Open Loop Hall Effect DC Current Sensor CYHCT-BTV

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
• Excellent accuracy • Very good linearity • Light in weight • Less power consumption • Window structure • Electrically isolating the output of the transducer from the current carrying conductor • No insertion loss • Current overload capability	• **Photovoltaic Equipment** • Frequency conversion timing equipment • Various power supply • Uninterruptible power supplies (UPS) • Electric welding machines • Transformer substation • Numerical controlled machine tools • Electric powered locomotive • Microcomputer monitoring • Electric power network monitoring

Electrical Data

Primary Nominal Current I_r (A)	Measuring Range (A)	Output voltage	Aperture measures (mm)	Part number **(see application notes on page 3)**
50	0 ~ ±50	x=0: 0-4V ±1.0% x=3: 0-5V ±1.0% x=8: 0-10V ±1.0%	20.5x10.5	CYHCT-BTV-U/B050A-xn
100	0 ~ ± 100			CYHCT-BTV-U/B100A-xn
200	0 ~ ± 200			CYHCT-BTV-U/B200A-xn
300	0 ~ ± 300			CYHCT-BTV-U/B300A-xn
400	0 ~ ±400			CYHCT-BTV-U/B400A-xn
500	0 ~ ±500			CYHCT-BTV-U/B500A-xn
600	0 ~ ±600			CYHCT-BTV-U/B600A-xn

(n=2, *Vcc*= +12VDC; n=3, *Vcc* =+15VDC; n=4, *Vcc* =+24VDC, U: unidirectional, B: bidirectional)

Supply Voltage:	V_{cc}=+12V, +15V, +24V± 5%
Output Voltage at I_r, T_A=25°C:	V_{out} =0- 4V, 0-5V, 0-10VDC
Current Consumption	I_c < 25mA
Galvanic isolation, 50/60Hz, 1min:	2.5kV
Isolation resistance @ 500 VDC	> 500 MΩ

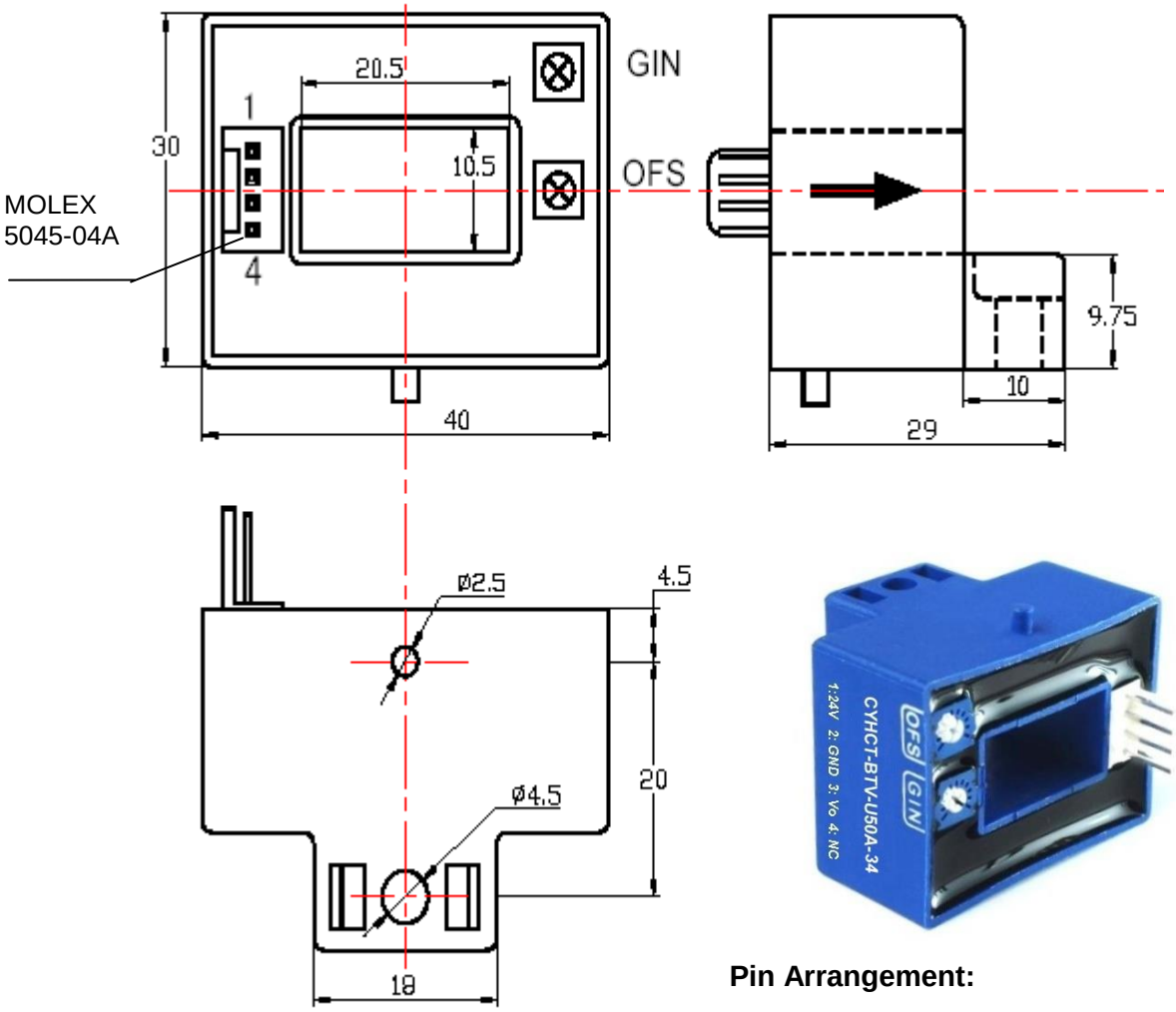
Accuracy and Dynamic performance data

Accuracy at I_r, T_A=25°C,	<1.0% FS
Linearity from 0 to I_r, T_A=25°C,	<0.5% FS
Zero Output Voltage, T_A=25°C,	<50mV
Hysteresis offset voltage:	<±25mV
Thermal Drift of Offset Voltage,	<±1.0mV/°C
Frequency bandwidth (- 3 dB):	DC-20kHz
Response Time at 90% of I_P (*f*=1k Hz)	< 1ms

General Data

Ambient Operating Temperature,	T_A = -25°C ~ +85°C
Ambient Storage Temperature,	T_S =-40°C ~ +100°C

PIN Definition and Dimensions



Pin Arrangement:

1: Vcc; 2: Ground;
3: Output; 4: NC

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-BTV-U/BxxxA-xn

U: unidirectional input current; **B:** bidirectional input current; **xxx:** current value; **x:** output voltage (**x**=0: 0-4V ±1.0%; **x**=3: 0-5V ±1.0%; **x**=8: 0-10V ±1.0%); **n:** power supply (**n**=2, Vcc= +12VDC; **n**=3, Vcc =+15VDC; **n**=4, Vcc =+24VDC,)

Example 1: CYHCT-BTV-U100A-32 Hall Effect DC Current sensor with
Output signal: 0 – 5V DC
Power supply: +12V DC
Rated input current: 0 - 100A DC (unidirectional)

Example 2: CYHCT-BTV-B100A-84 Hall Effect DC Current sensor with
Output signal: 0 – 10V DC
Power supply: +24V DC
Rated input current: -100A - 0 - +100A DC (bidirectional)

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2) Relation between Input current and output signal

Current Sensor CYHCT-BTV-U100A-32	
Input current (A)	Output voltage Vo (V)
0	0
25	1.25
50	2.5
75	3.75
100	5

Current Sensor CYHCT-BTV-B100A-84	
Input current (A)	Output voltage Vo (V)
-100	0
-75	1.25
-50	2.5
-25	3.75
0	5
25	6.25
50	7.5
75	8.75
100	10