**Current Transducer LTS 6-NP**

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

<table>
<thead>
<tr>
<th>Electrical data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>( I_{PN} ) Primary nominal current rms</td>
<td>6 At</td>
</tr>
<tr>
<td>( I_{PM} ) Primary current, measuring range</td>
<td>0 ± 19.2 At</td>
</tr>
<tr>
<td>( I_p ) Overload capability</td>
<td>250 At</td>
</tr>
<tr>
<td>( V_{OUT} ) Output voltage (Analogue) @ ( I_p ), ( I_p = 0 )</td>
<td>2.5 ± (0.625 ( I_p / I_{PN} )) V</td>
</tr>
<tr>
<td>( V_{G} ) Sensitivity</td>
<td>104.16 mV/A</td>
</tr>
<tr>
<td>( N_s ) Number of secondary turns (± 0.1%)</td>
<td>2000</td>
</tr>
<tr>
<td>( R_L ) Load resistance</td>
<td>≥ 2 kΩ</td>
</tr>
<tr>
<td>( R_{IM} ) Internal measuring resistance (± 0.5%)</td>
<td>208.33 Ω</td>
</tr>
<tr>
<td>( TCR_{IM} ) Temperature coefficient of ( R_{IM} )</td>
<td>&lt; 50 ppm/K</td>
</tr>
<tr>
<td>( V_C ) Supply voltage (± 5%)</td>
<td>5 V</td>
</tr>
<tr>
<td>( I_C ) Current consumption @ ( V_C = 5 ) V</td>
<td>Typ 28 ( I_p ) mA</td>
</tr>
</tbody>
</table>

**Accuracy - Dynamic performance data**

- \( X \) Accuracy @ \( I_{PN} \), \( T_A = 25°C \) ± 0.2 %
- \( \varepsilon_L \) Linearity error < 0.1 %
- \( TCV_{OUT} \) Temperature coefficient of \( V_{OUT} \) @ \( I_p = 0 \) Typ 80 200 ppm/K
- \( TCG \) Temperature coefficient of \( G \) Typ 50 3 ppm/K
- \( V_{OM} \) Magnetic offset voltage @ \( I_p = 0 \), after an overload of 3 x \( I_{PN} \), 5 x \( I_{PN} \), 10 x \( I_{PN} \) ± 0.5 mV ± 2.0 mV ± 2.0 mV
- \( t_r \) Reaction time @ 10 % of \( I_{PN} \) < 100 ns
- \( t_t \) Response time to 90 % of \( I_{PN} \) step < 400 ns
- \( di/dt \) di/dt accurately followed > 15 A/μs
- \( BW \) Frequency bandwidth (0 .. - 0.5 dB) DC .. 100 kHz (- 0.5 .. 1 dB) DC .. 200 kHz

**General data**

- \( T_A \) Ambient operating temperature - 40 .. + 85 °C
- \( T_B \) Ambient storage temperature - 40 .. + 100 °C
- \( m \) Mass 10 g

**Notes:**

1. Absolute value @ \( T_A = 25°C \), 2.475 < \( V_{OUT} < 2.525 \)
2. \( I_p = I_{PN} / N_s \)
3. Only due to \( TCR_{IM} \)

**Features**

- Closed loop (compensated) multi-range current transducer using the Hall effect
- Unipolar voltage supply
- Isolated plastic case recognized according to UL 94-V0
- Compact design for PCB mounting
- Incorporated measuring resistance
- Extended measuring range.

**Advantages**

- Excellent accuracy
- Very good linearity
- Very 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 LTS 6-NP

### Isolation characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_d)</td>
<td>Rms voltage for AC isolation test, 50 Hz, 1 min</td>
<td>3</td>
<td>kV</td>
</tr>
<tr>
<td>(V_w)</td>
<td>Impulse withstand voltage 1.2/50 µs, Min</td>
<td>&gt; 8</td>
<td>kV</td>
</tr>
<tr>
<td>(V_e)</td>
<td>Rms voltage for partial discharge extinction @ 10pC</td>
<td>&gt; 1.5</td>
<td>kV</td>
</tr>
<tr>
<td>dCp</td>
<td>Creepage distance ¹)</td>
<td>15.5</td>
<td>mm</td>
</tr>
<tr>
<td>dCl</td>
<td>Clearance distance ²)</td>
<td>6.35</td>
<td>mm</td>
</tr>
<tr>
<td>CTI</td>
<td>Comparative Tracking Index (group IIIa)</td>
<td>175</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
¹) On housing  
²) On PCB with soldering pattern UTEC93-703.

### 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></th>
<th>EN 50178</th>
<th>IEC 61010-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(dCp, dCl, V_w)</td>
<td>Rated insulation voltage</td>
<td>Nominal voltage</td>
</tr>
<tr>
<td>Single insulation</td>
<td>600 V</td>
<td>600 V</td>
</tr>
<tr>
<td>Reinforced insulation</td>
<td>300 V</td>
<td>300 V</td>
</tr>
</tbody>
</table>

### Safety

![Warning]

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]

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 LTS 6-NP (in mm.)

<table>
<thead>
<tr>
<th>Number of primary turns</th>
<th>Primary nominal current rms $I_{PN}$ [A]</th>
<th>Nominal output voltage $V_{OUT}$ [V]</th>
<th>Primary resistance $R_p$ [mΩ]</th>
<th>Primary insertion inductance $L_p$ [µH]</th>
<th>Recommended connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>±6</td>
<td>2.5 ± 0.625</td>
<td>0.18</td>
<td>0.013</td>
<td>6 5 4 OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IN 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>±3</td>
<td>2.5 ± 0.625</td>
<td>0.81</td>
<td>0.05</td>
<td>6 5 4 OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IN 1 2 3</td>
</tr>
<tr>
<td>3</td>
<td>±2</td>
<td>2.5 ± 0.625</td>
<td>1.62</td>
<td>0.12</td>
<td>6 5 4 OUT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IN 1 2 3</td>
</tr>
</tbody>
</table>

**Mechanical characteristics**
- General tolerance ± 0.2 mm
- Fastening & connection of primary 6 pins 0.8 x 0.8 mm
- Recommended PCB hole 1.3 mm
- Fastening & connection of secondary 3 pins 0.5 x 0.35 mm
- Recommended PCB hole 0.8 mm
- Additional primary through-hole Ø 3.2 mm

**Remarks**
- $V_{OUT}$ swings above 2.5 V when $I_p$ flows from terminals 1, 2, 3 to terminals 6, 5, 4 (with the arrow).
- Temperature of the primary jumper should not exceed 100°C.

**Operation principle**

**Output Voltage - Primary Current**

- $V_{out}$ (V)
- $I_p$ (A)