



Installation and Operation Instructions

Part # A/CTA2-5, A/CTA2-50, A/CTA2-250, A/CTA2-50-RMS, A/CTA2-250-RMS, A/SCTA2-5, A/SCTA2-50, A/SCTA2-200, A/SCTA2-50-RMS

Please Read Instructions Carefully Before Installation!

⚠ WARNING:

- This product is not intended to be used for Life or Safety applications.
- This product is not intended for use in any hazardous or classified locations.
- The A/CTA2 and A/SCTA2 Series Current Sensors must be used on Insulated Conductors Only!

⚡ HIGH VOLTAGE:

- Disconnect and lock out all power sources before installation as severe injury or death may result from electrical shock due to contact with high voltage wires.

■ 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 is a 2-wire, 4 to 20 mA Loop Powered device that requires a regulated +13.5 to 30VDC external power source.

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

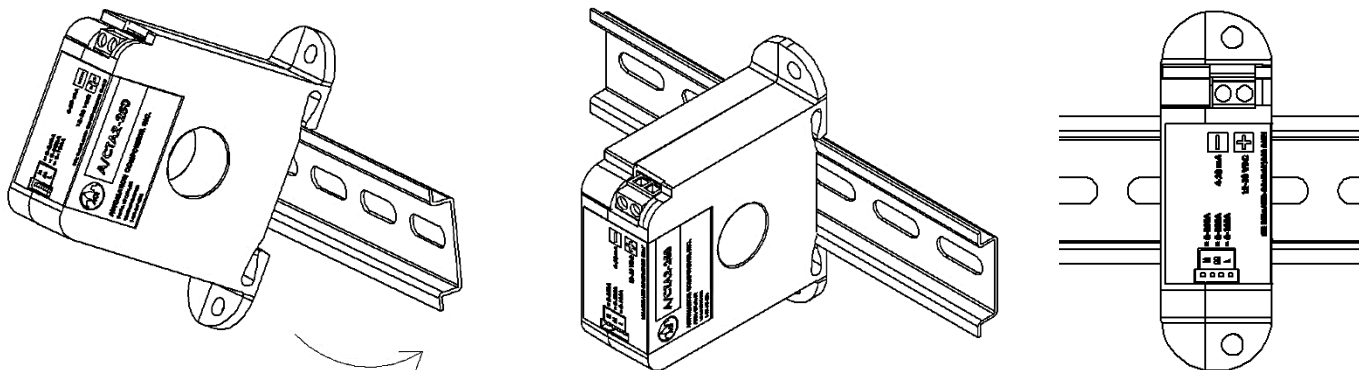


Figure 1: Sensor Placed on Rail

■ Latch Operation for A/SCTA2 Series

Press down on the side tab and swing the top of the unit up to open the split core current sensor as shown in Figure 2. 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. Electrical contact grease, present on the cores to prevent corrosion, 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.

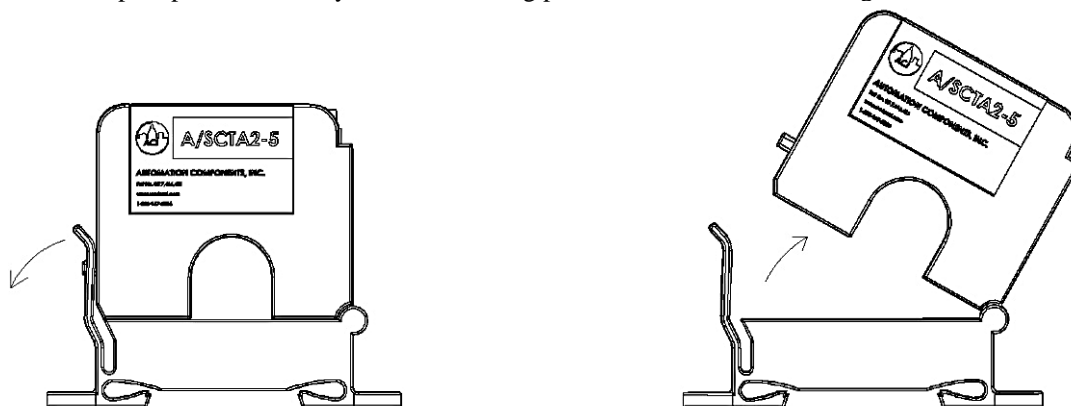


Figure 2: Opening A/SCTA2 Series

■ Current Sensor Setup

The amperage range selected represents the maximum current that can be applied to the conductor being monitored, **Do not exceed!** All current sensors with selectable ranges will have the range selection jumper factory set on the high range. For models with field selectable amperage ranges, select the correct amperage range using the range selection jumper. Note that all -RMS models have True RMS outputs and should be used with Variable Frequency Drives.

■ Application Notes

For load currents greater than sensor maximum continuous current rating:

For applications in which the normal operating current is greater than 250 Amps or for conductors larger than 0.750" (1.90 cm) in diameter, an external 5 Amp Current Transformer must be used as shown in **Figure 3**. Use the A/CTA2-5 or A/SCTA2-5 to scale the 5A current to a 4-20mA current.

⚡ HIGH VOLTAGE: The secondary of the 5A CT must be shorted together before the power may be turned onto the monitored device.

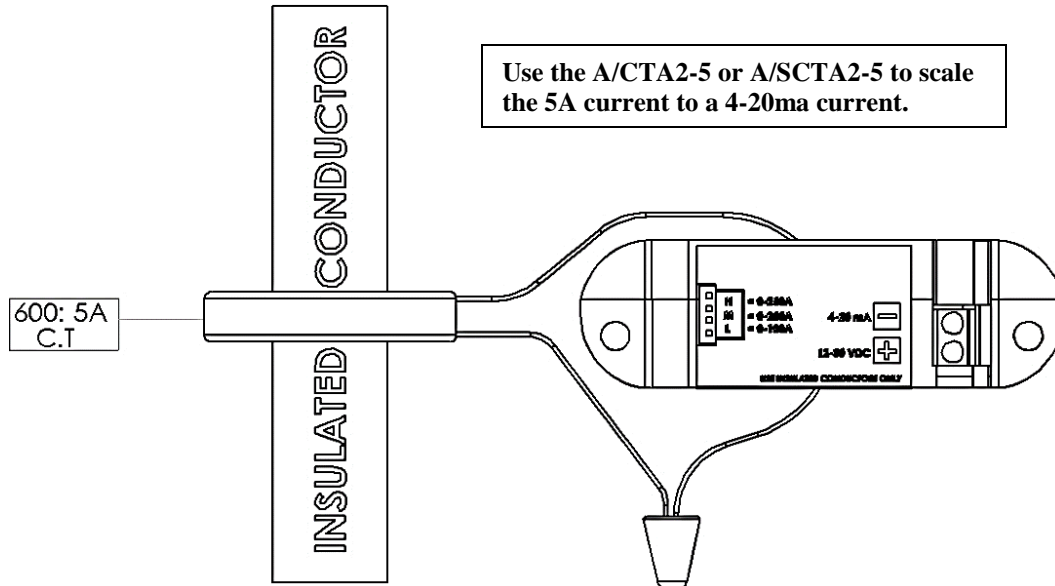


Figure 3: Current Transformer

■ Wiring

ACI recommends the use of a two conductor 16 to 22 AWG shielded cable, **copper wire only**, for all 4 to 20mA current sensor installations. A maximum wire length of less than 30 meters (98.4 feet) 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 to prevent any chance of shorting. The current sensor terminals are polarity sensitive and represent a linear and proportional 4 to 20mA output signal. The current sensors are available in either an Average or True RMS output version. Tighten the screws at the terminal block connections to the recommended torque of 0.5 to 0.6 Nm (4.43 to 5.31 in-lbs.). The aperture (hole) size of the current sensor is 0.75" (1.90 cm).

■ Wiring Example

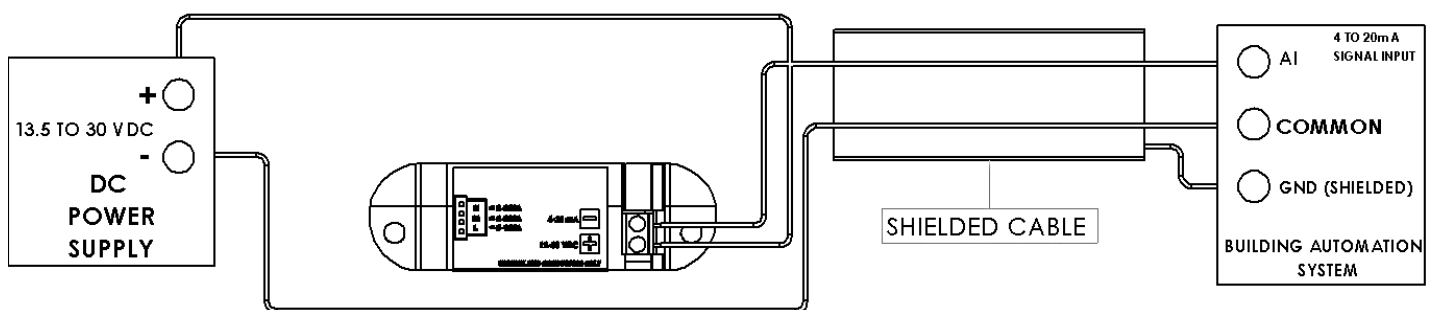


Figure 4: Analog Circuit

■ Troubleshooting

Problem	Solution
No reading	<ul style="list-style-type: none"> - Confirm that you have +13.5 to 30VDC in series with the current sensor output terminals and the analog input of the control panel. - Check the polarity of the circuit. - Verify that the terminals are screwed down, wires are firmly in place. - Disconnect the input to the control panel and then insert a current meter (mA range) in series with the current sensor output to verify that the circuit is working properly.
Erratic readings	<ul style="list-style-type: none"> - Verify that the wires are terminated properly. - Check that the +13.5 to 30VDC input is clean. In areas of high RF interference, shielded cable may be necessary to stabilize signal.
Inaccurate readings	<ul style="list-style-type: none"> - If you suspect that the current sensor is not reading within the accuracy specifications, please contact the factory for assistance.
Current Sensor is operating at a low-level current or failing to operate within the accuracy specifications.	<ul style="list-style-type: none"> -Visually check the mating parts of the core to ensure there is no debris between the split contacts. See Figure 2. -Remove all debris or dust manually and close the current sensor. -Continue to retest the sensor in your application.

■ Current Conversion Formulas

To convert the current sensor output signal to a current reading.

4-20mA output to Current reading (4mA = 0 Amps and 20mA = 250 Amps for A/CTA2-250)

Example: 12mA current sensor output signal

Total Span = 250 Amps

Multiplier = 20mA-4mA/Total Span = 0.064

(12mA-4mA)/0.064= **125 Amps**

■ WEEE Directive

At the end of their useful life the packaging and product should be disposed of via a suitable recycling center. Do not dispose of with household waste. Do not burn.

