

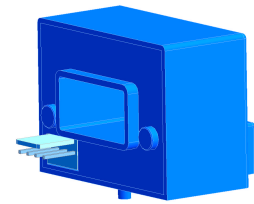
Current Transducer HASS 50..600-S

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

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



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



Electrical data

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

V_{OUT}	Output voltage (Analog) @ I_p $I_p = 0$	$V_{REF} \pm (0.625 \cdot I_p / I_{PN}) \text{ V}$ $V_{REF} \pm 0.025 \text{ V}$
G	Output voltage (without offset) @ I_{PN}	$\pm 0.625 \pm 1 \% \text{ V}$
V_{REF}	Reference voltage ¹⁾ - Output voltage	$2.5 \pm 0.025 \text{ V}$
	V_{REF} Output impedance	typ. 200 Ω
	V_{REF} Load impedance	$\geq 200 \text{ k}\Omega$
R_L	Load resistance	$\geq 2 \text{ k}\Omega$
R_{OUT}	Output internal resistance	$< 10 \Omega$
C_L	Capacitive loading	$< 1 \mu\text{F}$
V_C	Supply voltage ($\pm 5 \%$)	5 V
I_C	Current consumption @ $V_C = 5 \text{ V}$	22 mA

Accuracy - Dynamic performance data

X	Accuracy ²⁾ @ I_{PN} , $T_A = 25^\circ\text{C}$	$\leq \pm 1$	% of I_{PN}
e_L	Linearity error 0.. I_{PN} .. I_p	$\leq \pm 0.5$ $\leq \pm 1$	% of I_{PN} % of I_{PN}
TCV_{OUT}	Temperature coefficient of V_{OUT} @ $I_p = 0$	$\leq \pm 0.3$	mV/K
TCV_{REF}	Temperature coefficient of V_{REF}	$\leq \pm 0.01$	%/K
$TCV_{OUT/V_{REF}}$	Temperature coefficient of V_{OUT} / V_{REF} @ $I_p = 0$	$\leq \pm 0.2$	mV/K
TCG	Temperature coefficient of G	$\leq \pm 0.05\%$	of reading/K
V_{OM}	Magnetic offset voltage @ $I_p = 0$, after an overload of $3 \times I_{PN DC}$	$< \pm 0.4$	% of I_{PN}
t_{ra}	Reaction time @ 10 % of I_{PN}	< 3	μs
t_r	Response time to 90 % of I_{PN} step	< 5	μs
di/dt	di/dt accurately followed	> 100	A/ μs
V_{no}	Output voltage noise (DC .. 10 kHz)	< 20	mVpp
	(DC .. 1 MHz)	< 40	mVpp
BW	Frequency bandwidth (- 3 dB) ³⁾	DC .. 50	kHz

Notes :

- 1) It is possible to overdrive V_{REF} with an external reference voltage between 2 - 2.8 V providing its ability to sink or source approximately 2.5 mA.
- 2) Excluding offset and hysteresis.
- 3) 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 3300V
- Low power consumption
- Single power supply +5V
- 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 and 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
	Standard	EN 50178: 1997	

Isolation characteristics

V_b	Rated isolation voltage rms with IEC 61010-1 standards and following conditions - Reinforced isolation - Over voltage category III - Pollution degree 2 - Heterogeneous field	150	V
V_b	Rated isolation voltage rms with EN 50178 standards and following conditions - Reinforced isolation - Over voltage category III - Pollution degree 2 - Heterogeneous field	300	V
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 μ s	6	kV
dCp	Creepage distance	> 5.5	mm
dCl	Clearance distance	> 5.5	mm
CTI	Comparative tracking index (Group I)	> 600	V

If isolated cable is used for the primary circuit, the voltage category could be improved with the following table :

Cable isolation (primary)	Category
HAR 03	300V CAT III
HAR 05	400V CAT III
HAR 07	500V CAT III

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).

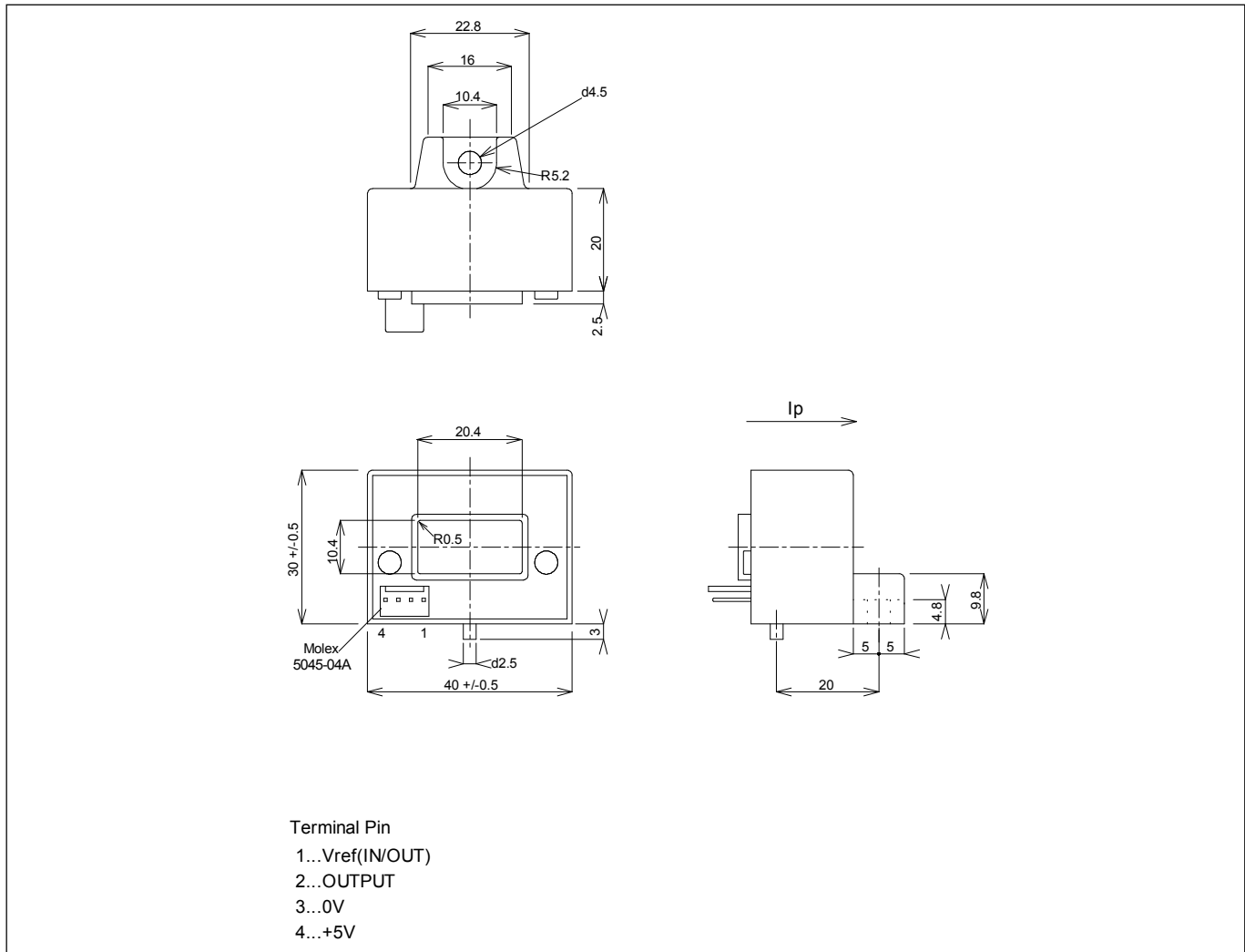
Ignoring this warning can lead to injury and/or cause serious damage.

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

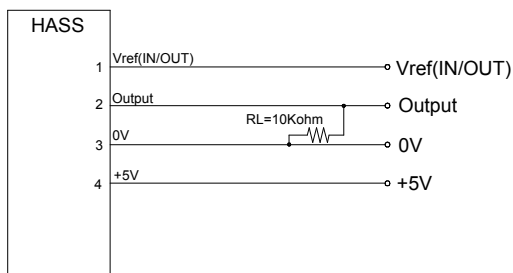
A protective housing or additional shield could be used.

Main supply must be able to be disconnected.

Dimensions HASS 50..600-S (in mm. 1 mm = 0.0394 inch)



Required Connection Circuit



Mechanical characteristics

- General tolerance ± 0.5 mm
- Aperture for primary conductor $20.4 \times 10.4 \pm 0.5$ mm
- Transducer fastening M4
- Recommended fastening torque < 1.5 Nm
- Connection of secondary Molex 5045-04A

Remarks

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

Operation Principle

