Current Transducer LA 305-S/SP1

I_{PN} = 500 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).

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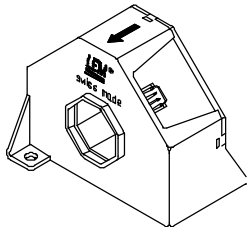


Electrical data

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°C		T_A = 85°C		
			$R_{M\ min}$	$R_{M\ max}$	$R_{M\ min}$	$R_{M\ max}$	
	with ± 12 V	@ ± 500 A_{max}	0	15	0	14	Ω
		@ ± 750 A_{max}	0	1	0 [1]	2 [1]	Ω
	with ± 15 V	@ ± 500 A_{max}	1.2	25	9	24	Ω
		@ ± 800 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 (± 5 %)				± 12 .. 15		V
I_C	Current consumption				20 (@ ± 15 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°C		± 0.8		%
ε_L	Linearity error		< 0.1		%
			Typ	Max	
I_O	Offset current @ I_P = 0, T_A = 25°C			± 0.25	mA
I_{OM}	Residual current [3] @ I_P = 0, after an overload of 3 x I_{PN}			± 0.50	mA
I_{OT}	Thermal drift of I_O	- 10°C .. + 85°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	°C
T_S	Ambient storage temperature		- 40 .. + 90	°C
R_S	Secondary coil resistance @	T_A = 70°C	27	Ω
		T_A = 85°C	28	Ω
m	Mass		230	g
	Standards [5]		EN 50178 : 1997	

Notes : [1] Measuring range limited to ± 710 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 A
- I_P = 0 .. ± 800 A
- K_N = 1 : 2000
- Partly potted.

Advantages

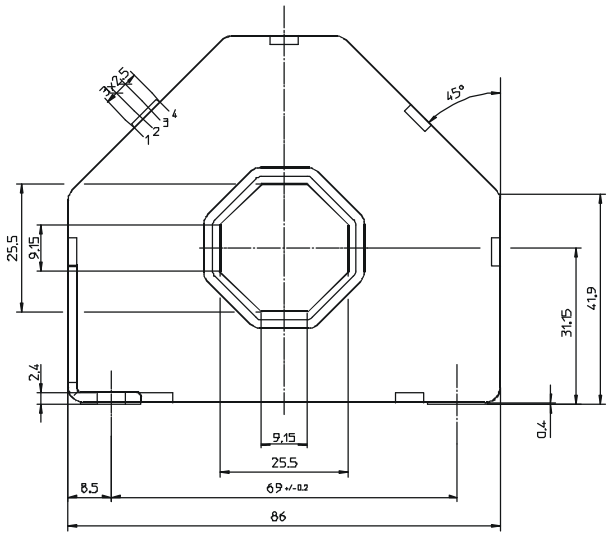
- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

Applications

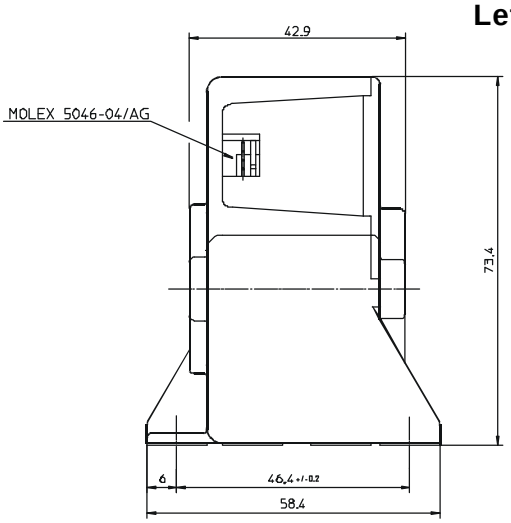
- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

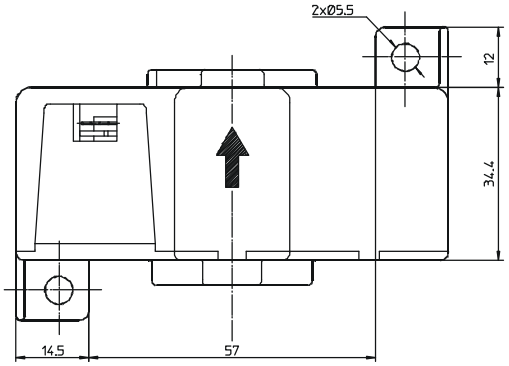
Dimensions LA 305-S/SP1 (in mm. 1 mm = 0.0394 inch)

Front view



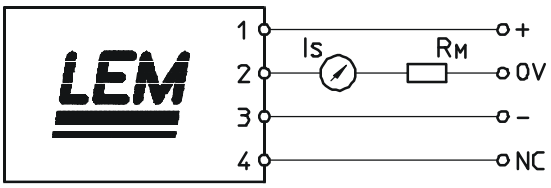
Left view





Top view

Connection



Mechanical characteristics

• General tolerance	± 0.5 mm
• Transducer fastening	2 holes ∅ 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

- $\mathbf{I}_S$ is positive when $\mathbf{I}_P$ 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.

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