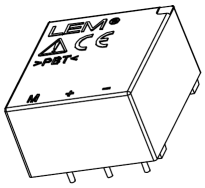
Current Transducer LA 25-NP/SP25

I_{PN} = 5-6-8-12-25 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		$R_{M\,min}$	$R_{M\,max}$	
	with ±15 V	@ ±25 At $_{max}$	150	325	Ω
		@ ±36 At $_{max}$	150	190	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

ε_{tot}	Total error @ I_{PN}, T_A = 25 °C		±0.9		%
ε_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	−40 °C ... +85 °C	±0.25	±0.70	mA
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [3]		< 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		−50 ... +100	°C
R_P	Resistance of primary (winding)	@ T_A = 25 °C	< 1.25	mΩ
R_S	Resistance of secondary winding	@ T_A = 70 °C	115	Ω
R_{INS}	Insulation resistance @ 500 V, T_A = 25 °C		> 1500	MΩ
m	Mass		22	g
	Standards		EN 50155: 2017 [4] 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 = 50 A/µs
[4] Additional information available on request.

Features

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

Special features

- U_d = 2.5 kV (4 kV DC / 5 mn)
- T_A = −40 °C ... +85 °C.

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

- Single or three phase inverters
- Propulsion and braking choppers
- Propulsion converters
- Auxiliary converters
- Battery chargers.

Application Domain

- Railway (fixed installations and onboard).

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www.lem.com

Current Transducer LA 25-NP/SP25

Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	2.5 (4 kV DC/5 mn)	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	

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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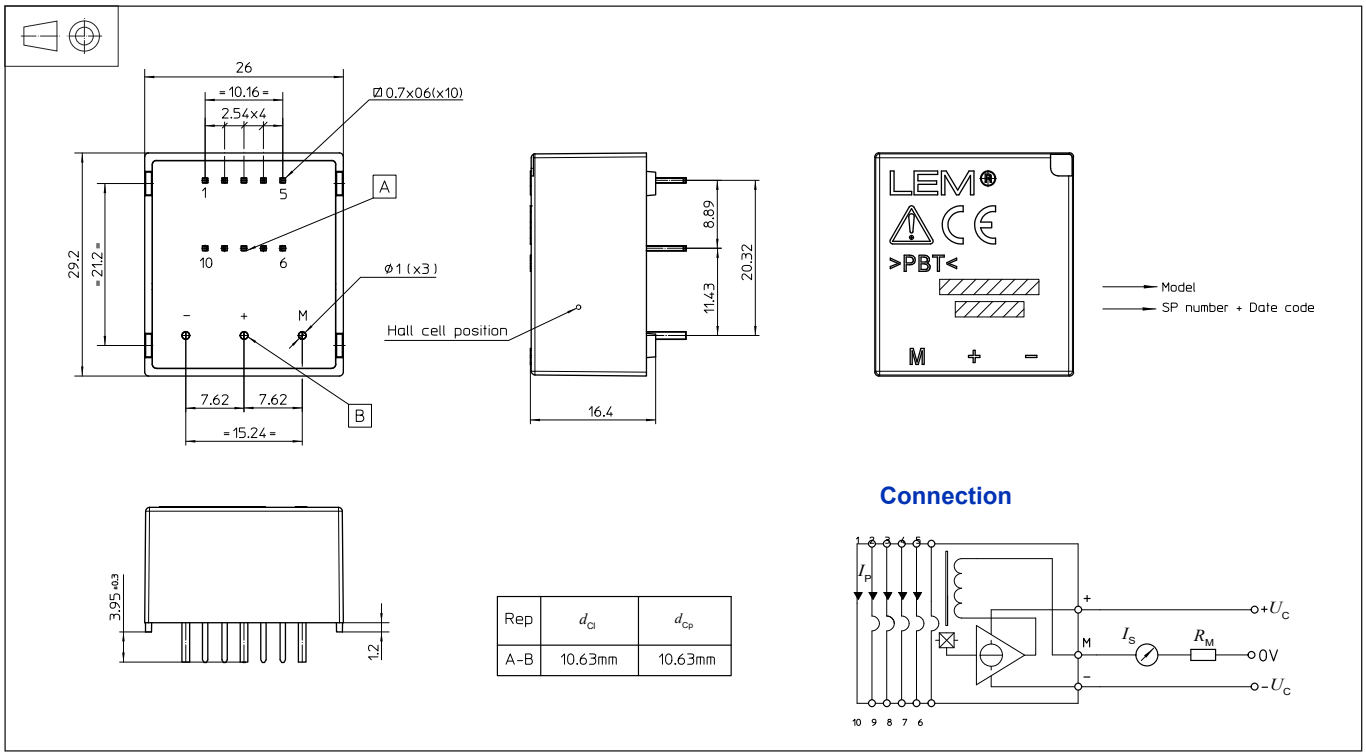
Dimensions LA 25-NP/SP25 (in mm)



Rep	d_{Cl}	d_{Cp}
A-B	10.63mm	10.63mm

Connection

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.
- 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: **https://www.lem.com/en/file/3137/download/.**

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