Current Transducer LA 25-P

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

**Electrical data**

- \( I_{PN} \): Primary nominal rms current 25 A
- \( I_{PM} \): Primary current, measuring range 0 .. ± 55 A
- \( R_M \): Measuring resistance
  - with ± 12 V: \( @ \pm 25 \, A_{max} \) 10 280 60 275 Ω
  - @ ± 55 A_{max} 10 80 60 75 Ω
- \( I_{SN} \): Secondary nominal rms current 25 mA
- \( K_N \): Conversion ratio 1 : 1000
- \( U_C \): Supply voltage (± 5 %) ± 12 .. 15 V
- \( I_C \): Current consumption 10 (@ ± 15 V) + \( I_S \) mA

**Accuracy - Dynamic performance data**

- \( X \): Accuracy @ \( I_{PN}, T_A = 25 \, ^\circ C \): ± 0.95 %
  - @ ± 15 V (± 5 %) ± 1.25 %
- \( \varepsilon_L \): Linearity error < 0.15 %
- \( I_O \): Offset current @ \( I_p = 0, T_A = 25 \, ^\circ C \) ± 0.2 mA
- \( I_{OM} \): Magnetic offset current \(^1\) @ \( I_p = 0 \) and specified \( R_M \), after an overload of 3 \( I_{PN} \) ± 0.3 mA
- \( I_{OT} \): Temperature variation of \( I_o \)
  - 0 °C .. + 25 °C ± 0.1 ± 0.5 mA
  - 25 °C .. + 85 °C ± 0.1 ± 0.6 mA
- \( t_r \): Reaction time < 500 ns
- \( t_s \): Step response time to 90 % of \( I_{PN} \) < 1 µs
- \( di/dt \): \( di/dt \) accurately followed > 200 A/µs
- \( BW \): Frequency bandwidth (- 1 dB) DC .. 200 kHz

**General data**

- \( T_A \): Ambient operating temperature - 25 .. + 85 °C
- \( T_S \): Ambient storage temperature - 40 .. + 90 °C
- \( R_S \): Resistance of secondary winding
  - @ \( T_A = 70 \, ^\circ C \) 80 Ω
  - @ \( T_A = 85 \, ^\circ C \) 85 Ω
- \( m \): Mass 24 g

**Features**

- Closed loop (compensated) current transducer using the Hall effect
- Insulating plastic case recognized according to UL 94-V0.

**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.

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\(^1\) Result of the coercive field of the magnetic circuit.
**Current Transducer LA 25-P**

### Insulation coordination

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$U_{rd}$</td>
<td>Rms voltage for AC insulation test, 50 Hz, 1 min</td>
<td>3 kV</td>
</tr>
<tr>
<td>$\bar{U}_{W}$</td>
<td>Impulse withstand voltage 1.2/50 µs</td>
<td>5.7 kV Min</td>
</tr>
<tr>
<td>$d_{SP}$</td>
<td>Creepage distance</td>
<td>5 mm</td>
</tr>
<tr>
<td>$d_{CI}$</td>
<td>Clearance</td>
<td>5 mm</td>
</tr>
<tr>
<td>CTI</td>
<td>Comparative tracking index (group I)</td>
<td>600</td>
</tr>
</tbody>
</table>

### Applications examples

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

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

<table>
<thead>
<tr>
<th>EN 50178</th>
<th>IEC 61010-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>$d_{SP}$, $d_{CI}$, $\bar{U}_{W}$</td>
<td>Rated insulation voltage Nominal voltage</td>
</tr>
<tr>
<td>Basic insulation</td>
<td>500 V</td>
</tr>
<tr>
<td>Reinforced insulation</td>
<td>250 V</td>
</tr>
</tbody>
</table>

### 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 LA 25-P (in mm)

**Mechanical characteristics**

- General tolerance: ± 0.2 mm
- Primary through-hole: 12.7 × 7 mm
- Fastening & connection of secondary: 3 pins, 0.6 × 0.7 mm
- Recommended PCB hole: ø 1.2 mm

**Remarks**

- \( I_s \) 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.
- In order to achieve the best magnetic coupling, the primary windings have to be wound over the top edge of the device.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.