

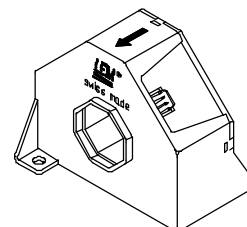
# Current Transducer LA 305-S/SP1

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

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 .. $\pm 800$	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	$\Omega$
			@ $\pm 750 \text{ A}_{\max}$	0	1	0 <sup>1)</sup>	2 <sup>1)</sup>	$\Omega$
		with $\pm 15 \text{ V}$	@ $\pm 500 \text{ A}_{\max}$	1.2	25	9	24	$\Omega$
	@ $\pm 800 \text{ A}_{\max}$	1.2	6	9 <sup>1)</sup>	9 <sup>1)</sup>	$\Omega$		
$I_{SN}$	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 <sup>2)</sup> , safe separation	1750	V					
		basic isolation	3500	V				

## 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.

## Accuracy - Dynamic performance data

$X_G$	Overall accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.8$	%
$e_L$	Linearity error	$< 0.1$	%
$I_O$	Offset current @ $I_P = 0$ , $T_A = 25^\circ\text{C}$	Typ	Max
			$\pm 0.25$ mA
$I_{OM}$	Residual current <sup>3)</sup> @ $I_P = 0$ , after an overload of $3 \times I_{PN}$		$\pm 0.50$ mA
$I_{OT}$	Thermal drift of $I_O$ - $10^\circ\text{C} \dots + 85^\circ\text{C}$	$\pm 0.15$	$\pm 0.30$ mA
$t_{ra}$	Reaction time @ 10 % of $I_{PN}$	$< 500$	ns
$t_r$	Response time <sup>4)</sup> @ 90 % of $I_{PN}$	$< 1$	$\mu\text{s}$
$di/dt$	di/dt accurately followed	$> 100$	A/ $\mu\text{s}$
$f$	Frequency bandwidth (- 3 dB)	DC .. 100	kHz

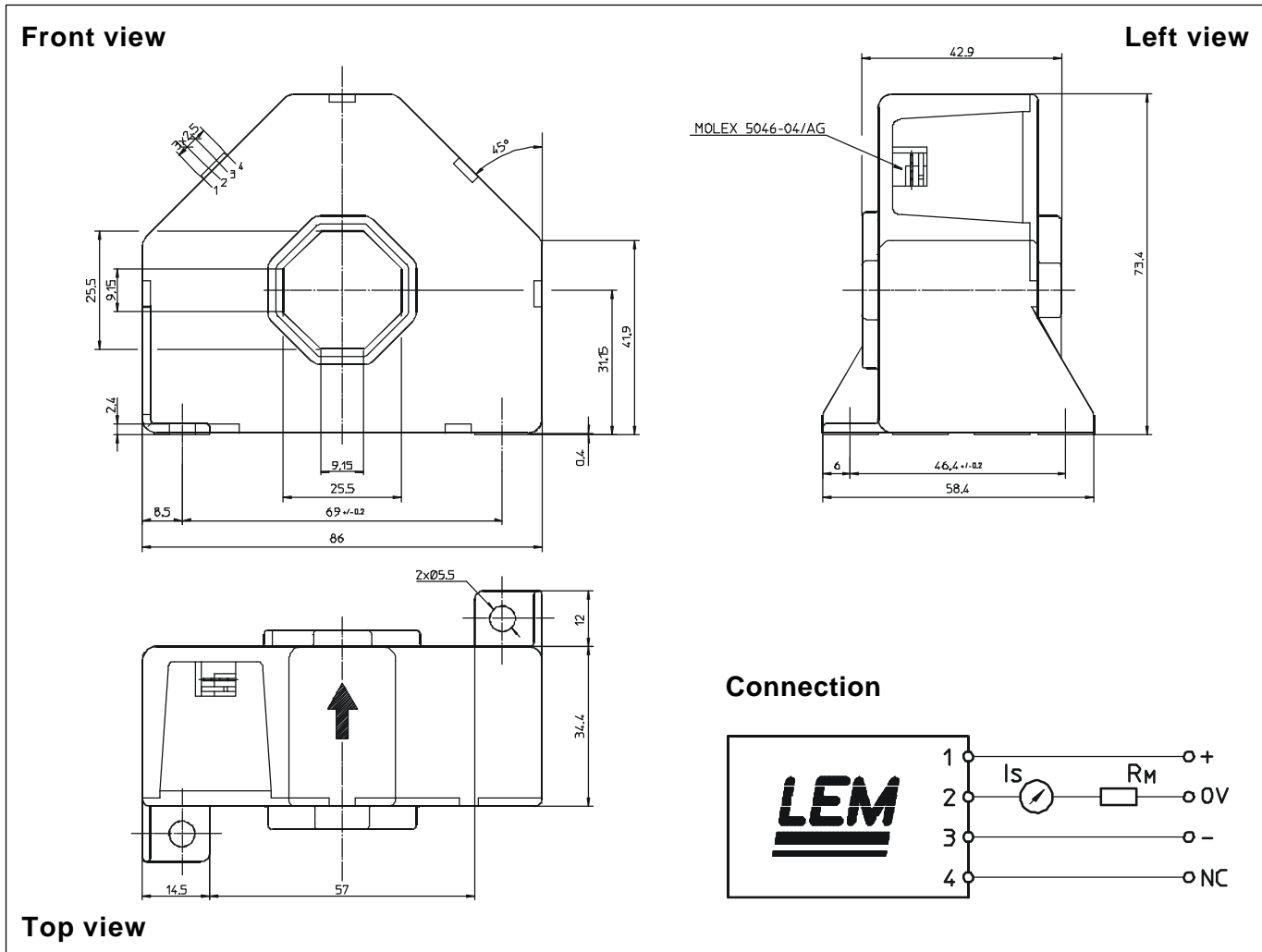
## General data

$T_A$	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 $\Omega$
		$T_A = 85^\circ\text{C}$	28 $\Omega$
$m$	Mass Standards <sup>5)</sup>		230 g
			EN 50178 : 1997

- Notes :**
- <sup>1)</sup> Measuring range limited to  $\pm 710 \text{ A}_{\max}$
  - <sup>2)</sup> Pollution class 2. With a non insulated primary bar which fills the through-hole
  - <sup>3)</sup> The result of the coercive field of the magnetic circuit
  - <sup>4)</sup> With a di/dt of 100 A/ $\mu\text{s}$
  - <sup>5)</sup> A list of corresponding tests is available.

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



### Mechanical characteristics

- General tolerance  $\pm 0.5$  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.