ChenYang Technologies GmbH & Co KG

Split Core Hall Effect DC Current Sensor CYHCT-KCV

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 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 • Light in weight • Less power consumption • Window structure with split core • 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 • Numerical controlled machine tools • Electrolyzing and electroplating equipment • Electric powered locomotive • Microcomputer monitoring • Electric power network monitoring

Electrical Data/Input

Primary Nominal DC Current I_r (A)	Primary Current Measuring Range I_p(A)	Output Voltage (V)	Part number (see application notes on page 3)
1000A	0 ~ ± 1000A	x=0: 0-4V ±1.0% x=3: 0-5V ±1.0% x=8: 0-10V ±1.0% (For 0-10V output the power supply must be 15VDC or 24VDC)	CYHCT-KCV-U/B1000A-xn
2000A	0 ~ ± 2000A		CYHCT-KCV-U/B2000A-xn
3000A	0 ~ ± 3000A		CYHCT-KCV-U/B3000A-xn
4000A	0 ~ ± 4000A		CYHCT-KCV-U/B4000A-xn
5000A	0 ~ ± 5000A		CYHCT-KCV-U/B5000A-xn
6000A	0 ~ ± 6000A		CYHCT-KCV-U/B6000A-xn
8000A	0 ~ ± 8000A		CYHCT-KCV-U/B8000A-xn
10000A	0 ~ ± 10000A		CYHCT-KCV-U/B10000A-xn

(n=2, *Vcc*= +12VDC; n=3, *Vcc* =+15VDC; n=4, *Vcc* =+24VDC, n=5, *Vcc* =±12VDC, n=6, *Vcc* =±15VDC, n=7, *Vcc* =±24VDC, U: unidirectional, B: bidirectional)

Supply Voltage:	V_{cc}=+12V, +15V, +24V± 5%
Current Consumption	I_c < 50mA
Isolation Voltage	6kV, 50/60Hz, 1min

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} =0- 4V, 0-5V, 0-10VDC
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

Accuracy

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} <25mV
Magnetic Offset Voltage (I_r →0)	V_{om} <±30mV
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 < 1ms
Frequency Bandwidth (-3dB),	f_b = DC-3 kHz

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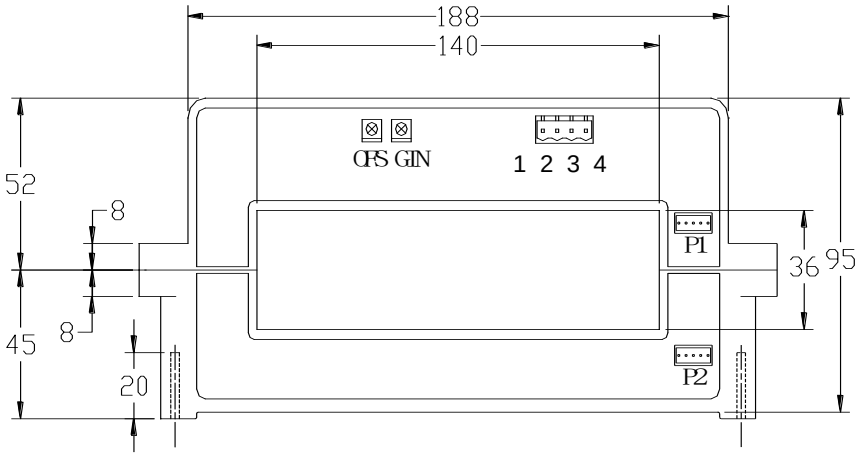
General Data

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

PIN Definition and Dimensions

OFS: Offset Adjustment

GIN: Gain Adjustment



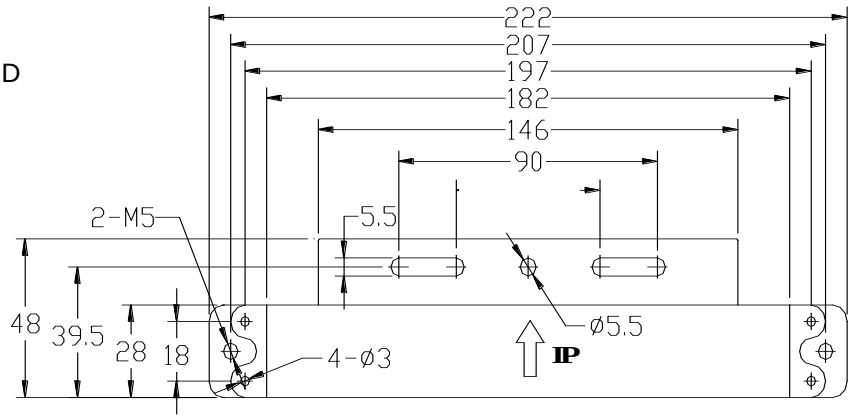
Pin arrangement:

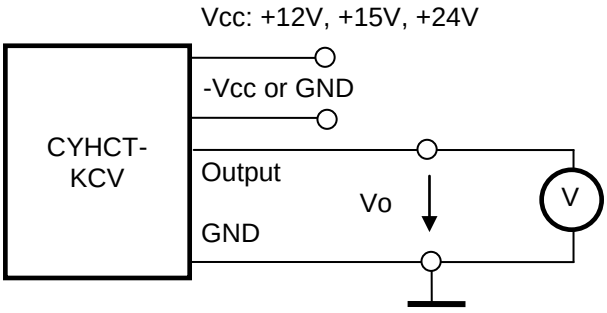
1(V+): Vcc

2(V-): -Vcc or GND

3(OUT): OUTPUT

4(GND): 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 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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Application Notes

1) Part number CYHCT-KCV-U/BxxxxA-xn

U: unidirectional input current; **B:** bidirectional input current; **xxxx:** current value; **x:** output voltage (**x**=0: 0-4V ±1.0%; **x**=3: 0-5V ±1.0%; **x**=8: 0-10V ±1.0%); **n:** power supply (**n**=2, *Vcc*= +12VDC; **n**=3, *Vcc* =+15VDC; **n**=4, *Vcc* =+24VDC)

Example 1: CYHCT-KCV-U1000A-32 Hall Effect DC Current sensor with
Output signal: 0 – 5V DC
Power supply: +12V DC
Rated input current: 0 - 1000A DC (unidirectional)

Example 2: CYHCT-KCV-B1000A-84 Hall Effect DC Current sensor with
Output signal: 0 – 10V DC
Power supply: +24V DC
Rated input current: -1000A - 0 - +1000A DC (bidirectional)

2) Relation between Input current and output signal

Current Sensor CYHCT-KCV-U1000A-32	
Input current (A)	Output voltage Vo (V)
0	0
250	1.25
500	2.5
750	3.75
1000	5

Current Sensor CYHCT-KCV-B1000A-84	
Input current (A)	Output voltage Vo (V)
-1000	0
-750	1.25
-500	2.5
-250	3.75
0	5
250	6.25
500	7.5
750	8.75
1000	10

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