

## Split Core Hall Effect DC Current Sensor CYHCT-L21K

The sensor CYHCT-L21K is based on open loop principle and designed with a high galvanic isolation between primary conductor and secondary circuit. It can be used for measurement of DC current, DC pulse currents etc. The output of the transducer reflects the real wave of the current carrying conductor.

Features and Advantages	Applications
<ul style="list-style-type: none"> <li>DC current measurement</li> <li>Output signal option (4-20mA, 0-5V, 0-10V)</li> <li>High isolation between primary and secondary circuits</li> <li>No insertion losses</li> <li>Split Core, easy installation</li> <li>Temperature compensation</li> </ul>	<ul style="list-style-type: none"> <li><b>Photovoltaic equipment</b></li> <li>Battery banks, such as monitoring load current and charge current, verifying operation</li> <li>Transportation, measuring traction power or auxiliary loads</li> <li>Phase fired controlled heaters</li> <li>Directly connected to PLC</li> <li>Sense motor stalls and short circuits</li> <li>Industrial instrumentation</li> </ul>

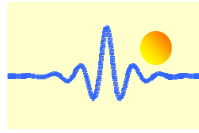
### Specifications

Rated input current (DC)	25A,30A,40A,50A,60A,70A,80A,90A,100A,200A,300A,400A,500A		
Linear measuring range	1.2 times of rated input current		
Output signals	0-5VDC, 0-10VDC, 0-20mADC, 4-20mADC		
Power supply	+12V DC, +15VDC, +24V DC		
Measuring accuracy	Voltage output: $\pm 1.0\%$ for 25A~49A, $\pm 0.5\%$ for 50A~500A 4-20mA output: $\pm 1.0\%$ for 25A~49A, $\pm 0.5\%$ for 50A~500A 0-20mA output: $\pm 1.0\%$ for 25A ~ 500A		
Linearity at 25°C	Voltage output: $\pm 0.5\%$ for 25A~49A, $\pm 0.2\%$ for 50A~500A 4-20mA output: $\pm 0.5\%$ for 25A~49A, $\pm 0.2\%$ for 50A~500A 0-20mA output: $\pm 0.5\%$ for 25A ~ 500A		
Zero offset voltage	$\pm 10\text{mV}$	Hysteresis error:	$\pm 10\text{mV}$
Thermal drift of offset voltage	$\leq 300\text{ppm}/^\circ\text{C}$	Thermal drift of offset current	$\leq 400\text{ppm}/^\circ\text{C}$
Thermal Drift (-10°C to 50°C)	$< 1000\text{ppm}/^\circ\text{C}$		
Galvanic isolation	3 kV DC, 1 min	Isolation resistance	$\geq 100\text{M}\Omega$
Response time	$< 1\text{ms}$ DC output		
Frequency Bandwidth (-3dB)	DC – 20kHz		
di/dt following accuracy	50A/ $\mu\text{s}$		
Overload capacity	5 times of rated current		
Current consumption	$\leq 25\text{mA}$ for voltage output, 25mA + Output current for current output		
Output load	Voltage output: $\geq 2\text{k}\Omega$ , Current output: $\leq 250\Omega$		
Mounting	Panel Screw mounting		
Case style and Window size	L21K with aperture $\varnothing 21\text{mm}$		
Protection of Case	IP20		
Operating temperature	$-40^\circ\text{C} \sim +85^\circ\text{C}$	Storage temperature	$-55^\circ\text{C} \sim + 100^\circ\text{C}$
Relative humidity	$\leq 90\%$		
MTBF	$\geq 100\text{k}$ hours		

### Definition of Part number:

CYHCT	-	L21K	-	M	-	x	n	C
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(1)                      (2)                      (3)                      (4)                      (5)                      (6)



(1)	(2)	(3)	(4)	(5)	(6)
Series name	Case style	Rated Input current (M=U/B m)	Output signal	Power supply	Connector
CYHCT	L21K	m = 25A, 30A, 40A, 50A, 60A, 70A, 80A, 90A, 100A, 200A, 300A, 400A, 500A (other input current between 25A-500A)	<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	n=2: +12V DC n=3: +15V DC n=4: +24V DC	C=M: Molex Connector C=P: Phoenix Connector

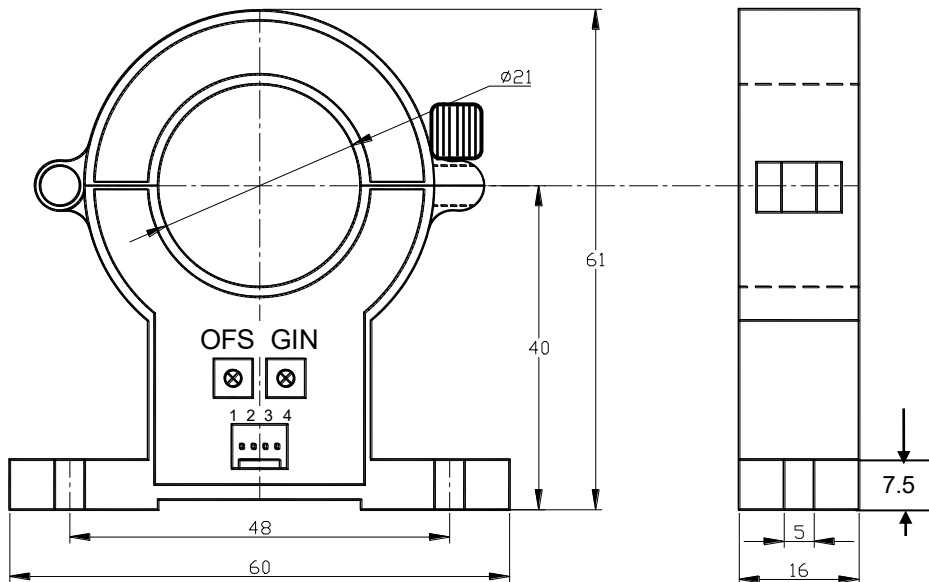
U: unidirectional;

B: bidirectional (please give U or B in the part number)

**Example 1:** CYHCT-L21K-U100A -34M, Hall Effect DC Current sensor with Molex connector  
Output signal: 0-5V DC  
Power supply: +24V DC  
Rated input current: 0-100A DC

**Example 2:** CYHCT-L21K-U100A -54P, Hall Effect DC Current sensor with Phoenix connector  
Output signal: 4-20mA DC  
Power supply: +24V DC  
Rated input current: 0-100A DC

### DIMENSIONS (mm)



OFS: Offset Adjustment

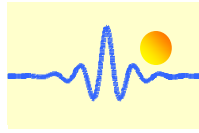
GIN: Gain Adjustment

Dimensions: 61mm x 60mm x 16mm, Aperture: Ø20 mm

### Pin Arrangement

- 1: Vcc
- 2: GND
- 3: Signal Output
- 4: GND

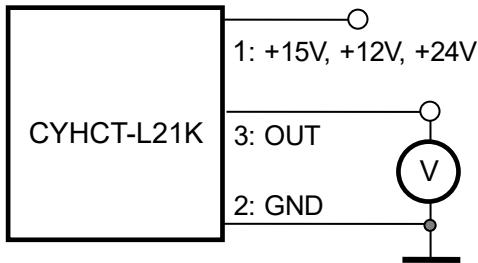




## CONNECTIONS

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.

### Wiring of Terminals for voltage output:

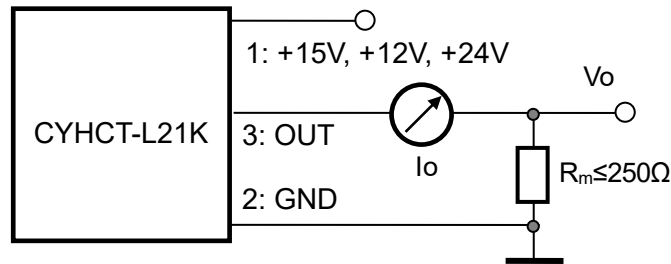


Relation between Input and Output:

Sensor CYHCT-L21K-U100A-34	
Input current (A)	Output voltage (V)
0	0
25	1.25
50	2.5
75	3.75
100	5

1: Power supply; 2: GND; 3: Voltage Output

### Wiring of Terminals for Current Output:



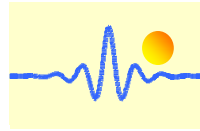
1: Power supply; 2: GND; 3: Current Output

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

Sensor CYHCT-L21K-U100A-54		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V)
0	4	1
25	8	2
50	12	3
75	16	4
100	20	5

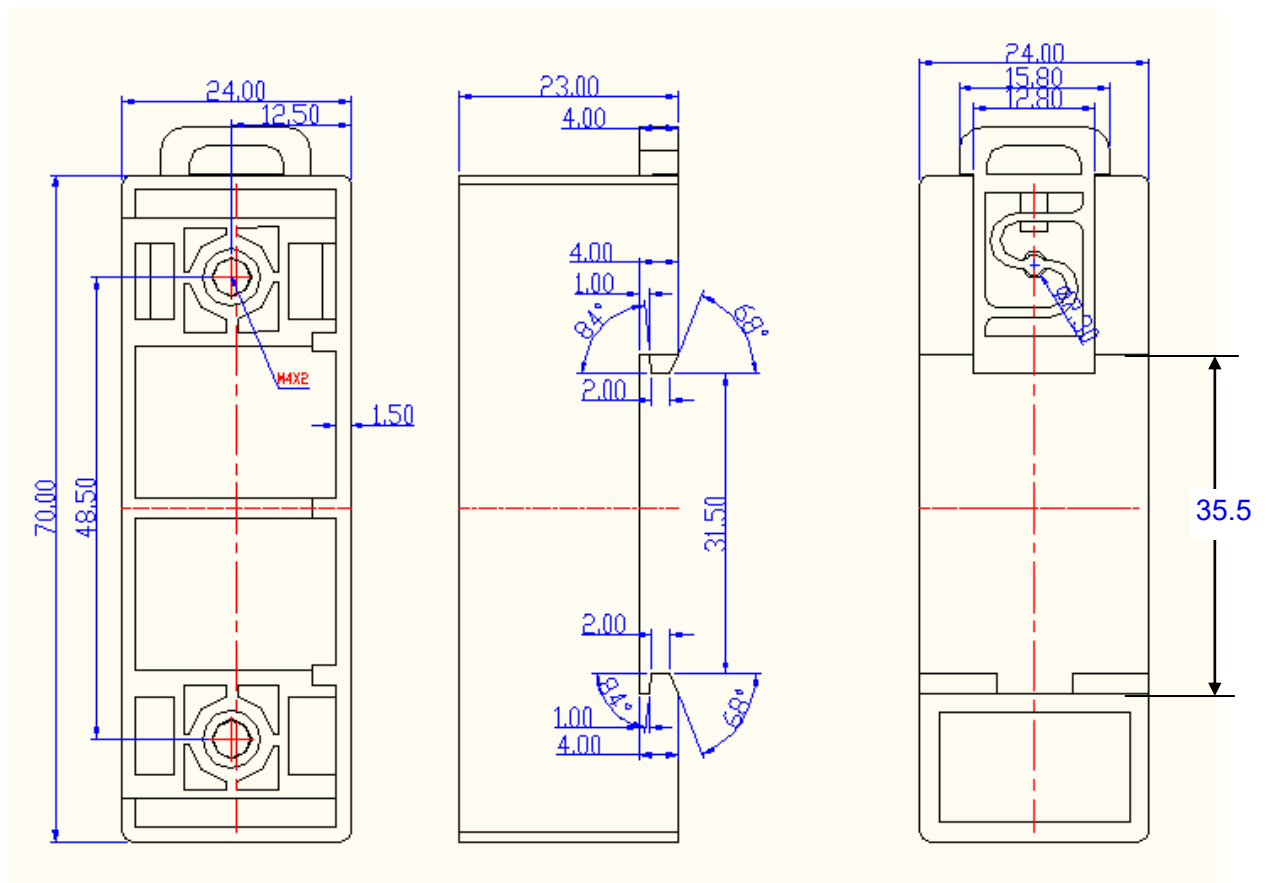
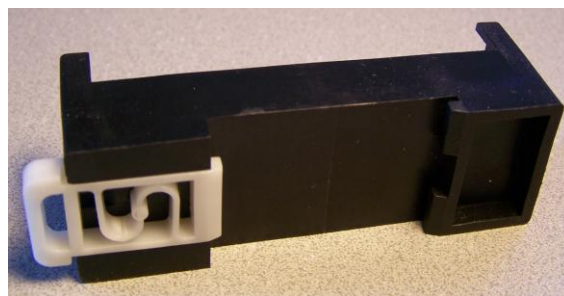
### Notes:

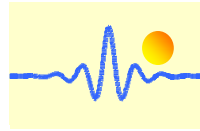
1. Connect the terminals of power source, output respectively and correctly, never make wrong connection.
2. Two potentiometers can be adjusted, only, if necessary, by turning slowly to the required accuracy with a small screwdriver.
3. The best accuracy can be achieved when the window is fully filled with busbar (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.



## DIN Rail Adapter CY-DRA88

The DIN Rail Adapter CY-DRA88 is designed for mounting the sensor on 35mm DIN Rail. It has the size 70 x 24 x 23mm. The height from bottom to mounting surface is 14.8mm.

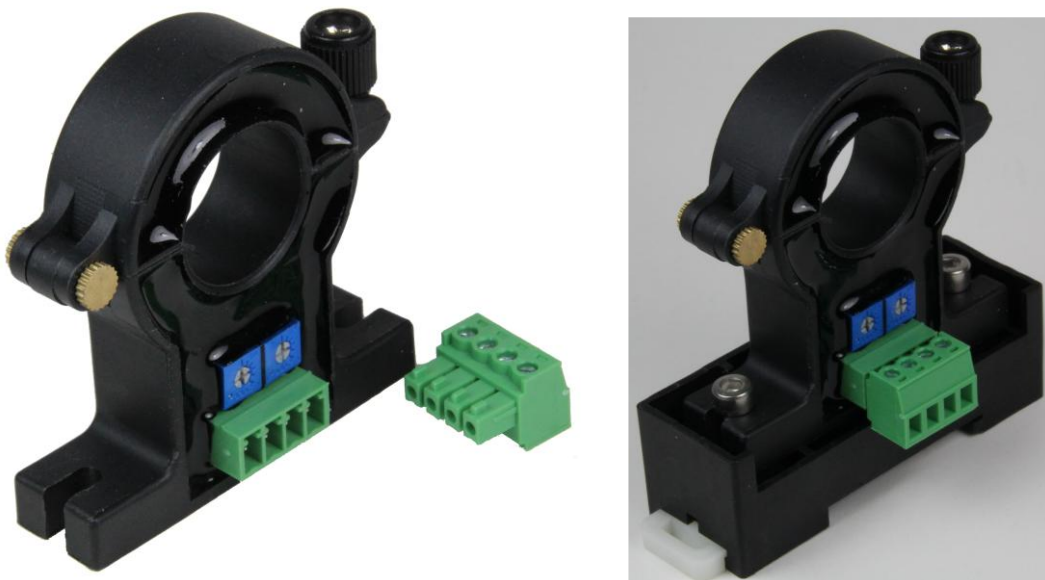




## Mounting of Sensors



Sensor with Molex Connector  
(The distance between the bottom und the middle of hole is 54.8mm)



Sensor with Phoenix Connector  
(The distance between the bottom und the middle of hole is 54.8mm)