

## Hall Effect DC Current Sensor CYHCT-WS3

The sensor CYHCT-WS3 is a Hall Effect sensor for the measurement of DC current. The sensor has a galvanic isolation between the high power primary conductor and the secondary electronic circuit and with different output signals and different power supplies.

Features and Advantages	Applications
<ul style="list-style-type: none"> <li>DC current measurement</li> <li>Output signal option (4-20mA, 0-5V, 0-10V, <math>\pm 5V</math>)</li> <li>High isolation between primary and secondary circuits</li> <li>No insertion losses</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</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 (DC)	25A, 30A,40A,50A,60A,70A,80A,90A,100A, 200A, 300A		
Linear measuring range	1.2 times of rated input current		
Output signals	$\pm 5V$ DC, 0-5VDC, 0-10VDC, 0-20mADC, 4-20mADC		
Power supply	+12V DC, +15VDC, +24V DC		
Measuring accuracy	Voltage output: $\pm 1.0\%$ for 25A~40A, $\pm 0.5\%$ for 50A~300A 4-20mA output: $\pm 1.0\%$ for 25A~40A, $\pm 0.5\%$ for 50A~300A 0-20mA output: $\pm 1.0\%$ for 25A ~ 300A		
Linearity (10% - 100%), 25°C	Voltage output: $\pm 0.5\%$ for 25A~40A, $\pm 0.2\%$ for 50A~300A 4-20mA output: $\pm 0.5\%$ for 25A~40A, $\pm 0.2\%$ for 50A~300A 0-20mA output: $\pm 0.5\%$ for 25A ~ 300A		
Zero offset voltage	$\pm 10mV$	Hysteresis error	$\pm 10mV$
Thermal drift of offset voltage	$\leq 300ppm/^{\circ}C$	Thermal Drift (-10°C to 50°C)	$< 1000ppm /^{\circ}C$
Galvanic isolation	3 kV DC, 1min.		
Isolation resistance	$\geq 100M\Omega$		
Response time	$\leq 10\mu s$ for instantaneous output, $\leq 20\mu s$ DC output		
Frequency Bandwidth (-3dB)	DC – 8kHz		
di/dt following accuracy	50A/ $\mu s$		
Overload capacity	5 times of rated current		
Current consumption	$\leq 25mA$ for voltage output, 25mA + Output current for current output		
Output load	Voltage output : $\geq 2k\Omega$ , Current output: $\leq 250\Omega$		
Mounting	35mm DIN Rail		
Case style and Window size	WS3 with aperture $\varnothing 20mm$		
Protection of Case	IP20		
Operating temperature	-40°C ~ +70°C	Storage temperature	-40°C ~ +85°C
Relative humidity	$\leq 90\%$		
MTBF	$\geq 100k$ hours		

### Definition of Part number:

CYHCT	-	WS3	-	M	-	x	n
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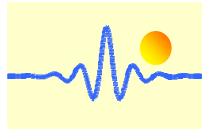
(1)

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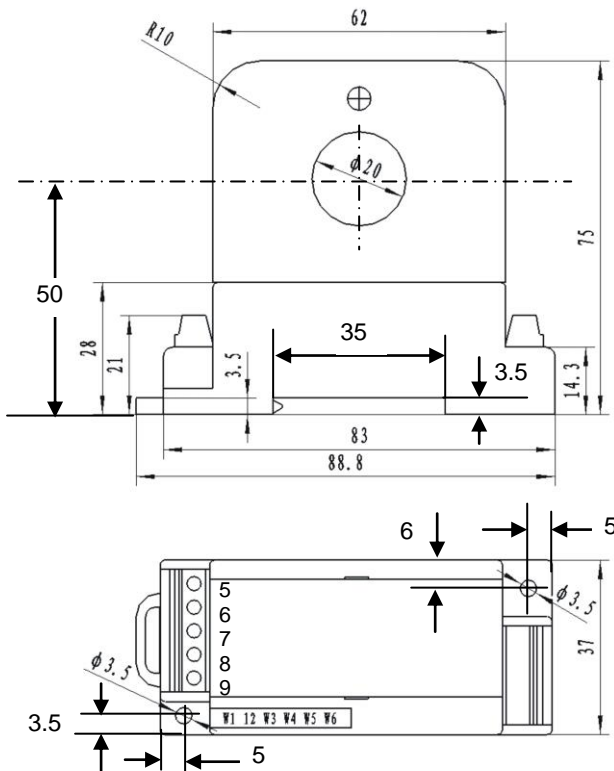
(1)	(2)	(3)	(4)	(5)
Series name	Case style	Rated Input current (M=U/B m)	Output signal	Power supply
CYHCT	WS3	m = 25A, 30A, 40A, 50A, 60A, 70A, 80A, 90A, 100A, 200A, 300A (other input current between 25A-300A)	x=1: tracing voltage $\pm 5V$ DC x=3: 0-5V DC x=4: 0-20mA DC x=5: 4-20mA DC x=8: 0-10V DC	n=2: +12V DC n=3: +15V DC n=4: +24V DC

U: unidirectional; B: bidirectional (please give U or B in the part number)

**Example 1:** CYHCT-WS3-U100A -34, Hall Effect DC Current sensor with  
Output signal: 0-5V DC  
Power supply: +24V DC  
Rated input current: 0-100A DC

**Example 2:** CYHCT-WS3-U100A -54, Hall Effect DC Current sensor with  
Output signal: 4-20mA DC  
Power supply: +24V DC  
Rated input current: 0-100A DC

### DIMENSIONS (mm)

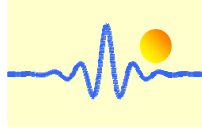


Dimensions: 75mm x 83mm x 37mm, Aperture:  $\varnothing 20$  mm

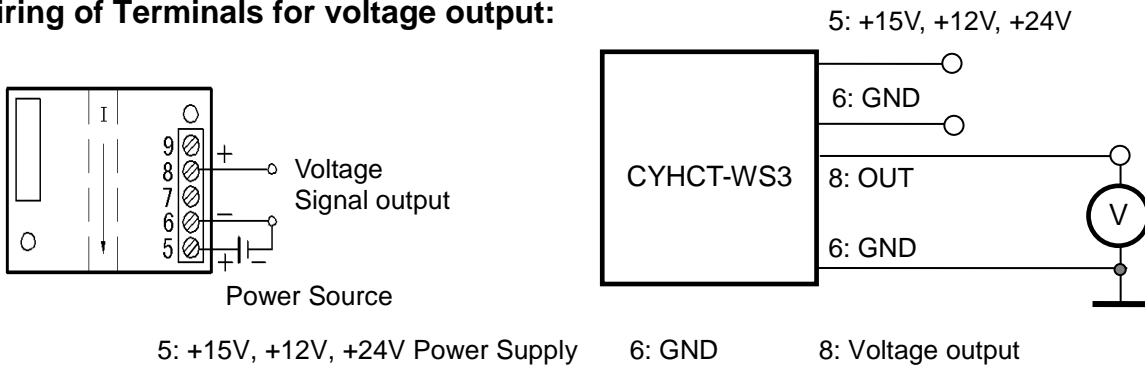


### CONNECTIONS

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.



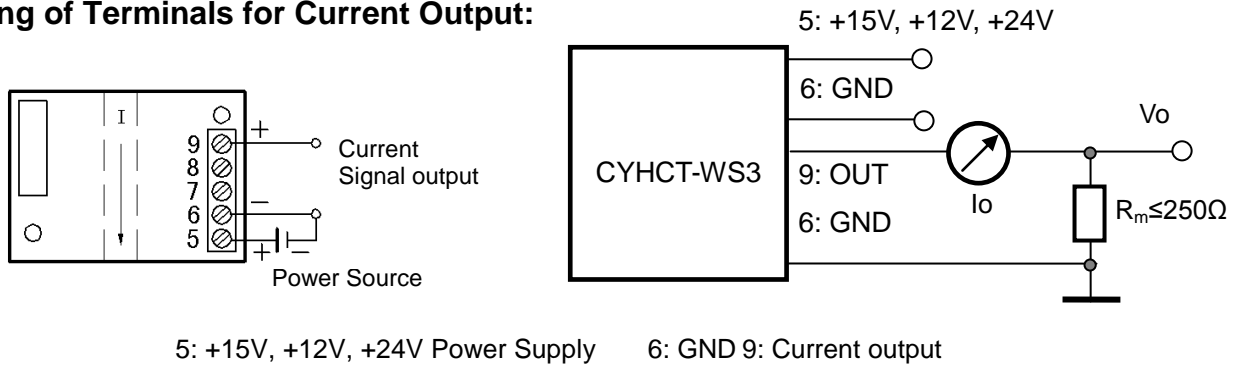
### Wiring of Terminals for voltage output:



### Relation between Input and Output:

Sensor CYHCT-WS3-U100A-34	
Input current (A)	Output voltage (V)
0	0
25	1.25
50	2.5
75	3.75
100	5

### Wiring of Terminals for Current Output:



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

Sensor CYHCT-WS3-U100A-54		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V)
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 screw driver.
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.