

Hall Effect DC Current Sensor CYHCT-K2V

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 current etc. The output of the transducer reflects the real wave of the current carrying conductor.

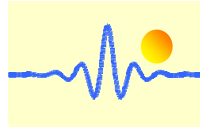
Product Characteristics	Applications
<ul style="list-style-type: none"> • Excellent accuracy • Very good linearity • Less power consumption • Window structure • Electrically isolating the output of the transducer from the current carrying conductor • No insertion loss • Current overload capability 	<ul style="list-style-type: none"> • Photovoltaic equipment • Frequency conversion timing equipment • Various power supply • Uninterruptible power supplies (UPS) • Electric welding machines • Transformer substation • Numerical controlled machine tools • Electric powered locomotive • Microcomputer monitoring • Electric power network monitoring

Electrical Data

Primary Nominal DC Current I_r (A)	Measuring Range (A)	DC Output Voltage (V)	Part number (see application notes on page 3)
300	0 ~ ±300A	x=0: 0-4V ±1.0% x=3: 0-5V ±1.0% x=8: 0-10V ±1.0% (x=8 for for power supply of +15VDC and +24VDC)	CYHCT-K2V-U/B300A-xn
400	0 ~ ±400A		CYHCT-K2V-U/B400A-xn
500	0 ~ ±500A		CYHCT-K2V-U/B500A-xn
600	0 ~ ±600A		CYHCT-K2V-U/B600A-xn
700	0 ~ ±700A		CYHCT-K2V-U/B700A-xn
800	0 ~ ±800A		CYHCT-K2V-U/B800A-xn
900	0 ~ ±900A		CYHCT-K2V-U/B900A-xn
1000	0 ~ ±1000A		CYHCT-K2V-U/B1000A-xn
1100	0 ~ ±1100A		CYHCT-K2V-U/B1100A-xn
1300	0 ~ ±1300A		CYHCT-K2V-U/B1300A-xn
1500	0 ~ ±1500A		CYHCT-K2V-U/B1500A-xn

(U: unidirectional input current; B: bidirectional input current, please give U or B in Part number)
(n=2, V_{cc} = +12VDC ±5%; n=3, V_{cc} =+15VDC ±5%; n=4, V_{cc} =+24VDC±5%)

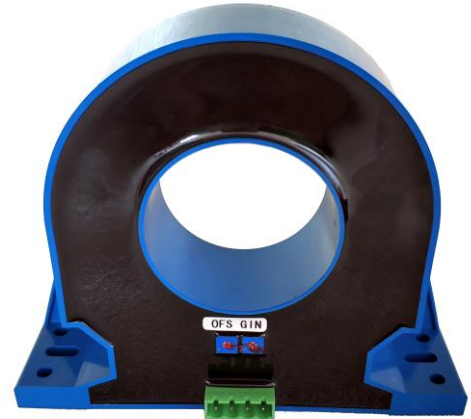
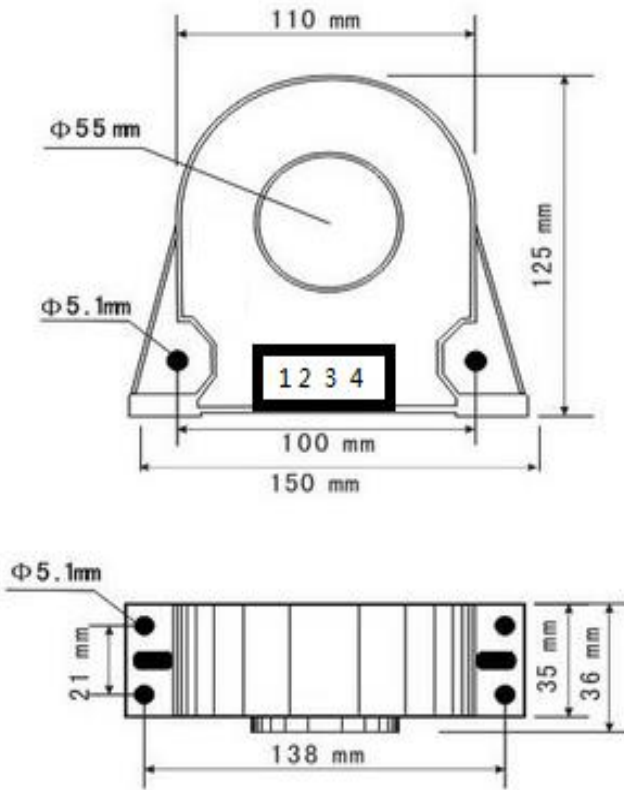
Supply Voltage:	V_{cc} =+12V, +15V, +24V± 5%
Current Consumption	I_c < 25mA
Isolation Voltage	2.5kV, 50/60Hz, 1min
Output Voltage at I_r , $T_A=25^\circ\text{C}$:	V_{out} =0- 4V, 0-5V, 0-10VDC
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 20kΩ
Accuracy at I_r , $T_A=25^\circ\text{C}$,	X <1.0% FS
Linearity from 0 to I_r , $T_A=25^\circ\text{C}$,	E_L <1.0% FS
Electric Offset Voltage, $T_A=25^\circ\text{C}$,	V_{oe} <50mV
Magnetic Offset Voltage ($I_r \rightarrow 0$)	V_{om} <±20mV
Thermal Drift of Offset Voltage,	V_{ot} <±1.0mV/°C
Response Time at 90% of I_p ($f=1\text{k Hz}$)	t_r < 1ms
Frequency Bandwidth (-3dB),	f_b = DC - 20kHz
Case Material:	PBT



Ambient Operating Temperature,
Ambient Storage Temperature,

$T_A = -25^{\circ}\text{C} \sim +85^{\circ}\text{C}$
 $T_S = -40^{\circ}\text{C} \sim +100^{\circ}\text{C}$

PIN Definition and Dimensions

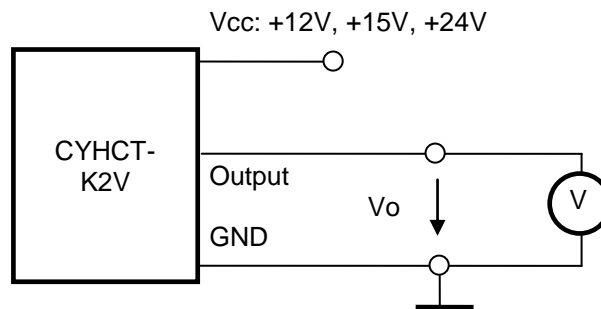


Terminal Arrangement:

- 1: Vcc (+12, +15V, +24VDC)
- 2: NC (not connect)
- 3: OUTPUT
- 4: GND

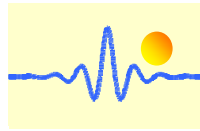
OFS: Offset adjustment
GIN: Gain adjustment

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



Application Notes

1) Part number CYHCT-K2V-U/BxxxxA-xn

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

Example 1: CYHCT-K2V-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-K2V-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-K2V-U1000A-32	
Input current (A)	Output voltage V_o (V)
0	0
250	1.25
500	2.5
750	3.75
1000	5

Current Sensor CYHCT-K2V-B1000A-84	
Input current (A)	Output voltage V_o (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