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Split Core Hall Effect AC/DC Current Sensor CYHCS-EKFS

This Hall Effect current sensor is based on open loop principle and designed with a split core and a high galvanic isolation between primary conductor and secondary circuit. It can be used for measurement of AC/DC current 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 • Split core 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 • Various power supply • Uninterruptible power supplies (UPS) • Electric welding machines • Electrolyzing and electroplating equipment • Electric powered locomotive • Electric power network monitoring

Electrical Data

Primary Nominal Current I_r (A)	Measuring Range I_p(A)	Output Voltage (Analog)(V)	Window Size (mm)	Part number
300A	0 ~ ± 405A			CYHCS-EKFS-300A
400A	0 ~ ± 540A			CYHCS-EKFS-400A
500A	0 ~ ± 675A			CYHCS-EKFS-500A
600A	0 ~ ± 810A			CYHCS-EKFS-600A
800A	0 ~ ± 1080A	2.5VDC±1.5V	Ø62	CYHCS-EKFS-800A
1000A	0 ~ ± 1350A			CYHCS-EKFS-1000A
2000A	0 ~ ± 2700A			CYHCS-EKFS-2000A
4000A	0 ~ ± 5000A			CYHCS-EKFS-4000A
6000A	0 ~ ± 6500A			CYHCS-EKFS-6000A

Supply Voltage:	V_{cc}=+5VDC ± 5%
Current Consumption (Vc=±15VDC):	I_c < 25mA
Isolation Voltage:	5kV, 50/60Hz, 1min
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ
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
Overload capability:	3 times of measuring range
Electric Offset Voltage, T_A=25°C:	V_{oe} =2.5VDC±1.0%
Magnetic Offset Voltage ($I_r \rightarrow 0$) :	V_{om} <±25mV
Thermal Drift of Offset Voltage (I_p=0, T_A=-25°C~85°C):	V_{ot} <±1.0mV/°C
Response Time at 90% of I_P (f=1k Hz):	t_r < 7µs
Frequency Bandwidth (-3dB):	f_b = DC - 20kHz

General Data

Ambient Operating Temperature:	T_A =-25°C ~ +85°C
Ambient Storage Temperature:	T_S =-40°C ~ +100°C
Unit Weight:	500g/pc
Standard:	Q/320115QHKJ01-2016

Relation between Input Current and Output Voltage

Take the sensor CYHCS-EKFS-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

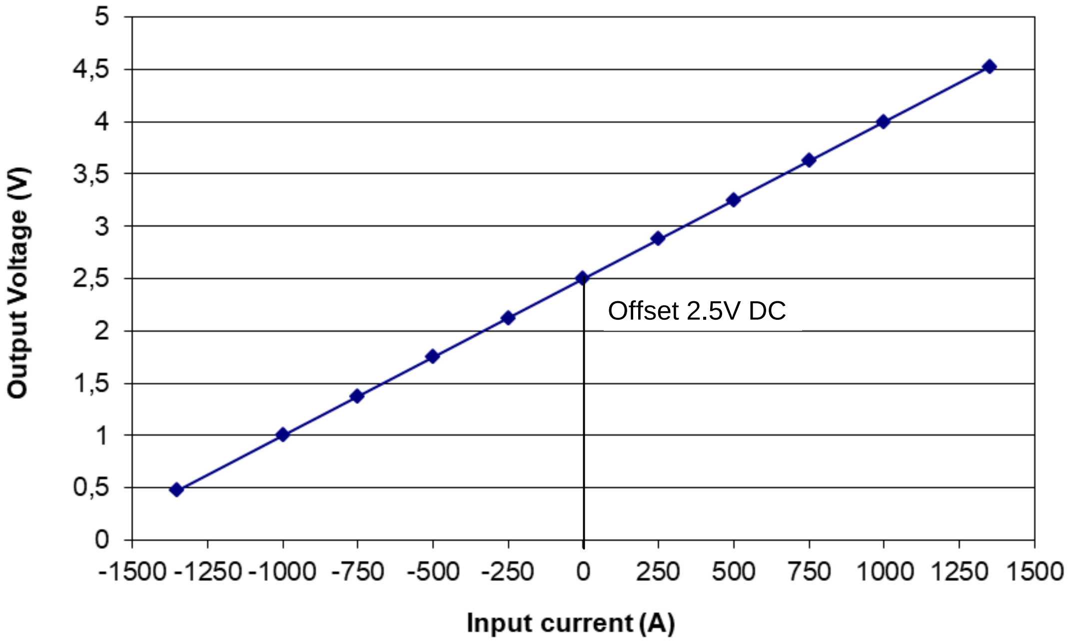


Fig. 1 Relation between the input current (DC) and output voltage (DC)

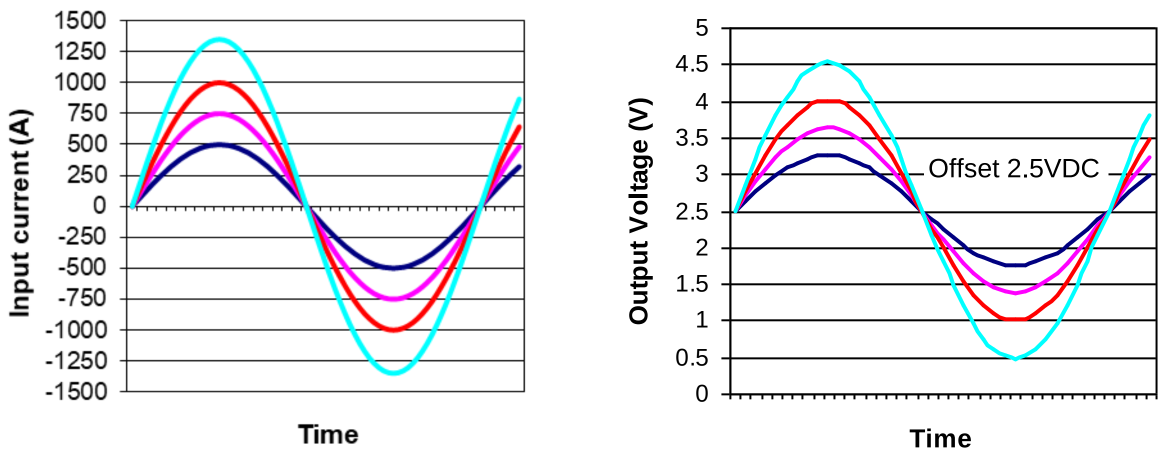
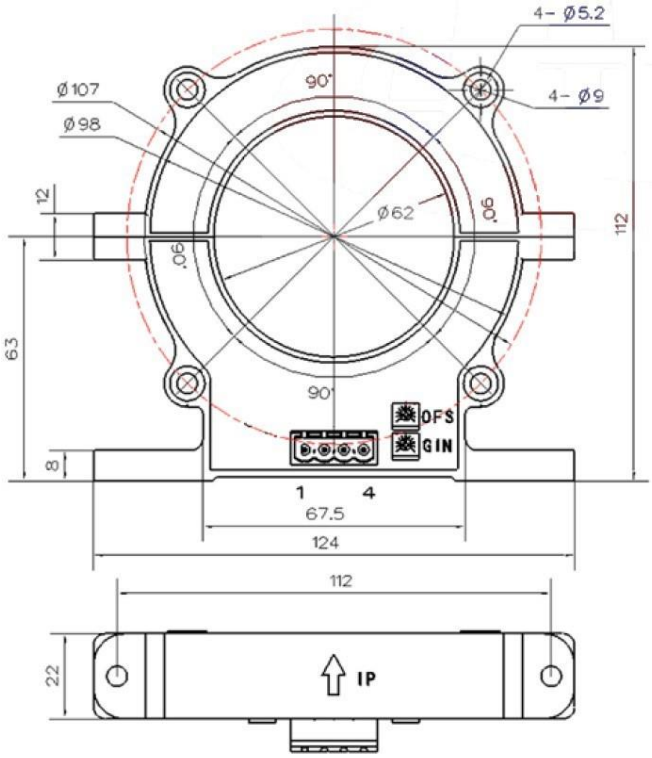
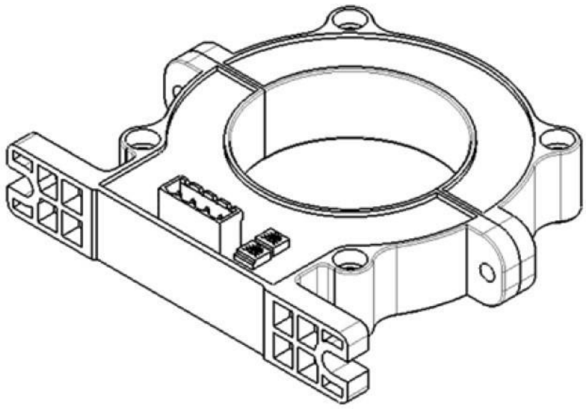


Fig. 2 Relation between the input current (AC) and output voltage (AC)

PIN Definition and Dimensions

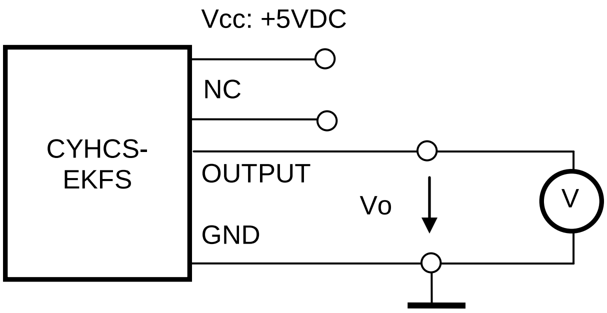




OFS: Offset Adjustment   GIN: Gain Adjustment

Pin arrangement of connector:

1:	Vcc	2:	NC
3:	OUTPUT	4:	0V (GND)



Cable connection:

Red:	Vcc
Blue:	NC
Yellow:	OUTPUT
Black:	0V (GND)

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 current carrying conductor.
4. The in-phase output can be obtained when the current direction of current carrying conductor is the same as the direction of arrow marked on the transducer