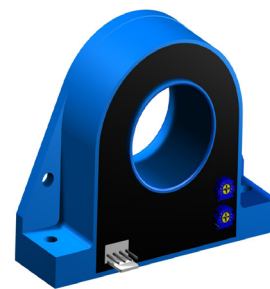


## Current Transducer HTA 100 ... 1000-S

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.

$$I_{PN} = 100 \dots 1000 \text{ A}$$



### Electrical data

| Type       | Primary nominal RMS current<br>$I_{PN}$ (A) | Primary current, measuring range<br>$I_{PM}$ (A) | RoHS since date code |
|------------|---------------------------------------------|--------------------------------------------------|----------------------|
| HTA 100-S  | 100                                         | $\pm 300$                                        | 46179                |
| HTA 200-S  | 200                                         | $\pm 600$                                        | 46170                |
| HTA 300-S  | 300                                         | $\pm 900$                                        | 46097                |
| HTA 400-S  | 400                                         | $\pm 1000$                                       | 46100                |
| HTA 500-S  | 500                                         | $\pm 1000$                                       | 46083                |
| HTA 600-S  | 600                                         | $\pm 1000$                                       | 46222                |
| HTA 1000-S | 1000                                        | $\pm 1000$                                       | 46118                |

|           |                                                              |          |            |
|-----------|--------------------------------------------------------------|----------|------------|
| $V_{out}$ | Output voltage (Analog) @ $I_{PN}$                           | $\pm 4$  | V          |
| $R_L$     | Load resistance @ $T_A = 0 \dots +70 \text{ }^\circ\text{C}$ | $> 1$    | k $\Omega$ |
|           | @ $T_A = -25 \dots +85 \text{ }^\circ\text{C}$               | $> 3$    | k $\Omega$ |
| $U_C$     | Supply voltage ( $\pm 5 \%$ )                                | $\pm 15$ | V          |
| $I_C$     | Current consumption                                          | $< 25$   | mA         |
| $R_{INS}$ | Insulation resistance @ 500 V DC                             | $> 500$  | M $\Omega$ |

### Accuracy - Dynamic performance data

|              |                                                                                              |              |               |
|--------------|----------------------------------------------------------------------------------------------|--------------|---------------|
| $X$          | Accuracy <sup>1)</sup> @ $I_{PN}$ , $T_A = 25 \text{ }^\circ\text{C}$ , @ $\pm 15 \text{ V}$ | $\pm 1$      | % of $I_{PN}$ |
| $\epsilon_L$ | Linearity error ( $0 \dots \pm I_{PN}$ )                                                     | $\pm 0.5$    | %             |
| $V_{OE}$     | Electrical offset voltage, @ $I_{PN} = 0$ , $T_A = 25 \text{ }^\circ\text{C}$                | $< \pm 10$   | mV            |
| $V_{OM}$     | Magnetic offset voltage, @ $I_P = 0$ , after an overload of $3 \times I_{PN}$                | $< \pm 10$   | mV            |
| $TCV_{OE}$   | Temperature coefficient of $V_{OE}$ @ $T_A = -25 \dots +85 \text{ }^\circ\text{C}$           | $< \pm 1$    | mV/K          |
| $TCV_{out}$  | Temperature coefficient of $V_{out}$ @ $T_A = -25 \dots +85 \text{ }^\circ\text{C}$          | $< \pm 0.05$ | %/K           |
| $t_r$        | Response time to 90 % of $I_{PN}$ step <sup>2)</sup>                                         | $< 3$        | $\mu\text{s}$ |
| $BW$         | Frequency bandwidth ( $-3 \text{ dB}$ ) <sup>3)</sup>                                        | DC ... 50    | kHz           |

### General data

|       |                               |                              |                  |
|-------|-------------------------------|------------------------------|------------------|
| $T_A$ | Ambient operating temperature | $-25 \dots +85$              | $^\circ\text{C}$ |
| $T_S$ | Ambient storage temperature   | $-25 \dots +85$              | $^\circ\text{C}$ |
| $m$   | Mass                          | 230                          | g                |
|       | Standard                      | EN 50178: 1997 <sup>4)</sup> |                  |

### Features

- Open loop transducer using Hall effect
- Panel mounting-Horizontal or Vertical
- Insulating plastic case recognized according to UL 94-V0.

### Advantages

- Very good linearity
- Very good accuracy
- Low temperature drift
- Wide frequency bandwidth
- Very low insertion losses
- High immunity to external interference
- Current overload capability
- Low power consumption.

### 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> Excludes the electrical offset

<sup>2)</sup> For a  $di/dt = 50 \text{ A}/\mu\text{s}$

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

<sup>4)</sup> Regarding compliance towards IEC 61000-4-3 (EN 61000-6-2 (2005)): variation of the offset between 80 MHz and 1 GHz with a field intensity of 10 [V/m].

## Current Transducer HTA 100 ... 1000-S

### Insulation characteristics

|             |                                                                 |       |    |
|-------------|-----------------------------------------------------------------|-------|----|
| $U_d$       | RMS voltage for AC insulation test <sup>1)</sup> , 50 Hz, 1 min | 4.0   | kV |
| $\hat{U}_w$ | Impulse withstand voltage 1.2/50 $\mu$ s                        | > 7.3 | kV |
|             |                                                                 | Min   |    |
| $d_{cp}$    | Creepage distance                                               | 7.2   | mm |
| $d_{cl}$    | Clearance                                                       | 7.2   | mm |
| CTI         | Comparative Tracking Index (group IIIa)                         | 600   |    |

**Note:** <sup>1)</sup> With the primary conductor located in the upper half of the aperture.

### 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     |
|-----------------------------|--------------------------|-----------------|
| $d_{cp}, d_{cl}, \hat{U}_w$ | Rated insulation voltage | Nominal voltage |
| Basic insulation            | 600 V                    | 600 V           |
| Reinforced insulation       | 300 V                    | 300 V           |

### Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



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).

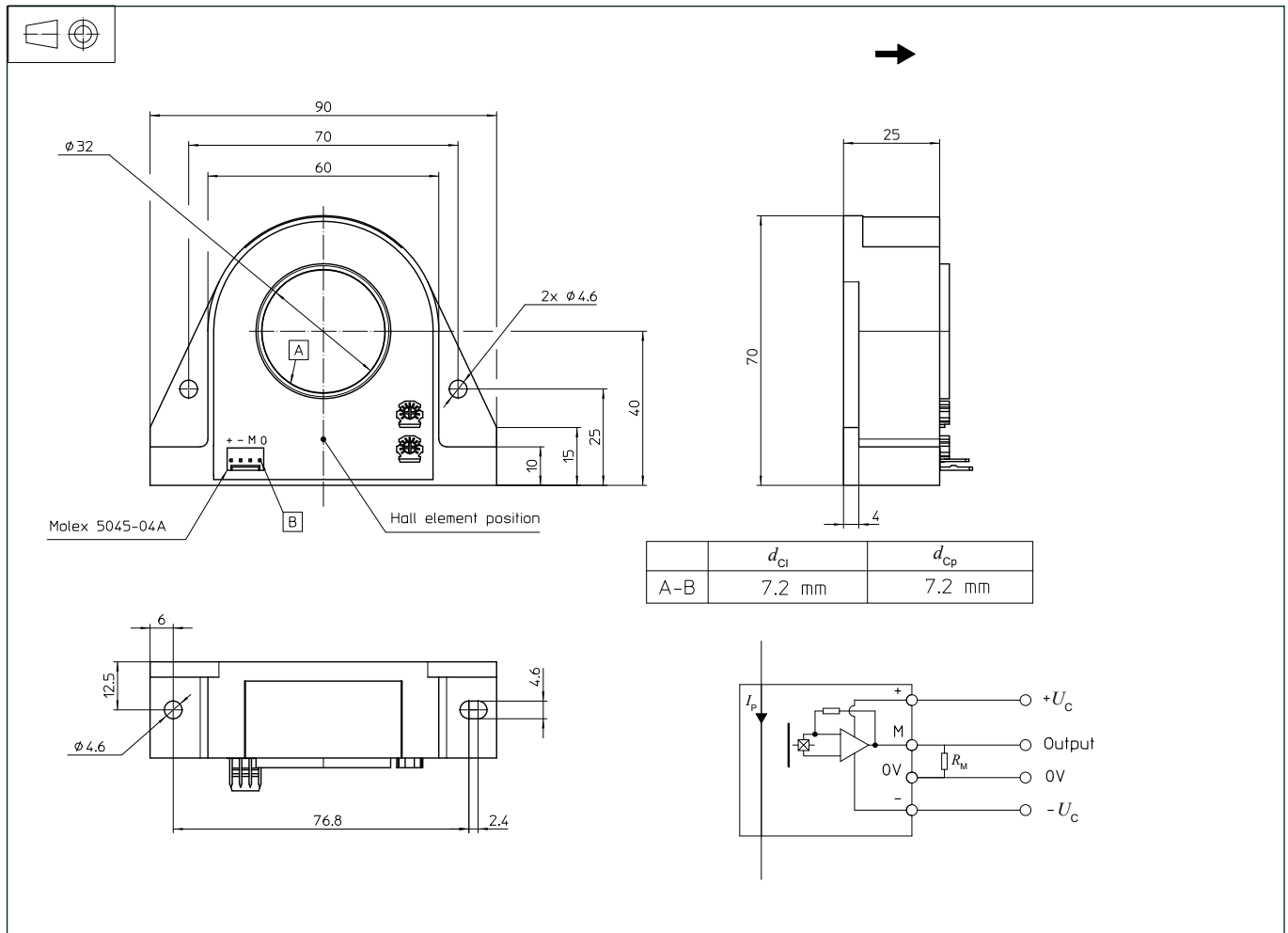
Ignoring this warning can lead to injury and/or cause serious damage.

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 HTA 100 ... 1000-S (in mm)



### Mechanical characteristics

- General tolerance:  $\pm 1$  mm
- Primary through-hole:  $\phi 32$  mm
- Connection of secondary: Molex 5045-04A
- Transducer fastening:
  - Vertical position: 1 hole and 1 notch,  $\phi 4.6$  mm, 2 steel screws M4, Recommended fastening torque: 0.75 N·m ( $\pm 10$  %)
  - Horizontal position: 2 holes  $\phi 4.6$  mm, 2 steel screws M4, Recommended fastening torque: 0.75 N·m ( $\pm 10$  %)

### 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.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: [Products/Product Documentation](#).
- Dynamic performances ( $di/dt$  and response time) are best with a single bar completely filling the primary hole.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurement ...), please contact us.