

# Current Transducer LA 25-NP

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

$$I_{PN} = 5-6-8-12-25 \text{ At}$$



16080



## Electrical data

$I_{PN}$	Primary nominal current rms	25	At			
$I_{PM}$	Primary current, measuring range	0 .. $\pm 36$	At			
$R_M$	Measuring resistance @ with $\pm 15 \text{ V}$	$T_A = 70^\circ\text{C}$		$T_A = 85^\circ\text{C}$		
			$R_{M \min}$	$R_{M \max}$	$R_{M \min}$	$R_{M \max}$
		@ $\pm 25 \text{ At}_{\max}$	100	320	100	315
		@ $\pm 36 \text{ At}_{\max}$	100	190	100	185
				$\Omega$	$\Omega$	
$I_{SN}$	Secondary nominal current rms	25	mA			
$K_N$	Conversion ratio	1-2-3-4-5 : 1000				
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 15$	V			
$I_C$	Current consumption	$10 + I_S$	mA			

## Accuracy - Dynamic performance data

$X$	Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.5$	%
$\varepsilon_L$	Linearity error	$< 0.2$	%
$I_O$	Offset current <sup>1)</sup> @ $I_P = 0$ , $T_A = 25^\circ\text{C}$	Typ	Max
		$\pm 0.05$	$\pm 0.15$
$I_{OM}$	Magnetic offset current <sup>2)</sup> @ $I_P = 0$ and specified $R_M$ , after an overload of $3 \times I_{PN}$	$\pm 0.05$	$\pm 0.15$
		mA	mA
$I_{OT}$	Temperature variation of $I_O$	$0^\circ\text{C} \dots +25^\circ\text{C}$	$\pm 0.06$ $\pm 0.25$
		$+25^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 0.10$ $\pm 0.35$
		$-25^\circ\text{C} \dots +85^\circ\text{C}$	$\pm 0.5$
		$-40^\circ\text{C} \dots +85^\circ\text{C}$	$\pm 1.2$
		mA	mA
$t_r$	Response time <sup>3)</sup> to 90 % of $I_{PN}$ step	$< 1$	$\mu\text{s}$
$di/dt$	$di/dt$ accurately followed	$> 50$	A/ $\mu\text{s}$
<b>BW</b>	Frequency bandwidth (-1 dB)	DC .. 150	kHz

## General data

$T_A$	Ambient operating temperature	-40 .. +85	$^\circ\text{C}$
$T_S$	Ambient storage temperature	-45 .. +90	$^\circ\text{C}$
$R_P$	Primary coil resistance per turn @ $T_A = 25^\circ\text{C}$	$< 1.25$	m $\Omega$
$R_S$	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	110	$\Omega$
		@ $T_A = 85^\circ\text{C}$	115
		$\Omega$	
$R_{IS}$	Isolation resistance @ 500 V, $T_A = 25^\circ\text{C}$	$> 1500$	M $\Omega$
$m$	Mass	22	g
	Standards	EN 50178: 1997	

## Features

- Closed loop (compensated) current transducer using the Hall effect
- Isolated 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.

**Notes:** <sup>1)</sup> Measurement carried out after 15 mn functioning  
<sup>2)</sup> The result of the coercive field of the magnetic circuit  
<sup>3)</sup> With a  $di/dt$  of 100 A/ $\mu\text{s}$ .

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### Isolation characteristics

$V_d$	Rms voltage for AC insulation test, 50 Hz, 1 min	2.5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	9	kV
		Min	
<b>dCp</b>	Creepage distance	10.63	mm
<b>dCI</b>	Clearance	10.63	mm
<b>CTI</b>	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
<b>dCp, dCI, <math>\hat{V}_w</math></b>	Rated insulation voltage	Nominal voltage
Basic insulation	1700 V	1700 V
Reinforced insulation	600 V	600 V

### Safety



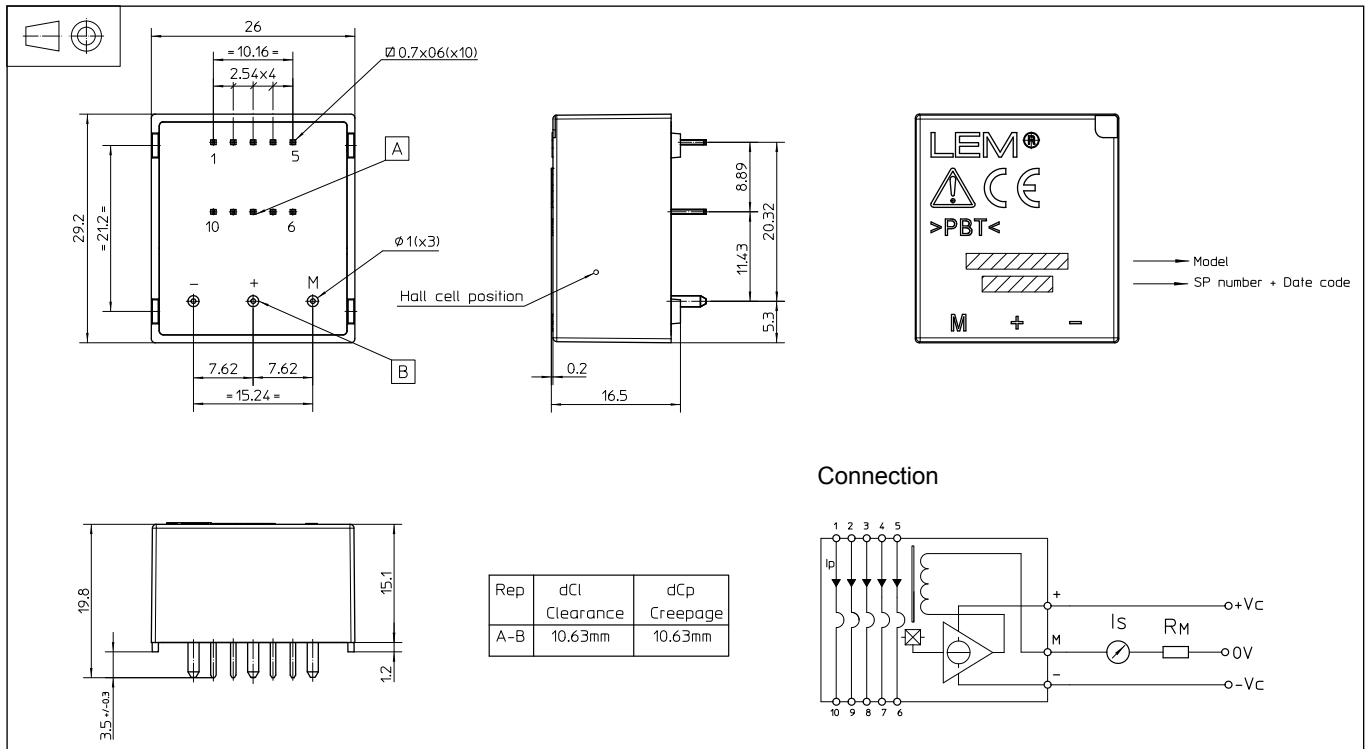
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



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 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-NP (in mm)



Number of primary turns	Primary current		Nominal output current $I_{SN}$ [mA]	Turns ratio $K_N$	Primary resistance $R_p$ [mΩ]	Primary insertion inductance $L_p$ [μH]	Recommended connections
	nominal $I_{PN}$ [A]	maximum $I_p$ [A]					
1	25	36	25	1 / 1000	0.3	0.023	
2	12	18	24	2 / 1000	1.1	0.09	
3	8	12	24	3 / 1000	2.5	0.21	
4	6	9	24	4 / 1000	4.4	0.37	
5	5	7	25	5 / 1000	6.3	0.58	

### Mechanical characteristics

- General tolerance  $\pm 0.2$  mm
- Fastening & connection of primary 10 pins 0.7 x 0.6 mm
- Fastening & connection of secondary 3 pins  $\varnothing 1$  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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