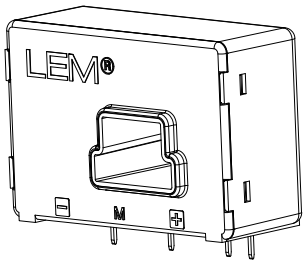
Current Transducer LA 125-P

I_{PN} = 125 A

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 current rms				125		A
I_{PM}	Primary current, measuring range				0 .. ± 200		A
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 ± 12 V	@ ± 125 A_{max}	5	52	14	50	Ω
		@ ± 200 A_{max}	5	20	14	18	Ω
	with ± 15 V	@ ± 125 A_{max}	25	74	40	72	Ω
		@ ± 200 A_{max}	25	34	40 [1]	40 [1]	Ω
I_{SN}	Secondary nominal current rms				125		mA
K_N	Conversion ratio				1 : 1000		
U_C	Supply voltage (± 5 %)				± 12 .. 15		V
I_C	Current consumption				16 (@ ± 15 V) + I_S		mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN}, T_A = 25 °C	@ ± 15 V (± 5 %)	± 0.60		%
		@ ± 12 .. 15 V (± 5 %)	± 0.80		%
ε_L	Linearity error		< 0.15		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25 °C			± 0.40	mA
I_{OM}	Magnetic offset current [2] @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}			± 0.50	mA
I_{OT}	Temperature variation of I_O	0 °C .. + 70 °C	± 0.15	± 0.50	mA
		- 40 °C .. + 85 °C	± 0.30	± 0.95	mA
t_{ra}	Reaction time		< 500		ns
t_r	Step response time [3] [4] to 90 % of I_{PN}		< 1		µs
di/dt	di/dt accurately followed [4]		> 200		A/µs
BW	Frequency bandwidth [4] (- 1 dB)		DC .. 100		kHz

General data

T_A	Ambient operating temperature		- 40 .. + 85	°C
T_S	Ambient storage temperature		- 40 .. + 90	°C
R_S	Secondary coil resistance	@ T_A = 70 °C	32	Ω
		@ T_A = 85 °C	33.5	Ω
m	Mass		40	g
	Standard		EN 50178: 1997	

Notes: [1] Measuring range limited to ± 180 A_{max}
[2] Result of the coercive field of the magnetic circuit
[3] With a di/dt of 100 A/µs
[4] The primary conductor is best filling the through-hole and/or the return of the primary conductor is above the top of the transducer.

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.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without prior notice

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Isolation characteristics

U_d	Rms voltage for AC insulation test, 50 Hz, 1 min	3	kV
$\hat{U}_W$	Impulse withstand voltage 1.2/50 µs	7	kV
		Min	
d_{Cp}	Creepage distance	6.7	mm
d_{Cl}	Clearance	6.7	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}, $\hat{U}_W$	Rated insulation voltage	Nominal voltage
Basic insulation	600 V	600 V
Reinforced insulation	300 V	300 V

Safety

This transducer must be used in limited-energy secondary circuits according to IEC 61010-1.



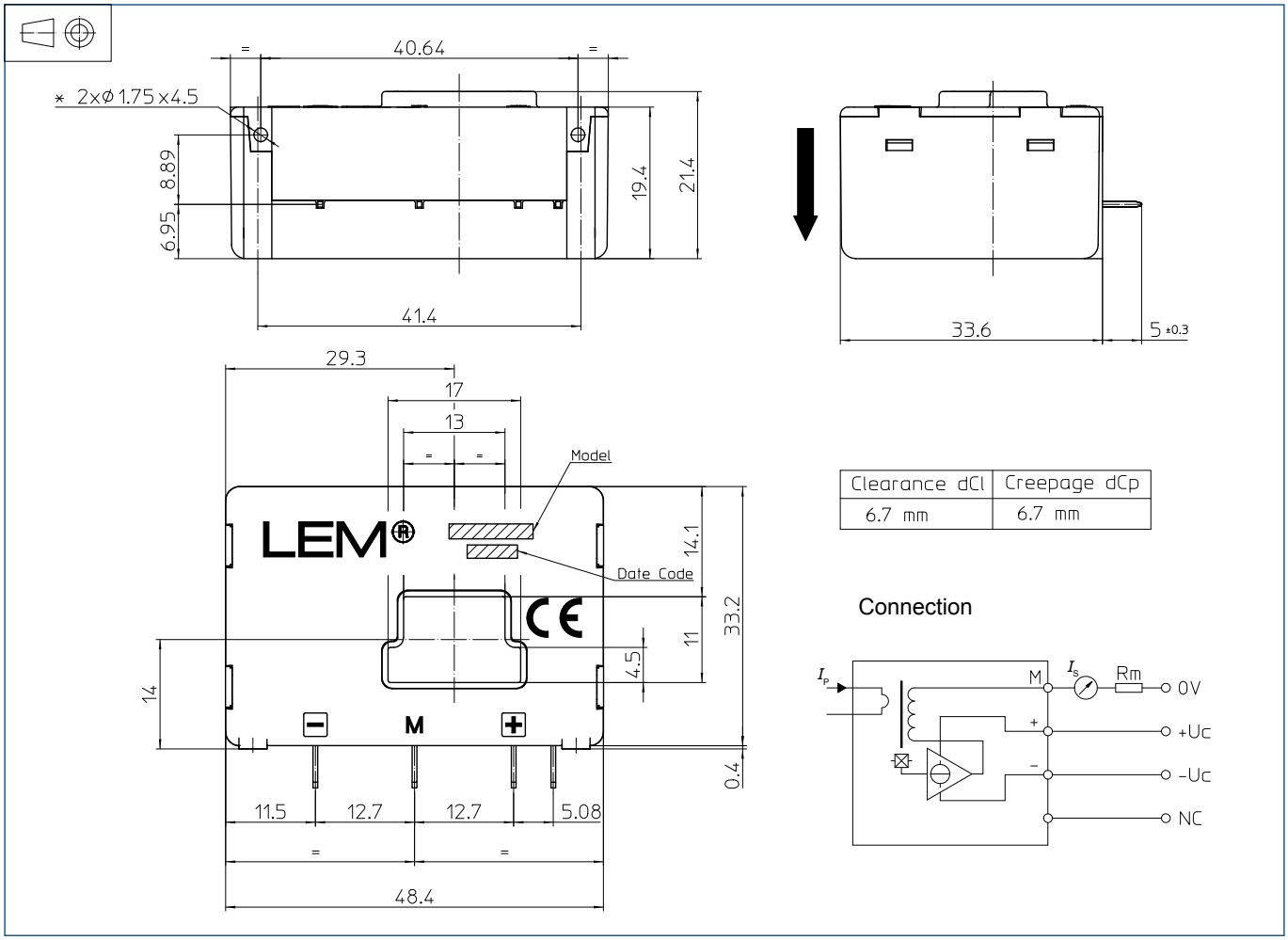
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.



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 125-P (in mm)



Mechanical characteristics

- General tolerance ± 0.2 mm
- Primary through-hole 17 × 4.5 mm
  13 × 11 mm
- Fastening & connection of secondary 4 pins
  0.63 x 0.56 mm
  Recommended PCB hole 0.9 mm
- Supplementary fastening 2 holes Ø 1.75 mm
  Recommended PCB hole 2.4 mm
  Recommended screws PT KA 22 x 6
  Recommended fastening torque 0.5 N·m

Remarks

- I_S is positive when I_P flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100 °C.
- Dynamic performances (d*i*/d*t* and response time) are best with a single bar completely filling the primary hole.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.