

# Current Transducer HAC 100..800-S

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

**$I_{PN} = 100 \dots 800 \text{ A}$**



## Electrical data

Primary nominal current rms $I_{PN}$ (A)	Primary current measuring range $I_{PM}$ (A)	Type	RoHS since date code
100	± 300	HAC 100-S	46256
200	± 600	HAC 200-S	46220
300	± 900	HAC 300-S	46284
400	± 1200	HAC 400-S	46242
500	± 1500	HAC 500-S	47143
600	± 1800	HAC 600-S	46186
800	± 1800	HAC 800-S	46219

$V_C$	Supply voltage ( $\pm 5\%$ ) <sup>1)</sup>		± 15	V
$I_C$	Current consumption	HAC 100..300-S	< ± 18	mA
		HAC 400..800-S	< ± 25	mA
$R_{IS}$	Isolation resistance @ 500 VDC		> 1000	MΩ
$V_{OUT}$	Output voltage (Analog) @ $\pm I_{PN}$ , $R_L = 10\text{k}\Omega$ , $T_A = 25^\circ\text{C}$		± 4	V
$R_{OUT}$	Output internal resistance		100	Ω
$R_L$	Load resistance		> 10	kΩ

## Accuracy - Dynamic performance data

$X$	Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ (excluding offset)	< ± 1	% of $I_{PN}$
$\epsilon_L$	Linearity error ( $0 \dots \pm I_{PN}$ )	< ± 1	% of $I_{PN}$
$V_{OE}$	Electrical offset voltage, $T_A = 25^\circ\text{C}$	< ± 30	mV
$V_{OH}$	Hysteresis offset voltage @ $I_P = 0$ ; after an excursion of $1 \times I_{PN}$	< ± 35	mV
$TCV_{OE}$	Temperature coefficient of $V_{OE}$	< ± 1	mV/K
$TCV_{OUT}$	Temperature coefficient of $V_{OUT}$ (% of reading)	< ± 0.1	%/K
$t_r$	Response time to 90% of $I_{PN}$ step	< 7	μs
<b>BW</b>	Frequency bandwidth (- 3 dB) <sup>2)</sup>	DC .. 50	kHz

## General data

$T_A$	Ambient operating temperature	- 10 .. + 80	°C
$T_S$	Ambient storage temperature	- 15 .. + 85	°C
$m$	Mass	70	g

## Features

- Hall effect measuring principle
- Galvanic isolation between primary and secondary circuit
- Isolation voltage 2500 V
- Low power consumption
- Extended measuring range ( $3 \times I_{PN}$ )

## 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 and servo motor 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.

Notes: <sup>1)</sup> Operating at  $\pm 12\text{V} \leq V_C < \pm 15\text{V}$  will reduce the measuring range.

<sup>2)</sup> Derating is needed to avoid excessive core heating at high frequency.

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### Isolation characteristics

$V_d$	Rms voltage for AC isolation test, 50 Hz, 1 min	2.5 <sup>3)</sup>	kV
dCp	Creepage distance	> 5.5	mm
dCI	Clearance distance	> 5.5	mm
CTI	Comparative Tracking Index (group IIIa)	> 220	

### Applications examples

According to EN 50178 and CEI 61010-1 standards and following conditions:

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	CEI 61010-1
dCp, dCI, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	500 V	Cat III 500 V rms
Reinforced isolation	150 V	Cat III 250 V rms

Note: <sup>3)</sup>Between primary and secondary

### 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).

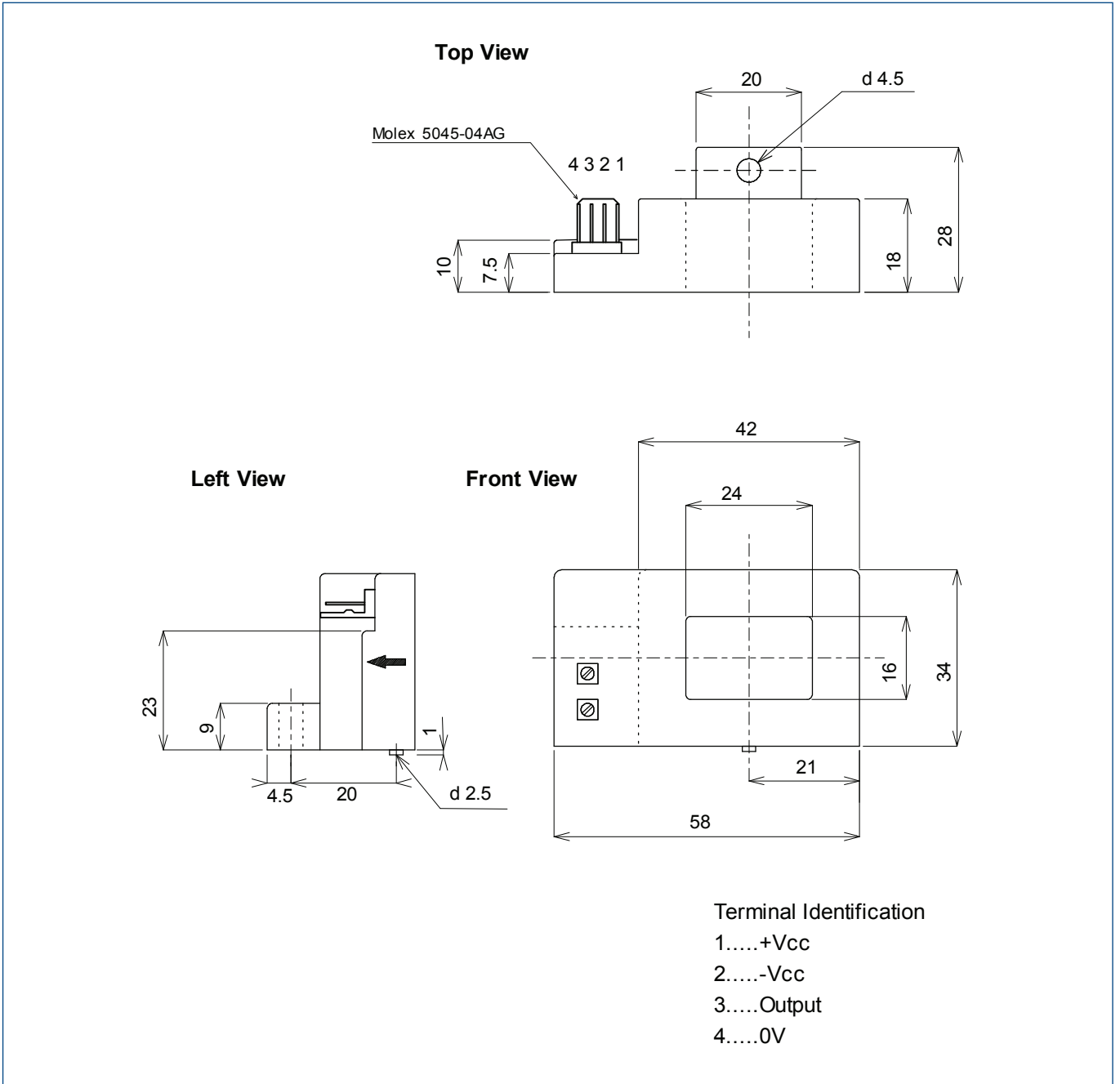
Ignoring this warning can lead to injury and/or cause serious damage.

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 HAC 100..800-S** (in mm. 1 mm = 0.0394 inch)



**Mechanical characteristics**

- General tolerance  $\pm 0.5$  mm