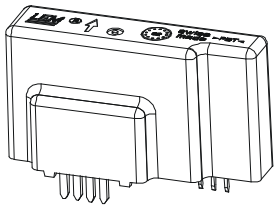
Current Transducer LAH 125-P

I_{PN} = 125 A

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

16131



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}	0	49	14	48	Ω
		@ ± 200 A_{max}	0	14	14	15	Ω
	with ± 15 V	@ ± 125 A_{max}	22	72	29	70	Ω
		@ ± 200 A_{max}	22	28	29	29	Ω
I_{SN}	Secondary nominal current rms			125			mA
K_N	Conversion ratio			1 : 1000			
V_C	Supply voltage (± 5 %)			± 12 .. 15			V
I_C	Current consumption			19 (@ ± 15 V) + I_S			mA

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN}, T_A = 25°C		± 0.41		%
ε_L	Linearity error		< 0.15		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.20	mA
I_{OM}	Magnetic offset current [1] @ I_P = 0 and specified R_M, after an overload of 3 x I_{PN}			± 0.20	mA
I_{OT}	Temperature variation of I_O	- 25°C .. + 70°C	± 0.22	± 0.65	mA
		- 40°C .. + 85°C	± 0.30	± 0.95	mA
t_{ra}	Reaction time @ 10 % of I_{PN}		< 500		ns
t_r	Response time [2] to 90 % of I_{PN} step		< 1		µs
di/dt	di/dt accurately followed		> 100		A/µs
BW	Frequency bandwidth (- 3 dB) @ I_{PN}		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	34	Ω
		T_A = 85°C	35	Ω
m	Mass		30	g
	Standards		EN 50178: 1997	

Notes: [1] The result of the coercive field of the magnetic circuit
[2] With a di/dt of 100 A/µs.

Features

- Closed loop (compensated) current transducer using the Hall effect
- Printed circuit board mounting
- Isolated plastic case recognized according to UL 94-V0.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- 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.

Current Transducer LAH 125-P

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50 Hz, 1 min	5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	12	kV
V_e	Partial discharge extinction voltage rms @ 10 pC	> 2	kV
		Min	
dCp	Creepage distance [3)]	14.25	mm
dCl	Clearance distance [3)]	14.25	mm
CTI	Comparative Tracking Index (Group IIIa)	175	

Application 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
dCp, dCl, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	1250 V	1000 V
Reinforced isolation	630 V	600 V

Note: [3)] On PCB with soldering pattern UTEC93-703.

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.



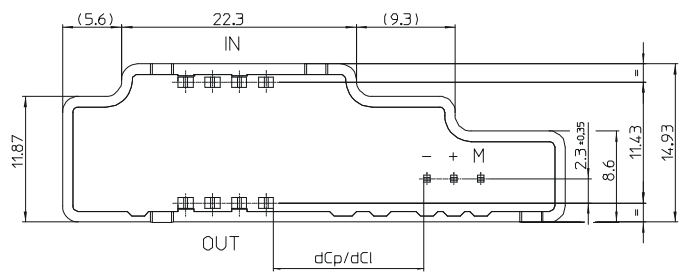
Caution, risk of electrical shock

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 built-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.

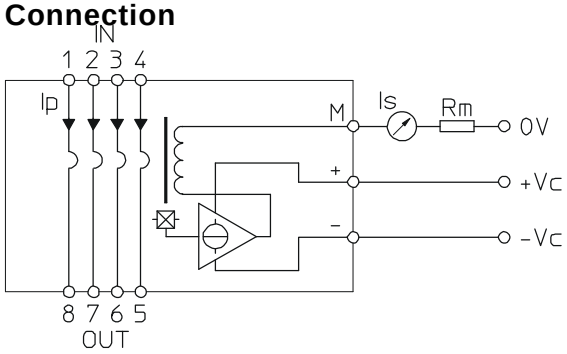
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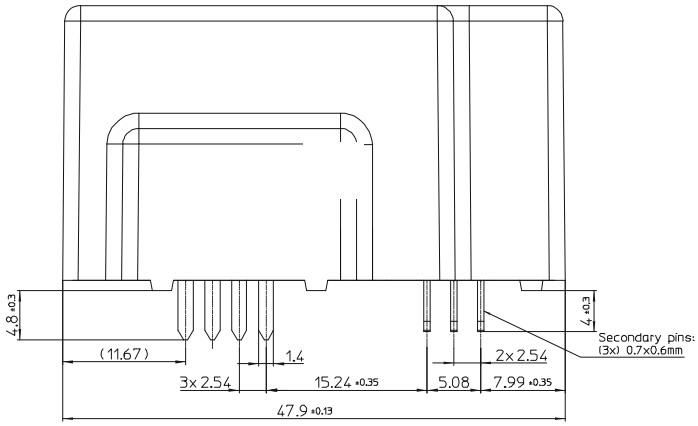
Dimensions LAH 125-P (in mm. 1 mm = 0.0394 inch)

Bottom view



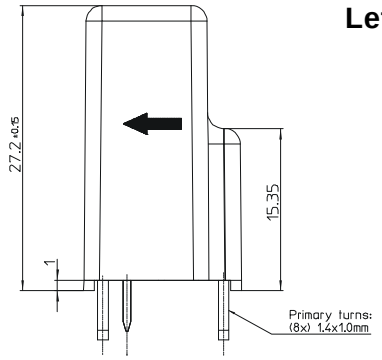
Connection





Front view

Left view



Mechanical characteristics

- General tolerance ± 0.2 mm
- Fastening & connection of primary 8 pins 1.4 x 1 mm
  Recommended PCB hole 2 mm
- Fastening & connection of secondary 3 pins 0.7 x 0.6 mm
  Recommended PCB hole 1.2 mm

Remarks

- The temperature of the primary circuit board trace connected to the primary pins of the transducer should not exceed 100°C during operation.
- $\mathbf{I}_S$ is positive when $\mathbf{I}_P$ flows in the direction of the arrow.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.

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