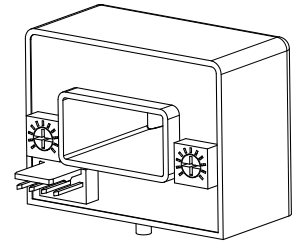


## Current Transducer HAS 50 .. 600-S/SP50

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



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



### Electrical data

Type	Primary nominal current rms $I_{PN}$ (A)	Primary current, measuring range <sup>1)</sup> $I_{PM}$ (A)	RoHS since date code
HAS 50-S/SP50	50	$\pm 150$	76348
HAS 100-S/SP50	100	$\pm 300$	76348
HAS 200-S/SP50	200	$\pm 600$	76348
HAS 300-S/SP50	300	$\pm 900$	76349
HAS 400-S/SP50	400	$\pm 900$	76349
HAS 500-S/SP50	500	$\pm 900$	76349
HAS 600-S/SP50	600	$\pm 900$	76349

$V_C$	Supply voltage ( $\pm 5\%$ ) <sup>1)</sup>	$\pm 15$	V
$I_C$	Current consumption	$\pm 15$	mA
$R_{IS}$	Isolation resistance @ 500 VDC	$> 1000$	M $\Omega$
$V_{OUT}$	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
$R_{OUT}$	Output internal resistance approx	100	$\Omega$
$R_L$	Load resistance <sup>2)</sup>	$> 1$	k $\Omega$

### Accuracy - Dynamic performance data

<b>X</b>	Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ (excluding offset)	$< \pm 1$	%
$\epsilon_L$	Linearity error <sup>3)</sup> ( $0 \dots \pm I_{PN}$ )	$< \pm 1$	% 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 $1 \times I_{PN}$	$< \pm 20$	mV
<b>TCV<sub>OE</sub></b>	Temperature coefficient of $V_{OE}$ HAS 50-S/SP50	$< \pm 2$	mV/K
	HAS 100 .. 600-S/SP50	$< \pm 1$	mV/K
<b>TCV<sub>OUT</sub></b>	Temperature coefficient of $V_{OUT}$ (% of reading)	$< \pm 0.1$	%/K
$t_r$	Response time to 90% of $I_{PN}$ step	$< 3$	$\mu\text{s}$
<b>di/dt</b>	di/dt accurately followed	$> 50$	A/ $\mu\text{s}$
<b>BW</b>	Frequency bandwidth (-3 dB) <sup>4)</sup>	DC .. 50	kHz

### General data

$T_A$	Ambient operating temperature	- 10 .. + 80	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 25 .. + 80	$^\circ\text{C}$
<b>m</b>	Mass approx	60	g
	Standard	EN 50178: 1997	

Notes: <sup>1)</sup> Operating at  $\pm 12 \text{ V} \leq V_C < \pm 15 \text{ V}$  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> Please refer to derating curves in the technical file to avoid excessive core heating at high frequency.

### Features

- Hall effect measuring principle
- Extended measuring range ( $3 \times I_{PN}$ )
- Isolated plastic case made of polycarbonate PBT recognized according to UL 94-V0.

### Special feature

- Counter bored hole for transducer fastening.

### 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 drivers and servo 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.

## Current Transducer HAS 50 .. 600-S/SP50

### Isolation characteristics

$V_d$	Rms voltage for AC insulation test, 50 Hz, 1 min	3.6	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	> 6.6	kV
		Min	
<b>dCp</b>	Creepage distance	7.08	mm
<b>dCl</b>	Clearance	6.23	mm
<b>CTI</b>	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
<b>dCp, dCl, <math>\hat{V}_w</math></b>	Rated insulation voltage	Nominal voltage
Basic insulation	600 V	600 V
Reinforced insulation	300 V	300 V

### Safety



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).

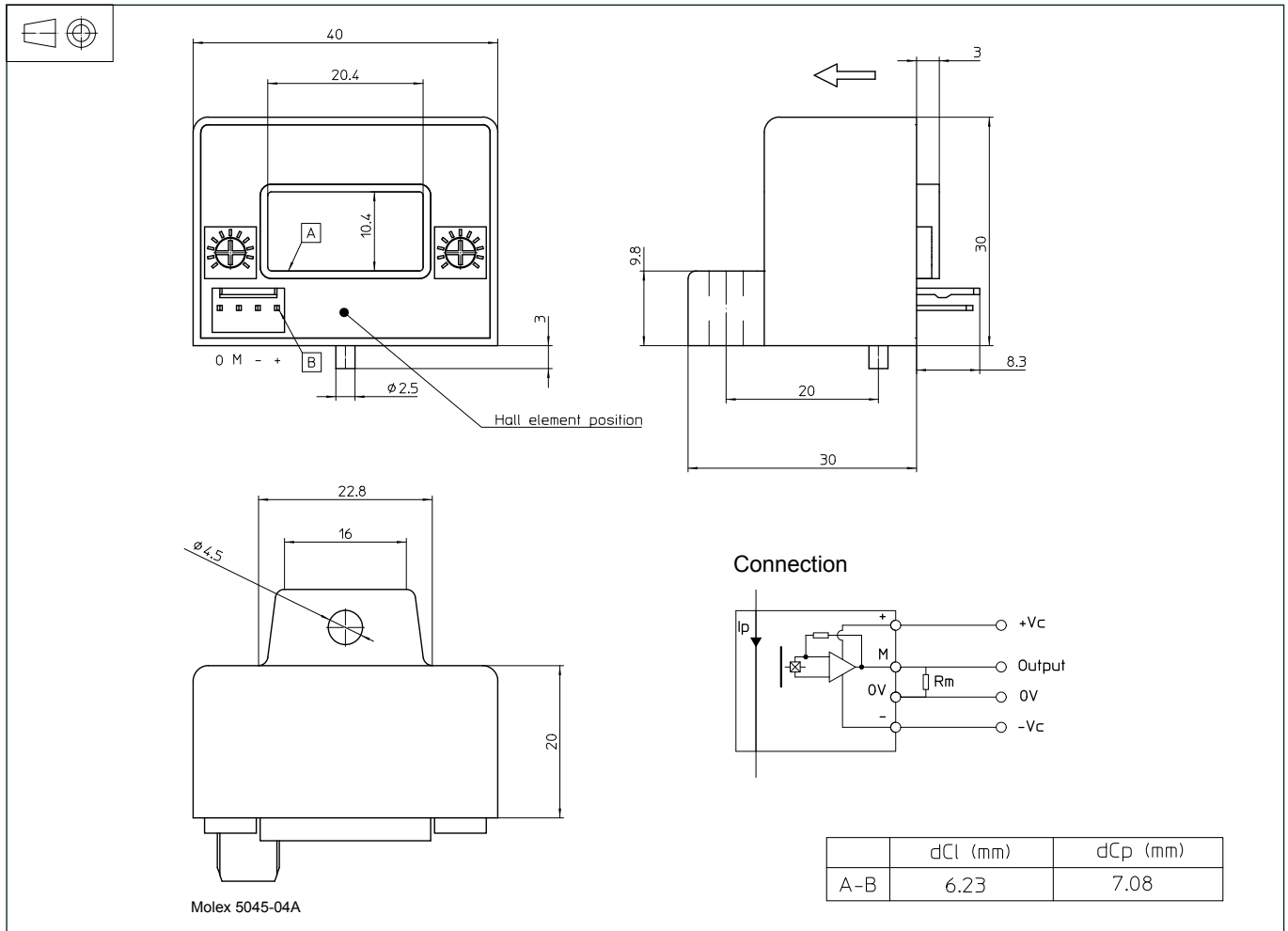
Ignoring this warning can lead to injury and/or cause serious damage.

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-S/SP50 (in mm)



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Transducer fastening  
1 hole  $\phi 4.5$  mm  
1 M4 steel screw  
Recommended fastening torque 0.75 Nm ( $\pm 10\%$ )
- Connection of secondary Molex 5045-04A

### Remarks

- $V_{OUT}$  is positive when  $I_p$  flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed  $100^\circ\text{C}$ .
- Dynamic performances ( $di/dt$  and response time) are best with a single bar completely filling the primary hole.