LINEAR DC SENSOR & OVER-CURRENT PROTECTOR

User Guide for SRCN-C03A

Product Description

This module is used to measure and monitor current consumption by utilizing hall-effect technology. A voltage output is produced in direct proportion to the measured current. If the current exceeds a preset value, the relay on the module is activated. Uses include building automation and facility management systems, where acquiring information on energy usage can lead to increased efficiency. They can also detect equipment issues and help prevent damage by detecting over-current and/or short-circuit conditions.

Features

- Hall-effect technology
- Low power consumption
- Analog signal and relay outputs
- 35 mm DIN rail or panel mountable

Applications

- Building and facilities management
- HVAC
- Electric fans
- Electric pumps
- Devices requiring over-current & short-circuit protection

Thank you for choosing L-com product. To ensure safe, accurate performance and product longevity, please take a moment to familiarize yourself with this manual before powering the device. Please keep it handy for future reference. In case of any questions regarding the installation or use of product, please call us at 800.341.5266.

Reach out to us at customerservice@l-com.com and visit our website at www.l-com.com

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Technical Parameters

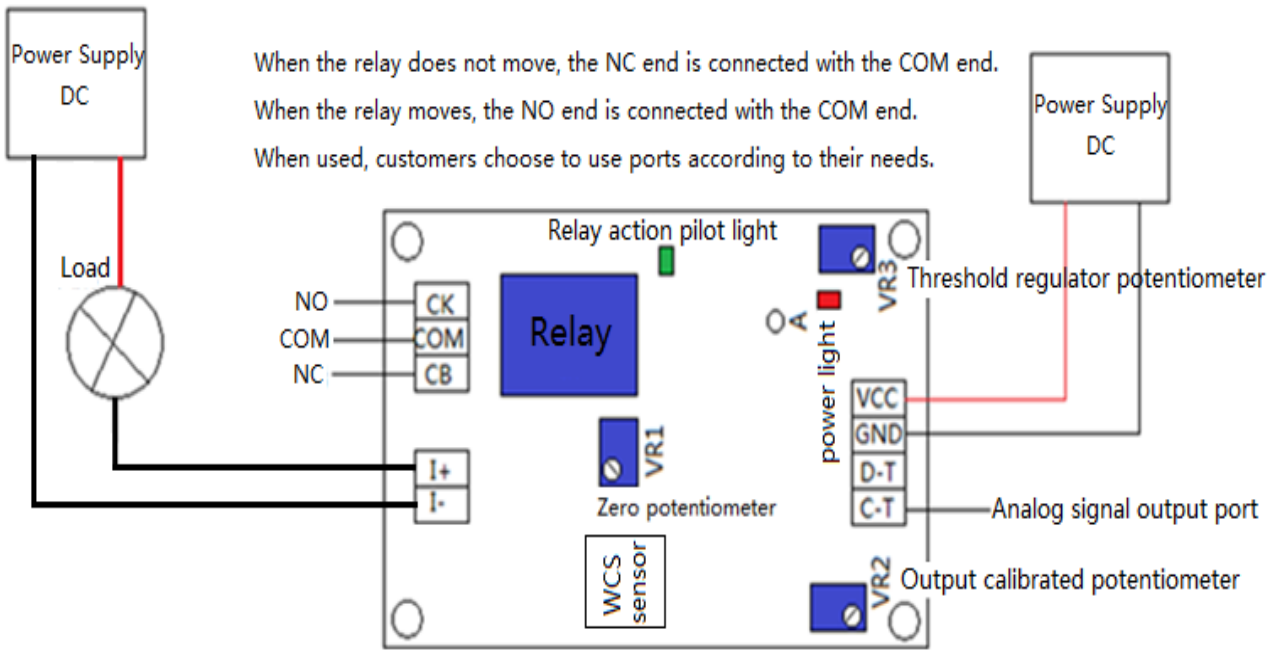
Working voltage		12 VDC ± 0.5 VDC
Working current	Standby	6 – 8 mA
	Relay operation	12 V @ 60 mA
Working temperature		0 – 70 °C
Working humidity		10 – 90% (No condensation)
Detection range (error)		0 – 1 A (Max ± 0.02 A)
Output mode	Analog signal	0 – 5 V
	Switching signal	Relay output (Passive contact), Fastest response time: 300ms
Installation mode	Pedestal	Mounting on 35mm DIN rail
	Module	Mounting with screws

Output Correlation Table

The corresponding relation table is of the output voltage and the detection current (0 – 5 V corresponds to 0 – 1 A)

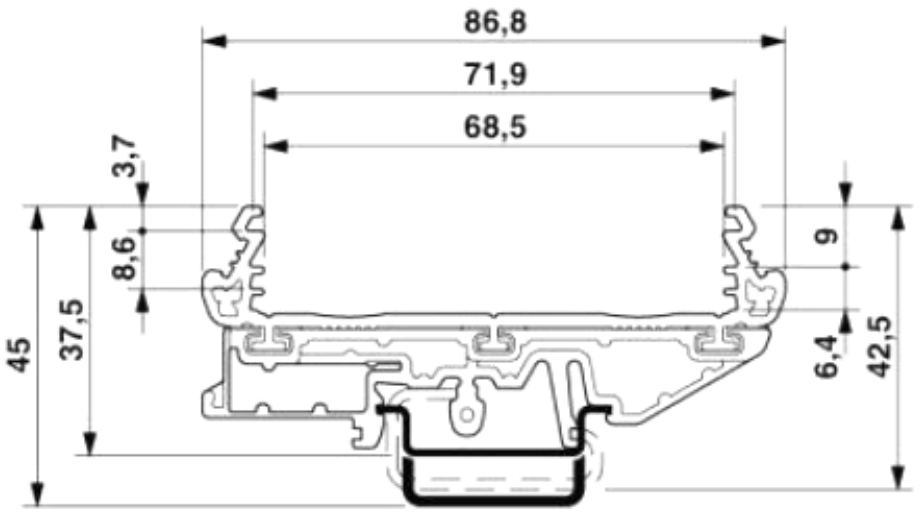
V_{out}	A	V_{out}	A	V_{out}	A	V_{out}	A	V_{out}	A
0.5	0.1	1.5	0.3	2.5	0.5	3.5	0.7	4.5	0.9
1	0.2	2	0.4	3	0.6	4	0.8	5	1

Electrical Diagram



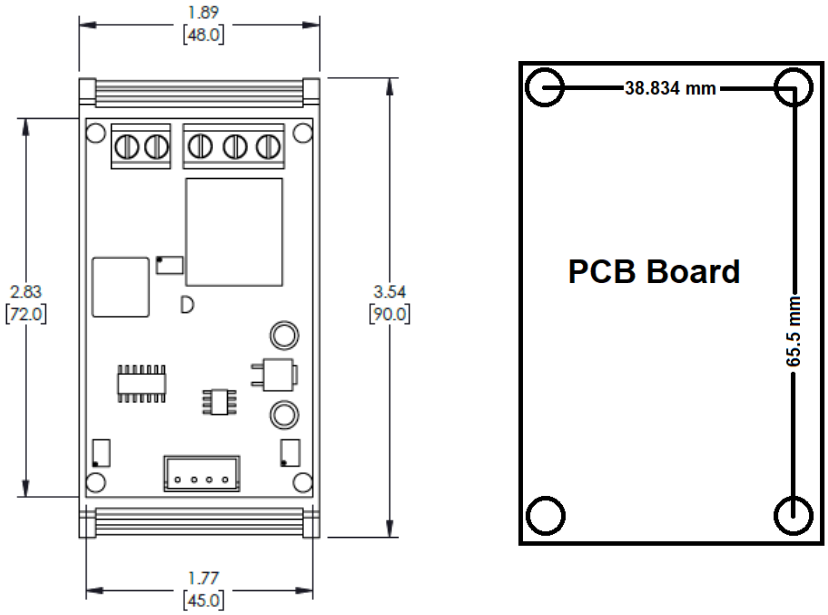
Mounting Diagram

35mm DIN rail mounting: Mount the sensor module onto the DIN rail (dark black) as shown in the figure.



Board Mount

Mount the PCB to the enclosure with screws. Mounting hole diameter is 3mm.



Correction Method

1. After the module is powered ON, measure voltage value of the positive end of C1. Then adjust the VR1 potentiometer to make the positive end of C3 of same voltage value as C1, the zero adjustment is completed. At this time, ensure the analog output voltage at the C–T end should be 0V. There may be a deviation of about 20 mV, which belongs to the normal range. (The zeroing of potentiometer has been factory set and generally does not need adjustment.)
2. After zero adjustment is completed, connect the current input terminal. Adjust the VR2 potentiometer accordingly that the analog output of C–T reaches 0 – 5 V, corresponding to 0 – 35 A's linear relationship. The corresponding relation between output voltage and detection current is shown in Electric Diagram image.

Notes

1. Do not exceed the voltage rating of the relay. It can cause the relay malfunction and/or reduces the service life.
2. Ensure the current flows in the direction of the arrow above the sensor. If the current direction is reversed, the module will not produce an output.
3. The modules are tested with pure resistance loads when they leave the factory. If user uses inductive or capacitive loads, the detected current will be offset. Use the above correction method to set this.
4. VR3 is a threshold adjustment potentiometer. Point A on the board is the threshold voltage test point. When the potentiometer is adjusted, the voltage of point A will change accordingly (clockwise to decrease, counterclockwise to increase).
   Example: Analog output voltage of 0 – 35 A current regulator is 0 – 5 V. If user need 7 A output switch signal, the voltage of point A to ground should be adjusted to 1 V. To prevent the relay repeatedly pull in at the critical point, the voltage should be slightly lower than 1 V, can be adjusted to about 0.97 V. Currents that increase slowly or are just above the set point can cause repeated actuation and potential damage to the relay.
5. Re-calibration is suggested whenever error occurs after a long period. Please refer to the above correction method for detailed operations.