

Current Transducer HAS 75 .. 750-S/SP16

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



RoHS

Electrical data

Type	Primary nominal rms current I_{PN} (A)	Primary current, measuring range I_{PM} (A)	RoHS since date code
HAS 75-S/SP16	75	± 225	77297
HAS 125-S/SP16	125	± 375	77297
HAS 188-S/SP16	188	± 564	77299
HAS 250-S/SP16	250	± 750	77299
HAS 375-S/SP16	375	± 900	77297
HAS 750-S/SP16	750	± 900	77313
U_C	Supply voltage ($\pm 5\%$) ¹⁾	± 15	V
I_C	Current consumption	± 15	mA
R_{IS}	Insulation resistance @ 500 V DC	>1000	MΩ
V_{out}	Output voltage @ $\pm I_{PN}$, $R_L = 10\text{ k}\Omega$, $T_A = 25^\circ\text{C}$	± 4	V
R_{out}	Output internal resistance	approx	100
R_L	Load resistance ²⁾	>1	kΩ

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$ (excluding offset)	< ± 1	% of I_{PN}
ε_L	Linearity error ³⁾ (0 .. $\pm I_{PN}$)	< ± 1	% of I_{PN}
V_{OE}	Electrical offset voltage, $T_A = 25^\circ\text{C}$	< ± 20	mV
V_{OH}	Hysteresis offset voltage @ $I_P = 0$, after an excursion of $1 \times I_{PN}$	< ± 20	mV
TCV_{OE}	Temperature coefficient of V_{OE}	< ± 1	mV/K
TCV_{out}	Temperature coefficient of V_{out} (% of reading)	< ± 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 ⁴⁾ (small signal, -1 dB)	DC .. 50	kHz

General data

T_A	Ambient operating temperature	-10 .. +80	°C
T_S	Ambient storage temperature	-25 .. +85	°C
m	Mass	60	g
	Standards	EN 50178: 1997 UL 508: 2010	

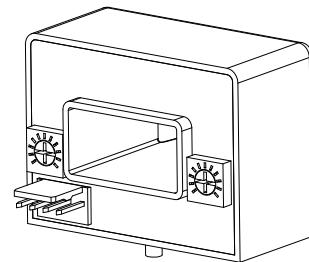
Notes: ¹⁾ Operating at $\pm 12\text{ V} \leq U_C < \pm 15\text{ V}$ will reduce the measuring range

²⁾ If the customer uses 1 kΩ 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 kΩ.

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.

$I_{PN} = 75 .. 750\text{ A}$



Features

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

Special feature

- Connection of secondary on Molex 5045-04AG.

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
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Application domain

- Industrial.

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Insulation coordination			
U_d	Rms voltage for AC insulation test, 50 Hz/1 min	3.6	kV
\hat{U}_w	Impulse withstand voltage 1.2/50 μ s	>6.6	kV
		Min	
d_{cp}	Creepage distance	7.08	mm
d_{cl}	Clearance	6.23	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	600 V	600 V
Reinforced insulation	300 V	300 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).

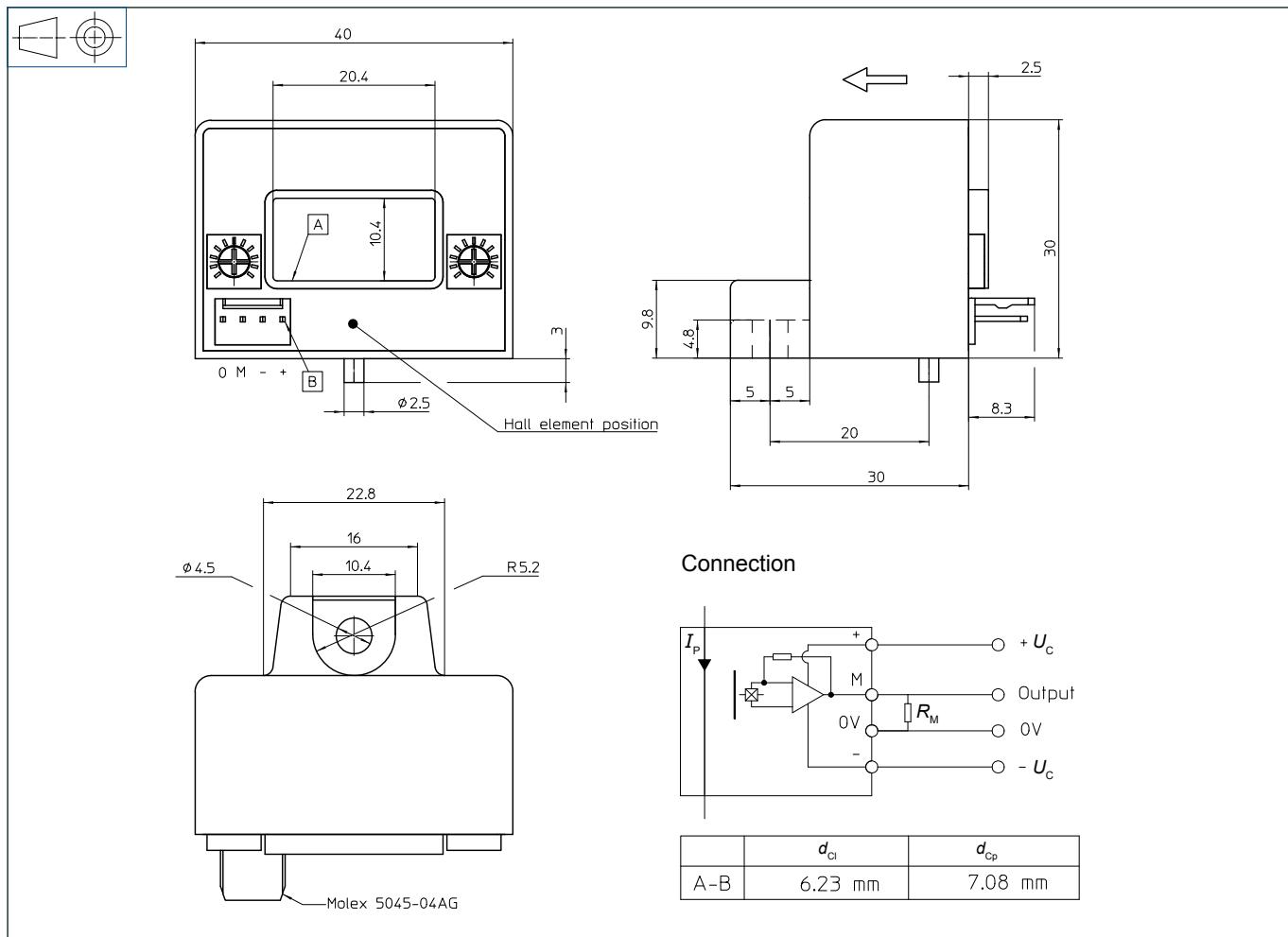
Ignoring this warning can lead to injury and/or cause serious damage.

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 75 .. 750-S/SP16 (in mm)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening 1 hole $\varnothing 4.5$ mm
- 1 M4 steel screw
- Recommended fastening torque 0.75 N·m ($\pm 10\%$)
- Primary through hole 10.4 mm \times 20.4 mm
- Connection of secondary Molex 5045-04AG

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 (d/dt and response time) are best with a single bar completely filling the primary hole.