

Current Transducer DHR-C420

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.

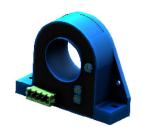


Ele	ectrical data					
Туре		Primary current,	Primary nominal			
		measuring range 1)	RMS current			
		$I_{PM}(A)$	$I_{PN}(A)$			
DHR 100 C420		±600	100			
DHR 200 C420		±600	200			
DHR 300 C420		±1000	300			
DHR 400 C420		±1000	400			
I_{out}	Output current		4 20	mA DC		
R_{L}	Load resistance		< 300	Ω		
U_{c}	Supply voltage 2)		+20 50	V DC		
I_{C}	Current consumption		$30\mathrm{mA} + I_{\mathrm{out}}$			
$\begin{array}{c} I_{\rm SL} \\ \hat{I}_{\rm Pmax} \end{array}$	Secondary current limit		< 25	mA		
I_{Pmax}	Maximum withstand pri	mary peak current	30000	At		
Accuracy - Dynamic performance data						
$\varepsilon_{\mathrm{tot}}$	Total error @ I_{PN} , $T_{A} = 2$	25 °C (excluding offset)	< ±1	%		
$\varepsilon_{\rm L}$	Linearity error (1 % of I	_{PN} I_{PN})	< ±1.0	%		
I_{out}	Output current @ $I_p = 0$	$T_{A} = 25 ^{\circ}\text{C}$	4 1	mA +/-I _{o E}		
I_{OE}	Electrical offset current		< ±1.0	% of $I_{\sf PN}$		
TCI_{OE}	Temperature coefficient		±3.2	μA/K		
		(-40 +70 °C)	±6.4	μA/K		
TCI_{out}	Temperature coefficient		±0.1	%/K		
$t_{\rm D90}$	Delay time to 90 % of the	ne final output value for <i>I</i>	_{PN} step < 150	ms		
BW	Frequency bandwidth (±1 dB)	DC 20 60	000 Hz		
Ge	eneral data					
T_{A}	Ambient operating temp	perature	-40 + 70	°C		
T_{Ast}	Ambient storage tempe	rature	-40 + 85	°C		
m	Mass		260	g		
IPxx	Protection degree		IP20			

Notes: 1) $I_{\rm PM}$ is the highest peak level of the primary signal that is taken into account for accurate true RMS calculation. Yet the device is designed for maximum continuous true RMS value equal to $I_{\rm PN}$, whereas the output is limited by the above specified output limitation

- ²⁾ According to the UL 508 Standard for Safety for Industrial Control Equipment, the supply voltage must not exceed 42 V DC
- 3) Deviation of the offset during the test IEC 61000-4-3 between 100 MHz and 1000 MHz
- ⁴⁾ Deviation of the offset during the test IEC 61000-4-6 between 150 kHz and 80 MHz.

I_{PN} = 100 ... 400 A



Features

- VFD and SCR waveforms current measurement
- True RMS output
- I_{out} = 4 ... 20 mA
- Panel mounting
- Eliminates insertion loss
- Insulating plastic case recognized according to UL 94-V0.

Advantages

- Large aperture for cable up to Ø 32 mm
- High insulation between primary and secondary circuits
- Easy installation.

Applications

- VFD Controlled Loads
 VFD output indicates how the motor and attached load are operating
- SCR Controlled Loads
 Acurate measurement of phase angle fired or burst fired (time proportioned) SCRs. Current measurement gives faster response than temperature measurement
- Switching Power Supplies and Electronic Ballasts
 True RMS sensing is the most accurate way to measure power supply or ballast input power.

Application Domain

• Energy and Automation.



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Insulation coordination

 $U_{\rm Nm}$ Rated insulation RMS voltage 1) 300 according to the standard IEC 61010-1 and with the following conditions:

- Reinforced insulation
- Over voltage category CAT III

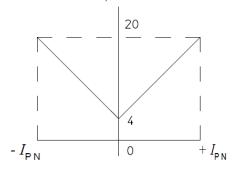
	- Pollution degree PD2		
	- Heterogeneous field		
U_{d}	RMS voltage for AC insulation test 2), 50 Hz, 1 min	4.0	kV
U_{Ni}	Impulse withstand voltage 1.2/50 μs	7.3	kV
141		Min	
d_{Cp}	Creepage distance	7.2	mm
$d_{\rm Cl}$	Clearance	7.2	mm
CTI	Comparative tracking index (group I)	> 600	

Notes: 1) Between primary conductor voltage and ground. The voltage category could be improved according to the insulation characteristic given by the cable manufacturer. The UL 508 Standard for Safety for Industrial Control Equipment requires that only insulated conductors are used as primary circuit with this transducer

²⁾ Between primary (completely filling the aperture) and secondary.

Transfer characteristics







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Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).

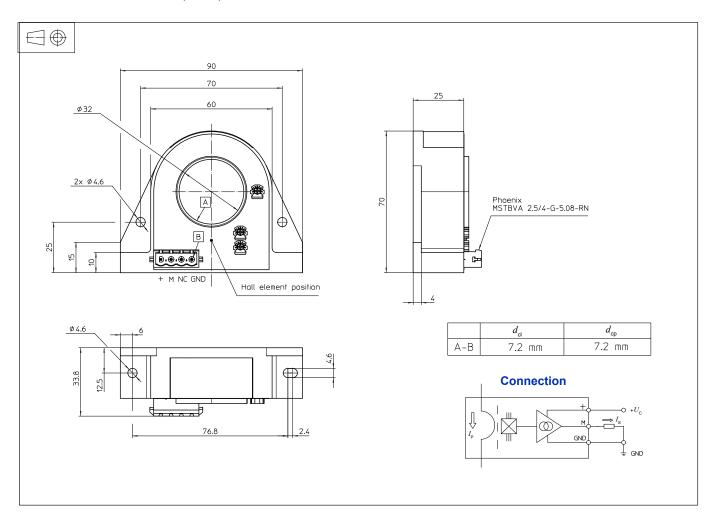
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a build-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used.

Main supply must be able to be disconnected.



Dimensions DHR-C420 (in mm)



Connections

- Wires up to Ø 2 mm
- Female connector provided (spring terminal blocks)
- User-friendly spring-cage connection for no-tool direct conductor connection.

Mechanical characteristics

General tolerance ±1 mm
 Primary aperture Ø 32.0 mm

Transducer fastening

Horizontal

Vertical 1 hole

and 1 notche Ø 4.6 mm 2 steel screws M4

2 steel screws M4

2 holes Ø 4.6 mm

Recommended fastening torque 0.75 N·m

Distance between holes
 70.0 mm & 78 mm

Remarks

- I_{s} is positive when I_{p} flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 90 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site:

https://www.lem.com/en/file/3137/download/.

- Dynamic performances (di/dt and delay time) are best with a single bar completely filling the primary hole.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.