

Hall Effect AC/DC Current Sensor CYHCS-WF2

The sensor CYHCS-WF2 is an open loop Hall Effect sensor for the measurement of AC/DC current. The sensor has a galvanic isolation between the primary conductor and the secondary electronic circuit.

Features and Advantages	Applications
<ul style="list-style-type: none"> AC/DC current measurement Output signal option (0-20mA, 4-20mA, 0-5V, $\pm 5V$, 0-10V) 35mm DIN Rail High isolation between primary and secondary circuits No insertion losses Easy installation 	<ul style="list-style-type: none"> Photovoltaic equipment Battery banks, such as, monitoring load current and charge current, verifying operation Transportation, measuring traction power or auxiliary loads Phase fired controlled heaters Directly connect to PLC Sense motor stalls and short circuits

Specifications

Rated input current (DC current calibration)	20A, 30A, 40A, 50A, 60A, 70A, 80A, 90A, 100A
Linear measuring range	1.2 times of rated input current
Output signals	$\pm 5VAC/DC$, 0-5VDC, 0-10VDC, 0-20mADC, 4-20mADC
Power supply	+12V DC, +24V DC, $\pm 12V$ DC, $\pm 15V$ DC
Measuring accuracy	$\pm 1.0\%$
Linearity (10% - 100%), 25°C	$\leq \pm 0.5\%$
Zero offset voltage	$\pm 25mV$
Hysteresis error	$\pm 10mV$
Thermal drift of offset voltage	$\leq 400PPM/^\circ C$
Galvanic isolation	6 kV AC, 50Hz, 1min
Isolation resistance	$\geq 100M\Omega$
Response time	$\leq 3\mu s$ for analog output, $\leq 100ms$ DC output
Frequency range	DC ~ 10kHz
di/dt following accuracy	50A/ μs
Overload capacity	20 times
Current consumption	$\leq 50mA$
Output load	Voltage output : $\geq 2k\Omega$, Current output: $\leq 250\Omega$
Mounting	35mm DIN Rail
Case style and Window size	WF2 with aperture $\varnothing 20mm$
Operating temperature	-25°C ~ +70°C
Storage temperature	-45°C ~ + 85°C
Relative humidity	$\leq 90\%$
Mean Time Between Failures (MTBF)	$\geq 100k$ hours

Definition of Part number:

CYHCS	-	WF2	-	m	-	x	n
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(1)

(2)

(3)

(4)

(5)



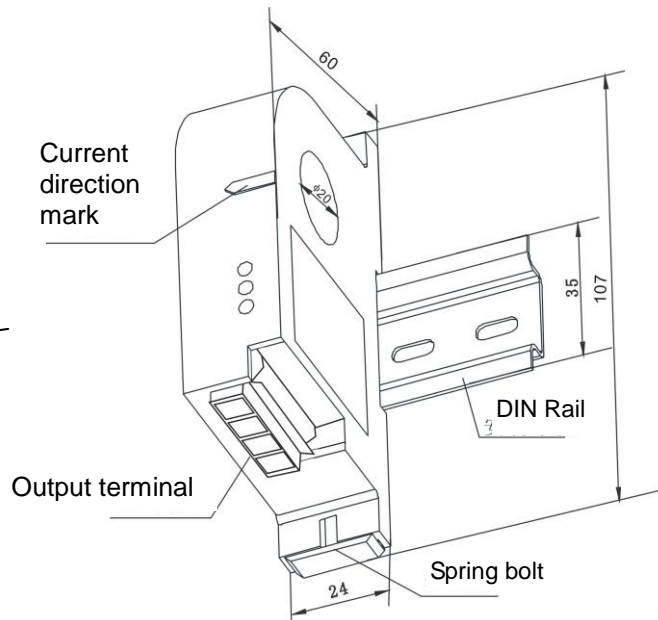
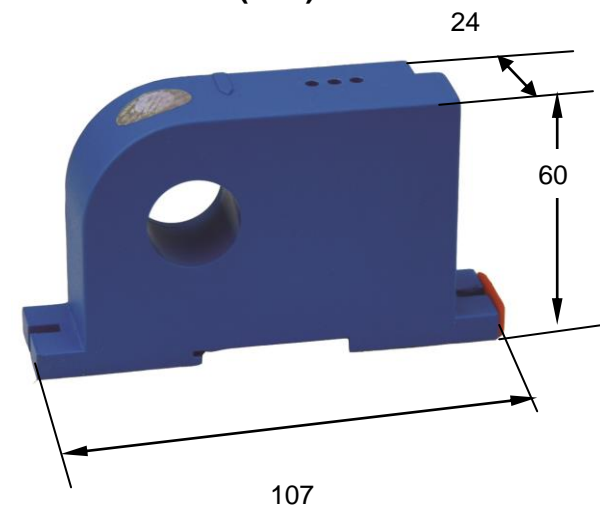
(1)	(2)	(3)	(4)	(5)
Series name	Case style	Rated Input current (m)	Output signal	Power supply
CYHCS	WF2	m = 20A,30A, 40A, 50A, 60A, 70A,80A, 90A, 100A	x=1: tracing voltage $\pm 5V$ AC/DC x=3: 0-5V DC x=4: 0-20mA DC x=5: 4-20mA DC x=8: 0-10V DC	n=2: +12V DC n=4: +24V DC n=5: $\pm 12V$ DC n=6: $\pm 15V$ DC

Example 1: CYHCS-WF2-100A -15, Hall Effect AC/DC Current sensor with
Output signal: tracing voltage $\pm 5V$ AC/DC
Power supply: $\pm 12V$ DC
Rated input current: 100A AC/DC

Example 2: CYHCS-WF2-100A -14, Hall Effect AC/DC Current sensor with
Output signal: tracing voltage $\pm 5V$ AC/DC
Power supply: +24V DC
Rated input current: 100A AC/DC

Example 3: CYHCS-WF2-100A -54, Hall Effect AC/DC Current sensor with
Output signal: 4-20mA DC
Power supply: +24V DC
Rated input current: 100A AC/DC

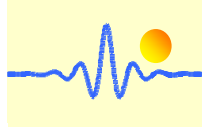
DIMENSIONS (mm)



Dimensions: 107x 24 x 60mm, Aperture: $\varnothing 20$ mm

Pin Arrangement:

- +: V+
- : V- (or Ground)
- G: Ground
- M: Output



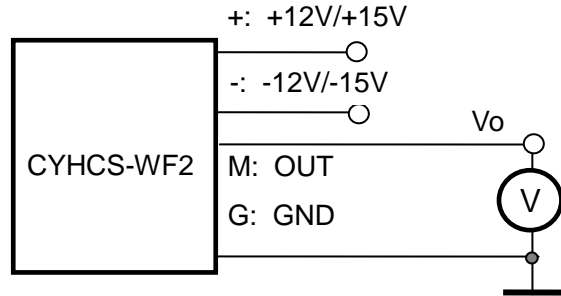
CONNECTIONS

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

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

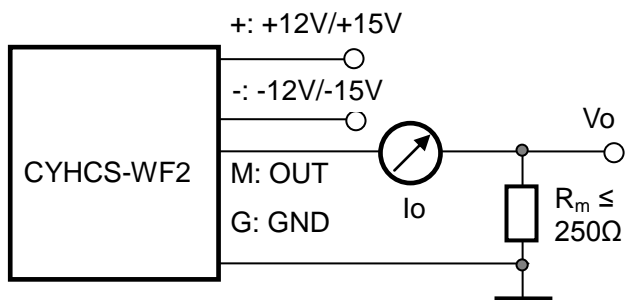


Relation between Input and Output:

Sensor CYHCS-WF2-100A-15	
Input current (A)	Output voltage (V)
-100	-5
-75	-3.75
-50	-2.5
-25	-1.25
0	0
25	1.25
50	2.5
75	3.75
100	5

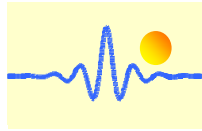
Current Output

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



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

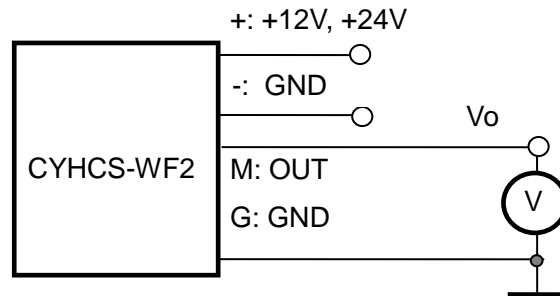
Sensor CYHCS-WF2-100A-45		
Input current (A, RMS/DC)	Output current I_o (mA, DC)	Output voltage V_o (V, DC)
0	0	0
25	5	1.25
50	10	2.5
75	15	3.75
100	20	5



B) Wiring of Sensors Using Single Power Supply

Voltage Output

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

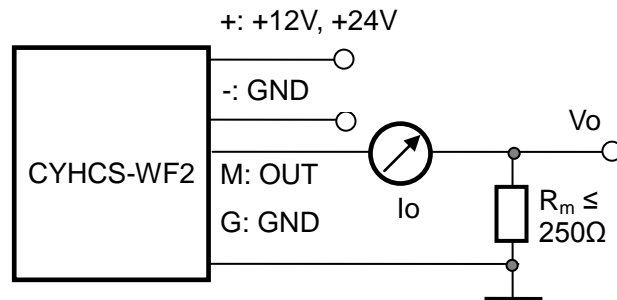


Relation between Input and Output:

Sensor CYHCS-WF2-100A-14	
Input current (A)	Output voltage (V)
-100	-5
-50	-2.5
0	0
50	2.5
100	5

Current Output

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



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

Sensor CYHCS-WF2-100A-54		
Input current (A, RMS/DC)	Output current I_o (mA, DC)	Output voltage V_o (V, DC)
0	4	1
25	8	2
50	12	3
75	16	4
100	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.