

## DC Leakage Current Sensor CYCT04-xnE4

This current sensor is based on magnetic modulation principle and can be used for measurement of DC currents.

### Product Characteristics:

- Application of 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: +12V, +15V, +24V,  $\pm 12$ VDC and  $\pm 15$ VDC etc.
- Sensors with window for contactless measurement

### Applications:

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

### Electrical Data

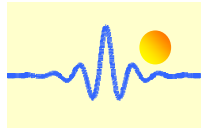
Measuring range M	10mA ~ 10A DC
Linearity range	1.2 x M (measuring range)
Overload capacity	20 x M (measuring range)
Nominal output signals	0-4V, 0-5V, 0-10V, $\pm 5$ V, 0-20mA, 4-20mA, $\pm 20$ mA
Supply voltage	+12VDC, +15VDC, +24VDC, $\pm 12$ VDC, $\pm 15$ VDC
Current consumption	25mA ~ 50mA + output current
Galvanic isolation	3KV RMS/50Hz/min
Measuring resistance for current output	$\leq 250\Omega$

### Accuracy and Dynamic Performances

Zero offset voltage	$\pm 20$	mV
Hysteresis error	$\pm 10$	mV
Thermal drift of offset current	$\leq 250$	ppm/ $^{\circ}$ C
Response time	$\leq 120$	ms
Accuracy	$\pm 1.0$	%
Linearity	$\leq 1.0$	%FS

### General Data

Operating temperature	-10 ~ +80	$^{\circ}$ C
Storage temperature	-25 ~ +85	$^{\circ}$ C



**Definition of Part number:**

CYCT04	-	x	n	E4	-	1.0	-	M
(1)		(2)	(3)	(4)		(5)		(6)

(1)	(2)	(3)	(4)	(5)	(6)
Series name	Output signal	Power supply	Case style	Accuracy	Rated Input current (M=U/B + m)
CYCT04	<b>x=0:</b> 0-4V DC <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>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	E4 with aperture Ø21mm	1.0%	m = 10mA, 20mA, 50mA, 100mA, 200mA, 500mA, 1A, 2A, 5A, 10A

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

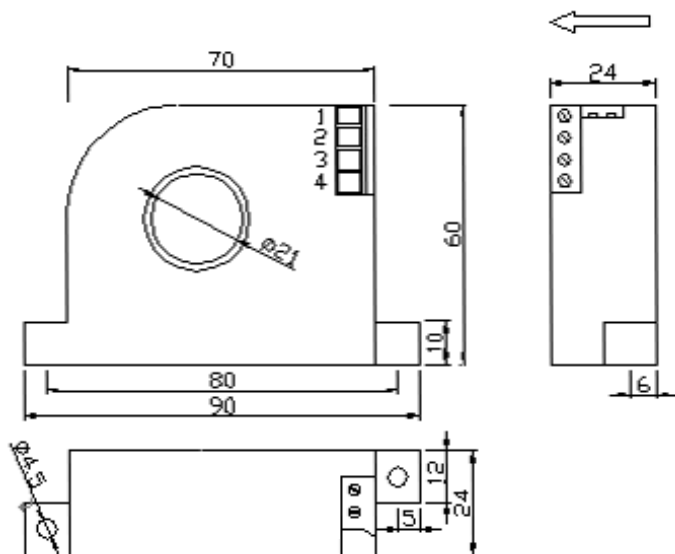
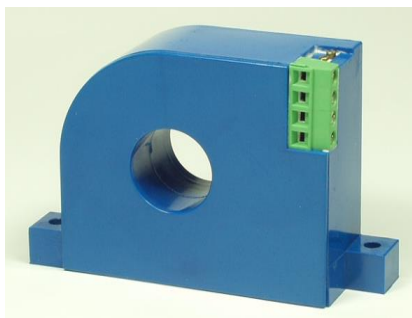
**Output Signal of Custom Made Sensors:**

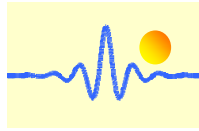
**x=1:** tracing voltage 5V, **x=2:** tracing current 20mA

**Example 1:** CYCT04-34E4-1.0-U1A , DC Current sensor with  
Output signal: 0-5V DC  
Power supply: +24V DC  
Rated input current: 0-1A DC (unidirectional)

**Example 2:** CYCT04-34E4-1.0-B1A , DC Current sensor with  
Output signal: 0-5V DC  
Power supply: +24V DC  
Rated input current: -1A ~ +1ADC (bidirectional)

**DIMENSIONS (mm)**





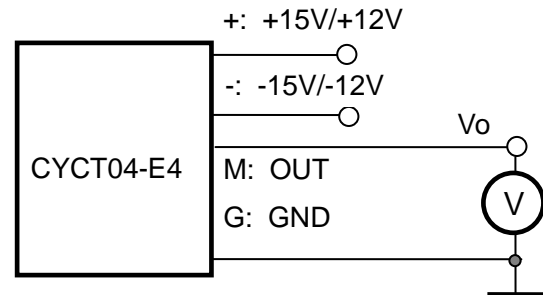
## CONNECTION

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) Wiring of Sensors Using Double Power Supplies

#### Voltage Output

- 1(+): +15V/+12V Power Supply
- 2(-): -15V/-12V Power Supply
- 3(M): Output
- 4(G): Ground

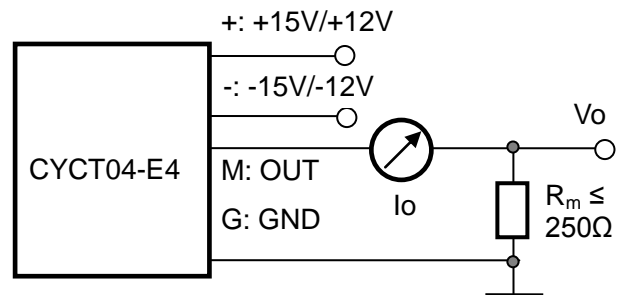


Relation between Input and Output:

Sensor CYCT04-35E4-1.0-U1A		Sensor CYCT04-35E4-1.0-B1A	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-1	0
0.25	1.25	-0.5	1.25
0.5	2.5	0	2.5
0.75	3.75	0.5	3.75
1	5	1	5

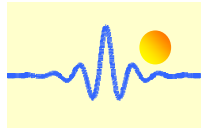
#### Current Output

- 1(+): +15V/+12V Power Supply
- 2(-): -15V/-12V Power Supply
- 3(M): Output
- 4(G): Ground



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

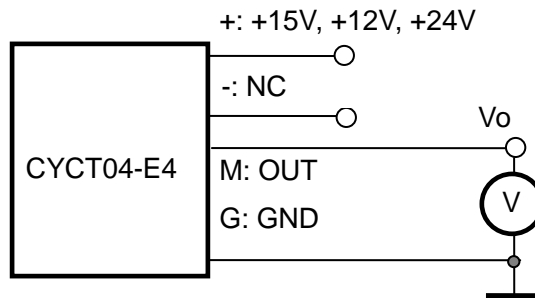
Sensor CYCT04-45E4-1.0-U1A			Sensor CYCT04-45E4-1.0-B1A		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V)	Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V)
0	0	0	-1	0	0
0.25	5	1.25	-0.5	5	1.25
0.5	10	2.5	0	10	2.5
0.75	15	3.75	0.5	15	3.75
1	20	5	1	20	5



## B) Wiring of Sensors Using Single Power Supply

### Voltage Output

1(+): +15V, +12V, +24V  
2(-): NC  
3(M): Output  
4(G): Ground

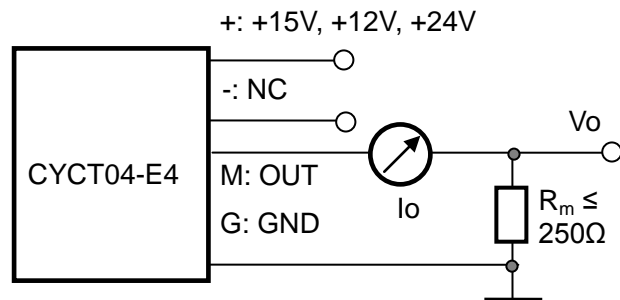


Relation between Input and Output:

Sensor CYCT04-34E4-1.0-U1A		Sensor CYCT04-34E4-1.0-B1A	
Input current (A)	Output voltage (V)	Input current (A)	Output voltage (V)
0	0	-1	0
0.25	1.25	-0.5	1.25
0.5	2.5	0	2.5
0.75	3.75	0.5	3.75
1	5	1	5

### Current Output

1(+): +15V, +12V, +24V  
2(-): NC  
3(M): Output  
4(G): Ground



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

Sensor CYCT04-54E4-1.0-U1A			Sensor CYCT04-54E4-1.0-B1A		
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	-1	4	1
0.25	8	2	-0.5	8	2
0.5	12	3	0	12	3
0.75	16	4	0.5	16	4
1	20	5	1	20	5

### Notes:

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