ChenYang Technologies GmbH & Co KG

Closed Loop Precise Hall AC/DC Current Sensor CYHCS-LF-X

This Hall Effect current sensor is based on closed loop compensation principle and can be used for accurate measurement of DC and AC current, 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 • Various kinds of output signals • Window structure and encapsulated • Large current measuring range • High current overload capability	• **Photovoltaic equipment** • General Purpose Inverters • AC/DC Variable Speed Drivers • Battery Supplied Applications • Uninterruptible Power Supplies (UPS) • Switched Mode Power Supplies

ELECTRICAL DATA

Part number	CYHCS-LF500A-X-E	CYHCS-LF1000A-X-E	CYHCS-LF2000A-X-E
Rated input current	500A	1000A	2000A
Measuring range	0~±1000A	0~±2000A	0~±3000A
Turns ratio	1:5000		
Internal sampling resistance	≤4Ω±0.1%	≤2Ω±0.1%	≤2Ω±0.1%
Nominal output signal	X=20mA (0~±20mA), X=40mA (0~±40mA)		
Supply voltage Vc	Vc=±15VDC ~ ±24VDC		
Current consumption	With Vc=±15VDC, ≤72mA + Input current/5000 + Output Current With Vc= ±24VDC, ≤84mA + Input current/5000 + Output Current		
Galvanic isolation	6kV, 50Hz, 1min		

ACCURACY DYNAMIC PERFORMANCE

Measurement Accuracy *e*	**E=1** for ≤±0.2%FS; **E=2** for ≤±0.1%FS, **E=3** for ≤±0.05%FS
Measurement Linearity	**E=1** for ≤±0.1%FS; **E=2** for ≤±0.05%FS, **E=3** for ≤±0.01%FS
Zero offset current Ta=25°C	≤ ±0.05%X for **E=1,2**; ≤±0.025%X for **E=3**
Magnetic Offset current IP→0	≤ ±0.05%X for **E=1,2**; ≤±0.025%X for **E=3**
Thermal drift of offset current IP=0	Ta=-10°C~+70°C, ±0.025mA for X=20mA; ±0.05mA for X=40mA
Response time	< 3 μs
Bandwidth(-3dB)	DC…100kHz
di/dt following speed	>100A/μs

GENERAL DATA

Operating temperature	-40°C ~ +85°C
Storage temperature	-40°C ~ +100°C
Unit weight	1150g

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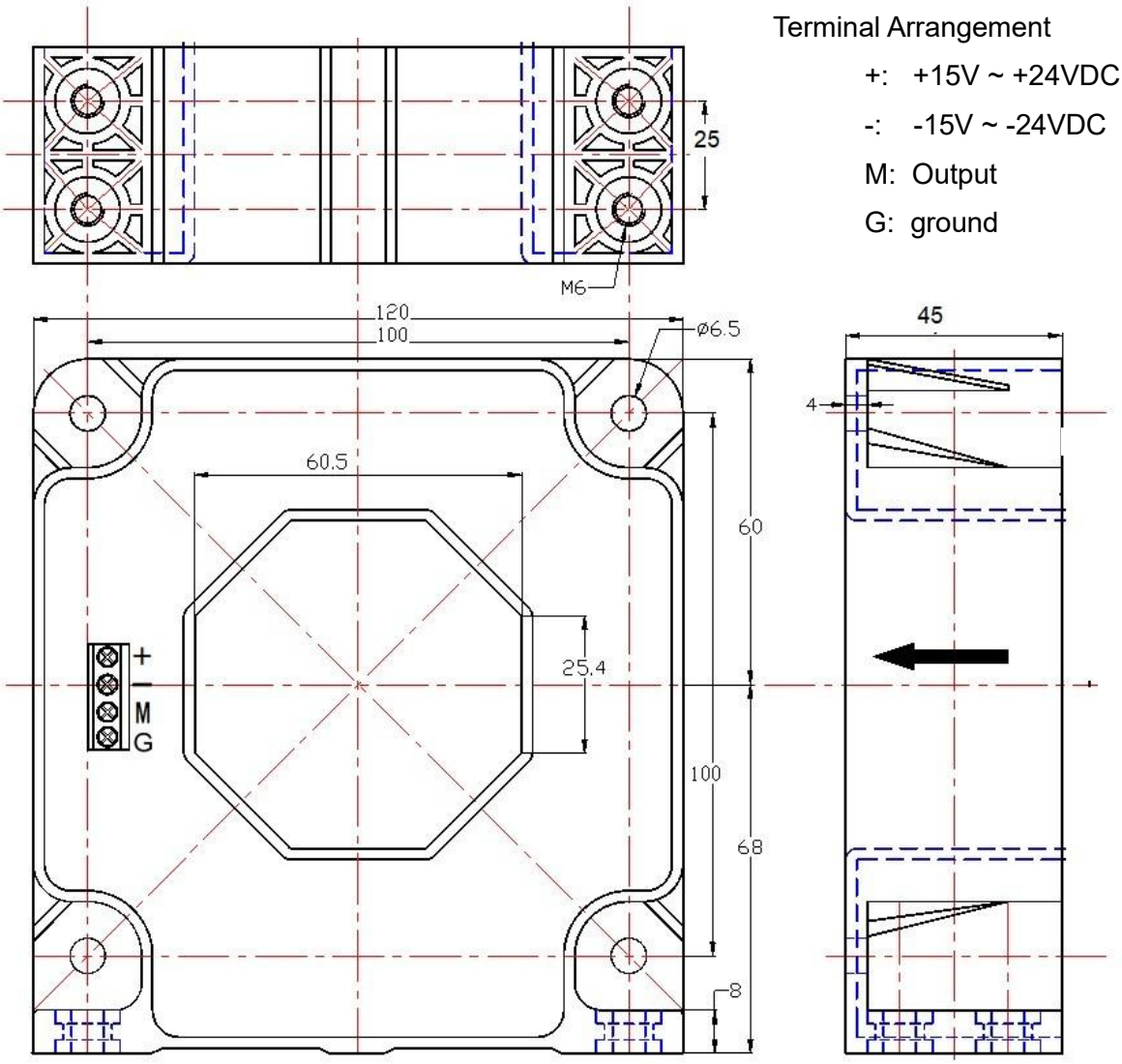
Dimensions (mm)



Terminal Arrangement

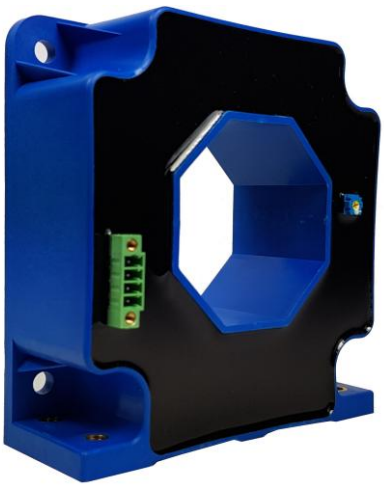
+: +15V ~ +24VDC

-: -15V ~ -24VDC

M: Output

G: ground





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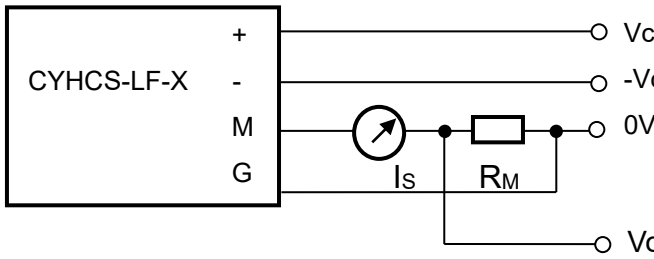
Sensor Connections



Pin Definition:

+	Vc: +15~+24VDC
-	-Vc: -15~ -24VDC
M:	Output current
G:	ground

Measuring resistance R_M = 20Ω ~ 120Ω

Order Information

Part number	Rated Input Current	Rated Output Current	Measurement Accuracy
CYHCS-LF500A-X-E	500A	X=20mA, X=40mA	**E=1** for ≤±0.2%FS **E=2** for ≤±0.1%FS **E=3** for ≤±0.05%FS
CYHCS-LF1000A-X-E	1000A		
CYHCS-LF2000A-X-E	2000A		

Example 1: CYHCS-LF1000A-20mA-1 for current sensor with
Rated Input current: 0 ~ ±1000A
Rated Output current: 0 ~ ±20mA
Measurement Accuracy: ≤±0.2%FS

Example 2: CYHCS-LF2000A-40mA-3 for current sensor with
Rated Input current: 0 ~ ±2000A
Rated Output current: 0 ~ ±40mA
Measurement Accuracy: ≤±0.05%FS

Operating instructions

1. Connect the terminals of power source, output respectively and correctly, never make wrong connection for DC current.
2. Temperature of the primary conductor should not exceed 100 °C.
3. Dynamic performances (di/dt and the response time) are the best with a single bar completely filling the primary hole.
4. In order to achieve the best magnetic coupling, the primary windings must be wound over the top edge of the device.

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