

## Current Transducer CT 50-T

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



0632

### Electrical data

|           |   |                    |          |
|-----------|---|--------------------|----------|
| $I_{PN}$  | Primary nominal current rms                 | 50                 | A        |
| $I_{PM}$  | Primary current, measuring range            | 0 .. $\pm 75$      | A        |
| $V_{OUT}$ | Output voltage (Analog)                     | 5                  | V        |
| $K_N$     | Conversion ratio                            | 50 A / 5 V         |          |
| $R_L$     | Load resistance                             | > 500              | $\Omega$ |
| $C_L$     | Capacitive loading                          | $\leq 5$           | nF       |
| $t_C$     | Output short-circuit duration <sup>1)</sup> | $\infty$           | s        |
| $V_C$     | Supply voltage ( $\pm 5$ %)                 | $\pm 15$           | V        |
| $I_C$     | Current consumption                         | $90 + V_{OUT}/R_L$ | mA       |

### Accuracy - Dynamic performance data

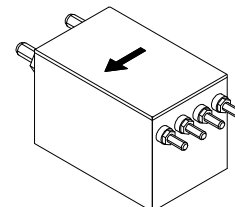
|           |   |                    |           |     |
|-----------|---|--------------------|-----------|-----|
| $X_G$     | Overall accuracy @ $I_{PN}$                     | - 25 °C .. + 70 °C | $\pm 0.1$ | %   |
|           |   |                    | Max       |     |
| $V_O$     | Offset voltage @ $I_p = 0$                      | $T_A = 25$ °C      | $\pm 0.4$ | mV  |
|           |   | - 25 °C .. + 70 °C | $\pm 0.6$ | mV  |
| <b>BW</b> | Frequency bandwidth (- 3 dB) @ 10 % of $I_{PN}$ |                    | DC .. 500 | kHz |

### General data

|       |                               |                |    |
|-------|-------------------------------|----------------|----|
| $T_A$ | Ambient operating temperature | - 25 .. + 70   | °C |
| $T_S$ | Ambient storage temperature   | - 40 .. + 85   | °C |
| $m$   | Mass                          | 670            | g  |
|       | Standards                     | EN 50178: 1997 |    |

**Note:** <sup>1)</sup> If the short-circuit has a duration more than 1 s, the primary current of the supply voltage must be interrupted for a short time to restore the transducer to proper working order. The internal protection is done by PTC resistors.

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



### Features

- Closed loop (compensated) current transducer
- Isolated plastic case recognized according to UL 94-V0
- Patent pending.

### Advanced features

- **BW** = 500 kHz
- **$X_G$**  =  $\pm 0.1$  % (- 25 °C .. + 70 °C).

### Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

### 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.

## Current Transducer CT 50-T

### Isolation characteristics

|             |  |       |    |
|-------------|--|-------|----|
| $V_d$       | Rms voltage for AC isolation test, 50/60 Hz, 1 min | 6     | kV |
| $\hat{V}_w$ | Impulse withstand voltage 1.2/50 $\mu$ s           | > 9.5 | kV |
|             |  | Min   |    |
| dCp         | Creepage distance                                  | 101   | mm |
| dCl         | Clearance distance                                 | 101   | mm |
| CTI         | Comparative Tracking Index (Group III b)           | 225   |    |

### Application examples

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

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

|                       | EN 50178                | IEC 61010-1     |
|-----------------------|-------------------------|-----------------|
| dCp, dCl, $\hat{V}_w$ | Rated isolation voltage | Nominal voltage |
| Single isolation      | 1000 V                  | 1000 V          |
| Reinforced isolation  | 600 V                   | 600 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).

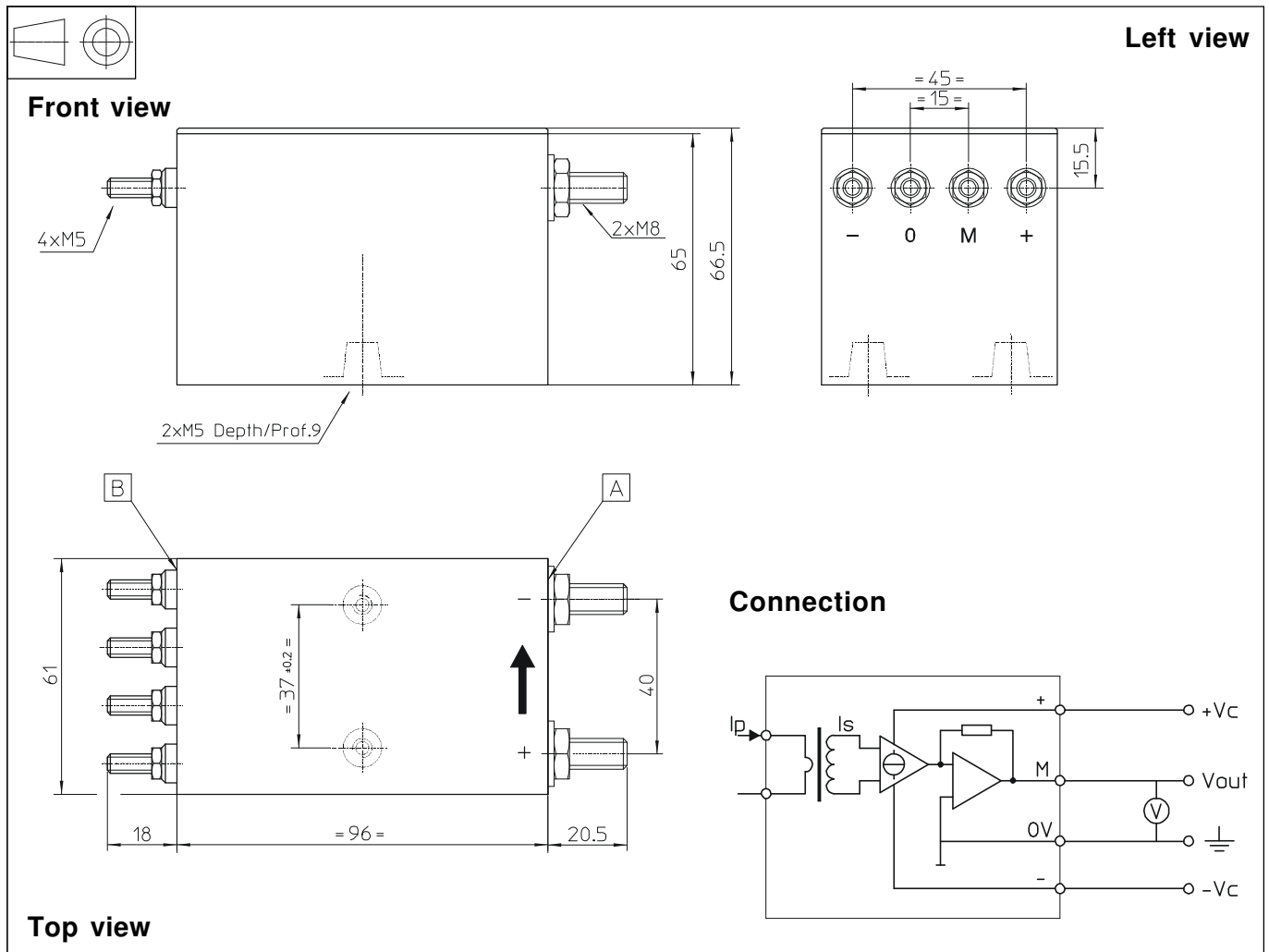
Ignoring this warning can lead to injury and/or cause serious damage.

This transducer is a 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 CT 50-T (in mm. 1 mm = 0.0394 inch)



### Mechanical characteristics

- |                                |  |
|--------------------------------|--|
| • General tolerance            | ± 0.3 mm                               |
| • Transducer fastening         | 2 M5 holes screws<br>2 M5 steel screws |
| • Connection of primary        | M8 threaded studs                      |
| • Recommended fastening torque | 9 Nm or 6.63 Lb - Ft                   |
| • Connection of secondary      | M5 threaded studs                      |
| • Recommended fastening torque | 2.2 Nm or 1.62 Lb - Ft                 |

### Remarks

- $V_{OUT}$  is positive when  $I_p$  flows in the direction of the arrow.
- This transducer induces into the primary circuit a square wave of 7 mV amplitude (frequency  $\approx$  220 Hz). This voltage can induce an AC current in the primary if the primary impedance is low.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.