

Split Core DC Leakage Current Sensor CYCT04-xnSL

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: $\pm 12\text{VDC}$ and $\pm 15\text{VDC}$
- 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

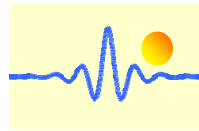
Rated current I_P	10mA ~ 40mA DC	50mA ~ 1A DC	2A ~ 3A DC
Measuring range	$2I_P$	$2I_P$	$1.5I_P$
Nominal output signals	0-5V DC, -5V~+5VDC, 0-20mA DC, 4-20mA DC		
Supply voltage	$\pm 12\text{VDC}$, $\pm 15\text{VDC}$		
Current consumption	20mA + Output current		
Galvanic isolation	2.5KV RMS/50Hz/ 1min		
Load resistance	$\geq 10\text{k}\Omega$		

Thermal drift of offset voltage, $T_A=10^\circ\text{C}\sim 60^\circ\text{C}$	≤ 12 for $I_P < 50\text{mA}$, ≤ 8 for $I_P \geq 50\text{mA}$	mV/ $^\circ\text{C}$
Response time	≤ 1000 for $I_P < 50\text{mA}$, ≤ 600 for $I_P \geq 50\text{mA}$	ms
Accuracy $T_A=25^\circ\text{C}$	$\leq \pm 1.0$	%FS
Linearity $T_A=25^\circ\text{C}$	$\leq \pm 1.0$	%FS
Electric Offset Voltage/Current, $T_A=25^\circ\text{C}$	$\leq \pm 10$ for $I_P < 50\text{mA}$, $\leq \pm 4$ for $I_P \geq 50\text{mA}$	%FS
Magnetic Offset Voltage/Current ($I_P=0$)	$\leq \pm 5$ for $I_P < 50\text{mA}$, $\leq \pm 2$ for $I_P \geq 50\text{mA}$	%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 for $I_P < 50\text{mA}$, -25 ~ +70 for $I_P \geq 50\text{mA}$	$^\circ\text{C}$
Storage temperature	-20 ~ +70 for $I_P < 50\text{mA}$, -40 ~ +85 for $I_P \geq 50\text{mA}$	$^\circ\text{C}$
Window size	$\Phi 33$	mm
Case dimensions H x L x W	78 x 82 x 26	mm



Definition of Part number:

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

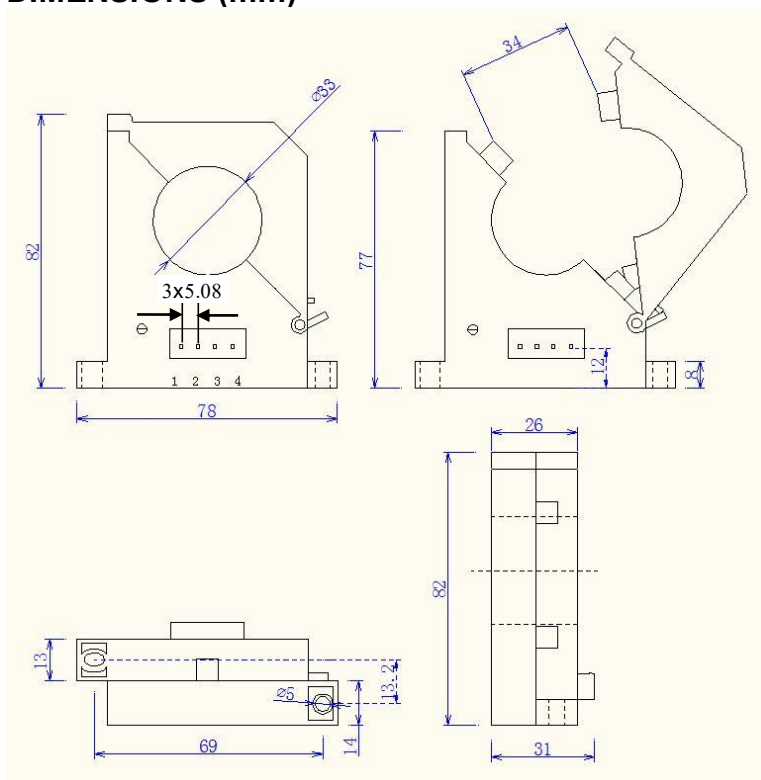
(1)	(2)	(3)	(4)	(5)	(6)
Series name	Output signal	Power supply	Case style	Basic Accuracy	Rated Input current (M=U/B + m)
CYCT04	x=1: tracing $\pm 5\text{VDC}$ x=3: 0-5V DC x=4: 0-20mA DC x=5: 4-20mA DC	n=5: $\pm 12\text{V DC}$ n=6: $\pm 15\text{V DC}$	SL with aperture $\varnothing 33\text{mm}$	1.0%	m = 10mA, 20mA, 50mA, 100mA, 200mA, 500mA, 1A, 2A, 3A

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

Example 1: CYCT04-55SL-1.0-U50mA, DC Current sensor with
Output signal: 4-20mA DC
Power supply: $\pm 12\text{V DC}$
Rated input current: 0-50mA DC (unidirectional)

Example 2: CYCT04-16SL-1.0-B50mA, DC Current sensor with
Output signal: $-5\text{V} \sim +5\text{VDC}$
Power supply: $\pm 15\text{V DC}$
Rated input current: $-50\text{mA} \sim +50\text{mA}$ DC (bidirectional)

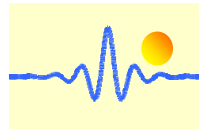
DIMENSIONS (mm)



Pin Arrangement

Pin	1	2	3	4
Function	V+	V-	OUT	GND





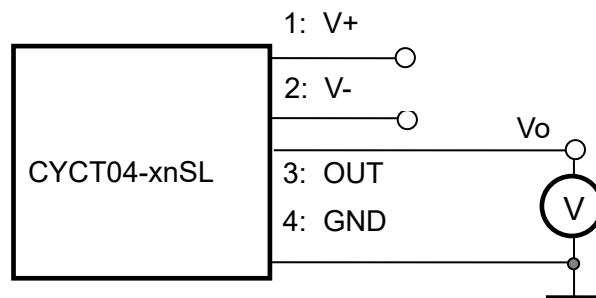
During the sensor is installed to a current conductor, the sensor core should be opened at first and then be closed again. It must be aware that the iron core interface on both sides is aligned and cannot be forcibly closed.

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.

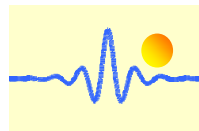
a) Voltage Output

- 1: V+ Power Supply
- 2: V- Power Supply
- 3: Output
- 4: Ground



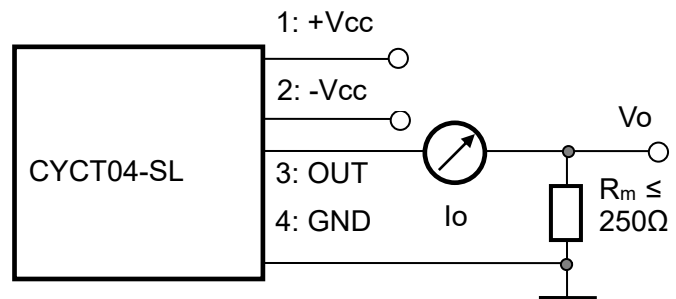
Relation between Input and Output:

Sensor CYCT04-36SL-1.0-U50mA		Sensor CYCT04-16SL-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: +Vcc Power Supply
- 2: -Vcc Power Supply
- 3: Output
- 4: Ground



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

Sensor CYCT04-55SL-1.0-U50mA			Sensor CYCT04-45SL-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 CYCT04-55SL-1.0-B50mA			Sensor CYCT04-45SL-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.