

Input: 2 to 100 Amps AC/DC
Output: SPDT Relay or Normally Open SSR, 4 to 100 A Setpoint

- Low Voltage AC/DC Powered
- 0.15 A Solid State Switch or 5 A Relay
- Adjustable 2 to 100 Amp Setpoint
- LED Power and Status Indicators

Applications

- Signal Amps Out of Normal Range
- Detect Motor and Drive Over-current
- Monitor Battery Banks, Welders, Solar Panels

Switch Type and Rating

CS-DC-1S	SPDT mechanical relay
	5 A @ 240 VAC max. resistive
	3 A inductive, 1/8 HP @ 240 VAC
CS-DC-2S	Normally open isolated solid state switch
	0.15A@240 VAC/VDC
	Not polarity sensitive
	Off state leakage: <10 µA

Setpoint Adjustment

11 turn potentiometer

Hysteresis and Repeatability

Approximately 5% of setpoint hysteresis
 ±.5% repeatability

LED Alarm Indication

Red LED on when tripped

Response Time

100 ms (10% above setpoint)
 20 ms (100% above setpoint)

Frequency Range

DC to 400 Hz

Isolation Voltage

Tested to 3000 V

Sensing Aperture

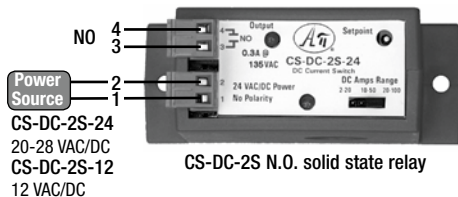
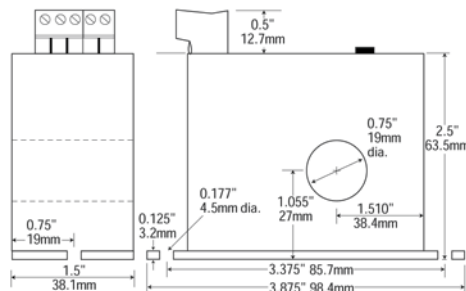
0.74" diameter (19 mm)

Environmental

CS-DC-1S -4 to 122 °F (-20 to 50 °C)
 CS-DC-2S -40 to 140 °F (-40 to 60 °C)
 0-95% RH, non-condensing

Listings

UL & CUL 508 industrial control equipment, CE certified
 UL 94V-0 flammability rated housing



Model	Relay	Power	DC Input Ranges		
			Low	Mid	High
CS-DC-1S-12	SPDT	12 VAC/DC, ±10%, 2 VA	2 to 20 A	10 to 50 A	20 to 100 A
CS-DC-2S-12	SSR				
CS-DC-1S-24	SPDT	20-28 VAC/DC, 2 VA			
CS-DC-2S-24	SSR				

Description

The CS-DC current switches consist of a hall effect sensor, signal conditioner, and limit alarm in one compact package.

The CS-DC series current switches are user configurable by changing a jumper to the desired current range. The trip point potentiometer can be set to any value between 2 Amps and 100 Amps, and when exceeded, will activate either a relay output or solid state output, depending on the model.

They can be mounted in virtually any position and either panel mounted using the built-in mounting bracket or hung directly on the wire to be measured and secured with a wire tie.

Two models are available, one with a SPDT relay and one with a normally open (NO) solid state relay (AC or DC). A green LED indicates "power on" and a red LED will activate when the alarm setpoint has been exceeded. A hysteresis of 5% of the setpoint is standard to prevent false trips or "chattering" of the output.

Instructions**Electrical Connections**

WARNING! Turn all power off before connecting or disconnecting wiring, or removing or installing switch.

See wiring diagrams. All wiring must be performed by a qualified electrician or instrumentation engineer. Consult factory for assistance.

Use up to 12 to 22 AWG copper wire and tighten terminals to 4.5 in-lb torque.

Range Selection

The sensing range is jumper configurable as indicated on the product label. The ranges are factory calibrated.

1. Determine the normal operating amperage of your monitored circuit.
2. Select the range that is equal to or slightly higher than the normal operating amperage.
3. Place the range jumper in the appropriate position as indicated on the product label

Output Wiring

See wiring diagram. Terminals are removable to make wiring easier. Be sure the output load does not exceed the switch rating.

CAUTION: Incandescent lamps have a "Cold Filament Inrush" current of up to 10 times their rated amperage. Use caution when switching lamps.

CAUTION: Do Not Disconnect Output Terminals Under Load!

Power Wiring

See wiring diagram. Connect low voltage power to terminals 1 and 2. The connection is not polarity sensitive. Be sure to seat the connector properly.

Installation

Run wire to be monitored through opening in the sensor.

Mount in any position or hang directly on wires with a wire tie. Leave at least one inch distance between sensor and other magnetic devices.

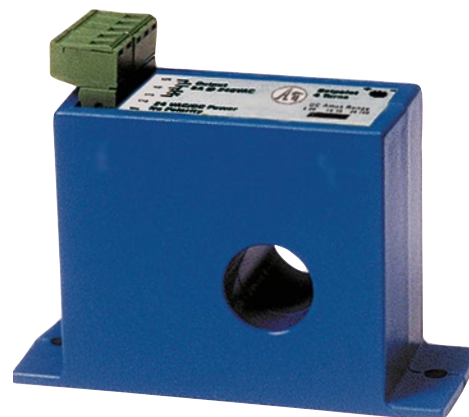
Setpoint Adjustment

The 11-turn pot is shipped from the factory set fully counter-clockwise (CCW) to the lowest setpoint.

Turning the pot clockwise (CW) will increase the setpoint.

Turning the pot counter-clockwise (CCW) will decrease the setpoint.

The pot has a slip-clutch to prevent damage at either end of its rotation. To return the pot to the minimum setpoint, turn it all the way CCW.



Quick Link
api-usa.com/current



CS-DC-2S output contacts are solid-state. Check output status by applying voltage to the contacts and reading the voltage drop across the contacts. An ohmmeter set on "Continuity" will give misleading results.

Typical Adjustment

1. Make sure all wiring is correct, the jumper is set to the desired range, all terminals are tight, and the green power LED is on.
2. Turn the pot to minimum setpoint (11 turns CCW).
3. Have normal operating current running through sensor. The output should be tripped and the red LED should be ON.
4. Turn the pot CW until the unit resets. This is indicated by the red LED turning off and by the changing of the output switch status.
5. Turn the pot CCW slowly until the unit trips again. It now set at the current level being monitored.
 - A. To set UNDERLOAD turn the pot about 1/8 turn further CCW.
 - B. To set OVERLOAD turn the pot about 1/8 turn further CW.
 - C. It may be necessary to fine-tune the setpoint to allow for normal voltage variations.

Amps	CS-DC-1S		CS-DC-2S		Red LED
	NC (3-4)	NO (4-5)	NO (3-4)		
None or < range	Closed	Open	Open		Off
Below trip level	Closed	Open	Open		Off
Above trip level	Open	Closed	Closed		On

Troubleshooting**Sensor is always tripped**

1. The jumper may be set in a range that is too low for current being monitored. Move jumper to the correct range.
2. The setpoint is too low. Turn pot CW to increase setpoint.
3. Switch has been overloaded and contacts are burned out. Check the output load, remembering to include inrush on inductive loads (coils, motors, ballasts).

Sensor will not trip

1. Unit is not powered. Check power supply and wiring.
2. The jumper may be set in a range that is too high for current being monitored. Move jumper to the correct range.
3. The setpoint is too high. Turn pot CCW to decrease setpoint.
4. Switch has been overloaded and is burned out. Check output load, including inrush or inductive loads (coils, motors, ballasts).