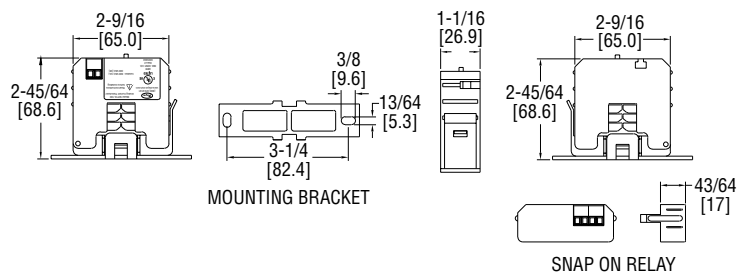




Series SCT Current Transformer

Specifications - Installation and Operating Instructions



The Series SCT Current Transformers continuously measure the current consumption of pumps, fans, boilers, solar panels and chillers for use in energy monitoring. Current or voltage outputs can be scaled using a slider switch to select between three factory set ranges. Split core configuration allows the current transformer to be installed on new and existing installations. Snap-on mounting bracket allows for quick installation of replacement transformers. An optional 10 A command relay can snap onto the current switch which eliminates the need to mount an additional relay.

OPERATING INSTRUCTIONS

NOTICE

The Series SCT Current Transformers are intended to provide an input to equipment under normal operating conditions.

Additional precautions must be designed into the control system where failure or malfunction of the current transformer could lead to personal injury or property damage to the controlled equipment or other property. Incorporate and maintain other devices such as supervisory, alarm systems, safety or limit controls intended to warn of or protect against failure or malfunction of the SCT.

CAUTION

Disconnect the power supply before making electrical connections. Contact with components carrying hazardous voltage can cause electrical shock and may result in severe personal injury or death.

INSTALLATION

MOUNTING

1. Detach the plastic mounting bracket from the current switch housing.
2. Using the two included screws, attach the mounting bracket to the rear of the electrical panel or enclosure.
3. Re-attach the current switch housing to the plastic mounting bracket.

WIRING

1. Disconnect the power to the conductor cable from the power source.
2. Open the core using the release tab. Snap the core closed around the power conductor cable. Make sure that the core release tab is locked in its original position.
3. Wire the Series SCT as shown in the below wiring diagrams.
4. Reconnect the power conductor cable.

SPECIFICATIONS

Amperage Range: 30/60/120 A or 20/100/150 A (depending on model).
Continuous Operating Current: 120 A or 150 A (depending on model).
Output: 4 to 20 mA, 0 to 5 VDC, 0 to 10 VDC (depending on model). Optional relay N.O. SPST; 10 A @ 260 VAC, 5 A @ 30 VDC.
Power Requirements: Self-powered or 24 VDC (depending on model).
Accuracy: $\pm 2\%$ from 10 to 100% of selected range.
Temperature Limits: 5 to 140°F (-15 to 60°C).
Humidity Limits: 0 to 95% non-condensing.
Response Time: 2 seconds.
Isolation Voltage: 600 VAC RMS.
Frequency: 50/60 Hz.
Enclosure Rating: UL, V-O flammability rated, type 66 nylon.
Agency Approvals: CE, RoHS, UL.

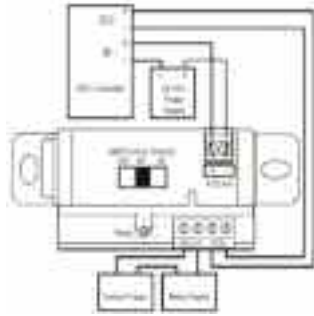


Figure 1: Wiring Diagram for Current Output Models.

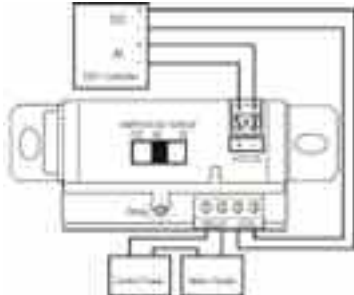


Figure 2: Wiring Diagram for 0 to 5 and 0 to 10 VDC Models.

SCALING OUTPUT RANGE

Set the amperage range at a level appropriate for the load. Use the slide switch on the top of the SCT as shown in Figure 3.

Model	Range	Output	Power Requirements	Max. Continuous Operating Current
SCT10-100	30/60/120 A	4 to 20 mA	24 VDC	120 A
SCT10-102	30/60/120 A	0 to 5 VDC	Self-powered	120 A
SCT20-103	20/100/150 A	0 to 10 VDC	Self-powered	150 A

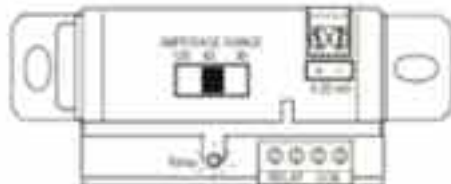


Figure 3: Selection of Output Scaling.

INCREASING/DECREASING MEASURED CURRENT

If the measured current is too low to be detected or is higher than the maximum current rating of the SCT, use the following methods to increase or decrease current.

If measured current is too low to be detected:

Wrap the conductor (wire) through the sensing hole and around the SCT body to produce multiple turns to increase the measured current. Use the below equation to determine how many wraps are necessary:

$$N \times I_a = I_m$$

N : number of turns
 I_a : actual current
 I_m : measured current

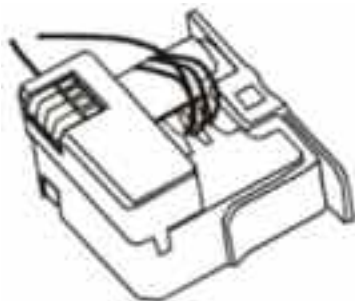


Figure 4: Wind the conductor through the core to increase current sensed.

NOTICE

Failure to de-rate the current capacity could result in damage to the Series SCT when using multiple turns to increase the measured current.

Use the following formula to determine the new maximum current:

$$\frac{I_{cr}}{N} = I_{nm}$$

N : number of turns
 I_{cr} : SCT current rating
 I_{nm} : new maximum current

For example, Model SCT10-100 with 4 turns: $\frac{120A}{4} = 30.0 A$, new maximum current.

If measured current is above ratings of the switch:

Use a 5 A Current Transformer (CT) to reduce the current passing through the SCT. Run the current transformer secondary wire through the sensing hole. Terminate the 2 secondary wires of the 5 A current transformer to each other, and then install the 5 A current transformer on the monitored conductor.

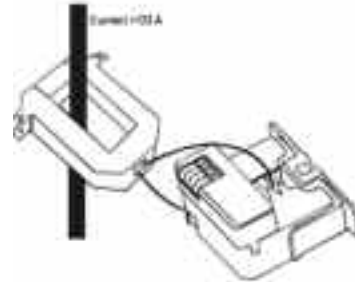


Figure 5: Use a 5 A current transformer's secondary loop to reduce amount of current sensed.

TROUBLESHOOTING

Symptom	Action
Series SCT solid state output does not function	Verify that the maximum amperage range has not been exceeded. Voltages or currents above the rated levels may damage the Series SCT.
No SCT output at controller	SCT10-100: 1. Verify that the loop power between the SCT terminals and control panel analog input is 18 to 30 VDC. 2. Turn off the monitored load. Disconnect inputs to the controller. Measure current in the power supply and SCT output loop with multimeter. Current should be 4 mA with no load. 3. Check current loop polarity
	SCT10-102 and SCT20-103: 1. Check the amperage in the monitored conductor. 2. Check the polarity of the sensor output and the controller output. 3. Make sure the clamp is fully closed. 4. Measure the voltage across the SCT output terminals.

MAINTENANCE/REPAIR

Upon final installation of the Series SCT, no routine maintenance is required. The Series SCT is not field serviceable and should be returned if repair is needed. Field repair should not be attempted and may void warranty.

WARRANTY/RETURN

Refer to "Terms and Conditions of Sales" in our catalog and on our website. Contact customer service to receive a Return Goods Authorization number before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.