Current Transducer LA 55-P
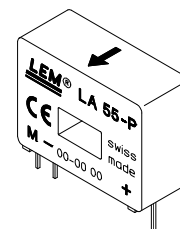
For the electronic measurement of currents : DC, AC, pulsed...,
with a galvanic isolation between the primary circuit (high power)
and the secondary circuit (electronic circuit).

I_{PN} = 50 A

CE

Electrical data

I_{PN}	Primary nominal r.m.s. current		50			A
I_P	Primary current, measuring range		0 .. ± 70			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	@ ± 50 A $_{max}$	10 100		60 95	Ω
		@ ± 70 A $_{max}$	10 50		60[1] 60[1]	Ω
	with ± 15 V	@ ± 50 A $_{max}$	50 160		135 155	Ω
		@ ± 70 A $_{max}$	50 90		135[2] 135[2]	Ω
I_{SN}	Secondary nominal r.m.s. current		50			mA
K_N	Conversion ratio		1 : 1000			
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

Accuracy - Dynamic performance data

			Typ	Max	
X	Accuracy @ I_{PN}, $T_A = 25°C$ @ ± 15 V (± 5 %)			± 0.65	%
	@ ± 12 .. 15 V (± 5 %)			± 0.90	%
e_L	Linearity			< 0.15	%
I_O	Offset current @ $I_P = 0$, $T_A = 25°C$			± 0.2	mA
I_{OM}	Residual current [3] @ $I_P = 0$, after an overload of 3 x I_{PN}			± 0.3	mA
I_{OT}	Thermal drift of I_O	0°C .. + 70°C	± 0.1	± 0.5	mA
		- 25°C .. + 85°C	± 0.1	± 0.6	mA
t_{ra}	Reaction time @ 10 % of $I_{P max}$			< 500	ns
t_r	Response time @ 90 % of $I_{P max}$			< 1	µs
di/dt	di/dt accurately followed			> 200	A/µs
f	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 @	$T_A = 70°C$	80	Ω
		$T_A = 85°C$	85	Ω
m	Mass		18	g
	Standards [4]		EN 50178	

Notes : [1] Measuring range limited to ± 60 A $_{max}$
[2] Measuring range limited to ± 55 A $_{max}$
[3] Result of the coercive field of the magnetic circuit
[4] A list of corresponding tests is available

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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
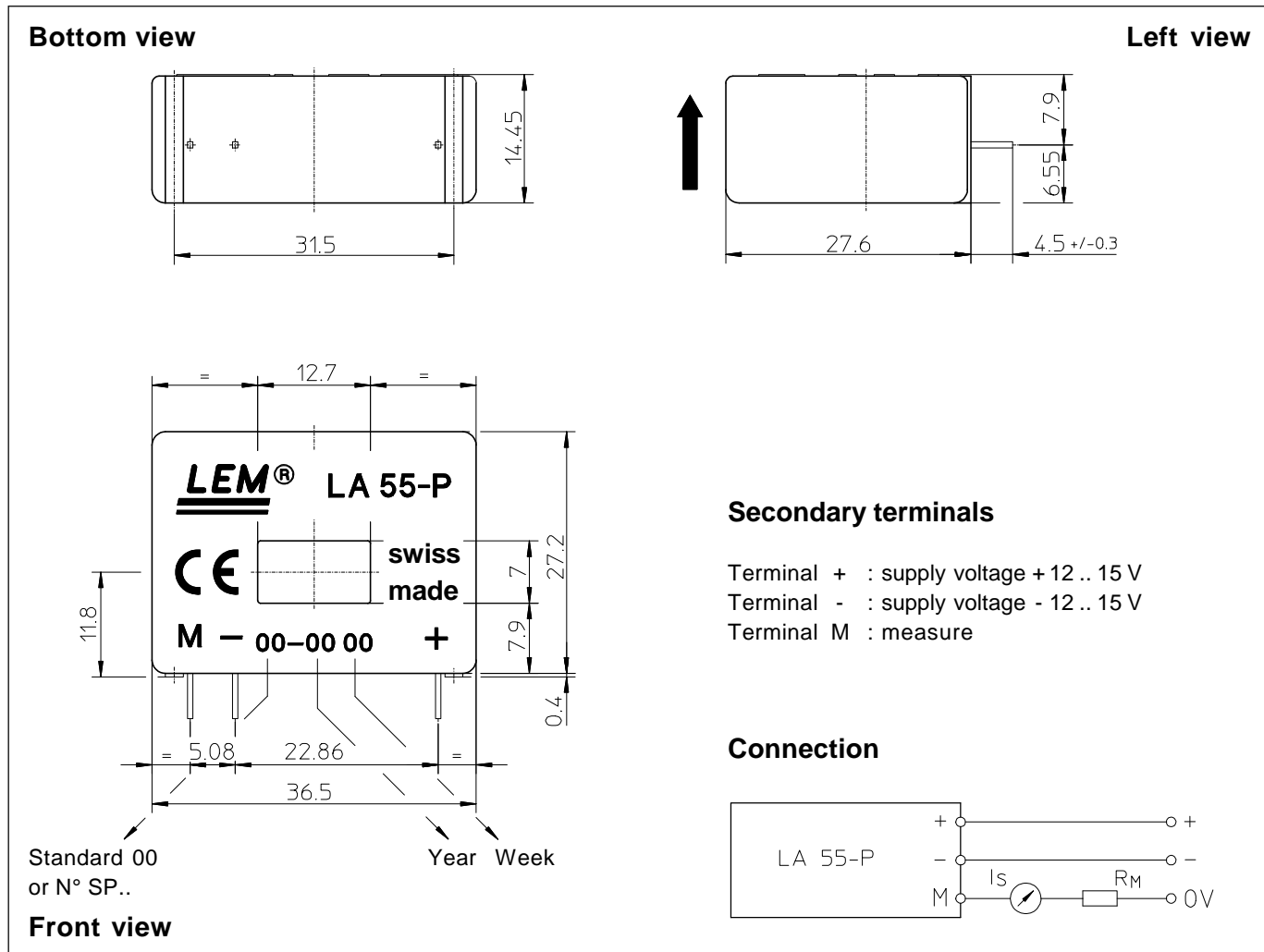- High immunity to external interference
- Current overload capability.

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.

Dimensions LA 55-P (in mm. 1 mm = 0.0394 inch)

Bottom view

Left view

14.45

31.5

7.9

6.55

27.6

4.5 +/-0.3

= 12.7 =

LEM® LA 55-P

CE

swiss made

M — 00–00 00 +

27.2

7

7.9

0.4

11.8

= 5.08 22.86 =

36.5

Standard 00 or N° SP..

Year Week

Front view

Secondary terminals

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

Connection

LA 55-P

+   o +

–   Is   R$_M$ o –

M   o   0V

Mechanical characteristics

- General tolerance   ± 0.2 mm
- Primary through-hole   12.7 x 7 mm
- Fastening & connection of secondary   3 pins
                                                                0.63 x 0.56mm
  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 90°C.
- Dynamic performances (di/dt and response time) are best with a single bar completely filling the primary hole.
- In order to achieve the best magnetic coupling, the primary windings have to be wound over the top edge of the device.
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.