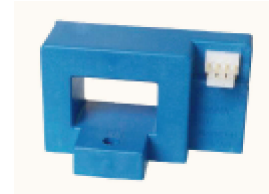


## Current Transducers HAC 100..800-S

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).



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



### Electrical data

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

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

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

### Accuracy - Dynamic performance data

|             |                                                                                    |          |               |
|-------------|------------------------------------------------------------------------------------|----------|---------------|
| $X$         | Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ (excluding offset)                  | < ± 1    | % of $I_{PN}$ |
| $e_L$       | Linearity error (0 .. ± $I_{PN}$ )                                                 | < ± 1    | % of $I_{PN}$ |
| $V_{OE}$    | Electrical offset voltage, $T_A = 25^\circ\text{C}$                                | < ± 30   | mV            |
| $V_{OH}$    | Hysteresis offset voltage @ $I_p = 0$ ;<br>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>1)</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  |

### 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

#### Note :

<sup>1)</sup> Derating is needed to avoid excessive core heating at high frequency.

## Current transducer HAC 100..800-S

### Isolation characteristics

|                      |                                                 |                   |    |
|----------------------|-------------------------------------------------|-------------------|----|
| <b>V<sub>d</sub></b> | Rms voltage for AC isolation test, 50 Hz, 1 min | 2.5 <sup>2)</sup> | kV |
| <b>dCp</b>           | Creepage distance                               | > 5.5             | mm |
| <b>dCl</b>           | Clearance distance                              | > 5.5             | mm |
| <b>CTI</b>           | Comparative Tracking Index (Group IIIa)         | > 220             |    |

### Application examples

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

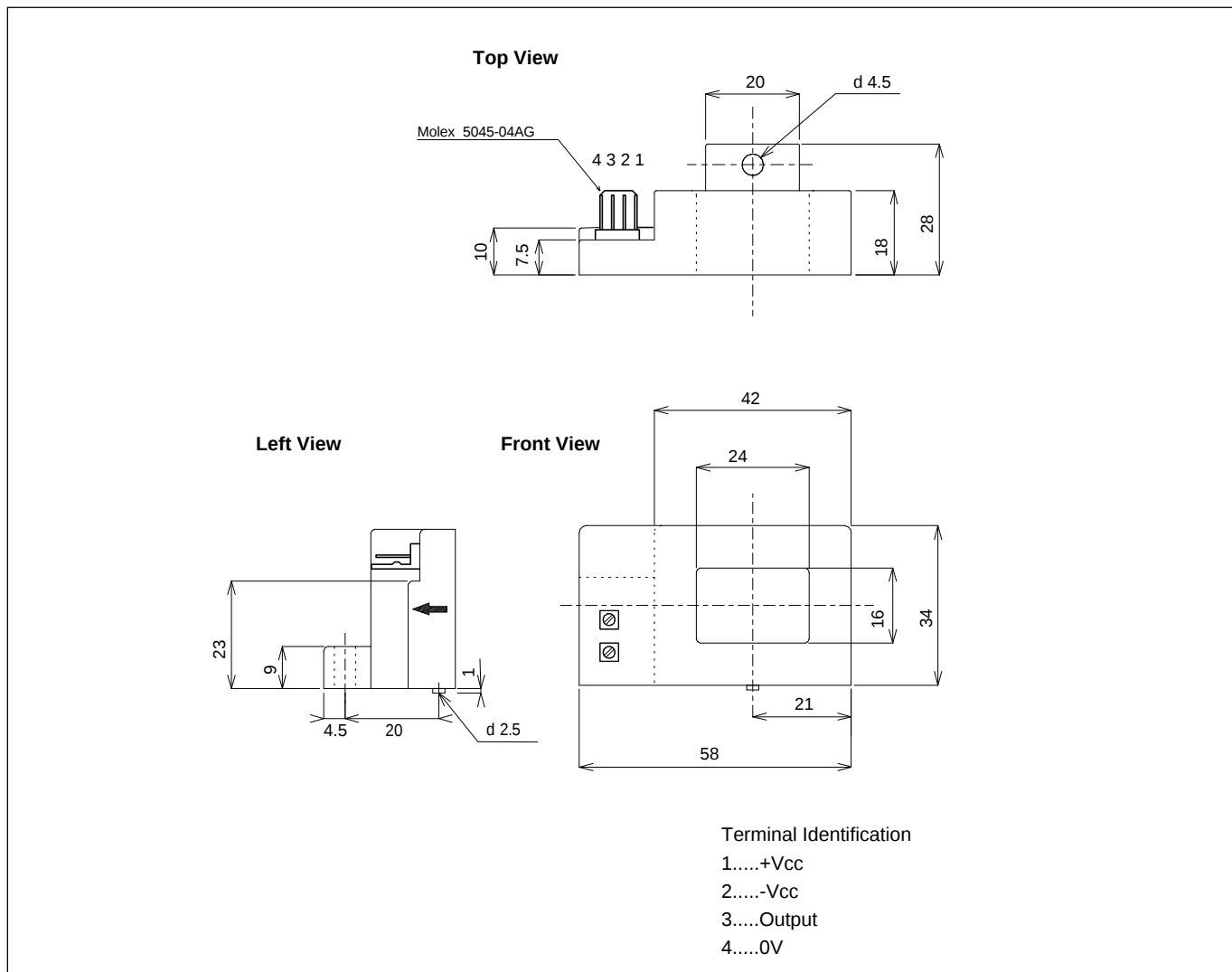
- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

|                       | EN 50178                | CEI 61010-1       |
|-----------------------|-------------------------|-------------------|
| dCp, dCl, $\hat{V}_w$ | 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>2)</sup> Between primary and secondary

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



### Mechanical characteristics

- General tolerance  $\pm 0.5$  mm

### 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.