.

Fuse Size: ¼" X 1¼" (Bussmann AGC, MDL or equivalent).

Poles: 1

Wire Range: AWG #8-22 Cu.

Ratings:

Volts: — 600V

Amps: — 30A (NDND1 non-fused)
— 15A (NDNFD1, 600V/CSA, fused)
— 15A (NDNLFD1*fused, indicating)

*WH24 - 24V White, WH-90Vdc-600Vdc, 115Vac-600Vac White

Agency Information: CE

Mounting Options: 35mm DIN-Rail, C-rail

Marking Tape: MT12-1-2

Torque Rating: 18 lb-in

Operating Temperature: 105°C

Agency Information: CSA File 15364

Catalog Numbers

Catalog Number	Color	Indicator
NDND1-WH	White	NO
NDNFD1-WH	White	NO
NDNLFD1-WH	White	90Vdc-600Vdc 115Vac-600Vac
NDNLFD1-WH 24	White	24V

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Power Distribution & Terminal Blocks

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Scan this tag to get the latest product information for the Power Distribution Blocks.

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Selection Table for SCCR Power Distribution Blocks and Power Terminal Blocks

Short-Circuit Current Rated Power Distribution Blocks

Bussmann offers three distinctly different styles of short-circuit current rated power distribution blocks (PDBs) and power terminal blocks (PTBs) to match different application needs. The differences are whether the power distribution blocks are enclosed or not, and whether they are UL 1953 Listed PDBs or UL 1059 Recognized PTBs, which have different minimum spacing requirements. The table on this page can assist in the selection of the right series for your application requirements.

Why these are important?

Assembly short-circuit current ratings (SCCRs) are now required in the 2011 NEC® and UL 508A Listed Industrial Control Panels. Marking the SCCR on Industrial Control Panels (NEC® 409.110), Industrial Machinery Electrical Panels (NEC® 607.3(A)), and HVAC equipment (NEC® 440.4(B)) is required by the National Electrical Code. PDBs or PTBs not marked with a SCCR, typically are the weakest link and may limit an assembly to no more than 10kA SCCR. The PDBFS and PDB Series have increased spacing required where used in feeder circuits in equipment listed to UL508A (UL1059 PTBs must be evaluated for proper spacings). Also, for building wiring systems, the PDBFS Series and PDB Series power distribution blocks can be used to meet the new 2013 NEC® requirements in section 376.56(B) for PDBs in wireways.

Selection Table

Description	Catalog Page	UL	Enclosed	High SCCR*	Spacing** 1" Air 2" Surface	Industrial Control Panels UL 508A Branch Circuit	Industrial Control Panels UL 508A Feeder Circuit	HVAC UL 1995	Wireways NEC® 376.56(B) (Requires UL 1953)
Series PDBFS	325	UL 1953 Listed	Yes†	Yes	Yes	Yes	Yes	Yes	Yes
Series PDB	326	UL 1953 Listed	No***	Yes	Yes	Yes	Yes	Yes	Yes w/optional cover

†IP20 Finger-safe under specific conditions, see datasheet 1149.
*When protected by proper fuse class with maximum ampere rating specified or less.
See **PDB Spacing Requirements for Equipment table below.
***Optional covers are available. Not IP20, but provide a safety benefit.
****No, except: Yes, if single pole units installed with proper spacings.

PDB & PTB Minimum Spacing Requirements for Equipment

UL Standard	Spacing between live parts of opposite polarity		Spacing between live parts and grounded parts or enclosure @600V
	Through air @600V	Over surface @600V	
508A Feeder Circuits	1″	2″	1″
508A Branch Circuits	⅜″	½″	½″
1995 HVAC	⅜″	½″	½″

Note: Refer to Specific UL standards for complete spacing details.

Series PDBFS

Series PDB

Data Sheet: 1049

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Series PDBFS of Power Distribution Blocks

Feature/Benefits

- Enclosed, safer installation; IP20 finger-safe under specific conditions
- High short-circuit current ratings up to 200kA: PDBs do not have to be the weak link in achieving high SCCR for an industrial control panel
- Small footprint saves panel space
- Listed to UL 1953 which has minimum spacing requirements at 600V of at least 1" through air and 2" over surface required for feeders in UL 508A Industrial Control Panels
- For 2D CAD drawings visit www.cooperbussmann.com

Agency/Standards

- UL Listed 1953, Guide QPQS, File E256146
- CSA Certified, Class 6228-01, File 47235
- IEC 60947-7-1
- IEC 60529, IP20 (finger-safe) under specific wiring conditions

Electrical

- 600Vac/dc (UL 1953), 690Vac/dc (IEC)
- IP20 finger-safe under specific conditions
- Short-circuit current ratings up to 200kA, see table
- Ampacities up to 760 amps
- Cu wire range 14 AWG to 500 kcmil or 2.5 to 240 mm²

Mechanical

- DIN-Rail or panel mount; PDBFS330 & PDBFS504 panel mount only
- Captive termination screws; screws do not get misplaced
- Wire ready: captive termination screws shipped backed out to save time on conductor installations
- Sliding DIN-Rail latch for easy mounting
- Single pole, gang mountable for multiple pole applications with interlocking dovetail accessory (optional)
- Flammability, UL 94V0
- Tin-plated Al connectors suitable for Cu conductors
- Elongated hole for panel mounting; easier mounting with greater flexibility in matching up with drilled panel holes
- Part 2A1279: Interlocking dovetail pin accessory
  One pin interlocks two units, two pins to interlock three units
- DIN-Rail end anchors required to prevent damage to block when torquing

Series PDBFS

Electrical		Terminal Copper Conductor Capability			Short-Circuit Current Rating Data						
		Line	Load	Configuration	Conductors		Max Fuse Class & Amp**				
Catalog Number (All Single Pole)	Amps	Wire Range	Wire Range	Openings per Pole: Line / Load	Line AWG or kcmil	Load AWG or kcmil	J LPJ	T JJS JJN	RK1 LPS-RK LPN-RK	RK5 FRS-R FRN-R	SCCR
PDBFS204	175A	2/0 to 8 AWG 70 to 10 mm²	2/0 to 8 AWG 70 to 10 mm²	1 / 1	2/0 to 8	2/0 to 8	200	200	100	60	200kA
PDBFS220	175A	2/0 to 8 AWG 70 to 10 mm²	4 to 14 AWG 25 to 2.5 mm²	1 / 4	2/0 to 8	4 to 12	200	200	100	60	200kA
						4 to 14	175	175	100	30	100kA
							200	200	100	60	50kA
PDBFS303	310A	350kcmil to 6 AWG 185 to 16 mm²	350kcmil to 6 AWG 185 to 16 mm²	1 / 1	350 to 6	350 to 6	400	400	200	100	200kA
PDBFS330	380A	500kcmil to 6 AWG 240 to 16 mm²	2 to 14 AWG 35 to 2.5 mm²	1 / 6	500 to 6	2 to 6	400	400	200	100	200kA
						2 to 14	200	200	100	60	50kA
							175	175	100	30	100kA
PDBFS377	570A	300kcmil to 4 AWG 150 to 12 mm²	4 to 14 AWG 25 to 2.5 mm²	2 / 8	300	4 to 8	600	600	400	200	200kA
					300 to 4	4	400	400	200	100	100kA
						4 to 14	200	200	100	60	50kA
PDBFS500	620A	350kcmil to 4 AWG 185 to 12 mm²	350kcmil to 4 AWG 185 to 12 mm²	2 / 2	350 to 4	350 to 4	600	600	400	200	200kA
PDBFS504	760A	500kcmil to 6 AWG 240 to 16 mm²	500kcmil to 6 AWG 240 to 16 mm²	2 / 2	500	500	600	800*	600	200	200kA
					500 to 6	500 to 6	600	600	400	200	100kA

Ampacities 75C per NEC® Table 310.16 and UL508A Table 28.1
*Class L 800A (KRP-C 800_SP) or less fuses suitable for this particular SCCR case.
** Class G 60A (SC-60) or less or Class CC 30A (LP-CC-30, FNQ-R-30, KTK-R-30) or less are suitable for all SCCRs in this table.

Data Sheet: 1049

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Series PDB of Power Distribution Blocks

Feature/Benefits

- High short-circuit current ratings up to 200kA. These PDBs do not have to be the weak link in achieving high SCCR for an industrial control panel
- Listed to UL 1953 which has minimum spacing requirements at 600V of at least 1" through air and 2" over surface required for feeder in UL 508A Industrial Control Panels
- For 2D CAD drawings visit www.cooperbussmann.com

Agency/Standards

- UL Listed 1953, Guide QPQS, File E256146

Electrical

- 600Vac/dc (UL 1953)
- Short-circuit current ratings up to 200kA, see table
- Wire range 14 AWG to 350 kcmil Cu
- Spacing between uninsulated opposite polarities or ground meets UL 1953 which requires at least 1" through air and 2" over surface
- Ratings available with circuit breakers

Mechanical

- Panel mount
- Flammability, UL 94V0
- Tin-plated Al connectors suitable for Cu conductors

Optional covers

Covers are ordered for each individual pole, i.e., three 1-pole covers for 3-pole block, see table A.
Except PDB321 blocks have one cover for 1-, 2- or 3-pole versions, see table B.

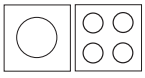
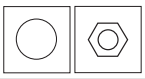
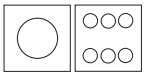
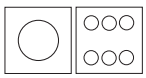
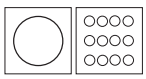
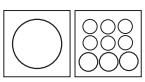
Table A

Block	Cover
PDB2XX-(pole):	CPB162-1
PDB3XX-(pole):	CPDB-1

Table B

Block	Cover
PDB321-1	CPDB-1
PDB321-2	CPDB-2
PDB321-3	CPDB-3

Series PDB

		Terminal Copper Conductor Capability			Short-Circuit Current Rating Data						
		Line	Load	Configuration	Conductors		Max Fuse Class & Amp*				
Catalog Number - Pole	Amps	Wire Range	Wire Range	Openings per Pole: Line / Load	Line AWG or kcmil	Load AWG or kcmil	J LPJ	T JJS JJN	RK1 LPS-RK LPN-RK	RK5 FRS-R FRN-R	SCCR
PDB204-1 PDB204-3	175A	2/0 - 8 AWG	2/0 - 8 AWG		2/0 - 8	2/0 - 8	200	200	200	60	200kA
PDB220-1 PDB220-3	175A	2/0 - 8 AWG	4 - 14 AWG		2/0 - 8	4 - 12	200	200	200†	60†	200kA
						14	175†	175†	100†	60†	100kA
							200†	200†	100†	60†	50kA
PDB280-1 PDB280-3	175A	2/0 - 8 AWG	1/4-20 X 3/4 STUD		2/0 - 8	Stud	200	200	100	60	200kA
PDB321-1 PDB321-2 PDB321-3	175A	2/0 - 8 AWG	4 - 14 AWG		2/0 - 8	4 -12	400	400	200†	100†	200kA
							400†	400†	400†	100†	100kA
						14	175†	175†	100†	60†	100kA
PDB323-1 PDB323-3	310A	300kcmil - 4 AWG	4 - 12 AWG		300 - 4	4 - 8	400	400	200†	100†	200kA
							400†	400†	400†	100†	100kA
						10 - 12	175†	175†	100†	60†	100kA
PDB370-1 PDB370-3	310A	350kcmil - 4 AWG	4 - 14 AWG		350 - 4	4 - 8	400	400	200†	100†	200kA
						10 - 14	400†	400†	400†	100†	100kA
							175†	175†	100†	60†	100kA
PDB371-1 PDB371-3	310A	350kcmil - 4 AWG	(6) 2 - 12 AWG (3) 1/0-12		350 - 4	1/0 - 6	400	400	200†	100†	200kA
							400†	400†	400†	100†	100kA
						8 - 12	175†	175†	100†	60†	100kA

Ampacities 75ºC per NEC® Table 310.16 and UL508A Table 28.1
* Class G 60A (SC-60) or less or Class CC 30A (LP-CC-30, FNQ-R-30_SP, KTK-R-30) or less are suitable for all these SCCR in this table.
† Higher SCCR may be available, check data sheet 1049.

Data Sheet: 1049

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Series 163 Power Terminal Blocks

163 Series

Replaces Bussmann 164 Series

Specifications

Description: Power terminal block.

Dimensions: See Dimensions illustrations.

Construction: Tin-plated aluminum connectors.

Poles: 1- to 3-Poles, See Catalog Numbers table on the following page.

Wire Range: See Catalog Numbers table on the following page.

Ratings:

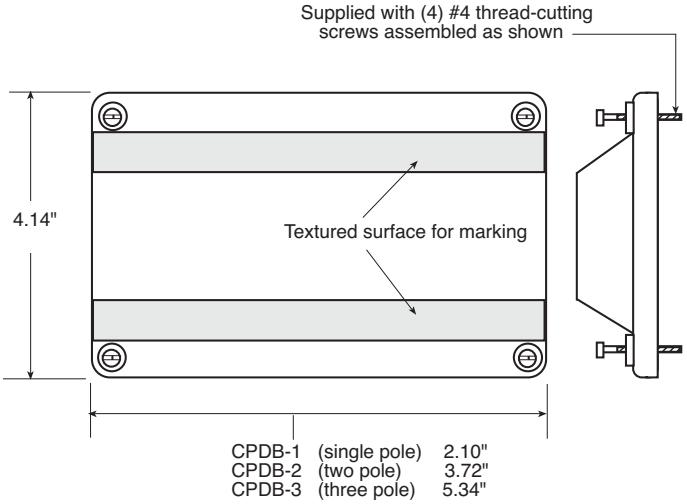
Volts: — 600Vac/dc

Amps: — See catalog Numbers table on the following page.

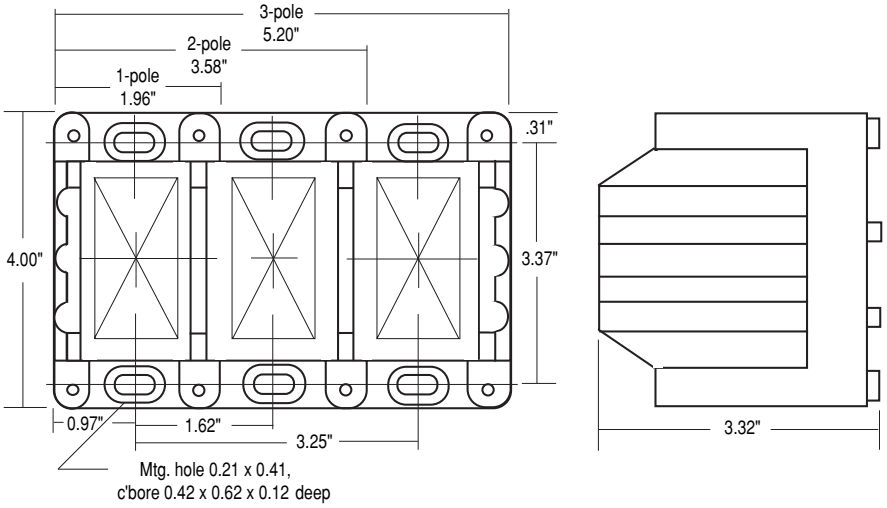
SCCR: — 10kA per UL 508A table SB4.1 (except for select products noted in table)

Agency Information: CE, UL Recognized: Guide XCFR2, UL E62622, General Industrial Class per UL1059, CSA Certified: CSA 053787

Flammability Rating: UL 94V0



Dimensions



(See Following Page for Ratings)

Data Sheet: 1049

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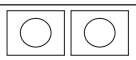
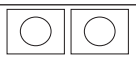
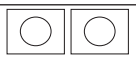
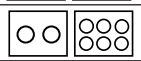
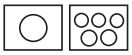
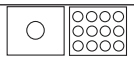
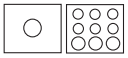
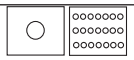
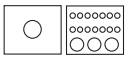
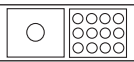
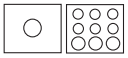
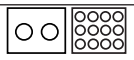
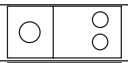
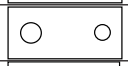
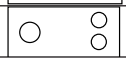
Series 163 Power Terminal Blocks

Catalog Numbers

Basic Catalog Numbers	Wire Size (Poles) Lineside	(Poles) Loadside	Amps/ Pole	Line/Load
16301*	250kcmil-6 AWG Cu Only	250kcmil-6 AWG Cu Only	255	
16303	350kcmil-6 AWG Cu-Al	350kcmil-6 AWG Cu-Al	310	
16306	500kcmil-6 AWG Cu-Al	500kcmil-6 AWG Cu-Al	380	
16321**	2/0-14 AWG CU, 2/0-8Al	(6)4-14 AWG Cu, 4-8 AWG Al	175	
16323**	350kcmil-6 AWG Cu-Al	(6)4-14 AWG Cu, 4-12 AWG Al	310	
16325	(2)2/0-14 AWG Cu, 2/0-8 AWG Al	(6)4-14 AWG Cu, 4-8 AWG Al	350	
16330	500kcmil-6 AWG Cu-Al	(6) 2-14 AWG Cu, 2-12 AWG Al	380	
16332	350kcmil-6 AWG Cu-Al	(3) 2-14 AWG Cu, 2-8 AWG Al (2) 1/0-14 AWG Cu, 1/0-8 AWG Al	310	
16335	500kcmil-6 AWG Cu-Al	(3) 2-14 AWG Cu, 2-8 AWG Al (2) 1/0-14 AWG Cu, 1/0-8 AWG Al	380	
16370**	350kcmil-6 AWG Cu-Al	(12)4-14 AWG Cu, 4-12 AWG Al	310	
16371**	350kcmil-6 AWG Cu-Al	(6) 2-14 AWG Cu, 2-8 AWG Al (3) 1/0-14 AWG Cu, 1/0-8 AWG Al	310	
16372	350kcmil-6 AWG Cu-Al	(21) 10-14 AWG Cu, 10 AWG Al	310	
16373	350kcmil-6 AWG Cu-Al	(14) 10-14 AWG Cu, 10 AWG Al (3) 1/0-14 AWG Cu-Al	310	
16375	600kcmil-2 AWG Cu-Al	(12)4-14 AWG Cu, 4-12 AWG Al	420	
16376	600kcmil-2 AWG Cu-Al	(6) 2-14 AWG Cu, 2-8 AWG Al (3) 1/0-14 AWG Cu, 1/0-8 AWG Al	420	
16377	(2)300kcmil-4 AWG Cu-Al	(12)4-14 AWG Cu, 4-12 AWG Al	570	
16378	500kcmil-6 AWG Cu-Al	Stud Size (2) 1/4-20 x 1	380	
16383	500kcmil-6 AWG Cu-Al	Stud Size (1) 3/8-16 x 1	380	
16390	⅜-16 x 1⅛ Stud Size	⅜-16 x 1⅛ Stud Size	250	
16394	½-13 x 1 1/16 Stud Size	½-13 x 1 1/16 Stud Size	400	
16395	⅜-16 x 1 7/16 Stud Size	(2) ¼-20 x 9/16 Stud Size	310	

*Copper connectors for use with copper wire only.
**SCCR up to 200kA

Ordering Information

163 Series blocks are available in 1-, 2- or 3-poles. To order: Basic Catalog Number + Number of poles.

Examples: 16301-1 = one-pole block
16301-3 = three-pole block

Data Sheet: 1049

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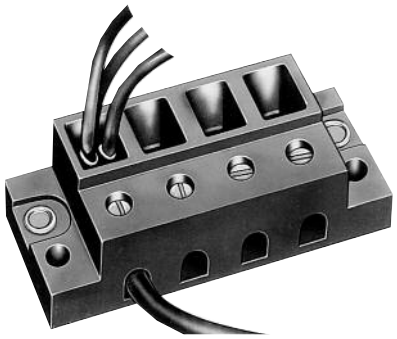
Power Terminal Blocks

Series 11675

Specifications



Description: Screw connection line side, (3) 0.250" quick-connect load side power terminal block.

Poles:
2- to 12-poles.

Wire Range:
8 – 14 AWG Cu.

Ratings:

Volts: — 250Vac/dc

Amps: — Up to 40A

SCCR: — 10kA per UL 508A table SB4.1

Agency Information: CE, Guide XCFR2, UL E62622; CSA 47235.

Torque Rating: 9 lb-in max.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
11675-2	2	11675-8	8
11675-3	3	11675-9	9
11675-4	4	11675-10	10
11675-5	5	11675-11	11
11675-6	6	11675-12	12
11675-7	7		

Series 11725

Specifications

Description: Screw connection line side, (4) 0.250" quick-connect load side power terminal block.

Poles: 2-, 3- or 4-poles.

Wire Range: 2 – 14 AWG Cu/8 AWG Al.

Ratings:

Volts: — 600Vac/dc

Amps: — Up to 70A

SCCR: — 10kA per UL 508A table SB4.1

Agency Information: CE, UL Guide XCFR2, E62622; CSA 47235.

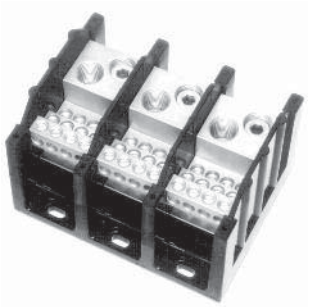
Torque Rating: 45 lb-in max.

Catalog Numbers

Catalog Numbers	Poles
11725-2	2
11725-3	3
11725-4	4

Series 160, 162, 163 & 165

Specifications



Description: Power terminal blocks.

Construction: Molded black thermoplastic.

Wire Range: See Catalog Numbers table.

Poles:
Series 160: 2-, 3- or 4-poles

Series 162, 163 and 165: 1-, 2- or 3-poles

Ratings:

Volts: — 600Vac/dc

Amps: — Up to 1520A

SCCR: — 10kA per UL 508A table SB4.1 (except for select products noted in table)

Agency Information: CE, Guide XCFR2, UL E62622 General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Numbers	Line Connection	Load Connection	Connector Material & Ampacity	Agency Information
16021*	2/0-#14Cu, 2/0-#8Al	(6)#4-#14Cu, #4-#8Al	175A	UL/CSA
16023*	350kcmil-#6Cu/Al	(6)#4-#14Cu, #4-#12Al	310A	UL/CSA
16220**	2/0-#14Cu, 2/0-#8Al	(4)#4-#14Cu, #4-#8Al	175A	UL/CSA
16321**	2/0-#14Cu, 2/0-#8Al	(6)#4-#14Cu, #4-#8Al	175A	UL/CSA
16323**	350kcmil-#6Cu/Al	(6)#4-#14Cu, #4-#12Al	310A	UL/CSA
16325	(2)2/0-#14Cu, 2/0-#8Al	(6)#4-#14Cu, #4-#8Al	350A	UL/CSA
16330	500kcmil-#6Cu/Al	(6)#2-#14Cu, #2-#12Al	380A	UL/CSA
16332	350kcmil-#6Cu/Al	(3)#2-#14Cu, #2-#8Al (2)1/0-#14Cu, 1/0-#8Al	310A	UL/CSA
16335	500kcmil-#6Cu/Al	(3)#2-#14Cu, #2-#8Al (2)1/0-#14Cu, 1/0-#8Al	380A	UL/CSA
16370**	350kcmil-#6Cu/Al	(12)#4-#14Cu, #4-#12Al	310A	UL/CSA
16371**	350kcmil-#6Cu/Al	(6)#2-#14Cu, #2-#8Al (3)1/0-#14Cu, 1/0-#8Al	310A	UL/CSA
16372	350kcmil-#6Cu/Al	(21)#10-#14Cu, #10Al	310A	UL/CSA
16373	350kcmil-#6Cu/Al	(3)1/0-#14Cu/Al (14)#10-#14Cu, #10Al	310A	UL/CSA
16375	600kcmil-#2Cu/Al	(12)#4-#14Cu, #4-#12Al	420A	UL/CSA
16376	600kcmil-#2Cu/Al	(6)#2-#14Cu, #2-#8Al (3)1/0-#14Cu, 1/0-#8Al	420A	UL/CSA
16377	(2)300kcmil-#4Cu/Al	(12)#4-#14Cu, #4-#12Al	570A	UL/CSA
16400	(4)500kcmil-#6Cu/Al	(22)#2-#14Cu/Al	1520A	UL/CSA
16528	(2)600kcmil-#2Cu/Al	(4)3/0-#6Cu/Al (4)#4-#14Cu/Al	840A	UL/CSA
16530	(2)500kcmil-#6Cu/Al	(12)#4-#14Cu/Al	760A	UL/CSA
16541	(1)500kcmil-#6Cu/Al	(21)#6-#14Cu/Al	380A	UL/CSA

*160 Series Bases have mounting holes outside the barriers. Other bases (162 through 165) have mounting holes within barriers. See Data Sheet for dimensional drawings.
**SCCR up to 200kA

How To Order

Catalog Number + # of Poles

Example: 16021 – 3 (complete part number)

Optional Covers:

160 Series: CPB160 - (pole)
162 Series: CPB162 - (pole)
163 Series: CPDB- (pole)
165 Series: CPDB165 (1 for each pole)

Data Sheets: 1117 (Series 160, 162, 165); 1148 (Series 163)

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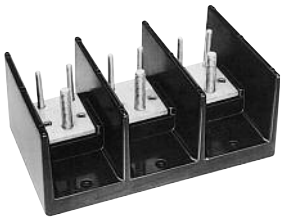
Power Terminal Blocks: Stud & Splicer

Series 162, 163 & 165



Specifications

Description: Power stud terminal blocks.

Construction: Molded black thermoplastic.

Poles: 1-, 2- or 3-poles.

Wire Range: See Catalog Numbers table.

Ratings:

Volts: — 600Vac/dc

Amps: — Up to 760A

SCCR: — 10kA per UL 508A table SB4.1 (except where noted)

Agency Information: CE, Guide XCFR2, UL E62622
General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

Flammability Rating:
UL 94V0.

Stud Block Catalog Numbers

Catalog Numbers	Line Connection (Poles)	Load Connection (Poles)	Material & Ampacity	Connector Agency Information	
Connector to Stud					
16280*	2/0-#14Cu-Al	¼-20 X ¾ Stud	Al-175A	UL	—
16281	2/0-#14Cu-Al	¼-20 Tapped hole	Al-175A	UL	—
16378	500kcmil-#6Cu-Al	(2)¼-20 x 1 Stud	Al-380A	UL	CSA
16383	500kcmil-#6Cu-Al	(1)⅜-16 x 1 Stud	Al-380A	UL	CSA
16582	(2)500kcmil-#6Cu-Al	(2)⅜-16 x 1⅝ Stud	Al-760A	UL	CSA
Stud to Stud					
16290	¼-20 x ¾ Stud	¼-20 x ¾ Stud	Cu-175A	UL	—
16390	⅜-16 x 1⅛ Stud	⅜-16 x 1⅛ Stud	Cu-250A	UL	CSA
16394	½-13 x 1⅛ Stud	½-13 x 1⅛ Stud	Cu-400A	UL	CSA
16395	⅜-16 x 1⅛ Stud	(2)¼-20 x ⅝ Stud	Cu-310A	UL	CSA
16591	⅜-16 x 1⅛ Stud	(2)⅜-16 x 1⅛ Stud	Cu-400A	UL	CSA
16593**	½-13 X 1 Stud	½-13 X 1 Stud	Cu-600A	UL	CSA

Nuts are not supplied with blocks
*SCCR up to 200kA
** 1-Pole not available

How To Order

Catalog Number + # of Poles

Example: 16000 – 3 (complete part number)

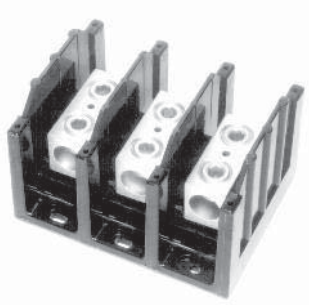
Optional Covers:

160 Series: CPB160 - (pole)
162 Series: CPB162 - (pole)
163 Series: CPDB - (pole)
165 Series: CPDB165 (1 for each pole) - new style
CPB165 - (pole) - old style

For Short-circuit current rated stud power distribution blocks, go to the Series PDB and Series 162 & 163 with high SCCR.

Data Sheets: 1117 (Series 162, 165); 1148 (Series 163)

Series 160, 162, 163 & 165



Specifications

Description: Power splicer terminal blocks.

Construction: Molded black thermoplastic.

Wire Range: See Catalog Numbers table.

Poles: Series 160: 2-, 3- or 4-poles
Series 162, 163 and 165: 1-, 2- or 3-poles

Ratings:

Volts: — 600Vac/dc

Amps: — Up to 760A

SCCR: — 10kA per UL 508A table SB4.1 (except for select products noted in table)

Agency Information: CE, Guide XCFR2, UL E62622
General Industrial Class per UL 1059; CSA Class 6228-01, File 53787.

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Numbers	Line Connection	Load Connection	Connector Material & Ampacity	Agency Information
16000*	2/0-#8Cu/Al	2/0-#8Cu/Al	Al-175A	UL
16003*	250kcmil-#6Cu Only	250kcmil-#6Cu Only	Cu-255A	UL
16005*	350kcmil-#6Cu/Al	350kcmil-#6Cu/Al	Al-310A	UL
16200	#2-#14Cu, #2-#8Al	#2-#14Cu, #2-#8Al	Al-115A	UL
16201	1/0-#14Cu Only	1/0-#14Cu Only	Cu-150A	UL
16204**	2/0-#8Cu/Al	2/0-#8Cu/Al	Al-175A	UL
16301	250kcmil-#6Cu Only	250kcmil-#6Cu Only	Cu-255A	UL/CSA
16303	350kcmil-#6Cu/Al	350kcmil-#6Cu/Al	Al-310A	UL/CSA
16306	500kcmil-#6Cu/Al	500kcmil-#6Cu/Al	Al-380A	UL/CSA
16500	(2)350kcmil-#4Cu/Al	(2)350kcmil-#4Cu/Al	Al-620A	UL/CSA
16504	(2)500kcmil-#6Cu/Al	(2)500kcmil-#6Cu/Al	Al-760A	UL/CSA

*160 Series Bases have mounting holes outside the barriers. Other bases (162 through 165) have mounting holes within barriers. See Data Sheet for dimensional drawings.
**SCCR up to 200kA

How To Order

Catalog Number + # of Poles

Example: 16000 – 3 (complete part number)

Optional Covers:

160 Series: CPB160 - (pole)
162 Series: CPB162 - (pole)
163 Series: CPDB - (pole)
165 Series: CPDB165 (1 for each pole) - new style
CPB165 - (pole) - old style

For Short-circuit current rated and/or finger-safe splicer blocks, go to the Series PDBFS, Series PDB or Series 162 & 163 with high SCCR.

Data Sheets: 1117 (Series 160, 162, 165); 1148 (Series 163)

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Power Terminal Blocks: Barrier & Dead Front

Series 14002

Specifications

Description: Barrier terminal block.

Poles: 2- to 6-poles.

Wire Range: 2 – 14 AWG Cu/8 AWG Al.

Ratings:

Volts: — 600Vac/dc

Amps: — 115A

SCCR: — 10kA per UL 508A table SB4.1

Agency Information: CE, Guide XCFR2, UL E62622; CSA 47235.

Torque Ratings*: 2-3, 50 lb-in; 4-6, 45 lb-in; 8, 40 lb-in; 10-14, 35 lb-in.

*Consult factory for torque ratings for CP and Q options.

Marking: Marking strip optional, consult factory.

Options For Load Side Connector

CP: Sems pressure plate, rated 60A, 600V

Q: Quick-Connect, rated 50A, 600V

To order options, enter letter code in front of Catalog Number: i.e., CP14002-2.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
14002-2	2	14002-5	5
14002-3	3	14002-6	6
14002-4	4		

Series 14004

Specifications

Description: Dead front terminal block.

Poles: 2- to 12-poles.

Wire Range: 4 – 14 AWG Cu/ 8 AWG Al.

Ratings:

Volts: — 600Vac/dc

Amps: — 90A

SCCR: — 10kA per UL 508A table SB4.1

Agency Information: CE, Guide XCFR2, UL E62622; CSA 47235.

Marking: Marking strip optional, consult factory.

Catalog Numbers

Catalog Numbers	Poles	Catalog Numbers	Poles
14004-2	2	14004-8	8
14004-3	3	14004-9	9
14004-4	4	14004-10	10
14004-5	5	14004-11	11
14004-6	6	14004-12	12
14004-7	7		

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DIN-Rail terminal blocks

Ratings up to 200kA SCCR feature multiple bridging options for point of use configuration

Bussmann
by EATON

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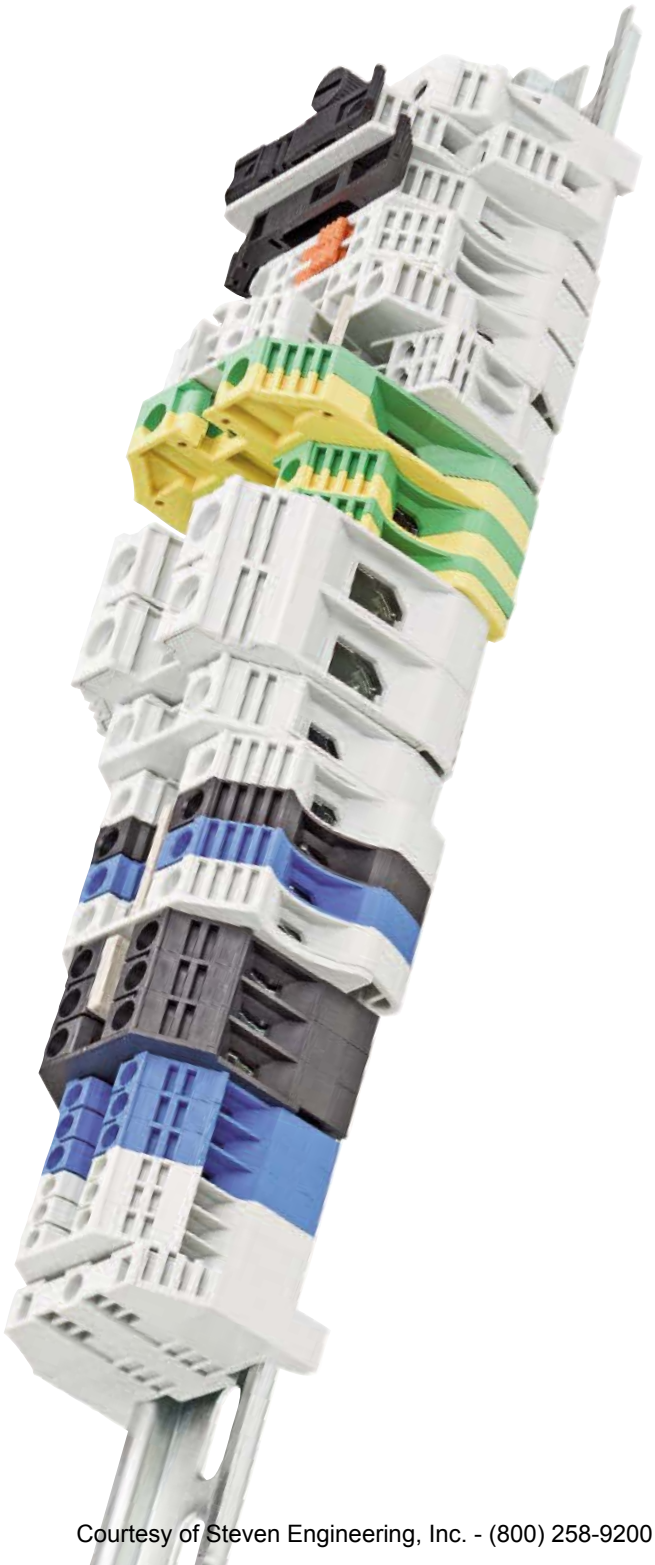
Connectors

Scan this tag to get the latest product information for the New Family of Terminal blocks and Accessories.



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RED indicates NEW information

Scan this tag to get access to the Terminal Blocks Cross Reference Search.

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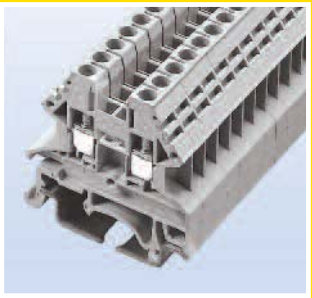
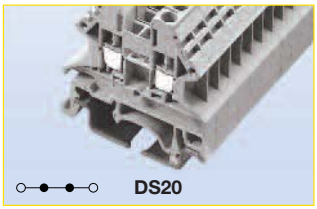
Feed Through Blocks



DS Series

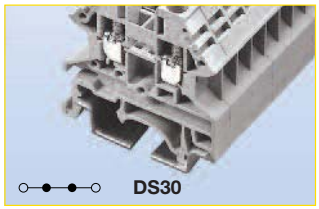
The DS Series features a compact design that saves wiring space on the control panel. Accessories include marking labels, partition plates as well as side and top insertion bridges. Designed for 35mm DIN and 32mm G-Type rails.

IEC60947-7-1 & UL 1059 compliant.



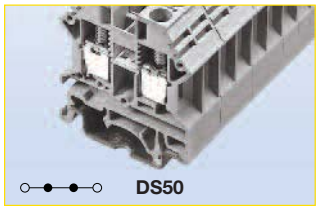
DS20

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	1000V
Rated current	20A	24A
Conductor cross section, flexible(AWG/mm²)	22~12 / 0.5~2.5	
Conductor cross section, flexible(AWG/mm²)	22~12 / 0.5~2.5	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.4	
Torque(lb-in)	3.5	
Screw	M2.5	
Wire strip length(mm)	9~11	
WxHxD(mm)	5.1 x 39.6 x 40.5	
Colors	**Cat. No.**	
Grey	DS20-GY	
Blue	DS20-BU	
Black	DS20-LK	
Red	DS20-RD	
Orange	DS20-OR	
Yellow	DS20-YW	
Green	DS20-GN	
Accessories	**Cat. No.**	
Grey	DS20-GY-ND	
Blue	DS20-BU-ND	
Black	DS20-LK-ND	
Red	DS20-RD-ND	
Orange	DS20-OR-ND	
Yellow	DS20-YW-ND	
Green	DS20-GN-ND	
	DKNSPS-001	
2-pole 3-pole 4-pole 10-pole	DSS2-5N-02P DSS2-5N-03P DSS2-5N-04P DSS2-5N-10P	
2-pole 3-pole 4-pole 10-pole	CSC-2-502PN CSC-2-503PN CSC-2-504PN CSC-2-510PN	
2-pole 3-pole 4-pole 10-pole	N/A N/A N/A N/A	
	TM26CB	
	DRL32MMG DRL35MMHI DRL35MMLO	



DS30

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	1000V
Rated current	30A	32A
Conductor cross section, flexible(AWG/mm²)	22~10 / 0.5~4	
Conductor cross section, flexible(AWG/mm²)	22~10 / 0.5~4	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.6	
Torque(lb-in)	5.3	
Screw	M3	
Wire strip length(mm)	9~11	
WxHxD(mm)	6.1 x 39.6 x 40.3	
Colors	**Cat. No.**	
Grey	DS30-GY	
Blue	DS30-BU	
Black	DS30-LK	
Red	DS30-RD	
Orange	DS30-OR	
Yellow	DS30-YW	
Green	DS30-GN	
Accessories	**Cat. No.**	
Grey	DS20-GY-ND	
Blue	DS20-BU-ND	
Black	DS20-LK-ND	
Red	DS20-RD-ND	
Orange	DS20-OR-ND	
Yellow	DS20-YW-ND	
Green	DS20-GN-ND	
	DKNSPS-001	
2-pole 3-pole 4-pole 10-pole	DSS4N-02P DSS4N-03P DSS4N-04P DSS4N-10P	
2-pole 3-pole 4-pole 10-pole	CSC-402PN CSC-403PN CSC-404PN CSC-410PN	
2-pole 3-pole 4-pole 10-pole	N/A N/A N/A N/A	
	TM27CB	
	DRL32MMG DRL35MMHI DRL35MMLO	



DS50

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	1000V
Rated current	50A	41A
Conductor cross section, flexible(AWG/mm²)	22~10 / 0.5~4	
Conductor cross section, flexible(AWG/mm²)	20~8 / 0.5~6	
Rated impulse withstand voltage	8kV	
Torque(N•m)	1.2	
Torque(lb-in)	10.6	
Screw	M4	
Wire strip length(mm)	12~14	
WxHxD(mm)	8 x 45 x 41.7	
Colors	**Cat. No.**	
Grey	DS50-GY	
Blue	DS50-BU	
Black	DS50-LK	
Red	DS50-RD	
Orange	DS50-OR	
Yellow	DS50-YW	
Green	DS50-GN	
Accessories	**Cat. No.**	
Grey	DS50-GY-ND	
Blue	DS50-BU-ND	
Black	DS50-LK-ND	
Red	DS50-RD-ND	
Orange	DS50-OR-ND	
Yellow	DS50-YW-ND	
Green	DS50-GN-ND	
	DKNSPS-002	
2-pole 3-pole 4-pole 10-pole	DSS6N-02P DSS6N-03P DSS6N-04P DSS6N-10P	
2-pole 3-pole 4-pole 10-pole	CSC-602PN CSC-603PN CSC-604PN CSC-610PN	
2-pole 3-pole 4-pole 10-pole	N/A N/A N/A N/A	
	TM28CB	
	DRL32MMG DRL35MMHI DRL35MMLO	

Block

End cover

Small partition

Top Insertion bridge

Side Insertion bridge

Top Screw-on bridge

Marking label

Mounting Rail

Tool

For more information, visit www.cooperbussmann.com/DatasheetsEle

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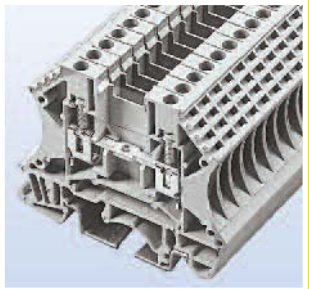
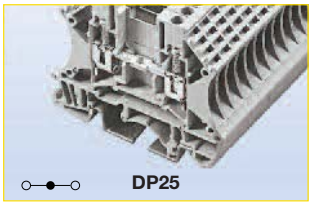
Feed Through Blocks



DP Series

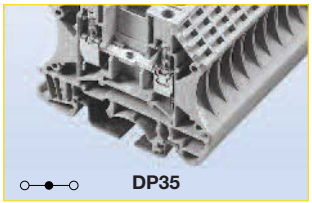
The DP Series features a generous design allowing for more wiring space and access. Additionally, this series features a larger wire contact area and larger conducting elements. Accessories include marking labels, partition plates, side insertion bridge and top screw-on bridge for improved reliability. Comes with matching shaped grounding blocks. Designed for 35mm DIN and 32mm G-Type rails.

IEC60947-7 and UL1059 compliant.



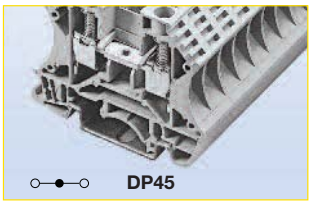
DP25

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	630V
Rated current	25A	24A
Conductor cross section, flexible(AWG/mm²)	22~12 / 0.5~2.5	
Conductor cross section, flexible(AWG/mm²)	22~12 / 0.5~2.5	
Rated impulse withstand voltage	8kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	10~12	
WxHxD(mm)	5.1 x 47.6 x 58.9	
Colors	**Cat. No.**	
Grey	DP25-GY	
Blue	DP25-BU	
Black	DP25-LK	
Red	DP25-RD	
Orange	DP25-OR	
Yellow	DP25-YW	
Green	DP25-GN	
Accessories	**Cat. No.**	
Grey	DP25-GY-ND	
Blue	DP25-BU-ND	
Black	DP25-LK-ND	
Red	DP25-RD-ND	
Orange	DP25-OR-ND	
Yellow	DP25-YW-ND	
Green	DP25-GN-ND	
	DKSPS-001	
	DKSPS-002	
2-pole 3-pole 4-pole 10-pole	N/A N/A N/A N/A	
2-pole 3-pole 4-pole 10-pole	CSC-2-502P CSC-2-503P CSC-2-504P CSC-2-510P	
2-pole 3-pole 4-pole 10-pole	DS2-5-02P DS2-5-03P DS2-5-04P DS2-5-10P	
	TM26CB	
	DRL32MMG DRL35MMHI DRL35MMLO	
	0.4 x 2.5mm	



DP35

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	630V
Rated current	35A	32A
Conductor cross section, flexible(AWG/mm²)	22~10 / 0.5~4	
Conductor cross section, flexible(AWG/mm²)	22~10 / 0.5~4	
Rated impulse withstand voltage	8kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	10~12	
WxHxD(mm)	6.1 x 47.6 x 58.9	
Colors	**Cat. No.**	
Grey	DP35-GY	
Blue	DP35-BU	
Black	DP35-LK	
Red	DP35-RD	
Orange	DP35-OR	
Yellow	DP35-YW	
Green	DP35-GN	
Accessories	**Cat. No.**	
Grey	DP25-GY-ND	
Blue	DP25-BU-ND	
Black	DP25-LK-ND	
Red	DP25-RD-ND	
Orange	DP25-OR-ND	
Yellow	DP25-YW-ND	
Green	DP25-GN-ND	
	DKSPS-001	
	DKSPS-002	
2-pole 3-pole 4-pole 10-pole	N/A N/A N/A N/A	
2-pole 3-pole 4-pole 10-pole	CSC-402P CSC-303P CSC-404P CSC-410P	
2-pole 3-pole 4-pole 10-pole	DS4-02P DS4-03P DS4-04P DS4-10P	
	TM27CB	
	DRL32MMG DRL35MMHI DRL35MMLO	
	0.5 x 3mm	



DP45

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	500V
Rated current	45A	41A
Conductor cross section, flexible(AWG/mm²)	20~8 / 0.5~6	
Conductor cross section, flexible(AWG/mm²)	20~8 / 0.5~6	
Rated impulse withstand voltage	8kV	
Torque(N•m)	1.8	
Torque(lb-in)	15.9	
Screw	M4	
Wire strip length(mm)	12~14	
WxHxD(mm)	8 x 47.6 x 58.9	
Colors	**Cat. No.**	
Grey	DP45-GY	
Blue	DP45-BU	
Black	DP45-LK	
Red	DP45-RD	
Orange	DP45-OR	
Yellow	DP45-YW	
Green	DP45-GN	
Accessories	**Cat. No.**	
Grey	DP25-GY-ND	
Blue	DP25-BU-ND	
Black	DP25-LK-ND	
Red	DP25-RD-ND	
Orange	DP25-OR-ND	
Yellow	DP25-YW-ND	
Green	DP25-GN-ND	
	DKSPS-001	
	DKSPS-002	
2-pole 3-pole 4-pole 10-pole	N/A N/A N/A N/A	
2-pole 3-pole 4-pole 10-pole	CSC-602P CSC-603P CSC-604P CSC-610P	
2-pole 3-pole 4-pole 10-pole	DS6-02P DS6-03P DS6-04P DS6-10P	
	TM28CB	
	DRL32MMG DRL35MMHI DRL35MMLO	
	0.8 x 4mm	

Block

End cover

Partition

Small partition

Top Insertion bridge

Side Insertion bridge

Top Screw-on bridge

Marking label

Mounting Rail

Tool

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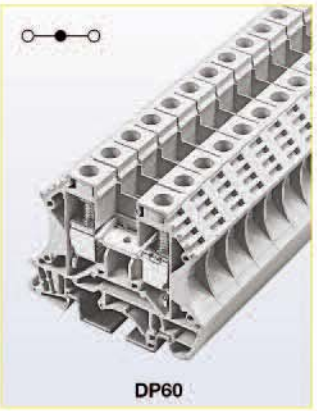
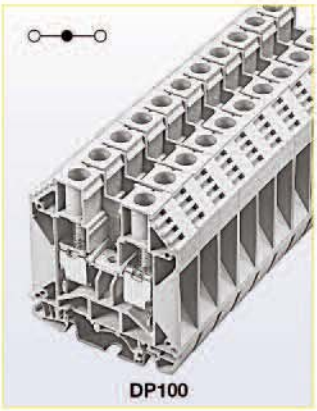
Feed Through Blocks

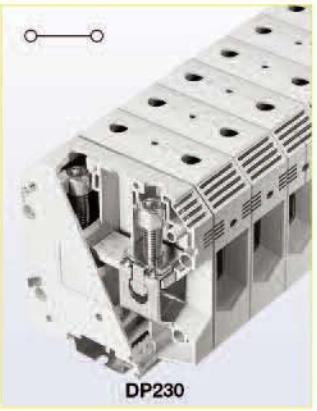


DP60



DP100

DP150



DP230

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	500V
Rated current	60A	57A
Conductor cross-section, solid (AWG/mm²)	20~6 / 1.5~10	
Conductor cross-section, flexible (AWG/mm²)	20~6 / 1.5~10	
Rated impulse withstand voltage	8kV	
Torque(N•m)	1.8	
Torque(lb-in)	15.9	
Screw	M4	
Wire strip length(mm)	12~14	
WxHxD(mm)	10 x 47.6 x 58.9	
Colors	**Cat. No.**	
Grey	DP60-GY	

Accessories	Cat. No.
Grey	DP25-GY-ND
	DKSPS-001
	DKSPS-002
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-1002P
3-pole	CSC-1003P
4-pole	CSC-1004P
10-pole	CSC-1010P
2-pole	DS10-02P
3-pole	DS10-03P
4-pole	DS10-04P
10-pole	DS10-10P
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	0.8 x 4mm

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	1000V
Rated current	100A	101A
Conductor cross-section, solid (AWG/mm²)	14~3 / 1.5~25	
Conductor cross-section, flexible (AWG/mm²)	14~3 / 1.5~25	
Rated impulse withstand voltage	8kV	
Torque(N•m)	3.4	
Torque(lb-in)	30.1	
Screw	M5	
Wire strip length(mm)	13~15	
WxHxD(mm)	12 x 52.2 x 46.7	
Colors	**Cat. No.**	
Grey	DP100-GY	

Accessories	Cat. No.
Grey	DP100-GY-ND
	DKNSPS-003
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-1602P
3-pole	CSC-1603P
4-pole	CSC-1604P
10-pole	CSC-1610P
2-pole	DS16-02P
3-pole	DS16-03P
4-pole	DS16-04P
10-pole	DS16-10P
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	1.0 x 5.5mm

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	1000V
Rated current	150A	150A
Conductor cross-section, solid (AWG/mm²)	12~1/0 / 2.5~50	
Conductor cross-section, flexible (AWG/mm²)	12~1/0 / 2.5~50	
Rated impulse withstand voltage	8kV	
Torque(N•m)	6.9	
Torque(lb-in)	61.1	
Screw	M6	
Wire strip length(mm)	16~18	
WxHxD(mm)	16 x 61.2 x 52	
Colors	**Cat. No.**	
Grey	DP150-GY	
Blue	DP150-BU	

Accessories	Cat. No.
	DKNSPS-004
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-3502P
3-pole	CSC-3503P
4-pole	CSC-3504P
10-pole	CSC-3510P
2-pole	DS35-02P
3-pole	DS35-03P
4-pole	DS35-04P
10-pole	DS35-10P
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	1000V
Rated current	230A	232A
Conductor cross-section, solid (AWG/mm²)	2 / 35	
Conductor cross-section, flexible (AWG/mm²)	2~4/0 / 35~95	
Rated impulse withstand voltage	8kV	
Torque(N•m)	10.2	
Torque(lb-in)	90.3	
Screw	M8	
Wire strip length(mm)	30~35	
WxHxD(mm)	25 x 88.5 x 80	
Colors	**Cat. No.**	
Grey	DP230-GY	
Blue	DP230-BU	

Accessories	Cat. No.
	DKNSPS-004
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-9502P
3-pole	CSC-9503P
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO

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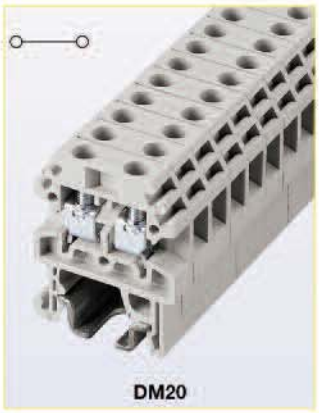
Mini Feed Through Blocks

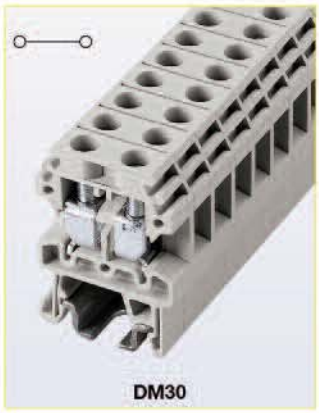
DM Series

The DM Series is our low cost, miniature feed through terminal block design for 15mm DIN-Rail. Accessories include side insertion bridge and marking labels.



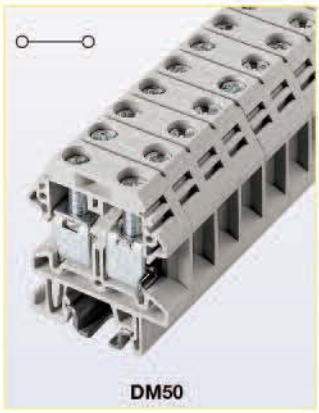
DM20

Approval	
Technical Data	**UL** / **IEC**
Rated voltage	300V / 500V
Rated current	20A / 24A
Conductor cross-section, solid (AWG/mm²)	22~12 / 0.5~2.5
Conductor cross-section, flexible (AWG/mm²)	22~12 / 0.5~2.5
Rated impulse withstand voltage	5kV
Torque(N•m)	0.4
Torque(lb-in)	3.5
Screw	M2.5
Wire strip length(mm)	7~9
WxHxD(mm)	5.1 x 28 x 22
Colors	**Cat. No.**
Grey	DM20-GY
Blue	DM20-BU
Black	DM20-LK
Accessories	**Cat. No.**
Grey	DM20-GY-ND
Blue	DM20-BU-ND
Black	DM20-LK-ND
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-2-502PS
3-pole	CSC-2-503PS
4-pole	CSC-2-504PS
10-pole	CSC-2-510PS
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM20CB
	DRL15MM



DM30

Approval	
Technical Data	**UL** / **IEC**
Rated voltage	300V / 500V
Rated current	30A / 32A
Conductor cross-section, solid (AWG/mm²)	22~10 / 0.5~4
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~4
Rated impulse withstand voltage	5kV
Torque(N•m)	0.6
Torque(lb-in)	5.3
Screw	M3
Wire strip length(mm)	7~9
WxHxD(mm)	6.1 x 31.5 x 22
Colors	**Cat. No.**
Grey	DM30-GY
Blue	DM30-BU
Black	DM30-LK
Accessories	**Cat. No.**
Grey	DM30-GY-ND
Blue	DM30-BU-ND
Black	DM30-LK-ND
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-402PS
3-pole	CSC-303PS
4-pole	CSC-404PS
10-pole	CSC-410PS
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM21CB
	DRL15MM



DM50

Approval	
Technical Data	**UL** / **IEC**
Rated voltage	300V / 500V
Rated current	50A / 41A
Conductor cross-section, solid (AWG/mm²)	20~8 / 0.5~6
Conductor cross-section, flexible (AWG/mm²)	20~8 / 0.5~6
Rated impulse withstand voltage	6kV
Torque(N•m)	1.2
Torque(lb-in)	10.6
Screw	M4
Wire strip length(mm)	9~11
WxHxD(mm)	8 x 37.4 x 30
Colors	**Cat. No.**
Grey	DM50-GY
Blue	DM50-BU
Black	DM50-LK
Accessories	**Cat. No.**
Grey	DM50-GY-ND
Blue	DM50-BU-ND
Black	DM50-LK-ND
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-602PS
3-pole	CSC-603PS
4-pole	CSC-604PS
10-pole	CSC-610PS
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM22CB
	DRL15MM

Block

End cover

Partition

Small partition

Top Insertion bridge

Side Insertion bridge

Top Screw-on bridge

Marking label

Mounting Rail

Tool

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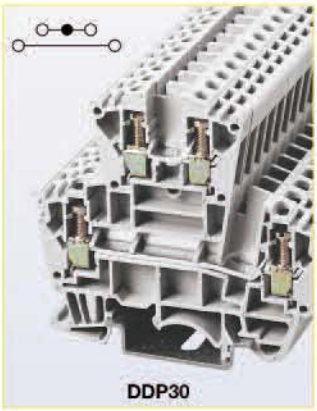
Double Level Blocks

DDP Series

The DDP30 is a two-tier feed through terminal block for space constrained applications. It has two independent circuits, IEC60947-7 and UL1059 compliant. Marking system, side insertion bridge and top screw-on bridge are standard.



DDP30

Approval	cULus	
Technical Data	**UL**	**IEC**
Rated voltage	300V	400V
Rated current	30A	32A
Conductor cross-section, solid (AWG/mm²)	22~10 / 0.5~4	
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~4	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.5	
Torque(lb-in)	4.4	
Screw	M2.5	
Wire strip length(mm)	6	
WxHxD(mm)	6.1 x 62.8 x 69.4	

Colors	Cat. No.
Grey	DDP30-GY

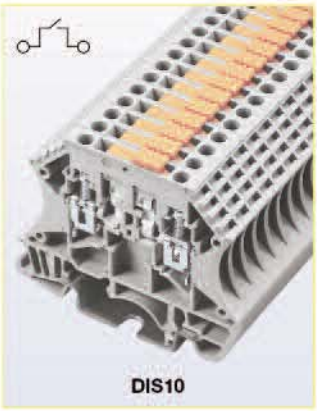
	Accessories	Cat. No.
Block		
End cover	Grey	DDP30-GY-ND
Partition		
Small partition		
Top Insertion bridge	2-pole	N/A
	3-pole	N/A
	4-pole	N/A
	10-pole	N/A
Side Insertion bridge	2-pole	CSC-402P
	3-pole	CSC-403P
	4-pole	CSC-404P
	10-pole	CSC-410P
Top Screw-on bridge	2-pole	DS4-02P
	3-pole	DS4-03P
	4-pole	DS4-04P
	10-pole	DS4-10P
Marking label		TM21CB
Mounting Rail		DRL32MMG DRL35MMHI DRL35MMLO
Tool		0.4 x 2.5mm

Disconnect Blocks

DIS Series

The DIS10 is a disconnect* terminal block. Disconnect terminal blocks offer an easy means of circuit disconnect with just a flick of a screwdriver. IEC60947-7 and UL1059 compliant.

* Not for use as a load break disconnect.



DIS10

Approval	cULus	
Technical Data	**UL**	**IEC**
Rated voltage	300V	800V
Rated current	10A	16A
Conductor cross-section, solid (AWG/mm²)	26~14 / 0.5~2.5	
Conductor cross-section, flexible (AWG/mm²)	26~14 / 0.5~2.5	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	9~10	
WxHxD(mm)	5.1 x 46.7 x 59	

Colors	Cat. No.
Grey	DIS10-GY

	Accessories	Cat. No.
Block		
End cover	Grey	DP25-GY-ND
Partition		
Small partition		DKSPS-002
Top Insertion bridge	2-pole	N/A
	3-pole	N/A
	4-pole	N/A
	10-pole	N/A
Side Insertion bridge	2-pole	CSC-2-502P
	3-pole	CSC-2-503P
	4-pole	CSC-2-504P
	10-pole	CSC-2-510P
Top Screw-on bridge	2-pole	N/A
	3-pole	N/A
	4-pole	N/A
	10-pole	N/A
Marking label		TM26CB
Mounting Rail		DRL32MMG DRL35MMHI DRL35MMLO
Tool		0.5 x 3mm

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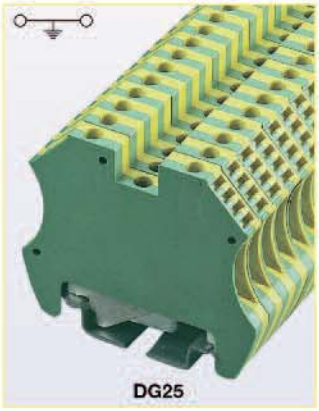
Grounding Blocks

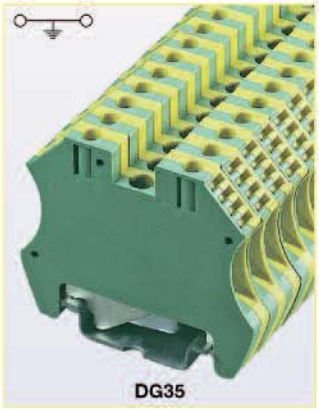
DG Series

The DG Series grounding DIN-Rail Terminal blocks fit both standard 35mm DIN-Rail and 32mm G-Type rails. Compliant with IEC60947-7 and UL1059 standards for worldwide acceptance. These have the same general shape as the DP Series.



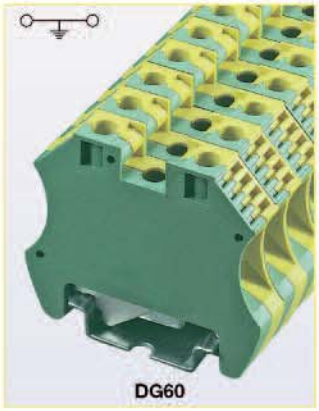
DG25

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	630V
Rated current		24A
Conductor cross-section, solid (AWG/mm²)	26~12 / 0.5~2.5	
Conductor cross-section, flexible (AWG/mm²)	26~12 / 0.5~2.5	
Rated impulse withstand voltage	8kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	10~14	
WxHxD(mm)	5.7 x 46.4 x 56	
Colors	**Cat. No.**	
Yellow-Green	DG25-YG	



DG35

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	630V
Rated current		32A
Conductor cross-section, solid (AWG/mm²)	26~10 / 0.5~4	
Conductor cross-section, flexible (AWG/mm²)	26~10 / 0.5~4	
Rated impulse withstand voltage	8kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	12~16	
WxHxD(mm)	6.6 x 46.4 x 56	
Colors	**Cat. No.**	
Yellow-Green	DG35-YG	



DG60

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	500V
Rated current		57A
Conductor cross-section, solid (AWG/mm²)	16~8 / 1.5~10	
Conductor cross-section, flexible (AWG/mm²)	16~8 / 1.5~10	
Rated impulse withstand voltage	8kV	
Torque(N•m)	1.8	
Torque(lb-in)	15.9	
Screw	M4	
Wire strip length(mm)	12~16	
WxHxD(mm)	10.4 x 46.4 x 56	
Colors	**Cat. No.**	
Yellow-Green	DG60-YG	

Block							
	Accessories	**Cat. No.**	**Accessories**	**Cat. No.**	**Accessories**	**Cat. No.**	
End cover							
Partition							
Small partition							
Top Insertion bridge		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A	
Side Insertion bridge		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A	
Top Screw-on bridge		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A		2-pole N/A 3-pole N/A 4-pole N/A 10-pole N/A	
Marking label		TM26CB		TM27CB		TM28CB	
Mounting Rail		DRL32MMG DRL35MMHI DRL35MMLO		DRL32MMG DRL35MMHI DRL35MMLO		DRL32MMG DRL35MMHI DRL35MMLO	
Tool		0.5 x 3mm		0.5 x 3mm		0.8 x 4mm	

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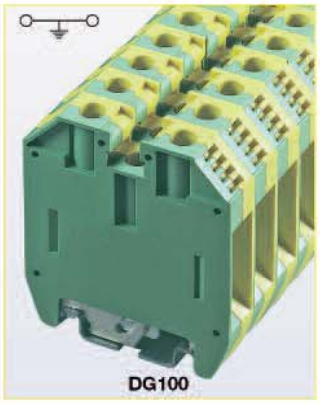
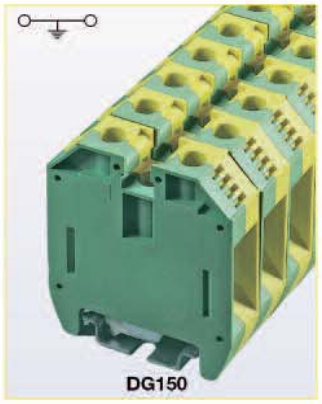
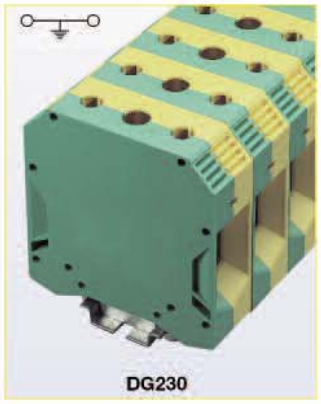
Grounding Blocks



DG100



DG150



DG230

Approval	
Technical Data	UL / IEC
Rated voltage	600V / 1000V
Rated current	76A
Conductor cross-section, solid (AWG/mm²)	14~6 / 2.5~16
Conductor cross-section, flexible (AWG/mm²)	14~6 / 2.5~16
Rated impulse withstand voltage	8kV
Torque(N•m)	3.4
Torque(lb-in)	30.1
Screw	M5
Wire strip length(mm)	14~18
WxHxD(mm)	12 x 62.4 x 56
Colors	**Cat. No.**
Yellow-Green	DG100-YG

Accessories	Cat. No.
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	1.0 x 5.5mm

Approval	
Technical Data	UL / IEC
Rated voltage	600V / 1000V
Rated current	125A
Conductor cross-section, solid (AWG/mm²)	12~2 / 4~35
Conductor cross-section, flexible (AWG/mm²)	12~2 / 4~35
Rated impulse withstand voltage	8kV
Torque(N•m)	5.6
Torque(lb-in)	49.6
Screw	M6
Wire strip length(mm)	14~18
WxHxD(mm)	16 x 62.4 x 56
Colors	**Cat. No.**
Yellow-Green	DG150-YG

Accessories	Cat. No.
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	1.0 x 5.5mm

Approval	
Technical Data	UL / IEC
Rated voltage	600V / 1000V
Rated current	232A
Conductor cross-section, solid (AWG/mm²)	2 / 35
Conductor cross-section, flexible (AWG/mm²)	2~4/0 / 35~95
Rated impulse withstand voltage	8kV
Torque(N•m)	18
Torque(lb-in)	159.3
Screw	M8
Wire strip length(mm)	20~25
WxHxD(mm)	25 x 82.93 x 80
Colors	**Cat. No.**
Yellow-Green	DG230-YG

Accessories	Cat. No.
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	⬡

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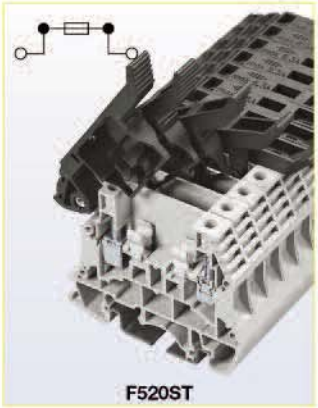
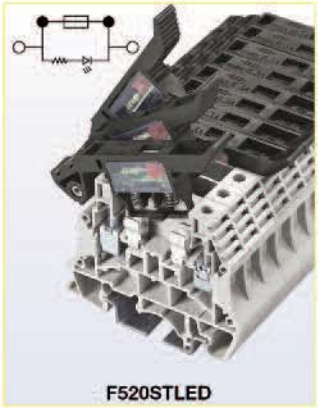
Fuse Holder Blocks

F520 Series

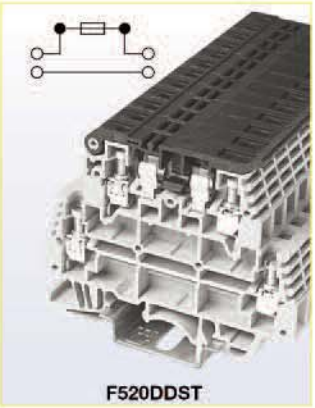
Fuse terminal blocks protect your sensors and relays. Available in lever and screw-cap style, with and without LED indication. Uses standard Bussmann 5 x 20 mm fuses.



F520ST



F520STLED



F520DDST

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V	300V
Rated current	6.3A	6.3A
Conductor cross-section, solid (AWG/mm²)	24~12 / 0.5~4	
Conductor cross-section, flexible (AWG/mm²)	24~12 / 0.5~4	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	10~12	
WxHxD(mm)	8 x 55.7 x 56	

Colors	Cat. No.
Grey	F520ST-GY

Accessories	Cat. No.
Grey	F520-GY-ND

2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	CSC-602PN
3-pole	CSC-603PN
4-pole	CSC-604PN
10-pole	CSC-610PN
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	0.5 x 3mm

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V	300V
Rated current	6.3A	6.3A
Conductor cross-section, solid (AWG/mm²)	24~12 / 0.5~4	
Conductor cross-section, flexible (AWG/mm²)	24~12 / 0.5~4	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.8	
Torque(lb-in)	7.1	
Screw	M3	
Wire strip length(mm)	10~12	
WxHxD(mm)	8 x 55.7 x 56	

Colors	Voltage	Cat. No.
Grey	5V	F520STLED5-GY
Grey	12V	F520STLED12-GY
Grey	24V	F520STLED24-GY
Grey	48V	F520STLED48-GY
Grey	110V	F520STLED110-GY
Grey	220V	F520STLED220-GY
Grey	300V	F520STLED300-GY

Accessories	Cat. No.
Grey End Cover	F520-GY-ND

2-pole	CSC-602PN
3-pole	CSC-603PN
4-pole	CSC-604PN
10-pole	CSC-610PN
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	0.5 x 3mm

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V[1]	300V
Rated current	16A[2] 30A[3]	16A[2] 30A[3]
Conductor cross-section, solid (AWG/mm²)	22~10 / 0.5~4	
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~4	
Rated impulse withstand voltage	6kV	
Torque(N•m)	0.67	
Torque(lb-in)	5.9	
Screw	M3.5	
Wire strip length(mm)	10~12	
WxHxD(mm)	8 x 60.5 x 72.5	

Colors	Cat. No.
Grey	F520DDST-GY

1) UL 600V / 5A

2) upper level 3) lower level

Accessories	Cat. No.
Grey	F520DD-GY-ND

2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM28CB
	DRL32MMG DRL35MMHI DRL35MMLO
	0.5 x 3mm

Block

End cover

Partition

Small partition

Top Insertion bridge

Side Insertion bridge

Top Screw-on bridge

Marking label

Mounting Rail

Tool

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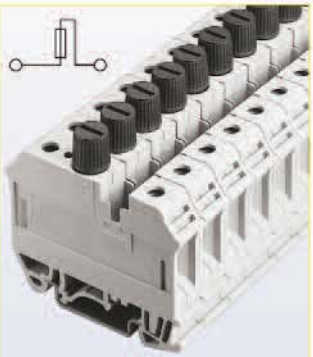
Fuse Holder Blocks



F520TOP

Approval		
Technical Data	UL	IEC
Rated voltage	600V	660V
Rated current	6.3A	6.3A
Conductor cross-section, solid (AWG/mm²)	22~6 / 1.5~10	
Conductor cross-section, flexible (AWG/mm²)	22~6 / 1.5~10	
Rated impulse withstand voltage	6kV	
Torque(N•m)	1.8	
Torque(lb-in)	15.9	
Screw	M4	
Wire strip length(mm)	12~16	
WxHxD(mm)	12 x 47.2 x 61.6	

Colors	Cat. No.
Grey	F520TOP-GY

Accessories	Cat. No.
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM20CB
	DRL32MMG DRL35MMHI DRL35MMLO
	0.6 x 3.5mm

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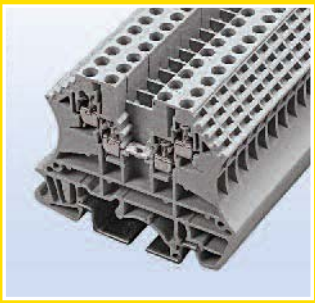
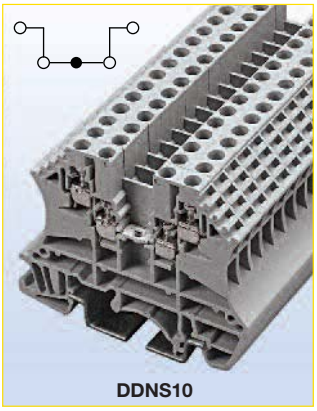
Internally Jumpered Blocks



DDNS Series

The DDNS10 is an internally jumpered terminal block. Internally jumpered double-level terminal blocks provide high-density power distribution in 3-in/1-out or 2-in/2-out or 1-in/3-out options with a single block. Add top and side insertion bridges to achieve any connection topology. IEC60947-7 and UL1059 compliant.

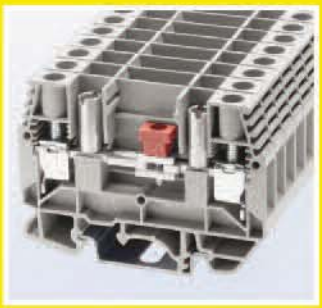


DDNS10

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V	630V
Rated current	10A	17.5A
Conductor cross-section, solid (AWG/mm²)	22~14 / 0.5~1.5	
Conductor cross-section, flexible (AWG/mm²)	22~14 / 0.5~1.5	
Rated impulse withstand voltage	8kV	
Torque(N•m)	0.4	
Torque(lb-in)	3.5	
Screw	M2.5	
Wire strip length(mm)	6~7	
WxHxD(mm)	5.1 x 46.8 x 58.9	
Colors	**Cat. No.**	
Grey	DDNS10-GY	

Accessories	**Cat. No.**
Block	
Grey	DDNS10-GY-ND
End cover	
Partition	
Small partition	
Top Insertion bridge	
2-pole	N/A
3-pole	N/A
4-pole	N/A
10-pole	N/A
Side Insertion bridge	
2-pole	CSC-2-502P
3-pole	CSC-2-503P
4-pole	CSC-2-504P
10-pole	CSC-2-510P
Top Screw-on bridge	
2-pole	DS2-5-02P
3-pole	DS2-5-03P
4-pole	DS2-5-04P
10-pole	DS2-5-10P
Marking label	TM26CB
Mounting Rail	DRL32MMG DRL35MMHI DRL35MMLO
Tool	0.4 x 2.5mm

Test Blocks



DTST2 Series

Test Terminal Blocks

Test terminal blocks with convenient test sockets, plugs, jumpers and accessories to make your circuit troubleshooting easy.

DTST2

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V/600V	660V
Rated current	48A/5A	41A
Conductor cross-section, solid (AWG/mm²)	20~8 / 0.5~6	
Conductor cross-section, flexible (AWG/mm²)	20~8 / 0.5~6	
Rated impulse withstand voltage	6kV	
Torque(N•m)	2	
Torque(lb-in)	17.7	
Screw	M4	
Wire strip length(mm)	8	
WxHxD(mm)	8 x 65.6 x 47.5	
Colors	**Cat. No.**	
Grey	DTST2-GY	

Accessories	**Cat. No.**
End cover	
Grey	DTST-GY-ND
Partition	DKSPS-006
Jumper Slide	
2-pole	DS6A02
3-pole	DS6A03
Test Plug	C002-0101-BK C002-0101-RD
Screw	DS6S1-BK DS6S1-OR DS6S1-YW DS6S1-RD
Connection Sleeve	C002-0201
Connection Socket	C002-0301
Side Insertion bridge	
2-pole	CSC-602P
3-pole	CSC-603P
4-pole	CSC-604P
10-pole	CSC-610P
Top Screw-on bridge	
2-pole	DS6-02P
3-pole	DS6-03P
4-pole	DS6-04P
10-pole	DS6-10P
Marking label	TM28CB
Mounting Rail	DRL32MMG DRL35MMHI DRL35MMLO
Tool	0.6 x 3.5mm

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Panel Mount Blocks

Panel Mount Series

Flexible alternative to barrier strips with screw and spring-clamp wiring connections for feed through and one-to-two power distribution. Use side insertion bridge to achieve any connection topology.

P20S

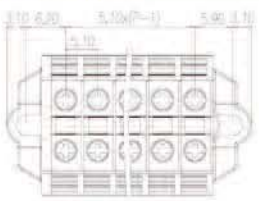
Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V	500V
Rated current	20A	24A
Conductor cross-section, solid (AWG/mm²)	22~12 / 0.5~2.5	
Conductor cross-section, flexible (AWG/mm²)	22~12 / 0.5~2.5	
Rated impulse withstand voltage	7kV	
Torque(N•m)	0.39	
Torque(lb-in)	3.5	
Screw	M2.5	
Wire strip length(mm)	6~8	
WxHxD(mm)	5.1 x 20 x 22	

Colors	Cat. No.
Grey	P20S-GY-01

Accessories	Cat. No.
Grey	P20S-GY-ND

2-pole	CSC-2-502PS
3-pole	CSC-2-503PS
4-pole	CSC-2-504PS
10-pole	CSC-2-510PS
	TM20CB

Dimensions - mm



P30S

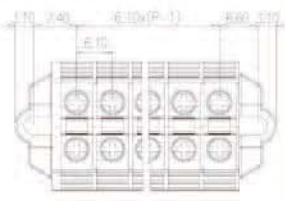
Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V	500V
Rated current	30A	32A
Conductor cross-section, solid (AWG/mm²)	22~10 / 0.5~4	
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~4	
Rated impulse withstand voltage	7kV	
Torque(N•m)	0.49	
Torque(lb-in)	4.3	
Screw	M3	
Wire strip length(mm)	6~8	
WxHxD(mm)	6.1 x 22 x 23	

Colors	Cat. No.
Grey	P30S-GY-01

Accessories	Cat. No.
Grey	P30S-GY-ND

2-pole	CSC-402PS
3-pole	CSC-403PS
4-pole	CSC-404PS
10-pole	CSC-410PS
	TM21CB

Dimensions - mm



P65S

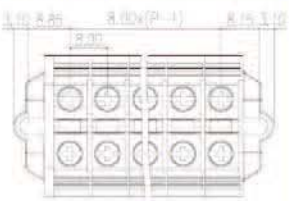
Approval		
Technical Data	**UL**	**IEC**
Rated voltage	300V	500V
Rated current	65A	41A
Conductor cross-section, solid (AWG/mm²)	20~6 / 1.5~10	
Conductor cross-section, flexible (AWG/mm²)	20~6 / 1.5~10	
Rated impulse withstand voltage	8kV	
Torque(N•m)	1.18	
Torque(lb-in)	10.4	
Screw	M4	
Wire strip length(mm)	9~11	
WxHxD(mm)	8 x 29.8 x 30	

Colors	Cat. No.
Grey	P65S-GY-01

Accessories	Cat. No.
Grey	P65S-GY-ND

2-pole	CSC-602PS
3-pole	CSC-603PS
4-pole	CSC-604PS
10-pole	CSC-610PS
	TM22CB

Dimensions - mm



Block

End cover

Side Insertion bridge

Marking label

Tool

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Panel Mount Blocks

P25G

2P25G

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	660V
Rated current	25A	24A
Conductor cross-section, solid (AWG/mm²)	28–12 / 0.5–2.5	
Conductor cross-section, flexible (AWG/mm²)	14–12 / 0.5–2.5	
Rated impulse withstand voltage	8kV	
Torque(N•m)	Spring Clamp	
Torque(lb-in)	Spring Clamp	
Screw	N/A	
Wire strip length(mm)	7–8	
WxHxD(mm)	6 x 28 x 18	
Colors	**Cat. No.**	
Grey	P25G-GY-01	

Accessories	Cat. No.
Grey	P25G-GY-ND
2-pole	DS-204
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM20CB
	0.4 x 2.5mm

Approval		
Technical Data	**UL**	**IEC**
Rated voltage	600V	660V
Rated current	25A	24A
Conductor cross-section, solid (AWG/mm²)	28–12 / 0.5–2.5	
Conductor cross-section, flexible (AWG/mm²)	14–12 / 0.5–2.5	
Rated impulse withstand voltage	8kV	
Torque(N•m)	Spring Clamp	
Torque(lb-in)	Spring Clamp	
Screw	N/A	
Wire strip length(mm)	7–8	
WxHxD(mm)	10 x 28 x 18	
Colors	**Cat. No.**	
Grey	2P25G-GY-01	

Accessories	Cat. No.
Grey	P25G-GY-ND
2-pole	DS-204
3-pole	N/A
4-pole	N/A
10-pole	N/A
	TM20CB
	0.4 x 2.5mm

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Short-Circuit Current Ratings (SCCRs)

No.	Description	Part Number*	Volts	Amps	Wire range for SCCR	SCCR Level	Fuse Class					
							RK5	RK1	J/CF	T	G	CC
1	Terminal Block	DS20-XX	600	20	12-14	100kA		30	60	60	60	30
1	End Cover	DS20-XX-ND										
2	Terminal Block	DS30-XX	600	30	10-18	100kA		30	60	60	60	30
2	End Cover	DS20-XX-ND										
3	Terminal Block	DS50-XX	600	50	8 - 18	100kA		30	60	60	60	30
3	End Cover	DS50-XX-ND										
4	Terminal Block	DM20-XX	300	20	12 - 16	100kA		30	60	60	60	30
4	End Cover	DM20-XX-ND										
5	Terminal Block	DM30-XX	300	30	10 - 16	100kA		30	60	60	60	30
5	End Cover	DM30-XX-ND										
6	Terminal Block	DM50-XX	300	50	8 - 16	100kA		30	60	60	60	30
6	End Cover	DM50-XX-ND										
7	Terminal Block	DP25-XX	600	25	12 - 18	100kA		30	60	60	60	30
7	End Cover	DP25-XX-ND										
8	Terminal Block	DP35-XX	600	35	10 - 18	100kA		30	60	60	60	30
8	End Cover	DP25-XX-ND										
9	Terminal Block	DP45-XX	600	45	8 - 18	100kA		30	60	60	60	30
9	End Cover	DP25-XX-ND										
10	Terminal Block	DP60-XX	600	60	6 - 18	100kA		30	60	60	60	30
10	End Cover	DP25-XX-ND										
11	Terminal Block	DP100-XX	600	100	14-3	200kA	30	60	100	100	60	30
11	End Cover	DP100-XX-ND										
12	Terminal Block	DP150-XX	600	150	1/0 - 12	100kA	30	100	200	200	60	30
13	Terminal Block	DP230-XX	600	230	2-4/0	200kA	60	100	200	200	60	30
14	Terminal Block	DP370-XX	600	370	300 - 500kcmil	200kA	100	200	400	400	60	30
15	Grounding Block	DG25-XX	600		12 - 18	100kA		30	60	60	60	30
16	Grounding Block	DG35-XX	600		10 - 16	100kA	30	30	60	60	60	30
17	Grounding Block	DG60-XX	600		16-8	200kA	30	60	100	100	60	30
18	Grounding Block	DG100-XX	600		14-6	200kA		60	100	100	60	30
19	Grounding Block	DG150-XX	600		12-2	200kA	30	60	100	100	60	30

* The "XX" in part number indicates color.

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Short-Circuit Current Ratings (SCCRs)

No.	Description	Part Number*	Volts	Amps	Wire range for SCCR	SCCR Level	Fuse Class					
							RK5	RK1	J/CF	T	G	CC
20	Grounding Block	DG230-XX	600		2-4/0	200kA	30	60	100	100	60	30
21A	Terminal Block	DDP30-XX (upper)	300	30	10 - 18	100kA		30	60	60	60	30
21A	End Cover	DDP30-XX-ND										
21B	Terminal Block	DDP30-XX (lower)	300	30	10 - 18	100kA		30	60	60	60	30
21B	End Cover	DDP30-XX-ND										
22	Terminal Block	DDNS10-XX	300	10	16 - 18	100kA		30	60	60	60	30
22	End Cover	DDNS10-XX-ND										
23	Terminal Block	DIS10-XX	300	10	16 - 16	100kA		30	60	60	60	30
23	End Cover	DIS10-XX-ND										
24	Fuse terminal block	F520ST-XX	300	6.3	18 - 18	100kA		30	60	60	60	30
24	End Cover	F520-XX-ND										
25	Fuse terminal block	F520STLED-XX	300	6.3	18 - 18	100kA		30	60	60	60	30
25	End Cover	F520-XX-ND										
26	Fuse terminal block	F520DDST-XX (upper)	300	16	10 - 18	100kA		30	60	60	60	30
26	End Cover	F520DD-XX-ND										
27	Fuse terminal block	F520DDST-XX (lower)	300	30	10 - 18	100kA		30	60	60	60	30
27	End Cover	F520DD-XX-ND										
28	Fuse terminal block	F520TOP-XX	600	6.3	6 - 18	100kA		30	60	60	60	30
29	Terminal Block	DTST2-XX	300/600	48/5	8 - 20	100kA		30	60	60	60	30
29	End Cover	DTST-XX-ND										
30	Terminal Block	P20S-XX	300	20	12 - 16	100kA		30	60	60	60	30
30	End Cover	P20S-XX-ND										
31	Terminal Block	P30S-XX	300	30	10 - 16	100kA		30	60	60	60	30
31	End Cover	P30S-XX-ND										
32	Terminal Block	P65S-XX	300	65	6 - 16	100kA		30	60	60	60	30
32	End Cover	P65S-XX-ND										
33	Terminal Block	P25G-XX	600	25	12 - 14	100kA		30	60	60	60	30
33	End Cover	P25G-XX-ND										
34	Terminal Block	2P25G-XX	600	25	12 - 14	100kA		30	60	60	60	30
34	End Cover	P25G-XX-ND										

* The "XX" in part number indicates color.

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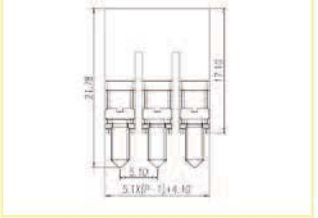
Accessories

Top Screw-On Bridges

DS2-5-XXP

Use with	DP25	DG25
	DDNS10	
Poles (XX)	02, 03, 04, 10	

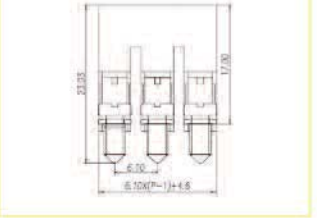
Dimensions - mm



DS4-XXP

Use with	DP35	DDP30
Poles (XX)	02, 03, 04, 10	

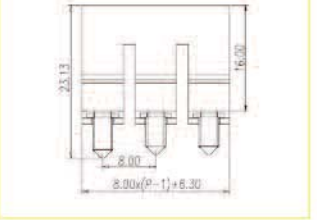
Dimensions - mm



DS6-XXP

Use with	DP45	
	DTST2	
Poles (XX)	02, 03, 04, 10	

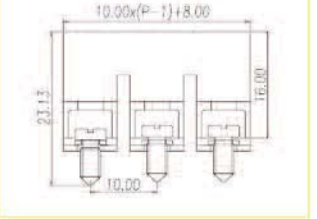
Dimensions - mm



DS10-XXP

Use with	DP60	
Poles (XX)	02, 03, 04, 10	

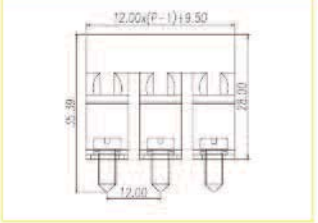
Dimensions - mm



DS16 - XXP

Use with	DP100	
Poles (XX)	02, 03, 04, 10	

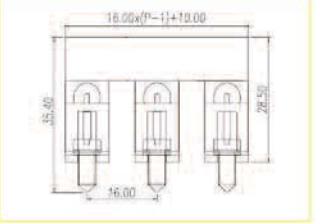
Dimensions - mm



DS35 - XXP

Use with	DP150	
Poles (XX)	02, 03, 04, 10	

Dimensions - mm



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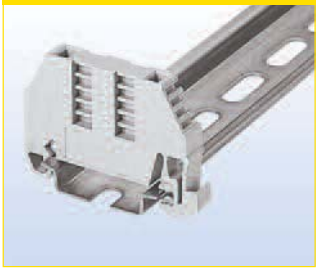
Accessories

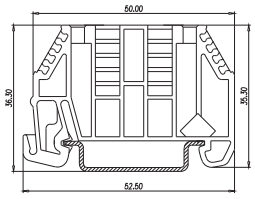
End Brackets

BRKT-ND

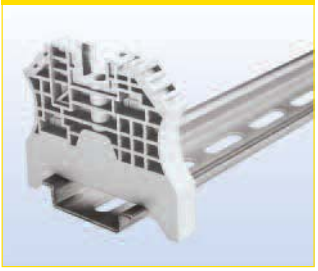


Use with	DRL35MMHI
	DRL35MMLO
Torque(N•m)	N/A
Torque(lb-in)	N/A
Screw	N/A

Dimensions - mm

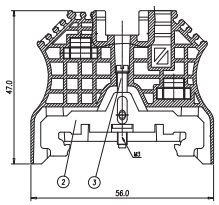


BRKT-NDSCRW



Use with	DRL35MMHI
	DRL35MMLO
Torque(N•m)	0.5
Torque(lb-in)	4.4
Screw	M3

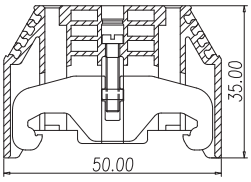
Dimensions - mm



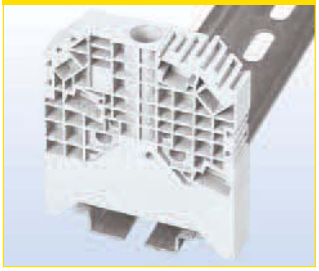
BRKT-NDSCRW2

Use with	DRL35MMHI
	DRL35MMLO
Torque(N•m)	0.78
Torque(lb-in)	6.9
Screw	M3

Dimensions - mm

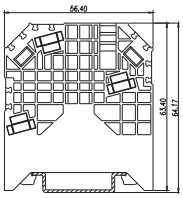


BRKT-NDSCRW3



Use with	DRL35MMHI
	DRL35MMLO
Torque(N•m)	1.8
Torque(lb-in)	15.9
Screw	M4

Dimensions - mm



Partition Plates

DKSPS-001

Use with	DP25	DP35
	DP45	DP60

DKSPS-002

Use with	DP25	DP35
	DP45	DP60
	DIS10	

DKSPS-006

Use with	DTST2

DKNSPS-001

Use with	DS20	DS30

DKNSPS-002

Use with	DS50

DKNSPS-003

Use with	DP100

DKNSPS-004

Use with	DP150

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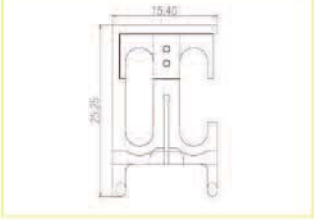
Accessories

Jumper Slides

DS6A02

Use with	DTST2
Poles	02

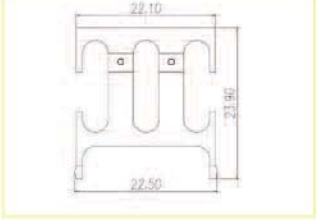
Dimensions - mm



DS6A03

Use with	DTST2
Poles	03

Dimensions - mm

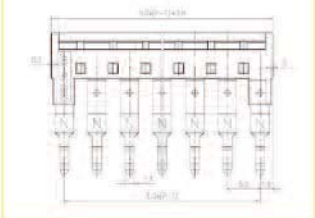


Top Insertion Bridges

DSS2-5N-XXP

Use with	DS20
Poles (XX)	02, 03, 04, 10

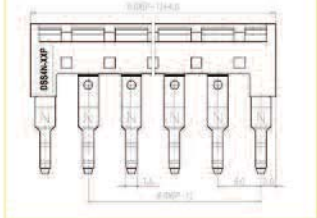
Dimensions - mm



DSS4N-XXP

Use with	DS30
Poles (XX)	02, 03, 04, 10

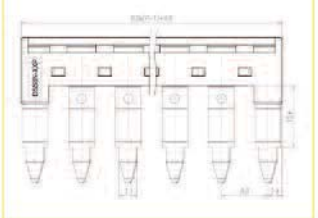
Dimensions - mm



DSS6N-XXP

Use with	DS50
Poles (XX)	02, 03, 04, 10

Dimensions - mm



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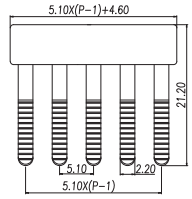
Accessories

Side Insertion Bridges

CSC-2-5XXP

Use with	DP25	
	DIS10	P20S
	DDNS10	
Poles (XX)	02, 03, 04, 10	

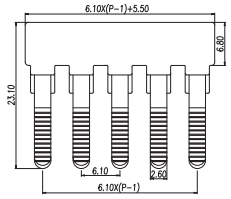
Dimensions - mm



CSC-4XXP

Use with	DP35	
	DDP30	
Poles (XX)	02, 03, 04, 10	

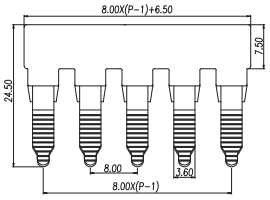
Dimensions - mm



CSC-6XXP

Use with	DTST2	DP45
Poles (XX)	02, 03, 04, 10	

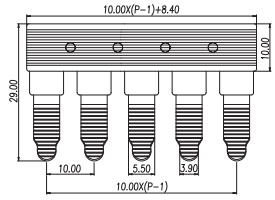
Dimensions - mm



CSC-10XXP

Use with	DP60
Poles (XX)	02, 03, 04, 10

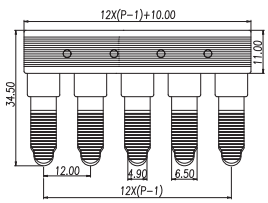
Dimensions - mm



CSC-16XXP

Use with	DP100
Poles (XX)	02, 03, 04, 10

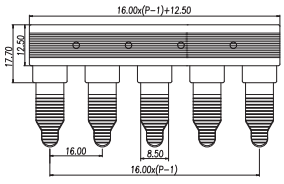
Dimensions - mm



CSC-35XXP

Use with	DP150
Poles (XX)	02, 03, 04, 10

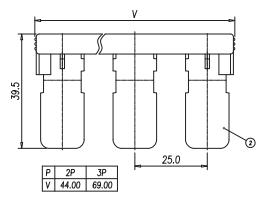
Dimensions - mm



CSC-95XXP

Use with	DP230
Poles (XX)	02, 03, 04, 10

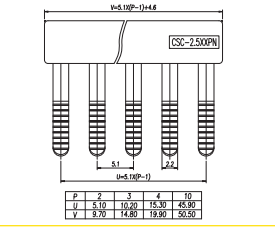
Dimensions - mm



CSC-2-5XXPN

Use with	DS20
Poles (XX)	02, 03, 04, 10

Dimensions - mm



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Accessories

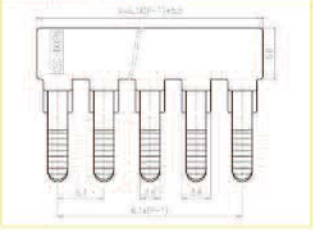
Side Insertion Bridges

CSC-4XXPN

Use with DS30

Poles (XX) 02, 03, 04, 10

Dimensions - mm

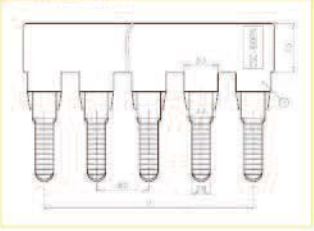


CSC-6XXPN

Use with DS50

Poles (XX) 02, 03, 04, 10

Dimensions - mm

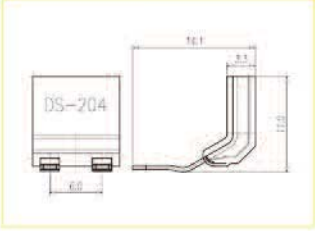


DS-204

Use with P25G
2P25G

Poles 02

Dimensions - mm

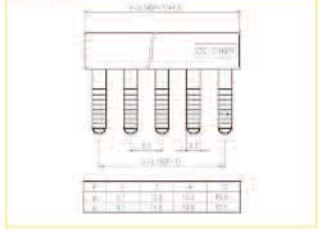


CSC-2-5XXPS

Use with DM20
P20S

Poles (XX) 02, 03, 04, 10

Dimensions - mm

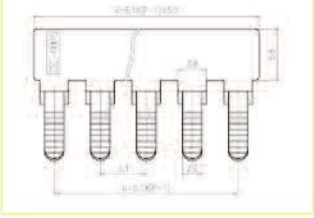


CSC-4XXPS

Use with DM30
P30S

Poles (XX) 02, 03, 04, 10

Dimensions - mm

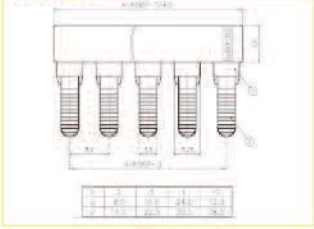


CSC-6XXPS

Use with DM50
P65S

Poles (XX) 02, 03, 04, 10

Dimensions - mm



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Accessories

Mounting Rails and Brackets

DRL15MM*
(15mm DIN-Rail)

DRL32MMG*
(32mm G-Type)

DRL35MMLO*
(35mm DIN-Rail - Low Profile)

DRL35MMHI*
(35mm DIN-Rail - High Profile)

NFTA Series**
(C-Rail)

NRA Series**
(C-Rail)

BRKT-ANGL
(Angle Bracket)

BRKT-FLT
(Flat Bracket)

*Available in 1 meter lengths only.

**Cut to length. Consult Bussmann for details.

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BussScribe Marking System

DPLT-001SET
PLOTTER SET

Description

- Pen is installed manually
- USB interface to PC
- 110-240Vac power supply
- WINDOWS® Operation System

System Kit Includes:

- Plotter Pens
- Support Plate
- Software
- Plotter
- Power Supplies
- USB Cable

DPLT-SPLT
SUPPORT PLATE

Description

Support plate adjustable to accommodate various sizes of marking labels. The support plate is universal and suitable for TM2xCB marking label series.

Each plotter set includes one support plate, additional plates are available separately.

PLOTTER PENS
DPLT-PEN *(Tip 0.25mm)*
DPLT-PEN2 *(Tip 0.35mm)*

Description

Disposable black ink cartridge pen.

Single pen per pack.

Marking Label Selection Chart

Part Number	Length (mm)	Width (mm)	Line x Row	Number of Tags	Applicable Block Part Numbers
TM20CB	5.8	5.1	20 x 10	200	F20T0P, DM20, P20S, P25G, 2P25G
TM21CB	5.8	6.1	20 x 10	200	DDP30, DM30, P30S
TM22CB	5.8	8.0	20 x 8	160	DM50, P65S
TM26CB	12	5.1	12 x 12	144	DS20, DP25, DG25, DDNS10, DIS10
TM27CB	12	6.1	12 x 10	120	DS30, DP35, DG35
TM28CB	12	8.0	12 x 7	84	DS50, DP45, DP60, DP100, DP150, DP230, DG60, DG100, DG150, DG230, F520ST, F520STLED, F520DDST, DTST2

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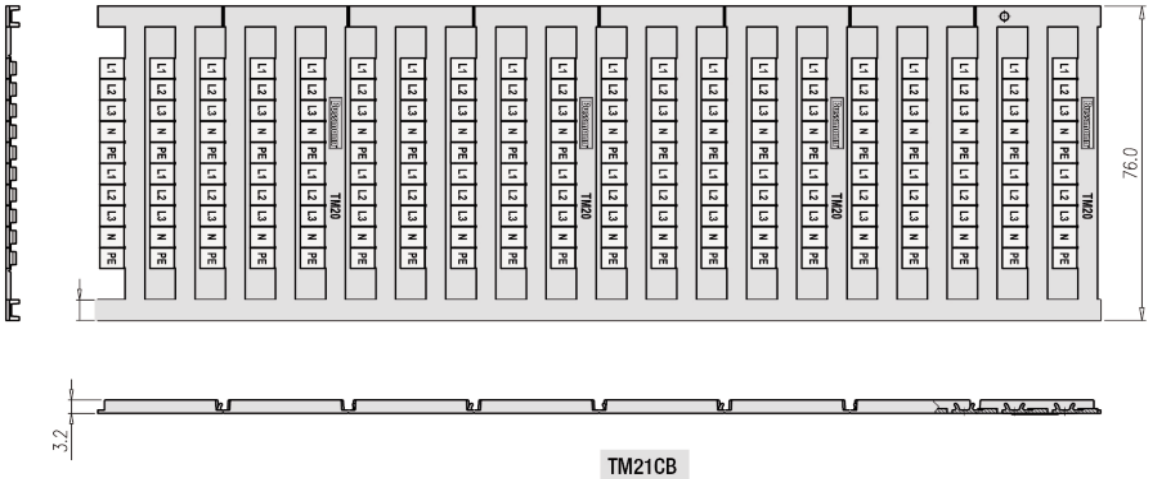
Marking Label Ordering Method (typical)

Example: **TM20CB–DH01, Horizontal Marking – L1, L2, L3, N, PE**

TM20CB Series - mm



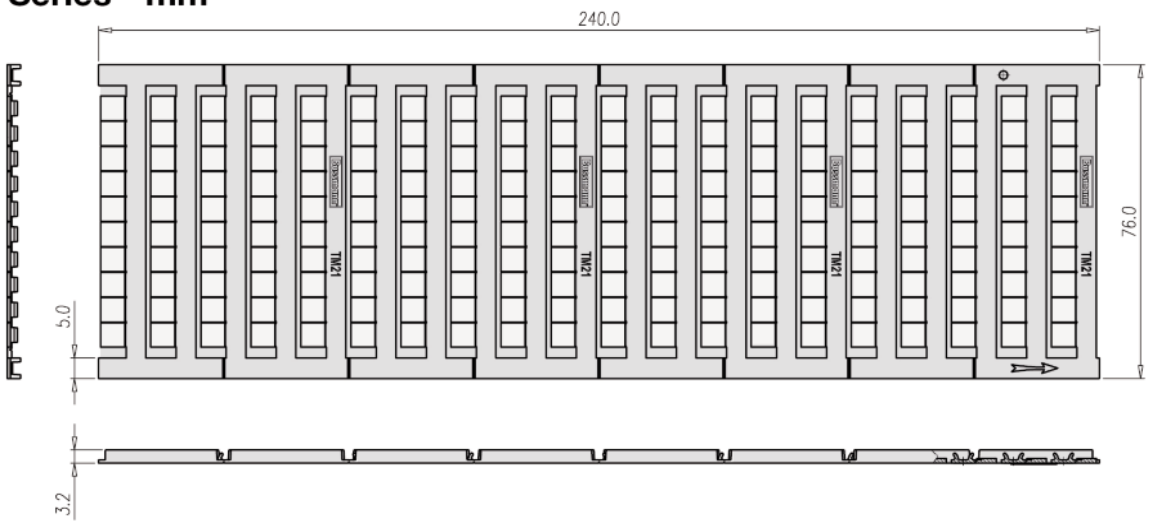
TM20CB

Part Numbers	Descriptions
TM20CB	Marking label, blank
TM20CB-DH01	Marking label, horizontal, (L1,L2,L3,N,PE) repeated 40 times
TM20CB-DH02	Marking label, horizontal, (L1,L2,L3,N) repeated 40 times
TM20CB-FH01	Marking label, horizontal, 1 to 10, repeated in 20 lines
TM20CB-FH02	Marking label, horizontal, 11 to 20, repeated in 20 lines
TM20CB-FH03	Marking label, horizontal, 21 to 30, repeated in 20 lines
TM20CB-FH04	Marking label, horizontal, 31 to 40, repeated in 20 lines
TM20CB-FH05	Marking label, horizontal, 41 to 50, repeated in 20 lines
TM20CB-EH01	Marking label, horizontal, 1 to 50, repeated in 4 sets
TM20CB-EH02	Marking label, horizontal, 51 to 100, repeated in 4 sets
TM20CB-DV01	Marking label, vertical, (L1,L2,L3,N,PE) repeated 40 times
TM20CB-DV02	Marking label, vertical, (L1,L2,L3,N) repeated 40 times
TM20CB-FV01	Marking label, vertical, 1 to 10, repeated in 20 lines
TM20CB-FV02	Marking label, vertical, 11 to 20, repeated in 20 lines
TM20CB-EV01	Marking label, vertical, 1 to 50, repeated in 4 sets

TM21CB

Part Numbers	Descriptions
TM21CB	Marking label, blank
TM21CB-DH01	Marking label, horizontal, (L1,L2,L3,N,PE) repeated 40 times
TM21CB-DH02	Marking label, horizontal, (L1,L2,L3,N) repeated 40 times
TM21CB-FH01	Marking label, horizontal, 1 to 10, repeated in 20 lines
TM21CB-FH02	Marking label, horizontal, 11 to 20, repeated in 20 lines
TM21CB-FH03	Marking label, horizontal, 21 to 30, repeated in 20 lines
TM21CB-FH04	Marking label, horizontal, 31 to 40, repeated in 20 lines
TM21CB-FH05	Marking label, horizontal, 41 to 50, repeated in 20 lines
TM21CB-EH01	Marking label, horizontal, 1 to 50, repeated in 4 sets
TM21CB-EH02	Marking label, horizontal, 51 to 100, repeated in 4 sets
TM21CB-DV01	Marking label, vertical, (L1,L2,L3,N,PE) repeated 40 times
TM21CB-DV02	Marking label, vertical, (L1,L2,L3,N) repeated 40 times
TM21CB-FV01	Marking label, vertical, 1 to 10, repeated in 20 lines
TM21CB-FV02	Marking label, vertical, 11 to 20, repeated in 20 lines
TM21CB-EV01	Marking label, vertical, 1 to 50, repeated in 4 sets

TM21CB Series - mm



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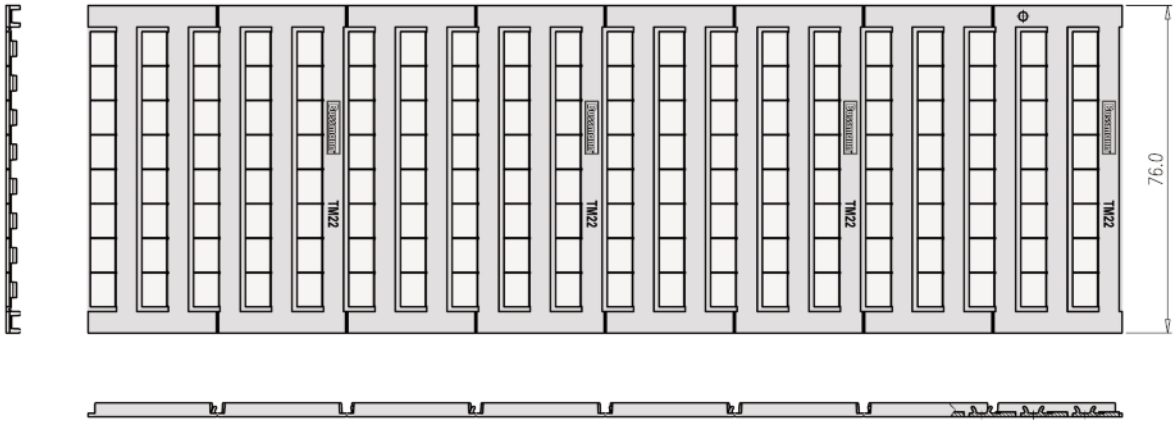
Marking Label Ordering Method (typical)

TM22CB Series - mm



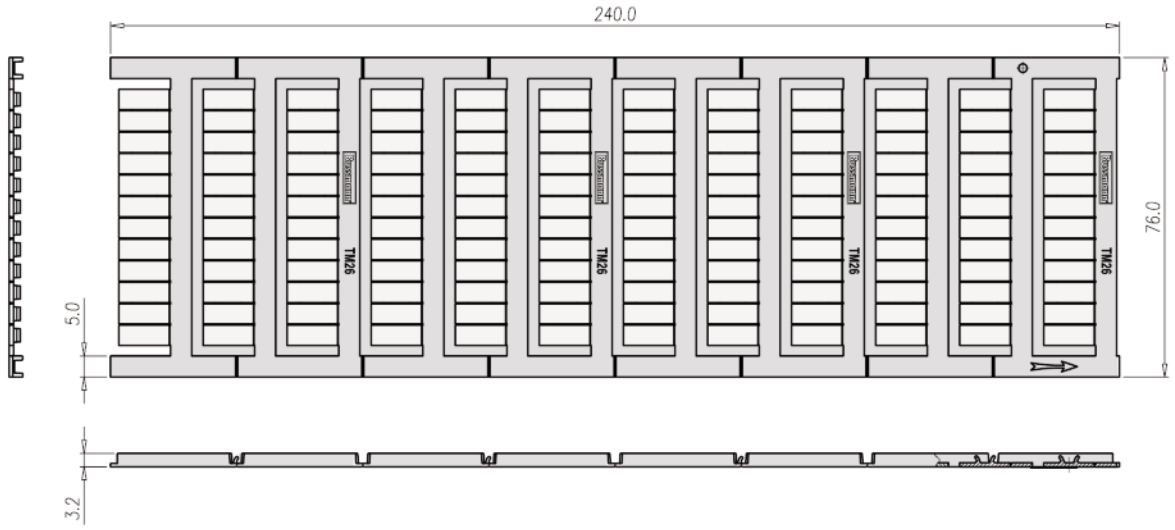
TM22CB

Part Numbers	Descriptions
TM22CB	Marking label, blank
TM22CB-DH01	Marking label, horizontal, (L1,L2,L3,N,PE) repeated 30 times
TM22CB-DH02	Marking label, horizontal, (L1,L2,L3,N) repeated 40 times
TM22CB-FH01	Marking label, horizontal, 1 to 10, repeated in 16 lines
TM22CB-FH02	Marking label, horizontal, 11 to 20, repeated in 16 lines
TM22CB-FH03	Marking label, horizontal, 21 to 30, repeated in 16 lines
TM22CB-FH04	Marking label, horizontal, 31 to 40, repeated in 16 lines
TM22CB-FH05	Marking label, horizontal, 41 to 50, repeated in 16 lines
TM22CB-EH01	Marking label, horizontal, 1 to 50, repeated in 3 sets
TM22CB-EH02	Marking label, horizontal, 51 to 100, repeated in 3 sets
TM22CB-DV01	Marking label, vertical, (L1,L2,L3,N,PE) repeated 30 times
TM22CB-DV02	Marking label, vertical, (L1,L2,L3,N) repeated 40 times
TM22CB-FV01	Marking label, vertical, 1 to 10, repeated in 16 lines
TM22CB-FV02	Marking label, vertical, 11 to 20, repeated in 16 lines
TM22CB-EV01	Marking label, vertical, 1 to 50, repeated in 3 sets

TM26CB

Part Numbers	Descriptions
TM26CB	Marking label, blank
TM26CB-DH01	Marking label, horizontal, (L1,L2,L3,N,PE) repeated 24 times
TM26CB-DH02	Marking label, horizontal, (L1,L2,L3,N) repeated 36 times
TM26CB-FH01	Marking label, horizontal, 1 to 10, repeated in 12 lines
TM26CB-FH02	Marking label, horizontal, 11 to 20, repeated in 12 lines
TM26CB-FH03	Marking label, horizontal, 21 to 30, repeated in 12 lines
TM26CB-FH04	Marking label, horizontal, 31 to 40, repeated in 12 lines
TM26CB-FH05	Marking label, horizontal, 41 to 50, repeated in 12 lines
TM26CB-EH01	Marking label, horizontal, 1 to 50, repeated in 2 sets
TM26CB-EH02	Marking label, horizontal, 51 to 100, repeated in 2 sets
TM26CB-DV01	Marking label, vertical, (L1,L2,L3,N,PE) repeated 24 times
TM26CB-DV02	Marking label, vertical, (L1,L2,L3,N) repeated 36 times
TM26CB-FV01	Marking label, vertical, 1 to 10, repeated in 12 lines
TM26CB-FV02	Marking label, vertical, 11 to 20, repeated in 12 lines
TM26CB-EV01	Marking label, vertical, 1 to 50, repeated in 2 sets

TM26CB Series - mm



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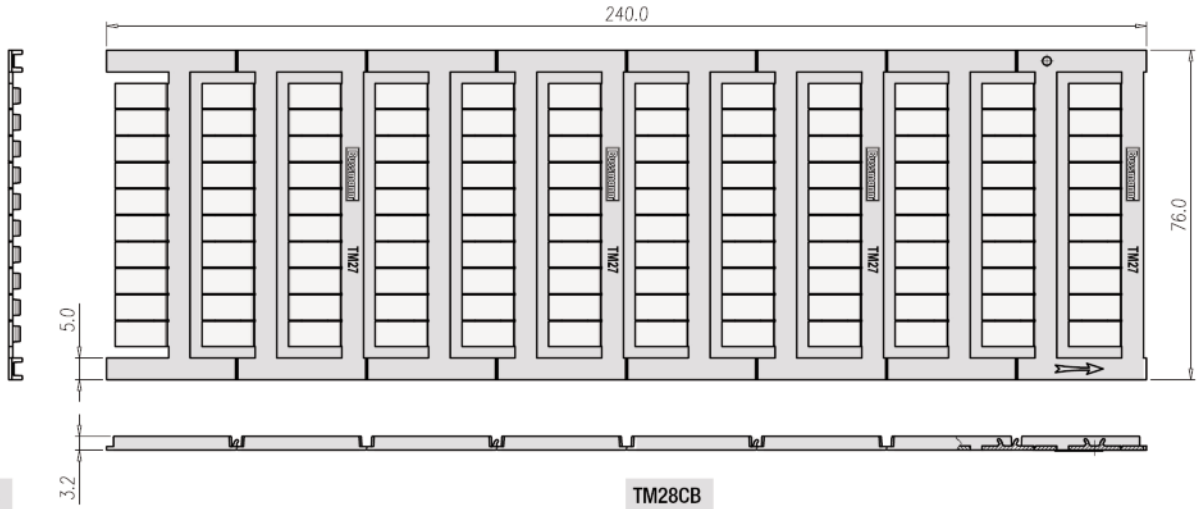
Marking Label Ordering Method (typical)

TM27CB Series - mm



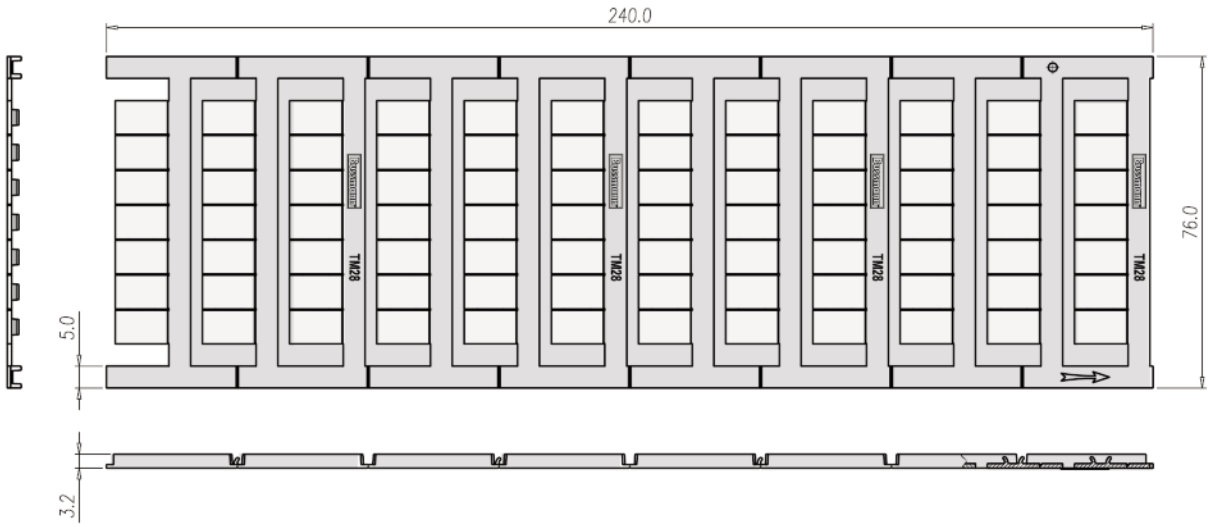
TM27CB

Part Numbers	Descriptions
TM27CB	Marking label, blank
TM27CB-DH01	Marking label, horizontal, (L1,L2,L3,N,PE) repeated 40 times
TM27CB-DH02	Marking label, horizontal, (L1,L2,L3,N) repeated 24 times
TM27CB-FH01	Marking label, horizontal, 1 to 10, repeated in 12 lines
TM27CB-FH02	Marking label, horizontal, 11 to 20, repeated in 12 lines
TM27CB-FH03	Marking label, horizontal, 21 to 30, repeated in 12 lines
TM27CB-FH04	Marking label, horizontal, 31 to 40, repeated in 12 lines
TM27CB-FH05	Marking label, horizontal, 41 to 50, repeated in 12 lines
TM27CB-EH01	Marking label, horizontal, 1 to 50, repeated in 2 sets
TM27CB-EH02	Marking label, horizontal, 1 to 50, repeated in 2 sets
TM27CB-DV01	Marking label, vertical, (L1,L2,L3,N,PE) repeated 24 times
TM27CB-DV02	Marking label, vertical, (L1,L2,L3,N) repeated 24 times
TM27CB-FV01	Marking label, vertical, 1 to 10, repeated in 12 lines
TM27CB-FV02	Marking label, vertical, 11 to 20, repeated in 12 lines
TM27CB-EV01	Marking label, vertical, 1 to 50, repeated in 2 sets

TM28CB

Part Numbers	Descriptions
TM28CB	Marking label, blank
TM28CB-DH01	Marking label, horizontal, (L1,L2,L3,N,PE) repeated 12 times
TM28CB-DH02	Marking label, horizontal, (L1,L2,L3,N) repeated 20 times
TM28CB-FH01	Marking label, horizontal, 1 to 10, repeated in 8 lines
TM28CB-FH02	Marking label, horizontal, 11 to 20, repeated in 8 lines
TM28CB-FH03	Marking label, horizontal, 21 to 30, repeated in 8 lines
TM28CB-FH04	Marking label, horizontal, 31 to 40, repeated in 8 lines
TM28CB-FH05	Marking label, horizontal, 41 to 50, repeated in 8 lines
TM28CB-EH01	Marking label, horizontal, 1 to 50, repeated in 1 sets
TM28CB-EH02	Marking label, horizontal, 51 to 100, repeated in 1 sets
TM28CB-DV01	Marking label, vertical, (L1,L2,L3,N,PE) repeated 12 times
TM28CB-DV02	Marking label, vertical, (L1,L2,L3,N) repeated 20 times
TM28CB-FV01	Marking label, vertical, 1 to 10, repeated in 8 lines
TM28CB-FV02	Marking label, vertical, 11 to 20, repeated in 8 lines
TM28CB-EV01	Marking label, vertical, 1 to 50, repeated in 1 sets

TM28CB Series - mm



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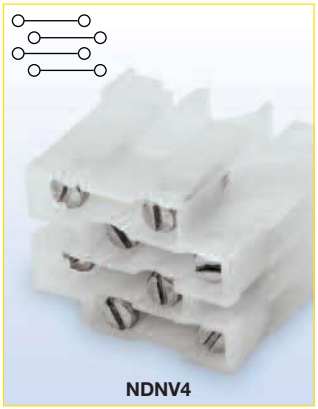
NDN Series Feed Through Blocks

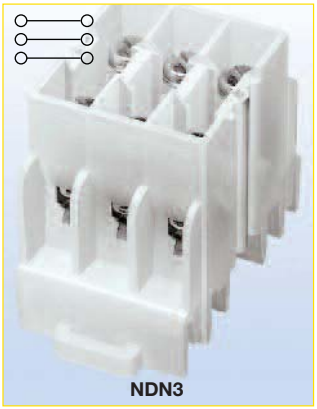
NDN Series

The NDN Series features a compact line of rail-mounted terminal blocks suitable for both 35mm DIN-Rail or C-Rail applications. Products easily snap onto the mounting rail for a quick, simple, low-cost solution. Available accessories include jumpers and marking tape.

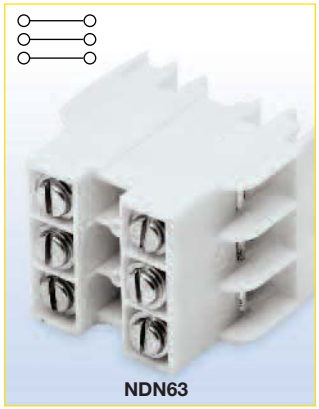
UL E62622
CSA File 15364
CSA File 47235 (NDN1, NDN111)



NDNV4



NDN3



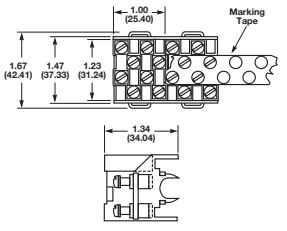
NDN63

Approval	
Technical Data	
Rated voltage	600V
Rated Current	30A
Center spacing, in (mm)	0.25 / 6.35
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~6
Number of Poles	4
Circuits per foot	48
Torque(N•m)	2
Torque(lb-in)	18
Screw	#6-32
WxHxD(mm)	25.4 x 34 x 42.4

Colors	Cat. No.
○ White (Standard)	NDNV4-WH
● Black	NDNV4-BK
● Yellow	NDNV4-YE

Accessories	Cat. No.
Block	
4 circuits	JN4
Jumper	
Marking Tape	MTC6
35mm DIN-Rail	DRL35MML0 DRL35MMHI
Mounting	
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series
Modular Option	N/A

Dimensions - in (mm)

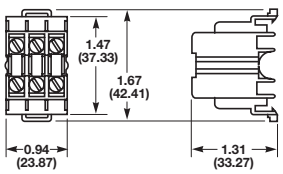


Approval	
Technical Data	
Rated voltage	600V
Rated Current	30A
Center spacing, in (mm)	0.3 / 7.62
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~6
Number of Poles	3
Circuits per foot	38
Torque(N•m)	2
Torque(lb-in)	18
Screw	#6-32
WxHxD(mm)	23.9 x 33.3 x 42.4

Colors	Cat. No.
○ White (Standard)	NDN3-WH
● Black	NDN3-BK
● Blue	NDN3-BL
● Yellow	NDN3-YE
● Red	NDN3-RE

Accessories	Cat. No.
2 circuits	JNDN3
	MT12-1-2
35mm DIN-Rail	DRL35MML0 DRL35MMHI
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series
	N/A

Dimensions - in (mm)

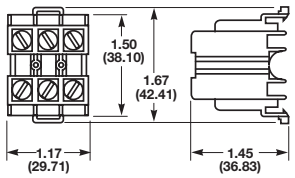


Approval	
Technical Data	
Rated voltage	600V
Rated Current	65A
Center spacing, in (mm)	0.375 / 9.52
Conductor cross-section, flexible (AWG/mm²)	18~6 / 1~16
Number of Poles	3
Circuits per foot	30
Torque(N•m)	4
Torque(lb-in)	35
Screw	#10-32
WxHxD(mm)	29.7 x 36.8 x 42.4

Colors	Cat. No.
○ White (Standard)	NDN63-WH
● Black	NDN63-BK
● Yellow	NDN63-YE

Accessories	Cat. No.
2 circuits	JN3
	MT12-1-2
35mm DIN-Rail	DRL35MML0 DRL35MMHI
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series
	N/A

Dimensions - in (mm)



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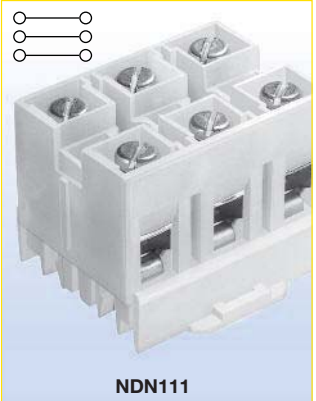
NDN Series Feed Through Blocks

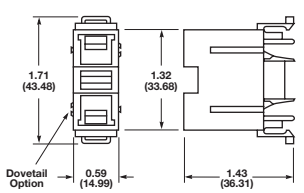
NDN1



NDN111

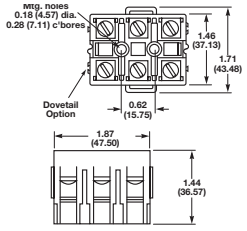
Approval	
Technical Data	
Rated voltage	600V
Rated Current	90A
Center spacing in (mm)	0.635 / 16.31
Conductor cross-section, flexible (AWG/mm²)	18~2 / 1~35
Number of Poles	1
Circuits per foot	18
Torque(N•m)	3.6
Torque(lb-in)	32
Screw	1/4-28
WxHxD(mm)	15 x 30.3 x 43.5
Colors	**Cat. No.**
○ White (Standard)	NDN1-WH
Accessories	**Cat. No.**
	MT12-1-2
35mm DIN-Rail	DRL35MML0 DRL35MMHI
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series
	NDN1A-WH

Dimensions - in (mm)



Approval	
Technical Data	
Rated voltage	600V
Rated Current	90A
Center spacing in (mm)	0.635 / 16.31
Conductor cross-section, flexible (AWG/mm²)	18~2 / 1~35
Number of Poles	3
Circuits per foot	18
Torque(N•m)	3.6
Torque(lb-in)	32
Screw	1/4-28
WxHxD(mm)	47.5 x 36.6 x 43.5
Colors	**Cat. No.**
○ White (Standard)	NDN111-WH
● Black	NDN111-BK
● Blue	NDN111-BL
● Yellow	NDN111-YE
● Red	NDN111-RE
Accessories	**Cat. No.**
2 circuits	JN1
	MT12-1-2
35mm DIN-Rail	DRL35MML0 DRL35MMHI
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series
	NDN111A-WH, NDN111A-BK, NDN111A-YE

Dimensions - in (mm)



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C-Rail Feed Through Blocks

C-Rail Series

C-Rail terminal blocks provide a low-profile, compact foot-print solution for various wire connection applications. Products feature an easy, snap-on installation method and an array of accessories including jumpers and marking strips.

UL E62622 (excluding N512)
CSA File 15364
CSA File 47235 (NFT3)

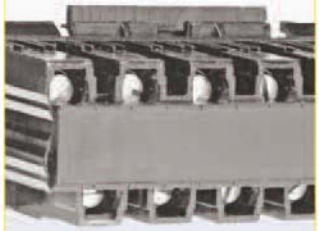
Block

Jumper

Marking Tape

Mounting

12-pole



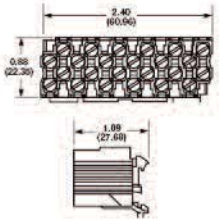
N512

Approval	
Technical Data	
Rated voltage	300V 600V
Rated current	20A 5A
Center spacing in (mm)	0.197 / 5.0
Conductor cross-section, flexible (AWG/mm²)	22~12 / 0.5~4
Number of Poles	12
Circuits per foot	60
Torque(N•m)	1.4
Torque(lb-in)	12
Screw	#4-48
WxHxD(mm)	61.0 x 27.7 x 22.4

Colors	Cat. No.
● Black (Standard)	N512-BK

Accessories	Cat. No.
12 circuits	JN512
	AT512
15mm DIN-Rail	DRL15MM
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)



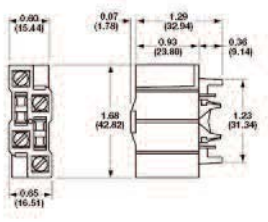
NFT2

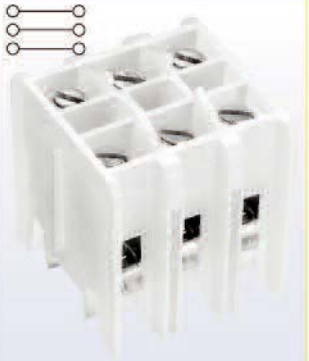
Approval	
Technical Data	
Rated voltage	600V
Rated Current	40A
Center spacing in (mm)	0.28 / 7.13
Conductor cross-section, flexible (AWG/mm²)	22~8 / 0.5~10
Number of Poles	2
Circuits per foot	38
Torque(N•m)	2
Torque(lb-in)	18
Screw	#8-32
WxHxD(mm)	16.5 x 34.7 x 42.8

Colors	Cat. No.
○ White (Standard)	NFT2-WH
● Black	NFT2-BK
● Blue	NFT2-BL
● Red	NFT2-RE

Accessories	Cat. No.
2 circuits	JN2
	MT12-1-2
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)





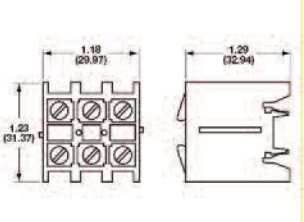
NFT3

Approval	
Technical Data	
Rated voltage	600V
Rated Current	40A
Center spacing in (mm)	0.39 / 9.91
Conductor cross-section, flexible (AWG/mm²)	22~8 / 0.5~10
Number of Poles	3
Circuits per foot	28
Torque(N•m)	2
Torque(lb-in)	18
Screw	#8-32
WxHxD(mm)	30.0 x 32.9 x 31.4

Colors	Cat. No.
○ White (Standard)	NFT3-WH
● Black	NFT3-BK
● Blue	NFT3-BL
● Yellow	NFT3-YE
● Red	NFT3-RE

Accessories	Cat. No.
2 circuits	JN3
	MT12-1-2
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)



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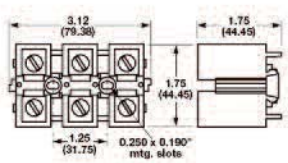
C-Rail Feed Through Blocks

NC3

Approval	
Technical Data	
Rated voltage	600V
Rated Current	175A
Center spacing in (mm)	1.06 / 26.92
Conductor cross-section, flexible (AWG/mm²)	14–2/0 /2.5–70 Cu/AL
Number of Poles	3
Circuits per foot	11
Torque(N•m)	5.1
Torque(lb-in)	45
Screw	5/16 - 24
WxHxD(mm)	79.4 x 44.5 x 44.5
Colors	**Cat. No.**
○ White (Standard)	NC3-WH
● Black	NC3-BK

Accessories	Cat. No.
	MT12-1-2
Panel Mount C-Rail	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)

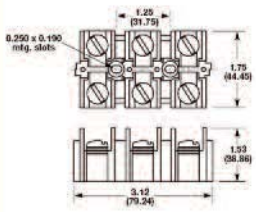


NSE3

Approval	
Technical Data	
Rated voltage	600V
Rated Current	115A
Center spacing in (mm)	1.06 / 26.92
Conductor cross-section, flexible (AWG/mm²)	Ring Terminals Only
Number of Poles	3
Circuits per foot	11
Torque(N•m)	3.6
Torque(lb-in)	32
Screw	1/4 - 28
WxHxD(mm)	79.2 x 38.9 x 44.5
Colors	**Cat. No.**
○ White (Standard)	NSE3-WH

Accessories	Cat. No.
2 circuits	JNSE3
	MT12-1-2
Panel Mount C-Rail	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)

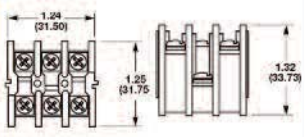


NSS3

Approval	
Technical Data	
Rated voltage	600V
Rated Current	30A
Center spacing in (mm)	0.385 / 9.77
Conductor cross-section, flexible (AWG/mm²)	Ring Terminals Only
Number of Poles	3
Circuits per foot	28
Torque(N•m)	1.4
Torque(lb-in)	12
Screw	#6-32
WxHxD(mm)	31.5 x 33.7 x 31.8
Colors	**Cat. No.**
○ White (Standard)	NSS3-WH
● Black	NSS3-BK

Accessories	Cat. No.
2 circuits	JNSS3
	MT12-1-2
C-Rail	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Depluggable Blocks

Depluggable Blocks

Depluggable terminal blocks are available for both 35mm DIN-Rail and C-Rail applications. These blocks provide a simple depluggable* option for panel wiring applications with the convenience of quick, easy, snap-on installation. Product accessories, such as jumpers and marking tape, are available for most products.

UL E62622
CSA File 15364
CSA File 47235 (15188 Series)

*Not for use as a load break disconnect.

15188

15288

PLU3

Approval			
Technical Data			
Rated voltage	600V	600V	600V
Rated Current	30A	65A	40A
Center spacing in (mm)	0.375 / 9.52	0.54 / 13.7	0.39 / 9.91
Conductor cross-section, flexible (AWG/mm²)	16~12 / 1.5~4	16~6 / 1.5~16	22~8 / 0.5~10
Number of Poles	3 or 4	3	3
Circuits per foot	32	22	28
Torque(N•m)	1.4	2.3	2
Torque(lb-in)	12	20	18
Screw	#6-32	#8-32	#8-32
WxHxD(mm) 3-Pole 4-Pole	 30.2 x 49.3 x 47.8 39.2 x 49.3 x 47.8	WxHxD(mm) 43.2 x 49.3 x 47.9 N/A	WxHxD(mm) 31.8 x 47.0 x 45.6 N/A

Block

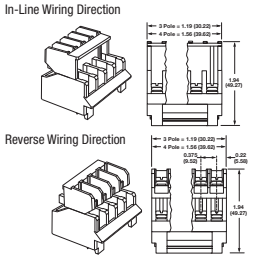
Colors	Cat. No.	Colors	Cat. No.	Colors	Cat. No.
○ White (Standard)	15188-3	○ White (Standard)	15288	○ White (Standard)	PLU3-WH
○ White (Standard)	15188-4			● Black	PLU3-BK
				● Yellow	PLU3-YE

Accessories	Cat. No.	Accessories	Cat. No.	Accessories	Cat. No.
Jumper 2 circuits	 15188J-2-J			2 circuits	JN3
Marking Tape					MT12-1-2
Mounting 35mm DIN-Rail	 DRL35MMLO DRL35MMHI	35mm DIN-Rail	DRL35MMLO DRL35MMHI	C-Rail (AL) C-Rail (low profile)	NFTA Series NRA Series
Configurable Option Reverse Wiring Locking Reverse; Locking	 15188-_R 15188-_S 15188-_RS	Reverse Wiring Screw Together Locking	15288-R 15288-ST 15288-S		
Options offered for both pole lengths		Options may be combined			

Dimensions - in (mm)

In-Line Wiring Direction

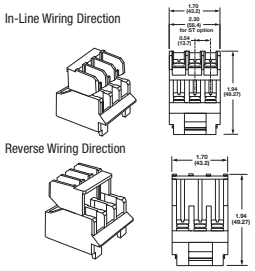
Reverse Wiring Direction



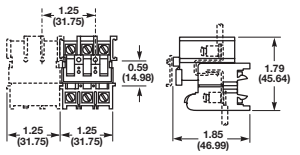
Dimensions - in (mm)

In-Line Wiring Direction

Reverse Wiring Direction



Dimensions - in (mm)

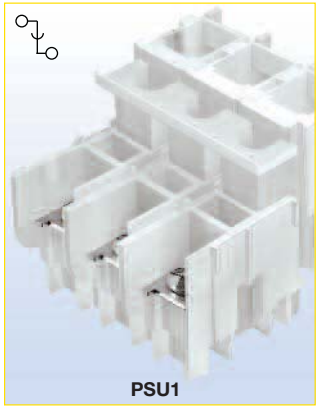


For more information, visit www.cooperbussmann.com/DatasheetsEle

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Depluggable Blocks

PLU1



PSU1

Approval	
Technical Data	
Rated voltage	600V
Rated Current	70A
Center spacing in (mm)	0.625 / 15.88
Conductor cross-section, flexible (AWG/mm²)	18~4 / 1.0~25
Number of Poles	1 - 3
Circuits per foot	19
Torque(N•m)	3.6
Torque(lb-in)	32
Screw	1/4 - 28
WxHxD(mm)	
1-Pole	18.5 x 47.0 x 45.6
2-Pole	34.0 x 47.0 x 45.6
3-Pole	49.5 x 47.0 x 45.6

Colors	Cat. No.
○ White (1-Pole)	PLU1-WH
○ White (2-Pole)	PLU11-WH
○ White (3-Pole)	PLU111-WH

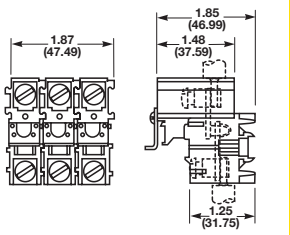
Accessories	Cat. No.
2 circuits	JN1
	MT12-1-2
C-Rail (AL)	NFTA Series
C-Rail (low profile)	NRA Series

Approval	
Technical Data	
Rated voltage	600V
Rated Current	45A
Center spacing in (mm)	0.625 / 15.88
Conductor cross-section, flexible (AWG/mm²)	Ring Terminals Only
Number of Poles	1 - 3
Circuits per foot	19
Torque(N•m)	2.7
Torque(lb-in)	24
Screw	#10-32
WxHxD(mm)	
1-Pole	18.5 x 49.1 x 62.1
2-Pole	34.4 x 49.1 x 62.1
3-Pole	50.3 x 49.1 x 62.1

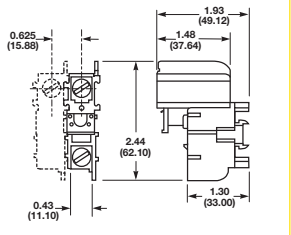
Colors	Cat. No.
○ White (1-Pole)	PSU1-WH
○ White (2-Pole)	PSU11-WH
○ White (3-Pole)	PSU111-WH

Accessories	Cat. No.
	MT12-1-2
C-Rail (AL)	NFTA Series
C-Rail (low profile)	NRA Series

Dimensions - in (mm)



Dimensions - in (mm)



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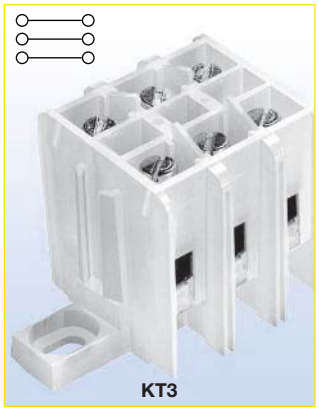
Multi-Pole Panel Mount Blocks

Panel Mount Blocks

Multi-pole panel mount terminal blocks provide a compact, high density circuit connection solution without the necessity of a mounting rail. These products are designed to be nested together to form one string of circuit connections.

UL E62622
CSA 15364 (excluding PLK3)



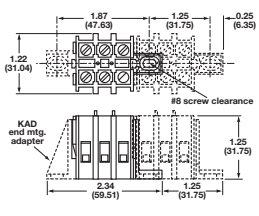
KT3

Technical Data	
Rated voltage	600V
Rated Current	40A
Center spacing in (mm)	0.39 / 9.91
Conductor cross-section, flexible (AWG/mm²)	22~8 / 0.5~10
Number of Poles	3
Circuits per foot	28
Torque(N•m)	2
Torque(lb-in)	18
Screw	#8-32
WxHxD(mm)	59.5 x 31.8 x 31.0

Colors	Cat. No.
○ White (Standard)	KT3-WH
● Black	KT3-BK
● Red	KT3-RE

Accessories	Cat. No.
2 circuits	JN3
	MT12-1-2
Mounting Foot	KAD

Dimensions - in (mm)



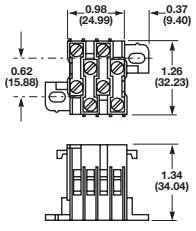
KT4

Technical Data	
Rated voltage	600V
Rated Current	30A
Center spacing in (mm)	0.25 / 6.35
Conductor cross-section, flexible (AWG/mm²)	22~10 / 0.5~6
Number of Poles	4
Circuits per foot	48
Torque(N•m)	2
Torque(lb-in)	18
Screw	#6-32
WxHxD(mm)	43.8 x 34.0 x 32.2

Colors	Cat. No.
○ White*	KT4-WH-A
○ White*	KT4-WH-B
● Black	KT4-BK

Accessories	Cat. No.
4 circuits	JN4
	MTC6

Dimensions - in (mm)



*The KT4 products are designed to be nested together to form one string of circuit connections. When used in series, order

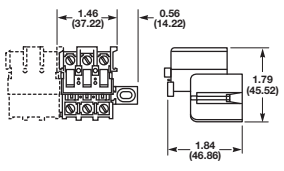
PLK3

Technical Data	
Rated voltage	600V
Rated Current	40A
Center spacing in (mm)	0.39 / 9.91
Conductor cross-section, flexible (AWG/mm²)	22~8 / 0.5~10
Number of Poles	3
Circuits per foot	28
Torque(N•m)	2
Torque(lb-in)	18
Screw	#8-32
WxHxD(mm)	65.7 x 46.9 x 45.5

Colors	Cat. No.
○ White (Standard)	PLK3-WH

Accessories	Cat. No.
2 circuits	JN3
	MT12-1-2
Mounting Foot	KAD

Dimensions - in (mm)



Block

Jumper

Marking Tape

Mounting

For more information, visit www.cooperbussmann.com/DatasheetsEle

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Quick Connect Blocks

Quick Connect Blocks

For a time saving alternative for electrical connections, the Bussmann quick connect terminal blocks offer a convenient solution. With male spade terminals, wire connections are made quickly and simply with these terminal blocks. Products are offered for C-Rail and panel mount applications.

UL E62622
CSA 15364 (excluding NTQ23)

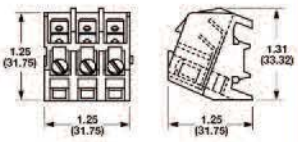
NTQ23

Approval	
Technical Data	
Rated voltage	600V
Rated Current	40A
Center spacing in (mm)	0.39 / 9.91
Conductor cross-section, flexible (AWG/mm²)	22–8 / 0.5–10
Number of Poles	3
Circuits per foot	28
Torque(N•m)	2
Torque(lb-in)	18
Screw	#8-32
WxHxD(mm)	31.8 x 31.8 x 33.2

Colors	Cat. No.
White (Standard)	NTQ23-WH

Accessories	Cat. No.
Marking Tape	MT12-1-2
Mounting C-Rail C-Rail (low profile)	 NFTA Series NRA Series

Dimensions - in (mm)



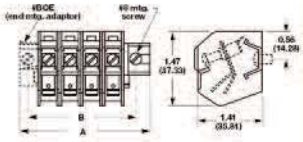
BNQ21

Approval	
Technical Data	
Rated voltage	600V
Rated Current	40A
Center spacing in (mm)	0.437 / 11.1
Conductor cross-section, flexible (AWG/mm²)	22–8 / 0.5–10
Number of Poles	1
Circuits per foot	24
Torque(N•m)	2
Torque(lb-in)	18
Screw	#8-32
WxHxD(mm)	33.3 x 35.8 x 37.3

Colors	Cat. No.
White (Standard)	BNQ21-WH

Accessories	Cat. No.
Mounting Foot	BQE

Dimensions - in (mm)



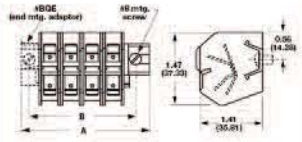
BQQ41

Approval	
Technical Data	
Rated voltage	600V
Rated Current	30A
Center spacing in (mm)	0.437 / 11.1
Conductor cross-section, flexible (AWG/mm²)	.25" Quick Connect Terminals Only
Number of Poles	1
Circuits per foot	24
Torque(N•m)	NA
Torque(lb-in)	NA
Screw	NA
WxHxD(mm)	33.3 x 35.8 x 37.3

Colors	Cat. No.
White (Standard)	BQQ41-WH

Accessories	Cat. No.
Mounting Foot	BQE

Dimensions - in (mm)



Block

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Double Row Terminal Blocks

Series TB100

Specifications

Rating: 30A, 300V*

Center Spacing: 0.375″ or 3/8″ (9.52mm)

Wire Range: #14 - 22 AWG Cu

Screw Size: #6-32 philslot screws

Torque Rating: 9 lb-in

Distance Between Barriers: 0.30″ (7.62mm)

Mounting: #6 screws

Operating Temperature: 130°C (266°F) max., -40°C (-40°F) min.

Materials: Molded base: Black, UL rated 94V0 thermoplastic

Terminal plating: Tin over brass; Screws: Zinc-plated steel

Breakdown Voltage: 3600V

Agency Information: UL File E62622/CSA File 47235; IEC Compliance; CE Certified

* Max rating shown; some options may be rated lower.

TB100-08

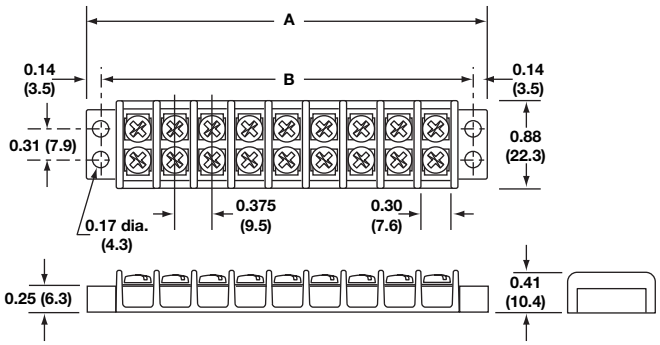
TB100-04SP

Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	1.40	1.12	14	5.90	5.62	26	10.40	10.12
03	1.78	1.50	15	6.28	6.00	27	10.78	10.50
04	2.16	1.88	16	6.66	6.38	28	11.16	10.88
05	2.53	2.25	17	7.03	6.75	29	11.53	11.25
06	2.90	2.62	18	7.40	7.12	30	11.90	11.62
07	3.28	3.00	19	7.78	7.50	31	12.28	12.00
08	3.66	3.38	20	8.16	7.88	32	12.66	12.38
09	4.03	3.75	21	8.53	8.25	33	13.03	12.75
10	4.40	4.12	22	8.90	8.62	34	13.40	13.12
11	4.78	4.50	23	9.28	9.00	35	13.78	13.50
12	5.16	4.88	24	9.66	9.38	36	14.16	13.88
13	5.53	5.25	25	10.03	9.75			

1" = 25.4mm.

TB100- in (mm)



Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking/Cover	Hardware Options
TB100 —	☐☐	☐☐☐	☐☐	☐☐☐☐
	02 to **36**	Blank - steel philslot, zinc-plated **00** - screws shipped bulk **B** - brass philslot, nickel-plated **SP** - steel Sems philslot, zinc-plated	**L1** to **L6** Marking Options (See page 318) Marker Strips (See page 319) Special Markings (See page 319) Covers (See page 318)	**QC1** to **QC20** - quick connects **Custom Options**** **J101** - flat slip-on jumper (2 position only) **0J2** - over barrier jumpers **0J4** - over barrier jumpers

**Contact factory for pole configuration.

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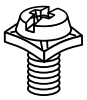
Double Row Terminal Blocks

Screw Options

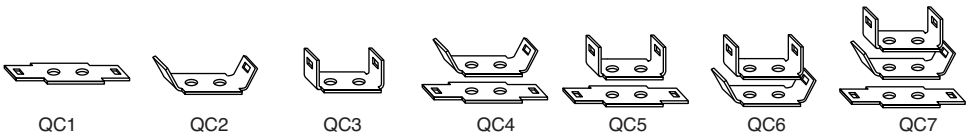


B
Brass Philslot
Nickel-Plated

SP
Steel SEMS
Philslot Zinc-Plated

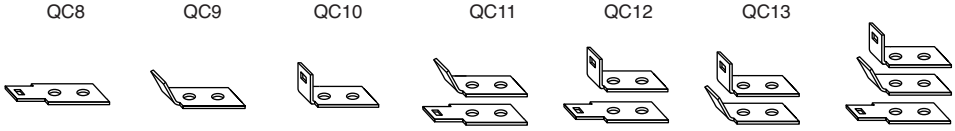
Hardware Options

Quick Connects – Assembled: Terminals 0.187" x 0.020". Maximum current rating 13 amps. For other orientations, contact Bussmann.



QC1 QC2 QC3 QC4 QC5 QC6 QC7

QC8 QC9 QC10 QC11 QC12 QC13



QC14 QC15 QC16 QC17 QC18 QC19 QC20

Quick Connects – Bulk: minimum order per part number – 100 pieces.

QC101-J
Flat – none

QC102-J
QC 45° – none

QC103-J
QC 90° – none

QC104-J
Flat – Flat

QC105-J
Flat – QC 45°

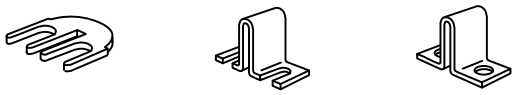
QC106-J
Flat – QC 90°

QC107-J
QC 45° – QC 45°

QC108-J
QC 45° – QC 90°

QC109-J
QC 90° – QC 90°

Jumpers – Bulk: minimum order per part number – 100 pieces. Contact Bussmann for jumper assembly.



J101
Flat slip-on
(Bulk: J101-J)

OJ2
Slip-on over barrier
(Bulk: OJ2-J)

OJ4
Closed over barrier
(Bulk: OJ4-J)

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Double Row Terminal Blocks

Series TB200 & TB200HB

Specifications
Ratings:

Volts: — 300V* (TB200)
— 600V* (TB200HB)

Amps: — 30A*

Center Spacing: 0.437″ or 7/16″ (11.10mm)

Wire Range: #12 - 22 AWG Cu

Screw Size: #6-32 philslot screws

Torque Rating: 9 lb-in

Distance Between Barriers: 0.353″ (8.97mm)

Mounting: #6 screws

Operating Temperature: 130°C (266°F) max., -40°C (-40°F) min.

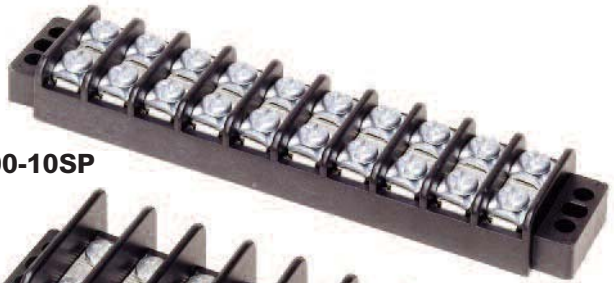
Materials: Molded base: Black, UL rated 94V0 thermoplastic

Terminal plating: Tin over brass; Screws: Zinc-plated steel

Breakdown Voltage: 4800V

Agency Information: UL File E62622, CSA File 47235 & 15364; IEC Compliance; CE Certified

* Max rating shown; some options may be rated lower.



TB200-10SP

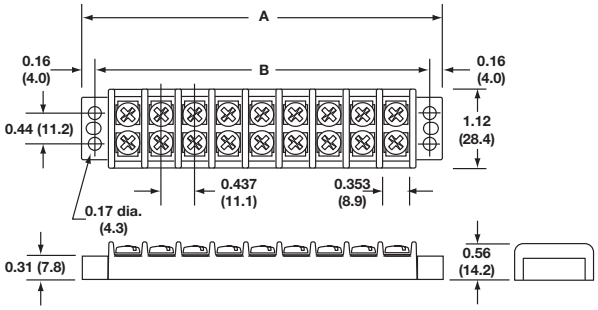
TB200HB-06

Dimensions - in

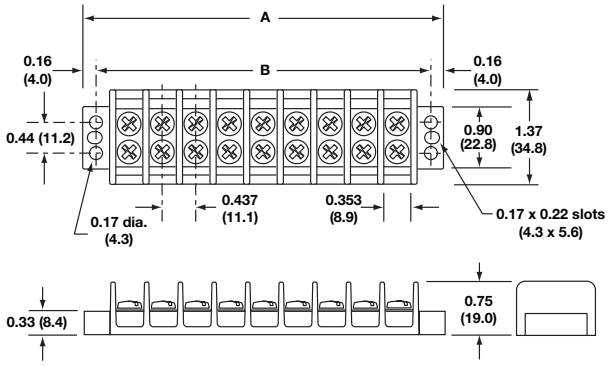
Poles	A	B	Poles	A	B	Poles	A	B
02	1.63	1.31	12	6.00	5.68	22	10.37	10.06
03	2.07	1.75	13	6.44	6.12	23	10.81	10.50
04	2.51	2.18	14	6.87	6.56	24	11.25	10.93
05	2.94	2.62	15	7.31	7.00	25	11.68	11.37
06	3.38	3.06	16	7.75	7.43	26	12.12	11.81
07	3.82	3.50	17	8.19	7.87	27	12.56	12.25
08	4.25	3.93	18	8.62	8.31	28	13.00	12.68
09	4.69	4.37	19	9.06	8.75	29	13.44	13.12
10	5.13	4.81	20	9.50	9.18	30	13.87	13.56
11	5.57	5.25	21	9.94	9.62			

1” = 25.4mm.

TB200 - in (mm)



TB200HB



Catalog Number Build-A-Code

Series

TB □ □ □ □ □ – □ □

- **200** - Standard
- **200HB** - High barrier

Poles

- **02** to **30**

Screw Options

□ □ □

- Blank - Steel philslot, zinc-plated
- **00** - Screws shipped bulk
- **B** - Brass philslot, nickel-plated
- **BS** - Brass Sems philslot, nickel-plated
- **SP** - Steel Sems philslot, zinc-plated
- **P** - Steel Sems (P-style)
- **ST** - Stainless steel, philslot
- **SS** - Stainless steel Sems, philslot

Marking/Cover

□ □

- **L1** to **L6** - Marking Options (See page 318)
- Special Markings (See page 318)
- Covers (See page 318)
- Marking Strips (See page 319)

Hardware Options

□ □ □ □

- **QC1** to **QC20** - Quick connects

Custom Options**

- **J201** - Flat slip-on jumper (2 position only)
- **0J3** - Over barrier jumpers
- **0J5** - Over barrier jumpers
- **0J7** - Over barrier jumpers

**Contact factory for pole configuration

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Double Row Terminal Blocks

Screw Options

B
Brass Philslot
Nickel-Plated
Bulk: B001-7016-J

BS
Brass SEMS
Philslot Nickel-Plated
B001-7019-J

SP
Steel SEMS
Philslot Zinc-Plated
B001-7007-J

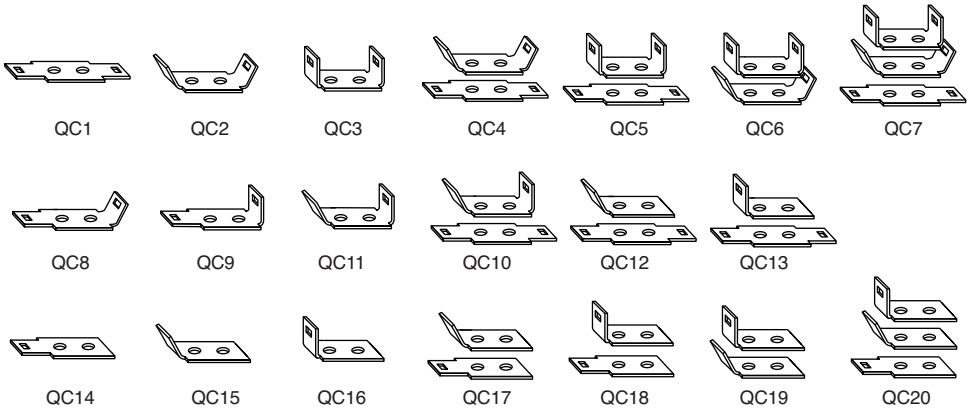
P
Steel SEMS
(P-Style)
B001-7000-J

ST
Stainless Steel
Philslot
F507-J

SS
Stainless Steel
SEMS Philslot
B001-7085-J

Hardware Options

Quick Connects – Assembled: Terminals 0.25" x 0.031". Maximum current rating 20 amps. For other orientations, contact Bussmann.

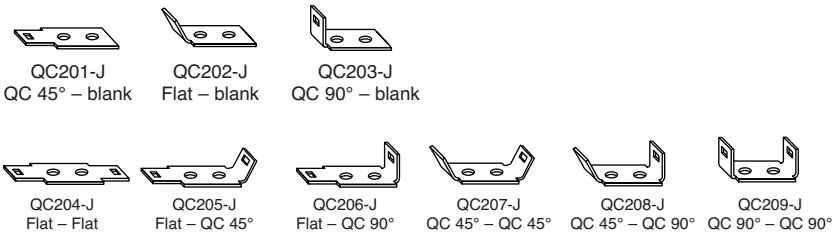


QC1 QC2 QC3 QC4 QC5 QC6 QC7

QC8 QC9 QC11 QC10 QC12 QC13

QC14 QC15 QC16 QC17 QC18 QC19 QC20

Quick Connects – Bulk: minimum order per part no. – 100 pieces.



QC201-J
QC 45° – blank

QC202-J
Flat – blank

QC203-J
QC 90° – blank

QC204-J
Flat – Flat

QC205-J
Flat – QC 45°

QC206-J
Flat – QC 90°

QC207-J
QC 45° – QC 45°

QC208-J
QC 45° – QC 90°

QC209-J
QC 90° – QC 90°

Jumpers – Bulk: minimum. order per part no. – 100 pieces. Contact Bussmann for jumper assembly.

J201
Flat slip-on
(not available on TB200HB)
(Bulk: J201-J)

OJ3
Slip-on over
barrier for TB200HB
(Bulk: OJ3-J)

OJ5
Closed over
barrier for TB200HB
(Bulk: OJ5-J)

OJ7
Closed over
barrier for TB200
(Bulk: OJ7-J)

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Double Row Terminal Blocks

Series TB300 & TB345

Specifications
Ratings:

Volts: — 600V*

Amps: — 30A* (TB300)
— 45A (TB345)

Center Spacing: 0.562" or 9/16" (14.28mm)

Wire Range: #8 - 22 AWG Cu

Screw Size: TB300 – #8-32 philslot screws
TB345 – #10-32 philslot screws

Torque Rating: #8 screws - 16 lb-in;
#10 screws - 20 lb-in

Distance Between Barriers: 0.41" (10.5mm)

Mounting: TB300 – #8 screws; TB345 – #10 screws

Operating Temperature: 130°C (266°F) max., -40°C (-40°F) min.

Material: Molded base: Black, UL rated 94V0 thermoplastic
Terminal plating: Tin over brass; Screws: Zinc-plated steel

Breakdown Voltage: 7500V

Agency Information: UL File E62622, CSA File 47235; IEC Compliance; CE Certified

* Max rating shown; some options may be rated lower.

TB300-08

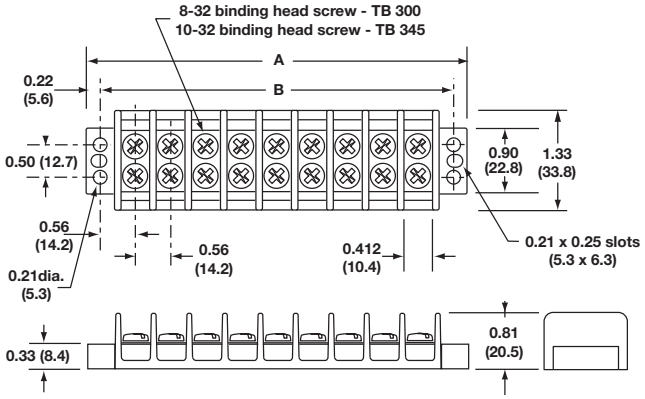
TB345-06SP

Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	2.13	1.69	10	6.62	6.19	18	11.12	10.68
03	2.69	2.25	11	7.18	6.75	19	11.68	11.25
04	3.25	2.81	12	7.75	7.31	20	12.24	11.81
05	3.81	3.37	13	8.31	7.87	21	12.80	12.37
06	4.37	3.94	14	8.87	8.44	22	13.37	12.93
07	4.94	4.50	15	9.43	9.00	23	13.93	13.50
08	5.50	5.06	16	9.99	9.56	24	14.49	14.06
09	6.06	5.62	17	10.56	10.12			

1" = 25.4mm.

TB300 & TB345 - in (mm)



Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking/Cover	Hardware Options
TB ☐☐☐ – ☐☐		☐☐☐	☐☐	☐☐☐☐
300 = 8-32 screw **345** = 10-32 screw	**02** to **24**	**Blank** = Steel philslot, zinc-plated **00** = Screws shipped bulk **B** = Brass philslot, nickel-plated **BS** = Brass Sems philslot, nickel-plated (TB300 only) **SP** = Steel Sems philslot, zinc-plated (TB300 only) **ST** = Stainless steel, philslot	**L1** to **L6** Marking Options (pg 318) Special Markings (pg 318) Covers (pg 318) Marking Strips (pg 319)	**QC1** to **QC20** = Quick connects (TB300 only) **Custom Options** **J301** = Flat slip-on jumper **OJ6** = Over barrier jumper **OJ11** = Over barrier jumper

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Double Row Terminal Blocks

Screw Options

B
Brass Philslot
Nickel-Plated
TB300 Blk: B001-7018-J
TB345 Blk: B500-023-028-J

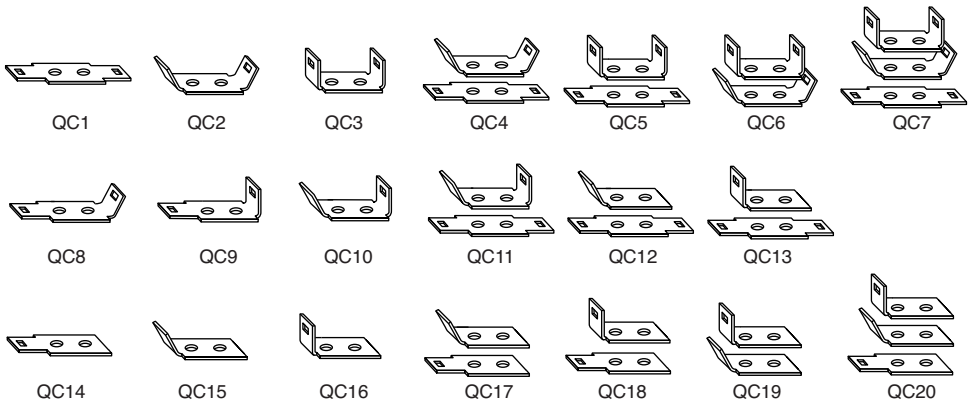
BS
Brass SEMS
Philslot Nickel-Plated
B001-7015-J

SP
Steel SEMS
Philslot Zinc-Plated
B001-7017-J

ST
Stainless Steel
Philslot
B001-7063-J
B001-7064-J

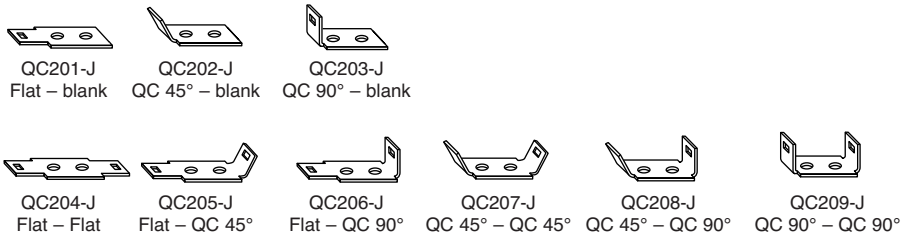
Hardware Options

Quick Connects – Assembled: TB300 only. Terminals 0.25" x 0.031". Maximum current rating 20 amps. For other orientations, contact Bussmann.



QC1 QC2 QC3 QC4 QC5 QC6 QC7
QC8 QC9 QC10 QC11 QC12 QC13
QC14 QC15 QC16 QC17 QC18 QC19 QC20

Quick Connects – Bulk: (*TB300 only) minimum order per part number. – 100 pieces.



QC201-J
Flat – blank

QC202-J
QC 45° – blank

QC203-J
QC 90° – blank

QC204-J
Flat – Flat

QC205-J
Flat – QC 45°

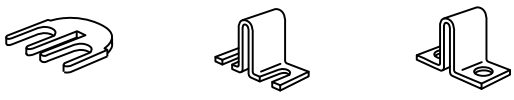
QC206-J
Flat – QC 90°

QC207-J
QC 45° – QC 45°

QC208-J
QC 45° – QC 90°

QC209-J
QC 90° – QC 90°

Jumpers – Bulk: minimum order per part number – 100 pieces. Contact Bussmann for jumper assembly.



J301
Flat slip-on(TB300 only)
(Bulk: J301-J)

OJ6
Closed over barrier
(Bulk: OJ6-J)

OJ11
Slip-on over barrier
(Bulk: OJ11-J)

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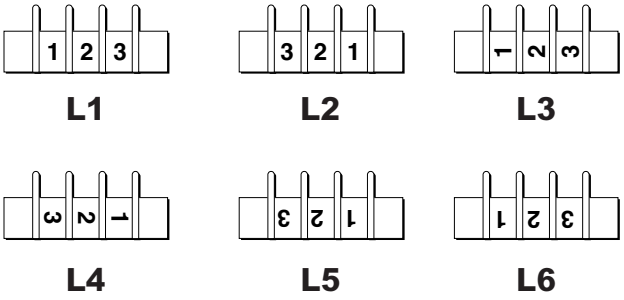
Marking Options and Covers for Double Row Terminal Blocks

Standard Marking

Standard markings are applied directly to the side(s) of a block. The standard marking color is white. The standard numeral height is 0.125 inches (3.17mm).

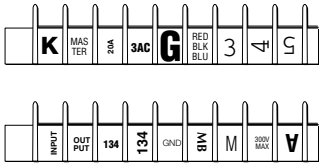
Note: Blocks marked on both sides require a different code for each side. Example: Style L1 on one side of the block requires Style L2 on the other side to ensure common terminal marking. To order, add appropriate suffix (L1, L2, L3, L4, L5 and/or L6) to block catalog number in the proper sequence.



Special Marking

Special markings are available at an additional charge Drawing(s) must be submitted to ensure accuracy of part required. Consult Bussmann for price and delivery.

Note: Marking is not available on TB400 Series

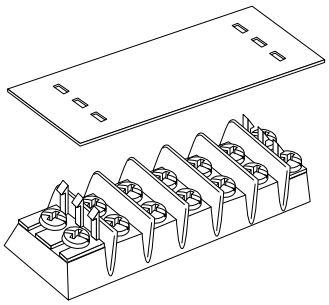


Covers

Covers prevent personnel, screws and foreign items from contacting live terminals, and are available in white or clear plastic. Two cover clips are supplied with each cover. The cover width is 1.31 inches (33.3mm).

All covers must be ordered separately.

Example: 10 position cover, white, TB100 Series = Catalog Number **X12010**.



Catalog Number Build-A-Code

Series	Cover Strip	Poles	High Barrier Option Only
X	☐☐☐	☐☐	☐☐
	120 - TB100/white **119** - TB100/clear **220** - TB200/TB200HB - white **219** - TB200/TB200HB - clear **320** - TB300 & TB345 - white **319** - TB300 & TB345 - clear	**02** to **36** (TB100) **02** to **30** (TB200/TB200HB) **02** to **24** (TB300/TB345)	**HB** = High Barrier

Note: Covers are not available on TB400 Series.

Cover Clips – Bulk

Part Number
DD1-J – TB100 Series
DD2-J – TB200 Series
DD2HB-J – TB200HB Series
DD3-J – TB300 Series

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Top & Bottom Marking Strips for Double Row Terminal Blocks

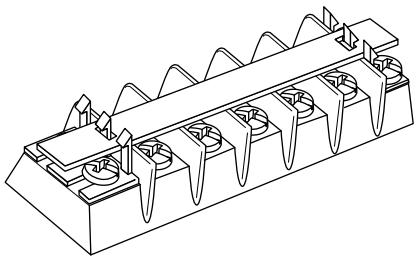
Top Marker Strips

Top mounting marker strips are available in white (opaque) plastic. Two cover clips are supplied with each marker strip.

All top marker strips must be ordered separately.

Example: 12 position cover, TB200, 0.032” x 0.312” = Catalog Number **X20312**.

Example: 12 position cover, TB200HB, 0.06” x 0.50” = Catalog Number **X23312HB**.



Catalog Number Build-A-Code

Series	Top Marker Strip	Poles	High Barrier Option Only
X	☐☐☐	☐☐	☐☐
	133 - TB100 (0.060 thk x 0.500 w) **103** - TB100 (0.032 thk x 0.312 w) **233** - TB200/TB200HB (0.060 thk x 0.500 w) **203** - TB200/TB200HB (0.032 thk x 0.312 w) **333** - TB300 & TB345 (0.060 thk x 0.500 w) **303** - TB300 & TB345 (0.032 thk x 0.380 w)	**02** to **36** (TB100) **02** to **30** (TB200/TB200HB) **02** to **24** (TB300/TB345)	**HB** = High Barrier

Note: Marking Strips are not available on TB400 Series

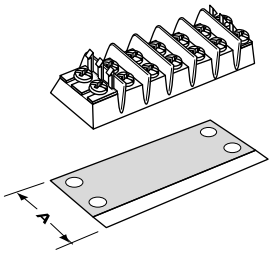
Bottom Marker Strips

Bottom mounting marker strips are made of black PVC, 0.030” thick. Space is available to handle most marking situations. All marker strips must be ordered separately.

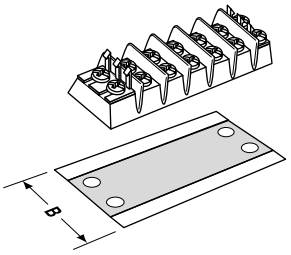
To order, specify part number and required marking orientation: (BF) bottom forward, (BR) bottom reverse, (TF) top forward, or (TR) top reverse. Consult factory for specials.

Example: 13 position strip, TB100 with no markings, space for marking one side = Catalog Number **X10513**.

Standard numeral height is 0.125”. Standard markings are 0-99. Special markings are available on special order. Drawing(s) must be submitted to ensure accuracy of part required.



Space for marking one side



Space for marking two sides

Dimensions (in)

Dim.	TB100	TB200	TB200HB	TB300	TB345	TB400
A	1.13	1.37	1.62	1.58	1.58	N/A
B	1.38	1.62	1.81	1.81	1.81	N/A

Catalog Number Build-A-Code

Series	Bottom Marker Strip	Poles	Orientation
X	☐☐☐	☐☐	☐☐
	105 = TB100/marking one side **101** = TB100/marking both sides **205** = TB200/marking one side **201** = TB200/marking both sides **295** = TB200HB/marking one side **291** = TB200HB/marking both sides **305** = TB300 & TB345/marking one side **301** = TB300 & TB345/marking both sides	**02** to **36** (TB100) **02** to **30** (TB200/TB200HB) **02** to **24** (TB300/TB345)	**BF** = Bottom forward **BR** = Bottom reverse **TF** = Top forward **TR** = Top reverse

Note: Marking Strips are not available on TB400 Series.

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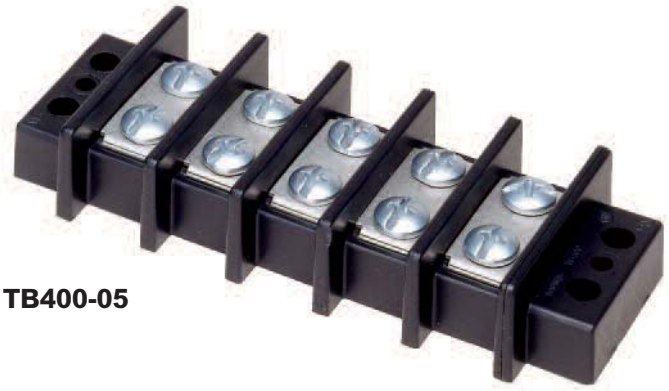
Double Row Terminal Blocks

Series TB400



TB400-05

Specifications
Ratings:

Volts: — 600V

Amps: — 75A

Center Spacing: 0.687″ or 11/16″ (17.45mm)

Wire Range: #6-14 AWG Cu

Screw Size: #10-32 philslot screws

Torque Rating: 20 lb-in

Distance Between Barriers: 0.56″ (14.3mm)

Mounting: #10 screws

Operating Temperature: 130°C (266°F) max., -40°C (-40°F) min.

Material: Molded base: Black, UL rated 94V0 thermoplastic
Terminal plating: Tin over brass; Screws: Zinc-plated steel

Breakdown Voltage: 7500V

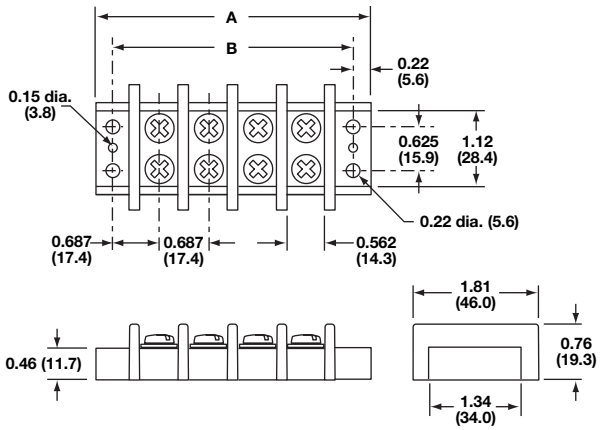
Agency Information: UL File E62622, CSA File 47235; IEC Compliance; CE Certified

Dimensions - in

Poles	A	B	Poles	A	B	Poles	A	B
02	2.51	2.06	06	5.26	4.81	10	8.01	7.56
03	3.20	2.75	07	5.95	5.50	11	8.70	8.25
04	3.89	3.44	08	6.64	6.19	12	9.39	8.94
05	4.58	4.13	09	7.33	6.88			

1" = 25.4mm.

TB400 - in (mm)



Screw Options

B
Brass Philslot
Nickel-Plated
Bulk: B500-023-028-J

ST
Stainless Steel
Philslot
B001-7064-J

Hardware Options

OJ14: Closed over barrier
(Bulk:OJ14-J)

Catalog Number Build-A-Code

Series	Poles	Screw Options	Marking	Custom Options
TB400 – ☐☐		☐☐☐		
	02 to **12**	**Blank** = Steel philslot, zinc-plated **00** = Screws shipped bulk **B** = Brass philslot, nickel-plated **ST** = Stainless steel, philslot	Not available	**OJ14*** - Jumper over barrier

*Contact factory for pole configuration.

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Double Row Terminal Blocks

Series KU

Specifications
Ratings:

Volts: — 600V

Amps: — 60A*

Center Spacing: 0.625″ (15.88mm)

Number of Poles: 2- to 12-poles**

Wire Range: #6-22 AWG Cu

Screw Size: #10-32

Torque Rating: 20 lb-in

Distance Between Barriers: 0.437″ (11.09mm)

Mounting: Panel Mount

Material: Molded base: Black, UL rated 94V1 Noryl

Terminal plating: Nickel over brass

Operating Temperature: 105°C max.

Agency Information: UL File E62622, CSA File 47235

* 60A rating achieved with #6 copper wire crimped to ring terminal.

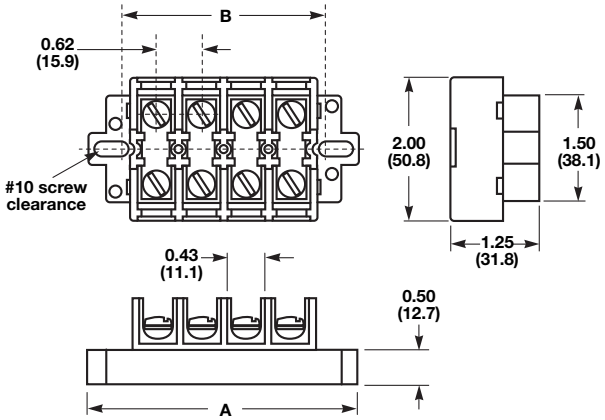
** Only even number pole configurations (3-pole = exception).

Dimensions - in

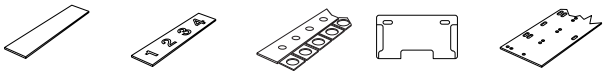
	KU		KUX Only
Poles	A	B	A
02	2.50	1.62	2.00
03	3.12	2.25	2.62
04	3.75	2.87	3.25
06	5.00	4.12	4.50
08	6.25	5.37	5.75
10	7.50	6.62	7.00
12	8.75	7.87	8.25

1" = 25.4mm.

Series KU - in (mm)



Accessories***



MTMU##
Molded Marking Tape
Matte Finish

NUM##
Molded Marking
Tape

JU12
Jumper
12 Circuits

NUE
End Piece for NUC

NUC##
Cover

***Accessories must be orderd seperately.

Catalog Number Build-A-Code - KU Series

Series	Poles	Screw Options	Covers	Marking Strip
☐☐☐☐☐	☐☐ – ☐☐		☐☐	☐☐☐
KU = Standard block **KUX** = Short block **KURL** = Standard w/removable link **KUXRL** = Short block w/removable link	**02** to **12**	**00** = Screws shipped bulk **W** = Brass washer head, nickel-plated **P** = Steel screw w/pressure plate zinc-plated **BP** = Brass philslot, nickel-plated	**WC** = Top cover & 2 end plates	**MT** = Matte finish **NU** = Numbered 1 to 12, horizontal **NUV** = Numbered 1 to 12, vertical **PT†** = Marker strip for cover

Catalog Number Build-A-Code - KU__SC Series

Series	Poles	Screw Options	Covers	Marking Strip
☐☐☐☐☐	☐☐ – ☐☐		☐☐	☐☐☐
KUSC = Standard w/shorting strap & 4 shorting screws **KUXSC** = Short block w/shorting strap & 4 Shorting screws	**02 to 12**	**00** = Screws shipped bulk **W** = Brass washer head, nickel-plated **P** = Steel screw w/pressure plate zinc-plated **BP** = Brass philslot, nickel-plated	**WC** = Top cover & 2 end plates	**PT†** = Marker strip for cover †Requires WC cover option

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Power Feed Through Terminal Blocks

Series C7021

Specifications

Description: Power feed through terminal block with two rows ¼-20 studs capable of accommodating the industry standard two-hole compression lugs on both studs in parallel.

Ratings:

Volts: — 300V

Amps: — 115/175A* per pole

Center Spacing: 0.690" (17.5mm).

Wire Range: AWG #3/0-8.

Poles: 1- to 6-poles.

Bolt Hole Spacing: 0.625" or ⅝" (15.88mm).

Stud: Standard ¼-20 stud (tin-plated brass) or optional M6 stud.

Mounting: #6 thread cutting screws (not included) or optional mounting ears.

Torque Rating: 36 lb-in.

Operating Temperature: 130°C.

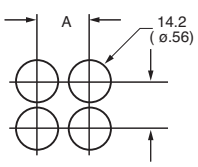
Agency Information: UL/CSA; CE Certified.

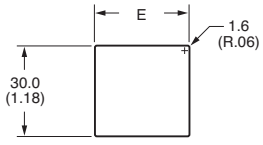
*175 achieved using both studs in parallel, 115A using a single stud per line.

Typical Applications

- Applications requiring up to 175A utilizing a 2-hole compression lug on ⅝" centers
- Input/output block for telecommunications power panels
- Use to eliminate busbars

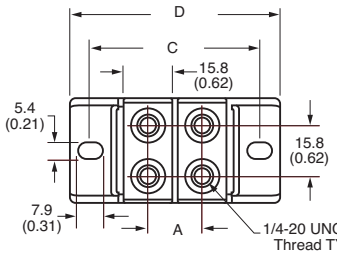
Panel Cutouts

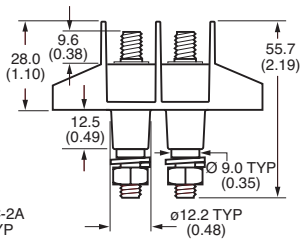


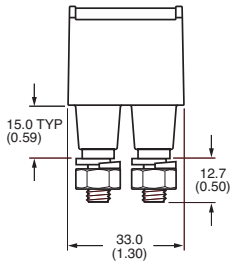


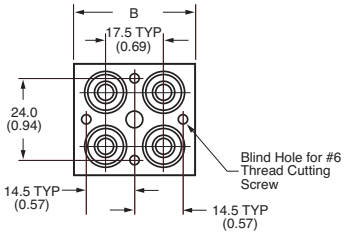
Dimensions - mm (in)

Catalog Numbers	A	B	C	D	E
C7021-01-X					
C7021-02-X	17.5 (0.69)	-	54.4 (2.14)	67.3 (2.65)	31.8 (1.25)
C7021-03-X	34.9 (1.37)	-	70.9 (2.83)	84.8 (3.34)	49.2 (1.94)
C7021-04-X	52.3 (2.06)	-	89.3 (3.52)	102.2 (4.02)	66.7 (2.63)
C7021-05-X	69.8 (2.75)	-	106.8 (4.20)	119.7 (4.71)	84.2 (3.31)
C7021-06-X	87.2 (3.44)	-	124.2 (4.89)	134.1 (5.40)	101.7 (4.00)
C7021-01N-X					
C7021-02N-X	17.5 (0.69)	36.1 (1.42)	-	-	31.8 (1.25)
C7021-03N-X	34.9 (0.69)	53.5 (2.11)	-	-	49.2 (1.94)
C7021-04N-X	52.3 (2.06)	71.0 (2.80)	-	-	66.7 (2.63)
C7021-05N-X	69.8 (2.75)	88.4 (3.48)	-	-	84.2 (3.31)
C7021-06N-X	87.2 (3.44)	105.9 (4.17)	-	-	101.7 (4.00)









Catalog Number Build-A-Code

Series	Poles	Mount Ends	Studs		Hardware
C7021 –	☐☐	☐	☐☐	–	☐
	01 = 1-Pole (2 studs) 02 = 2-Pole (4 studs) 03 = 3-Pole (6 studs) 04 = 4-Pole (8 studs) 05 = 5-Pole (10 studs) 06 = 6-Pole (12 studs)	Blank = Mount ends N = No mount ends	Blank = Standard M6 = M6 Studs		Blank = No hardware 0 = Bulk pack, one set 1 = Bulk pack, two sets 2 = Assembled, bottom 3 = Assembled, top 4 = Assembled, both sets

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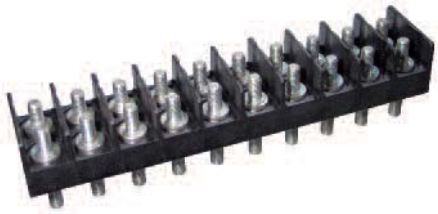
Power Feed Through Terminal Blocks

Series C7024



Specifications

Description: A power feed through terminal block with two rows of ¼-28 studs capable of accommodating the industry standard two-hole compression lugs on ¾" centers.

Ratings:

Volts: — 600V

Amps: — 115A per pole

Center Spacing: 0.75" (19.1mm).

Wire Range: #2-8 AWG.

Poles: 1 to 12.

Bolt Hole Spacing: 0.75" (19.1mm).

Stud: Standard ¼-28 stud (tin-plated bronze).

Torque Rating: 36 lb-in.

Operating Temperature: 130°C.

Agency Information: UL/C-UL, CSA; CE Certified.

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Number	Poles	"A" Dimension- mm (in) ±0.4 (±0.02)	"B" Dimension- mm (in)
C7024-01	01	21.6 (0.85)	-
C7024-02	02	40.6 (1.60)	19.05 ±0.08 (0.750 ±0.003)
C7024-03	03	59.7 (2.35)	38.10 (1.500)
C7024-04	04	78.7 (3.10)	57.15 ±0.26 (2.250 ±0.010)
C7024-05	05	97.8 (3.85)	76.2 (3.00)
C7024-06	06	116.8 (4.60)	95.25 ±0.26 (3.750 ±0.010)
C7024-07	07	135.9 (5.35)	114.30 ±0.38 (5.250 ±0/015)
C7024-08	08	154.9 (6.10)	133.35 ±0.38 (5.25 ±0.015)
C7024-09	09	174.0 (6.85)	152.40 ±0.38 (6.00 ±0.015)
C7024-10	10	193.0 (7.60)	171.45 ±0.38 (6.750 ±0.015)
C7024-11	11	212.1 (8.35)	190.50 ±0.38 (7.500 ±0.015)
C7024-12	12	231.1 (9.10)	209.55 ±0.38 (8.250 ±0.015)

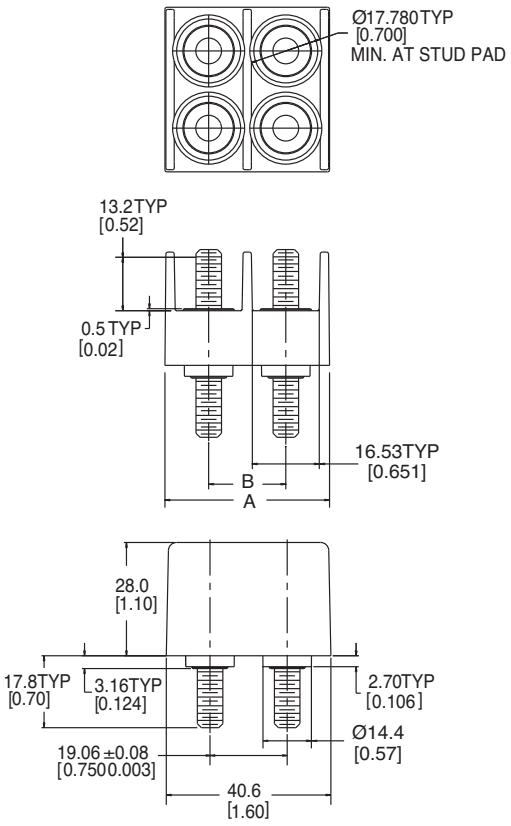
Catalog Number Build-A-Code

Series	Poles
C7024 –	☐☐
	01-12

Typical Applications

- Applications requiring up to 115A utilizing a 2-hole compression lug on ¾" centers
- Ideal as an input/output block for telecommunications power panels
- Use to eliminate busbars

Dimensions - mm (in)



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Disconnect Switches

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Compact Circuit Protector (CCP) Disconnect Switch—30A

1-, 2- & 3-Pole, Class CC, UL Midget & 10x38mm IEC

Switch

Amp Rating	Fuse Class	Number of Poles	Volts	SCCR	Max Horsepower Rating 120 Vac	240 Vac	480 Vac	600 Vac	Wire Size	Wire Type*	Part Number
30	CC	1	600Vac	200kA	0.5	—	—	—	Single/Dual #18-6 Sol/Str	75°C Cu	CCP-1-30CC
30	CC	2	600Vac	200kA	—	2	—	—		75°C Cu	CCP-2-30CC
30	CC	3	600Vac	200kA	—	3	4	7.5		75°C Cu	CCP-3-30CC
30	UL Midget	1	240Vac†	10kA†	—	—	—	—	Single #4 Sol/Str	75°C Cu	CCP-1-30M
32**	10x38 IEC		400Vac†	120kA†							
30	UL Midget	2	240Vac†	10kA†	—	—	—	—		75°C Cu	CCP-2-30M
32**	10x38 IEC		400Vac†	120kA†							
30	UL Midget	3	240Vac†	10kA†	—	—	—	—		75°C Cu	CCP-3-30M
32**	10x38 IEC		400Vac†	120kA†							
30	CC	1	80Vdc†	20kA†	—	—	—	—	Spade Terminal††	75°C Cu	CCP-1-30DCC
30	CC	1	80Vdc†	10kA†	—	—	—	—		75°C Cu	CCP-1-30DCM
32**	10x38 IEC										

* 75°C or higher.
** 32A Class aM, 25A Class gG.
† SCCR May be lower, refer to installed fuse data sheets.
†† Spade terminal, 30A max, insulated flange, wire size #12-10 for #8 stud.

Specifications

Agency Information

- CE Compliant
- RoHS Compliant
- For ***Class CC*** fuse version
  - UL 98 Listed, File E302370, Guide WHTY
  - cULus to CSA Standard 22.2 No. 4-04, File 302370, Guide WHTY7
- For ***UL Midget and 10X38 IEC*** fuse version
  - UL 508 Listed, File E161278, Guide 8R29
  - cULus Certified 22.2 No. 14-05
  - IEC 60947-3 AC23A
  - IEC 60947-3 DC23A

Terminals

- Single/dual conductor box lug or spade terminal suitable for line, load or accessory connection
- Torque: - #18-10 20Lb-In
  - #8-4 35Lb-In

Storage and Operating Temperature

- -20ºC to 75ºC*

* For fuse performance under or above 25ºC, consult fuse performance derating charts in the Bussmann publication titled *Selecting Protective Devices* (SPD), reorder #3002.

Flammability Rating UL 94V0

Lockout/Tagout Provisions

- 4mm shank lock or standard pin-out devices

Mounting

- 35mm DIN-Rail

Local Open Fuse Indication Minimum Voltage**

- 90Vac for AC versions
- 12Vdc for DC versions

** Circuit must be closed for indication light to illuminate.

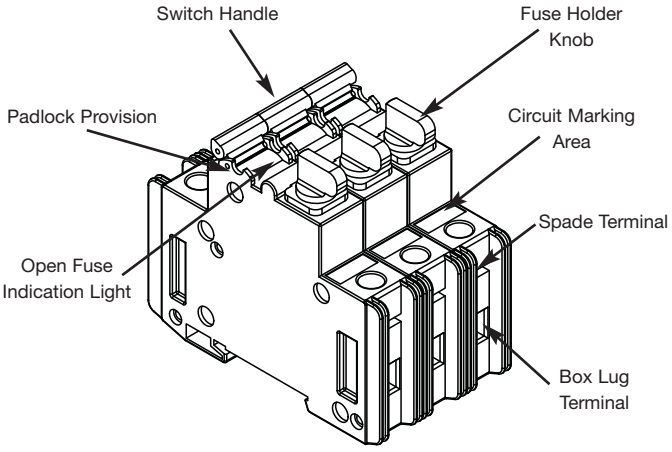
Data Sheet: 1157

Features

- IP20 Finger-safe construction with #10 or larger wire
- Switch interlock prohibits removing the fuse under load

Accessories

- Auxiliary contacts
- PLC Wired remote fuse indication



Available Bussmann Fuses

Class	Type	Data Sheet #
CC	LP-CC Time-Delay, Current Limiting	1023
CC	FNQ-R Time-Delay	1014
CC	KTK-R Fast-Acting	1015
M	FNM Time-Delay	2028
M	FNQ Time-Delay	1012
M	KTK Fast-Acting	1011
M	BAF Fast-Acting	2011
M	KLM Fast-Acting 600Vac/dc	2020

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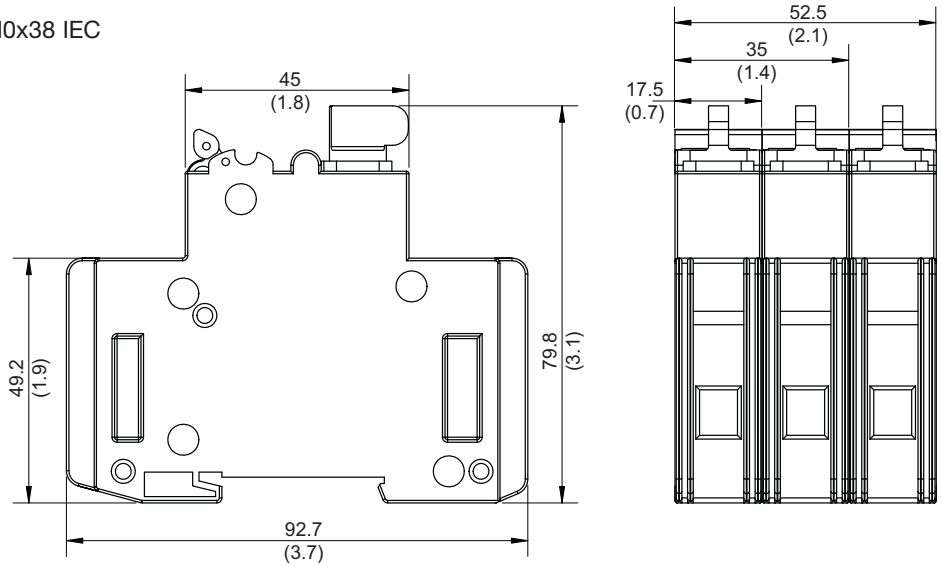
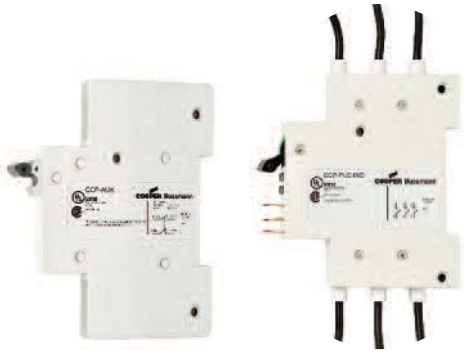
Compact Circuit Protector (CCP) Disconnect Switch—30A

1-, 2- & 3-Pole, Class CC, UL Midget & 10x38mm IEC

Dimensions – mm (in)

Class CC, UL Midget & I0x38 IEC





Auxiliary Contacts

PLC Indicator
(Includes leads with spade terminals)

CCP-_-30_ Accessories

Description	Configuration	Signal Output	Minimum Circuit Voltage	Agency Information	Part Number
Auxiliary Contacts NO+NC for Switch Status	1 per CCP	5A/240Vac	–	UL 98 Recognized, cURus 22.2 No. 4-04, IEC 60947-5-1 AC15	CCP-AUX*
Wired Remote Fuse Indication for PLC Applications	1 per CCP	24Vdc	100Vac	UL 98 Recognized, cURus 22.2 No. 4-04	CCP-PLC-IND*

* Refer to Data Sheet # 1157 for details.

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Compact Circuit Protector (CCP) Disconnect Switch—30, 60 & 100A

1-, 2- & 3-Pole, Class CF CUBEFuse™

Switch

Amp Rating	Fuse Class	Number of Poles	Volts	SCCR	Max Horsepower Rating 120 Vac	240 Vac	480 Vac	600 Vac	Wire Size	Wire Type*	Part Number
30	CF	1	600Vac 125Vdc	200kA	1.5	—	—	—	Single/Dual #18-6 Sol/Str Single #4 Sol/Str Spade Terminal**	75°C Cu	CCP-1-30CF
30	CF	2	600Vac 125Vdc	200kA	—	3	—	—		75°C Cu	CCP-2-30CF
30	CF	3	600Vac 125Vdc	200kA	—	5	15	10		75°C Cu	CCP-3-30CF
60	CF	1	600Vac 125Vdc	200kA	3	—	—	—		75°C Cu	CCP-1-60CF
60	CF	2	600Vac 125Vdc	200kA	—	7.5	—	—		75°C Cu	CCP-2-60CF
60	CF	3	600Vac 125Vdc	200kA	—	7.5	20	10		75°C Cu	CCP-3-60CF
100	CF	1	600Vac	200kA	5	—	—	—	Single #8-10 Sol/Str #8-1 Str Dual #6 Str Spade Terminal**	75°C Cu	CCP-1-100CF
100	CF	2	600Vac	200kA	—	10	—	—		75°C Cu	CCP-2-100CF
100	CF	3	600Vac	200kA	—	20	50	50		75°C Cu	CCP-3-100CF

* 75°C or higher.

** Spade terminal, 30A max, insulated flange, wire size #12-10 for #8 stud.

Specifications

Agency Information

- CE Compliant
- RoHS Compliant
- UL 98 Listed, File E302370, Guide WHTY
- cULus to CSA Standard 22.2 No. 4-04, File 302370, Guide WHTY7

Terminals

- Single/dual conductor box lug or spade terminal suitable for line, load or accessory connection
- Torque: 0-60A: - #18-10 20Lb-In
  - #8-4 35Lb-In
  - 70-100A: - #18-10 Single 25Lb-In
  - #8-2 Single 35Lb-In
  - #1 Single 40Lb-In
  - #6 Dual 45Lb-In

Fuses

- Uses finger-safe Class CF CUBEFuse™ with Class J performance
  - Low-Peak™ dual-element, time-delay*
    - Non-indicating 1-100A
    - Indicating 6-100A
  - Fast-Acting** 1-100A

* See Data Sheet # 9000

** See Data sheet # 2147

Storage and Operating Temperature

- -20ºC to 75ºC***

*** For fuse performance under or above 25ºC, consult fuse performance derating charts in the Bussmann publication titled *Selecting Protective Devices* (SPD) reorder #3002.

Flammability Rating UL 94V0

Lockout/Tagout Provisions

- 4mm shank lock or standard pin-out devices

Mounting

- 35mm DIN-Rail

Local Open Fuse Indication Minimum Voltage†

- 90Vac/115Vdc

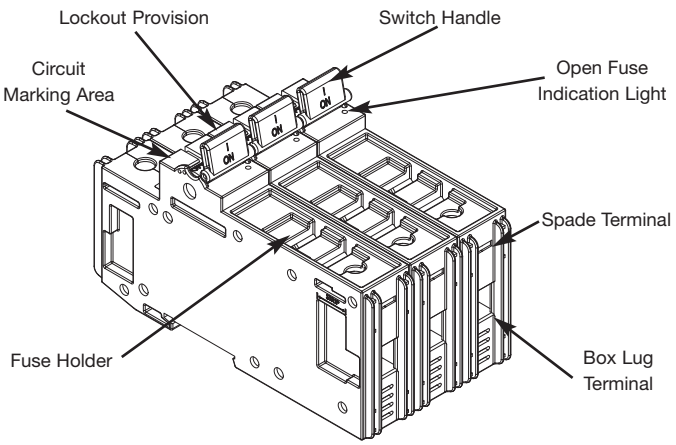
† Circuit must be closed for indication light to illuminate.

Features

- Ampacity rejecting disconnects will not accept CUBEFuse amp ratings greater than switch rating
- IP20 Finger-safe construction with #10 or larger wire
- Switch interlock prohibits removing the fuse under load

Accessories

- Auxiliary contacts
- PLC Wired remote fuse indication (up to 60A)



Data Sheet: 1157

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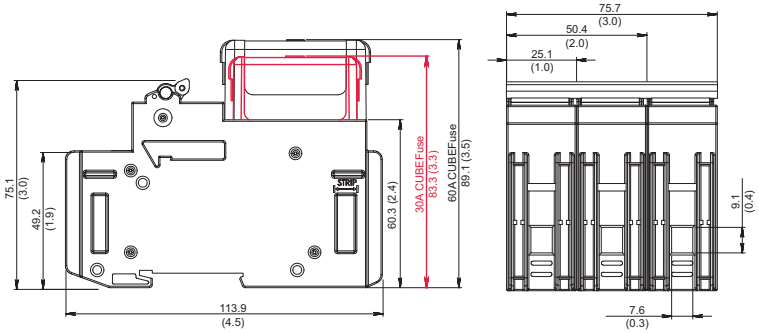
Compact Circuit Protector (CCP) Disconnect Switch—30, 60 & 100A

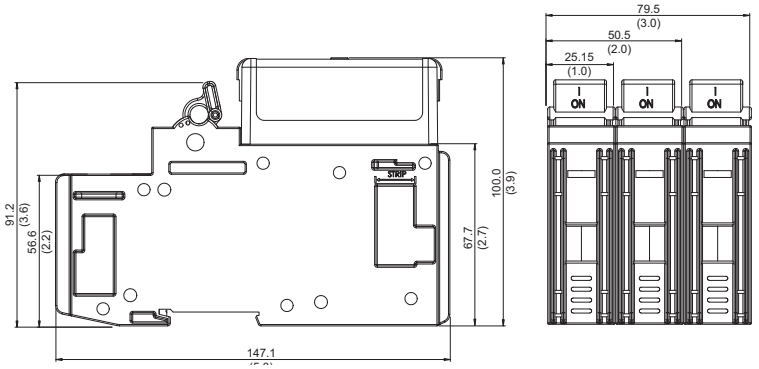
1-, 2- & 3-Pole, Class CF CUBEFuse™

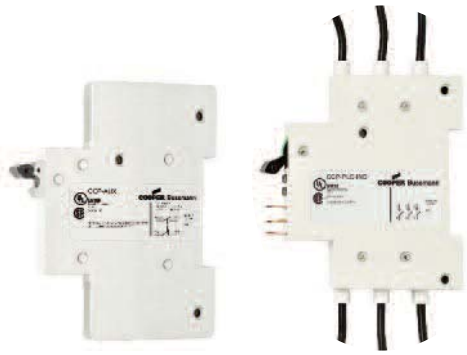
Dimensions – mm (in)

30 and 60 Amp



100 Amp





Auxiliary Contacts

PLC Indicator
(Includes leads with spade terminals)

CCP-_-_CF Accessories

Description	Configuration	Signal Output	Minimum Circuit Voltage	Agency Information	Part Number
Auxiliary Contacts NO+NC for Switch Status up to 60A	1 per CCP	5A/240Vac	–	UL 98 Recognized, cURus 22.2 No. 4-04, IEC 60947-5-1 AC15	CCP-AUX*
Auxiliary Contacts NO+NC for Switch Status 70 to 100A	1 per CCP	5A/240Vac	–	UL 98 Recognized, CSA C22.2 No. 4	CCP-AUX-100*
Wired Remote Fuse Indication for PLC Applications	1 per CCP	24Vdc	100Vac	UL 98 Recognized, cURus 22.2 No. 4-04	CCP-PLC-IND*
Wired Remote Fuse Indication for PLC Applications up to 60A	1 per CCP	8A/24Vdc	100Vac	UL 98 Recognized, CSA C22.2 No. 4	CCP-PLC-100*

* Refer to Data Sheet # 1157 for details.

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Compact Circuit Protector Base (CCPB) CUBEFuse™

RoHS

The revolutionary Bussmann CCPB with CUBEFuse™ is designed as a fused branch circuit disconnect with fuse holder for the Bussmann Quik-Spec™ Coordination Panelboard. The CCPB with CUBEFuse simplifies selective coordination and allows for isolation of individual branch circuit loads for safe work practices.

Product Features and Benefits

- Uses finger-safe Class CF Low-Peak™ CUBEFuse with current-limiting, time-delay Class J performance*
- High Short-Circuit Current Ratings at 200kA
- Disconnect rated to provide means for load isolation
- Full voltage rated at 600Vac
- UL 98 Listed and suitable for branch circuit disconnect and branch circuit protection
- 1-, 2- and 3-pole versions are horsepower rated
- Patented rejection feature helps prevent overfusing
- Complies with UL and cULus
- Open fuse indication light per pole
- Additional open fuse indication can be provided by using the indicating CUBEFuse version
- Built-in switch/fuse interlock prohibits removing the fuse while energized
- Permanent lockout/tagout provisions
- Lock-ON provision

*See data sheet 9000 for CUBEFuse specifications.
**For fuse performance under or above 25ºC, consult fuse performance derating charts.

Specifications:

- CCPB Ampacity rejection breaks: 15A, 20A, 30A, 40A, 50A, 60A, 70A, 90A and 100A.
- 1-, 2- and 3-Pole versions
- For systems 600Vac (or less)
- Box lug loadside terminal:
  - 18-6AWG single & dual rated, solid or stranded – 75°C, Cu only
  - 4AWG single – 75°C, Cu only
- Box lug loadside terminal torque: 18-10AWG 20 Lb-In (2.2 N•m), 8-4AWG 35 Lb-In (3.9 N•m)
- Spade terminal load connection: Max. 30A suitable for use with #8-32UNC screw
- Bolt-on style bus connector, #10-32-UNC Hex flange Phillips screw, torque to 25 Lb-In (2.8N•m)
- Lockout/tagout: 4mm shank lock
- Bolt-mounted design into Quik-Spec Coordination Panelboard bus
- Local indication: illumination requires closed circuit and minimum 90Vac operating voltage
- RoHS compliant

Agency Information:

UL 98 Listed, File E302370, Guide WHTY

cULus to CSA Standard 22.2 No. 4, File E302370, Guide WHTY7

CE Compliant

Shipping Weight: 2.03 lbs per carton

Carton quantity: 6 poles

Environmental Data

Storage and operating temperature: -20ºC to 75ºC**

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Compact Circuit Protector Base (CCPB) CUBEFuse™

Technical Ratings

CCPB Part Numbers	Poles	Voltage Rating	CUBEFuse™ (Class J performance)			Max. Fuse** Ampacity	SCCR	Hp Ratings***
			Time-Delay Non-Indicating	Time-Delay Indicating*	Fast-Acting Non-Indicating			
CCPB-1-15CF	1	600Vac	TCF1RN, TCF3RN, TCF6RN, TCF10RN, TCF15RN	TCF6, TCF10, TCF15	FCF1RN, FCF3RN, FCF6RN, FCF10RN, FCF15RN	15A	200kA	0.5Hp@120V
CCPB-2-15CF	2							1.5Hp@240V
CCPB-3-15CF	3							3Hp@240V 5Hp@480V 7.5Hp@600V
CCPB-1-20CF	1	600Vac	TCF17-1/2RN, TCF20RN	TCF17-1/2, TCF20	FCF20RN	20A	200kA	0.75Hp@120V
CCPB-2-20CF	2							2Hp@240V
CCPB-3-20CF	3							3Hp@240V 7.5Hp@480V 10Hp@600V
CCPB-1-30CF	1	600Vac	TCF25RN, TCF30RN	TCF25, TCF30	FCF25RN, FCF30RN	30A	200kA	1.5Hp@120V
CCPB-2-30CF	2							3Hp@240V
CCPB-3-30CF	3							5Hp@240V 15Hp@480V 10Hp@600V
CCPB-1-40CF	1	600Vac	TCF35RN, TCF40RN	TCF35, TCF40	FCF35RN, FCF40RN	40A	200kA	2.0Hp@120V
CCPB-2-40CF	2							3Hp@240V
CCPB-3-40CF	3							7.5Hp@240V 20Hp@480V 10Hp@600V
CCPB-1-50CF	1	600Vac	TCF45RN, TCF50RN	TCF45, TCF50	FCF45RN, FCF50RN	50A	200kA	3.0Hp@120V
CCPB-2-50CF	2							5Hp@240V
CCPB-3-50CF	3							7.5Hp@240V 20Hp@480V 10Hp@600V
CCPB-1-60CF	1	600Vac	TCF60RN	TCF60	FCF60RN	60A	200kA	3.0Hp@120V
CCPB-2-60CF	2							7.5Hp@240V
CCPB-3-60CF	3							7.5Hp@240V 20Hp@480V 10Hp@600V
CCPB-1-70CF	1	600Vac	TCF70RN	TCF70	FCF70RN	70A	200kA	3.0Hp@120V
CCPB-2-70CF	2							7.5Hp@240V
CCPB-3-70CF	3							15Hp@240V 30Hp@480V
CCPB-1-90CF	1	600Vac	TCF90RN	TCF90	FCF80RN, FCF90RN	90A	200kA	5.0Hp@120V
CCPB-2-90CF	2							10Hp@240V
CCPB-3-90CF	3							20Hp@240V 40Hp@480V
CCPB-1-100CF	1	600Vac	TCF100RN	TCF100	FCF100RN	100A	200kA	5.0Hp@120V
CCPB-2-100CF	2							10Hp@240V
CCPB-3-100CF	3							20Hp@240V 50Hp@480V

*1A and 3A indicating CUBEFuse not available. Correct fit with CCPB disconnect requires indicating CUBEFuse with date code R38 or later.
**Any fuse with an amp rating less than or equal to the max fuse rating may be used.Example: TCF15 may be used with CCPB-1-20CF.
***Do not use UPS/Critical Application fast-acting CF with motors.

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UL 98 Fused Rotary Disconnect Switches—30 to 800A

Description

Bussmann UL 98 and UL 489 fused disconnect switches "break" and "make" power circuits ON and OFF load.

The switches employ double break contacts per pole that help ensure complete isolation of the fuse when the switch is in the "OFF" position.

Features

- Make and break power under load
- Double break by pole
- DIN-Rail or panel mount (30-100A)
- Up to 200kA Short-Circuit Current Rating
- Finger-safe covers
- Compact footprints available
- Defeatable handles automatically re-latch when the panel door is closed
- Most disconnect switches are front, right side, flange or direct handle operable
- NFPA 79 Compliant handle kits

Agency Information

- UL 98, Guide WHTY, File E155130
- UL 489, Guide WJAZ, File E359801
- CSA 22.2 No. 4, File 257020
- Conforms with IEC 60947-3
- NFPA 79 (2002 Edition)

Online Resources

Visit www.cooperbussmann.com/Disconnects for:

- CAD Drawings
- Instruction Sheets
- UL Information

QuikShip Everyday

QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

Available Bussmann Fuses

Class	Type	Data Sheet #
CC	LP-CC Time-Delay, Current Limiting	1023
CC	FNQ-R Time-Delay	1014
CC	KTK-R Fast-Acting	1015
J	LPJ Time-Delay, Current Limiting	1006 (0-60A)
J		1007 (70-600A)
J	With *easy*ID™ open fuse indication	1062 (6-60A)
J		1063 (70-600A)
J	JKS Fast-Acting Fuses	1026 (0-60A)
J		1027 (70-600A)
J	DFJ High Speed Drive Fuse	1048 (0-600A)
L	KRP-C Time-Delay, Current Limiting	1008
L	KTU Fast-Acting	1010
L	KLU Time-Delay	1013

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UL 98 Fused Rotary Disconnect Switches—30 to 800A

Specifications

RDF30CC-3

RDF30J-3 / RDF60J-3-COMP

RDF60J-3

RDF200J-3

RDF600J-3

Part Number										
2-Pole	—	—	RDF30J-2	RDF60J-2-COMP	RDF60J-2	RDF100J-2	RDF200J-2	RDF400J-2	RDF600J-2	RDF800L-2
3-Pole	RDF30CC-3	RDF30J-3-COMP	RDF30J-3	RDF60J-3-COMP	RDF60J-3	RDF100J-3	RDF200J-3	RDF400J-3	RDF600J-3	RDF800L-3
3-Pole + Neutral	RDF30CC-3N	RDF30J-3N-COMP	—	—	—	—	—	—	—	—
4-Pole	—	—	RDF30J-4	RDF60J-4-COMP	RDF60J-4	RDF100J-4	RDF200J-4	RDF400J-4	RDF600J-4	RDF800L-4
UL Standard	UL 489	UL 489	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98
Fuse Class	CC	J	J	J	J	J	J	J	J	L
Max Fuse/Ampacity	30	30	30	60	60	100	200	400	600	800
Switch Type	Compact	Compact	Standard	Compact	Standard	Standard	Standard	Standard	Standard	Standard
Handle Operation	Front	Front	Front/Side Flange	Front/Side Flange	Front/Side Flange	Front/Side Flange	Front/Side Flange	Front/Side	Front	Front
UL Electrical Ratings										
Max AC Volts	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac
Max DC Volts*	—	—	250Vdc	250Vdc	250Vdc	250Vdc	—	250Vdc	600Vdc	600Vdc
Std AC Horsepower Ratings										
1-Phase, 240Vac	—	—	3	10	10	10	10	10	—	—
3-Phase, 240Vac	3	3	3	7.5	7.5	15	25	50	75	75
3-Phase, 480Vac	5.0	5.0	5.0	15	15	25	50	100	150	200
3-Phase, 600Vac	7.5	7.5	7.5	15	15	30	60	125	200	250
Max AC Horsepower Ratings										
3-Phase, 240Vac	7.5	7.5	7.5	15	15	30	60	125	200	200
3-Phase, 480Vac	15	15	15	30	30	60	125	250	400	500
3-Phase, 600Vac	20	20	20	50	50	75	150	350	500	500
DC Horsepower Ratings										
125Vdc	—	—	3	5	5	7.5	—	20	—	—
250Vdc	—	—	5	10	10	20	—	50	—	—
Electrical Characteristics										
SCCR	100kA	100kA	200kA	100kA	200kA	200kA	200kA	200kA	200kA	200kA
Terminal Lugs/Kits	Integral	Integral	Integral	Integral	Integral	Integral	•	•	•	•
Mounting Torque - Lb-In (N•m)	—	—	—	—	—	—	160 (18)	310 (35)	310 (35)	310 (35)
Wire Type	75°C Cu	75°C Cu	75°C Cu	75°C Cu	75°C Cu	75°C Cu	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al
Wire Range & Torque - Lb-In (N•m)										
Solid	#14-10	#14-10	#14-10	#14-10	#12-10	#12-10	—	—	—	—
	27 (3.1)	27 (3.1)	31 (3.5)	31 (3.5)	35.4 (4)	35.4 (4)	—	—	—	—
Stranded	#14-10	#14-10	#14-6	#14-6	#12-1	#12-1	#6-300MCM	#4-600MCM	(2) #2-600MCM	(2) #2-600MCM
	27 (3.1)	27 (3.1)	31 (3.5)	31 (3.5)	35.4 (4)	35.4 (4)	275 (31)	550 (62)	375 (42.4)	375 (42.4)
								Dual 1/0-250MCM		
								550 (62)		
Mechanical Characteristics										
Endurances/Cycles	10,000	10,000	10,000	10,000	10,000	10,000	8000	6000	5000	5000
Physical Characteristics										
Dimensions										
See drawings on product pages										
Weight - Lbs (KG)										
2-Pole	—	—	3.0 (1.3)	3.1 (1.4)	4.0 (1.8)	4.07 (1.8)	5.7 (2.6)	11.4 (5.2)	31.7 (14.4)	31.7 (14.4)
3-Pole	1.3 (0.6)	1.4 (0.6)	3.8 (1.7)	4.1 (1.8)	5.3 (2.4)	5.3 (2.4)	7.8 (3.5)	16.6 (7.6)	44.2 (20.1)	44.2 (20.1)
3-Pole + Neutral	1.4 (0.6)	1.5 (0.7)	—	—	—	—	—	—	—	—
4-Pole	—	—	4.7 (2.1)	4.8 (2.2)	X.X (2.9)	6.49 (2.9)	10.8 (4.9)	21.8 (9.9)	56.8 (25.8)	56.8 (25.8)
Environmental										
Operating Temp. Range	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C
Flammability Rating	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0
Accessories										
Lug Kit	Integral	Integral	Integral	Integral	Integral	Integral	•	•	•	•
Handles Direct	•	•	•	•	•	•	•	•	•	•
Front Selector	•	•	—	—	—	—	—	—	—	—
Front Pistol	•	•	•	•	•	•	•	•	•	•
Side Pistol	—	—	•	•	•	•	•	•	—	—
Flange										
Cable	—	—	•	•	•	•	•	—	—	—
Shaft	—	—	•	•	•	•	•	—	—	—
NFPA Through Door Handle	•	•	•	•	•	•	•	•	•	•
Shafts c/s - mm	5x5	5x5	10x10	10x10	10x10	10x10	10x10	10x10	12X12	12X12
Terminal Shrouds	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	•	•	•	•
Auxiliary Contacts										
(1) NO	•	•	•	•	•	•	•	•	•	•
(1) NC	•	•	•	•	•	•	•	•	•	•
AC Ratings										
Volts	600	600	600	600	600	600	600	600	600	600
Amps	10	10	10	10	10	10	10	10	10	10

• Available, see product page for details and part numbers.
— Not available.
* General purpose only, not photovoltaic rated.

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UL 98 Fused Rotary Disconnect Switches—30A

Compact Class CC & Class J

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch

Amp Rating	Fuse Class	Number of Poles	SCCR	Max Horsepower Rating, 3-Ph 220/240Vac	440/480Vac	600 Vac	Wire Size	Wire Type	Part Number
30	CC	3	100kA	7.5	15	20	#14-10 Sol/Str	75°C Cu	RDF30CC-3
30	CC	3 + Ntrl*	100kA	7.5	15	20	#14-10 Sol/Str	75°C Cu	RDF30CC-3N
30	J	3	100kA	7.5	15	20	#14-10 Sol/Str	75°C Cu	RDF30J-3-COMP
30	J	3 + Ntrl*	100kA	7.5	15	20	#14-10 Sol/Str	75°C Cu	RDF30J-3N-COMP

* Neutral is switched.

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
RDF30CC-_	Black	Y	Y		DIR-05
RDF30J-_-COMP	Black	Y	Y		DIR-06

or

+

External Front Operated Selector Handle - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-04B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-04R

Shafts for Selector Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	4.02~9.65 (102~245)		SH1-200
12.6 (320)	4.02~14.37 (102~365)		SH1-320
15.7 (400)	4.02~17.52 (102~445)		SH1-400

or

or

+

External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12	Black	N	Y	Y	H12-05B
1, 3R, 12	Red/Yellow	N	Y	Y	H12-05R
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-05B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-05R
1, 3R, 4, 4X, 12	Black	Y	Y	Y	H4X-05TB
1, 3R, 4, 4X, 12	Red/Yellow	Y	Y	Y	H4X-05TR

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-05BHD
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-05RHD

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	4.02~9.65 (102~245)		SH2-200
12.6 (320)	4.02~14.37 (102~365)		SH2-320
15.7 (400)	4.02~17.52 (102~445)		SH2-400

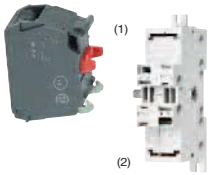
or

NFPA Through the Door Handle Kit - to be used with selector handle or front pistol handle

Color		Test Function	Padlockable	Defeatable	Part Number
Red		N	Y	N	H79-1

and…

Accessories — Auxiliary Contacts



Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Maximum Number of Auxiliary Contacts per Disconnect Switch Part Number	Part Number
NO	1	10A	600Vac	RDF30CC-_: 4 / 8 with BAC-HOLDER2	BAC05[1]
NC	1	10A	600Vac	RDF30J-_-COMP: 2 /6 with BAC-HOLDER2	BAC06[1]
Auxillary Contact Holder				Accepts 4 Auxillary Contacts: BAC05 or BAC06	BAC-HOLDER2[2]

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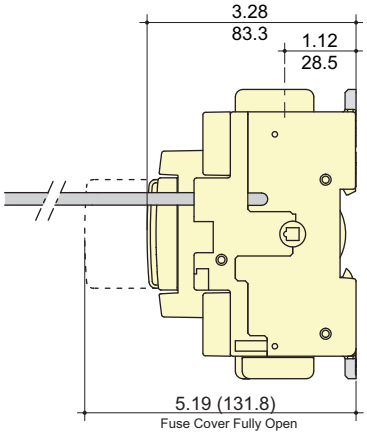
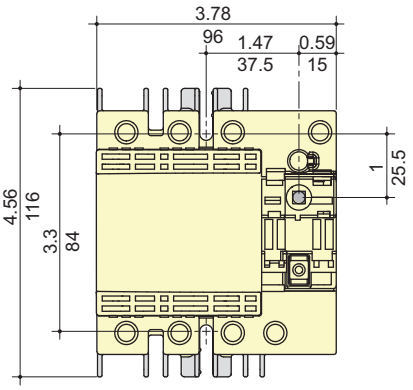
UL 98 Fused Rotary Disconnect Switches—30A

Compact Class CC & Class J

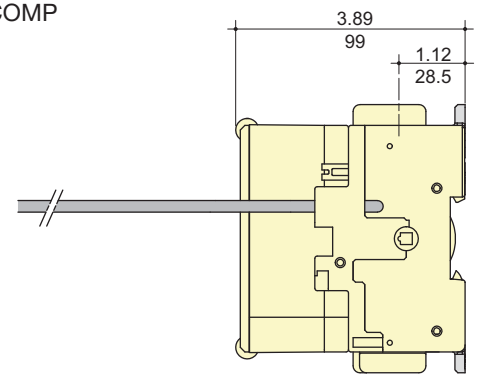
Dimensions – in (mm)

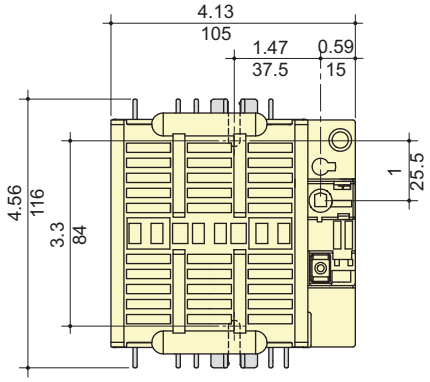
- RDF30CC-_





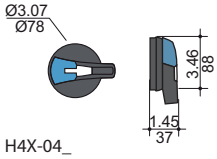
- RDF30J-_-COMP



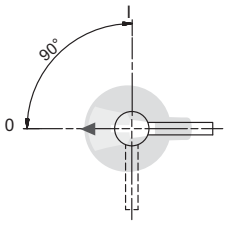


External Front Selector Handle

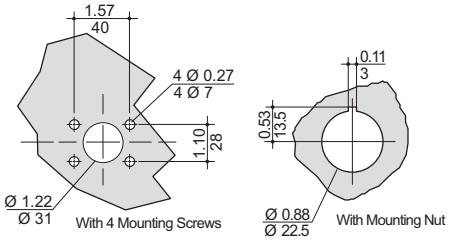
Selector Handle Type



Direction of Front Operation

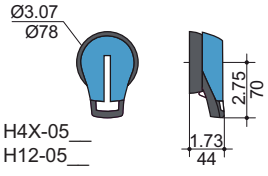


Door Drilling Layout

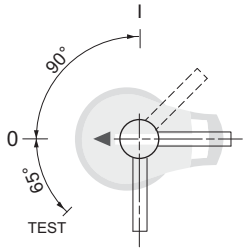


External Front Pistol Handles

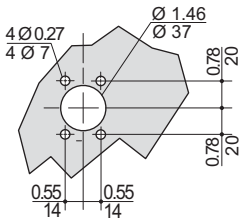
Pistol Handle Type



Direction of Front Operation



Door Drilling Layout



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UL 98 Fused Rotary Disconnect Switches—30A

Standard Class J

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch

Amp Rating	Fuse Class	No. of Poles	SCCR	Max Horsepower Rating 1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	DC* 125 Vdc	DC* 250 Vdc	Wire Size	Wire Type	Part Number
30	J	2	200kA	3	-	-	-	3	5	#14-10 Sol #14-6 Str	75°C Cu	RDF30J-2
30	J	3	200kA	-	7.5	15	20	3	5	#14-10 Sol #14-6 Str	75°C Cu	RDF30J-3
30	J	4	200kA	-	7.5	15	20	3	5	#14-10 Sol #14-6 Str	75°C Cu	RDF30J-4

* DC Ratings use two poles in series.

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
All Switches	Black	Y	Y - On Switch		DIR-07

or

or

External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12	Black	N	Y	Y	H12-05B
1, 3R, 12	Red/Yellow	N	Y	Y	H12-05R
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-05B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-05R
1, 3R, 4, 4X, 12	Black	Y	Y	Y	H4X-05TB
1, 3R, 4, 4X, 12	Red/Yellow	Y	Y	Y	H4X-05TR

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-05BHD
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-05RHD

External Right Side Operated Pistol Handles - shaft required

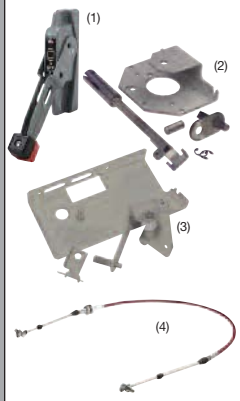
NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	N/A	H4X-05SB
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	N/A	H4X-05SR

+

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	5.30~9.06 (135~230)		SH5-200
12.6 (320)	5.30~13.78 (135~350)		SH5-320
15.7 (400)	5.30~16.93 (135~430)		SH5-400

or



Flange Handle(1) - requires shaft operated mechanism or cable operated mechanism + cable

NEMA Type	Flange Style	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 12	Standard	N	Y	Y	FLH1
1, 3R, 4, 4X, 12	Chrome Plated	N	Y	Y	FLH2

Shaft Operated Flange Mechanism(2) - includes shaft

For Enclosure Depth - in (mm)		Part Number
6~24 (152~613)		FLRM

Cable Operated Flange Mechanism and Cable - must select Mechanism(3) *and* Cable(4)

Item / Length		Part Number
Cable Mechanism		FLCM
36" (900mm) Cable		FLC36
60" (1500mm) Cable		FLC60
120" (3000mm) Cable		FLC120

or

NFPA Through the Door Handle Kit - to be used with selector handle or front pistol handle

Color		Test Function	Padlockable	Defeatable	Part Number
Red		N	Y	N	H79-2

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UL 98 Fused Rotary Disconnect Switches—30A

Standard Class J

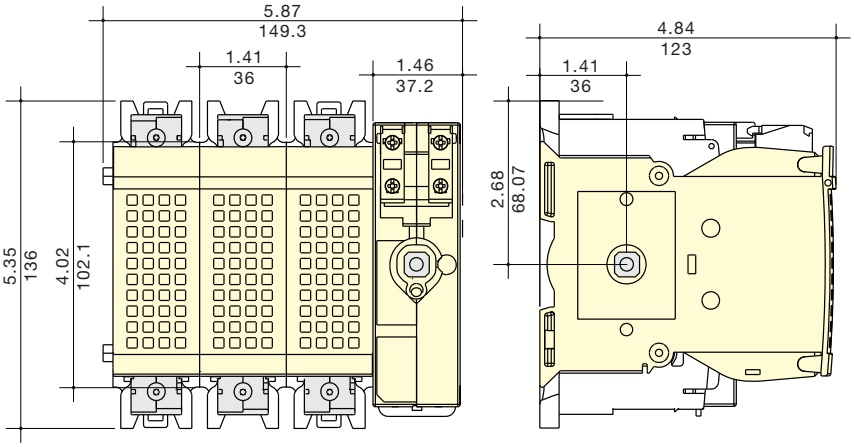
and …

Acc. Aux Contacts

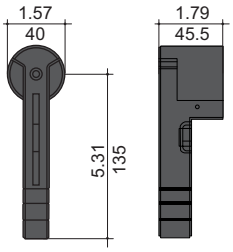
Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO	1	10A	600Vac	4	BAC05
NC	1	10A	600Vac	4	BAC06

Dimensions – in (mm)

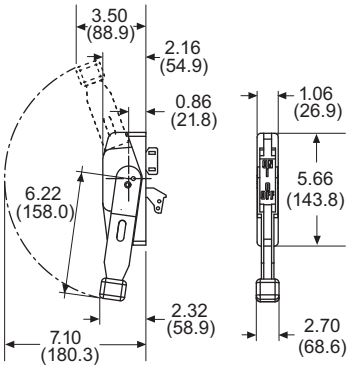


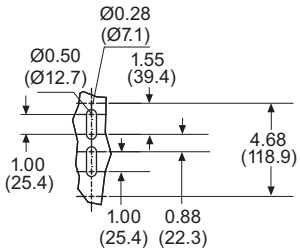
Direct Mount Handle



DIR-07

Flange Handle

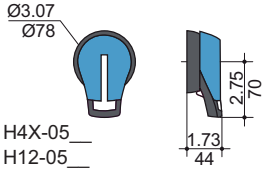




FLH_

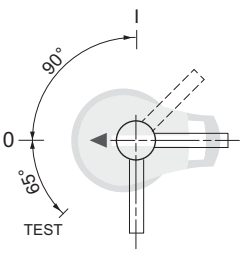
External Front & Right Side Pistol Handle

Handle Type

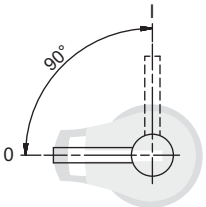


H4X-05__
H12-05__

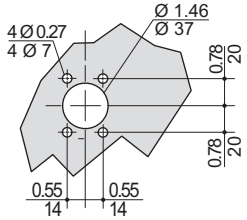
Direction of Front Operation



Direction of Right Side Operation



Door Drilling Layout



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UL 98 Fused Rotary Disconnect Switches—60A

Compact Class J

For a Complete Assembly, Please Select:

Select for Standard Applications

SWITCH

Switch

Amp Rating	Fuse Class	Number of Poles	SCCR	Max Horsepower Rating 1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	DC* 125 Vdc	DC* 250 Vdc	Wire Size	Wire Type	Part Number
60	J	2	100kA	10	-	-	-	5	10	#14-10 Sol #14-6 Str	75°C Cu	RDF60J-2-COMP
60	J	3	100kA	-	15	30	50	5	10	#14-10 Sol #14-6 Str	75°C Cu	RDF60J-3-COMP
60	J	4	100kA	-	15	30	50	5	10	#14-10 Sol #14-6 Str	75°C Cu	RDF60J-4-COMP

* DC Ratings use two poles in series.

+

HANDLE

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
All Switches	Black	Y	Y - On Switch		DIR-07

or

or

External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12	Black	N	Y	Y	H12-05B
1, 3R, 12	Red/Yellow	N	Y	Y	H12-05R
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-05B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-05R
1, 3R, 4, 4X, 12	Black	Y	Y	Y	H4X-05TB
1, 3R, 4, 4X, 12	Red/Yellow	Y	Y	Y	H4X-05TR

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-05BHD
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-05RHD

External Right Side Operated Pistol Handles - shaft required

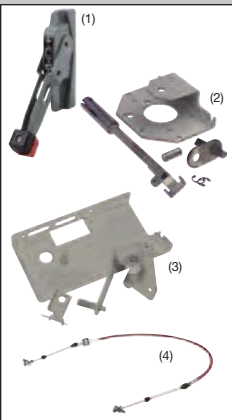
NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	N/A	H4X-05SB
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	N/A	H4X-05SR

+

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	5.30~9.06 (135~230)		SH5-200
12.6 (320)	5.30~13.78 (135~350)		SH5-320
15.7 (400)	5.30~16.93 (135~430)		SH5-400

or



Flange Handle[1] - requires shaft operated mechanism or cable operated mechanism + cable

NEMA Type	Flange Style	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 12	Standard	N	Y	Y	FLH1
1, 3R, 4, 4X, 12	Chrome Plated	N	Y	Y	FLH2

Shaft Operated Flange Mechanism[2]- includes shaft

For Enclosure Depth - in (mm)		Part Number
6~24 (152~613)		FLRM

Cable Operated Flange Mechanism and Cable - must select Mechanism[3] *and* Cable[4]

Item / Length		Part Number
Cable Mechanism		FLCM
36" (900mm) Cable		FLC36
60" (1500mm) Cable		FLC60
120" (3000mm) Cable		FLC120

or

NFPA Through the Door Handle Kit - to be used with selector handle or front pistol handle

Color		Test Function	Padlockable	Defeatable	Part Number
Red		N	Y	N	H79-2

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UL 98 Fused Rotary Disconnect Switches—60A

Compact Class J

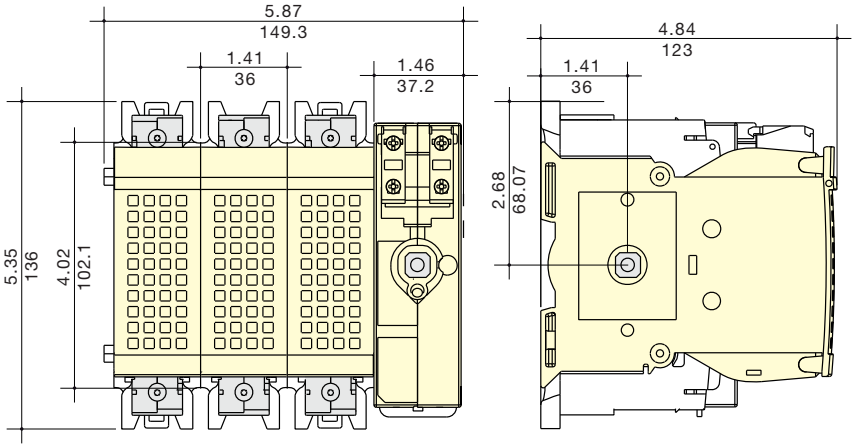
and …

Acc. Aux Contacts

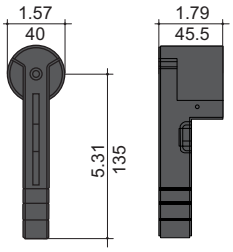
Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO	1	10A	600Vac	4	BAC05
NC	1	10A	600Vac	4	BAC06

Dimensions – in (mm)

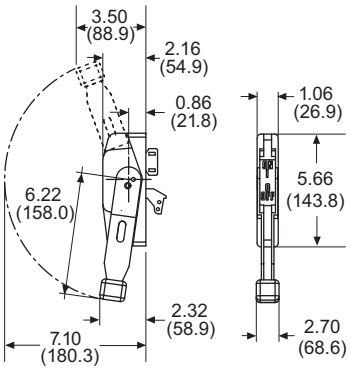


Direct Mount Handle

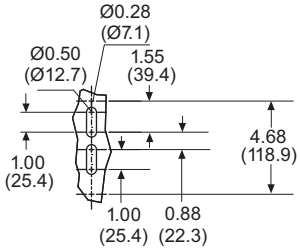


DIR-07

Flange Handle

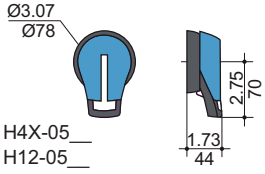


FLH_

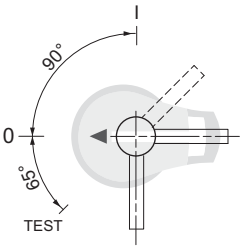


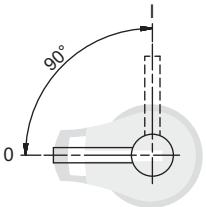
External Front & Right Side Pistol Handle

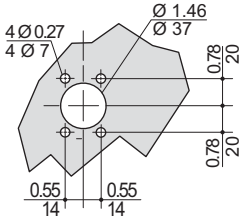
Handle Type	Direction of Front Operation	Direction of Right Side Operation	Door Drilling Layout



H4X-05__
H12-05__







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UL 98 Fused Rotary Disconnect Switches—60A

Standard Class J

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch

Amp Rating	Fuse Class	Number of Poles	SCCR	Max Horsepower Rating 1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	DC* 125 Vdc	DC* 250 Vdc	Wire Size	Wire Type	Part Number
60	J	2	200kA	10	-	-	-	5	10	#12-10 Sol #12-1 Str	75°C Cu	RDF60J-2
60	J	3	200kA	-	15	30	50	5	10	#12-10 Sol #12-1 Str	75°C Cu	RDF60J-3
60	J	4	200kA	-	15	30	50	5	10	#12-10 Sol #12-1 Str	75°C Cu	RDF60J-4

* DC Ratings use two poles in series.

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
All Switches	Black	Y	Y		DIR-07

or

or

+

External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12	Black	N	Y	Y	H12-03B
1, 3R, 12	Red/Yellow	N	Y	Y	H12-03R
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-06B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-06R
1, 3R, 4, 4X, 12	Black	Y	Y	Y	H4X-06TB
1, 3R, 4, 4X, 12	Red/Yellow	Y	Y	Y	H4X-06TR

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-06BHD
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-06RHD

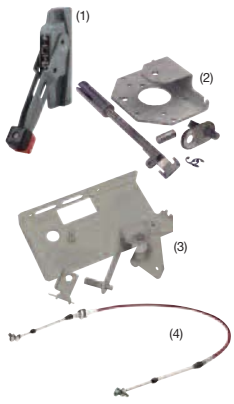
External Right Side Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	N/A	H4X-06SB
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	N/A	H4X-06SR

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	5.30~9.06 (135~230)		SH5-200
12.6 (320)	5.30~13.78 (135~350)		SH5-320
15.7 (400)	5.30~16.93 (135~430)		SH5-400

or



Flange Handle(1) - requires shaft operated mechanism or cable operated mechanism + cable

NEMA Type	Flange Style	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 12	Standard	N	Y	Y	FLH1
1, 3R, 4, 4X, 12	Chrome Plated	N	Y	Y	FLH2

Shaft Operated Flange Mechanism(2) - includes shaft

For Enclosure Depth in (mm)		Part Number
6~24 (152~613)		FLRM

Cable Operated Flange Mechanism and Cable - must select Mechanism(3) *and* Cable(4)

Item / Length		Part Number
Cable Mechanism		FLCM
36" (900mm) Cable		FLC36
60" (1500mm) Cable		FLC60
120" (3000mm) Cable		FLC120

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UL 98 Fused Rotary Disconnect Switches—60A

Standard Class J

Select NFPA Handle

or

NFPA Through the Door Handle Kit - to be used with front pistol handle

Color		Test Function	Padlockable	Defeatable	Part Number
Red		N	Y	N	H79-2

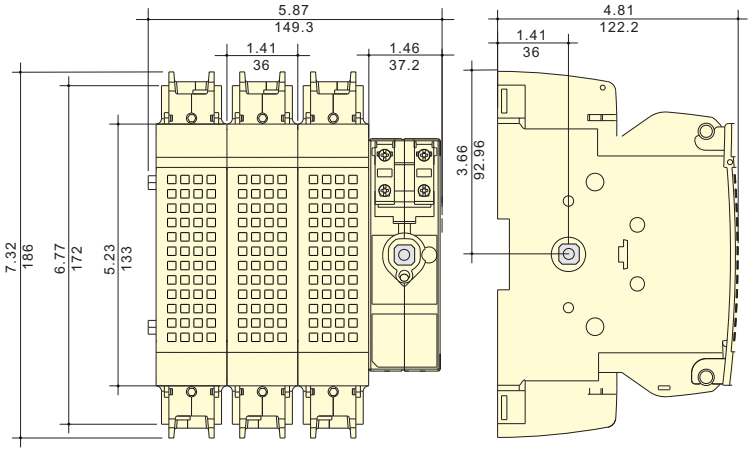
and …

Acc. Aux Contacts

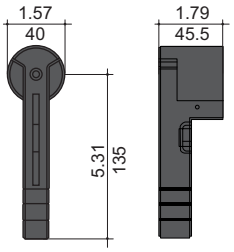
Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO	1	10A	600Vac	4	BAC05
NC	1	10A	600Vac	4	BAC06

Dimensions – in (mm)

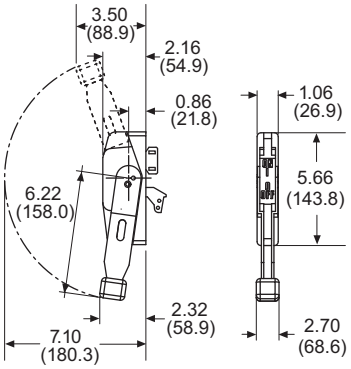


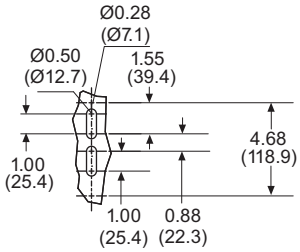
Direct Mount Handle



DIR-07

Flange Handle

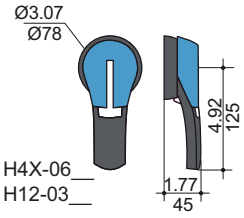




FLH_

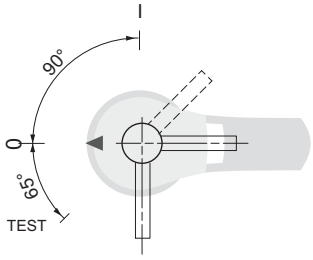
External Front and Right Side Pistol Handle

Handle Type

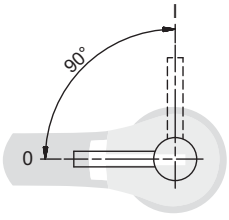


H4X-06__
H12-03__

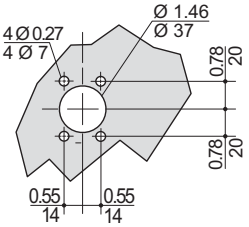
Direction of Front Operation



Direction of Right Side Operation



Door Drilling Layout



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UL 98 Fused Rotary Disconnect Switches—100A

Standard Class J

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch

Amp Rating	Fuse Class	Number of Poles	SCCR	Max Horsepower Rating 1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	DC* 125 Vdc	DC* 250 Vdc	Wire Size	Wire Type	Part Number
100	J	2	200kA	10	-	-	-	7.5	20	#12-10 Sol #12-1 Str	75°C Cu	RDF100J-2
100	J	3	200kA	-	30	60	75	7.5	20	#12-10 Sol #12-1 Str	75°C Cu	RDF100J-3
100	J	4	200kA	-	30	60	75	7.5	20	#12-10 Sol #12-1 Str	75°C Cu	RDF100J-4

* DC Ratings use two poles in series.

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
All Switches	Black	Y	Y		DIR-07

or

or

+

External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12	Black	N	Y	Y	H12-03B
1, 3R, 12	Red/Yellow	N	Y	Y	H12-03R
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-06B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-06R
1, 3R, 4, 4X, 12	Black	Y	Y	Y	H4X-06TB
1, 3R, 4, 4X, 12	Red/Yellow	Y	Y	Y	H4X-06TR

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-06BHD
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-06RHD

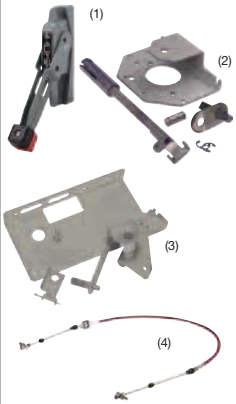
External Right Side Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	N/A	H4X-06SB
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	N/A	H4X-06SR

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	5.30~9.06 (135~230)		SH5-200
12.6 (320)	5.30~13.78 (135~350)		SH5-320
15.7 (400)	5.30~16.93 (135~430)		SH5-400

or



Flange Handle[1] - requires shaft operated mechanism or cable operated mechanism + cable

NEMA Type	Flange Style	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 12	Standard	N	Y	Y	FLH1
1, 3R, 4, 4X, 12	Chrome Plated	N	Y	Y	FLH2

Shaft Operated Flange Mechanism[2] - includes shaft

For Enclosure Depth in (mm)		Part Number
6~24 (152~613)		FLRM

Cable Operated Flange Mechanism and Cable - must select Mechanism[3] *and* Cable[4]

Item / Length		Part Number
Cable Mechanism		FLCM
36" (900mm) Cable		FLC36
60" (1500mm) Cable		FLC60
120" (3000mm) Cable		FLC120

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UL 98 Fused Rotary Disconnect Switches—100A

Standard Class J

Select NFPA Handle

or

NFPA Through the Door Handle Kit - to be used with front pistol handle

Color		Test Function	Padlockable	Defeatable	Part Number
Red		N	Y	N	H79-2

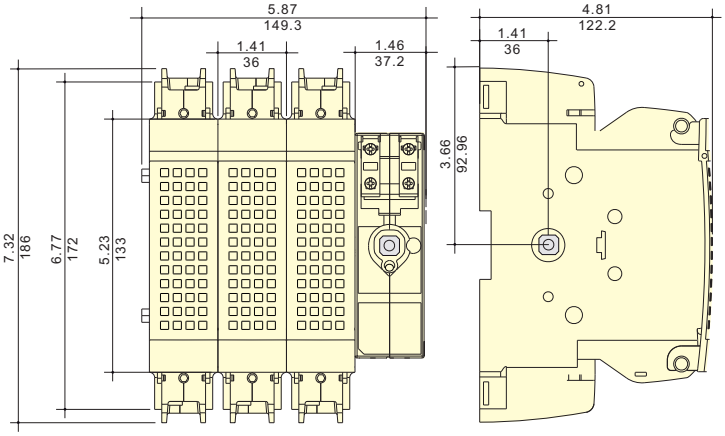
and …

Acc. Aux Contacts

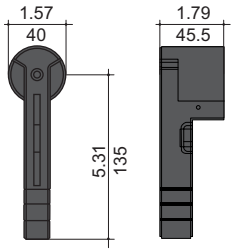
Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO	1	10A	600Vac	4	BAC05
NC	1	10A	600Vac	4	BAC06

Dimensions – in (mm)

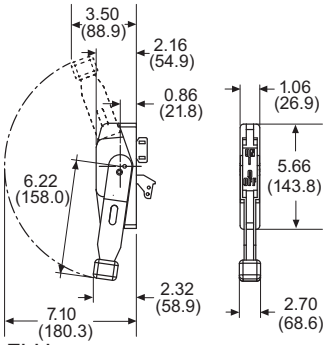


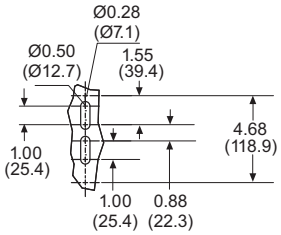
Direct Mount Handle



DIR-07

Flange Handle

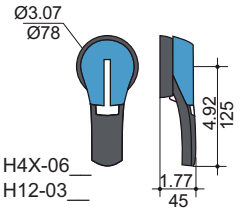




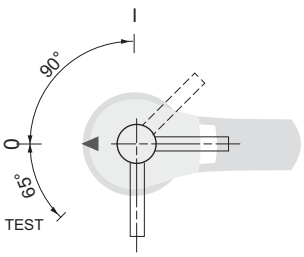
FLH_

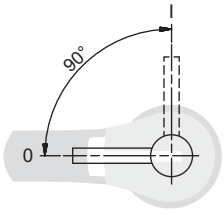
External Front & Right Side Pistol Handle

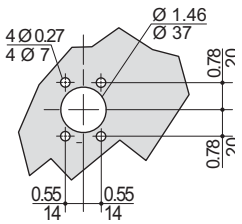
Handle Type	Direction of Front Operation	Direction of Right Side Operation	Door Drilling Layout



H4X-06__
H12-03__







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UL 98 Fused Rotary Disconnect Switches—200 & 400A

Standard Class J

For a Complete Assembly, Please Select:

Select for Standard Applications

SWITCH + LUGS

+

Switch

Amp Rating	Fuse Class	Number of Poles	SCCR	Max Horsepower Rating 1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	DC* 125 Vdc	DC* 250 Vdc	Part Number
200	J	2	200kA	10	-	-	-	-	-	RDF200J-2
200	J	3	200kA	-	60	125	150	-	-	RDF200J-3
200	J	4	200kA	-	60	125	150	-	-	RDF200J-4
400	J	2	200kA	10	-	-	-	20	50	RDF400J-2
400	J	3	200kA	-	125	250	350	20	50	RDF400J-3
400	J	4	200kA	-	125	250	350	20	50	RDF400J-4

* DC Ratings use two poles in series.

Terminal Lug Kit

Switch Amp Rating	Number of Poles	Lugs Per Kit	Wire Range	Wire Type	Part Number
200	2	2	#6-300MCM	75°C Cu/Al	LUG1-2
200	3	3	#6-300MCM	75°C Cu/Al	LUG1-3
200	4	4	#6-300MCM	75°C Cu/Al	LUG1-4
400	2	2	#4-600MCM or Dual 1/0-250MCM	75°C Cu/Al	LUG2-2
400	3	3	#4-600MCM or Dual 1/0-250MCM	75°C Cu/Al	LUG2-3
400	4	4	#4-600MCM or Dual 1/0-250MCM	75°C Cu/Al	LUG2-4

+

HANDLE

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
All Switches	Black	Y	Y		DIR-07

or

or

External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12	Black	N	Y	Y	H12-03B
1, 3R, 12	Red/Yellow	N	Y	Y	H12-03R
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-06B
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-06R
1, 3R, 4, 4X, 12	Black	Y	Y	Y	H4X-06TB
1, 3R, 4, 4X, 12	Red/Yellow	Y	Y	Y	H4X-06TR

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

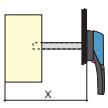
NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-06BHD
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-06RHD

External Right Side Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	N/A	H4X-06SB
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	N/A	H4X-06SR

+

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	200A: 5.70-9.06 (145-230) 400A: 7.87-10.24 (200-260)		SH5-200
12.6 (320)	200A: 5.70-13.78 (145-350) 400A: 7.87-16.93 (200-380)		SH5-320
15.7 (400)	200A: 5.70-16.93 (145-430) 400A: 7.87-18.10 (200-460)		SH5-400

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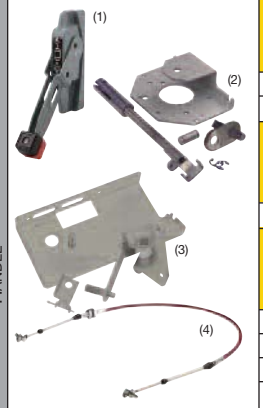
UL 98 Fused Rotary Disconnect Switches—200 & 400A

Standard Class J

Select for Standard Applications

Handle

or



Flange Handle(1) ***200A Only*** - requires shaft operated mechanism *or* cable operated mechanism + cable

NEMA Type	Flange Style	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 12	Standard	N	Y	Y	FLH1
1, 3R, 4, 4X, 12	Chrome Plated	N	Y	Y	FLH2

Shaft Operated Flange Mechanism(2) ***200A Only*** - includes shaft

For Enclosure Depth in (mm)		Part Number
6~24 (152~613)		FLRM

Cable Operated Flange Mechanism and Cable ***200A Only*** - must select Mechanism(3) *and* Cable(4)

Item		Part Number
Cable Mechanism		FLCM
36" (900mm) Cable		FLC36
60" (1500mm) Cable		FLC60
120" (3000mm) Cable		FLC120

or

NFPA Through the Door Handle Kit - to be used with front pistol handle

Use with Switch	Color	Test Function	Padlockable	Defeatable	Part Number
RDF200J-_	Red	N	Y	N	H79-2
RDF400J-_	Red	N	Y	N	H79-3

and …

Accessories

Aux Contacts

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch Part Number	Part Number
NO	1	10A	600Vac	RDF200J-__: 4	BAC05
NC	1	10A	600Vac	RDF400J-__: 8	BAC06

and …

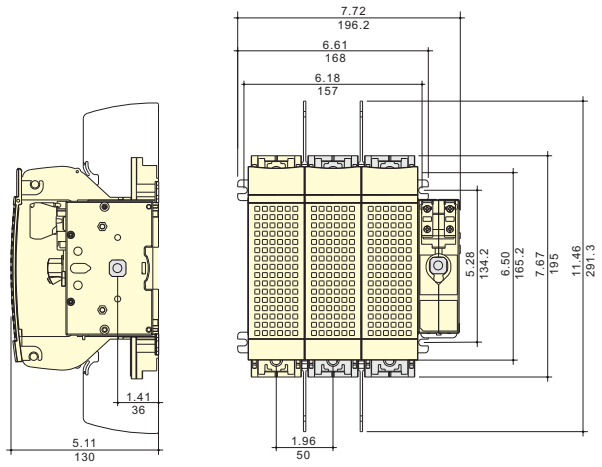
Shrouds

Terminal Shrouds - includes terminal shroud for lineside or loadside

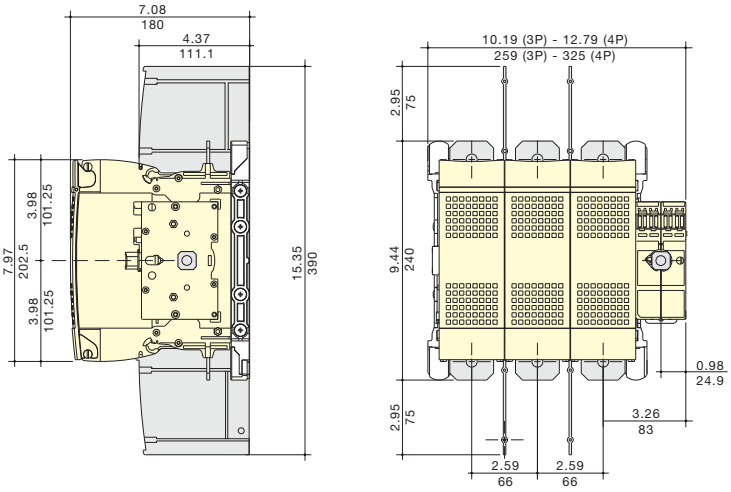
Switch Amp Rating	Number of Poles		Part Number
200	2		TSH8-2TB
200	3		TSH8-3TB
200	4		TSH8-4TB
400	2		TSH9-2TB
400	3		TSH9-3TB
400	4		TSH9-4TB

Dimensions – in (mm)

- RDF200J-3



- RDF400J-3



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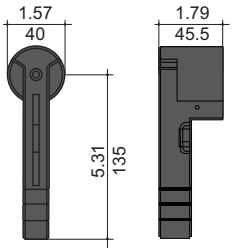
UL 98 Fused Rotary Disconnect Switches—200 & 400A

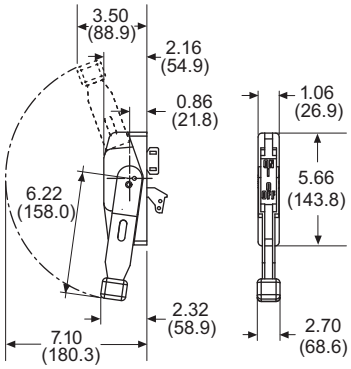
Standard Class J

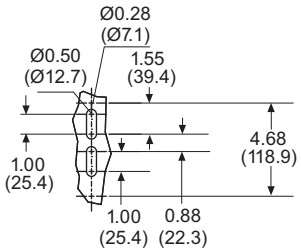
Direct Mount Handle



DIR-07

Flange Handle

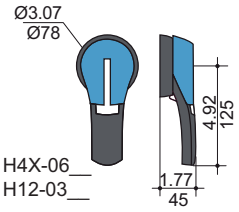




FLH_

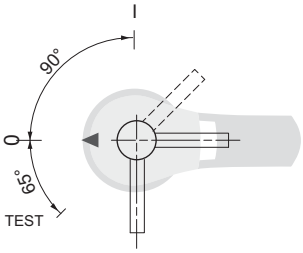
External Front & Right Side Pistol Handle

Handle Type

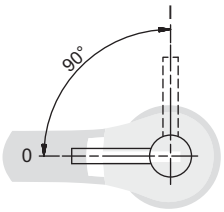


H4X-06__
H12-03__

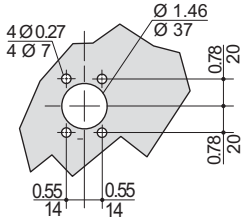
Direction of Front Operation



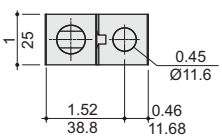
Direction of Right Side Operation

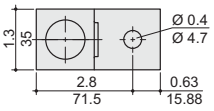


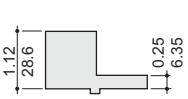
Door Drilling Layout



Terminal Lugs

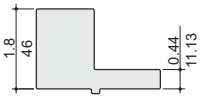






200A

LUG1-__



400A

LUG2-__

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COOPER Bussmann

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UL 98 Fused Rotary Disconnect Switches—600 & 800A

Standard Class J & Class L

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch + Lugs

+

Switch

Amp Rating	Fuse Class	Number of Poles	SCCR	Max Horsepower Rating, 3-Phase 220/240Vac	440/480Vac	600Vac	Part Number
600	J	2	200kA	-	-	-	RDF600J-2
600	J	3	200kA	200	400	500	RDF600J-3
600	J	4	200kA	200	400	500	RDF600J-4
800	L	2	200kA	-	-	-	RDF800L-2
800	L	3	200kA	200	500	500	RDF800L-3
800	L	4	200kA	200	500	500	RDF800L-4

Terminal Lug Kit

Switch Amp Rating	Number of Poles	Lugs Per Kit	Wire Range	Wire Type	Part Number
600-800	2	2	(2) #2-600MCM	75°C Cu/Al	LUG5-2
600-800	3	3	(2) #2-600MCM	75°C Cu/Al	LUG5-3
600-800	4	4	(2) #2-600MCM	75°C Cu/Al	LUG5-4

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number		Color	Test Function	Padlockable		Part Number
All Switches		Black	Y	Y		DIR-08

or

External Front Operated Pistol Handles - shaft required

NEMA Type		Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12		Black	N	Y	Y	H4X-07B
1, 3R, 4, 4X, 12		Red/Yellow	N	Y	Y	H4X-07R

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type		Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12		Black	N	Y	Y	H4X-07BHD
1, 3R, 4, 4X, 12		Red/Yellow	N	Y	Y	H4X-07RHD

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	10.63~11.97 (270~304)		SH7-200
12.6 (320)	10.63~16.69 (270~424)		SH7-320
15.7 (400)	10.63~19.84 (270~504)		SH7-400

or

NFPA Through the Door Handle Kit - to be used with front pistol handle

For Switch Part Number	Color	Test Function	Padlockable	Defeatable	Part Number
All Switches	Red	N	Y	N	H79-4

and …

Accessories — Aux Contacts

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO	1	10A	600Vac	8	BAC05
NC	1	10A	600Vac	8	BAC06

and …

Shrouds

Terminal Shrouds - includes terminal shroud for lineside or loadside

Switch Amp Rating	Number of Poles		Part Number
600-800	2		TSH10-2TB
600-800	3		TSH10-3TB
600-800	4		TSH10-4TB

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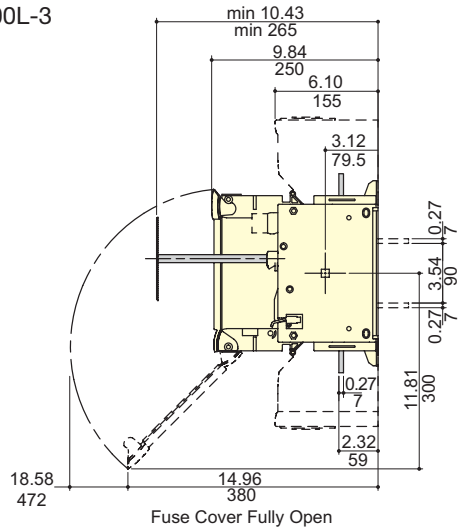
UL 98 Fused Rotary Disconnect Switches—600 & 800A

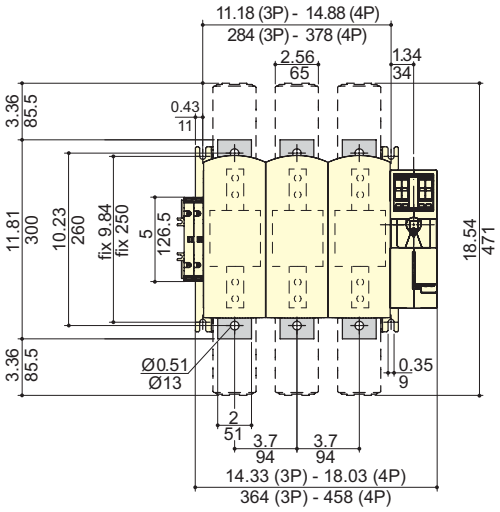
Standard Class J & Class L

Dimensions – in (mm)

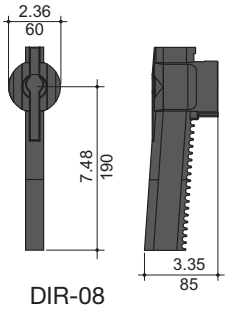
• RDF600J-3 • RDF800L-3



Fuse Cover Fully Open



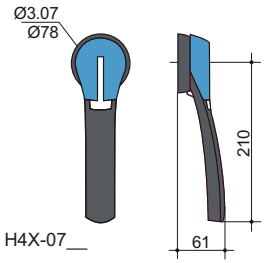
Direct Mount Handle



DIR-08

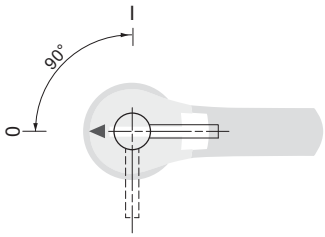
External Front Pistol Handle

Handle Type

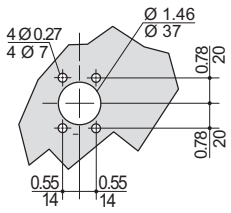


H4X-07__

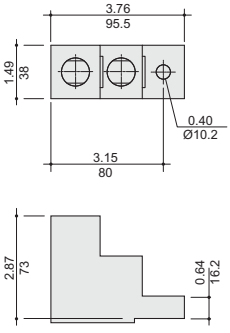
Direction of Front Operation



Door Drilling Layout



Terminal Lugs



600 to 800A

LUG5-__

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UL 98 Non-Fused Rotary Disconnect Switches—30 to 1200A

Description

Bussmann UL 98 non-fused rotary disconnect switches are versatile switches that “break” and “make” power circuits ON and OFF load.

Features

- Make and break power under load
- Up to 200kA SCCR
- DIN-Rail or panel mount (30-100A)
- Disconnect switches are front, right side and direct handle operable (30-100A)
- Finger-safe (30-100A)
- Fully visualized breaking (100-1200A)

Agency Information

- UL98, Guide WHTY, File E155130
- CSA 22.2 No. 4, File 257020
- Conforms with IEC 60947-3

Online Resources

Visit www.cooperbussmann.com/Disconnects for:

- CAD Drawings
- Instruction Sheets
- UL Information

c UL us LISTED CSA CE RoHS

QuikShip Everyday

QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

Related Cooper Bussmann Products

Fuse Blocks	Data Sheet #
Modular Knifeblade Fuse Blocks 100-600A	3192
Fuses Holders	
CH Series Class CC, Midget & 10x38 0-30A	3185
Finger-Safe Optima Series 0-30A	1102
Optima™ Protection Modules 0-30A	1109
CH Series Class J 0-60A	2144

IEC Electrical Specifications

RD30-3

RD200-3

RD600-3

Part Number 3-Pole 4-Pole	RD30-3 —	RD60-3 —	RD100-3 —	RD100-3-SCCR —	RD200-3 RD200-4	RD400-3 RD400-4	RD600-3 RD600-4	RD800-3 RD800-4	RD1000-3 RD1000-4	RD1200-3 RD1200-4
Thermal Current I_{th} @ 40°C (A)	30	60	100	—	—	—	—	—	—	—
Rated insulation voltage U_i (V)	800	800	800	—	—	—	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp} (kV)	8	8	8	—	—	—	12	12	12	12
Rated Operation Currents Ie (A)										
Load Duty Category Rated Voltage	A (1)	A (1)	A (1)	—	—	—	A (1)	A (1)	A (1)	A (1)
400Vac AC-22 A	32	63	100	—	—	—	630	800	1000	1200
400Vac AC-23 A	32	63	100	—	—	—	630	800	1000	1000
690Vac AC-22 A	32	63	80	—	—	—	500	630	630	630
690Vac AC-23 A	32	63	63	—	—	—	200	400	400	400
Operational Power (Vac) in AC-23 (kW)										
400V w/o prebreak AC (1)(2)	15	30	45	—	—	—	355	450	560	560
500V w/o prebreak AC (1)(2)	15	30	45	—	—	—	450	560	560	560
690V w/o prebreak AC (1)(2)	18.5	30	45	—	—	—	185	400	400	400
Overload Capacity (U_e 415Vac)										
Rated short-time making capacity Icm(kA peak) (3)	12	12	12	—	—	—	48	75	48	75
Fuse Protected Short-Circuit Withstand (kA rms prospective)										
Short-Circuit Current (kA) (3)	50	50	25	—	—	—	100	100	100	100
Associated Fuse Rating (A) (3)	32	63	100	—	—	—	630	800	1000	1250
Connection										
Minimum Cu cable cross section (mm^2)	2.5	2.5	10	—	—	—	2x150	2x185	2x240	—
Minimum Cu busbar section (mm^2)	—	—	—	—	—	—	2x30x5	2x40x5	2x50x5	2x60x5
Maximum Cu cable section (mm^2)	70	70	70	—	—	—	—	—	—	—

(1) A/B: Category with index A = frequent operation; category with index B = infrequent operation.
(2) The power value is given for information only; the current values vary from one manufacturer to another.
(3) For a rated operating voltage, U_e = 400Vac.

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UL 98 Non-Fused Rotary Disconnect Switches—30 to 1200A

Specifications

RD30-3

RD200-3

RD600-3

Part Number 3-Pole 4-Pole	RD30-3 —	RD60-3 —	RD100-3 —	RD100-3-SCCR —	RD200-3 RD200-4	RD400-3 RD400-4	RD600-3 RD600-4	RD800-3 RD800-4	RD1000-3 RD1000-4	RD1200-3 RD1200-4
UL Standard	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98	UL 98
Max Ampacity	30A	60A	100A	100A	200A	400A	600A	800A	1000A	1200A
Switch Type	Compact	Compact	Compact	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Handle Operation	Front/Side	Front/Side	Front/Side	Front	Front	Front	Front	Front	Front	Front
UL Electrical Ratings										
Max Voltage (AC)	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac	600Vac
Max Voltage (DC)	—	—	—	250Vdc	250Vdc	—	250Vdc	—	—	—
Maximum AC Horsepower Ratings										
1-Phase, 120Vac	2	3	5	—	—	—	—	—	—	—
1-Phase, 240Vac	5	10	10	10	10	—	—	—	—	—
3-Phase, 240Vac	10	20	20	30	75	125	200	200	200	200
3-Phase, 480Vac	20	40	50	75	150	250	400	500	500	500
3-Phase, 600Vac	25	50	50	100	200	350	350	500	500	500
DC Horsepower Ratings										
125Vdc	—	—	—	—	—	—	20	—	—	—
250Vdc	—	—	—	—	—	—	50	—	—	—
Electrical Characteristics										
SCCR with Fuse	100kA	100kA	25kA/100kA*	200kA	200kA	200kA	200kA	100kA	100kA	100kA
Fuse Class	J	J	J	J	J	J	J	L	L	L
Max. Fuse Rating	30A	60A	100A	100A	200A	400A	600A	800A	1000A	1200A
Terminal Lugs/Kits	Integral	Integral	Integral	•	•	•	•	•	•	•
Lug Mounting Torque - Lb-In (N•m)	-	-	-	160 (18)	160 (18)	LUG2-_ 310 (35) LUG3-_ 398 (45)	310 (35)	310 (35)	310 (35)	310 (35)
Wire Type	75°C Cu	75°C Cu	75°C Cu	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al	75°C Cu/Al
Wire Range & Torque - Lb-In (N•m)										
Solid	#12-10 35.4 (4)	#12-10 35.4 (4)	#12-10 35.4 (4)	— —	— —	— —	— —	— —	— —	— —
Stranded	#10-1 35.4 (4) 1/0 39.8 (4.5) 2/0 44.3 (5)	#10-1 35.4 (4) 1/0 39.8 (4.5) 2/0 44.3 (5)	#10-1 35.4 (4) 1/0 39.8 (4.5) 2/0 44.3 (5)	#6-300MCM 275 (31)	#6-300MCM 275 (31)	LUG2-_ #4-600MCM 550 (62) Dual 1/0-250MCM 550 (62) LUG3-_:(2) #6-2 200 (22.6) (2) #1-350MCM 375 (42.4)	(2) #2-600MCM 375 (42.4)	(4) #2-600MCM 375 (42.4)	(4) #2-600MCM 375 (42.4)	(4) #2-600MCM 375 (42.4)
Mechanical Characteristics										
Endurances/Cycles	10,000	10,000	10,000	10,000	8000	6000	6000	3500	3500	3500
Physical Characteristics										
Dimensions										
See drawings on product pages										
Weight - Lbs (KG)										
3-Pole	1.3 (0.6)	1.3 (0.6)	1.3 (0.6)	4.2 (1.91)	4.2 (1.91)	10.0 (4.6)	18.1 (8.2)	19.6 (8.9)	19.6 (8.9)	19.6 (8.9)
4-Pole	—	—	—	—	5.0 (2.3)	12.3 (5.6)	23.9 (10.9)	25.3 (11.5)	25.3 (11.5)	25.3 (11.5)
Environmental										
Operating Temperature	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C
Flammability Rating	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0
Accessories										
Lug Kit Part #										
3-Pole	Integral	Integral	Integral	•	•	•	•	•	•	•
4-Pole	—	—	—	—	•	•	•	•	•	•
Handles										
NEMA 1, 3R, 12	•	•	•	•	•	•	—	—	—	—
NEMA 1, 3R, 4, 4X, 12	•	•	•	•	•	•	•	•	•	•
Direct	•	•	•	•	•	•	•	•	•	•
Front Pistol	—	—	—	•	•	•	•	•	•	•
Front or Side Selector	•	•	•	—	—	—	—	—	—	—
Shaft c/s - mm	5x5	5x5	5x5	10x10	10x10	10x10	12x12	12x12	12x12	12x12
Shaft Guide	•	•	•	•	•	•	•	•	••	•
Shrouds	•	•	•	•	•	•	•	•	•	•
Additional Pole Accessory	•	•	•	—	—	—	—	—	—	—
Auxiliary Contacts										
NO + NC	•	•	•	•	•	•	•	•	•	•
(2) NO	•	•	•	—	—	—	—	—	—	—

• Available, see product page for details and part numbers.
— Not available.
* 25kA @ 600Vac, 100kA @ 480Vac.

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UL 98 Non-Fused Rotary Disconnect Switches—30, 60 and Compact 100A

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch

Switch Amp Rating	No. of Poles	SCCR	Max Horsepower Rating 1-Phase 120 Vac	1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	Wire Size	Wire Type	Part Number
30	3	100kA	2	5	10	20	25	#10-2/0 Str #12-10 Sol	75°C Cu	RD30-3
60	3	100kA	3	10	20	40	50	#10-2/0 Str #12-10 Sol	75°C Cu	RD60-3
100	3	25/100kA*	5	10	20	50	50	#10-2/0 Str #12-10 Sol	75°C Cu	RD100-3

* 100kA @480Vac, 25kA @ 600Vac.

+

Handles

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color		Test Function	Padlockable		Part Number
All Switches	Black		N	Y - On Switch		DIR-02

or

External Front or Right Side Operated Selector Handles - shaft required

NEMA Type	Color	Handle Length	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	Short	N	Y	Y	H4X-01B(1)
1, 3R, 4, 4X, 12	Red/Yellow	Short	N	Y	Y	H4X-01R(1)
1, 3R, 4, 4X, 12	Black	Long	N	Y	Y	H4X-02B(2)
1, 3R, 4, 4X, 12	Red/Yellow	Long	N	Y	Y	H4X-02R(2)

+

Shafts for Selector Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
5.9 (150)	3.50~7.60 (89~193)		SH4-150
7.9 (200)	3.50~9.50 (89~241)		SH4-200
12.6 (320)	3.50~14.9 (89~378)		SH4-320

+

Shaft Guide

	Part Number
Required for 12.6" (320mm) long shafts, optional for other lengths	SH-GUIDE1

and …

Accessories

Aux Contacts

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO + NC	1 of each	10A	240Vac	4	BAC01
NO	2	10A	240Vac	4	BAC02

and …

Shrouds

Terminal Shrouds - includes terminal shroud for both lineside and loadside

Switch Amp Rating	Number of Poles	Location on Switch	Part Number
All Switches	1 (for switched 4th pole)	Lineside and Loadside	TSH3-1TB
All Switches	3	Lineside and Loadside	TSH3-3TB

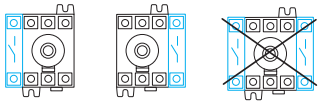
and …

Sw. 4th Pole

Switched 4th Pole - converts 3-pole switch to 4-pole

Switch Amp Rating	Part Number
30	POLE98-30
60	POLE98-60
100	POLE98-100

Auxiliary Contact Configurations



Possible 4th Pole Configurations

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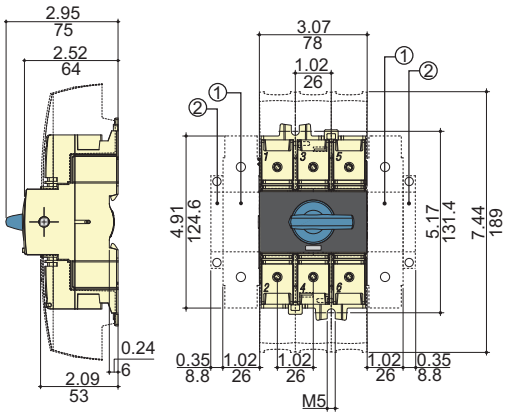
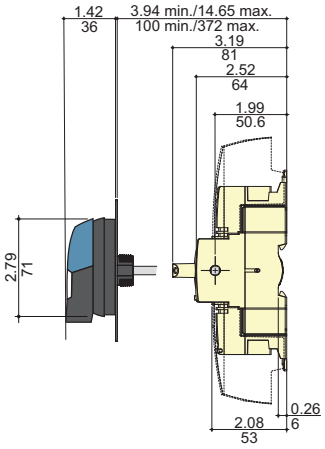
UL 98 Non-Fused Rotary Disconnect Switches—30, 60 and Compact 100A

Dimensions - in (mm)

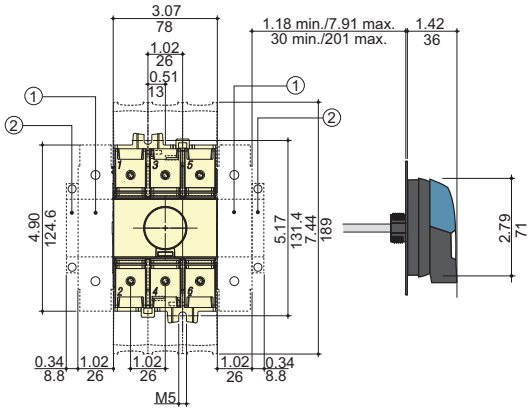
Direct Handle Operation



External Front Operation



External Right Side Operation

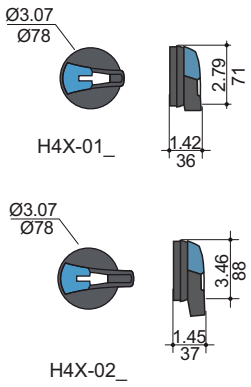


1. Position for 1 switched 4th pole (1 per device max.) or 1 auxiliary contact.
2. Position for 1 auxiliary contact only.

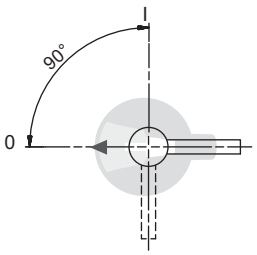
Note: Maximum of 4 auxiliary contacts, or 3 auxiliary contacts + one switched 4th pole.

External Front or Right Side Operated Selector Handle

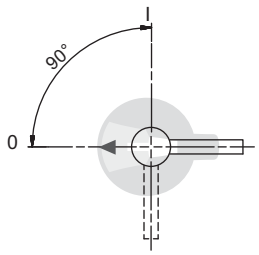
Handle Type



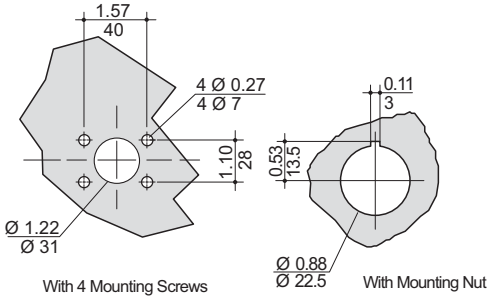
Direction of Front Operation



Direction of Right Side Operation



Door Drilling Layouts



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UL 98 Non-Fused Rotary Disconnect Switches—100, 200 and 400A

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch + Lugs

+

Switch

Switch Amp Rating	No. of Poles	SCCR	Max Horsepower Rating 1-Phase 220/240Vac	3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac		Part Number
100	3	200kA	10	30	75	100		RD100-3-SCCR
200	3	200kA	10	75	150	200		RD200-3
200	4	200kA	10	75	150	200		RD200-4
400	3	200kA	-	125	250	350		RD400-3
400	4	200kA	-	125	250	350		RD400-4

Terminal Lug Kit

Switch Amp Rating	No. of Poles	Lugs Per Kit	Wire Range	Wire Type	Part Number
100-200	2	2	#6-300MCM	75°C Cu/Al	LUG1-2
100-200	3	3	#6-300MCM	75°C Cu/Al	LUG1-3
100-200	4	4	#6-300MCM	75°C Cu/Al	LUG1-4
400	2	2	#4-600MCM or Dual 1/0-250MCM	75°C Cu/Al	LUG2-2
400	3	3	#4-600MCM or Dual 1/0-250MCM	75°C Cu/Al	LUG2-3
400	4	4	#4-600MCM or Dual 1/0-250MCM	75°C Cu/Al	LUG2-4
400	2	2	(2) #6-350MCM	75°C Cu/Al	LUG3-2
400	3	3	(2) #6-350MCM	75°C Cu/Al	LUG3-3
400	4	4	(2) #6-350MCM	75°C Cu/Al	LUG3-4

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number		Color		Test Function	Padlockable		Part Number
All Switches		Black		N	Y		DIR-03

or

or

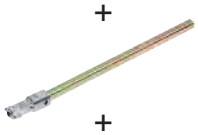
External Front Operated Pistol Handles - shaft required

NEMA Type		Color		Test Function	Padlockable	Defeatable	Part Number
1, 3R, 12		Black		N	Y	Y	H12-03B
1, 3R, 12		Red/Yellow		N	Y	Y	H12-03R
1, 3R, 4, 4X, 12		Black		N	Y	Y	H4X-06B
1, 3R, 4, 4X, 12		Red/Yellow		N	Y	Y	H4X-06R

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type		Color		Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12		Black		N	Y	Y	H4X-06BHD
1, 3R, 4, 4X, 12		Red/Yellow		N	Y	Y	H4X-06RHD

+



Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	5.31~10.43 (135~265)		SH5-200
12.6 (320)	5.31~15.16 (135~385)		SH5-320
15.7 (400)	5.31~18.31 (135~465)		SH5-400

+

Shaft Guide

	Part Number
Required for 15.7" (400mm) long shafts, optional for other lengths	SH-GUIDE2

and …

Accessories — Aux Contacts

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO + NC	1 of each	10.1A	125-250Vac	2	BAC03*
NO + NC	1 of each	10.1A	125-250Vac	2	BAC04*
NO + NC	1 of each	1A	125Vac	2	BAC11*
NO + NC	1 of each	1A	125Vac	2	BAC12*

* For one auxiliary contact, install either BAC03 or BAC11. For two auxiliary contacts, install BAC03 + BAC04, or BAC11 + BAC12.

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UL 98 Non-Fused Rotary Disconnect Switches—100, 200 and 400A

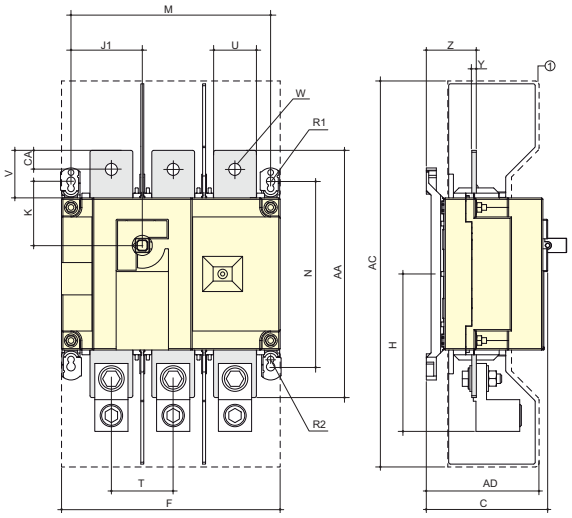
Accessories
SHROUDS

and …

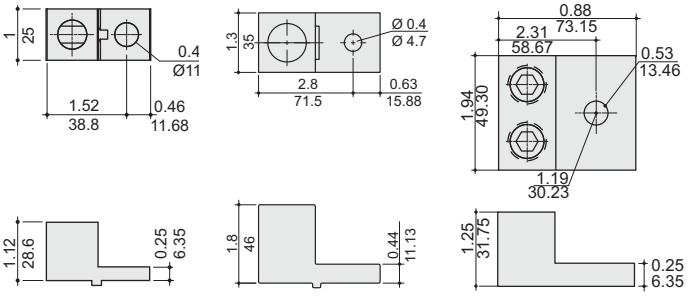
Terminal Shrouds - includes terminal shroud for lineside or loadside

Switch Amp Rating	Number of Poles	Location on Switch		Part Number
100-200A	3	Lineside		TSH4-3T
100-200A	3	Loadside		TSH4-3B
100-200A	4	Lineside or Loadside		TSH4-4TB
400A	3	Lineside		TSH5-3T
400A	3	Loadside		TSH5-3B
400A	4	Lineside or Loadside		TSH5-4TB

Dimensions - in (mm)



Terminal Lugs



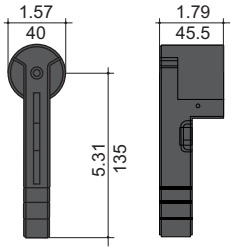
100 to 200A
LUG1-__

400A
LUG2-__

400A
LUG3-__

Switch Rating (A)	Overall Dimen.	Terminal Shrouds		Switch Body						Switch Mounting					Connection							
	C	AC	AD	F 3p.	F 4p.	H	J1 3p.	J1 4p.	K	M 3p.	M 4p.	N	R1	R2	T	U	V	W	Y	Z	AA	AC
100	3.72 (94.6)	10.1 (256)	3.05 (77.5)	7.09 (180)	9.06 (230)	4.22 (107)	2.17 (55)	4.13 (105)	1.8 (45.6)	6.3 (160)	8.27 (210)	5.31 (135)	0.35 (9)	0.27 (7)	1.97 (50)	0.98 (25)	1.18 (30)	0.43 (11)	0.14 (3.5)	1.35 (34.4)	6.3 (160)	0.6 (15)
200	3.72 (94.6)	10.1 (256)	3.05 (77.5)	7.09 (180)	9.06 (230)	4.22 (107)	2.17 (55)	4.13 (105)	1.8 (45.6)	6.3 (160)	8.27 (210)	5.31 (135)	0.35 (9)	0.27 (7)	1.97 (50)	0.98 (25)	1.18 (30)	0.43 (11)	0.14 (3.5)	1.35 (34.4)	6.3 (160)	0.6 (15)
400	4.92 (128)	16 (406)	4.15 (115)	9.05 (230)	11.4 (290)	6.53 (166)	2.95 (75)	5.31 (135)	2.65 (67.5)	8.26 (210)	10.6 (270)	7.67 (195)	0.35 (9)	0.27 (7)	2.56 (65)	1.77 (45)	1.97 (50)	0.43 (13)	0.2 (5)	2.08 (53)	10.2 (260)	0.8 (20)

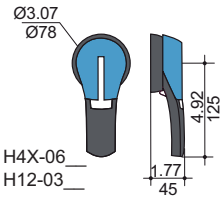
Direct Mount Handle



DIR-03

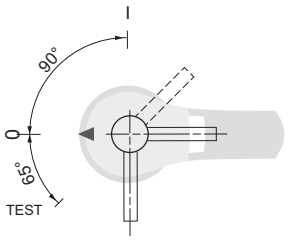
External Front Handle

Handle Type

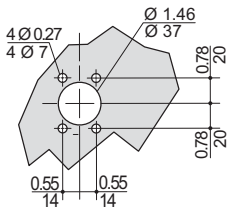


H4X-06__
H12-03__

Direction of Front Operation



Door Drilling Layout



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UL 98 Non-Fused Rotary Disconnect Switches—600, 800, 1000 and 1200A

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch + Lugs

+

Switch

Switch Amp Rating	No. of Poles	SCCR	Max Horsepower Rating 3-Phase 220/240Vac	3-Phase 440/480Vac	3-Phase 600 Vac	DC* 125 Vdc	DC* 250 Vdc		Part Number
600A	3	200kA	240	400	350	20	50		RD600-3
600A	4	200kA	240	400	350	20	50		RD600-4
800A	3	100kA	200	500	500	-	-		RD800-3
800A	4	100kA	200	500	500	-	-		RD800-4
1000A	3	100kA	200	500	500	-	-		RD1000-3
1000A	4	100kA	200	500	500	-	-		RD1000-4
1200A	3	100kA	200	500	500	-	-		RD1200-3
1200A	4	100kA	200	500	500	-	-		RD1200-4

* DC Ratings use two poles in series.

Terminal Lug Kit

Switch Amp Rating	No. of Poles	Lugs Per Kit	Lugs Required per Pole	Wire Range	Wire Type	Part Number
600	3	3	1	(2) #2-600MCM	75°C Cu/Al	LUG5-3
600	4	4	1	(2) #2-600MCM	75°C Cu/Al	LUG5-4
800-1200	3	6	2	(4) #2-600MCM	75°C Cu/Al	LUG6-6
800-1200	4	8	2	(4) #2-600MCM	75°C Cu/Al	LUG6-8

+

Handle

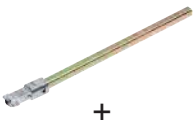
Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color	Test Function	Padlockable		Part Number
All Switches	Black	N	Y		DIR-04

or

or

+



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External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-07B(1)
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-07R(1)
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-08B(2)
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-08R(2)

Metallic Hasp (Heavy Duty) External Front Operated Pistol Handles - shaft required

NEMA Type	Color	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-07BHD(3)
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-07RHD(3)
1, 3R, 4, 4X, 12	Black	N	Y	Y	H4X-08BHD(4)
1, 3R, 4, 4X, 12	Red/Yellow	N	Y	Y	H4X-08RHD(4)

Shafts for Pistol Handles

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
7.9 (200)	8.70~13.50 (221~343)		SH6-200
12.6 (320)	8.70~18.23 (221~463)		SH6-320
15.7 (400)	8.70~21.38 (221~543)		SH6-400

Shaft Guide

	Part Number
Required for 15.7" (400mm) long shafts, optional for other lengths	SH-GUIDE2

and …

Accessories

Aux Contacts

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO + NC	1 of each	10.1A	125-250Vac	2	BAC03*
NO + NC	1 of each	10.1A	125-250Vac	2	BAC04*
NO + NC	1 of each	1A	125Vac	2	BAC11*
NO + NC	1 of each	1A	125Vac	2	BAC12*

* For one auxiliary contact, install either BAC03 or BAC11. For two auxiliary contacts, install BAC03 + BAC04, or BAC11 + BAC12.

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UL 98 Non-Fused Rotary Disconnect Switches—600, 800, 1000 and 1200A

Accessories SHROUDS

and …

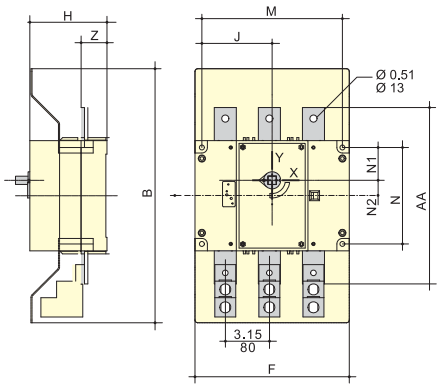
Terminal Shrouds* - includes terminal shroud for lineside or loadside

Switch Amp Rating	Number of Poles	Location on Switch		Part Number
600A	3	Lineside or Loadside		TSH6-3TB
600A	4	Lineside or Loadside		TSH6-4TB
800-1200A	3	Lineside or Loadside		TSH7-3TB
800-1200A	4	Lineside or Loadside		TSH7-4TB

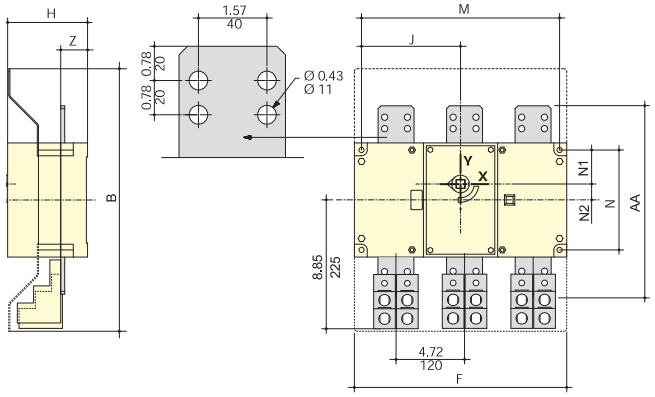
* Shroud for lineside included with switch.

Dimensions - in (mm)

600A



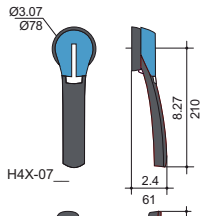
800 to 1200A

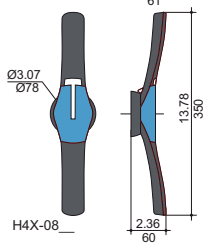


Switch Rating (A)	Terminal Shrouds B	Switch Body F 3p.	F 4p.	H	J 3p.	J 4p.	Switch Mounting M 3p.	M 4p.	N	N1	N2	Connection AA	Z
600	18.12 (460)	11 (280)	14.17 (360)	5.5 (140)	5 (127.5)	6.59 (167.5)	10.03 (255)	13.19 (335)	6.88 (175)	2.34 (59.5)	1.10 (28)	12.6 (320)	1.85 (47)
800	18.12 (460)	14.64 (372)	19.37 (492)	5.5 (140)	6.83 (173.5)	9.19 (233.5)	13.66 (347)	18.38 (467)	6.88 (175)	2.34 (59.5)	1.10 (28)	13 (330)	1.85 (47)
1000	18.12 (460)	14.64 (372)	19.37 (492)	5.5 (140)	6.83 (173.5)	9.19 (233.5)	13.66 (347)	18.38 (467)	6.88 (175)	2.34 (59.5)	1.10 (28)	13 (330)	1.85 (47)
1200	18.12 (460)	14.64 (372)	19.37 (492)	5.5 (140)	6.83 (173.5)	9.19 (233.5)	13.66 (347)	18.38 (467)	6.88 (175)	2.34 (59.5)	1.10 (28)	13 (330)	1.85 (47)

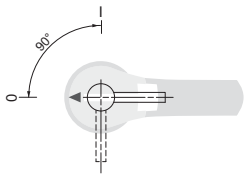
External Front Pistol Handles

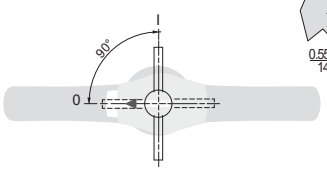
Handle Type



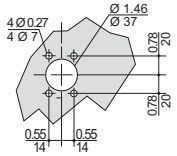


Direction of Front Operation

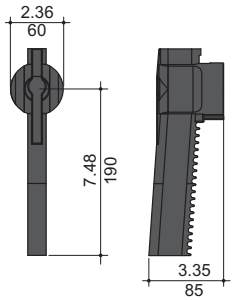




Door Drilling Layout

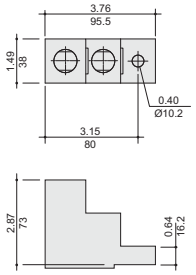


Direct Mount Handle



DIR-04

Terminal Lugs



600 to 1200A

LUG5-__, LUG6-__

Disconnect Switches

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

UL 508 Non-Fused Rotary Disconnect Switches—16 to 80A

Description

Bussmann UL 508 load break disconnect switches allow safe control and safe disconnection of any motor application or to isolate a circuit within the panel.

These disconnect switches are compact and offer a wide variety of accessories like 4th poles, auxiliary contacts, door mounting and 6/8-Pole kits.

Features

- Suitable as motor disconnect
- DIN-Rail or panel mount
- Door mount option
- Disconnect switches are front, right side or direct handle operable
- Finger-safe

Agency Information

- UL508, Guide NLRV, File E155129
- CSA C22.2 No. 14, File 257020
- Conforms with IEC 60947-3

Online Resources

Visit www.cooperbussmann.com/Disconnects for:

- CAD Drawings
- Instruction Sheets
- UL Information

QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

Related Cooper Bussmann Products

Product	Data Sheet #
Fuses Blocks	
Modular Knifeblade Fuse Blocks 100-600A	3192
Fuses Holders	
CH Series Class CC, Midget & 10x38 0-30A	3185
Finger-Safe Optima Series 0-30A	1102
Optima™ Protection Modules 0-30A	1109
CH Series Class J 0-60A	2144

IEC Electrical Specifications

RD16-3-508

RD16-3-508 with 6-Pole Conversion Kit

Part Number	RD16-3-508	RD25-3-508	RD40-3-508	RD63-3-508	RD80-3-508
Thermal Current I_{th} at 40°C (A)	16	25	40	63	80
Rated insulation voltage U_i (V)	800	800	800	800	800
Rated impulse withstand voltage U_{imp} (kV)	8	8	8	8	8
Rated Operation Currents I_e (A)					
Load Duty Category Rated Voltage	A/B (1)	A/B (1)	A/B (1)	A/B (1)	A/B (1)
500Vac AC-22 A/AC-22 B	16/16	25/25	40/40	63/63	80/80
500Vac AC-23 A/AC-23 B	16/16	25/25	25/25	63/63	63/63
690Vac AC-21 A/AC-21 B	16/16	25/25	40/40	63/63	80/80
690Vac AC-22 A/AC-22 B	16/16	25/25	32/40	40/63	63/80
690Vac AC-23 A/AC-23 B	16/16	25/25	25/25	40/40	40/40
Operational Power in AC-23 (kW)					
400Vac without prebreak AC (1)(2)	7.5	11	18.5	30	37
500Vac without prebreak AC (1)(2)	7.5	11	15	30	37
690Vac without prebreak AC (1)(2)	7.5	15	18.5	30	37
Overload Capacity (U_e 415 Vac)					
Rated short-time withstand current 0.3 s. I_{CW} (kA rms) (3)	2.5	2.5	2.5	3	3
Rated short-time making capacity I_{cm} (kA peak) (3)	6	6	6	9	9
Fuse Protected Short-Circuit Withstand (kA rms Prospective)					
Prospective short-circuit current (kA rms) (3)	50	50	50	50	50
Associated fuse rating (A) (3)	16	25	40	63	80
Connection					
Minimum Cu cable cross section (mm^2)	1.5	1.5	1.5	2.5	2.5
Maximum Cu cable section (mm^2)	16	16	16	35	35
Tightening torque min/max (N•m)	2/2.2	2/2.2	2/2.2	3.5/3.85	3.5/3.85

(1) A/B: Category with index A = frequent operation; category with index B = infrequent operation.
(2) The power value is given for information only; the current values vary from one manufacturer to another.
(3) For a rated operating voltage, U_e = 400Vac.

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UL 508 Non-Fused Rotary Disconnect Switches—16 to 80A

Specifications

RD16-3-508

RD16-3-508 with 6-Pole Conversion Kit

Part Number	RD16-3-508	RD25-3-508	RD40-3-508	RD63-3-508	RD80-3-508
UL Standard	UL 508	UL 508	UL 508	UL 508	UL 508
Max Ampacity	16A	25A	40A	63A	80A
Handle Operation	Front/Side	Front/Side	Front/Side	Front/Side	Front/Side
UL Electrical Ratings					
Max Voltage (AC)	600Vac	600Vac	600Vac	600Vac	600Vac
Maximum Horsepower Ratings					
3-Phase, 208Vac	3	7.5	7.5	15	15
3-Phase, 240Vac	5	7.5	7.5	20	20
3-Phase, 480Vac	10	15	20	40	40
3-Phase, 600Vac	10	20	25	40	40
Electrical Characteristics					
SCCR with Fuse	65kA	65kA	10/65kA	50/65kA	50/65kA
Recommended Upstream					
Fuse Class	J	J	J	J	J
Max. Fuse Rating	30A	30A	60/30A	100/60A	100/60A
Terminals	Integral	Integral	Integral	Integral	Integral
Wire Type	75°C Cu	75°C Cu	75°C Cu	75°C Cu	75°C Cu
Wire Range & Torque - Lb-IN (N•m)					
Solid					
Single	#14-10	#14-10	#14-10	#14-10	#14-10
	26.5 (3)	26.5 (3)	26.5 (3)	31.1 (3.5)	31.1 (3.5)
Dual	#12	#12	#12	#12	#12
	26.5 (3)	26.5 (3)	26.5 (3)	31.1 (3.5)	31.1 (3.5)
Stranded					
Single	#14-4	#14-4	#14-4	#14-1	#14-1
	26.5 (3)	26.5 (3)	26.5 (3)	31.1 (3.5)	31.1 (3.5)
Dual	#14-12	#14-12	#14-12	#10-6	#10-6
	26.5 (3)	26.5 (3)	26.5 (3)	31.1 (3.5)	31.1 (3.5)
Mechanical Characteristics					
Endurances/Cycles	10,000	10,000	10,000	10,000	10,000
Physical Characteristics					
Dimensions - See drawings on product pages					
Weight - Lb (KG)	0.5 (0.2)	0.5 (0.2)	0.5 (0.2)	0.7 (0.32)	0.7 (0.32)
Environmental					
Operating Temperature	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C	-20°C to 70°C
Flammability Rating	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0	UL 94-V0
Accessories					
Handles					
Direct	DIR-01	DIR-01	DIR-01	DIR-01	DIR-01
Short Selector/NEMA 1, 3R, 4, 4X, 12	H4X-01B	H4X-01B	H4X-01B	H4X-01B	H4X-01B
	H4X-01R	H4X-01R	H4X-01R	H4X-01R	H4X-01R
Long Selector/NEMA 1, 3R, 4, 4X, 12	H4X-02B	H4X-02B	H4X-02B	H4X-02B	H4X-02B
	H4X-02R	H4X-02R	H4X-02R	H4X-02R	H4X-02R
Shafts - 5x5mm					
5.9"/150mm	SH4-150	SH4-150	SH4-150	SH4-150	SH4-150
7.9"/200mm	SH4-200	SH4-200	SH4-200	SH4-200	SH4-200
12.6"/320mm	SH4-320	SH4-320	SH4-320	SH4-320	SH4-320
Shaft Guide	SH-GUIDE1	SH-GUIDE1	SH-GUIDE1	SH-GUIDE1	SH-GUIDE1
Door Mount Kit	DOOR-508	DOOR-508	DOOR-508	DOOR-508	DOOR-508
Shrouds/Switch Amps					
1-Pole	TSH1-1TB	TSH1-1TB	TSH1-1TB		
3-Pole (Loadside and Lineside)	TSH1-3TB	TSH1-3TB	TSH1-3TB	TSH2-3TB	TSH2-3TB
Switched 4th Pole/Switch Amps	POLE-16	POLE-25	POLE-40	—	—
Auxiliary Contacts					
NO + NC (1 ea.)	BAC01	BAC01	BAC01	BAC01	BAC01
(2) NO	BAC02	BAC02	BAC02	BAC02	BAC02
AC Ratings					
Volts	240Vac	240Vac	240Vac	240Vac	240Vac
Amps	10A	10A	10A	10A	10A
6-/8-Pole Conversion Kit					
Gangs two switches of same rating, 16-80A switch amps	KIT-6POLE	KIT-6POLE	KIT-6POLE	KIT-6POLE	KIT-6POLE

— Not available.

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UL 508 Non-Fused Rotary Disconnect Switches—16, 25, 40, 63 and 80A

For a Complete Assembly, Please Select:

Select for Standard Applications

Switch

Switch Amp Rating	No. of Poles	SCCR @600V	Max Class J Fuse	Max Horsepower Rating, 3-Ph 208 Vac	220/240Vac	440/480Vac	600 Vac	Wire Size	Wire Type	Part Number
16	3	65kA	30A	3	5	10	10	#14-#10 Sol Dual #12 Sol #14-#4 Str Dual #14-#12 Str	75°C Cu	RD16-3-508
25	3	65kA	30A	7.5	7.5	15	20	#14-#10 Sol Dual #12 Sol #14-#4 Str Dual #14-#12 Str	75°C Cu	RD25-3-508
40	3	10kA 65kA	60A 30A	7.5	7.5	20	25	#14-#10 Sol Dual #12 Sol #14-#4 Str Dual #14-#12 Str	75°C Cu	RD40-3-508
63	3	50kA 65kA	100A 60A	15	20	40	40	#14-#10 Sol Dual #12 Sol #14-#1 Str Dual #10-#6 Str	75°C Cu	RD63-3-508
80	3	50kA 65kA	100A 60A	15	20	40	40	#14-#10 Sol Dual #12 Sol #14-#1 Str Dual #10-#6 Str	75°C Cu	RD80-3-508

+

Handle

Direct Mount Handle - mounts directly to switch, no shaft required

For Switch Part Number	Color		Test Function	Padlockable		Part Number
All Switches	Black		N	Y - On Switch		DIR-01

or

External Front or Right Side Operated Selector Handles - shaft required

NEMA Type	Color	Handle Length	Test Function	Padlockable	Defeatable	Part Number
1, 3R, 4, 4X, 12	Black	Short	N	Y	Y	H4X-01B(1)
1, 3R, 4, 4X, 12	Red/Yellow	Short	N	Y	Y	H4X-01R(1)
1, 3R, 4, 4X, 12	Black	Long	N	Y	Y	H4X-02B(2)
1, 3R, 4, 4X, 12	Red/Yellow	Long	N	Y	Y	H4X-02R(2)

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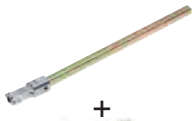

Shafts for Selector Handles - required for 12.6" (320mm) shafts

Length in (mm)	Mounting Depth (X) in (mm)		Part Number
5.9 (150)	3.50-7.60 (89-193)		SH4-150
7.9 (200)	3.50-9.50 (89-241)		SH4-200
12.6 (320)	3.50-14.9 (89-378)		SH4-320

+

Shaft Guide

	Part Number
Required for 12.6" (320mm) long shafts, optional for other lengths.	SH-GUIDE1

+

Door Mount Kit - for mounting switch on the right side of the enclosure or directly on the enclosure door using switch side operation shaft location. Kit includes a shaft. *Order switch and selector handle separately*.

Switch Rating	Part Number
All Switches - kit includes shaft	DOOR-508

and …

Acc. — Aux Contacts

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO + NC	1 Ea	10A	240Vac	4	BAC01
NO	2	10A	240Vac	4	BAC02

Auxiliary Contact Configurations

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UL 508 Non-Fused Rotary Disconnect Switches—16, 25, 40, 63 and 80A

Accessories

and …

Shrouds

Terminal Shrouds - includes terminal shroud for both lineside *and* loadside

Switch Amp Rating	Number of Poles	Location on Switch	Part Number
16-40A	1 (for switched 4th pole)	Lineside and Loadside	TSH1-1TB
16-40A	3	Lineside and Loadside	TSH1-3TB
63-80A	3	Lineside and Loadside	TSH2-3TB

and …

Sw. 4th Pole

Switched 4th Pole - converts 3-pole switch to 4-pole switch

Switch Amp Rating		Part Number
16		POLE-16
25		POLE-25
40		POLE-40

and …

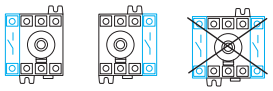
6-Pole Kit

Order switches separately.

6-Pole Conversion Kit - creates a 6-pole switch by ganging two 3-pole switches of equal rating

Switch Amp Rating		Part Number
All Switches		KIT-6POLE*

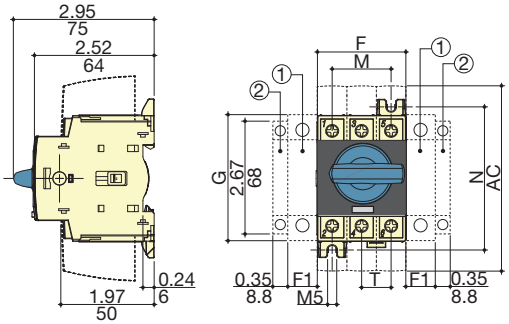
* Kit ships with a direct handle. If external handle is needed order a selector handle *and* shaft for the UL 508 Rotary Disconnect Switches.
Note: To create an 8-pole switch from 16 to 40 amp switches, use two 3-pole switches of equal ratings plus two switched 4th poles (part # POLE-_).



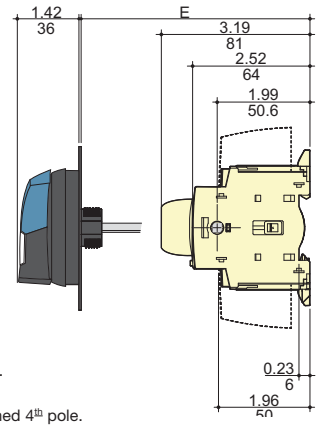
Switched 4th Pole Configurations.

Dimensions – in (mm)

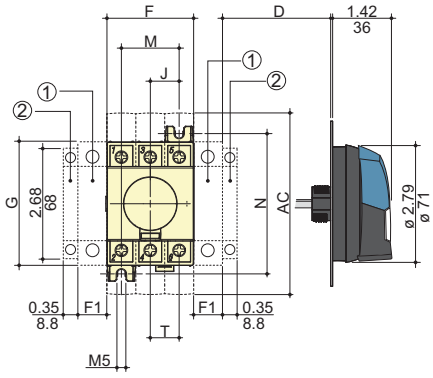
Direct Handle Operation



External Front Operation



External Side Operation



1. Position for 1 switched 4th pole (1 per device max.) or 1 auxiliary contact.
2. Position for 1 auxiliary contact only.
Note: Maximum of 4 auxiliary contacts, or 3 auxiliary contacts + one switched 4th pole.

Switch Rating (A)	Overall Dimensions D min	D max	E min	E max	Terminal Shroud AC	Switch Body F	F1	G	J	Switch Mounting M	N	Connection T
16 to 40	1.18 (30)	9.25 (235)	3.94 (100)	14.64 (372)	4.33 (110)	1.77 (45)	0.59 (15)	2.67 (68)	0.59 (15)	1.18 (30)	2.95 (75)	0.59 (15)
63 to 80	1.18 (30)	9.25 (235)	3.93 (100)	14.64 (372)	4.33 (110)	2.06 (52.5)	0.69 (17.5)	2.99 (76)	0.69 (17.5)	1.38 (35)	3.35 (85)	0.69 (17.5)

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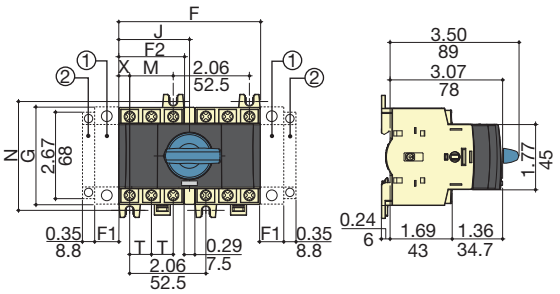
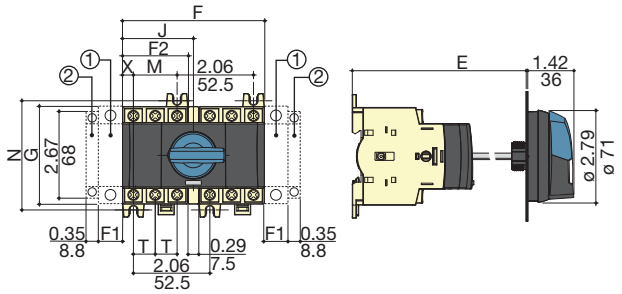
UL 508 Non-Fused Rotary Disconnect Switches—16, 25, 40, 63 and 80A

Dimensions – in (mm)

Direct Front Operation for 6/8-Pole Disconnects



External Front Operation for 6/8-Pole Disconnects



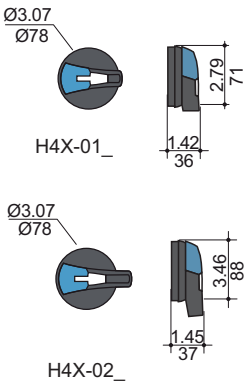
1. Position for 1 switched 4th pole (1 per device max.) or 1 auxiliary contact.
2. Position for 1 auxiliary contact only.

Note: Maximum of 4 auxiliary contacts, or 3 auxiliary contacts + one switched 4th pole.

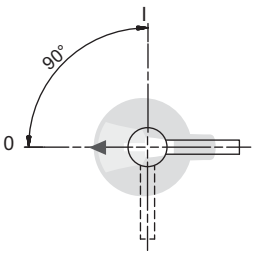
Switch Rating (A)	Overall Dimensions E min	E max	F	Switch Body F1	F2	G	J	Switch Mounting M	N	Connection T	X
16 to 40	4.13 (105)	14.64 (372)	3.83 (97.5)	0.59 (15)	1.77 (45)	2.67 (68)	1.92 (48.75)	1.18 (30)	2.95 (75)	0.59 (15)	0.29 (7.5)
63 to 80	4.13 (105)	14.65 (372)	4.13 (105)	0.69 (17.5)	2.06 (52.5)	2.99 (76)	2.06 (52.5)	1.38 (3.5)	3.35 (85)	0.69 (17.5)	0.34 (8.75)

External Selector Handles

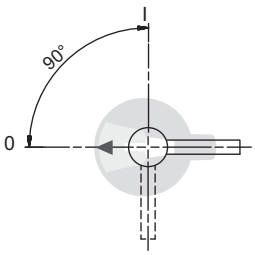
Handle Type



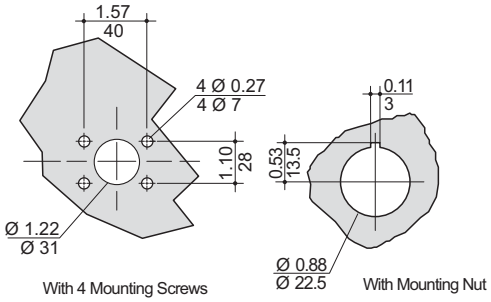
Direction of Front Operation



Direction of Right Side Operation



Door Drilling Layouts



Visit us on the web at www.cooperbussmann.com/Disconnects
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

UL 98 & UL 508 Enclosed Disconnect Switches

Description

Fused and non-fused enclosed Rotary Disconnect Switches from 16 to 1200A in NEMA 1, 3R, 4, 4X, 12 enclosures.

Features

- UL 98 Listed for general purpose, main disconnect, or branch circuit protection up to 600Vac/dc
- UL 508 Listed for motor disconnect applications up to 600Vac
- Multiple field installed accessories enhance the enclosed disconnect switches to fit the desired application
- Lockout/tagout: Up to three ¼" shank padlocks can be installed on external handles

Ratings:

- Volts: 600Vac
  250-600Vdc*
- Amps: 16-1200A
- Short-Circuit Current Ratings: UL 98: 25kA-200kA
  UL 508: 10kA-65kA

*Some non-fused disconnect switches are not rated for DC applications.

Specifications

- Operating temperature: -20°C to 70°C
- 4X Plastic Enclosure Flammability Rating:
  Polycarbonate UL 94-5VA-0
  Fiberglass UL 94-5V

Agency Information

- UL 98 Listed: File E182262, Guide WIAX, WIAX7
- UL 508 Listed: File E155129, Guide NLRV, NLRV7
- cULus Listed to CSA Standard 22.2, No. 14
- cULus Listed to CSA Standard 22.2, No. 4
- Conforms with IEC 60947-3
- CE Compliant
- RoHS Compliant

Field Installed Accessories

- Auxiliary contacts
- Terminal shrouds

Online Resources

Visit www.cooperbussmann.com/Disconnects for:

- CAD Drawings
- Instruction Sheets
- UL Information

c UL us LISTED CE RoHS

NEMA 1, 3R, 4 & 12

NEMA 4X Stainless Steel

NEMA 4X Polycarbonate or Fiberglass

QuikShip Everyday

QuikShip Everyday Service ships the most common part numbers within 24 hours. Contact your Bussmann representative for details.

Available Bussmann Fuses

Class	Type	Data Sheet #
CC	LP-CC Time-Delay, Current Limiting	1023
CC	FNQ-R Time-Delay	1014
CC	KTK-R Fast-Acting	1015
J	LPJ Time-Delay, Current Limiting	1006 (0-60A)
J		1007 (70-600A)
J	With *easy*ID™open fuse indication	1062 (6-60A)
J		1063 (70-600A)
J	JKS Fast-Acting Fuses	1026 (0-60A)
J		1027 (70-600A)
J	DFJ High Speed Drive Fuse	1048 (0-600A)
L	KRP-C Time-Delay, Current Limiting	1008
L	KTU Fast-Acting	1010
L	KLU Time-Delay	1013

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UL 98 Enclosed Fused Disconnects—30 to 800A

3-Pole UL 98 600Vac

Part Number System: ER 4X - 60 J 3 P B

ER
Enclosed **R**otary Disconnect

NEMA Rating
1, 3R, 4, 4X (SST), 4P (4X Plastic), 12

Amp Rating
30, 60, 100, 200, 400, 600, 800

Fuse Class
J = Class J, L = Class L

Number of Poles
3 = 3-Pole

Handle Type
P = Pistol

Handle Color
B = Black, R = Red

30-800A

NEMA 1, 3R, 4 & 12 | NEMA 4X Plastic | NEMA 4X Stainless

Part Numbers - All part numbers provided with integral or installed lugs and a black selector handle. Order red/yellow handle by changing the suffix "B" to "R."

UL General Purpose Amp Rating	Fuse Type	NEMA Enclosure Type & Part Number					
		1	3R	4	4X Plastic(1)	4X Stainless	12
30	J	ER1-30J3PB	ER3R-30J3PB	ER4-30J3PB	ER4P-30J3PB	ER4X-30J3PB	ER12-30J3PB
60	J	ER1-60J3PB	ER3R-60J3PB	ER4-60J3PB	ER4P-60J3PB	ER4X-60J3PB	ER12-60J3PB
100	J	ER1-100J3PB	ER3R-100J3PB	ER4-100J3PB	ER4P-100J3PB	ER4X-100J3PB	ER12-100J3PB
200	J	ER1-200J3PB	ER3R-200J3PB	ER4-200J3PB	ER4P-200J3PB	ER4X-200J3PB	ER12-200J3PB
400	J	ER1-400J3PB	ER3R-400J3PB	ER4-400J3PB	ER4P-400J3PB	ER4X-400J3PB	ER12-400J3PB
600	J	ER1-600J3PB	ER3R-600J3PB	ER4-600J3PB	ER4P-600J3PB	ER4X-600J3PB	ER12-600J3PB
800	L	ER1-800L3PB	ER3R-800L3PB	ER4-800L3PB	ER4P-800L3PB	ER4X-800L3PB	ER12-800L3PB

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

Switch Ratings - for wire types, ranges and tightening torques, see table on page 387

Switch Amp Rating	Disconnect Switch	Fuse Type	No. of Poles	Voltage		SCCR @ Vac	Max Hp Rating @ 600Vac
				Vac	Vdc		
30	RDF30J-3	J	3	600	250	200kA	20
60	RDF60J-3	J					50
100	RDF100J-3	J					75
200	RDF200J-3	J					150
400	RDF400J-3	J					350
600	RDF600J-3	J			600		500
800	RDF800L-3	L					

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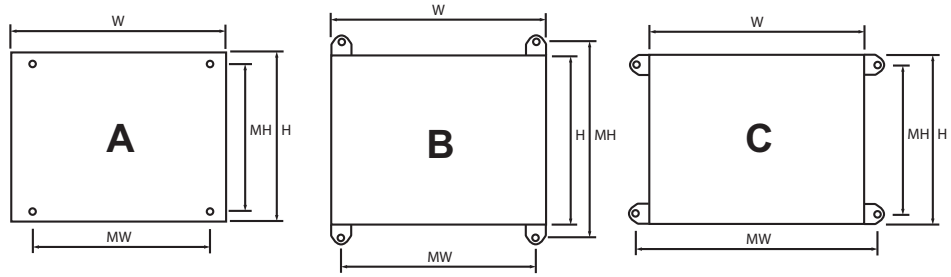
UL 98 Enclosed Fused Disconnects—30 to 800A

Enclosure Weights - Lbs & Dimensions - in



Part Number Family	Amp Rating	Fuse Type	NEMA Enclosure Type	H x W x D	Mounting Centers H x W A	B	C	Weight Lbs
ER_-30J	30	J	1, 3R, 4, 12	10x10x6	8.3x8.3			15
			4X-SST	10x10x6		9.5x8.3	8.3x9.5	15
			4X-Plastic(1)	12x10x6		12x5.6	7.64x10	8
ER_-60J	60	J	1, 3R, 4, 12	12x10x6	10.3x8.3			19
			4X-SST	12x10x6		11.5x8.3	10.3x9.5	19
			4X-Plastic(1)	13x13x6		14x7.6	9.6x12	11
ER_-100J	100	J	1, 3R, 4, 12	14x12x6	12.3x10.3			21
			4X-SST	14x12x6		13.5x10.3	12.3x11.5	21
			4X-Plastic(1)	13x13x6		14x7.6	9.6x12	12
ER_-200J	200	J	1, 3R, 4, 12	24x20x8	22x18.1			55
			4X-SST	24x20x8		23.2x18.1	22x19.3	55
			4X-Plastic(1)	27x21x10		25.75x14		39
ER_-400J	400	J	1, 3R, 4, 12	48x36x12	45.75x34.9			188
			4X-SST	48x36x12		46.9x34.9	45.75x36.1	188
			4X-Plastic(1)	51x37x14		50.1x28.5		186
ER_-600J	600	J	1, 3R, 4, 12	48x36x12	45.75x34.9			216
			4X-SST	48x36x12		46.9x34.9	45.75x36.1	216
			4X-Plastic(1)	51x37x14		50.1x28.5		214
ER_-800L	800	L	1, 3R, 4, 12	48x36x12	45.75x34.9			216
			4X-SST	48x36x12		46.9x34.9	45.75x36.1	216
			4X-Plastic(1)	51x37x14		50.1x28.5		214

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

Available Field-Installed Accessories - *Order Separately*

Auxiliary Contacts - for 30 to 800 Amp Switches

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO	1	10A	600Vac	30 to 200A: 4	BAC05
NC	1	10A	600Vac	400 to 800A: 8	BAC06

Terminal Shrouds - for 200 to 800 Amp Switches - includes terminal shroud for lineside or loadside

Switch Amp Rating	Number of Poles		Part Number
200	3		TSH8-3TB
400	3		TSH9-3TB
600-800	3		TSH10-3TB

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UL 98 Enclosed Non-Fused Disconnects—30 to 1200A

3-Pole UL 98 600Vac

Part Number System: ER 4X - 60 N 3 S B

ER
Enclosed **R**otary Disconnect

NEMA Rating
1, 3R, 4, 4X (SST), 4P (4X Plastic), 12

Amp Rating
30, 60, 100, 200, 400, 600, 800, 1200

N = Non-Fused

Number of Poles
3 = 3-Pole

Handle Type*
P = Pistol, S = Selector

Handle Color
B = Black, R = Red

* ≤100A = Selector only, ≥200A = Pistol only.

30-100A

NEMA 1, 3R, 4 & 12

NEMA 4X

NEMA 4X Stainless

200-1200A

NEMA 1, 3R, 4 & 12

NEMA 4X

NEMA 4X Stainless

Part Numbers - All part numbers provided with integral or installed lugs and a black selector handle. Order red/yellow handle by changing the suffix "B" to "R."

UL General Purpose Amp Rating	NEMA Enclosure Type & Part Number					
	1	3R	4	4X Plastic(1)	4X Stainless	12
30	ER1-30N3SB	ER3R-30N3SB	ER4-30N3SB	ER4P-30N3SB	ER4X-30N3SB	ER12-30N3SB
60	ER1-60N3SB	ER3R-60N3SB	ER4-60N3SB	ER4P-60N3SB	ER4X-60N3SB	ER12-60N3SB
100	ER1-100N3SB	ER3R-100N3SB	ER4-100N3SB	ER4P-100N3SB	ER4X-100N3SB	ER12-100N3SB
200	ER1-200N3PB	ER3R-200N3PB	ER4-200N3PB	ER4P-200N3PB	ER4X-200N3PB	ER12-200N3PB
400	ER1-400N3PB	ER3R-400N3PB	ER4-400N3PB	ER4P-400N3PB	ER4X-400N3PB	ER12-400N3PB
600	ER1-600N3PB	ER3R-600N3PB	ER4-600N3PB	ER4P-600N3PB	ER4X-600N3PB	ER12-600N3PB
800	ER1-800N3PB	ER3R-800N3PB	ER4-800N3PB	ER4P-800N3PB	ER4X-800N3PB	ER12-800N3PB
1200	ER1-1200N3PB	ER3R-1200N3PB	ER4-1200N3PB	N/A	ER4X-1200N3PB	ER12-1200N3PB

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

Switch Ratings - for wire types, ranges and tightening torques, see table on page 405

Switch Amp Rating	Disconnect Switch	No. of Poles	Voltage		SCCR @ Vac	Max Hp Rating @ 600Vac
			Vac	Vdc		
30	RD30-3	3	600	N/A	100kA	25
60	RD60-3					50
100	RD100-3				25kA/100kA*	
200	RD200-3			250	200kA	200
400	RD400-3					350
600	RD600-3					
800	RD800-3			N/A	100kA	500
1200	RD1200-3					

* 25kA @ 600Vac, 100kA @ 480Vac.

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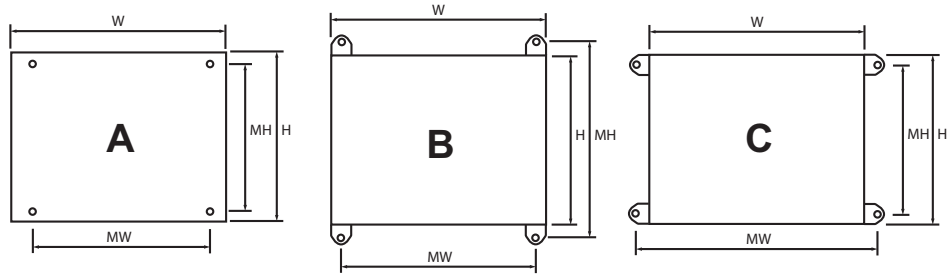
UL 98 Enclosed Non-Fused Disconnects—30 to 1200A

Enclosure Weights - Lbs & Dimensions - in



Part Number Family	Amp Rating	NEMA Enclosure Type	H x W x D	Mounting Centers H x W A	B	C	Weight Lbs
ER_-30		1, 3R, 4, 12	10x8x6	8.3x6.3			11
	30	4X-SST	10x8x6		9.5x6.3	8.3x7.5	11
		4X-Plastic(1)	9x9x6		10x3.6	5.6x8	5
ER_-60		1, 3R, 4, 12	10x8x6	8.3x6.3			12
	60	4X-SST	10x8x6		9.5x6.3	8.3x7.5	12
		4X-Plastic(1)	9x9x6		10x3.6	5.6x8	5
ER_-100		1, 3R, 4, 12	12x10x6	10.3x8.3			12
	100	4X-SST	12x10x6		11.5x8.3	0.3x9.5	12
		4X-Plastic(1)	13x13x6		14x7.6	9.6x12	8
ER_-200		1, 3R, 4, 12	20x16x8	18.1x14.2			39
	200	4X-SST	20x16x8		19.3x14.2	18.1x15.4	39
		4X-Plastic(1)	23x17x12		21.5x10.1		31
ER_-400		1, 3R, 4, 12	36x30x8	33.9x28.3			122
	400	4X-SST	36x30x8		35.1x28.3	33.9x29.5	122
		4X-Plastic(1)	40x32x14		38.1x23.9		103
ER_-600		1, 3R, 4, 12	48x36x12	45.8x34.9			209
	600	4X-SST	48x36x12		47x34.9	45.8x36.1	209
		4X-Plastic(1)	51x37x 14		50.1x28.5		187
ER_-800		1, 3R, 4, 12	48x36x12	45.8x34.9			211
	800	4X-SST	48x36x12		47x34.9	45.8x36.1	211
		4X-Plastic(1)	51x37x 14		50.1x28.5		189
ER_-1200	1200	1, 3R, 4, 12	60x36x16	57.5x33.9			268
		4X-SST	60x36x16		58.7x33.9	57.5x35.1	268

(1) Enclosures ≤100A are polycarbonate, flammability rating UL 94-5VA-V0, ≥200A are fiberglass, flammability rating UL 94-5V.

Available Field-Installed Accessories - *Order Separately*

Auxiliary Contacts - for 30 to 1200 Amp Switches

Switch Amp Rating	Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
30-100	NO + NC	1 of each	10A	240Vac	4	BAC01
30-100	NC	2	10A	240Vac	4	BAC02
100-1200	NO + NC	1 of each	10.1A	125-250Vac	2	BAC03*
100-1200	NO + NC	1 of each	10.1A	125-250Vac	2	BAC04*
100-1200	NO + NC	1 of each	1A	125Vac	2	BAC11*
100-1200	NO + NC	1 of each	1A	125Vac	2	BAC12*

* For one auxiliary contact, install either BAC03 or BAC11. For two auxiliary contacts, install BAC03 + BAC04, or BAC11 + BAC12.

Terminal Shrouds - for 200 to 800 Amp Switches

Switch Amp Rating	Number of Poles	Location on Switch		Part Number
30-100	3	Lineside and Loadside		TSH3-3TB
200A	3	Lineside		TSH4-3T
200A	3	Loadside		TSH4-3B
400A	3	Lineside		TSH5-3T
400A	3	Loadside		TSH5-3B
600A	3	Lineside or Loadside		TSH6-3TB
800-1200A	3	Lineside or Loadside		TSH7-3TB

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UL 508 Enclosed Non-Fused Disconnects—16 to 80A

3-/6-Pole UL 508 600Vac

Part Number System: ER 4X - 63 N 6 S B

ER
Enclosed **R**otary Disconnect

NEMA Rating
1, 3R, 4, 4X (SST), 4P (4X Plastic), 12

Amp Rating
16, 25, 40, 63, 80

N = Non-Fused

Number of Poles
3 = 3-Pole, 6 = 6-Pole

Handle Type
S = Selector

Handle Color
B = Black, R = Red

16-80A

NEMA 1, 3R, 4 & 12 | NEMA 4X Plastic | NEMA 4X Stainless

Part Numbers - All part numbers provided with a black selector handle. Order red/yellow handle by changing the suffix "B" to "R."

UL General Purpose Amp Rating	No. of Poles	NEMA Enclosure Type & Part Number					
		1	3R	4	4X Plastic[1]	4X Stainless	12
16	3	ER1-16N3SB	ER3R-16N3SB	ER4-16N3SB	ER4P-16N3SB	ER4X-16N3SB	ER12-16N3SB
	6	ER1-16N6SB	ER3R-16N6SB	ER4-16N6SB	ER4P-16N6SB	ER4X-16N6SB	ER12-16N6SB
25	3	ER1-25N3SB	ER3R-25N3SB	ER4-25N3SB	ER4P-25N3SB	ER4X-25N3SB	ER12-25N3SB
	6	ER1-25N6SB	ER3R-25N6SB	ER4-25N6SB	ER4P-25N6SB	ER4X-25N6SB	ER12-25N6SB
40	3	ER1-40N3SB	ER3R-40N3SB	ER4-40N3SB	ER4P-40N3SB	ER4X-40N3SB	ER12-40N3SB
	6	ER1-40N6SB	ER3R-40N6SB	ER4-40N6SB	ER4P-40N6SB	ER4X-40N6SB	ER12-40N6SB
63	3	ER1-63N3SB	ER3R-63N3SB	ER4-63N3SB	ER4P-63N3SB	ER4X-63N3SB	ER12-63N3SB
	6	ER1-63N6SB	ER3R-63N6SB	ER4-63N6SB	ER4P-63N6SB	ER4X-63N6SB	ER12-63N6SB
80	3	ER1-80N3SB	ER3R-80N3SB	ER4-80N3SB	ER4P-80N3SB	ER4X-80N3SB	ER12-80N3SB
	6	ER1-80N6SB	ER3R-80N6SB	ER4-80N6SB	ER4P-80N6SB	ER4X-80N6SB	ER12-80N6SB

(1) Polycarbonate enclosure flammability rating UL 94-5VA-V0.

Switch Ratings - for wire types, ranges and tightening torques, see table on page 413

Switch Amp Rating	Disconnect Switch	Voltage		SCCR with Max Upstream Class J Fuse	Max Hp Rating @ 600Vac
		Vac	Vdc		
16	RD16-3-508	600	N/A	65kA / 30A	10
25	RD25-3-508			65kA / 30A	20
40	RD40-3-508			65kA / 30A — 10kA / 60A	25
63	RD63-3-508			65kA / 60A — 50kA / 100A	40
80	RD80-3-508			65kA / 60A — 50kA / 100A	40

Note: Voltage, SCCR and Horsepower ratings are the same for 3- and 6-pole UL 508 non-fused disconnect switches.

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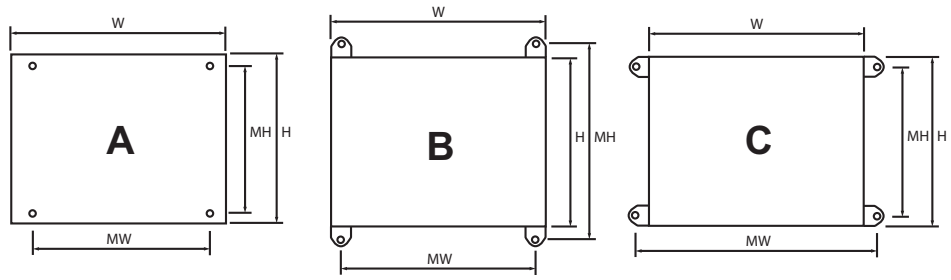
UL 508 Enclosed Non-Fused Disconnects—16 to 80A

Enclosure Weights - Lbs & Dimensions - in



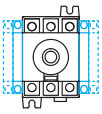
NEMA Enclosure Type	No. of Poles	Switch Amp Ratings	H x W x D	Mounting Centers H x W			Weight Lbs
				A	B	C	
1, 3R, 4, 12	3	16-80A	8x6x6	6.3x4.3			8
	6	16-80A	10x8x6	8.3x6.3			11
4X-SST	3	16-80A	8x6x6		7.5x4.3	6.3x5.5	8
	6	16-80A	10x8x6		9.5x6.3	8.3x7.5	11
4X-Plastic(1)	3	16-63A	7.4x8.7x5.8		8x3.6	3.6x8	4
		80A	9.4x8.7x5.9		10x3.6	5.6x8	5
	6	16-80A	11.4x10.7x6.3		12x5.6	7.64x10	6

(1) Polycarbonate.

Available Field-Installed Accessories - *Order Separately*

Auxillary Contacts

Contact Type	Number of Contacts	Continuous Amp Rating	Voltage Rating	Max Number of Aux Contacts per Switch	Part Number
NO + NC	1 Ea	10A	240Vac	4	BAC01
NO	2	10A	240Vac	4	BAC02



Auxiliary Contact Configurations

Terminal Shrouds - includes terminal shroud for both lineside *and* loadside

Switch Amp Rating	Number of Poles		Location on Switch		Part Number
16-40A	3		Lineside and Loadside		TSH1-3TB
63-80A	3		Lineside and Loadside		TSH2-3TB

Switched 4th Pole - converts 3-pole switch to 4-pole switch

Switch Amp Rating		Part Number
16		POLE-16
25		POLE-25
40		POLE-40

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Fused, Dead Front Disconnect Switches

15149 Series

Specifications

Description: Fused, dead front disconnect switches

Ratings:

Volts: — 600Vac

Amps: — 0-30A

SCCR: — 200kA RMS Sym.

Dielectric SCCR: 2200V

Motor Rating: 5Hp

Poles: 2 to 3

Agency Information: UL Recognized, file E120756 for General Industrial installations. Guide WGEU2. CSA certified, file LR37129-6. Examined under the new proposed standard UL 1429 which imparts a stricter set of test conditions than the former program that combined the applicable portions for UL 512 (Fuse Holders) and UL 98 (Enclosed Switches).

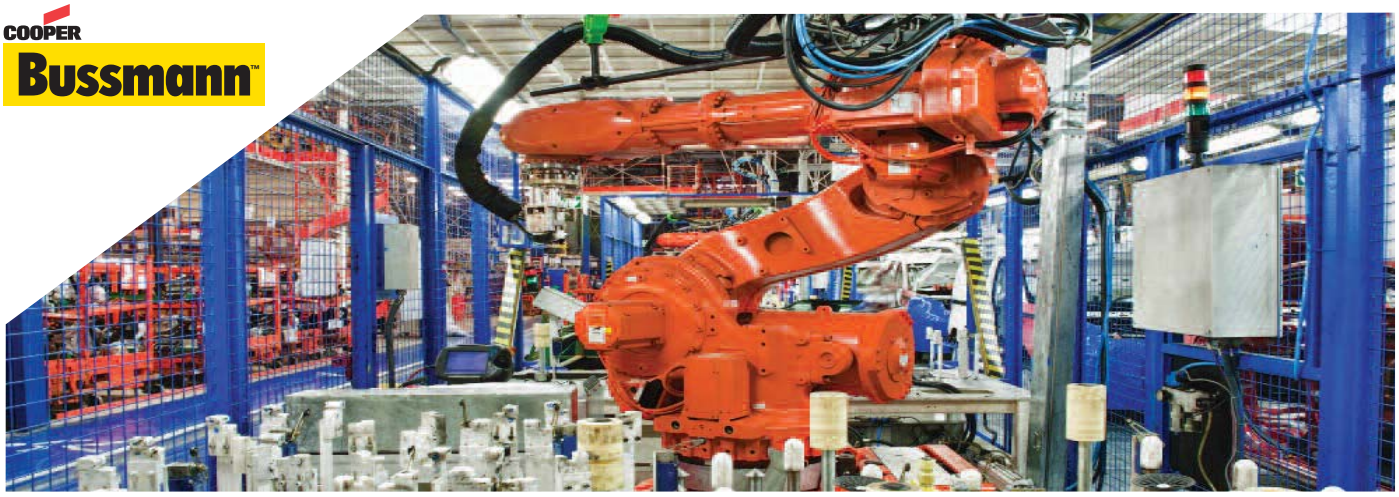
Features and Benefits

- Fuse holders in the pull-out head eliminate possibility of electric shock while changing fuse.
- Accepts Class J fuses

Ordering Information

To order, specify: 15149 + number of poles.
Example: 15149-2 = 2-pole device.

COOPER Bussmann



Flexibility and Convenience Make Point-of-Use Configuration Easy

Full range of open disconnect switches with versatile options and accessories that ship within 24 hours

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Telecom Protection Products

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Telepower Compact Fused Disconnect Switches

TPC & TPCDS

Specifications Descriptions:

— **TPC:** Telepower compact current-limiting fuses.

— **TPCDS:** Telepower compact fused disconnect switch available in two disconnect switch profiles in addition to a variety of terminal styles. Recommended 0.75” center-to-center product spacing.

Dimensions: See Data Sheet 5023.

Ratings:

Volts: — 80Vdc

Amps: — 3-125A (See Catalog Numbers table for details)

IR: — 100kA

Agency Information: CE, UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Recognized to US and Canadian requirements under the component recognition program of Underwriters Laboratories Inc. Files E219046 and E56412.

Flammability Ratings: Fuse UL 94V0, 170°C RTI, Housing UL 94V0, 120°C RTI.

Features and Benefits

- Highest interrupting rating (100kA) available and complete system coordination for DC circuit protection for compact footprint providing a superior protection solution for replacement of existing DC telecom circuit breakers
- AmpColor ID™ System makes fuse replacement easy
- Local and remote open fuse indication. Local alarm indication provided by LED on TPC fuse
- Remote alarm terminal available in three positions common to DC circuit protection devices

Typical Applications

- Telecommunications DC power circuit protection
- Replacement of DC telecom circuit breakers
- Applications where venting of arc or molten metals and gases during opening would pose a problem to surrounding devices

Catalog Numbers

TPCS disconnect switch		TPC Current-Limiting Fuse	
Catalog Numbers	Amp Range	Catalog Numbers	Amp Rating
TPCDS-BBE-1	3-125	TPC-3	3
TPCDS-BBE-2	3-125	TPC-4	4
TPCDS-BBE-3	3-125	TPC-5	5
TPCDS-BBM-1	3-125	TPC-6	6
TPCDS-BBM-2	3-125	TPC-7	7
TPCDS-BBM-3	3-125	TPC-8	8
TPCDS-BSE-1	3-125	TPC-10	10
TPCDS-BSE-2	3-125	TPC-12	12
TPCDS-BSE-3	3-125	TPC-15	15
TPCDS-BSM-1	3-125	TPC-20	20
TPCDS-BSM-2	3-125	TPC-25	25
TPCDS-BSM-3	3-125	TPC-30	30
TPCDS-SSE-1	3-125	TPC-40	40
TPCDS-SSE-2	3-125	TPC-50	50
TPCDS-SSE-3	3-125	TPC-60	60
TPCDS-SSM-1	3-125	TPC-75	75
TPCDS-SSM-2	3-125	TPC-90	90
TPCDS-SSM-3	3-125	TPC-100	100
TPCDS-D-BC1*	3-125	TPC-125	125
TPCDS-D-BC2*	3-125		
TPCDS-D-CC1*	3-125		
TPCDS-D-SEC1*	3-125		
TPCDS-D-SEC2*	3-125		
TPCDS-D-SMC1*	3-125		
TPCDS-D-SMC2*	3-125		

*Not investigated to Canadian Requirements.

Data Sheet: 5023

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Telepower Miniature Fused Disconnect Switches

TPM & TPMDS

Specifications Description:

— TPM: Telepower miniature current-limiting fuses.

— TPMDS: Telepower miniature fused disconnect switch.

Dimensions: See Data Sheet 5022.

Ratings:

Volts: — 80Vdc

Amps: — 3-30A

IR: — 20kA

Agency Information: CE, UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Recognized to US and Canadian requirements under the component recognition program of Underwriters Laboratories Inc. Files E219046 and E56412.

Flammability Ratings: Fuse UL 94V0, 170ºC RTI; Switch UL 94V0, 140ºC RTI.

Features and Benefits

- Smallest and most versatile fused disconnect switch available allowing for assembly into 1 U (1.75″/44.5mm) panel. Easy to connect; Load: ¼″ quick-connect or bolted connection with 10-32 (M5) captive nut, Line: ¼″ quick-connect or screw connection with clearance hole for #10 (M5) bolt.
- AmpColor ID™ System makes fuse replacement easy
- Switch design provides for easy panel mounting by single captive 4-40 (M3) nut and panel notch integral to switch footprint.
- Complete system coordination capability with local and remote open fuse indication. Local alarm indication provided by LED on TPM fuse (maximum alarm circuit current: 20mA)

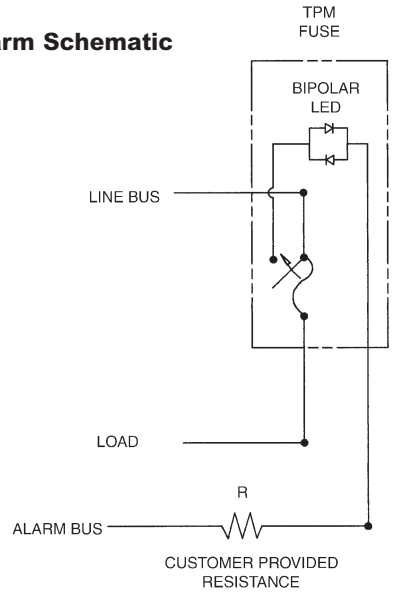
Typical Applications

- Telecommunications DC power circuit protection
- Applications with restricted space, or mounting in 1 U panels

Catalog Numbers

Catalog Numbers	Description	Amp Rating
TPM-3	Fuse	3
TPM-4	Fuse	4
TPM-5	Fuse	5
TPM-6	Fuse	6
TPM-7	Fuse	7
TPM-8	Fuse	8
TPM-10	Fuse	10
TPM-12	Fuse	12
TPM-15	Fuse	15
TPM-20	Fuse	20
TPM-25	Fuse	25
TPM-30	Fuse	30
TPMDS-E	Disconnect, English hardware	3-30
TPMDS-M	Disconnect, Metric hardware	3-30

TPM Alarm Schematic



NOTES:

1. The resistance, R, must be provided by the end-user to limit the alarm output current to a maximum of 20mA. The value, R, should be calculated using the system voltage value.
   - If remote alarm functionality is not required, the END-USER CIRCUITRY must still be supplied to provide a resistive path to the return for the local alarm to properly function.

2. The fuse is polarized to maintain proper orientation with the switch housing. The line and load terminals are identified on the switch housing.

Data Sheet: 5022

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Fused Disconnect Switches for TPA Fuses

TP15914

Specifications

Description: Modular 4-pole disconnect switch for TPA Series fuses — 4-poles per module up to four modules ganged together. Features open fuse indication and fuse presence indication along with fuse orientation rejection feature.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 145Vdc

Amps: — 50A per pole

Agency Information: CE, UL Recognized as a disconnect switch for interruption of load current by means of withdrawing the fuse carrier. UL Recognized as a component for telecommunication power distribution equipment (UL category QPQYZ), UL Recognized fuses for branch circuit protection, CSA component acceptance for the system. UL Recognized, Guide JFHR2, File E56412., CSA Certified, Class 1422-30, File 53787.

Flammability Rating: UL 94V0, 140°C.

Features and Benefits

- Totally enclosed module directly connects to busbar for reduced external wiring—per pole and easy installation with front access load and line connection standard—double lug load connections 8 AWG wire
- LED alarm signaling (LED current 30mA max)
- Remote alarm with alarm test probe point to allow on-site checking of alarm circuitry
- Bi-polar LED provides capability for both –48Vdc and +24Vdc applications

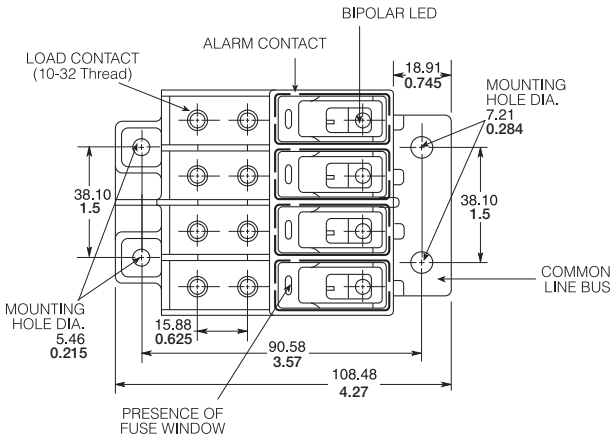
Typical Applications

- Telecommunications DC power circuit protection

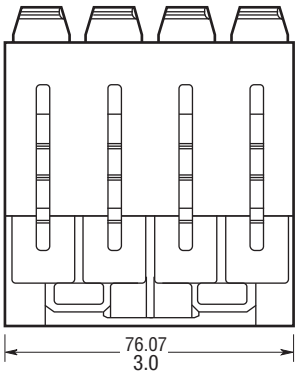
Catalog Numbers

Catalog Numbers	Hardware
TP15914	English
TP15914-1	Metric

Dimensions mm - (in)



TOP



Accessories

- Spare fuse holders: Catalog Numbers 5TPH and TPSFH-A

Data Sheet: 5011

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Fused Disconnect Switches for TPA Fuses

TP15900-4

Specifications
Description: 4-pole disconnect switch for use with Telepower fuses Type TPA & TPA-B.

Dimensions: See Dimensions illustrations.

Ratings:
Volts: — 145Vdc (40A)
— 80Vdc (50A)
Amps: — 40A@145Vdc
— 50A@80Vdc

Agency Information: CE, UL Recognized File E97649 as a disconnect switch for interruption of load current by means of withdrawing the fuse carrier. UL Recognized as a component for telecommunication power distribution equipment (UL category QPQY2). UL Recognized fuses for branch circuit protection. CSA Component Acceptance for the system.

Flammability Rating: UL 94V0, 140°C.

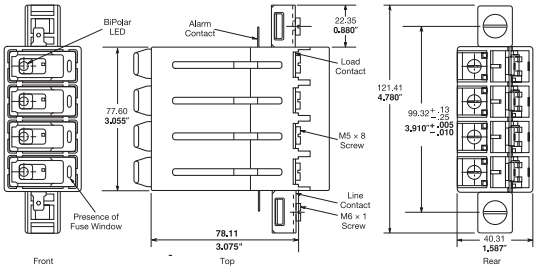
Features and Benefits
- Ease of installation - connection directly to busbar, reduces external wiring per pole. Rear accessibility for line and load terminations
- LED alarm signaling (LED current 30mA max)
- Local and remote open-fuse indication along with fuse orientation rejection feature and fuse presence indication
- Alarm test probe point, to allow on-site checking of alarm circuitry

Typical Applications
- Telecommunications DC power circuit protection

Catalog Numbers

Catalog Numbers	Description
TP15900-4	4-Pole common disconnect switch
TP15900-41	4-Pole common disconnect switch w/ Split Alarm, Split Line

Dimensions - mm (in)



Accessories
- Spare fuse holders: Catalog Numbers 5TPH and TPSFH-AS.

Data Sheet: 5001

TPA & TPA-B

Specifications
Description: DC power distribution indicating fuses.

Dimensions: See Dimensions illustration.

Ratings:
Volts: — 170Vdc TPA
— 65Vdc TPA-B
Amps: — 3-50A TPA
— 20-30A TPA-B
IR: — 100kA TPA
— 20kA TPA-B

Agency Information: CE, UL Recognized, Guide JFHR2, File E56412, CSA Certified, Class 1422-30, File 53787.

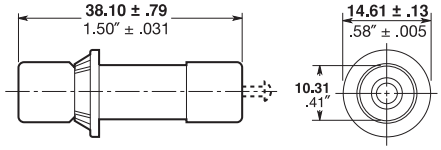
Features and Benefits
- Indication pin provides for local and remote indication when used with Bussmann TP15900-4 and TP15914 disconnect switches
- Patented "orange ring" fuse orientation features assures correct fuse position
- The UL Recognized ratings and current-limiting capability make this fuse ideal for cable protection on existing DC power distribution systems
- A unique blue label is used on all Telepower fuses to designate their DC capability

Typical Applications
- Telecommunications DC power circuit protection

Catalog Numbers (Amps)

Catalog Numbers	Amp Rating	Catalog Numbers	Amp Rating
TPA-3	3	TPA-30	30
TPA-5	5	TPA-40	40
TPA-10	10	TPA-50	50
TPA-15	15	TPA-B-20	20
TPA-20	20	TPA-B-25	25
TPA-25	25	TPA-B-30	30

Dimensions - mm (in)



Accessories
- Spare fuse holders: 5 position holder; 5TPH; 6 position holder; TPSFH-AS
- Use with fused disconnect switches TP15900-4, TP15914

Data Sheet: 5012

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Fused Disconnect Switches for TPS Fuses

15800

Specifications
Description: Fused disconnect switch for use only with the following fuses; Main: Telepower TPS 3 to 70 Amp, Alarm: Bussmann GMT-A only (page 399). Recommend GMT-X Cover (page 437).

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 60Vdc

Amps: — 3-70A

SCCR: — 100kA

Agency Information: CE, UL Recognized, Guide QPQY2, File E97649.

Flammability Rating: UL 94V0, 150°C.

Features and Benefits

- Alarm output with wire wrap terminal or connection to 0.063" thick common alarm bus
- Spare alarm and power fuse compartment
- Mounting hardware included

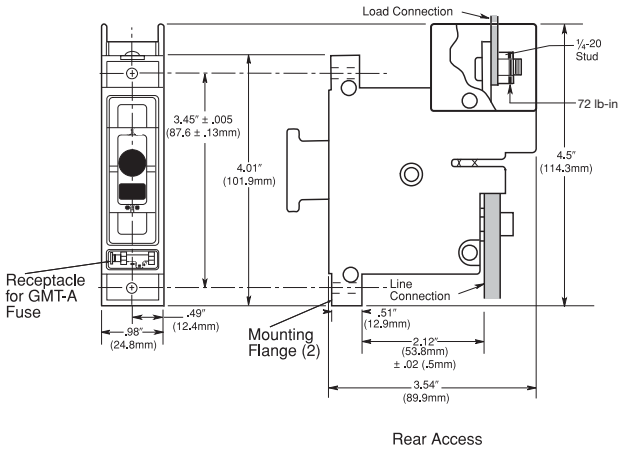
Typical Applications:

- Telecommunications DC power circuit protection

Catalog Numbers

Catalog Numbers	Access Panel Mounting
15800-R-200	Rear
15800-F-200	Front

Dimensions - in (mm)



Rear Access

Accessories

- Spare fuse holders: Catalog Numbers TPSFH-AS (TPS fuses) and TPSFH-T (GMT fuses).

Data Sheet: 5002

TPS

Specifications
Description: DC power distribution non-indicating fuses specifically designed to meet the unique needs of DC power distribution systems. For use with Bussmann fused disconnect switch 15800.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 170Vdc

Amps: — 1-70A

IR: — 100kA

Agency Information: CE, UL Recognized, Guide JFHR2, File E56412.

Features/Benefits

- The UL Recognized ratings and current-limiting capability make this fuse ideal for cable protection on existing DC power distribution systems
- A unique blue label is used on all Telepower fuses to designate their DC capability
- Printed circuit board variations available

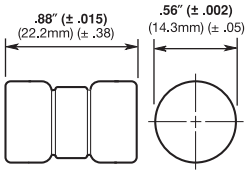
Typical Applications

- Telecommunications DC power circuit protection
- Applications requiring printed circuit board mounting

Catalog Numbers (Amps)

TPS-1	TPS-6L	TPS-30	TPS-50V
TPS-1L	TPS-10	TPS-30L	TPS-60
TPS-2	TPS-10L	TPS-35	TPS-60L
TPS-2L	TPS-15	TPS-35L	TPS-70
TPS-3	TPS-15L	TPS-40	TPS-70L
TPS-3L	TPS-20	TPS-40L	TPS-70LB
TPS-5	TPS-20L	TPS-40V	
TPS-5L	TPS-25	TPS-50	
TPS-6	TPS-25L	TPS-50L	

Dimensions - in (mm)



Accessories

- Spare fuse holder: TPSFH-AS, see page 510.

Data Sheet: 5009

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Fused Disconnect Switches

TP158HC

Specifications

Description: Panel mount, rear access high amp version of Bussmann 15800 series fused disconnect switch for use only with the following fuses; Main: Telepower TPL-B 70-250 Amps, Alarm: Bussmann GMT-A.

Dimensions: See Data Sheet 5021.

Ratings:

Volts: — 80Vdc

Amps: — 70-250A

SCCR: — 100kA

Agency Information: UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse pullout. Guide QPQY2, File E97649.

Flammability Rating: UL 94V0, 150°C.

Features and Benefits

- Similar profile, mounting method, and backplane configuration as 15800 Series. The TP158HC can be installed into existing 15800 Series panels using the space of two 15800 disconnects
- Innovative new fuse pullout design eliminates need for tools to replace the Telepower type TPL-B fuse
- Alarm output with wire wrap terminal or connection to 0.063 inch (1.6mm) thick common alarm bus
- Hardware included: Load: washer, split lockwasher, and 5⁄16 - 18 nut (metric-M8 x 1.25)

Typical Applications:

- Telecommunications DC power circuit protection

Catalog Numbers

Catalog Numbers	Hardware
TP158HC	English
TP158HC-M	Metric

Accessories

- Spare fuse holders: TPSFH-LB (TPL-B fuses) and TPSFH-T (GMT fuses).

Application Notes

- The line connection uses a ¼-20 bolt (metric – M6X1) that threads into the line terminal. The line terminal is designed with a float of ±0.02″ (±0.50mm) to allow for variation in the distance between the TP158HC mounting flange and the line busbar (see Dimensions). Equipment should be designed to eliminate any relative movement between the TP158HC mounting flange and the line busbar.
- The alarm circuit is not intended for precharging of capacitive circuits. Alarm circuit current 1A maximum.

Easy Fuse Replacement

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Fused Disconnect Switches

15100

Specifications

Description: Fused disconnect system for use with Telepower fuses Type TPL.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 60Vdc

Amps: — 70-800A

SCCR: — 100kA

Agency Information: CE, UL Recognized, Guide QPQY2, File E97649.

Features and Benefits

- Single-pole fusible disconnect switch for primary DC power distribution
- Robust housing and terminal construction for demanding applications
- Panel mounting
- Easily connected to line or load bus

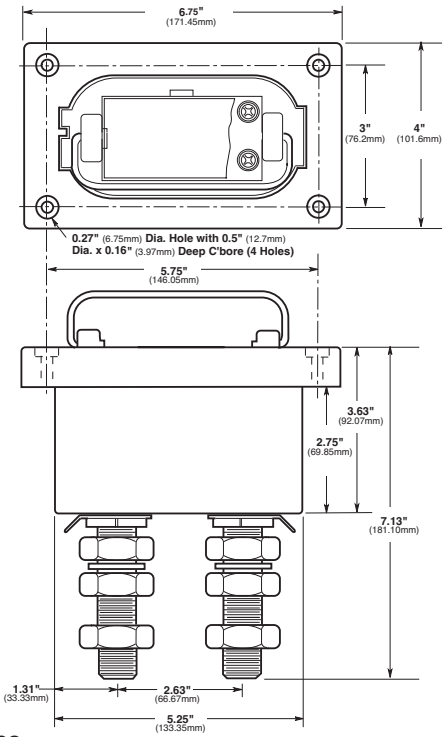
Typical Applications

- Telecommunications DC power circuit protection

Catalog Numbers

Catalog Numbers	For Use With TPL Series Fuses
15100-401	70-400A
15100-601	300-800A

Dimensions - in (mm)



Data Sheet: 5003

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Telpower High-current Switch

TPHCS

TPHCS800-MAV (shown)

Specifications

Description: High current switch for use with Telepower fuses Type TPL-B, TPL-C and TPH. Available as complete switch or pullout. Base may be purchased separately.

Dimensions: See Dimensions illustrations.

Construction:

Ratings:

Volts: — 80Vdc

Amps: — 70-800A

SCCR: — 100kA

Agency Information: UL Recognized (investigated to UL 1801) as a disconnect switch for the interruption of load current by means of withdrawing the fuse carrier. UL Recognized to meet the requirements for Canadian Standards.

Features and Benefits

- Innovative design eliminates need for tools to replace the Telepower™ Type TPL-B, TPL-C or TPH fuse
- Easy to install–captive fasteners allow for direct busbar mounting (bolts not included). Standard ¼" male quick-connect terminal for effortless remote alarm connection.
- Optional new electronic alarm eliminates need for parallel indicating fuses while providing local and remote open-fuse indications (maximum remote alarm current: 20mA); Bipolar alarm: designed for both Central Office and Radio applications, Local LED alarm indication for ease-of-viewing.
- Fuse presence window allows for easy viewing of installed fuse amp rating

Typical Applications

- Telecommunications DC power circuit protection
- Compact design is ideal for today's high power, high-density cabinets

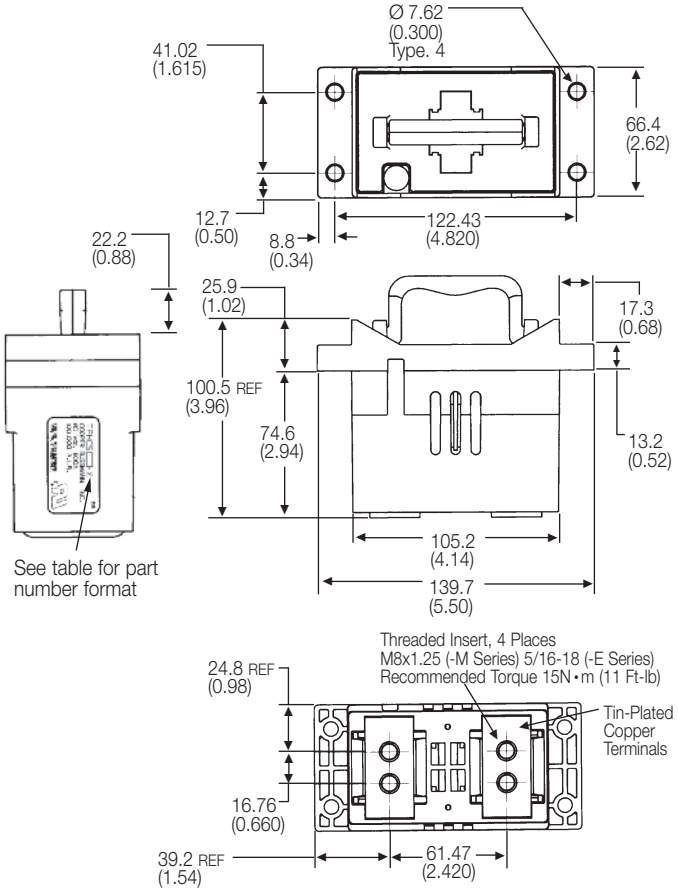
Catalog Numbers – Switches (Pullout and Base)

Catalog Numbers	Hardware/ Option	Fuse Series	Amp Rating
TPHCS250-M	Metric	TPL-B	70-250
TPHCS250-E	English	TPL-B	70-250
TPHCS250-ML	Metric, LED	TPL-B	70-250
TPHCS250-EL	English, LED	TPL-B	70-250
TPHCS250-MAV	Metric, Alarm	TPL-B	70-250
TPHCS250-EAV	English, Alarm	TPL-B	70-250
TPHCS800-M	Metric	TPL-C or TPH	300-800
TPHCS800-E	English	TPL-C or TPH	300-800
TPHCS800-ML	Metric, LED	TPL-C or TPH	300-800
TPHCS800-EL	English, LED	TPL-C or TPH	300-800
TPHCS800-MAV	Metric, Alarm	TPL-C or TPH	300-800
TPHCS800-EAV	English, Alarm	TPL-C or TPH	300-800

Catalog Numbers – Components

Catalog Numbers	Description Rating/Hardware/Option	Fuse Series	Amp Rating
TPHCS250-P	Pullout only – 250A	TPL-B	70-250
TPHCS800-P	Pullout only – 800A	TPL-C or TPH	300-800
TPHCS-B-M	Base only, Metric	—	800 Max
TPHCS-B-E	Base only, English	—	800 Max
TPHCS-B-ML	Base only, Metric, LED	—	800 Max
TPHCS-B-EL	Base only, English, LED	—	800 Max
TPHCS-B-MAV	Base only, Metric, Alarm	—	800 Max
TPHCS-B-EAV	Base only, English, Alarm	—	800 Max

Dimensions - mm (in)



NOTES:

1. TPHCS250 and TPHCS800 pullouts and bases are the same with exception to the type of fuse, TPL-B, TPL-C or TPH the pullout will carry.
2. Plastic rated UL 94V0, 140°C RTI.

Data Sheet: 5020

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Telpower 70-600A: 170Vdc Fuses

TPL

Specifications

Description: DC power distribution fuses for use with Telepower 15100, 15200, TP158HC and TPHCS disconnect systems. For replacement of Bussmann UBO fuses a TPL-TA adapter kit is necessary.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 170Vdc

Amps: — 70-800A

IR: — 100kA

Agency Information: CE, UL Recognized Guide JFHR2, File E56412 Bellcore.

Features and Benefits

- Current-limiting capability designed for DC power distribution systems
- Recognized branch circuit protection
- Complete system coordination capability
- Energy savings with low watts loss, low operating temperatures, and minimum I^2t levels

Typical Applications

- Telecommunications power circuit protection

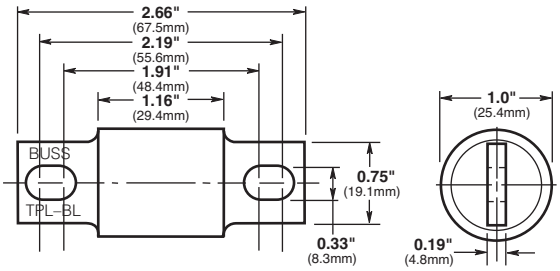
Catalog Numbers

Catalog Numbers	Amp Rating
TPL-BA	70
TPL-BB	80
TPL-BC	90
TPL-BD	100
TPL-BE	125
TPL-BF	150
TPL-BG	175
TPL-BH	200
TPL-BK	225
TPL-BL	250
TPL-CN	300
TPL-CO	350
TPL-CR	400
TPL-CU	450
TPL-CV	500
TPL-CZ	600
TPL-CZH	800

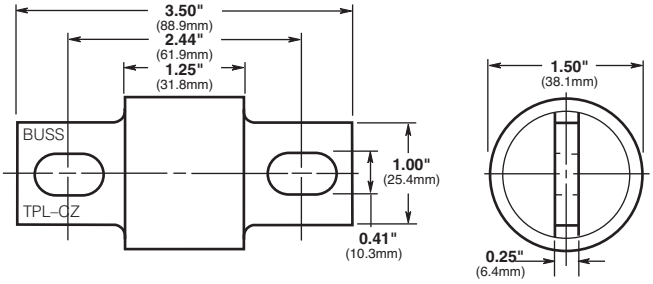
Accessories

- Spare fuse holders: TPSFH-LB (for TPL-B fuses) TPSFH-LC (for TPL-C fuses)

Dimensions - in (mm)



TPL-BA, TPL-BD, TPL-BF, TPL-BH, TPL-BK, and TPL-BL



TPL-CN, TPL-CR, TPL-CV and TPL-CZ

Data Sheet: 5005

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Telpower 1-600A, 170Vdc Fuses

TPN

Specifications

Description: Current-limiting DC power distribution fuses. The TPN fuse series is dimensionally similar to Class R fuses making it easy to use standard Class R fuse blocks.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 170Vdc

Amps: — 1-600A

IR: — 100kA

Agency Information: UL Recognized, Guide JFHR2, File E56412.

Features/Benefits

- Current-limiting capability designed for DC power distribution systems
- Recognized branch circuit protection
- Complete system coordination capability
- Energy savings with low watts loss, low operating temperatures, and minimum I^2t levels

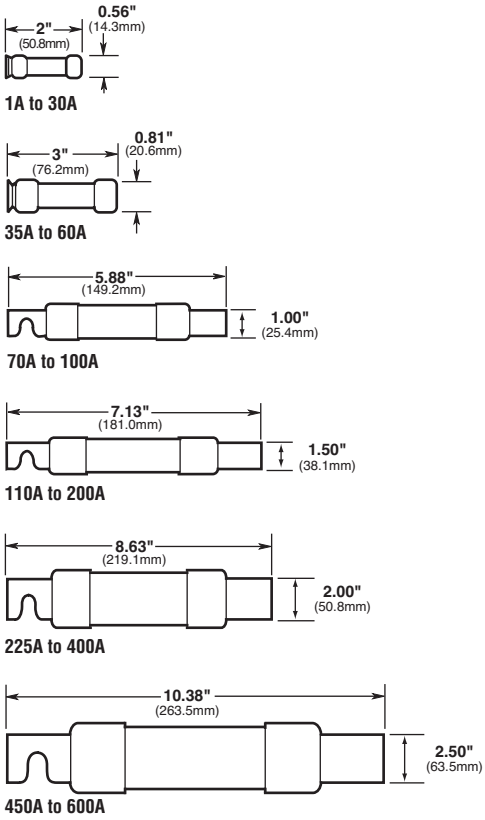
Typical Applications

- Telecommunications power circuit protection

Catalog Numbers (Amps)

TPN-1	TPN-45	TPN-200
TPN-3	TPN-50	TPN-225
TPN-5	TPN-60	TPN-250
TPN-6	TPN-70	TPN-300
TPN-10	TPN-80	TPN-350
TPN-15	TPN-90	TPN-400
TPN-20	TPN-100	TPN-450
TPN-25	TPN-110	TPN-500
TPN-30	TPN-125	TPN-600
TPN-35	TPN-150	
TPN-40	TPN-175	

Dimensions - in (mm)



Accessories

- Spare fuse holders:TPSFH-N30 (for TPN 1-30) TPSFH-N60 (for TPN 35-60)

Recommended Class R Fuse Blocks

Amps	Poles	Catalog Number
1-30	1	R25030-1CR
1-30	2	R25030-2CR
1-30	3	R25030-3CR
35-60	1	R25060-1CR
35-60	2	R25060-2CR
35-60	3	R25060-3CR
70-100	1	R25100-1CR
70-100	2	R25100-2CR
70-100	3	R25100-3CR
110-200	1	R25200-1CR
110-200	3	R25200-3CR
225-400	1	R25400-1CR
225-400	3	R25400-3CR
450-600	1	R25600-1CR
450-600	3	R25600-3CR

Data Sheet: 5006

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Indicating Fuses and Holders

70 Series Fuses

Specifications

Description: Indicating type fuse.

Ratings:

Volts: — 125Vac/300Vdc

Amps: — 1/10-10A

IR: — 1kA @ 300Vdc

Agency Information: CE, UL Recognized, Guide JDYX2, File E19180 Bellcore.

Catalog Numbers

Catalog Numbers	Amp Rating	Color Code	Lucent Comcode Ref. No.	Code/ List No.
70P-1/10A*	1/10	Gray/Wh	100203413	KS23751-L10
70R-15/100A*	15/100	Red/Wh	101384550	KS23751-L11
70E-18/100A*	18/100	Yellow	100203363	KS23751-L5
70X-2/10A	2/10	Black	—	—
70F-¼A*	¼	Violet	100203371	KS23751-L6
70K-¼A*	¼	Violet/Wh	100203405	KS23751-L9
70G-½A*	½	Red	100203389	KS23751-L7
70H-¾A*	¾	Brown	100203397	KS23751-L8
70I-1A	1	Pink	—	—
70A-1⅓A*†	1⅓	White	100203322	KS23751-L1
70B-2A*	2	Orange	100203330	KS23751-L2
70C-3A*	3	Blue	100203348	KS23751-L3
70J-3½A	3½	Black/Wh	—	—
70D-5A*	5	Grn/Blk	100203355	KS23751-L4
70L-6A	6	Grn/Wh	—	—
70M-8A	8	Brown/Wh	—	—
70N-10A	10	Violet/Yel	—	—
GKB-10A	10	Violet/Yel	—	—
72A Plastic CaseDummy		—	100203421	—
72B Blister PackDummy		—	103757977	—

*Product designed to comply with Bellcore Technical Reference TR-TSY-000799 Issue 1, December 1988.
†No longer UL Recognized.

Data Sheet: 5007

15087 Fuse Holder

Specifications

Description: Fuse holder for 70 Series fuses.

Ratings:

Volts: — 300Vdc

Amps: — 12A

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853.

Flammability Rating: UL 94V0.

Features and Benefits

- Panel mount fuse holder for 70 Type fuses supplied with two screws
- Remote alarm capability

Typical Applications

- Telecommunications DC power circuit protection

Catalog Number — 15087

Accessories

Description: Optional color code eyelets used with fuse holder to indicate fuse amp rating.

Eyelet Catalog Numbers

Catalog Numbers	Amp Indication	Color Code
1A1706-01	18/100	Yellow
1A1706-02	2/10	Black
1A1706-03	¼	Violet
1A1706-04	¼	Violet/White
1A1706-05	½	Red
1A1706-06	¾	Brown
1A1706-07	1	Pink
1A1706-08	1⅓	White
1A1706-09	2	Orange
1A1706-10	3	Blue
1A1706-11	5	Green/Black
1A1706-12	6	Green/White
1A1706-13	8	Brown/White
1A1706-14	10	Violet/Yellow
1A1706-15	1/10	Gray/White
1A1706-16	3½	Black/White
1A1706-17	15/100	Red/White

Data Sheet: 5007

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Indicating Fuses and Holders

HLS, HLT, PCT

Specifications

Description: Fuse holders for GMT Type indicating fuses.

Poles: 01 to 25.

Ratings:

Volts: — 60Vdc/125Vac

Agency Information: CE, UL Recognized, Guide IZLT2, File E14853, 15A (60Vdc).

Flammability Rating: UL 94V0.

Features and Benefits

- Multiple configurations provide application flexibility
- Compact size saves space

GMT - Dummy

GMT - A (Alarm)

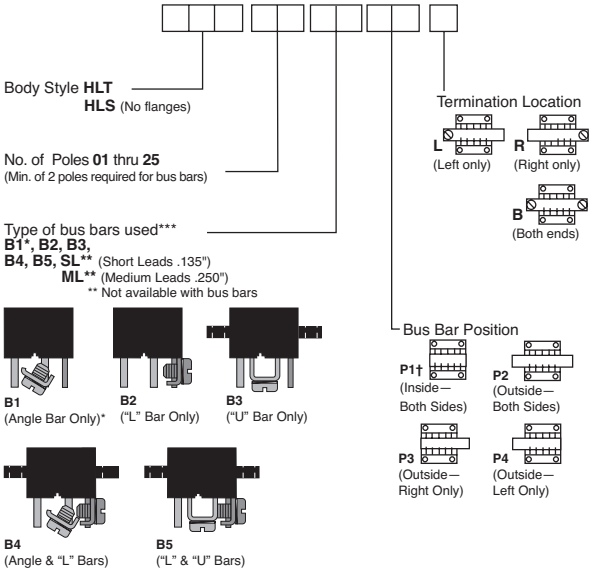
Typical Applications

- Telecommunications DC power circuit protection

Catalog Numbers

Catalog Numbers	Poles
PCT	1
HLS	See Build-A-Code
HLT	See Build-A-Code

Multiple Fuse holders with bus bars
Ordering Information— Catalog No.



***Angle Bar** mounts on common or center terminals only.
****SL** Version is not available with bus bars.
†Minimum of 4 Poles Required.
***.38 max. leads if not specified.

Data Sheet: 5010

GMT

Specifications

Description: Fast-acting fuses for use in HLT, HLS, and PCT fuse holders.

Ratings:

Volts: — 60Vdc/125Vac

Amps: — 18/100-15A

IR: — 450A@60Vdc

— 300A@125Vac

Agency Information: CE, UL Recognized, Guide JFHR2, File E56412.

Flammability Rating: UL 94V0.

Features and Benefits

- Local and remote indication capability
- Color coded for easy amp rating identification

Typical Applications

- Telecommunications DC power circuit protection

Catalog Numbers

Catalog Numbers	Color Code	Catalog Numbers	Color Code
GMT-18/100A	Yellow	GMT-3-½A	White/Blue
GMT-¼A	Violet	GMT-4A	White/Brown
GMT-⅜A	Green/Gray	GMT-5A	Green
GMT-½A	Red	GMT-7-½A	Black/White
GMT-65/100A	Black	GMT-10A	Red/White
GMT-¾A	Brown	GMT-12A	Yellow/Green
GMT-1A	Gray	GMT-15A	Red/Blue
GMT-1-⅛A	White	GMT-Dummy	Gray Body
GMT-1-½A	White/Yellow	GMT-X	Clear Cover
GMT-2A	Orange	GMT-Y	Clear Cover
GMT-3A	Blue		

Some GMT sizes may be sold in bulk pack only.

Accessories

- Spare fuse holder: Catalog Number TPSFH-T

GMT-A

Specifications

Description: Fast-acting fuse designed specifically for use in the Telepower series 15800 fused disconnect switch (page 430).

Agency Information: The GMT-A has the same ratings and agency approvals as the standard GMT fuses as shown above.

Catalog Numbers

Catalog Number	Color Code
GMT-A	Yellow

Data Sheet: 5008

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Telpower Specialty Fuses

7 Type

Specifications

Description: Fiber tube, threaded ends. Typically used on wall type main distribution frames and central battery substations.

Dimensions: See Catalog Numbers table and Dimensions illustration.

Ratings:

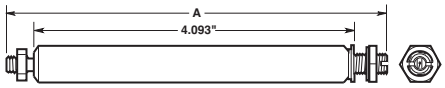
Amps: — 7A

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Dimension A Length (in)
7A-7	7	100863737	4.562
7T-7	7	100202753	4.828

Dimensions - in



11 Type

Specifications

Description: Fiber tube, threaded ends, identical to 7 Type except for vent slots in fiber tube.

Dimensions: See Dimensions illustration.

Ratings:

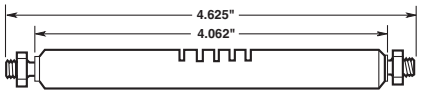
Amps: — 7A

Agency Information: CE

Catalog Number

Catalog Number	Amp Rating	Lucent Comcode Ref. No.
11C-7	7	100863745

Dimensions - in



24 and WER Type

Specifications

Description: Flat, non-indicating visible link element mounted on 1 inch centers using either No. 6 or No. 10 screws.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 32Vdc (¼, 1, 3 ½, 8, 10A)
— 60Vdc (½, ¾, 1 ½, 2, 3, 4, 5A)

Amps: — ¼-10A

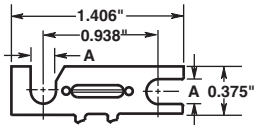
Agency Information: CE, UL Recognized File E56412.

Catalog Numbers

Catalog Numbers	Amp Rating	DC Volts	Color Code	Lucent Comcode Ref. No.	A Length Inches
WER-¼	¼	32	—	—	—
24E-½*	½	60	Red	100202894	0.20
24D-¾*	¾	60	Black	100202886	0.15
WER-1	1	32	—	—	—
24G-1-⅓*	1 ⅓	60	White	100202910	0.20
24C-2*	2	60	Orange	100202878	0.20
24B-3*	3	60	Blue	100202852	0.15
WER-3-½	3 ½	32	—	—	—
24B-4*	4	60	Yellow	100202860	0.15
24F-5*	5	60	Green	100202902	0.15
WER-8	8	32	—	—	—
WER-10	10	32	—	—	—

*Designed to comply with Bellcore Technical Reference TR-TSY-000799 Issue 1, Dec. 1988.

Dimensions - in



74 Type

Specifications

Description: Fast-acting 0.281″ x 1.25″ cylindrical fuse designed to comply with Lucent specification KS23753. High current companion to 70 Type Fuse.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 60Vdc

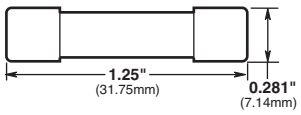
Amps: — 1 ¼-20A

Agency Information: CE, UL Recognized File E19180.

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Code/ List No.
74A-1-¼	1 ¼	102630290	KS23753-L1
74G-2	2	103064952	KS23753-L7
74B-3	3	102630308	KS23753-L2
74H-4	4	103264669	KS23753-L8
74C-5	5	102630316	KS23753-L3
74J-7-½	7 ½	103228425	KS23753-L9
74D-10	10	102630324	KS23753-L4
74E-15	15	102630332	KS23753-L5
74F-20	20	102630340	KS23753-L6

Dimensions - in (mm)



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Telpower Specialty Fuses

75 Type

Specifications

Description: Cylindrical with leads, designed to provide protection against currents resulting from the application of foreign voltages. Application for data sets and telephones.

Dimensions: See Dimensions illustration.

Ratings:

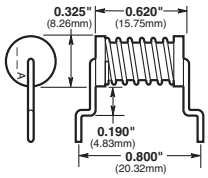
Volts: — 135Vac/220Vdc (440Vdc@0.007A)

Amps: — 0.007-0.230A

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Code/ List No.
75C	0.007	103260816	KS23825-L3
75F	0.063	104172861	KS23825-L6
75B	0.115	102732112	KS23825-L2
75D	0.129	104013180	KS23825-L4
75A	0.200	102660008	KS23825-L1



76 Type

Specifications

Description: Cylindrical with leads, designed to provide protection against currents resulting from the application of foreign voltages. Application for data sets and telephones.

Dimensions: See Dimensions illustration.

Ratings:

Volts: — 135Vac/440Vdc

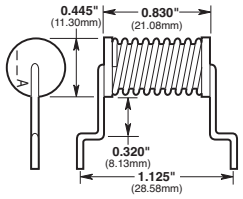
Amps: — 0.012-0.412A

Agency Information: CE

Catalog Numbers

Catalog Numbers	Amp Rating	Lucent Comcode Ref. No.	Code/ List No.
76D	0.012	103798245	KS23825-L10
76B	0.191	102965688	KS23825-L8
76A	0.231	102810181	KS23825-L7
76C	0.412	103656625	KS23825-L9

Dimensions - in (mm)



80 Type

Specifications

Description: A fuse designed for high reliability applications where high ambient temperatures, low circuit voltages, low power dissipation and low contact resistance are prime considerations. The 80 Type is a visual indicating fuse with remote electrical alarm capability. UL Recognized, Guide JDYX2, File E19180.

Dimensions: See Dimensions illustrations.

Ratings:

Volts: — 160Vdc

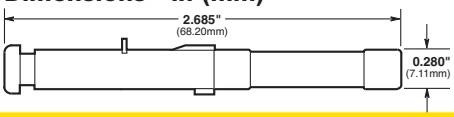
Amps: — ½-5A

Agency Information: CE, UL Recognized File E19180.

Catalog Numbers

Catalog Numbers	Amp Rating	Color Code	Lucent Comcode Ref. No.	Code/ List No.
80G-½	½	Red	103839916	KS23824-L6
80M-1-⅓	1⅓	White	408078657	KS23824-L8
80B-2	2	Orange	103752150	KS23824-L2
80C-3	3	Blue	103752168	KS23824-L3
80D-5	5	Green	103800637	KS23824-L4

Dimensions - in (mm)



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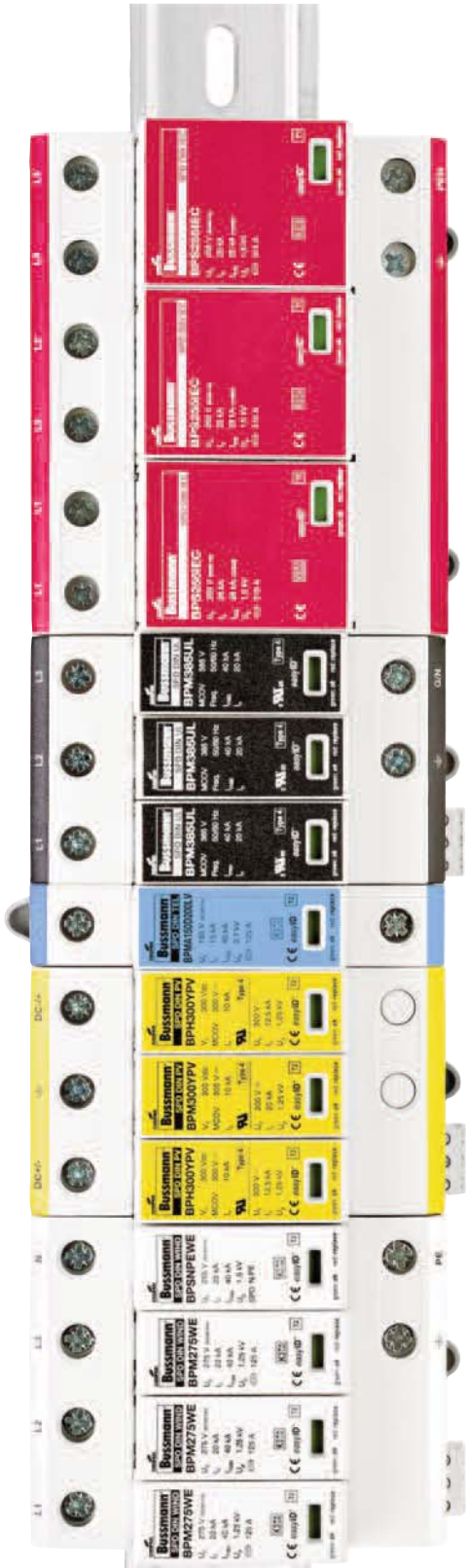

Overvoltage Protective Devices

Surge Protective Devices

UL Type 1 NEMA 4X SPDs
SurgePOD HEAVY DUTY (Black Label) 442-445
SurgePOD PRO (Grey Label) 446-448

UL DIN-Rail
High SCCR SPDs
1-Pole Type 2 BSPM_S2G 449-450
2-Pole Type 2 BSPM_S3G 451-452
3-Pole Type 2 BSPM_WYG/DLG.....453-454
4-Pole Type 2 BSPM_WYNG/HLG.....455-456

Low Voltage AC/DC Power
1-Pole Type 2 BSPM_LV.....457-458

Low-Voltage AC/DC Control
2-Pole Type 3 BSPH2A_LV.....459-460

IEC DIN-Rail
Class I
2-Pole Class I BSPS_TN/TT 461-462
3-Pole Class I BSPS_TNC.....463-464
4-Pole Class I BSPS_TNS/TT.....465-466

Class II
1-Pole Class II BSPM_TN / BSPG_NPE.....467-468
2-Pole Class II BSPM_TN / BSPH_TT.....469-470
3-Pole Class II BSPM_TNC 471-472
4-Pole Class II BSPM_TNS / BSPH_TT 473-474

Solar Power Photovoltaic (PV) DIN-Rail
Lightning Arrester
1-Pole PV Advance Lightning Arrester / BSPS_PV 475-476

Overvoltage Surge Protective Devices
2-Module PV HEAVY DUTY SPD / BSPH2_PV 477-478
3-Module PV HEAVY DUTY SPD / BSPH_YPV 479-480
3-Module PV PRO SPD / BSPP_YPV.....481-482

Wind Power IEC DIN-Rail
Class I
1-pole Class I BSPS_WE.....483-484

Class II
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2-Pole Class II BSPM_WE / BSPH_WE 487-488
3-Pole Class II BSPM_WE.....489-490
4-Pole Class II BSPM_WE / BSPH_WE 491-492

UL 4978 Data Signal SPDs
DIN-Rail BNC/Coaxial Cable BSPD5BNCD_ 493-494
In-Line BNC/Coaxial Cable BSPD5BNCSI 495-496
DIN-Rail RJ45/Ethernet Cable BSPD48RJ45 497-498
DIN-Rail Universal 4 Wire BSPD_DIN_.....499-501

Surge Protective Overvoltage Device Modules
SurgePod™ Series, 150 to 550Vac MCOV 502-503

DIN-Rail TVS Series with Holder.....504

Scan this tag to get access to the Surge Protective Devices Cross Reference Search.

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Surge Protection Made Simple™ for Commercial & Industrial Applications

SurgePOD™ HEAVY DUTY SPD for UL 1449 3rd Edition Listed Loadside and Lineside Protection

Description

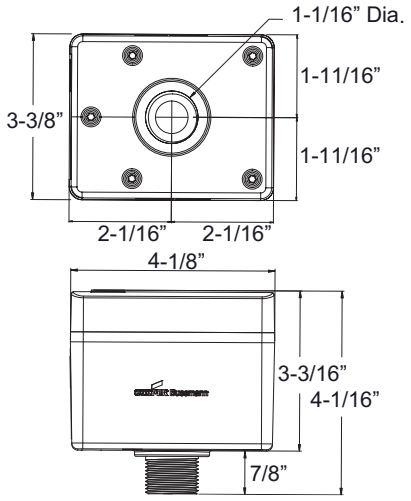
The Bussmann SurgePOD™ HEAVY DUTY is a Type 1 UL Listed 1449 3rd Edition surge protective device suitable for installation on both the loadside or lineside of the service entrance overcurrent protective device.

Available in voltage and system specific versions to match electrical system and equipment requirements. The SurgePOD HEAVY DUTY delivers optimum surge protection using advanced patent pending SurgePOD™ module featuring thermal disconnect technology that eliminates the need for additional overcurrent protection.

Parallel connection to the electrical system permits the SurgePOD HEAVY DUTY SPD to be installed on **any** ampacity panel.

- Type 1 UL 1449 3rd Edition Listed SPDs are easily selected and installed on the loadside or lineside of the service entrance overcurrent protective device
- Patented Bussmann SurgePOD module technology eliminates the need for additional fusing
- Voltage specific models precisely match and protect electrical systems and equipment up to 600Vac
- Compact UV resistant NEMA 4X for indoor or outdoor applications
- *easy*ID™ LED status indicator provides surge protection status at a glance

Dimensions - in



c UL us LISTED

SPD Type 2

RoHS

5 YEAR WARRANTY

*easy*ID™ LED Status Indicator

SPH50SP1120SN	SPH50SP2480PN	SPH50SP3208WYG
SPH50SP1240SN	SPH50SP3240PNG	SPH50SP3480WYG
SPH50SP1347SN	SPH50SP3480PNG	SPH50SP3600WYG
SPH50SP2120SNG	SPH50SP3240DLG	SPH50SP4208WYNG
SPH50SP2240SNG	SPH50SP3480DLG	SPH50SP4480WYNG
SPH50SP2347SNG	SPH50SP4240HLG	SPH50SP4600WYNG
SPH50SP2240PN	SPH50SP4480HLG	

NEMA 4X Rated Heavy Duty Type 1 UL Listed SPD

Type 1 SPD Part Number System

SPH 50S PX XXX XXX

SPH = Product Series
Surge Protection Heavy Duty

Surge Rating
50S = 50kA max discharge current

No of Wires/Poles
P1 = 1 P2 = 2 P3 = 3 P4 = 4

Rated System Voltage
120, 208, 240, 347, 480, 600Vac

System
SN = Single-Phase 2 Wire, 2 Connection Points
SNG = Single-Phase 2 Wire + G, 3 Connection Points
PN = Split-Phase 3 Wire , 3 Connection Points
PNG = Split-Phase 3 Wire + G, 4 Connection Points
DLG = Three-Phase Delta 3 Wire + G, 4 Connection Points
HLG = Three-Phase Highleg Delta 4 Wire + G, 5 Connection Points
WYG = Three-Phase Wye 3 Wire, 4 Connection Points
WYNG = Three-Phase Wye 3 Wire + G, 5 Connection Points

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SurgePOD™ HEAVY DUTY Technical Information

Catalog Number	Nominal System Voltage	Max. Continuous Operating AC Voltage (MCOV) (V_C)	System Type	Connection Points
SPH50SP1120SN	120V	150V	Single-Phase 2 Wire	2
SPH50SP1240SN	240V	320V	Single-Phase 2 Wire	2
SPH50SP1347SN	347V	420V	Single-Phase 2 Wire	2
SPH50SP2120SNG	120V	150V	Single-Phase 2 Wire + G	3
SPH50SP2240SNG	240V	320V	Single-Phase 2 Wire + G	3
SPH50SP2347SNG	347V	420V	Single-Phase 2 Wire + G	3
SPH50SP2240PN	120/240V	150V	Split-Phase 3 Wire	3
SPH50SP2480PN	240/480V	320V	Split-Phase 3 Wire	3
SPH50SP3240PNG	120/240V	150V	Split-Phase 3 Wire + G	4
SPH50SP3480PNG	240/480V	320V	Split-Phase 3 Wire + G	4
SPH50SP3240DLG	240V	320V	Three-Phase Delta 3 Wire + G	4
SPH50SP3480DLG	480V	550V	Three-Phase Delta 3 Wire + G	4
SPH50SP4240HLG	120/240V	150/320V	Three-Phase Highleg Delta 4 Wire + G	5
SPH50SP4480HLG	240/480V	320/550V	Three-Phase Highleg Delta 4 Wire + G	5
SPH50SP3208WYG	208V	150V	Three-Phase Wye 3 Wire + G	4
SPH50SP3480WYG	480V	320V	Three-Phase Wye 3 Wire + G	4
SPH50SP3600WYG†	600V	420V	Three-Phase Wye 3 Wire + G	4
SPH50SP4208WYNG	208Y/120V	150V	Three-Phase Wye 4 Wire + G	5
SPH50SP4480WYNG	480Y/277V	320V	Three-Phase Wye 4 Wire + G	5
SPH50SP4600WYNG†	600Y/347V	420V	Three-Phase Wye 4 Wire + G	5

† 600V Wye versions are not CSA Certified.

SurgePOD™ HEAVY DUTY Technical Information

Specifications (for all SurgePOD HD units)	Values
Short Circuit Current Rating (SCCR)	200kA
Nominal Discharge Current (8x20µs) I_n	20kA
Max. Discharge Current (8x20µs) I_{max}	50kA
Response Time t_A	<25ns
Frequency	50/60Hz
Operating State/Fault Indication	Bi-Color LED - Green (good) / Red (replace)
Conductor Length / Guage	18 inches, 10 AWG Stranded Tinned Copper
Mounting	Chase Nipple / Bracket*
Enclosure / Flammability Ratings	NEMA 4X - UL 94-5VA
Degree of Protection (Installed State)	IP20 (finger-safe)
SPD Install Location	Indoor/Outdoor
Circuit Location	Lineside or Loadside of service entrance overcurrent protective device
Standard	UL 1449 3rd Edition Type 1 Listed SPD
Agency Information	cULus, CSA**, RoHS Compliant
Product Warranty	5 Years***
Operating Temperature	-40˚C to +85˚C
Maximum Operating Altitude	16,000FT

* Customer-supplied bracket.

** 600V Wye versions not CSA Certified.

*** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

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Voltage Protection Ratings (VPRs)

Catalog Number	Rated System Voltage (V_o)	MCOV (V_C)	Voltage Protection Ratings (VPRs)			
			L-N	L-L	L-G	N-G
SPH50SP1120SN	120V	150V	700	—	—	—
SPH50SP1240SN	240V	320V	1200	—	—	—
SPH50SP1347SN	347V	420V	1500	—	—	—
SPH50SP2120SNG	120V	150V	700	—	1200	700
SPH50SP2240SNG	240V	320V	1200	—	2500	1200
SPH50SP2347SNG	347V	420V	1500	—	2500	1500
SPH50SP2240PN	120V/240V	150V	700	1200	—	—
SPH50SP2480PN	240V/480V	320V	1200	2500	—	—
SPH50SP3240PNG	120V/240V	150V	700	1200	1200	700
SPH50SP3480PNG	240V/480V	320V	1200	2500	2500	1200
SPH50SP3240DLG	240V	320V	—	2500	1200	—
SPH50SP3480DLG	480V	550V	—	3000	1800	—
SPH50SP4240HLG	120/240V	150V/320V	700/1200	1200/2500	1200/2500	700/1200
SPH50SP4480HLG	240/480V	320V/550V	1200/1800	2500/3000	2500/3000	1200/1800
SPH50SP3208WYG	208V	150V	—	1200	700	—
SPH50SP3480WYG	480V	320V	—	2500	1200	—
SPH50SP3600WYG†	600V	420V	—	2500	1500	—
SPH50SP4208WYNG	208Y/120V	150V	700	1200	1200	700
SPH50SP4480WYNG	480Y/277V	320V	1200	2500	2500	1200
SPH50SP4600WYNG†	600Y/347V	420V	1500	2500	2500	1500

† 600V Wye versions are not CSA Certified.

*easy*ID™ LED Status Indicator

The *easy*ID™ LED status indicator will illuminate when the unit is properly installed and the system or equipment being protected is energized. The following LED color/status indicates:

GREEN LED = Good

The circuit is energized and *protected*.

RED LED = Replace

The circuit is *energized* **and** *unprotected*.

The unit **needs** replacing.

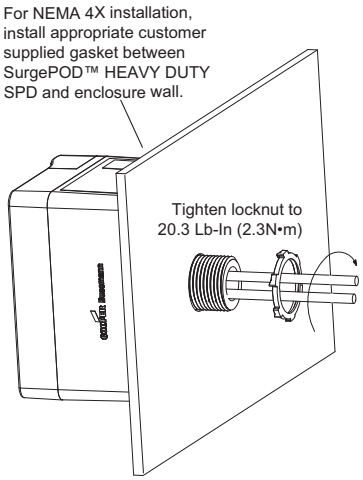
LED is Out / Unlit:

- The circuit is most likely deenergized
- The unit's leads are disconnected
- The unit is damaged

Authorized personnel should follow all prescribed lockout/tagout and safety procedures in troubleshooting the cause for the above conditions. Opening SurgePOD HEAVY DUTY enclosure will void UL listing and warranty.

Mounting

SurgePOD HEAVY DUTY is a panel mount device. It may also be mounted using a customer supplied bracket or directly onto a female threaded conduit fitting.



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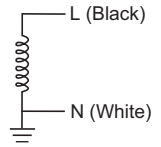
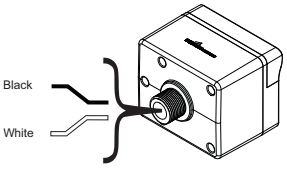
Wiring Connections

Single-Phase



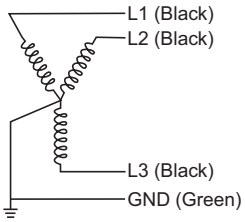
120, 240, 347V (L-N)
2 Wire

Must be installed within 10 feet (3m) of a bonded neutral-ground connection per IEEE C62.41-1991

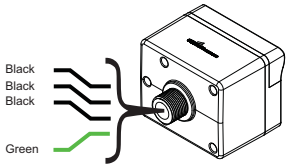


SPH50SP1120SN,
SPH50SP1240SN,
SPH50SP1347SN

Wye + Ground

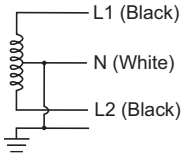


208, 480, 600V (L-L)
3 Wire Wye + Ground



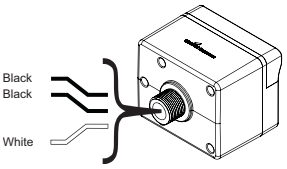
SPH50SP3208WYG,
SPH50SP3480WYG,
SPH50SP3600WYG

Two-Pole with Neutral



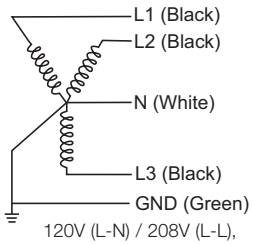
120V (L-N) / 240V (L1-L2),
240V (L-N) / 480V (L1-L2)
Single Phase (Split) Center Tap

For installations at or less than 10 feet (3m) from the transformer.

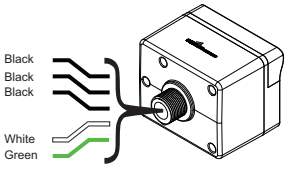


SPH50SP2240PN,
SPH50SP2480PN

Wye with Neutral + Ground

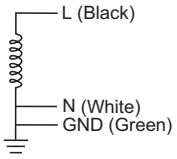


120V (L-N) / 208V (L-L),
127V (L-N) / 220V (L-L),
277V (L-N) / 480V (L-L),
347V (L-N) / 600V (L-L)
4 Wire Wye + Ground



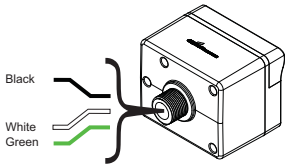
SPH50SP4208WYNG,
SPH50SP4480WYNG,
SPH50SP4600WYNG

Single-Phase + Ground



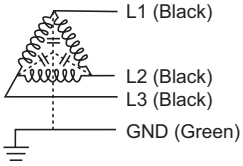
120, 240, 347V (L-N)
2 Wire + Ground

For installation when located greater than 10 feet (3m) of a bonded neutral-ground connection.

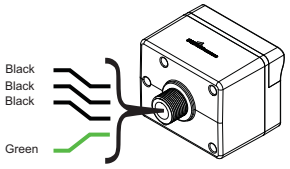


SPH50SP2120SNG,
SPH50SP2240SNG,
SPH50SP2347SNG

Delta + Ground

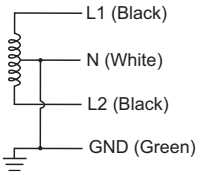


240, 480V (L-L)
3 Wire Delta + Ground



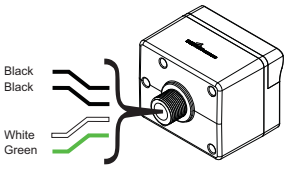
SPH50SP3240DLG,
SPH50SP3480DLG

Two-Pole with Neutral + Ground



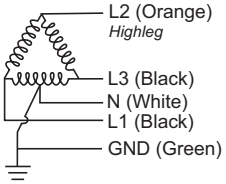
120V (L-N) / 240V (L1-L2),
240V (L-N) / 480V (L1-L2)
Single Phase (Split) Center Tap + Ground

For installation when located greater than 10 feet (3m) of a bonded neutral-ground connection.

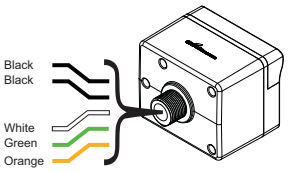


SPH50SP3240PNG,
SPH50SP3480PNG

Highleg Delta



120V (L1 / L3-N) / 240V (L-L),
240V (L1 / L3-N) / 480V (L-L)
4 Wire Highleg Delta + Ground



SPH50SP4240HLG,
SPH50SP4480HLG

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Surge Protection Made Simple™ for Light Commercial & Residential Applications

SurgePOD™ PRO SPD for UL 1449 3rd Edition Listed Loadside and Lineside Protection

UL LISTED RoHS

Description

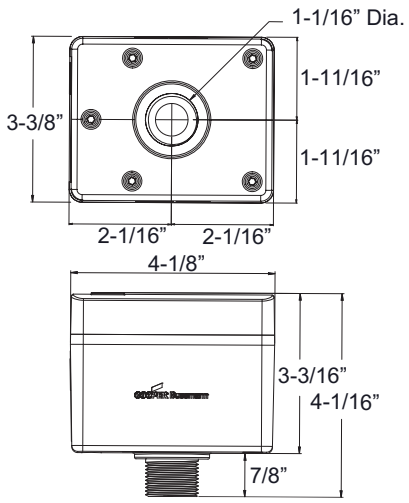
The Bussmann SurgePOD™ PRO is a Type 1 UL Listed 1449 3rd Edition surge protective device suitable for installation on both the loadside or lineside of the service entrance overcurrent protective device.

Available in popular voltage and system specific versions to match common residential and light commercial electrical system and equipment requirements. The SurgePOD PRO delivers superior surge protection using MOV thermal disconnect technology that eliminates the need for additional overcurrent protection.

Parallel connection to the electrical system permits the SurgePOD PRO SPD to be installed on **any** ampacity panel.

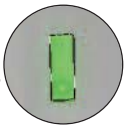
- Type 1 UL 1449 3rd Edition Listed SPDs are easily selected and installed on the loadside or lineside of the service entrance overcurrent protective device
- Voltage specific models precisely match and protect electrical systems and equipment better than "one-size-fits-all" SPDs
- Thermal disconnect technology eliminates the need for additional fusing
- Compact UV resistant NEMA 4X enclosure for indoor or outdoor applications
- *easy*ID™ LED status indicator provides surge protection status at a glance

Dimensions - in



2 YEAR WARRANTY

*easy*ID™ LED Status Indicator



SPP40SP1120SN **SPP40SP2240PN** **SPP40SP3240DLG** **SPP40SP3480DLG** **SPP40SP3208WYG** **SPP40SP3480WYG**

NEMA 4X Rated Pro Type 1 UL Listed SPD

Type 1 SPD Part Number System

SPP 40S PX XXX XXX

SPP = Product Series
Surge Protection PRO

Surge Rating
40S = 40kA max discharge current

No of Wires/Poles
P1 = 1 P2 = 2 P3 = 3 P4 = 4

Rated System Voltage
120, 208, 240, 480Vac

System
SN = Single-Phase 2 Wire, 2 Connection Points
PN = Split-Phase, 3 Wire, 3 Connection Points
DLG = Three-Phase Delta 3 Wire + G, 4 Connection Points
WYG = Three-Phase Wye 3 Wire, 4 Connection Points

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SurgePOD™ PRO Technical Information

Catalog Number	Nominal System Voltage	Max. Continuous Operating AC Voltage (MCOV) (V_C)	System Type	Connection Points
SPP40SP1120SN	120V	150V	Single-Phase 2 Wire	2
SPP40SP2240PN	120/240V	150V	Split Phase 3 Wire	3
SPP40SP3240DLG	240V	320V	Three-Phase Delta 3 Wire + G	4
SPP40SP3480DLG	480V	550V	Three-Phase Delta 3 Wire + G	4
SPP40SP3208WYG	208V	150V	Three-Phase Wye 3 Wire + G	4
SPP40SP3480WYG	480V	320V	Three-Phase Wye 3 Wire + G	4

Specifications (for all SurgePOD PRO units)	Values
Short Circuit Current Rating (SCCR)	200kA
Nominal Discharge Current (8x20µs) I_n	10kA
Max. Discharge Current (8x20µs) I_{max}	40kA
Response Time (ns) t_A	<25ns
Frequency	50/60Hz
Operating State/Fault Indication	Bi-Color LED - Green (good) / Red (replace)
Conductor Length / Guage	18 inches, 10 AWG Stranded Tinned Copper
Mounting	Chase Nipple / Bracket*
Enclosure / Flammability Ratings	NEMA 4X - UL 94-5VA
Degree of Protection (Installed State)	IP20 (finger-safe)
SPD Install Location	Indoor/Outdoor
Circuit Location	Lineside or Loadside of service entrance overcurrent protective device
Standard	UL 1449 3rd Edition Type 1 Listed SPD
Agency Information	cULus, RoHS Compliant
Product Warranty	2 Years**
Operating Temperature	-40˚C to +65˚C
Maximum Operating Altitude	12000FT

* Customer-supplied bracket.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

Voltage Protection Ratings (VPRs)

Catalog Number	Nominal System Voltage	MCOV (V_C)	Voltage Protection Ratings (VPRs)		
			L-N	L-L	L-G
SPP40SP1120SN	120V	150V	700	—	—
SPP40SP2240PN	120V/240V	150V	700	1200	—
SPP40SP3240DLG	240V	320V	—	2500	1200
SPP40SP3480DLG	480V	550V	—	3000	1800
SPP40SP3208WYG	208V	150V	—	1200	700
SPP40SP3480WYG	480V	320V	—	2500	1200

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*easy*ID™ LED Status Indicator

The *easy*ID™ LED status indicator will illuminate when the unit is properly installed and the system or equipment being protected is energized. The following LED color/status indicates:

GREEN LED = Good

The circuit is energized and *protected*.

RED LED = Replace

The circuit is *energized* **and** *unprotected*.

The unit **needs** replacing.

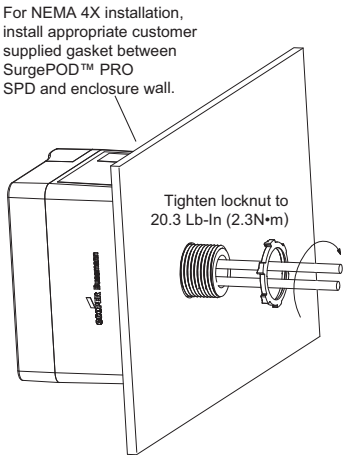
LED is Out / Unlit:

- The circuit is most likely deenergized
- The unit's leads are disconnected
- The unit is damaged

Authorized personnel should follow all prescribed lockout/tagout and safety procedures in troubleshooting the cause for the above conditions. Opening SurgePOD PRO enclosure will void UL listing and warranty.

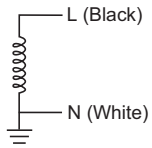
Mounting

SurgePOD PRO is a panel mount device. It may also be mounted using a customer supplied bracket or directly onto a female threaded conduit fitting.



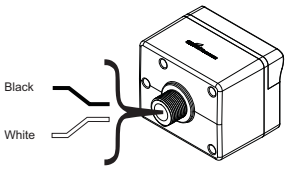
Wiring Connections

Single-Phase



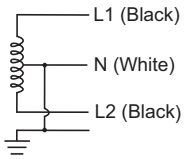
120V (L-N)
2 Wire

Must be installed within 10 feet (3m) of a bonded neutral-ground connection per IEEE C62.41-1991



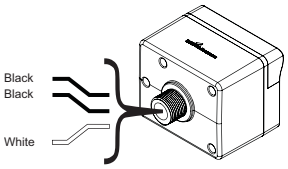
SPP40SP1120SN

Two-Pole with Neutral



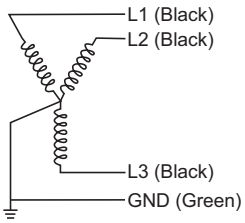
120V (L-N) / 240V (L1-L2),
Single Phase (Split) Center Tap

For installations at or less than 10 feet (3m) from the transformer.

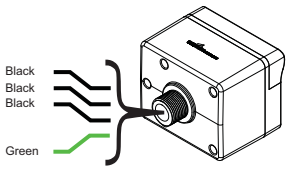


SPP40SP2240PN,

Wye + Ground

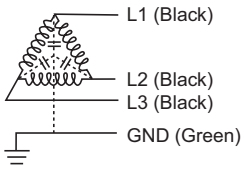


208, 480V (L-L)
3 Wire Wye + Ground

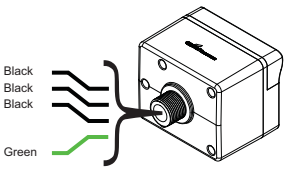


SPP40SP3208WYG,
SPP40SP3480WYG

Delta + Ground



240, 480V (L-L)
3 Wire Delta + Ground



SPP40SP3240DLG,
SPP40SP3480DLG

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UL DIN-Rail SPD - High SCCR

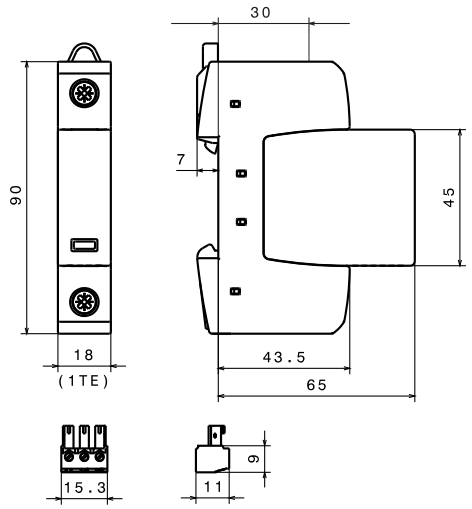
BSPM_ _ _ _S2G

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Specifications

Description

The Bussmann single pole UL modular surge arresters for 120, 240 and 347Vac single-phase systems feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

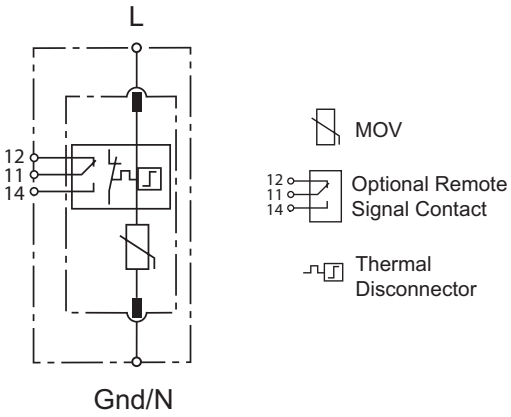
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button makes module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) makes higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules makes status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Circuit Diagram



BSPM1120S2G, BSPM1240S2G, BSPM1347S2G*

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM1347S2GR

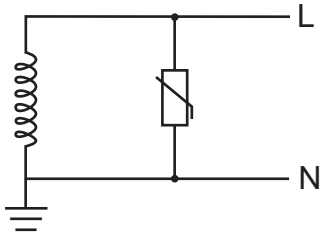
Data Sheet: 2149

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

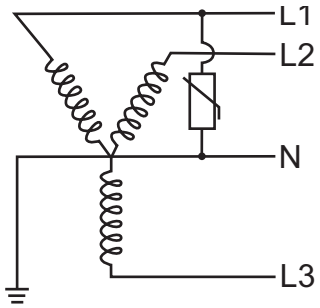
UL DIN-Rail SPD - High SCCR

Ordering Information				
Nominal System Voltage		120Vac	240, 277 or 240 & 277Vac	347Vac
Max. Continuous Operating AC Voltage (MCOV) [V_C]		275Vac	385Vac	600Vac
Catalog Numbers:	Without Remote Signaling	BSPM1120S2G	BSPM1240S2G	BSPM1347S2G
	With Remote Signaling	BSPM1120S2GR	BSPM1240S2GR	BSPM1347S2GR
Replacement Module	MOV Technology	BPM275UL	BPM385UL	BPM600UL
Specifications				
Rated Voltage		120-127Vac	240-277Vac	347Vac
Voltage Protection Rating V_{PR}		1kV	1.5kV	2kV
SCCR		200kA	200kA	125kA
Nominal Discharge Current I_n (kA)		20kA		
Max. Discharge Current I_{max} (kA)		40kA		
Response Time t_A		≤25 ns		
Frequency		50/60Hz		
Number of Poles		1		
Number of Wires/Connection Points		2 Wires / 2 Connection Points		
Operating State/Fault Indication		Green (good) / Red (replace)		
Cross-Sectional Area (min.)		14AWG - Cu Stranded, Solid or Fine		
Cross-Sectional Area (max.)		2AWG - Cu Solid or Stranded / 4AWG - Cu Fine		
Terminal Torque		45 lb-in		
For Mounting On		35mm DIN Rail per to EN 60715		
Enclosure Material		Thermoplastic, UL 94V0		
Degree of Protection		IP20 (finger-safe)		
Location Category		Indoor		
Capacity		1 Mods, DIN 43880		
Application		UL Type 2 Component Assembly		
Standard		UL 1449, 3rd Edition		
Agency Information		cURus, CSA, RoHS Compliant		
Product Warranty		Five Years*		
Remote Contact Signaling				
Remote Contact Signaling Type		Changeover Contact		
AC Switching Capacity (Volts/Amps)		250V/0.5A		
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A		
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible		
Ordering Information		Order from Catalog Numbers Above		

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.



120, 240, 347Vac 2 Wire Systems



120, 277, 347Vac 2 Wire Wye Systems

Part Numbers for all systems BSPM1120S2G, BSPM1240S2G, BSPM1347S2G

Single Pole BSP UL Series Installation Instructions - Document 3A1636RevA

Data Sheet: 2149

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UL DIN-Rail SPD - High SCCR

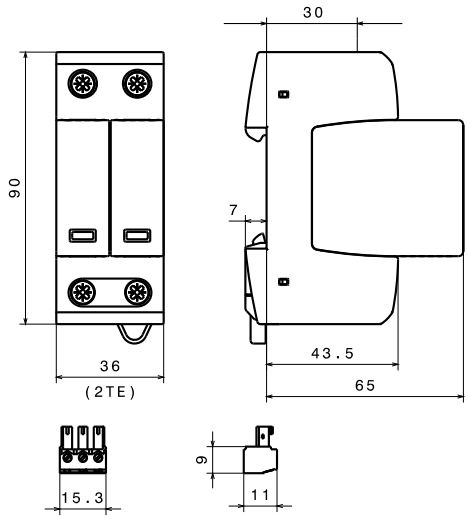
BSPM_ _ _ _S3G

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann 2-pole UL modular surge arresters for 120/240, 120/208, 127/254, 240, 240/480, 277/480 and 480Vac (split-phase) systems feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

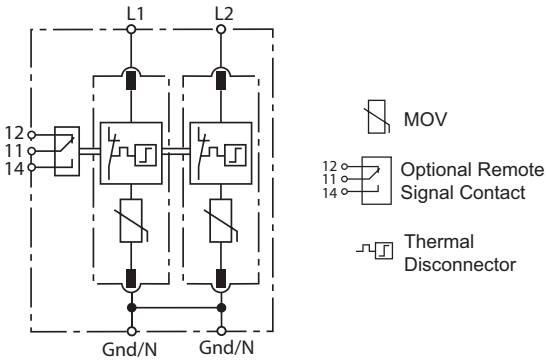
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Circuit Diagram



BSPM2240S3G, BSPM2480S3G*

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM2480S3GR

Surge Protection Devices

Data Sheet: 2150

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

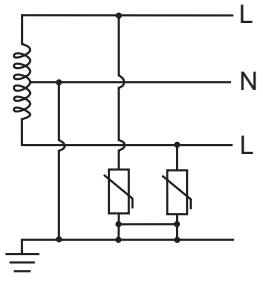
UL DIN-Rail SPD - High SCCR

Ordering Information			
Nominal System Voltage		120/240, 240Vac	240/480Vac
Max. Continuous Operating Voltage MCOV	[L-G/L-L]	275/550Vac	385/770Vac
Catalog Numbers:	Without Remote Signaling	BSPM2240S3G	BSPM2480S3G
	With Remote Signaling	BSPM2240S3GR	BSPM2480S3GR
Replacement Module	MOV Technology	BPM275UL	BPM385UL

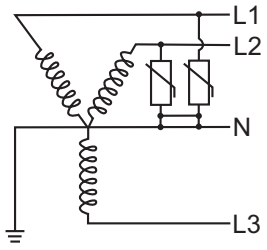
Specifications		
Rated Voltage	120-127Vac 240-254Vac 240Vac	240-480Vac 480Vac
Voltage Protection Rating V_{PR} [L-G/L-L]	1kV/1.8kV	1.5kV/2.5kV
Nominal Discharge Current I_n (kA)	20kA	
Max. Discharge Current I_{max} (kA)	40kA	
Response Time t_A	≤25 ns	
SCCR	200kA	
Frequency	50/60Hz	
Number of Poles	2	
Number of Wires/Connection Points	2 Wires or 3 Wires / 3 Connection Points	
Operating State/Fault Indication	Green (good) / Red (replace)	
Cross-Sectional Area (min.)	14AWG - Cu Stranded, Solid or Fine	
Cross-Sectional Area (max.)	2AWG - Cu Solid or Stranded, 4AWG - Cu Fine	
Terminal Torque	45 lb-in	
For Mounting On	35mm DIN-Rail per EN 60715	
Enclosure Material	Thermoplastic, UL 94V0	
Degree of Protection	IP20 (finger-safe)	
Location Category	Indoor	
Capacity	2 mods, DIN 43880	
Application	UL Type 2 Component Assembly	
Standard	UL 1449, 3rd Edition	
Agency Information	cURus, CSA, RoHS Compliant	
Product Warranty	Five Years*	

Remote Contact Signaling	
Remote Contact Signaling Type	Changeover Contact
AC Switching Capacity (Volts/Amps)	250V/0.5A
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/14AWG Solid/Flexible
Ordering Information	Order from Catalog Numbers Above

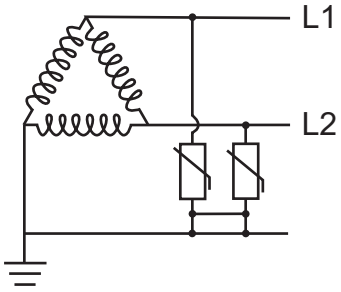
* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.



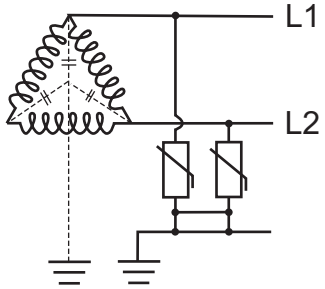
120/240V, 240/480Vac
Single Phase (Split) Center Tap
BSPM2240S3G, BSPM2480S3G



120/208V, 277/480Vac
3 Wire Wye System
BSPM2240S3G, BSPM2480S3G



2 Wire Corner Grounded Delta



2 Wire Ungrounded Delta
240, 480Vac
BSPM2440S3G, BSPM2480S3G

Data Sheet: 2150

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UL DIN-Rail SPD - High SCCR

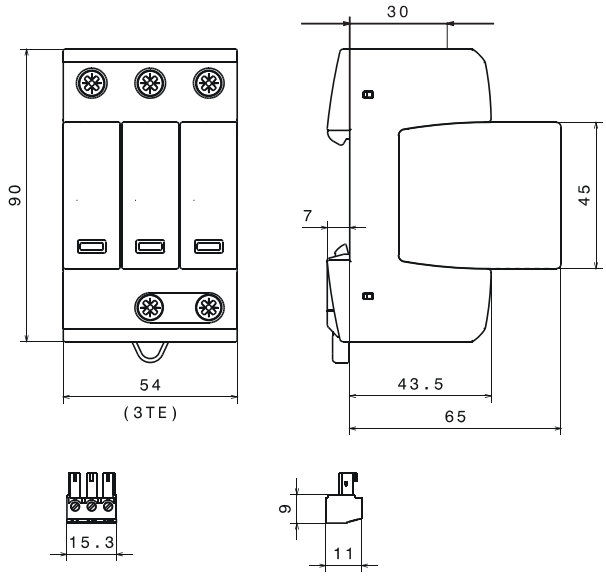
BSPM_ _ _ _WYG, BSPM_ _ _ _DLG

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann 3-pole UL modular surge arresters for 240 and 480 3-phase Delta, and 120/208, 277/480 and 347/600Vac 3-phase Wye systems feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

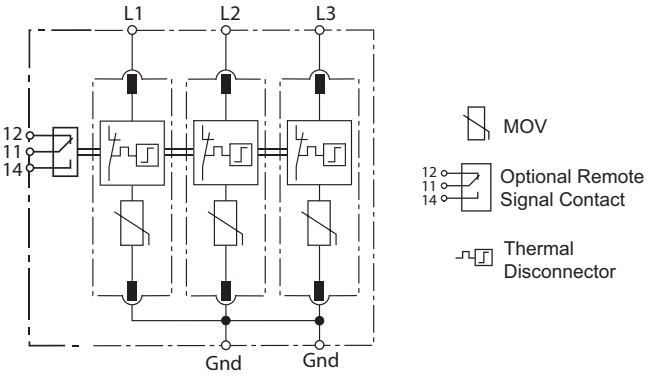
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit Diagrams



BSPM3208WYG, BSPM3480WYG), BSPM3600WYG, BSPM3240DLG, BSPM3480DLG*

Shown with optional remote contact signaling

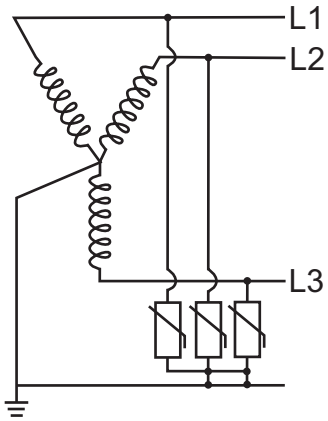
*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM3480DLGR

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

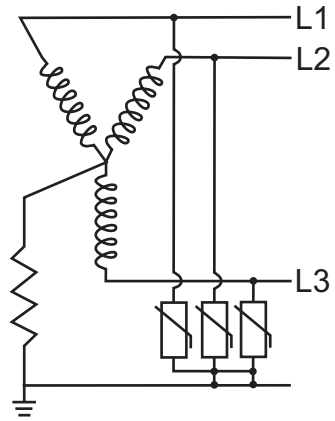
UL DIN-Rail SPD - High SCCR

Ordering Information						
Nominal System Voltage		120/208Vac	240Vac	277/480Vac	480Vac	347/600Vac
Max. Continuous Operating AC Voltage MCOV [L-G/L-L]		275/550Vac	275/550Vac	385/770Vac	600/1200Vac	600/1200Vac
Catalog Numbers:	Without Remote Signaling	BSPM3208WYG	BSPM3240DLG	BSPM3480WYG	BSPM3480DLG	BSPM3600WYG
	With Remote Signaling	BSPM3208WYGR	BSPM3240DLGR	BSPM3480WYGR	BSPM3480DLGR	BSPM3600WYGR
Replacement Module	MOV Technology	BPM275UL	BPM275UL	BPM385UL	BPM600UL	BPM600UL
Specifications						
Rated Voltage		120-127Vac, 208-220Vac	240Vac	277/480Vac	480Vac	347/600Vac
Voltage Protection Rating V_{PR} [L-G/L-L]		1kV/1.8kV	1kV/1.8kV	1.5kV/2.5kV	2kV/4kV	2kV/4kV
SCCR		200kA	200kA	200kA	125kA	125kA
Nominal Discharge Current I_n (kA)		20kA				
Max. Discharge Current I_{max} (kA)		40kA				
Response Time t_A		≤25 ns				
Frequency		50/60Hz				
Number of Poles		3				
Number of Wires/Connection Points		3 Wires / 4 Connection Points				
Operating State/Fault Indication		Green (good) / Red (replace)				
Cross-Sectional Area (min.)		14AWG - Cu Stranded, Solid or Fine				
Cross-Sectional Area (max.)		2AWG - Cu Solid or Stranded, 4AWG - Cu Fine				
Terminal Torque		45 lb-in				
For Mounting On		35mm DIN-Rail per to EN 60715				
Enclosure Material		Thermoplastic, UL 94V0				
Degree of Protection		IP20 (finger-safe)				
Location Category		Indoor				
Capacity		3 Mods, DIN 43880				
Application		UL Type 2 Component Assembly				
Standard		UL 1449, 3rd Edition				
Agency Information		cURus, CSA, RoHS Compliant				
Product Warranty		Five Years*				
Remote Contact Signaling						
Remote Contact Signaling Type		Changeover Contact				
AC Switching Capacity (Volts/Amps)		250V/0.5A				
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A				
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible				
Ordering Information		Order from Catalog Numbers Above				

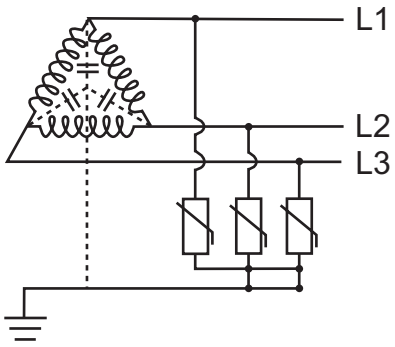
* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.



208, 480, 600Vac
Wye 3-Phase, 3 Wire + Ground
BSPM3208WYG, BSPM3480WYG, BSPM3600WYG



208V, 480V, 600Vac



240, 480Vac
Delta 3-Phase, 3 Wire + Ground
BSPM3240DLG, BSPM3480DLG

Data Sheet: 2151

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UL DIN-Rail SPD - High SCCR

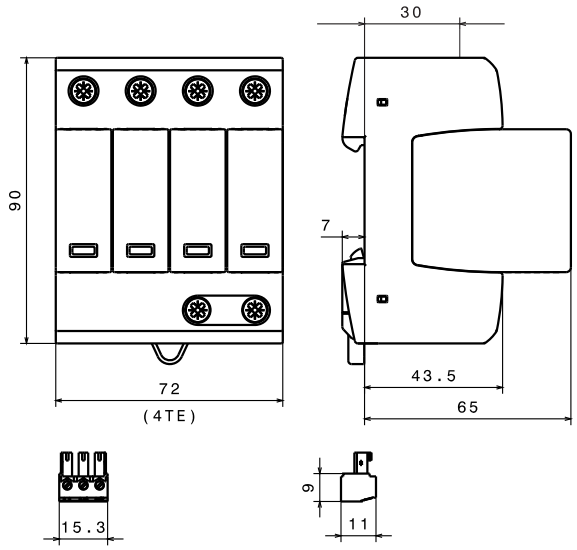
BSPM_ _ _ _WYNG, BSPM_ _ _ _HLG

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann 4-pole UL modular surge arresters for 120/240, 240/480Vac 3-phase Highleg Delta and 120/208, 127/220, 277/480 and 347/600Vac 3-phase 4 wire Wye systems feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

Features

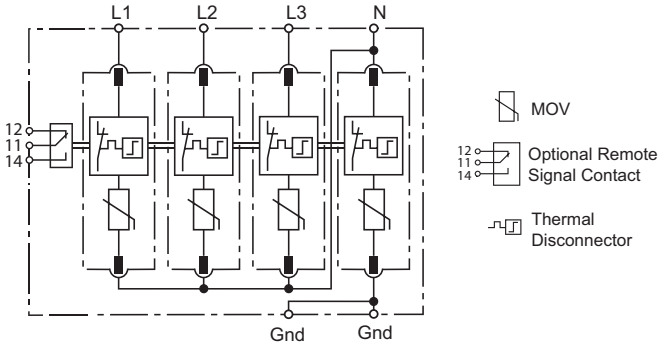
- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty zinc oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Data Sheet: 2152

Circuit Diagram



BSPM4208WYNG, BSPM4480WYNG, BSPM4600WYNG, BSPM4240HLG, BSPM4480HLG*

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM4480HLGR

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

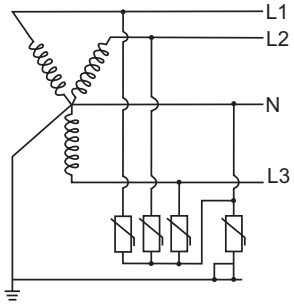
UL DIN-Rail SPD - High SCCR

Ordering Information						
Nominal System Voltage			120/208Vac, 127/220Vac	120/240Vac	240/480Vac	277/480Vac	347/600Vac
Max. continuous operating AC voltage MCOV		[L-N]/[L-G]	275/550Vac	275/550Vac	385/770Vac	385/660Vac	600/875Vac
		[N-G]/[L-L]	275/550Vac	275/550Vac	385/770Vac	275/770Vac	275/1200Vac
		[H-N]/[H-G]	- -	275/550Vac	600/985Vac	- -	- -
		[H-L]	- -	550Vac	985Vac	- -	- -
Catalog Numbers:	Without Remote Signaling		BSPM4208WYNG	BSPM4240HLG	BSPM4480HLG	BSPM4480WYNG	BSPM4600WYNG
	With Remote Signaling		BSPM4208WYNGR	BSPM4240HLGR	BSPM4480HLGR	BSPM4480WYNGR	BSPM4600WYNGR
Replacement Modules	Module Positions	L1 or L3	BPM275UL	BPM275UL	BPM385UL	BPM385UL	BPM600UL
MOV Technology		L2	BPM275UL	BPM275UL	BPM600UL	BPM385UL	BPM600UL
Four (4) Total Required		N	BPM275UL	BPM275UL	BPM385UL	BPM275UL	BPM275UL

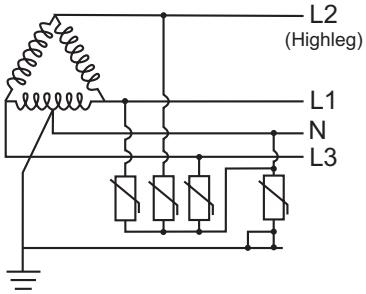
Specifications						
Rated Voltage			120/208Vac, 127/220Vac	120/240Vac	240/480Vac	277/480Vac	347/600Vac
Voltage Protection Rating V_{PR}		[L-N/L-G]	1kV/1.8kV	1kV/1.8kV	1.5kV/2.5kV	1.5kV/2.5kV	2kV/3kV
		[N-G/L-L]	1kV/1.8kV	1kV/1.8kV	1.5kV/2.5kV	1kV/2.5kV	1kV/4kV
		[H-N/H-G]	- -	1kV/1.8kV	2kV/3kV	- -	- -
		[H-L]	- -	1.8kV	3kV	- -	- -
SCCR			200kA	200kA	125kA	200kA	125kA
Nominal Discharge Current I_n (kA)			20kA				
Max. Discharge Current I_{max} (kA)			40kA				
Response Time t_A			≤ 25 ns				
Frequency			50/60Hz				
Number of Poles			4				
Number of Wires/Connection Points			4 Wires / 5 Connection Points				
Operating State/Fault Indication			Green (good) / Red (replace)				
Cross-Sectional Area (min.)			14AWG - Cu Stranded, Solid or Fine				
Cross-Sectional Area (max.)			2AWG - Cu Solid or Stranded, 4AWG - Cu Fine				
Terminal Torque			45 lb-in				
For Mounting On			35mm DIN-Rail per to EN 60715				
Enclosure Material			Thermoplastic, UL 94V0				
Degree of Protection			IP20 (finger-safe)				
Location Category			Indoor				
Capacity			4 Mods, DIN 43880				
Application			UL Type 2 Component Assembly				
Standard			UL 1449, 3rd edition				
Agency Information			cURus, CSA, RoHS Compliant				
Product Warranty			Five Years*				

Remote Contact Signaling	
Remote Contact Signaling Type	Changeover Contact
AC Switching Capacity (Volts/Amps)	250V/0.5A
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/14AWG Solid/Flexible
Ordering Information	Order from Catalog Numbers Above

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.



120/208V, 127/220V, 277/480V, 347/600Vac
Wye 3-Phase, 4 Wire + Ground
BSPM4208WYNG, BSPM4480WYNG, BSPM4600WYNG



120/240V, 240/480Vac
Highleg Delta, 3-Phase, 4 Wire + Ground
BSPM4240HLG, BSPM4480HLG

Data Sheet: 2152

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UL DIN-Rail SPD - Low Voltage AC/DC Power

BSPM1A_ _ _ _LV

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann UL Type 2 48Vac/60Vdc, 75Vac/100Vdc, 120Vac/200Vdc, 275VAc/350Vdc, 320Vac/420Vdc, 385Vac/500Vdc, 440Vac/585Vdc and 600Vac/dc single pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

LV Power System Arresters

The features of these single-pole devices are for use as a single device or in combination with other devices for AC and DC voltage systems.

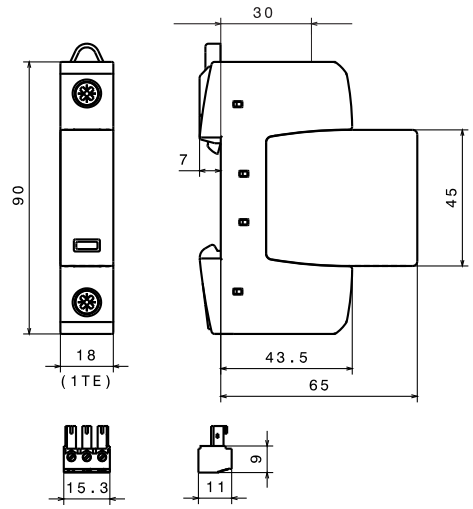
- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements*
- Proven MOV technology for reliable surge protection
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

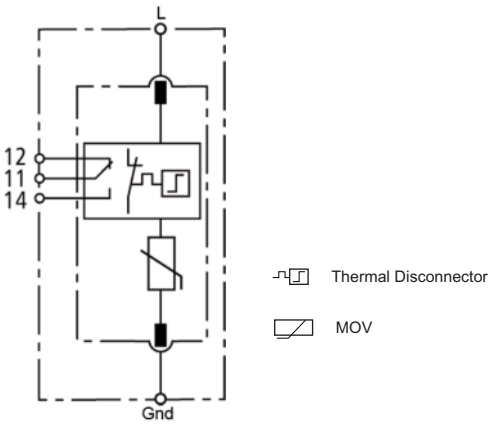
* Except as noted in data sheets.

Dimensions - mm



Shown with optional remote contact signaling

Module Circuit Diagrams - Shown with optional remote contact signaling



BSPM1A48D60LV, BSPM1A75D100LV, BSPM1A150D200LV, BSPM1A275D350LV, BSPM1A320D420LV, BSPM1A385D500LV, BSPM1A440D585LV, BSPM1A600D600LV*

Shown with optional remote contact signaling

*For remote signaling contact, add "R" suffix to the part number, E.g., BSPM1A150D200LVR

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UL DIN-Rail SPD - Low Voltage AC/DC Power

Ordering Information - 48Vac/60Vdc to 275Vac/350Vdc					
System Voltage		48Vac/60Vdc	75Vac/100Vdc	120Vac/200Vdc	275Vac/350Vdc
Catalog Numbers: (Base + Modules)	Without Remote Signaling	BSPM1A48D60LV	BSPM1A75D100LV	BSPM1A150D200LV	BSPM1A275D350LV
	With Remote Signaling	BSPM1A48D60LVR	BSPM1A75D100LVR	BSPM1A150D200LVR	BSPM1A275D350LVR
Replacement Modules		BPMA48D60LV	BPMA75D100LV	BPMA150D200LV	BPMA275D350LV
Specifications					
Max. continuous operating AC voltage [V_C]		48Vac	75Vac	150Vac	275Vac
Max. continuous operating DC voltage [V_C]		60Vdc	100Vdc	200Vdc	350Vdc
Nominal discharge current (8/20 µs) [I_n]		10kA	10kA	15kA	20kA
Max. discharge current (8/20 µs) [I_{max}]		25kA	40kA	40kA	40kA
Voltage protection level [V_{PR}]		≤ 0.3 kV	≤ 0.4kV	≤ 0.7kV	≤ 1.25kV
Voltage protection level at 5 kA [V_{PR}]		≤ 0.25kV	≤ 0.35kV	≤ 0.55kV	≤ 1kV
Temporary overvoltage (TOV)		70V / 5 sec.	90V / 5 sec.	175V / 5 sec.	335V / 5 sec
Agency Information*		- -	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA

Ordering Information - 320Vac/420Vdc to 600Vac/dc					
System Voltage		320Vac/420Vdc	385Vac/500Vdc	440Vac/585Vdc	600Vac/600Vdc
Catalog Numbers: (Base + Modules)	Without Remote Signaling	BSPM1A320D420LV	BSPM1A385D500LV	BSPM1A440D585LV	BSPM1A600D600LV
	With Remote Signaling	BSPM1A320D420LVR	BSPM1A385D500LVR	BSPM1A440D585LVR	BSPM1A600D600LVR
Replacement Modules		BPMA320D420LV	BPMA385D500LV	BPMA440D585LV	BPMA600D600LV
Specifications					
Max. continuous operating AC voltage [V_C]		320Vac	385Vac	440Vac	600Vac
Max. continuous operating DC voltage [V_C]		420Vdc	500Vdc	585Vdc	600Vdc
Nominal discharge current (8/20 µs) [I_n]		20kA	20kA	20kA	15kA
Max. discharge current (8/20 µs) [I_{max}]		40kA	40kA	40kA	30kA
Voltage protection level [V_{PR}]		≤ 1.5kV	≤ 1.75kV	≤ 2kV	≤ 2.5kV
Voltage protection level at 5 kA [V_{PR}]		≤ 1.2kV	≤ 1.35kV	≤ 1.7kV	≤ 2kV
Temporary overvoltage (TOV)		335V / 5 sec.	385V / 5 sec.	580V / 5 sec.	600V / 5 sec.
Agency Information*		UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA

Ordering Information - All Models	
SPD according to EN 61643-11	Type 2
SPD according to IEC 61643-1	Class II
Response time [t_A]	≤ 25 ns
TOV characteristics	Withstand
Operating temperature range [T_U]	-40°C to +80°C
Operating state/fault indication	Green (good) / Red (replace)
Number of ports	1
Cross-sectional area (min.)	1.5mm²/14AWG solid/flexible
Cross-sectional area (max.)	35mm²/1AWG stranded/25mm²/2AWG flexible
For mounting on	35mm DIN-Rail per EN 60715
Enclosure material	Thermoplastic, UL 94V0
Location category	Indoor
Degree of protection	IP20
Capacity	1 Mod., DIN 43880
Product Warranty	Five Years**
Remote Contact Signaling	
Remote Contact Signaling Type	Changeover Contact
AC Switching Capacity (Volts/Amps)	250V/0.5A
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/14AWG Solid/Flexible
Ordering Information	Order from Catalog Numbers Above

* Standards information not applicable to DC ratings.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Data Sheet: 2056

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

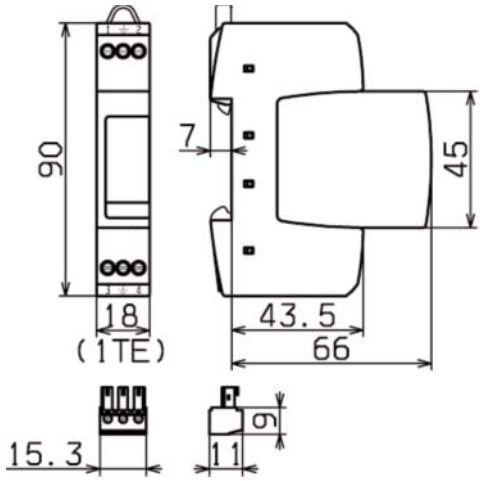
UL DIN-Rail SPD - Low Voltage AC/DC Control

BSPH2A_ _ _ _LV(R)

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Specifications

Description

The Bussmann UL Type 3 24Vac/dc, 48Vac/dc, 60Vac/dc, 120Vac/dc and 230Vac/dc, two-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

LV System Arresters

The features of these two-pole devices are for use in coordination with other upstream SPDs in UL 508A Applications*.

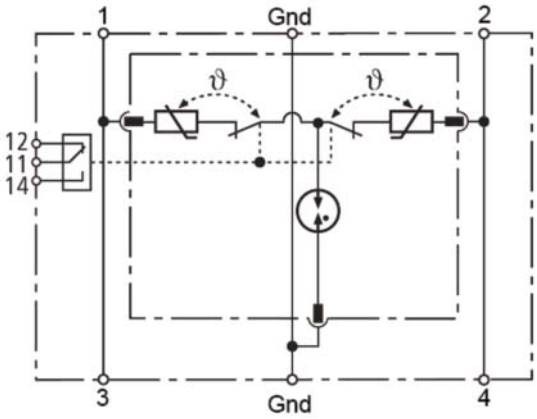
- Surge arrester according to UL 1449 3rd Edition, Type 3 Component Assembly helps meet UL 508A requirements
- Proven MOV and GDT hybrid technology for reliable surge protection
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional Remote Signaling Contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

* UL 1449 3rd Edition not applicable to DC voltages.

Module Circuit Diagrams



BPH2A24D24LV BPH2A48D48LV BPH2A60D60LV
BPH2A150D150LV BPH2A230D230LV

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPH2A230D230LVR

Data Sheet: 2057

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

UL DIN-Rail SPD - Low Voltage AC/DC Power

Ordering Information						
System Voltage		24Vac/dc	48Vac/dc	60Vac/dc	120Vac/dc	230Vac/dc
Max. Continuous operating AC voltage (MCOV) [V_C]		30Vac/dc	60Vac/dc	75Vac/dc	150Vac/dc	255Vac/dc
Catalog Numbers:	Without Remote Signaling	BSPH2A24D24LV	BSPH2A48D48LV	BSPH2A60D60LV	BSPH2A150D150LV	BSPH2A230D230LV
(Base + Modules)	With Remote Signaling	BSPH2A24D24LVR	BSPH2A48D48LVR	BSPH2A60D60LVR	BSPH2A150D150LVR	BSPH2A230D230LVR
Replacement Modules		BPHA24D24LV	BPHA48D48LV	BPHA60D60LV	BPHA150D150LV	BPHA230D230LV
Specifications						
Nominal AC voltage [V_o]		24V	48V	60V	120V	230V
Max. continuous operating AC voltage [V_C]		30V	60V	75V	150V	255V
Max. continuous operating DC voltage [V_C]		30V	60V	75V	150V	255V
Nominal load current AC [I_L]		25A	25A	25A	25A	25A
Nominal discharge current (8/20 µs) [I_n]		1kA	1kA	2kA	2kA	3kA
Total discharge current (8/20 µs) [L+N-Gnd] [I_{total}]		2kA	2kA	4kA	4kA	5kA
Combined impulse [U_{OC}]		2kV	2kV	4kV	4kV	6kV
Combined impulse [L+N-Gnd] [U_{OC} total]		4kV	4kV	8kV	8kV	10kV
Voltage protection level [L-N] [V_{PR}]		≤ 180V	≤ 350V	≤ 400V	≤ 640V	≤ 1250V
Voltage protection level [L/N-Gnd] [V_{PR}]		≤ 630V	≤ 730V	≤ 730V	≤ 800V	≤ 1500V
Temporary overvoltage (TOV) [L-N]		--	--	--	--	335V / 5 sec.
Temporary overvoltage (TOV) [L/N-Gnd]		--	--	--	--	400V / 5 sec.
Temporary overvoltage (TOV) [L+N-Gnd]		--	--	--	--	1200V + V_0 / 20
TOV characteristics [L-N]		--	--	--	--	Withstand
TOV characteristics [L/N-Gnd]		--	--	--	--	Withstand
TOV characteristics [L+N-Gnd]		--	--	--	--	Failure
SPD according to EN 61643-11		Type 3				
SPD according to IEC 61643-1		Class III				
Response time [L-N] [t_A]		≤ 25 ns				
Response time [L/N-Gnd] [t_A]		≤ 100 ns				
Operating temperature range [T_U]		-40°C to +80°C				
Operating state/fault indication		Green (good) / Red (replace)				
Number of ports		1				
Cross-sectional area (min.)		0.5mm²/18AWG solid/flexible				
Cross-sectional area (max.)		4mm²/10AWG solid/2.5mm²/12AWG flexible				
For mounting on		35mm DIN rail per EN 60715				
Enclosure material		Thermoplastic, UL 94V0				
Location category		Indoor				
Degree of protection		IP20				
Capacity		1 Mod., DIN 43880				
Agency Information*		UL / cUL, CSA, KEMA				
Product Warranty		Five Years**				
Remote Contact Signaling						
Remote Contact Signaling Type		Changeover Contact				
AC Switching Capacity (Volts/Amps)		250V/0.5A				
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A				
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible				
Ordering Information		Order from Catalog Numbers Above				

* Standards information not applicable to DC ratings.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Data Sheet: 2057

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class I DIN-Rail SPD

BSPS_ _ _ _TN, BSPS_ _ _ _TT

KEMA KEUR

CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann IEC Class I 230V, two-pole, modular combined lightning, current and surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.230V models are offered with MCOV rating of 255V.

TN System Arresters

The features of these two-pole devices are for use as a modular combined lightning and current arrester and surge arrester for use in single TN- systems (“2-0” circuit).

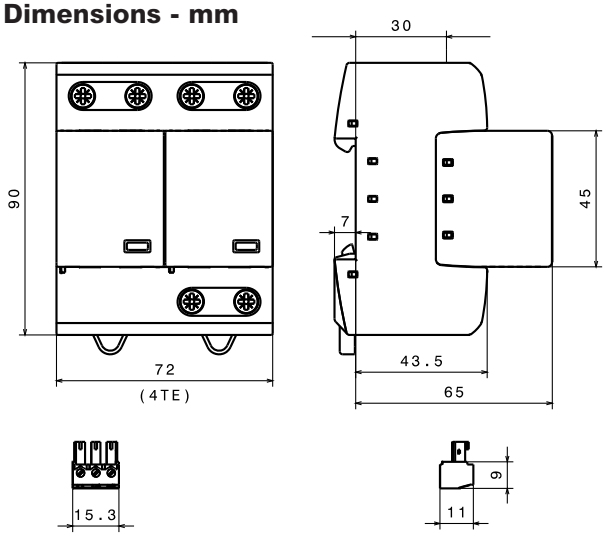
TT System Arrester

Provides a current arresting means for use in single TT- systems (“1-1” circuit).

Remote Signaling Contact

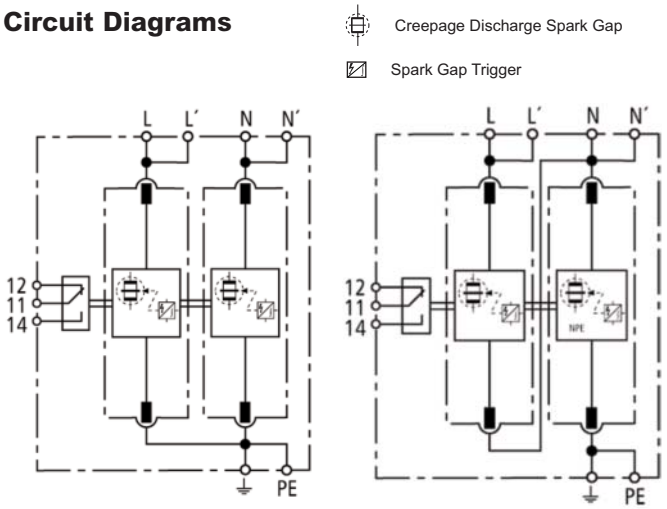
The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Dimensions - mm



Shown with optional remote contact signaling

Circuit Diagrams



BSPS2255TN

Shown with optional remote contact signaling

BSPS2255TT

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPS2255TNR

Data Sheet: 1163

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class I DIN-Rail SPD

Ordering Information			
System Voltage/Poles		230V/2	230V/2
Max. Continuous operating AC voltage (MCOV) [U_C]		255V	255V
Catalog Numbers:	Without Remote Signaling	BSPS2255TN	BSPS2255TT
	With Remote Signaling	BSPS2255TNR	BSPS2255TTR
Replacement Modules:	MOV technology	(2X) BPS255IEC	(1X) BPS255IEC
	Spark Gap technology	- -	(1X) BPS50NPEIEC*
Specifications			
Specific energy [L+N-PE] [W/R]		625.00 kJ/ohms	- -
Lightning impulse current (10/350 µs) [L, N-PE] [I_{imp}]		25kA	25/50kA I_S [L-N]/[N-PE]
Specific energy [L,N-PE] [W/R]		156.25 kJ/ohms	156.25kJ/ohms/ 625.00 kJ/ohms
Voltage protection level [L-PE]/[N-PE] [U_P]		≤ 1.5 kV/≤ 1.5 kV	- -
Voltage protection level [L-N]/[N-PE] [U_P]		- -	≤ 1.5kV/≤ 1.5kV
Follow current extinguishing capability AC [I_{fi}]		50kA rms	- -
Follow current extinguishing capability [L-N]/[N-PE] [I_{fi}]		- -	50kA rms/100A rms
Temporary overvoltage (TOV) [N-PE] [U_T]		- -	1200V/200 ms
SPD according to EN 61643-11/... IEC 61643-1		Type 1/Class I	
Energy-coordinated protection effect with regard to the terminal equipment		Type 1 + Type 2	
Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)		Type 1 + Type 2 + Type 3	
Nominal AC voltage [U_N]		230V	
Lightning impulse current (10/350 µs) [L+N-PE] [I_{total}]		50kA	
Nominal discharge current (8/20 µs) [I_n]		25/50kA	
Follow current limitation/Selectivity		no tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)	
Response time [t_A]		≤ 100 ns	
Max. Backup fuse (L) up to I_K ≤ 50kA rms		315A gL/gG	
Max. Backup fuse (L) for I_K > 50kA rms		200A gL/gG	
Max. Backup fuse (L-L)		125A gL/gG	
Temporary overvoltage (TOV) [L-N] [U_T]		440V/5 sec.	
TOV characteristics		withstand	
Operating temperature range (parallel connection) [TU_P]		-40°C to +80°C	
Operating temperature range (series connection) [TU_S]		-40°C to +60°C	
Operating temperature range [parallel]/[continuity] [TU]		-40°C to +80°C/-40°C to +60°C	
Operating state/fault indication		green (good)/red (replace)	
Number of ports		1	
Cross-sectional area (L, L , N, N , PE, ⏚) [min.]		10mm² solid/flexible	
Cross-sectional area (L, N, PE) [max.]		50mm²/1AWG stranded-35mm²/2AWG flexible	
Cross-sectional area (L , N , ⏚) [max.]		35mm²/2AWG stranded-25mm²/4AWG flexible	
For mounting on		35mm DIN Rail per EN 60715	
Enclosure material		Thermoplastic, UL 94V0	
Location category		Indoor	
Degree of protection		IP20	
Capacity		4 mods., DIN 43880	
Standards Information		KEMA	
Product Warranty		Five Years**	
Remote Contact Signaling			
Remote Contact Signaling Type		Changeover Contact	
AC Switching Capacity (Volts/Amps)		250V/0.1A	
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible	
Ordering Information		Order from Catalog Numbers Above	

Recommended Bussmann NH DIN Size Back Up Fuses

Size	NH Fuse Part Number	Size	NH Fuse Part Number
00	125NHG00B (max L-L)	02	125NHG02B (max L-L)
0	125NHG0B (max L-L)	02	200NHG02B (max L Ik >50kA)
01	125NHG01B (max L-L)	2	315NHG2B (max L ≤50kA)
1	200NHG1B (max L Ik >50kA)	03	315NHG03B (max L ≤50kA)

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Data Sheet: 1163

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class I DIN-Rail SPD

BSPS_ _ _ _TNC

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann IEC Class I 230V, three-pole, modular combined lightning, current and surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

230V models are offered with a MCOV rating of 255V.

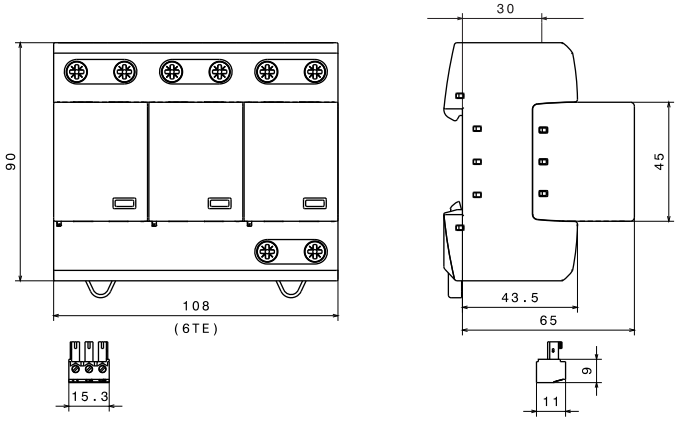
TNC System Arrester

The features of these three-pole devices are for use in TN-C 230/400V systems (“3-0” circuit) against surges.

Remote Signaling Contact

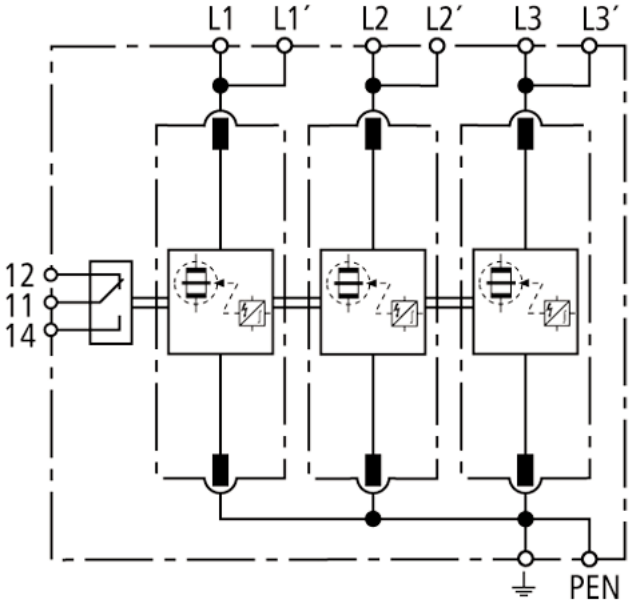
The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Dimensions - mm



Shown with optional remote contact signaling

Circuit Diagrams



BSPS3255TNC

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPS3255TNCR

Surge Protection Devices

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class I DIN-Rail SPD

Ordering Information		
System Voltage/Poles		230/400V/3
Max. Continuous operating AC voltage (MCOV) [U_C]		255V
Catalog Numbers:	Without Remote Signaling	BSPS3255TNC
	With Remote Signaling	BSPS3255TNCR
Replacement Module	MOV technology	BPS255IEC
Specifications		
SPD according to EN 61643-11/... IEC 61643-1		Type 1/Class I
Energy-coordinated protection effect with regard to the terminal equipment		Type 1 + Type 2
Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)		Type 1 + Type 2 + Type 3
Nominal AC voltage [U_N]		230/400V
Lightning impulse current (10/350 µs) [L1+L2+L3-PEN] [I_{total}]		75kA
Specific energy [L1+L2+L3-PEN] [W/R]		1.40 MJ/ohms
Lightning impulse current (10/350 µs) [L-PEN] [I_{imp}]		25kA
Specific energy [L-PEN] [W/R]		156.25kJ/ohms
Nominal discharge current (8/20 µs) [I_n]		25/75kA
Voltage protection level [U_P]		≤ 1.5kV
Follow current extinguishing capability AC [I_{fi}]		50kA rms
Follow current limitation/Selectivity		no tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)
Response time [t_A]		≤ 100 ns
Max. Backup fuse (L) up to I_K = 50kA rms		315A gL/gG
Max. Backup fuse (L) for I_K > 50kA rms		200A gL/gG
Max. Backup fuse (L-L)		125A gL/gG
Temporary overvoltage (TOV) [U_T]		440V/5 sec.
TOV characteristics		withstand
Operating temperature range [parallel]/[continuity] [T_U]		-40°C to +80°C/-40°C to +60°C
Operating state/fault indication		green (good)/red (replace)
Number of ports		1
Cross-sectional area (L1, L1 , L2, L2 , L3, L3 , PEN, ⏚) [min.]		10mm² solid/flexible
Cross-sectional area (L1, L2, L3, PEN) [max.]		50mm²/1AWG stranded-35mm²/2AWG flexible
Cross-sectional area (L1 , L2 , L3 , ⏚) [max.]		35mm²/2AWG stranded-25mm²/4AWG flexible
Mounting		35mm DIN rail per to EN 60715
Enclosure material		Thermoplastic, UL 94V0
Location category		Indoor
Degree of protection		IP20
Capacity		6 mods., DIN 43880
Standards Information		KEMA
Product Warranty		Five Years*
Remote Contact Signaling		
Remote Contact Signaling Type		Changeover Contact
AC Switching Capacity (Volts/Amps)		250V/0.1A
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible
Ordering Information		Order from Catalog Numbers Above

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann NH DIN Size Back Up Fuses			
Size	NH Fuse Part Number	Size	NH Fuse Part Number
00	125NHG00B (max L-L)	02	125NHG02B (max L-L)
0	125NHG0B (max L-L)	02	200NHG02B (max L Ik >50kA)
01	125NHG01B (max L-L)	2	315NHG2B (max L ≤50kA)
1	200NHG1B (max L Ik >50kA)	03	315NHG03B (max L ≤50kA)

Data Sheet: 1164

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

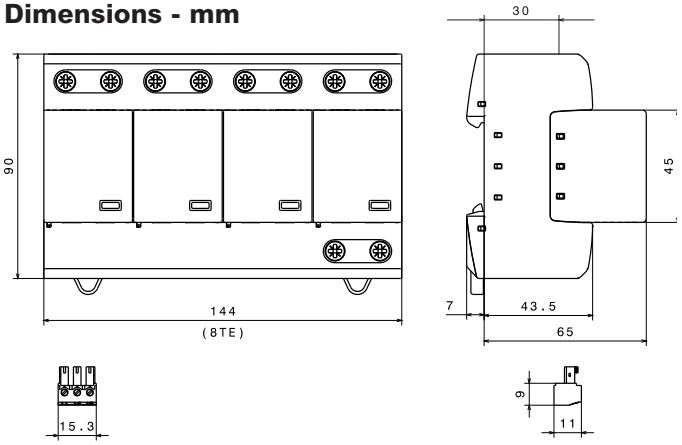
IEC Class I DIN-Rail SPD

BSPS_ _ _ _TNS, BSPS_ _ _ _TT

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm

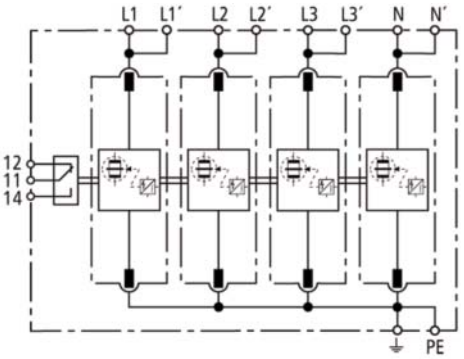


Shown with optional remote contact signaling

Circuit Diagrams

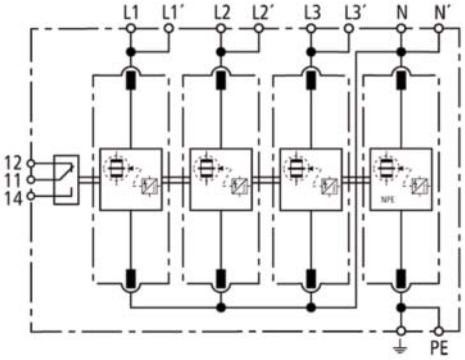
Creepage Discharge Spark Gap

Spark Gap Trigger



BSPS4255TNS

Shown with optional
remote contact signaling



BSPS4255TT

Shown with optional
remote contact signaling

Description

The Bussmann IEC Class I 230V, four-pole, modular combined lightning, current and surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

230V models are offered with MCOV ratings of 255V.

TNS System Arresters

The features of these four-pole devices are for use in TNS 230/400V systems ("4-0" circuit) against surges.

TT System Arrester

Provides a current arresting means between neutral conductor and protective conductor in TT 230/400V systems ("3+1" circuit) against surges.

Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

*For remote signaling contact, add "R" suffix to the part number, E.g., BSPS4255TTR

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IEC Class I DIN-Rail SPD

Ordering Information			
System Voltage/Poles		230/400V/4	230/400V/4
Max. Continuous operating AC voltage (MCOV) [U_C]		255V	255V
Catalog Numbers:	Without Remote Signaling	BSPS4255TNS	BSPS4255TT
	With Remote Signaling	BSPS4255TNSR	BSPS4255TTR
Replacement Modules:	MOV technology	BPS255IEC	BPS255IEC
	Spark Gap technology	- -	BPS100NPEIEC*

Specifications	
SPD according to EN 61643-11/... IEC 61643-1	Type 1/Class I
Energy-coordinated protection effect with regard to the terminal equipment	Type 1 + Type 2
Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)	Type 1 + Type 2 + Type 3
Nominal AC voltage [U_N]	230/400V
Lightning impulse current (10/350 µs) [L1+L2+L3+N-PE] [I_{total}]	100kA
Specific energy [L1+L2+L3+N-PE] [W/R]	2.50MJ/ohms
Lightning impulse current (10/350 µs) [L, N-PE] [I_{imp}]	25kA
TNS system specific energy [L,N-PE] [W/R]	156.25kJ/ohms
TT system specific energy [L-N]/[N-PE] [W/R]	156.25kJ/ohms/2.50kJ/ohms
Nominal discharge current (8/20 µs) [I_n]	25/100kA
Voltage protection level [L-PE]/[N-PE] [U_P]	≤ 1.5kV/≤ 1.5kV
TNS system follow current extinguishing capability AC [I_{fi}]	50kA rms
TT system follow current extinguishing capability AC [I_{fi}]	50kA rms/100A rms
Follow current limitation/Selectivity	No tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)
Response time [t_A]	≤ 100 ns
Max. Backup fuse (L) up to I_K ≤ 50kA rms	315A gL/gG
Max. Backup fuse (L) for I_K > 50kA rms	200A gL/gG
Max. Backup fuse (L-L)	125A gL/gG
Temporary overvoltage (TOV) [L-N] [U_T]	440V/5 sec.
Temporary overvoltage (TOV) [N-PE] [U_T]	1200V/200mS
TOV characteristics	Withstand
Operating temperature range [parallel]/[continuity] [T_U]	-40°C to +80°C/-40°C to +60°C
Operating state/fault indication	green (good)/red (replace)
Number of ports	1
Cross-sectional area (L1, L1 , L2, L2 , L3, L3 , N, N , PE, ⏚) [min.]	10mm² solid/flexible
Cross-sectional area (L1, L2, L3, N, PE) [max.]	50mm²/1AWG stranded-35mm²/2AWG flexible
Cross-sectional area (L1 , L2 , L3 , N , ⏚) [max.]	35mm²/2AWG stranded-25mm²/4AWG flexible
Mounting	35mm DIN Rail per EN 60715
Enclosure material	Thermoplastic, UL 94V0
Location category	Indoor
Degree of protection	IP20
Capacity	8 mods., DIN 43880
Agency Information	KEMA
Product Warranty	Five Years**

Remote Contact Signaling	
Remote Contact Signaling Type	Changeover Contact
AC Switching Capacity (Volts/Amps)	250V/0.1A
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/14AWG Solid/Flexible
Ordering Information	Order from Catalog Numbers Above

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann NH DIN Size Back Up Fuses			
Size	NH Fuse Part Number	Size	NH Fuse Part Number
00	125NHG00B (max L-L)	02	125NHG02B (max L-L)
0	125NHG0B (max L-L)	02	200NHG02B (max L Ik >50kA)
01	125NHG01B (max L-L)	2	315NHG2B (max L ≤50kA)
1	200NHG1B (max L Ik >50kA)	03	315NHG03B (max L ≤50kA)

Data Sheet: 1165

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class II DIN-Rail SPD

BSPM_ _ _ _TN, BSPG_ _ _ _NPE

KEMA KEUR

CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann IEC Class II 275, 320, 385, 440 and 600V, one-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

Class II single-pole surge arrester models are offered with MCOV ratings of 255, 275, 320, 385, 440 and 600V.

TN System Arresters

The features of these single-pole devices are for use as a single device or in combination with other devices.

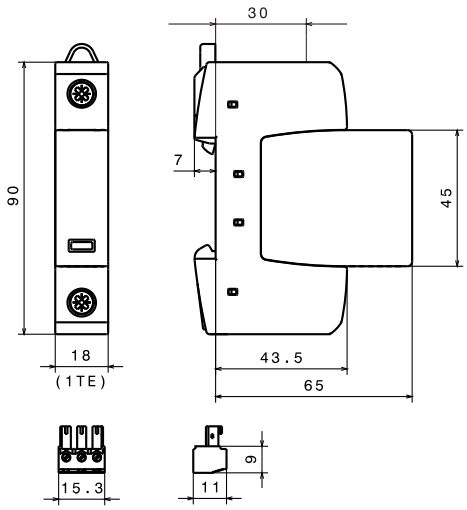
TT System Arrester

Provides a current arresting means between neutral conductor and protective conductor in TT systems, this device helps ensure fulfilling the requirements for protection of personnel and equipment in “3+1” and “1+1” circuits.

Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

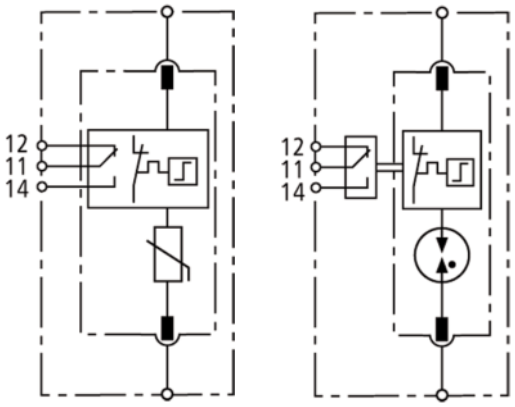
Dimensions - mm



Shown with optional remote contact signaling

Module Circuit Diagrams -

Shown with optional remote contact signaling



BSPM1275TN
BSPM1320TN
BSPM1385TN
BSPM1440TN
BSPM1600TN

BSPG1255NPE(R)

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM1275TNR

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class II DIN-Rail SPD

Ordering Information						
System Voltage/Poles	230V/1	230V/1	230V/1	400V/1	600V/1	230V/1*
Max. Continuous operating AC voltage (MCOV) [U_C]	275V	320V	385V	440V	600V	255V
Catalog Numbers: Without Remote Signaling	BSPM1275TN	BSPM1320TN	BSPM1385TN	BSPM1440TN	BSPM1600TN	BSPG1255NPE
(Base + Modules) With Remote Signaling	BSPM1275TNR	BSPM1320TNR	BSPM1385TNR	BSPM1440TNR	BSPM1600TNR	BSPG1255NPER
Replacement Modules	BPM275IEC	BPM320IEC	BPM385IEC	BPM440IEC	BPM600IEC	BPG255NPE
Specifications						
Line system type	TN / TT	TN / TT	TN / TT	TN	TN	TT
Max. Continuous operating DC voltage [U_C]	350V	420V	500V	585V	600V	- -
Voltage protection level [U_P]	≤ 1.25kV	≤ 1.5kV	≤ 1.75kV	≤ 2kV	≤ 2.5kV	≤ 1.5kV
Voltage protection level at 5kA [U_P]	≤ 1kV	≤ 1.2kV	≤ 1.35kV	≤ 1.7kV	≤ 2kV	- -
Max. mains-side overcurrent protection	125A gL/gG	125A gL/gG	125A gL/gG	125A gL/gG	100A gL-gG	- -
Short-circuit withstand capability for max. mains-side overcurrent protection	50kA$_{rms}$	25kA$_{rms}$	25kA$_{rms}$	25kA$_{rms}$	25kA rms	- -
Temporary overvoltage (TOV) [U_T]	335V/5 sec.	335V/5 sec.	385V/5 sec.	580V/5 sec.	600V/5 sec.	1200V/200 ms
Response time [t_A]	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 100 ns
Follow current extinguishing capability [I_{fi}]	- -	- -	- -	- -	- -	100A$_{rms}$
Lightning impulse current (10/350 µs) [I_{imp}]	- -	- -	- -	- -	- -	12kA
Nominal discharge current (8/20 µs) [I_n]	20kA	20kA	20kA	20kA	15kA	20kA
Max. Discharge current (8/20 µs) [I_{max}]	40kA	40kA	40kA	40kA	30kA	40kA
Standards Information	KEMA	KEMA, CSA	KEMA, CSA	KEMA, CSA	KEMA, CSA	KEMA
Capacity	1 mod., DIN 43880					
SPD according to EN 61643-11	Type 2					
SPD according to IEC 61643-1	Class II					
TOV characteristics	Withstand					
Operating temperature range [T_U]	-40°C to +80°C					
Operating state/fault indication	Green (good) / Red (replace)					
Number of ports	1					
Cross-sectional area (min.)	1.5mm²/14AWG solid/flexible					
Cross-sectional area (max.)	35mm²/2AWG stranded-25mm²/4AWG flexible					
Mounting	35mm DIN Rail per EN 60715					
Enclosure material	Thermoplastic, UL 94V0					
Location category	Indoor					
Degree of protection	IP20					
Product Warranty	Five Years**					
Remote Contact Signaling						
Remote Contact Signaling Type	Changeover Contact					
AC Switching Capacity (Volts/Amps)	250V/0.1A					
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A					
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/14AWG Solid/Flexible					
Ordering Information	Order from Catalog Numbers Above					

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuses		
DIN Fuse Size	TT / TN System NH Fuse Part Numbers	
	275, 320, 385, 440V	600V
00	125NHG00B	100NHG00B-690
0	125NHG0B	100NHG0B-690
01	125NHG01B	- -
1	- -	100NHG1B-690
02	125NHG02B	- -
2	- -	100NHG2B-690

Data Sheet: 1166

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

IEC Class II DIN-Rail SPD

BSPM_ _ _ _TN, BSPH_ _ _ _TT

KEMA KEUR

CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann IEC Class II 230V, two-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.230V models are offered with MCOV ratings of 255 and 275V.

TN System Arresters

The features of these single-pole devices are for use in single-phase 230V TN systems (“2-0” circuit).

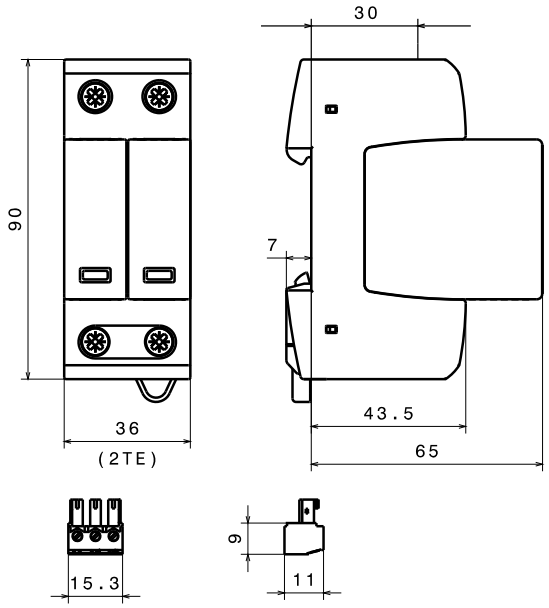
TT System Arrester

The features of these single-pole devices are for use in single-phase 230V TT and TNS systems (“1-1” circuit).

Remote Signaling Contact

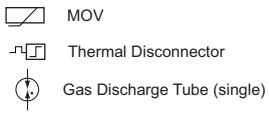
The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

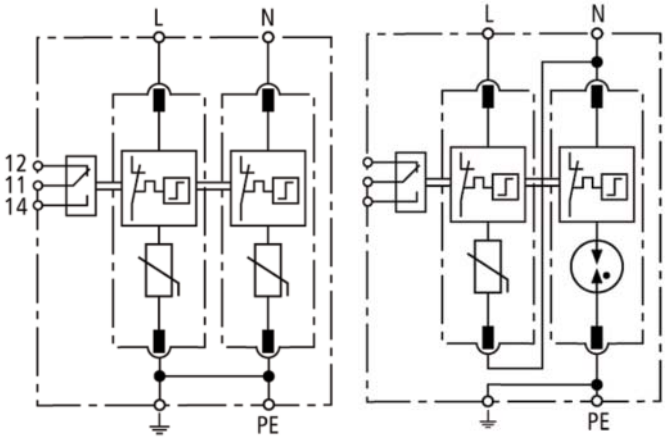
Dimensions - mm



Shown with optional remote contact signaling

Circuit Diagrams





BSPM2275TN

Shown with optional remote contact signaling

BSPH2275TT

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM2275TNR

Surge Protection Devices

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IEC Class II DIN-Rail SPD

Ordering Information			
System Voltage/Poles		230V/2	230V/2
Max. continuous operating AC voltage (MCOV) [U_C]		275V	- -
Max. Continuous operating AC voltage (MCOV) [L-N] [U_C]		- -	275V
Max. Continuous operating AC voltage (MCOV) [N-PE] [U_C]		- -	255V
Catalog Numbers:	Without Remote Signaling	BSPM2275TN	BSPH2275TT
	With Remote Signaling	BSPM2275TNR	BSPH2275TTR
Replacement Modules:	MOV Technology	BPM275IEC	BPM275IEC
	Spark Gap technology	- -	BPSNPEIEC*
Specifications			
Lightning impulse current (10/350 µs) [N-PE] [I_{imp}]		- -	12kA
Voltage protection level [U_P]		≤ 1.25kV	- -
Voltage protection level at 5kA [U_P]		≤ 1kV	- -
Voltage protection level [L-N] [U_P]		- -	≤ 1.25kV
Voltage protection level [L-N] at 5kA [U_P]		- -	≤ 1kV
Voltage protection level [N-PE] [U_P]		- -	≤ 1.5kV
Follow current extinguishing capability [N-PE] [I_{fi}]		- -	100A rms
Response time [t_A]		≤ 25 ns	- -
Response time [L-N] [t_A]		- -	≤ 25 ns
Response time [N-PE] [t_A]		- -	≤ 100 ns
Temporary overvoltage (TOV) [U_T]		335V/5 sec.	- -
Temporary overvoltage (TOV) [L-N] [U_T]		- -	335V/5 sec.
Temporary overvoltage (TOV) [N-PE] [U_T]		- -	1200V/200 ms
SPD according to EN 61643-11		Type 2	
SPD according to IEC 61643-1		Class II	
Nominal discharge current (8/20 µs) [I_n]		20kA	
Max. discharge current (8/20 µs) [I_{max}]		40kA	
Max. mains-side overcurrent protection		125A gL/gG	
Short-circuit withstand capability for max. mains-side overcurrent protection		50kA rms	
Nominal AC voltage [U_N]		230V	
TOV characteristics		withstand	
Operating temperature range [T_U]		-40°C to +80°C	
Operating state/fault indication		green (good)/red (replace)	
Number of ports		1	
Cross-sectional area (min.)		1.5mm2/14AWG solid/flexible	
Cross-sectional area (max.)		35mm2/2AWG stranded-25mm2/4AWG flexible	
Mounting		35mm DIN rail per EN 60715	
Enclosure material		Thermoplastic, UL 94V0	
Location category		Indoor	
Degree of protection		IP20	
Capacity		2 mods., DIN 43880	
Standards Information		KEMA	
Product Warranty		Five Years**	
Remote Contact Signaling			
Remote Contact Signaling Type		Changeover Contact	
AC Switching Capacity (Volts/Amps)		250V/0.1A	
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible	
Ordering Information		Order from Catalog Numbers Above	

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuses	
DIN Fuse Size	NH Fuse Part Number
00	125NHG00B
0	125NHG0B
01	125NHG01B
02	125NHG02B

Data Sheet: 1167

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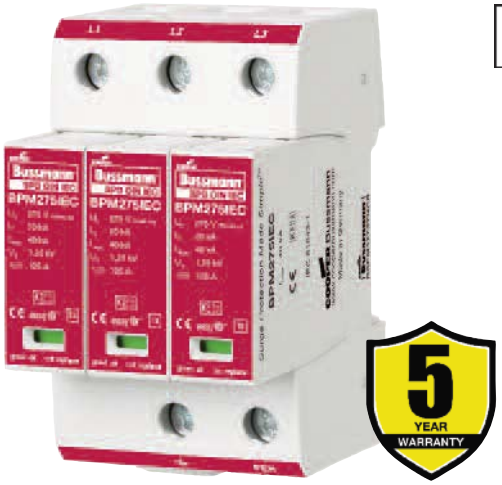
IEC Class II DIN-Rail SPD

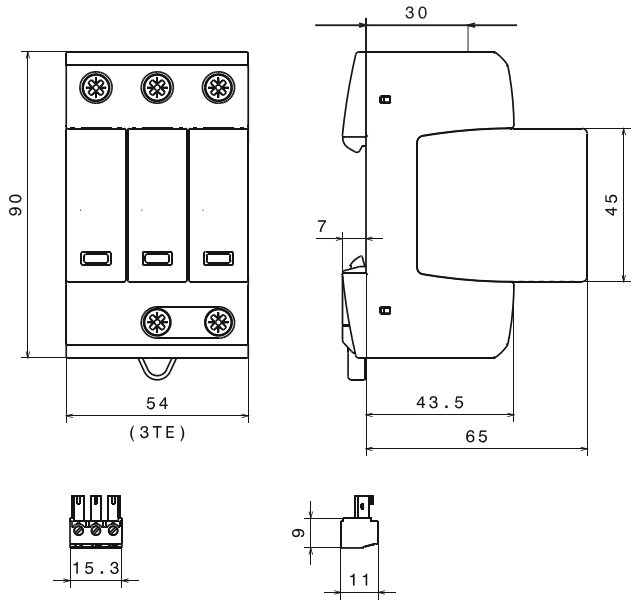
BSPM_ _ _ _TNC



*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann IEC Class II 120/240V and 230/400V, three-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

120V models are offered with a MCOV rating of 150V.

230V models are offered with a MCOV rating of 275 or 385V.

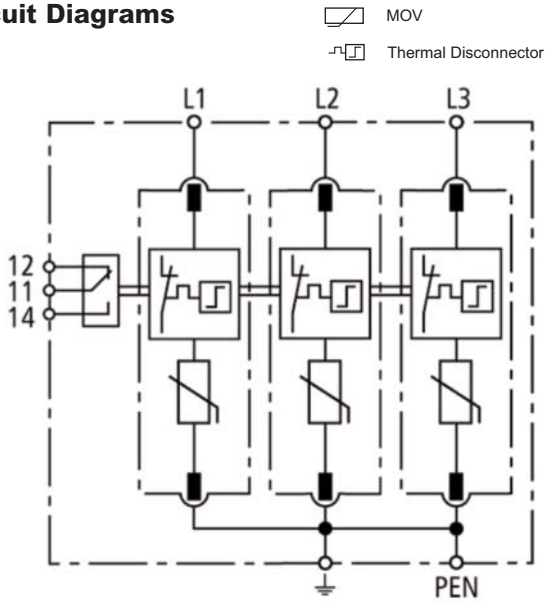
TNC System Arresters

The features of these three-pole devices are for use in TN-C 120/240V or 230/400V systems (“3-0” circuit) against surges.

Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit Diagrams



BSPM3150TNC, BSPM3275TNC, BSPM3385TNC

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM3150TNCR

Surge Protection Devices

Data Sheet: 1168

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IEC Class II DIN-Rail SPD

Ordering Information				
System Voltage/Poles		120V/3	230V/3	230V/3
Max. Continuous operating AC voltage (MCOV) [U_C]		150V	275V	385V
Catalog Numbers:	Without Remote Signaling	BSPM3150TNC	BSPM3275TNC	BSPM3385TNC
	With Remote Signaling	BSPM3150TNCR	BSPM3275TNCR	BSPM3385TNCR
Replacement Module	MOV technology	BPM150IEC	BPM275IEC	BPM385IEC
Specifications				
Nominal AC voltage [U_N]		120/240V	230/400V	230/400V
Voltage protection level [U_P]		≤ 0.7kV	≤ 1.25kV	≤ 1.75kV
Voltage protection level at 5kA [U_P]		≤ 0.55kV	≤ 1kV	≤ 1.35kV
Short-circuit withstand capability for max. mains-side overcurrent protection		$50kA_{rms}$	$50kA_{rms}$	$25kA_{rms}$
Temporary overvoltage (TOV) [U_T]		175V/5 sec	335V/5 sec.	385V/5 sec
Nominal discharge current (8/20 µs) [I_n]		15kA	20kA	20kA
Max. Discharge current (8/20 µs) [I_{max}]			40kA	
SPD according to EN 61643-11		Type 2		
SPD according to IEC 61643-1		Class II		
Response time [t_A]		≤ 25 ns		
Max. mains-side overcurrent protection		125A gL/gG		
TOV characteristics		withstand		
Operating temperature range [T_U]		-40°C to +80°C		
Operating state/fault indication		Green (good)/Red (replace)		
Number of ports		1		
Cross-sectional area (min.)		1.5mm²/14AWG solid/flexible		
Cross-sectional area (max.)		35mm²/2AWG stranded-25mm²/4AWG flexible		
Mounting		35mm DIN rail per EN 60715		
Enclosure material		Thermoplastic, UL 94V0		
Location category		Indoor		
Degree of protection		IP20		
Capacity		3 mods., DIN 43880		
Standards Information		KEMA		
Product Warranty		Five Years*		
Remote Contact Signaling				
Remote Contact Signaling Type		Changeover Contact		
AC Switching Capacity (Volts/Amps)		250V/0.1A		
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A		
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible		
Ordering Information		Order from Catalog Numbers Above		

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuses	
DIN Fuse Size	NH Fuse Part Number
00	125NHG00B
0	125NHG0B
01	125NHG01B
02	125NHG02B

Data Sheet: 1168

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IEC Class II DIN-Rail SPD

BSPH_TNS, BSPH_TT

KEMA KEUR

CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann IEC Class II 230/400V, four-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

These 230V models are offered with MCOV ratings of 275, 320 or 385V.

TNS System Arrester

The features of these four-pole devices are for use in TNS 230/400V systems (“4-0” circuit) against surges.

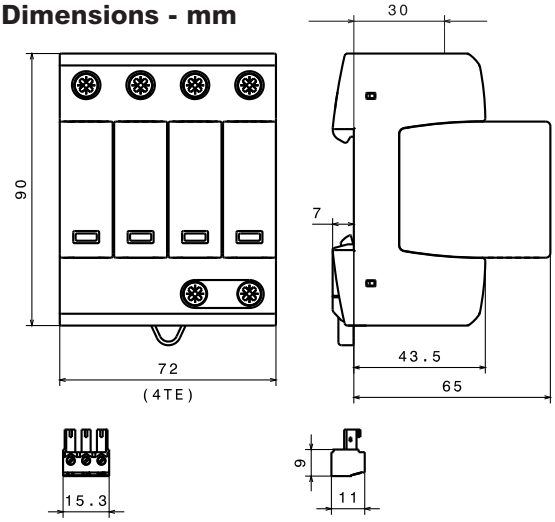
TT System Arrester

The features of these four-pole devices are for use in TT and TN-S 230/400V systems (“3+1” circuit) against surges.

Remote Signaling Contact

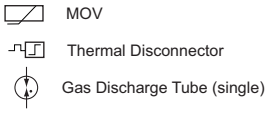
The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

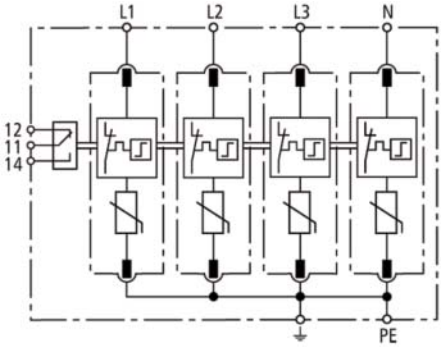
Dimensions - mm



Shown with optional remote contact signaling

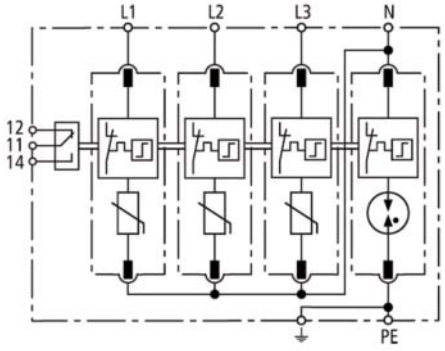
Circuit Diagrams





BSPM4275TNS

Shown with optional remote contact signaling



BSPH4275TT, BSPH4320TT

BSPH4385TT

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPH4275TTR

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IEC Class II DIN-Rail SPD

Ordering Information					
System Voltage/Poles		230V/4	230V/4	230V/4	230V/4
Max. continuous operating AC voltage (MCOV) [U_C]		275V	- -	- -	- -
Max. continuous operating AC voltage (MCOV) [L-N] [U_C]		- -	275V	320V	385V
Max. continuous operating AC voltage [N-PE] [U_C]		- -	255V	255V	255V
Catalog Numbers:	Without Remote Signaling	BSPM4275TNS	BSPH4275TT	BSPH4320TT	BSPH4385TT
	With Remote Signaling	BSPM4275TNSR	BSPH4275TTR	BSPH4320TTR	BSPH4385TTR
Replacement Modules:	MOV technology	BPM275IEC	BPM275IEC	BPM320IEC	BPM385IEC
	Spark Gap technology	- -	BPSNPEIEC*	BPSNPEIEC*	BPSNPEIEC*
Specifications					
Lightning impulse current (10/350 µs) [N-PE] [I_{imp}]		- -	12kA	12kA	12kA
Voltage protection level [U_P]		≤ 1.25kV	- -	- -	- -
Voltage protection level at 5kA [U_P]		≤ 1kV	- -	- -	- -
Voltage protection level [L-N] [U_P]		- -	≤ 1.25kV	≤ 1.5kV	≤ 1.75kV
Voltage protection level [L-N] at 5kA [U_P]		- -	≤ 1kV	≤ 1.2kV	≤ 1.35kV
Voltage protection level [N-PE] [U_P]		- -	≤ 1.5kV	≤ 1.5kV	≤ 1.5kV
Follow current extinguishing capability [N-PE] [I_{fi}]		- -	$100A_{rms}$	$100A_{rms}$	$100A_{rms}$
Response time [t_A]		≤ 25 ns	- -	- -	- -
Response time [L-N] [t_A]		- -	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [N-PE] [t_A]		- -	≤ 100 ns	≤ 100 ns	≤ 100 ns
Temporary overvoltage (TOV) [U_T]		335V/5 sec.	- -	- -	- -
Temporary overvoltage (TOV) [L-N] [U_T]		- -	335V/5 sec.	335V/5 sec.	385V/5 sec.
Temporary overvoltage (TOV) [N-PE] [U_T]		- -	1200V/200 ms	1200V/200 ms	1200V/200 ms
Short-circuit withstand capability for max. mains-side overcurrent protection		$50kA_{rms}$	$50kA_{rms}$	$25kA_{rms}$	$25kA_{rms}$
SPD according to EN 61643-11		Type 2			
SPD according to IEC 61643-1		Class II			
Nominal AC voltage [U_N]		230/400V			
Nominal discharge current (8/20 µs) [I_n]		20kA			
Max. discharge current (8/20 µs) [I_{max}]		40kA			
Max. mains-side overcurrent protection		125A gL/gG			
TOV characteristics		withstand			
Operating temperature range [T_U]		-40°C to +80°C			
Operating state/fault indication		green (good)/red (replace)			
Number of ports		1			
Cross-sectional area (min.)		1.5mm²/14AWG solid/flexible			
Cross-sectional area (max.)		35mm²/2AWG stranded-25mm²/4AWG flexible			
Mounting		35mm DIN rail per EN 60715			
Enclosure material		Thermoplastic, UL 94V0			
Location category		Indoor			
Degree of protection		IP20			
Capacity		4 mods., DIN 43880			
Standards Information		KEMA			
Product Warranty		Five Years**			
Remote Contact Signaling					
Remote Contact Signaling Type		Changeover Contact			
AC Switching Capacity (Volts/Amps)		250V/0.1A			
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A			
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible			
Ordering Information		Order from Catalog Numbers Above			

* N-PE Surge arrester module for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuses	
DIN Fuse Size	NH Fuse Part Number
00	125NHG00B
0	125NHG0B
01	125NHG01B
02	125NHG02B

Data Sheet: 1169

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Photovoltaic DIN-Rail Lightning SPD

BSPS_ _ _ _PV

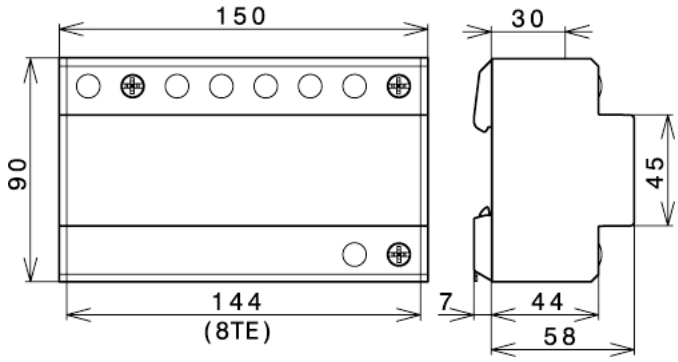
RoHS

Description

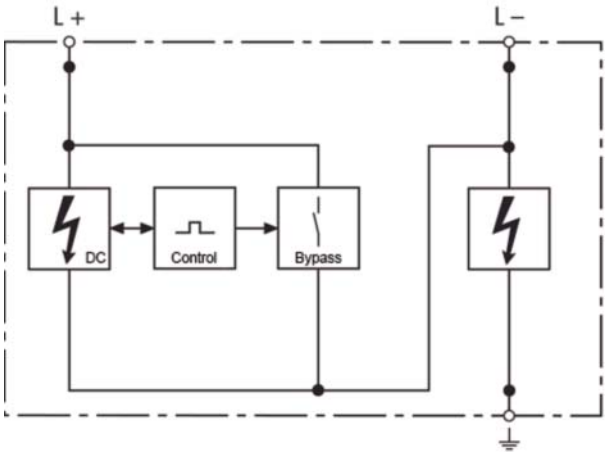
The Bussmann combined lightning current and surge arrester (SPD Class I according to IEC 61643-1) is for use in photovoltaic power supply systems.

- Prewired combined lightning current and surge arrester for use in photovoltaic generator circuits
- For use in photovoltaic installations up to 1000V U_{CPV}
- High lightning current discharge capacity using spark gap technology
- Maximum system availability due to spark gap technology with DC current extinction

Dimensions - mm



Module Circuit Diagrams



Surge Protection Devices

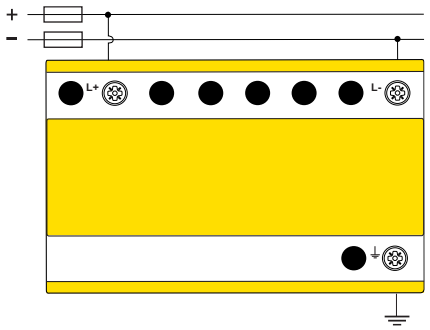
Data Sheet: 2148

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Photovoltaic DIN-Rail Lightning SPD

Ordering Information	
Max. PV System Voltage	1000Vdc
Catalog Number:	BSPS31000PV
Specifications	
SPD Classification according to EN 61643-11	Type 1
SPD Classification according to IEC 61643-1	Class I
Max. PV voltage [U_{CPV}] of the PV generator	1000V
Max. Continuous operating DC voltage [U_{max} DC]	1000V
Min. Continuous operating DC voltage [U_{min} DC]	100V
Follow current extinguishing capability DC [I_{fi} DC]	100A
Nominal discharge current (8/20 µs) [I_n]	100kA
Lightning impulse current (10/350 µs) [L+/L- -> PE] [I_{imp}]	50kA
Specific energy [L+/L- -> PE] [W/R]	625.00 kJ/ohms
Lightning impulse current (10/350 µs) [L+ -> L-] [I_{imp}]	25kA
Specific energy [L+ -> L-] [W/R]	156.25 kJ/ohms
Voltage protection level [L+ -> L-] [U_p]	≤ 3.3kV
Voltage protection level [(L+/L-) -> PE] [U_p]	≤ 4kV
Operating current [I_{IN} DC]	≤ 5mA
Response time [L+ -> L-] [t_A]	≤ 20 ns
Protective conductor current [I_{PE}]	≤ 1µA
Operating temperature range [T_u]	-40°C to +60°C
Number of ports	1
Cross-sectional area (min.)	10mm²/6AWG solid/flexible
Cross-sectional area (max.)	50mm²/2AWG stranded/ 35mm²/1AWG flexible
Mounting	35mm DIN rail per EN 60715
Enclosure material	Thermoplastic, UL 94V0
Place of installation	Indoor
Degree of protection	IP-20
Capacity	8 Mods., DIN 4
Product Warranty	Five Years*

* See Bussmann document 3A1502 on the web at www.cooperbussmann.com.



Data Sheet: 2148

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Photovoltaic DIN-Rail SPD

BSPH2_ _ _ _PV

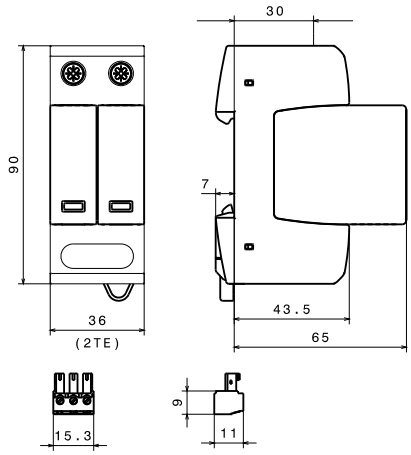
Type 4

RoHS

*easy*ID™
Visual Status Indication

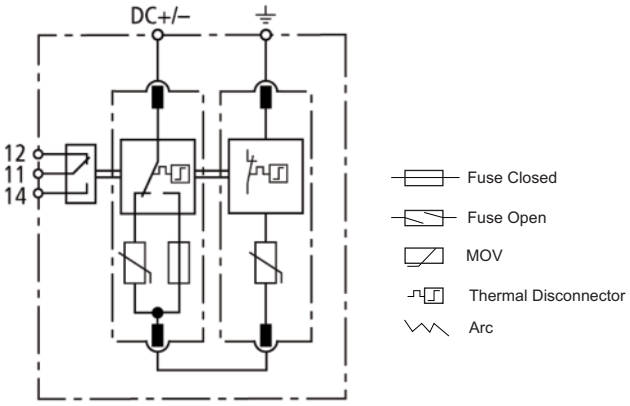
Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Module Circuit Diagrams



BSPH2600PV*
Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPH2600PVR

Description

The Bussmann modular Surge Protective Device (SPD) (with two-step DC switching device) features *easy*ID™ visual indication and optional remote contact signaling (floating changeover contact) for use in photovoltaic systems.

This complete surge protective device is suitable for all PV systems in accordance with UL 1449 3rd Edition and IEC 60364-7-712. Includes a five year limited warranty.

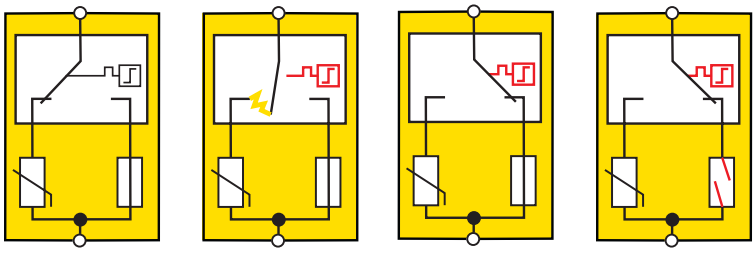
This prewired solution consist of a base and locking modules that feature a combined disconnection and short-circuiting (shunting) device with safe electrical isolation to prevent fire damage due to DC arcs. An integrated DC fuse allows safe module replacement without arc formation.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant circuit prevents damage to the surge protective devices.

The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.

Short-Circuit Interrupting (SCI) Technology

1. Original State
2. Disconnection Device Response
3. Arc Extinguishes
4. Safe Electrical Isolation



Data Sheet: 2145

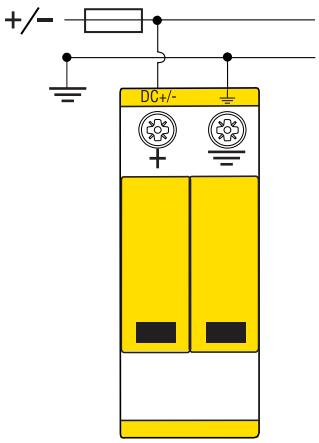
Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Photovoltaic DIN-Rail SPD

Ordering Information		
Nominal PV System Voltage		600Vdc
Catalog Numbers:	Without Remote Signaling	BSPH2600PV
(Base + Modules)	With Remote Signaling	BSPH2600PVR
Replacement Modules:	Left	BPH300YPV
	Right	BPM300YPV
Specifications		
Conformity with prEN 50539-11		Yes
SPD Classification per EN 61643-11		Type 2
SPD Classification per IEC 61643-1		Class II
Max. PV voltage [U_{CPV}]		≤ 600V
Short-circuit withstand capacity [I_{SCWPV}]		1000A
MCOV [U_{CPV}]		700Vdc
Nominal discharge current (8/20 µs) [(DC+/DC-) --> PE] [I_n]		12.5kA
Max. Discharge current (8/20 µs) [(DC+/DC-) --> PE] [I_{max}]		25kA
Voltage protection level [U_P]		≤ 2.5kV
Voltage protection level at 5kA [U_P]		≤ 2kV
Response time [t_A]		≤ 25 ns
Operating temperature range [T_U]		-40°C to +80°C
Operating state/fault indication		Green (good) / Red (replace)
Number of ports		1
Cross-sectional area (min.)		60/75°C 1.5mm²/14AWG Solid/Flexible
Cross-sectional area (max.)		60/75°C 35mm²/2AWG Stranded/25mm²/4AWG Flexible
For mounting on		35 mm DIN rail per EN 60715
Enclosure material		Thermoplastic, UL 94V0
Place of installation		Indoor
Degree of protection		IP20
Capacity		2 Modules, DIN 43880
Standards Information		UL
Product Warranty		Five Years*
Remote Contact Signaling		
Remote Contact Signaling Type		Changeover Contact
AC Switching Capacity (Volts/Amps)		250V/0.1A
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible
Ordering Information		Order from Catalog Numbers Above

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Typical Application Schematic



Data Sheet: 2145

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Photovoltaic DIN-Rail SPD

BSPH_ _ _ _YPV

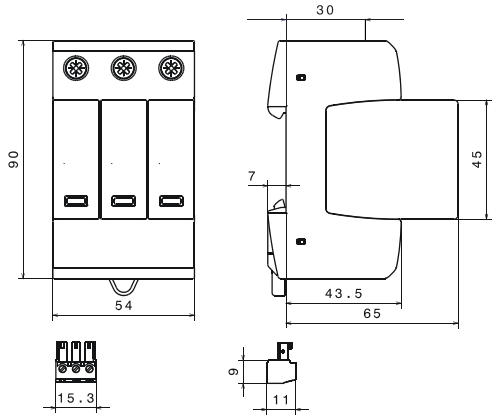
Type 4

RoHS

*easy*ID™
Visual Status Indication

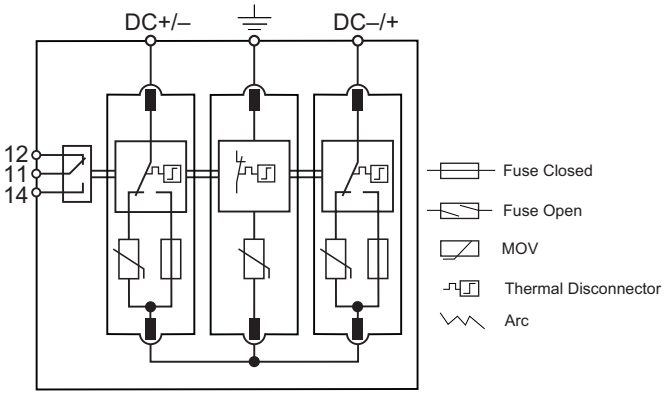
Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Module Circuit Diagrams



BSPH____YPV*

Shown with optional remote contact signaling

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPH____YPVR

Description

The Bussmann three-module photovoltaic Surge Protective Device (SPD) (with three-step DC switching device) features *easy*ID™ visual indication and optional remote contact signaling (floating changeover contact) for use in PV systems.

These complete surge protective devices are suitable for all PV systems in accordance with UL 1449 3rd Edition and IEC 60364-7-712. Includes a five year limited warranty.

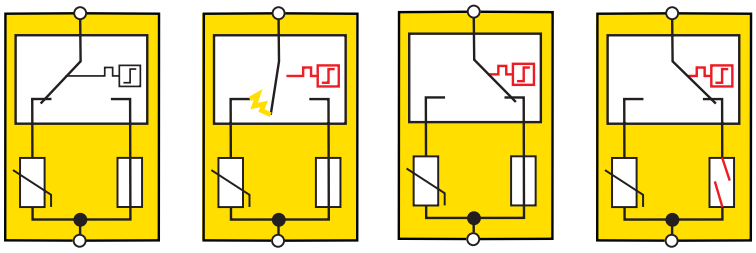
These prewired solutions consist of a base and locking modules that feature a combined disconnection and short-circuiting (shunting) device with safe electrical isolation to prevent fire damage due to DC arcs. An integrated DC fuse allows safe module replacement without arc formation.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant Y circuit prevents damage to the surge protective devices.

The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.

Short-Circuit Interrupting (SCI) Technology

1. Original State
2. Disconnection Device Response
3. Arc Extinguishes
4. Safe Electrical Isolation



Data Sheet: 2055

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

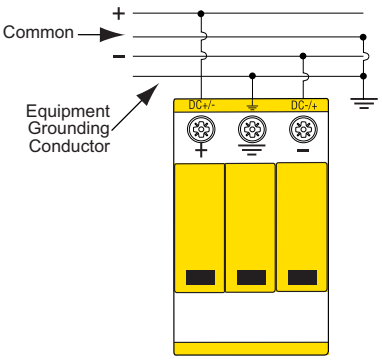
Photovoltaic DIN-Rail SPD

Ordering Information				
Nominal PV System Voltage		600Vdc	1000Vdc	1200Vdc
Catalog Numbers: (Base + Modules)	Without Remote Contact Signaling	BSPH3600YPV	BSPH31000YPV	BSPH31200YPV
	With Remote Contact Signaling	BSPH3600YPVR	BSPH31000YPVR	BSPH31200YPVR
Replacement Modules:	Outer (2 modules installed)	BPH300YPV	BPH500YPV	BPH600YPV
	Center (1 module installed)	BPM300YPV	BPM500YPV	BPM600YPV
Specifications				
Nominal PV System Voltage		600V	1000V	1200V
MCOV [U_{CPV}]		700Vdc	1170Vdc	1200Vdc
Max System Discharge Current (8/20 µs) [I_{max}]		40kA	40kA	30kA
Voltage Protection Level [U_P]		≤2.5kV	≤4.0kV	≤4.5kV
Voltage Protection Level at 5kA [U_P]		≤2.0kV	≤3.5kV	≤4.0kV
Integrated Fuse Breaking Capacity/Interrupting Rating		30kA / 1000Vdc	30kA / 1000Vdc	30kA / 1200Vdc
Technology		Short-Circuit Interruption (SCI) Overcurrent Protection		
Operating Temperature Range [T_U]		-40°C to +80°C		
Nominal Discharge Current (8/20 µs) [(DC+/DC-) --> PE] [I_n]		12.5kA		
Response Time [t_A]		≤25ns		
Operating State/Fault Indication		Green (good) / Red (replace)		
Conductor Ratings and Cross-Sectional Area:	Minimum	60/75°C 1.5mm² / 14AWG Solid/Flexible		
	Maximum	60/75°C 35mm² / 2AWG Stranded / 25mm² / 4AWG Flexible		
Mounting		35mm DIN Rail per EN 60715		
Enclosure Material		UL 94V0 Thermoplastic		
Degree of Protection		IP20		
Capacity		3 Modules, DIN 43880		
Standards Information:	UL	UL 1449 3rd Edition (Type 2)*		
	IEC	IEC 61643-11 Type 2, IEC 61643-1 Class II		
Product Warranty		Five Years**		
Remote Contact Signaling				
Remote Contact Signaling Type		Changeover Contact		
AC Switching Capacity (Volts/Amps)		250V / 0.1A		
DC Switching Capacity (Volts/Amps)		250V / 0.1A; 125V / 0.2A; 75V / 0.5A		
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm² / 14AWG Solid/Flexible		
Ordering Information		Order from Catalog Numbers Above		

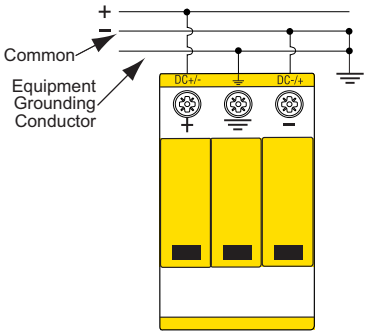
* Does not apply to 1200Vdc.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

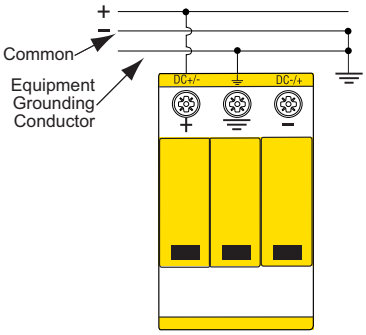
Typical Application Schematics



Application A
Two energized poles/modes
600, 1000 & 1200Vdc systems



Application B
One energized pole/mode
600Vdc & 1000Vdc systems only



Application C
One energized pole/mode
600Vdc & 1000Vdc systems only
(Max. system discharge current (8/20 µs) [I_{max}] 25kA)

Data Sheet: 2055

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Photovoltaic DIN-Rail SPD

BSPP____YPV(R)

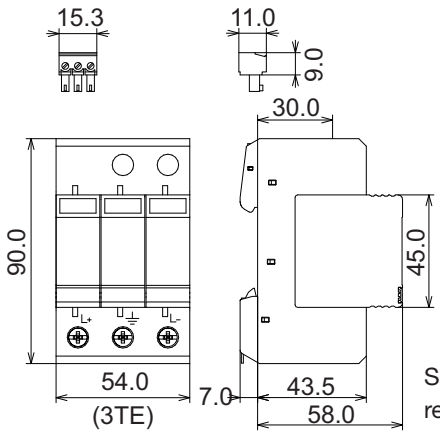
Type 4

RoHS

*easy*ID™ Visual Status Indication

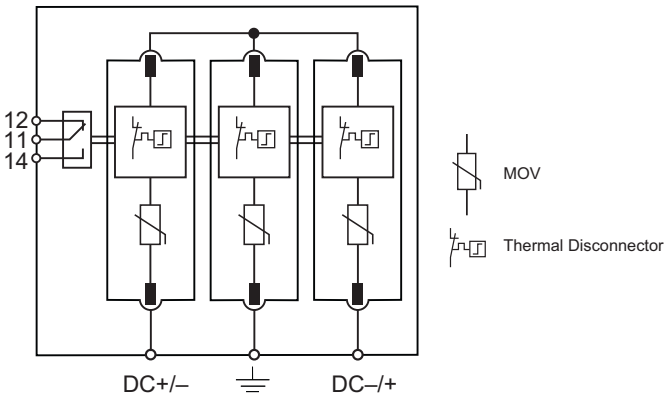
Remote Signal Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Module Circuit Diagrams



BSPP____YPV*

Shown with optional remote contact signaling

* For remote signaling contact, add “R” suffix to the part number.
E.g., BSPP3600YPV***R***

Description

The Bussmann three-module photovoltaic Surge Protective Device (SPD) features *easy*ID™ visual indication and optional remote contact signaling (floating changeover contact) for use in PV systems.

These complete surge protective devices are suitable for all PV systems in accordance with UL 1449 3rd Edition, EN 50539-11 and IEC 60364-7-712. Includes a two year limited warranty.

These prewired solutions consist of a base and modules that feature a disconnection device in the event of an overload.

In case of insulation faults in the generator circuit, a reliable and tested fault-resistant Y circuit prevents damage to the surge protective devices.

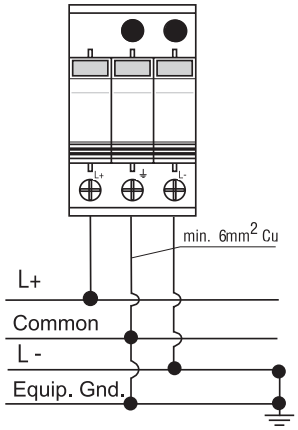
The green and red visual indicator flags show the module protective status (green = good, red = replace). Apart from this visual indication, the remote signaling option features a three terminal floating changeover contact that can be used as a make or break contact depending on the particular monitoring system design employed.

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

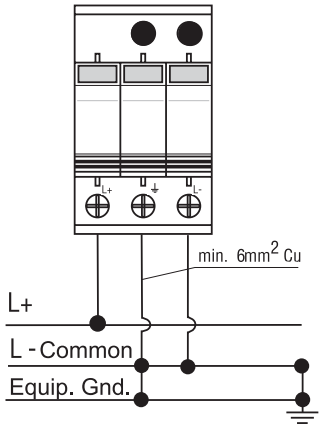
Wind IEC Class I DIN-Rail SPD

Ordering Information			
Nominal PV System Voltage		600Vdc	1000Vdc
Catalog Numbers: (Base + Modules)	Without Remote Contact Signaling	BSPP3600YPV	BSPP31000YPV
	With Remote Contact Signaling	BSPP3600YPVR	BSPP31000YPVR
Replacement Modules:		BPP300SYPV	BPP500SYPV
Specifications			
Nominal PV System Voltage [U_{CPV}]		600V	1000V
MCOV [U_{CPV}]		600Vdc	1000Vdc
Max System Discharge Current (8/20µs) [I_{max}]		40kA	40kA
Voltage Protection Level [U_P]		≤2.5kV	≤4.0kV
Voltage Protection Level at 5kA [U_P]		≤2.0kV	≤3.5kV
Short-Circuit Withstand Capability [I_{SCPV}]		125A	
Technology		Fault Resistant Y MOV Circuit	
Operating Temperature Range [T_U]		-40°C to +80°C	
Nominal Discharge Current (8/20µs) (DC+ → DC-) (DC+/DC- → PE) [I_n]		20kA	
Response Time [t_A]		≤25ns	
Operating State/Fault Indication		Green (good) / Red (replace)	
Conductor Ratings and Cross-Sectional Area:	Minimum	60/75°C 1.5mm² / 14AWG Solid/Flexible	
	Maximum	60/75°C 35mm² / 2AWG Stranded / 25mm² / 4AWG Flexible	
Mounting		35mm DIN-Rail per EN 60715	
Enclosure Material		UL 94V0 Thermoplastic	
Degree of Protection		IP20	
Capacity		3 Modules, DIN 43880	
Standards Information:	UL	UL 1449 3rd Edition (Type 2)	
	IEC	EN 50539-11, IEC 61643-11 Type 2, IEC 61643-1 Class II	
Product Warranty		Two Years*	
Remote Contact Signaling			
Remote Contact Signaling Type		Changeover Contact	
AC Switching Capacity (Volts/Amps)		250V / 0.1A	
DC Switching Capacity (Volts/Amps)		250V / 0.1A; 125V / 0.2A; 75V / 0.5A	
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm² / 14AWG Solid/Flexible	
Ordering Information		Order from Catalog Numbers Above	

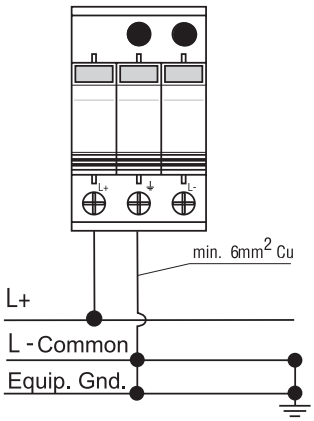
Typical Application Schematics



Application A
Two energized poles/modes
600 & 1000Vdc systems



Application B
One energized pole/mode
600Vdc & 1000Vdc systems only



Application C
One energized pole/mode
600Vdc & 1000Vdc** systems

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

** BSPP31000YPV(R) 1000Vdc one energized pole/mode requires the following:

1. Use a suitable electrical insulator to keep a 10mm min. safety distance from the PV-SPD and other grounded parts in the housing.
2. No metal covers are in the area of the module release buttons as shown.

Data Sheet: 10091

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Wind IEC Class I DIN-Rail SPD

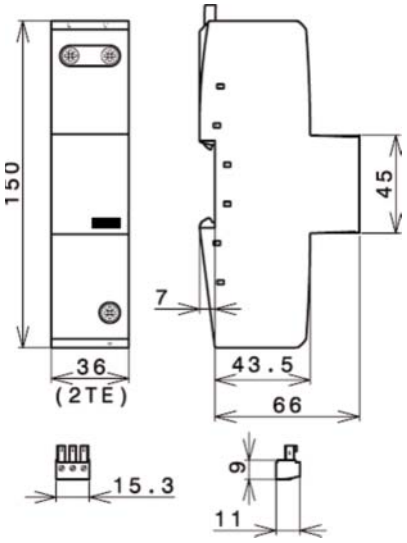
BSPS_ _ _ _WE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann IEC Class I 400 and 690V, one-pole lightning current arresters feature local, *easy*ID™ visual indication and optional remote contact signaling.

440V and 760V maximum continuous operating voltage arresters protect installations against surges and direct lightning strikes.

System & Application

TNC 400V/690V: 3x BSPS1400WE(R)

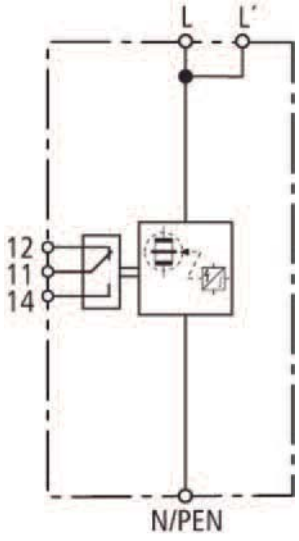
TNS 400/690V: 4x BSPS1400WE(R)

IT 690V: 3x BSPS1690WER

Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit Diagrams - Shown with optional remote contact signaling



Creepage Discharge Spark Gap

Spark Gap Trigger

BSPS1400WE*
BSPS1690WE

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPS1400WER

Surge Protection Devices

Data Sheet: 2091

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Wind IEC Class I DIN-Rail SPD

Ordering Information		
System Voltage/Poles	400V/1	690V/1
Max. Continuous Operating AC voltage (MCOV) [U_C]	440V	760V
Catalog Numbers: Without Remote Signaling	BSPS1400WE	- -
With Remote Signaling	BSPS1400WER	BSPS1690WER
Specifications		
Line System Type	TNC, TNS, IT	TNC, TNS, IT
Lightning impulse current (10/350 µs) [I_{imp}]	35kA	25kA
Specific Energy [W/R]	306.25kJ/ohms	156.25kJ/ohms
Nominal Discharge Current (8/20 µs) [I_n]	35kA	25kA
Voltage Protection Level [U_P]	≤ 2.5kV	≤ 4kV
Follow Current Extinguishing Capability AC [I_{fi}]	50kA$_{rms}$	25kA$_{rms}$
Follow Current Limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA$_{rms}$ (prosp.)	no tripping of a 32 A gL/gG fuse up to 25 kA$_{rms}$ (prosp.)
Response Time [t_A]	≤ 100 ns	≤ 100 ns
Max. Backup Fuse (L) up to I_K = 25kA$_{rms}$ (t_a ≤ 5 s)	- -	250A gL/gG
Max. Backup Fuse (L) up to I_K > 25kA$_{rms}$	- -	100A gL/gG
Max. Backup Fuse (L) up to I_K = 50kA$_{rms}$ (t_a ≤ 0.2 s)	500A gL/gG	- -
Max. Backup Fuse (L) up to I_K = 50kA$_{rms}$ (t_a ≤ 5 s)	250A gL/gG	- -
Max. Backup Fuse (L) for I_K > 50kA$_{rms}$	160A gL/gG	- -
Max. Backup Fuse (L-L)	125A gL/gG	125A gL/gG
Short-Circuit Withstand Capability for Max. Mains-Side Overcurrent Protection	50kA$_{rms}$	25kA$_{rms}$
Temporary Overvoltage (TOV) [U_T]	690V / 5 sec.	1000V / 5 sec.
Cross-Sectional Area (L, L , ⏚) [min.]	- -	10mm² solid/flexible
Cross-Sectional Area (L, L , N/PEN) [min.]	10mm² solid/flexible	- -
Cross-Sectional Area (L, N/PEN) [max.]	50mm²/1AWG stranded/35mm²/2AWG flexible	- -
Cross-Sectional Area (L, ⏚) [max.]	- -	50mm²/1AWG stranded/35 mm²/2AWG flexible
Cross-Sectional Area (L) [max.]	35mm²/2AWG stranded/25mm²/4AWG flexible	35mm²/2AWG stranded/25mm²/4AWG flexible
SPD According to EN 61643-11	Type 1	
SPD According to IEC 61643-1	Class I	
TOV Characteristics	Withstand	
Operating Temperature Range (parallel connection) [T_{UP}]	-40°C to +80°C	
Operating Temperature Range (series connection) [T_{US}]	-40°C to +60°C	
Operating State/Fault Indication	Green (good) / Red (replace)	
Number of Ports	1	
Mounting	35mm DIN rail per EN 60715	
Enclosure Material	Thermoplastic, UL 94V0	
Place of Installation	Indoor	
Degree of Protection	IP20	
Capacity	2 Mods., DIN 43880	
Product Warranty	Five Years*	
Remote Contact Signaling		
Remote Contact Signaling Type	Changeover Contact	
AC Switching Capacity (Volts/Amps)	250V/0.5A	
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/ 14AWG Solid/Flexible	
Ordering Information	Order from Catalog Numbers Above	

Recommended Bussmann NH DIN Size Back Up Fuses	
Size	NH Fuse Part Number
000	100NHG000B-690 (max L) up to I_K > 25kA$_{rms}$
00	125NHG00B-690 (max L-L)
01	160NHG01B-690 (max L) for I_K > 50kA$_{rms}$
02	250NHG02B-690 (max L) up to I_K = 25kA$_{rms}$ (t_a ≤ 5 s)
02	250NHG02B-690 (max L) up to I_K = 50kA$_{rms}$ (t_a ≤ 5 s)
3	500NHG3B-690 (max (L) up to I_K = 50kA$_{rms}$ (t_a ≤ 0.2 s)

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Data Sheet: 2091

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Wind IEC Class II DIN-Rail SPD

BSPM_ _ _ _WE, BSPS_ _ _ _WE

KEMA KEUR

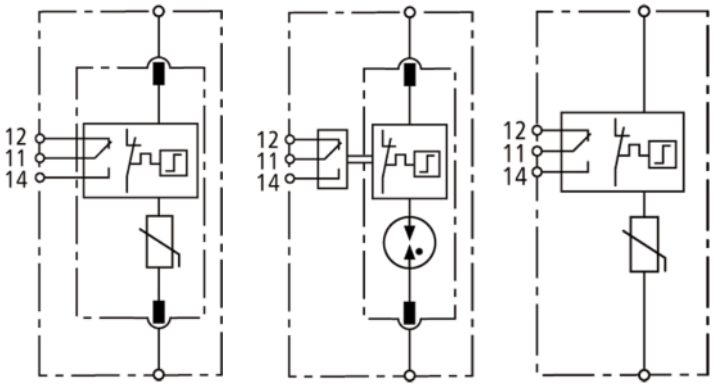
CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Module Circuit Diagrams - Shown with optional remote contact signaling



BSPM175WE*
BSPM1400WE
BSPM1690WE

BSPG1230WE*

BSPM11000WE*

MOV — Thermal Disconnector — Gas Discharge Tube (single)

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM175WER

Description

The Bussmann IEC Class II 75, 230, 400, 690 and 1000V, one-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system on the 75 to 690V arresters fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

TN System Arresters (also 1-Phase TT systems)

The features of these single-pole devices are for use as a single device or in combination with other devices.

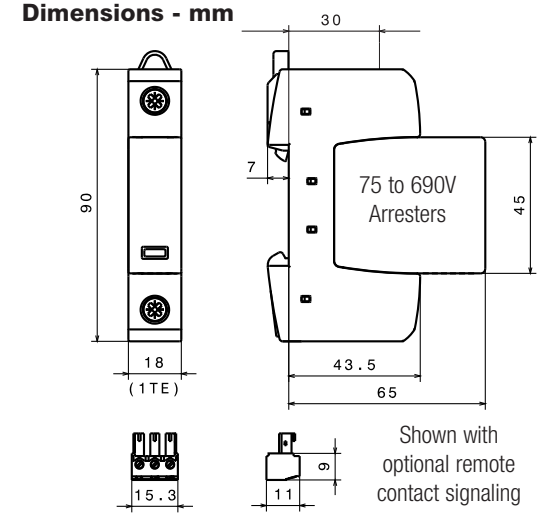
TT System Arrester

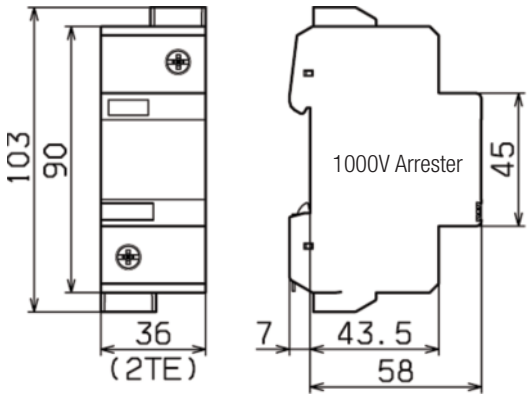
Provides a current arresting means between neutral conductor and protective conductor in TT systems, this device helps ensure fulfilling the requirements for protection of personnel and equipment in “3+1” and “1+1” circuits.

Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Dimensions - mm





Surge Protection Devices

Data Sheet: 2092

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Wind IEC Class II DIN-Rail SPD

Ordering Information					
System Voltage/Poles	75V/1	230V/1	400V/1	690V/1	1000V/1
Max. Continuous operating AC voltage (MCOV) [U_C]	75V	255V	440V	600V	1000V
Catalog Numbers: Without Remote Signaling	BSPM175WE	BSPG1230WE	BSPM1400WE	BSPM1690WE	BSPM11000WE
(Base + Modules) With Remote Signaling	BSPM175WER	BSPG1230WER	BSPM1400WER	BSPM1690WER	BSPM11000WER
Replacement Modules	BPM75WE	BPG255NPEWE*	BPM440WE	BPM750WE	N/A
Specifications					
Line System Type	TN / TT	TT	TN / TT	TN / TT	TN / TT
Max. Continuous Operating DC Voltage [U_C]	100V	- -	585	600V	1000V
Rated Varistor Voltage AC [U_{mov}]	- -	- -	- -	750V	1000V
Nominal Discharge Current (8/20 µs) [I_n]	10kA	20kA	20kA	15kA	15kA
Max. Discharge Current (8/20 µs) [I_{max}]	40kA	40kA	40kA	25kA	30kA
Follow Current Extinguishing Capability [I_{fi}]	- -	100 A_{rms}	- -	- -	- -
Lightning Impulse Current (10/350 µs) [I_{imp}]	- -	12kA	- -	- -	- -
Voltage Protection Level [U_P]	≤ 0.4kV	≤ 1.5kV	≤ 2.0kV	≤ 3kV	≤ 4.2kV
Voltage Protection Level at 5kA [U_P]	≤ 0.35kV	- -	≤ 1.7kV	≤ 2.5kV	≤ 3.5kV
Response Time [t_A]	≤ 25 ns	≤ 100 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. Mains-side Overcurrent Protection	125A gL/gG	- -	125A gL/gG	100A gL/gG	100A aM**
Short-Circuit Withstand Capability for Max. Mains-side Overcurrent Protection	50kA_{rms}	- -	25kA_{rms}	25kA_{rms}	25kA_{rms}
Temporary Overvoltage (TOV) [U_T]	90V / 5 sec.	1200V / 200ms	580V / 5 sec.	900V / 5 sec.	1000V / 5 sec.
Standards Information	KEMA, CSA	KEMA	KEMA, CSA	KEMA, CSA	- -
Capacity	1 Mod., DIN 43880	1 Mod., DIN 43880	1 Mod., DIN 43880	1 Mod., DIN 43880	2 Mod., DIN 43880
SPD According to EN 61643-11	Type 2				
SPD According to IEC 61643-1	Class II				
TOV Characteristics	Withstand				
Operating Temperature Range [T_U]	-40°C to +80°C				
Operating State/Fault Indication	Green (good) / Red (replace)				
Number of Ports	1				
Cross-Sectional Area (min.)	1.5mm²/14AWG solid/flexible				
Cross-Sectional Area (max.)	35mm²/2AWG stranded-25mm²/4AWG flexible				
Mounting	35mm DIN rail per EN 60715				
Enclosure Material	Thermoplastic, UL 94V0				
Location Category	Indoor				
Degree of Protection	IP20				
Product Warranty	Five Years***				
Remote Contact Signaling					
Remote Contact Signaling Type	Changeover Contact				
AC Switching Capacity (Volts/Amps)	250V/0.5A				
DC Switching Capacity (Volts/Amps)	250V/0.1A; 125V/0.2A; 75V/0.5A				
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm²/14AWG Solid/Flexible				
Ordering Information	Order from Catalog Numbers Above				

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.
** 125A gL/gG @ 690Vac.
*** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuses	
DIN Fuse Size	NH Fuse Part Number
00	100NHG00B-690
00	125NHG00B-690

Data Sheet: 2092

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Wind IEC Class II DIN-Rail SPD

BSPM_ _ _ _WE, BSPH_ _ _ _WE

KEMA KEUR

CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Description

The Bussmann IEC Class II 230V, two-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

TN System Arrester

The features of these two-pole device are for use as a single device.

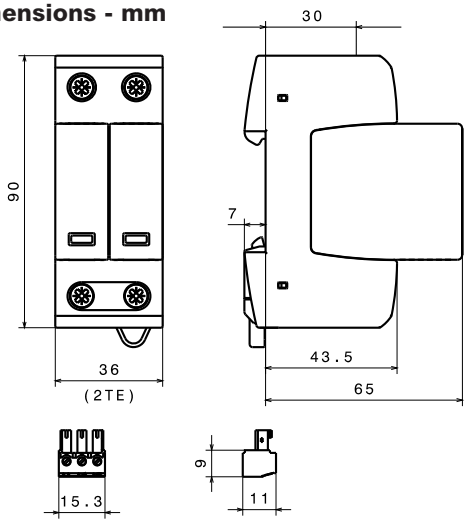
TT System Arrester

For use as a single device in a 1-phase TT system.

Remote Signaling Contact

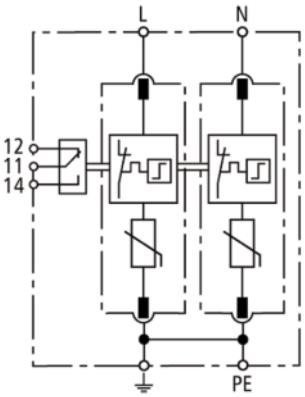
The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Dimensions - mm

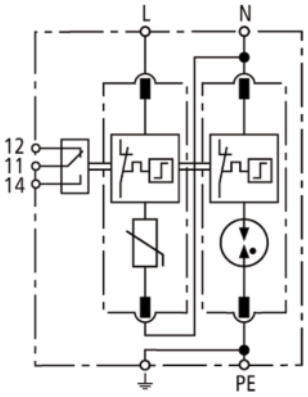


Shown with optional remote contact signaling

Module Circuit Diagrams - Shown with optional remote contact signaling



BSPM2230WE*



BSPH2230WE*

MOV

Thermal Disconnector

Gas Discharge Tube (single)

*For remote signaling contact, add “R” suffix to the part number, E.g., BSPM2230WER

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Wind IEC Class II DIN-Rail SPD

Ordering Information			
System Voltage/Poles		230V/2	230V/2
Max. Continuous operating AC voltage (MCOV) [U_C]		275V	275 / 255V
Catalog Numbers:	Without Remote Signaling	BSPM2230WE	BSPH2230WE
(Base + Modules)	With Remote Signaling	BSPM2230WER	BSPH2230WER
Replacement Modules	MOV	BPM275WE	BPM275WE
	Spark Gap	- -	BPSNPEWE*
Specifications			
Line System Type		TN	TT
Max. Continuous Operating AC Voltage [L-N] [U_C]		- -	275V
Max. Continuous Operating AC Voltage [N-PE] [U_C]		- -	255V
Nominal Discharge Current (8/20 µs)[I_n]		20kA	20kA
Max. Discharge Current (8/20 µs)[I_{max}]		40kA	40kA
Lightning Impulse Current (10/350 µs) [N-PE] [I_{imp}]		- -	12kA
Voltage Protection Level [U_P]		≤ 1.25kV	- -
Voltage Protection Level at 5kA [U_P]		≤ 1kV	- -
Voltage Protection Level [L-N] [U_P]		- -	≤ 1.25kV
Voltage Protection Level [L-N] at 5kA [U_P]		- -	≤ 1kV
Voltage Protection Level [N-PE] [U_P]		- -	≤ 1.5kV
Follow Current Extinguishing Capability [N-PE] [I_{fi}]		- -	$100A_{rms}$
Response Time [L-N] [t_A]		- -	≤ 25 ns
Response Time [N-PE] [t_A]		- -	≤ 100 ns
Response Time [t_A]		≤ 25 ns	- -
Max. Mains-side Overcurrent Protection		125A gL/gG	125A gL/gG
Short-circuit Withstand Capability for Max. Mains-side Overcurrent Protection		$50kA_{rms}$	$50kA_{rms}$
Temporary Overvoltage (TOV) [U_T]		335 V / 5 sec.	- -
Temporary Overvoltage (TOV) [L-N] [U_T]		- -	335V / 5 sec.
Temporary Overvoltage (TOV) [N-PE] [U_T]		- -	1200V / 200 ms
SPD According to EN 61643-11		Type 2	
SPD According to IEC 61643-1		Class II	
TOV Characteristics		Withstand	
Operating Temperature Rrange [T_U]		-40°C to +80°C	
Operating State/Fault Indication		Green (good) / Red (replace)	
Number of Ports		1	
Cross-sectional Area (min.)		1.5mm²/14AWG solid/flexible	
Cross-sectional Area (max.)		35mm²/2AWG stranded-25mm²/4AWG flexible	
Mounting		35mm DIN rail per EN 60715	
Enclosure Material		Thermoplastic, UL 94V0	
Location Category		Indoor	
Degree of Protection		IP20	
Capacity		2 Mods., DIN 43880	
Standards Information		KEMA	
Product Warranty		Five Years**	
Remote Contact Signaling			
Remote Contact Signaling Type		Changeover Contact	
AC Switching Capacity (Volts/Amps)		250V/0.5A	
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/ 14AWG Solid/Flexible	
Ordering Information		Order from Catalog Numbers Above	

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuse	
DIN Fuse Size	NH Fuse Part Number
00	125NHG00B

Data Sheet: 2093

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Wind IEC Class II DIN-Rail SPD

BSPM_ _ _ _WE

KEMA KEUR

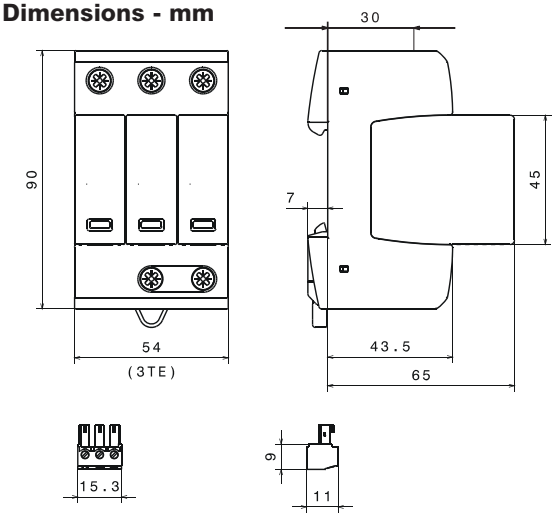
CE

RoHS

*easy*ID™
Visual Status Indication

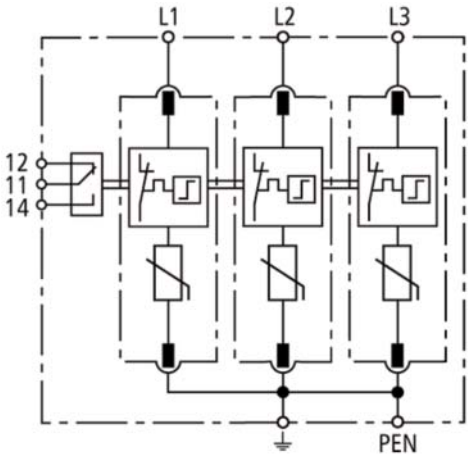
Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Module Circuit Diagrams - Shown with optional remote contact signaling



BSPM3230WE
BSPM3400WE
BSPM3690WE

MOV

Thermal Disconnector

Specifications

Description

The Bussmann IEC Class II 230, 400 and 690V three-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

TNC System Arresters

The features of these three-pole devices are for use as a single device.

Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

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Wind IEC Class II DIN-Rail SPD

Ordering Information				
System Voltage/Poles		230V/3	400V/3	690V/3
Max. Continuous operating AC voltage (MCOV) [U_C]		275V	440V	600V
Catalog Numbers:	Without Remote Signaling	BSPM3230WE	BSPM3400WE	BSPM3690WE
(Base + Modules)	With Remote Signaling	BSPM3230WER	BSPM3400WER	BSPM3690WER
Replacement Modules		BPM275WE	BPM440WE	BPM750WE
Specifications				
Line System Type		TNC	TNC	TNC
Nominal AC Voltage [U_N]		230/400V	400/690V	600V
Rated Varistor Voltage [U_{mov}]		275V	440V	750V
Nominal Discharge Current (8/20 µs) [I_n]		20kA	20kA	15kA
Max. Discharge Current (8/20 µs) [I_{max}]		40kA	40kA	25kA
Voltage Protection Level [U_P]		≤1.25kV	≤ 2kV	≤3kV
Voltage Protection Level at 5kA [U_P]		≤1kV	≤ 1.7kV	≤2.5kV
Response Time [t_A]		≤25 ns	≤ 25 ns	≤25 ns
Max. Mains-side Overcurrent Protection		125A gL/gG	125A gL/gG	100A gL/gG
Short-circuit Withstand Capability for Max. Mains-side Overcurrent Protection		$50kA_{rms}$	$25kA_{rms}$	$25kA_{rms}$
Temporary Overvoltage (TOV) [U_T]		335V / 5 sec.	580V / 5 sec.	900V / 5 sec.
SPD According to EN 61643-11		Type 2		
SPD According to IEC 61643-1		Class II		
TOV Characteristics		Withstand		
Operating Temperature Range [T_U]		-40°C to +80°C		
Operating State/Fault Indication		Green (good) / Red (replace)		
Number of Ports		1		
Cross-Sectional Area (min.)		1.5mm²/14AWG solid/flexible		
Cross-Sectional Area (max.)		35mm²/2AWG stranded-25mm²/4AWG flexible		
Mounting		35mm DIN rail per EN 60715		
Enclosure Material		Thermoplastic, UL 94V0		
Location Category		Indoor		
Degree of Protection		IP20		
Capacity		3 Mods., DIN 43880		
Standards Information		KEMA		
Product Warranty		Five Years*		
Remote Contact Signaling				
Remote Contact Signaling Type		Changeover Contact		
AC Switching Capacity (Volts/Amps)		250V/0.5A		
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A		
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible		
Ordering Information		Order from Catalog Numbers Above		

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Bussmann Back Up Fuse	
DIN Fuse Size	NH Fuse Part Number
00	100NHG00B-690
	125NHG00B-690

Data Sheet: 2094

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Wind IEC Class II DIN-Rail SPD

BSPM_ _ _ _WE, BSPH_ _ _ _WE

KEMA KEUR

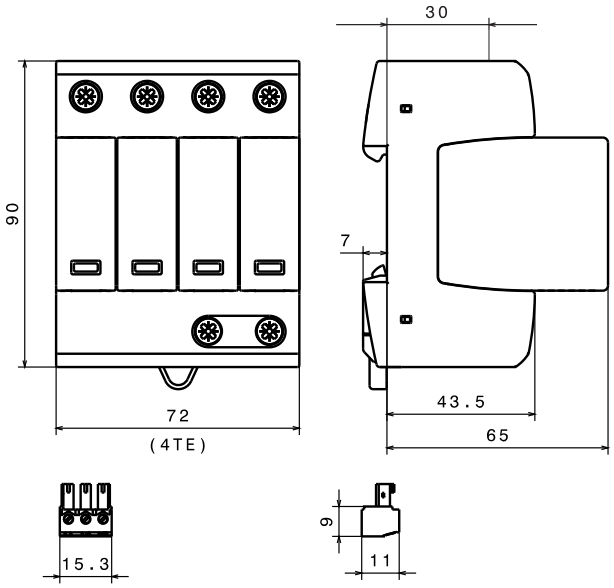
CE

RoHS

*easy*ID™
Visual Status Indication

Remote Signal
Contact Available

Dimensions - mm



Shown with optional remote contact signaling

Specifications

Description

The Bussmann IEC Class II 230/400V, four-pole, modular surge arresters feature local, *easy*ID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

These 230V models are offered with MCOV ratings of 275V.

TNS System Arrester

The features of these four-pole devices are for use in TNS 230/400V systems (“4-0” circuit) against surges.

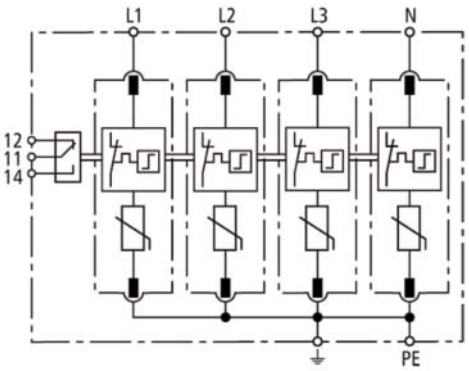
TT System Arrester

The features of these four-pole devices are for use in TT and TN-S 230/400V systems (“3+1” circuit) against surges.

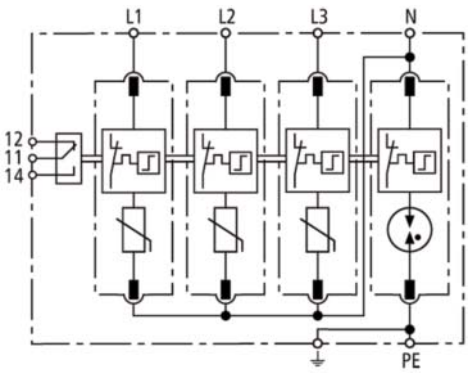
Remote Signaling Contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit Diagrams - Shown with optional remote contact signaling



BSPM4230WE



BSPH4230WE

MOV

Thermal Disconnector

Gas Discharge Tube (single)

Data Sheet: 2095

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Wind IEC Class II DIN-Rail SPD

Ordering Information			
System Voltage/Poles		230/400V/4	230/400V/4
Max. continuous operating AC voltage (MCOV) [U_C]		275V	- -
Max. continuous operating AC voltage (MCOV) [L-N] [U_C]		- -	275V
Max. continuous operating AC voltage [N-PE] [U_C]		- -	255V
Catalog Numbers:	Without Remote Signaling	BSPM4230WE	BSPH4230WE
	With Remote Signaling	BSPM4230WER	BSPH4230WER
Replacement Modules:	MOV technology	BPM275WE	BPM275WE
	Spark Gap technology	- -	BPSNPEWE*
Specifications			
Line System Type		TNS	TT / TNS
Nominal AC voltage [U_N]		230/400V	230/400V
Lightning impulse current (10/350 µs) [N-PE] [I_{imp}]		- -	12kA
Voltage protection level [U_P]		$\leq$ 1.25kV	- -
Voltage protection level at 5kA [U_P]		$\leq$ 1kV	- -
Voltage protection level [L-N] [U_P]		- -	$\leq$ 1.25kV
Voltage protection level [L-N] at 5kA [U_P]		- -	$\leq$ 1kV
Voltage protection level [N-PE] [U_P]		- -	$\leq$ 1.5kV
Follow current extinguishing capability [N-PE] [I_{fi}]		- -	100A_{rms}
Response time [t_A]		$\leq$ 25 ns	- -
Response time [L-N] [t_A]		- -	$\leq$ 25 ns
Response time [N-PE] [t_A]		- -	$\leq$ 100 ns
Temporary overvoltage (TOV) [U_T]		335V / 5 sec.	- -
Temporary overvoltage (TOV) [L-N] [U_T]		- -	335V / 5 sec.
Temporary overvoltage (TOV) [N-PE] [U_T]		- -	1200V / 200 ms
SPD according to EN 61643-11		Type 2	
SPD according to IEC 61643-1		Class II	
Nominal discharge current (8/20 µs) [I_n]		20kA	
Max. discharge current (8/20 µs) [I_{max}]		40kA	
Max. mains-side overcurrent protection		125A gL/gG	
Short-circuit withstand capability for max. mains-side overcurrent protection		50kA rms	
TOV characteristics		withstand	
Operating temperature range [T_U]		-40°C to +80°C	
Operating state/fault indication		green (good)/red (replace)	
Number of ports		1	
Cross-sectional area (min.)		1.5mm²/14AWG solid/flexible	
Cross-sectional area (max.)		35mm²/2AWG stranded-25mm²/4AWG flexible	
Mounting		35mm DIN rail per EN 60715	
Enclosure material		Thermoplastic, UL 94V0	
Location category		Indoor	
Degree of protection		IP20	
Capacity		4 Mods., DIN 43880	
Standards Information		KEMA	
Product Warranty		Five Years**	
Remote Contact Signaling			
Remote Contact Signaling Type		Changeover Contact	
AC Switching Capacity (Volts/Amps)		250V/0.1A	
DC Switching Capacity (Volts/Amps)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor Ratings and Cross-Sectional Area for Remote Contact Signal Terminals		60/75°C Max. 1.5mm²/14AWG Solid/Flexible	
Ordering Information		Order from Catalog Numbers Above	

Recommended Bussmann Back Up Fuse	
DIN Fuse Size	NH Fuse Part Number
00	125NHG00B

* N-PE Surge arrester module for location between neutral conductor and protective conductor in TT systems.

** See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Data Sheet: 2095

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Surge Protection Made Simple™ for Coaxial Data Cables

UL Listed 497B DIN-Rail Mount Surge Protective Device for BNC Connector Cable Systems

Description

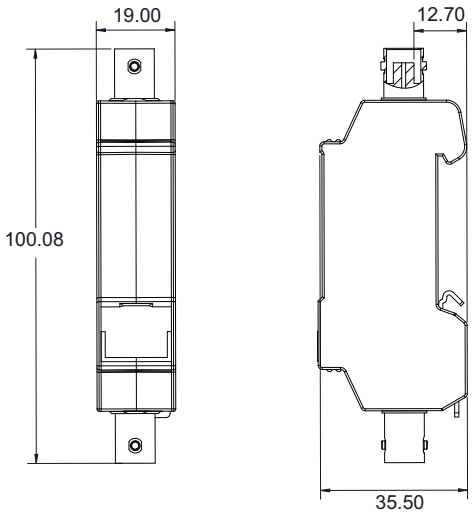
The Bussmann BSPD5BNCDD and BSPD5BNCDI two-stage DIN-Rail mounted surge arresters are for protecting coaxial cable-connected systems (such as video and camera systems) from potential damage. The BSPD5BNCDD features direct (VCD) shield connection while the BSPD5BNCDI features indirect shield connection (VCID) to prevent leakage pickups.

The BSPD5BNCDD and BSPD5BNCDI shielded surge arresters are mounted on the supplied bracket with cable lug or mounted on a rack mounted DIN-Rail with suitable grounding. BNC connector terminated data or video signal cables are plugged into surge arrester with the equipment plugged into the protected side.

Common applications include protecting outdoor video surveillance systems or video control centers or coaxial data lines. For BSPD5BNCDI, the cable shield is indirectly grounded via a gas discharge tube to avoid being influenced by leakage pickups.

- UL 497B Listed
- Plug-in surge protective device for easy retrofitting
- The space-saving surge arrester with BNC socket is mounted on supplied rail terminal lug or standard 35mm DIN-Rail
- Integrated direct or indirect shield grounding avoids leakage pickups
- Easily adaptable due to BNC sockets

Dimensions-mm



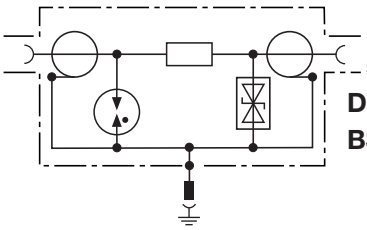
BSPD5BNCDD

BSPD5BNCDI

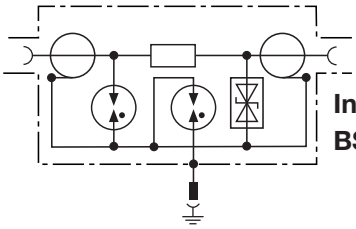
5 YEAR WARRANTY

DIN-Rail Mount SPD for BNC Coax

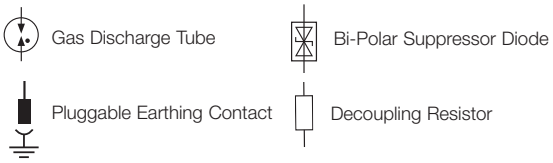
Circuit Diagrams



Direct Shield
BSPD5BNCDD



Indirect Shield
BSPD5BNCDI



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Technical Data		
Catalog Number	BSPD5BNCDD	BSPD5BNCDI
Return loss at 300MHz	≥8dB	≥10dB
Capacitance shield-PG (C)	—	≤20pF
Voltage protection level shield-PG for I_n C2 (U_p)	—	≤650V
Voltage protection level shield-PG at 1kV/µs C3 (U_p)	—	≤600V
Nominal voltage (U_N)	5V	
Max. continuous operating DC voltage (U_C)	6.4V	
Nominal current (I_L)	0.1A	
C2 Nominal discharge current (8/20µs) shield-PG (I_n)	10kA	
C2 Nominal discharge current (8/20µs) line-shield (I_n)	5kA	
Voltage protection level line-shield for I_n C2 (U_p)	≤35V	
Voltage protection level line-shield at 1kV/µs C3 (U_p)	≤13V	
Frequency range	0-300MHz	
Insertion loss at 160MHz	≤0.4dB	
Insertion loss at 300MHz	≤3dB	
Return loss at 130MHz	≥20dB	
Impedance (Z)	50Ω	
Series impedance per line	4.7Ω	
Capacitance line-shield (C)	≤25pF	
Operating temperature range	-40°C to +80°C	
Degree of protection	IP10	
For mounting on	35mm DIN-Rails per EN 60715	
Connection (input / output)	BNC Socket (female) / BNC Socket (female)	
Grounding	Via 35mm DIN-Rail per EN 60715	
Enclosure material	Zinc die casting	
Color	Bare surface	
Test standards	IEC 61643-21 / EN 61643-21	
Agency Information	UL 497B	
Warranty	5 Years*	

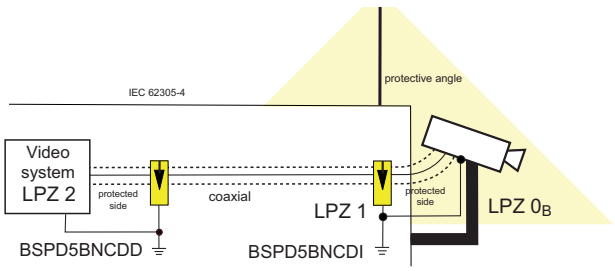
* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

DIN-Rail BNC SPD Applications

Part Numbers	BSPD5BNCDD	BSPD5BNCDI
Bus Systems and Measuring, and Control Technology		
Control Net	X	X
Melsec Net 2	X	X
N1 LAN	X	X
Data Networks		
Arcnet	X	X
Video Systems		
Video (coax)	X	X

Direct vs. Indirect Shielding - Application Example

Apply the BSPD5BNCDD (direct shield) at the equipment location and apply the BSPD5BNCDI (indirect shield) near exterior protected equipment. The indirect shield grounding at the exterior device will help avoid picking up leakage currents that can degrade signal quality while providing surge protection when needed. See illustration below for installation locations.



Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Surge Protection Made Simple™ for Coaxial Data Cables

UL Listed 497B In-line Surge Protective Device for BNC Connector Cable Systems

UL LISTED

RoHS

Description

The Bussmann BSPD5BNCSI two-stage in-line surge arrester is for protecting coaxial cable-connected systems (such as video and camera systems) from potential damage.

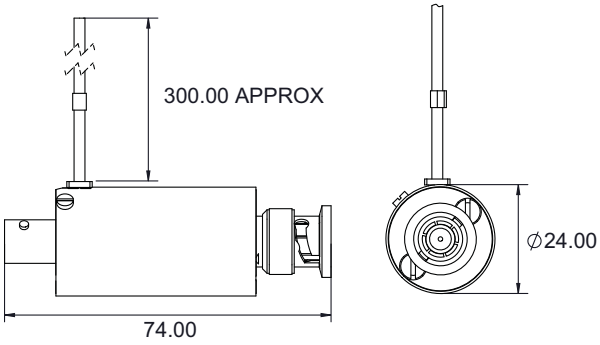
The BSPD5BNCSI shielded surge arrester is plugged into coaxial terminal equipment or connections. Common applications include protecting outdoor video surveillance systems or video control centers. The cable shield is indirectly grounded via a gas discharge tube to avoid being influenced by leakage pickups. The arrester input is used as a socket and the protected output as a plug.

- UL 497B Listed
- Plug-in surge protective device for easy retrofitting
- Directly plugs into terminal equipment with BNC coaxial connections
- Integrated indirect shield grounding avoids leakage pickups

BSPD5BNCSI

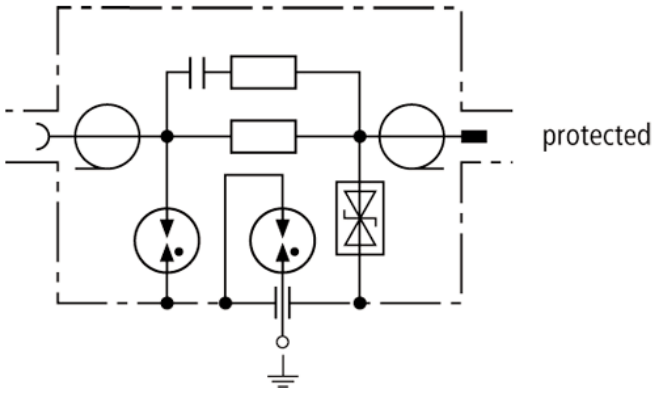
5 YEAR WARRANTY

Dimensions-mm



In-line SPD for BNC Coax

Circuit Diagram



Gas Discharge Tube

Bi-Polar Suppressor Diode

Decoupling Resistor

Capacitor

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data	
Catalog Number	BSPD5BNCSI
Nominal voltage (U_N)	5V
Max. continuous operating DC voltage (U_C)	8V
C2 Nominal discharge current (8/20µs) per line (I_n)	2.5kA
C2 Nominal discharge current (8/20µs) shield-PG (I_n)	10kA
Voltage protection level line-shield for I_n C2 (U_p)	≤25V
Voltage protection level line-shield at 1kV/µs C3 (U_p)	≤15V
Voltage protection level shield-PG at 1kV/µs C3 (U_p)	≤600V
Insertion loss at 265MHz	≤3dB
Return loss at 40MHz	≥20dB
Impedance (Z)	75Ω
Series impedance per line	10Ω
Capacitance line-shield (C)	≤50pF
Operating temperature range	-40°C to +80°C
Connection (input / output)	BNC Socket (female) / BNC Plug (male)
Grounding	Via outgoing earth conductor 18AWG (0.75mm²)
Shield grounding	Indirectly via an integrated spark gap element
Test standards	IEC 61643-21 / EN 61643-21
Agency information	UL 497B
Warranty	5 Years*

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

In-line BNC SPD Applications

Part Number	BSPD5BNCSI
Bus Systems and Measuring & Control Technology	
Control Net	X
Melsec Net 2	X
Data Networks	
Arcnet	X
Video Systems	
Video (coax)	X

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Surge Protection Made Simple™ for Ethernet Data Cables

UL Listed 497B Universal DIN-Rail Mount Surge Protective Device for RJ45/Ethernet Cable Systems

UL LISTED

RoHS

Description

The Bussmann DIN-Rail mount BSPD48RJ45 Surge Protective Device (SPD) for Ethernet cable systems with RJ connectors is easy to install in new, or retrofitting into existing, installations.

The BSPD48RJ45 is installed between the patch panel and the active component (a switch for example). The snap-in mechanism of the supporting foot allows the SPD to be safely grounded via the DIN-Rail. For single applications, the BSPD48RJ45 comes with a supplied mounting bracket with cable lug.

Fulfilling the requirements of Category 6, the BSPD48RJ45 can be universally used for all data services up to nominal voltages of 48V. It is well suited for existing services such as Gigabit Ethernet, ATM, ISDN, Voice over IP and Power over Ethernet (PoE+ acc. to IEEE 802.3at up to 57V) and similar applications in structured cabling systems according to Class E up to 250MHz. Protection of all pairs by means of powerful gas discharge tubes and one adapter filter matrix per pair.

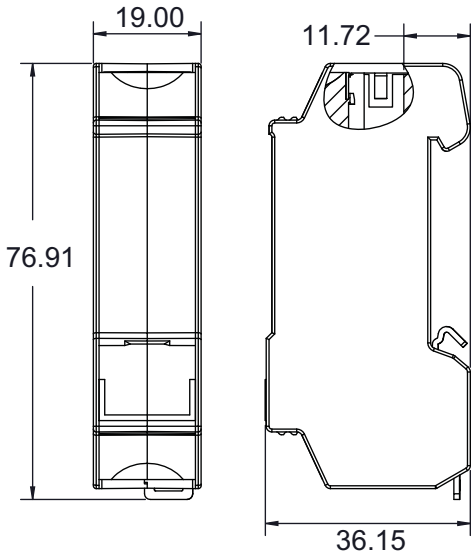
- UL 497B Listed
- Easy to install or retrofit for protection of all lines
- CAT 6 according to ISO/IEC 11801
- CAT 6 in the channel (Class E)
- Power over Ethernet (PoE+ according to IEEE 802.3at)

BSPD48RJ45

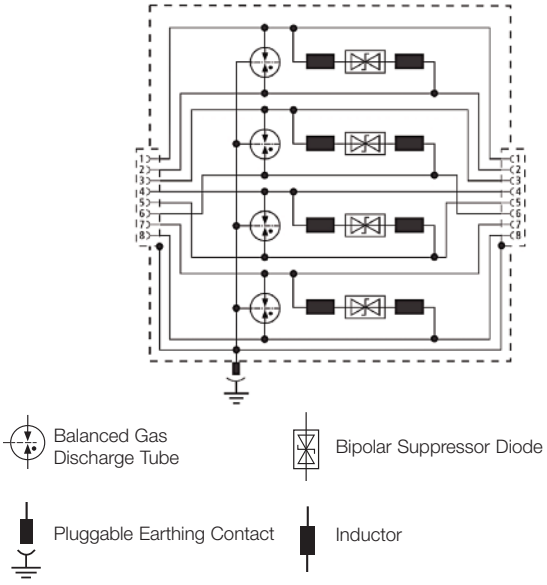
5 YEAR WARRANTY

DIN-Rail Mount SPD for RJ45 / Ethernet Connection

Dimensions -mm



Circuit Diagram



Surge Protection Devices

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data	
Catalog Number	BSPD48RJ45
Nominal voltage (U_N)	48V
Max. continuous operating DC voltage (U_C)	48V
Max. continuous operating AC voltage (U_C)	34V
Max. continuous DC voltage pair-pair (PoE) (U_C)	57V
Nominal current (I_L)	1A
C2 Nominal discharge current (8/20µs) line-line (I_n)	150A
C2 Nominal discharge current (8/20µs) line-PG (I_n)	2.5kA
C2 Total nominal discharge current (8/20µs) line-PG (I_n)	10kA
C2 nominal discharge current (8/20µs) pair-pair (PoE) (I_n)	150A
Voltage protection level line-line for I_n C2 (U_P)	≤190V
Voltage protection level line-PG for I_n C2 (U_P)	≤600V
Voltage protection level line-line for I_n C2 (PoE) (U_P)	≤600V
Voltage protection level line-line at 1kV/µs C3 (U_P)	≤180V
Voltage protection level line-PG at 1kV/µs C3 (U_P)	≤500V
Voltage protection level pair-pair at 1kV/µs C3 (PoE) (U_P)	≤600V
Insertion loss at 250MHz	≤3dB
Capacitance line-line (C)	≤30pF
Capacitance line-PG (C)	≤25pF
Operating temperature range	-40°C to +80°C
Degree of protection	IP10
For mounting on	35mm DIN-Rails per EN 60715
Connection (input / output)	RJ45 socket / RJ45 socket
Pinning	1 / 2, 3 / 6, 4 / 5, 7 / 8
Grounding	Via 35mm DIN-Rails per EN 60715
Enclosure material	Zinc die casting
Color	Bare surface
Test standards	IEC 61643-21 / EN 61643-21
Agency information	UL 497B
Warranty	5 Years*

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

DIN-Rail RJ45 SPDs Applications

Part Number	BSPD48RJ45
Bus systems and Measuring, and Control Technology	
Industrial Ethernet	X
Data Networks	
ATM	X
Ethernet 10/100/1000	X
FDDI, CDDI	X
Industrial Ethernet	X
Power over Ethernet (PoE)	X
Token Ring	X
VG Any LAN	X
Video Systems	
Video (2 wire)	X

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Surge Protection Made Simple™ for Twisted Pair Data Cables

UL Listed 497B DIN-Rail Mount Universal Surge Protective Device for Measuring and Control Circuits, and Bus Systems

Description

The Bussmann universal four-pole, DIN-Rail mounted surge arresters provide effective protection with minimum space requirements and are designed for stringent requirements on the availability of measuring and control circuits, and bus systems.

To ensure safe operation, the arresters provide protection against vibration and shock up to a 30-fold acceleration of gravity. The function-optimized design of the devices allows quick and easy removal of protection modules via “make-before-break” terminals that assure continuity of data signals in the protected and unprotected state.

For IEC Applications - Instruction for Surge Protective Device Use In Zone 2 Explosive Atmospheres per ATEX.

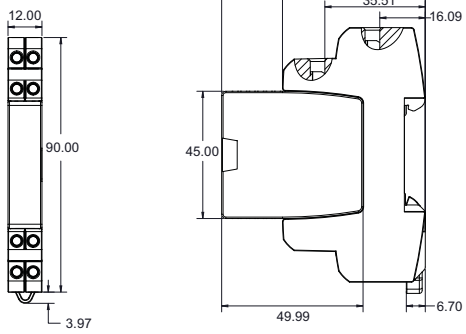
1. When installed in potentially explosive atmospheres, the Data Signal DIN Series shall be installed into an enclosure which meets the requirements of a recognized type of protection, in accordance with EN 60079-0.
2. The Data Signal DIN Series as transient suppressor. This approval applies to the following equipment types:
   - BSPD5DING
   - BSPD12DING
   - BSPD24DING
   - BSPD48DING
   - BSPD5DINLHF
   - BSPD24DINLHF

Ambient and Temperature Class

- -40°C to +80°C, T4:
  DEKRA 12ATEX0254 X: II 3 G Ex nA IIC T4 Gc
- Standards used for:
  ATEX: EN60079-0: 2009, EN 60079-15: 2005

- UL 497B Listed
- Function-optimized design for safe use and easy installation
- Four-pole and base mounts on grounded 35mm DIN-Rail
- Module removal without signal interruption via “make-before-break” circuitry
- 0-180V BSPD0180DINL automatically adjusts to system operating voltage and can protect data circuits of different voltages up to 100mA load current.

Dimensions-mm

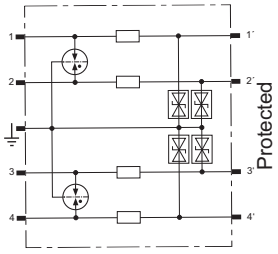


BSPD5DING
BSPD12DING
BSPD24DING
BSPD48DING
BSPD5DINLHF
BSPD24DINLHF
BSPD0180DINL

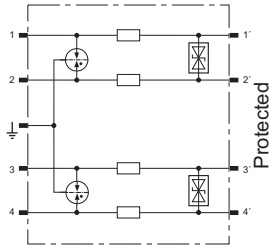
5 YEAR WARRANTY

Four-Pole DIN-Rail Mount Universal SPD for Data Signal Applications

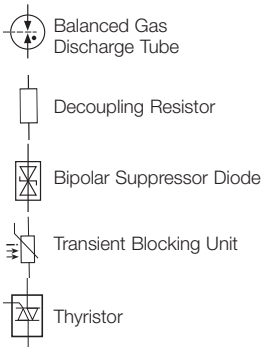
Circuit Diagrams

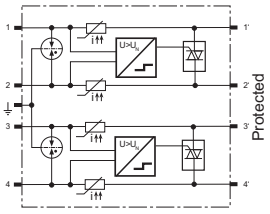


BSPD5DING
BSPD12DING
BSPD24DING
BSPD48DING



BSPD5DINLHF
BSPD24DINLHF





BSPD0180DINL

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Technical Data								
Catalog number — Prefix: BSPD…		…5DING	…12DING	…24DING	…48DING	…5DINLHF	…24DINLHF	…0180DINL
Nominal voltage (U_N)		5V	12V	24V	48V	5V	24V	0-180V
Nominal current at 45°C (I_L)		1.0A	0.75A	0.75A	0.75A	1.0A	1.0A	≤0.1A@80°C
VPL line-line for I_{imp} D1 (U_p)		≤29V	≤50V	≤102V	≤160V	≤25V	≤65V	≤ U_N + 53V
VPL line-PG for I_{imp} D1 (U_p)		≤27V	≤37V	≤66V	≤95V	≤550V	≤550V	-
VPL line-line at 1kV/µs C3 (U_p)		≤18V	≤38V	≤90V	≤140V	≤11V	≤47V	see Note 1
VPL line-PG at 1kV/µs C3 (U_p)		≤9V	≤19V	≤45V	≤70V	≤550V	≤550V	-
VPL line-line for I_n C2 (U_p)		-	-	-	-	-	-	see Note 2
VPL line-PG for C2 / C3 / D1		-	-	-	-	-	-	≤ 550V
D1 Total lightning impulse current (10/350µs) (I_{imp})		10kA	10kA	10kA	10kA	10kA	10kA	10kA
D1 Lightning impulse current (10/350µs) per line (I_{imp})		2.5kA	2.5kA	2.5kA	2.5kA	2.5kA	2.5kA	2.5kA
C2 Total nominal discharge current (8/20µs) (I_n)		20kA	20kA	20kA	20kA	20kA	20kA	20kA
C2 Nominal discharge current (8/20µs) per line (I_n)		10kA	10kA	10kA	10kA	10kA	10kA	10kA
Series impedance per line		1.0Ω	1.8Ω	1.8Ω	1.8Ω	1.0Ω	1.0Ω	10Ω/7.5Ω typ
Frequency of the operating voltage (fU_N)		-	-	-	-	-	-	0-400Hz
Max. continuous operating DC voltage (U_C)		6V	15V	33V	54V	6V	33V	180V
Max. continuous operating AC voltage (U_C)		4.2V	10.6V	23.3V	38.1V	4.2V	23.3V	127V
Permissible superimposed signal voltage (U_{Signal})								± 5V
"Nominal current at 80°C (I_L) (corresponds to max. short-circuit current)"		—	—	—	—	—	—	100mA
Cut-off frequency line-PG (f_G)		1.0MHz	2.7MHz	6.8MHz	8.7MHz	100MHz	100MHz	-
Cut-off frequency line-line (U_{Signal}, balanced 100Ω) (f_G)		-	-	-	-	-	-	50MHz
Capacitance line-line (C)		≤2.7nF	≤1.0nF	≤0.5nF	≤0.35nF	≤25pF	≤25pF	≤80pF
Capacitance line-PG (C)		≤5.4nF	≤2.0nF	≤1.0nF	≤0.7nF	≤16pF	≤16pF	≤16pF
ATEX Approvals		†	†	†	†	†	†	—
Agency information		††	††	††	††	††	††	‡
IEC 61643-21 Test category		D1, C2, C3						
Operating temperature range		-40°C to +80°C						
Degree of protection		IP20						
For mounting on		35mm DIN-Rails per EN 60715						
Grounding		Via base part						
Color / enclosure material		Grey / Polyamide PA 6.6						
Test standards		IEC 61643-21 / EN 61643-21, UL 497B						
Connection (input / output)		Screw terminal						
Conductors	Solid	12-28AWG (4-0.08mm²)						
	Flexible	14-28AWG (2.5-0.08mm²)						
Terminal torque		3.5 Lb-In (0.4 N•m)						
Warranty		5 Years*						

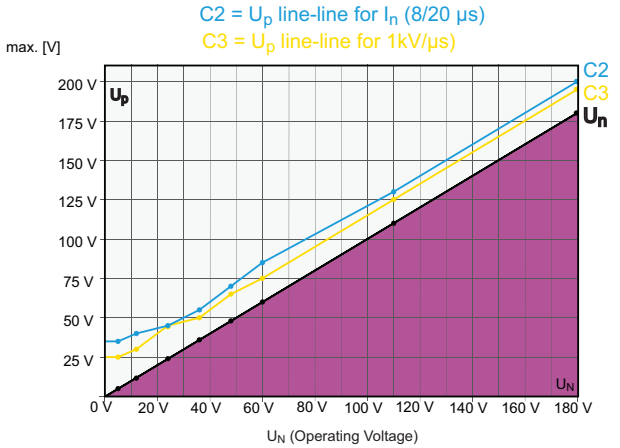
* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

0-180V SPD Application and Mode of Operation

The BSPD0180DINL surge protective device automatically adjusts to the operating voltage (from 0 to 180 volts) of the protected device.

When an overvoltage event occurs, the SPD voltage protection level adjusts itself based upon the output terminal operating voltage of the base.

Diagram 1: Voltage Protection Level U_p (V) (Line - Line)



Note 1 - See Diagram 1 - VPL line-line graph line C3.
Note 2 - See Diagram 1 - VPL line-line graph line C2.
† DEKRA 12ATEX0254 X: II 3 G Ex nA IIC T4 Gc
†† ATEX, UL, CSA
‡ UL 497B

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DIN-Rail Universal 4 Wire Data Signal SPDs and Applications

Universal 4 wire data signal SPD products are specified by communication technology. The table below contains the specific SPD product, by part number, and the applications to which they are suited to be used.

Part Numbers	BSPD5DING	BSPD12DING	BSPD24DING	BSPD48DING	BSPD5DINLHF	BSPD24DINLHF	BSPD0180DINL
Bus Systems and Measuring, and Control Technology							
0-20 mA, 4-20 mA Signals			X			X (4-20mA only)	X
Binary Signals	X	X	X	X			
CAN-Bus (data line only)					X		X
C-Bus (Honeywell)					X		X
Data Highway Plus							X
Device Net (data line only)					X		X
Dupline							X
E-Bus (Honeywell)							X
Fieldbus Foundation						X	X
FIPIO / FIPWAY						X	
FSK					X		X
IEC-Bus (RS485)					X		X
Interbus INLINE (I/O)							X
Interbus INLINE, Long-distance bus					X		X
K Bus						X	
LON - TP/XF 78					X		
LUXMATE Bus						X	X
M Bus							X
MODBUS					X		X
MPI Bus					X		X
Procontic CS31 (RS232)		X					
Procontic T200 (RS422)					X		X
PROFIBUS DP/FMS					X		X
PROFIBUS PA						X	X
PROFIBUS SIMATIC NET					X		X
PSM EG RS422 & RS485					X		X
Rackbus (RS485)					X		X
R Bus					X		X
RS 485					X		X
RS422, V11					X		X
SafetyBUS p					X		X
Securilan LON Bus					X		
SIGMASYS				X			
SS97 SIN/X (RS 232)		X					
SUCONET					X		X
Resistance Temp. Measuring Ni1000, PT100, PT1000 Wire NTC & PTC Thermistors		X					
TTL		X					
TTY 4–20mA			X				
Telecommunication, Telephony							
a/b Wires							X
ADSL, ADSL 2+							X
ISDN S_0, $S2_m/U2_m$, U_{KO}/U_{PO}							X
Modem M1		X					
SDSL, SHDSL						X	X
Telephony Systems (e.g., Siemens, HICOM, Alcatel)							X
T-DSL							X
Telecommunication Systems (e.g., Siemens, HICOM, Alcatel)							X
VDSL							X
Data Networks							
V 24 (RS232 C)		X					

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SurgePOD™ Series

Surge Protective Overvoltage Device Modules

Description

Bussmann SurgePOD surge protective overvoltage device modules are board-mounted. Upon an overvoltage condition, their voltage clamping feature becomes conductive, safely shunting the surge to ground.

All SurgePOD devices are UL 1449 3rd Edition Recognized Type 1 SPD and contain an internal element that safely disconnects the device upon reaching an overvoltage breakdown condition.

Remote contact signaling is accomplished with an optional *Normally Open* microswitch that closes upon reaching an overvoltage breakdown condition.

Local visual indication is accomplished with optional visual indicating tabs that protrude through the device's top upon reaching an overvoltage breakdown condition.

The SurgePOD's MOV substrate material may be damaged by excessive shock or rough handling. To ensure integrity of finished device, do NOT install any SurgePOD devices that are dropped or abused during assembly.

Suitability of SurgePOD devices for application to be determined by end user.

Catalog Number System:

SPOD 320 S T R

Series:
SPOD
MCOV:
150, 270, 320, 420, 510, 550
Lead Length:
S = Short - 6.87mm
L = Long - 16.76mm
Visual Indicator Tab:
T = Yes
Blank = None
Remote Contact Signaling:
R = Yes (Normally Open)
Blank = None

Agency Information

UL 1449 3rd Edition Recognized Type 1 Surge Protective Device; File E340782.

Electrical Specifications

Maximum Continuous Operating Voltage (MCOV)	150Vac to 550Vac
Short-Circuit Current Rating (SCCR)	200kA
Nominal Discharge Current (I_n) 8/20ms	20kA
Max Discharge Current Rating (I_{max}) 8/20ms	50kA
Remote Contact Signaling Microswitch	20mA@15Vdc

SurgePOD Specifications	Voltage / Color Code					
	150V	270V	320V	420V	510V	550V
I_n	20kA	20kA	20kA	20kA	20kA	20kA
I_{max}	50kA	50kA	50kA	50kA	50kA	50kA
SCCR	200kA	200kA	200kA	200kA	200kA	200kA
MCOV (V_{rms})	150V	270V	320V	420V	510V	550V
VPR	600V	900V	1200V	1500V	1500V	1500V
Nominal V_{rms}*	120V	220V	277V	347V	480V	480V

* Nominal V_{rms} @ 50/60Hz.

Data Sheet: 1170

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SurgePOD™ Series

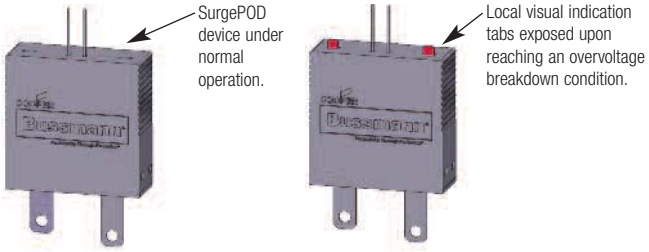
Mechanical Specifications

All components are rated IP20 finger-safe in the installed state.

Environmental Specifications

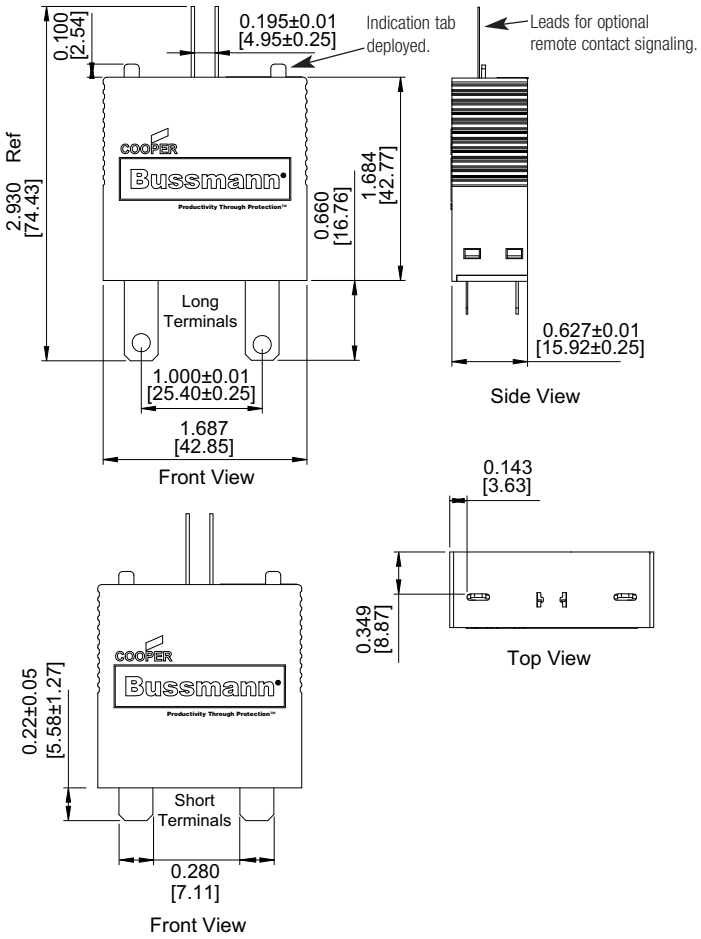
Plastic Material: Polybutylene Terephthalate
Flammability Rating: UL 94V0
Storage Temperature: -25°C to 85°C
Operating Temperature: -25°C to 85°C

Local Visual Indication Tabs (Optional)

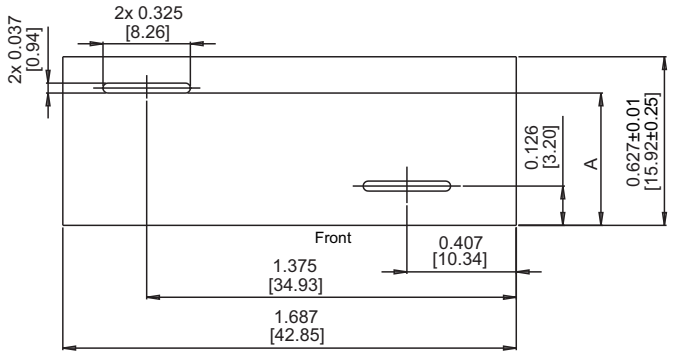


Dimensions - in [mm]

Tolerance is ± 0.005" [0.13mm] unless otherwise stated.



Terminal Dimensions / Pad Layout - in [mm]

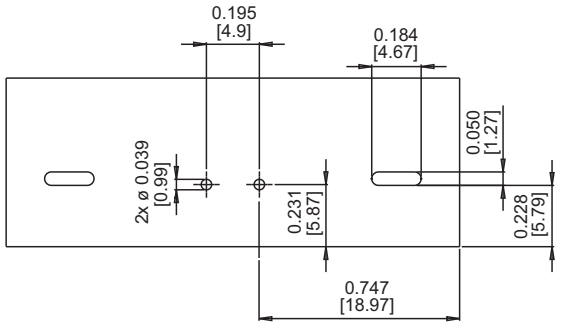


Dimension A		
MCOV Rating	Inches	mm
150	0.431	10.95
270, 320	0.479	12.17
420, 510, 550	0.526	13.36

Terminal Information and Mounting

The SurgePOD surge protective overvoltage devices have nickel-plated copper terminals for easy solder connection to printed circuit boards.

Recommended Pad Layout for Remote Contact Signaling - in [mm]



Packaging Information

- 200 units per master pack

Data Sheet: 1170

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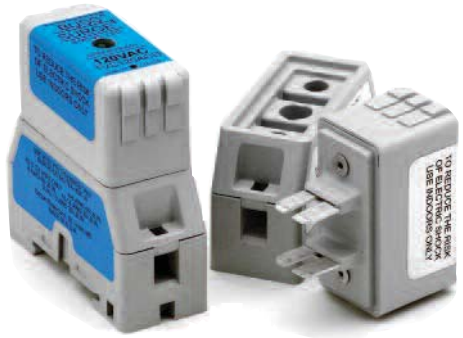
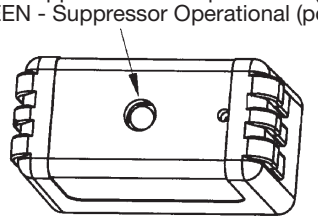
DIN-Rail TVS Series



Status LED

OFF - Suppressor Non-Operational (power may be on)
GREEN - Suppressor Operational (power on)



Specifications

Description: DIN-Rail mount voltage surge protection system for AC or DC voltage using diode or MOV technology.

Construction:

Suppressor: Case: 20% glass filled PES (Polyethersulfone)
Terminals: 110 Copper
Terminal Plating: Electroless tin

Holder: Case: 15% glass filled PBT (Polybutylene Terephthalate)
Interface Clips: CDA 7025
Interface Clip Plating: Electroless tin
Contact Lubricant: Fluoroether grease
Box Lug: Copper
DIN-Rail Springs: Stainless steel

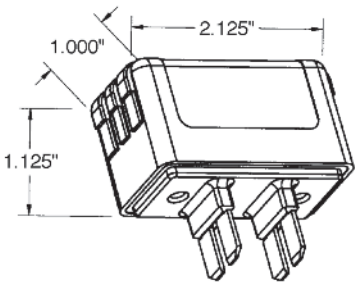
Ratings*:

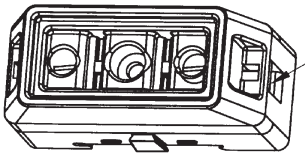
Volts: — 12Vdc (2kA surge current)
— 24Vdc (2kA surge current)
— 48Vdc (2kA surge current)
— 120Vac (7kA-18kA surge current)
— 240Vac (7kA-18kA surge current)

* See Catalog Numbers table for all specifications pertaining to specific voltage ratings.

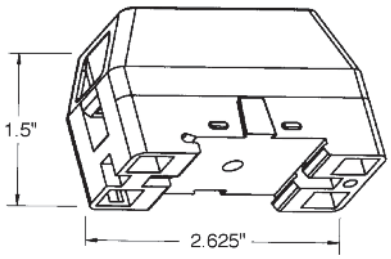
Agency Information: UL Recognized (UL 1449) for AC products, (UL 497B) for DC products, CSA Approved.

Dimensions -in





Power Terminals
14AWG - 4AWG
Dual 10AWG



Product Specifications:

1. All TVS devices have non-polarized electrical connections as shown.
2. Suppressor voltage characteristics per chart.
3. Suppressor to provide non-interrupted service.
4. Enclosure material is 94V0 flame and explosion resistant.
5. Product markings show manufacturer, part number and safety warnings as required.
6. Mechanical dimensions as noted.
7. Suppressor Status LED as shown.
8. AC units operate on either 50 or 60Hz.

Catalog Numbers

Catalog Numbers	Voltage Application	MCOV	Technology	SVR 500A, 8x20μs	Surge Current Rating	Agency Information	Label Color
TVS12DCD	12Vdc	14Vdc	SASD	36Vdc	2kA	UL 497B	Red
TVS24DCD	24Vdc	28Vdc	SASD	58Vdc	2kA	UL 497B	White
TVS48DCD	48Vdc	57Vdc	SASD	90Vdc	2kA	UL 497B	Black
TVS120ACD	120Vac	140Vac	SASD	330Vac	7kA	UL 1449	Blue
TVS120ACM	120Vac	140Vac	MOV	500Vac	18kA	UL 1449	Grey
TVS240ACD	240Vac	280Vac	SASD	600Vac	7kA	UL 1449	Blue
TVS240ACM	240Vac	280Vac	MOV	800Vac	18kA	UL 1449	Grey

Data Sheet: 9006

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Reduce Downtime With Quick Access to the Right Replacement Fuse

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Telepower spare fuse holders 510
5TPH 510
Fuse pullers 510
FT-2 & FT-3 fuse testers 510
SFC spare fuse cabinet 510

Fuse reducers & dummy "neutrals"
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Class R fuses - FRN-R, LPN-RK, FRS-R & LPS-RK 511
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Accessories

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Fuse Service Kits

Save Time and Money with These Fuse Service Kits

Selection

These service kits are filled with the most common fuse types and sizes for the most common applications – no need to search for the right fuse, it's in the kit.

Organization

The compact and sturdy carrying case allows organizing and modifying the fuses needed to assure a proper supply is kept on hand.

Accessories

All kits come with a fuse puller for the fuses it contains. As a bonus, all kits on this page include a free wire stripper or lineman's pliers.

Supplemental

Glass Fuse Kit

Catalog Number: GSK-260

Kit Contents

(5) GMA-500mA	(5) MDL-6	(5) AGC-10
(5) GMA-1A	(5) MDL-7	(5) AGC-15
(5) GMA-2A	(5) MDL-8	(5) AGC-20
(5) GMA-3A	(5) MDL-10	(5) GMC-2A
(5) GMA-4A	(5) MDL-15	(5) GMC-5A
(5) GMA-5A	(5) MDL-20	(5) GMC-10A
(5) GMA-6A	(5) AGC-¼	(5) MDA-5
(5) GMA-10A	(5) AGC-½	(5) MDA-10
(5) GMA-15A	(5) AGC-1	(5) MDA-12
(5) MDL-¼	(5) AGC-1½	(5) MDA-15
(5) MDL-½	(5) AGC-2	(5) MDA-20
(5) MDL-1	(5) AGC-2½	(5) ABC-5
(5) MDL-1½	(5) AGC-3	(5) ABC-10
(5) MDL-2	(5) AGC-4	(5) ABC-12
(5) MDL-2½	(5) AGC-5	(5) ABC-15
(5) MDL-3	(5) AGC-6	(5) ABC-20
(5) MDL-4	(5) AGC-7	
(5) MDL-5	(5) AGC-8	

(1) FT-3 Fuse tester/puller
(1) 6-inch Crescent® wire stripper

Midget Fuse Kit

Catalog Number: MSK-45

Kit Contents

(3) FNM-1	(3) KTK-20
(3) FNM-2	(3) KTK-30
(3) FNM-5	(3) FNQ-5
(3) FNM-10	(3) FNQ-10
(3) FNM-15	(3) FNQ-15
(3) KTK-5	(3) FNQ-20
(3) KTK-10	(3) FNQ-30
(3) KTK-15	(1) FT-3 Fuse tester/puller

(1) 6-inch Crescent® wire stripper

Branch Circuit

Class CC Fuse Kit

Catalog Number: CCSK-45

Kit Contents

(3) LP-CC-5	(3) KTK-R-15
(3) LP-CC-10	(3) KTK-R-20
(3) LP-CC-15	(3) KTK-R-30
(3) LP-CC-20	(3) FNQ-R-½
(3) LP-CC-30	(3) FNQ-R-3
(3) KTK-R-5	(3) FNQ-R-5
(3) KTK-R-10	(3) FNQ-R-10

(1) FT-3 Fuse tester/puller
(1) 6-inch Crescent® wire stripper

Fusetron™ Class RK5 250/600V Fuse Kit

Catalog Number: RK5SK-39

Kit Contents

(3) FRN-R-10	(3) FRS-R-10
(3) FRN-R-15	(3) FRS-R-15
(3) FRN-R-20	(3) FRS-R-20
(3) FRN-R-25	(3) FRS-R-30
(3) FRN-R-30	(3) FRS-R-60
(3) FRN-R-60	(3) FRS-R-100
(3) FRN-R-100	(1) FP-2 Fuse puller

(1) NO.263-R (60 to 30A fuse reducer)
(1) NO.663-R (60 to 30A fuse reducer)
(1) 6-inch Crescent® wire stripper

Premium Branch Circuit

Low-Peak™ Class RK1 250/600V Fuse Kit

Catalog Number: RK1SK-39

Kit Contents

(3) LPN-RK-10SP	(3) LPS-RK-10SP
(3) LPN-RK-15SP	(3) LPS-RK-15SP
(3) LPN-RK-20SP	(3) LPS-RK-20SP
(3) LPN-RK-25SP	(3) LPS-RK-30SP
(3) LPN-RK-30SP	(3) LPS-RK-60SP
(3) LPN-RK-60SP	(3) LPS-RK-100SP
(3) LPN-RK-100SP	

(1) NO.263-R (60 to 30A fuse reducer)
(1) NO.663-R (60 to 30A fuse reducer)
(1) FP-2 Fuse puller
(1) 8⅝-inch Crescent® lineman's pliers

Low-Peak™ Class J Fuse Kit

Catalog Number: JSK-36

Kit Contents

(3) LPJ-3SP	(3) LPJ-25SP
(3) LPJ-5SP	(3) LPJ-30SP
(3) LPJ-6SP	(3) LPJ-40SP
(3) LPJ-10SP	(3) LPJ-50SP
(3) LPJ-15SP	(3) LPJ-60SP
(3) LPJ-20SP	(3) LPJ-100SP

(1) FP-2 Fuse puller
(1) 8⅝-inch Crescent® lineman's pliers

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Fuse Service Kits

Supplemental/Branch Circuit

Class CC / Midget Fuse Kit

Emergency fuse kit for replacement of 13/32″ x 1½″ (Class CC and midget) fuses in a sturdy nylon box. Cross reference makes it easy to install the correct fuse in any Class CC or midget application.

Kit Size: 10⅞″ W x 6⅝″ D x 1¾″ H

Catalog Number: NO.36

Emergency Kit Contents

(2) FNQ-R-½
(2) FNQ-R-1
(2) FNQ-R-2
(2) FNQ-R-3
(2) FNQ-R-4
(2) FNQ-R-5
(2) FNQ-10
(2) FNQ-15
(2) FNQ-20
(1) FP-2 Fuse puller
(2) KTK-R-1
(2) KTK-R-2
(2) KTK-R-3
(2) KTK-R-5
(2) KTK-R-6
(2) KTK-R-10
(2) KTK-R-15
(2) KTK-R-20
(2) KTK-R-30

Branch Circuit

Fusetron™ Class RK5 250V Fuse Kit

Compact kit in a sturdy nylon box rugged enough to withstand field use. Extra spaces and changeable compartments make it easy to customize for your particular need.

Catalog Number: ERK-28

Service Kit Contents

(2) FRN-R-3-2/10
(2) FRN-R-6-¼
(2) FRN-R-10
(2) FRN-R-15
(3) FRN-R-20
(2) FRN-R-25
(4) FRN-R-30
(2) FRN-R-35
(2) FRN-R-40
(2) FRN-R-50
(3) FRN-R-60
(2) FRN-R-100
(2) NO.263-R Reducers
(2) NO.1 Clip Clamps
(2) NO.2 Clip Clamps

Premium Branch Circuit

Low-Peak™ Class RK1 250V Fuse Kit

Compact kit in a sturdy nylon box rugged enough to withstand field use. Extra spaces and changeable compartments make it easy to customize for your particular need.

Catalog Number: LPRK-28

Service Kit Contents

(2) LPN-RK-3-2/10SP
(2) LPN-RK-6-¼SP
(2) LPN-RK-10SP
(2) LPN-RK-15SP
(3) LPN-RK-20SP
(2) LPN-RK-25SP
(4) LPN-RK-30SP
(2) LPN-RK-35SP
(2) LPN-RK-40SP
(2) LPN-RK-50SP
(3) LPN-RK-60SP
(2) LPN-RK-100SP
(2) NO.263-R Reducers
(2) NO.1 Clip Clamps
(2) NO.2 Clip Clamps
(1) FP-2 Fuse puller

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Fuse Service Kits

Large Electronic Fuse Kit

Fuse Kit 270

Small dimension fuse assortment with 270 fuses, fuse holders, fuse blocks and fuse clips to fit most electronic equipment.

Ratings:

Volts: — 125V/250V

Catalog Number: NO.270

Assortment Contents

(5) MDL-⅛
(5) MDL-¼
(5) MDL-½
(5) MDL-¾
(5) MDL-1
(5) MDL-1-½
(5) MDL-2
(5) MDL-3
(5) MDL-4
(5) MDL-5
(5) MDL-6
(5) MDA-8
(5) MDA-10
(5) MDA-15
(5) MDA-20
(5) MDA-30
(5) AGC-⅛
(5) AGC-¼
(5) AGC-½
(5) AGC-¾
(5) AGC-1
(5) AGC-1-½
(5) AGC-2
(5) AGC-2-½
(5) AGC-3
(5) AGC-4
(5) AGC-5
(5) AGC-6
(5) AGC-7
(5) AGC-8
(5) ABC-10
(5) ABC-15
(5) ABC-20
(5) ABC-30
(5) GMA-250mA
(5) GMA-500mA
(5) GMA-1A
(5) GMA-2A
(5) GMA-3A
(5) GMA-4A
(5) GMA-6A
(5) GMC-1A
(5) GMC-2A
(5) GMC-3A
(5) GMC-4A
(5) GMC-6A
(4) AGC-V-½
(4) AGC-V-1
(4) AGC-V-2
(4) AGC-V-3
(4) MDL-V-½
(4) MDL-V-1
(4) MDL-V-2
(4) MDL-V-3
(2) Pr. 4121 Fuse clips
(2) HHB Inline fuse holder
(1) HTB-26I panel mount fuse holder
(1) HTB-28M panel mount fuse holder
(1) S-8202-2 Two-pole fuse block

Small Electronic Fuse Kit

Fuse Kit 140

Small dimension fuse kit with 140 fuses, fuse holders, fuse blocks and fuse clips to fit most electronic equipment.

Ratings:

Volts: — 125V/250V

Catalog Number: NO.140

Assortment Contents

(5) MDL-½
(5) MDL-1
(5) MDL-1-½
(5) MDQ-2
(5) MDQ-3
(5) MDQ-4
(5) MDQ-5
(5) MDQ-6
(5) MDA-8
(5) MDA-10
(5) MDA-15
(5) MDA-20
(5) MDA-30
(5) AGC-¼
(5) AGC-½
(5) AGC-1
(5) AGC-1-½
(5) AGC-2
(5) AGC-3
(5) MTH-4
(5) MTH-5
(5) MTH-6
(5) MTH-7
(5) MTH-8
(5) ABC-10
(5) ABC-15
(5) ABC-20
(5) ABC-30
(2) Pr. #4121 Fuse clips
(2) HHB Inline fuse holder
(1) FP-A3 Fuse puller

Electrical and Electronic Fuse Kit

5 x 20mm Fuse Kit 220

A complete assortment of 125V and 250V 5 x 20mm fuses for the repair of both electrical and electronic devices.

Ratings:

Volts: — 125V/250V

Catalog Number: NO.220

Assortment Contents

(5) GMA-250mA
(5) GMA-500mA
(5) GMA-1
(5) GMA-1.5
(5) GMA-2
(5) GMA-2.5
(5) GMA-3
(5) GMA-4
(5) GMA-5
(5) GMA-10
(5) GDA-630mA
(5) GDA-1
(5) GDA-2
(5) GDA-3.15
(5) GDA-5
(5) GDA-6.3
(5) GDB-630mA
(5) GDB-2
(5) GDB-3.15
(5) GDB-4
(5) GMC-500mA
(5) GMC-750mA
(5) GMC-1
(5) GMC-2
(5) GMC-2.5
(5) GMC-3
(5) GMC-3.15
(5) GMC-4
(5) GMC-5
(5) GMC-6.3
(5) GMD-200mA
(5) GMD-500mA
(5) GMD-1
(5) GMD-1.6
(5) GMD-2
(5) GMD-3
(5) GDC-250mA
(5) GDC-500mA
(5) GDC-1
(5) GDC-1.6
(5) GDC-2
(5) GDC-3.15
(5) GDC-4
(5) GDC-5
(1) HTB-28M panel mount fuse holder
(1) FP-A3 Fuse puller

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Clip Clamps and Rail Adapters (DIN & American)

TRON™ Clip-Clamps

Specifications

Description: Clamps for ferrule and blade-type cartridge fuse clips. Provide tight contacts between fuse holder clips and fuse ferrules/blades.

Construction: Phenolic knob and plated-steel jaws.

Catalog Numbers

Catalog Numbers	Clamp Size Volts	Amps
NO.1	250	0-30
NO.2	250	35-60
NO.2	600	0-30
NO.4	600	35-60
NO.5	250/600	70-100
NO.6	250/600	110-200
NO.7	250/600	225-400
NO.8	250/600	450-600

Adapters for DIN and American Rails

Specifications

Description: Bussmann DIN-Rail adapters permit secure, positive snap-on mounting of Bussmann 0-30A fuse blocks (one-, two-, or three-pole) onto various size rails to eliminate costly and time consuming drilling, tapping, and screw mounting. Adapters mechanically lock into mounting holes of fuse blocks in seconds to become an integral part of the block. One adapter is required for one- and two-pole Bussmann blocks. Two adapters are required for three-pole blocks.

With the exception of the 32mm DIN-Rail, all blocks with adapters can be removed from a rail simply by pulling up its release tab.

Use of rail end-stops on both sides of adapters is recommended.

Construction: Molded from “Lexan™ 241” for high strength and flexibility.

Catalog Numbers (For 0-30A Fuse Blocks)

Catalog Numbers	Fuse Block Class	Rail Type	Size	Adapter Color
DRA-1	CC G *H (250V)	DIN	15mm (Sym.) 32mm (Asym.) 35mm (Sym.)	Black
DRA-2	*R (250) M Type	American	17⁄64″ (Sym.) (also 35mm DIN)	Gray

Package Quantities: standard—10; bulk—100 (Cat. No. BK/DRA-1 or BK/DRA-2.)
*Mounting on 15mm rails is not recommended.
NOTE—Newer Bussmann fuse blocks have elongated block-to-adapter mounting holes (old style fuse blocks will not accept the rail adapters).

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Spare Fuse Holders, Pullers, Testers and Cabinets

Spare Fuse Holders

Specifications
Description: Spare fuse holders durably constructed using black thermoplastic with common mounting using #6 screws or bolts on 5-inch centers. Dovetailed interlocking between fuse holders simplifies installation and reduces needed hardware. Common footprint allows for any combination of fuse holders to be mounted together. Built-in retaining clips secure fuses.

Flammability Rating: UL 94V0.

Catalog Numbers

Catalog Numbers	Capacity	For Use With:
TPSFH-CW	4-position	TPC and/or TPW fuses
TPSFH-M	4-position	TPM fuses
TPSFH-LC	1-position	TPL-C series fuses
TPSFH-LB	1-position	TPL-B series fuses
TPSFH-N60	1-position	TPN (35-60A) fuses
TPSFH-N30	4-position	TPN (1-30A) fuses
TPSFH-AS	6-position	TPA & TPS fuses
TPSFH-T	10-position	GMT fuses

5TPH

Specifications
Description: 5-position spare fuse holder for midget size and Class CC fuses (13/32″ diameter) fuses. Constructed of thermoplastic with adhesive tape on back for easy mounting on cabinet doors.

Size: 2.98″ W x 1.03″ H x 0.63″ D

Catalog Number: 5TPH

Data Sheet: 5014

Fuse Pullers

Specifications
Description: Fuse pullers in various sizes to safely and easily extract fuses from blocks and holders.

Catalog Numbers

Catalog Numbers	Application
FP-2	13/32″ to 13/16″ dia. fuses
FP-3	1″ to 1 3/4″ dia. fuses
FP-4	1 3/4″ to 2 1/2″ dia. fuses
FP-6	0-60A T-Tron fuses
FP-A3	Glass Tube & ATC fuses
CFP-30	CUBEFuse 1-30A
CFP-60	CUBEFuse 35-60A
CFP-100	CUBEFuse 70-100A

Fuse pullers are only to be used when the associated circuit has been de-energized.

FT-2 Fuse Tester

Specifications
Description: Fuse tester for automotive, glass tube and ferrule fuses up to 1⅞″ length. Probe slides to appropriate fuse length. Batteries are included and replaceable.

WARNING: ***DO NOT*** test electrical fuses in the fuse panel.

Catalog Number: FT-2

Replacement Battery:
Rayovac 364

SFC Spare Fuse Cabinet

Specifications
Description: Spare fuse cabinet with five cubic feet of storage space. Constructed of heavy gauge steel with durable baked ASA 61 grey enamel finish. Cabinet door is equipped with locking handle for security. Mounting holes are 16 inches on center with key slots.

Size: 24″ W x 30″ H x 12″ D
Material: 0.062 sheet steel

Catalog Numbers:

SFC-FUSE-CAB

SFC-SHELF*
*Extra shelf for fuse cabinet.

Data Sheet: 1119

FT-3 Fuse Tester

Specifications
Description: Fuse tester for automotive, glass tube and ferrule fuses up to 1¼″ length. Probe slides to appropriate fuse length. Batteries are included and replaceable.

WARNING: ***DO NOT*** test electrical fuses in the fuse panel.

Catalog Number: FT-3

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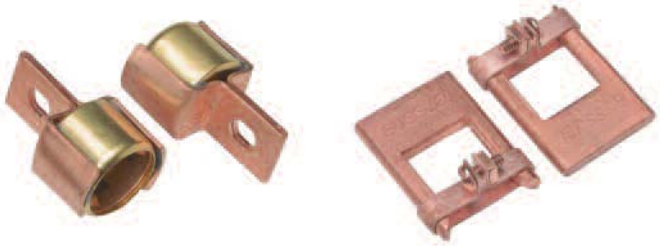
Fuse Reducers and Dummy "Neutrals"



Fuse Reducers for Class J Fuses: LPJ, DFJ, JKS

Catalog Numbers

Catalog Numbers (Pair) Reducer No.	Fuse Amp Size Range	Equipment/Fuseblock Amp Size
J-63	1-30	60
J-13	1-30	100
J-16	35-60	100
J-26	35-60	200†
J-21	70-100	200†
J-41	70-100	400†
J-42	110-200	400†
J-62	110-200	600†
J-64	225-400	600†

†Not for Bolt-on Applications.

Fuse Reducers for Class R Fuses: FRN-R, LPN-RK, FRS-R, LPS-RK KTN-R, KTS-R

UL Listed File E12853

Catalog Numbers

Catalog Numbers (Pairs) Voltages 250V	600V	Fuse Amp Size Range	Equipment/Fuseblock Amp Size
NO.263-R	NO.663-R	1-30	60
NO.213-R	NO.216-R	1-30	100
NO.216-R	NO.616-R	35-60	100
NO.226-R	NO.626-R	35-60	200
NO.2621-R	NO.2621-R	70-100	200
NO.2641-R	NO.2641-R	70-100	400
NO.242-R	NO.642-R	110-200	400
NO.2661-R	NO.2661-R	70-100	600
NO.2662-R	NO.2662-R	110-200	600
NO.2664-R**	NO.2664-R**	225-400	600

**Single reducer only (pair not required).

Fuse Reducers for Class H & K Fuses: NON, REN, NOS, RES

UL Listed File E12853

Catalog Numbers

Catalog Numbers. (Pairs) 250V Reducer	600V Reducer	Fuse Amp Size Range	Equipment/ Fuseblock Amp Size
NO.263	NO.663	1-30	60
NO.213	NO.216	1-30	100
NO.216	NO.616	35-60	100
NO.226	NO.626	35-60	200
NO.2621	NO.2621	70-100	200
NO.2641	NO.2641	70-100	400
NO.2642	NO.2642	110-200	400
No. 2661	No. 2661	70-100	600

Data Sheet: 1118

Dummy Fuse "Neutrals" (These are not fuses)

Catalog Numbers

Catalog Numbers	Fuse Equivalent Voltage	Fuse Equivalent Dimension	Fuse Amp Size Range
NNB	—	13/32" x 1½"	—
NNB-R	—	Class CC	—
NNC	—	¼" x 1¼"	—
NTN-R-30	250	R/H	1-30
NTN-R-60	250	R/H	35-60
NTN-R-100	250	R/H	70-100
NTN-R-200	250	R/H	110-200
NTN-R-400	250	R/H	225-400
NTS-R-30	600	R/H	1-30
NTS-R-60	600	R/H	35-60
NTS-R-100	600	R/H	70-100
NTS-R-200	600	R/H	110-200
NTS-R-400	600	R/H	225-400
NTS-R-600	600	R/H	450-600

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Compact modular fuse holders

Bussmann
by EATON

Finger-safe DIN-Rail mount fuse holders protect your electrical system & simplify installation

Courtesy of Steven Engineering, Inc. - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Bussmann Services & Application Guide

Downtime Reduction, Workplace Safety & Code Compliance

Services to Increase Your Productivity Through Protection

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Sales support . . . . . .???

RED indicates NEW information

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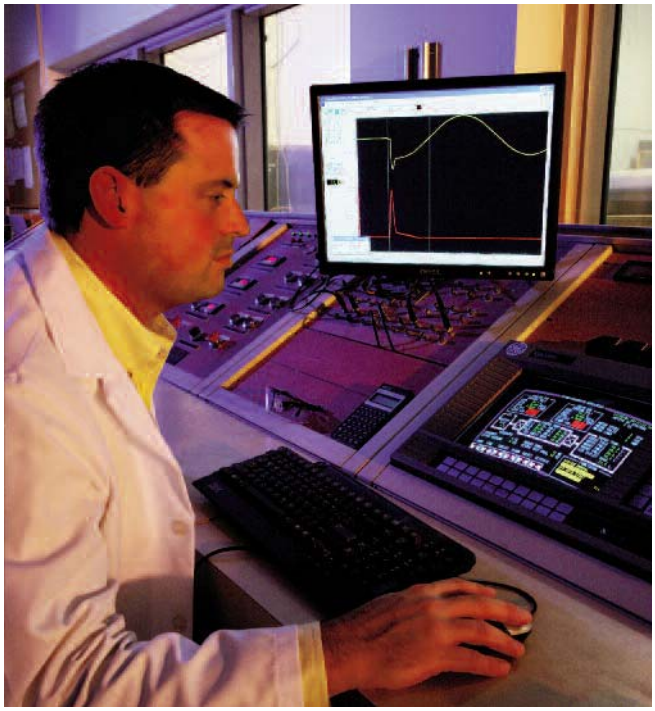

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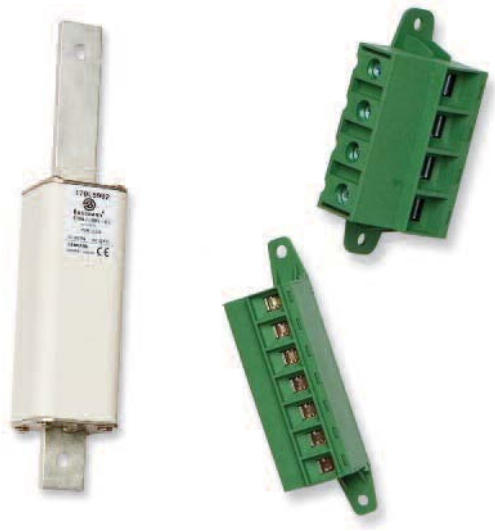

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Fuse Technology

Circuit Protection

The following is a basic introduction to overcurrent protection and fuse technology. In depth information on the selection and application of overcurrent protective devices is available in the Bussmann publication “Selecting Protective Devices” (SPD). This publication is available free of charge as a PDF download at www.cooperbussmann.com/spd.

Electrical distribution systems are often quite complicated. They cannot be absolutely fail-safe. Circuits are subject to destructive overcurrents. Harsh environments, general deterioration, accidental damage, damage from natural causes, excessive expansion, and/or overloading of the electrical distribution system are factors which contribute to the occurrence of such overcurrents. Reliable protective devices prevent or minimize costly damage to transformers, conductors, motors, and the other many components and loads that make up the complete distribution system. Reliable circuit protection is essential to avoid the severe monetary losses which can result from power blackouts and prolonged downtime of facilities. It is the need for reliable protection, safety, and freedom from fire hazards that has made the fuse a widely used protective device.

Overcurrents

An overcurrent is either an overload current or a short-circuit current. The overload current is an excessive current relative to normal operating current, but one which is confined to the normal conductive paths provided by the conductors and other components and loads of the distribution system. As the name implies, a short-circuit current is one which flows outside the normal conducting paths.

Overloads

Overloads are most often between one and six times the normal current level. Usually, they are caused by harmless temporary surge currents that occur when motors are started-up or transformers are energized. Such overload currents, or transients, are normal occurrences. Since they are of brief duration, any temperature rise is trivial and has no harmful effect on the circuit components. (It is important that protective devices do not react to them.)

Continuous overloads can result from defective motors (such as worn motor bearings), overloaded equipment, or too many loads on one circuit. Such sustained overloads are destructive and must be cut off by protective devices before they damage the distribution system or system loads. However, since they are of relatively low magnitude compared to short-circuit currents, removal of the overload current within minutes will generally prevent equipment damage. A sustained overload current results in overheating of conductors and other components and will cause deterioration of insulation, which may eventually result in severe damage and short-circuits if not interrupted.

Short-Circuits

Whereas overload currents occur at rather modest levels, the short-circuit or fault current can be many hundred times larger than the normal operating current. A high level fault may be 50,000A (or larger). If not cut off within a matter of a few thousandths of a second, damage and destruction can become rampant—there can be severe insulation damage, melting of conductors, vaporization of metal, ionization of gases, arcing, and fires. Simultaneously, high level short-circuit currents can develop huge magnetic-field stresses. The magnetic forces between bus bars and other conductors can be many hundreds of pounds per linear foot; even heavy bracing may not be adequate to keep them from being warped or distorted beyond repair.

Fuses

The fuse is a reliable overcurrent protective device. A “fusible” link or links encapsulated in a tube and connected to contact terminals comprise the fundamental elements of the basic fuse. Electrical resistance of the link is so low that it simply acts as a conductor. However, when destructive currents occur, the link very quickly melts and opens the circuit to protect conductors, and other circuit components and loads. Fuse characteristics are stable. Fuses do not require periodic maintenance or testing. Fuses have three unique performance characteristics:

1. *Modern fuses have an extremely “high interrupting rating”—can withstand very high fault currents without rupturing.*
2. *Properly applied, fuses prevent “blackouts.” Only the fuse nearest a fault opens without upstream fuses (feeders or mains) being affected—fuses thus provide “selective coordination.” (These terms are precisely defined in subsequent pages.)*
3. *Fuses provide optimum component protection by keeping fault currents to a low value…They are said to be “current limiting.”*

Voltage Rating

The voltage rating of a fuse must be at least equal to or greater than the circuit voltage. It can be higher but never lower. For instance, a 600V fuse can be used in a 208V circuit.

The voltage rating of a fuse is a function of its capability to open a circuit under an overcurrent condition. Specifically, the voltage rating determines the ability of the fuse to suppress the internal arcing that occurs after a fuse link melts and an arc is produced. If a fuse is used with a voltage rating lower than the circuit voltage, arc suppression will be impaired and, under some fault current conditions, the fuse may not clear the overcurrent safely. Special consideration is necessary for semiconductor fuse and medium voltage fuse applications, where a fuse of a certain voltage rating is used on a lower voltage circuit.

Amp Rating

Every fuse has a specific amp rating. In selecting the amp rating of a fuse, consideration must be given to the type of load and code requirements. The amp rating of a fuse normally should not exceed the current carrying capacity of the circuit. For instance, a continuous load current of 16 amperes typically requires a conductor rated to carry 20A and a 20A fuse is the largest that should be used. However, there are some specific circumstances in which the amp rating is permitted to be greater than the current carrying capacity of the circuit.

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Fuse Technology

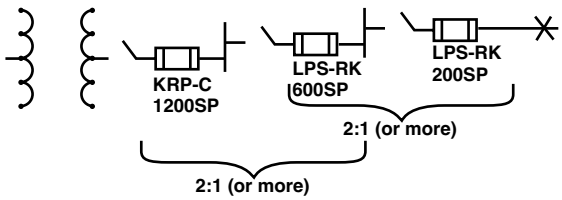
A typical example is the motor circuit; dual-element fuses generally are permitted to be sized up to 175% and non-time-delay fuses up to 300% of the motor full-load amps. As a rule, the amp rating of a fuse and switch combination should be selected at 125% of the continuous load current (this usually corresponds to the circuit capacity, which is also selected at 125% of the load current). There are exceptions, such as when the fuse-switch combination is approved for continuous operation in an assembly at 100% of its rating.

Interrupting Rating

A protective device must be able to withstand the destructive energy of short-circuit currents. If a fault current exceeds the capability of the protective device, the device may actually rupture, causing additional damage. Thus, it is important when applying a fuse or circuit breaker to use one which can sustain the largest potential short-circuit currents. The rating which defines the capacity of a protective device to maintain its integrity when reacting to fault currents is termed its "interrupting rating". The interrupting rating of most branch-circuit, molded case, circuit breakers typically used in residential service entrance panels is 10,000A. Larger, more expensive circuit breakers may have interrupting ratings of 14,000A or higher. In contrast, most modern, current-limiting fuses have an interrupting rating of 200,000 or 300,000A and are commonly used to protect the lower rated circuit breakers. The National Electrical Code, Section 110-9, and §OSHA 29 CFR 1910.303(b)(4) require equipment intended to break current at fault levels to have an interrupting rating sufficient for the current that must be interrupted.

Selective Coordination – Prevention of Blackouts

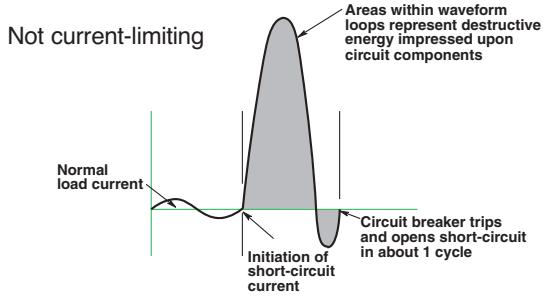
Coordination is isolation of an overloaded or faulted circuit by the opening of only the nearest upstream protective device for a specific overcurrent value. When only the nearest upstream protective device of an overloaded or faulted circuit opens and larger upstream fuses remain closed for the full range of overcurrents on a system, the protective devices are "selectively" coordinated (they discriminate). Selective coordination of protective devices prevents unnecessary system power outages or blackouts caused by overcurrent conditions.



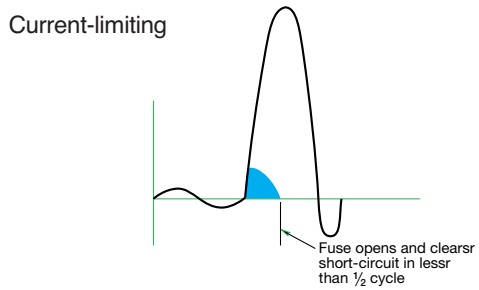
This diagram shows the minimum ratios of amp ratings of Low-Peak Yellow fuses that are required to provide "selective coordination" (discrimination) of upstream and downstream fuses.

It is a simple matter to selectively coordinate modern current-limiting fuses. By maintaining a minimum ratio of fuse-amp ratings between an upstream and downstream fuse, selective coordination is assured.

Current Limitation – Component Protection



A non-current-limiting protective device, by permitting a short-circuit current to build up to its full value, can let an immense amount of destructive short-circuit heat energy through before opening the circuit.



A current-limiting fuse has such a high speed of response that it cuts off a short-circuit long before it can build up to its full peak value, when the fault current is within the current-limiting range of a fuse.

If a protective device cuts off a short-circuit current in less than one-half cycle, before it reaches its total available (and highly destructive) value, the device is a "current-limiting" device. Most modern fuses are current-limiting. They restrict fault currents to such low values that a high degree of protection is given to circuit components against even very high short-circuit currents. They permit breakers with lower interrupting ratings to be used when series rated. They can reduce bracing of bus structures. They minimize the need of other components to have high short-circuit current "withstand" ratings. If not limited, short-circuit currents can reach levels of 30,000 or 40,000A or higher in the first half cycle (.008 seconds, 60Hz) after the start of a short-circuit. The heat that can be produced in circuit components by the immense energy of short-circuit currents can cause severe insulation damage or even explosion. At the same time, huge magnetic forces developed between conductors can crack insulators and distort and destroy bracing structures. Thus, it is important that a protective device limit fault currents before they reach their full potential level.

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Fuse Technology

Operating Principles of Bussmann Fuses

The principles of operation of the modern, current-limiting fuses are covered in the following paragraphs.

Non-Time-Delay Fuses

The basic component of a fuse is the link. Depending upon the amp rating of the fuse, the single-element fuse may have one or more links. They are electrically connected to the end blades (or ferrules) (see Figure 1) and enclosed in a tube or cartridge surrounded by an arc quenching filler material. Bussmann Limitron™ and T-Tron™ fuses are both single-element fuses.

Under normal operation, when the fuse is operating at or near its amp rating, it simply functions as a conductor. However, as illustrated in Figure 2, if an overload current occurs and persists for more than a short interval of time, the temperature of the link eventually reaches a level which causes a restricted segment of the link to melt. As a result, a gap is formed and an electric arc established. However, as the arc causes the link metal to burn back, the gap becomes progressively larger. Electrical resistance of the arc quickly reaches such a high level that the arc cannot be sustained and is extinguished. The fuse will have then completely cut off all current flow in the circuit. Suppression or quenching of the arc is accelerated by the filler material. (See Figure 3.)

Single-element fuses of present day design have a very high speed of response to overcurrents. They provide excellent short-circuit component protection. However, temporary, harmless overloads or surge currents may cause nuisance openings unless these fuses are oversized. They are best used, therefore, in circuits not subject to heavy transient surge currents and the temporary over-load of circuits with inductive loads such as motors, transformers, solenoids, etc. Because single-element, fast-acting fuses such as Limitron and T-Tron fuses have a high speed of response to short-circuit currents, they are particularly suited for the series rating protection of circuit breakers with low interrupting ratings.

Whereas an overload current normally falls between one and six times normal current, short-circuit currents are quite high. The fuse may be subjected to short-circuit currents of 30,000 or 40kA or higher. Response of current limiting fuses to such currents is extremely fast. The restricted sections of the fuse link will simultaneously melt (within a matter of two or three-thousandths of a second in the event of a high-level fault current).

The high total resistance of the multiple arcs, together with the quenching effects of the filler particles, results in rapid arc suppression and clearing of the circuit. (Refer to Figures 4 & 5) Short-circuit current is cut off in less than a half-cycle, long before the short-circuit current can reach its full value (fuse operating in its current limiting range).

Figure 1. Cutaway view of typical single-element fuse.

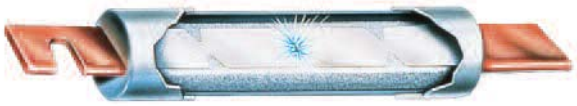

Figure 2. Under sustained overload, a section of the link melts and an arc is established.

Figure 3. The “open” single-element fuse after opening a circuit overload.

Figure 4. When subjected to a short-circuit current, several sections of the fuse link melt almost instantly.

Figure 5. The “open” single-element fuse after opening a short circuit.

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Fuse Technology

Bussmann Dual-Element Fuses

There are many advantages to using these fuses. Unlike single-element fuses, the Bussmann dual-element, time-delay fuses can be sized closer to provide both high performance short-circuit protection and reliable overload protection in circuits subject to temporary overloads and surge currents. For ac motor loads, a single-element fuse may need to be sized at 300% of an a.c. motor current in order to hold the starting current. However, dual-element, time delay fuses can be sized much closer to motor loads. For instance, it is generally possible to size Fusetron Dual-Element Fuses, FRS-R and FRN-R and Low-Peak™ Dual-Element Fuses, LPS-RK_SP and LPN-RK_SP, at 125% and 130% of motor full load current, respectively. Generally, the Low-Peak Dual-Element Fuses, LPJ_SP, and CUBEFuse™, TCF, can be sized at 150 to 175% of motor full load amps. This closer fuse sizing may provide many advantages such as: (1) smaller fuse and block, holder or disconnect amp rating and physical size, (2) lower cost due to lower amp rated devices and possibly smaller required panel space, (3) better short-circuit protection – less short-circuit current let-through energy, and (4) potential reduction in the arc-flash hazard.

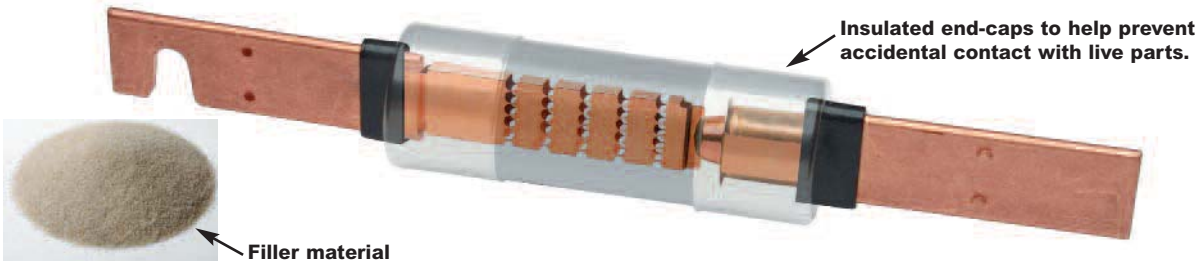

Figure 6. This is the LPS-RK100SP, a 100A, 600V Low-Peak, Class RK1, Dual-Element Fuse that has excellent time-delay, excellent current-limitation and a 300kA interrupting rating. Artistic liberty is taken to illustrate the internal portion of this fuse. The real fuse has a non-transparent tube and special small granular, arc-quenching material completely filling the internal space.

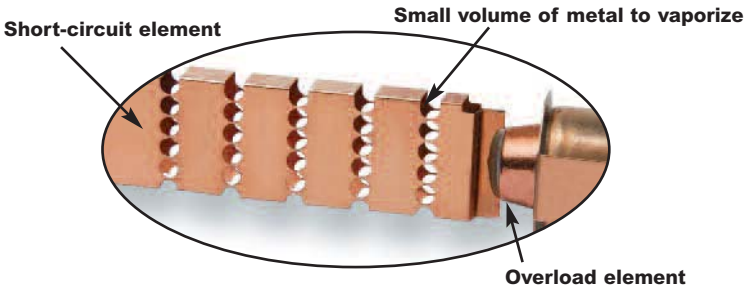

Figure 7. The true dual-element fuse has distinct and separate overload element and short-circuit element.

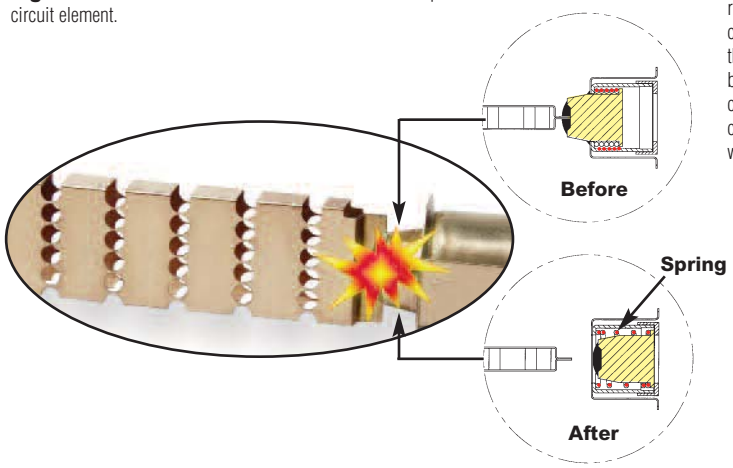

Figure 8. Overload operation: Under sustained overload conditions, the trigger spring fractures the calibrated fusing alloy and releases the "connector". The insets represent a model of the overload element before and after. The calibrated fusing alloy connecting the short-circuit element to the overload element fractures at a specific temperature due to a persistent overload current. The coiled spring pushes the connector from the short-circuit element and the circuit is interrupted.

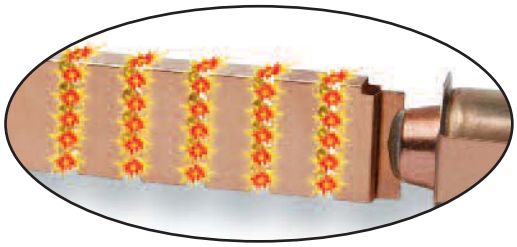

Figure 9. Short-circuit operation: Modern fuses are designed with minimum metal in the restricted portions which greatly enhance their ability to have excellent current-limiting characteristics – minimizing the short circuit let-through current. A short-circuit current causes the restricted portions of the short-circuit element to vaporize and arcing commences. The arcs burn back the element at the points of the arcing. Longer arcs result, which assist in reducing the current. Also, the special arc quenching filler material contributes to extinguishing the arcing current. Modern fuses have many restricted portions, which results in many small arclets – all working together to force the current to zero.

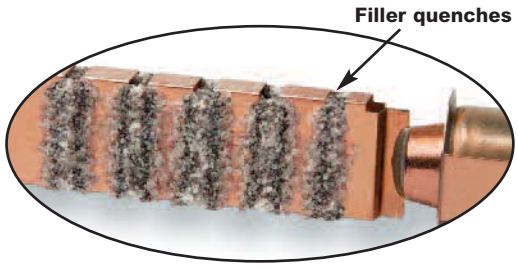

Figure 10. Short-circuit operation: The special small granular, arc-quenching material plays an important part in the interruption process. The filler assists in quenching the arcs; the filler material absorbs the thermal energy of the arcs, fuses together and creates an insulating barrier. This process helps in forcing the current to zero. Modern current-limiting fuses, under short-circuit conditions, can force the current to zero and complete the interruption within a few thousandths of a second.

When the short-circuit current is in the current-limiting range of a fuse, it is not possible for the full available short-circuit current to flow through the fuse – it's a matter of physics. The small restricted portions of the short-circuit element quickly vaporize and the filler material assists in forcing the current to zero. The fuse is able to "limit" the short-circuit current.

Overcurrent protection must be reliable and sure. Whether it is the first day of the electrical system or thirty or more years later, it is important that overcurrent protective devices perform under overload or short-circuit conditions as intended. Modern current-limiting fuses operate by very simple, reliable principles.

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Fuse Technology

Fuse Time-Current Curves

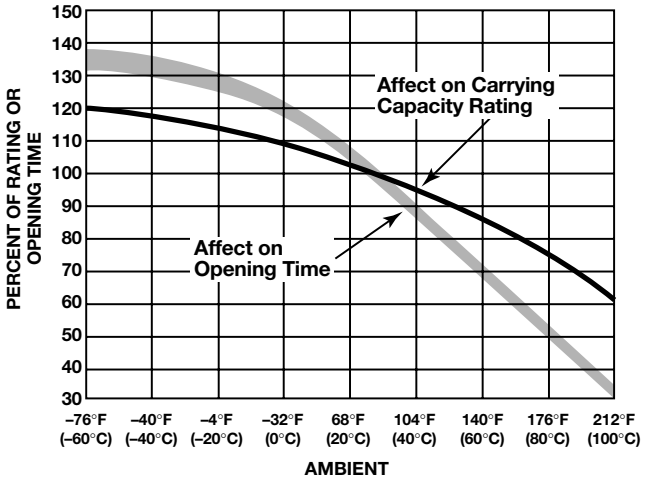
When a low level overcurrent occurs, a long interval of time will be required for a fuse to open (melt) and clear the fault. On the other hand, if the overcurrent is large, the fuse will open very quickly. The opening time is a function of the magnitude of the level of overcurrent. Overcurrent levels and the corresponding intervals of opening times are logarithmically plotted in graph form as shown to the right. Levels of overcurrent are scaled on the horizontal axis; time intervals on the vertical axis. The curve is thus called a "time-current" curve.

This particular plot reflects the characteristics of a 200A, 250V, Low-Peak™ dual-element fuse. Note that at the 1,000A overload level, the time interval which is required for the fuse to open is 10 seconds. Yet, at approximately the 2,200A overcurrent level, the opening (melt) time of a fuse is only 0.01 seconds. It is apparent that the time intervals become shorter as the overcurrent levels become larger. This relationship is termed an inverse time-to-current characteristic. Time-current curves are published or are available on most commonly used fuses showing "minimum melt," "average melt" and/or "total clear" characteristics. Although upstream and downstream fuses are easily coordinated by adhering to simple amp ratios, these time-current curves permit close or critical analysis of coordination.

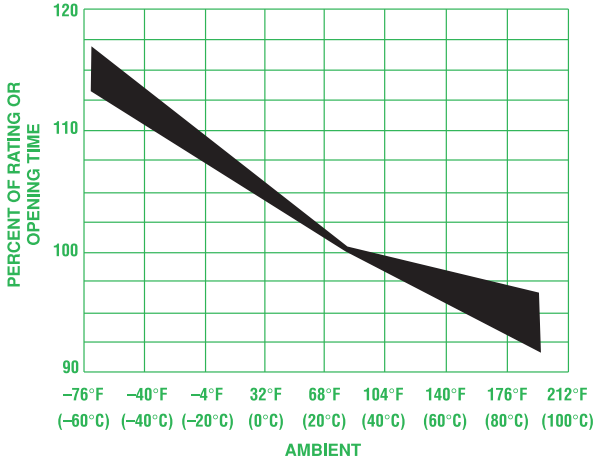
Better Motor Protection in Elevated Ambients

The derating of dual-element fuses based on increased ambient temperatures closely parallels the derating curve of motors in elevated ambient. This unique feature allows for optimum protection of motors, even in high temperatures.

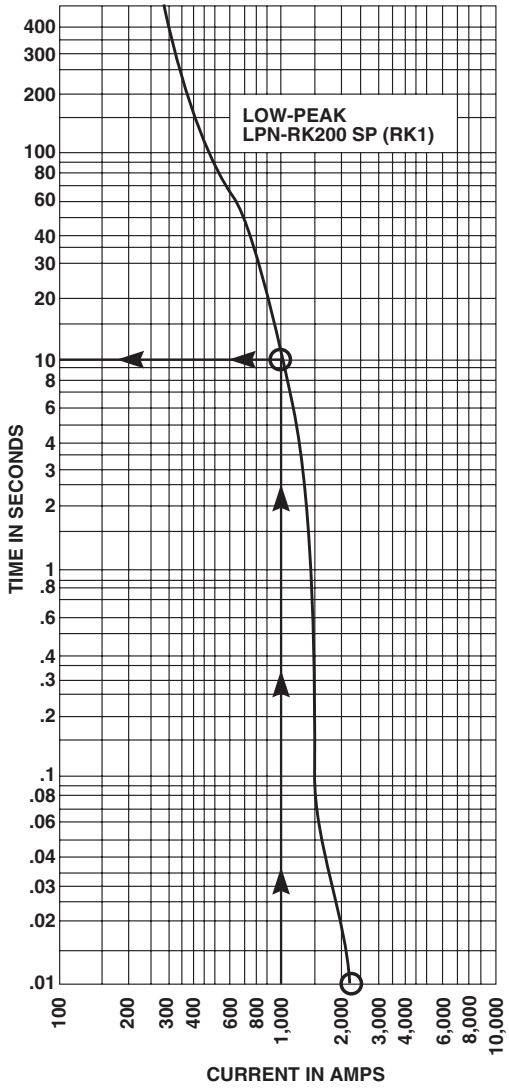
Affect of ambient temperature on operating characteristics of Fusetron and Low-Peak dual-element fuses.



Below is a rerating chart for single element fuses or non dual element fuses.



Ambient affect chart for non-dual-element fuses.



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Fuse Technology

Better Protection Against Motor Single Phasing

When secondary single-phasing occurs, the current in the remaining phases increases to approximately 200% rated full load current. (Theoretically 173%, but change in efficiency and power factor make it about 200%.) When primary single-phasing occurs, unbalanced voltages occur on the motor circuit causing currents to rise to 115%, and 230% of normal running currents in delta-wye systems.

No overcurrent protective device sized only for motor branch circuit short-circuit, ground fault protection will provide single-phasing protection for 3-phase motors. Single-phasing causes are numerous including the utility system that supplies the service losing a phase. Single-phasing is not a serious concern for 3-phase motors when properly protected by three properly sized and calibrated overload protective devices. Many solid state motor controllers will sense and cause the motor controller to open for serious unbalanced voltage situations caused by single-phasing. FRN-R, FRS-R, LPN-R_SP and LPS-R_SP dual-element fuses sized for motor running overload protection will help to protect motors against the possible damages of single-phasing. In addition, additional unbalanced voltage protection can be incorporated into motor protection schemes, if desired. For more information refer to the Cooper Bussmann Selecting Protective Devices publication, section Voltage Unbalance & Single-Phasing.

Classes of Fuses

Safety is the industry mandate. However, proper selection, overall functional performance and reliability of a product are factors which are not within the basic scope of listing agency activities. In order to develop its safety test procedures, listing agencies develop basic performance and physical specifications or standards for a product. In the case of fuses, these standards have culminated in the establishment of distinct classes of low-voltage (600V or less) fuses; Classes RK1, RK5, G, L, T, J, H and CC being the more important.

The fact that a particular type of fuse has, for instance, a classification of RK1, does not signify that it has the identical function or performance characteristics as other RK1 fuses. In fact, the Limitron™ non-time-delay fuse and the Low-Peak dual-element, time-delay fuse are both classified as RK1. Substantial differences in these two RK1 fuses usually requires considerable difference in sizing. Dimensional specifications of each class of fuse does serve as a uniform standard.

Class R Fuses

Class R ("R" for rejection) fuses are high performance, ⅒ to 600A units, 250V and 600V, having a high degree of current limitation and a short-circuit interrupting rating of 200kA or 300kA (RMS Sym.). Bussmann Class R fuses include Class RK1 Low-Peak™ and Limitron™ fuses, and RK5 Fusetron fuses. They have replaced the K1 Low-Peak and Limitron fuses and K5 Fusetron fuses. These fuses are identical, with the exception of a modification in the mounting configuration called a "rejection feature." This feature permits Class R fuses to be mounted in rejection type fuseclips. "R" type fuseclips prevent

older type Class H, ONE-TIME and RENEWABLE fuses from being installed. The use of Class R fuse holders is thus an important safeguard. The application of Class R fuses in such equipment as disconnect switches permits the equipment to have a high interrupting rating. NEC® 110-9 and §OSHA 29 CFR 1910.303(b)(4) require that protective devices have adequate capacity to interrupt short-circuit currents. Article 240-60(b) requires fuse holders for current-limiting fuses to reject non-current-limiting type fuses. In the above illustration, a grooved ring in one ferrule provides the rejection feature of the Class R fuse in contrast to the lower interrupting rating, non-rejection type.

Branch-Circuit Listed Fuses

Branch-circuit listed fuses are designed to prevent the installation of fuses that cannot provide a comparable level of protection to equipment.

The characteristics of Branch-circuit fuses are:

1. They must have a minimum interrupting rating of 10kA
2. They must have a minimum voltage rating of 125V.
3. They must be size rejecting such that a fuse of a lower voltage rating cannot be installed in the circuit.
4. They must be size rejecting such that a fuse with a current rating higher than the fuse holder rating cannot be installed.

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Fuse Technology

Supplementary Overcurrent Protective Devices for use in Motor Control Circuits

Branch Circuit vs. Supplemental Overcurrent Protective Devices

Branch circuit overcurrent protective devices (OCPD) can be used everywhere OCPD are used, from protection of motors and motor circuits and group motor circuits, to protection of distribution and utilization equipment. Supplemental OCPD can only be used where proper protection is already being provided by a branch circuit device, by exception [i.e., 430.72(A)], or if protection is not required. Supplemental OCPD can often be used to protect motor control circuits but they cannot be used to protect motors or motor circuits. A very common misapplication is the use of a supplementary overcurrent protective device such as a UL 1077 mechanical overcurrent device for motor branch circuit short-circuit and ground fault protection. Supplementary OCPDs are incomplete in testing compared to devices that are evaluated for branch circuit protection. THIS IS A SERIOUS MISAPPLICATION AND SAFETY CONCERN!! Caution should be taken to assure that the proper overcurrent protective device is being used for the application at hand. Below is a description of popular supplementary overcurrent protective devices.

Most supplemental overcurrent protective devices have very low interrupting ratings. Just as any other overcurrent protective device, supplemental OCPDs must have an interrupting rating equal to or greater than the available short-circuit current.

Supplemental fuses as listed or recognized to the UL/CSA/ANCE Trinational 248-14 Standard

These are fuses that can have many voltages and interrupting ratings within the same case size. Examples of supplemental fuses are 13/32" X 1 1/2", 5 x 20mm, and 1/4" x 1 1/4" fuses. Interrupting ratings range from 35 to 100kA.

Reliability and Maintenance of Overcurrent Protective Devices

Whether the first day of the electrical system or years later, it is important that overcurrent protective devices perform under overload and fault conditions as intended.

Modern current-limiting fuses operate by very simple, reliable principles. Fuses do not have to be maintained. By their inherent design, fuses do not have elements or mechanisms to calibrate, adjust or lubricate. If and when fuses are called upon to open on an overcurrent, installing the same type and ampere rated fuses provides the circuit with new factory-calibrated protection. The original design integrity can be maintained throughout the life of the electrical system. One last point on fuse systems; the terminations, clips and disconnects should be maintained as necessary.

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Motor Circuit Branch Circuit Protection

Motor Circuits – Choice of Overcurrent Protection

Motor circuits have unique characteristics and several functions, such as short-circuit protection, overload protection and automatic/ remote start/stop, that may be required. Sometimes the comment is made that users prefer circuit breakers because they can be reset. Let's examine the choice of either circuit breakers or current- limiting fuses for motor branch circuit protection.

In the case to be examined, fuses and circuit breakers (includes magnetic only circuit breakers which are called MCPs or motor circuit protectors) are sized with the intent to provide only short-circuit and ground fault protection for the motor branch circuit protection per 430.52. Other means, such as overload relays, provide the motor overload protection. Typical thermal magnetic circuit breakers can only be sized for motor branch circuit protection (typically 200% - 250% of motor current) because if they are sized closer, the motor starting current trips the circuit breaker's instantaneous mechanism. Magnetic only circuit breakers (MCPs) are intentionally not provided with overload capability; they only operate on short-circuit currents. There are some fuses such as the FRS-R and LPS-RK fuses that can be sized close enough for motor running overload protection or backup motor running protection. But for the discussion in this section, assume current-limiting fuses are sized only for motor short-circuit and ground fault protection.

It is important to note that in this protection level being discussed, a circuit breaker or fuses should only open if there is a fault on the motor circuit. A separate overload protective device, such as an overload relays, provides motor overload protection per 430.32. Here are some important considerations:

1. OSHA regulation 1910.334(b)(2) Use of Equipment states:

   Reclosing circuits after protective device operation. After a circuit is deenergized by a circuit protective device, the circuit may not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. The repetitive manual reclosing of circuit breakers or reenergizing circuits through replaced fuses is prohibited. NOTE: When it can be determined from the design of the circuit and the over-current devices involved that the automatic operation of a device was caused by an overload rather than a fault condition, no examination of the circuit or connected equipment is needed before the circuit is reenergized.

   So the speed of reclosing a circuit breaker after a fault is not an advantage. The law requires that if the condition is a fault (that is the only reason the circuit breaker or fuses should open on a motor circuit), then the fault must be corrected prior to replacing fuses or resetting the circuit breaker.

2. *The typical level of short-circuit protection for the motor starter provided by circuit breakers and MCPs is referred to as Type 1. This is because most circuit breakers are not current-limiting. So, for a loadside fault, the starter may sustain significant damage such as severe welding of contacts and rupturing of the heater elements. Or the heater/overload relay system may lose calibration. This is an acceptable level of performance per UL 508, which is the product standard for motor starters. Current-limiting fuses can be selected that can provide Type 2 "No Damage" short-circuit protection for motor starters.*

   Consequently, with circuit breaker protection, after a fault condition, significant downtime and cost may be incurred in repairing or replacing the starter. With properly selected fuses for Type 2 protection, after the fault is repaired, only new fuses need to be inserted in the circuit; the starter does not have to be repaired or replaced.

3. *Circuit breakers must be periodically tested to verify they mechanical operate and electrically tested to verify they still are properly calibrated within specification. The circuit breaker manufacturers recommend this. Typically circuit breakers should be mechanically operated at least every year and electrically tested every 1 to 5 years, depending on the service conditions. Modern current-limiting fuses do not have to be maintained or electrically tested to verify they still will operate as intended. The terminations of both circuit breakers and fusible devices need to be periodically checked and maintained to prevent thermal damage. Plus fuse clips should be periodically inspected and if necessary maintained.*

4. *After a circuit breaker interrupts a fault, it may not be suitable for further service. UL 489, the product standard for molded case circuit breakers, only requires a circuit breaker to interrupt two short-circuit currents at its interrupting rating. Circuit breakers that are rated 100 amps or less do not have to operate after only one short-circuit operation under "bus bar" short-circuit conditions. If the fault current is high, circuit breaker manufacturers recommend that a circuit breaker should receive a thorough inspection with replacement, if necessary. How does one know a circuit breaker's service history or what level of fault current that a circuit breaker interrupts? With modern current-limiting fuses, if the fuse interrupts a fault, new factory calibrated fuses are installed in the circuit. The original level of superior short-circuit protection can be there for the life of the motor circuit.*

5. *After a fault, the electrician has to walk back to the storeroom to get new fuses; that is if spare fuses are not stored adjacent to the equipment. This does require some additional down time. However, if fuses opened under fault conditions, there is a fault condition that must be remedied. The electrician probably will be going back to the storeroom anyway for parts to repair the fault. If properly selected current-limiting fuses are used in the original circuit, the starter will not sustain any significant damage or loss of overload calibration.*

With circuit breaker protection on motor circuits, after a fault condition, it may be necessary to repair or replace the starter, so a trip to the storeroom may be necessary. And if the starter is not significantly damaged, it may still need to be tested to insure the let-through energy by the circuit breaker has not caused the loss of starter overload calibration. Also, the circuit breaker needs to be evaluated for suitability before placing it back into service. Who is qualified for that evaluation? How much time will that take?

In summary, resettability is not an important feature for motor branch circuit (short-circuit) protection and resettability of the branch circuit protective device is not a benefit for motor circuits. As a matter of fact, resettability of the motor branch circuit overcurrent protective device may encourage an unsafe practice. The function of motor branch circuit protection is fault protection: short-circuit and ground fault protection. Faults do not occur on a regular basis. But when a fault does occur, it is important to have the very best protection. The best motor branch circuit protection can be judged by (1) reliability - its ability to retain its calibration and speed of operation over its lifetime, (2) current-limiting protection - its ability to provide Type 2 "No Damage" protection to the motor starter, and (3) safety - its ability to meet a facility's safety needs. Modern current-limiting fuses are superior to circuit breakers for motor branch circuit protection.

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Glossary

Ampere (Amp)

The measurement of intensity of rate of flow of electrons in an electric circuit. An ampere (amp) is the amount of current that will flow through a resistance of one ohm under a pressure of one volt. Ampere is often abbreviated as "A."

Amp Rating

The current-carrying capacity of a fuse. When a fuse is subjected to a current above its amp rating, it will open the circuit after a predetermined period of time.

Amp Squared Seconds, I^2t

The measure of heat energy developed within a circuit during the fuse's clearing. It can be expressed as "melting I^2t", "arcing I^2t" or the sum of them as "Clearing I^2t". "I" stands for effective let-through current (RMS), which is squared, and "t" stands for time of opening, in seconds.

Arcing I^2t

Value of the I^2t during the arcing time under specified conditions.

Arcing Time

The amount of time from the instant the fuse link has melted until the overcurrent is interrupted, or cleared.

Breaking Capacity

(See Interrupting Rating)

Cartridge Fuse

A fuse consisting of a current responsive element inside a fuse tube with terminals on both ends.

Class CC Fuses

600V, 200kA interrupting rating, branch circuit fuses with overall dimensions of 13/32" x 1½". Their design incorporates a rejection feature that allows them to be inserted into rejection fuse holders and fuse blocks that reject all lower voltage, lower interrupting rating 13/32" x 1½" fuses. They are available from 1/10A through 30A.

Class G Fuses

480V, 100kA interrupting rating branch circuit fuses that are size rejecting to eliminate overfusing. The fuse diameter is 13/32" while the length varies from 1 5/16" to 2¼". These are available in ratings from 1A through 60A.

Class H Fuses

250V and 600V, 10kA interrupting rating branch circuit fuses that may be renewable or non-renewable. These are available in amp ratings of 1A through 600A.

Class J Fuses

These fuses are rated to interrupt a minimum of 200kA AC. They are labeled as "Current-Limiting," are rated for 600Vac, and are not interchangeable with other classes.

Class K Fuses

These are fuses listed as K-1, K-5, or K-9 fuses. Each subclass has designated I^2t and I_p maximums. These are dimensionally the same as Class H fuses, and they can have interrupting ratings of 50kA, 100kA, or 200kA. These fuses are current-limiting. However, they are not marked "current-limiting" on their label since they do not have a rejection feature.

Class L Fuses

These fuses are rated for 601 through 6000A, and are rated to interrupt a minimum of 200kA AC. They are labeled "Current-Limiting" and are rated for 600Vac. They are intended to be bolted into their mountings and are not normally used in clips. Some Class L fuses have designed in time-delay features for all purpose use.

Class R Fuses

These are high performance fuses rated 1/10-600A in 250V and 600V ratings. All are marked "Current Limiting" on their label and all have a minimum of 200kA interrupting rating. They have identical outline dimensions with the Class H fuses but have a rejection feature which prevents the user from mounting a fuse of lesser capabilities (lower interrupting capacity) when used with special Class R Clips. Class R fuses will fit into either rejection or non-rejection clips.

Class T Fuses

An industry class of fuses in 300V and 600V ratings from 1A through 1200A. They are physically very small and can be applied where space is at a premium. They are fast-acting fuses with an interrupting rating of 200kA RMS.

Classes of Fuses

The industry has developed basic physical specifications and electrical performance requirements for fuses with voltage ratings of 600V or less. These are known as standards. If a type of fuse meets the requirements of a standard, it can fall into that class. Typical classes are K, RK1, RK5, G, L, H, T, CC, and J.

Clearing Time

The total time between the beginning of the overcurrent and the final opening of the circuit at rated voltage by an overcurrent protective device. Clearing time is the total of the melting time and the arcing time.

Current Limitation

A fuse operation relating to short circuits only. When a fuse operates in its current-limiting range, it will clear a short circuit in less than ½ cycle. Also, it will limit the instantaneous peak let-through current to a value substantially less than that obtainable in the same circuit if that fuse were replaced with a solid conductor of equal impedance.

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Glossary

Dual Element Fuse

Fuse with a special design that utilizes two individual elements in series inside the fuse tube. One element, the spring actuated trigger assembly, operates on overloads up to 5-6 times the fuse current rating. The other element, the short circuit section, operates on short circuits up to their interrupting rating.

Electrical Load

That part of the electrical system which actually uses the energy or does the work required.

Fast-Acting Fuse

A fuse which opens on overload and short circuits very quickly. This type of fuse is not designed to withstand temporary overload currents associated with some electrical loads.

Fuse

An overcurrent protective device with a fusible link that operates and opens the circuit on an overcurrent condition.

High Speed Fuses

Fuses with no intentional time-delay in the overload range and designed to open as quickly as possible in the short-circuit range. These fuses are often used to protect solid-state devices.

Inductive Load

An electrical load which pulls a large amount of current—an inrush current—when first energized. After a few cycles or seconds the current "settles down" to the full-load running current.

Interrupting Capacity

(See Interrupting Rating)

Interrupting Rating — IR (Breaking Capacity)

The rating which defines a fuse's ability to *safely* interrupt and clear short circuits. This rating is much greater than the ampere rating of a fuse. The NEC® defines Interrupting Rating as "The highest current at rated voltage that an overcurrent protective device is intended to interrupt under standard test conditions."

Melting I^2t

Value of the I^2t during the melting time of the fuse link under specified conditions.

Melting Time

The amount of time required to melt the fuse link during a specified overcurrent. (See Arcing Time and Clearing Time.)

"NEC®" Dimensions

These are dimensions once referenced in the National Electrical Code. They are common to Class H and K fuses and provide interchangeability between manufacturers for fuses and fusible equipment of given ampere and voltage ratings.

Ohm

The unit of measure for electric resistance. An ohm is the amount of resistance that will allow one ampere to flow under a pressure of one volt.

Ohm's Law

The relationship between voltage, current, and resistance, expressed by the equation E = IR, where E is the voltage in volts, I is the current in amps, and R is the resistance in ohms.

One Time Fuses

Generic term used to describe a Class H non-renewable cartridge fuse, with a single element.

Overcurrent

A condition which exists on an electrical circuit when the normal load current is exceeded. Overcurrents take on two separate characteristics—overloads and short-circuits.

Overload

Can be classified as an overcurrent which exceeds the normal full load current of a circuit. Also characteristic of this type of overcurrent is that it does not leave the normal current carrying path of the circuit—that is, it flows from the source, through the conductors, through the load, back through the conductors, to the source again.

Peak Let-Through Current, I_p

The instantaneous value of peak current let-through by a current-limiting fuse, when it operates in its current-limiting range.

Renewable Fuse (600V & below)

A fuse in which the element, typically a zinc link, may be replaced after the fuse has opened, and then reused. Renewable fuses are made to Class H standards.

Resistive Load

An electrical load which is characteristic of not having any significant inrush current. When a resistive load is energized, the current rises instantly to its steady-state value, without first rising to a higher value.

RMS Current

The RMS (root-mean-square) value of any periodic current is equal to the value of the direct current which, flowing through a resistance, produces the same heating effect in the resistance as the periodic current does.

SCCR

See Short-Circuit Current Rating

Semiconductor Fuses

Fuses used to protect solid-state devices. See "High Speed Fuses."

Short-Circuit

Can be classified as an overcurrent which exceeds the normal full load current of a circuit by a factor many times (tens, hundreds or thousands greater). Also characteristic of this type of overcurrent is that it leaves the normal current carrying path of the circuit—it takes a "short cut" around the load and back to the source.

Short-Circuit Current Rating (SCCR)

The maximum short-circuit current an electrical component can sustain without the occurrence of excessive damage when protected with an overcurrent protective device.

Short-Circuit Withstand Rating

Same definition as short-circuit current rating.

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Glossary

Single-Phasing

That condition which occurs when one-phase of a three-phase system opens, either in a low voltage (secondary) or high voltage (primary) distribution system. Primary or secondary single-phasing can be caused by any number of events. This condition results in unbalanced currents in polyphase motors and unless protective measures are taken, causes overheating and failure.

Threshold Current

The symmetrical RMS available current at the threshold of the current-limiting range, where the fuse becomes current-limiting when tested to the industry standard. This value can be read off of a peak let-through chart where the fuse curve intersects the A-B line. A threshold ratio is the relationship of the threshold current to the fuse's continuous current rating.

Time-Delay Fuse

A fuse with a built-in delay that allows temporary and harmless inrush currents to pass without opening, but is so designed to open on sustained overloads and short circuits.

Total Clearing I^2t

Total measure of heat energy developed within a circuit during the fuse's clearing of a fault current. Total Clearing I^2t is the sum of the melting I^2t and arcing I^2t.

Voltage Rating

The maximum open circuit voltage in which a fuse can be used, yet safely interrupt an overcurrent. Exceeding the voltage rating of a fuse impairs its ability to clear an overload or short-circuit safely.

Withstand Rating

The maximum current that an unprotected electrical component can sustain for a specified period of time without the occurrence of extensive damage.

Out-of-Stock Substitution/Upgrades

Bussmann #	Upgrade #	Description	Data Sheet #
AGC-(AMP)	ABC-(AMP)	FAST-ACTING, ¼" X 1¼" FUSE	2001
AGC-V-(AMP)	ABC-V-(AMP)	FAST-ACTING, ¼" X 1¼" FUSE WITH LEADS	2001
AGU-(AMP)	LP-CC-(AMP)	FAST-ACTING, 13/32" X 1½" FUSE	2008
BAF-(AMP)	LP-CC-(AMP)	FAST-ACTING, 13/32" X 1½" FUSE	2011
BAN-(AMP)	LP-CC-(AMP)	FAST-ACTING, 13/32" X 1½" FUSE	2046
DCM-(AMP)	PVM-(AMP)	SOLAR USE - FAST-ACTING, 13/32" X 1½" FUSE	2153
DCM-(AMP)	KLM-(AMP)	INDUSTRIAL - FAST-ACTING, 13/32" X 1½" FUSE	2020
DLS-(AMP)	ECNR-(AMP)	TIME-DELAY, 250Vac, CLASS RK5	1315
DLS-(AMP)	ECSR-(AMP)	TIME-DELAY, 600Vac, CLASS RK5	1318
FNM-(AMP)	LP-CC-(AMP)	TIME-DELAY, 13/32" X 1½" FUSE	2028
FNQ-R-(AMP)	LP-CC-(AMP)*	TIME-DELAY, 500V, 13/32" X 1½" FUSE	1012
FNR-R-(AMP)	LPN-RK-(AMP)SP	TIME-DELAY, 250V, CLASS RK5 FUSES	1019/1020
FRS-R-(AMP)	LPS-RK-(AMP)SP	TIME-DELAY, 600V, CLASS RK5 FUSES	1017/1018
JKS-(AMP)	LPJ-(AMP)SP	FAST-ACTING, 600V, CLASS J FUSE	1026/1027
KLU-(AMP)	KRP-C-(AMP)SP	TIME-DELAY, CLASS L FUSE	1013
KTK-(AMP)	KTK-R-(AMP)	FAST-ACTING, 600V, 13/32" X 1½" FUSE	1011
KTK-R-(AMP)	LP-CC-(AMP)	FAST-ACTING, 600V, CLASS CC FUSE	1015
KTN-R-(AMP)	LPN-RK-(AMP)SP	FAST-ACTING, 250V, CLASS RK1 FUSE	1043
KTS-R-(AMP)	LPS-RK-(AMP)SP	FAST-ACTING, 600V, CLASS RK1 FUSE	1044
KTU-(AMP)	KPR-C-(AMP)SP	FAST-ACTING, 600V, CLASS L FUSE	1010
KWS-R-(AMP)	LPS-RK-(AMP)SP	FAST-ACTING, 600V, CLASS RK1 FUSE	1044
MDL-(AMP)	MDA-(AMP)	TIME-DELAY, ¼" X 1¼" FUSE	2004
MDL-V-(AMP)	MDA-V-(AMP)	TIME-DELAY, ¼" X 1¼" FUSE WITH LEADS	2004
MTH-(AMP)	ABC-(AMP)	FAST-ACTING, ¼" X 1¼" FUSE	
NON-(AMP)	LPN-RK-(AMP)SP	GENERAL PURPOSE, 250V, CLASS H FUSES	1030
NOS-(AMP)	LPS-RK-(AMP)SP	GENERAL PURPOSE, 600V, CLASS H FUSES	1030
REN-(AMP)	LPN-RK-(AMP)SP	250V RENEWABLE FUSELINK	1028
RES-(AMP)	LPS-RK-(AMP)SP	600V RENEWABLE FUSELINK	1028
SL-(AMP)	S-(AMP)	TIME-DELAY, 125V, PLUG FUSE	1033
TL-(AMP)	T-(AMP)	TIME-DELAY, 125V, PLUG FUSE	1035
W-(AMP)	TL-(AMP)	TIME-DELAY, 125V, PLUG FUSE	1035

*Not recommended for control transformer circuits.

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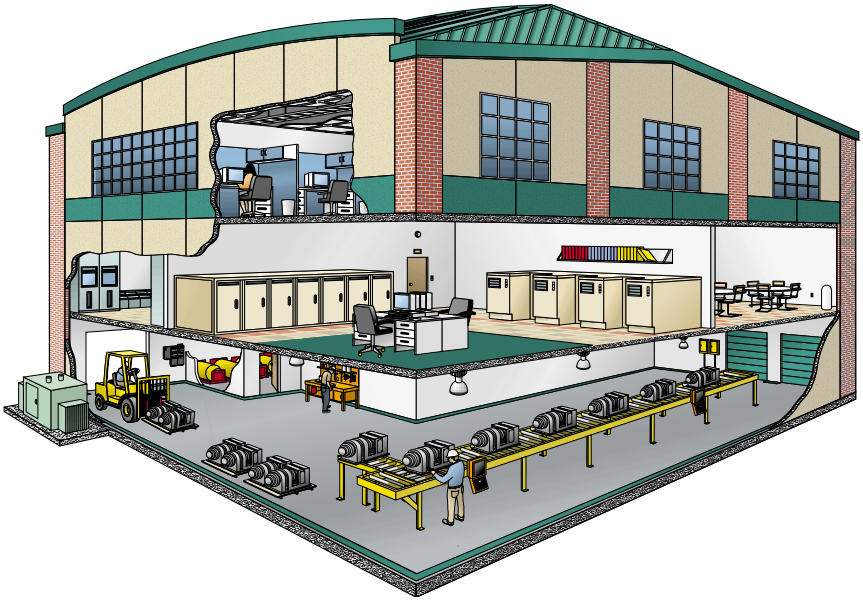
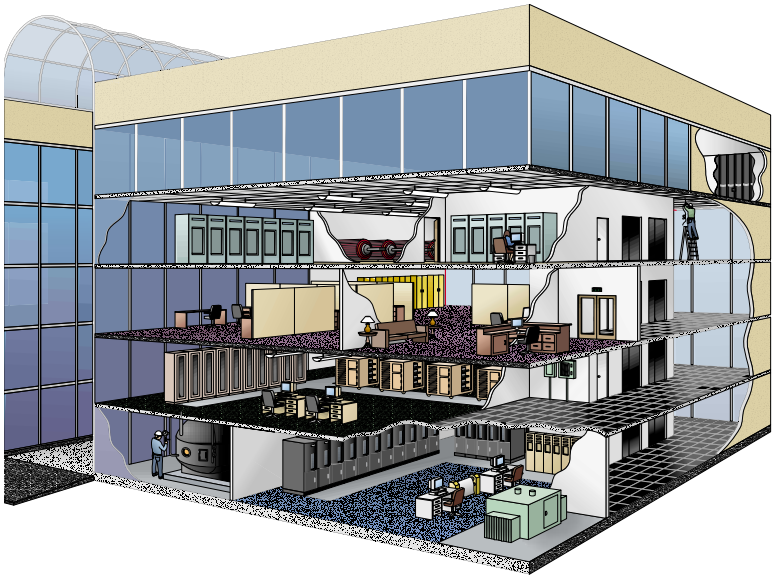
Industrial Fuse Applications

Industrial Applications

1. Interior Lighting
2. Computer Power
3. Switchboards
4. Motor Control Center
5. Emergency Lighting
6. UPS Backup Power Supplies
7. Transformer/Emergency Generator
8. Forklift Battery Charging Station
9. HVAC Chillers/Blowers
10. Welding Circuits
11. Plant Lighting
12. Distribution Panels
13. Disconnect Switches
14. Programmable Logic Circuits
15. Conveyor System





Commercial Applications

1. Interior Lighting
2. HVAC Blowers
3. Computer Power
4. Branch Circuits
5. Emergency Lighting
6. Load Centers
7. Disconnect/Distribution Panels
8. HVAC/Chillers
9. Switchboards/Motor Control Centers
10. UPS Backup Power Supplies
11. Elevator Control Centers
12. Transformer/Emergency Generator

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Bussmann, the industry leader in critical circuit protection, power management and electrical safety offers an extensive selection of fuses and fuse blocks to meet precise overcurrent protection needs.

Whether it's glass tube, low voltage or high speed fuse ... or fuse blocks needed for an application, you can use this FuseFinder Quick Cross Reference Guide to find the Bussmann replacement. If you cannot find a cross, more extensive listings are available online at www.cooperbussmann.com/FuseFinder. Or contact our Application Engineers at FuseTech@cooperindustries.com.

Competitor Fuse Family	Bussmann	Competitor Fuse Family	Bussmann	Competitor Fuse Family	Bussmann
0481(AMP)	GMT-(AMP)A	413(AMP)	MDM-(AMP)	BDL(AMP)	MDL-(AMP)
211(AMP)	GDC-(AMP)	414(AMP)	ABS-(AMP)	BGC(AMP)	AGC-(AMP)
212(AMP)	GDB-(AMP)	417(AMP)	ABS-(AMP)	BGX(AMP)	AGX-(AMP)
213(AMP)	GDC-(AMP)	418(AMP)	TR/3216FF-(AMP)	BLF(AMP)	BAF-(AMP)
215(AMP)	S505-(AMP)	429(AMP)	3216FF(AMP)	BLN(AMP)	BAN-(AMP)
216(AMP)	GDA-(AMP)	431(AMP)	0603FA(AMP)	BLS(AMP)	BBS-(AMP)
217(AMP)	GDB-(AMP)	5140(AMP)	BAF-(AMP)	BMA(AMP)	GDA-(AMP)
218(AMP)	GDC-(AMP)	5170(AMP)	AGU-(AMP)	CBO(AMP) [4-160A]	HBO-(AMP)
221(AMP)	S505-V-(AMP)	523(AMP)	FNM-(AMP)	CCK(AMP) [1-300A]	ACK-(AMP)
226(AMP)	GDA-V-(AMP)	5HF(AMP)	GDA-(AMP)	CCL(AMP) [30-100A]	ACL-(AMP)
227(AMP)	GDB-V-(AMP)	5HFP(AMP)	GDA-V-(AMP)	CCLB(AMP) [20-250A]	KGJ-E-(AMP)
228(AMP)	GDC-V-(AMP)	5HT(AMP)	BK/S505-(AMP)A	CCLW(AMP) [1-300A]	KGJ-(AMP)
230(AMP)	BK/C515-(AMP)	5MF(AMP)	GMA-(AMP)	CCMR[1-30A Only]	LP-CC(AMP)
235(AMP)	GMA-(AMP)	5MFP(AMP)	GMA-V-(AMP)	CDNC(AMP)	CDN(AMP)
236(AMP)	GMA-V-(AMP)	5SF(AMP)	GDB-(AMP)	CDSC(AMP)	CDS(AMP)
238(AMP)	GMD-V-(AMP)	5ST(AMP)	GDC-(AMP)	CNL(AMP)	ANL-(AMP)
239(AMP)	GMD-(AMP)	6J(AMP)X	KTK-(AMP)	CNN(AMP)	ANN-(AMP)
251(AMP)	MCRW-(AMP)	6R(AMP)D	LPS-RK-(AMP)SP	DCT[1-15A]	PV-(AMP)A10F
252(AMP)	MCRW-(AMP)	702(AMP)	HVJ-(AMP)	E(AMP)FC	(AMP)FC
255(AMP) [1/16-5A]	MCRW-(AMP)	703(AMP)	HVL-(AMP)	E(AMP)FE	(AMP)FE
256(AMP)	MCRW-(AMP)	81200(AMP)ST	CBS-(AMP)	E(AMP)FET	(AMP)FET
257(AMP)	ATC-(AMP)	A70P(AMP)-1 or Type 1	FWP-(AMP)A14F	E(AMP)FM	(AMP)FM
275(AMP)	MCRW-(AMP)	A70P(AMP)-4 or Type 4	FWP-(AMP)A orB	E(AMP)FMM	(AMP)FMM
276(AMP)	MCRW-(AMP)	A70Q(AMP)-4 or Type 4	FWP-(AMP)A or B	E(AMP)LCT [6-20A]	(AMP)LCT
297(AMP)[AUTOMOTIVEFUSE]	ATM-(AMP)	A70QS(AMP)-14F	FWP-(AMP)A14F	E(AMP)LET [25-180A]	(AMP)LET
299(AMP)	MAX-(AMP)	A70QS(AMP)-22F	FWP-(AMP)A22F	E(AMP)LMMT [315-900A]	(AMP)LMMT
2AG220	BK/C517-(AMP)	A70QS[35-200]-4	FWP-(AMP)A or B	E(AMP)LMT [160-450A]	(AMP)LMT
2AG230	BK/C515-(AMP)	A70QS[225-400]-4 or 4K	FWP-(AMP)A or B	E100SF(AMP) [20-30A]	FWJ-(AMP)A14F
301(AMP)	AGA-(AMP)	A70QS[450-600]-4K	FWP-(AMP)A or B	E100S(AMP) [40-2000A]	FWJ-(AMP)
303(AMP)	AGW-(AMP)	A70QS[700-800]-4	FWP-(AMP)A or B	E15S(AMP) [35-3000A]	FWA-(AMP)A
307(AMP)	SFE-(AMP)	A50P(AMP)-1	FWH-(AMP)A14F	E15SF(AMP) [5, 10, 15, 20, 25, 30A]	FWA-(AMP)A10F
311(AMP)	AGC-(AMP)	A50P(AMP)-4	FWH-(AMP)A or B	E25S(AMP) [1000-2500A]	FWX-(AMP)AH
312(AMP)	AGC-(AMP)	A50QS(AMP)-4 or Type 4	FWH-(AMP)A or B	E25S(AMP) [35-800A]	FWX-(AMP)A
313(AMP)	MDL-(AMP)	A30QS(AMP)-1 or Type 1	FWX-(AMP)A14F	E25SFX(AMP) [5-30A]	FWX-(AMP)14F
314(AMP)	ABC-(AMP)	A30QS[35-700]-4 or Type 4	FWX-(AMP)A	E50S(AMP)	FWH-(AMP)
315(AMP)	MDL-V-(AMP)	A30QS[1000-1200]-128	FWX-(AMP)AH	E50SF(AMP) [5-30A]	FWH-(AMP)14F
318(AMP)	AGC-V-(AMP)	A15QS[1-30]-2	FWA-(AMP)A10F	E70S(AMP)	FWP-(AMP)
322(AMP)	GBB-(AMP)	A15QS[35-60]-1	FWA-(AMP)A21F	ECK(AMP) [1-300A]	ACK-(AMP)
323(AMP)	MDA-(AMP)	A15QS[70-400]-4	FWA-(AMP)B	ECL(AMP) [30-100A]	ACL-(AMP)
324(AMP)	ABC-V-(AMP)	A2D(AMP)R	LPN-RK(AMP)SP	ECN(AMP)	FRN-R-(AMP)
325(AMP)	MDA-V-(AMP)	A2K(AMP)	KTN-R(AMP)	ECNR(AMP)	FRN-R-(AMP)
326(AMP)	MDA-(AMP)	A3T(AMP)	JJN(AMP)	ECS(AMP)	FRS-R-(AMP)
334(AMP)	GLD-(AMP)	A4BQ[225-600]	KRP-CL-(AMP)	ECSR(AMP)	FRS-R-(AMP)
336(AMP)	GBA-(AMP)	A4BQ[601-6000]	KRP-C-(AMP)SP	ELR(AMP)	GLR-(AMP)
361(AMP)	AGX-(AMP)	A4BT[601-4000]	KLU[601-4000]	ENLE(AMP)	ANL-(AMP)
362(AMP)	AGX-(AMP)	A4BY(AMP)	KLU(AMP)	ENNE(AMP)	ANN-(AMP)
3770(AMP)	SL-(AMP)	A4J(AMP)	JKS(AMP)	ERN(AMP)	REN-(AMP)
3780(AMP)	S-(AMP)	A6D(AMP)R	LPS-RK(AMP)SP	ERS(AMP)	RES-(AMP)
3785(AMP)	T-(AMP)	A6K(AMP)	KTS-R(AMP)	ESA(AMP)	S-(AMP)
3AB(AMP)	ABC-(AMP)	A6T(AMP)	JJS(AMP)	FA(AMP)	SA(AMP)
3ABP(AMP)	AGC-V-(AMP)	AG(AMP)	SC(AMP)	FII(AMP)	CGL-(AMP)
3AG(AMP)	AGC-(AMP)	AJT(AMP)	LPJ(AMP)SP	FIIC(AMP)	CGL-(AMP)
3AG311(AMP)	AGC-(AMP)	AM10/(AMP)	LP-CC-(AMP)	FIIM(AMP) [125-200A]	(AMP)M14CB
3AG312(AMP)	AGC-(AMP)	AOK(AMP)	ALS-(AMP)	FIIM(AMP) [80-100A]	(AMP)L09CB
3AG313(AMP)	MDL-(AMP)	ATDR(AMP)	LP-CC-(AMP)	FLA(AMP)	FNA-(AMP)
3AG315(AMP)	MDL-V-(AMP)	ATM(AMP)	KLM(AMP)	FLM(AMP)	FNM-(AMP)
3AG318(AMP)	AGC-V-(AMP)	ATMR(AMP)	KTK-R(AMP)	FLN(AMP)	FRN-R-(AMP)
3SB(AMP)	MDL-(AMP)	ATQ(AMP)	FNQ-(AMP)	FLNR(AMP)	FRN-R-(AMP)
3SBP(AMP)	MDL-V-(AMP)	ATQR(AMP)	FNQ-R-(AMP)	FLQ(AMP)	FNQ-(AMP)
401(AMP)	GMT-(AMP)A	BBC(AMP)	ABC-(AMP)	FLS(AMP)	FRS-R-(AMP)
411(AMP)	ABS-(AMP)	BDB(AMP)	GDB-(AMP)	FLSR(AMP)	FRS-R-(AMP)
412(AMP)	ABS-(AMP)	BDC(AMP)	GDC-(AMP)	GFN(AMP)	FNA-(AMP)

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Competitor Fuse Family	Bussmann
GGU(AMP)	AGU(AMP)
GL10/(AMP)	KTK-(AMP)
HCLR(AMP)	KTK-R-(AMP)
HCTR(AMP)	FNQ-R-(AMP)
HSJ(AMP)	DFJ(AMP)
IDSR[6-60A Only]	FRS-R-(AMP)ID
J(AMP)	JKS-(AMP)
JDL(AMP)	LPJ-(AMP)SP
JFL(AMP)	JKS-(AMP)
JLLN(AMP)	JJN-(AMP)
JLLS(AMP)	JJS-(AMP)
JLS(AMP)	JKS-(AMP)
JTD(AMP)	LPJ-(AMP)SP
KLA(AMP) [5, 10, 15, 20, 25, 30A]	FWA-(AMP)A10F
KLB(AMP) [1-30A]	FWX-(AMP)A14F
KLC(AMP)	KAC-(AMP)
KLDR (AMP)	FNQ-R-(AMP)
KLH(AMP) [1-30A]	FWH-(AMP)A14F
KLH(AMP) [225-600A]	FWH-(AMP)A
KLH(AMP) [35-200A]	FWH-(AMP)B
KLK(AMP)	KTK-(AMP)
KLKR(AMP)	KTK-R-(AMP)
KLLU(AMP)	KLU-(AMP)
KLMR(AMP)	LP-CC-(AMP)
KLNR(AMP)	KTN-R-(AMP)
KLPC(AMP)	KRP-C-(AMP)SP
KLSR(AMP)	KTS-R-(AMP)
KLW(AMP)	FWA-(AMP)10F
KON(AMP)	NON-(AMP)
KOS(AMP)	NOS-(AMP)
L(AMP)TD	KRP-C-(AMP)SP
L15S(AMP) [1-30A]	FWA-(AMP)A10F
L15S(AMP) [35-60A]	FWA-(AMP)A21F
L15S(AMP) [70-400A]	FWA-(AMP)A
L25S(AMP) [1-30A]	FWX-(AMP)A14F
L50S(AMP) [1-30A]	FWH-(AMP)A14F
L70S(AMP) [1-30A]	FWP-(AMP)A14F
LCU(AMP)	KTU-(AMP)
LEN(AMP)	FRN-R-(AMP)
LENRK(AMP)	LPN-RK-(AMP)SP
LES(AMP)	FRS-R-(AMP)
LESR(AMP)	FRS-R-(AMP)
LESRK(AMP)	LPS-RK-(AMP)SP
LGR(AMP)	GLR-(AMP)
LHR(AMP)	HLR(AMP)
LKU(AMP)	KLU-(AMP)
LLNRK(AMP)	LPN-RK-(AMP)SP
LLSRK(AMP)	LPS-RK-(AMP)SP
MEN(AMP)	FNM-(AMP)
MEQ(AMP)	FNQ-(AMP)
MJS(AMP)	BK/C515-(AMP)
MOL(AMP)	BAF-(AMP)
MQ(AMP)	MCRW-(AMP)
NCL(AMP)	KTN-R-(AMP)
NCLR(AMP)	KTN-R-(AMP)
NLN(AMP)	NON-(AMP)
NLS(AMP)	NOS-(AMP)
OT(AMP)	NON(AMP)
OTM(AMP)	BAF-(AMP)
OTS(AMP)	NOS(AMP)
PICO	MCRW-(AMP)
R224(AMP)	TR2/C518-(AMP)A
R230(AMP)	TR/C515-(AMP)A
R251(AMP)T1	TR/MCRW-(AMP)

Competitor Fuse Family	Bussmann
RF(AMP)	REN(AMP)
RFS(AMP)	RES(AMP)
RLN(AMP)	REN-(AMP)
RLS(AMP)	RES(AMP)
SAO(AMP)	SA-(AMP)
SBS(AMP)	BBS-(AMP)
SCL(AMP)	KTS-R-(AMP)
SCLR(AMP)	KTS-R-(AMP)
SEC(AMP)	SC-(AMP)
SLC(AMP)	SC-(AMP)
SLO(AMP)	SL-(AMP)
SOO(AMP)	S-(AMP)
TLO(AMP)	TL-(AMP)
TOO(AMP)	T-(AMP)
TR(AMP)	FRN-R-(AMP)
TRM(AMP)	FNM-(AMP)
TRS(AMP)	FRS-R(AMP)
WOO(AMP)	W-(AMP)

Competitor Fuse Blocks [1, 2, 3]	Bussmann
LFJ60030(X) / (X)ID	J60030-(X)CR*
LFJ60060(X) / (X)ID	J60060-(X)CR*
LFJ60100(X) / (X)ID	JM60100-(X)CR**
LFJ60200(X) / (X)ID	JM60200-(X)CR**
LFJ60400(X) / (X)ID	JM60400-(X)CR**
LFJ60600(X) / (X)ID	JM60600-(X)CR**
LFR25030(X) / (X)ID	R25030-(X)CR*
LFR25060(X) / (X)ID	R25060-(X)CR*
LFR25100(X) / (X)ID	RM25100-(X)CR**
LFR25200(X) / (X)ID	RM25200-(X)CR**
LFR25400(X) / (X)ID	RM25400-(X)CR**
LFR25600(X) / (X)ID	RM25600-(X)CR**
LFR60030(X) / (X)ID	R60030-(X)CR*
LFR60060(X) / (X)ID	R60060-(X)CR*
LFR60100(X) / (X)ID	RM60100-(X)CR**
LFR60200(X) / (X)ID	RM60200-(X)CR**
LFR60400(X) / (X)ID	RM60400-(X)CR**
LFR60600(X) / (X)ID	RM60600-(X)CR**
LFH25030(X) / (X)ID	H25030-(X)CR*
LFH25060(X) / (X)ID	H25060-(X)CR*
LFH25100(X) / (X)ID	HM25100-(X)CR**
LFH25200(X) / (X)ID	HM25200-(X)CR**
LFH25400(X) / (X)ID	HM25400-(X)CR**
LFH25600(X) / (X)ID	HM25600-(X)CR**
LFH60030(X) / (X)ID	H60030-(X)CR*
LFH60060(X) / (X)ID	H60060-(X)CR*
LFH60100(X) / (X)ID	HM60100-(X)CR**
LFH60200(X) / (X)ID	HM60200-(X)CR**
LFH60400(X) / (X)ID	HM60400-(X)CR**
LFH60600(X) / (X)ID	HM60600-(X)CR**
LFPSJ30(X) / (X)ID	CH30J(X) / (X)I
LFPSJ60(X) / (X)ID	CH60J(X) / (X)I
LPHV	CHPV
LPSC00(X) / (X)ID	CHCC(X)DU / (X)DIU
LPSM00(X) / (X)ID	CHM(X)DU / CHM(X)DIU
6030(X)J	J60030-(X)CR*
6060(X)J	J60060-(X)CR*
610(XX)J	JM60100-(X)CR**
620(XX)J	JM60200-(X)CR**
640(XX)J	JM60400-(X)CR**
66(XX)J	JM60600-(X)CR**

Competitor Fuse Blocks [1, 2, 3]	Bussmann
203(XX)	H25030-(X)CR*
206(XX)	H25060-(X)CR*
210(XX)	HM25100-(X)CR**
220(XX)	HM25200-(X)CR**
240(XX)	HM25400-(X)CR**
26(XX)	HM25600-(X)CR**
603(XX)	H60030-(X)CR*
606(XX)	H60060-(X)CR*
610(XX)	HM60100-(X)CR**
620(XX)	HM60200-(X)CR**
640(XX)	HM60400-(X)CR**
66(XX)	HM60600-(X)CR**
203(XX)R	R25030-(X)CR*
206(XX)R	R25060-(X)CR*
210(XX)R	RM25100-(X)CR**
220(XX)R	RM25200-(X)CR**
240(XX)R	RM25400-(X)CR**
26(XX)R	RM25600-(X)CR**
603(XX)R	R60030-(X)CR*
606(XX)R	R60060-(X)CR*
610(XX)R	RM60100-(X)CR**
620(XX)R	RM60200-(X)CR**
640(XX)R	RM60400-(X)CR**
66(XX)R	RM60600-(X)CR**
US3J(X) / (X)I	CH30J(X) / (X)I
US6J(X) / (X)I	CH60J(X) / (X)I
USPV	CHPV
USCC(X) / (X)I	CHCC(X)DU / (X)DIU
USM(X) / (X)I	CHM(X)DU / CHM(X)DIU
(R)6J30A(X)S	J60030-(X)CR*
(R)6J60A(X)B	J60060-(X)CR*
R6J100A(X)B	JM60100-(X)CR**
6J200A(X)BFBD	JM60200-(X)CR**
6J400A(X)BFBD	JM60400-(X)CR**
6J600A(X)BFBD	JM60600-(X)CR**
R30A(X)(XX)	R25030-(X)CR*
R60A(X)(XX)	R25060-(X)CR*
R100A(X)B	RM25100-(X)CR**
R200A(X)BE	RM25200-(X)CR**
R400A(X)B	RM25400-(X)CR**
R600A(X)B	RM25600-(X)CR**
6R30A(X)(XX)	R60030-(X)CR*
6R60A(X)(XX)	R60060-(X)CR*
6R100A(X)B	RM60100-(X)CR**
6R200A(X)BE	RM60200-(X)CR**
6R400A(X)B	RM60400-(X)CR**
6R600A(X)B	RM60600-(X)CR**
(R)F30A(X)(XX)	H25030-(X)CR*
(R)F60A(X)(XX)	H25060-(X)CR*
RF100A(X)B	HM25100-(X)CR**
F200A(X)BE	HM25200-(X)CR**
RF400A(X)B	HM25400-(X)CR**
F600A(X)B	HM25600-(X)CR**
(R)6F30A(X)(XX)	H60030-(X)CR*
(R)6F60A(X)(XX)	H60060-(X)CR*
R6F100A(X)B	HM60100-(X)CR**
6F200A(X)BE	HM60200-(X)CR**
R6F400A(X)B	HM60400-(X)CR**
6F600A(X)B	HM60600-(X)CR**
6SJ30A(X) / (X)I	CH30J(X) / (X)I
6SJ60A(X) / (X)I	CH60J(X) / (X)I
6SC30A(X)-C / (X)I-C	CHCC(X)DU / (X)DIU
6SM30A(X)-C / (X)I-C	CHM(X)DU / CHM(X)DIU

* These Bussmann fuse blocks do not offer indication at this amperage, however a SAMI cover can be used to offer protection against accidental contact and open fuse indication.

** Finger-safe covers are available for this block along with optional open fuse indication.

1. Some competitor blocks are adder blocks and/or have multiple terminal offerings for Cu/Al or Cu only conductors. Bussmann blocks are not adder blocks below 100A, and all blocks are tin plated aluminum terminals to accommodate both Cu and Al conductors.
2. Wire ranges are not always the same. Please assure wire range is suitable for the application.
3. All blocks listed have a box lug for wire termination. Alternate connection types are available in the 30 and 60 amp range. If an alternate type is required, please see the appropriate Bussmann data sheet for part number ordering information.

Data Sheets are available online at www.cooperbussmann.com/DatasheetsEle. For technical assistance, contact the Bussmann Application Engineering Team. Call 636-527-1270 between 8:00 AM and 5:00 PM Central Time, or e-mail FuseTech@cooperindustries.com.

For customer assistance, call the Customer Satisfaction Team toll-free 855-BUSSMANN (855-287-7626) or e-mail BussCustSat@cooperindustries.com.

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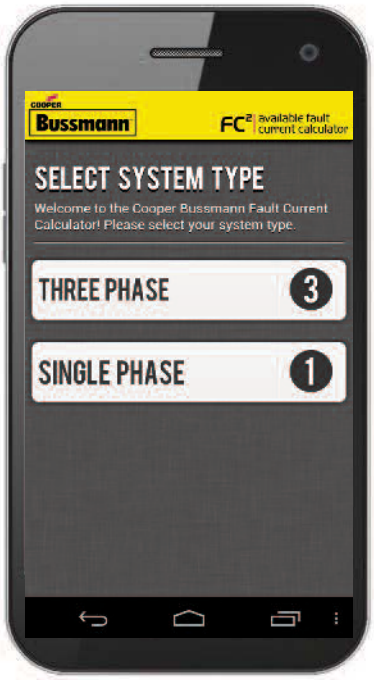
Easily Calculate Available Fault Current Anytime, Anywhere

FC² Mobile App Quickly Delivers Fault Current Calculations in the Palm of Your Hand

- Makes point-to-point calculations easy
- Calculate three-phase and single-phase faults
- Create and e-mail NEC® 110.24 compliant labels and one-line diagrams
- Fuse Sizing Guide assists with fuse and conductor sizing
- Works with or without a network connection
- Available for Apple and Android mobile devices
- FC² also available on-line in a web-based version



For product data sheets, visit www.cooperbussmann.com/FC2

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FC² available fault current calculator

One Tool for Easy Available Fault Current Calculations

How to Install:

- Use the QR Code with your device to download the mobile app

OR

- Go to the Android or Apple App store
- Search for "Fault Current Calculator" make sure to select the Bussmann FC² icon
- Click "install" and follow the instructions

How to Use:

1 Calculator – *Calculate Available Fault Current*
- Select either three-phase or single-phase
- Add components, calculate the system's available fault current and review a one-line diagram
- E-mail one-line diagram at anytime

2 NEC® 110.24 Label – *Helps Meet the Code*
- Allows calculation of the maximum available fault current at the service equipment and provides date of calculation
- Create and e-mail a label once a calculation is complete
- Print and use label to post the maximum available fault current

3 User Guide – *Helpful Tips*
- Click "User Guide" to view helpful user tips
- Each page has explanations for performing calculations

4 Fuse Sizing Guide – *For Main, Feeder and Branch Circuits*
- Click "Fuse Sizing" and "VIEW FUSE SIZING DIAGRAM"
- Click each blue "HOT SPOT" link in the one-line diagram for fuse and conductor sizing information

5 Contact Us – *Direct Contact to Industry Leading Support*
- Click "Contact Us"
- For application inquiries, click "TECHNICAL SUPPORT"
- For all other questions, click "CUSTOMER SERVICE"
- The FC² app will automatically begin an e-mail to a Bussmann support representative

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* Not listed in this catalog. Call Cooper Bussmann Customer Satisfaction for more information. Toll-free phone: 855-287-7626 (855-BUSSMANN)

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Sales Support & Manufacturing Facilities

North America

Bussmann Business Headquarters
114 Old State Road
Ellisville, Missouri 63021
Telephone: 636-527-3877
Fax: 800-544-2570
Email: fusebox@cooperindustries.com

Bussmann Mexico
Poniente 148 #933
Col. Industrial Vallejo
Azcapotzalco C.P. 02300,
Mexico D.F.
Telephone: +52-5587-0211 Ext.720
01-800-8-FUSEMX (387369)
Fax: +52-55-5567-1131
E-mail: ventasbussmannmexico@cooperindustries.com

Bussmann Transportation
10955 SW Avery St.
Tualatin, OR 97062
Telephone: 503-692-5360
Fax: 503-692-9091
E-mail: SurePower.Sales@cooperindustries.com

Bussmann Electronics
1225 F Broken Sound Parkway NW
Boca Raton, FL 33487
Telephone: 561-988-4100
Fax: 561-241-6640
E-mail: customerservice@cooperindustries.com

Asia

Cooper Electric (Shanghai) Co. Ltd.
955 Shengli Road Heqing Pudong, Shanghai 201201
China
Telephone: 8621-2899-3888
Fax: 8621-2899-3997

Bussmann India
Bussmann, India, Pvt. Ltd.
2, EVR Street,
Sedarpet Indl. Estate,
Pondicherry – 605 111
India
Telephone: 91-413-267-2005
Fax: 91-413-267-8182
E-mail: sales.india@cooperindustries.com

Europe

Cooper (UK) Ltd.
Melton Road
Burton-on-the-Wolds
Leicestershire LE12 5TH
England
Telephone: 44-1509-882737
Fax: 44-1509-882786
E-mail: bule.sales@cooperindustries.com

South America

Bussmann Brazil
Bussmann do Brasil Ltda.
Rodovia Santos Dumont, km 23
13.300-000, Caixa Postal 095
Itu Sao Paulo
Brazil
Telephone: 55-11-4024-8400
Fax: 55-11-40-24-8424

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Bussmann Fuse Cross Reference & Low-Peak™ Upgrade

The left column represents Bussmann and competitors' part numbers. The right column represents the Bussmann upgrades.

The Bussmann fuse upgrade offers superior performance while reducing the number of SKUs that need to be in stock. Low-Peak™ fuses feature a high degree of current limitation, which will provide the best component protection and may reduce the arc flash hazard. Listings are alpha-numerical by fuse class and fuse catalog symbol.

This list is only a consolidated cross reference to some of our most common products. For a much more extensive database please consult the ***Product Profiler*** competitor cross-reference. Just visit www.cooperbussmann.com and click on the magnifying glass icon in the upper right corner.

Class CC and Midget

Existing Fuse	Low-Peak™ Upgrade
A6Y (type 2B)	LP-CC
ABU	
AGU	
ATDR	
ATM	
ATMR	
ATQ	
BAF	
BAN	
BLF	
BLN	
CCMR	
CM	
CMF	
CNM	
CNQ	
CTK	
CTK-R	
FLM	
FLQ	
FNM	
FNQ	
GGU	
HCLR	
KLK	
KLK-R	
KTK	
KTK-R	
MCL	
MEN	
MEQ	
MOF	
MOL	
OTM	
TRM	
6JX	LP-CC
***FNQ-R suggested on primary of control transformers.**	
ATQR	FNQ-R
FNQ-R	
KLDR	

Class J

Existing Fuse	Low-Peak™ Upgrade
A4J	LPJ_SP
AJT	
CJ	
CJS	
GF8B	
HRCXXJ	
J	
JA	
JCL	
JDL	
JFL	
JHC	
JKS	
JLS	
JTD	LPJ_SP

Class L

Existing Fuse	Low-Peak™ Upgrade
A4BQ	KRP-C_SP
A4BT	
A4BY	
A4BY (type 55)	
CLASS L	
CLF	
CLL	
CLU	
HRC-L	
KLLU	
KLPC	
KLU	
KTU	
L	
LCL	
LCU	KRP-C_SP

250 Volt Class R

Existing Fuse	Low-Peak™ Upgrade
A2D	LPN-RK_SP
A2D-R	
A2K	
A2K-R	
A2Y (type 1)	
AT-DE	
CHG	
CRN-R (type 3)	
CTN-R	
DEN	
DLN	
DLN-R	
ECN	
ECN-R	
ERN	
FLN	
FLN-R	
FRN	
FRN-R	
FTN-R	
GDN	
HAC-R	
HB	
KLN-R	
KON	
KTN-R	
LENRK	
LKN	
LLN-RK	
LON-RK	
NCLR	
NLN	
NON	
NRN	
OTN	
REN	
RFN	
RHN	
RLN	
TR	
655	
660	
10KOTN	
50KOTN	LPN-RK_SP

600 Volt Class R

Existing Fuse	Low-Peak™ Upgrade
A6D	LPS-RK_SP
A6K-R	
A6X (type 1)	
ATS-DE	
CHR	
CTS-R	
DES	
DES-R	
DLS	
DLS-R	
ECS-R	
ERS	
FLS	
FLS-R	
FRS	
FRS-R	
FTS-R	
GDS	
HA	
KLS-R	
KOS	
KTS-R	
LES	
LES-R	
LES-RK	
LKS	
LLS-RK	
LOS-RK	
NLS	
NOS	
NRS	
OTS	
RES	
RFS	
RHS	
RLS	
SCLR	
TRS	
TRS-R	
656	
10KOTS	
50KOTS	LPS-RK_SP

The comparative catalog numbers shown were derived from the latest available published information from various manufacturers. Because competitors' products may differ from Bussmann products, it is recommended that each application be checked for required electrical and mechanical characteristics before substitutions are made. Bussmann is not responsible for misapplications of our products. Overcurrent protection is application dependent. Consult the latest catalogs and application literature, or contact our Application Engineering Department toll free at 855-287-7626 (855-BUSSMANN).

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Customer Assistance

Customer Satisfaction Team

Available to answer questions regarding Bussmann products & services Monday-Friday, 7:00 a.m. – 6:00 p.m. Central Time. Contact:

- Toll-free phone: 855-287-7626 (855-BUSSMANN)
- Toll-free fax: 800-544-2570
- E-mail: busscustsat@cooperindustries.com

Emergency and After-Hours Orders

Next flight out or will call shipment for time-critical needs. Customers pay only standard product price, rush freight charges, & modest emergency service fee. Place these orders through the Customer Satisfaction Team during regular business hours. For after-hours, contact:

- After hours 314-995-1342

C3 – the Enhanced, Online Cooper Customer Center

Provides real time product availability, net pricing, order status & shipment tracking for: B-Line, Bussmann, Crouse-Hinds, Lighting, Power Systems & Wiring Devices. Call 877-995-5955 for log-in assistance. Available at:

- www.cooperc3.com

Application Engineering

Technical assistance is available to all customers. Application support is available Monday-Friday, 7:00 a.m. – 5:00 p.m. Central Time. Contact:

- Toll-free phone: 855-287-7626 (855-BUSSMANN)
- E-mail: fusetech@cooperindustries.com

Online Resources

Visit www.cooperbussmann.com for the following resources:

- Product search & cross-reference
- Product & technical materials
- Solutions centers for information on topical issues including arc flash, selective coordination & short-circuit current rating
- Technical tools, like our arc flash calculator
- Where to purchase Bussmann product

Eaton's Bussmann Business
PO Box 14460
St. Louis, MO 63178-44602
www.bussmann.com

Your authorized distributor is:

Eaton
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Cleveland, OH 44122
United States
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