

Closed Loop Hall Effect Current Sensor CYHCS-LAH

This Hall Effect current sensor is based on closed loop compensating principle and can be used for measurement of DC and AC current, pulse currents etc. The output of the transducer reflects the real wave of the current carrying conductor.

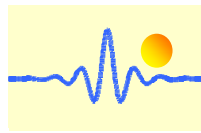
Product Characteristics	Applications
<ul style="list-style-type: none"> • Excellent accuracy • Very good linearity • Small size and encapsulated • Less power consumption • Current overload capability 	<ul style="list-style-type: none"> • Photovoltaic equipment • General Purpose Inverters • AC/DC Variable Speed Drivers • Battery Supplied Applications • Uninterruptible Power Supplies (UPS) • Switched Mode Power Supplies

ELECTRICAL DATA

Part number	CYHCS-LAH50A	CYHCS-LAH100A
Nominal input current (I_{PN})	50A	100A
Measuring range (I_P)	0-150A	0-280A
Turns ratio	1:2000	
Measuring resistance with $\pm 12VDC$	@ $I_{PN}(DC)$ Rmin=100 Ω , Rmax=360 Ω	@ $I_{PN}(DC)$ Rmin=50 Ω , Rmax=170 Ω
	@ $I_{PN}(RMS)$ Rmin=75 Ω , Rmax=250 Ω	@ $I_{PN}(RMS)$ Rmin=35 Ω , Rmax=120 Ω
Measuring resistance with $\pm 15VDC$	@ $I_{PN}(DC)$ Rmin=120, Rmax=480	@ $I_{PN}(DC)$ Rmin=60, Rmax=220
	@ $I_{PN}(RMS)$ Rmin=82, Rmax=350	@ $I_{PN}(RMS)$ Rmin=42, Rmax=160
Supply voltage	$\pm 12VDC \sim \pm 15VDC$	
Nominal output current	25mA	50mA
Current consumption	$\leq 20mA + \text{Output current}$	
Galvanic isolation	50Hz, 1min, 5kV	
Secondary internal resistance	Ta=70°C, 75 Ω	Ta=70°C, 50 Ω

ACCURACY DYNAMIC PERFORMANCE

Zero offset current Ta=25°C, $I_P \rightarrow 0$	< $\pm 0.2mA$
Magnetic Offset current $I_P \rightarrow 0$	< $\pm 0.2mA$
Thermal drift of offset current	$I_P=0$, Ta=-40°C ~ +85°C, $\pm 0.5mA$
Response time	(10% -90%) <1 μs
Accuracy at +25°C	$\pm 0.5\% FS$
Linearity	$\leq 0.1\% FS$
Bandwidth(-3dB)	DC...200kHz
di/dt	>200A/ μs



GENERAL DATA

Operating temperature	-40°C ~ +85°C
Storage temperature	-40°C ~ +125°C
Unit weight (net)	15g

STANDARDS

- UL94-V0.
- EN60947-1:2004
- IEC60950-1:2001 Test Voltage: 1000V
- EN50178:1998 Test Voltage: 1000V
- SJ 20790-2000

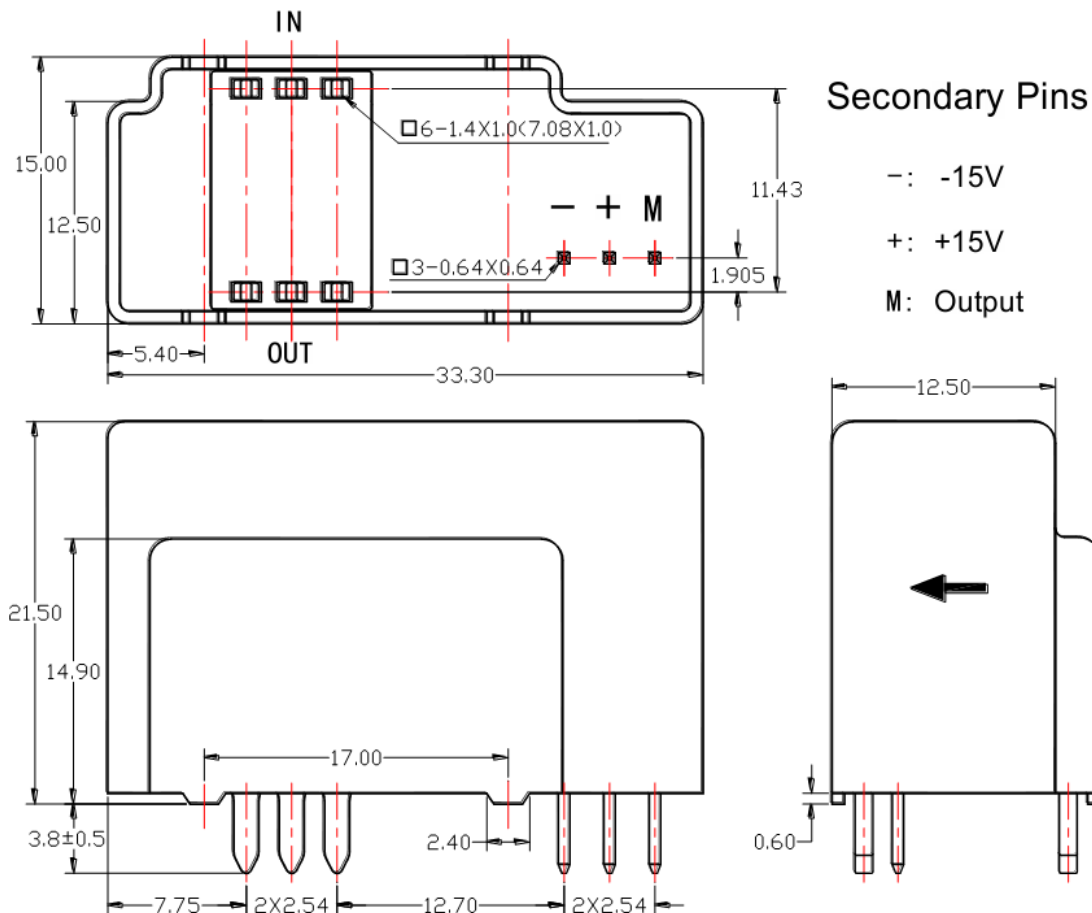
Terminal Arrangement

+: +12V ~ +15VDC

-: -12V ~ -15VDC

M: Output

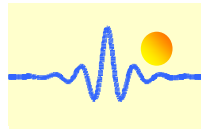
DIMENSIONS (mm)



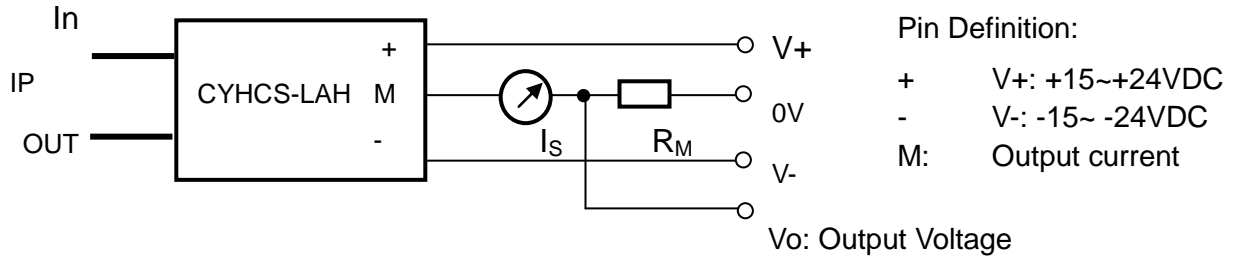
Remarks:

1. All dimensions are in mm.
2. General tolerance ±1mm





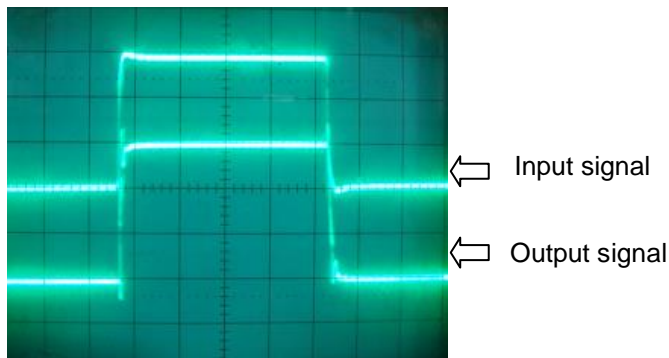
SENSOR CONNECTION



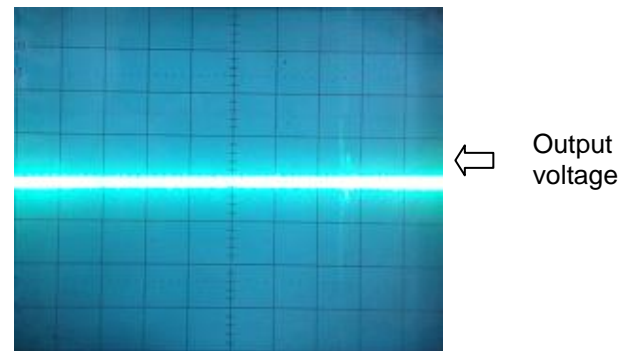
Pin connections

Turns	Rated input current (A)	Measure range (A)	Rated output current (mA)	Secondary turns	Primary resistance (mΩ)	Primary inductance (uH)
1	50(100)	150(280)	25(50)	2000	0.08	0.007

Pulse current signal response characteristic



Effects of impulse noise



OPERATION 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 have to be wound over the top edge of the device.