

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 .. ± 70 | A |
| R_M | Measuring resistance with $\pm 15 \text{ V}$ | R_{Mmin} R_{Mmax} | |
| | | @ $\pm 50 \text{ A}_{max}$ | 50 100 Ω |
| | | @ $\pm 70 \text{ A}_{max}$ | 50 70 Ω |
| I_{SN} | Secondary nominal r.m.s. current | 50 | mA |
| K_N | Conversion ratio | 1 : 1000 | |
| 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.

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.

Accuracy - Dynamic performance data

| | | | |
|----------|--|-----------|------------------|
| X_G | Overall accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$ | ± 0.5 | % |
| e_L | Linearity error | < 0.1 | % |
| I_O | Offset current @ $I_P = 0, T_A = 25^\circ\text{C}$ | Typ | ± 0.2 mA |
| | | Max | ± 0.6 mA |
| I_{OT} | Thermal drift of I_O - $10^\circ\text{C} \dots + 70^\circ\text{C}$ | ± 0.3 | 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 |

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.

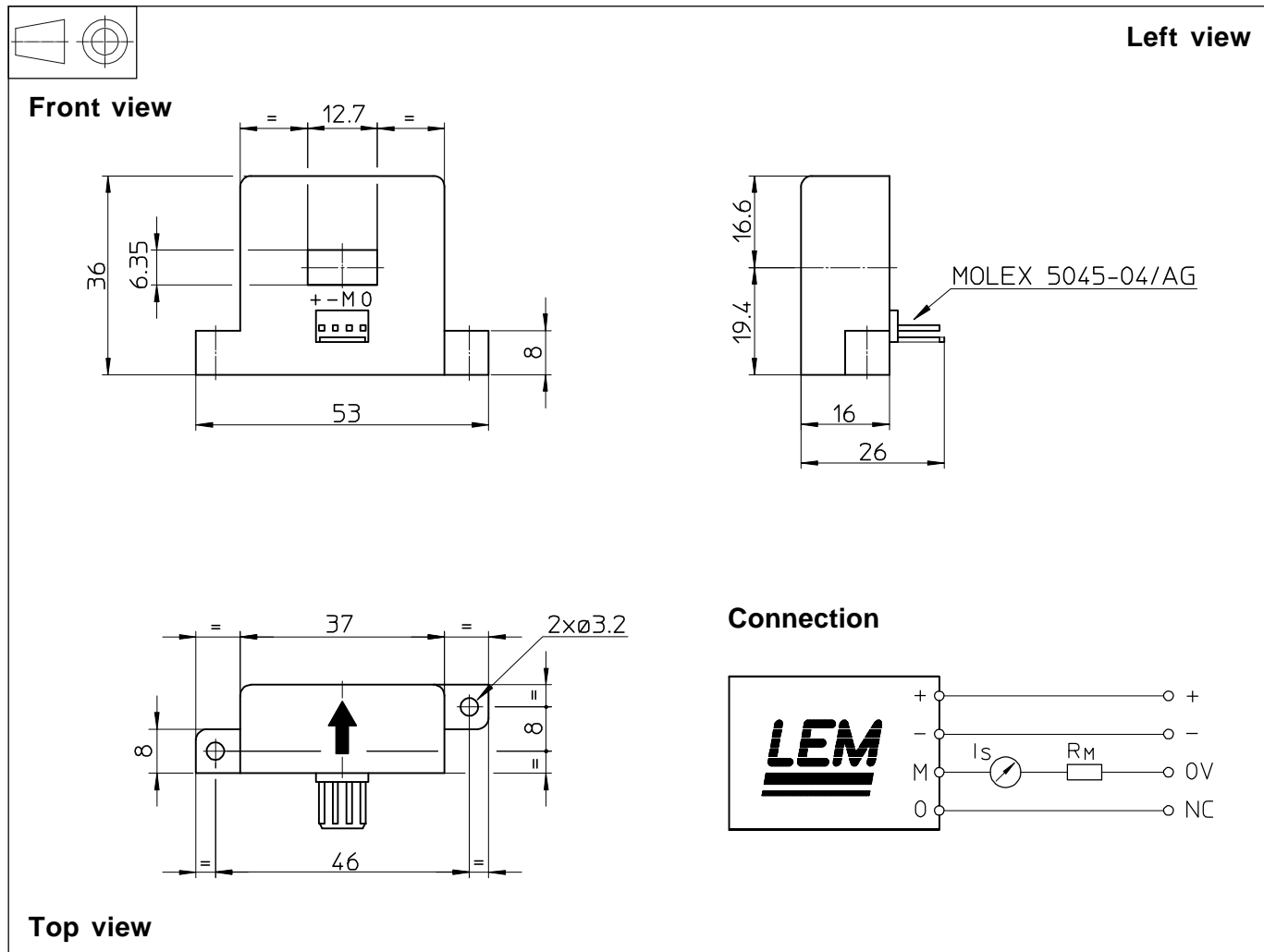
General data

| | | | |
|-------|--|-----------------|------------------|
| 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 | Ω |
| m | Mass | 45 | g |
| | Standards | EN 50178 : 1997 | |

Note: ¹⁾ With a di/dt of 50 A/ μs .

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



Mechanical characteristics

- General tolerance ± 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).