

Closed Loop Hall AC/DC Current Sensor CYHCS-LSP

This Hall Effect current sensor is based on closed loop principle and designed with a high galvanic isolation between primary conductor and secondary circuit. It 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
 Excellent accuracy Very good linearity Small size and encapsulated Less power consumption 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 CHARACTERISTIC

5	0)///00//0004	CYHCS-	CYHCS-	CYHCS-			
Part number	CYHCS-LSP6A	LSP15A	LSP25A	LSP50A			
Nominal current (Ipn)	6A	15A	25A	50A			
Measuring range (Ip)	±6.6A	±6.6A ±16.5A ±2		±55A			
Secondary Turns (Ns)	1200±1)±1 1200±1 1250±1		1000±1			
Sampling resistor	100Ω±0.1%	40Ω±0.1%	25Ω±0.1%	10Ω±0.1%			
Nominal output voltage	(+2.5VDC±0.4%) ± (2V ± 0.5%), at lp=lpn						
Supply voltage	+5VDC ±5%						
Galvanic isolation	50Hz,1min, 2.5kV						
Impulse withstand voltage	1.2/50µs, >8kV						
Creepage distance	>15.4mm						
Load capacitance	≤ 10nF @ Vout and GND						
Load resistance	10 kΩ						

ACCURACY DYNAMIC PERFORMANCE

Zero offset voltage Ta=25°C	2.5 ±0.4%	V
Thermal drift of offset voltage lp=0, Ta=-40°C ~ +85°C	≤ ±0.2	mV/°C
Thermal drift of output voltage Ip=0, Ta=-40°C ~ +85°C	≤ ±0.2	mV/°C
Total measuring accuracy	≤±1.0	% FS
Linearity	≤±0.1	%FS
Following accuracy di/dt	>50	A/µs
Response time	<1.0	μS
Bandwidth (-3dB)	DC ~ 100	kHz
Current consumption	15 +lp/Ns	mA

GENERAL CHARACTERISTIC

Operating temperature	-40 ~ +85	°C				
Storage temperature	-40 ~ +125	°C				
Unit weight	10	g				
Reference Standard	UL94-V0, EN60947-1:2004, IEC60950-1:2001, SJ 20790-2000					

http://www.cy-sensors.com



Relation between Input Current and Output Voltage

Take the sensor CYHCS-LSP-25A as sample, the relation between the input current and output voltage is shown in the table 1, Fig.1 and Fig. 2

Table 1. Relation between the input current and output voltage

Input current (A)	-25	-20	-15	-10	-5	0	5	10	15	20	25
Output voltage (V)	0.5	0.9	1.3	1.7	2.1	2.5	2.9	3.3	3.7	4.1	4.5

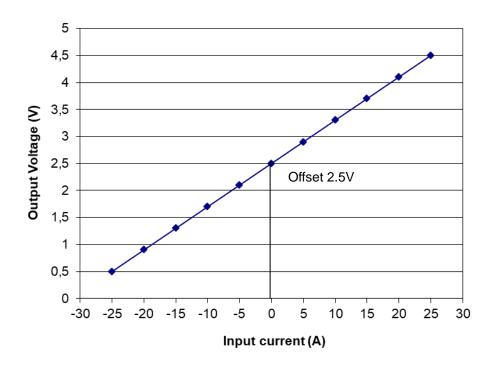


Fig. 1 Relation between the input current (DC) and output voltage (DC)

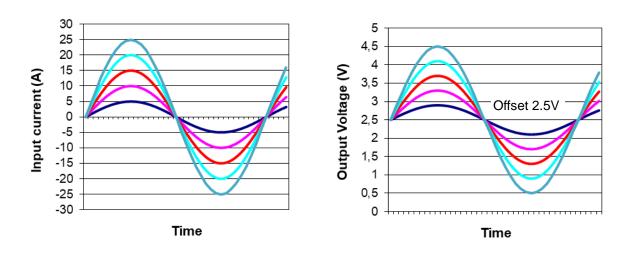


Fig. 2 Relations between the input current (AC) and output voltage (AC)



Dimensions (mm)

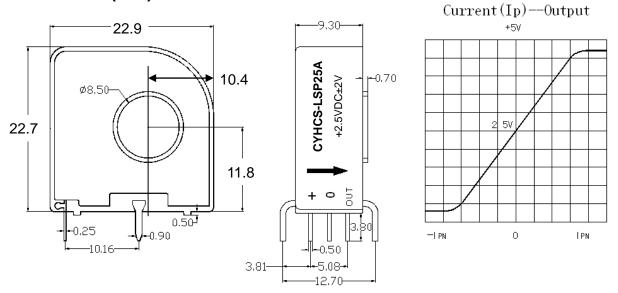
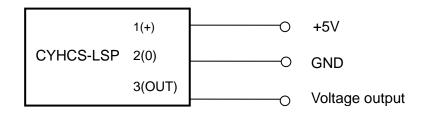


Fig. 3 Dimensions of CYHCS-LSP

Connection





Pin arrangement

Fig. 4 Connection of CYHCS-LSP

Sizes and tolerances:

Geometric tolerance: ±0.2mm Sizes of 3 pins: 0.25x0.5mm Size of mounting pins: 0.8x0.9mm +: +5VDC O: GND OUT: Output

Hole diameter: Φ8.5mm

Notes:

- 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 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.

Tel.: +49 (0)8121 - 2574100

Fax: +49 (0)8121- 2574101 Email: info@cy-sensors.com

http://www.cy-sensors.com