

**Input:** 4 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 4 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 3 A @ 30 VDC
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**

On delay 30 to 230 ms depending on range  
 Off delay 10 to 20 ms depending on range

**Frequency Range**

DC to 400 Hz

**Isolation Voltage**

Tested to 3000 V

**Sensing Aperture**

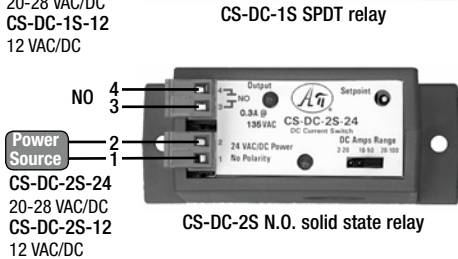
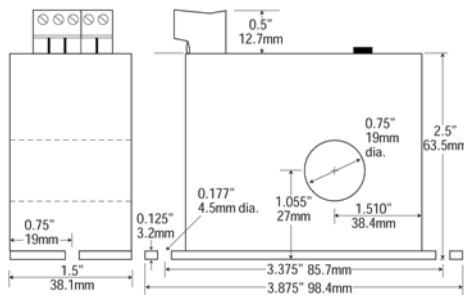
0.75" diameter (19 mm)

**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	4 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	4 to 20 A	10 to 50 A	20 to 100 A
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 4 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](http://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).