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 in order 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 and ±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 ~ 40mA DC	50mA ~ 400mA DC	500mA ~ 1A DC
Measuring range	$2I_P$	$2I_P$	$1.5I_P$
Nominal output signals	0-5V DC, -5V~+5VDC, 0-20mA DC, 4-20mA DC		
Supply voltage	±12VDC, ±15VDC		
Current consumption	20mA + Output current		
Galvanic isolation	2.5KV RMS/50Hz/ 1min		
Load resistance	≥10kΩ		

Thermal drift of offset voltage, T_A=10°C~60°C	≤8 for Ip<50mA, ≤4 for Ip≥50mA	mV/°C
Response time	≤1000 for Ip<50mA, ≤400 for Ip≥50mA	ms
Accuracy T_A=25°C	≤±1.0	%FS
Linearity T_A=25°C	≤±1.0	%FS
Electric Offset Voltage/Current, T_A=25°C	≤±10 for Ip<50mA, ≤±4 for Ip≥50mA	%FS
Magnetic Offset Voltage/Current (I_P=0)	≤±5 for Ip<50mA, ≤±2 for Ip≥50mA	%FS

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)

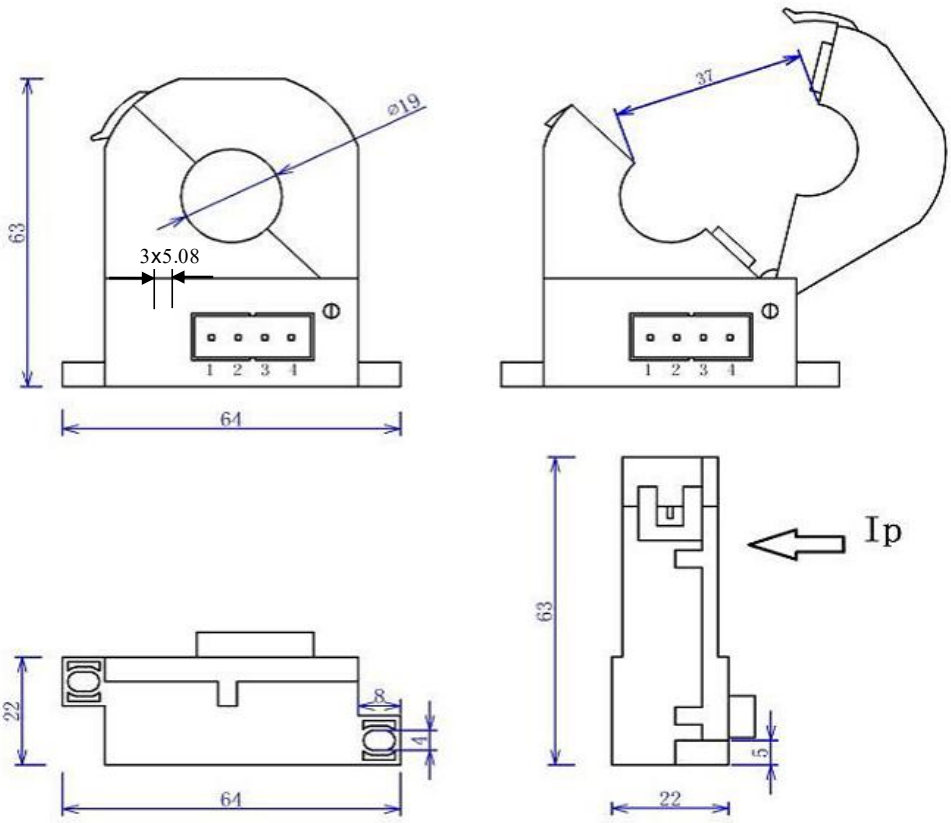
(1)	(2)	(3)	(4)	(5)	(6)
Series name	Output signal	Power supply	Case style	Basic Accuracy	Rated Input current (M=U/B + m)
CYCT04	**x=1:** tracing ±5VDC **x=3:** 0-5V DC **x=4:** 0-20mA DC **x=5:** 4-20mA DC	n**=5:** ±12V DC n**=6:** ±15V DC	ST with aperture Ø19mm	1.0%	m = 100mA, 200mA, 300mA, 400mA, …,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

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 (Vout)
Pin 4: G (GND)

OFS:
Offset adjustment

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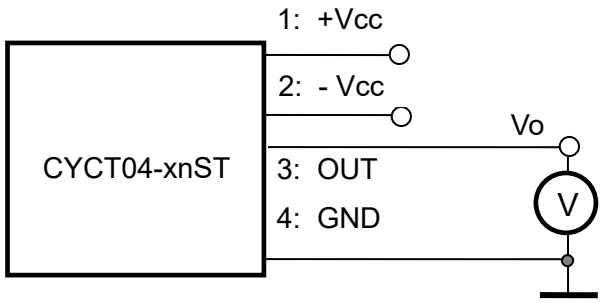
During the sensor is installed to a current conductor, the sensor half-core should be opened at first and then be closed again. It must be aware that the iron core interface on both sides is aligned and cannot be forcibly closed.

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
4: Ground

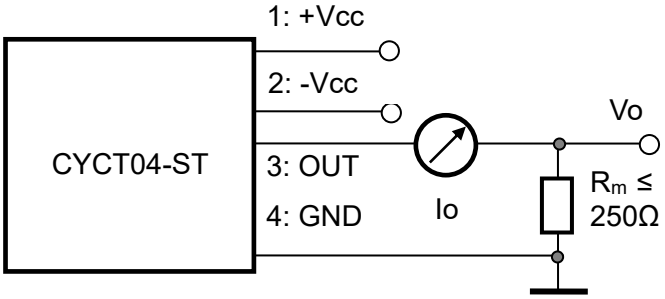


Relation between Input and Output:

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
4: Ground



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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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