

# CSDSC and CSDECM Current Switch Devices

## Product Bulletin

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The Current Switch Devices Self-Calibrating (CSDSC) Series of Current Switch Devices provide reliable verification of electrical equipment operation in a variety of applications, including fans and pumps. CSDSC current switch devices use a single-turn dial to select motor full load amps, eliminating the need for live calibration and significantly reducing installation time compared to traditional current switches.

CSDSC switches use full load amps instead of horsepower, eliminating the need for separate part numbers as a function of line voltage. CSDSC current switches are installed when the panel is de-energized. The ability to preset the sensor eliminates the need for Personal Protective Equipment (PPE) that is required by OSHA when working with a live panel.

The fixed setpoint Current Switch Device for Electronically Commutated Motors (CSDECM) Series of Current Switch Devices feature a range of minimum turn-on options including 250 mA, 350 mA, and 500 mA. These options eliminate the possibility of a false reading. Even when idle, ECMs draw a small amount of current. Some fixed point sensors feature a minimum turn-on value within the vicinity of the ECM's idle current, making them ineffective in distinguishing between on and off status.

### Features and Benefits

- **Split and Solid Core Models with Mini-Sized Variants**—Fit in tight enclosures.
- **Monitored Load**—Supplies power without a power supply.
- **Optional N.O. Relay**—Adds 10 A at 125 VAC switching power with a choice of 24 or 12 V coil.
- **Polarity Insensitive Output**—Provides easier wiring.
- **Low Turn on Current**—Extends use to sub-fractional HP motors.
- **LED Indication of Switch Status**—Allows you to easily check the switch's on/off status (CSDSC switch only).

Figure 1: CSDSC Current Switch Devices



Figure 2: CSDECM Current Switch Devices



CSDECM Current Switch Devices can also be used with other electrical loads when a simple sensor is needed.

## Operation

The CSDSC and CSDECM Current Switch Devices have an N.O. output (1.0 at 30 VAC/VDC). The output on the CSDSC switch closes when the monitored current exceeds 70% full load amps and opens when the current falls below 60% full load amps, making the loss of load detection permissible without calibration. The output on the CSDECM switch closes when the monitored current exceeds the indicated minimum turn-on amps; it remains open when falling below the same threshold.

## Ordering

**Table 1: CSDSC Current Switch Devices Ordering Information**

| Code Number     | Core Type | Minimum Turn-On Amps | Maximum Amps | LEDs             | Relay Option     |
|-----------------|-----------|----------------------|--------------|------------------|------------------|
| CSDSC-C45050Lx  | Clamp     | 0.45 A               | 50 A         | High, Low, Power | Yes <sup>1</sup> |
| CSDSC-C50100Lx  |           | 0.50 A               | 100 A        |                  |                  |
| CSDSC-C50150Lx  |           |                      | 150 A        |                  |                  |
| CSDSCM-C01050   | Solid     | 1.00 A               | 50 A         | Trip             | No               |
| CSDSCM-S75050L  |           | 0.75 A               | 50 A         |                  |                  |
| CSDSCM-S75005L  |           |                      |              |                  |                  |
| CSDSCMM-S75050L |           |                      |              |                  |                  |

1. See Table 3 for relay order code information.

**Table 2: CSDECM Current Switch Devices Ordering Information**

| Code Number     | Core Type | Minimum Turn-On Amps | Maximum Amps | LEDs | Relay Option     |
|-----------------|-----------|----------------------|--------------|------|------------------|
| CSDECM-C35200Lx | Clamp     | 0.35 A               | 200 A        | No   | Yes <sup>1</sup> |
| CSDECM-C50050   |           | 0.50 A               | 50 A         |      | No               |
| CSDECM-S25050L  | Solid     | 0.25 A               |              |      |                  |
| CSDECM-S25050L  |           |                      |              |      |                  |

1. See Table 3 for relay order code information.

**Table 3: CSDSC and CSDECM Relay Options**

| Relay Order Code | Contact Rating       | Coil             | Relay Code Number (Field Accessory) | Relay Dimensions, in. (mm) (L x H x W)     |
|------------------|----------------------|------------------|-------------------------------------|--|
| 1                | N.O. 10 A at 125 VAC | 24 VAC/VDC 15 mA | CRCSDP-NO-24                        | 0.84 x 0.72 x 2.06<br>(21.3 x 18.3 x 52.3) |
| 2                | N.C. 10 A at 125 VAC |                  | CRCSDP-NC-24                        |  |
| 3                | N.O. 10 A at 125 VAC | 12 VDC 30 mA     | CRCSDP-NO-12                        |  |
| 4                | N.C. 10 A at 125 VAC |                  | CRCSDP-NC-12                        |  |
| 0                | No Relay             | N/A              | N/A                                 | N/A  |

## Repair Information

If the CSDSC and CSDECM Current Switch Devices fail to operate within their specifications, replace the units. For a replacement switch device, contact the nearest Johnson Controls® representative.

## Technical Specifications

### CSDSC Current Switch Devices

|   | CSDSC-C45050Lx<br>CSDSC-C50100Lx<br>CSDSC-C50150Lx  | CSDSCM-C01050                             | CSDSC-S75050L                             | CSDSCM-S75005L<br>CSDSCM-S75050L           |
|---|---|---|---|--|
| <b>Status Output</b>                                      | Switch normally open  |   |   |  |
| <b>Switch Load Capacity</b>                               | 1.0 at 30 VAC/VDC   |   |   |  |
| <b>Switch Setpoint</b>                                    | Adjustable  |   |   |  |
| <b>Maximum Current</b>                                    | 50 A<br>100 A<br>150 A  | 50 A                                      | 50 A                                      | 5 A<br>50 A                                |
| <b>Minimum Trip Setpoint Value</b>                        | 0.45 A<br>0.50 A<br>0.50 A  | 1.00 A                                    | 0.75 A                                    | 0.75 A<br>0.75 A                           |
| <b>Aperture (Sensing Hole) Size; Dimensions, in. (mm)</b> | 0.75 x 0.75<br>(19.1 x 19.1)  | 0.4 x 0.32<br>(10.2 x 8.1 mm)             | 0.51 (13.0)                               | 0.30 (7.6)                                 |
| <b>Switch LED Indication</b>                              | Yes   |   |   |  |
| <b>Current Switching Mode</b>                             | Over/Under  |   |   |  |
| <b>Sensor Supply Voltage</b>                              | Induced from power conductor cable  |   |   |  |
| <b>Status Output Wire Size</b>                            | 14 to 24 AWG (1.6 to 0.5 mm)  |   |   |  |
| <b>Screw Torque</b>                                       | 3.5 to 4.4 in·lb (0.4 to 0.5 N·m)   |   |   |  |
| <b>Isolation Voltage</b>                                  | 600 VAC rms (UL), 300 VAC rms (CE)  |   |   |  |
| <b>Frequency Range</b>                                    | 50/60 Hz  |   |   |  |
| <b>Temperature Range</b>                                  | 5 to 140°F (-15 to 60°C)  |   |   |  |
| <b>Humidity Range</b>                                     | 0 to 95% noncondensing  |   |   |  |
| <b>Dimensions, in. (mm)</b>                               | 2.5 x 0.57 x 2.23<br>(63.5 x 14.5 x 56.6)   | 2.0 x 0.75 x 1.75<br>(50.8 x 19.1 x 44.5) | 2.26 x 0.97 x 1.6<br>(57.4 x 24.6 x 40.6) | 1.91 x 0.88 x 1.31<br>(48.5 x 22.4 x 33.3) |
| <b>Command Relay Device Actuation Coil</b>                | 20 to 30 VAC/VDC,<br>12 to 20 mA or<br>10 to 14 VAC/VDC,<br>25 to 35 mA<br>(models except -0L0) | N/A                                       | N/A                                       | N/A  |
| <b>Relay Contact Rating</b>                               | N.O. 10A at 125 VAC or<br>N.C. 10A at 125 VAC   | N/A                                       | N/A                                       | N/A  |
| <b>Relay LED Indication</b>                               | Yes   | N/A                                       | N/A                                       | N/A  |

### CSDSC Current Switch Devices

|                        |                      |  |
|------------------------|----------------------|--|
| <b>CE</b>              | <b>United States</b> | UL Listed, File E493157, CCN NMTR, Under UL 508, Industrial Control Equipment  |
|                        | <b>Canada</b>        | UL Listed, File E493157, CCN NMTR7, Under CAN/CSA C22.2 No. 14-M91   |
|                        | <b>Europe</b>        | CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive. |
| <b>Shipping Weight</b> | 0.15 lb (0.07 kg)    |  |

### CSDECM Current Switch Devices

|   | <b>CSDECM-C35200Lx</b>                        | <b>CSDECM-C50050</b>                      | <b>CSDECM-S25050L</b>                     | <b>CSDECM-S25050L</b>                      |
|---|---|---|---|--|
| <b>Status Output</b>                                      | Switch normally open                          |   |   |  |
| <b>Switch Load Capacity</b>                               | 1.0 at 30 VAC/VDC                             |   |   |  |
| <b>Switch Setpoint</b>                                    | Fixed   |   |   |  |
| <b>Maximum Current</b>                                    | 200 A   | 50 A                                      | 50 A                                      | 50 A                                       |
| <b>Minimum Trip Setpoint Value</b>                        | 0.35 A  | 0.50 A                                    | 0.25 A                                    | 0.75 A                                     |
| <b>Aperture (Sensing Hole) Size; Dimensions, in. (mm)</b> | 0.75 x 0.75<br>(19.1 x 19.1)                  | 0.4 x 0.32<br>(10.2 x 8.1)                | 0.51 (13.0)                               | 0.30 (7.6)                                 |
| <b>Switch LED Indication</b>                              | No  |   |   |  |
| <b>Current Switching Mode</b>                             | Over/Under                                    |   |   |  |
| <b>Sensor Supply Voltage</b>                              | Induced from power conductor cable            |   |   |  |
| <b>Status Output Wire Size</b>                            | 14 to 24 AWG (1.6 to 0.5 mm)                  |   |   |  |
| <b>Screw Torque</b>                                       | 3.5 to 4.4 in-lb (0.4 to 0.5 N-m)             |   |   |  |
| <b>Isolation Voltage</b>                                  | 600 VAC rms (UL), 300 VAC rms (CE)            |   |   |  |
| <b>Frequency Range</b>                                    | 50/60 Hz                                      |   |   |  |
| <b>Temperature Range</b>                                  | 5 to 140°F (-15 to 60°C)                      |   |   |  |
| <b>Humidity Range</b>                                     | 0 to 95% noncondensing                        |   |   |  |
| <b>Dimensions, in. (mm)</b>                               | 2.5 x 0.57 x 2.23<br>(63.5 x 14.5 x 56.6)     | 2.0 x 0.75 x 1.75<br>(50.8 x 19.1 x 44.5) | 2.26 x 0.97 x 1.6<br>(57.4 x 24.6 x 40.6) | 1.91 x 0.88 x 1.31<br>(48.5 x 22.4 x 33.3) |
| <b>Relay Contact Rating</b>                               | N.O. 10A at 125 VAC or<br>N.C. 10A at 125 VAC | N/A                                       | N/A                                       | N/A  |
| <b>Actuation Coil</b>                                     | N/A   | N/A                                       | N/A                                       | N/A  |
| <b>Relay LED Indication</b>                               | Yes   | N/A                                       | N/A                                       | N/A  |

### CSDECM Current Switch Devices

|                        |                      |  |
|------------------------|----------------------|--|
| <b>CE</b>              | <b>United States</b> | UL Listed, File E493157, CCN NMTR, Under UL 508, Industrial Control Equipment  |
|                        | <b>Canada</b>        | UL Listed, File E493157, CCN NMTR7, Under CAN/CSA C22.2 No. 14-M91   |
|                        | <b>Europe</b>        | CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive. |
| <b>Shipping Weight</b> | 0.15 lb (0.07 kg)    |  |

*The performance specifications are nominal and conform to acceptable industry standards.*

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