Hall Effect DC Current Sensor CYHCT-K210V

This Hall Effect current sensor is based on open loop principle and designed with 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

Primary Nominal DC Current I_r (A)	Primary Current Measuring Range I_p(A)	Output Voltage (V)	Part number (see application notes on page 4)
5000A	0 ~ ± 5000A	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) x=S: Special output	CYHCT-K210V-U/B5000A-xn
6000A	0 ~ ± 6000A		CYHCT-K210V-U/B6000A-xn
8000A	0 ~ ± 8000A		CYHCT-K210V-U/B8000A-xn
10000A	0 ~ ± 10000A		CYHCT-K210V-U/B10000A-xn
15000A	0 ~ ± 15000A		CYHCT-K210V-U/B15000A-xn
20000A	0 ~ ± 20000A		CYHCT-K210V-U/B20000A-xn
30000A	0 ~ ± 33000A		CYHCT-K210V-U/B30000A-xn

This sensor can be customized for rated input current range from 3000A to 100000A (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, please give U or B in the part number)

Supply Voltage:	*Vcc* ± 5%
Current Consumption	*Ic*< 50mA
Isolation Voltage	6kV, 50/60Hz, 1min
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 at I_r, T_A=25°C (without offset),	*X* <1.0% FS
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 Voltage, T_A=25°C,	V_{oe} <30mV
Magnetic Offset Voltage (I_r →0)	V_{om} <±40mV
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-3kHz

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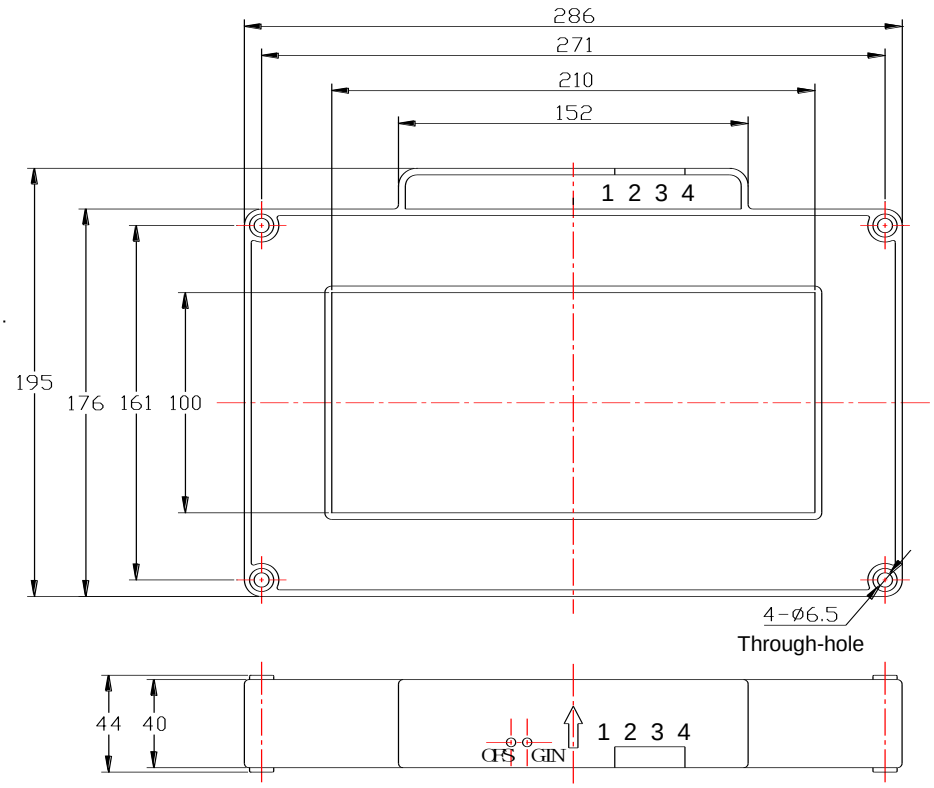
General Data

Ambient Operating Temperature,	T_A = -25°C ~ +85°C
Ambient Storage Temperature,	T_S = -25°C ~ +100°C
Unit weight,	6200g
Standard,	Q/320115QHKJ01-2016

PIN Definition and Dimensions with power supply ≤24VDC



Pin arrangement:

1(V+): Vcc

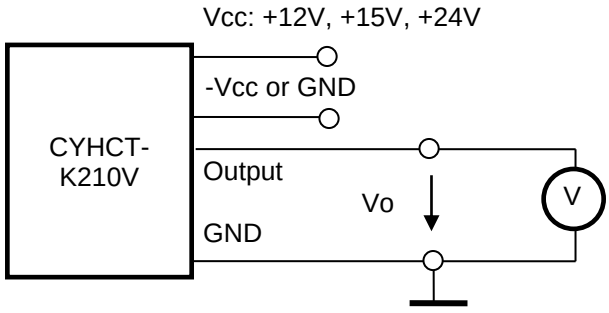
2(V-): -Vcc or GND

3(OUT): OUTPUT

4(GND): 0V (GND)

OFS: Offset Adjustment

GIN: Gain Adjustment



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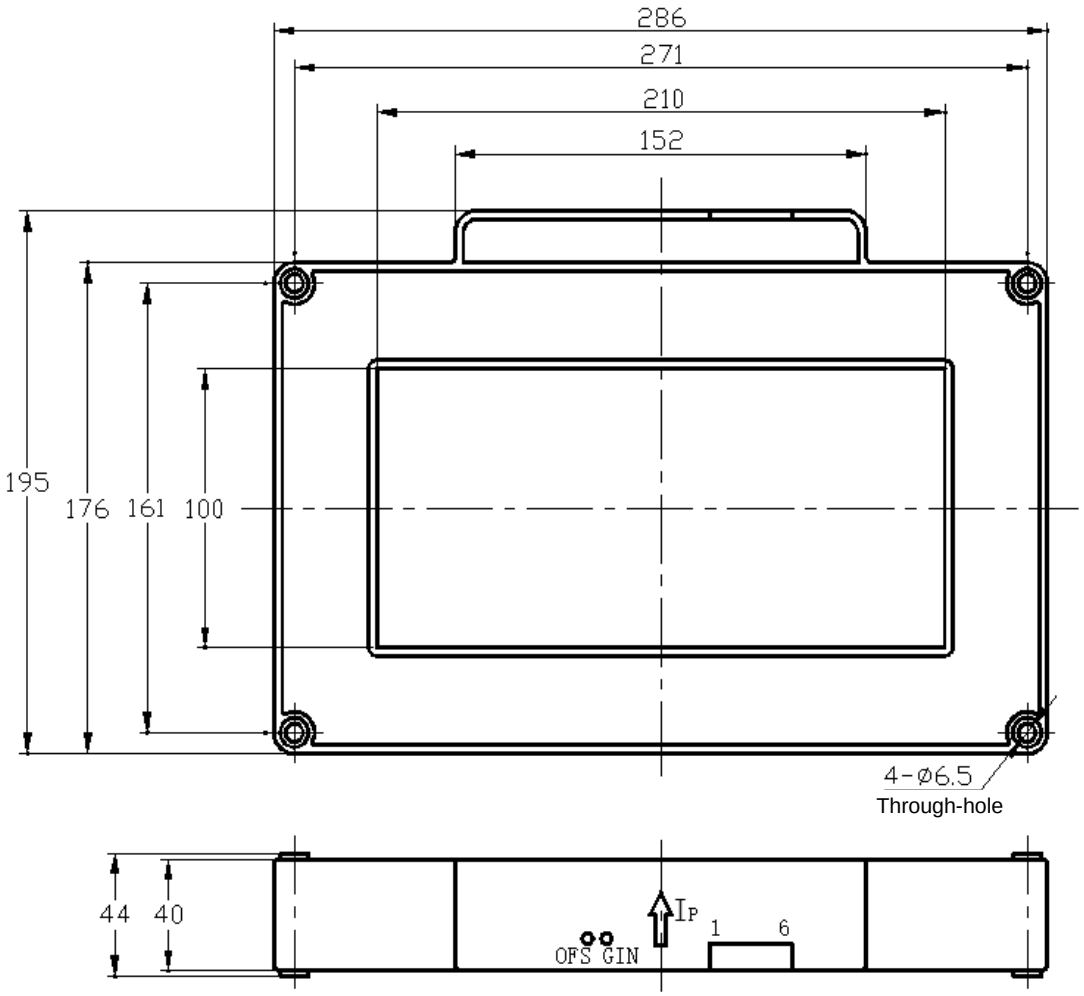
PIN Definition and Dimensions with power supply +120V～+320VDC



OFS: Offset Adjustment GIN: Gain Adjustment

Pin arrangement:

Output terminal:	1: GND 1,	2: Voltage V_{OUT},	3: NC , 4: NC
Power supply:	5: GND 2,	6: +125VDC	

Note: The sensor output is isolated from the power supply and cannot share a common ground.

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

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Application Notes

1) Part number CYHCT-K210V-U/BxxxxxA-xn

U: unidirectional input current; **B:** bidirectional input current; **xxxxx:** 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; n=5, *Vcc* =±12VDC; n=6, *Vcc* =±15VDC; n=7, *Vcc* =±24VDC; n=8, Vcc=+125VDC)

Example 1: CYHCT-K210V-U10000A-32 Hall Effect DC Current sensor with
Output signal: 0 – 5V DC
Power supply: +12V DC
Rated input current: 0 - 10000A DC (unidirectional)

Example 2: CYHCT-K210V-B10000A-84 Hall Effect DC Current sensor with
Output signal: 0 – 10V DC
Power supply: +24V DC
Rated input current: -10000A - 0 - +10000A DC (bidirectional)

2) Relation between Input current and output signal

Current Sensor CYHCT-K210V-U10000A-32	
Input current (A)	Output voltage Vo (V)
0	0
2500	1.25
5000	2.5
7500	3.75
10000	5

Current Sensor CYHCT-K210V-B10000A-84	
Input current (A)	Output voltage Vo (V)
-10000	0
-7500	1.25
-5000	2.5
-2500	3.75
0	5
2500	6.25
5000	7.5
7500	8.75
10000	10

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