# AC/DC Closed Loop Hall Current Sensor CYHCS-B8S

This Hall Effect current sensor is based on the closed loop compensating principle and designed with a high galvanic isolation between primary conductor and secondary circuit. It 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>• Small size and encapsulated<br>• Less power consumption<br>• Current overload capability | • **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/Input

| Part number | Primary Rated Current $I_r$ (A) | Measuring Range $I_p$(A) | Primary Conductor (mm) | Turns ratio | Internal measuring resistor (Ω) |
|---|---|---|---|---|---|
| CYHCS-B8S05A | 5 | ± 16 | Ø 0.8 | 2:1600 | 100±0.5% |
| CYHCS-B8S10A | 10 | ± 32 | Ø 1.0 | 1:1600 | 100±0.5% |
| CYHCS-B8S15A | 15 | ± 48 | Ø 1.0 | 1:1200 | 50±0.5% |
| CYHCS-B8S25A | 25 | ± 80 | Ø 1.4 | 1:1500 | 37.5±0.5% |

| | |
|---|---|
| Rated Output Voltage: | +2.5V±0.625V ±0.5% |
| Supply Voltage | +5V ± 5%, |
| Current Consumption | <30mA |
| Isolation voltage (50/60Hz, 1min) | 2.5kV |
| Accuracy: | 0.7% |
| Linearity: | <0.1% FS |
| Electric Offset Voltage | +2.5V ±0.5% |
| Thermal Drift of Offset Voltage, | ±0.5mV/°C |
| Response Time: | < 0.5µs |
| Di/dt following accuracy: | 50A/µs |
| Frequency Bandwidth (-1dB): | DC ~ 200kHz |

## General Data

| | |
|---|---|
| Ambient Operating Temperature: | -25°C ~ +85°C |
| Ambient Storage Temperature: | -40°C ~ +100°C |

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## Relation between Input Current and Output Voltage

Take the sensor CYHCS-B8S10A as sample, the relation between the input current and output voltage is shown in the table 1, Fig.1 and Fig. 2

**Table 1.** Relation between the input current and output voltage

| Input current (A) | -30 | -20 | -10 | -5 | 0 | 5 | 10 | 20 | 30 |
|---|---|---|---|---|---|---|---|---|---|
| Output voltage (V) | 0.625 | 1.25 | 1.875 | 2.188 | 2.5 | 2.813 | 3.125 | 3.75 | 4.375 |

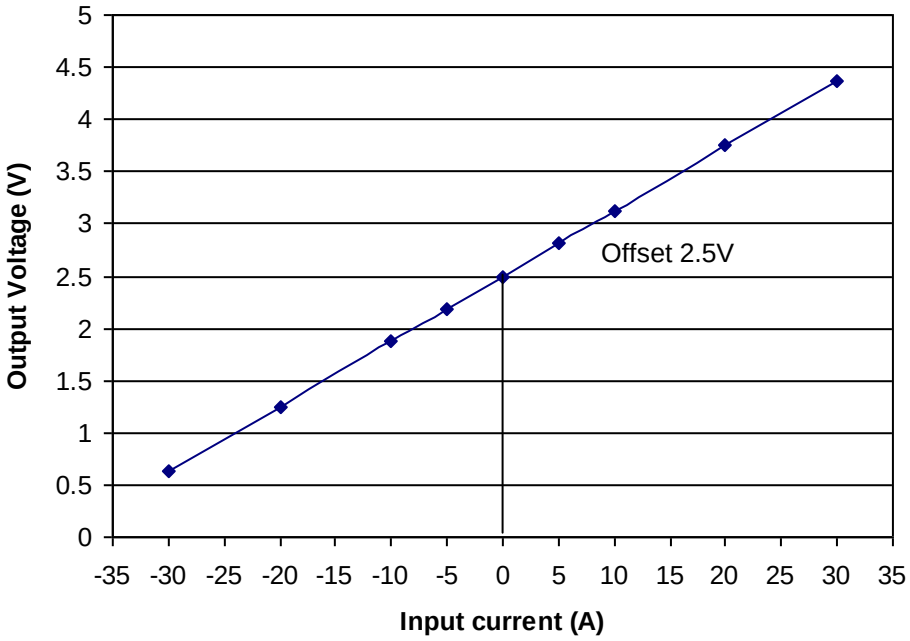


**Fig. 1** Relation between the input current (DC) and output voltage (DC)

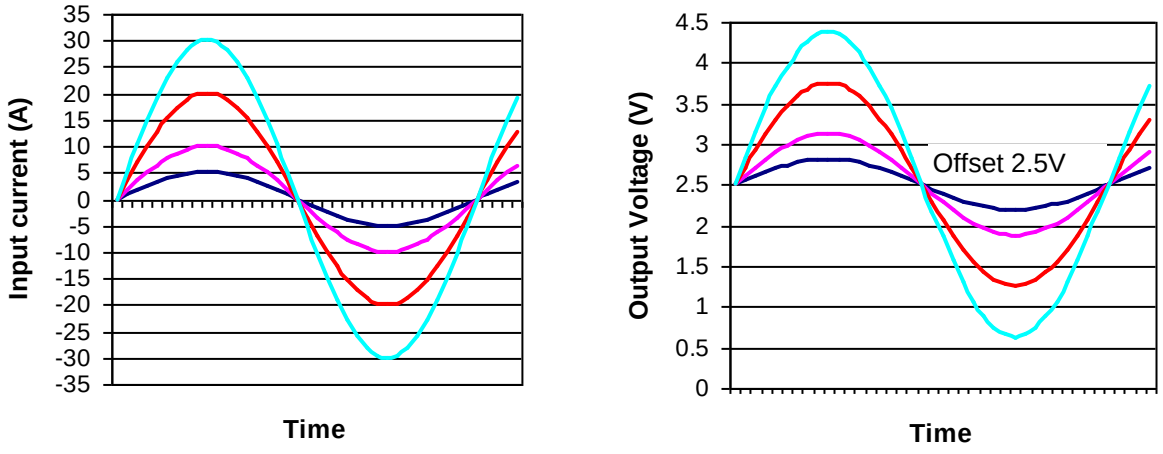


**Fig. 2** Relation between the input current (AC) and output voltage (AC)

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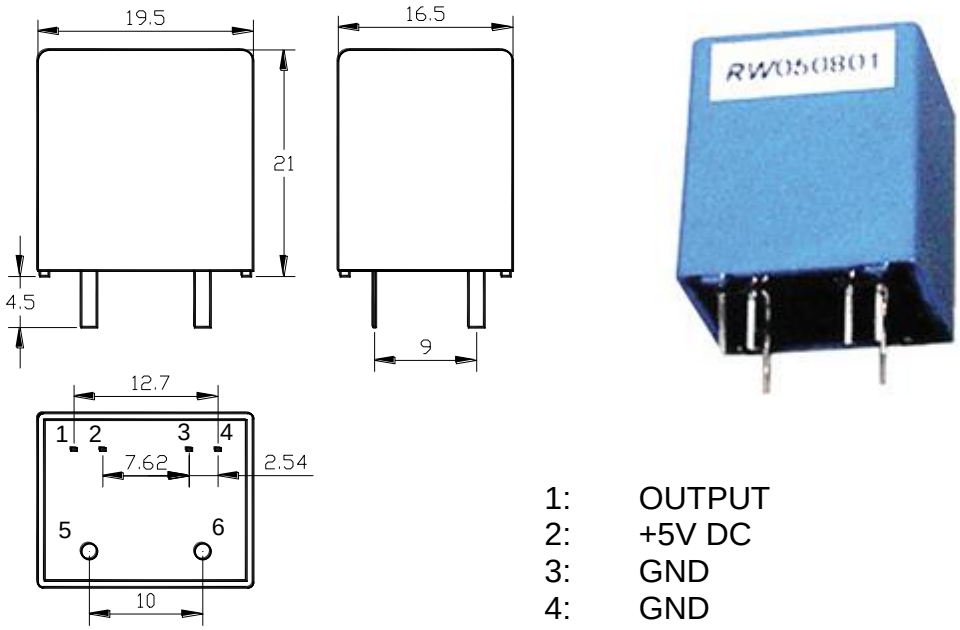
## Dimensions (mm)




1: OUTPUT
2: +5V DC
3: GND
4: GND
5: IN-
6: IN+

**Fig. 3** Dimensions of sensor CYHCS-B8S

## Connection

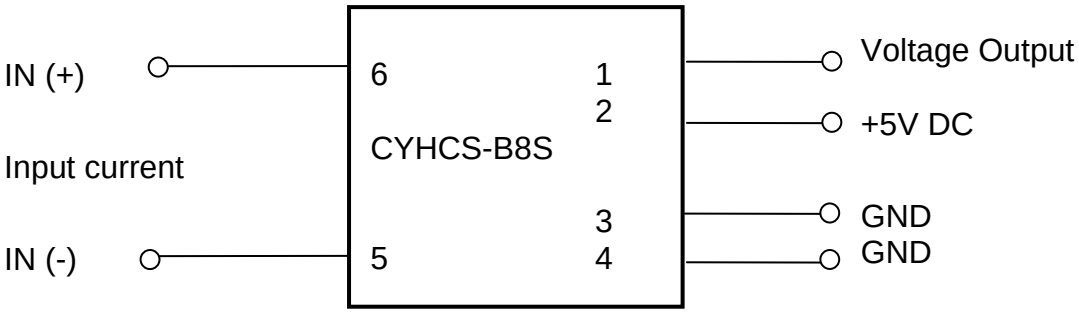



**Fig. 4** Connection of CYHCS-B8S

## Operating instructions

1. Connect the pins 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.

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