# Closed Loop Precise Hall Current Sensor CYHCS-SH

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 |
|---|---|
| • Excellent accuracy<br>• Very good linearity<br>• Accuracy independent on the position of premiary cable<br>• Lager measuring range | • **Photovoltaic equipment**<br>• General Purpose Inverters<br>• AC/DC Variable Speed Drivers<br>• Battery Supplied Applications<br>• Uninterruptible Power Supplies<br>• Switched Mode Power Supplies |

## ELECTRICAL DATA

| Part number | CYHCS-SH500A | CYHCS-SH1000A |
|---|---|---|
| Nominal input current IP | ±500A | ±1000A |
| Measuring range | 0~±1500A | 0~±2000A |
| Turns ratio | 1:5000 (1:4000 custom made) | |
| Measuring resistance Vc=±15V | @±500Amax, 0-75Ω,<br>@±1000Amax, 0-5Ω | @±1000Amax, 0-15Ω,<br>@±1200Amax, 0-5Ω, |
| Measuring resistance Vc=±24V | @±500Amax, 0-150Ω,<br>@±1500Amax, 0-15Ω, | @±1000Amax, 0-50Ω,<br>@±2000Amax, 0-3Ω, |
| Supply voltage | ±15VDC ~ ±24VDC | |
| Nominal output current | 100mA (125mA for 1:4000) | 200mA (250mA for 1:4000) |
| Current consumption | ≤20mA + Output current | |
| Galvanic isolation | 50Hz, 1min, 6KV | |
| Secondary internal resistance | Ta=85°C, 60 Ω<br>(47 Ω for turns ratio 1:4000) | Ta=85°C, 50 Ω<br>(39 Ω for turns ratio 1:4000) |
| Operating temperature Ta | -40°C ~ +85°C | |
| Storage temperature | -40°C ~ +125°C | |
| Weight (approximate) | 600g | |

## ACCURACY DYNAMIC PERFORMANCE

| | |
|---|---|
| Zero offset current Ta=25°C | < ±0.2mA |
| Magnetic Offset current IP→0 | < ±0.2mA |
| Thermal drift of offset current | IP=0, Ta=-40°C ~ +85°C, ±0.5mA, ±0.75mA (max.) |
| Response time | <1μs |
| Linearity at +25°C | ±0.1% for rated current 100A ~1000A |
| Accuracy at +25°C | ±0.2% for rated current 100A ~1000A |
| Bandwidth(-3dB) | DC…200kHz |
| Following accuracy di/dt | >100A/μs |

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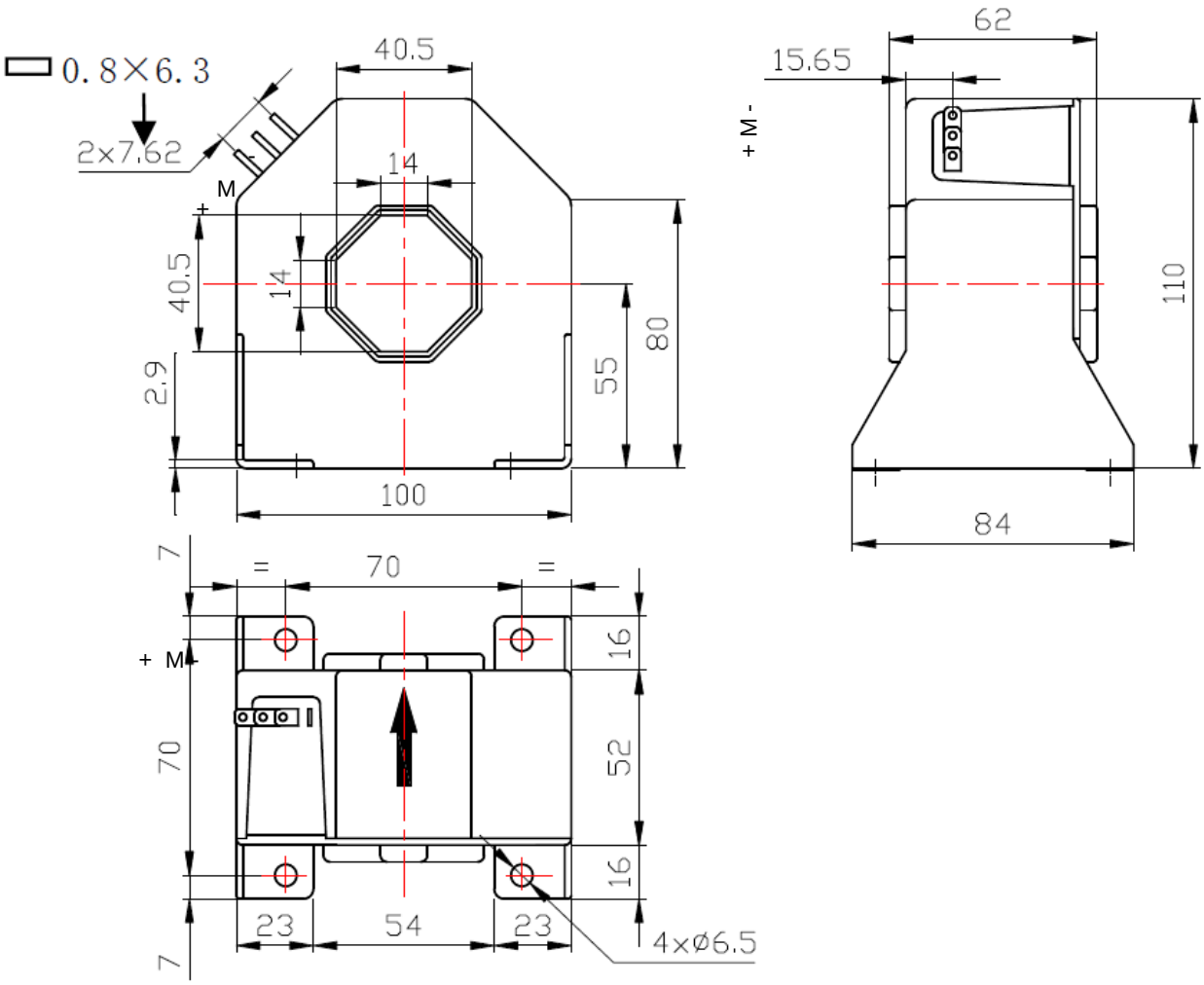
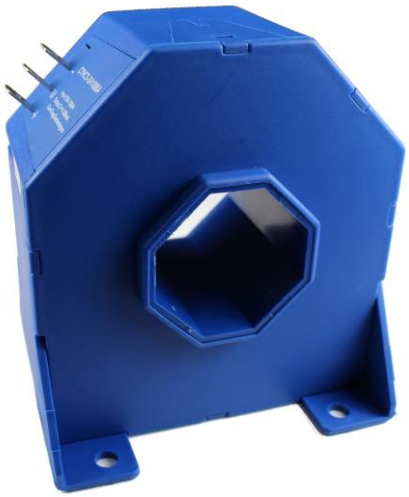
## Dimensions (mm)







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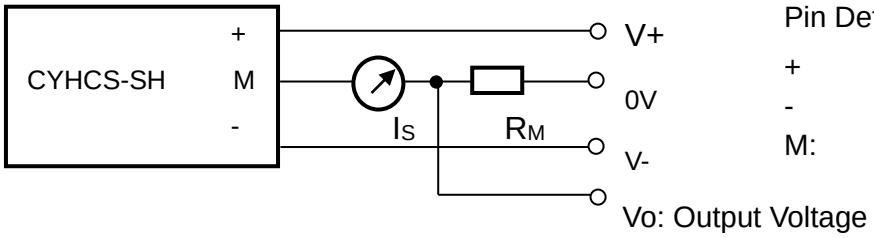
## Sensor Connections

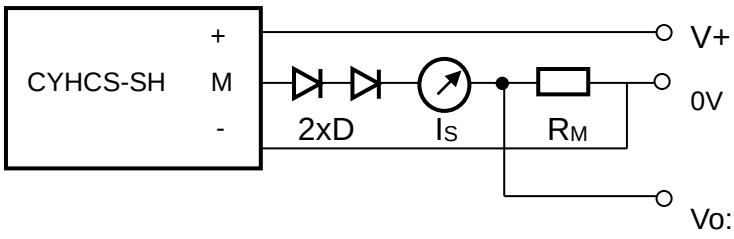
1) For Measurement of Bidirectional Current




Pin Definition:

| | |
|---|---|
| + | V+: +15~+24VDC |
| - | V-: -15~ -24VDC |
| M: | Output current |

2) For Measurement of Unidirectional Current




Pin Definition:

| | |
|---|---|
| + | V+: +15~+24VDC |
| - | 0V (GND) |
| M: | Output current |

Two diodes, for instance IN4007 must be connected at the output of the sensor in order to guarantee the sensor to work well.

## Operating instructions

1. Connect the terminals of power source, output respectively and correctly, never make wrong connection for DC current.
2. The 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.

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