

Honeywell

CURRENT SENSORS

4-20 MA OUTPUT AND VOLTAGE OUTPUT CTS-A, CTP-A, CTS-V, CTP-V SERIES SENSORS

SPECIFICATION DATA



0-5/10 VDC OUTPUT

4-20 MA OUTPUT

OVERVIEW

The 4-20 mA Output Analog Current Sensors and Voltage Output Analog Current Sensors are designed for use in any AC current monitoring application in which you are looking to monitor a particular piece of equipment for proper operation. All voltage output current sensors use an "Average" current measuring method and should be used in applications with a pure Sinusoidal AC waveform that has very little or no distortion/noise on the conductor being monitored.

The current sensors are available in both solid and split-core versions which also includes a 35 mm Din Rail mounting foot for easy installation in panel mount applications.

The solid-core versions are a great choice for new installations or OEM applications in which cost sensitivity, lower trip points and environmental issues like dust and moisture may be of concern. The split-core version of the current sensors work great in retrofit applications and for use on service technicians vehicles since one or two parts will work in most applications and can be easily installed without disconnecting any wires. Voltage Output current

sensors are available in both solid and split-core versions which also includes a 35 mm Din Rail mounting foot for easy installation in panel mount applications.

For best results, the voltage output current sensors should not be used in applications with switching power supplies or variable speed drives due to the limited operating frequency range. Applications may include monitoring a resistive type load such as an incandescent light bulb, heating element as well as any single speed linear load.

In applications where variable speed drives or waveforms include distortion/noise, Honeywell recommends the use of the CTP-A-50-RMS Series sensors where you need to supply 24 VDC power to the current sensors with a 4-20 mA signal. A 249 Ohm or 499 Ohm 1 Watt resistor can be used to convert the 4-20 mA signal into a usable 1-5 or 2-10 VDC output signal at your building management system or PLC. Note that the "True RMS" sensors are able to be used in all applications since the "True RMS" current sensors provide the best overall accuracy and should be used in applications which include Variable Frequency Drives, Switching Power Supplies, Computers and Data Centers, Electronic Ballasts, SCR's, and Variable Speed Loads.

Applications

- Load Trending
- Basic Power Monitoring
- Electronic Ballasts
- Computers/Data Centers
- Industrial
- Variable Speed Loads
- Pumps
- Compressors
- Fans
- Preventative Maintenance
- LEED
- Project Justification (ROI) Process Control
- Solid State Environments (SCR's)
- Single Speed Loads

The Current Sensors are covered by a Five (5) Year Limited Warranty.



31-00143-01

SPECIFICATIONS

Monitored Current Type: AC Current

Maximum AC Voltage: 600 VAC

Isolation Voltage: 2200 VAC

Operating Frequency Range

(4–20 mA Output):

CTP-A-200 & CTS-A-250: 40 to 1 KHz

CTP-A-50-RMS: 15 to 100 Hz

Voltage Output:

50 to 600 Hz

Core Style: Solid-Core and Split-Core Versions available
(See Table 1)

Supply Voltage

(4–20 mA Output):

+8.5 to 30 VDC (Reverse Polarity Protected)

250 Ohm Load (1–5 VDC): +13.5 to 30 VDC

500 Ohm Load (2–10 VDC): +18.5 to 30 VDC

Voltage Output:

Induced from the Monitored Conductor (Insulated Conductors only)

Maximum Load Resistance @ 24 VDC (4–20 mA Output):
775 Ohms (Formula: $(24 \text{ VDC} - 8.5 \text{ VDC}) / 0.020 \text{ A}$)

Sensor Amperage Range (Voltage Output): See Table 1
(Field Selectable)

Supply Current: 25 mA minimum

Output Signal: 4 to 20 mA (2-Wire, Loop Powered)

Maximum Output Signal (4–20 mA Output):
Limited to 25 mA

Output Signal | Number of Wires (Voltage Output):

CTS-V-50: 0 to 5 VDC

CTP-V-50, CTS-V-150 & CTP-V-150: 0 to 10 VDC | 2-Wires

Accuracy

NOTE: All current output sensors are calibrated at an ambient room temperature of 71 °F (21.5 °C) typical.

4–20 mA Output: +/- 1% of Selected Range except
CTP-A-50-RMS: +/- 2% from 15 to 20 Hz
+/- 1% from 20 to 100 Hz

Voltage Output:

CTS-V-50 (0–10 A Range Only):

+/- 1% from 5–100 % of Selected Range

CTS-V-50 (0–20A/50A Ranges):

+/- 1% from 2–100 % of Selected Range

CTP-V-50, CTS-V-150 & CTP-V-150 Series:

+/- 1% from 5–100 % of Selected Range

Response Time

(4–20 mA Output):

CTS-A and CTP-A:

< 600 mS (Rise and Fall Time)

CTP-A-50-RMS:

600 mS (Rise Time) and 2800 mS (Fall Time)

Voltage Output:

< 300 mS (Rise and Fall Times)

Aperture Size: 0.75 in. (19.05 mm)

Din Rail Size: 35 mm

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

Operating Humidity Range: 0 to 95 %, non-condensing

Storage Temperature: 41 to 95 °F (5 to 35 °C)

Storage Humidity Range: 40 to 85 % RH, non-condensing

Enclosure Material: PC/ABS (Polycarbonate/ABS Blend)

Flammability Rating: UL94-V0

Wiring Connections: 2 Position, Screw Terminal Block
(Polarity Sensitive)

Wire Recommendations: 2 Conductor (Shielded Cable)

Wire Size:

18 to 24 AWG (0.823 to 0.205 mm²) Copper wire only

Terminal Block Torque Rating:

4.43 to 5.31 in.-lbs. (0.5 to 0.6 Nm)

Minimum Mounting Distance: 1 in. (2.6 cm) between
current sensor and other magnetic devices (Relays,
Contactors, Transformers)

Agency Approvals

(4–20 mA Output):

CE (-RMS Versions): CE to IEC 61326-1: 2012 Class A,
UL/CUL US Listed (UL 508) Ind. Control Equipment
(File # E309723), RoHS2, WEEE

CE (4–20 mA Non -RMS Versions): UL/CUL Listed (UL
508) Ind. Control Equipment (File # E309723) CE,
RoHS2, WEEE

Voltage Output:

UL/CUL US Listed (UL 508) Ind. Control Equipment
(File # E309723), CE, RoHS2, WEEE

Product Weight:

(4–20 mA Output):

CTS-A: 0.260 lbs. (0.118 kg)

CTP-A: 0.274 lbs. (0.124 kg)

CTP-A-RMS: 0.190 lbs. (0.087 kg)

Voltage Output:

CTS-V Series: 0.194 lbs. (0.088 kg)

CTP-V Series: 0.274 lbs. (0.125 kg)

Product Dimensions in inches (mm):

Solid Core Versions: 2.760 x 3.343 x 1.050
(70.11 x 84.92 x 26.67)

Split Core Versions: 2.780 x 3.238 x 1.120
(70.51 x 82.25 x 28.45)

Dimensions

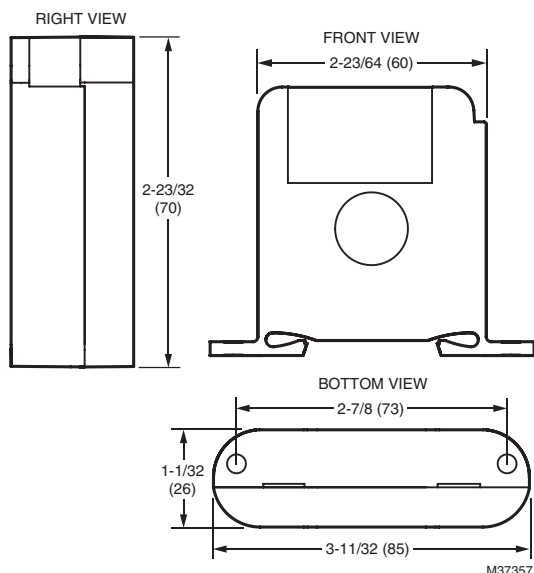


Fig. 1. Solid-core sensor dimensions in in. (mm).

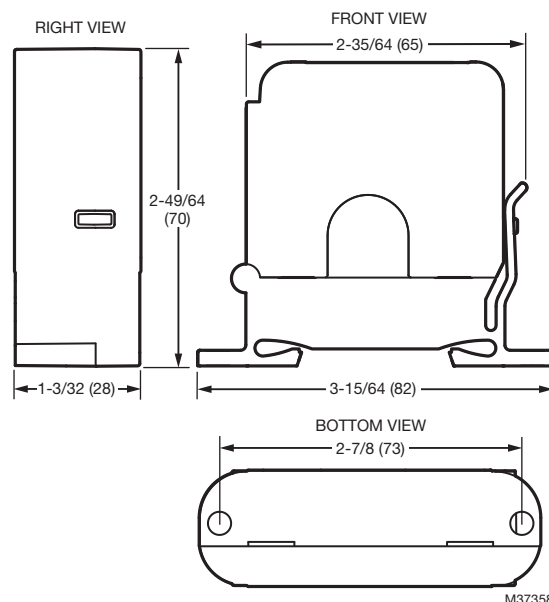


Fig. 2. Split-core sensor dimensions in in. (mm).

Table 1. Standard Ordering.

Model #	Selectable Ranges	Measurement	AC Waveform	Solid-Core	Split-Core	Output Signal
CTS-A-250	0 to 100/200/250A	Average	Pure Sinusoidal	•		4 to 20 mA
CTP-A-200	0 to 100/150/200A	Average	Pure Sinusoidal		•	4 to 20 mA
CTP-A-50-RMS	0 to 10/20/50A	True RMS	Distorted & Pure Sinusoidal		•	4 to 20 mA
CTS-V-50	0 to 10/20/50A	Average	Pure Sinusoidal	•		0 to 5 VDC
CTP-V-50	0 to 10/20/50A	Average	Pure Sinusoidal		•	0 to 10 VDC
CTS-V-150	0 to 50/100/150A	Average	Pure Sinusoidal	•		0 to 10 VDC
CTP-V-150	0 to 50/100/150A	Average	Pure Sinusoidal		•	0 to 10 VDC

* Only the 100 Amp Range will meet the accuracies over the operating frequency range of 15 to 100 Hz (see Specifications).

The 4-20 mA Output Current Sensors and Voltage Output Sensors are not intended to be used in Life / Safety Applications or in Hazardous / Classified Locations.

REGULATORY INFORMATION

FCC REGULATIONS: § 15.19 (A)(3)

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

IC REGULATIONS: RSS-GEN

This device complies with Industry Canada's license-exempt RSSs.

Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage;
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC WARNING (PART 15.21) (USA ONLY)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Home and Building Technologies

In the U.S.:

Honeywell

715 Peachtree Street NE

Atlanta, GA 30308

customer.honeywell.com

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