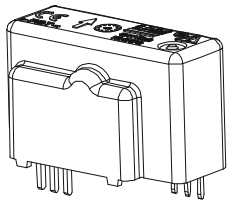
Current Transducer LAH 25-NP

I_{PN} = 8-12-25 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).

16038



Electrical data

I_{PN}	Primary nominal current rms			25			At
I_{PM}	Primary current, measuring range [1]			0 .. 55			At
R_M	Measuring resistance @ [2]		T_A = 70°C		T_A = 85°C		
			$R_{M\,mini}$	$R_{M\,maxi}$	$R_{M\,mini}$	$R_{M\,maxi}$	
	with ± 12 V	@ I_{PN} [± At_{DC}]	0	284	0	280	Ω
		@ I_{PN} [At_{RMS}] [3]	0	182	0	178	Ω
	with ± 15 V	@ I_{PN} [± At_{DC}]	67	398	70	394	Ω
		@ I_{PN} [At_{RMS}] [3]	67	263	70	259	Ω
		@ I_P < I_{PN} [4]					
I_{SN}	Secondary nominal current rms			25			mA
K_N	Conversion ratio			1 - 2 - 3 : 1000			
V_C	Supply voltage (± 5 %)			± 12 .. 15			V
I_C	Current consumption			10 (@ ± 15V) + I_S			mA

Accuracy - Dynamic performance data

X	Accuracy [5] @ I_{PN}, T_A = 25°C		± 0.3		%
ε_L	Linearity error		< 0.2		%
			Typ	Maxi	
I_O	Offset current @ T_A = 25°C			± 0.15	mA
I_{OM}	Magnetic offset current @ I_P = 0 and specified R_M, after an overload of 5 x I_{PN}		± 0.20	± 0.25	mA
I_{OT}	Temperature variation of I_O	0°C .. + 70°C	± 0.10	± 0.60	mA
		- 25°C .. + 85°C	± 0.10	± 0.70	mA
t_{ra}	Reaction time @ 10 % of I_{PN}		< 200		ns
t_r	Response time [6] to 90 % of I_{PN} step		< 500		ns
di/dt	di/dt accurately followed		> 200		A/µs
BW	Frequency bandwidth (- 1 dB)		DC .. 200		kHz

General data

T_A	Ambient operating temperature		- 25 .. + 85	°C
T_S	Ambient storage temperature		- 40 .. + 90	°C
R_S	Secondary coil resistance	@ T_A = 70°C	72	Ω
		@ T_A = 85°C	76	Ω
m	Mass		20	g
	Standards		EN 50178: 1997	

Notes:
[1] During 10 s, with $R_M \leq 109\ \Omega$ (V_C = ± 15 V)
[2] Calculation of $R_{M\,mini}$ with the maxi. power of the transistors = 0.307W @ 70°C and the maxi. power of the transistors = 0.302W @ 85°C
[3] 50 Hz Sinusoidal
[4] The measuring resistance $R_{M\,mini}$ may be lower (see "LAH Technical Information" leaflet)
[5] Without I_O & I_{OM}
[6] With a di/dt of 100 A/µs.

Features

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

Current Transducer LAH 25-NP

Isolation characteristics

V_d	Rms voltage for AC isolation test, 50/60 Hz, 1 mn	5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	12	kV
V_e	Partial discharge extinction voltage rms @ 10pC	>2	kV
		Mini	
dCp	Creepage distance [7]	12	mm
dCl	Clearance distance [7]	12	mm
CTI	Comparative Tracking Index (Group I)	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,	Rated isolation voltage	Nominal voltage
Single isolation	1000 V	1000 V
Reinforced isolation	500 V	500 V

Note: [7] On PCB with soldering pattern UTEC93-703.

Safety

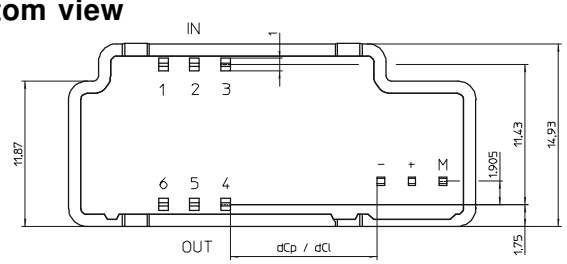
This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

Caution, risk of electrical shock

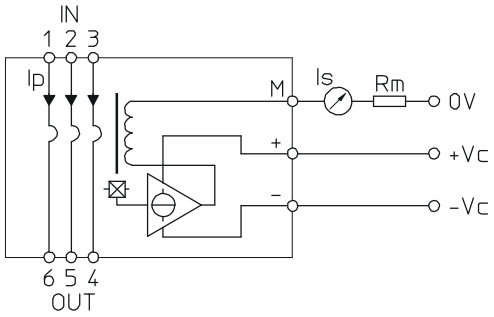
When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This transducer is a built-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield could be used.
Main supply must be able to be disconnected.

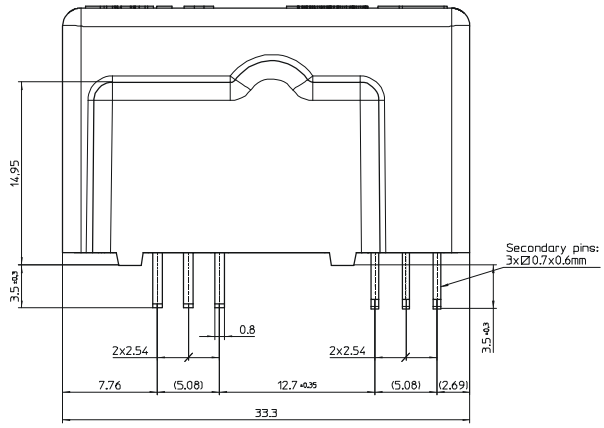
Dimensions LAH 25-NP (in mm. 1 mm = 0.0394 inch)

Bottom view

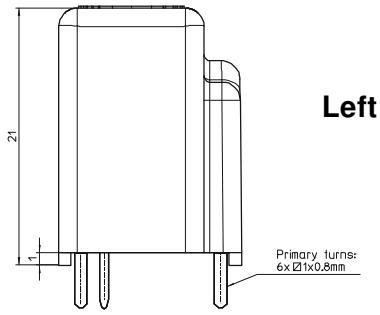


Connection





Front view



Left view

Number of primary turns	Primary current nominal I_{PN} [A]	Primary current maximum I_P [A]	Nominal output current I_{SN} [mA]	Turns ratio K_N	Primary resistance R_P [mΩ]	Primary insertion inductance L_P [µH]	Recommended PCB connections
1	25	55	25	1 : 1000	0.18	0.012	3 2 1 IN / OUT 4 5 6
2	12	27	24	2 : 1000	0.81	0.054	3 2 1 IN / OUT 4 5 6
3	8	18	24	3 : 1000	1.62	0.110	3 2 1 IN / OUT 4 5 6

Mechanical characteristics

- General tolerance ± 0.2 mm
- Fastening & connection of primary 6 pins 1 x 0.8 mm
  Recommended PCB hole 1.5 mm
- Fastening & connection of secondary 3 pins 0.7 x 0.6 mm
  Recommended PCB hole 1.2 mm

Remarks

- I_S is positive when I_P flows from terminals 1, 2, 3 (IN) to terminals 6, 5, 4 (OUT).
- The jumper temperature and PCB should not exceed 100 °C.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.