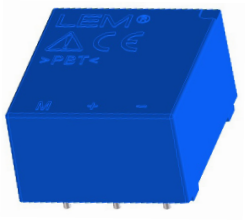
# Current Transducer LA 25-NP

$I_{PN}$ = 25 At

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 | | At |
| $I_{PM}$ | Primary current, measuring range | | | | 0 … ±36 | | At |
| $R_M$ | Measuring resistance @ | | $T_A$ = 70 °C | | $T_A$ = 85 °C | | |
| | | | $R_{M\,min}$ | $R_{M\,max}$ | $R_{M\,min}$ | $R_{M\,max}$ | |
| | with ±15 V | @ ±25 At $_{max}$ | 100 | 320 | 100 | 315 | Ω |
| | | @ ±36 At $_{max}$ | 100 | 190 | 100 | 185 | Ω |
| $I_{SN}$ | Secondary nominal RMS current | | | | 25 | | mA |
| $N_P/N_S$ | Turns ratio | | | | 1-2-3-4-5 : 1000 | | |
| $U_C$ | Supply voltage (±5 %) | | | | ±15 | | V |
| $I_C$ | Current consumption | | | | 10 + $I_S$ | | mA |

## Accuracy - Dynamic performance data

| | | | | | |
|---|---|---|---|---|---|
| $\varepsilon_{tot}$ | Total error @ $I_{PN}$, $T_A$ = 25 °C | | ±0.5 | | % |
| $\varepsilon_L$ | Linearity error | | < 0.2 | | % |
| | | | Typ | Max | |
| $I_{OE}$ | Electrical offset current [1] @ $I_P$ = 0, $T_A$ = 25 °C | | ±0.05 | ±0.15 | mA |
| $I_{OM}$ | Magnetic offset current [2] @ $I_P$ = 0 and specified $R_M$, after an overload of 3 × $I_{PN}$ | | ±0.05 | ±0.15 | mA |
| $I_{OT}$ | Temperature variation of $I_O$ | 0 °C … +25 °C | ±0.06 | ±0.25 | mA |
| | | +25 °C … +70 °C | ±0.10 | ±0.35 | mA |
| | | −25 °C … +85 °C | | ±0.5 | mA |
| | | −40 °C … +85 °C | | ±1.2 | mA |
| $t_{D\,90}$ | Delay time [3] to 90 % of the final output value for $I_{PN}$ step | | < 1 | | µs |
| $BW$ | Frequency bandwidth (−1 dB) | | DC ... 150 | | kHz |

## General data

| | | | | |
|---|---|---|---|---|
| $T_A$ | Ambient operating temperature | | −40 ... +85 | °C |
| $T_{Ast}$ | Ambient storage temperature | | −45 ... +90 | °C |
| $R_P$ | Resistance of primary (winding) | @ $T_A$ = 25 °C | < 1.25 | mΩ |
| $R_S$ | Resistance of secondary winding | @ $T_A$ = 70 °C | 110 | Ω |
| | | @ $T_A$ = 85 °C | 115 | Ω |
| $R_{INS}$ | Insulation resistance @ 500 V, $T_A$ = 25 °C | | > 1500 | MΩ |
| $m$ | Mass | | 22 | g |
| | Standards | | EN 50178: 1997<br>UL 508: 2010 | |

Notes: [1] Measurement carried out after 15 mn functioning
[2] The result of the coercive field of the magnetic circuit
[3] For a $di/dt$ = 100 A/µs.

## 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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### Insulation coordination

| | | | |
|---|---|---|---|
| $U_d$ | RMS voltage for AC insulation test, 50 Hz, 1 min | 2.5 | kV |
| $U_{Ni}$ | Impulse withstand voltage 1.2/50 µs | 9<br>Min | kV |
| $d_{Cp}$ | Creepage distance | 10.63 | mm |
| $d_{Cl}$ | Clearance | 10.63 | mm |
| $CTI$ | Comparative tracking index (group IIIa) | 175 | |

## 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

| | EN 50178 | IEC 61010-1 |
|---|---|---|
| $d_{Cp}$, $d_{Cl}$, $U_{Ni}$ | Rated insulation voltage | Nominal voltage |
| Basic insulation | 1000 V | 1000 V |
| Reinforced insulation | 500 V | 300 V |

## Safety

This tran*sducer* 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.







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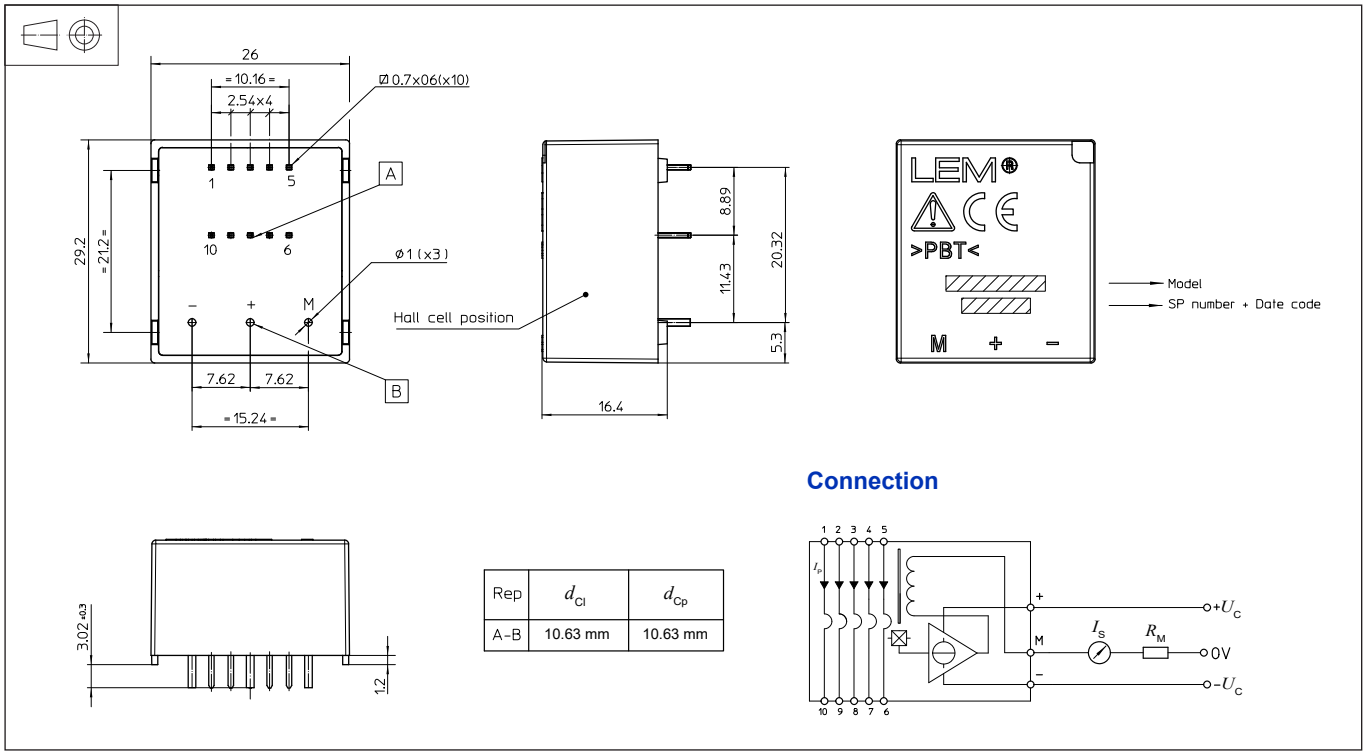
## Dimensions LA 25-NP (in mm)




| Number of primary turns | Primary current | | Nominal output current | Turns ratio | Primary resistance | Primary insertion inductance | Recommended connections |
|---|---|---|---|---|---|---|---|
| | nominal $I_{PN}$ [A] | maximum $I_P$ [A] | $I_{SN}$ [mA] | $N_P/N_S$ | $R_P$ [mΩ] | $L_P$ [µH] | |
| 1 | 25 | 36 | 25 | 1 / 1000 | 0.3 | 0.023 | IN 5 4 3 2 1 / OUT 6 7 8 9 10 |
| 2 | 12 | 18 | 24 | 2 / 1000 | 1.1 | 0.09 | IN 5 4 3 2 1 / OUT 6 7 8 9 10 |
| 3 | 8 | 12 | 24 | 3 / 1000 | 2.5 | 0.21 | IN 5 4 3 2 1 / OUT 6 7 8 9 10 |
| 4 | 6 | 9 | 24 | 4 / 1000 | 4.4 | 0.37 | IN 5 4 3 2 1 / OUT 6 7 8 9 10 |
| 5 | 5 | 7 | 25 | 5 / 1000 | 6.3 | 0.58 | IN 5 4 3 2 1 / OUT 6 7 8 9 10 |

## Mechanical characteristics

- General tolerance ±0.2 mm
- Fastening & connection of primary 10 pins 0.7 × 0.6 mm
- Fastening & connection of secondary 3 pins ∅ 1 mm
- Recommended PCB hole 1.2 mm

## Remarks

- $I_S$ is positive when $I_P$ flows from terminals 1, 2, 3, 4, 5 to terminals 10, 9, 8, 7, 6.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.



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