

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 different output signals and different power supplies.

Features and Advantages	Applications
<ul style="list-style-type: none"> DC current measurement Output signal option (4-20mA, 0-5V, 0-10V) High isolation between primary and secondary circuits Protection against overvoltage Protection against reversed polarity Output protection against electrical disturbances 	<ul style="list-style-type: none"> Photovoltaic equipment Battery banks, such as, monitoring load current and charge current, verifying operation Transportation, measuring traction power Phase fired controlled heaters Directly connect to PLC Sense motor stalls and short circuits Industrial instrumentation

Specifications

Rated input current (DC)	25A, 30A,40A,50A,60A,70A,80A,90A,100A,200A,300A,400A,500A		
Linear measuring range	1.2 times of rated input current		
Output signals	0-5VDC, 0-10VDC, 0-20mADC, 4-20mADC		
Power supply	+12V DC, +15VDC, +24V DC		
Measuring accuracy	Voltage output: $\pm 1.0\%$ for 25A~49A, $\pm 0.5\%$ for 50A~500A 4-20mA output: $\pm 1.0\%$ for 25A~49A, $\pm 0.5\%$ for 50A~500A 0-20mA output: $\pm 1.0\%$ for 25A ~ 500A		
Linearity (10% - 100%), 25°C	Voltage output: $\pm 0.5\%$ for 25A~49A, $\pm 0.2\%$ for 50A~500A 4-20mA output: $\pm 0.5\%$ for 25A~49A, $\pm 0.2\%$ for 50A~500A 0-20mA output: $\pm 0.5\%$ for 25A ~ 500A		
Zero offset voltage	$\pm 10\text{mV}$	Hysteresis error	$\pm 10\text{mV}$
Thermal drift of offset voltage	$\leq 300\text{ppm}/^\circ\text{C}$	Thermal Drift (-10°C to 50°C)	$< 1000\text{ppm}/^\circ\text{C}$
Galvanic isolation	3 kV DC, 1min.		
Isolation resistance	$\geq 100\text{M}\Omega$		
Response time	$\leq 10\mu\text{s}$ for instantaneous output, $< 1\text{ms}$ DC output		
Frequency Bandwidth (-3dB)	DC – 8kHz		
di/dt following accuracy	50A/ μs		
Overload capacity	5 times of rated current		
Current consumption	$\leq 25\text{mA}$ for voltage output, 25mA + Output current for current output		
Output load	Voltage output : $\geq 2\text{k}\Omega$, Current output: $\leq 250\Omega$		
Mounting	35mm DIN Rail		
Case style and Window size	WS3 with aperture $\varnothing 20\text{mm}$		
Protection of Case	IP20		
Operating temperature	$-40^\circ\text{C} \sim +70^\circ\text{C}$	Storage temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$
Relative humidity	$\leq 90\%$		
MTBF	$\geq 100\text{k hours}$		

Definition of Part number:

CYHCT	-	WS3	-	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	WS3	m = 25A, 30A, 40A,50A,60A,70A, 80A,90A,100A, 200A, 300A, 400A, 500A (other input current between 25A-500A)	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

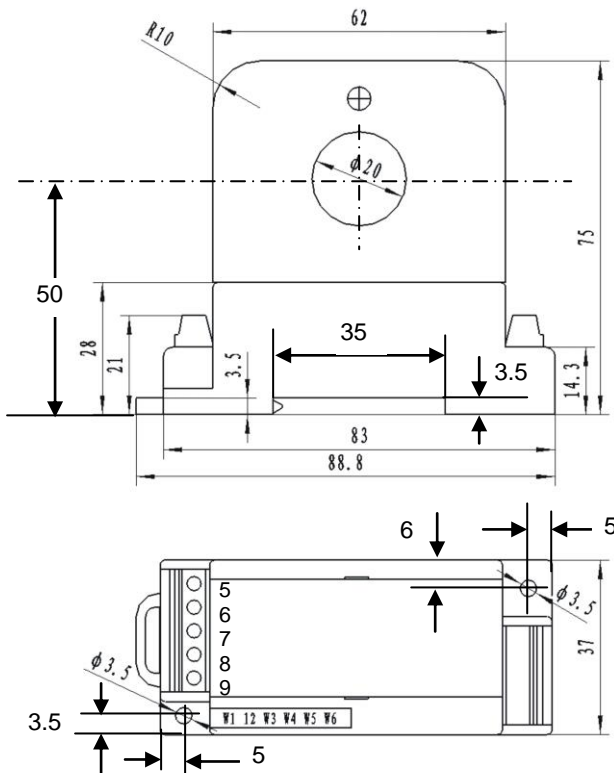
U: unidirectional;

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: Ø20 mm

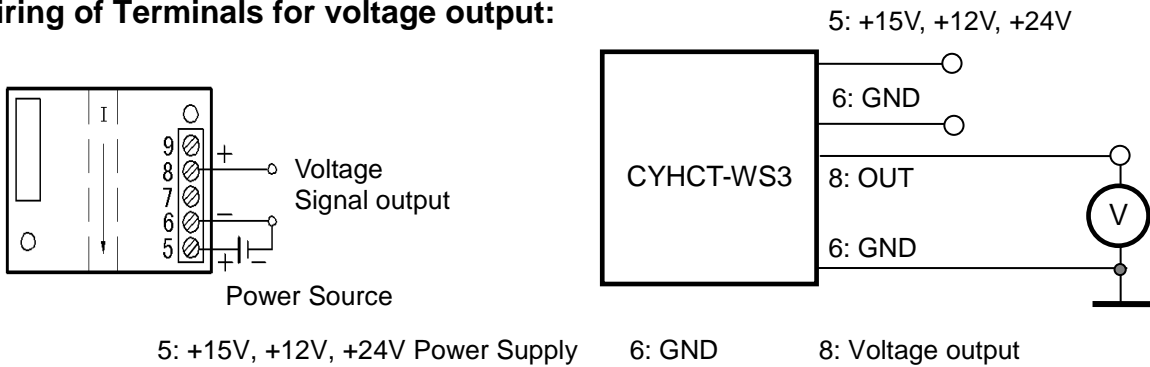


CONNECTIONS

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.



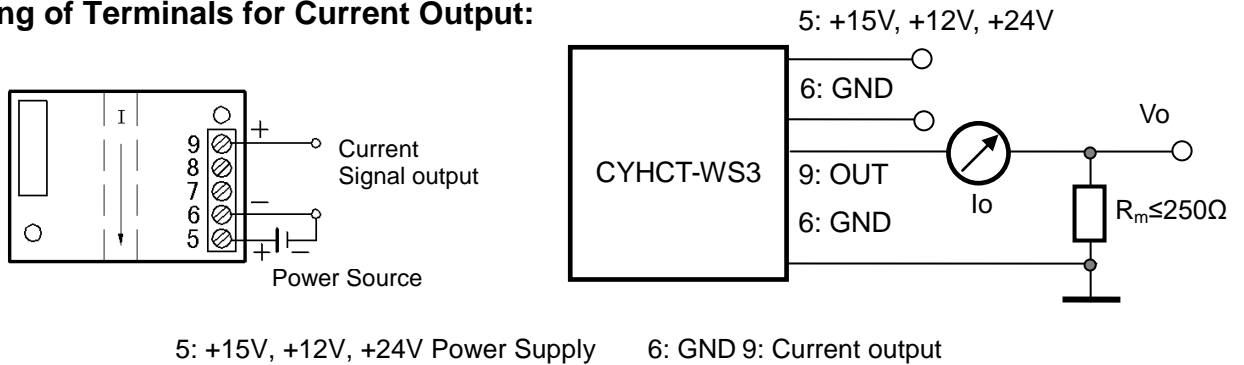
Wiring of Terminals for voltage output:



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.