ChenYang Technologies GmbH & Co KG

AC/DC Hall Current Sensor CYHCS-RC1S

This Hall Effect current sensor can be used for measurement of DC and AC current, pulsed currents etc. The output of the transducer reflects the real wave of the current carrying conductor.

Product Characteristics	Applications
• Excellent accuracy • Very good linearity • Light in weight • Less power consumption • Window structure • Electrically isolating the output of the transducer from the current carrying conductor • No insertion loss • Current overload capability	• Frequency conversion timing equipment • Various power supply • Uninterruptible power supplies (UPS) • Electric welding machines • Numerical controlled machine tools • Electrolyzing and electroplating equipment • Electric powered locomotive • Microcomputer monitoring • Electric power network monitoring

Electrical Data

Primary Nominal Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=12V	Output Voltage (analog) (V)	Part number
25	± 50	5VDC±2V	CYHCS-RC1S-025A-XC
50	± 100		CYHCS-RC1S-050A-XC
100	± 200		CYHCS-RC1S-100A-XC
200	± 400		CYHCS-RC1S-200A-XC
300	± 600		CYHCS-RC1S-300A-XC
400	± 800		CYHCS-RC1S-400A-XC
500	± 900		CYHCS-RC1S-400A-XC

(Connector: Molex connector C=M; Phoenix Connector: C=P)

Supply Voltage: X=3, V_{cc}= +12VDC± 5%, ; X=4, V_{cc} =+15VDC± 5%; X=5, V_{cc} =+24VDC± 5%,	
Current Consumption	I_c < 25mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Output Impedance:	R_{out} < 150Ω
Load Resistance:	R_L > 10kΩ
Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0% FS
Electric Offset Voltage, T_A=25°C,	V_{oe} =5.0VDC ±1.0%
Magnetic Offset Voltage (I_r →0)	V_{om} <±15mV
Thermal Drift of Offset Voltage,	V_{ot} <±1.0mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1k Hz)	t_r < 5μs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

Ambient Operating Temperature,	T_A = -25°C ~ +85°C
Ambient Storage Temperature,	T_S =-40°C ~ +100°C

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Relation between Input Current and Output Voltage

Taking the sensor CYHCS-RC1S-100A-3 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)	-200	-150	-100	-50	0	50	100	150	200
Output voltage (V)	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0

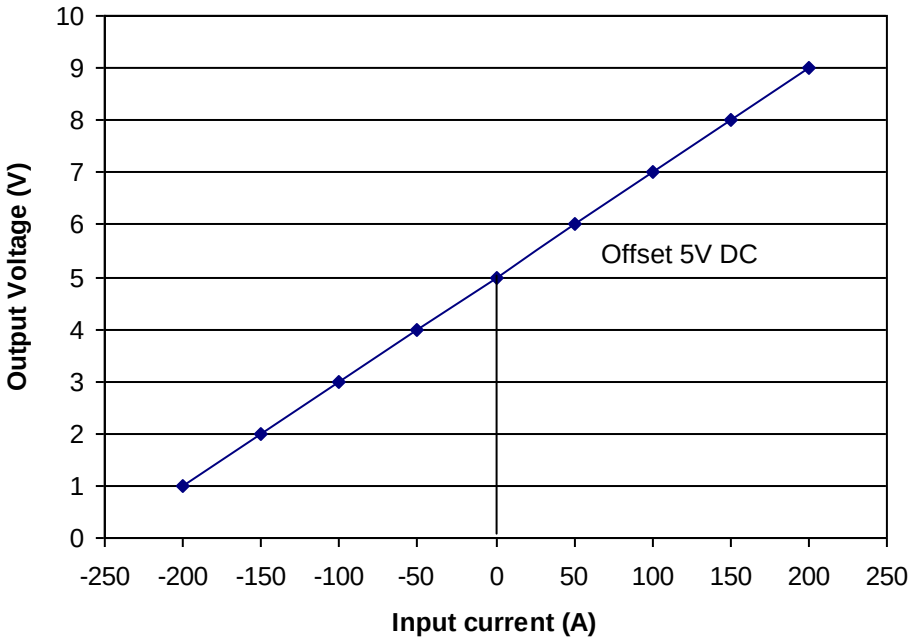

Fig. 1 Relation between the input current (DC) and output voltage (DC)

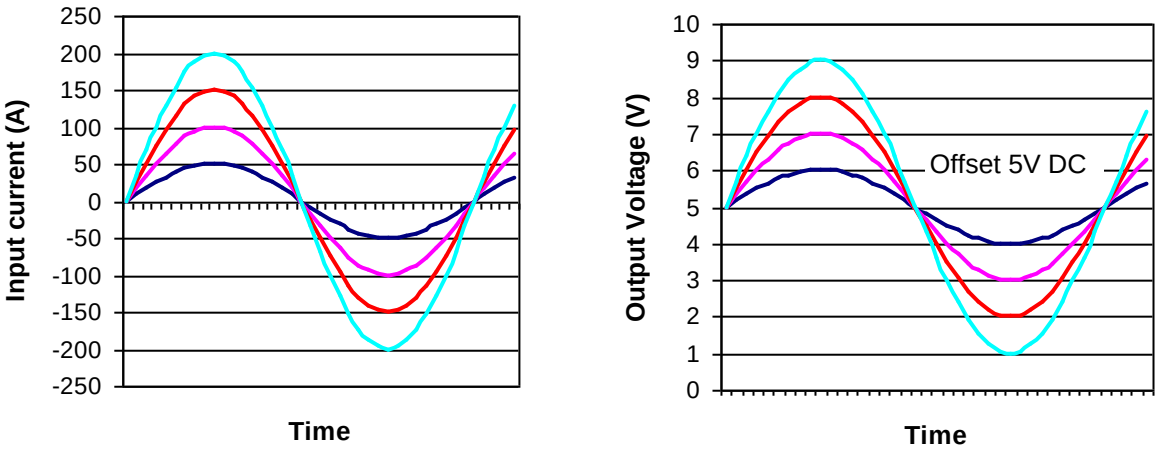

Fig. 2 Relation between the input current (AC) and output voltage (AC)

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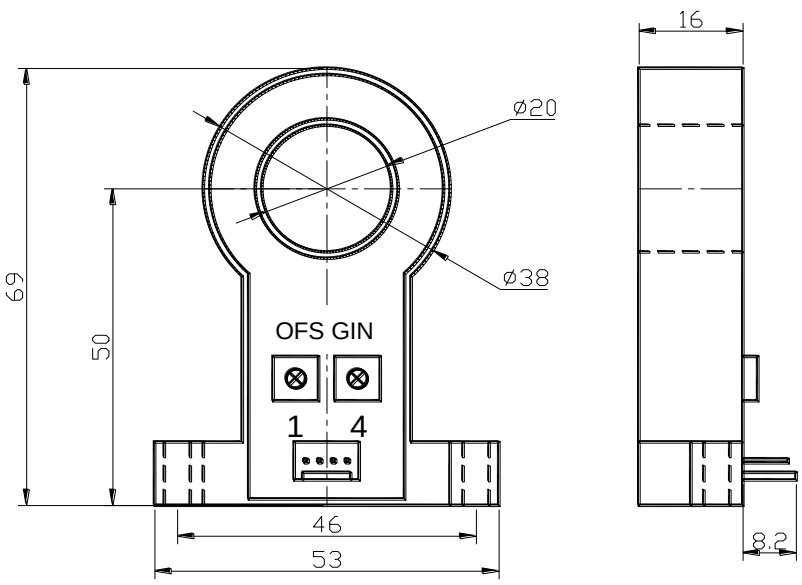
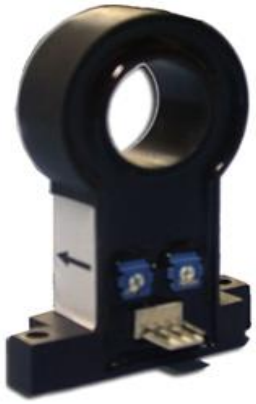
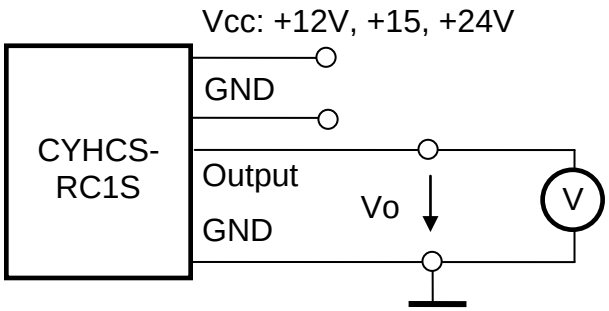
PIN Definition and Dimensions





1: Vcc
2: NC
3: Output
4: Ground



Notes:

1. Connect the terminals of power source, output respectively and correctly, never make wrong connection.
2. Two potentiometers can be adjusted, only if necessary, by turning slowly to the required accuracy with a small screwdriver.
3. The best accuracy can be achieved when the window is fully filled with bus-bar (current carrying conductor).
4. The in-phase output can be obtained when the direction of current of current carrying conductor is the same as the direction of arrow marked on the transducer

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