

## Split Core Hall Effect AC Current Sensor CYHCS-K104C

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 AC current, pulse currents etc. The output of the transducer reflects the rectified average value of the current in the 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>• Window structure</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

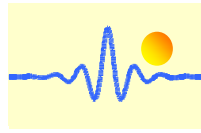
Primary Nominal Current $I_r$ (A), rms	Measuring Range (A)	DC Output Current (mA)	Window Size (mm)	Part number
500	0~±500	4-20 ±1.0%	104 x 36	CYHCS-K104C-500A-nC
1000	0~±1000			CYHCS-K104C-1000A-nC
1500	0~±1500			CYHCS-K104C-1500A-nC
2000	0~±2000			CYHCS-K104C-2000A-nC
3000	0~±3000			CYHCS-K104C-3000A-nC
4000	0~±4000			CYHCS-K104C-4000A-nC
5000	0~±5000			CYHCS-K104C-5000A-nC

(Power Supply: n=3,  $V_{cc}$ = +12VDC ±5%; n=4,  $V_{cc}$ =+15VDC ±5%; n=5,  $V_{cc}$ =+24VDC±5%  
Connector: C=S, Screw connector; C=M, MOLEX connector)

Supply Voltage	$V_{cc}$ = +12V, +15V, +24VDC ± 5%
Output current:	4-20mADC
Current Consumption	$I_c$ < 25mA + Output current
Galvanic isolation, 50/60Hz, 1min:	3kV rms
Isolation resistance @ 500 VDC	> 500 MΩ

### Accuracy and Dynamic performance data

Accuracy at $I_r$ , $T_A=25^\circ\text{C}$ ,	$X < \pm 1.0\%$ FS
Linearity from 0 to $I_r$ , $T_A=25^\circ\text{C}$ ,	$E_L < \pm 0.5\%$ FS
Electric Offset current, $T_A=25^\circ\text{C}$ ,	4mA DC
Thermal Drift of Offset Current,	$< \pm 0.005\text{mA}/^\circ\text{C}$
Response Time at 90% of $I_P$	$t_r < 200\text{ms}$
Load resistance:	80-450Ω
Frequency Bandwidth (-3dB),	$f_b = 20\text{Hz} - 20\text{kHz}$
Case Material:	PBT



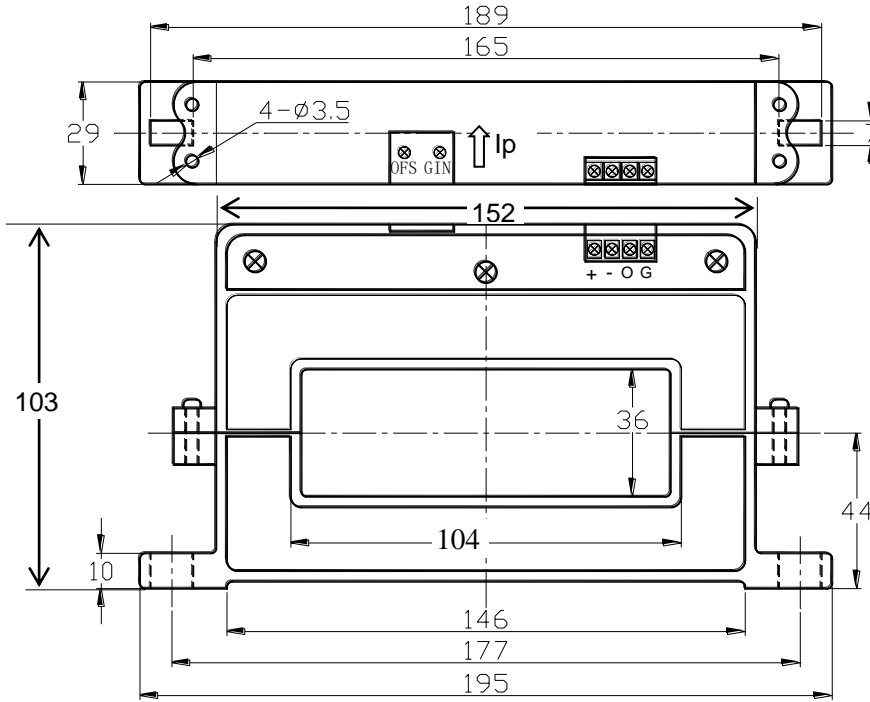
## General Data

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

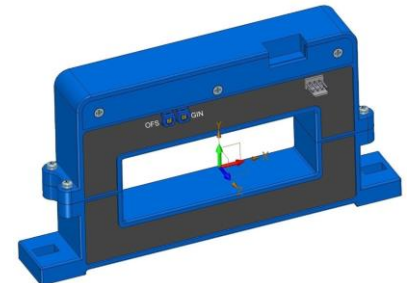
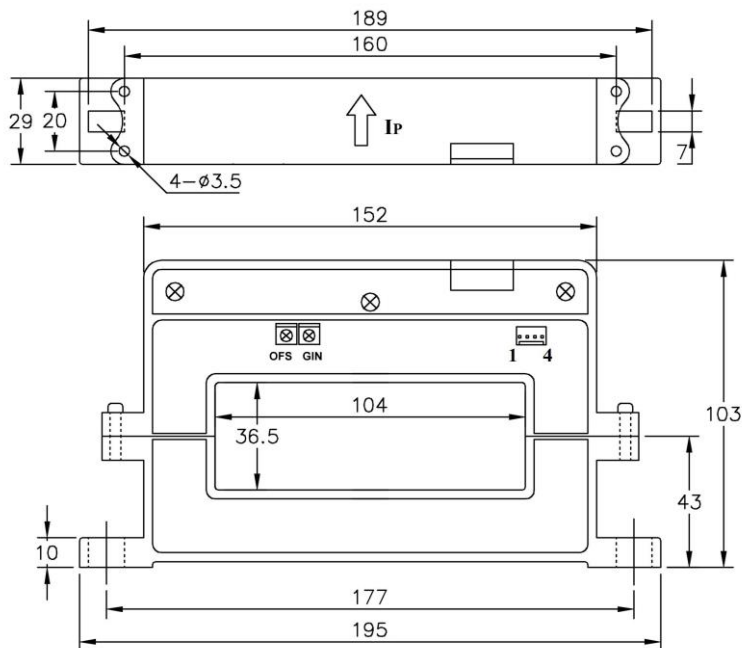


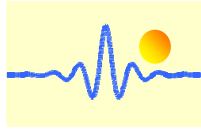
### Pin Arrangement

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

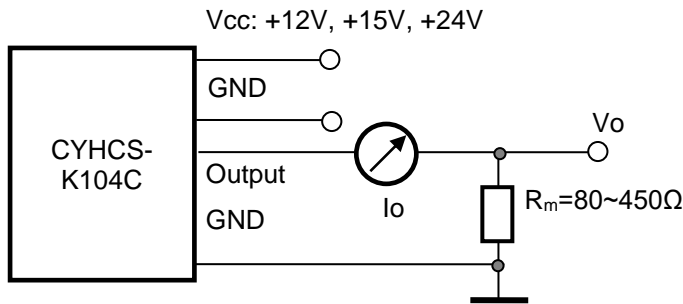
GIN: gain adjustment  
OFS: offset adjustment

### 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 CYHCS-K104C-xxxxA-nC

**xxxx:** current value;

**n:** power supply (**n=3**,  $V_{cc}= +12VDC \pm 5\%$ ; **n=4**,  $V_{cc}= +15VDC \pm 5\%$ ; **n=5**,  $V_{cc}= +24VDC \pm 5\%$ )

**C:** Connector: C=S, Screw connector; C=M, MOLEX connector

**Example 1:** CYHCS-K104C-1000A-5S Hall Effect AC Current sensor with screw connector  
Output signal: 4mA - 20mA DC  
Power supply: +24V DC  
Rated input current: 0 - 1000A AC

**Example 2:** CYHCS-K104C-1000A-3M Hall Effect AC Current sensor with MOLEX connector  
Output signal: 4mA - 20mA DC  
Power supply: +12V DC  
Rated input current: 0 - 1000A AC

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

Current Sensor CYHCS-K104C-1000A-5S or CYHCS-K104C-1000A-3M		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V) (Measuring resistance $R_m=250\Omega$ )
0	4	1
250	8	2
500	12	3
750	16	4
1000	20	5