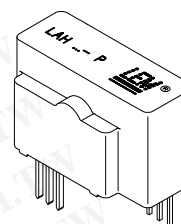


Current Transducer LAH 50-P

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

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).



Electrical data

| | | | | | | | |
|----------|---|------------------------------------|------------------------------------|--------------------------|------------|------------|-----|
| I_{PN} | Primary nominal r.m.s. current | 50 | A | | | | |
| I_P | Primary current, measuring range ¹⁾ | 0 .. 110 | A | | | | |
| R_M | Measuring resistance @ | $T_A = 70^\circ\text{C}$ | | $T_A = 85^\circ\text{C}$ | | | |
| | | | R_{Mmin} | R_{Mmax} | R_{Mmin} | R_{Mmax} | |
| | | with $\pm 12 \text{ V}$ | @ $I_{PN} [\pm A_{DC}]$ | 0 | 221 | 0 | 214 |
| | | | @ $I_{PN} [A_{RMS}]$ ²⁾ | 0 | 115 | 0 | 108 |
| | with $\pm 15 \text{ V}$ | @ $I_{PN} [\pm A_{DC}]$ | 0 | 335 | 0 | 327 | |
| | | @ $I_{PN} [A_{RMS}]$ ²⁾ | 0 | 195 | 0 | 188 | |
| I_{SN} | Secondary nominal r.m.s. current | 25 | mA | | | | |
| K_N | Conversion ratio | 1 : 2000 | | | | | |
| V_C | Supply voltage ($\pm 5 \%$) | $\pm 12 \dots 15$ | V | | | | |
| I_C | Current consumption | 10 (@ $\pm 15\text{V}$) + I_s | mA | | | | |
| V_d | R.m.s. voltage for AC isolation test, 50/60 Hz, 1 mn | 5 | kV | | | | |
| V_e | R.m.s. voltage for partial discharge extinction @ 10 pC | > 2 | kV | | | | |
| V_w | Impulse withstand voltage 1.2/50 μs | > 12 | kV | | | | |

Features

- Closed loop (compensated) current transducer using the Hall effect
- Printed circuit board mounting
- 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 | Accuracy ³⁾ @ I_{PN} , $T_A = 25^\circ\text{C}$ | ± 0.25 | % |
| e_L | Linearity | < 0.15 | % |
| I_O | Offset current @ $T_A = 25^\circ\text{C}$ | Typ | ± 0.15 mA |
| | | Max | ± 0.15 mA |
| I_{OM} | Residual current @ $I_P = 0$, after an overload of $5 \times I_{PN}$ | ± 0.10 | ± 0.15 mA |
| I_{OT} | Thermal drift of I_O | 0°C .. + 70°C | ± 0.10 ± 0.30 mA |
| | | - 25°C .. + 85°C | ± 0.10 ± 0.40 mA |
| t_{ra} | Reaction time @ 10 % of I_{PN} | < 200 | ns |
| t_r | Response time ⁴⁾ @ 90 % of I_{PN} | < 500 | ns |
| di/dt | di/dt accurately followed | > 200 | A/ μs |
| f | Frequency bandwidth (- 1 dB) | DC .. 200 | 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 | - 25 .. + 85 | $^\circ\text{C}$ |
| T_S | Ambient storage temperature | - 40 .. + 90 | $^\circ\text{C}$ |
| R_S | Secondary coil resistance | @ $T_A = 70^\circ\text{C}$ | 135 Ω |
| | | @ $T_A = 85^\circ\text{C}$ | 142 Ω |
| | Insulating material group | I | |
| m | Mass Standards ⁵⁾ | 22 | g |
| | | EN 50178 | |

Notes : ¹⁾ For 10 s, with $R_M \leq 71 \Omega$ ($V_C = \pm 15 \text{ V}$)

²⁾ 50 Hz Sinusoidal

³⁾ Without I_O & I_{OM}

⁴⁾ With a di/dt of 100 A/ μs

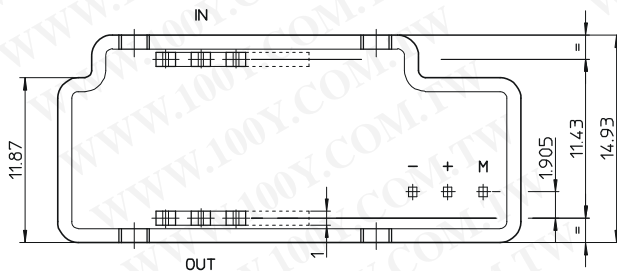
⁵⁾ A list of corresponding tests is available.

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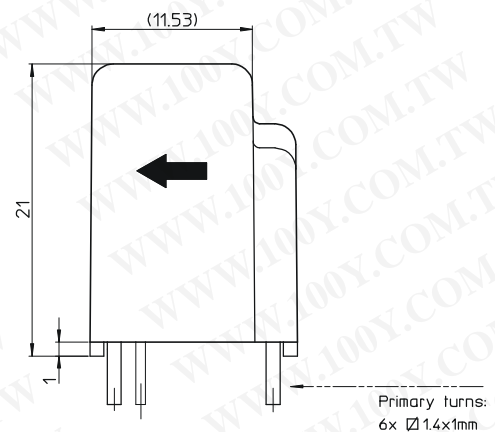
Dimensions LAH 50-P (in mm. 1 mm = 0.0394 inch)

Bottom view

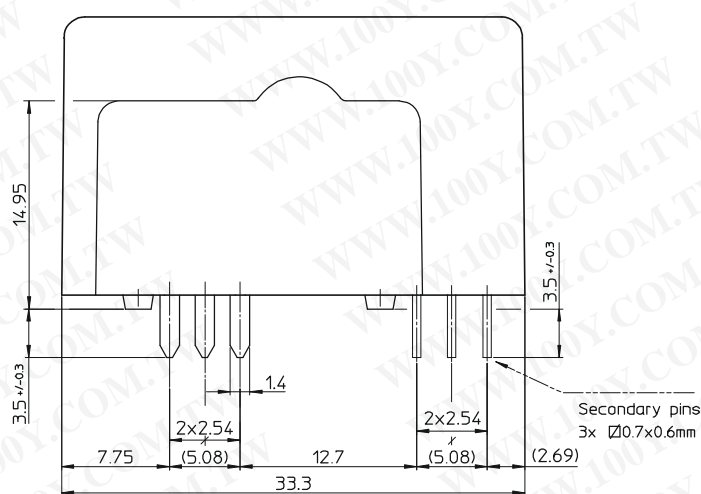


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Left view



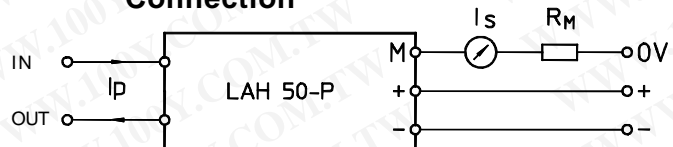
Front view



Secondary terminals

- Terminal M: measure
- Terminal +: supply voltage + 15 V
- Terminal -: supply voltage - 15 V

Connection



| Number of primary turns | Primary current | | Nominal output current I_{SN} [mA] | Turns ratio K_N | Primary resistance R_p [mΩ] | Primary insertion inductance L_p [μH] |
|-------------------------|----------------------|-------------------|--------------------------------------|-------------------|-------------------------------|---|
| | nominal I_{PN} [A] | maximum I_p [A] | | | | |
| 1 | 50 | 110 | 25 | 1 : 2000 | 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

- I_s is positive when I_p flows from terminals "IN" to terminals "OUT".
- This is a standard model. For different versions (supply voltages, turns ratios, unidirectional measurements...), please contact us.