

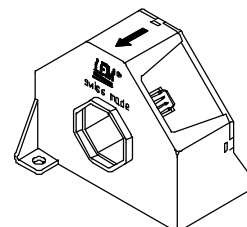
Current Transducer LA 305-S/SP1

$$I_{PN} = 500 \text{ A}$$

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).



16173



Electrical data

I_{PN}	Primary nominal r.m.s. current	500	A
I_P	Primary current, measuring range	0 .. ± 800	A
R_M	Measuring resistance @	$T_A = 70^\circ\text{C}$ $T_A = 85^\circ\text{C}$ $R_{M \min}$ $R_{M \max}$ $R_{M \min}$ $R_{M \max}$	
	with $\pm 12 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	0 15 0 14 Ω
		@ $\pm 750 \text{ A}_{\max}$	0 1 0 ¹⁾ 2 ¹⁾ Ω
	with $\pm 15 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	1.2 25 9 24 Ω
		@ $\pm 800 \text{ A}_{\max}$	1.2 6 9 ¹⁾ 9 ¹⁾ Ω
I_{SN}	Secondary nominal r.m.s. current	250	mA
K_N	Conversion ratio	1 : 2000	
V_C	Supply voltage ($\pm 5 \%$)	$\pm 12 \dots 15$	V
I_C	Current consumption	20 (@ $\pm 15 \text{ V}$) + I_S	mA
V_b	R.m.s. rated voltage ²⁾ , safe separation	1750	V
	basic isolation	3500	V

Accuracy - Dynamic performance data

X_G	Overall accuracy @ I_{PN} , $T_A = 25^\circ\text{C}$	± 0.8	%
e_L	Linearity error	< 0.1	%
I_O	Offset current @ $I_P = 0$, $T_A = 25^\circ\text{C}$	Typ	Max
I_{OM}	Residual current ³⁾ @ $I_P = 0$, after an overload of $3 \times I_{PN}$		± 0.25 mA
I_{OT}	Thermal drift of I_O - $10^\circ\text{C} \dots +85^\circ\text{C}$	± 0.15	± 0.30 mA
t_{ra}	Reaction time @ 10 % of I_{PN}	< 500	ns
t_r	Response time ⁴⁾ @ 90 % of I_{PN}	< 1	μs
di/dt	di/dt accurately followed	> 100	A/ μs
f	Frequency bandwidth (- 3 dB)	DC .. 100	kHz

General data

T_A	Ambient operating temperature	- 10 .. + 85	$^\circ\text{C}$
T_S	Ambient storage temperature	- 40 .. + 90	$^\circ\text{C}$
R_S	Secondary coil resistance @	$T_A = 70^\circ\text{C}$ 27 Ω	
		$T_A = 85^\circ\text{C}$ 28 Ω	
m	Mass	230	g
	Standards ⁵⁾	EN 50178 : 1997	

Notes : ¹⁾ Measuring range limited to $\pm 710 \text{ A}_{\max}$

²⁾ Pollution class 2. With a non insulated primary bar which fills the through-hole

³⁾ The result of the coercive field of the magnetic circuit

⁴⁾ With a di/dt of 100 A/ μs

⁵⁾ A list of corresponding tests is available.

Features

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

Special features

- $I_{PN} = 500 \text{ A}$
- $I_P = 0 \dots \pm 800 \text{ A}$
- $K_N = 1 : 2000$
- Partly potted.

Advantages

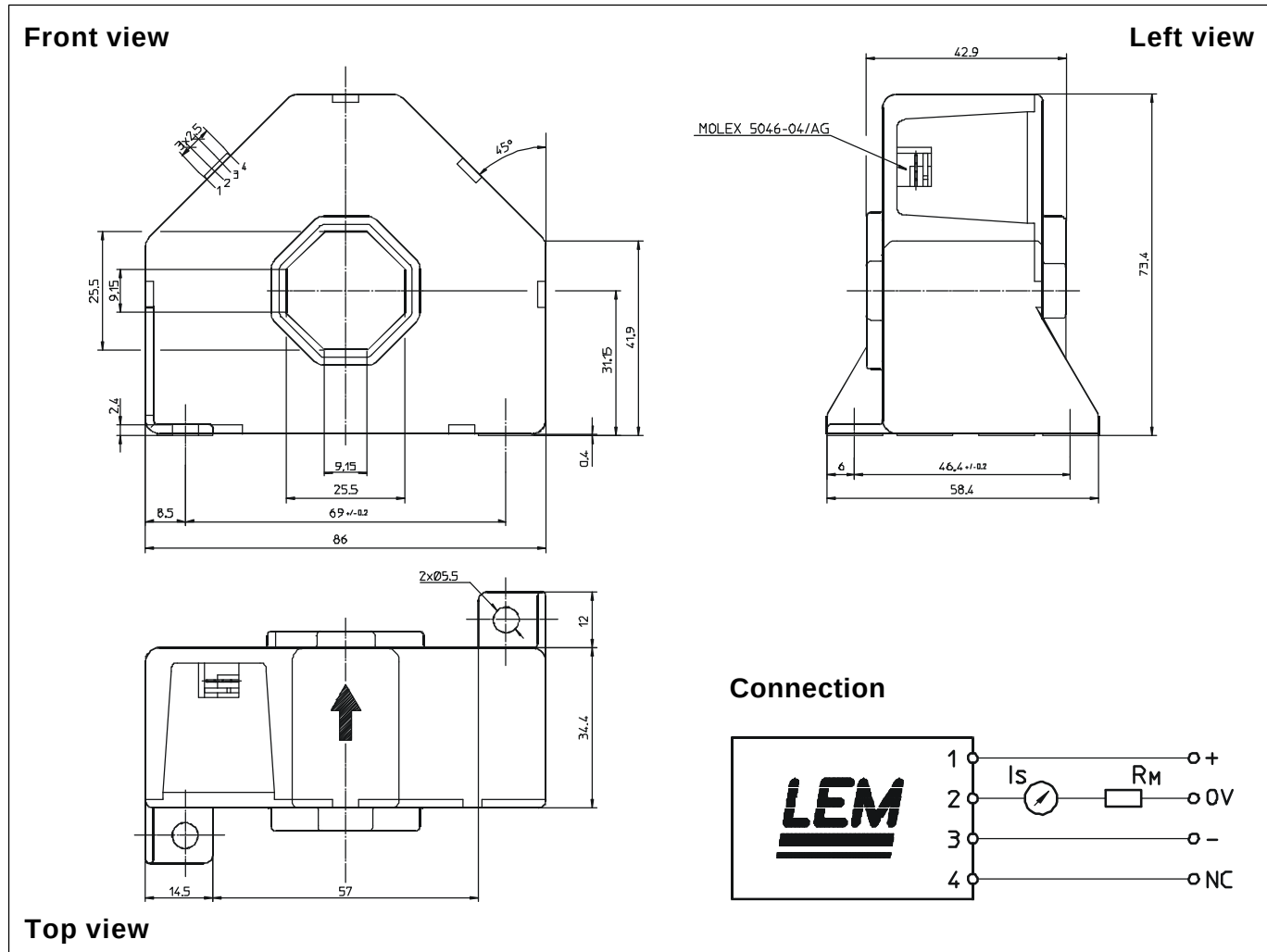
- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

Applications

- 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.

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Dimensions LA 305-S/SP1 (in mm. 1 mm = 0.0394 inch)



Mechanical characteristics

- General tolerance ± 0.5 mm
- Transducer fastening 2 holes $\varnothing 5.5$ mm
2M5 steel screws
Fastening torque, max. 4 Nm or 2.95 Lb. - Ft.
- Primary through-hole 25.5 x 25.5 mm
- Connection of secondary Molex 5046-04/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.