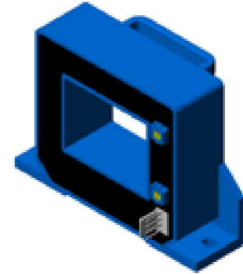


## Current Transducer HAT 200 .. 1500-S

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

$$I_{PN} = 200 \dots 1500 \text{ A}$$

$$V_{OUT} = \pm 4 \text{ V}$$



### Electrical data

| Type       | Primary nominal current rms  | Primary current, measuring range <sup>1)</sup> | RoHS since date code |
|------------|--|--|----------------------|
|            | $I_{PN}$ (A)   | $I_{PM}$ (A)                                   |                      |
| HAT 200-S  | 200  | ± 600  | 47143                |
| HAT 400-S  | 400  | ± 1200   | 46115                |
| HAT 500-S  | 500  | ± 1500   | 46129                |
| HAT 600-S  | 600  | ± 1800   | 46115                |
| HAT 800-S  | 800  | ± 2400   | 46115                |
| HAT 1000-S | 1000   | ± 2500   | 46097                |
| HAT 1200-S | 1200   | ± 2500   | 77271                |
| HAT 1500-S | 1500   | ± 2500   | 46158                |
| $V_C$      | Supply voltage (± 5 %) <sup>1)</sup>   | ± 15   | V                    |
| $I_C$      | Current consumption  | ± 15   | 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                   |

### Accuracy - Dynamic performance data

|              |  |          |               |
|--------------|--|----------|---------------|
| $X$          | Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$ (excluding offset)                  | ≤ ± 1    | % of $I_{PN}$ |
| $\epsilon_L$ | Linearity error <sup>2)</sup> (0 .. ± $I_{PN}$ )                                   | ≤ ± 1    | % of $I_{PN}$ |
| $V_{OE}$     | Electrical offset voltage @ $T_A = 25^\circ\text{C}$                               | < ± 20   | mV            |
| $V_{OH}$     | Hysteresis offset voltage @ $I_P = 0$ ,<br>after an excursion of $1 \times I_{PN}$ | < ± 10   | 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   | < 5      | μs            |
| <b>BW</b>    | Frequency bandwidth <sup>3)</sup> (- 3 dB)   | DC .. 25 | kHz           |

### General data

|       |                               |              |    |
|-------|-------------------------------|--------------|----|
| $T_A$ | Ambient operating temperature | - 10 .. + 80 | °C |
| $T_S$ | Ambient storage temperature   | - 25 .. + 85 | °C |
| $m$   | Mass                          | 300          | g  |

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> Linearity data exclude the electrical offset

<sup>3)</sup> Please refer to derating curves in the technical file to avoid excessive core heating at high frequency.

### Features

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

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

### Application domain

- Industrial

## Current Transducer HAT 200 .. 1500-S

### Isolation characteristics

|             |   |       |    |
|-------------|---|-------|----|
| $V_d$       | Rms voltage for AC isolation test, 50 HZ, 1 min | 4.9   | kV |
| $\hat{V}_w$ | Impulse withstand voltage 1.2/50 $\mu$ s        | > 9.0 | kV |
|             |   | Min   |    |
| <b>dCp</b>  | Creepage distance                               | 9.9   | mm |
| <b>dCI</b>  | Clearance distance                              | 9.9   | mm |
| <b>CTI</b>  | Comparative Tracking Index (group IIIa)         | 275   |    |

### Applications examples

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

- Over voltage category III
- Pollution degree PD2
- Non-uniform field

|   | EN 50178                | IEC 61010-1     |
|---|-------------------------|-----------------|
| <b>dCp, dCI, <math>\hat{V}_w</math></b> | Rated isolation voltage | Nominal voltage |
| Single isolation                        | 800 V                   | 800 V           |
| Reinforced isolation                    | 400 V                   | 300 V           |

### 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).

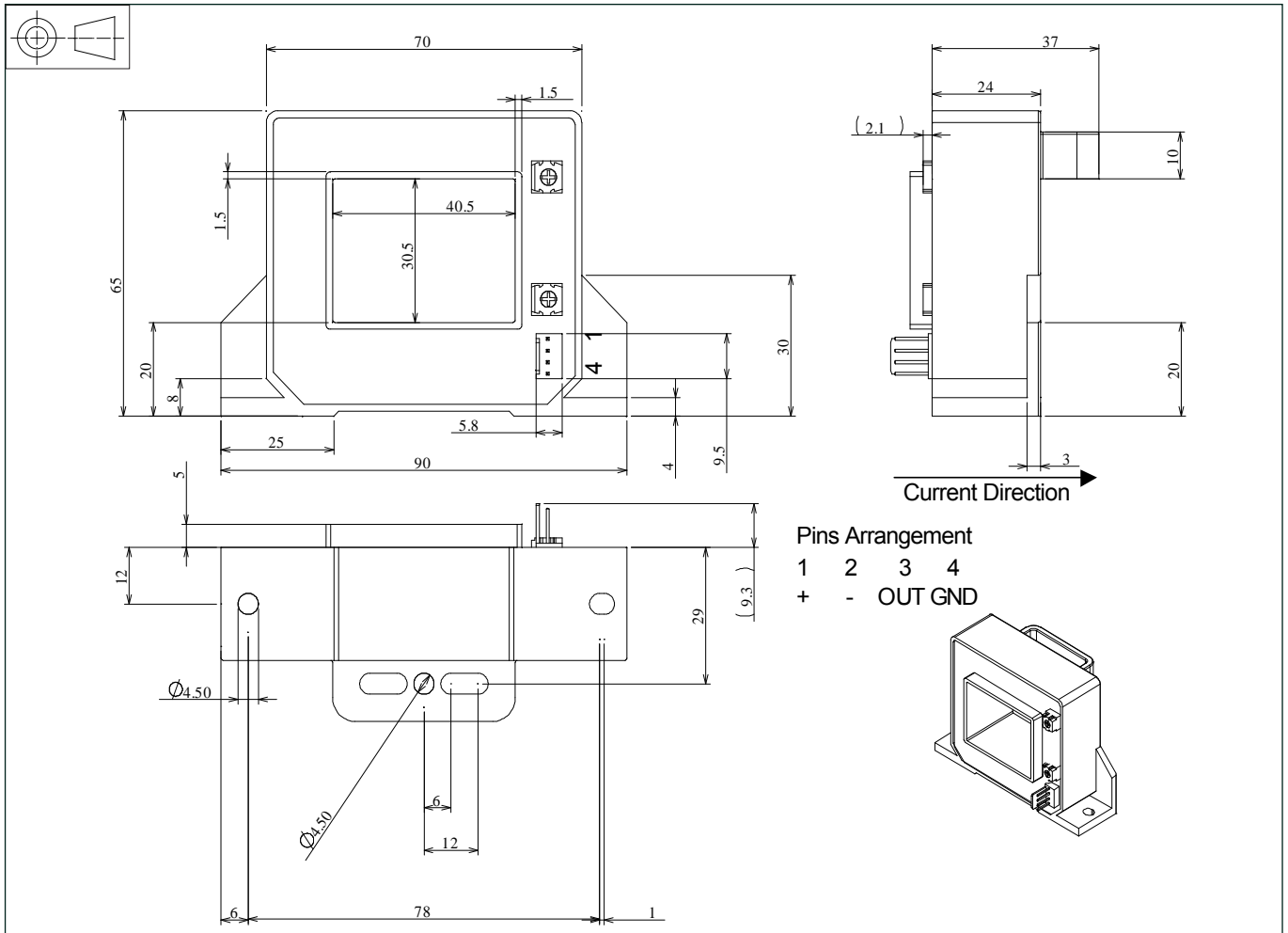
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a build-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 HAT 200 .. 1500-S (in mm. 1 mm = 0.0394 inch)



### Mechanical characteristics

- General tolerance  $\pm 1$  mm
- Transducer fastening By base-plate or on busbar with M4 screws  
All slots  $\varnothing 4.5$  mm
- Recommended fastening torque 0.75Nm  $\pm 20\%$  (0.6~0.9Nm)
- Connection of secondary Molex 5045-04A

### Remarks

- $I_s$  is positive when  $I_p$  flows in the direction of the arrow.
- The temperature of the primary busbar cannot exceed 100°C.