

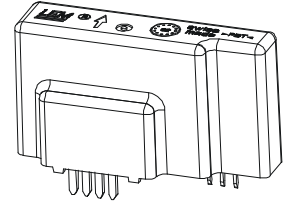
# Current Transducer LAH 125-P

$$I_{PN} = 125 \text{ A}$$

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 .. $\pm 200$	A				
$R_M$	Measuring resistance @	$T_A = 70^\circ\text{C}$		$T_A = 85^\circ\text{C}$			
		$R_{Mmin}$	$R_{Mmax}$	$R_{Mmin}$	$R_{Mmax}$		
		with $\pm 12 \text{ V}$	@ $\pm 125 \text{ A}_{max}$	0	49	14	48 $\Omega$
			@ $\pm 200 \text{ A}_{max}$	0	14	14	15 $\Omega$
		with $\pm 15 \text{ V}$	@ $\pm 125 \text{ A}_{max}$	22	72	29	70 $\Omega$
	@ $\pm 200 \text{ A}_{max}$	22	28	29	29 $\Omega$		
$I_{SN}$	Secondary nominal current rms	125	mA				
$K_N$	Conversion ratio	1 : 1000					
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 12 \dots 15$	V				
$I_C$	Current consumption	$19 (@ \pm 15 \text{ V}) + I_S$	mA				

## Accuracy - Dynamic performance data

$X$	Accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.41$	%
$e_L$	Linearity error	$< 0.15$	%
$I_O$	Offset current @ $I_p = 0$ , $T_A = 25^\circ\text{C}$	Typ	Max
			$\pm 0.20$ mA
$I_{OM}$	Magnetic offset current <sup>1)</sup> @ $I_p = 0$ and specified $R_M$ , after an overload of $3 \times I_{PN}$		$\pm 0.20$ mA
$I_{OT}$	Temperature variation of $I_O$	- $25^\circ\text{C} \dots + 70^\circ\text{C}$	$\pm 0.22$ $\pm 0.65$ mA
		- $40^\circ\text{C} \dots + 85^\circ\text{C}$	$\pm 0.30$ $\pm 0.95$ mA
$t_{ra}$	Reaction time @ 10 % of $I_{PN}$	$< 500$	ns
$t_r$	Response time <sup>2)</sup> to 90 % of $I_{PN}$ step	$< 1$	$\mu\text{s}$
$di/dt$	di/dt accurately followed	$> 100$	A/ $\mu\text{s}$
$BW$	Frequency bandwidth (- 3 dB) @ $I_{PN}$	DC .. 100	kHz

## General data

$T_A$	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
$T_S$	Ambient storage temperature	- 40 .. + 90	$^\circ\text{C}$
$R_S$	Secondary coil resistance @	$T_A = 70^\circ\text{C}$	34 $\Omega$
		$T_A = 85^\circ\text{C}$	35 $\Omega$
$m$	Mass	30	g
	Standards	EN 50178: 1997	

## 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.

**Notes:** <sup>1)</sup> The result of the coercive field of the magnetic circuit

<sup>2)</sup> With a di/dt of 100 A/ $\mu\text{s}$ .

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### 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 $\mu$ s	12	kV
$V_e$	Partial discharge extinction voltage rms @ 10 pC	> 2	kV
		Min	
dCp	Creepage distance <sup>3)</sup>	14.25	mm
dCl	Clearance distance <sup>3)</sup>	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: <sup>3)</sup> 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).

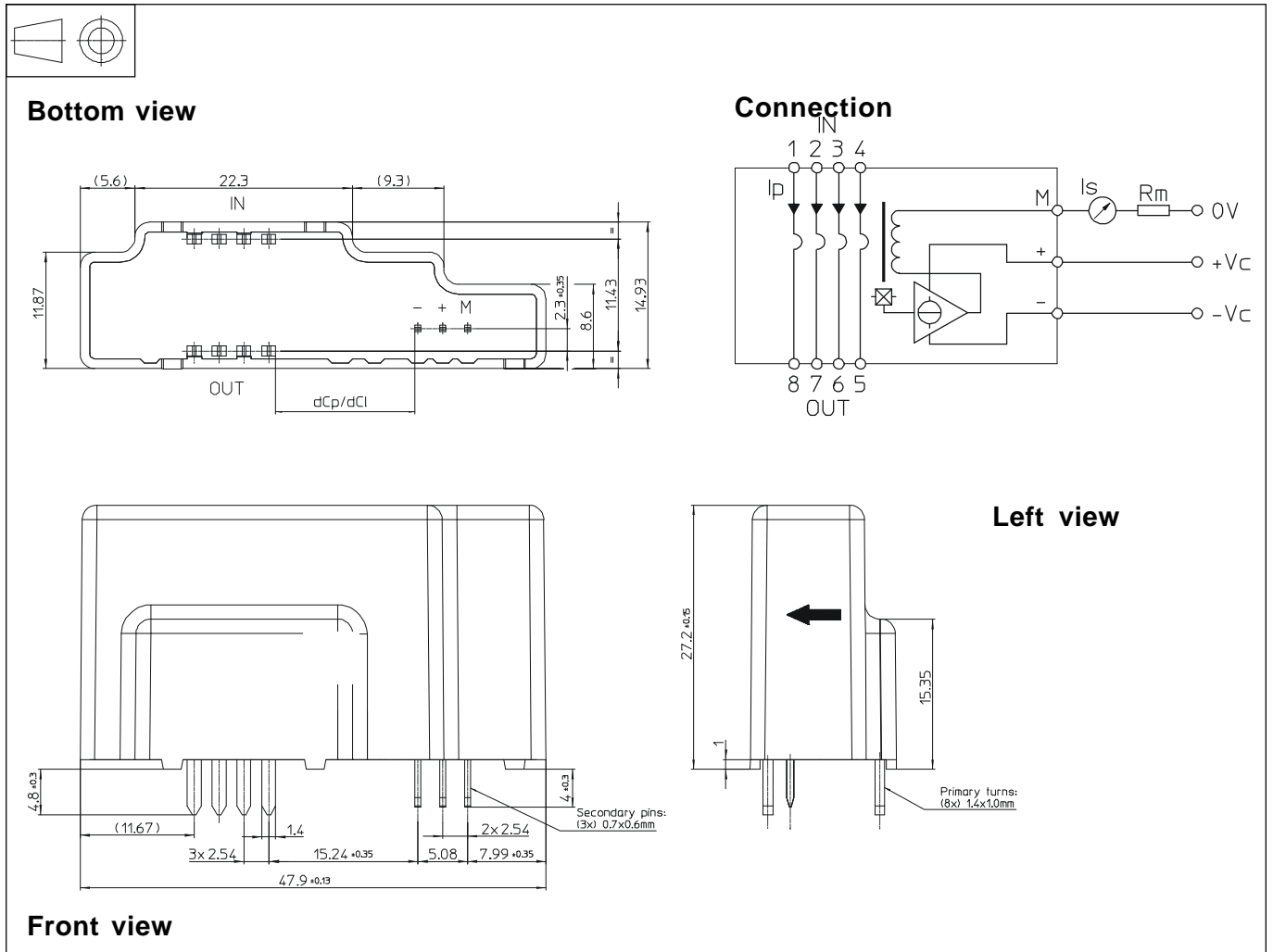
Ignoring this warning can lead to injury and/or cause serious damage.

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.

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



### Mechanical characteristics

- General tolerance  $\pm 0.2$  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.
- $I_s$  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.