

Open Loop Hall AC/DC Current Sensor CYHCS-DT52

This Hall Effect current sensor is based on open loop 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 • Very good linearity • Small size and encapsulated • Less power consumption • Current overload capability	• Photovoltaic equipment • General Purpose Inverters • AC/DC Variable Speed Drivers • Battery Supplied Applications • Uninterruptible Power Supplies (UPS) • Switched Mode Power Supplies

ELECTRICAL CHARACTERISTIC

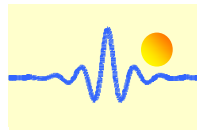
Part number	CYHCS-DT52-15A	CYHCS-DT52-20A	CYHCS-DT52-30A	CYHCS-DT52-40A	CYHCS-DT52-50A	CYHCS-DT52-75A	CYHCS-DT52-80A	CYHCS-DT52-100A
Nominal current (I _{pn})	15A	20A	30A	40A	50A	75A	80A	100A
Measuring range (I _p)	±16.5A	±22A	±33A	±44A	±55A	±82.5A	±88A	±110A
Nominal output voltage	(1/2 V _{cc} ±0.5%) ± (2V ± 0.5%)							
Supply voltage V _{cc}	+5VDC ±5%							
Galvanic isolation	50Hz, 1min, 2.5kV							
Impulse withstand voltage	1.2/50μs, >8kV							
Creepage distance	>15.4mm							
Load resistance	10 kΩ							

ACCURACY DYNAMIC PERFORMANCE

Zero offset voltage at Ta=25°C	1/2 V _{cc} ±0.020	V
Magnetic offset voltage Ta=25°C	≤ ±10	mV
Thermal drift of offset voltage I _p =0, Ta=-40°C ~ +85°C	≤ ±1.0	mV/°C
Thermal drift of output voltage Ta=-40°C ~ +85°C	≤ ±1.0	mV/°C
Measuring accuracy at Ta=25°C	≤±0.5	%FS
Linearity at Ta=25°C	≤±0.5	%FS
Response time	<0.5	mS
Bandwidth (-3dB)	DC ~ 25	kHz
Current consumption I _p =0	10	mA

GENERAL CHARACTERISTIC

Operating temperature Ta	-40 ~ +85	°C
Storage temperature	-50 ~ +125	°C
Unit weight	10	g
Standard	UL94-V0, EN60947-1:2004, IEC60950-1:2001, SJ 20790-2000	



Relation between Input Current and Output Voltage

Take the sensor CYHCS-DT52-25A as sample, the relation between the input current and output voltage is shown in table 1, Fig.1 and Fig. 2

Table 1. Relation between the input current and output voltage

Input current (A)	-25	-20	-15	-10	-5	0	5	10	15	20	25
Output voltage (V)	0.5	0.9	1.3	1.7	2.1	2.5	2.9	3.3	3.7	4.1	4.5

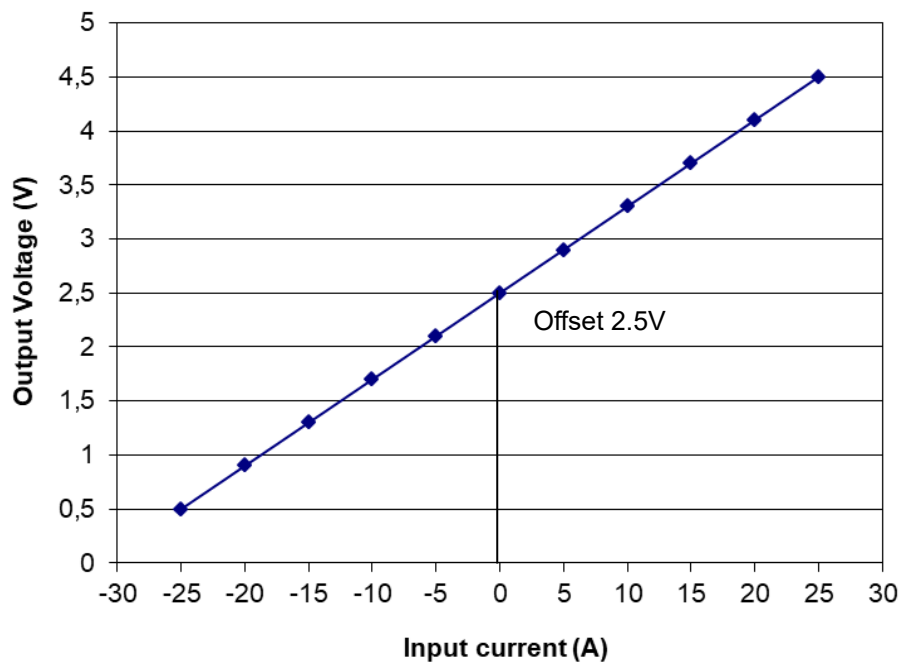


Fig. 1 Relation between the input current (DC) and output voltage (DC)

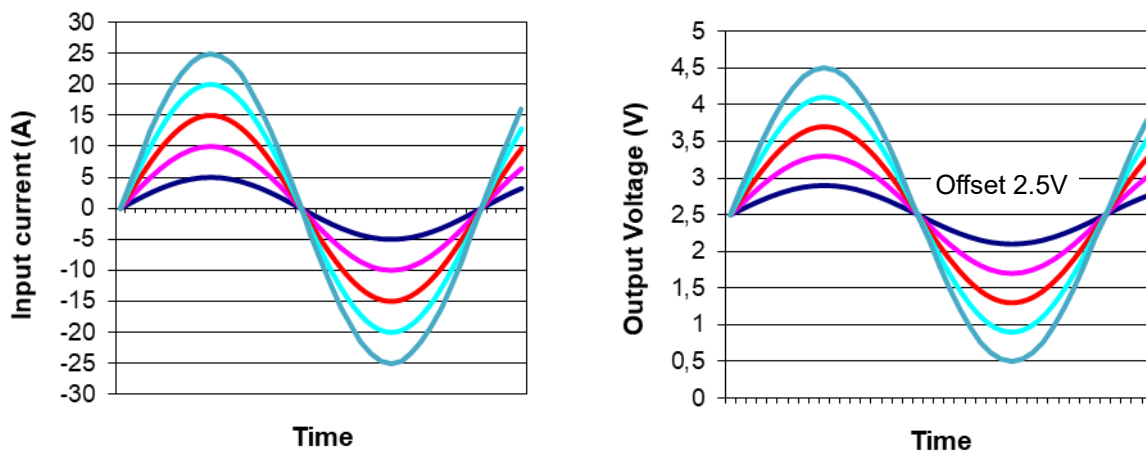
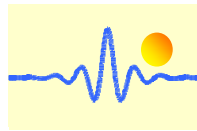


Fig. 2 Relations between the input current (AC) and output voltage (AC)



Dimensions (mm)

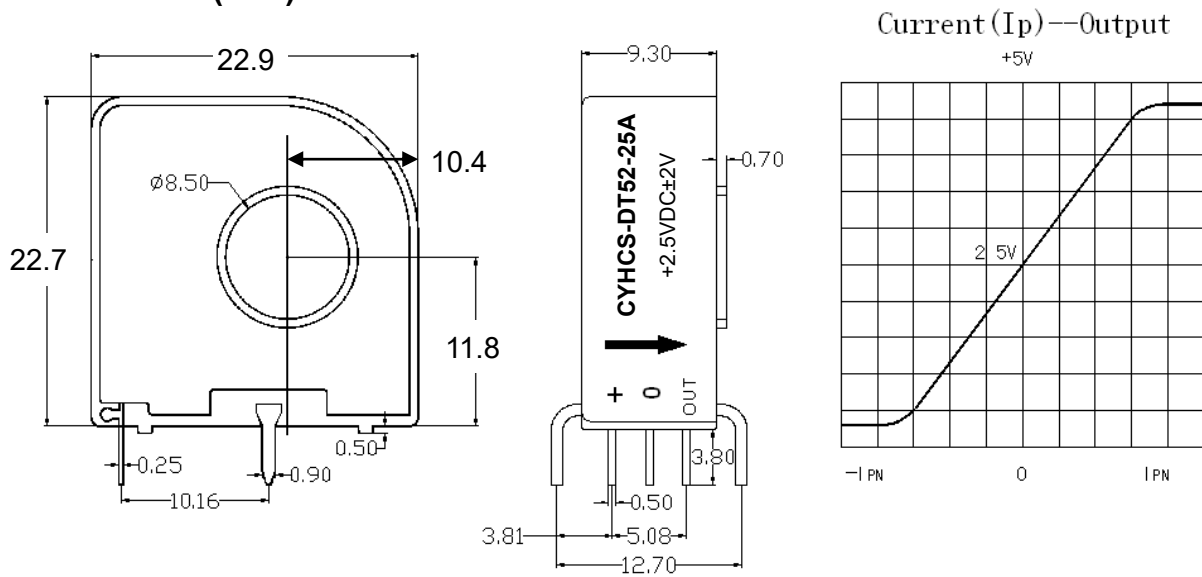


Fig. 3 Dimensions of CYHCS-DT52

Connection

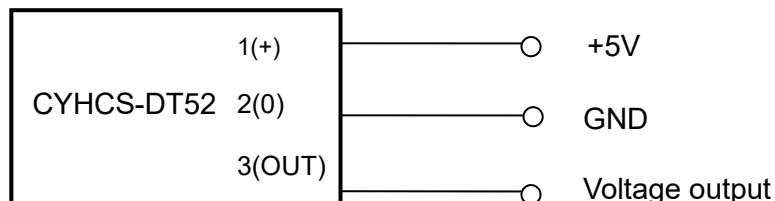


Fig. 4 Connection of CYHCS-DT52

Sizes and tolerances:

- Geometric tolerance: $\pm 0.2\text{mm}$
- Sizes of 3 pins: $0.25 \times 0.5\text{mm}$
- Size of mounting pins: $0.8 \times 0.9\text{mm}$
- Hole diameter: $\Phi 8.5\text{mm}$

Pin arrangement

+: +5VDC
0: GND
OUT: Output

Notes:

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 120°C .
3. The response time is best with a single bar completely filling the primary hole.
4. To achieve the best magnetic coupling, the primary windings must be wound over the top edge of the device.