

## Current Transducer LA 50-S

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

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).



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### Electrical data

$I_{PN}$	Primary nominal r.m.s. current	50	A
$I_P$	Primary current, measuring range	0 .. $\pm 70$	A
$R_M$	Measuring resistance	$R_{M \min}$ $R_{M \max}$	
	with $\pm 15 \text{ V}$	@ $\pm 50 \text{ A}_{\max}$	50 100 $\Omega$
		@ $\pm 70 \text{ A}_{\max}$	50 70 $\Omega$
$I_{SN}$	Secondary nominal r.m.s. current	50	mA
$K_N$	Conversion ratio	1 : 1000	
$V_C$	Supply voltage ( $\pm 5 \%$ )	$\pm 15$	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

### Accuracy - Dynamic performance data

$X_G$	Overall accuracy @ $I_{PN}$ , $T_A = 25^\circ\text{C}$	$\pm 0.5$	%
$e_L$	Linearity error	$< 0.1$	%
$I_O$	Offset current @ $I_P = 0$ , $T_A = 25^\circ\text{C}$	Typ	Max
$I_{OT}$	Thermal drift of $I_O$ - $10^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 0.3$	$\pm 0.6$ mA
$t_r$	Response time <sup>1)</sup> @ 90 % of $I_{PN}$	$< 1$	$\mu\text{s}$
$di/dt$	di/dt accurately followed	$> 50$	A/ $\mu\text{s}$
$f$	Frequency bandwidth (- 1 dB)	DC .. 150	kHz

### 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 @ $T_A = 70^\circ\text{C}$	90	$\Omega$
$m$	Mass	45	g
	Standards	EN 50178 : 1997	

### Features

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

### 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.

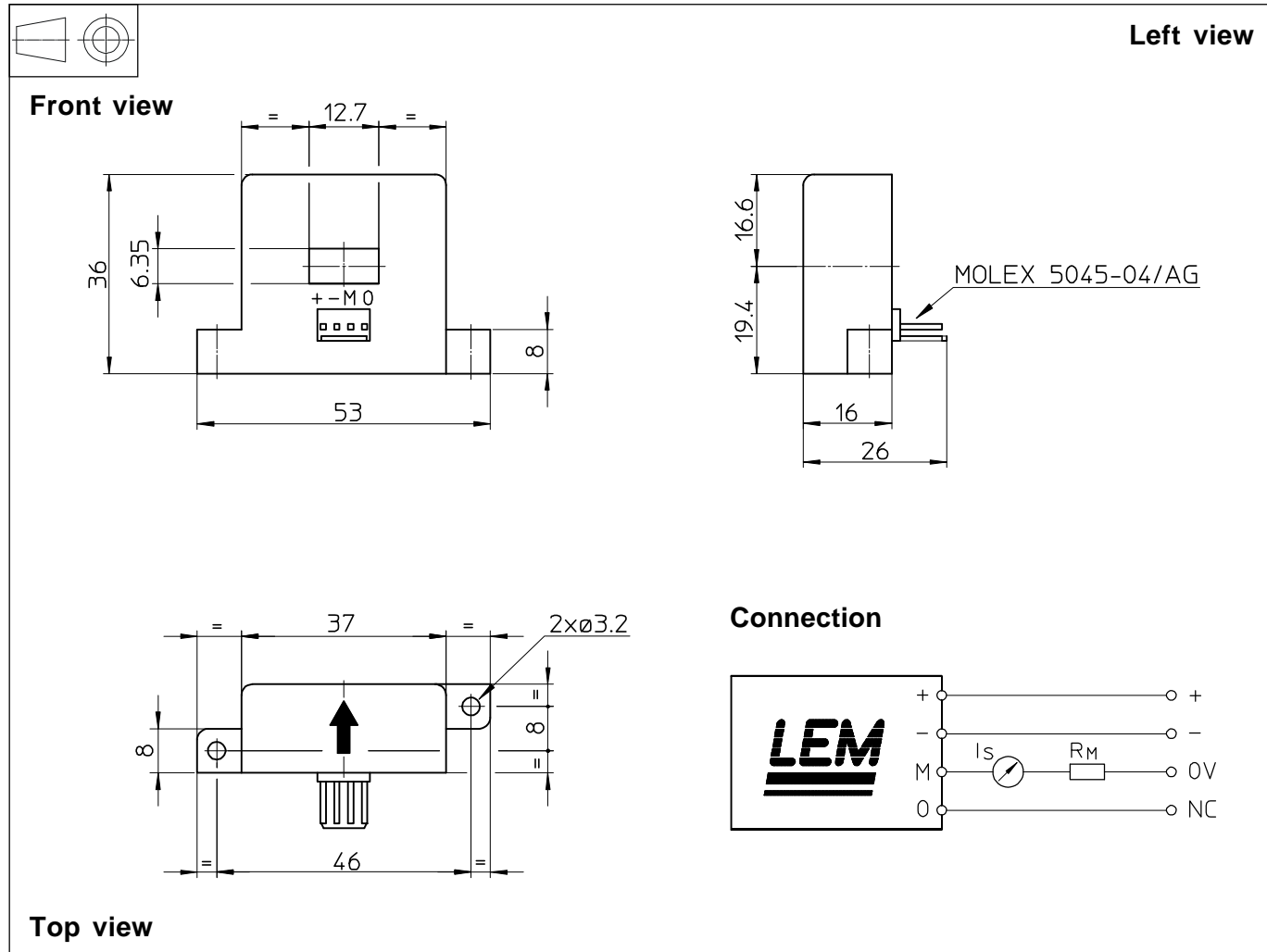
### Applications

- 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.

Note: <sup>1)</sup> With a di/dt of 50 A/ $\mu\text{s}$ .

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



### Mechanical characteristics

- General tolerance  $\pm 0.2$  mm
- Transducer fastening 2 holes  $\varnothing 3.2$  mm  
2 M3 steel screws  
Recommended fastening torque 1.1 Nm or 0.81 Lb.-Ft.
- 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).