

Hall Effect Current Sensor Module LPCS400

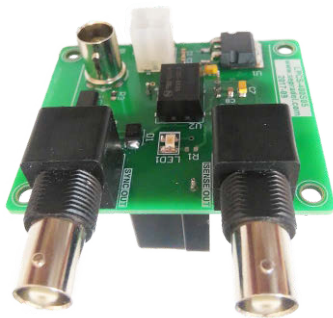
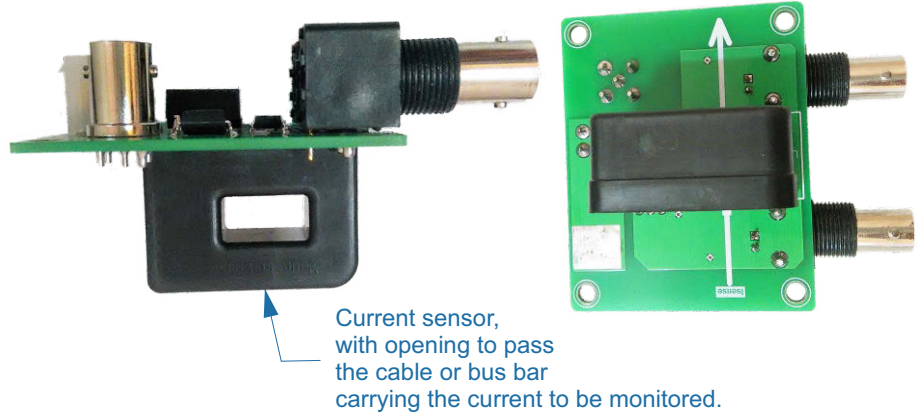


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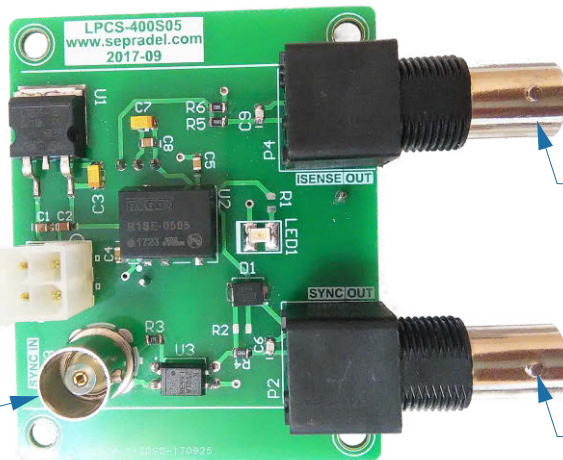
This device is a fully isolated circuit consisting of a Hall effect current sensor with voltage output in the range of 1.5V - 3.5V linearly proportional to current in the range of -400A to +400A. The module gives a voltage output proportional to the instantaneous current, it does not perform any RMS conversion. The module also provides a general-purpose optocoupled output, which can be used, for example, to synchronize the reading of an oscilloscope with current pulses. The module power supply is isolated from the outputs via an isolated DC-DC source. The module has an aperture of 15 mm wide by 8 mm high through which a cable or bus bar can be passed to measure the intensity of its electrical current.

Application

- UPS
- Welding machines
- Servo-Drivers and AC and DC drivers
- Power Supplies
- Flash Lamp Pumped Laser Current Monitoring
- battery energy management systems to control charge and discharge current
- PWM (Pulse Width Modulated) to control system output current control



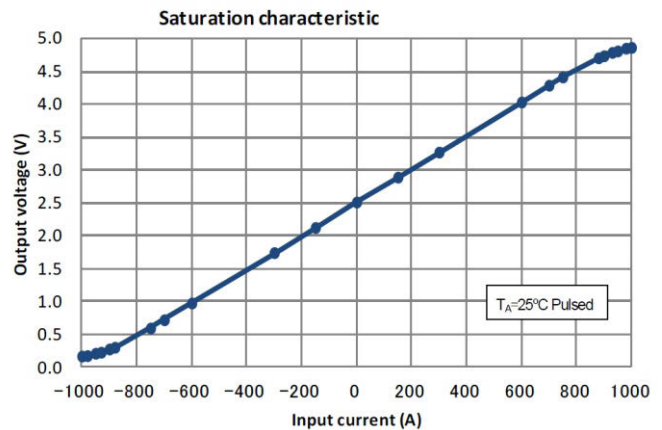
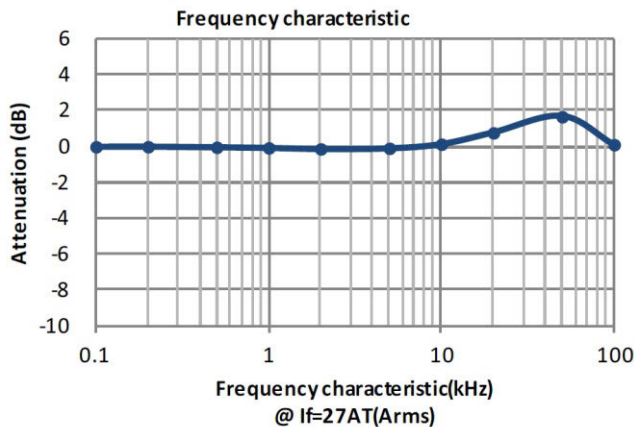
P3: Optocouple LED input



P4: Analog output, voltage proportional to sensed instantaneous current

P2: optocouple transistor output

Electrical Performances



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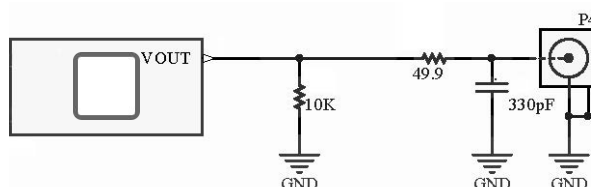
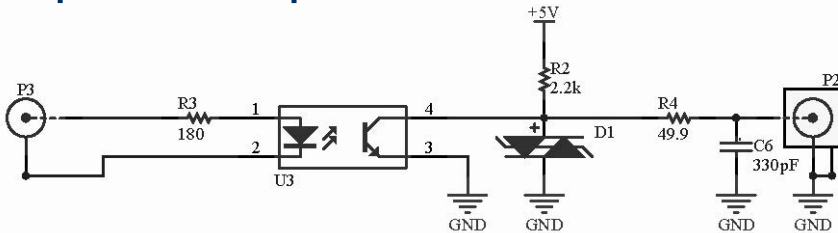


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Specifications

Parameters	Symbol	LPCS400	Notes
Primary nominal current	I_f	400AT	
Saturation current	I_{fmax}	$\geq \pm I_f \times 1.25$	
Rated output voltage (at I_f)	V_o	$V_{of} + 1.5V \pm 0.035V$	
Offset voltage (at $I_f=0A$)	V_{of}	$2.5V \pm 0.030V$	
Saturation output voltage	$V_{o min/max}$	$V_{o min} \leq 0.5V, 4.5V \leq V_{o max}$	
Output linearity ($0A \sim I_f$)	ϵ_L	$\leq \pm 1\%$ (at I_f)	Without offset
Power supply voltage (min - max)	V_{CC}	9V - 12V	
Consumption current	I_{CC}	$\leq 250mA$	
Response time	t_r	$\leq 10\mu s$ (at $di/dt=100A/\mu s$)	Time between 90% input current full scale and 90% of sensor output full scale
Thermal drift of gain	$T_c V_o$	$\leq \pm 1.5mV/^\circ C$	Without Thermal drift of Offset
Thermal drift of offset	$T_c V_{of}$	$\leq \pm 1.0mV/^\circ C$	
Hysteresis error (at $I_f=0A \rightarrow I_f=0A$)	V_{OH}	$\leq 6mV$	
Insulation voltage (Sensor)	V_d	AC2500V for 1 minute (sensig current 0.5mA)	
Insulation resistance (Sensor)	R_{IS}	$\geq 500M\Omega$ (at DC500V)	
Ambient operation temperature	T_A	$-10^\circ C \sim +80^\circ C$	
Ambient storage temperature	T_S	$-15^\circ C \sim +85^\circ C$	

Input and Output Electrical Circuit Details



Features

- Open Loop type
- Unipolar power supply
- Aperture for cable or bus bar
- Insulated plastic case according to UL94V0

Advantage

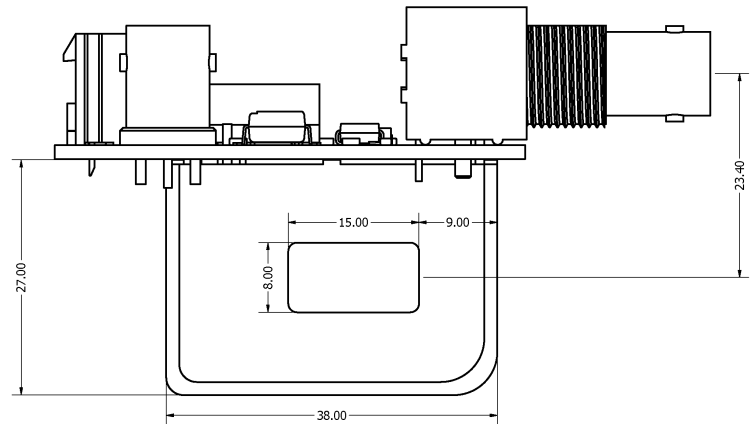
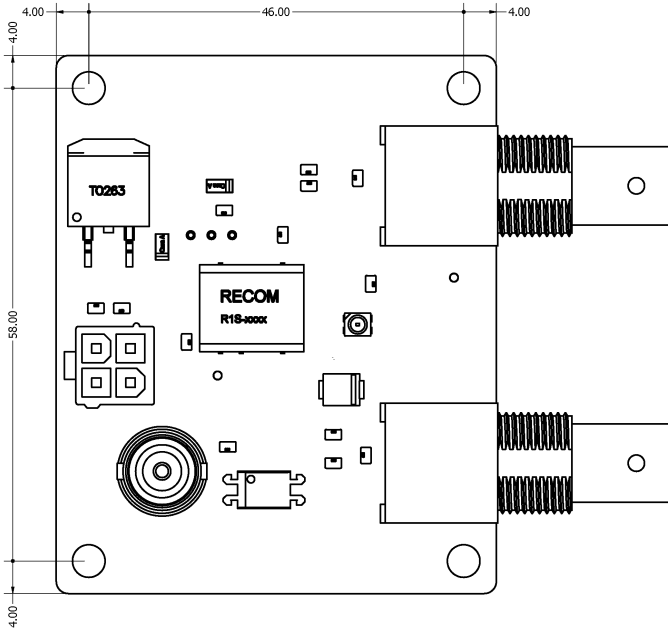
- Excellent accuracy
- Very good linearity
- Low temperature drift
- Wide frequency bandwidth
- No insertion loss
- High Immunity To External Interference
- Optimised response time
- Current overload capability

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Dimensions in millimetres



The module can be panel mounted via its BNC connectors. For this purpose, it is recommended to drill two 12.5mm diameter holes, each one separated by 34mm center to center.

