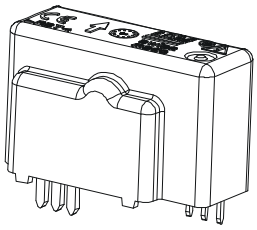
Current Transducer LAH 50-P

I_{PN} = 50 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).

16010



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 current rms			50				A
I_{PM}	Primary current, measuring range [1]			0 .. 110				A
R_M	Measuring resistance @							
	with ± 12 V	@ I_{PN} [± A_{DC}]		0	221	0	214	Ω
		@ I_{PN} [A_{RMS}] [2]		0	115	0	108	Ω
	with ± 15 V	@ I_{PN} [± A_{DC}]		0	335	0	327	Ω
		@ I_{PN} [A_{RMS}] [2]		0	195	0	188	Ω

I_{SN}	Secondary nominal current rms		25	mA
K_N	Conversion ratio		1 : 2000	
V_C	Supply voltage (± 5 %)		± 12 .. 15	V
I_C	Current consumption		10 (@ ± 15V) + I_S	mA

Accuracy - Dynamic performance data

X	Accuracy [3] @ I_{PN}, T_A = 25°C		± 0.25		%
ε_L	Linearity error		< 0.15		%
			Typ	Max	
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}		± 0.10	± 0.15	mA
I_{OT}	Temperature variation of I_O	0°C .. + 70°C	± 0.10	± 0.30	mA
		- 25°C .. + 85°C	± 0.10	± 0.40	mA
t_{ra}	Reaction time @ 10 % of I_{PN}		< 200		ns
t_r	Response time [4] 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	115	Ω
		@ T_A = 85°C	121	Ω
m	Mass		22	g
	Standards		EN 50178: 1997	

Notes: [1] For 10 s, with $R_M \leq 71\ \Omega$ (V_C = ± 15 V)
[2] 50 Hz Sinusoidal
[3] Without I_O & I_{OM}
[4] With a di/dt of 100 A/µs.

Features

- Closed loop (compensated) 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.

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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
		Min	
dCp	Creepage distance [5]	11.75	mm
dCl	Clearance distance [5]	11.75	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: [5] On PCB with soldering pattern UTEC93-703.

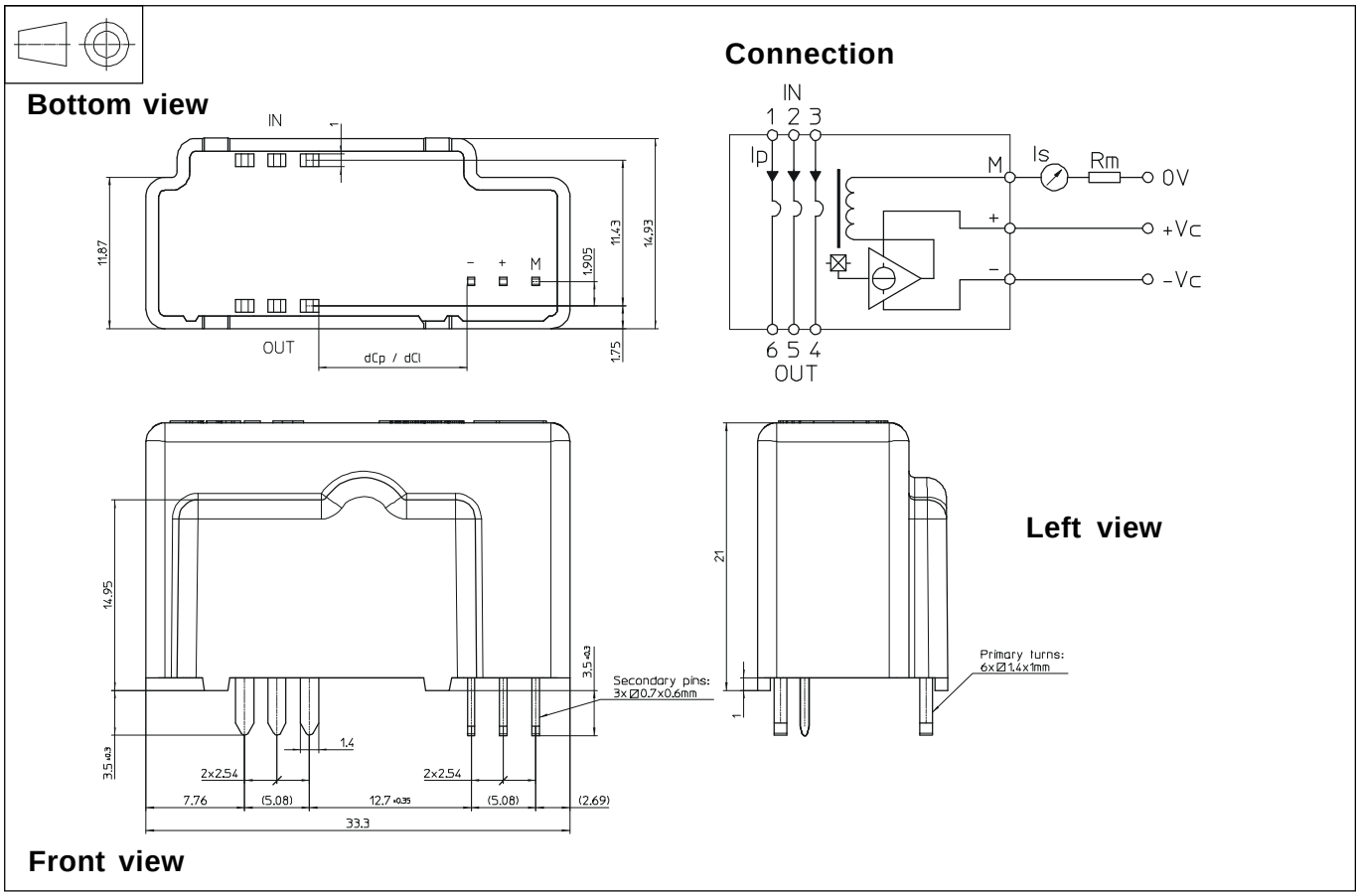
Safety

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 50-P (in mm. 1 mm = 0.0394 inch)



Number of primary turns	Primary current		Nominal output current	Turns ratio	Primary resistance	Primary insertion inductance
	nominal I_{PN} [A]	maximum I_P [A]	I_{SN} [mA]	K_N	R_P [mΩ]	L_P [µH]
1	50	110	25	1 : 2000	0.12	0.008

Mechanical characteristics

- General tolerance ± 0.2 mm
- Fastening & connection of primary 6 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

- I_S is positive when I_P flows from terminals "IN" to terminals "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.