

## Split Core Hall Current Sensor CYHCT-K104V

This Hall Effect current sensor 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.

Product Characteristics	Applications
<ul style="list-style-type: none"> <li>• Excellent accuracy</li> <li>• Very good linearity</li> <li>• Using split cores and easy mounting</li> <li>• Less power consumption</li> <li>• Electrically isolating the output of the transducer from the current carrying conductor</li> <li>• No insertion loss</li> <li>• Current overload capability</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Photovoltaic equipment</b></li> <li>• Frequency conversion timing equipment</li> <li>• Various power supply</li> <li>• Uninterruptible power supplies (UPS)</li> <li>• Electric welding machines</li> <li>• Transformer substation</li> <li>• Numerical controlled machine tools</li> <li>• Electric powered locomotive</li> <li>• Microcomputer monitoring</li> <li>• Electric power network monitoring</li> </ul>

### Electrical Data

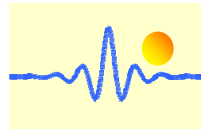
Primary Nominal DC Current $I_r$ (A)	Measuring Range (A)	DC Output Voltage (V)	Window Size (mm)	Part number (see application notes on page 3)
500	0~±500	x=0: 0-4V ±1.0% x=3: 0-5V ±1.0% x=8: 0-10V ±1.0%	104 x 36	CYHCT-K104V-U/B500A-xnC
1000	0~±1000			CYHCT-K104V-U/B1000A-xnC
1500	0~±1500			CYHCT-K104V-U/B1500A-xnC
2000	0~±2000			CYHCT-K104V-U/B2000A-xnC
3000	0~±3000			CYHCT-K104V-U/B3000A-xnC
4000	0~±4000			CYHCT-K104V-U/B4000A-xnC
5000	0~±5000			CYHCT-K104V-U/B5000A-xnC

(U: unidirectional input current; B: bidirectional input current, please give U or B in Part number  
Power supply: n=2, V<sub>cc</sub>= +12VDC; n=3, V<sub>cc</sub> =+15VDC; n=4, V<sub>cc</sub> =+24VDC  
Connector: C=S, Screw connector; C=M, MOLEX connector)

Supply Voltage	V <sub>cc</sub> = +12V, +15V, +24VDC ± 5%
Output Voltage at $I_r$ , $T_A=25^\circ\text{C}$ :	V <sub>out</sub> =0- 4V, 0-5V, 0-10VDC
Current Consumption	$I_c < 25\text{mA}$
Galvanic isolation, 50/60Hz, 1min:	3kV rms
Output Impedance:	R <sub>out</sub> < 150Ω
Load resistance:	10kΩ

### Accuracy and Dynamic performance data

Accuracy at $I_r$ , $T_A=25^\circ\text{C}$ ,	X <±1.0% FS
Linearity from 0 to $I_r$ , $T_A=25^\circ\text{C}$ ,	$E_L < \pm 0.5\%$ FS
Electric Offset Voltage, $T_A=25^\circ\text{C}$ ,	V <sub>oe</sub> < 50mV
Magnetic Offset Voltage ( $I_r \rightarrow 0$ )	V <sub>om</sub> < ±20mV
Thermal Drift of Offset Voltage,	V <sub>ot</sub> < ±1.0mV/°C
Response Time at 90% of $I_P$ (f=1k Hz)	t <sub>r</sub> < 1ms
Frequency Bandwidth (-3dB),	f <sub>b</sub> = DC - 20 kHz
Case Material:	PBT



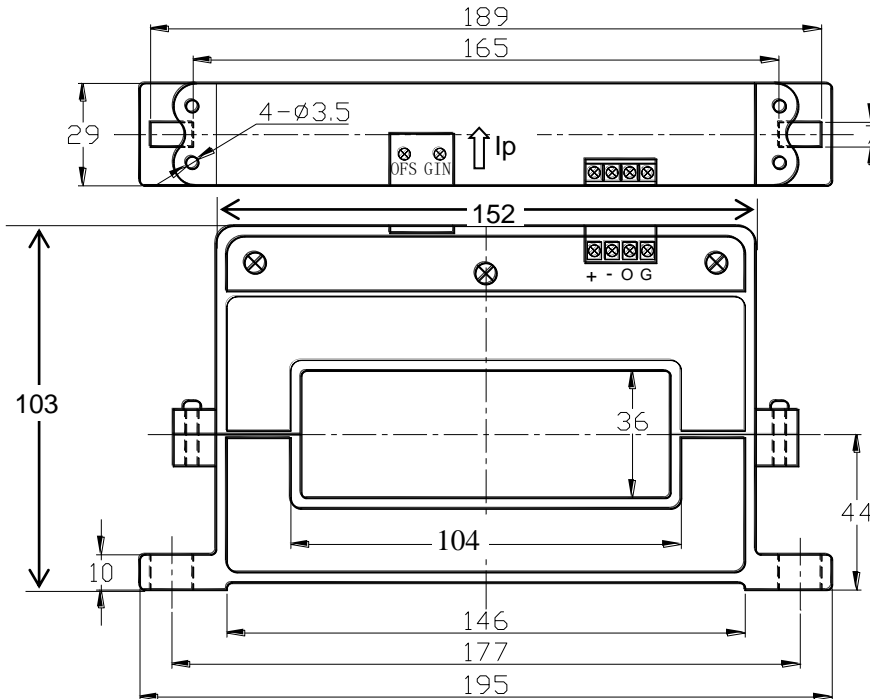
## General Data

Ambient Operating Temperature,  
Ambient Storage Temperature,

$T_A = -25^{\circ}\text{C} \sim +85^{\circ}\text{C}$   
 $T_S = -40^{\circ}\text{C} \sim +100^{\circ}\text{C}$

## Dimensions

### Screw connection

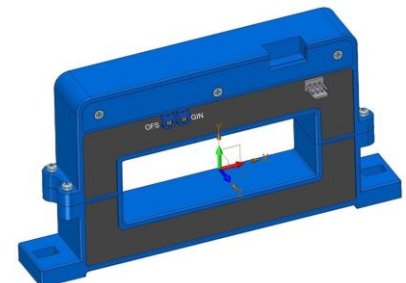
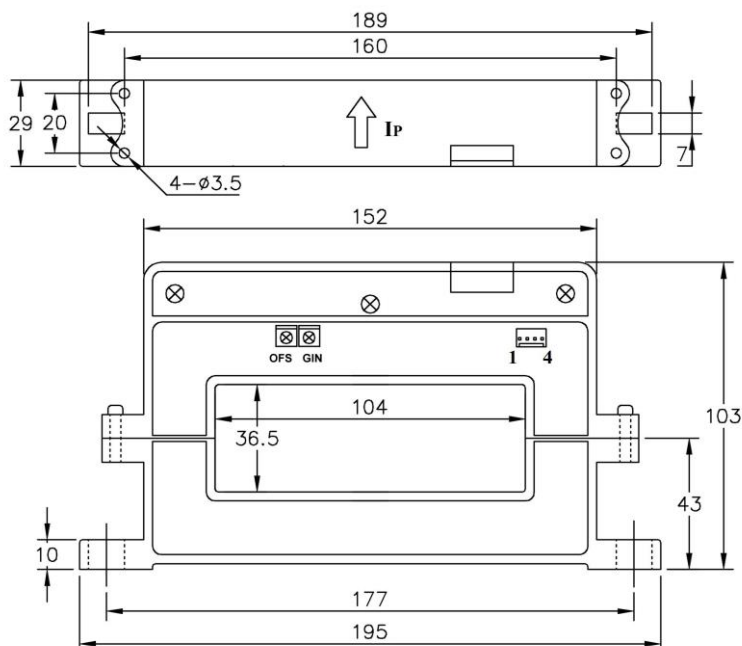


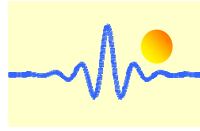
### Pin Arrangement

- 1(+): Vcc
- 2(-): Ground (GND)
- 3(O): Output
- 4(G): Ground (GND)

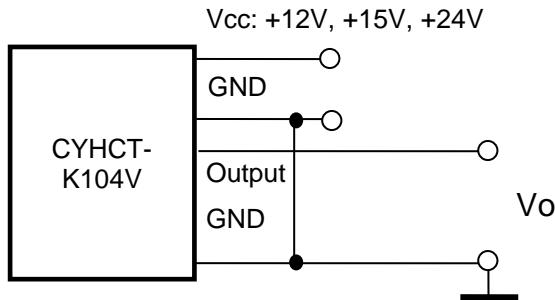
GIN: gain adjustment  
OFS: offset adjustment

### MOLEX Connection





## Sensor Connection



### 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 bus-bar (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

## Application Notes

### 1) Part number CYHCT-K104V-U/BxxxxA-xnC

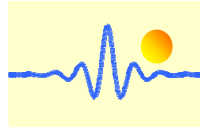
**U/B:** **U:** unidirectional input current; **B:** bidirectional input current;  
**xxxx:** current value; **x:** output voltage (**x=0:** 0-4V  $\pm 1.0\%$ ; **x=3:** 0-5V  $\pm 1.0\%$ ; **x=8:** 0-10V  $\pm 1.0\%$ );  
**n:** power supply (**n=2,**  $V_{cc} = +12\text{VDC}$ ; **n=3,**  $V_{cc} = +15\text{VDC}$ ; **n=4,**  $V_{cc} = +24\text{VDC}$ ),  
**C:** Connector (**C=S,** Screw connector; **C=M,** MOLEX connector)

**Example 1:** CYHCT-K104V-U1000A-32S Hall Effect DC Current sensor with screw connector  
 Output signal: 0 – 5V DC  
 Power supply: +12V DC  
 Rated input current: 0 - 1000A DC (unidirectional)

**Example 2:** CYHCT-K104V-B1000A-84M Hall Effect DC Current sensor with MOLEX connector  
 Output signal: 0 – 10V DC  
 Power supply: +24V DC  
 Rated input current: -1000A - 0 - +1000A DC (bidirectional)

### 2) Relation between Input current and output signal

Current Sensor CYHCT-K104V-U1000A-32S	
Input current (A)	Output voltage $V_o$ (V)
0	0
250	1.25
500	2.5
750	3.75
1000	5



Current Sensor CYHCT-K104V-B1000A-84M	
Input current (A)	Output voltage Vo (V)
-1000	0
-750	1.25
-500	2.5
-250	3.75
0	5
250	6.25
500	7.5
750	8.75
1000	10