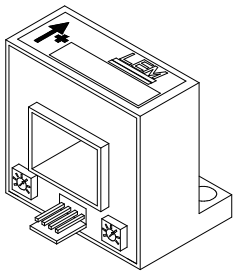
Current Transducer HAL 50..600-S

I_{PN} = 50 .. 600 A

For the measurement of DC and complex waveform AC currents with a galvanic isolation is provided between the primary (measured) and the analogue output (control) signal.



Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 3000 V
- Low power consumption
- Extended measuring range(3 x I_{PN})
- 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.

Applications

- AC variable speed drives
- DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications

Application domain

- Industrial

Electrical data

Primary nominal current rms I_{PN} (A)	Primary current measuring range [4] I_{PM} (A)	Type	RoHS since date code
50	± 150	**HAL 50-S**	46180
100	± 300	**HAL 100-S**	46065
200	± 600	**HAL 200-S**	46090
300	± 900	**HAL 300-S**	46142
400	± 1000	**HAL 400-S**	46114
500	± 1000	**HAL 500-S**	46306
600	± 1000	**HAL 600-S**	46059

$\hat{I}_P$	Overload capability (Ampere Turns)	30,000	A
V_{OUT}	Output voltage (Analog) @ ± I_{PN}	± 4	V
R_L	Load resistance @ T_A = 0 .. + 70 °C	> 1	kΩ
	@ T_A = - 25 .. + 85 °C	> 3	kΩ
V_C	Supply voltage (± 5 %)	± 15	V
I_C	Current consumption	< ± 25	mA
V_b	Rated isolation voltage rms [1]	500	V
V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	3	kV
R_{is}	Isolation resistance @ 500 V_{DC}	> 500	MΩ

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN}, T_A = 25°C, ± 15 V		< ± 1	%
ε_L	Linearity error [2]		< ± 0.5	% of I_{PN}
V_{OE}	Electrical offset voltage @ T_A = 25°C	HAL 50-S	< ± 20	mV
		HAL 100..600-S	< ± 10	mV
V_{OM}	Magnetic offset voltage @ I_P = 0,			
	after an overload of 3 x I_{PN}	HAL 50-S	< ± 30	mV
		HAL 100..200-S	< ± 20	mV
		HAL 300..600-S	< ± 10	mV
TCV_{OE}	Temperature coefficient of V_{OE}	HAL 50-S	< ± 2	mV/K
		HAL 100..600-S	< ± 1	mV/K
TCV_{OUT}	Temperature coefficient of V_{OUT} (% of reading)		< ± 0.05	%/K
t_r	Response time to 90 % of I_{PN} step		< 3	µs
BW	Frequency bandwidth (- 3 dB) [3]		DC .. 50	kHz

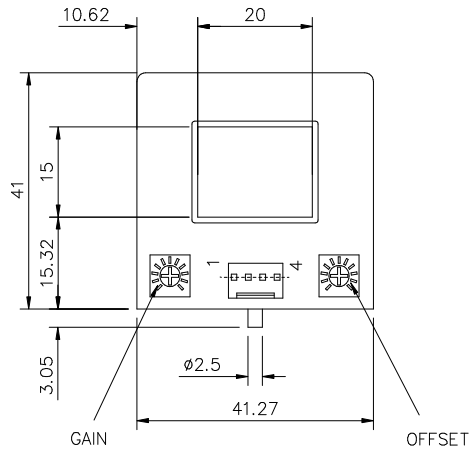
General data

T_A	Ambient operating temperature	- 25 .. + 85	°C
T_S	Ambient storage temperature	- 25 .. + 85	°C
m	Mass	app. 75	g
	Standards [4] Safety	EN50178: 1994	
	EMC	EN50082-2: 1992	
		EN50081-1: 1992	
	Deviation in output when tested to EN 61000-4-6	< 20	% of I_{PN}
	Deviation in output when tested to EN 61000-4-3	< 20	% of I_{PN}

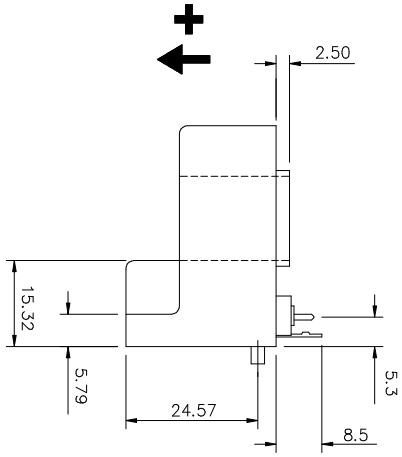
Notes : [1] Overvoltage Category III, Pollution Degree 2
[2] Excludes the electrical offset
[3] Derating is needed to avoid excessive core heating at high frequency.
[4] Please consult characterisation report for more technical details and application advice.

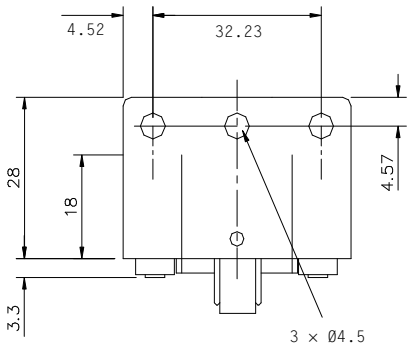
Dimensions HAL 50..600-S (in mm. 1 mm = 0.0394 inch)

Front view



Left view





Bottom view

Secondary terminals

Terminal 1	: supply voltage + 15 V
Terminal 2	: supply voltage - 15 V
Terminal 3	: output
Terminal 4	: 0V

Mechanical characteristics

- General tolerance ± 0.5 mm
- Primary through-hole 20 mm x 15 mm
- Connection of secondary Molex 5045-04-A

Remarks

- $\mathbf{V}_{OUT}$ is positive when $\mathbf{I}_P$ flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 90°C.
- This is a standard model. For different versions please contact us.

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.