

Current Transducer LAS 100-TP/SP1

$I_{PN} = 100 \text{ A}$

For the electronic measurement of currents : DC, AC, pulsed, mixed, with a galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).



Electrical data

| | | | |
|-------------|---|--|----|
| I_{PN} | Primary nominal r.m.s. current | 100 | A |
| I_P | Primary current, measuring range at frequency > 1 kHz | 0 .. ± 200 | A |
| V_{OUT} | Analog output voltage @ | $V_{REF} \pm (0.625 \cdot I_P / I_{PN})$ | V |
| | | $V_{REF} \pm 0.025$ | V |
| V_{REF} | Reference voltage - input | 2.5 ± 0.2 | V |
| | V_{REF} Load impedance | ≥ 1 | MΩ |
| R_L | Output load resistance | ≥ 2 | kΩ |
| R_{OUT} | Output impedance | < 20 | Ω |
| C_L | Max. output capacitive load | 1 | nF |
| V_C | Supply voltage (± 5 %) | 5 | V |
| I_C | Current consumption @ $V_C = 5 \text{ V}$ | typ 17 | mA |
| V_d | R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn | 5 | kV |
| \hat{V}_e | R.m.s. voltage for partial discharge extinction @ 10 pC | 2 | kV |
| V_w | Impulse withstand voltage 1.2/50 μs | 8 | kV |

Features

- Current transducer using Eta-technology
- Unipolar voltage supply
- Insulated plastic case recognized according to UL 94-V0
- Compact design for PCB mounting
- Extended measuring range.

Special feature

- Ref IN input = external reference.

Advantages

- Excellent accuracy
- Very good linearity
- Very 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 | Accuracy ¹⁾ @ I_{PN} , $T_A = 25^\circ\text{C}$ | ± 0.5 | % |
| e_L | Linearity 0 .. I_{PN} ²⁾ | < 0.9 | % |
| TCV_{OUT}/V_{REF} | Thermal drift of V_{OUT}/V_{REF} @ $I_P = 0$ | - 40°C .. + 85°C | Typ 50 Max 80 ppm/K |
| TCE_G | Thermal drift of the gain | - 40°C .. + 85°C | 300 500 ppm/K |
| V_{OM} | Residual voltage @ $I_P = 0$, after an overload of 2 x I_{PNDC} | ± 6 | mV |
| t_{ra} | Reaction time @ 10 % of I_{PN} | < 200 | ns |
| t_r | Response time @ 90 % of I_{PN} | < 500 | ns |
| di/dt | di/dt accurately followed | > 100 | A/μs |
| | Output noise without external filter | < 10 | mVpp |
| f | Frequency bandwidth (- 1 dB) | DC .. 100 | kHz |

General data

| | | | |
|-------|-------------------------------|---------------|----|
| T_A | Ambient operating temperature | - 40 .. + 85 | °C |
| T_S | Ambient storage temperature | - 40 .. + 100 | °C |
| m | Mass | 20 | g |
| | Insulating material group | I | |
| | Standards | EN 50178 | |

All Data are given with a $R_L = 10 \text{ k}\Omega$.

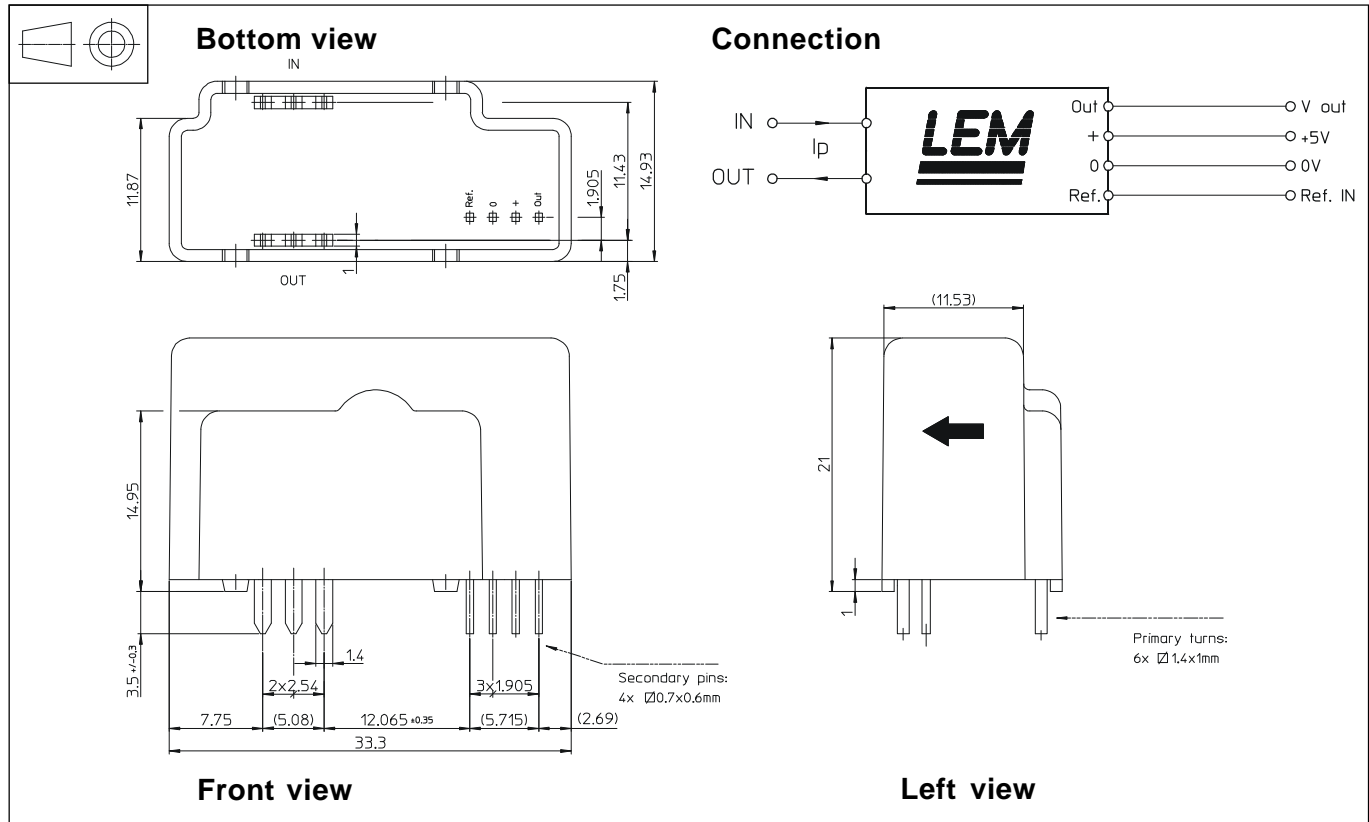
Notes : ¹⁾ Excluding electrical, magnetic offsets and linearity

²⁾ Including magnetic offset.

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Dimensions LAS 100-TP/SP1 (in mm. 1 mm = 0.0394 inch)



| Number of primary turns | Primary current | | Nominal output voltage V_{OUT} [V] | Primary resistance R_P [m Ω] | Primary insertion inductance L_P [μ H] |
|-------------------------|-------------------------|----------------------|---|---|--|
| | Nominal I_{PN} [A] | Maximal I_P [A] | | | |
| 1 | 100 | 200 (300) | $V_{REF} \pm 0.625$ | 0.12 | 0.008 |

Mechanical characteristics

- General tolerance ± 0.2 mm
- Fastening & connection of primary
Recommended PCB hole 2 mm
- Fastening & connection of secondary
Recommended PCB hole 1.2 mm

Remarks

- V_{OUT} is positive when I_P flows from terminals "IN" to terminals "OUT".
- Temperature of the primary conductor should not exceed 100°C.

Output Voltage - Primary Current

($V_{REF} = 2.5$ V in this example)

