Current Transducer HTR 50 ... 500-SB

I_{PN} = 50 ... 500 A

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



Electrical data

	Type	Primary nominal RMS current I_{PN} (A)	Primary current, measuring range I_{PM} (A)
	HTR 50-SB	50	±100
	HTR 100-SB	100	±200
	HTR 200-SB	200	±400
	HTR 300-SB	300	±600
	HTR 400-SB	400	±800
	HTR 500-SB	500	±1000

U_{out}	Output voltage (Analog)	±4	V
R_L	Load resistance	> 10	kΩ
U_C	Supply voltage (±5 %)	±12 ... 15	V
I_C	Current consumption (max)	20	mA

Accuracy - Dynamic performance data

ε	Error [1] @ I_{PN}, T_A = 25 °C, @ ±12 ... 15 V (±5 %)	< ±2		%
ε_L	Linearity error [1]	< ±1		%
		Typ	Max	
U_{OE}	Electrical offset voltage @ I_P = 0, T_A = 25 °C	±45	±65	mV
U_{OM}	Magnetic offset voltage @ I_P = 0 and specified R_M, after an overload of 3 × I_{PN}	±10	±20	mV
U_{OT}	Temperature variation of U_O, T_A = −10 ... +70 °C	±70	±240	mV
TCS	Temperature coefficient of S	±140	±450	mV
t_{D90}	Delay time to 90 % of I_{PN} [2]	< 10		µs
BW	Frequency bandwidth (−1 dB)	DC ... 10		kHz

General data

T_A	Ambient operating temperature	−10 ... +70	°C
T_S	Ambient storage temperature	−20 ... +85	°C
m	Mass	80	g
	Standards	EN 50178: 1997 [3] UL 508: 2013	

Notes: [1] Excludes the electrical offset

[2] For a di/dt = 50 A/µs

[3] Regarding compliance towards IEC 61000-4-3 (EN61000-6-2 (2005)): Output is above to 7.7 % of U_{SN} between 80 MHz and 1 GHz with a field intensity of 10 [V/m].

Features

- Open loop Hall effect transducer
- Busbar mounting or panel mounting
- Insulating plastic case recognized according to UL 94-V0.

Advantages

- Low power consumption
- Split core easy for mounting
- High insulation between the primary and the secondary circuit
- Through-hole, no insertion losses.

Applications

- Power supplies for TELECOM (monitoring & measuring)
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Electrical chemistry
- Chopper
- Battery supplied applications.

Application domain

- Industrial.

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Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	3	kV
U_{Ni}	Impulse withstand voltage 1.2/50 µs	> 6	kV
U_e	Partial discharge extinction RMS voltage	> 1.5	kV
		Min	
d_{Cp}	Creepage distance	28.1	mm
d_{Cl}	Clearance	17.1	mm
CTI	Comparative tracking index (group IIIa)	225	

Applications examples

According to EN 50178 and IEC 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	IEC 61010-1
d_{Cp}, d_{Cl}, U_{Ni}	Rated insulation voltage	Nominal voltage
Basic insulation	1000 V	1000 V
Reinforced insulation	500 V	500 V

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.



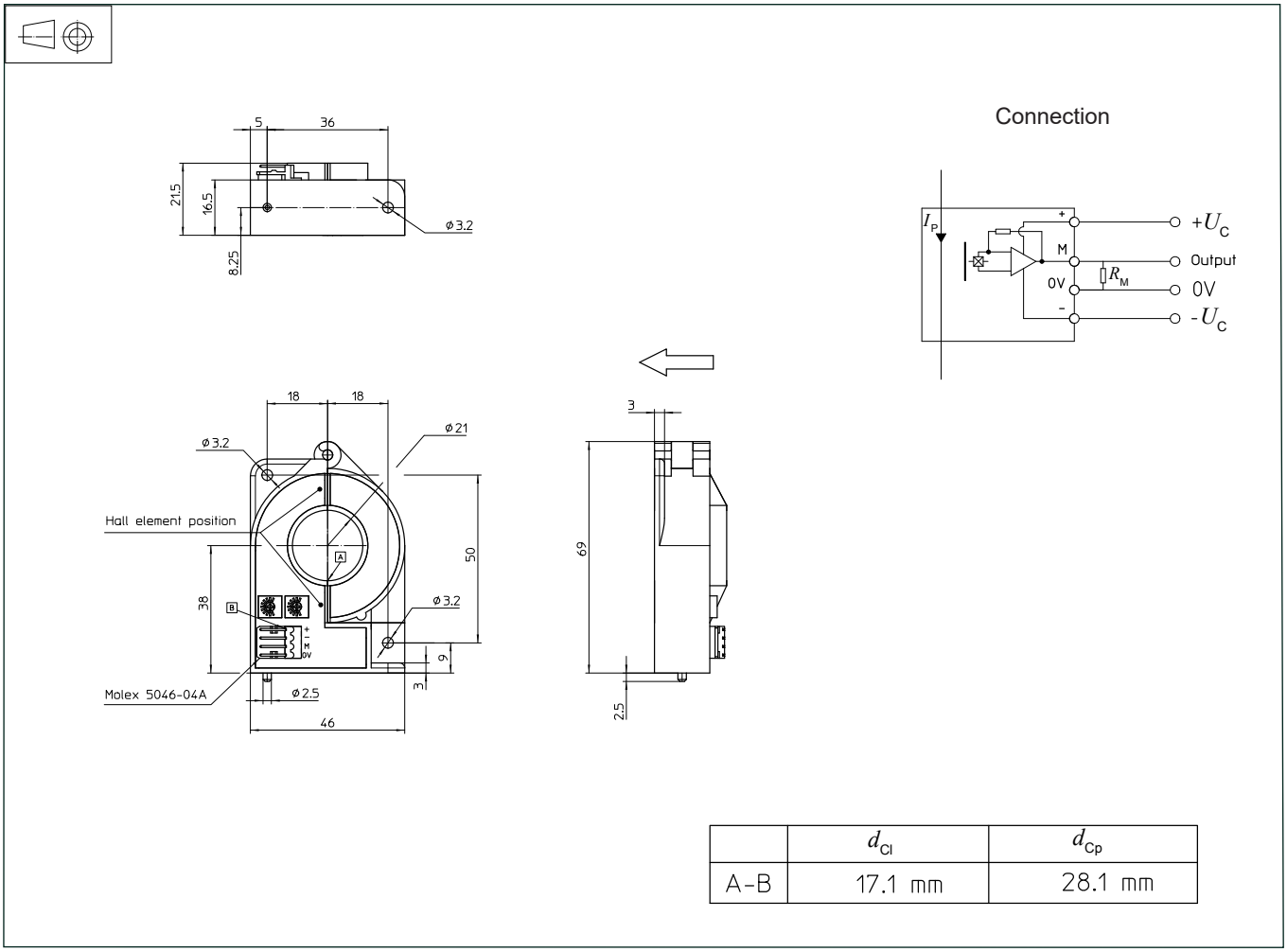
Caution, risk of electrical shock

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.

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Dimensions HTR 50 ... 500-SB (in mm)



	d_{Cl}	d_{Cp}
A-B	17.1 mm	28.1 mm

Mechanical characteristics

• General tolerance	±1 mm
• Primary through hole	Ø 21 mm
• Fastening	2 holes Ø 3.2 mm
Distance between holes axes	50 × 36 mm
or	1 hole Ø 3.2 mm and 1 spigot Ø 2.5 mm
Distance between hole and spigot axes	36 mm
• Connection of secondary	Molex 5046-04A

Remarks

- U_{out} is positive when I_P flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °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/**.
- The retrun busbar and primary conductor elbow must be located at least at 2.5 mm × window length more far away from the transducer case.
- Dynamic performances are best with a primary busbar completely filling the primary aperture.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.

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