4 mA to 20 mA Output Current Sensor Series

SCTA2, CTA2-RMS & SCTA2-RMS Series

Automation Components
a DwyerOmega brand

The 4 mA to 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.

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)

Warranty

The 4 mA to 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, workaci.com.

Specifications

Monitored Current Type:	AC Current
Maximum AC Voltage:	600 Vac
Isolation Voltage:	2200 Vac
Operating Frequency Range[2]:	**A/SCTA2 Series:** 40 KHz to 1 KHz **A/CTA2-50-RMS & A/SCTA2-50 RMS:** 15 Hz to100 Hz **A/CTA2-250-RMS (0 A to 100 A Range):** 15 Hz to 100 Hz **A/CTA2-250-RMS (0-200/250A Ranges):** 30 Hz to 100 Hz
Core Style:	Solid-Core and Split-Core Versions available (See Ordering Grid)

Supply Voltage:	+8.5 Vdc to 30 Vdc (Reverse Polarity Protected) **250 Ohm Load (1 Vdc to 5 Vdc):** +13.5 Vdc to 30 Vdc **500 Ohm Load (2 Vdc to 10 Vdc):** +18.5 Vdc to 30 Vdc
Maximum Load Resistance @ 24 Vdc:	775 Ohms (Formula: (24 Vdc – 8.5 Vdc) / 0.020 A)
Supply Current:	25 mA minimum
Sensor Amperage Range:	See Ordering Grid (Field Selectable)
Output Signal I Maximum Output Signal:	4 mA to 20 mA (2-Wire, Loop Powered) I Limited to 25 mA
Accuracy[1]:	All Models: +/- 1 % of Selected Range except A/SCTA2-50-RMS: +/- 2 % from 15 Hz to 20 Hz +/- 1 % from 20 Hz to 100 Hz
Response Time:	**A/SCTA2-XXX:** < 600 mS (Rise and Fall Time) **A/CTA2-xxx-RMS** and **A/SCTA2-50-RMS:** 600 mS (Rise Time) and 2800 mS (Fall Time)
Aperture Size:	19.05 mm (0.75 in)
Din Rail Size:	35 mm (U.S. Patent No. 7,416,421)
Operating Temperature Range:	-15 °C to 40 °C (5 °F to 104 °F)
Operating Humidity Range:	0 % to 95 %, non-condensing
Storage Temperature I RH Range:	5 °C to 35 °C (41 °F to 95 °F) I 40 % to 85 % RH, non-condensing
Enclosure Material I Flammability Rating:	PC/ABS (Polycarbonate/ABS Blend) I UL94-V0

Wiring Connections:	2 Position, Screw Terminal Block (Polarity Sensitive)
Wire Recommendations:	2 Conductor (Shielded Cable)
Wire Size:	0.823 mm^2 to 0.205 mm^2 (18 AWG to 24 AWG) Copper Wires only
Terminal Block Torque Rating:	0.5 Nm to 0.6 Nm (4.43 in-lb to 5.31 in-lb)
Minimum Mounting Distance:	2.6 cm (1 in) between current sensor & other magnetic devices (Relays, Contactors, Transformers)
Agency Approvals:	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
Product Weight:	**A/SCTA2-xxx:** 0.124 kg (0.274 lb) **A/CTA2-xxx-RMS:** 0.087 kg (0.190 lb) **A/SCTA2-xxx-RMS:** 0.087 kg (0.190 lb)

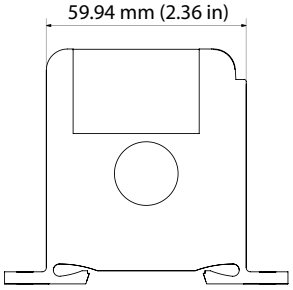
Product Dimensions:	**Solid Core Versions:** 70.11 mm (2.760 in) x 84.92 mm (3.343 in) x 26.67 mm (1.050 in) **Split Core Versions:** 70.51 mm (2.780 in) x 82.25 mm (3.238 in) x 28.45 mm (1.120 in)

Note[1]: All current output sensors are calibrated at an ambient room temperature of 21.5 °C (71 °F)

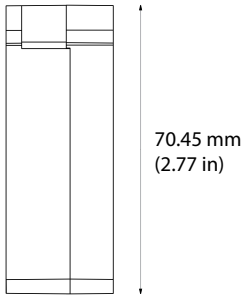
Note[2]: Only the 0 Amp to 100 Amp range in the A/CTA2-250-RMS will meet accuracy specifications from 15 Hz to 100 Hz

Dimensions

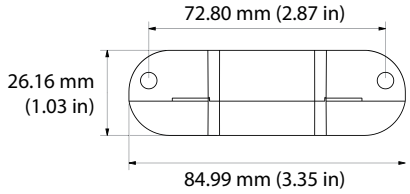
Solid-Core



Front View

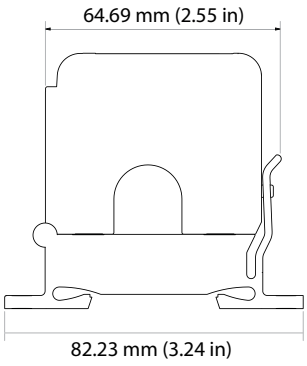


Side View

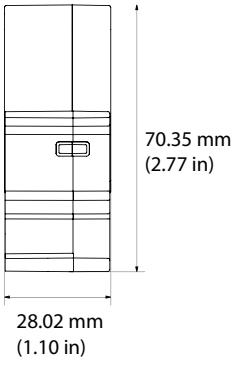


Top View

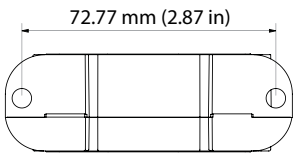
Split-Core



Front View



Side View



Top View

Standard Ordering

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

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

Accessories Ordering

Item #	Description
100307	249 ohm, 1/4 W, +/- 1 % tolerance, 50 ppm resistor (only needed to convert to 1 Vdc to 5 Vdc)
100306	249 ohm, 1/4 W, +/- 0.1 % tolerance, 50 ppm resistor (recommended for best accuracy) (only needed to convert to 1 Vdc to 5 Vdc)
100469	499 ohm, 1 W, +/- 1 % tolerance, 50 ppm resistor (only needed to convert to 2 Vdc to 10 Vdc)

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