

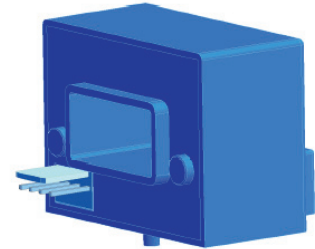
# Current Transducer HASS 50..600-S

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



All Data are given with a  $R_L = 10 \text{ k}\Omega$

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



## Electrical data

Primary nominal current rms $I_{PN}$ (A)	Primary current measuring range $I_{PM}$ (A)	Type
50	$\pm 150$	<b>HASS 50-S</b>
100	$\pm 300$	<b>HASS 100-S</b>
200	$\pm 600$	<b>HASS 200-S</b>
300	$\pm 900$	<b>HASS 300-S</b>
400	$\pm 900$	<b>HASS 400-S</b>
500	$\pm 900$	<b>HASS 500-S</b>
600	$\pm 900$	<b>HASS 600-S</b>

$V_{OUT}$	Analog Output voltage @ $I_p$	$V_{OE} \pm (0.625 \cdot I_p / I_{PN})$ V
$G_{TH}$	Theoretical sensitivity	0.625 $V / I_{PN}$
$V_{REF}$	Reference voltage <sup>1)</sup>	Output voltage
		Output impedance
		Load impedance
$R_L$	Load resistance	$\geq 2$ $\text{k}\Omega$
$R_{OUT}$	Output internal resistance	$< 5$ $\Omega$
$C_L$	Capacitive loading ( $\pm 20 \%$ )	$= 4.7$ nF
$V_C$	Supply voltage ( $\pm 5 \%$ ) <sup>2)</sup>	5 V
$I_C$	Current consumption @ $V_C = 5V$	19 mA

## Accuracy - Dynamic performance data

$X$	Accuracy <sup>3)</sup> @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\leq \pm 1$ %
$\epsilon_L$	Linearity error $0 \dots I_{PN}$	$\leq \pm 0.5$ %
	$0 \dots I_{PM}$	$\leq \pm 1$ %
$TCV_{OE}$	Temperature coefficient of $V_{OE}$ (+25.. +85°C)	$\leq \pm 0.4$ mV/K
	(-40.. +25°C)	$\leq \pm 0.525$ mV/K
$TCV_{REF}$	Temperature coefficient of $V_{REF}$ (+25.. +85°C)	$\leq \pm 0.01$ %/K
	(-40.. +25°C)	$\leq \pm 0.015$ %/K
$TCV_{OE/V_{REF}}$	Temperature coefficient of $V_{OE}/V_{REF}$	$\leq \pm 0.15$ mV/K
$TCG$	Temperature coefficient of $G$	$\leq \pm 0.05\%$ of reading/K
$V_{OE}$	Electrical offset voltage @ $I_p = 0$ , $T_A = 25^\circ\text{C}$	$V_{REF} \pm 0.025$ V
$V_{OM}$	Magnetic offset voltage @ $I_p = 0$	
	after an overload of $I_{PM}$	$< \pm 0.4$ %
$t_{ra}$	Reaction time to 10 % of $I_{PN}$ step	$< 3$ $\mu\text{s}$
$t_r$	Response time to 90 % of $I_{PN}$ step	$< 5$ $\mu\text{s}$
$di/dt$	di/dt accurately followed	$> 100$ A/ $\mu\text{s}$
$V_{no}$	Output voltage noise (DC .. 10 kHz)	$< 20$ mVpp
	(DC .. 1 MHz)	$< 40$ mVpp
$BW$	Frequency bandwidth (-3 dB) <sup>4)</sup>	DC .. 50 kHz

- Notes:**
- <sup>1)</sup>It is possible to overdrive  $V_{REF}$  with an external reference voltage between 1.5V - 2.8V providing its ability to sink or source approximately 5 mA.
  - <sup>2)</sup>Maximum supply voltage (not operating)  $< 6.5$  V
  - <sup>3)</sup>Excluding Offset and Magnetic offset voltage
  - <sup>4)</sup>Small signal only to avoid excessive heatings of the magnetic core.

## Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation test voltage 3300 V
- Low power consumption
- Single power supply + 5 V
- Fixed offset & Gain
- Isolated plastic case recognized according to UL 94-V0.

## Advantages

- Easy installation
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference
- Internal & external reference.

## 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.

## Current Transducer HASS 50..600-S

### General data

$T_A$	Ambient operating temperature	- 40 .. + 85	°C
$T_S$	Ambient storage temperature	- 40 .. + 85	°C
$m$	Mass	55	g
	Standards	EN 50178:1997	

### Isolation characteristics

$V_b$	Rated isolation voltage rms with following conditions		
	-Over voltage category III		
	-Pollution degree 2		
	-Heterogeneous field		

	EN50178	IEC61010-1
Single insulation	600V	600V
Reinforced insulation	300V	150V

$V_d$	Rms voltage for AC isolation test, 50 Hz, 1 min	3.3	kV
$V_e$	Partial discharge extinction voltage rms @ 10 pC	> 1	kV
$V_w$	Impulse withstand voltage 1.2/50 $\mu$ s	6	kV
<b>dCp</b>	Creepage distance	> 5.5	mm
<b>dCl</b>	Clearance distance	> 5.5	mm
<b>CTI</b>	Comparative Tracking Index (Group I)	> 600	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).

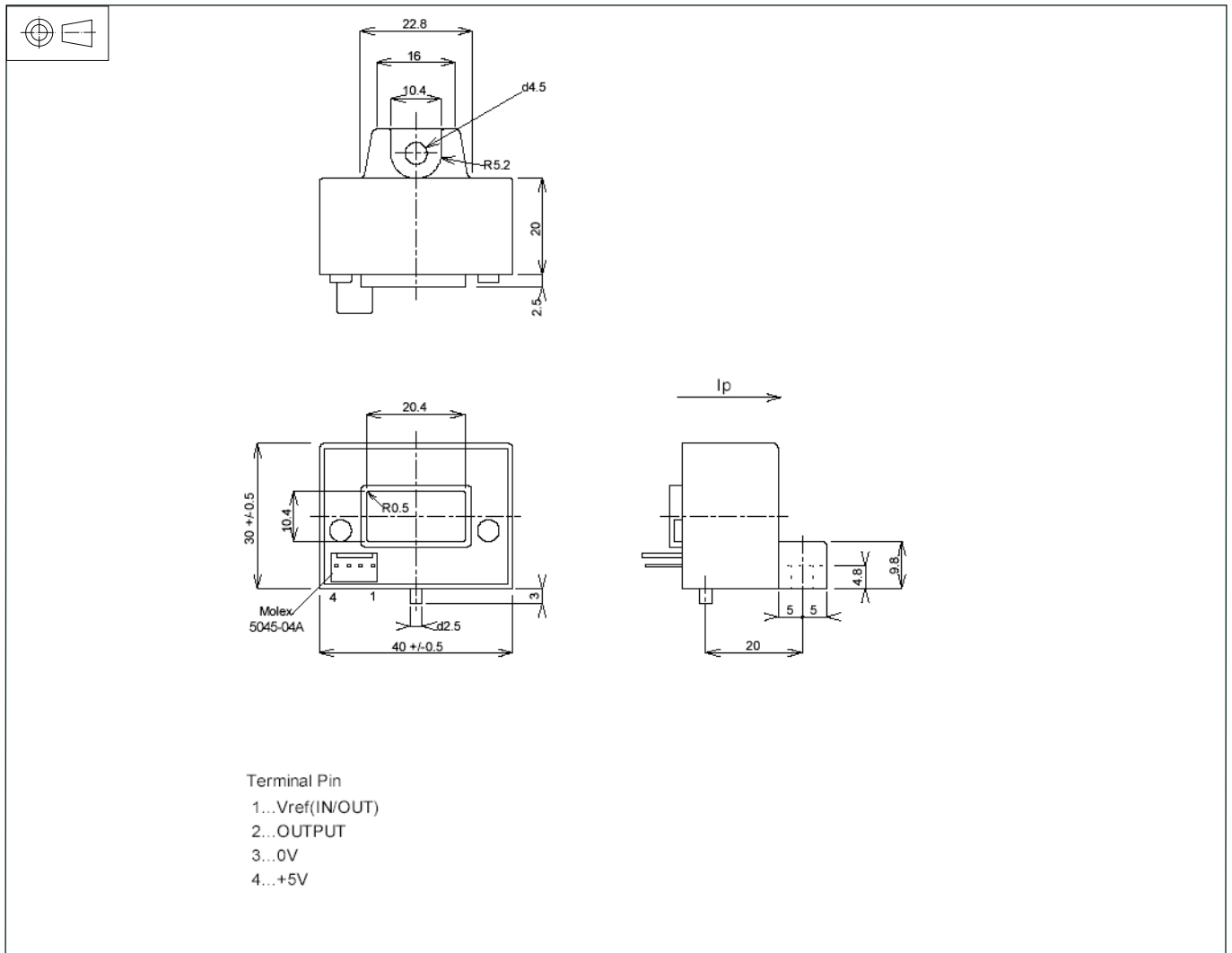
Ignoring this warning can lead to injury and/or cause serious damage.

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

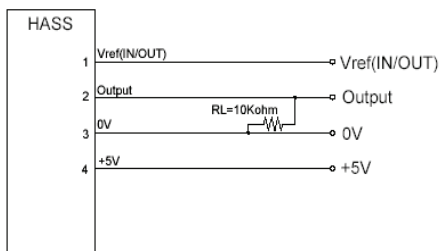
A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

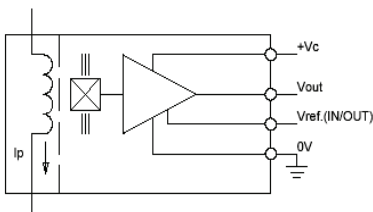
## Dimensions HASS 50..600-S (in mm)



### Required Connection Circuit



### Operation Principle



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm
- Aperture for primary conductor 20.4x10.4x0.5mm
- Transducer fastening M4
- Recommended fastening torque  $< 1.5N \cdot m$
- Connection of secondary Molex 5045-04A

### Remarks

- Arrow indicates positive current flow direction.
- Temperature of the primary conductor should not exceed 100°C.