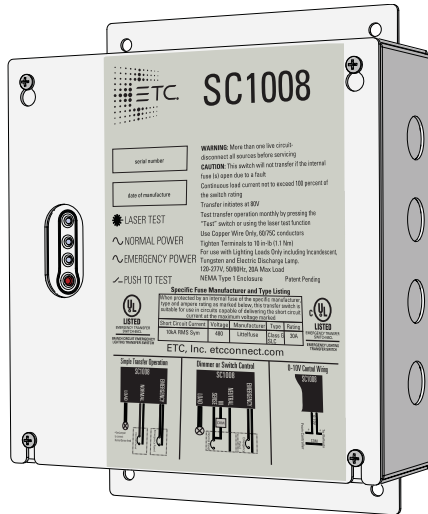


# ETC Installation Guide

## SC1008™ Branch Circuit Emergency Lighting Transfer Switch

### Overview

The SC1008 Branch Circuit Emergency Lighting Transfer Switch (BCELTs) transfers a single lighting circuit from its normal power source to an emergency power source in the event of the loss of normal power or an external trigger (e.g., fire alarm).



The SC1008 BCELTs also includes the following features and functions:

- a front panel accessible push-and-hold Test Switch
- a front panel accessible Laser Test, enabling remote testing with the use of a laser pointer (or similar)
- front panel status indicators for Normal Power (green) and Emergency Power (red)
- a fire alarm dry contact input, which can be set for normally open or normally closed operation
- an auxiliary relay for 0–10V or Digital Addressable Lighting Interface (DALI) control signals

### Compliance

The SC1008 meets or exceeds the following regulatory standards:

- UL Listed to UL 1008 for Branch Circuit Emergency Transfer Switch Equipment
- cUL Listed to CSA C22.2 Emergency Transfer Switch Equipment
- UL Listed to UL 2043 for plenum rated products
- Complies with ANSI/NFPA 110, Standard for Emergency and Standby Power Systems
- Satisfies requirements of the National Electrical Code (NFPA 70):
  - Article 700 – Emergency Systems
  - Article 701 – Legally Required Standby Systems
  - Article 702 – Optional Standby Systems
  - Section 518.3(C) – Assembly Occupancies
  - Section 520.7 – Theatres and Similar Locations
  - Section 540.11(C) – Motion Picture Projection Rooms



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Product information and specifications subject to change. ETC intends this document to be provided in its entirety.

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# ETC Installation Guide

## SC1008

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### Installation Requirements

Install the SC1008 in a location that is accessible by qualified personnel for testing of the transfer function using either a laser pointer (or similar) or the onboard test switch.

The SC1008 installs to a flat surface, has four conduit entry locations, and includes a universal mounting plate with four mounting holes. Mounting and conduit hardware are provided by others.



**Note:** *Suitable for use in other spaces used for environmental air (plenums) in accordance with Article 300 of the National Electrical Code (NFPA 70).*

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### Ambient Environment

NEMA Type 1 Enclosure suitable for installation location that conforms to the following ambient environment:

- 0°–60°C, 5%–95% non-condensing humidity

### Electrical Specification



**Note:** *Continuous load current not to exceed 100% of the switch rating.*

*Use copper wire only, minimum 75°C conductors.*

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### **Normal and Emergency Rated Operational Voltage Input**

- 120 – 277V AC, 50/60 Hz, + or –10%

### **Load Rating**

- Supports a continuous load of up to 20A for tungsten, resistive, and standard ballast load types, and supports standard and electronic ballast loads of up to 16A (80% of the switch rating)
- Continuous load current not to exceed 100 percent of the switch rating

### **Transfer Initiation**

- When normal power is lost, meaning the voltage drops below 85 VRMS, the unit transfers the output load to its emergency power source.
- When normal power is restored, meaning the voltage rises above 90 VRMS, the unit transfers the output load to its normal power source.

### **Short Circuit Current Rating**

- Short circuit capacity of 10,000 A

# ETC Installation Guide

## SC1008

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### *Fire Alarm Input*

The Fire Alarm Input allows power transfer to an emergency power source (if emergency power is present) when triggered by an external system.



**Note:** *This transfer is activated even when normal power is still present.*

The contact input can be configured for normally open or normally closed operation using switch settings on the control board. Normally open and normally closed refer to the normal operational state of the external circuit, not to the de-energized state of the external relay.

- When the contact input is triggered, the unit will transfer to its emergency power source.
- When the contact input trigger is removed, the unit will transfer back to its normal power source, if present, or will remain on emergency power until normal power is restored.



**Note:** *The fire alarm input functions with up to 1,000 feet (300m) of 18 AWG wire connected between the input and the switch. Multiple Fire Alarm Inputs can be wired together using a single normally open or normally closed contact.*

### *0–10V Auxiliary Output*

The 0–10V Auxiliary Output provides an additional single pole relay that opens when the unit is in the emergency state. This allows connection of 0–10V or DALI ballasts that need the removal of the control signal in order to illuminate at full in an emergency state.

## Installation

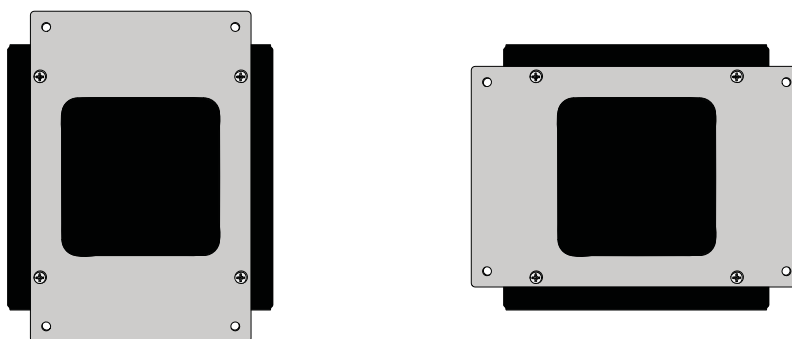
### Mounting and Conduit

- 1: Using the provided mounting plate, secure the SC1008 enclosure to a flat surface using four mounting bolts or screws (provided by others).



**Note:** *The mounting plate on the SC1008 enclosure can be rotated 90°, to change the orientation as needed for the installation. Simply remove the screws securing the mounting plate to the SC1008 enclosure, rotate the plate 90°, reinstall the plate screws, and secure the SC1008 unit to the installation location.*

**SC1008 rear view showing different mounting plate orientations**

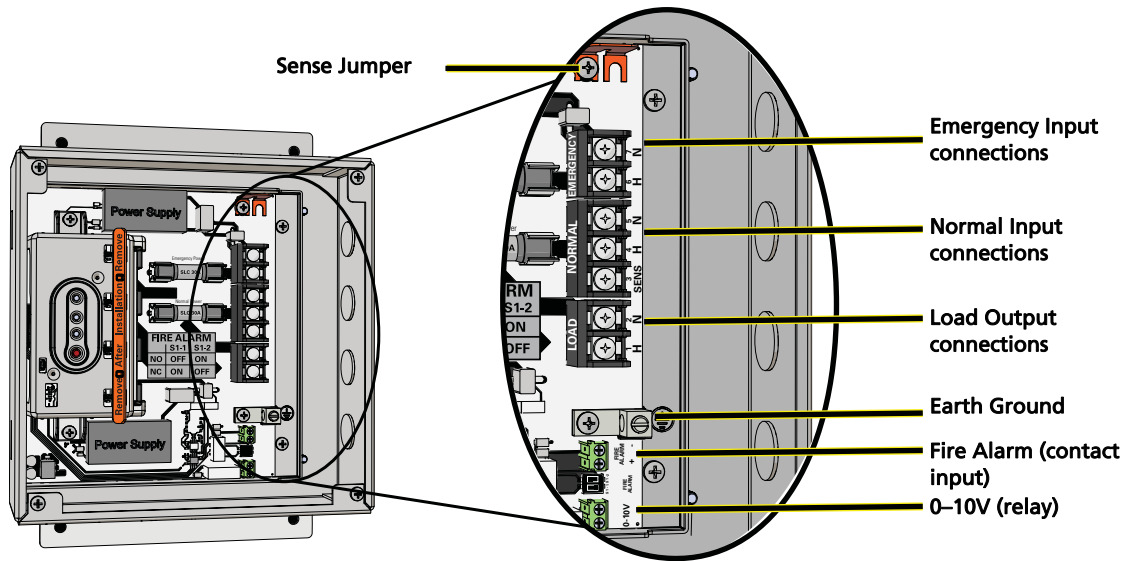


- 2: Temporarily remove the front cover to the unit.

# ETC Installation Guide

## SC1008

- 3: Four knockouts are provided on the right side of the enclosure. Install conduit fittings (provided by others) to the knockout locations.



## Wire Terminations

The SC1008 can accommodate installations that require a *Simple Transfer* of normal and emergency power or more complex installations that utilize a *Dimmed or Switched Load*. See the related instruction for your installation type. Additionally, the unit can accommodate installations that utilize *0-10V Auxiliary Output* control and *Fire Alarm Input* for use with either normally open or normally closed operation.



**WARNING:** Before you begin pulling and terminating wire to the SC1008 BCELTS enclosure, make sure the main circuit breaker cabinet or other readily accessible input power disconnect device for both normal and emergency power input is locked out and tagged out. Enclosures installed without an accessible input power disconnect device cannot be serviced or operated safely. Follow all local codes and restrictions. When the disconnect device is not located near the installed enclosure, the disconnect must allow for proper lockout / tagout.

## Wire and Terminal Specifications

Terminal	Wire Range	Strip Length	Torque Rating
Line / Load / Terminals 1-7	10 – 18 AWG (copper wire solid/stranded)	3/8" (10mm)	10 in-lbs
Control (signal) / Terminals 8-1	10-20 AWG (copper wire stranded only)	1/4" (6mm)	4 in-lbs
Earth Ground	6-14 AWG (copper wire solid/stranded)	3/8" (10mm)	35 in-lbs

# ETC Installation Guide

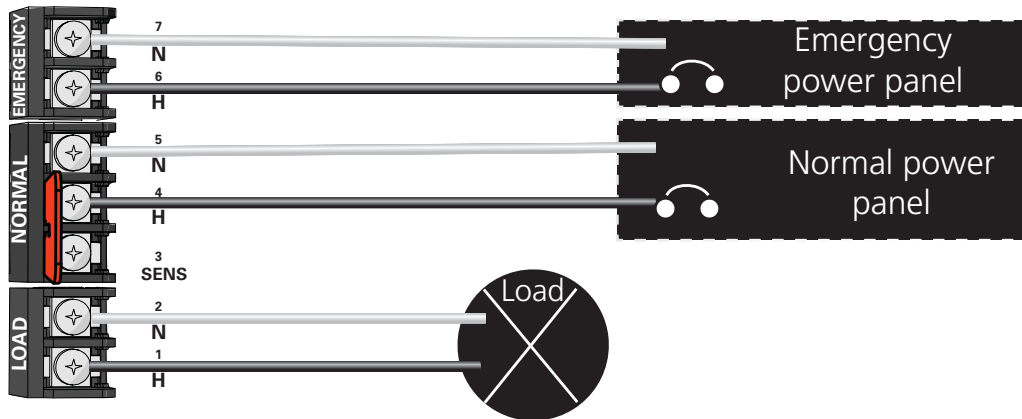
## SC1008

### Earth Ground

See [Wire and Terminal Specifications](#) on [page 4](#) for specification of wire, strip length, and terminal torque ratings, then prepare and terminate your earth ground wire to the lug provided in the enclosure.

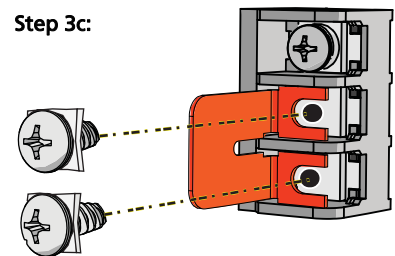
### Simple Transfer

A simple transfer installation would be used for a load that is intended to be always on. In the event of loss of normal power, the load is transferred to the emergency power source but remains on. There is no control over the load.



- 1: See [Wire and Terminal Specifications](#) on [page 4](#) for specification of wire, strip length, and terminal torque ratings.
- 2: Terminate load wires.
  - a: Run a neutral and a hot load wire through conduit for the load to be transferred from the SC1008 to the load position.
  - b: Terminate to the respective terminals LOAD 2N (neutral) and LOAD 1H (hot) in the SC1008 enclosure, securing each terminal screw onto the wire.
- 3: Install the provided sense jumper between terminals SENS 3 and NORMAL 4H.
  - a: Locate and remove the sense jumper from the top-right corner of the SC1008 electronic assembly, directly above the Emergency Input terminals. Simply loosen the screw to remove the jumper, then secure the screw again.
  - b: Completely remove the SENS 3 and NORMAL 4H screws from their terminals. Keep them in a safe place for reinstallation.
  - c: Install the sense jumper between the SENS 3 terminal and the NORMAL 4H terminal as shown.
  - d: Replace the terminal screws that you previously removed.
- 4: Terminate normal power wires.
  - a: Run a neutral and a hot wire through conduit from the normal power source to the SC1008.
  - b: Terminate the neutral wire to the NORMAL 5N terminal and secure the terminal screw onto the wire.
  - c: Terminate the hot wire to the NORMAL 4H terminal, securing the wire beneath the plate and on top of the sense jumper, and secure the terminal screw onto the wire.

Step 3c:



# ETC Installation Guide

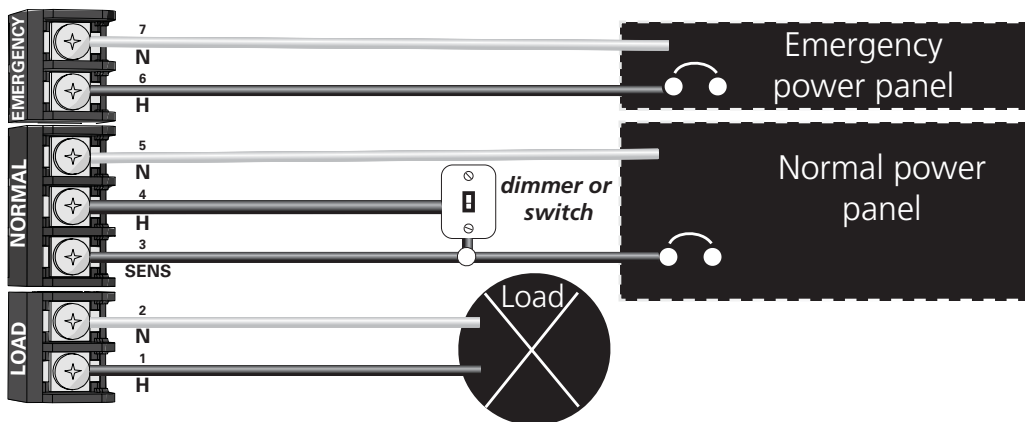
## SC1008

- 5: Terminate emergency power wires.
  - a: Run a neutral and a hot wire through conduit from the emergency power source to the SC1008.
  - b: Terminate to the respective terminals EMERGENCY 7N (neutral) and EMERGENCY 6H (hot) in the SC1008 enclosure, securing each terminal screw onto the wire.

### Dimmed or Switched Load

The SC1008 has the ability to separate the sensing of normal power from the load itself; for example, this allows you to have a light switch or dimmer controlling the load when normal power is available, but to have the load transfer to emergency power in the event of normal power loss.

The SC1008 can be used with a switch, dimmer, or an installation dimmer that provides both a dimmed and a hot feed, such as ETC's D20FB module.



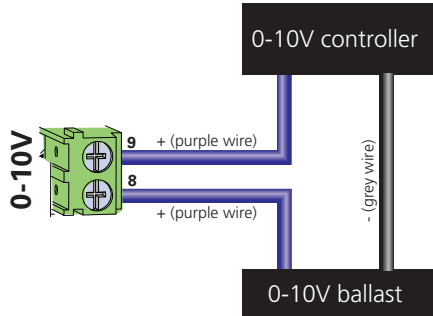
- 1: See [Wire and Terminal Specifications](#) on [page 4](#) for specification of wire, strip length, and terminal torque ratings.
- 2: Terminate load wires.
  - a: Run a neutral and a hot load wire through conduit for the load to be transferred from the SC1008 to the load position.
  - b: Terminate to the respective terminals LOAD 2N (neutral) and LOAD 1H (hot) in the SC1008 enclosure, securing each terminal screw onto the wire.
- 3: Terminate normal power wires.
  - a: Run a neutral and a hot wire through conduit from the normal power source (controlled dimmer or switch) to the SC1008.
  - b: Terminate to the respective terminals NORMAL 5N (neutral) and NORMAL 4H (hot) in the SC1008 enclosure, securing each terminal screw onto the wire.
- 4: Terminate normal sense wire.
  - c: Run a sense wire from a non-controlled output of the normal power source to the SENS 3 terminal and secure the terminal screw onto the wire.
- 5: Terminate emergency power wires.
  - a: Run a neutral and a hot wire through conduit from the emergency power source to the SC1008.
  - b: Terminate to the respective terminals EMERGENCY 7N (neutral) and EMERGENCY 6H (hot) in the SC1008 enclosure, securing each terminal screw onto the wire.

# ETC Installation Guide

## SC1008

### 0–10V Auxiliary Output

The SC1008 features a single pole auxiliary relay that provides switching for installations utilizing 0–10V or Digital Addressable Lighting Interface (DALI) controls. In the event of an emergency, the relay opens the control circuit, sending any connected loads to their full intensity output.



**Note:** All low-voltage Class 2 wiring must be separated from all Class 1 wiring. Follow local codes and installation restrictions.

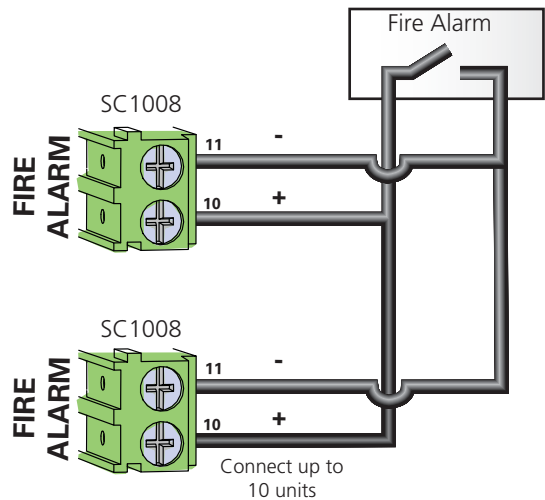
*ETC recommends limiting the distance run for the 0–10V control wiring from the controller to the last ballast (driver) to 300ft, based on 18 AWG wire.*

- 1: Run a +10V wire, typically purple, between the 0–10V controller and the 0–10V terminal 9 in the SC1008 and secure the terminal onto the wire.
- 2: Run a +10V wire, typically purple, between 0–10V ballast and the 0–10V terminal 8 in the SC1008 and secure the terminal onto the wire.
- 3: Run a common wire, typically grey, between the 0–10V controller and the 0–10V ballast.

### Fire Alarm Input

The SC1008 features a single dry-contact input that can be used to force the transfer from normal to emergency state, even if both normal and emergency power are present. The contact may be configured for either normally closed (NC) or normally open (NO) operation by setting switch 1 and 2 on the SC1008 control board.

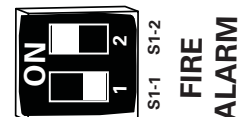
- 1: Run a positive control wire between the fire alarm device and the FIRE ALARM 10 + terminal in the SC1008 and secure the terminal onto the wire.
- 2: Run a negative (common) control wire between the fire alarm device and the FIRE ALARM terminal 11 and secure the terminal onto the wire.



**Note:** The system supports connection of up to ten SC1008 units connected in parallel to the fire alarm device.

- 3: Set the fire alarm contact input configuration switches for either normally open or normally closed operation.

FIRE ALARM		S1-1	S1-2
NO	OFF	ON	
NC	ON	OFF	



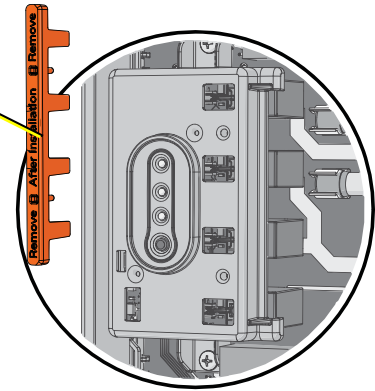
# ETC Installation Guide

## SC1008

### Final Installation and Power Up

- 1: Check that each termination point is secure.
- 2: Check that the fire alarm contact input switches are set for correct switch operation, either normally open or normally closed.
- 3: Clear all debris from the inside of the enclosure.
- 4: Remove and discard the orange plastic strip that is securing the relays in place.
- 5: Attach and secure the front cover to the enclosure.
- 6: Apply both normal and emergency power to the unit.
- 7: Test the operation of the SC1008 as described in [Operation and Test](#) below.

Step 4:



### Operation and Test

It is important to test the SC1008 regularly because it is a life safety device. NFPA 101 Life Safety code requires testing of life safety devices every 30 days.

Test the SC1008 unit using either the test button or laser test as described in the following sections.

#### LED States

Red LED	Green LED	State	Notes
On	On	Normal and emergency power are both present. The SC1008 is supplying Normal power to the load.	
Blinking	Off	The SC1008 is supplying emergency power to the load.	This may be due to the loss of normal power, the making of the fire alarm contact, or the activation of the test mode.
Off	On	Normal power is present; emergency power is not.	The SC1008 is supplying normal power to the load and will not transfer.
Off	Off	Neither normal nor emergency power are being supplied to the unit.	If the LEDs are not lit as expected when power is present, it is possible that one or both of the internal fuses have blown. See <a href="#">Fuse Replacement</a> on <a href="#">page 9</a> to check and replace the fuses.
Blinking	Blinking	Relays are detected in an invalid state	If both LEDs are blinking, the SC1008 relays need to be manually reset to a known state. See <a href="#">Troubleshooting</a> on <a href="#">page 10</a> for detailed instructions.



# ETC Installation Guide

## SC1008

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### Test Button

Press and hold the “PUSH TO TEST” button to place the SC1008 into emergency mode and transfer the load from normal power to emergency power. The SC1008 remains in emergency mode until you release the “PUSH TO TEST” button. If emergency power is not present for the test, the SC1008 will remain in normal mode.

### Laser Test

Directing a laser pointing device at the “LASER TEST” sensor located on the front of the SC1008 enclosure places the SC1008 into emergency mode and transfers the load from normal power to emergency power. The SC1008 remains in emergency mode for 10 seconds and then returns to normal mode. If emergency power is not present for the test, the SC1008 will remain in normal mode.



**Note:** *If the laser test functionality is not desired, or the unit is to be installed in a high ambient light environment such as outside in direct sunlight, a light blocking sticker is included in the product packaging. Remove the adhesive backing and apply the sticker over the laser test sensor to disable its use.*

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### Fuse Replacement



**WARNING: RISK OF ELECTRIC SHOCK! More than one live circuit is present inside the enclosure. Make certain the main circuit breaker cabinet or other readily accessible input power disconnect device for both Normal and Emergency power input is locked out and tagged out before removing the cover from this enclosure.**

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In-line fuses are present for the normal power input and the emergency power input. Replace fuses only with Class G SLC 30A fuses (order ETC part number F392).


- 1: Disconnect both power supply sources and lock/tag out appropriately.
- 2: Loosen the four screws and remove the cover.
- 3: Use a voltmeter to test if the fuses are functional, and replace the ones that have failed.
- 4: Replace the cover to the enclosure.
- 5: Reapply power from both sources and test the unit. See [Operation and Test](#) on [page 8](#) for instructions on testing the unit.

# ETC Installation Guide

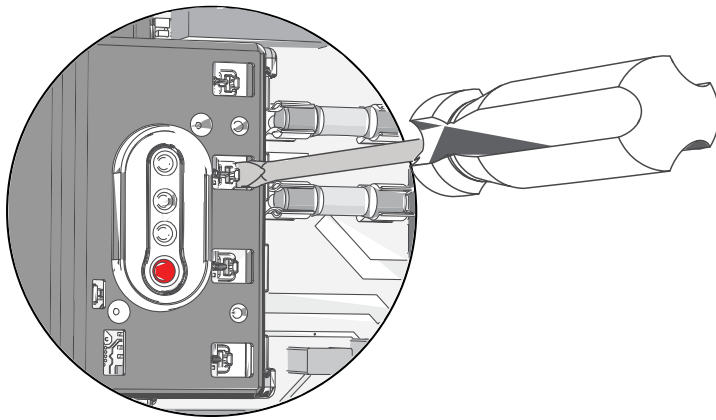
## SC1008

### Troubleshooting

When both of the SC1008 LEDs are blinking, the relays need to be manually reset to a known state.

 **WARNING: RISK OF ELECTRIC SHOCK! More than one live circuit is present inside the enclosure. Make certain the main circuit breaker cabinet or other readily accessible input power disconnect device for both normal and emergency power input is locked out and tagged out before removing the cover from this enclosure.**

- 1: Disconnect both power supply sources and lock/tag out appropriately.
- 2: Loosen the four screws and remove the cover.



- 3: Locate the four relay switches near the status LEDs.
- 4: Using a flat blade screwdriver, carefully slide the relay switch to the left.
- 5: Repeat for all four relays in the SC1008 enclosure.
- 6: Replace the cover to the enclosure.
- 7: Reapply power from both sources and retest the unit. See [Operation and Test](#) on [page 8](#) for instructions on testing the unit.