

Closed Loop Hall Effect Current Sensor CYHCS-LAS

This Hall Effect current sensor is based on closed loop compensating principle and can be used for measurement of DC and AC current, pulse currents etc. The output of the transducer reflects the real wave of the current carrying conductor.

| Product Characteristics | Applications |
|---|---|
| <ul style="list-style-type: none"> • Excellent accuracy • Very good linearity • Small size and encapsulated • Less power consumption • Current overload capability | <ul style="list-style-type: none"> • Photovoltaic equipment • General Purpose Inverters • AC/DC Variable Speed Drivers • Battery Supplied Applications • Uninterruptible Power Supplies (UPS) • Switched Mode Power Supplies |

ELECTRICAL DATA

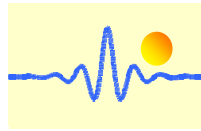
| Part number | CYHCS-LAS50A | CYHCS-LAS100A |
|------------------------------------|--------------------------------|--------------------------------|
| Nominal input current (I_{PN}) | 50A | 100A |
| Measuring range (I_P) | 0~ ±160A | 0~±300A |
| Secondary coil resistance | $T_a=70^{\circ}\text{C}$, 28Ω | $T_a=70^{\circ}\text{C}$, 15Ω |
| Internal sampling resistor | 3.75Ω±0.1% 10ppm/°C | 1.875Ω±0.1% 10PPM/°C |
| Turns ratio 1:N | 1:1200 | 1:1200 |
| Nominal output voltage | 2.5VDC±0.625±0.5% | 2.5VDC±0.625±0.5% |
| Supply voltage | +5VDC ± 5% | |
| Current consumption | ≤20mA + I_P/N | |
| Reference voltage VR | +2.5VDC±0.4% | |
| Galvanic isolation | 50Hz, 1min, 5kV | |

ACCURACY DYNAMIC PERFORMANCE

| | |
|--|--|
| Zero offset voltage $T_a=25^{\circ}\text{C}$, $I_P \rightarrow 0$ | +2.5VDC±0.4% |
| Thermal drift of offset voltage | $I_P=0$, $T_a=-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$, ±0.5mV/°C |
| Response time | (@100A/μs, 10% -90%) <0.5μs |
| Accuracy at +25°C | ± 0.5% FS |
| Linearity | ≤0.1% FS |
| Bandwidth(-3dB) | DC...100kHz |
| di/dt | >100A/μs |

GENERAL DATA

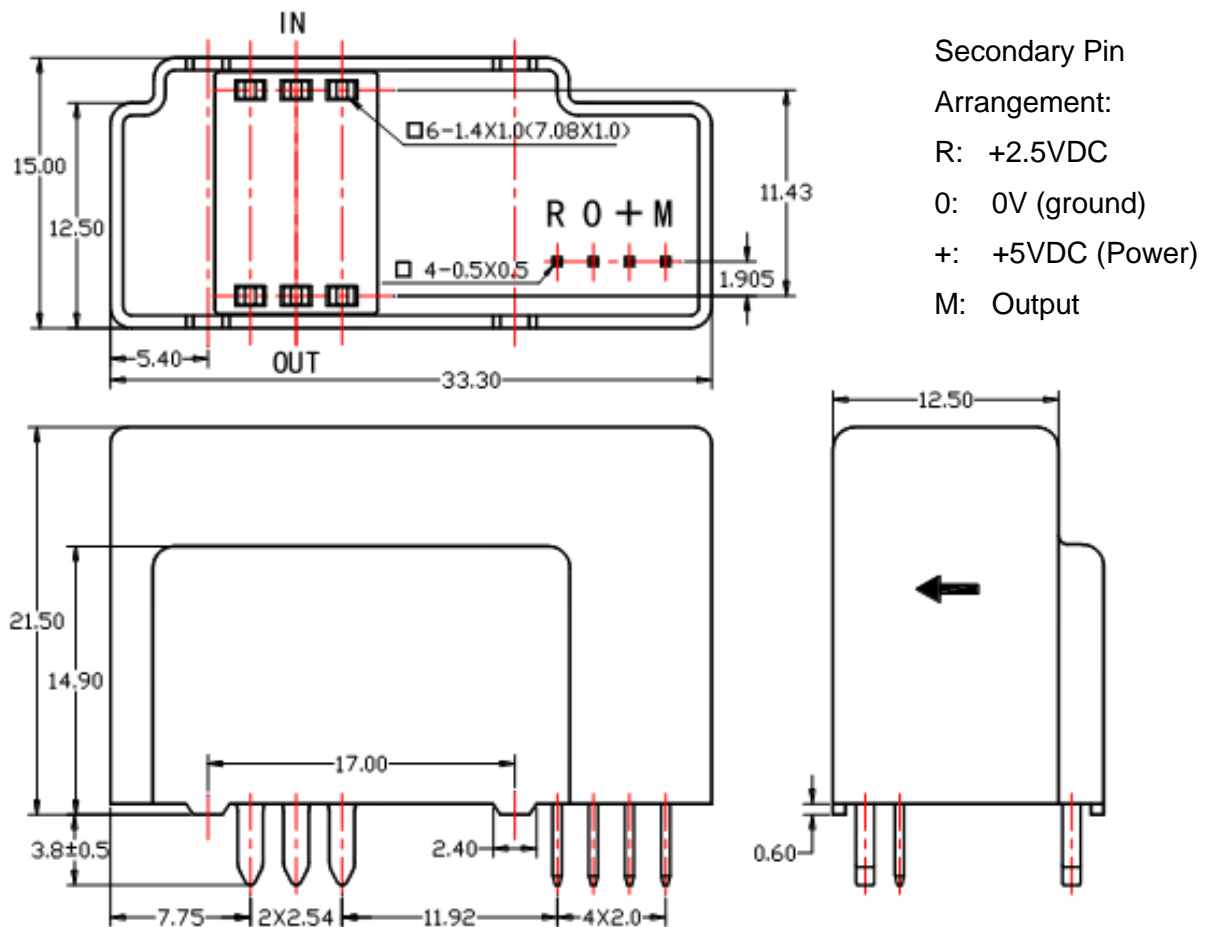
| | |
|-----------------------|----------------|
| Operating temperature | -40°C ~ +85°C |
| Storage temperature | -40°C ~ +125°C |
| Unit weight (net) | 15g |



STANDARDS

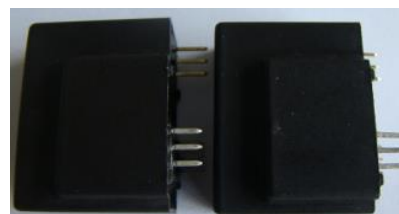
- UL94-V0.
- EN60947-1:2004
- IEC60950-1:2001 Test Voltage: 1000V
- EN50178:1998 Test Voltage: 1000V
- SJ 20790-2000

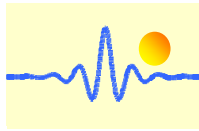
DIMENSIONS (mm)



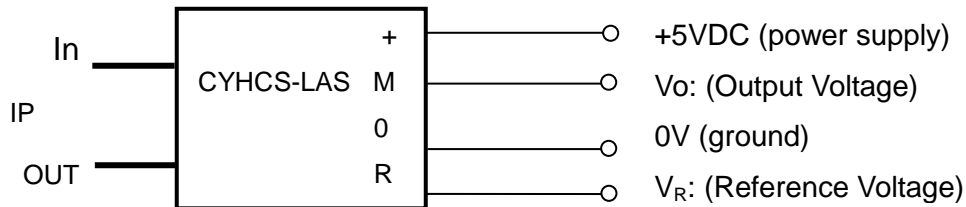
Remarks:

1. All dimensions are in mm.
2. General tolerance $\pm 1\text{mm}$





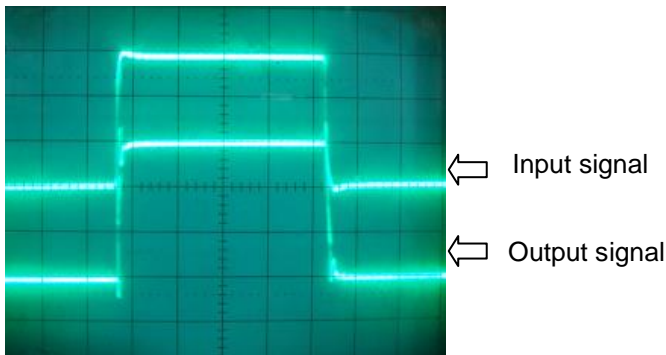
SENSOR CONNECTION



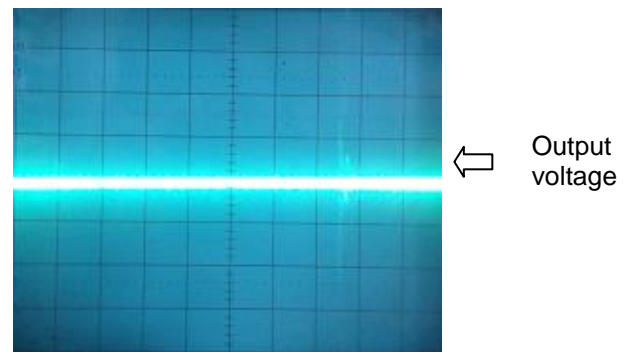
Pin connections

| Turns | Rated input current (A) | Measure range (A) | Rated output voltage (V) | Secondary turns | Primary resistance (mΩ) | Primary inductance (uH) |
|-------|-------------------------|-------------------|--------------------------|-----------------|-------------------------|-------------------------|
| 1 | 50(100) | 160(300) | 0.625 | 1200 | 0.08 | 0.007 |

Pulse current signal response characteristic



Effects of impulse noise



OPERATION INSTRUCTIONS

1. Connect the terminals of power source, output respectively and correctly, never make wrong connection for DC current.
2. Temperature of the primary conductor should not exceed 100 °C.
3. Dynamic performances (di/dt and the response time) are the best with a single bar completely filling the primary hole.
4. In order to achieve the best magnetic coupling, the primary windings have to be wound over the top edge of the device.