Current Transducer LAS 100-TP

I_{PN} = 100 A

For the electronic measurement of currents : DC, AC, pulsed, mixed, with a galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).

16059

Electrical data

I_{PN}	Primary nominal r.m.s. current		100	A
I_P	Primary current, measuring range		0 .. ± 200	A
	at frequency > 1 kHz		0 .. ± 300	A
V_{OUT}	Analog output voltage @	I_P	$V_{REF} \pm (0.625 \cdot I_P/I_{PN})$	V
		$I_P = 0$	V_{REF} ± 0.025	V
R_L	Output load resistance		≥ 2	kΩ
R_{OUT}	Output internal resistance		< 20	Ω
V_{REF}	Internal reference voltage		2.5 ± 0.025	V
	V_{REF} load resistance		≥ 1	MΩ
	V_{REF} internal resistance		200	Ω
	V_{REF} external voltage range		2.0 .. 2.8	V
C_L	Max. output capacitive load		1	nF
V_C	Supply voltage (± 5 %)		5	V
I_C	Current consumption @ V_C = 5 V	typ	18	mA

Accuracy - Dynamic performance data

X	Accuracy [1] @ I_{PN}, T_A = 25°C		< ± 1	%
ε_L	Linearity error 0 .. I_{PN} [2]		< 0.7	%

			Typ	Max	
TCV_{OUT}	Thermal drift of V_{OUT} @ I_P = 0	- 40°C .. + 85°C	80	120	ppm/K
TCV_{OUT}/V_{REF}	Thermal drift of V_{OUT}/V_{REF} @ I_P = 0	- 40°C .. + 85°C	50	80	ppm/K
$TC\varepsilon_G$	Thermal drift of the gain	- 40°C .. + 85°C	300	500	ppm/K

V_{OM}	Residual voltage @ I_P = 0, after an overload of 2 x $I_{PN\,DC}$	± 5	mV
t_{ra}	Reaction time @ 10 % of I_{PN}	< 200	ns
t_r	Response time @ 90 % of I_{PN}	< 500	ns
di/dt	di/dt accurately followed	> 100	A/µs
	Output noise without external filter	< 10	mVpp
f	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
	Standards	EN 50178 : 1997	

All Data are given with a R_L = 10 kΩ.

Notes : [1] Excluding electrical, magnetic offsets and linearity
[2] Including magnetic offset.

Features

- Current transducer using Eta-technology
- Unipolar voltage supply
- Insulated 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.

LEM reserves the right to carry out modifications on its transducers, in order to improve them, without previous notice.

Current Transducer LAS 100-TP

Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn	5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	>8	kV
V_e	R.m.s. voltage for partial discharge extinction @ 10pC	>2	kV
		Min	
dCp	Creepage distance [1)]	10.70	mm
dCl	Clearance distance [1)]	10.70	mm
CTI	Comparative Tracking Index (Group III a)	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 : [1)] 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 following manufacturer's operating instructions.



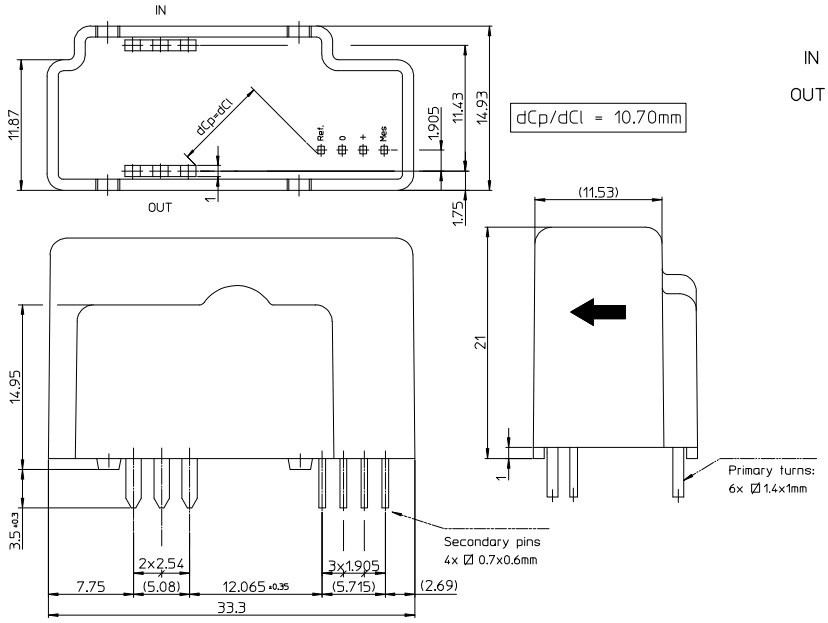
Caution, risk of electrical shock

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.

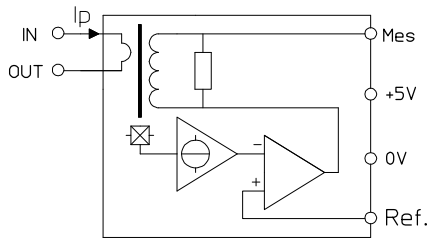
LEM reserves the right to carry out modifications on its transducers, in order to improve them, without previous notice.

Dimensions LAS 100-TP (in mm. 1 mm = 0.0394 inch)

Bottom view



Connection



Front view

Left view

Number of primary turns	Primary current		Nominal output voltage	Primary resistance	Primary insertion inductance
	Nominal	Maximal			
	I_{PN} [A]	I_P [A]	V_{OUT} [V]	R_P [mΩ]	L_P [µH]
1	100	200 (300)	V_{REF} ± 0.625	0.12	0.008

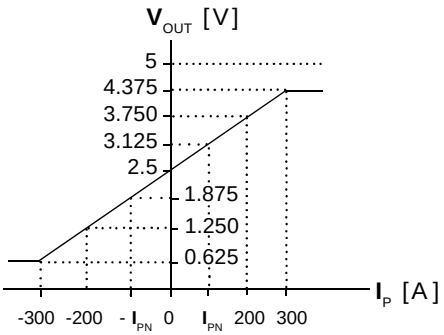
Mechanical characteristics

- 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 4 pins 0.7 x 0.6 mm
  Recommended PCB hole 1.2 mm

Remarks

- V_{OUT} is positive when I_P flows from terminals "IN" to terminals "OUT".
- Temperature of the primary conductor should not exceed 100°C.
- This is a standard model. For different versions please contact us.

Output Voltage - Primary Current



LEM reserves the right to carry out modifications on its transducers, in order to improve them, without previous notice.