



## Split Core Hall Effect AC/DC Current Sensor CYHCS-LY05

The sensor CYHCS-LY05 is a Split Core Hall Effect Sensor for the measurement of AC/DC current. The sensor has a galvanic isolation between the high power primary and the secondary electronic circuits with voltage output.

Features and Advantages	Applications
<ul style="list-style-type: none"> <li>AC/DC current measurement</li> <li>Output signal option (4-20mA, 0-5V, <math>\pm 5V</math>)</li> <li>High isolation between primary and secondary circuits</li> <li>No insertion losses</li> <li>Split Core, easy installation</li> <li>Temperature compensation</li> </ul>	<ul style="list-style-type: none"> <li><b>Photovoltaic equipment</b></li> <li>Battery banks, such as, monitoring load current and charge current, verifying operation</li> <li>Transportation, measuring traction power or auxiliary loads</li> <li>Phase fired controlled heaters</li> <li>Directly connect to PLC</li> <li>Sense motor stalls and short circuits</li> <li>Industrial instrumentation</li> </ul>

### Specifications

Rated input current	3000A ~ 10000A DC/AC (DC current calibration)
Linear measuring range	1.1 times of rated input current
Output signals	$\pm 5V$ , 0-5VDC, 4-20mADC
Power supply (voltage Ripple)	+12V DC, +24V DC, $\pm 12V$ DC, $\pm 15V$ DC (5%)
Measuring accuracy	$\pm 1.0\%$
Linearity (10% - 100%), 25°C	$\leq \pm 1.0\%$ FS
Zero offset voltage	$\pm 25mV$
Thermal drift of offset voltage	$\leq \pm 250PPM/^\circ C$
Galvanic isolation	6 kV DC, 50Hz, 1min
Isolation resistance	$\geq 100M\Omega$
Response time	$\leq 3\mu s$ for tracing output, $\leq 50ms$ DC voltage output, $\leq 100ms$ DC current output,
di/dt following accuracy	50A/ $\mu s$
Current consumption	$\leq 50mA$
Output load	Voltage output : $\geq 2k\Omega$ , Current output: $\leq 250\Omega$
Frequency range	DC ~ 10kHz
Case style and Window size	LY05 , 182x44mm or 182x55mm or 182x66mm, 182x88mm
Operating temperature	-25°C ~ +70°C
Storage temperature	-45°C ~ + 85°C
Relative humidity	$\leq 90\%$

### Definition of Part number:

CYHCS	-	LY05	-	m	-	x	n
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(1)

(2)

(3)

(4)

(5)



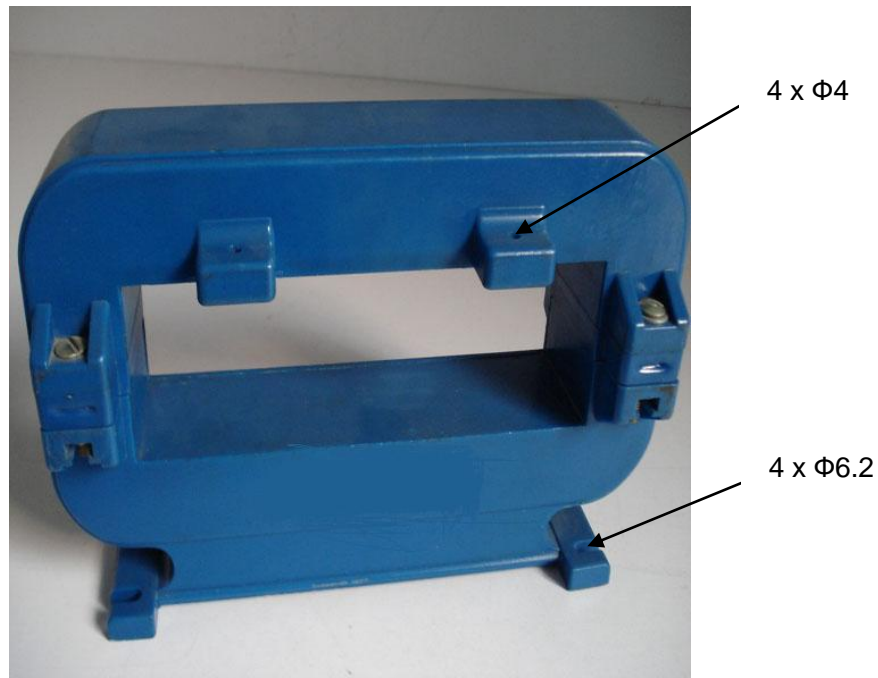
(1)	(2)	(3)	(4)	(5)
Series name	Case style	Rated Input current (m)	Output signal	Power supply
CYHCS	LY05	m = 3000A ~ 10000A	<b>x=1:</b> tracing voltage $\pm 5V$ AC/DC <b>x=3:</b> 0-5V DC <b>x=5:</b> 4-20mA DC	<b>n=2:</b> +12V DC <b>n=4:</b> +24V DC <b>n=5:</b> $\pm 12V$ DC <b>n=6:</b> $\pm 15V$ DC

**Example 1:** CYHCS-LY05-10000A -15, Hall Effect AC/DC Current sensor with  
Output signal: tracing voltage  $\pm 5V$  AC/DC  
Power supply:  $\pm 12V$  DC  
Rated input current: 10000A AC/DC

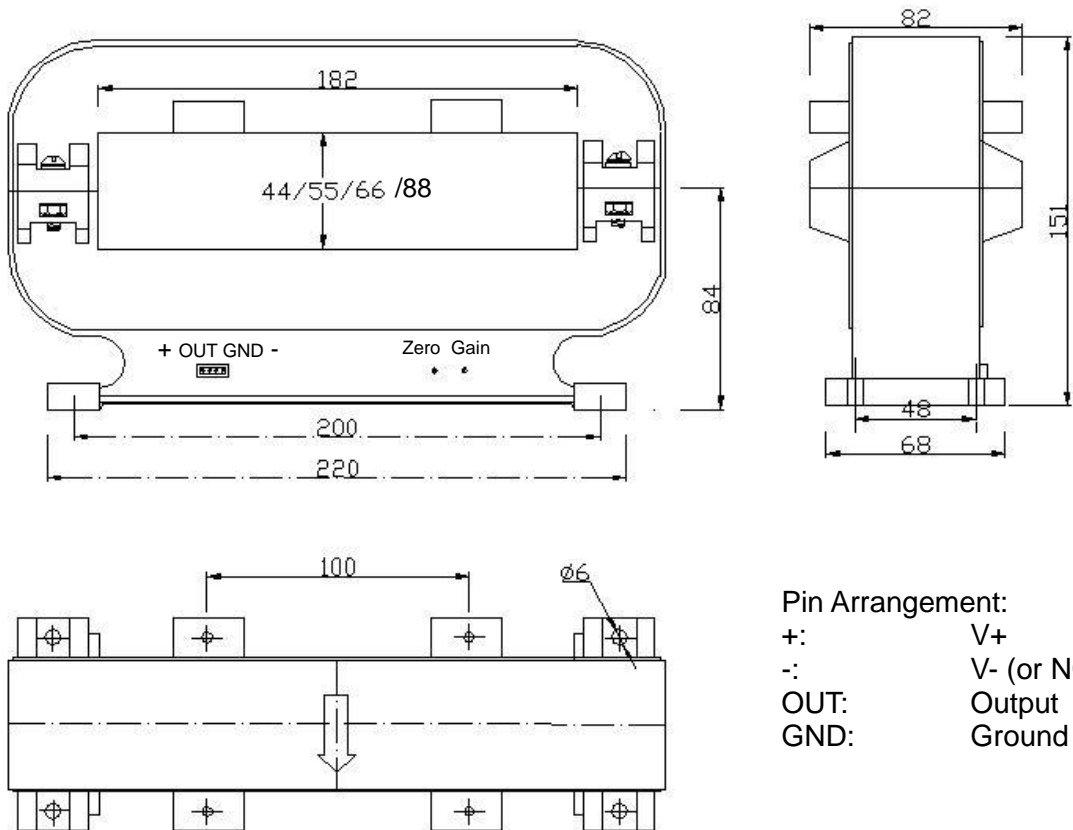
**Example 2:** CYHCS-LY05-10000A -14, Hall Effect AC/DC Current sensor with  
Output signal: tracing voltage  $\pm 5V$  AC/DC  
Power supply: +24V DC  
Rated input current: 10000A AC/DC

**Example 3:** CYHCS-LY05-10000A -54, Hall Effect AC/DC Current sensor with  
Output signal: 4-20mA DC  
Power supply: +24V DC  
Rated input current: 10000A AC/DC

### DIMENSIONS (mm)



Window Size: 182 x 44mm or 182 x 55mm or 182 x 66mm



**Pin Arrangement:**  
 +: V+  
 -: V- (or NC)  
 OUT: Output  
 GND: Ground

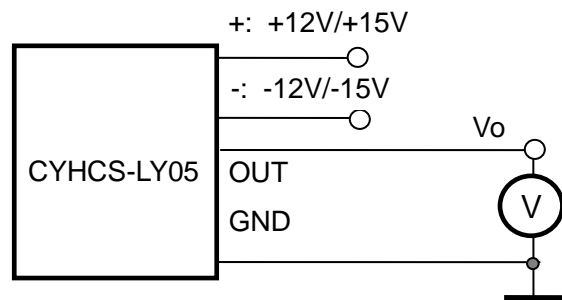
## CONNECTIONS

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

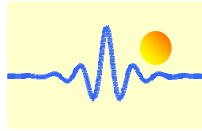
#### Voltage Output

+: +15V/+12V  
 OUT: Output  
 GND: Ground  
 -: -15V/-12V



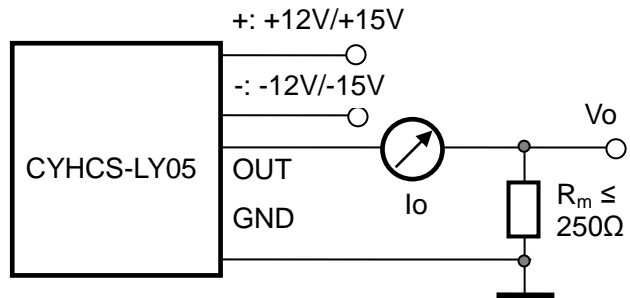
Relation between Input and Output:

Sensor CYHCS-LY05-10000A-15	
Input current ( A )	Output voltage (V)
-10000	-5
-5000	-2.5
0	0
5000	2.5
10000	5



### Current Output

+: +12V/+15V  
 OUT: Output  
 GND: Ground  
 -: -12V/-15V



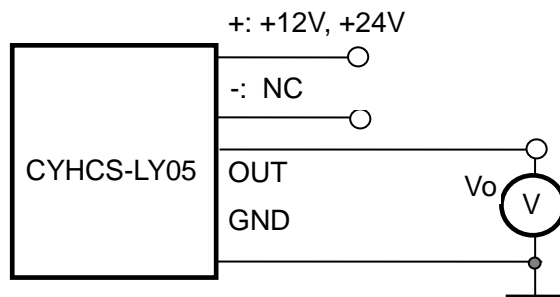
Relation between Input and Output (for  $R_m=200\ \Omega$ ):

Sensor CYHCS-LY05-10000A-55		
Input current (A, RMS/DC)	Output current $I_o$ (mA, DC)	Output voltage $V_o$ (V, DC)
0	4	0.8
2500	8	1.6
5000	12	2.4
7500	16	3.2
10000	20	4

### B) Wiring of Sensors Using Single Power Supply

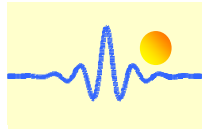
#### Voltage Output

+: +12V, +24V  
 OUT: Output  
 GND: Ground  
 -: NC

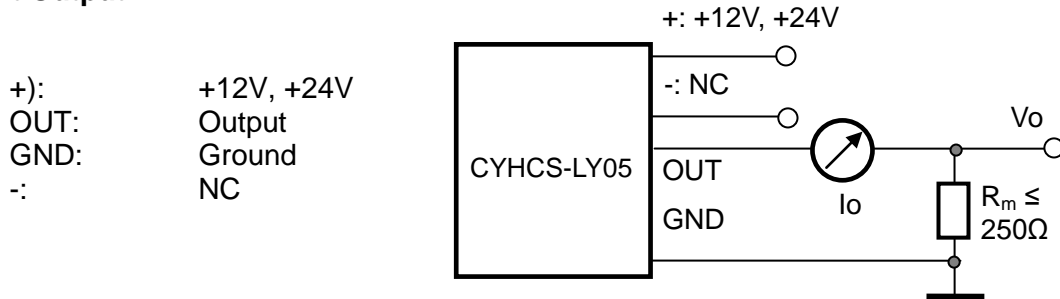


Relation between Input and Output:

Sensor CYHCS-LY05-10000A-14	
Input current (A)	Output voltage (V)
-10000	-5
-5000	-2.5
0	0
5000	2.5
10000	5



## Current Output



Relation between Input and Output (for  $R_m=200\Omega$ ):

Sensor CYHCS-LY05-10000A-54		
Input current (A, RMS/DC)	Output current $I_o$ (mA, DC)	Output voltage $V_o$ (V, DC)
0	4	0.8
2500	8	1.6
5000	12	2.4
7500	16	3.2
10000	20	4

## Notes:

1. Connect the terminals of power source, outputs 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.