

## DC Current Sensor CYCT01-xnS3

The **CYCT01-xnS3** DC current sensor/transducer works according to linear Photoelectrical Isolation 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	500mA, 1A, 2A, 5A
Output signal	0-5VDC, 0-20 mA, 4-20 mA, 0-10V DC, frequency OC
Power supply	+12V, +15V, +24V DC, 110V DC/AC, 220VDC/AC
Measuring accuracy	±0.2%FS or ±0.5%FS
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	≤10ms
Overload capacity	2 times
Quiescent power consumption	180mW – 300mW
Mounting	Din rail
Case style	S3 without aperture

### Definition of Part number:

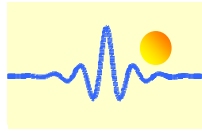
CYCT01	-	x	n	S3	-	0.5	-	M
(1)		(2)	(3)	(4)		(5)		(6)

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Series name	Output signal	Power supply	Case style	Accuracy class	Input current range (M=U/B+m)
CYCT01	<b>x=3:</b> 0-5V DC <b>x=4:</b> 0-20mA DC <b>x=5:</b> 4-20mA DC <b>x=8:</b> 0-10V DC <b>x=F:</b> Frequency OC**	<b>n=2:</b> +12V DC <b>n=3:</b> +15V DC <b>n=4:</b> +24V DC <b>n=8:</b> 110V <b>n=9:</b> 220V	S3	±0.2% ±0.5%	m= 500mA, 1A, 2A, 5A

\*\* Frequency range: 10kHz, accuracy: 0.5%, not for sensors with power supply 110V and 220V  
**U:** uni-directional input current; **B:** bi-directional input current

### Output Signal of Custom-Made Sensors:

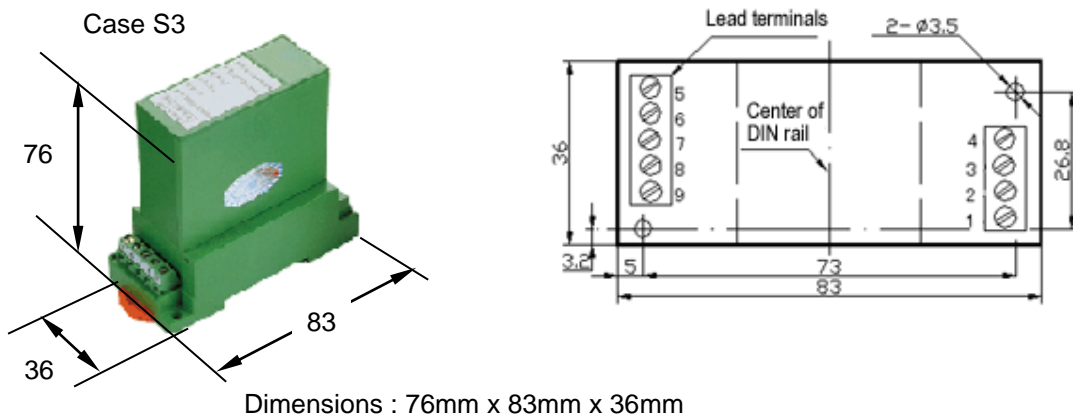
**x=1:** tracing voltage 5V, **x=2:** tracing current 20mA



**Example 1:** CYCT01-32S3-0.2-U2A, DC Current sensor with accuracy  $\pm 0.2\%$  and Output signal: 0-5V DC  
Power supply: +12V DC  
Rated input current: 0-2A DC (unidirectional)

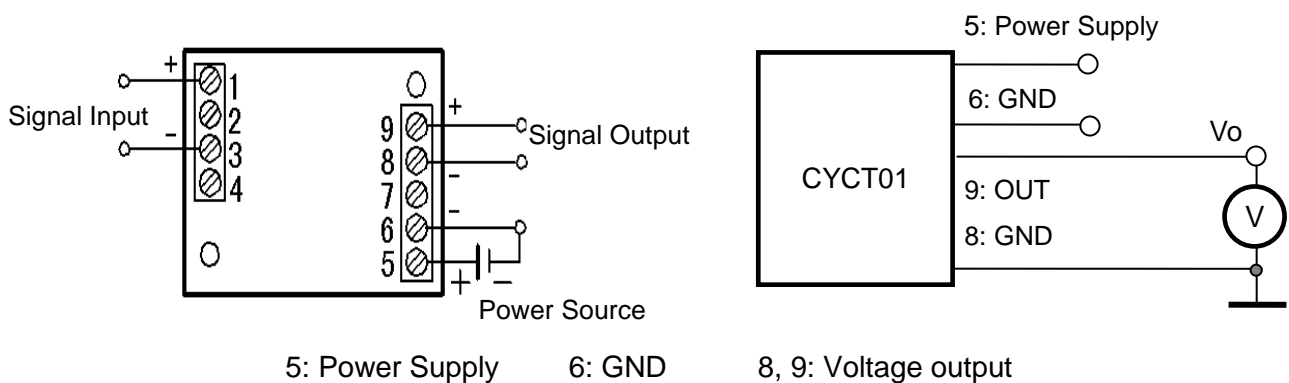
**Example 2:** CYCT01-54S3-0.5-B2A, DC Current sensor with accuracy  $\pm 0.5\%$  and Output signal: 4-20mA DC  
Power supply: +24V DC  
Rated input current: -2A ~ +2A DC (bi-directional)

### DIMENSIONS (mm)



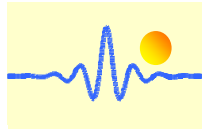
### CONNECTIONS

#### Wiring of Terminals for voltage output:

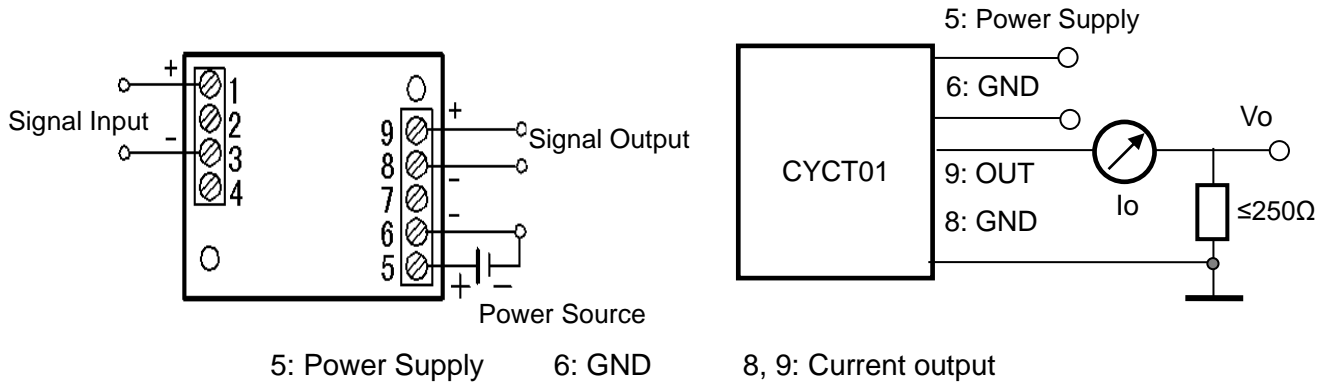


#### Relation between Input and Output:

Sensor CYCT01-32S3-0.2-U2A		Sensor CYCT01-32S3-0.2-B2A	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-2	0
0.5	1.25	-1	1.25
1	2.5	0	2.5
1.5	3.75	1	3.75
2	5	2	5



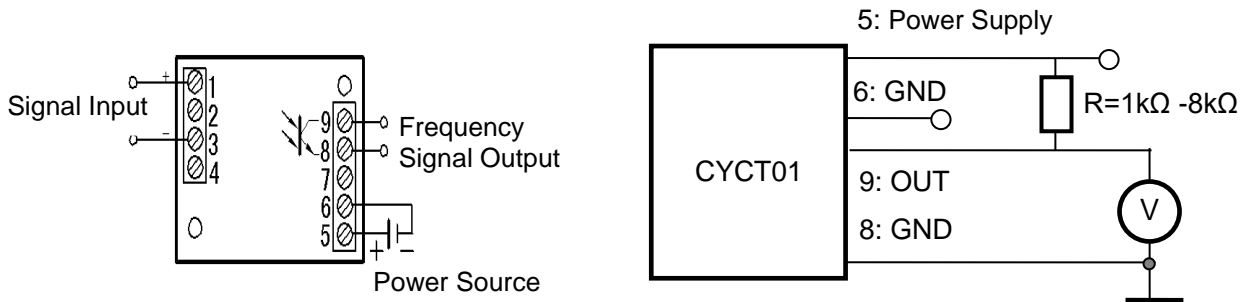
**Wiring of Terminals for Current Output:**



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

Sensor CYCT01-54S3-0.5-U2A			Sensor CYCT01-54S3-0.5-B2A		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V)	Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V)
0	4	1	-2	4	1
0.5	8	2	-1	8	2
1	12	3	0	12	3
1.5	16	4	1	16	4
2	20	5	2	20	5

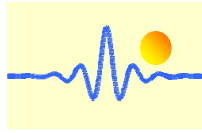
**Wiring of Terminals for OC Frequency Output (only for power supply +12V, +15V and +24V):**



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  $24V/4.5mA=5.3k\Omega$  if you use a power supply +24VDC.

Recommended value of the pull-up resistor R

Power supply	+12V	+15V	+24V
Pull-up resistor R	2.6k $\Omega$	3.3k $\Omega$	5.3k $\Omega$



### **Applications:**

- Power supply management
- DC motor drives
- Battery chargers and systems
- Mobile applications.

### **Notice:**

- If the input signal is bi-directional DC or pulse DC, please give a remark in your order.
- This sensor works on three isolations principle therefore the output signal and the power source may not be grounded in common.
- If the input current is higher than 1A, it is necessary to connect terminals 1&2 and terminals 3&4 in parallel to reduce the input resistance at the input terminals.