



# 4-20 MA OUTPUT

## CTA2, SCTA2, CTA2-RMS & SCTA2-RMS Series



The 4-20 mA 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. The "Average" style current sensors should be used in applications where the Sinusoidal waveform has no distortion or noise on the conductor being monitored. Applications may include monitoring a resistive type load such as an incandescent light bulb, heating element as well as any single speed linear load. 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 includes Variable Frequency Drives, Switching Power Supplies, Computers and Data Centers, Electronic Ballasts, SCR's, and Variable Speed Loads. For currents monitored above 250 Amps, the CTA2-5 and SCTA2-5 are ideal for use with a step down Ratio:5A Output CT (Current Transformer) in stepping down current in a monitored conductor to a proportional 0 to 5A output signal. The

current sensors are available in both solid and split-core versions which also includes a Patented (Pat. No. US 7,416,421) 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.

**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)

**The 4-20 mA Output Current Sensors are covered by ACI's Five (5) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, [www.workaci.com](http://www.workaci.com).**

### PRODUCT SPECIFICATIONS

|  |  |
|--|--|
| <b>Monitored Current Type:</b>                   | AC Current   |
| <b>Maximum AC Voltage:</b>                       | 600 VAC  |
| <b>Isolation Voltage:</b>                        | 2200 VAC   |
| <b>Operating Frequency Range<sup>2</sup>:</b>    | <b>A/CTA2 &amp; A/SCTA2 Series:</b> 40 to 1KHz   <b>A/CTA2-50-RMS &amp; A/SCTA2-50 RMS:</b> 15 to 100 Hz<br><b>A/CTA2-250-RMS (0-100A Range):</b> 15 to 100 Hz   <b>A/CTA2-250-RMS (0-200/250A Ranges):</b> 30 to 100 Hz |
| <b>Core Style:</b>                               | Solid-Core and Split-Core Versions available (See Ordering Grid)   |
| <b>Supply Voltage:</b>                           | +8.5 to 30 VDC (Reverse Polarity Protected)<br><b>250 Ohm Load (1-5 VDC):</b> +13.5 to 30 VDC   <b>500 Ohm Load (2-10 VDC):</b> +18.5 to 30 VDC  |
| <b>Maximum Load Resistance @ 24 VDC:</b>         | 775 Ohms ( <b>Formula:</b> (24 VDC - 8.5 VDC) / 0.020A )   |
| <b>Supply Current:</b>                           | 25 mA minimum  |
| <b>Sensor Amperage Range:</b>                    | See Ordering Grid (Field Selectable)   |
| <b>Output Signal   Maximum Output Signal:</b>    | 4 to 20 mA (2-Wire, Loop Powered)   Limited to 25 mA   |
| <b>Accuracy <sup>1</sup>:</b>                    | All Models: +/- 1% of Selected Range except A/SCTA2-50-RMS: +/- 2% from 15 to 20 Hz<br>+/- 1% from 20 to 100 Hz  |
| <b>Response Time:</b>                            | A/CTA2-xxx and A/SCTA2-XXX: < 600 mS (Rise and Fall Time)<br>A/CTA2-xxx-RMS & A/SCTA2-50-RMS: 600 mS (Rise Time) and 2800 mS (Fall Time)   |
| <b>Aperture Size:</b>                            | 0.75" (19.05 mm)   |
| <b>Din Rail Size:</b>                            | 35 mm (U.S. Patent No. 7,416,421)  |
| <b>Operating Temperature Range:</b>              | 5 to 104°F (-15 to 40°C)   |
| <b>Operating Humidity Range:</b>                 | 0 to 95%, non-condensing   |
| <b>Storage Temperature   RH Range:</b>           | 41 to 95°F (5 to 35°C)   40% to 85% RH, non-condensing   |
| <b>Enclosure Material   Flammability Rating:</b> | PC/ABS (Polycarbonate/ABS Blend)   UL94-V0   |
| <b>Wiring Connections:</b>                       | 2 Position, Screw Terminal Block (Polarity Sensitive)  |
| <b>Wire Recommendations:</b>                     | 2 Conductor (Shielded Cable)   |
| <b>Wire Size:</b>                                | 18 to 24 AWG (0.823 mm <sup>2</sup> to 0.205 mm <sup>2</sup> ) Copper Wires only   |
| <b>Terminal Block Torque Rating:</b>             | 4.43 to 5.31 in-lbs. (0.5 to 0.6 Nm)   |
| <b>Minimum Mounting Distance:</b>                | 1" (2.6 cm) between current sensor & other magnetic devices (Relays, Contactors, Transformers)   |
| <b>Agency Approvals:</b>                         | CE (-RMS Versions): CE to IEC 61326-1: 2012 Class A, UL/CUL US Listed (UL 508) Ind. Control Equipment (File # E309723), RoHS2, WEEE, UKCA  |
| <b>Product Weight:</b>                           | <b>A/CTA2-xxx:</b> 0.260 lbs. (0.118 kg)   <b>A/SCTA2-xxx:</b> 0.274 lbs. (0.124 kg)<br><b>A/CTA2-xxx-RMS:</b> 0.190 lbs. (0.087 kg)   <b>A/SCTA2-xxx-RMS:</b> 0.190 lbs. (0.087 kg)                                     |
| <b>Product Dimensions:</b>                       | <b>Solid Core Versions:</b> 2.760" (70.11 mm) x 3.343" (84.92 mm) x 1.050" (26.67 mm)<br><b>Split Core Versions:</b> 2.780" (70.51 mm) x 3.238" (82.25 mm) x 1.120" (28.45 mm)   |

**Note<sup>1</sup>:** All current output sensors are calibrated at an ambient room temperature of 71°F (21.5°C)

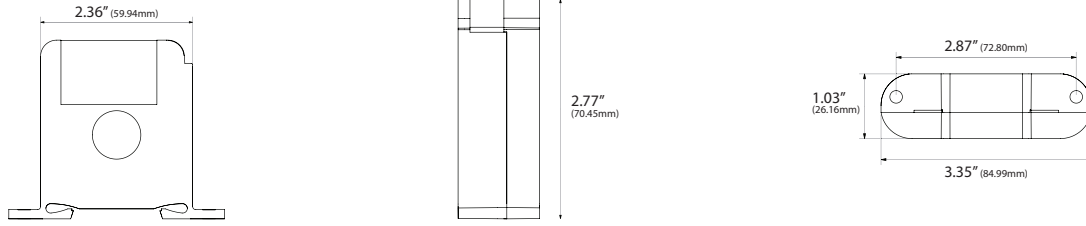
**Note<sup>2</sup>:** Only the 0 to 100 Amp range in the A/CTA2-250-RMS will meet accuracy specifications from 15 to 100 Hz



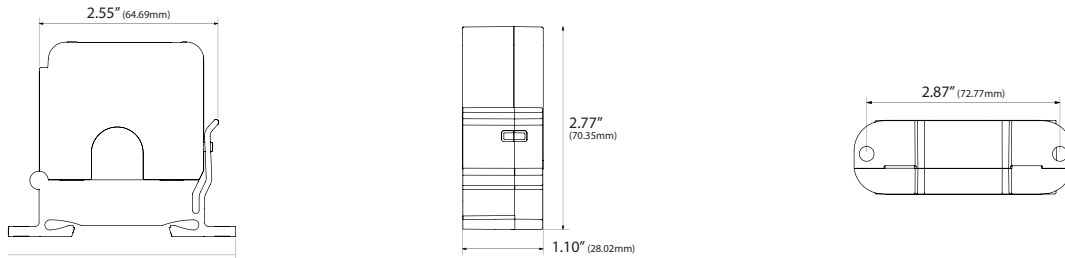


**DIMENSIONAL DRAWING**

**Solid-Core**



**Split-Core**



**FRONT VIEW**

**RIGHT VIEW**

**SIDE VIEW**

**STANDARD ORDERING**

Model # Example: **A/CTA2-5** -OR- **142379**

| Model #        | Item # | Selectable Ranges  | Measurement | AC Waveform                 | Solid-Core | Split-Core | Output Signal |
|----------------|--------|--------------------|-------------|-----------------------------|------------|------------|---------------|
| A/CTA2-5       | 142379 | 0 to 5A            | Average     | Pure Sinusoidal             | •          |            | 4 to 20 mA    |
| A/CTA2-50      | 142378 | 0 to 10/20/50A     | Average     | Pure Sinusoidal             | •          |            | 4 to 20 mA    |
| A/CTA2-250     | 142377 | 0 to 100/200/250A  | Average     | Pure Sinusoidal             | •          |            | 4 to 20 mA    |
| A/SCTA2-5      | 142376 | 0 to 5A            | Average     | Pure Sinusoidal             |            | •          | 4 to 20 mA    |
| A/SCTA2-50     | 142375 | 0 to 10/20/50A     | Average     | Pure Sinusoidal             |            | •          | 4 to 20 mA    |
| A/SCTA2-200    | 142374 | 0 to 100/150/200A  | Average     | Pure Sinusoidal             |            | •          | 4 to 20 mA    |
| A/CTA2-50-RMS  | 142373 | 0 to 10/20/50A     | True RMS    | Distorted & Pure Sinusoidal | •          |            | 4 to 20 mA    |
| A/CTA2-250-RMS | 142372 | 0 to 100*/200/250A | True RMS    | Distorted & Pure Sinusoidal | •          |            | 4 to 20 mA    |
| A/SCTA2-50-RMS | 142371 | 0 to 10/20/50A     | True RMS    | Distorted & Pure Sinusoidal |            | •          | 4 to 20 mA    |

**Note\*:** Only the 100 Amp Range will meet the accuracies over the operating frequency range of 15 to 100 Hz (See Specification Table)

**ACCESSORIES ORDERING**

Item # Example: **100307**

| Item # | Description  |
|--------|--|
| 100307 | 249 Ohm, 1/4W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 1-5 VDC)                                   |
| 100306 | 249 Ohm, 1/4W, +/- 0.1% Tolerance, 50 PPM Resistor (Recommended for Best Accuracy) (Only Needed to Convert to 1-5 VDC) |
| 100469 | 499 Ohm, 1W, +/- 1% Tolerance, 50 PPM Resistor (Only Needed to Convert to 2-10 VDC)                                    |

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

