

## Split Core Hall Effect Current Sensor CYHCT-C14

This Hall Effect current sensor is based on open loop principle and can be used for measurement of DC currents. The output of the transducer reflects the real wave of the current carrying conductor. The sensors use split cores and are easily to mount.

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

### Electrical Data

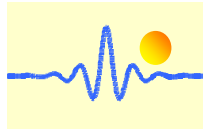
Measuring range M	3000A ~ 30000A DC
Linearity range	1.2 x M (measuring range)
Overload capacity	20 x M (measuring range)
Nominal output signals	0-4V, 0-5V, 0-20mA, 4-20mA ....
Supply voltage	±12VDC, ±15VDC
Current consumption	25mA ~ 50mA + output current
Galvanic isolation	3KV RMS/50Hz/min

### Accuracy and Dynamic Performances

Zero offset voltage	±20	mV
Hysteresis error	±10	mV
Thermal drift of offset current	≤250	ppm/°C
Response time	≤15 (di/dt=50A/μs)	μs
Accuracy	±1.0	%
Linearity	≤1.0	%FS

### General Data

Operating temperature	-10 ~ +80	°C
Storage temperature	-25 ~ +85	°C



**Definition of Part number:**

CYHCT	-	C14	-	M	-	x	n
(1)	(2)	(3)	(4)	(5)			

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Series name	Case style	Rated Input current (M=U/B + m)	Output signal	Power supply
CYHCT	C14	m = 3000A, 5000A, 5000A, 6000A, 8000A, 10000A, 15000A, 20000A, 25000A, 30000A	x=0: 0-4V DC x=3: 0-5V DC x=4: 0-20mA DC x=5: 4-20mA DC	n=5: ±12V DC n=6: ±15V DC

**U:** unipolar input current;      **B:** bipolar input current

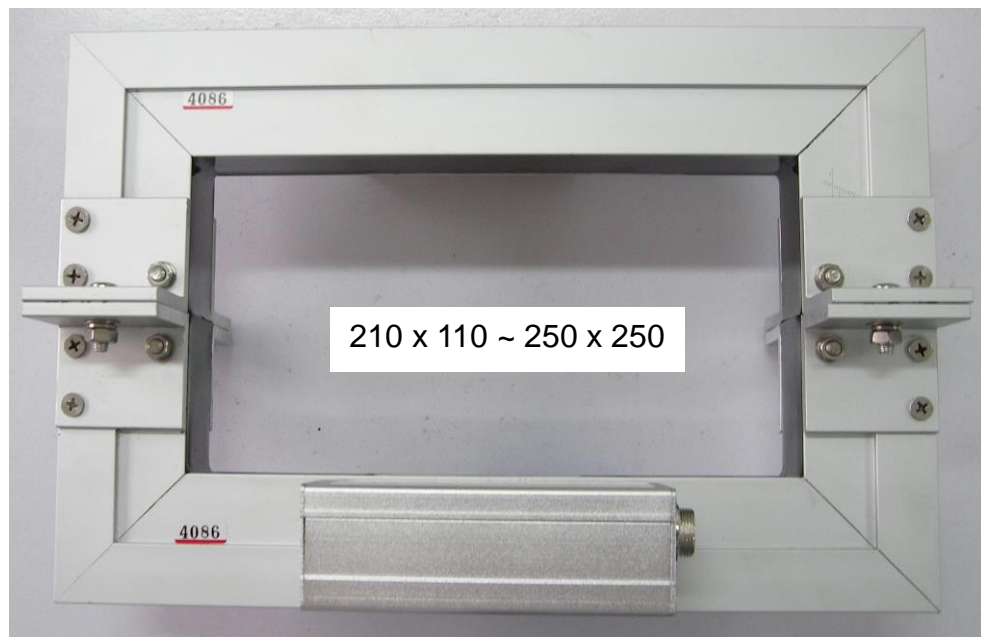
**Output Signal of Custom Made Sensors:**

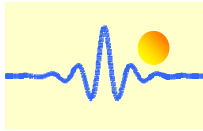
**x=1:** tracing voltage 5V, **x=2:** tracing current 20mA

**Example 1:** CYHCT-C14-U5000A -45, Hall Effect DC Current sensor with  
Output signal: 0-20mA DC  
Power supply: ±12V DC  
Rated input current: 0-5000A DC (unipolar)

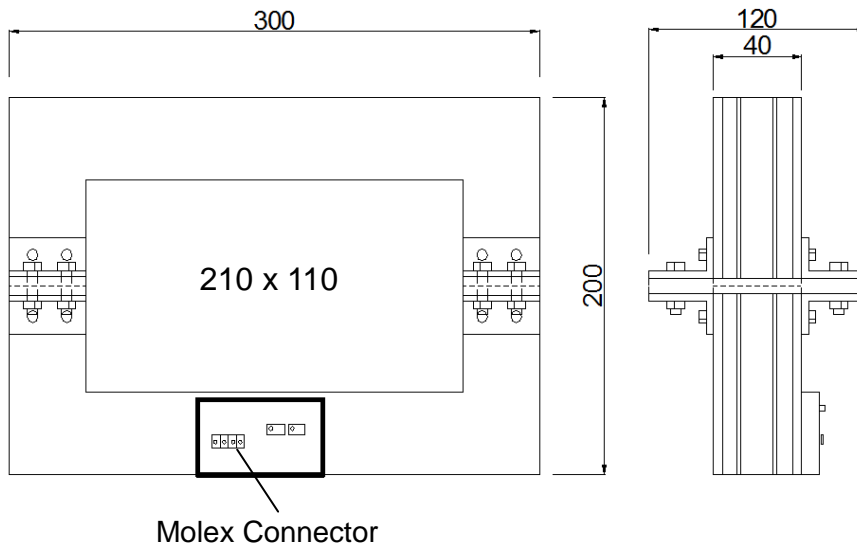
**Example 2:** CYHCT-C14-B5000A -35, Hall Effect  
DC Current sensor with  
Output signal: 0-5V DC  
Power supply: ±12V DC  
Rated input current: -5000A ~ +5000ADC  
(bipolar)

**Dimensions (mm)**

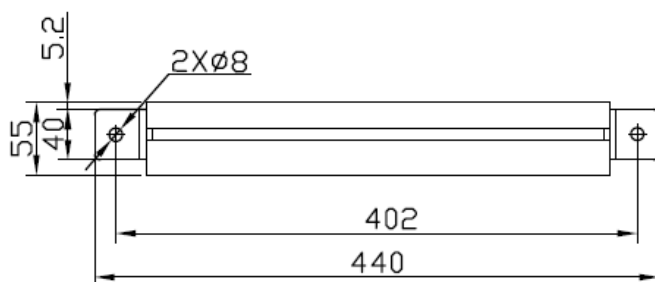
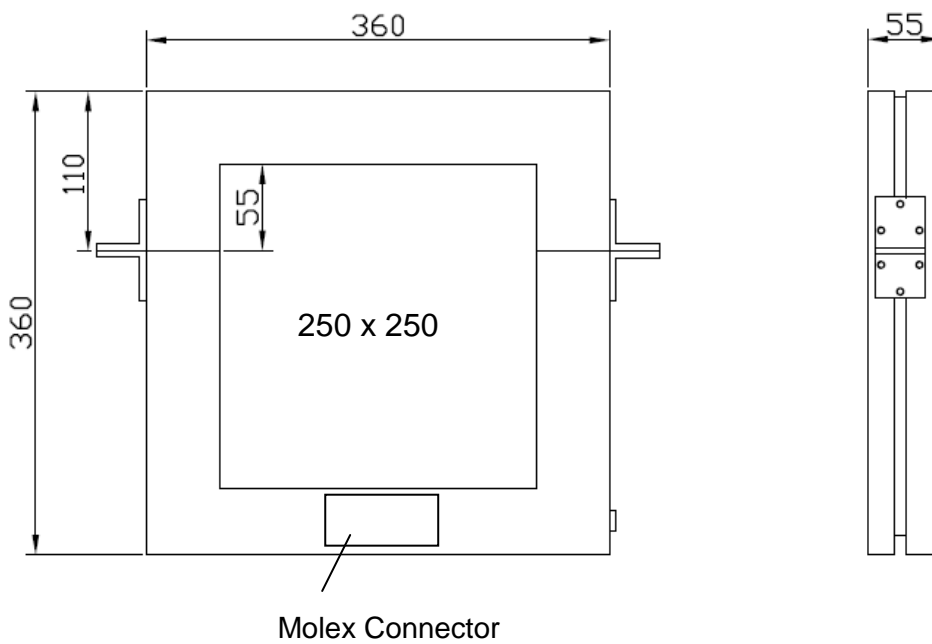


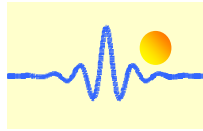


a) Aperture 210 x 210 mm



b) Aperture 250 x 250 mm





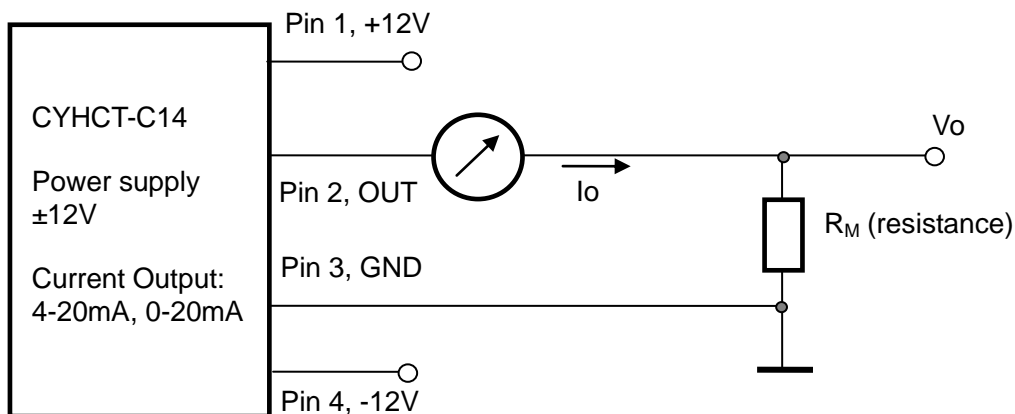
## CONNECTION

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.

### Wiring of Terminals for case style C14:

1. +: +15V/+12V Power Supply
2. OUT: Output (0-5V, 0-4V, 0-20mA, 4-20mA)
3. GND: Ground
4. -: -15V/-12V Power Supply

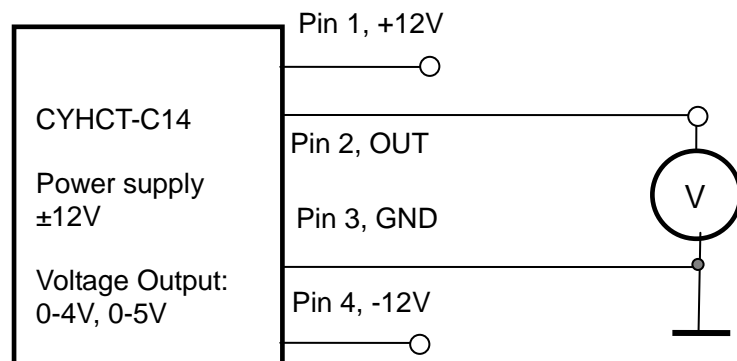
### Current Output



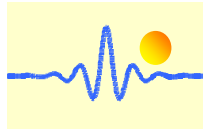
Relation between Input and Output (for  $R_m=250 \Omega$ ):

Sensor CYHCT-C14-U5000A -45			Sensor CYHCT-C14-B5000A -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	-5000	0	0
1250	5	1.25	-2500	5	1.25
2500	10	2.5	0	10	2.5
3750	15	3.75	2500	15	3.75
5000	20	5	5000	20	5

### Voltage Output



Relation between Input and Output:



Sensor CYHCT-C14-U5000A -35		Sensor CYHCT-C14-B5000A -35	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-5000	0
1250	1.25	-2500	1.25
2500	2.5	0	2.5
3750	3.75	2500	3.75
5000	5	5000	5

### Notes:

1. The input resistor of the secondary instrument should be higher than  $2k\Omega$  ( $R_L \geq 2k\Omega$ )
2. Make sure that the input and output signals and power supply are correctly connected before the transducer is powered on. The transducer can be damaged by wrong connection.
3. The direction of the input current must be corresponding to the direction marked on the transducer case.
4. The zero point potentiometer W1 and gain potentiometer W2 are adjusted by calibrating the transducer before delivery. Don't readjust them normally. Don't open the transducer case!
5. The potentiometers can be adjusted, only if necessary, by turning slowly to the required accuracy with a small screwdriver. In this case a new calibration is necessary.
6. The best accuracy can be achieved when the window is fully filled with bus-bar (current carrying conductor). The bus-bar should be positioned in the center of the window if the window opening is bigger than the bus-bar. This can improve the accuracy
7. The temperature of the input current bus-bar should be not higher than  $80^\circ\text{C}$
8. To obtain a good accuracy, the two parts of the transducer case must be good coupled. Pay attention to the numbers of the case parts. The numbers of the both parts should be oriented to the same direction when mounting.

