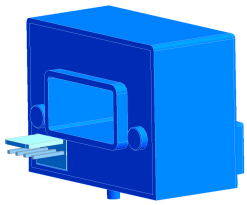
Current Transducer HASS 50..600-S

I_{PN} = 50 .. 600 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 kΩ

Electrical data

Primary nominal current rms I_{PN} (A)	Primary current measuring range I_{PM} (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	V_{REF} ±(0.625·I_P/I_{PN})	V
	I_P = 0	V_{REF} ± 0.025	V
G	Output voltage (without offset) @ I_{PN}	± 0.625 ± 1 %	V
V_{REF}	Reference voltage [1] - Output voltage	2.5 ± 0.025	V
	V_{REF} Output impedance	typ. 200	Ω
	V_{REF} Load impedance	≥ 200	kΩ
R_L	Load resistance	≥ 2	kΩ
R_{OUT}	Output internal resistance	< 10	Ω
C_L	Capacitive loading	< 1	µF
V_C	Supply voltage (± 5 %)	5	V
I_C	Current consumption @ V_C = 5 V	22	mA

Accuracy - Dynamic performance data

X	Accuracy [2] @ I_{PN} , T_A = 25°C	≤ ± 1	% of I_{PN}
ε_L	Linearity error 0 .. I_{PN}	≤ ± 0.5	% of I_{PN}
	.. I_P	≤ ± 1	% of I_{PN}
TCV_{OUT}	Temperature coefficient of V_{OUT} @ I_P = 0	≤ ± 0.3	mV/K
TCV_{REF}	Temperature coefficient of V_{REF}	≤ ± 0.01	%/K
TCV_{OUT}/V_{REF}	Temperature coefficient of V_{OUT} / V_{REF} @ I_P = 0	≤ ± 0.2	mV/K
TCG	Temperature coefficient of **G**	≤ ± 0.05	% of reading/K
V_{OM}	Magnetic offset voltage @ I_P = 0, after an overload of 3 x $I_{PN\ DC}$	< ± 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
- Insulated 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
	Standards	EN 50178: 1997	

Isolation characteristics

V_b	Rated isolation voltage rms	150	V
	with IEC 61010-1 standards and following conditions		
	- Reinforced insulation		
	- Over voltage category III		
	- Pollution degree 2		
	- Heterogeneous field		
V_b	Rated isolation voltage rms	300	V
	with EN 50178 standards and following conditions		
	- Reinforced insulation		
	- Over voltage category III		
	- Pollution degree 2		
	- Heterogeneous field		
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
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	6	kV
dCp	Creepage distance	> 5.5	mm
dCl	Clearance distance	> 5.5	mm
CTI	Comparative tracking index (Group I)	> 600	V

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

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

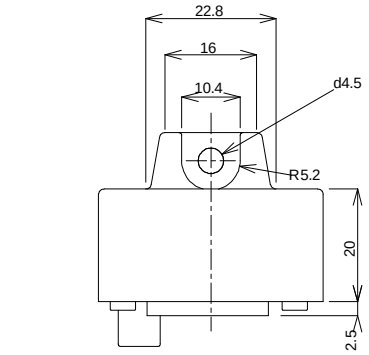
Safety

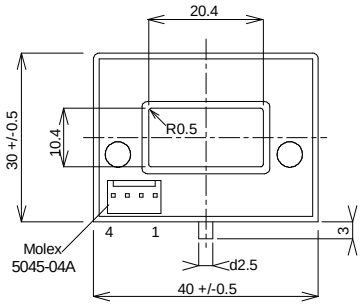
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the following manufacturer's operating instructions.

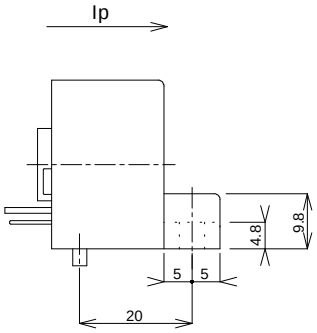
Caution, risk of electrical shock

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)

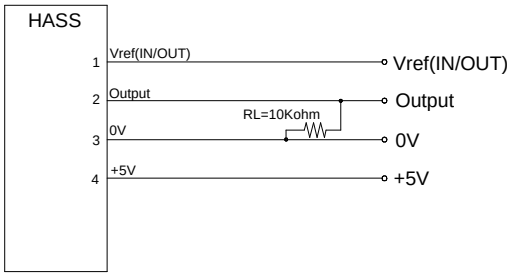




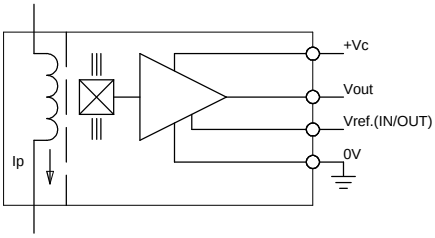


Terminal Pin
1...Vref(IN/OUT)
2...OUTPUT
3...0V
4...+5V

Required Connection Circuit



Operation Principle



Mechanical characteristics

- General tolerance ± 0.5 mm
- Aperture for primary conductor 20.4 x 10.4 ± 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