Description

The E-T-A Zero Current Monitor comprises a monitoring circuit with a current transformer and an opto decoupled output circuit with a triac (with AC output circuit) or transistor (with DC output circuit). The current transformer in the monitoring circuit does not only supply the input signal but also the very low power consumption of the Monitor. Zero current monitors are generally used to monitor circuits for wire breakage. The E-T-A Zero Current Monitor E-1076-SR may also be used to switch on an elapsed-hour meter. In this case the opto decoupled triac or transistor output will provide the control signal for the meter as soon as the load to be monitored is switched on.
The E-T-A Zero Current Monitor is supplied in a compact moulded housing with screw terminals for mounting on DIN EN 50022 and DIN EN 50035 rails.

Typical applications

- Wire break monitoring
- Control of elapsed-hour meters
- Life testing (e. g. lamps)
- Monitoring of heater elements (e. g. in furnaces)

Features

- No auxiliary voltage required
- Compact design
- Expandable by external current transformers
- operation of **monitoring circuit > AC 250 V** only via additional external current transformer

Ordering information

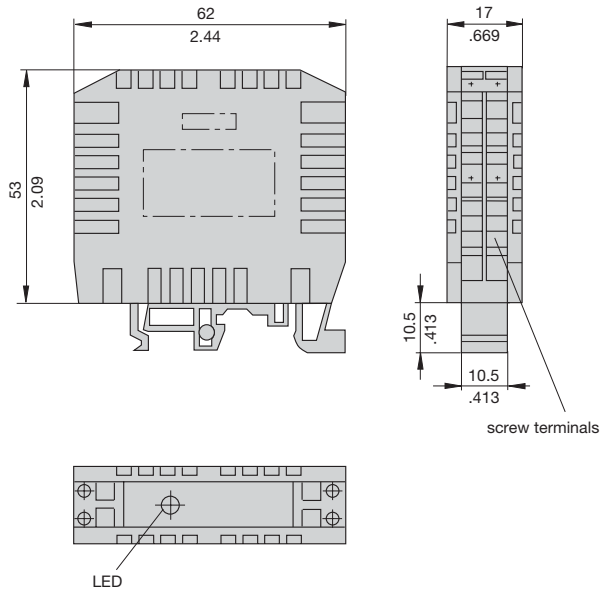
Type No.			
E-1076-SR	Zero Current Monitor		
	Monitoring range		
	AC 20 A	load current	0.2 to 20 A
		Output circuit	
		AC 250 V	AC 12...250 V
		DC 60 V	DC 2...60 V
E-1076-SR -	AC 20 A	AC 250 V	ordering example

E-1076-SR

Technical data

Monitoring circuit		
Max. current rating	AC 20 A	
Load current $I_{min.}$ red LED lights when I_{load} is	≥ 500 mA (E-1076-SR-AC 20 A-AC 250 V) ≥ 200 mA (E-1076-SR-AC 20 A-DC 60 V)	
Zero current (wire break) red LED does not light when I_{load} is	< 50 mA	
Load current $I_{max.}$ at +25 °C ambient temp. (derating)	20 A	
Voltage rating U_N	0 - 250 V AC	
Output circuit (conductive at $I_{load} > I_{min}$)		
Voltage rating U_N	AC 12...250 V	DC 2...60 V
Output current I_{Amax}	200 mA	50 mA
General data		
Insulation resistance	10 MΩ at 500 V DC	
Dielectric strength	control circuit to output circuit: 1 kV	
Mounting	rail DIN EN 50022-35x7.5, or rail DIN EN 50035-G32	
Temperature range	0...+60 °C	
Degree of protection:	IP20 housing DIN 40050 IP20 terminals DIN 40050	
Terminals	screw terminals	
Cable size	1 x 2.5 mm² each (AWG 14)	
Housing dimensions	17 x 63 x 64 mm (width x height x depth)	

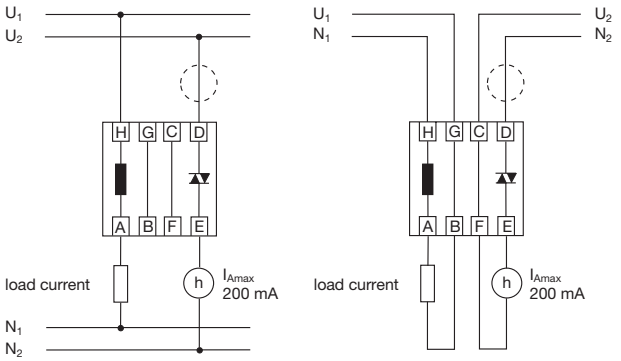
Dimensions



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

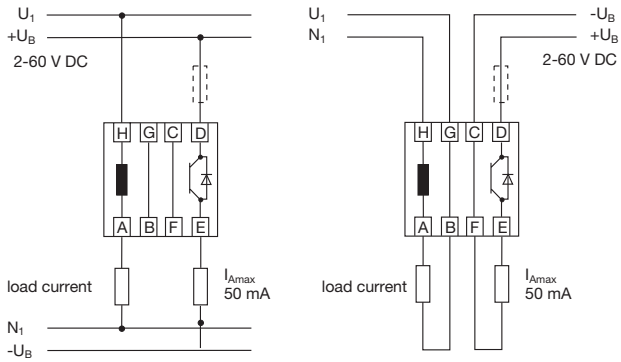
Connection diagrams

Output circuit AC 250 V



If no physical isolation is required, the monitoring circuit and the output circuit may be fed by the same power supply. The elapsed-hour meter may be installed either before, or after, the triac.

Output circuit DC 60 V
(e.g. check-back signalling for PLC systems)



Check-back signalling may be tapped either before, or after, the transistor.

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All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

Current Protector E-1078-421 /-431-...

Description

The E-T-A Current Protector is designed to monitor the primary current of low-voltage transformers for halogen fittings.
After system installation, the admissible current range can be stored by operating the storage button. If the admissible range is exceeded (e. g. by overloads or short-circuit), the Protector will immediately disconnect the system. Underload (e. g. through defective terminal connections) will also cause system disconnection.
Fault conditions are indicated by the integral LED. The system can be reconnected by turning the light switch on again once the cause of failure has been remedied.

Typical applications

- Low-voltage halogen lighting systems
- Can generally be used with sensor touch dimmers (please enquire)
- In sub-distribution
- Low-voltage transformers (no electronic transformers)

Features

- Eliminating fire hazard
- Storage of actual lamp load by push button
- LED fault indication
- Suitable for lighting systems with dimmers
- Passive relay for long use
- Mounting on symmetric rail
- Unaffected by inrush currents

Ordering information

Type No.					
E-1078-4	Current Protector for low voltage lighting systems				
	Version				
	2	with storage button, capacity up to 400 W			
	3	with storage button, capacity up to 600 W			
		Housing			
		1	track-mountable housing		
			Voltage rating		
			AC 230 V	voltage rating AC 230 V	
				Rated load	
				60-300 W	lamp capacity 60...300 W
				100-400 W	lamp capacity 100...400 W
				300-600 W	lamp capacity 300...600 W
E-1078-4	2	1	AC 230 V	100-400 W	ordering example

E-1078-421-...

Technical data

Protective function	short-circuit, overload, underload
Lamp load	60...300 W 100...400 W 300...600 W
Monitoring window	typically: ± 40 W
Response times typ.:	overload 200 ms...2 s (depending on overload) short-circuit 200 ms underload 3 s
Voltage rating	AC 230 V ±10 %, 50 Hz
Interrupting capacity	relay contact 8 A
Dimmer operation	between 35 and 100 % of the rated load stored
Temperature range	0...+45 °C
Degree of protection:	IP20 housing DIN 40050 IP20 terminals DIN 40050
Housing	track-mountable housing (for DIN rails)
Connection	screw terminals
VDE approval	Reg. Nr. 8319 to VDE 0160

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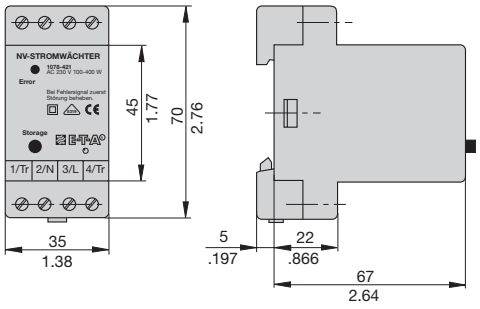
Current Protector E-1078-421 /-431-...

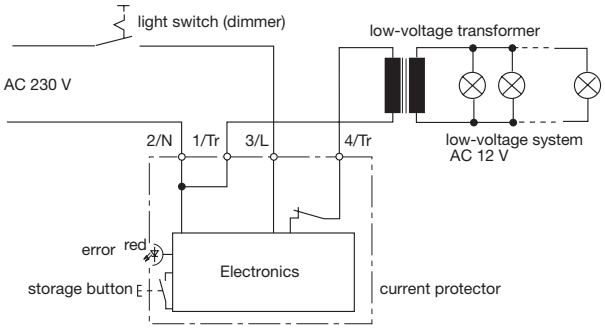
Dimensions

E-1078-421-...



Housing for DIN rail mounting

Basic circuit diagram



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Instructions for installation and adjustment

For correct performance, the E-T-A Current Protector shall be used on the primary side before the low-voltage transformer. It should be connected behind the light switch and the dimmer, if any, into the line to the transformer.

Caution: Installation by skilled personnel only!

- Install the low-voltage system with the desired rated capacity.
- Set dimmer, if any, at the maximum value (turn button to right-side stop).
- Switch the light on.
- Keep storage button on the Protector pressed for approx. 5 sec to store the lamp load installed.
- The stored value will be maintained even when the lighting is switched off.
- A new rated load can be set by pressing the storage button again.

Caution:

- Observe max. transformer capacity!
- Eliminate unsymmetrical load on the power feed caused by half-wave operation.
- Use separate power cables when several low-voltage systems are operated in parallel.

Protective functions

Immediate disconnection upon short-circuit and overloads when additional lamps (loads) are connected.
Underload disconnection when lamps (loads) are removed or upon defective terminal connections.

Action in the event of faults:

Switch the lighting system off by means of the light switch. Remedy cause of failure (call in skilled personnel, if necessary!).

Possible faults:

- defective lamps
- loose or broken terminals or screw connections
- short-circuit
- additional lamps

Reset function

- provided when the lighting is reconnected by switching the light switch on. The lamp load is not re-stored.
- If the load conditions have changed after remedying the fault, the Protector will switch off within max. 3 sec after reconnection. To re-store the lamp load, keep the button pressed for approx. 5 sec.

E-T-A Current Protector E-1078-422 /-432 /-482-...

Description

The E-T-A Current Protector is designed to monitor the primary current of low-voltage transformers for halogen fittings.
After system installation, the admissible current range can be stored by operating the storage button (or light switch, with type E–1078–482–...). If the admissible range is exceeded (e. g. by overloads or short-circuit), the Protector will immediately disconnect the system. Underload (e. g. through defective terminal connections) will also cause system disconnection.
Fault conditions are indicated by the integral LED. The system can be reconnected by turning the light switch on again once the cause of failure has been remedied.

Typical applications

- Low-voltage halogen lighting systems
- Can generally be used with sensor touch dimmers (please enquire)
- Suitable for installation in transformer housing or close to transformer (in inaccessible areas, E-1078-482-...)
- Low-voltage transformers (no electronic transformers)

Features

- Eliminating fire hazard
- Storage of actual lamp load by button (or light switch, with type E-1078-482-...)
- Reset function by light switch
- LED fault indication
- Suitable for lighting systems with dimmers
- Passive relay for long use
- Housing for surface mounting
- Unaffected by inrush currents

Ordering information

Type No.						
E-1078-4	Current Protector for low voltage lighting systems					
	Version					
	2	with storage button, capacity up to 400 W				
	3	with storage button, capacity up to 600 W				
	8	load storage by light switch, capacity up to 600 W				
		Housing				
		2	housing for surface mounting			
		3	without housing (without VDE logo)			
			Voltage rating			
			AC 230 V	voltage rating AC 230 V		
			AC 120 V	voltage rating AC 120 V (please enquire)		
					Rated load	
					60-300 W	lamp capacity 60...300 W (AC 230 V only)
					100-300 W	lamp capacity 100...300 W (AC 120 V only)
					100-400 W	lamp capacity 100...400 W (AC 230 V only)
					300-600 W	lamp capacity 300...600 W (AC 230 V only)
E-1078-4	2	2	- AC 230 V	- 100-400 W		ordering example

E-1078-422-...

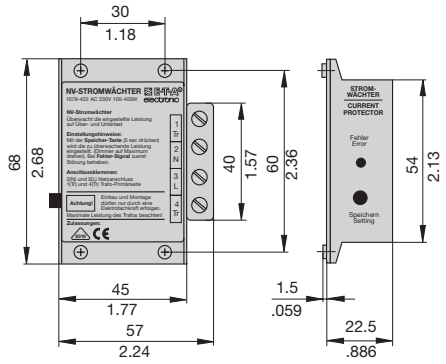
Technical data

Protective function	short-circuit, overload, underload
Lamp load	60...300 W (AC 230 V only) 100...300 W (AC 120 V only) 100...400 W (AC 230 V only) 300...600 W (AC 230 V only)
Monitoring window	typically: ± 40 W
Response times typ.:	overload 200 ms...2 s (depending on overload) short-circuit 200 ms underload 3 s
Voltage rating	AC 230 V ±10 %, 50 Hz AC 120 V ±10 %, 60 Hz
Interrupting capacity	relay contact 8 A
Dimmer operation	between 35 and 100 % of the rated load stored
Temperature range	0...+60 °C
Housing	surface mounted type
Degree of protection:	IP20 housing DIN 40050 IP20 terminals DIN 40050
Connection	screw terminals
VDE approval	Reg. Nr. 8319 to VDE 0160
UL-approval	AC 120 V, 300 W, 60 Hz, to UL 1077

Current Protector E-1078-422 /-432 /-482-...

Dimensions

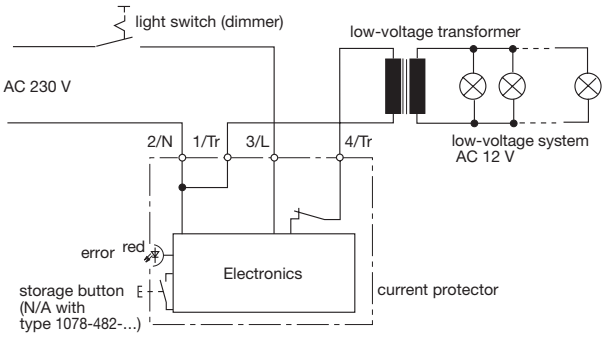
E-1078-422-...



Surface housing

This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

Basic circuit diagram



Instructions for installation and adjustment

For correct performance, the E-T-A Current Protector must be used on the primary side before the low-voltage transformer. It should be connected behind the light switch and the dimmer, if any, into the line to the transformer.

Caution: Installation by qualified personnel only!

- Install the low-voltage system with the desired rated capacity.
- Set dimmer, if any, at the maximum value (turn knob fully clockwise).
- Switch on light.
- Storage of lamp load:
  With version -422/-432 (with storage button):
  Keep storage button pressed for approx. 5 s to store lamp load installed.

  With version -482 (storage by light switch):
  - The lighting will be on for a short time and will go out after max. 0.2 sec (the Protector which has not yet been set senses an overload and disconnects the system).
  - Turn light switch OFF and ON within 0.5 s to store the actual rated load. Storage takes approx. 20 s; do not switch off the lighting during this period!
  - A new rated load can only be set after the Protector has responded to a fault.
- The stored value will be maintained even when the lighting is switched off.

Caution:

- Observe max. transformer capacity!
- Eliminate any unsymmetrical loading of the power feed caused by half-wave operation.
- Use separate power cables when several low-voltage systems are operated in parallel.

Protective functions
Immediate disconnection upon short-circuit and overload when additional lamps (loads) are connected.
Underload disconnection when lamps are removed or in the event of defective terminal connections.

Action in the event of faults:

- Switch off the lighting system by means of the light switch.
- Remedy cause of failure (call in qualified personnel, if necessary!).

Possible faults:
- defective lamps
- loose or broken terminals or screw connectors
- short-circuit
- additional lamps

Reset function of the Protector:

- provided when the lighting is reconnected by switching the light switch on. The lamp load is not re-stored.
- If the load conditions have changed after remedying the fault, the Protector will disconnect within max. 3 s after reconnection of the lighting system.
- Re-storage of lamp load:

  With version -422/-432 (load storage by storage button):
  Keep the storage button pressed for approx. 5 sec.

  With version -482 (load storage by light switch)
  Turn light switch OFF and ON within 0.5 s. Re-storage takes approx. 20 s; do not switch off the lighting system during this period as this will interrupt the storage process.

Combi Safety Protection E-1078-911

Decription

The Combi Safety Protection E-1078-911 allows the simultaneous connection of a washing machine and dryer (for example) without overloading the circuit. The dryer is disconnected during the heating cycle of the washing machine and automatically reconnected when the current consumption of the washing machine drops.
Other equipment combinations such as a dishwasher and a hot-water heater are also made possible, provided that one of the loads connected has an operating mode with a current consumption of less than 2 A (= reconnection threshold).

Typical applications

- Household
- Commercial premises (e. g. medical practices)
- Recreational vehicles

For the first time it is possible to simultaneously connect to the same socket two large appliances such as a washing machine and a hot-water heater and to leave them unattended, without the danger and inconvenience of overloading the supply.
There is no need for a second line with socket and circuit breaker.

Features

- Reliable current monitoring when two large appliances are operated simultaneously.

Ordering information

Type No.	
E-1078-911	Combi Safety Protection

E-1078-911

E-1078-911..

Technical data

Voltage rating	AC 230 V ±10 %, 50 Hz
Supply current	16 A
Load capacity	3,700 VA
Socket outlets with earthing contact to DIN 49440	
Cable	H05W-F3G 1.0 mm², approx. 1.4 m long with moulded earthing-pin plug
Upper response threshold	typically 15.5 ± 1 A
Lower response threshold	typically 2.0 A ± 1 A
Hysteresis	typically 13.5 A
Temperature range	0...+45 °C
Environmental duty	suitable for dry, clean conditions
Socket outlet material	impact-resistant Polypropylene
Housing dimensions	255 mm x 60 mm x 40 mm (LxWxH), with provisions for screw fixings
Mass	approx. 480 g

Caution: Connect appliances with a program memory that is not protected from supply failure, to the “washing machine” outlet!

Approvals

CE mark to demonstrate compliance with applicable directives.

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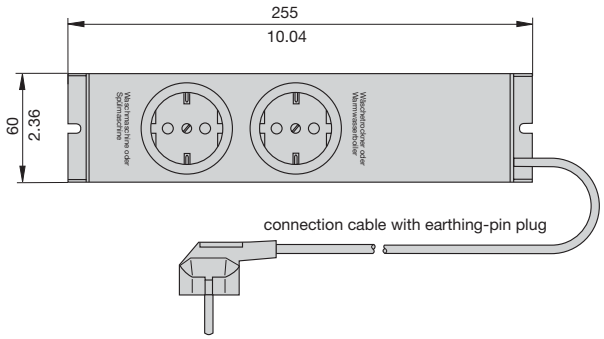
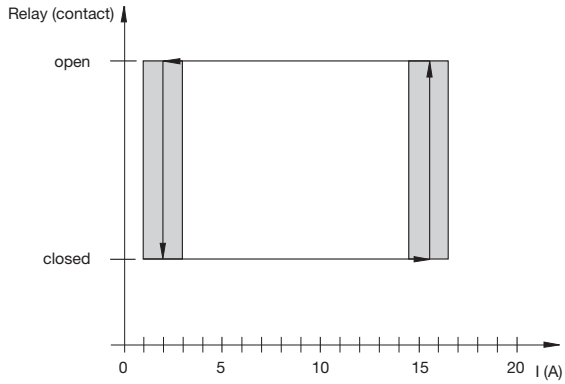
Dimensions



Switching curve



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

8

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Electronic Voltage Monitor E-1079-600/-601-...

Description

The electronic E-T-A Voltage Monitor E-1079-60. is designed to monitor DC or AC voltages against falling below, or rising above, preset tolerance limits. Two LEDs indicate relay status or overlimits; an opto coupler output provides a physically isolated signal.
The device is available either with a (non-conducting) N/O or a (conducting) N/C contact. It is powered by the measuring signal so that there is no need for an additional power supply.

Features

- Voltage under and over limit monitoring (tolerance window)
- For DC and AC voltages between 5 V and 230 V
- DC and AC voltage output
- N/O or N/C contact (MOSFET)
- Status indication by red and green LEDs
- No need for separate power supply
- Reverse polarity protection
- Compact design (plug-in housing)
- 12 mm wide housing

Ordering information

Type No.		
E-1079	Electronic Voltage Monitor	
	Output	
	600	signal output as N/O contact
	601	signal output as N/C contact
		Voltage rating
		DC 12 V
		DC 24 V
		DC 48 V
		DC 110 V
		DC 220 V
		AC 115 V
		AC 230 V

E-1079 - 600 - DC 24 V ordering example

E-1079-600-...

Technical data

Input voltage U_E

Voltage rating U_N	Tolerance	Tolerance range U_{min}...U_{max}
DC 12 V	± 25 %	(9...15 V)
DC 24 V	± 25 %	(18...30 V)
DC 48 V	± 25 %	(36...60 V)
DC 110 V	+10 %/-15 %	(93.5...121 V)
DC 220 V	+10 %/-15 %	(187...242 V)
AC 115 V	+10 %/-15 %	(97.8...126.5 V)
AC 230 V	+10 %/-15 %	(195.5...253 V)

Load current	3 mA DC and AC
Dielectric strength	260 V DC and AC
Reverse polarity protected	
Output U_A/I_A	
MOSFET output	
Max. load current	80 mA DC and AC
Max. load voltage	250 V DC and AC
Voltage drop	< 2.0 V with 80 mA load < 0.8 V with 10 mA load
Free-wheeling diode for non-resistive loads	in-built
Polarization	optional
Response time	200 mA
Signalling	(> 5 V signal voltage)
green LED	voltage within set tolerance limits
red LED	voltage outside set tolerance limits
Accuracy	
Undervoltage	U_{min} -10 % U_N...U_{min}
Overvoltage	U_{max}...U_{max} +10 % U_N
Environmental conditions	
Temperature range	0...60 °C (without condensation)
Degree of protection to DIN 40050/IEC 529	IP20
Dielectric strength (IEC 664)	4 kV_{rms}
EMC	to EN50081-1 and prEN50082-2
Housing	plug-in ultramid housing
Terminals	6.3 mm blade terminals to DIN 46244 to plug into E-T-A socket 17-P10-Si
Mounting attitude	optional, no air gap between devices required
Mass	28 g

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Function

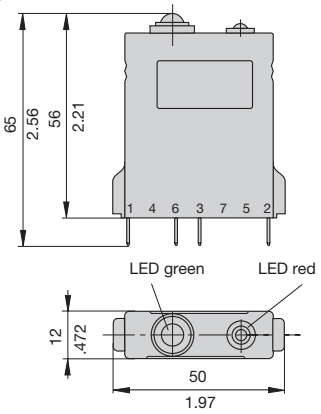
The operating voltage applied at the input terminals is monitored for upper and lower limits. When the input signal is within tolerance limits, the green LED will indicate and the MOSFET of the signal output has the following operating status:

- N/O contact (-600): MOSFET is active
- N/C contact (-601): MOSFET is inactive

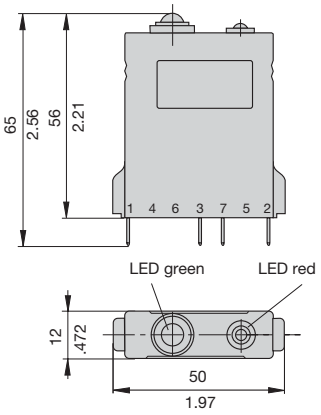
From approx. 5 V to the lower tolerance limit the red LED will indicate. It also indicates when the upper tolerance limit has been exceeded. The output will change its operating status.

Dimensions

E-1079-600

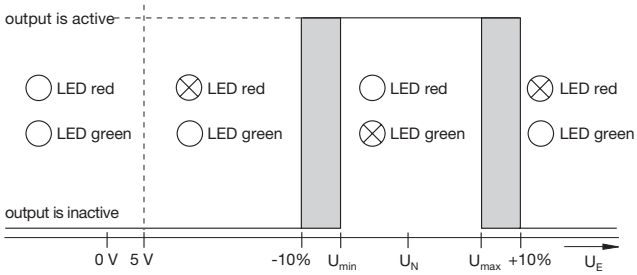


E-1079-601

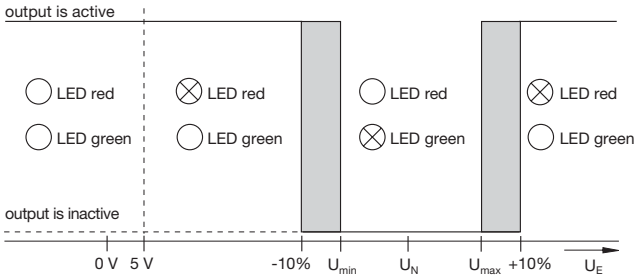


Functional diagram

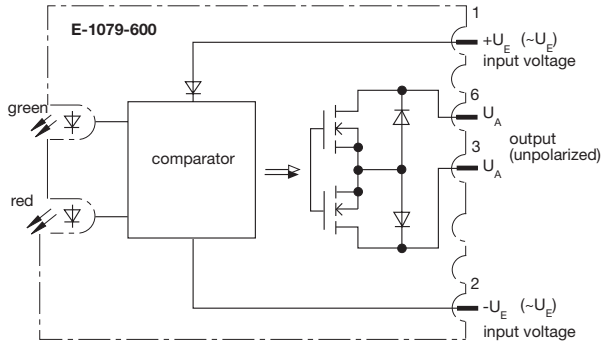
E-1079-600

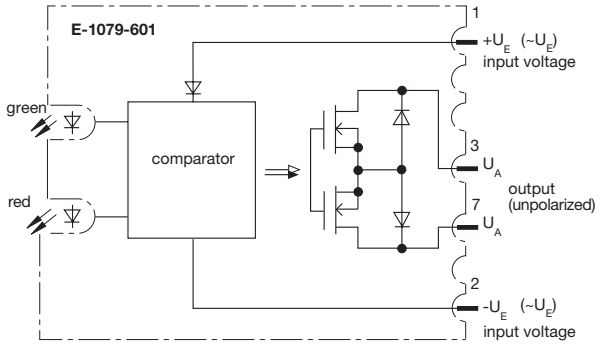


E-1079-601



Connection diagram

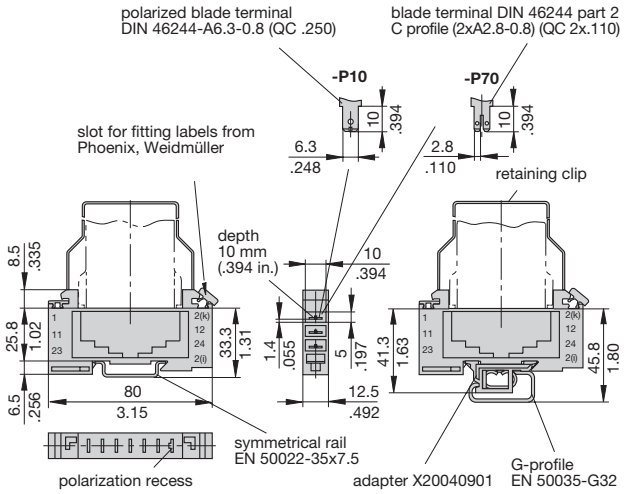




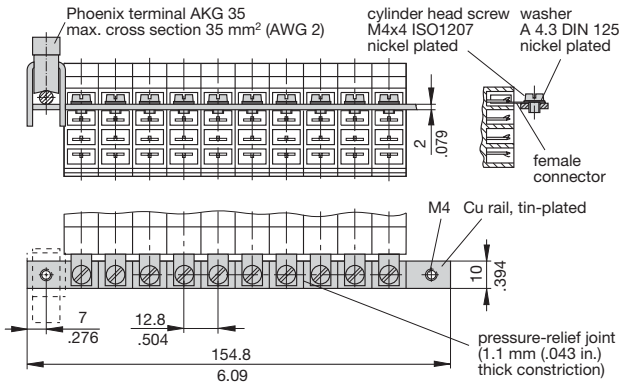
This is a metric design and millimeter dimensions take precedence (mm / inch)

Accessories for E-1079-600/601

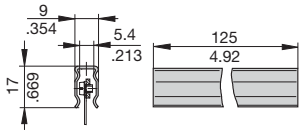
Single mounting sockets (with adapter)
(up to **16 A** max. load)
17-P10-Si **17-P10-Si-20025**
17-P70-Si **17-P70-Si-20025**
(retaining clip Y 300 581 11 available on request)



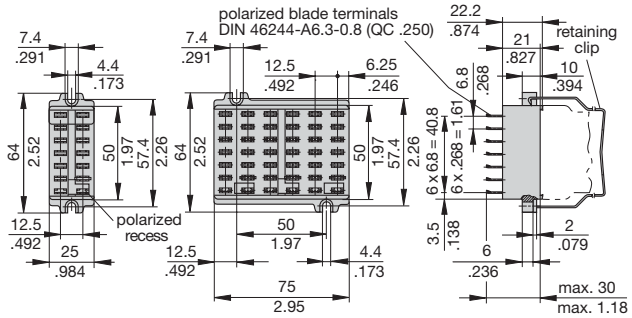
Busbar (10-way) (supplied as a complete package)
for type 17 socket
(for max. 100 A continuous load),
more positions available on request
X 211 157 01 with terminal
X 211 157 02 without terminal



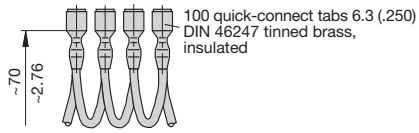
Insulating sleeving for busbar (10-way)
Y 303 824 01



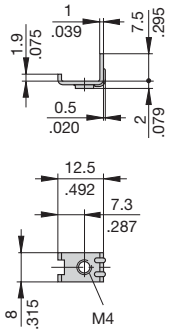
2-way mounting socket **6-way mounting socket**
23-P10-Si **63-P10-Si**
(retaining clip Y 300 581 03 available on request)



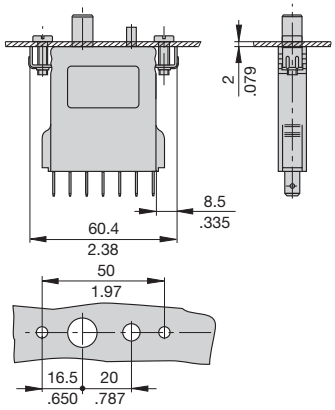
Connector bus links -P10
X 210 588 01/ 1.5 mm², (AWG 16), brown (up to 13 A max. load)
X 210 588 02/ 2.5 mm², (AWG 14), black (up to 20 A max. load)
X 210 588 03/ 2.5 mm², (AWG 14), red (up to 20 A max. load)
X 210 588 04/ 2.5 mm², (AWG 14), blue (up to 20 A max. load)



2 mounting clips
Y 300 504 02
(2 pcs needed per unit)



Installation drawing with
mounting clips Y 300 504 02



This is a metric design and millimeter dimensions take precedence ($\frac{mm}{inch}$)

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

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