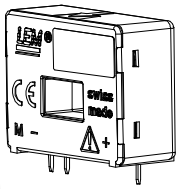
Current Transducer LA 100-P/SP15

I_{PN} = 100 A

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).



Electrical data

I_{PN}	Primary nominal r.m.s. current		100		A
I_P	Primary current, measuring range		0 .. ± 160		A
R_M	Measuring resistance		$R_{M\ min}$	$R_{M\ max}$	
	with ± 12 V	@ ± 100 A $_{max}$	10	65	Ω
		@ ± 160 A $_{max}$	10	30	Ω
	with ± 15 V	@ ± 100 A $_{max}$	40	95	Ω
		@ ± 160 A $_{max}$	40	50	Ω
I_{SN}	Secondary nominal r.m.s. current		100		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

Accuracy - Dynamic performance data

X	Accuracy @ I_{PN} , T_A = 25°C	@ ± 15 V (± 5 %)	± 0.45		%
		@ ± 12 .. 15 V (± 5 %)	± 0.70		%
ε_L	Linearity error		< 0.15		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.2	mA
I_{OM}	Residual current [1] @ I_P = 0, after an overload of 3 x I_{PN}			± 0.3	mA
I_{OT}	Thermal drift of I_O	- 25°C .. + 70°C	± 0.1	± 0.5	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

General data

T_A	Ambient operating temperature	- 25 .. + 70		°C
T_S	Ambient storage temperature	- 40 .. + 85		°C
R_S	Secondary coil resistance @ T_A = 70°C	25		Ω
m	Mass	21		g
	Standards	EN 50178 : 1997		

Notes : [1] The result of the coercive field of the magnetic circuit
[2] With a di/dt of 100 A/µs.

Features

- Closed loop (compensated) current transducer using the Hall effect
- Printed circuit board mounting
- The coating used meets UL 94-V0 requirements.

Special features

- I_P = 0 .. ± 160 A
- K_N = 1 : 1000
- T_A = - 25°C .. + 70°C
- Coating.

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.

Application Domain

- Industrial.

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Isolation characteristics

V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 mn	2.5	kV
$\hat{V}_w$	Impulse withstand voltage 1.2/50 µs	> 6	kV
V_e	R.m.s. voltage for partial discharge extinction @ 10 pC	> 2	kV
		Min	
dCp	Creepage distance [3]	3.8	mm
dCl	Clearance distance [4]	3.8	mm
CTI	Comparative Tracking Index (Group IIIa)	175	

Application examples

According to EN 50178 and CEI 61010-1 standards and following conditions :

- Over voltage category OV 3
- Pollution degree PD2
- Non-uniform field

	EN 50178	CEI 61010-1
dCp, dCl, $\hat{V}_w$	Rated isolation voltage	Nominal voltage
Single isolation	300 V	300 V
Reinforced isolation	150 V	150 V

Notes : [3] on housing
[4] on PCB with soldering pattern UTEC93-703.

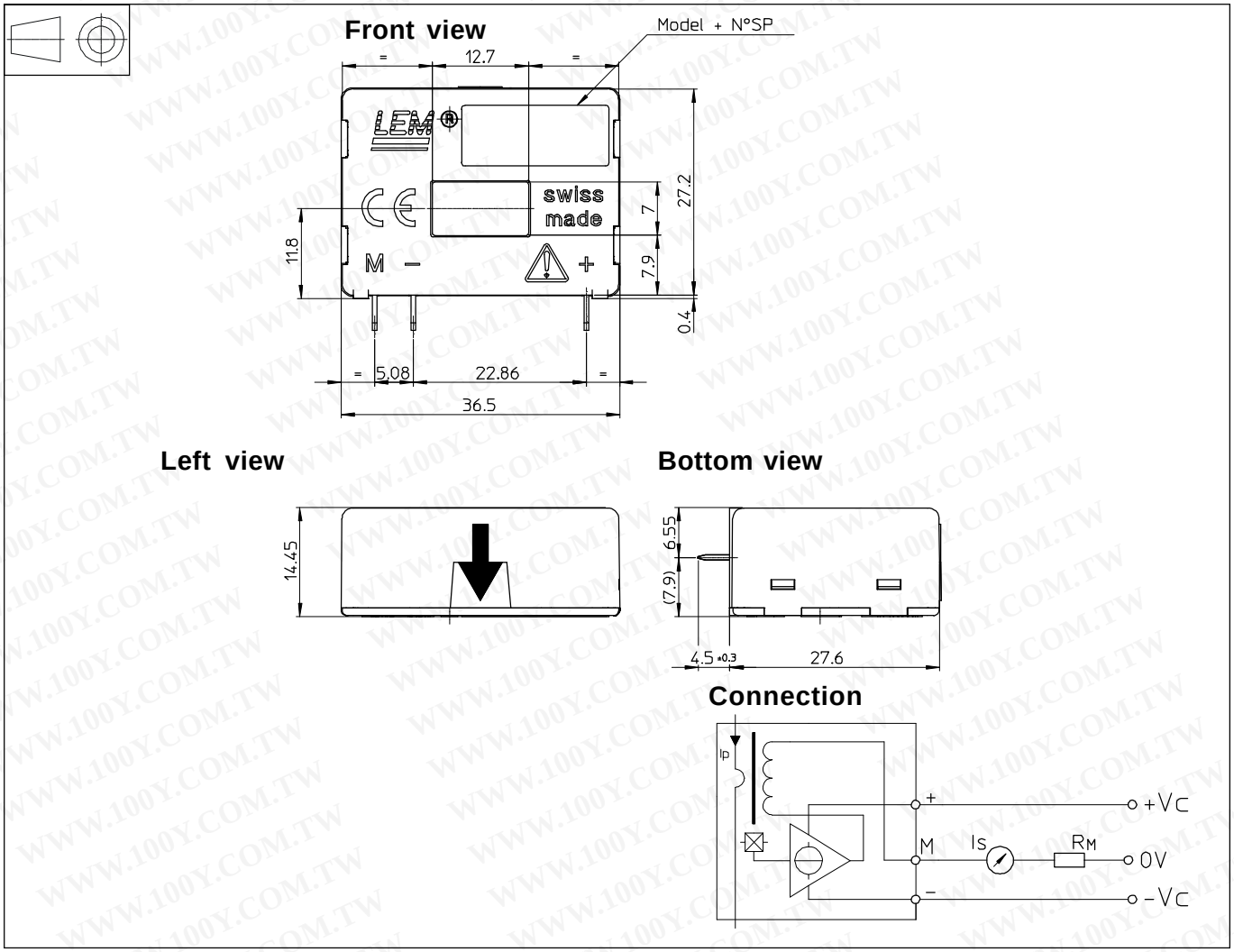
Safety

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.

Dimensions LA 100-P/SP15 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

• General tolerance	± 0.2 mm
• Primary through-hole	12.7 x 7 mm
• Fastening & connection of secondary	3 pins
	0.63 x 0.56 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.
- 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.
- Avoid contact with chemical agents such as alcohol or chlorinated solvents which may cause corrosive damage to the transducer housing.