Open Loop Hall Effect Current Sensor CYHCS-ST for True RMS Measurement of AC/DC Currents

Current sensors that utilize the Hall effect and open loop measuring principles to convert currents under Test into proportional DC current or voltage outputs via true RMS (TRMS) calculation. The output of the transducer reflects the true RMS value of the current carrying conductor. These sensors enable measurement of DC, AC, pulsed, and irregular waveform currents under electrically isolated conditions. They feature high accuracy, high linearity, high integration, compact size, simple structure, and long-term operational stability.

Product Characteristics	Applications
• Excellent accuracy • Very good linearity • Light in weight • Less power consumption • Measurement of the true effective value (RMS) • Electrically isolating the output of the transducer from the current carrying conductor • No insertion loss • Current overload capability	• Frequency conversion timing equipment • Various power supply • Uninterruptible power supplies (UPS) • Electric welding machines • Numerical controlled machine tools • Electrolyzing and electroplating equipment • Electric powered locomotive • Microcomputer monitoring • Electric power network monitoring

Electrical Data

Primary Nominal Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=24V	Output Signal (True RMS)	Part number
100	± 150	**x=3**: 0-5V RMS **x=5**: 4-20mA RMS **x=8:** 0-10V RMS for power supply +20V ~+32VDC	CYHCS-ST100A-xnC
200	± 300		CYHCS-ST200A-xnC
300	± 450		CYHCS-ST300A-xnC
400	± 600		CYHCS-ST-400A-xnC
500	± 750		CYHCS-ST-500A-xnC
600	± 900		CYHCS-ST-600A-xnC
1000	± 1200		CYHCS-ST-1000A-xnC

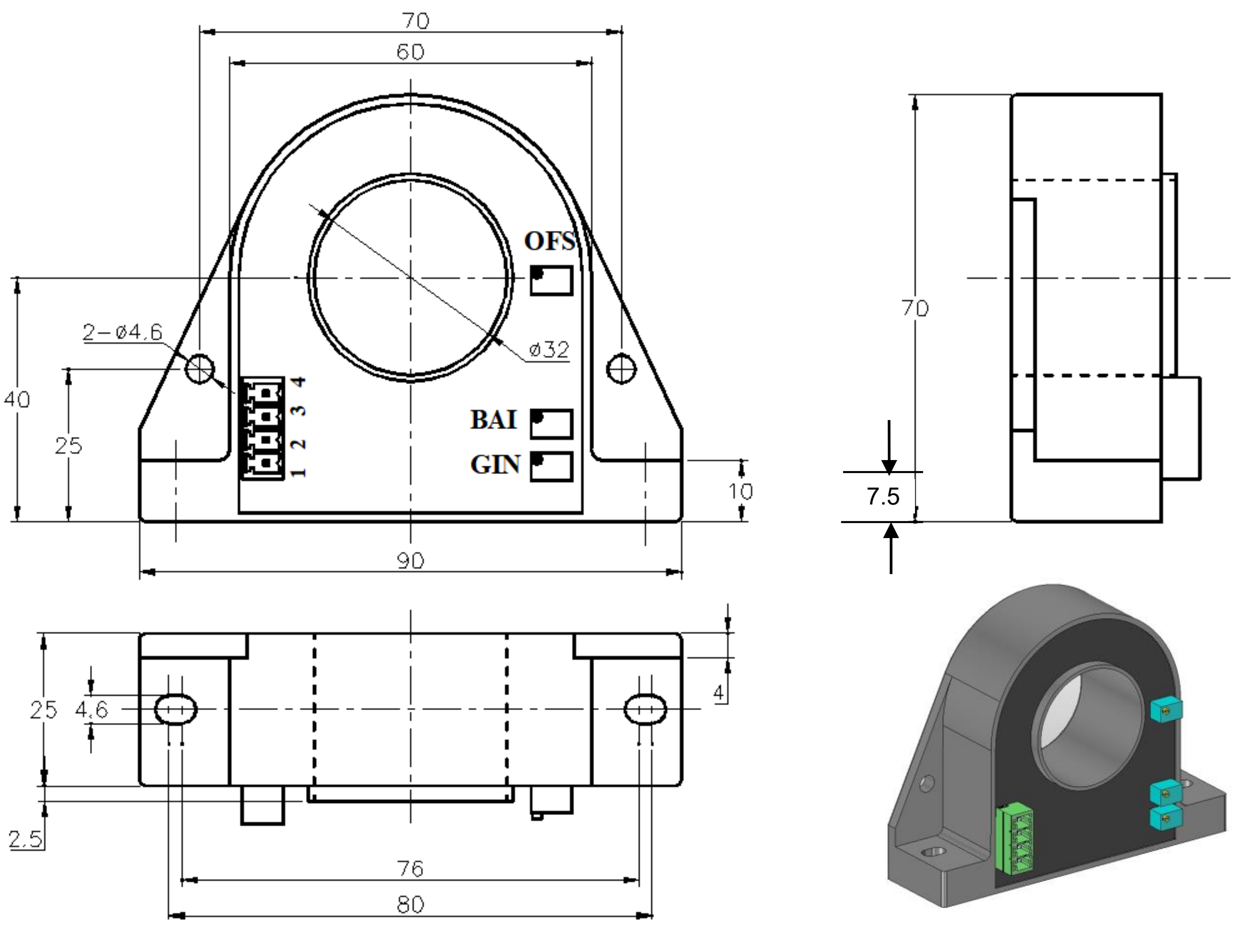
(n=2, *Vcc*= +12VDC; n=3, *Vcc* =+15VDC; n=4, *Vcc* =+20V ~+32VDC,
Connector: Phoenix Connector 3.81: C=P3, Phoenix Connector 5.08: C=P5)

Current Consumption	I_c < 30mA
Galvanic isolation, 50/60Hz, 1min:	≥3.0kV
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ
Accuracy at I_r, T_A=25°C (without offset),	X <±1.0% FS
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0% FS
Electric Offset Voltage, T_A=25°C,	V_{oe}=±35mV
Electric Offset Current, T_A=25°C,	I_{oe}=4 ± 0.1mA
Magnetic Offset Voltage ($I_r \to 0$)	V_{om} <±25mV
Magnetic Offset Current ($I_r \to 0$)	I_{om} < ± 0.1mA
Thermal Drift of Offset Voltage,	V_{ot} <±2.0mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1k Hz)	t_r < 150ms
Frequency Bandwidth (-3dB),	f_b = 20Hz ~ 6kHz
Used Standard	Q/320115QHKJ01-2016

General Data

Ambient Operating Temperature,	T_A = -25°C ~ +85°C
Ambient Storage Temperature,	T_S =-40°C ~ +100°C
Unit weight,	250g

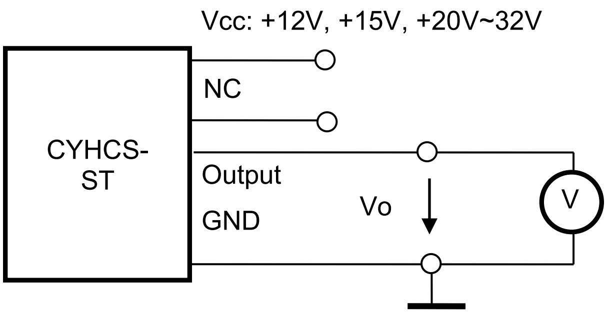
PIN Definition and Dimensions - Phoenix Connector 3.81



OFS: Offset Adjustment
BAI: Accuracy adjustment
GIN: Gain Adjustment

Phoenix Connector 3.81

Connection of Sensors with Voltage Output



Voltage Output:

1(+): Vcc
2(N): NC
3(Vo): Voltage Output
4(G): GND

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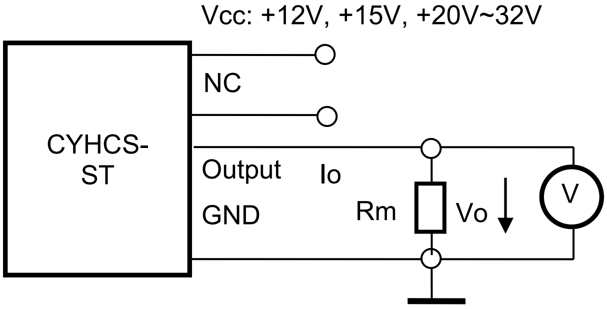
Technologies GmbH & Co KG

Connection of Sensors with Current Output

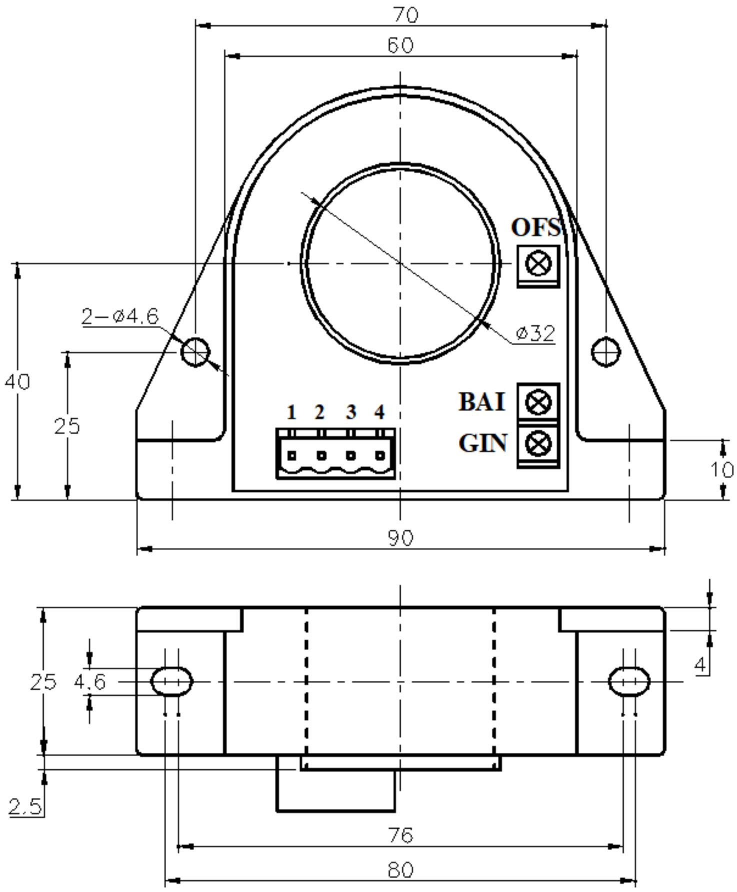


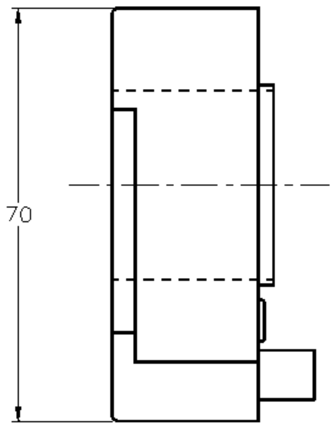
Current Output:

1(+): Vcc
2(Io): Current Output
3(N): NC
4(G): GND

Rm ≤ 80 - 650Ω

PIN Definition and Dimensions - Phoenix Connector 5.08





Phoenix Connector 5.08

OFS: Offset Adjustment
BAI: Accuracy adjustment

GIN: Gain Adjustment

Voltage output:

1(+): Vcc
2(N): NC
3(O): Output
4(G): GND

Current Output:

1(+): Vcc
2(Io): Current output
3(N): NC
4(G): GND

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 busbar (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

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