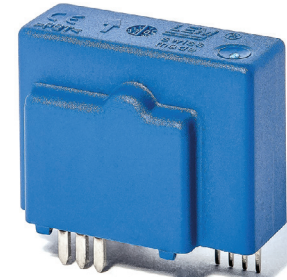


# Current Transducer LAS 100-TP

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



$$I_{PN} = 100 \text{ A}$$



## Electrical data

$I_{PN}$	Primary nominal RMS current		100	A
$I_{PM}$	Primary current, measuring range at frequency > 1 kHz		0 ... ±200 0 ... ±300	A
$V_{out}$	Output voltage (Analog) @	$I_P$	$V_{ref} \pm (0.625 \times I_P / I_{PN})$	V
		$I_P = 0$	$V_{ref} \pm 0.025$	V
$R_L$	Load resistance		≥ 2	kΩ
$R_{out}$	Output internal resistance		< 20	Ω
$V_{ref}$	Reference voltage		2.5 ± 0.025	V
	$V_{ref}$ load resistance		≥ 1	MΩ
	$V_{ref}$ internal resistance		200	Ω
	$V_{ref}$ external voltage		2.0 ... 2.8	V
$C_L$	Capacitive loading		≤ 1	nF
$U_C$	Supply voltage (±5 %)		5	V
$I_C$	Current consumption @ $U_C = 5 \text{ V}$	typ	18	mA

## Accuracy - Dynamic performance data

$X$	Accuracy <sup>1)</sup> @ $I_{PN}, T_A = 25 \text{ °C}$		< ±1	%
$\epsilon_L$	Linearity error 0 ... $I_{PN}$ <sup>2)</sup>		< 0.7	%
		Typ	Max	
$TCV_{out}$	Temperature coefficient of $V_{out}$ @ $I_P = 0$			
	-40 ... +85 °C	80	120	ppm/K
$TCV_{out}/V_{ref}$	Temperature coefficient of $V_{out}/V_{ref}$ @ $I_P = 0$			
	-40 ... +85 °C	50	80	ppm/K
$TCG$	Temperature coefficient of $G$			
	-40 ... +85 °C	300	500	ppm/K
$V_{OM}$	Magnetic offset voltage @ $I_P = 0$			
	after an overload of $2 \times I_{PNDC}$		±5	mV
$t_{ra}$	Reaction time @ 10 % of $I_{PN}$		< 200	ns
$t_r$	Step response time to 90 % of $I_{PN}$ <sup>3)</sup>		< 500	ns
	Output noise without external filter		< 10	mVpp
$BW$	Frequency bandwidth (-1 dB)		DC ... 100	kHz

## General data

$T_A$	Ambient operating temperature	-40 ... +85	°C
$T_S$	Ambient storage temperature	-40 ... +100	°C
$m$	Mass	20	g
	Standard	EN 50178: 1997	

All Data are given with a  $R_L = 10 \text{ k}\Omega$

Notes: <sup>1)</sup> Excluding electrical, magnetic offsets and linearity

<sup>2)</sup> Including magnetic offset

<sup>3)</sup> For a  $di/dt = 100 \text{ A}/\mu\text{s}$ .

## Features

- Current transducer using Eta-technology
- Unipolar voltage supply
- Insulating plastic case recognized according to UL 94-V0
- Compact design for PCB mounting
- Extended measuring range.

## Advantages

- Excellent accuracy
- Very good linearity
- Very 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.

Copyright protected.

## Current Transducer LAS 100-TP

### Insulation coordination

$U_d$	RMS voltage for AC insulation test, 50 Hz, 1 min	5	kV
$\hat{U}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	> 8	kV
$U_e$	Partial discharge extinction RMS voltage @ 10 pC	> 2	kV
		Min	
$d_{cp}$	Creepage distance <sup>1)</sup>	10.7	mm
$d_{cl}$	Clearance <sup>1)</sup>	10.7	mm
$CTI$	Comparative tracking index (group IIIa)	175	

**Note:** <sup>1)</sup> 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
$d_{cp}, d_{cl}, \hat{U}_w$	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.



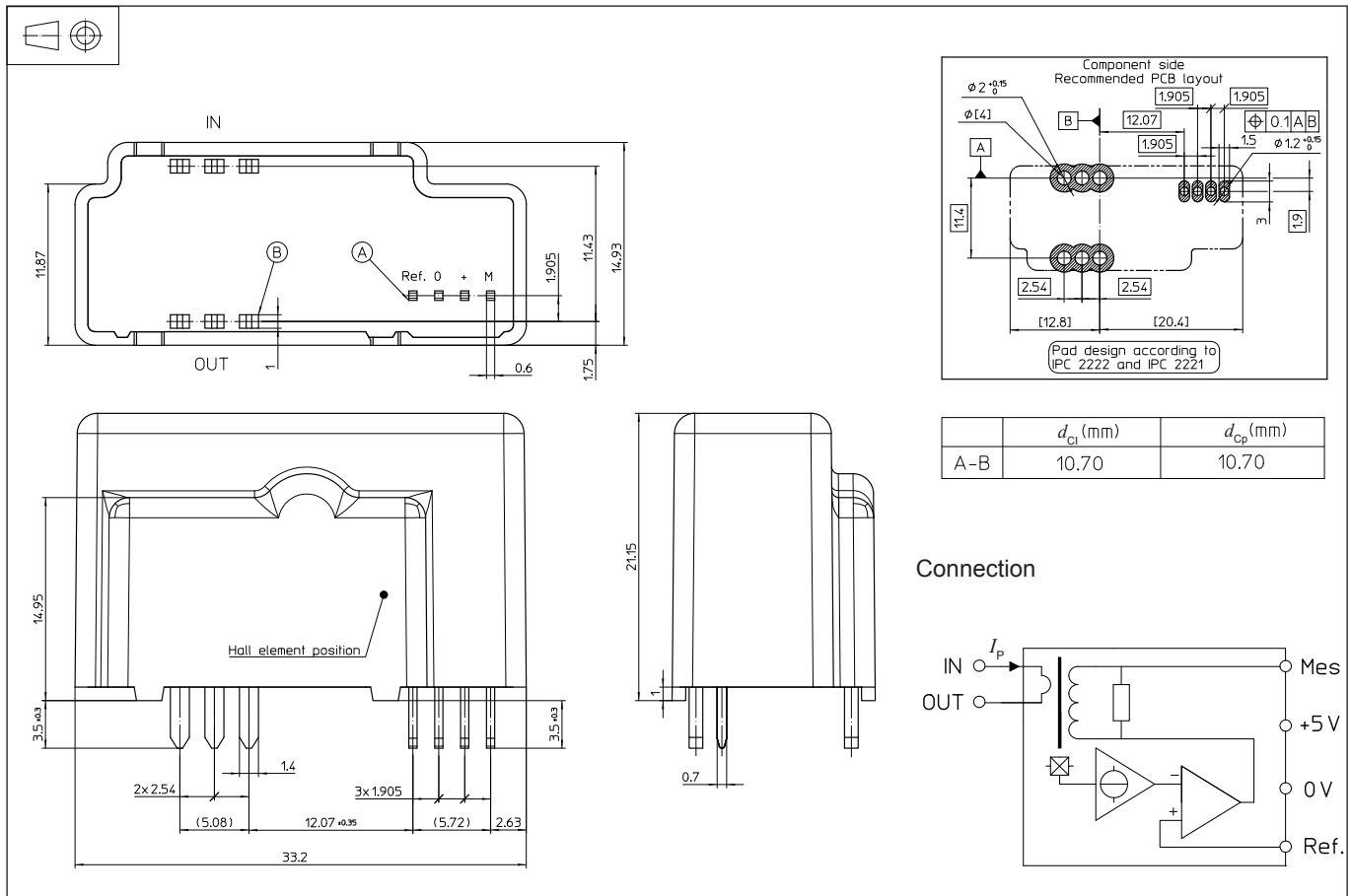
Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (e.g. 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 LAS 100-TP (in mm)



Number of primary turns	Primary current		Nominal output voltage $V_{out}$ [V]	Primary resistance $R_P$ [m $\Omega$ ]	Primary insertion inductance $L_P$ [ $\mu$ H]
	Nominal $I_{PN}$ [A]	Maximum $I_P$ [A]			
1	100	200 (300)	$V_{ref} \pm 0.625$	0.12	0.008

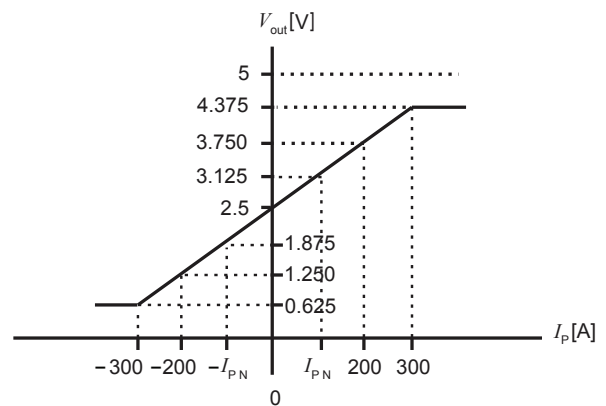
### Mechanical characteristics

- General tolerance  $\pm 0.2$  mm
- Fastening & connection of primary 6 pins  $1.4 \times 1$  mm  
Recommended PCB hole 2 mm
- Fastening & connection of secondary 4 pins  $0.7 \times 0.6$  mm
- Recommended PCB hole 1.2 mm

### Output Voltage - Primary Current

### Remarks

- $V_{out}$  is positive when  $I_P$  flows from terminal "IN" to terminal "OUT".
- Temperature of the primary conductor should not exceed 100 °C.
- Installation of the transducer must be done unless otherwise specified on the datasheet, according to LEM Transducer Generic Mounting Rules. Please refer to LEM document N°ANE120504 available on our Web site: [Products/Product Documentation](#).



- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.