

Current Transducer LAH 50-P

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary circuit and the secondary circuit.



US	KØt	72	Á

Electrical data

I_{PN} I_{PM}	Primary nominal RMS curr Primary current, measuring		50 0	±110			A A
R_{M}	Measuring resistance @		$T_{A} =$	70 °C	$T_A = 8$	85 °C	
			$R_{ m M\ mi}$	$_{_{ m IN}}R_{_{ m M\ max}}$	$R_{ m Mmin}$	$R_{ m M\ max}$	
	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
$I_{\rm SN}$	Secondary nominal RMS of		25		1	r	nΑ
$N_{\rm p}/N$	_s Turns ratio		1:	2000			
$U_{\rm c}$	Supply voltage (±5 %)		±12	2 15			V
I_{C}	Current consumption		10	(@ ±15	V)+I _S	r	nΑ

Accuracy - Dynamic performance data

$\varepsilon_{ m tot}$	Total error $^{3)}$ @ I_{PN} , T_{A} = 25 °C	±0.25		%
$\varepsilon_{_{\rm L}}$	Linearity error	< 0.15		%
		Тур	Max	
I_{o}	Offset current @ I_P = 0, T_A = 25 °C		±0.15	mA
I_{OM}	Magnetic offset current @ $I_P = 0$			
	and specified $R_{\rm M}$, after an overload of 5 × $I_{\rm PN}$	±0.10	±0.15	mA
I_{OT}	Temperature variation of I_{\odot} 0 °C +70 °C	±0.10	±0.30	mA
	−25 °C +85 °C	±0.10	±0.40	mA
t _{D 10}	Delay time to 10 % of the final output value for $I_{\rm PN}$ step $^{4)}$	< 200		ns
t _{D 90}	Delay time to 90 % of the final output value for $I_{\rm PN}$ step $^{4)}$	< 500		ns
BW	Frequency bandwidth (–1 dB)	DC	200	kHz

General data

T_{A}	Ambient operating temperature		–25 +85	°C
T_{Ast}	Ambient storage temperature		-40 +90	°C
$R_{\rm S}$	Resistance of secondary winding	@ $T_A = 70 ^{\circ}C$	115	Ω
		@ T_{Δ} = 85 °C	121	Ω
m	Mass	- 7	22	g
	Standards		EN 50178: 1997	

- Notes: 1) During 10 s, with $R_{\rm M} \le 71~\Omega~(U_{\rm C} = \pm 15~{\rm V})$
 - ²⁾ Sinusoidal wave 50 Hz
 - $^{\rm 3)}$ Without $I_{\rm O}\,\&\,I_{\rm O\,M}$
 - ⁴⁾ With a di/dt of 200 A/ μ s.

I_{PN} = 50 A



Features

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

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_{t}	Partial discharge RMS test voltage (q_m < 10 pC)	> 2	kV			
•		Min				
d_{Cp}	Creepage distance 1)	11.75	mm			
d_{CI}	Clearance 1)	11.75	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	1000 V	1000 V
Reinforced insulation	500 V	500 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.



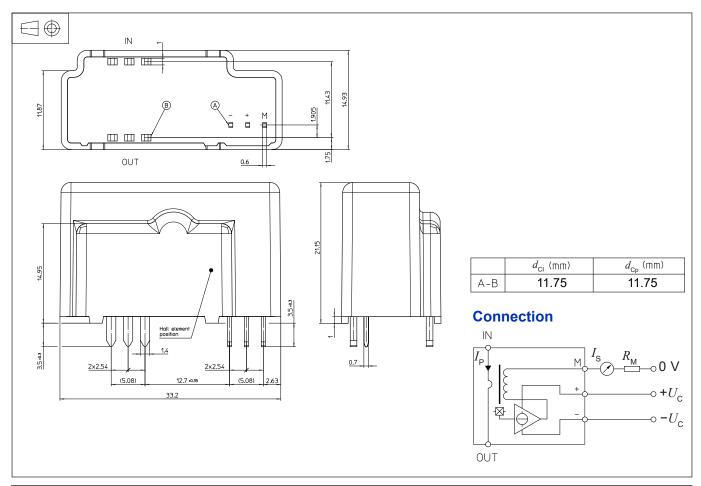
Caution, risk of electrical shock

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.



Dimensions LAH 50-P (in mm)



Number of primary turns	Primary current		Nominal output	Turns	Primary	Primary insertion
	Nominal I_{PN} [A]	Maximum $I_{_{ m P}}$ [A]	current I _{S N} [mA]	ratio $N_{ m p}\!/N_{ m S}$	resistance $R_{_{ m P}}$ [mΩ]	inductance $L_{_{P}}$ [µH]
1	50	110	25	1 : 2000	0.12	0.008

Mechanical characteristics

- General tolerance
- Fastening & connection of primary Recommended PCB hole
- Fastening & connection of secondary Recommended PCB hole

±0.2 mm 6 pins 1.4 × 1 mm 2 mm 3 pins 0.7 × 0.6 mm

1.2 mm

Remarks

- $I_{\rm S}$ is positive when $I_{\rm P}$ 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, unidirectionnal measurements...), please contact us.



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