Hall Effect AC/DC Current Sensor CYHCS-K2S

This Hall Effect current sensor is based on open loop principle and designed with a high galvanic isolation between primary conductor and secondary circuits. 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 • Less power consumption • Window structure • Electrically isolating the output of the transducer from the current carrying conductor • No insertion loss • Current overload capability	• **Photovoltaic equipment** • Frequency conversion timing equipment • Uninterruptible power supplies (UPS) • Electric welding machines • Transformer substation • Numerical controlled machine tools • Electric powered locomotive • Electric power network monitoring • Inverters etc.

Electrical Data

Primary Nominal Current I_r (A)	Measuring Range (A)	Output Signal (Voltage or current)	Aperture Diameter (mm)	Part number
300	±405	2.5VDC±1.5V	Ø55	CYHCS-K2S-300A
500	±675			CYHCS-K2S-500A
600	±810			CYHCS-K2S-600A
800	±1080			CYHCS-K2S-800A
1000	±1350			CYHCS-K2S-1000A
1200	±1500			CYHCS-K2S-1200A
1500	±1800			CYHCS-K2S-1200A

Supply Voltage	V_{cc}= +5VDC±5%
Current Consumption at ±15VDC	I_c < 20mA
Galvanic isolation, 50/60Hz, 1min:	2.5kV
Load resistance:	≥10kΩ
Isolation resistance @ 500 VDC	> 500 MΩ

Accuracy and Dynamic performance data

Accuracy at I_r, T_A=25°C (without offset),	E <1.0% FS
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0% FS
Electric Offset Voltage, T_A=25°C,	V_{oe} =2.5VDC±1.0%
Magnetic Offset Voltage ($I_r \rightarrow 0$)	V_{om} <±20mV
Thermal Drift of Offset Voltage, Ta=-25°C~85°C	V_{ot} <±1mV/°C
Response Time at 90% of I_P (f=1k Hz)	t_r < 3µs
Frequency bandwidth (- 3 dB):	DC-20kHz

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

Take the sensor CYHCS-K2S-1000A 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)	-1350	-1000	-750	-500	-250	0	250	500	750	1000	1350
Output voltage (V)	0.475	1.0	1.375	1.75	2.125	2.5	2.875	3.25	3.625	4.0	4.525

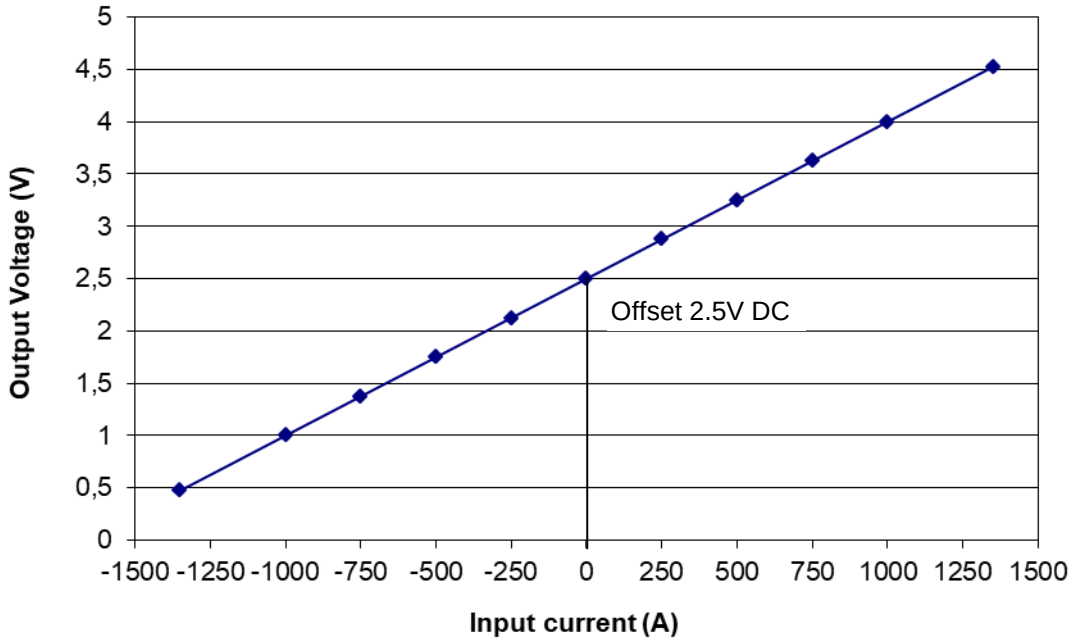

Fig. 1 Relation between the input current (DC) and output voltage (DC)

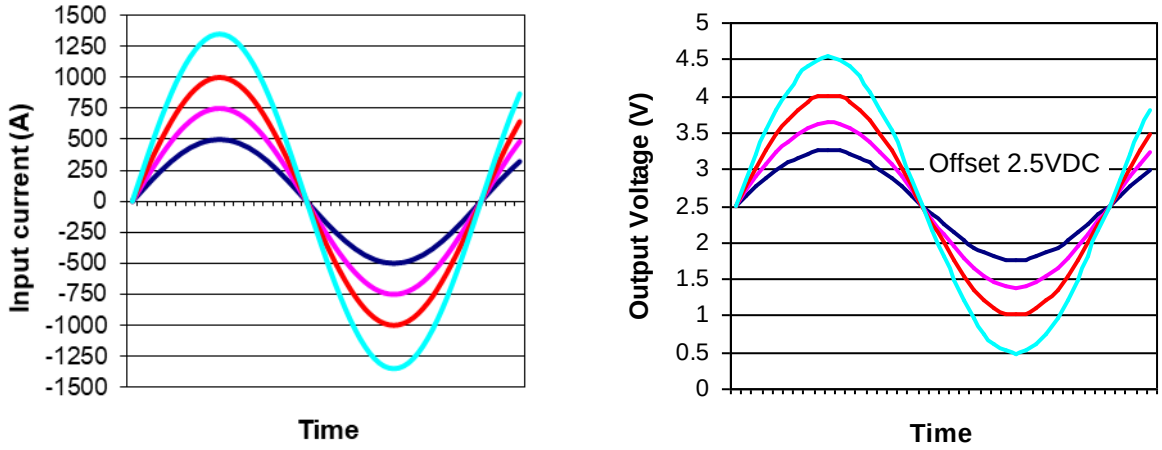

Fig. 2 Relation between the input current (AC) and output voltage (AC)

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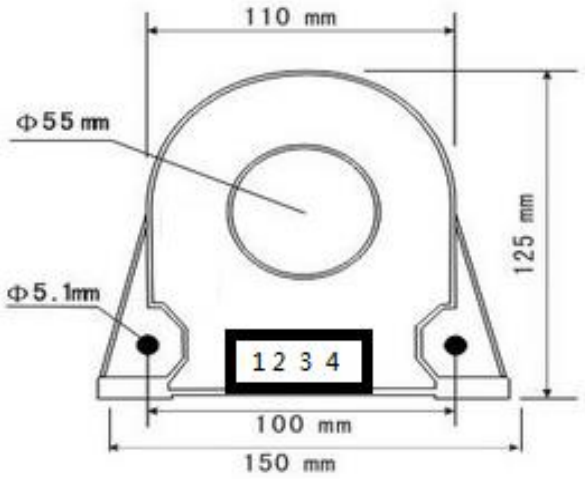
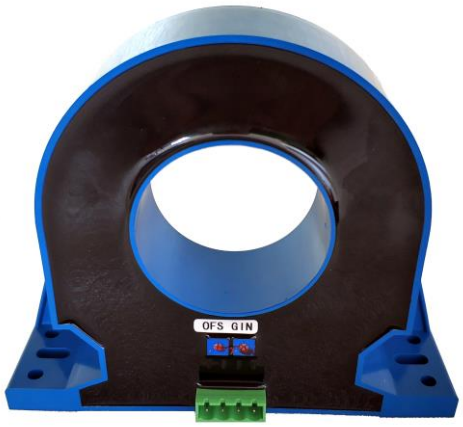
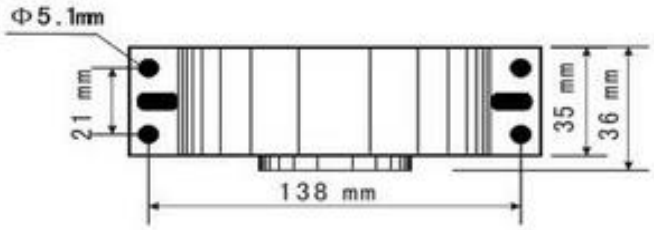
Dimensions





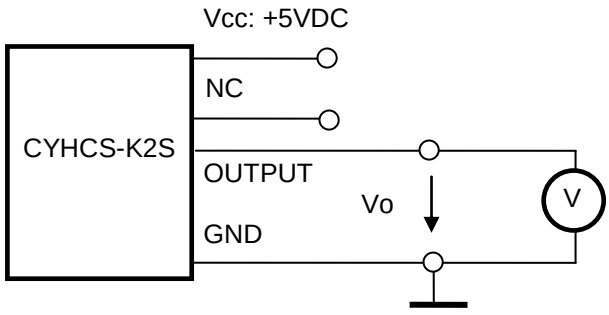


Terminal Arrangement:

1: V+ (+5VDC)
2: NC
3: OUTPUT
4: GND

OFS: Offset adjustment
GIN: Gain adjustment

Connection



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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