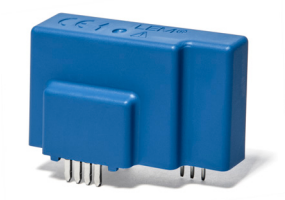
Current Transducer LAH 125-P

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

				T_A = 70 °C		T_A = 85 °C		
				$R_{M\,min}$	$R_{M\,max}$	$R_{M\,min}$	$R_{M\,max}$	
I_{PN}	Primary nominal RMS current				125			A
I_{PM}	Primary current, measuring range				0 ... ±200			A
R_M	Measuring resistance @							
	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 RMS current				125			mA
N_P/N_S	Turns ratio				1 : 1000			
U_C	Supply voltage (±5 %)				±12 ... 15			V
I_C	Current consumption				19 (@ ±15V) + I_S			mA

Accuracy - Dynamic performance data

				Typ	Max	
ε_{tot}	Total error @ I_{PN}, T_A = 25 °C			±0.41		%
ε_L	Linearity error			< 0.15		%
I_O	Offset current referred to primary @ I_P = 0, T_A = 25 °C				±200	mA
I_O	Offset current referred to secondary @ I_P = 0, T_A = 25 °C				±0.20	mA
I_{OM}	Magnetic offset current [1] @ I_P = 0, referred to secondary and specified R_M, after an overload of 3 × I_{PN}				±0.20	mA
I_{OT}	Temperature variation of I_O, referred to secondary					
			–25 °C ... +70 °C	±0.22	±0.65	mA
			–40 °C ... +85 °C	±0.30	±0.95	mA
$t_{D\,10}$	Delay time to 10 % of the final output value for I_{PN} step			< 500		ns
$t_{D\,90}$	Delay time to 90 % of the final output value for I_{PN} step [2]			< 1		µs
BW	Frequency bandwidth (–3 dB) @ I_{PN}			DC ... 100		kHz

General data

T_A	Ambient operating temperature		–40 ... +85	°C
$T_{A\,st}$	Ambient storage temperature		–40 ... +90	°C
R_S	Resistance of secondary winding	@ 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] For a di/dt = 100 A/µs.

Features

- Closed loop (compensated) current transducer using the Hall effect
- Printed circuit board mounting.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized delay 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.

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Insulation coordination

U_d	RMS voltage for AC insulation test, 50 Hz, 1 min	5	kV
U_{Ni}	Impulse withstand voltage 1.2/50 µs	12	kV
U_e	Partial discharge extinction RMS voltage @ 10 pC	> 2	kV
		Min	
d_{Cp}	Creepage distance [1)]	14.25	mm
d_{Cl}	Clearance [1)]	14.25	mm
CTI	Comparative tracking index (group IIIa)	175	

Note: [1)] On PCB with soldering pattern UTEC93-703.

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}, U_{Ni}	Rated insulation voltage	Nominal voltage
Basic insulation	1250 V	1000 V
Reinforced insulation	630 V	600 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.

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UL 508: Rating and assumptions of certification

File # E189713 Vol:2 Sec:1

Standards

USR indicated investigation to the Standard for Industrial Control Equipment UL 508, Seventeenth Edition.
CNR indicated investigation to the Canadian Standard for Industrial Control Equipment CSA C22.2 No. 14-10, Eleventh Edition.

Ratings

Parameter	Unit	Standard Value	Derating Value
Primary involved potential	V AC/DC	600	600
Primary current	A AC/DC	125	86
Secondary supply voltage	V DC	0 ... ±15 V	0 ... ±13.5 V
Output signal	mA	0 ... 125	0 ... 86
Max surrounding air temperature	°C	85	95

Use

For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of acceptability

When installed in the end-use equipment, consideration shall be given to the following:

1. These devices must be mounted in a suitable end-use enclosure.

2. The terminals have not been evaluated for field wiring.

3. The LAH Series is intended to be mounted on the printed wiring board of the end-use equipment(with a minimum CTI of 100).

4. The LAH Series shall be used in a pollution degree 2 environment.

5. LAH Series shall be mounted on the load side of line filters.

6. Low voltage circuits are intended to be powered by a circuit derived from an isolating source (such as a transformer, optical isolator, , limiting impedance or electro-mechanical relay) and having no direct connection back to the primary circuit (other than through the grounding means).

7. LAH Series: Based on results of temperature tests, in the end use application, a maximum of 100°C cannot be exceeded at soldering point between primary coil pin and soldering point or on the primary bus bar (corrected to the appropriate evaluated max. surrounding air).

Marking

Only those products bearing the UL or UR mark should be considered to be listed or recognized and covered under UL's Follow-up services. Always look for the mark on the product.

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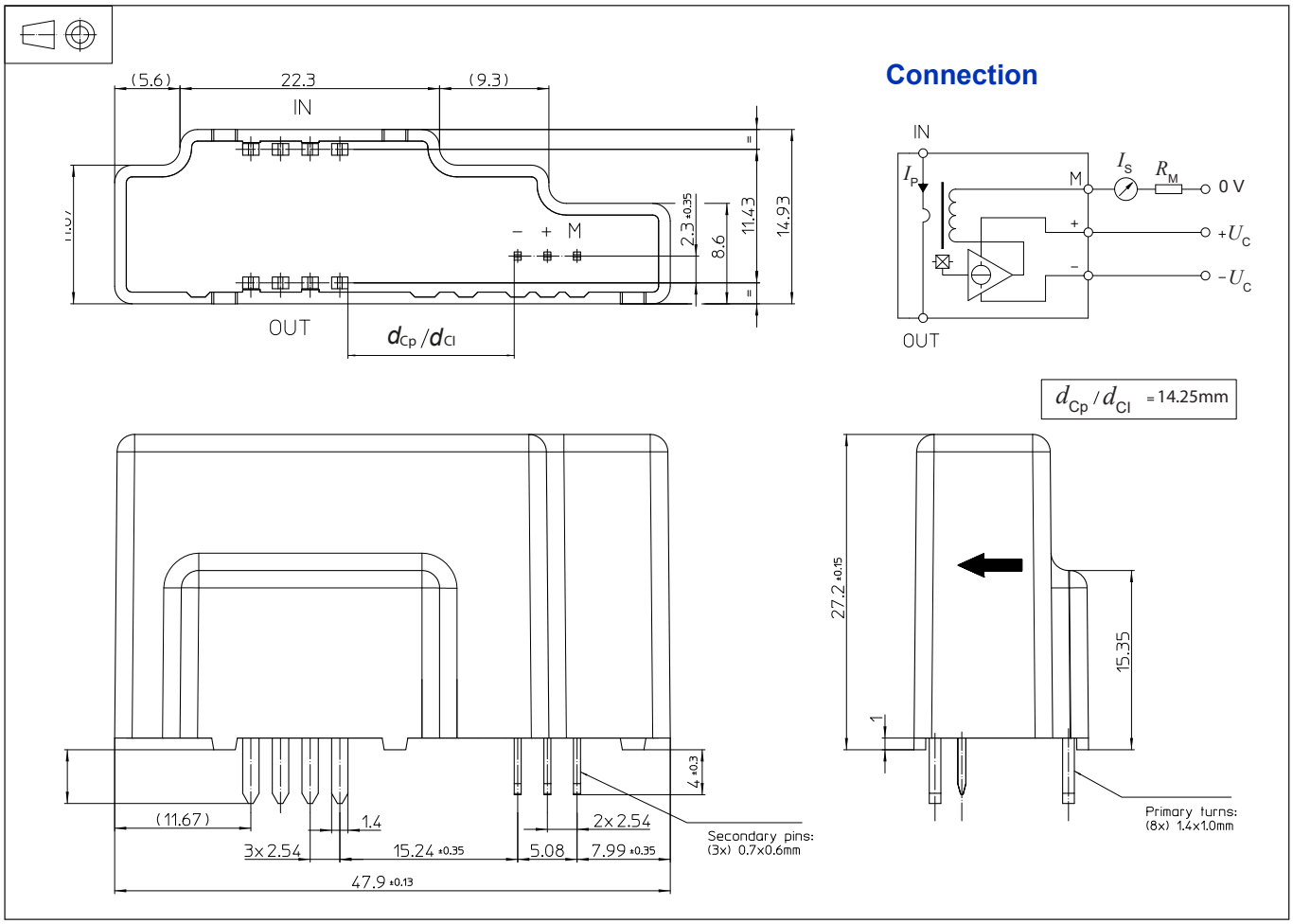
Dimensions LAH 125-P (in mm)



Mechanical characteristics

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

Remarks

- The temperature of the primary circuit board trace connected to the primrary pins of the transducer should not exceed 100 °C during operation.
- I_S is positive when 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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