

# Current Transducer HAS 75 ... 340-S

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)	
HAS 75-S	75	$\pm 225$	
HAS 150-S	150	$\pm 450$	
HAS 220-S	220	$\pm 660$	
HAS 260-S	260	$\pm 780$	
HAS 340-S	340	$\pm 900$	
$U_C$	Supply voltage ( $\pm 5\%$ ) <sup>1)</sup>	$\pm 15$	V
$I_C$	Current consumption	$\pm 15$	mA
$U_{out}$	Output voltage (Analog) @ $\pm I_{PN}$ , $R_L = 10\text{ k}\Omega$ , $T_A = 25^\circ\text{C}$	$\pm 4$	V
$R_{out}$	Output internal resistance approx	100	$\Omega$
$R_L$	Load resistance <sup>2)</sup>	> 1	$\text{k}\Omega$
$R_{INS}$	Insulation resistance @ 500 V DC	> 1000	$\text{M}\Omega$

## Accuracy - Dynamic performance data

$\varepsilon_{tot}$	Total error @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ (excluding offset)	< $\pm 1$	% of $I_{PN}$
$\varepsilon_L$	Linearity error <sup>3)</sup> (0 ... $\pm I_{PN}$ )	< $\pm 1$	% of $I_{PN}$
$U_{OE}$	Electrical offset voltage, $T_A = 25^\circ\text{C}$	< $\pm 20$	mV
$U_{OM}$	Magnetic offset voltage @ $I_P = 0$ , after an excursion of $1 \times I_{PN}$	< $\pm 20$	mV
$TCU_{OE}$	Temperature coefficient of $U_{OE}$	< $\pm 1$	mV/K
$TCU_{out}$	Temperature coefficient of $U_{out}$ (% of reading)	< $\pm 0.1$	/%K
$t_{D90}$	Delay time to 90 % of $I_{PN}$ <sup>4)</sup>	< 3	$\mu\text{s}$
$BW$	Frequency bandwidth <sup>5)</sup> (-3 dB)	DC ... 50	kHz

## General data

$T_A$	Ambient operating temperature	-10 ... +80	$^\circ\text{C}$
$T_S$	Ambient storage temperature	-25 ... +85	$^\circ\text{C}$
$m$	Mass	60	g
	Standards	UL EMC	UL 508:2010 IEC 61000-6-2:2016 IEC 61800-3:2017 <sup>6)</sup>
	Safety	IEC 61010-1:2010	
	Environmental	IEC 61477-1:2012 IEC 61800-2:2012	

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

<sup>2)</sup> If the customer uses 1  $\text{k}\Omega$  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  $\text{k}\Omega$

<sup>3)</sup> Linearity data exclude the electrical offset

<sup>4)</sup> For a  $di/dt = 50\text{ A}/\mu\text{s}$

<sup>5)</sup> Under small signals condition

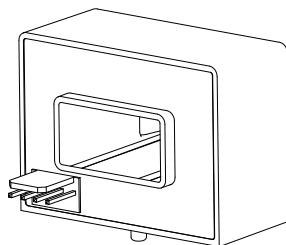
<sup>6)</sup> Regarding compliance towards IEC 61000-4-3 (IEC 61800-3:2017): variation of the offset between 390 MHz and 400 MHz with a field intensity of 10 [V/m].

N° 74.74.30.000.0, N° 74.74.39.000.0, N° N44522, N° N44525, N° N44527

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LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice

$I_{PN} = 75 \dots 340 \text{ A}$



## Features

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

## 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
$U_{Ni}$	Impulse withstand voltage 1.2/50 $\mu$ 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 IEC 61010-1 standard and following conditions:

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

IEC 61010-1	
$d_{Cp}, d_{Cl}, U_{Ni}$	Nominal voltage
Basic insulation	600 V
Reinforced insulation	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).

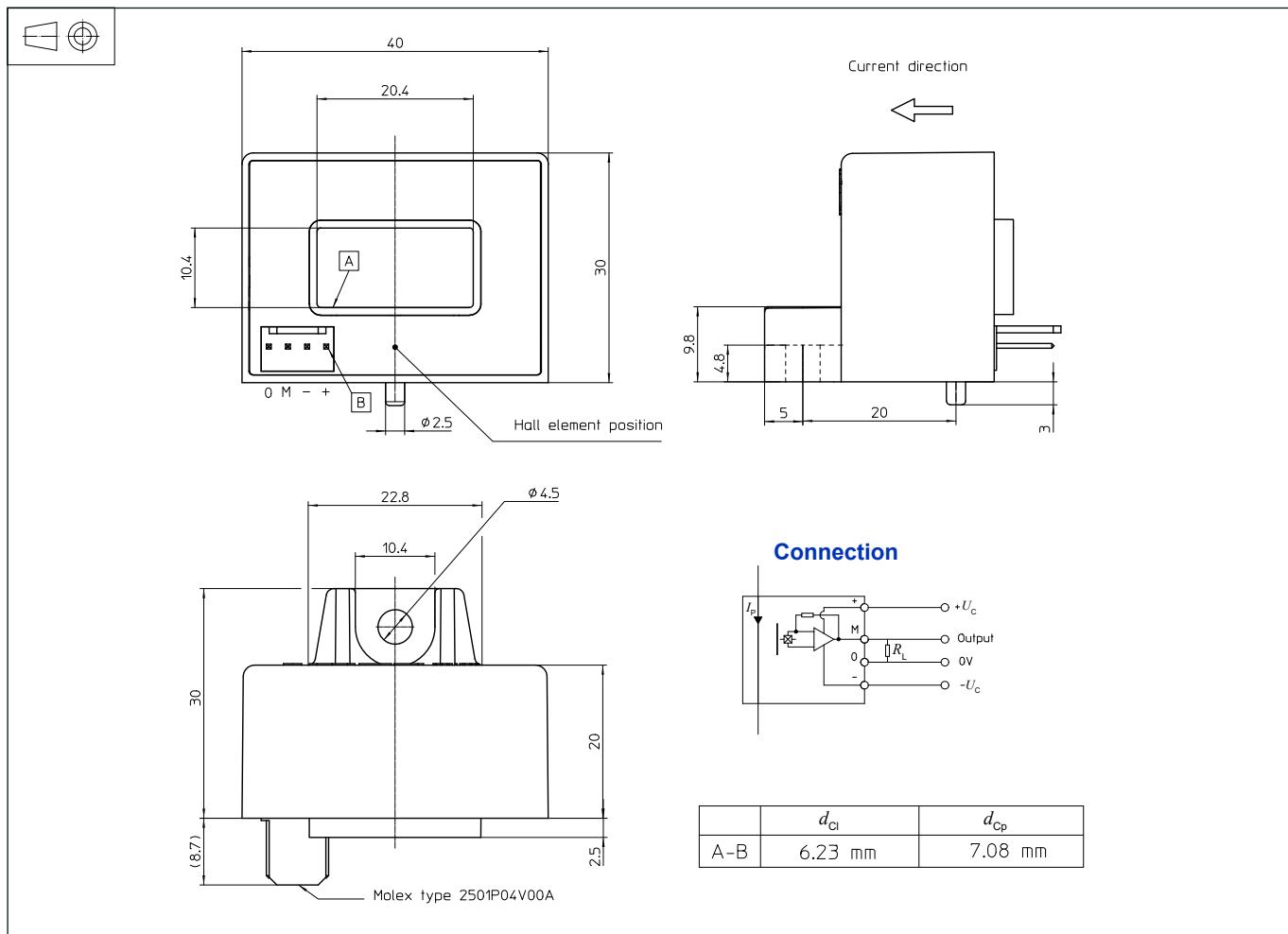
Ignoring this warning can lead to injury and/or cause serious damage.

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 ... 340-S (in mm)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening 1 hole  $\phi 4.5$  mm
- Recommended fastening torque 1 M4 steel screw
- Connection of secondary Molex type 2501P04V00A<sup>1)</sup>

**Note:** <sup>1)</sup> Recommended mating connector : Molex 511910400 (housing) and 508029101 (contact).

### 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/>.
- 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.