

Current Transducer LA 50-S/SP1

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

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	50	A
I_P	Primary current, measuring range	0 .. ± 100	A
R_M	Measuring resistance with $\pm 15 \text{ V}$	$R_{M \min}$	$R_{M \max}$
		@ $\pm 50 \text{ A}_{\max}$	0 330 Ω
		@ $\pm 100 \text{ A}_{\max}$	0 100 Ω
I_{SN}	Secondary nominal r.m.s. current	25	mA
K_N	Conversion ratio	1 : 2000	
V_C	Supply voltage ($\pm 5 \%$)	± 15	V
I_C	Current consumption	$10 + I_S$	mA
V_d	R.m.s. voltage for AC isolation test, 50 Hz, 1 min	3	kV

Features

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

Special features

- $I_P = 0 .. \pm 100 \text{ A}$
- $K_N = 1 : 2000$

Accuracy - Dynamic performance data

X_G	Overall accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	± 0.5	%
e_L	Linearity	< 0.1	%
I_O	Offset current @ $I_P = 0, T_A = 25^\circ\text{C}$	Typ	Max
			± 0.1 mA
I_{OT}	Thermal drift of I_O - $10^\circ\text{C} .. + 70^\circ\text{C}$	± 0.2	± 0.4 mA
t_r	Response time ¹⁾ @ 90 % of I_{PN}	< 1	μs
di/dt	di/dt accurately followed	> 50	A/ μs
f	Frequency bandwidth (-1 dB)	DC .. 150	kHz

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.

General data

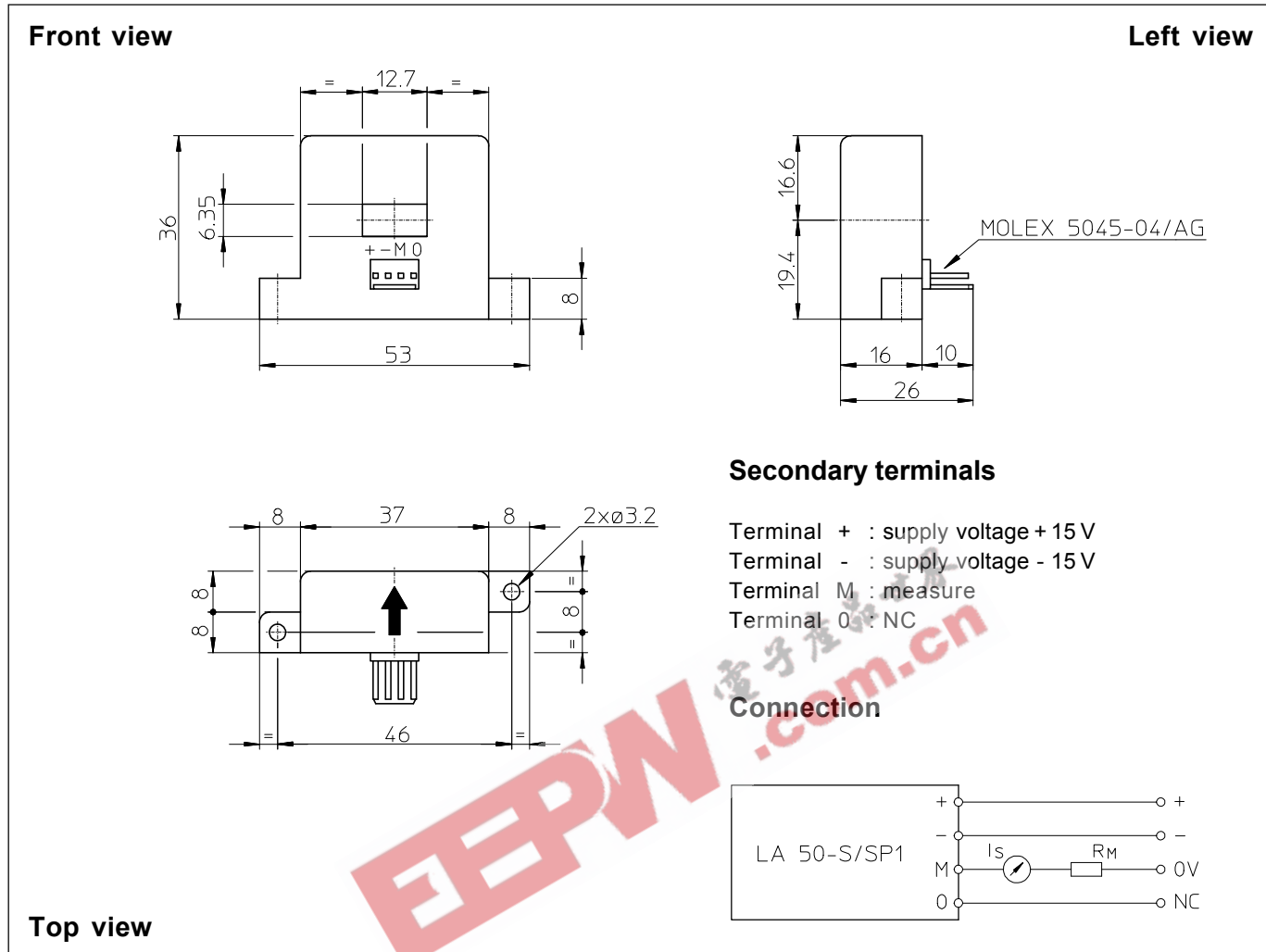
T_A	Ambient operating temperature	- 10 .. + 70	$^\circ\text{C}$
T_S	Ambient storage temperature	- 25 .. + 85	$^\circ\text{C}$
R_S	Secondary coil resistance @ $T_A = 70^\circ\text{C}$	130	Ω
m	Mass	45	g
	Standards ²⁾	EN 50178	

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.

Notes : ¹⁾ With a di/dt of 50 A/ μs
²⁾ A list of corresponding tests is available.

Dimensions LA 50-S/SP1 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- | | |
|---------------------------|------------------------------|
| • General tolerance | ± 0.2 mm |
| • Fastening | 2 holes $\varnothing 3.2$ mm |
| • Primary through-hole | 12.7 x 6.35 mm |
| • Connection of secondary | Molex 5045-04/AG |

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.
- To measure nominal currents of less than 50 A, the optimum accuracy is obtained by having several primary turns (nominal current x number of turns < 50 At).