

## 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 of 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, +15VDC, +24VDC,  $\pm 12$ VDC and  $\pm 15$ 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.

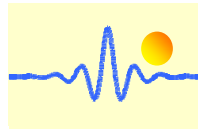
### Electrical Data

Measuring range M	10mA ~ 5A DC
Linearity range	1.2 x M (measuring range)
Nominal output signals	0-5VDC, 0-10VDC, $\pm 5$ VDC, 4-20mADC, 0-20mADC, $\pm 20$ mADC
Supply voltage	+12VDC, +15VDC, +24VDC, $\pm 12$ VDC, $\pm 15$ VDC
Current consumption	20mA + Output current
Galvanic isolation	2.5KV RMS/50Hz/ 1min
Load resistance	$\geq 10k\Omega$

Thermal drift of offset voltage, $T_A = -10^\circ\text{C} \sim 60^\circ\text{C}$	$\leq 800$	ppm/ $^\circ\text{C}$
Response time	$\leq 120$	ms
Linearity $T_A = 25^\circ\text{C}$	$\leq 1.0$	%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)

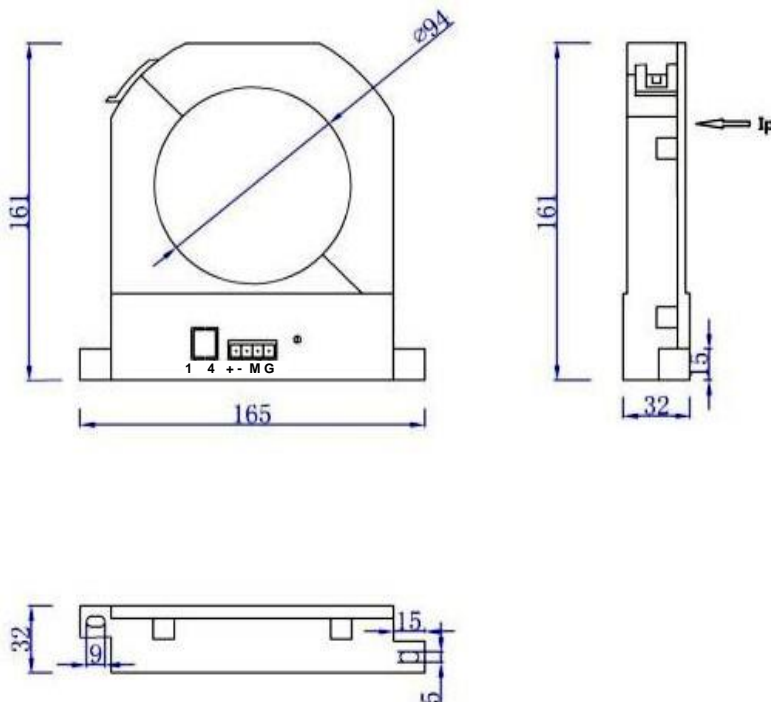
(1)	(2)	(3)	(4)	(5)	(6)
Series name	Output signal	Power supply	Case style	Basic Accuracy	Rated Input current (M=U/B + m)
CYCT04	<b>x=1:</b> ±5VDC <b>x=2:</b> ±20mADC <b>x=3:</b> 0-5V DC <b>x=8:</b> 0-10V DC <b>x=4:</b> 0-20mA DC <b>x=5:</b> 4-20mA DC	<b>n=2:</b> +12V DC <b>n=3:</b> +15V DC <b>n=4:</b> +24V DC <b>n=5:</b> ±12V DC <b>n=6:</b> ±15V DC	SL with aperture Ø94mm	1.0%	m = 10mA, 20mA, 50mA, 100mA, 200mA, 500mA, 1A, 2A, 5A

**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)**

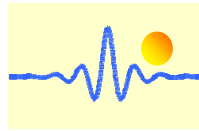


**Pin Arrangement**

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.

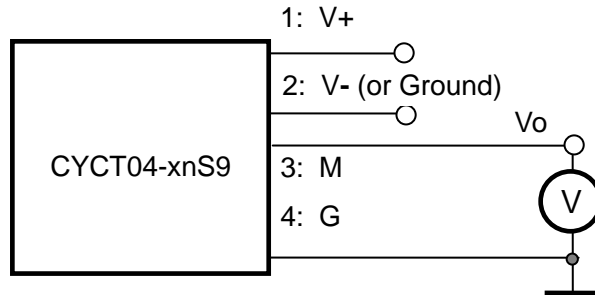


## CONNECTIONS

The current carrying 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

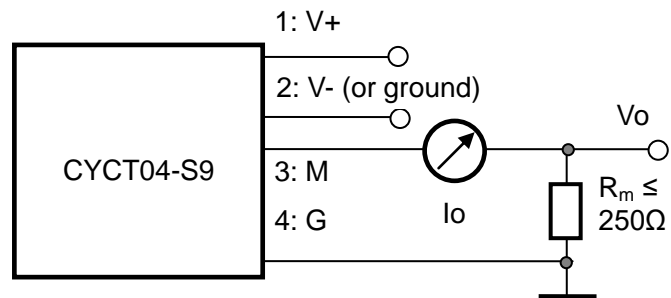


Relation between Input and Output:

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

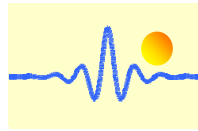
### b) Current Output

- 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 $I_o$ (mA)	Output voltage $V_o$ (V)	Input current (mA)	Output current $I_o$ (mA)	Output voltage $V_o$ (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.