Code No. LIT-1900454
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# CSD Series Current Devices

## Description

The Current Switch Device (CSD) Series of digital output current switches are non-intrusive devices designed to detect current flowing through a cable or wire. A cost-effective solution for monitoring on and off status or proof of operation, these units are ideal for monitoring very small current loads on motors driving fans and blowers, pumps, heating coils, and lighting.

The CSD models with command relays not only monitor the current flowing through the cable but also facilitate the start and stopping of the motor.

These units also provide a universal solid-state output and do not require a power supply. Completely self-powered, these units draw their power from current induced from the cable or line being monitored.

CSD Series Current Devices are available in the following types:

- solid core, setpoint fixed
- solid core, setpoint adjustable
- solid core with command relay, setpoint adjustable
- split core, setpoint fixed
- split core, setpoint adjustable
- split core with command relay, setpoint fixed
- split core with command relay, setpoint adjustable
- 12 VAC/VDC and 24 VAC/VDC accessory command relays

Refer to the *CSD Series Current Devices Product Bulletin (LIT-12011292)* for important product application information.

## Features

- dual function — monitors current and motor start and stop
- 100% solid-state output — has no moving parts to fail
- polarity insensitive output — provides easier wiring
- snap-in mounting bracket — simplifies installation
- small size — fits in tight enclosures

## Fixed Setpoint Models

CSD-SF0C0-1 (solid core)
- Setpoint fixed at 0.25 A
- Current range — 0.25 to 200 A

CSD-CF0A0-1 (split core)
- Setpoint fixed at 0.15 A
- Current range — 0.15 to 200 A

CSD-CF0J0-1 (split core)
- Setpoint fixed at 1.5 A
- Current range — 1.5 to 200 A

CSD-CF0J1-1 (split core with 24 V command relay)
- Relay Single Pole, Single Throw (SPST), Normally Open (N.O.), 10 A at 260 VAC, 5 A at 30 VDC
- Actuation coil — 20–30 VAC/DC, 40–85 mA maximum
- Setpoint fixed at 1.5 A
- Current range — 1.5 to 200 A

## Adjustable Setpoint Models

CSD-SA1E0-1 (solid core)
- Multi-turn potentiometer — adjust setpoint for application
- Adjustable setpoint — wide range from 1.0 to 135 A
- Two status Light-Emitting Diodes (LEDs) — provide visual indication of off and on status

CSD-SA1E1-1 (solid core with 24 V command relay)
- Multi-turn potentiometer — adjust setpoint for application
- Adjustable setpoint — wide range from 1.00 to 135 A
- Relay SPST, N.O., 10 A at 260 VAC, 5 A at 30 VDC
- Actuation coil — 20–30 VAC/DC, 40–85 mA maximum
- Two Status LEDs — provide visual indication of off and on status

CSD-CA1G0-1 (split core)
- Multi-turn potentiometers — adjust setpoint for application
- Two status LEDs — provide visual indication of off and on status
- Adjustable setpoint — wide range from 1.25 to 135 A

**CSD Series Current Device**

CSD-CA1G1-1 (split core with 24 V command relay)
- Multi-turn potentiometers — adjust setpoint for application
- Adjustable setpoint — wide range from 1.25 to 135 A
- Relay SPST, N.O., 10 A at 260 VAC, 5 A at 30 VDC
- Actuation coil — 20–30 VAC/VDC, 40–85 mA maximum
- Two status LEDs — provide visual indication of off and on status

CSD-SA1E2-1 (solid core with 12 V command relay
- Multi-turn potentiometers — adjust setpoint for application
- Adjustable setpoint — wide range from 1.00 to 135 A
- Relay SPST, N.O., 10 A at 260 VAC, 5 A at 30 VDC
- Actuation coil — 10–14 VAC/VDC, 25–45 mA maximum
- Two status LEDs — provide visual indication of off and on status

## Repair Information

If the CSD Series Current Device fails to operate within its specifications, replace the unit. For a replacement CSD Series Current Device, contact the nearest Johnson Controls® representative.

# *CSD Series Current Devices (Continued)*

## Selection Chart

| Code Number | Core Type | Setpoint Threshold | LED Display | Low Setpoint (Amperes) | Output Relay |
|---|---|---|---|---|---|
| **CSD-SF0C0-1** | Solid | Fixed | No | 0.25 | No |
| **CSD-SA1E0-1** | Solid | Adjustable | Yes | 1.00 | No |
| **CSD-SA1E1-1** | Solid | Adjustable | Yes | 1.00 | 24 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC |
| **CSD-SA1E2-1** | Solid | Adjustable | Yes | 1.00 | 12 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC |
| **CSD-CF0A0-1** | Clamp/Split | Fixed | No | 0.15 | No |
| **CSD-CF0J0-1** | Clamp/Split | Fixed | No | 1.5 | No |
| **CSD-CA1G0-1** | Clamp/Split | Adjustable | Yes | 1.25 | No |
| **CSD-CF0J1-1** | Clamp/Split | Fixed | No | 1.5 | 24 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC |
| **CSD-CA1G1-1** | Clamp/Split | Adjustable | Yes | 1.25 | 24 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC |

## Accessories (Order Separately)

| Code Number | Description |
|---|---|
| **CR-01200-0**[1] | 12 VAC/VDC SPST, N.O. Relay |
| **CR-02400-0**[1] | 24 VAC/VDC SPST, N.O. Relay |

1. Refer to the *Command Relay Installation Instructions (Part No.24-10345-50)* for more information regarding the command relays.

## Technical Specifications

| CSD Series Current Devices - Solid Core Models | | | | | |
|---|---|---|---|---|---|
| | | **CSD-SF0C0-1** | **CSD-SA1E0-1** | **CSD-SA1E1-1** | **CDS-SA1E2-1** |
| **Amperage Range** | | 0.25–200 A | 1.00–135 A | 1.00–135 A | 1.00–135 A |
| **Switch Setpoint** | | Fixed | Adjustable | Adjustable | Adjustable |
| **Output Relay** | | No | No | 24 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC | 12 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC |
| **Actuation Coil** | | No | No | 20–30 VAC/VDC, 40–85 mA Maximum | 10–14 VAC/VDC, 25–45 mA Maximum |
| **Switch LED Indication** | | No | Yes | Yes | Yes |
| **Relay LED Indication** | | No | No | Yes | Yes |
| **Trip Setpoint Value** | | 0.25 A | 1.00 A | 1.00–135 A | |
| **Current Switching Mode** | | Under Current Sensing | Over/Under Current Sensing | Over/Under Current Sensing | |
| **Sensor Supply Voltage** | | Induced from power conductor cable. | | | |
| **Wire Size** | | 2.1–0.6 mm (12–22 AWG) Diameter | | | |
| **Status Output** | | Switch normally open. | | | |
| **Switch Load Capacity** | | 1 A at 30 VAC/42 VDC Maximum | | | |
| **Isolation Voltage** | | 600 VAC rms | | | |
| **Temperature Range** | | -15 to 60°C (5 to 140°F) | | | |
| **Frequency Range** | | 50/60 Hz | | | |
| **Humidity Range** | | 0–95% Noncondensing | | | |
| **Screw Torque** | | 0.5 N·m (4 lb·in.) | | | |
| **Dimensions** | | 65 x 47 x 25 mm (2-9/16 x 1-7/8 x 1 in.) | | 65 x 65 x 40 mm (2-9/16 x 2-9/16 x 1-19/32 in.) | |
| **Aperture (Sensing Hole) Size** | | 18 mm Diameter (0.71 in. Diameter) | | | |
| **Compliance** | **United States** | UL Listed, File E310692, CCN NRNT, Under UL 508, Industrial Control Equipment | | | |
| | **Canada** | UL Listed, File E310692, CCN NRNT7, Under CAN/CSA C22.2 No. 14-M91 Industrial Control Equipment | | | |
| CE | **Europe** | CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC. | | | |
| **Shipping Weight** | | 0.16 kg (0.35 lb) | | | |

## *CSD Series Current Devices (Continued)*

| CSD Series Current Devices - Split Core Models | | | | | |
|---|---|---|---|---|---|
| | | **CSD-CF0A0-1/ CSD-CF0J0-1** | **CSD-CA1G0-1** | **CSD-CF0J1-1** | **CSD-CA1G1-1** |
| **Amperage Range** | | 0.15–200 A/ 1.5–200 A | 1.25–135 A | 1.5–200 A | 1.25–135 A |
| **Switch Setpoint** | | Fixed | Adjustable | Fixed | Adjustable |
| **Output Relay** | | No | No | 24 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC | 24 V SPST, N.O. 10 A at 260 VAC, 5 A at 30 VDC |
| **Actuation Coil** | | No | No | 20–30 VAC/VDC, 40–85 mA Maximum | 20–30 VAC/VDC, 40–85 mA Maximum |
| **Switch LED Indication** | | No | Yes | No | Yes |
| **Relay LED Indication** | | No | No | Yes | Yes |
| **Trip Setpoint Value** | | 0.15 A/1.5 A | 1.25–135 A | 1.5 A | 1.25–135 A |
| **Current Switching Mode** | | Under Current Sensing | Over/Under Current Sensing | Under Current Sensing | Over/Under Current Sensing |
| **Sensor Supply Voltage** | | Induced from power conductor cable. | | | |
| **Wire Size** | | 2.1–0.6 mm (12–22 AWG) Diameter Recommended | | | |
| **Status Output** | | Switch normally open. | | | |
| **Switch Load Capacity** | | 1 A at 30 VAC/42 VDC Maximum | | | |
| **Isolation Voltage** | | 600 VAC rms | | | |
| **Temperature Range** | | -15 to 60°C (5 to 140°F) | | | |
| **Frequency Range** | | 50/60 Hz | | | |
| **Humidity Range** | | 0–95% Noncondensing | | | |
| **Screw Torque** | | 0.5 N·m (4 lb·in.) | | | |
| **Dimension** | | 69 x 65 x 27 mm (2-23/32 x 2-9/16 x 1-1/16 in.) | | 69 x 65 x 44 mm (2-23/32 x 2-9/16 x 1-3/4 in.) | |
| **Aperture (Sensing Hole) Size** | | 18 x 20 mm Diameter (0.72 x 0.78 in. Diameter) | | | |
| **Compliance** | **United States** | UL Listed, File E310692, CCN NRNT, Under UL 508, Industrial Control Equipment | | | |
| | **Canada** | UL Listed, File E310692, CCN NRNT7, Under CAN/CSA C22.2 No. 14-M91 Industrial Control Equipment | | | |
| CE | **Europe** | CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC. | | | |
| **Shipping Weight** | | 0.16 kg (0.35 lb) | | | |

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