

Electrical data

# Current Transducer HAS 50 ... 600-P

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



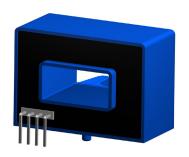
	ectrical data				
	Туре	Primary nominal	•	-	IS since
		RMS current	measuring ran	ige dat	e code
		$I_{PN}(A)$	$I_{PM}(A)$		
	HAS 50-P	50	±150	4	6065
	HAS 100-P	100	±300	4	6062
	HAS 200-P	200	±600	7	6273
	HAS 300-P	300	±900	7	6273
	HAS 400-P	400	±900	4	6131
	HAS 500-P	500	±900	4	6216
	HAS 600-P	600	±900	7	6273
$U_{C}$	Supply voltage (±5 %)	1)		±15	V
$I_{\rm C}$	Current consumption			±15	mA
$R_{INS}$	Insulation resistance @	500 V DC		> 1000	ΜΩ
$U_{out}$	Output voltage (Analog	$(1) @ \pm I_{PN}, R_{L} = 10 \text{ k}$	$\alpha$ , $T_A = 25 °C$	±4	V
$R_{\rm out}$	Output internal resistar	nce appr	ox	100	Ω
$R_{L}$	Load resistance			10	kΩ
Assessed Demonstrate and determinations of the					

Accuracy - Dynamic performance data				
$\varepsilon_{ m tot}$	Total error @ $I_{PN}$ , $T_{A}$ = 25 °C (excluding offset)		< ±1	% of $I_{PN}$
$\varepsilon_{\scriptscriptstyle \! L}$	Linearity error <sup>2)</sup> (0 ±I <sub>PN</sub> )		< ±1	% of $I_{PN}$
$U_{\text{OE}}$	Electrical offset voltage, $T_A = 25 ^{\circ}\text{C}$		< ±20	mV
$U_{OH}$	Hysteresis offset voltage $@I_P = 0$ ,			
	after an excursion of	of $1 \times I_{PN}$	< ±20	mV
$TCU_{OF}$	Temperature coefficient of $U_{\text{OF}}$ HAS 50-F	•	< <u>+2</u>	mV/K
	HAS 100	600-P	< ±1	mV/K
$TCU_{\mathrm{out}}$	Temperature coefficient of $U_{\mathrm{out}}$ (% of reading	)	< ±0.1	%/K
t <sub>D 90</sub>	Delay time to 90 % of $I_{PN}^{3}$		< 3	μs
BW	Frequency bandwidth ⁴)(small signal, −3 dB)		DC 50	kHz

	General data				
$T_{A}$	Ambient operating	Ambient operating temperature		°C	
$T_{\rm s}$	Ambient storage temperature		-25 +85	°C	
m	Mass		80	g	
	Standards	UL	UL 508:2010 5)		
		EMC	IEC 61000-6-2	2016	
			IEC 61800-3:20	017 <sup>6)</sup>	
		Safety	IEC 61010-1:20	010	
		Environmental	IEC 61477-1:20	)12	
			IEC 61800-2:20	)12	

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

# $I_{PN} = 50 \dots 600 A$



#### **Features**

- · Hall effect measuring principle
- Insulating plastic case made of polycarbonate PBT recognized according to UL 94-V0.

## **Advantages**

- Easy mounting
- Low power consumption
- Small size and space saving
- 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.

<sup>2)</sup> Linearity data exclude the electrical offset

 $<sup>^{3)}</sup>$  For a di/dt = 50 A/µs

<sup>4)</sup> Under small signals condition

<sup>5)</sup> UL conform at +80 °C

<sup>&</sup>lt;sup>6)</sup> Regarding compliance towards IEC 61000-4-3 (IEC 61800-3:2017): variation of the offset between 390 MHz and 400 MHz with a field intensity of 10 [V/m].



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Insulation coordination			
$U_{d}$	RMS voltage for AC insulation test, 50 Hz/1 min	3.6	kV
$U_{\rm Ni}$	Impulse withstand voltage 1.2/50 μs	> 6.6	kV
		Min	
$d_{Cn}$	Creepage distance	7	mm
$d_{ extsf{Cp}} \ d_{ extsf{Cl}}$	Clearance	4.6	mm
CTI	Comparative tracking index (group IIIa)	275	

# **Applications examples**

According to IEC 61010-1 standard and following conditions:

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

	IEC 61010-1
$d_{\mathrm{Cp}},d_{\mathrm{Cl}},U_{\mathrm{Ni}}$	Nominal voltage
Basic insulation	300 V
Reinforced insulation	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.

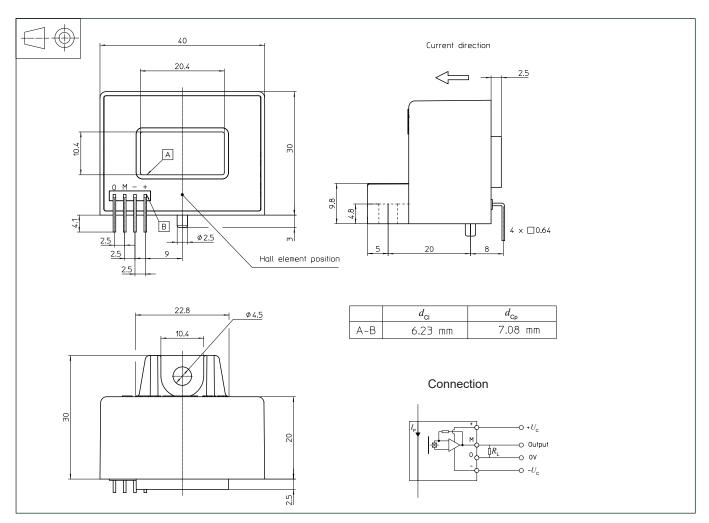
This transducer is a build-in device, whose conducting parts must be inaccessible after installation.

A protective housing or additional shield could be used.

Main supply must be able to be disconnected.



## Dimensions HAS 50 ... 600-P (in mm)



#### **Mechanical characteristics**

General tolerance

Transducer fastening

Recommended fastening torque

Connection of secondary

±0.5 mm 1 hole Ø 4.5 mm 1 M4 steel screw 0.75 N·m (±10 %) JST MB4P-90H

# Remarks

- $U_{\text{out}}$  is positive when  $I_{\text{P}}$  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/.
- 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.