

## Hall Effect AC Current Sensor CYHCS-D6V

This Hall Effect current sensor is based on open loop principle and designed with a solid core and a high galvanic isolation between primary conductor and secondary circuit. It can be used for measurement of AC current etc. The output of the transducer reflects the rectified average value of the current in the carrying conductor.

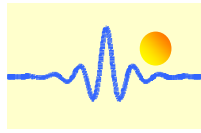
Product Characteristics	Applications
<ul style="list-style-type: none"> <li>• Excellent accuracy</li> <li>• Very good linearity</li> <li>• Less power consumption</li> <li>• Window structure</li> <li>• Electrically isolating the output of the transducer from the current carrying conductor</li> <li>• No 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 rms Current $I_r$ (A)	Measuring Range (A)	DC Output Voltage (V)	Part number (see application notes on page 4)
50	0 ~ ±50A	x=0: 0-4V ±1.0% x=3: 0-5V ±1.0% x=8: 0-10V ±1.0%	CYHCS-D6V-50A-xnC
100	0 ~ ±100A		CYHCS-D6V-100A-xnC
200	0 ~ ±200A		CYHCS-D6V-200A-xnC
300	0 ~ ±300A		CYHCS-D6V-300A-xnC
400	0 ~ ±400A		CYHCS-D6V-400A-xnC
500	0 ~ ±500A		CYHCS-D6V-500A-xnC
600	0 ~ ±600A		CYHCS-D6V-600A-xnC
700	0 ~ ±700A		CYHCS-D6V-700A-xnC
800	0 ~ ±800A		CYHCS-D6V-800A-xnC
900	0 ~ ±900A		CYHCS-D6V-900A-xnC
1000	0 ~ ±1000A		CYHCS-D6V-1000A-xnC

(Power supply: n=2,  $V_{CC}$ = +12VDC ±5%; n=3,  $V_{CC}$  =+15VDC ±5%; n=4,  $V_{CC}$  =+24VDC±5%  
Connector: C=S, Screw connector; C=M, MOLEX connector)

Supply Voltage:	$V_{CC}$ =+12V, +15V, +24V± 5%
Current Consumption	$I_c$ < 25mA
Isolation Voltage	2.5kV, 50/60Hz, 1min
Output Voltage at $I_r$ , $T_A=25^\circ\text{C}$ :	$V_{out}$ =0- 4V, 0-5V, 0-10VDC
Output Impedance:	$R_{out}$ < 150Ω
Load Resistor:	$R_L$ > 10kΩ
Accuracy at $I_r$ , $T_A=25^\circ\text{C}$ ,	$X$ <1.0% FS
Linearity from 0 to $I_r$ , $T_A=25^\circ\text{C}$ ,	$E_L$ <1.0% FS
Electric Offset Voltage, $T_A=25^\circ\text{C}$ ,	$V_{oe}$ <50mV
Magnetic Offset Voltage ( $I_r \rightarrow 0$ )	$V_{om}$ <±20mV
Thermal Drift of Offset Voltage,	$V_{ot}$ <±1.0mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of $I_P$ ( $f=1\text{k Hz}$ )	$t_r$ < 200ms
Frequency Bandwidth (-3dB),	$f_b$ = 20Hz - 20 kHz

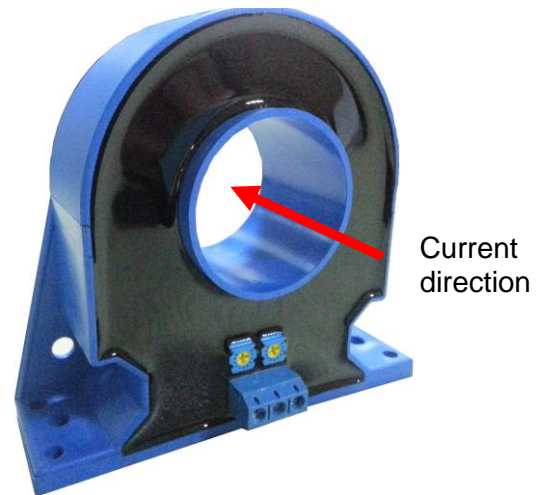
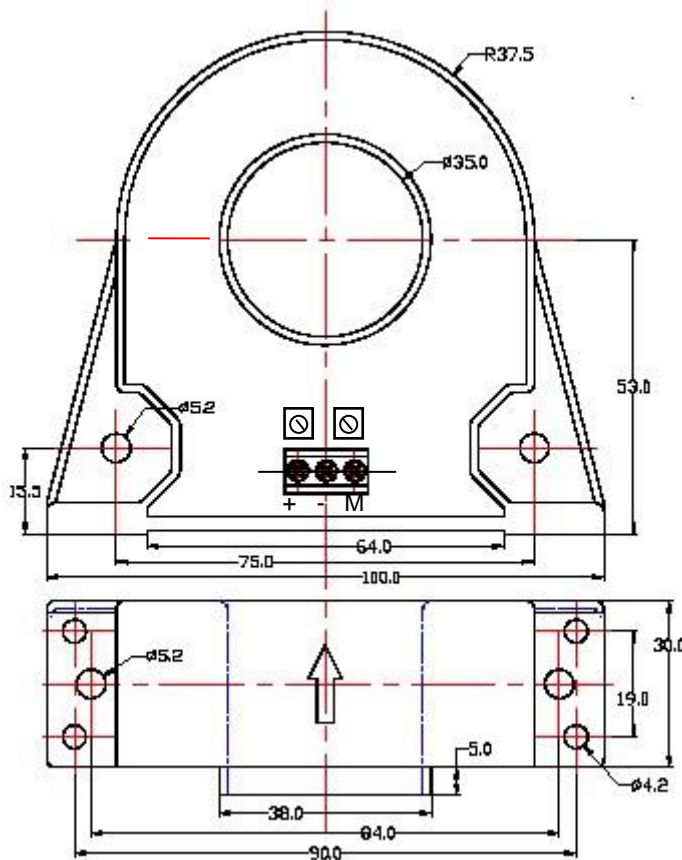


Case Material:  
Ambient Operating Temperature,  
Ambient Storage Temperature,

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

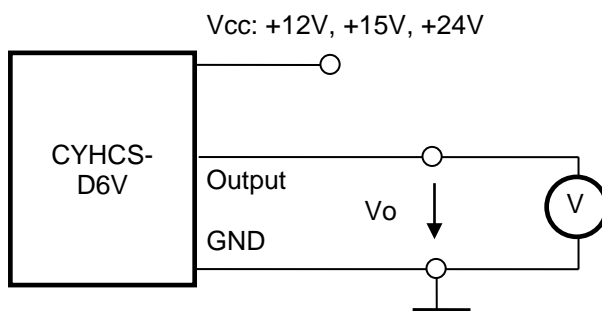
## PIN Definition and Dimensions

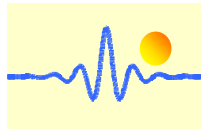
### Screw connection



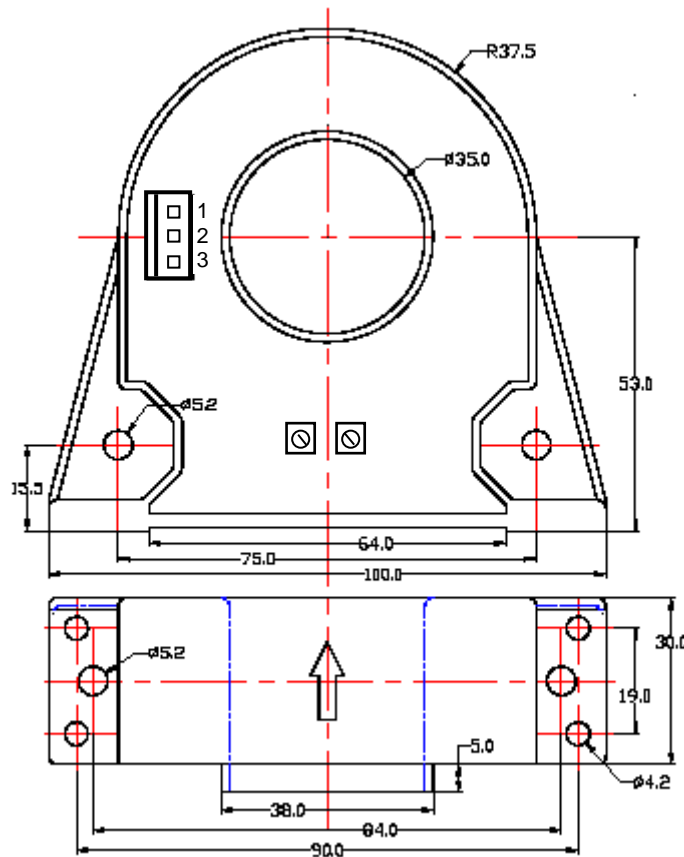
### Terminal Arrangement

- 1(+): Vcc
- 2(-): GND
- 3(M): Output



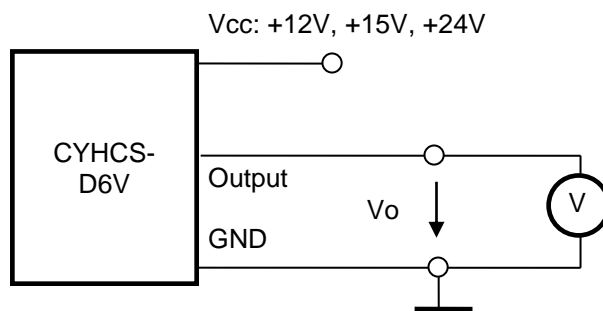


## MOLEX Connection



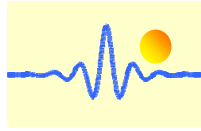
### Terminal Arrangement

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



### 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-D6V-xxxxA-xnC

**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,** Vcc= +12VDC; **n=3,** Vcc =+15VDC; **n=4,** Vcc =+24VDC,)  
**C:** Connector: **C=S,** Screw connector; **C=M,** MOLEX connector

**Example 1:** CYHCS-D6V-100A-32S Hall Effect AC Current sensor with screw connector  
Output signal: 0 – 5V DC  
Power supply: +12V DC  
Rated input current: 0 - 100A AC

**Example 2:** CYHCS-D6V-B100A-84M Hall Effect AC Current sensor with MOLEX connector  
Output signal: 0 – 10V DC  
Power supply: +24V DC  
Rated input current: 0 - 100A AC

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

Current Sensor CYHCS-D6V-100A-32S	
Input current (A)	Output voltage Vo (V)
0	0
25	1.25
50	2.5
75	3.75
100	5

Current Sensor CYHCS-D6V-100A-84M	
Input current (A)	Output voltage Vo (V)
0	0
25	2.5
50	5
75	7.5
100	10