CTD Series Current Transducer Devices

Product Bulletin

CTD-C1G00-1, CTD-C2G00-1, CTD-C3H00-1

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The Current Transducer Device (CTD) Series of analog output current transducers are nonintrusive devices designed to monitor current flowing through a cable or wire. These units are a cost-effective solution for monitoring load or proof of operation. The current transducers are ideal for monitoring current loads on pumps, driving fans, and blowers, and sensing the status of heating coils and lighting. CTD devices used for load trending over time are effective sensors for predictive maintenance programs.

These units are available with standard 4 to 20 mA current loop, 0 to 5 VDC, and 0 to 10 VDC analog output. The voltage output models derive excitation by magnetic induction from the current-carrying conductor (wire or cable), making these units completely self-powered. The current loop output model requires a 24 VDC power supply.

Optional command relays (CR-01200-0 and CR-02400-0) provide externally controlled auxiliary contacts when used with the current transducers. The relays offer a cost-effective solution for switching loads that require higher power levels than the rating of the current switch contacts, or the need to mount an external relay elsewhere in the control enclosure.

IMPORTANT: The CTD Series Current Transducer Devices are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the current transducer device could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the current transducer device.

CAUTION: Risk of Property Damage. Install the CTD Series Current Devices **only** on the **input** side of a variable speed drive. Failure to follow this precaution may result in excessive wear on the controlled equipment, as well as premature failure of the CTD Series Current Devices.



Figure 1: CTD Series Current Transducer Devices

Linear Outputs

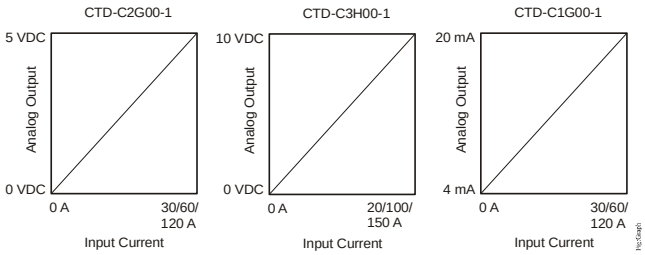


Figure 2: CTD Linear Outputs

Johnson Controls

Table 1: Features and Benefits

Features	Benefits
Clamped/Split Core Design	Reduces installation time and associated costs.
Slide Switch, Selectable Amperage Ranges	Provides a wide array of amperage ranges to match the application.
Multiple Outputs: 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC	Provide the appropriate output for the specific application.
Snap-On Power Relay	Provides an easy way to add an external relay to the current sensor.
Relay (Optional) LED Indication Off/On Status	Allows you to easily check the relay's on/off status.

Dimensions

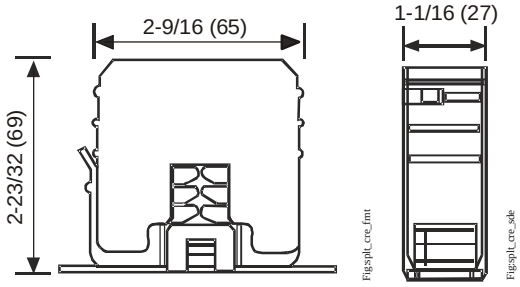


Figure 3: CTD Dimensions, in. (mm)

Ordering Information

Table 2 lists the various CTD transducers available.

Table 2: Product Ordering

Product Code Number	Core Type	Multi Range	Output Signal	LED Display	Relay
CTD-C1G00-1	Split/Clamped	30/60/120 A	4 to 20 mA[1]	With Optional Relay[2]	Snap-On Accessory
CTD-C2G00-1	Split/Clamped	30/60/120 A	0 to 5 VDC	With Optional Relay[2]	Snap-On Accessory
CTD-C3H00-1	Split/Clamped	20/100/150 A	0 to 10 VDC	With Optional Relay[2]	Snap-On Accessory

1. Requires a 24 VDC/25 mA external power supply.
2. The relay is an accessory that is ordered separately.

Table 3: Accessories

Product Code Number	Product Code Description
CR-01200-0[1]	12 VAC/VDC Single-Pole, Single-Throw (SPST), Normally Open (N.O.) Relay
CR-02400-0[1]	24 VAC/VDC SPST, N.O. Relay

1. See the *Relay Accessories (Order Separately)* section, and refer to the *Command Relay Installation Instructions (Part No. 24-10345-50)*, for more information regarding the command relays.

Relay Accessories (Order Separately)

The CR-01200-0 and the CR-02400-0 Current Relays facilitate the starting and stopping of motors. The relays are manufactured for use with the Johnson Controls® CSD and CTD Current Sensor products lines. The relays are offered with actuation coil voltages of 24 VAC/VDC and 12 VAC/DC options.

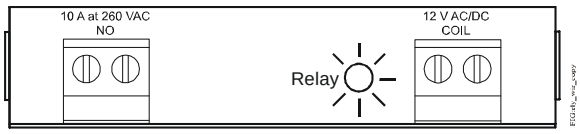


Figure 4: CR-01200-0 Current Relay Wiring Terminals

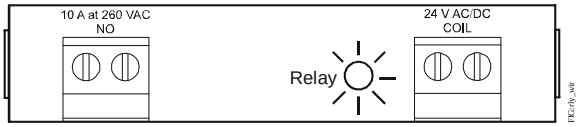


Figure 5: CR-02400-0 Current Relay Wiring Terminals

Repair Information

If the CTD Series Current Transducer fails to operate within its specifications, replace the unit. For a replacement current transducer, contact the nearest Johnson Controls representative.

Technical Specifications

CTD Series Current Transducer Devices

Product Code		**CTD-C1G00-1**	**CTD-C2G00-1**	**CTD-C3H00-1**
Current Range (Selectable)		30/60/120 A	30/60/120 A	20/100/150 A
Maximum Continuous Operating Current		30/60/120 A	30/60/120 A	20/100/150 A
Output		4 to 20 mA	0 to 5 VDC	0 to 10 VDC
Accuracy		±2.0% Full Scale from 10% to 100% of Selected Range		
Relay with LED Indicator		Available Accessory		
Response Time		2 Seconds to 100% of Selected Range		
Sensor Supply Voltage		24 VDC (18 to 30 VDC)	Self-Powered	Self-Powered
Wire Size		12 to 22 AWG (2.1 to 0.6 mm) Diameter Recommended		
Isolation Voltage		600 VAC rms		
Temperature Range		5 to 140°F (-15 to 60°C)		
Frequency Range		50/60 Hz		
Humidity Range		0 to 95% Relative Humidity (RH), Noncondensing		
Screw Torque		4 lb·in (0.5 N·m)		
Dimensions		2-23/32 x 2-9/16 x 1-1/16 in. (69 x 65 x 27 mm)		
Sensing Hole Size		23/32 in. x 13/16 in. (18 x 20 mm 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. 14-05 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		0.35 lb (0.16 kg)		

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