

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

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

## PRODUCT DATA



## FEATURES

- Solid and split core Vdc output current transmitters
- Fast response time
- Integral DIN rail mounting flange
- Easy wiring, polarity sensitive output
- Accepts up to a 350 MCM (17.3 mm) cable
- Operates up to 250 continuous amps
- Highly accurate
- Five year limited warranty
- RoHS and WEEE compliant

## DESCRIPTION

The CTS-05,-10 and CTP-05,-10 current sensors monitor the current flowing to electrical equipment or buildings. The magnitude of this current is then converted into a linear and proportional 0 to 5 or 0 to 10 Vdc output signal, which can be monitored by your Building Management, DDC, or PLC controller. The current sensors have jumper selectable input ranges. These current sensors should be used in load trending (current monitoring) type applications. The CTS current sensors are an excellent choice for new installations. The CTP current switches are ideal for retrofit or existing installations since it is not necessary to power down the unit and disconnect any wires during the installation process. These current sensors are fast acting, reliable, and extremely easy to install. No DIN rail mounting clips are necessary. All current sensors have an integral DIN rail mounting flange.

The CTS-05,-10 and CTP-05,-10 current sensors are extremely accurate. All of the current sensors are factory calibrated using a NIST Traceable standard and shipped with the jumper placed in the largest jumper selectable range. A span adjustment potentiometer is included for minor field calibration or adjustments. The power for the current transmitter is induced from the conductor being monitored. This means that no external power supply is necessary for the installation of these sensors.

The CTS-05,-10 and CTP-05,-10 current sensors come with a limited five year factory warranty.

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## SPECIFICATIONS

**Supply Voltage:** Induced from monitored conductor

**Output Voltage:**

CTS-05; CTP-05: 0 to 5 Vdc

CTS-10; CTP-10: 0 to 10 Vdc

**Amperage Ranges:** 0 to 250 amps (See Table 1)

**Accuracy:**

CTS-05: ±1.0% (2 to 100% FSO)

CTP-05, CTP-10; CTS-10: ±1.0% (5 to 100% FSO)

**Response Time:** <100 ms

**Load:** Calibrated into a 1 mohm load

**Operating Frequency Range:** 50 to 600 Hz

**Isolation Voltage:** 2220 Vac

**Max Sensing Current Voltage:** 600 Vac

**Aperture (Hole) Size:** 3/4 in. (19 mm), Accepts up to 350 MCM (17.3 mm) cables

**Dimensions:** See Figures 1 and 2

**DIN Rail Size:** 1-3/8 in. (35 mm)

**Unit Weight:**

CTS: 0.22 lbs (0.1 kg)

CTP: 0.24 lbs (0.1 kg)

**Enclosure Rating/Color:** UL94-5VB/Burgundy

**Operating Temperature Range:** 5° to 104°F (-15° to 40°C)

**Operating RH Range:** 0 to 95% RH, non-condensing

**Agency Approvals:**

CE, UL.

Environmental Compliance:

RoHS-Directive 2002/95/EC

WEEE-Directive 2002/96/EC

**Table 1. Operating Specifications.**

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

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

## ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE<sup>®</sup> wholesaler or distributor, refer to the TRADELINE<sup>®</sup> Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Honeywell Automation and Control Products Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care  
1885 Douglas Drive North  
Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Toronto, Ontario M1V 4Z9.

International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

Table 1. Operating Specifications. (Cont.)

Product Number	Core Type	Output	Range	Jumper <sup>a</sup>	Max. Current Cont.	Max. Current for 6 secs.
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.

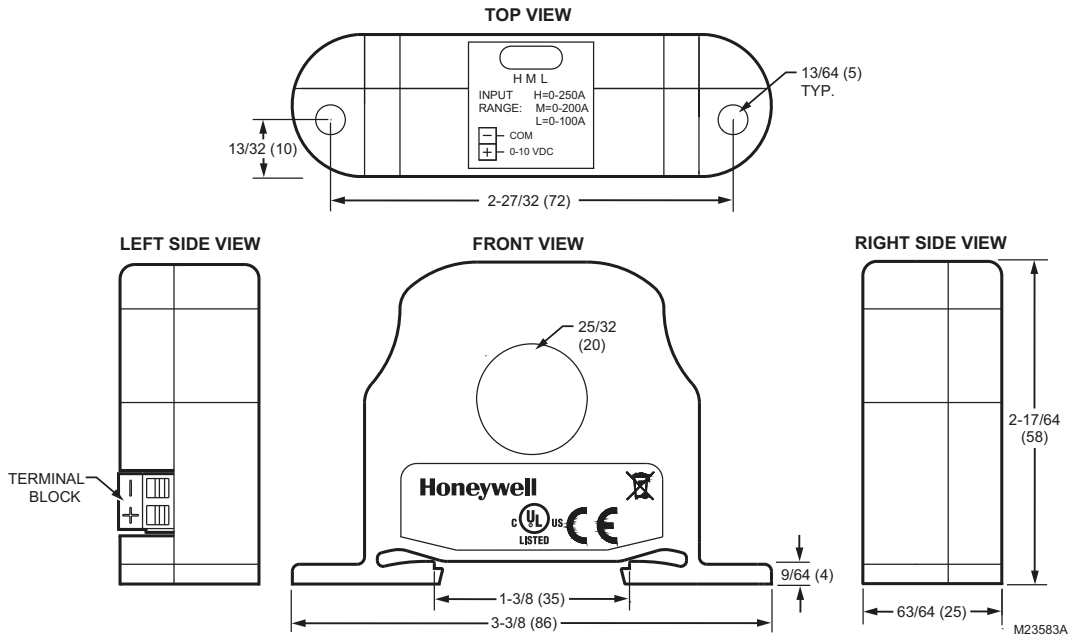


Fig. 1. CTS current sensor dimensions in inches (mm)

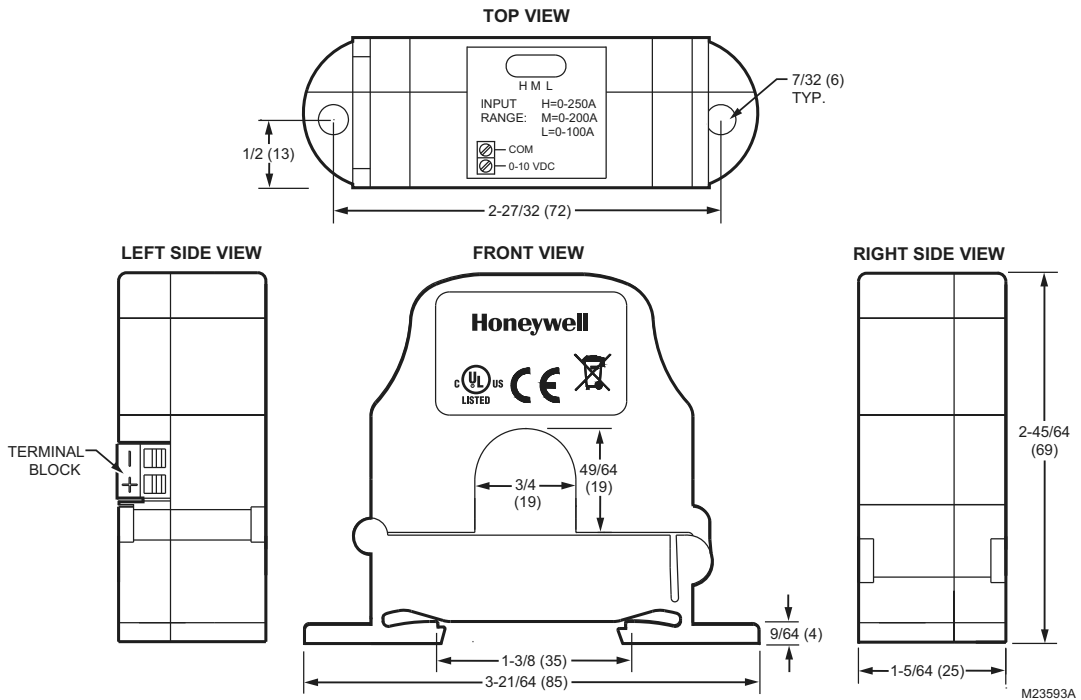


Fig. 2. CTP current sensor dimensions in inches (mm)

## 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.

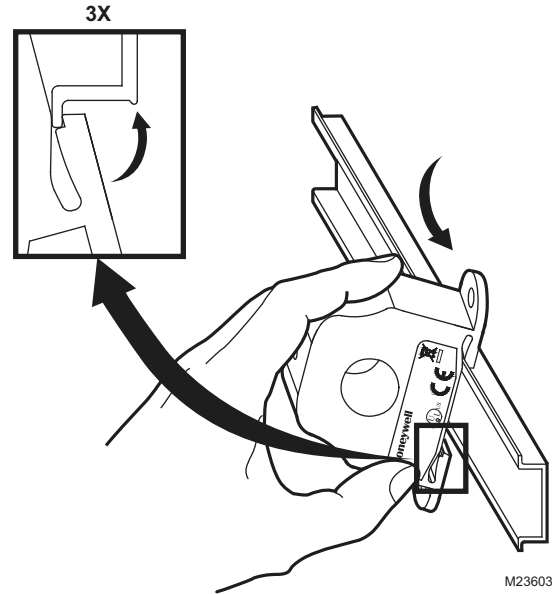
## INSTALLATION

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.

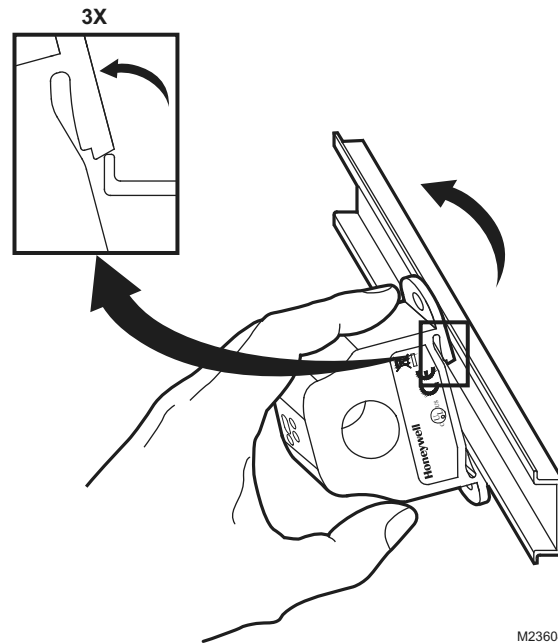
### **IMPORTANT**

*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 3 and 4). Leave a minimum distance of 1 in. (25 mm) between the current sensor and any other magnetic devices such as contactors and transformers.



**Fig. 3. Sensor placed on DIN rail**



**Fig. 4. Sensor removed from DIN rail**

### 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. 5. Lifting up on the latch with a flat-tip screwdriver as shown in Fig. 6 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.

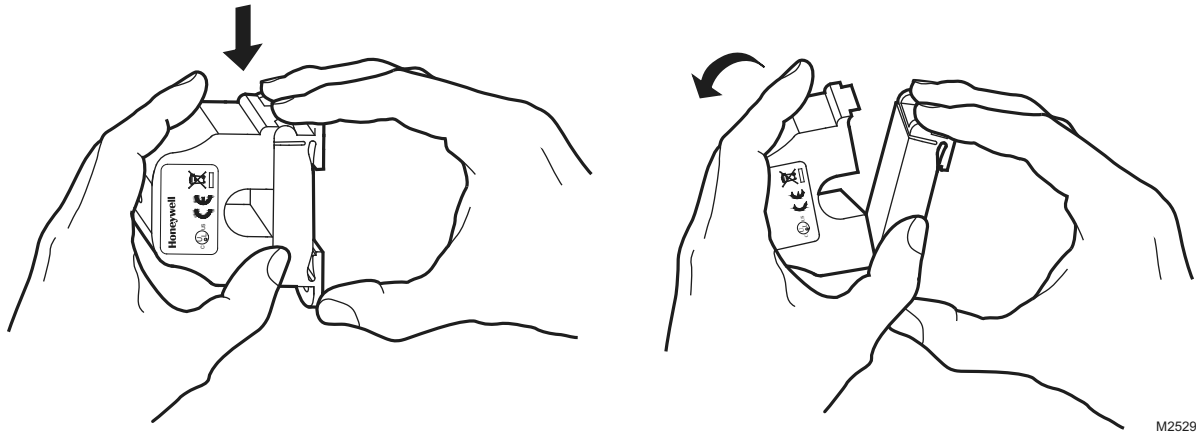


Fig. 5. Opening sensor by hand

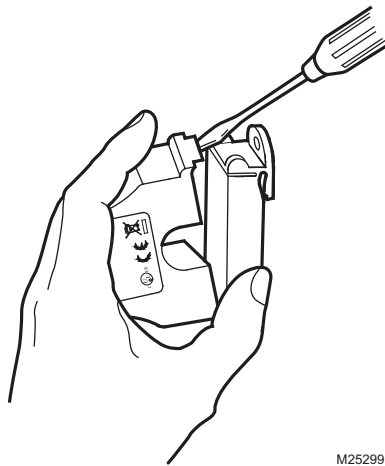


Fig. 6. Opening with a screwdriver

### 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.

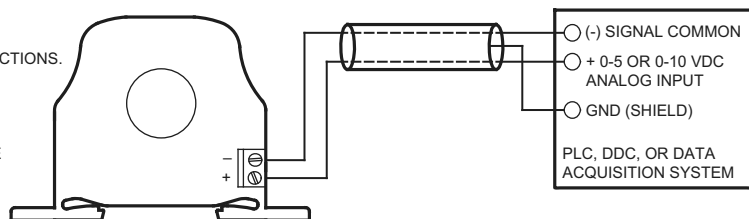


Fig. 7. Shielded cable example

## TROUBLESHOOTING

**Table 2. 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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