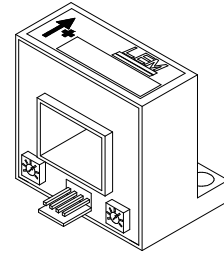


# Current Transducer HAL 50..600-S

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.



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



## Electrical data

Primary nominal current rms $I_{PN}$ (A)	Primary current measuring range <sup>4)</sup> $I_{PM}$ (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	planned
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 @ $T_A = 0 \dots + 70 \text{ }^\circ\text{C}$	> 1	kΩ
	@ $T_A = - 25 \dots + 85 \text{ }^\circ\text{C}$	> 3	kΩ
$V_C$	Supply voltage (± 5%)	± 15	V
$I_C$	Current consumption	< 25	mA
$V_b$	Rated isolation voltage rms <sup>1)</sup>	500	V
$V_d$	Rms voltage for AC isolation test, 50 Hz, 1 min	3	kV
$R_{is}$	Isolation resistance @ 500 V <sub>DC</sub>	> 500	MΩ

## Accuracy - Dynamic performance data

$X$	Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ , ± 15 V	< ± 1	%
$e_L$	Linearity error <sup>2)</sup>	< ± 0.5	% of $I_{PN}$
$V_{OE}$	Electrical offset voltage @ $T_A = 25^\circ\text{C}$	< ± 10	mV
$V_{OM}$	Magnetic offset voltage @ $I_p = 0$ after an overload of $3 \times I_{PN}$	< ± 10	mV
$TCV_{OE}$	Temperature coefficient of $V_{OE}$	HAL 50-S HAL 100..600-S	< ± 2 mV/K < ± 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) <sup>3)</sup>	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 <sup>4)</sup> 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 : <sup>1)</sup> Overvoltage Category III, Pollution Degree 2

<sup>2)</sup> Excludes the electrical offset

<sup>3)</sup> Derating is needed to avoid excessive core heating at high frequency.

<sup>4)</sup> Please consult characterisation report for more technical details and application advice.

## Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 3000 V
- Low power consumption
- Extended measuring range ( $3 \times I_{PN}$ )
- Insulated plastic case recognized according to UL 94-V0

## Advantages

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

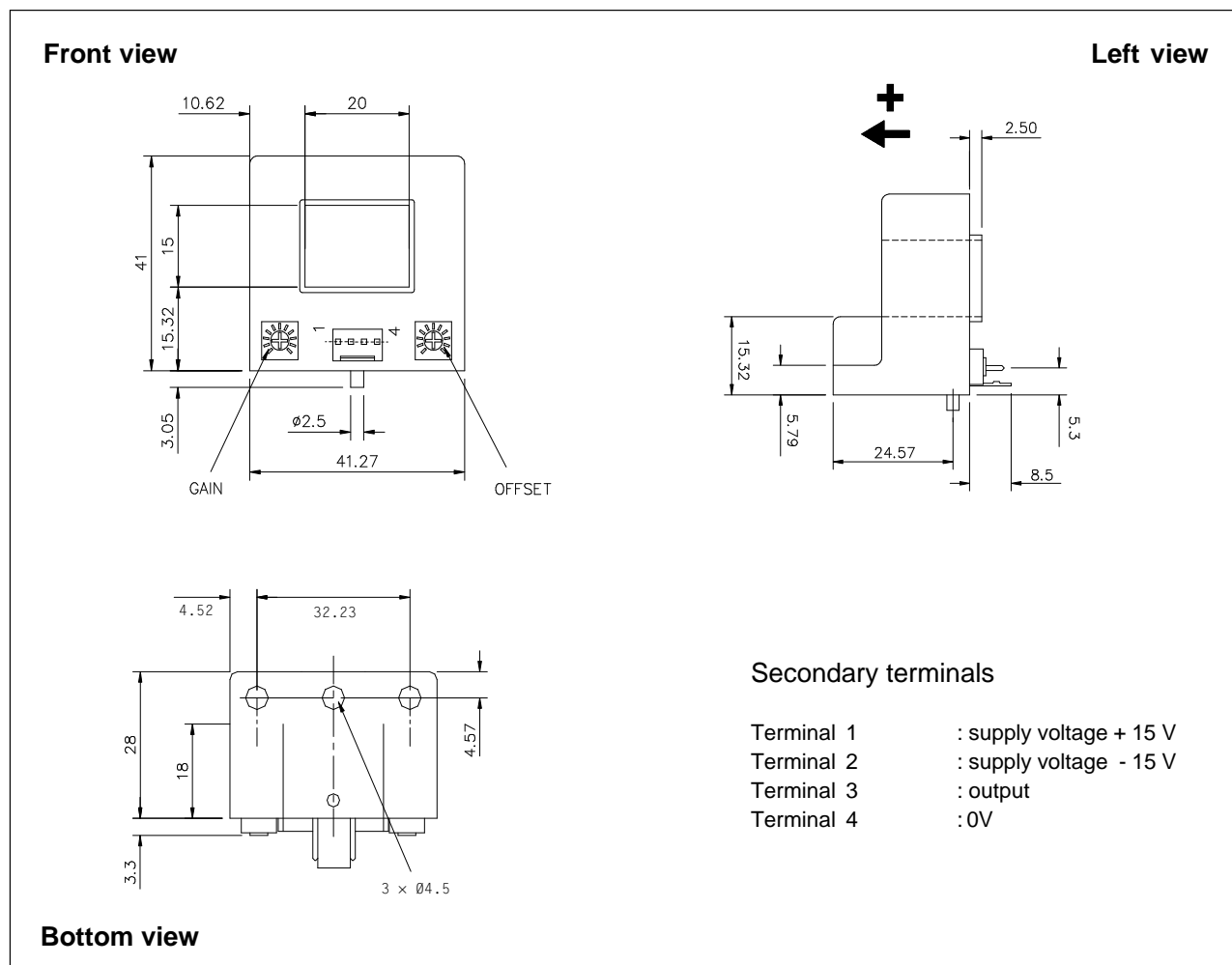
## Applications

- 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

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



### Mechanical characteristics

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

### Remarks

- $V_{OUT}$  is positive when  $I_p$  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 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.