

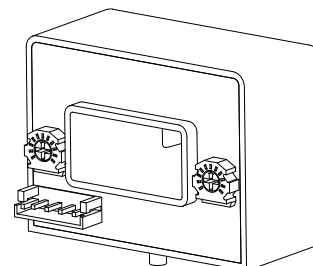
Current Transducer HAS 50-S/SP18

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

$$I_{PN} = 50 \text{ A}$$



RoHS



Electrical data

I_{PN}	Primary nominal rms current ¹⁾	± 50	A
I_{PM}	Primary current, measuring range ¹⁾	± 150	A
V_{out}	Output voltage (Analog) @ $\pm I_{PN}$, $R_L = 10 \text{ k}\Omega$, $T_A = 25^\circ\text{C}$	$\pm 4 \text{ V} \pm 40$	mV
R_{IS}	Insulation resistance @ 500 V DC	> 1000	M Ω
R_{out}	Output internal resistance	100	Ω
R_L	Load resistance ¹⁾	> 1	k Ω
U_C	Supply voltage ($\pm 5\%$) ²⁾	± 15	V
I_C	Current consumption	$< \pm 15$	mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$ (excluding offset)	$< \pm 1$	%
ϵ_L	Linearity error ³⁾ ($0 \dots \pm I_{PN}$)	$< \pm 1$	% of I_{PN}
V_{OE}	Electrical offset voltage @ $T_A = 25^\circ\text{C}$	$< \pm 20$	mV
V_{OH}	Hysteresis offset voltage @ $I_P = 0$, after an excursion of $1 \times I_{PN}$	$\leq \pm 20$	mV
TCV_{OE}	Temperature coefficient of V_{OE}	$< \pm 2$	mV/K
TCV_{out}	Temperature coefficient of V_{out} (% of reading)	$< \pm 0.1$	%/K
t_r	Step response time to 90 % of I_{PN}	< 3	μs
di/dt	di/dt accurately followed	> 50	A/ μs
BW	Frequency bandwidth (-3 dB) ⁴⁾	DC ... 50	kHz

General data

T_A	Ambient operating temperature	$-10 \dots +80$	$^\circ\text{C}$
T_S	Ambient storage temperature	$-25 \dots +80$	$^\circ\text{C}$
m	Mass	60	g
	Standards	EN 50178: 1997 UL 508: 2010	

Notes: ¹⁾ If the customer uses 1 k Ω of the load resistor, the primary current has to be limited as the nominal; To measure the full defined measuring range, the load resistor should be at minimum 10 k Ω

²⁾ Operating at $\pm 12 \text{ V} \leq U_C < \pm 15 \text{ V}$ will reduce the measuring range

³⁾ Linearity data exclude the electrical offset

⁴⁾ Please refer to derating curves in the technical file to avoid excessive core heating at high frequency.

Features

- Hall effect measuring principle
- Insulating plastic case recognized according to UL 94-V0.

Special feature

- Secondary connection on JST B4B-EH-A.

Advantages

- Easy mounting
- Small size and space saving
- Low power consumption
- Only one design for wide current ratings range
- High immunity to external interference.

Applications

- AC variable speed drives
- DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Electrical appliances.

Application domain

- Industrial.

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Insulation coordination

U_d	Rms voltage for AC insulation test, 50 Hz, 1 min	2.5	kV
\hat{U}_w	Impulse withstand voltage 1.2/50 μ s	> 4.0	kV
		Min	
d_{cp}	Creepage distance	7.30	mm
d_{cl}	Clearance	4.50	mm
CTI	Comparative tracking index (group IIIa)	275	

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
$d_{cp}, d_{cl}, \hat{U}_w$	Rated insulation voltage	Nominal voltage
Basic insulation	300 V	300 V
Reinforced insulation	150 V	150 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).

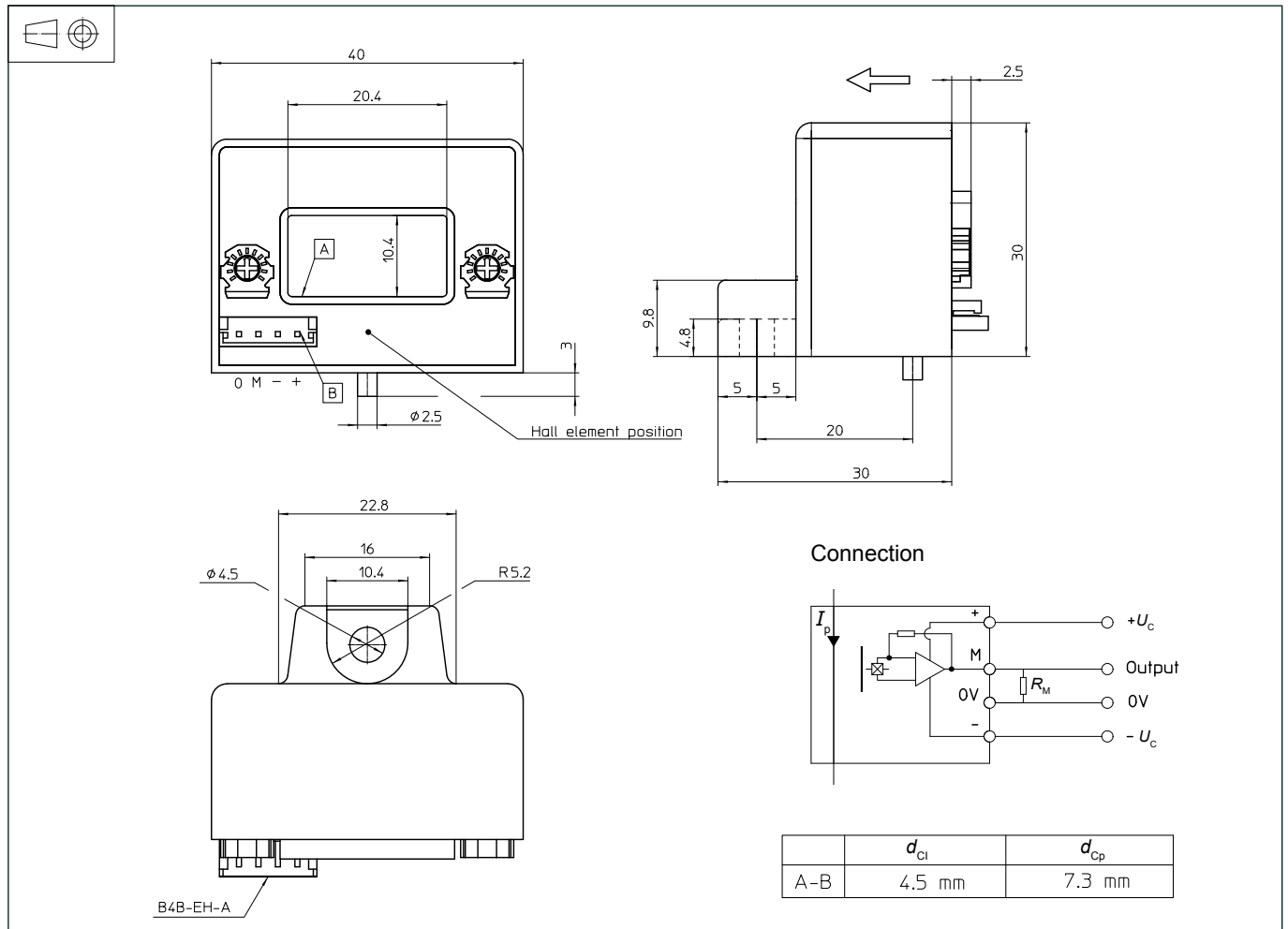
Ignoring this warning can lead to injury and/or cause serious damage.

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.

Dimensions HAS 50-S/SP18 (in mm)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Connection of secondary 1 hole or notch $\phi 4.5$ mm
1 M4 steel screw
Recommended fastening torque 0.75 N·m (± 10 %)
- Connection of secondary JST B4B-EH-A

Remarks

- V_{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: [Products/Product Documentation](#).
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.