ChenYang
Technologies GmbH & Co. KG

DC Current Sensor CYCT03-xnS3

The **CYCT03-xnS3** DC current sensor/transducer works according to Magnetic Modulation and is designed for applications to measurement and monitoring of DC current. The output signal (DC voltage or current) of this transducer is proportional to the DC current input. They are suitable for measurements and long-time monitoring of DC currents and can be applied to power supply management, DC motor drivers, battery chargers and systems etc.

Specifications

Rated input current range	20mA, 50mA, 100mA, 500mA,1A, 2A, 5A, 10A, 20A, 30A
Output signal	0-5VDC, 0-20 mA, 4-20 mA, 0-10V DC, frequency OC
Power supply	+12V, +15V, +24V DC ± 5%
Measuring accuracy	1.0%
Isolation	between input, output and power supply
Load resistance	≥2kΩ for voltage output, ≤250Ω for current output
Isolation withstanding voltage	2.5 kV DC, 1min, leakage current 1mA
Operating temperature	-10°C ~ +60°C
Storage temperature	-25°C ~ + 70°C
Relative humidity	10% ~ 90%
Response time	≤400ms
Overload capacity	20 times of the rated input current (maximum 500A, 1sec)
Quiescent power consumption	600mW – 700mW
Temperature drift:	≤500PPm/°C
Mounting	Din rail
Case style	S3 with aperture Ø20mm

Definition of Part number:

CYCT03	-	x	n	S3	-	1.0	-	M
(1)		(2)	(3)	(4)		(5)		(6)

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Series name	Output signal	Power supply	Case style	Accuracy class	Input current range (M=U/B+m)
CYCT03	**x=3:** 0-5V DC **x=4:** 0-20mA DC **x=5:** 4-20mA DC **x=F:** Frequency OC**	n**=2:** +12V DC n**=3:** +15V DC n**=4:** +24V DC	S3	1.0%	m=20mA, 50mA, 100mA, 200mA, 500mA, 1A, 2A, 5A, 10A, 20A, 30A
	x=8: 0-10V DC	n**=3:** +15V DC n**=4:** +24V DC			

** Frequency range: 10kHz, response time is longer than those given in the table above
U: uni-directional input current; **B:** bi-directional input current

Output Signal of Custom-Made Sensors:

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

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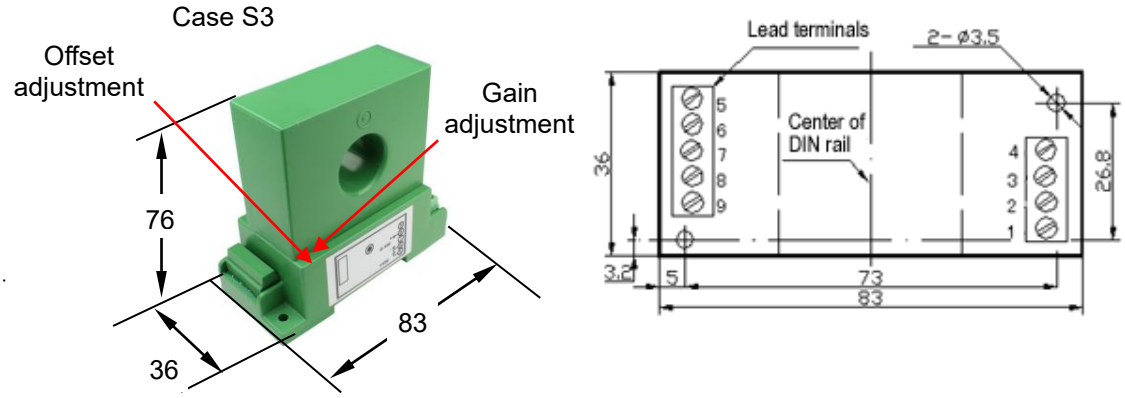
Example 1: CYCT03-32S3-1.0-U10A, DC Current sensor with
Output signal: 0-5V DC
Power supply: +12V DC
Rated input current: 0-10A DC (uni-directional)

Example 2: CYCT03-54S3-1.0-B10A, DC Current sensor with
Output signal: 4-20mA DC
Power supply: +24V DC
Rated input current: -10A ~ +10ADC (bi-directional)

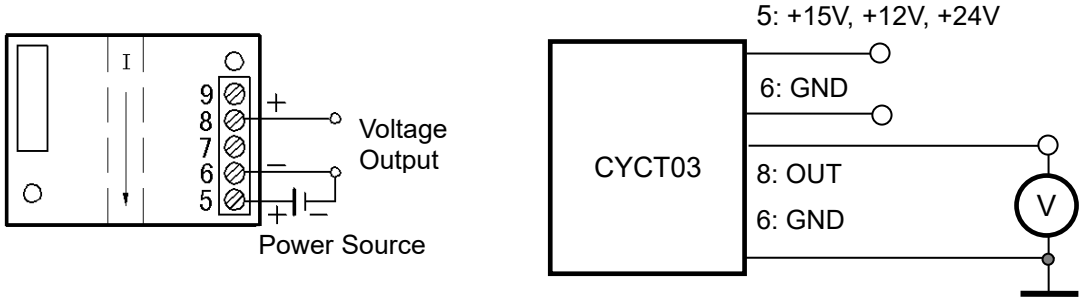
DIMENSIONS (mm)



Dimensions : 76mm x 83mm x 36mm,
Window size : Ø 20mm

CONEECTIONS

Wiring of Terminals for voltage output:



5: +15V, +12V, +24V Power Supply 6: GND 8: Voltage output

Relation between Input and Output:

Sensor CYCT03-32S3-1.0-U10A		Sensor CYCT03-32S3-1.0-B10A	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-10	0
2.5	1.25	-5	1.25
5	2.5	0	2.5
7.5	3.75	5	3.75
10	5	10	5

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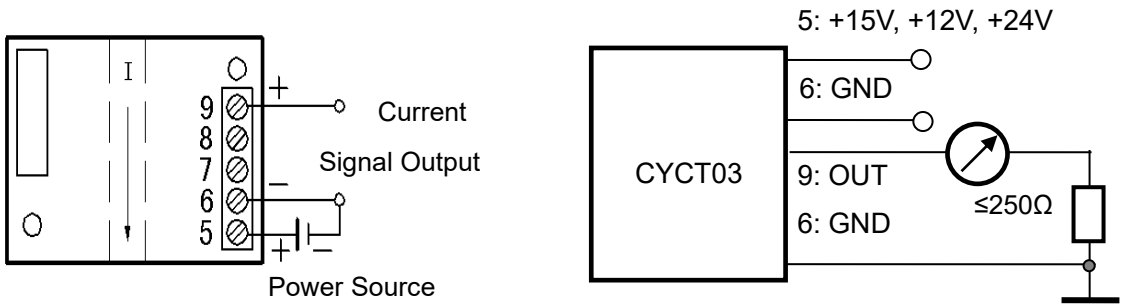
Wiring of Terminals for Current Output:

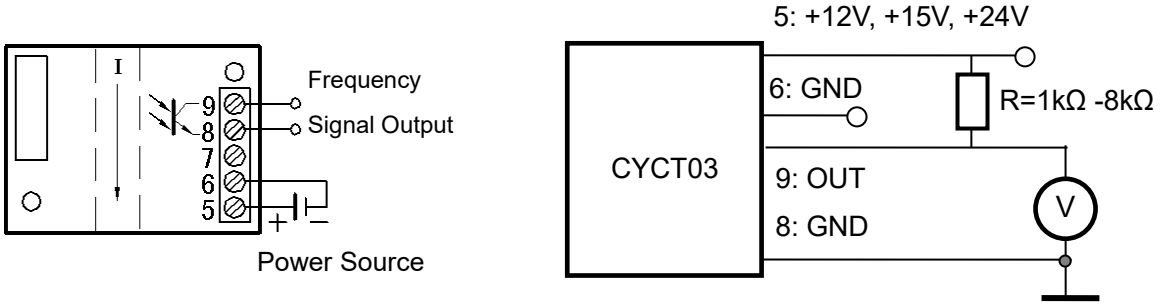


5: +15V, +12V, +24V Power Supply 6: GND 9: Current output

Relation between Input and Output (for R_m=250 Ω):

Sensor CYCT03-54S3-1.0-U10A			Sensor CYCT03-54S3-1.0-B10A		
Input current (A)	Output current Io(mA)	Output voltage Vo (V)	Input current (A)	Output current Io(mA)	Output voltage Vo (V)
0	4	1	-10	4	1
2.5	8	2	-5	8	2
5	12	3	0	12	3
7.5	16	4	5	16	4
10	20	5	10	20	5

Wiring of Terminals for OC Frequency Output:



The value of the pull-up resistor R should be selected to get a current of 4-5mA flowing through the pull-up resistor. For instance, the pull-up resistor is 24V/4.5mA=5.3kΩ if you use a power supply +24VDC.

Recommended value of the pull-up resistor R

Power supply	+12V	+15V	+24V
Pull-up resistor R	2.6kΩ	3.3kΩ	5.3kΩ

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Applications:

- Power supply management
- DC motor drives
- Battery chargers and systems
- Telecommunication application.

Notice:

- If the input signal is bi-directional DC or pulse DC, please give a remark in your order.
- The conductor carrying the input current should pass through the center of the aperture as perpendicularly as possible.
- Make sure that the polarities are in right connection. The output and the power supply must be common grounded at terminal 6.
- If a meter is used to calibrate the output of the transducer, please make sure that the accuracy of the meter is higher than the transducer.

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