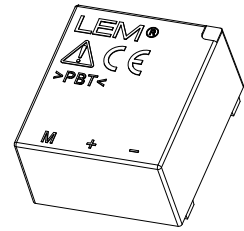# Current Transducer LA 25-NP

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

I_{PN} **= 5-6-8-12-25 At**

5 YEAR WARRANTY by LEM

CE c**UL**us R☑HS
16080

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

			Typ	Max	
ε_{tot}	Total error @ I_{PN}, T_A = 25 °C		±0.5		%
ε_L	Linearity error		< 0.2		%
I_O	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
$T_{A\,st}$	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	
			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.

Current Transducer LA 25-NP

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 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

d_{Cp}, d_{Cl}, U_{Ni}	EN 50178	IEC 61010-1
	Rated insulation voltage	Nominal voltage
Basic insulation	1700 V	1700 V
Reinforced insulation	600 V	600 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.

Dimensions LA 25-NP (in mm)

Connection

Rep	d_{Cl}	d_{Cp}
A–B	10.63mm	10.63mm
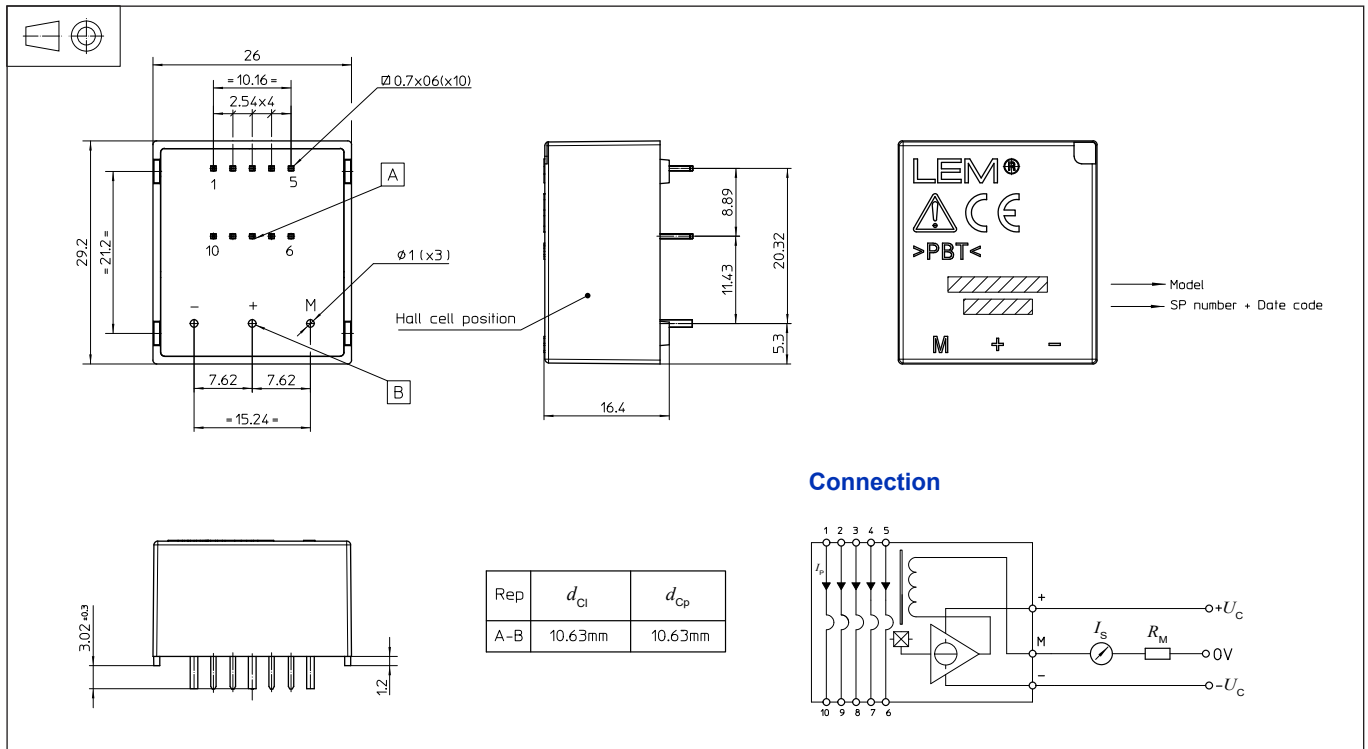
Number of primary turns	Primary current		Nominal output current I_{SN} [mA]	Turns ratio N_P/N_S	Primary resistance R_P [mΩ]	Primary insertion inductance L_P [µH]	Recommended connections
	nominal I_{PN} [A]	maximum I_P [A]					
1	25	36	25	1 / 1000	0.3	0.023	IN 5 4 3 2 1 / OUT 6 7 8 9 10
2	12	18	24	2 / 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 Ø 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.