

DC Leakage Current Sensor CYCT04-xnS9

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, +24VDC, ± 12 VDC and ± 15 VDC
- 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.

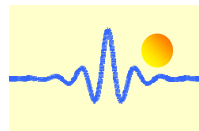
Electrical Data

Measuring range I_P	10mA ~ 100mA DC	200mA
Linearity range	$2 \times I_P$	$1.5I_P$
Nominal output signals	0-5VDC, ± 5 VDC, 4-20mADC, 0-20mADC, ± 20 mADC	
Supply voltage	+12VDC, +15VDC, +24VDC, ± 12 VDC, ± 15 VDC	
Current consumption	20mA + Output current	
Galvanic isolation	2.5KV RMS/50Hz/ 1min	
Load resistance	$\geq 10k\Omega$	

Thermal drift of offset voltage, $T_A = -10^\circ\text{C} \sim 60^\circ\text{C}$	$\leq \pm 5$	mV/ $^\circ\text{C}$
Response time	≤ 900	ms
Accuracy $T_A = 25^\circ\text{C}$	≤ 1.0	%FS
Linearity $T_A = 25^\circ\text{C}$	≤ 1.0	%FS
Electric Offset Voltage, $T_A = 25^\circ\text{C}$	$< \pm 50$	mV
Magnetic Offset Voltage ($I_P = 0$)	$\leq \pm 50$	mV

General Data

Operating temperature	-25 ~ +70	$^\circ\text{C}$
Storage temperature	-40 ~ +85	$^\circ\text{C}$
Window size	$\Phi 94$	mm
Case dimensions H x L x W	165 x 161 x 32	mm



Definition of Part number:

CYCT04	-	x	n	S9	-	1.0	-	M
(1)		(2)	(3)	(4)		(5)		(6)

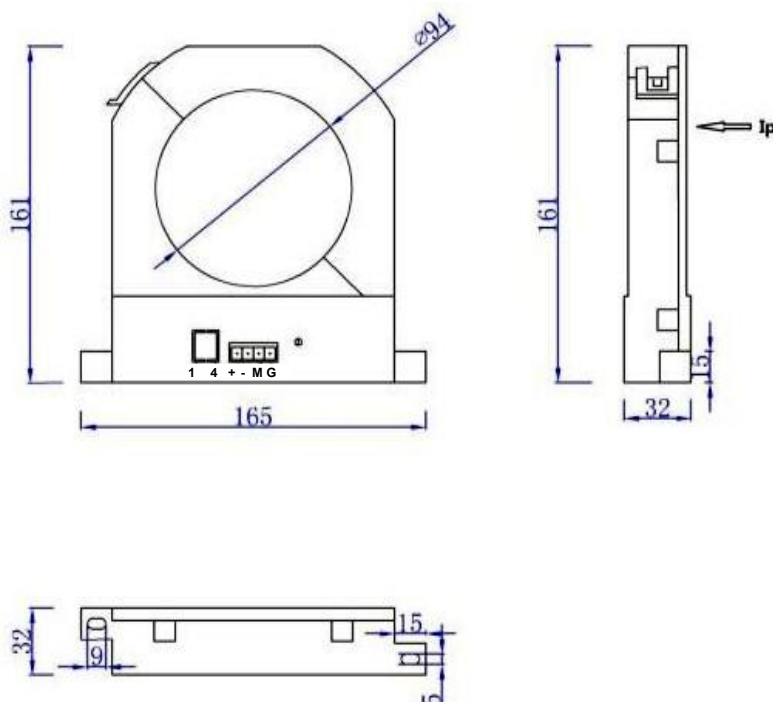
(1)	(2)	(3)	(4)	(5)	(6)
Series name	Output signal	Power supply	Case style	Basic Accuracy	Rated Input current (M=U/B + m)
CYCT04	x=1: ±5VDC x=2: ±20mADC x=3: 0-5V DC x=4: 0-20mA DC x=5: 4-20mA DC	n=2: +12V DC n=3: +15V DC n=4: +24V DC n=5: ±12V DC n=6: ±15V DC	SL with aperture Ø94mm	1.0%	m = 10mA, 20mA, 50mA, 100mA, 200mA

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

Example 1: CYCT04-55S9-1.0-U50mA, DC Current sensor with
Output signal: 4-20mA DC
Power supply: ±12V DC
Rated input current: 0-50mA DC (unidirectional)

Example 2: CYCT04-16S9-1.0-B50mA, DC Current sensor with
Output signal: -5V ~ +5VDC
Power supply: ±15V DC
Rated input current: -50mA ~ +50mADC (bidirectional)

DIMENSIONS (mm)

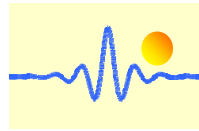


Pin Arrangement

Pin	1	2	3	4
Symbol	+	-	M	G
Function	V+	V-	Output	ground



Note: A whole solid core (not split core) is used in this sensor.

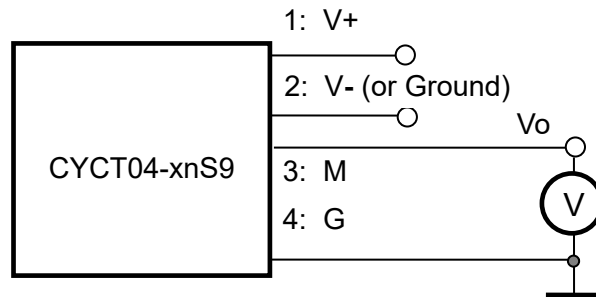


CONNECTIONS

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 (+): V+ Power Supply
- 2 (-): V- Power Supply (or ground)
- 3 (M): Output
- 4 (G): Ground

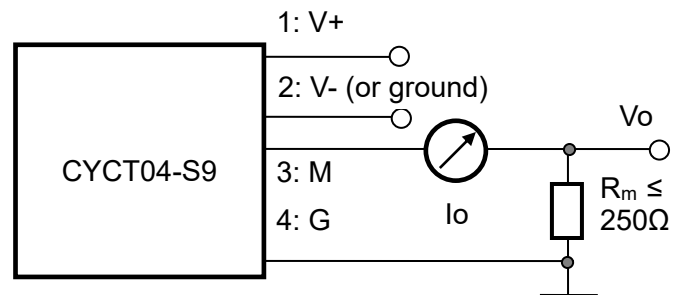


Relation between Input and Output:

Sensor CYCT04-36S9-1.0-U50mA		Sensor CYCT04-16S9-1.0-B50mA	
Input current (mA)	Output voltage (V)	Input current (mA)	Output voltage (V)
0	0	-50	-5
12.5	1.25	-25	-2.5
25	2.5	0	0
37.5	3.75	25	2.5
50	5	50	5

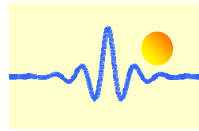
b) Current Output

- 1(+): +V Power Supply
- 2(-): -V Power Supply (or ground)
- 3(M): Output
- 4(G): Ground



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

Sensor CYCT04-55S9-1.0-U50mA			Sensor CYCT04-45S9-1.0-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 CYCT04-55S9-1.0-B50mA			Sensor CYCT04-45S9-1.0-B50mA		
Input current (mA)	Output current I_o (mA)	Output voltage V_o (V)	Input current (mA)	Output current I_o (mA)	Output voltage V_o (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.