ChenYang
Technologies GmbH & Co KG

Hall Effect DC Current Sensor CYHCT-K210C

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
• 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 • 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 current (mA)	Part number (see application notes on page 3)
3000A	0 ~ ± 3000A	4-20mA	CYHCT-K210C-U/B3000A-n
4000A	0 ~ ± 4000A		CYHCT-K210C-U/B4000A-n
5000A	0 ~ ± 5000A		CYHCT-K210C-U/B5000A-n
6000A	0 ~ ± 6000A		CYHCT-K210C-U/B6000A-n
8000A	0 ~ ± 8000A		CYHCT-K210C-U/B8000A-n
10000A	0 ~ ± 10000A		CYHCT-K210C-U/B10000A-n
15000A	0 ~ ± 15000A		CYHCT-K210C-U/B15000A-n
20000A	0 ~ ± 20000A		CYHCT-K210C-U/B20000A-n

(n=2, *Vcc*= +12VDC; n=3, *Vcc* =+15VDC; n=4, *Vcc* =+24VDC; n=5, *Vcc* =±12VDC;
n=6, *Vcc* =±15VDC; n=7, *Vcc* =±24VDC; n=8, Vcc=+125VDC. U: unidirectional, B: bidirectional)

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

Electrical Properties

Accuracy at I_r, T_A=25°C (without offset),	<1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0% FS
Linear Measuring range,	1.2 times of measuring range
Overload capability,	3 times of measuring range
Electric Offset Current, T_A=25°C,	4mA DC or 12mA DC
Thermal Drift of Offset Current,	<±0.005mA/°C
Load resistance:	80-450Ω
Response Time at 90% of I_P (f=1k Hz)	t_r < 1ms
Frequency Bandwidth (-3dB),	f_b = DC-3 kHz
Ambient Operating Temperature,	T_A =-25°C ~ +85°C
Ambient Storage Temperature,	T_S =-40°C ~ +100°C

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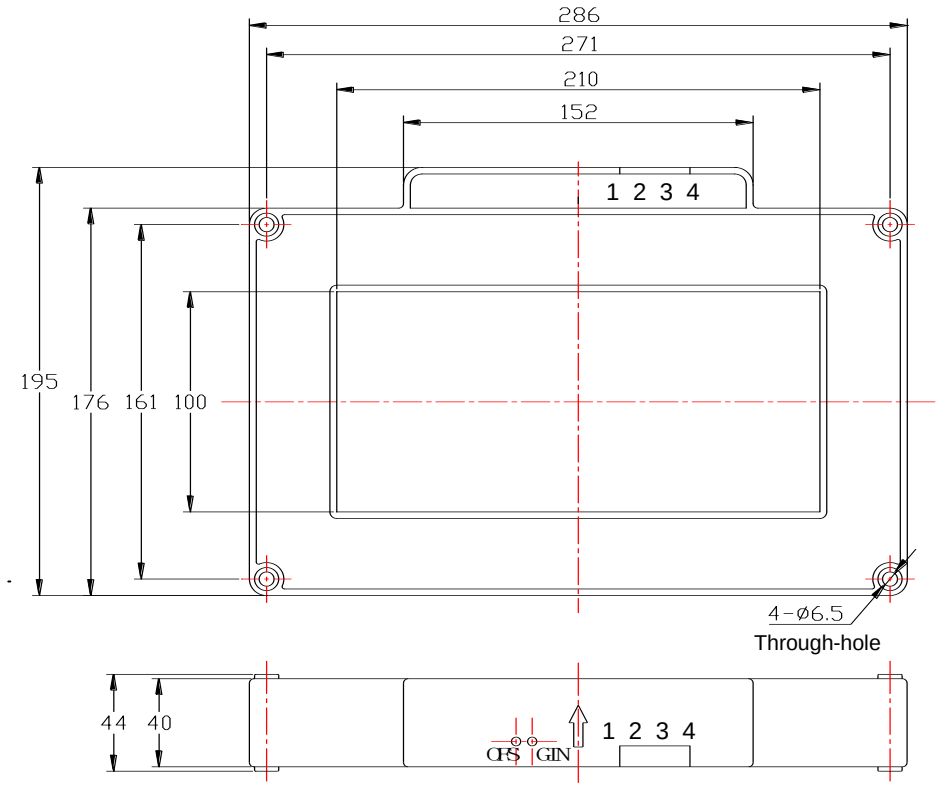
PIN Definition and Dimensions

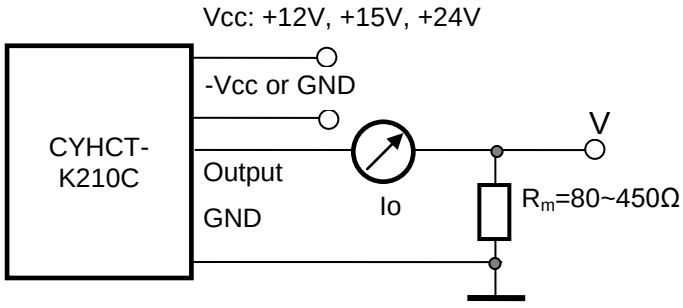


Pin arrangement:

1(V+):	Vcc
2(V-):	-Vcc or GND
3(OUT):	OUTPUT
4(GND):	0V (GND)

OFS: Offset Adjustment

GIN: Gain Adjustment



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-K210C-U/BxxxxxA-n

U: unidirectional input current; **B:** bidirectional input current; **xxxxx:** current value; **n:** power supply (**n**=3, *Vcc*= +12VDC ±5%; **n**=4, *Vcc* =+15VDC ±5%; **n**=5, *Vcc* =+24VDC±5%))

Example 1: CYHCT-K210C-U10000A-5 Hall Effect DC Current sensor with
Output signal: 4mA - 20mA DC
Power supply: +24V DC
Rated input current: 0 - 10000A DC (unidirectional)

Example 2: CYHCT-K210C-B1000A-3 Hall Effect DC Current sensor with
Output signal: 4mA – 12mA - 20mA DC
Power supply: +12V DC
Rated input current: -10000A - 0 - +10000A DC (bidirectional)

2) Relation between Input current and output signal

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Current Sensor CYHCT-K210C-U10000A-5		
Input current (A)	Output current Io(mA)	Output voltage Vo (V) (Measuring resistance Rm=250Ω)
0	4	1
2500	8	2
5000	12	3
7500	16	4
10000	20	5

Current Sensor CYHCT-K210C-B10000A-3		
Input current (A)	Output current Io(mA)	Output voltage Vo (V) (Measuring resistance Rm=250Ω)
-10000	4	1
-7500	6	1.5
-5000	8	2
-2500	10	1.5
0	12	3
2500	14	3.5
5000	16	4
7500	18	4.5
10000	20	5

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