Split Core Hall Effect DC Current Sensor CYHCT-C2TV

This Hall Effect current sensor is based on open loop principle and designed with a split core and a high galvanic isolation between primary conductor and secondary circuit. It can be used for measurement of DC current etc. The output of the transducer reflects the real wave of the current carrying conductor.

<table>
<thead>
<tr>
<th>Product Characteristics</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Excellent accuracy</td>
<td>• Photovoltaic equipment</td>
</tr>
<tr>
<td>• Very good linearity</td>
<td>• Frequency conversion timing equipment</td>
</tr>
<tr>
<td>• Light in weight</td>
<td>• Various power supply</td>
</tr>
<tr>
<td>• Less power consumption</td>
<td>• Uninterruptible power supplies (UPS)</td>
</tr>
<tr>
<td>• Window structure</td>
<td>• Electric welding machines</td>
</tr>
<tr>
<td>• Electrically isolating the output of the transducer from the current carrying conductor</td>
<td>• Numerical controlled machine tools</td>
</tr>
<tr>
<td>• No insertion loss</td>
<td>• Electrolyzing and electroplating equipment</td>
</tr>
<tr>
<td>• Current overload capability</td>
<td>• Electric powered locomotive</td>
</tr>
<tr>
<td></td>
<td>• Microcomputer monitoring</td>
</tr>
<tr>
<td></td>
<td>• Electric power network monitoring</td>
</tr>
</tbody>
</table>

Electrical Data/Input

<table>
<thead>
<tr>
<th>Primary Nominal DC Current I_p (A)</th>
<th>Primary Current Measuring Range I_o(A)</th>
<th>DC Output Voltage (V)</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>25A</td>
<td>0 ~ ±25A</td>
<td>x=0: 0-4V ±1.0%</td>
<td>CYHCT-C2TV-U/B25A-xnC</td>
</tr>
<tr>
<td>30A</td>
<td>0 ~ ±30A</td>
<td>x=3: 0-5V ±1.0%</td>
<td>CYHCT-C2TV-U/B30A-xnC</td>
</tr>
<tr>
<td>40A</td>
<td>0 ~ ±40A</td>
<td>x=8: 0-10V ±1.0%</td>
<td>CYHCT-C2TV-U/B40A-xnC</td>
</tr>
<tr>
<td>50A</td>
<td>0 ~ ±50A</td>
<td></td>
<td>CYHCT-C2TV-U/B50A-xnC</td>
</tr>
<tr>
<td>100A</td>
<td>0 ~ ±100A</td>
<td></td>
<td>CYHCT-C2TV-U/B100A-xnC</td>
</tr>
<tr>
<td>200A</td>
<td>0 ~ ±200A</td>
<td></td>
<td>CYHCT-C2TV-U/B200A-xnC</td>
</tr>
<tr>
<td>300A</td>
<td>0 ~ ±300A</td>
<td></td>
<td>CYHCT-C2TV-U/B300A-xnC</td>
</tr>
<tr>
<td>400A</td>
<td>0 ~ ±400A</td>
<td></td>
<td>CYHCT-C2TV-U/B400A-xnC</td>
</tr>
<tr>
<td>500A</td>
<td>0 ~ ±500A</td>
<td></td>
<td>CYHCT-C2TV-U/B500A-xnC</td>
</tr>
<tr>
<td>600A</td>
<td>0 ~ ±600A</td>
<td></td>
<td>CYHCT-C2TV-U/B600A-xnC</td>
</tr>
</tbody>
</table>

(n=2, Vcc= +12VDC; n=3, Vcc =+15VDC; n=4, Vcc =+24VDC, U: unidirectional, B: bidirectional)  
(Connector:  Molex connector C=M; Phoenix Connector: C=P, Cable connection: C=S)

Supply Voltage:  $V_{cc}$ = +12V, +15V, +24V ± 5%
Current Consumption  $I_c < 25mA$
Isolation Voltage  2.5kV, 50/60Hz, 1min
Output Voltage at $I_p$, $T_A=25°C$:  $V_{out}$ =0-4V, 0-5V, 0-10VDC  
Output Impedance:  $R_{out} < 150Ω$
Load Resistor:  $R_L > 10kΩ$

Accuracy

Accuracy at $I_p$, $T_A=25°C$,  $X < 1.0%$ FS
Linearity from 0 to $I_p$, $T_A=25°C$,  $E_L < 1.0%$ FS
Electric Offset Voltage, $T_A=25°C$,  $V_{oa} < 50mV$
Magnetic Offset Voltage ($I_p→0$)  $V_{om} < 20mV$
Thermal Drift of Offset Voltage,  $V_{d1} < ±1.0 mV/°C$
Thermal Drift ($-10°C$ to $50°C$),  $T.C. < ±0.1% /°C$
Response Time at 90% of $I_o$ ($f=1k$ Hz)  $t_r < 1ms$
Frequency Bandwidth (-3dB),  $f_o = DC - 20 kHz$
Case Material:
Ambient Operating Temperature,
Ambient Storage Temperature,
PBT
\( T_A = -25^\circ C \sim +85^\circ C \)
\( T_S = -40^\circ C \sim +100^\circ C \)

PIN Definition and Dimensions

OFS: Offset Adjustment
GIN: Gain Adjustment

Connection

Vcc: +12V, +15V, +24VDC
GND
Output
Vo

CYHCT-C2TV

Current direction

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http://www.cy-sensors.com
Cable Connection

Red: Vcc: +12V, +15V, +24VDC
Blue: GND
Yellow: Output
Black: GND

Wire Arrangement:

Red: Vcc: +12V, +15V, +24VDC
Blue: GND (ground)
Yellow: Vo (Voltage output)
Black: GND (ground)

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.
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)