LEM

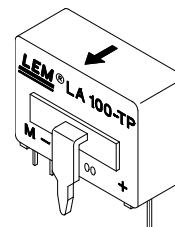# Current Transducer LA 100-TP

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).

I_{PN} = 100 A

5 YEARS WARRANTY — LEM TRANSDUCERS

CE

Features

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

Electrical data

I_{PN}	Primary nominal r.m.s. current			100		A
I_P	Primary current, measuring range			0 .. ± 150		A
R_M	Measuring resistance @		$T_A = 70°C$		$T_A = 85°C$	

			$R_{M min}$	$R_{M max}$	$R_{M min}$	$R_{M max}$	
with ± 12 V	@ ± 100 A $_{max}$		0	50	0	42	Ω
	@ ± 120 A $_{max}$		0	22	0	14	Ω
with ± 15 V	@ ± 100 A $_{max}$		0	110	20	102	Ω
	@ ± 150 A $_{max}$		0	33	20	25	Ω

I_{SN}	Secondary nominal r.m.s. current	50	mA
K_N	Conversion ratio	1 : 2000	
V_C	Supply voltage (± 5 %)	± 12 .. 15	V
I_C	Current consumption	10 (@ ± 15 V) + I_S	mA
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	2.5	kV
V_b	R.m.s. rated voltage	610	V

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.

Accuracy - Dynamic performance data

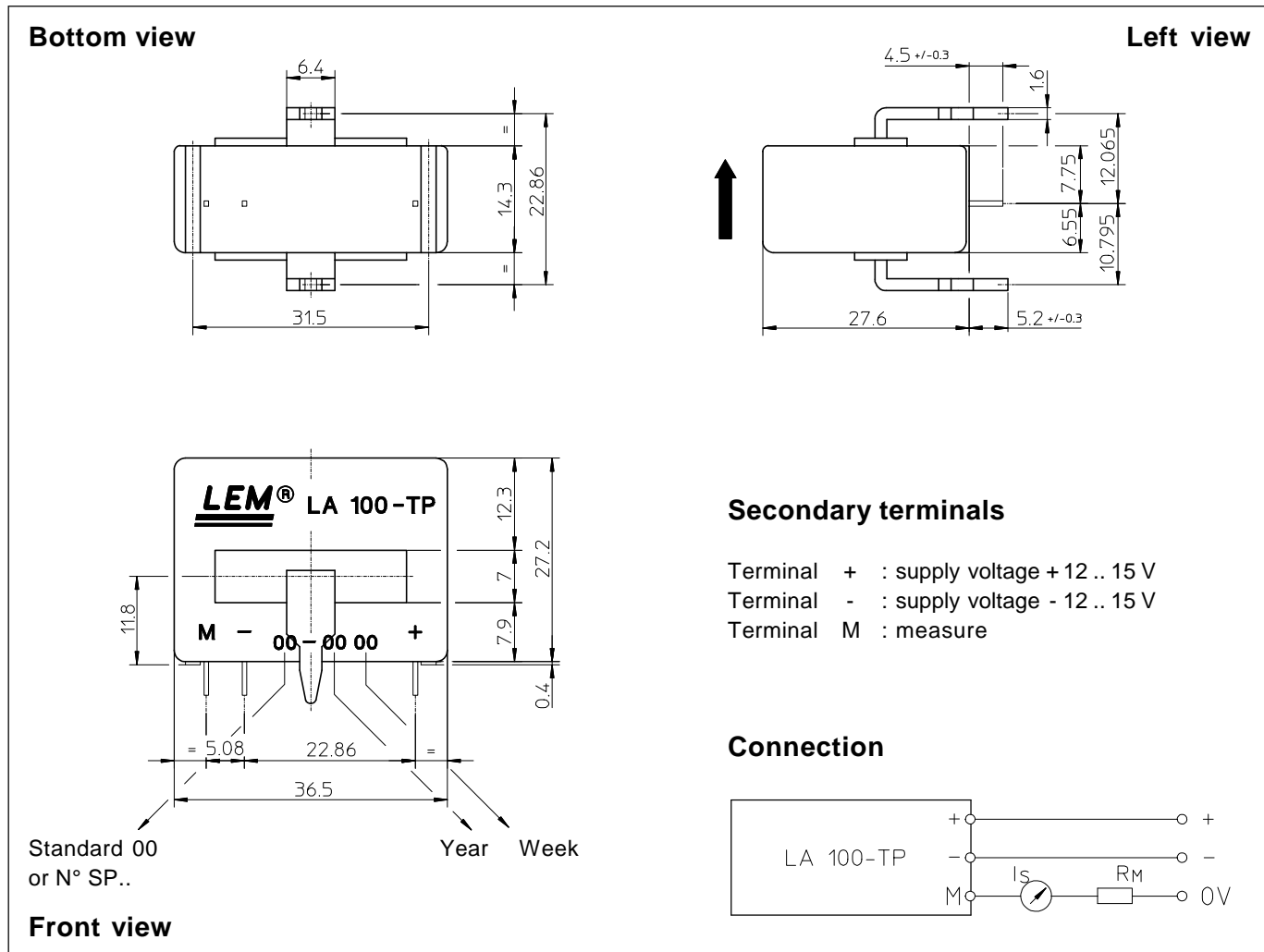|			Typ	Max	
X	Accuracy @ I_{PN}, $T_A = 25°C$ @ ± 15 V (± 5 %)			± 0.45	%
	@ ± 12 .. 15 V (± 5 %)			± 0.70	%
e_L	Linearity			< 0.15	%
I_O	Offset current @ $I_P = 0$, $T_A = 25°C$			± 0.10	mA
I_{OM}	Residual current [1] @ $I_P = 0$, after an overload of 3 x I_{PN}			± 0.15	mA
I_{OT}	Thermal drift of I_O	- 25°C .. + 85°C	± 0.05	± 0.25	mA
		- 40°C .. - 25°C	± 0.10	± 0.50	mA
t_{ra}	Reaction time @ 10 % of $I_{P max}$			< 500	ns
t_r	Response time [2] @ 90 % of $I_{P max}$			< 1	µs
di/dt	di/dt accurately followed			> 200	A/µs
f	Frequency bandwidth (- 1 dB)			DC .. 200	kHz

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.

General data

T_A	Ambient operating temperature		- 40 .. + 85	°C
T_S	Ambient storage temperature		- 50 .. + 95	°C
R_S	Secondary coil resistance @	$T_A = 70°C$	120	Ω
		$T_A = 85°C$	128	Ω
m	Mass		24	g
	Standards [3]		EN 50178	

Notes : [1] The result of the coercive field of the magnetic circuit
[2] With a di/dt of 100 A/µs
[3] A list of corresponding tests is available

981120/5

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

Bottom view

Left view

6.4

4.5 +/-0.3

1.6

14.3

22.86

12.065

7.75

6.55

10.795

31.5

27.6

5.2 +/-0.3

LEM® LA 100-TP

12.3

27.2

7

11.8

M − 00 − 00 00 +

7.9

0.4

= 5.08 22.86 =

36.5

Standard 00   Year   Week
or N° SP..

Front view

Secondary terminals

Terminal   +   : supply voltage + 12 .. 15 V
Terminal   -   : supply voltage - 12 .. 15 V
Terminal   M : measure

Connection

LA 100-TP

+   +

−   −

M I_S R_M 0V

Mechanical characteristics

- General tolerance   ± 0.2 mm
- Fastening & connection of primary   bus bar
                                                         6.4 x 1.6 mm
  Recommended PCB hole   3.8 mm
- Fastening & connection of secondary 3 pins
                                                         0.6 x 0.7 mm
  Recommended PCB hole   0.9 mm

Remarks

- I_S is positive when I_P flows in the direction of the arrow.
- Temperature of the primary conductor should not exceed 100°C.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.