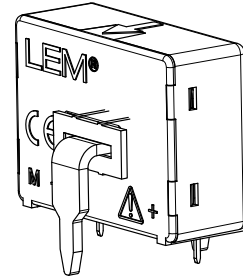


# Current Transducer LA 55-TP/SP27

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

**$I_{PN} = 50 \text{ A}$**



## Electrical data

$I_{PN}$	Primary nominal current rms	50	A
$I_{PM}$	Primary current, measuring range	0 .. $\pm 100$	A
$R_M$	Measuring resistance		
		$R_{M \min}$	$R_{M \max}$
	with $\pm 12 \text{ V}$	@ $\pm 50 \text{ A}_{\max}$	0 210 $\Omega$
		@ $\pm 100 \text{ A}_{\max}$	0 30 $\Omega$
	with $\pm 15 \text{ V}$	@ $\pm 50 \text{ A}_{\max}$	30 320 $\Omega$
		@ $\pm 100 \text{ A}_{\max}$	30 90 $\Omega$
$I_{SN}$	Secondary nominal current rms	25	mA
$K_N$	Conversion ratio	1 : 2000	
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 12 \dots 15$	V
$I_C$	Current consumption	10 (@ $\pm 15 \text{ V}$ ) + $I_S$	mA

## Accuracy - Dynamic performance data

<b>X</b>	Accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	@ $\pm 15 \text{ V} (\pm 5 \%)$	$\pm 0.65$	%
		@ $\pm 12 \dots 15 \text{ V} (\pm 5 \%)$	$\pm 0.90$	%
<b><math>\epsilon_L</math></b>	Linearity error		< 0.15	%
<b><math>I_O</math></b>	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	Typ	$\pm 0.1$	mA
		Max	$\pm 0.1$	mA
<b><math>I_{OM}</math></b>	Magnetic offset current <sup>1)</sup> @ $I_p = 0$ and specified $R_M$ , after an overload of $3 \times I_{PN}$		$\pm 0.2$	mA
<b><math>I_{OT}</math></b>	Temperature variation of $I_O$	- $25^\circ\text{C} \dots + 85^\circ\text{C}$	$\pm 0.1$	$\pm 0.3$ mA
		- $40^\circ\text{C} \dots - 25^\circ\text{C}$	$\pm 0.2$	$\pm 0.5$ mA
<b><math>t_{ra}</math></b>	Reaction time to 10 % of $I_{PN}$ step		< 500	ns
<b><math>t_r</math></b>	Response time <sup>2)</sup> to 90 % of $I_{PN}$ step		< 1	$\mu\text{s}$
<b>di/dt</b>	di/dt accurately followed		> 200	A/ $\mu\text{s}$
<b>BW</b>	Frequency bandwidth (-1 dB)		DC .. 200	kHz

## General data

<b><math>T_A</math></b>	Ambient operating temperature	- 40 .. + 85	$^\circ\text{C}$
<b><math>T_S</math></b>	Ambient storage temperature	- 50 .. + 90	$^\circ\text{C}$
<b><math>R_S</math></b>	Secondary coil resistance @ $T_A = 85^\circ\text{C}$	140	$\Omega$
<b><math>m</math></b>	Mass	35	g
	Standards	EN 50155: 1995	

## Features

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

## Special features

- $I_{PM} = 0 \dots \pm 100 \text{ A}$
- $K_N = 1 : 2000$
- $V_d = 3.6 \text{ kV}$
- $T_A = - 40^\circ\text{C} \dots + 85^\circ\text{C}$
- Potted.

## 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

- Single or three phases inverter
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

## Application domain

- Traction.

Notes: <sup>1)</sup> Result of the coercive field of the magnetic circuit

<sup>2)</sup> With a di/dt of 100 A/ $\mu\text{s}$ .

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### Isolation characteristics

$V_d$	Rms voltage for AC isolation test, 50 Hz, 1 min	3.6	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 $\mu$ s	7.5	kV
		Min	
<b>dCp</b>	Creepage distance	7.5	mm
<b>dCI</b>	Clearance distance	7.5	mm
<b>CTI</b>	Comparative Tracking Index (group IIIa)	175	

### Safety



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).

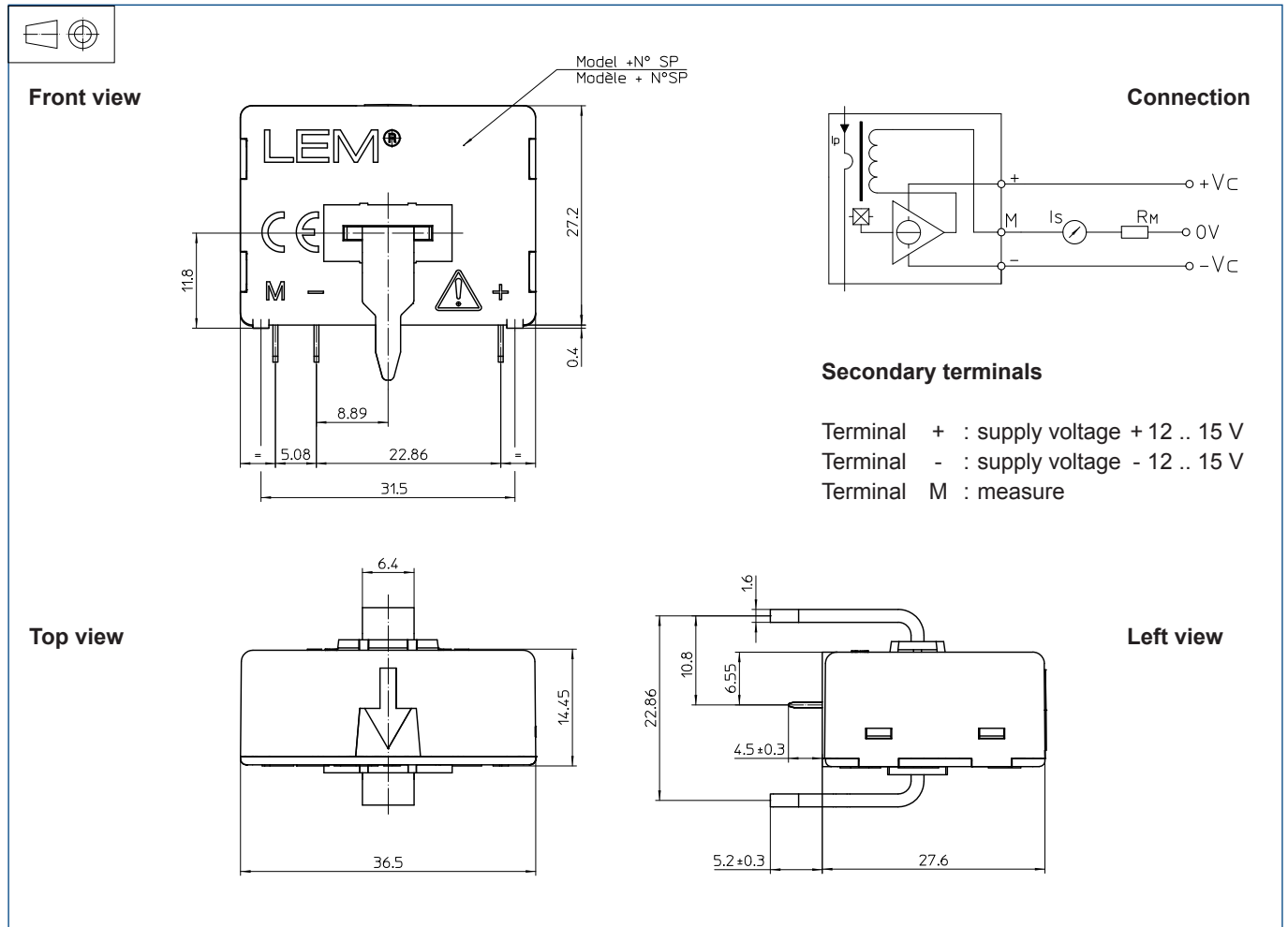
Ignoring this warning can lead to injury and/or cause serious damage.

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 LA 55-TP/SP27 (in mm. 1 mm = 0.0394 inch)



### Mechanical characteristics

- General tolerance  $\pm 0.2$  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 0.63 x 0.56 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.