ChenYang Technologies GmbH & Co KG

Split Core DC Leakage Current Sensor CYCT04-xnST

This current sensor is based on magnetic modulation and compensation principle and can be used for measurement of small DC current and leakage current, current difference between two or more conductors.

Product Characteristics:

- Application for Computer Aided Ageing Technology
- 100% Ageing Processing and Thermal Drift Test under high operating temperature to guarantee the long-term stability of the sensors
- Custom makeable according to individual requirements
- Various current and voltage outputs are selectable
- Power supply options: ±12VDC, ±15VDC
- Sensors with window for contactless measurements

Applications:

- Isolation Monitoring of DC power systems and cable selection systems,
- Measurements of small DC currents and leakage currents etc.

Electrical Data

Rated current I_P	10mA ~ 20mA DC	50mA ~ 1000mA DC
Measuring range I_{PM}	$1.2I_P$	
Nominal output signals	0-5V DC, -5V~+5VDC, 0-20mA DC, 4-20mA DC	
Supply voltage Vcc	±12VDC, ±15VDC	
Current consumption	20mA + Output current	
Galvanic isolation	2.5KV RMS/50Hz/ 1min	
Load resistance R_L and measuring resistance R_m	R_L≥10kΩ, R_m≤250Ω	
Accuracy T_A=25°C	≤±1.0%FS	
Linearity T_A=25°C	≤±1.0%FS	
Thermal drift of offset voltage, T_A=-10°C~60°C	≤±12mV/°C	≤±4mV/°C
Electric Offset Voltage/Current, T_A=25°C	≤±10%FS	≤±2%FS
Magnetic Offset Voltage/Current (I_P=0)	≤±5%FS	≤±2%FS
Response time	1000ms, 600ms	400ms

Note: It is necessary to adjust the offset value to zero using a precise multimeter after each switching off and switching on the sensor

General Data

Operating temperature	-10 ~ +60	°C
Storage temperature	-20 ~ +70	°C
Window size	Φ19	mm
Case dimensions H x L x W	64 x 63 x22	mm

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Definition of Part number:

CYCT04	-	x	n	ST	-	1.0	-	M
(1)		(2)	(3)	(4)		(5)		(6)

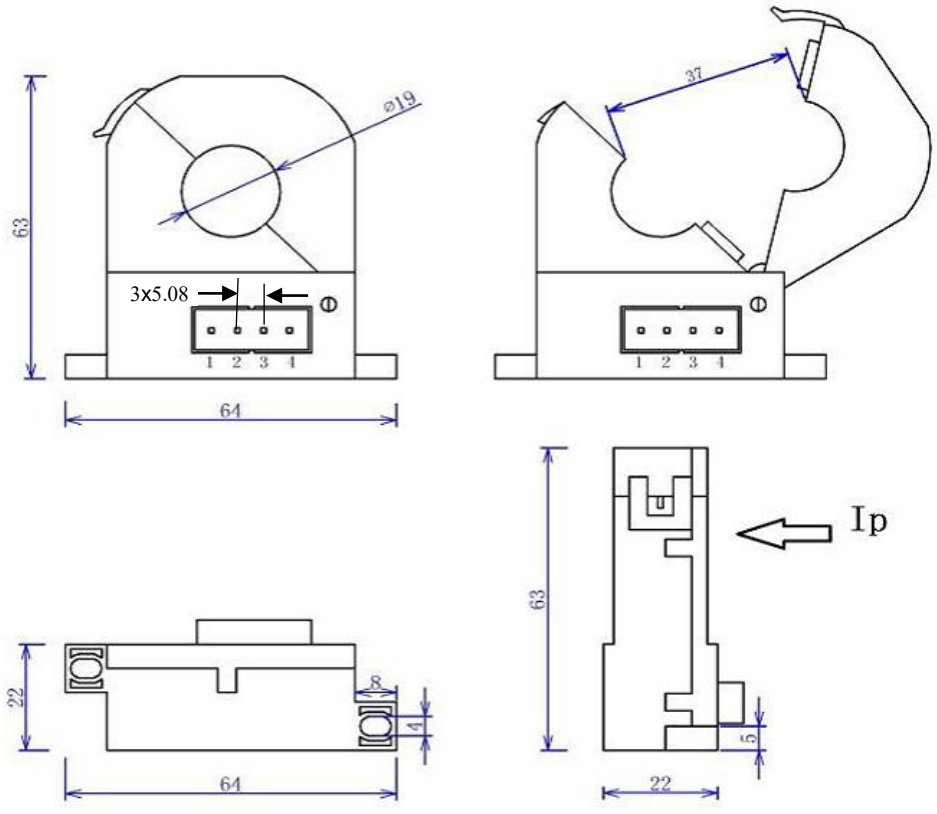
(1)	(2)	(3)	(4)	(5)	(6)
Series name	Output signal	Power supply	Case style	Basic Accuracy	Rated Input current (M=U/B + m)
CYCT04	**x=1:** tracing ±5VDC **x=3:** 0-5V DC **x=4:** 0-20mA DC **x=5:** 4-20mA DC	n**=5:** ±12V DC n**=6:** ±15V DC	ST with aperture Ø19mm	1.0%	m = 10mA, 20mA, 50mA, 100mA, 200mA, 300mA, 400mA, 500mA, 600mA, 700mA, 800mA, 900mA, 1000mA

U: unidirectional input current; **B:** bidirectional input current

Example 1: CYCT04-35ST-1.0-U500mA, DC Current sensor with
Output signal: 0~5V DC
Power supply: ±12V DC
Rated input current: 0-50mA DC (unidirectional)

Example 2: CYCT04-16ST-1.0-B500mA, DC Current sensor with
Output signal: -5V ~ +5VDC
Power supply: ±15V DC
Rated input current: -500mA ~ +500mADC (bidirectional)

DIMENSIONS (mm)



Pin Arrangement

Pin 1: +Vcc
Pin 2: - Vcc
Pin 3: M (Out)
Pin 4: G (GND)

OFS:
Offset adjustment

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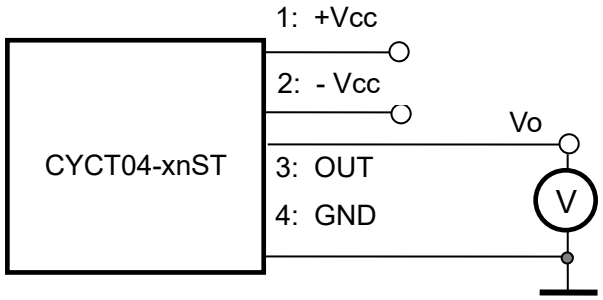
While the sensor is installed to a current conductor, the sensor half-core should be opened at first and then be closed again. It must be aware that the iron core interface on both sides is aligned and cannot be forcibly closed.

CONNECTION

The current 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) Voltage Output

1: Vcc Power Supply
2: -Vcc power supply,
3: Output voltage
4: Ground (supply and measuring device)

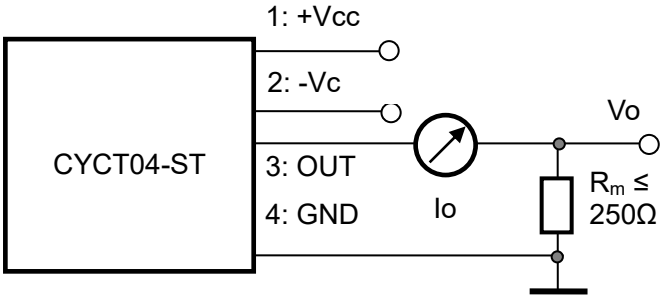


Relation between Input and Output:

Sensor CYCT04-36ST-1.0-U500mA		Sensor CYCT04-16ST-1.0-B500mA	
Input current (mA)	Output voltage (V)	Input current (mA)	Output voltage (V)
0	0	-500	-5
125	1.25	-250	-2.5
250	2.5	0	0
375	3.75	250	2.5
500	5	500	5

b) Current Output

1: Vcc Power Supply
2: -Vcc power supply,
3: Output current
4: Ground (supply and measuring device)



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

Sensor CYCT04-55ST-1.0-U50mA			Sensor CYCT04-45ST-1.0-U50mA		
Input current (mA)	Output current Io(mA)	Output voltage Vo (V)	Input current (mA)	Output current Io(mA)	Output voltage Vo (V)
0	4	1	0	0	0
12.5	8	2	12.5	5	1.25
25	12	3	25	10	2.5
37.5	16	4	37.5	15	3.75
50	20	5	50	20	5

Sensor CYCT04-55ST-1.0-B50mA			Sensor CYCT04-45ST-1.0-B50mA		
Input current (mA)	Output current Io(mA)	Output voltage Vo (V)	Input current (mA)	Output current Io(mA)	Output voltage Vo (V)
-50	4	1	-50	0	0
-25	8	2	-25	5	1.25
0	12	3	0	10	2.5
25	16	4	25	15	3.75
50	20	5	50	20	5

Notes:

1. Connect the terminals of power source, outputs respectively and correctly, never make wrong connection.
2. The potentiometer 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 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.

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