

DC Current Sensor with Split Core CYHCT-C5

This Hall Effect current sensor is based on open loop principle and designed with a solid 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
<ul style="list-style-type: none"> • Excellent accuracy • Very good linearity • Small size • Light in weight • 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 • Electrolyzing and electroplating equipment • Electric powered locomotive • Microcomputer monitoring • Electric power network monitoring

Electrical Data

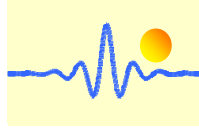
Measuring range M	300A ~ 6000A DC
Linearity range	1.5 x M (for 300A ~ 4000A), 6500A (for >4000A)
Overload capacity	5 x M _{max} (maximum measuring range)
Nominal output signals	0-4V, 0-5V, 0-10V, -5V~+5V, 0-20mA, 4-20mA, -20mA~+20mA ,
Supply voltage	+12VDC, +15VDC, +24VDC, ±12VDC, ±15VDC
Current consumption	18mA ~ 50mA + output current
Galvanic isolation	3KV RMS/50Hz/min

Accuracy and Dynamic Performances

Zero offset voltage/Current	±20mV for 0-5V output, ±0.2mA for current output	
Hysteresis error	±10mV for 0-5V output, ±0.1mA for current output	
Thermal drift of offset	≤500	ppm/°C
Response time	≤1 (di/dt=50A/μs)	ms
Accuracy	±1.0	%
Linearity	≤1.0	%FS

General Data

Operating temperature	-10 ~ +80	°C
Storage temperature	-25 ~ +85	°C
Unit Weight	940 ~ 980	g



Definition of Part number:

CYHCT	-	C5	-	M	-	x	n
(1)		(2)		(3)		(4)	(5)

(1)	(2)	(3)	(4)	(5)
Series name	Case style	Rated Input current (M=U/B + m)	Output signal	Power supply
CYHCT	C5	m = 300A, 400A, 500A, 600A, 700A, 800A, 1000A, 2000A,3000A, 4000A, 5000A,6000A	x=0: 0-4V DC x=3: 0-5V DC x=4: 0-20mA DC x=5: 4-20mA DC x=8: 0-10V DC	n=2: +12V DC n=3: +15V DC n=4: +24V DC n=5: ±12V DC n=6: ±15V DC

U: unidirectional input current; **B:** bidirectional input current

Output Signal of Custom Made Sensors:

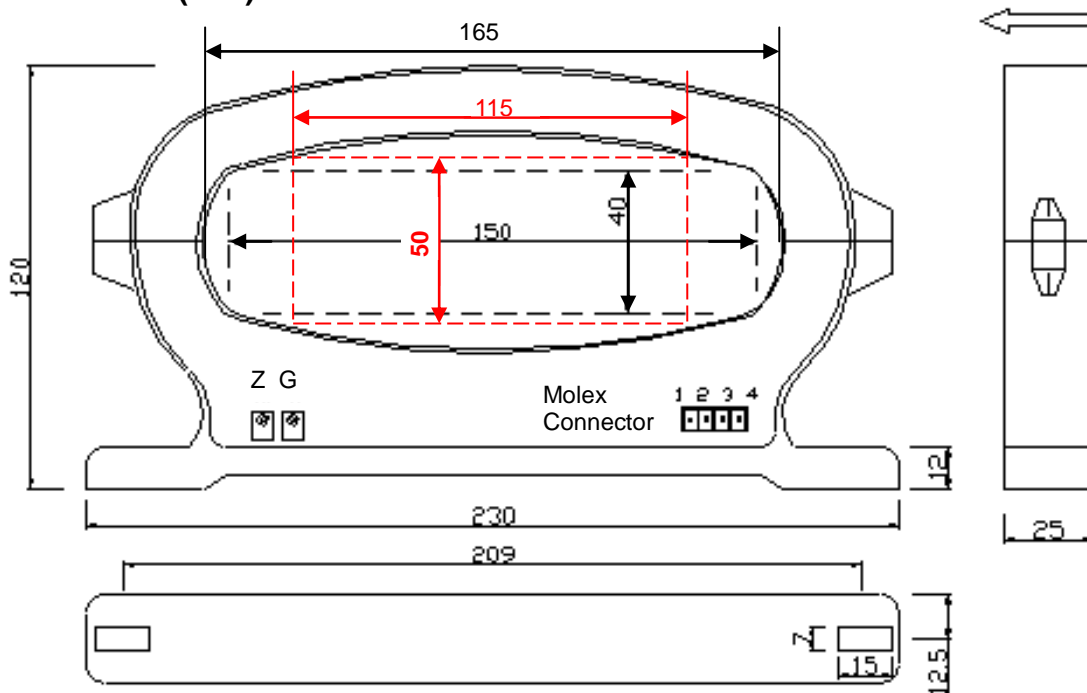
x=1: tracing voltage ±5V DC, **x=2:** tracing current ±20mA DC

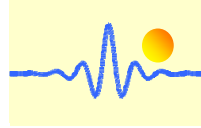
Example 1: CYHCT-C5-U1000A -34, Hall Effect DC Current sensor with
Output signal: 0-5V DC
Power supply: +24V DC
Rated input current: 0-1000A DC

Example 2: CYHCT-C5-B1000A -34, Hall Effect
DC Current sensor with
Output signal: 0-5V DC
Power supply: +24V DC
Rated input current: -1000A ~ +1000ADC



DIMENSIONS (mm)





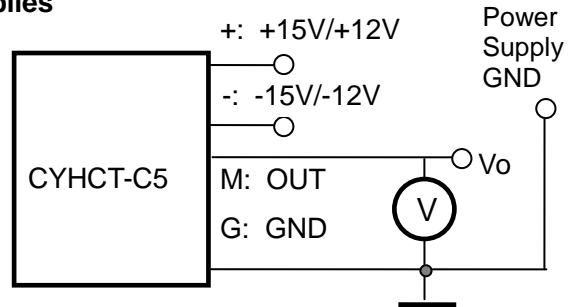
CONNECTION

The current carrying cable must pass through the window. The phase of output is the same as that of the current passing the window in the direction of the arrow indicated on the case.

a) Wiring of Sensors Using Double Power Supplies

Voltage Output

- 1(+): +15V/+12V Power Supply
- 2(-): -15V/-12V Power Supply
- 3(M): Output
- 4(G): Ground

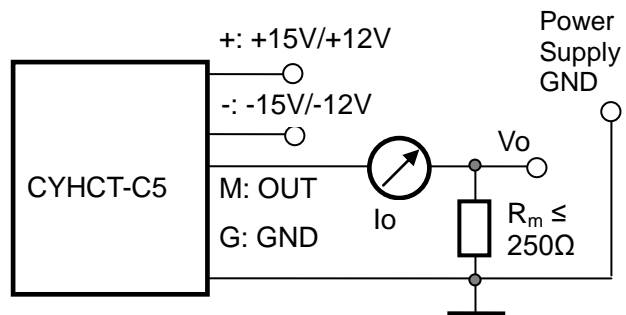


Relation between Input and Output:

Sensor CYHCT-C5-U1000A -35		Sensor CYHCT-C5-B1000A -35	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-1000	0
250	1.25	-500	1.25
500	2.5	0	2.5
750	3.75	500	3.75
1000	5	1000	5

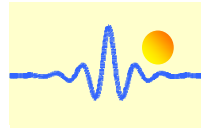
Current Output

- 1(+): +15V/+12V Power Supply
- 2(-): -15V/-12V Power Supply
- 3(M): Output
- 4(G): Ground



Relation between Input and Output (for $R_m=250 \Omega$):

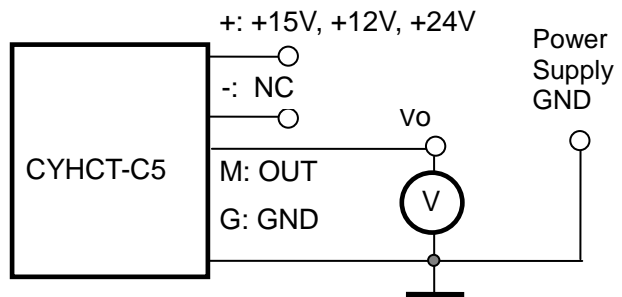
Sensor CYHCT-C5-U1000A -45			Sensor CYHCT-C5-B1000A -45		
Input current (A)	Output current I_o (mA)	Output voltage V_o (V)	Input current (A)	Output current I_o (mA)	Output voltage V_o (V)
0	0	0	-1000	0	0
250	5	1.25	-500	5	1.25
500	10	2.5	0	10	2.5
750	15	3.75	500	15	3.75
1000	20	5	1000	20	5



B) Wiring of Sensors Using Single Power Supply

Voltage Output

1(+): +15V, +12V, +24V
2(-): NC
3(M): Output
4(G): Ground

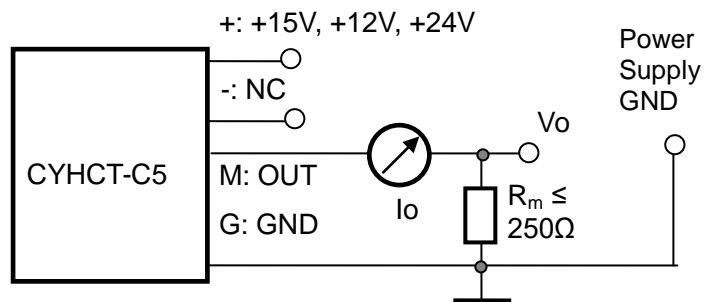


Relation between Input and Output:

Sensor CYHCT-C5-U1000A -34		Sensor CYHCT-C5-B1000A -34	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-1000	0
250	1.25	-500	1.25
500	2.5	0	2.5
750	3.75	500	3.75
1000	5	1000	5

Current Output

1(+): +15V, +12V, +24V
2(-): NC
3(M): Output
4(G): Ground



Relation between Input and Output (for $R_m=250 \Omega$):

Sensor CYHCT-C5-U1000A -54			Sensor CYHCT-C5-B1000A -54		
Input current (A)	Output current I_o (mA)	Output voltage V_o (V)	Input current (A)	Output current I_o (mA)	Output voltage V_o (V)
0	4	1	-1000	4	1
250	8	2	-500	8	2
500	12	3	0	12	3
750	16	4	500	16	4
1000	20	5	1000	20	5

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 case.