

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 ¹
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 ¹
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 (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 CSDSC-C50100Lx CSDSC-C50150Lx	CSDSCM-C01050	CSDSC-S75050L	CSDSCM-S75005L CSDSCM-S75050L
Status Output	Switch normally open			
Switch Load Capacity	1.0 at 30 VAC/VDC			
Switch Setpoint	Adjustable			
Maximum Current	50 A 100 A 150 A	50 A	50 A	5 A 50 A
Minimum Trip Setpoint Value	0.45 A 0.50 A 0.50 A	1.00 A	0.75 A	0.75 A 0.75 A
Aperture (Sensing Hole) Size; Dimensions, in. (mm)	0.75 x 0.75 (19.1 x 19.1)	0.4 x 0.32 (10.2 x 8.1 mm)	0.51 (13.0)	0.30 (7.6)
Switch LED Indication	Yes			
Current Switching Mode	Over/Under			
Sensor Supply Voltage	Induced from power conductor cable			
Status Output Wire Size	14 to 24 AWG (1.6 to 0.5 mm)			
Screw Torque	3.5 to 4.4 in·lb (0.4 to 0.5 N·m)			
Isolation Voltage	600 VAC rms (UL), 300 VAC rms (CE)			
Frequency Range	50/60 Hz			
Temperature Range	5 to 140°F (-15 to 60°C)			
Humidity Range	0 to 95% noncondensing			
Dimensions, in. (mm)	2.5 x 0.57 x 2.23 (63.5 x 14.5 x 56.6)	2.0 x 0.75 x 1.75 (50.8 x 19.1 x 44.5)	2.26 x 0.97 x 1.6 (57.4 x 24.6 x 40.6)	1.91 x 0.88 x 1.31 (48.5 x 22.4 x 33.3)
Command Relay Device Actuation Coil	20 to 30 VAC/VDC, 12 to 20 mA or 10 to 14 VAC/VDC, 25 to 35 mA (models except -0L0)	N/A	N/A	N/A
Relay Contact Rating	N.O. 10A at 125 VAC or N.C. 10A at 125 VAC	N/A	N/A	N/A
Relay LED Indication	Yes	N/A	N/A	N/A

CSDSC Current Switch Devices

CE	United States	UL Listed, File E493157, CCN NMTR, Under UL 508, Industrial Control Equipment
	Canada	UL Listed, File E493157, CCN NMTR7, Under CAN/CSA C22.2 No. 14-M91
	Europe	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.
Shipping Weight	0.15 lb (0.07 kg)	

CSDECM Current Switch Devices

	CSDECM-C35200Lx	CSDECM-C50050	CSDECM-S25050L	CSDECM-S25050L
Status Output	Switch normally open			
Switch Load Capacity	1.0 at 30 VAC/VDC			
Switch Setpoint	Fixed			
Maximum Current	200 A	50 A	50 A	50 A
Minimum Trip Setpoint Value	0.35 A	0.50 A	0.25 A	0.75 A
Aperture (Sensing Hole) Size; Dimensions, in. (mm)	0.75 x 0.75 (19.1 x 19.1)	0.4 x 0.32 (10.2 x 8.1)	0.51 (13.0)	0.30 (7.6)
Switch LED Indication	No			
Current Switching Mode	Over/Under			
Sensor Supply Voltage	Induced from power conductor cable			
Status Output Wire Size	14 to 24 AWG (1.6 to 0.5 mm)			
Screw Torque	3.5 to 4.4 in-lb (0.4 to 0.5 N-m)			
Isolation Voltage	600 VAC rms (UL), 300 VAC rms (CE)			
Frequency Range	50/60 Hz			
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Relay Contact Rating	N.O. 10A at 125 VAC or N.C. 10A at 125 VAC	N/A	N/A	N/A
Actuation Coil	N/A	N/A	N/A	N/A
Relay LED Indication	Yes	N/A	N/A	N/A

CSDECM Current Switch Devices

	United States	UL Listed, File E493157, CCN NMTR, Under UL 508, Industrial Control Equipment
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The performance specifications are nominal and conform to acceptable industry standards. For application of conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



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