

## Solid Core and Split Core 0-5 Vdc or 0-10 Vdc Output Current Sensors

CTS-05, CTS-10; CTP-05, CTP-10

### INSTALLATION INSTRUCTIONS

#### SAFETY

#### **⚠ WARNING**

For CTS-05,-10 ensure that all power sources are disconnected and locked out before installation as severe injury or death may result from electrical shock due to contact with high voltage wires.

#### **⚠ CAUTION**

This product is not intended to be used for life or safety applications.

#### **⚠ CAUTION**

This product is not intended for use in any hazardous or classified locations.

#### INSTALLATION

Make sure that all installations are in compliance with all national and local electrical codes. Only qualified individuals that are familiar with codes, standards, and proper safety procedures for high-voltage installations should attempt installation. The current sensor will not require external power, since the power for the current sensor is induced from the conductor being monitored.

#### **IMPORTANT**

*The current sensors should be used on insulated conductors only.*

The current sensors may be mounted in any position using the (2) #8 x 3/4 in. (19 mm) Tek screws and the mounting holes in the base or snapped directly on to the 1-3/8 in. (35 mm) DIN rail (See Figures 1 and 2). Leave a minimum distance of 1 in. (25 mm) between the current sensor and any other magnetic devices such as contactors and transformers.

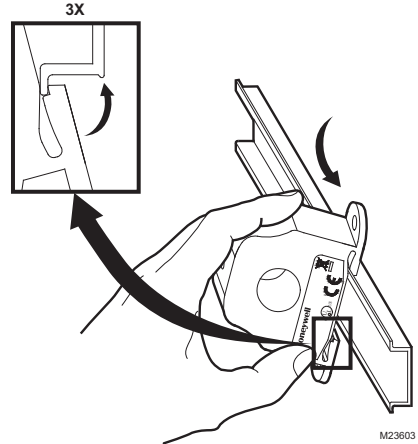


Fig. 1. Sensor placed on DIN rail

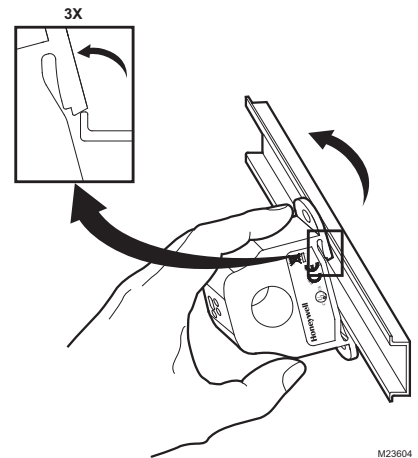


Fig. 2. Sensor removed from DIN rail



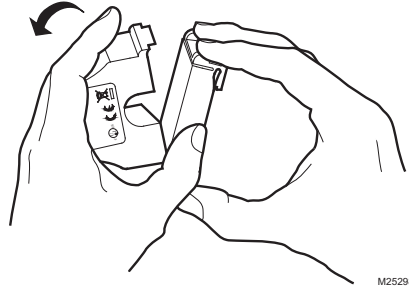
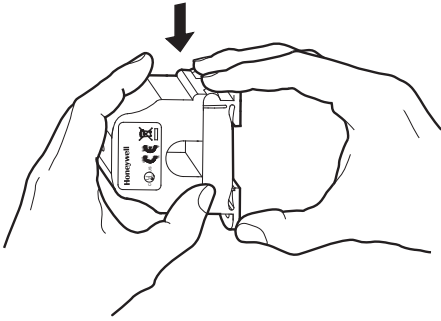
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### Latch Operation (for Split Core)

Pressing down on the two (2) side tabs and swinging the cover open opens the split core current sensor as shown in Fig. 3. Lifting up on the latch with a flat-tip screwdriver as shown in Fig. 4 can also open the unit. Press down firmly on the cover to close the current sensor. An audible “click” will be heard as the tab slides over the tongue on the base.

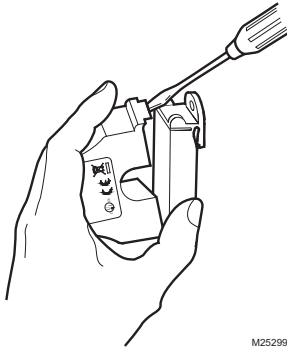
### CAUTION

Mating surfaces of the magnetic core are exposed when the sensor is open. Silicone grease, present on the cores to prevent rust, can capture grit and dirt if care is not exercised. Operation can be impaired if anything prevents good contact between pole pieces. Visually check the mating parts of the core before closing the current sensor.



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Fig. 3. Opening sensor by hand



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Fig. 4. Opening with a screwdriver

### Wiring

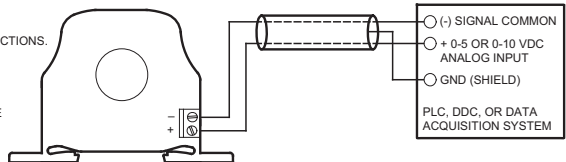
Honeywell recommends the use of 16 to 22 AWG (1.3 to 0.3 mm<sup>2</sup>) shielded cable, copper wire only for all current sensor applications. A maximum wire length of less than 98.4 feet (30 meters) should be used between the current sensors and the Building Management System or controller.

NOTE: When using a shielded cable, be sure to connect only (1) end of the shield to ground at the controller. Connecting both ends of the shield to ground may cause a ground loop.

When removing the shield from the sensor end, make sure to properly trim the shield so as to prevent any chance of shorting. The current sensors terminals are polarity sensitive and represent a linear 0 to 5 or 0 to 10 Vdc output signal. The recommended torque to be used on the terminal block connections is 5.93 in-lbs (0.67 Nm). The aperture (hole) size of the current sensor is 3/4 in. (19 mm) and will accept a maximum cable diameter of 350 MCM (17.3 mm).

CONNECTIONS: SHIELDED, TWISTED PAIR CABLE IS RECOMMENDED FOR THESE CONNECTIONS. NOTE: GROUND THE SHIELD AT THE CONTROL SYSTEM END ONLY!

POWER: THESE CURRENT SENSORS DO NOT NEED AN EXTERNAL POWER SOURCE, SINCE THE POWER IS SELF-INDUCED FROM THE MONITORED LOAD OR CONDUCTOR.



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Fig. 5. Shielded cable example

# OPERATING SPECIFICATIONS

Max Sensing Current Voltage: 600 Vac

Table 1. Specifications by Product Number

Product Number	Core Type	Output	Range	Jumper <sup>a</sup>	Max. Current Cont.	Max. Current for 6 secs.
CTS-05-050-VDC-001	Solid Core	0 to 5 Vdc	0-10 Amps 0-20 Amps 0-50 Amps	Low Middle High	100 Amps 150 Amps 200 Amps	125 Amps 225 Amps 300 Amps
CTS-05-250-VDC-001	Solid Core	0 to 5 Vdc	0-100 Amps 0-200 Amps 0-250 Amps	Low Middle High	200 Amps 360 Amps 400 Amps	250 Amps 450 Amps 500 Amps
CTS-10-050-VDC-001	Solid Core	0 to 10 Vdc	0-10 Amps 0-20 Amps 0-50 Amps	Low Middle High	60 Amps 100 Amps 160 Amps	80 Amps 200 Amps 300 Amps
CTS-10-250-VDC-001	Solid Core	0 to 10 Vdc	0-100 Amps 0-200 Amps 0-250 Amps	Low Middle High	160 Amps 320 Amps 400 Amps	200 Amps 400 Amps 500 Amps
CTP-05-050-VDC-001	Split Core	0 to 5 Vdc	0-10 Amps 0-20 Amps 0-50 Amps	Low Middle High	100 Amps 150 Amps 200 Amps	125 Amps 225 Amps 300 Amps
CTP-05-250-VDC-001	Split Core	0 to 5 Vdc	0-100 Amps 0-200 Amps 0-250 Amps	Low Middle High	200 Amps 360 Amps 400 Amps	250 Amps 450 Amps 500 Amps
CTP-10-050-VDC-001	Split Core	0 to 10 Vdc	0-10 Amps 0-20 Amps 0-50 Amps	Low Middle High	60 Amps 100 Amps 160 Amps	80 Amps 200 Amps 300 Amps
CTP-10-250-VDC-001	Split Core	0 to 10 Vdc	0-100 Amps 0-200 Amps 0-250 Amps	Low Middle High	160 Amps 320 Amps 400 Amps	200 Amps 400 Amps 500 Amps

<sup>a</sup> All current sensors are shipped from the factory with the jumper set in the high range.

## TROUBLESHOOTING

Problem	Solution
No reading.	<ul style="list-style-type: none"> <li>• Verify that there is current flowing through the conductor being monitored with a clamp-on current probe. The power for the current sensors is induced from the conductor being monitored.</li> <li>• Check the polarity of the circuit.</li> <li>• Verify that the terminals are screwed down, wires are firmly in place.</li> <li>• Disconnect the wires from the current sensor output. Measure the voltage across the current sensor output with a Voltmeter to verify that the sensor is working properly.</li> </ul>
Erratic readings.	<ul style="list-style-type: none"> <li>• Verify that the wires are terminated properly.</li> <li>• In areas of high RF interference, shielded cable may be necessary to stabilize signal.</li> </ul>
Inaccurate readings.	<ul style="list-style-type: none"> <li>• If you suspect that the current sensor is not reading within the accuracy specifications, please contact the factory for assistance.</li> </ul>

## CURRENT CONVERSION FORMULAS

To convert the voltage Vdc output signal to a current reading.

For 0-10 Vdc,  
 Current Reading = Vdc output/Vdc span x Amp span.

For example:  
 For a reading of 4 Vdc on a 0-10 Vdc output with a  
 0-250 Amp span:  
 Current reading = 4 Vdc/10 Vdc x 250 A = 100 Amp.

NOTE: 0 V = 0 Amps  
 10 V = 250 Amps  
 1 V = 25 Amps

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