



# NetSure™

SCC Controller

User Manual (UM1M520HNA), Revision H

Specification Number: 1M520HNA

Model Number: M520H

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# TABLE OF CONTENTS

<b>Admonishments Used in this Document.....</b>	<b>5</b>
<b>Important Safety Instructions .....</b>	<b>6</b>
General Safety .....	6
Handling Equipment Containing Static Sensitive Components.....	6
<b>Static Warning.....</b>	<b>7</b>
<b>Introduction .....</b>	<b>9</b>
Overview.....	9
Function Descriptions.....	9
SNMP Communication to an RMS, including Rectifier and BBU Module Configuration via SNMP/V2.....	9
Rectifier Module and BBU Module Control.....	9
Imminent Power Failure Notification.....	9
EPO (Emergency Power Off).....	9
Current Limit Management of Rectifiers .....	10
Rectifier Intelligent Power Matching (Energy Optimization Mode).....	10
Rectifier and BBU Module Data Monitoring.....	10
Alarm Detection and Reporting.....	10
Alarm Logs.....	10
Specifications .....	11
<b>Operation.....</b>	<b>12</b>
SNMP Access.....	12
SCC Controller Interaction with the RMS.....	12
Local Indicators.....	19
Emergency Shutdown with Emergency Power Off (EPO).....	20
BBU Learning Mode Calibration.....	20
Using the WEB Interface.....	20
Overview.....	20
WEB Interface Setup Procedures.....	21
WEB Interface Menus.....	24
Discharging BBU (Battery Backup Unit) Modules to <30% SOC (State of Charge).....	25
<b>WEB Interface Menus .....</b>	<b>27</b>
Overview.....	27
Homepage.....	27
Setting Static IP, SNMP Community Strings, and DHCP Communications Parameters.....	27
Downloading and Uploading the SCC Controller Configuration File.....	28
Downloading Firmware into the SCC Controller.....	28
Active Alarms Log Webpage.....	29
Alarm History Log Webpage.....	30
<b>Installing the SCC Controller.....</b>	<b>31</b>

<b>Replacement Procedures .....</b>	<b>32</b>
SCC Controller Replacement.....	32
<b>Troubleshooting .....</b>	<b>34</b>

## ADMONISHMENTS USED IN THIS DOCUMENT



**DANGER!** Warns of a hazard the reader *will* be exposed to that will *likely* result in death or serious injury if not avoided. (ANSI, OSHA)



**WARNING!** Warns of a potential hazard the reader *may* be exposed to that *could* result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



**CAUTION!** Warns of a potential hazard the reader *may* be exposed to that *could* result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



**ALERT!** Alerts the reader to an action that *must be avoided* in order to protect equipment, software, data, or service. (ISO)



**ALERT!** Alerts the reader to an action that *must be performed* in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



**FIRE SAFETY!** Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



**SAFETY!** Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

# IMPORTANT SAFETY INSTRUCTIONS

## General Safety



**DANGER!** YOU MUST FOLLOW APPROVED SAFETY PROCEDURES.

Performing the following procedures may expose you to hazards. These procedures should be performed by qualified technicians familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

- a) The tasks should be performed in the order indicated.
- b) Remove watches, rings, and other metal objects.
- c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present. Check for voltage with both AC and DC voltmeters prior to making contact.
- d) Wear eye protection.
- e) Use certified and well maintained insulated tools. Use double insulated tools appropriately rated for the work to be performed.

## Handling Equipment Containing Static Sensitive Components



**ALERT!** Installation or removal of equipment containing static sensitive components requires careful handling. Before handling any equipment containing static sensitive components, read and follow the instructions contained on the Static Warning Page.

## STATIC WARNING



This equipment contains static sensitive components. The warnings listed below must be observed to prevent damage to these components. Disregarding any of these warnings may result in personal injury or damage to the equipment.

1. Strictly adhere to the procedures provided in this document.
2. Before touching any equipment containing static sensitive components, discharge all static electricity from yourself by wearing a wrist strap grounded through a one megohm resistor. Some wrist straps have a built-in one megohm resistor; no external resistor is necessary. Read and follow wrist strap manufacturer's instructions outlining use of a specific wrist strap.
3. Do not touch traces or components on equipment containing static sensitive components. Handle equipment containing static sensitive components only by the edges that do not have connector pads.
4. After removing equipment containing static sensitive components, place the equipment only on static dissipative surfaces such as conductive foam or ESD bag. Do not use ordinary Styrofoam™ or ordinary plastic.
5. Store and ship equipment containing static sensitive components only in static shielding containers.
6. If necessary to repair equipment containing static sensitive components, wear an appropriately grounded wrist strap, work on a conductive surface, use a grounded soldering iron, and use grounded test equipment.

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# INTRODUCTION

## Overview

The SCC (System Control Card) controller is accessed via SNMP/V2.

The SCC Controller performs the following functions.

- SNMP/V2 communication to an RMS (Rack Management System). This communication interface can be used to monitor, configure, and control rectifiers and BBU's (Battery Backup Unit).
- Rectifier Module and BBU Module Control
- Imminent Power Failure Notification
- EPO (Emergency Power Off)
- Current Limit Management of Rectifiers
- Rectifier Intelligent Power Matching (Energy Optimization Mode)
- Rectifier and BBU Module Data Monitoring
- Alarm Detection and Reporting

## Function Descriptions

### SNMP Communication to an RMS, including Rectifier and BBU Module Configuration via SNMP/V2

See "SCC Controller Interaction with the RMS" on page 12.

### Rectifier Module and BBU Module Control

Rectifier and BBU modules are automatically controlled by the SCC Controller.

### Imminent Power Failure Notification

The imminent power fail signal triggers >1 ms before the DC bus collapses. It triggers when the combination of rectifiers and batteries on the bus can no longer support the load.

- Rectifiers cannot provide enough power for the load.
- Batteries cannot make up the difference.

This signal identifies the loss of the output DC bus prior to the loss of regulation in these situations:

- The AC main stops providing power and battery backup is not available.
- The AC main stops providing power; the batteries provided backup power but the batteries are nearly discharged.
- All rectifiers are needed to support the DC bus and one rectifier fails, and battery backup is not available.

### EPO (Emergency Power Off)

Systems utilizing the Emergency Power Off (EPO) feature will have provisions to connect a customer provided EPO switch. The EPO switch is normally open, when closed a signal is sent to shut down the rectifier and BBU modules. Switch closure causes the SCC Controller to send an SNMP trap, wait two (2) seconds, and then send a message to shut down the rectifiers and BBU's.

### **Current Limit Management of Rectifiers**

The amount of total AC power that the rectifiers are using can be limited by the RMS. The rectifier total DC current limit parameter specifies the total DC current limit for all of the rectifiers combined. If the load needs more than the rectifiers can provide with this limit, the BBU modules will make up the difference.

### **Rectifier Intelligent Power Matching (Energy Optimization Mode)**

The SCC Controller provides an Energy Optimization Mode function. Energy Optimization permits an installation to only operate rectifiers as needed to maintain the load. As load increases, Energy Optimization turns on additional rectifiers as needed to maintain the load. As load decreases, Energy Optimization places rectifiers in standby to conserve energy usage. Rectifiers which are always operating to maintain any load requirements are cycled through the group of rectifiers controlled by this feature to provide uniform operating times for each rectifier.

### **Rectifier and BBU Module Data Monitoring**

The SCC Controller monitors the components comprising the system (such as the rectifier modules) and generates alarms if a fault condition occurs.

These are accessed via the SNMP/V2 interface. See “SCC Controller Interaction with the RMS” on page 12.

### **Alarm Detection and Reporting**

The SCC Controller reports alarm conditions via SNMP traps over Ethernet. The SCC Controller acquires and analyses real time data from the system’s components such as the rectifier modules. The SCC Controller uses this data to process alarms. The SCC Controller also maintains an alarm history log.

These are accessed via the SNMP/V2 interface. See “SCC Controller Interaction with the RMS” on page 12.

### **Alarm Logs**

The alarm logs can be viewed using the Web Interface or via SNMP and consist of...

- Alarm History Log: Log of most recent alarms.
- Active Alarm Log: Log of active alarms.



**NOTE!** Once maximum number of log entries is reached, new entries overwrite oldest entries.

## Specifications

**Input Voltage Range:** 10 VDC to 16 VDC.

**Power Consumption:** 5 W.

**Operating Temperature Range:** -10 °C (+14 °F) to +65 °C (+149 °F).

**Storage Temperature Range:** -40°C (-40°F) to +85°C (+185°F).

**Humidity:** Capable of operating in an ambient relative humidity range of 5 % to 95 %, non-condensing.

**Altitude:** The SCC Controller is capable of operating in an altitude range of -200 feet to 10,000 feet. The maximum operating ambient temperature should be de-rated by 3 °C per 1000 feet above 6000 feet.


**Dimensions (H x W x D):** 124 x 27 x 212 mm (4.9 x 1.1 x 8.3 inches)

**Weight:** 0.68kg (1.5 lbs).

### Indicators:

- Status (Green)
- Warning (Yellow)
- Alarm (Red)


# OPERATION

 **NOTE!** Refer to the Configuration Drawing (C-drawing) furnished with your system for a list of factory default settings.

## SNMP Access

Users can access the SCC Controller via SNMP through the Ethernet Port. It is beyond the scope of this manual to describe SNMP interface operation. Refer to the SNMP MIB file for a further understanding of the SNMP interface.

Operation of the SCC Controller requires a master upstream supervisory and control unit, such as the Avocent UMG, connected to the system's Ethernet port and utilizing an SNMP interface.

 **NOTE!** The rectifier and BBU modules will continue to operate if the SCC Controller fails. The rectifier and BBU modules will work if the system is powered up without an SCC Controller; however, an SCC Controller is required to get any monitoring/status information from the system. The application should be designed with an SCC Controller.

## SCC Controller Interaction with the RMS

Refer to the following tables.

### Basic Data SCC Controller to/from the RMS

**Table 1:**

General Product Information	
Get/Set	Field
Get	sysDescr – System Descriptor
Get	sysObjectID – Object Identifier
Get/Set	User-defined Identifier/Name
Get	SCC Serial Number
Get	System Inventory (list of model number for each rectifier and BBU)
Get	sysUpTime
Get	sysContact
Get	sysName
Get	sysLocation
Get	sysServices

**Table 2:**

System Power Rated Capacity	
Get/Set	Field
Get	Total System Rectifier Power (W)
Get	Total System Battery Power (W)

**Table 3:**

System Status	
Get/Set	Field
Get	System Status (Normal, Alarm Active)
Get	Battery State-of-Charge (% of Total Available). This is 0 if there are no BBUs.
Get	AC Status (on/off)
Get	Incoming AC Voltage (V) (average of non-zero values reported by all rectifier units)
Get	System DC Output Voltage (mV) (average of non-zero values reported by all rectifier and BBU units)
Get	System DC Output Current (A) (average of non-zero values reported by all rectifier and BBU units)
Get	DC Output Power (W)
Get	Estimated Battery Hold-Up Time (Seconds) for All Batteries in the System
Get	Estimate Time to Fully Charge Batteries (Minutes) (maximum of the times reported by the BBUs)

**Table 4:**

System Control	
Get/Set	Field
Get/Set	All Rectifiers Enabled
Get/Set	All Batteries Enabled
Set	Reset System
Set	ECO-Mode Enable/Disable Enable/Disable ECO mode. (Individual rectifiers and BBUs can only be enabled or disabled when ECO-mode is disabled).

**Table 5:**

System Configuration	
Get/Set	Field
Get/Set	Expected Number of Rectifiers, including Redundant Rectifiers
Get/Set	Number of Redundant Rectifiers
Get/Set	Expected Number of Batteries
Get/Set	Rectifier Output Voltage Set-Point (mV)
Get/Set	Rectifier Total Current Limit (A)
Get/Set	Destination IP Address for Traps
Get/Set	System Time
Get/Set	Configuration Complete
Get/Set	configSystemTimeEx (syntax DateAndTime)
Get/Set	configTrapTimeFormat

### **Advanced Data SCC Controller to/from the RMS**

**Table 6:**

Detailed Rectifier Data – for Each Rectifier	
Get/Set	Field
Get/Set	Rectifier State (on/off)
Get	Incoming AC Voltage (V)
Get	Output DC Voltage (mV)
Get	Output DC Current (A)
Get	Output Power (W)
Get	Temperature (Degrees C)
Get	AC Status (on/off)
Get	DC Status (on/off)
Get	Running Time (hours)
Get	Fan Ok (ok/failed)
Get	Rated Output (W)
Get	Product Model Number
Get	Serial Number
Get/Set	LED Blink
Get	Detailed Rectifier Status
Get/Set	Rectifier ID Number
Get/Set	Rectifier ID String
Get	Rectifier Incoming AC Current

**Table 7:**

Detailed BBU Data – for Each BBU	
Get/Set	Field
Get/Set	Battery State (on/off)
Get	Output DC Voltage (mV)
Get	Output DC Current (A)
Get	Output Power (W)
Get	Temperature (Degrees C)
Get	AC Status (on/off)
Get	DC Status (on/off)
Get	Running Time (hours)
Get	Fan Status (ok/failed)
Get	Rated Battery Output Power @ 90 Seconds (W)
Get	Product Model Number
Get	Serial Number
Get	Remaining Available Capacity
Get	Estimate Time to Fully Charge Batteries (Seconds)
Get	Battery End-of-Life Warning
Get/Set	LED Blink
Get	Detailed BBU Status
Get/Set	Learning Mode Status
Get/Set	Battery ID Number
Get/Set	Battery ID String
Get/Set	Discharge the Battery to < 30% absolute state of charge.
Get	Battery is < 30% absolute state of charge.

### **SNMP Traps From the SCC Controller to the RMS**

SNMP traps are unsolicited messages sent from the SCC Controller to the RMS.

These are the alarms the SCC Controller provides to the RMS.

There are two sets of traps; the set that is sent by the SCC is determined by “configTrapTimeFormat. The only difference between the two sets of traps is the format of the date/time field. One set uses a human-readable date/time format as a text string; the second set uses the DateAndTime format.

**Table 8:**

Alarms (Traps)
AC Mains Failure
AC Mains Failure Ended
Rectifier Failure
Rectifier Failure Ended
Battery Failure
Battery Failure Ended
EPO Signal Received
Battery End-of-Life Detected
Battery End-of-Life Ended
Not Enough Rectifiers
BBU Learning Mode Calibration Requested
BBU Learning Mode Successful
BBU Learning Mode Failed

The traps for rectifier and BBU module failure include the specific type of failure in the description. These traps also include the capacity for the system.



**Table 9:**

Alarm (Trap)	Description
AC Mains Failure	Sent when any rectifier reports AC Mains failure.
AC Mains Failure Ended	Sent when the condition clears.
Rectifier Failure	Sent when a rectifier reports any failure (when the red LED is on/flashing), when a rectifier is no longer present, or when the number of rectifiers is less than the number of expected rectifiers when the configuration complete flag is set.
Rectifier Failure Ended	Sent when the failure condition clears.
Battery Failure	Sent when a BBU reports any failure (when the red LED is on/flashing), when a BBU is no longer present, or when the number of BBUs is less than the number of expected BBUs when the configuration complete flag is set.
Battery Failure Ended	Sent when the failure condition clears.
EPO Signal Received	Sent when the EPO signal is received. See “EPO (Emergency Power Off)” on page 9.
Battery End-of-Life Detected	Sent when a BBU reports end-of-life.
Battery End-of-Life Ended	Sent when the BBU end-of-life condition ends.
Current Limit Override	(See “Current Limit Management of Rectifiers” on page 10)
Learning Request	Sent when a BBU in a module mounting assembly requests a learning mode calibration.
Learning Success	Sent when a BBU successfully completes the learning mode calibration.
Learning Fail	Sent when a BBU starts the calibration, but is not able to successfully complete it.
Not Enough Rectifiers	Sent when the number of rectifiers found in the shelf is less than Expected Number of Rectifiers (minus Number of Redundant Rectifiers). See <b>Table 5</b> for these values.

**Table 10:**

Active Alarms	Description
Index	The alarm index number.
Time	The date/time that the alarm triggered (as a string).
TimeEx	The date/time that the alarm triggered (as a DateAndTime field).
Description	The text description of the alarm.
Type	The unique number identifier for the alarm.
Serial Number	The serial number of the rectifier/battery with the alarm, if applicable.
Detailed Status	The detailed status field for the rectifier/battery with the alarm, if applicable.

**Table 11:**

Historical Alarms	Description
Index	The alarm index number.
StartTime	The date/time that the alarm triggered (as a string).
StartTimeEx	The date/time that the alarm triggered (as a DateAndTime field).
EndTime	The date/time that the alarm condition ended (as a string).
EndTimeEx	The date/time that the alarm condition ended (as a DateAndTime field).
Description	The text description of the alarm
Type	The unique number identifier for the alarm.
Serial Number	The serial number of the rectifier/battery with the alarm, if applicable.
Detailed status	The detailed status field for the rectifier/battery with the alarm, if applicable.

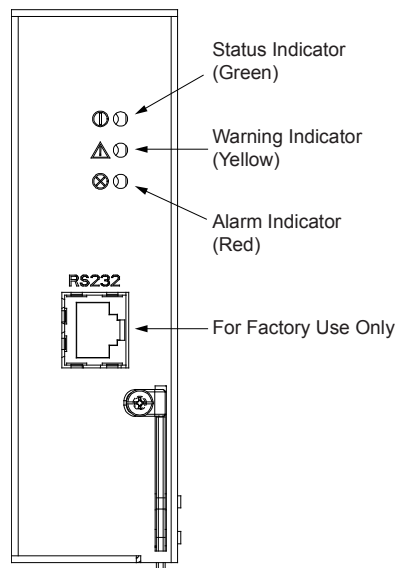
## Local Indicators

**Location and Identification:** Refer to **Figure 1**.

**Description:** There are three (3) indicators located on the SCC Controller's front panel. Refer to **Table 12** for the function of the indicators.

**NOTE!** DC voltage must be present at the input terminals for local indicators to illuminate.

**Figure 1:** SCC Controller Local Indicators Locations



**Table 12:** SCC Controller Local Indicators

Indicator	Normal State	Fault State	Fault Cause
Status Indicator (Green)	On	Off	No input voltage to the SCC Controller. Internal hardware problem.
Warning Indicator (Yellow) On	Off	On	Any condition in which a rectifier or BBU has a Yellow indicator On.
Alarm Indicator (Red) On	Off	On	Any condition in which a rectifier or BBU has a Red indicator On or Flashing. Communication with a rectifier or BBU is lost. A rectifier or BBU is missing.

## Emergency Shutdown with Emergency Power Off (EPO)

The SCC Controller has an Emergency Power Off (EPO) function operated by a remote switch provided by the customer. Switch closure causes the SCC Controller to send an SNMP trap, wait two (2) seconds, and then send a message to shut down the rectifiers and BBUs.

### **Procedure**

1. To activate Emergency Shutdown, close the external Emergency Power Off (EPO) switch.
2. To restart the system after an Emergency Shutdown, open the external Emergency Power Off (EPO) switch. Then turn the AC power to the rectifiers and BBUs off then back on.

## BBU Learning Mode Calibration

When the SCC gets a request for learning mode from a BBU, it will send an SNMP trap to the RMS, to indicate that a BBU has requested learning mode. The battBatteryState field will indicate that the BBU requested learning mode. The SCC will also change its status in the update traps to indicate that there is an alarm. The yellow LED on the SCC will turn on.

The RMS can use the SNMP set command to set batteryLearningModeStart .N to 1 (where N is the number of the BBU) to command the BBU to start learning mode calibration. It can also set batteryLearningModeStart .N to 0 to command the BBU to skip this learning mode request.

If the BBU starts calibration, the SCC will send an SNMP trap to indicate that the BBU is not available. During calibration, the BBU's battBatteryState will indicate that the BBU is in the Learning Mode calibration. During Learning Mode calibration, the RMS can abort the calibration by setting batteryLearningModeStart .N to 0. This will leave the calibration request outstanding, but the BBU will stop learning mode.

After calibration is completed, the SCC will send an SNMP trap to indicate that the BBU is now available. It will also send a trap to indicate whether or not the learning mode calibration was successful.

If the BBU skips calibration, the SCC will send an SNMP trap to indicate that the Learning Mode request is no longer active.

The yellow LED on the SCC will stay during the Learning Mode request and while the BBU is doing the calibration. When the BBU skips or completes learning mode, the yellow LED on the SCC will be turned off.

## Using the WEB Interface



**NOTE!** The SCC Controller supports a 10M Ethernet connection.

### **Overview**

Via the WEB Interface, a User can:

- Set IP communications parameters.
- Set SNMP community strings.
- Download and upload the SCC Controller configuration file.
- Download firmware into the SCC Controller.
- View current and historical alarms.

## WEB Interface Setup Procedures

Refer to the following procedures to set up the SCC Controller for Web Interface access.

### **Setting IP Communications Parameters**

The controller can be factory configured with DHCP enabled or disabled. If DHCP is enabled, you will need to get the IP address from the DHCP server which provided the IP address. If DHCP is disabled, then the controller's IP parameters (IP, subnet mask, and gateway addresses) must be set to match your company's network settings. The default settings for these parameters are shown below.

- IP Address: 192.168.1.2
- Subnet Mask Address: 255.255.255.0
- Gateway Address: 192.168.1.1

The IP communications parameters are displayed and can be changed after a successful Web Interface login. See "Logging into the Controller" on page 23.

### **Connecting the Controller to your Local Area Network (LAN)**


An Ethernet port is provided in the system. This port supports Dynamic Host Configuration Protocol (DHCP) function. Connect the Local Area Network (LAN) to the Ethernet port. Refer to your system documentation for location.

### **Connecting the Controller Directly to your Computer**

An Ethernet port is provided in the system. This port supports Dynamic Host Configuration Protocol (DHCP) function. Connect your computer to the Ethernet port after performing the following procedure. Refer to your system documentation for location.

Use the following procedure to configure the computer connected directly to the controller.

#### **Procedure**

 **NOTE!** Windows 7 operating system is used in this procedure, other operating systems are similar.

1. Record your computer's network settings by launching Control Panel in your computer. Navigate through Network and Sharing Center → Local Area Connection → Properties → Internet Protocol Version 4 (TCP/IPv4) → Properties.
2. Record whether the "Obtain an IP address automatically" or "Use the following IP address" button is selected. If "Use the following IP address" button is selected, also record the following:

IP Address: \_\_\_\_\_  
 Subnet Mask: \_\_\_\_\_  
 Default Gateway: \_\_\_\_\_

3. Record your controller's network settings. These are either the default settings or settings a User previously programmed into the controller. Default settings are listed on the Configuration Drawing (C-drawing) furnished with your system. See also "Setting IP Communications Parameters" on page 21. Record if DHCP is enabled or disabled. If DHCP is disabled, also record the following controller's IP parameters:

IP Address: \_\_\_\_\_  
 Subnet Mask: \_\_\_\_\_  
 Default Gateway: \_\_\_\_\_

Example:  
 IP Address: 192.168.1.2  
 Subnet Mask: 255.255.255.0  
 Default Gateway: 192.168.1.1

4. **If DHCP is enabled in the controller**, select the "Obtain an IP address automatically" in your local computer's network settings.

**If DHCP is disabled in the controller**, select the "Use the following IP address" button in your local computer's network settings. Then change your local computer's network settings using the information you acquired in Step 3, except that the last part of the IP address needs to be replaced with any different number.

IP Address: \_\_\_\_\_  
 Subnet Mask: \_\_\_\_\_  
 Default Gateway: \_\_\_\_\_

Example:  
 IP Address: 192.168.1.3  
 Subnet Mask: 255.255.255.0  
 Default Gateway: 192.168.1.1

5. Select **OK**. Note that you may have to reboot your local computer for the settings to take effect. Follow any instruction you see on the screen.

### **Disabling Proxy Server Settings to Enable a Connection to the Controller over an Intranet Network (if required)**

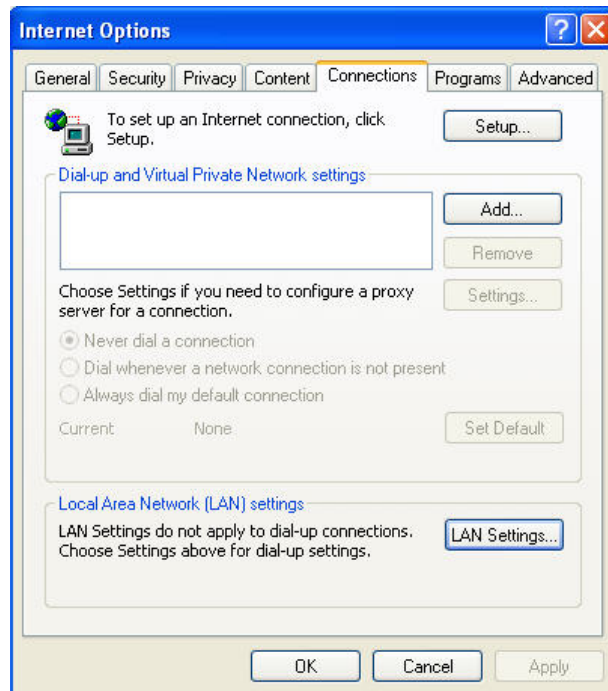


**NOTE!** This procedure needs to be performed only when the controller is connected to an Intranet and the User's computer is set to access the Intranet through a proxy server. Note that if the controller is connected to the Internet and the User's computer is connected to an Intranet, the User may not be able to disable the proxy server and access the controller.

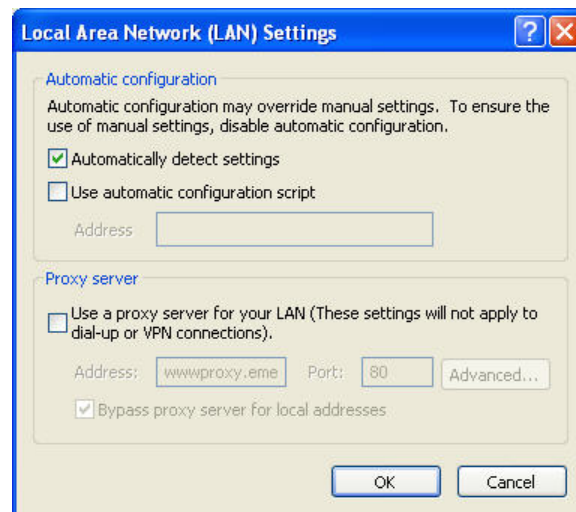
If the controller's Ethernet Port is connected to your company's Intranet Network and your computer is also connected to the Intranet Network but requires access via a proxy server, you must disable the proxy server settings to access the controller. Follow the procedure below to disable the proxy server settings.

#### **Procedure**

1. Launch "Internet Explorer".
2. Select **Internet Options** from the **Tools** menu. The "Internet Options" window opens. In the "Internet Options" window, select the **Connections** Tab.



3. Click on the **LAN Settings...** button. The following window opens. In the LAN Settings window, uncheck the Proxy Server box and click **OK**.




## Logging into the Controller

### Procedure

Internet Explorer, version 5.5 or newer, is required. It is best to view the WEB Interface at 1280 x 1024 resolution. In newer versions of Internet Explorer, you may need to turn Compatibility View On (Tools Menu / Compatibility View).


1. In your browser, enter http:// and the controller's IP address and press **ENTER**. The following Web Interface Login window opens. Enter a valid **User Name** and **Password**, then click **OK**. For security, the

password is not displayed on the computer’s screen while you log on. You have three attempts to enter a valid User name and password. If both are not entered correctly in three attempts, the browser is redirected to a blank page. You will then need to reenter the IP address and press ENTER to reopen the login window.

 **NOTE!** User names and passwords are case-sensitive. By default, the User Name and Password combination is “admin” and “654321”, respectively.



2. After entering a valid **User Name** and **Password** and clicking **OK**, the Web Interface Homepage opens. See “WEB Interface Menus” on page 27.

 **NOTE!** To prevent unauthorized personnel from accessing the power system with your Access Rights, it is recommended that you always close your browser when finished with a session.

## WEB Interface Menus

Refer to “WEB Interface Menus” on page 27.



## Discharging BBU (Battery Backup Unit) Modules to <30% SOC (State of Charge)

- BBU (Battery Backup Unit) Modules **shipped after September 2017** have firmware that allows the BBU to be discharged to <30% SOC (State of Charge) via the SCC Controller.

This feature is performed as required to meet regulations to ship the BBU Modules by air. Refer to the latest air transportation regulations for specific criteria that must be met.

Refer to the following procedure to discharge the BBU modules to <30% SOC (State of Charge).

### **Procedure**

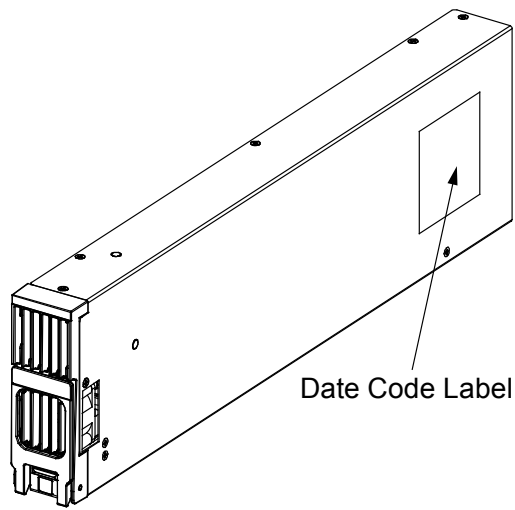
You can perform this procedure addressing one BBU or multiple BBUs.

1. Verify that this feature is available in your BBU by verifying the BBU date code label. Refer to **Figure 2** for the location of the date code label.  
The date code must be 17 10, or later for BBUs that have compatible firmware.  
The date code must be 15 09, or later for BBUs that can have their firmware upgraded.
2. Place BBU modules in a 12 V module mounting assembly.
3. Turn on power to the 12 V module mounting assembly.
4. Set “battDischargeTo30” to 1 using SNMP.
5. Apply a load to discharge the BBU modules.
6. Remove the load when “battBelow30” changes from 0 to 1. The time that it takes to discharge the BBU modules is dependent on the load.

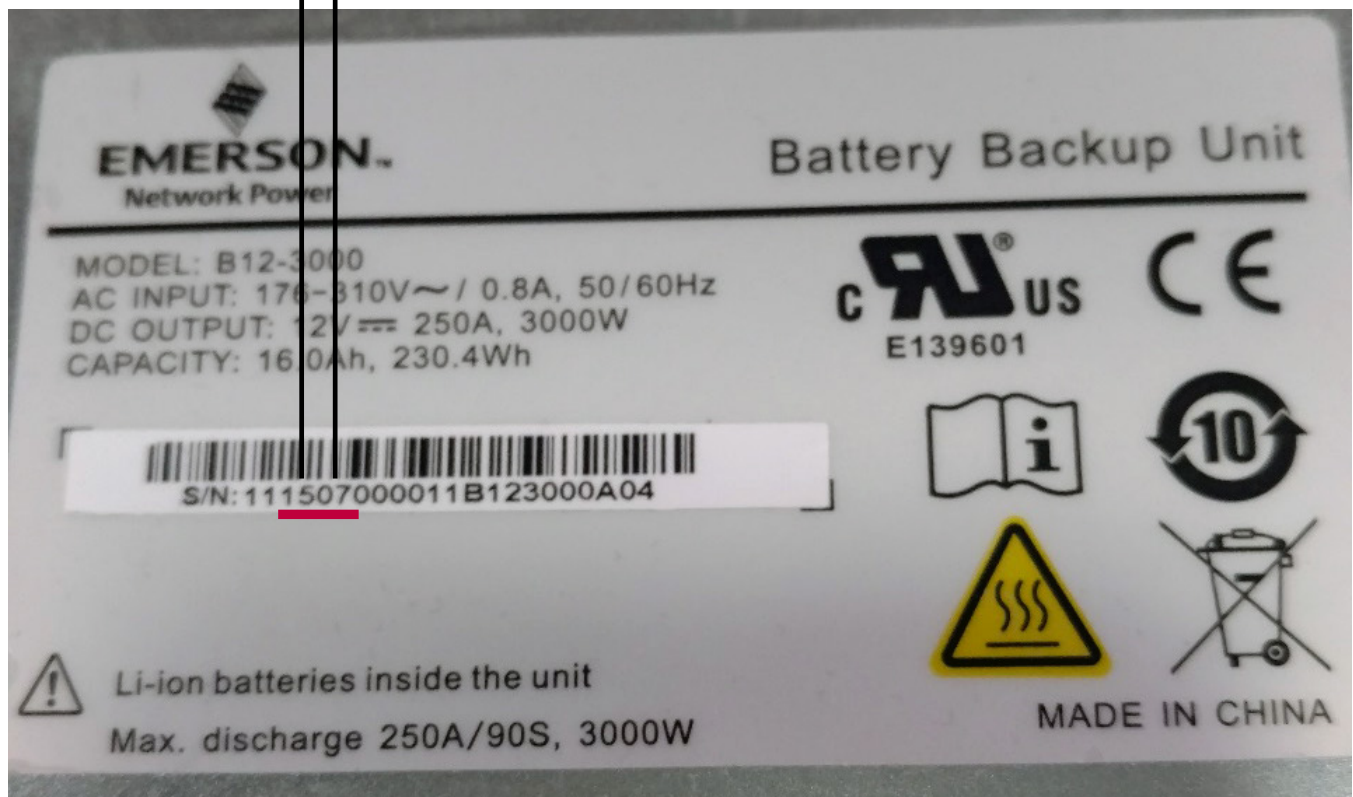
```
battDischargeTo30 OBJECT-TYPE
SYNTAX DischargeFlag
DESCRIPTION
    Set to 1 to trigger the BBU mode which lets
    the BBU discharge to a point below 30% absolute state of charge
    This mode is intended to be a one-time exception to
    put the BBU in a state where it can be shipped.
    Set it back to 0 after the BBU is discharged.
```

```
battBelow30 OBJECT-TYPE
SYNTAX DischargeFlag
DESCRIPTION
    Returns 0 if the BBU is above 30% absolute state-of-charge
    Returns 1 if the BBU is below 30% absolute state-of-charge
```

**Figure 2:** BBU Date Code Label



Sample Serial Number (with Date Code):  
 15 Represents the Year  
 07 Represents the Month



# WEB INTERFACE MENUS

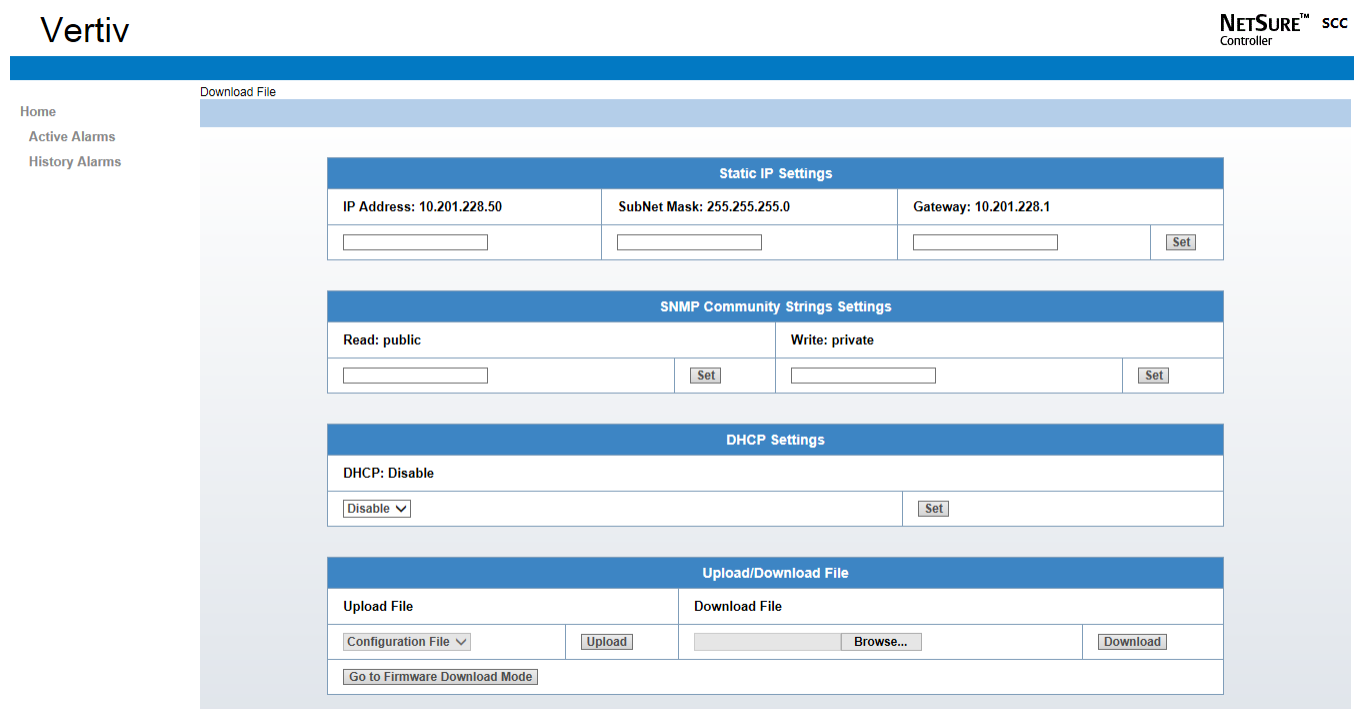
## Overview

This section provides descriptions of the WEB Interface Menus. Refer also to “Using the WEB Interface” on page 20.

## Homepage

In the Web Interface, after entering a valid **User Name** and **Password** and clicking **OK**, the "Homepage" window opens. See also “Logging into the Controller” on page 23.

**Figure 3:** Web Interface Homepage



## Setting Static IP, SNMP Community Strings, and DHCP Communications Parameters

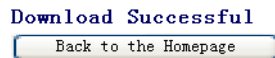
From the Homepage, you can set Static IP, SNMP Community Strings, and DHCP communications parameters.

- a) Set the controller for DHCP Enabled if the controller is to be connected to a network with a DHCP server. The DHCP server assigns an IP address to the controller.
- b) Set the controller for DHCP Disabled if the controller is to be connected to a network or local computer with a static IP address. Also set the IP Address, SubNet Mask, and Gateway parameters for the controller.

### Downloading and Uploading the SCC Controller Configuration File

To upload the controller configuration file from the controller to a local server, press the **Upload** button. Select a location to save the file to.

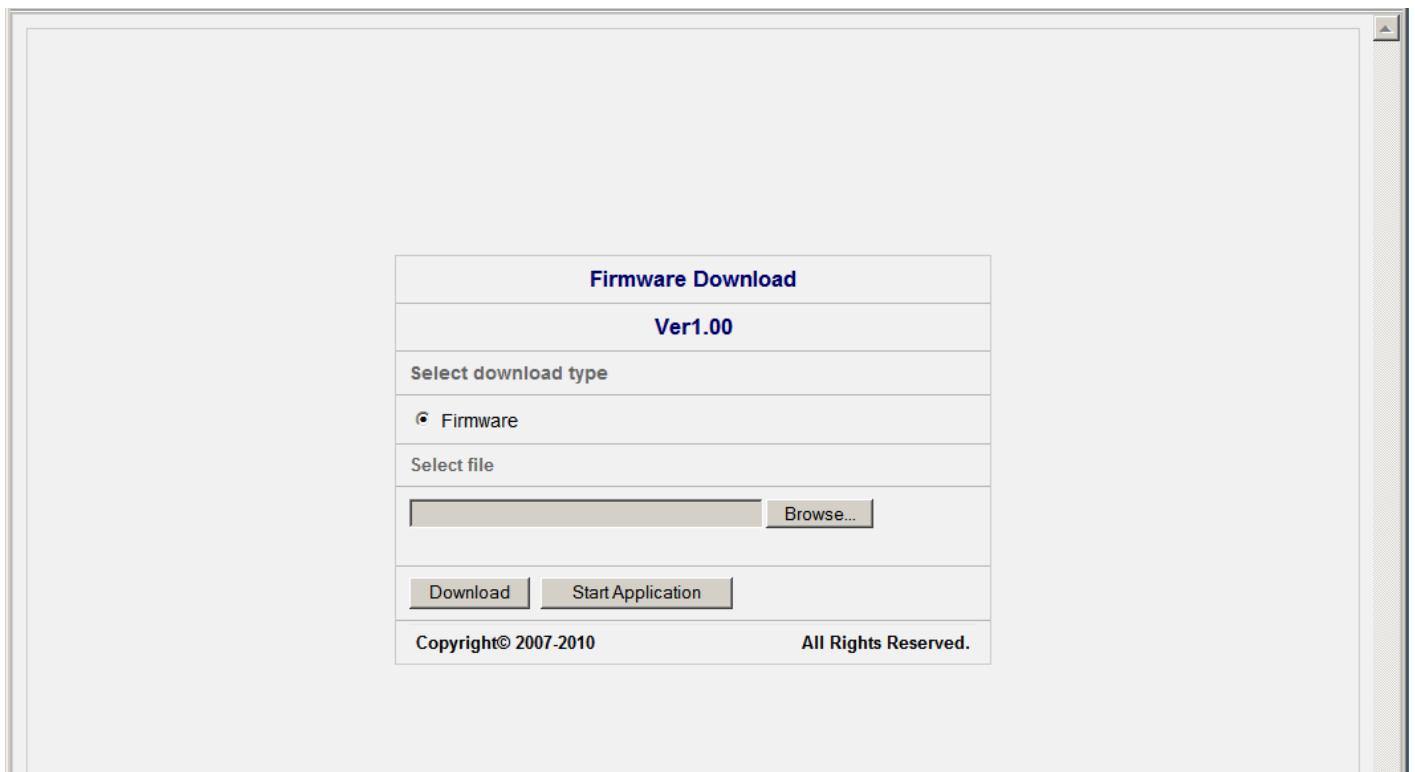
To download a controller configuration file from a local server into the controller, select the file to download using the **Browse** button, then press the **Download** button. Press **OK** to load the file into the controller. Press the **Back to the Homepage** button.



### Downloading Firmware into the SCC Controller

Press the **GO TO FIRMWARE DOWNLOAD MODE** button. Select **OK**. The following window opens.

**Figure 4:** Firmware Download



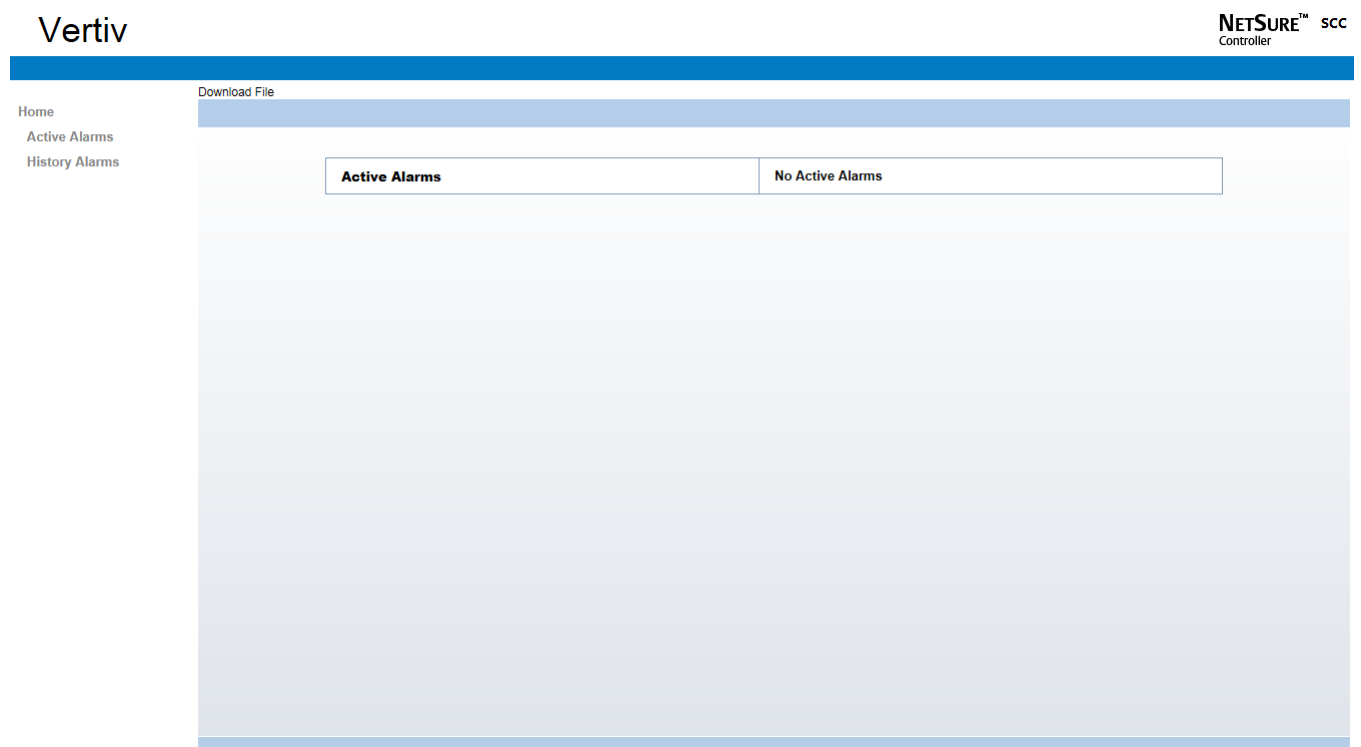
To download a firmware file from a local server into the controller, select the file to download using the **Browse** button, then press the **Download** button to load the file into the controller. Press the **Start Application** button then **OK** to start the controller with the file downloaded into the controller.

**NOTE!** *Filename should be in the below convention:*  
**SCC\_APPV\*\*\*.bin** (\*\*\*) represents the version number. For example, SCC\_APPV206.bin for version 2.06).

## Active Alarms Log Webpage

From the “Homepage”, you can access the Active Alarms page.

- The Active Alarms page lists any active alarm recorded by the SCC Controller.
- The Active Alarms page refreshes approximately every 10 seconds.
- The active alarm log can also be viewed via SNMP.



The screenshot displays the Vertiv NetSure SCC Controller web interface. At the top left is the 'Vertiv' logo, and at the top right is the 'NETSURE™ SCC Controller' logo. A blue navigation bar is present. On the left side, there is a menu with 'Home', 'Active Alarms', and 'History Alarms'. The main content area features a 'Download File' link at the top. Below it is a table with two columns: 'Active Alarms' and 'No Active Alarms'. The table is currently empty, indicating no active alarms are present.

## Alarm History Log Webpage

From the “Homepage”, you can access the Alarm History page.

- Alarm events are recorded on the Alarm History page.
- The alarm history log can also be viewed via SNMP.

Vertiv

NETSURE™ scc  
controller

Home

Active Alarms

History Alarms

Download File

Alarm History Log		Number of Entries: 18	
Index (1 is most recent.)	Alarm Name	Start Time	End Time
1	OverCurrentLimit	2000-01-01 00:01:00	2000-01-01 00:08:01
2	OverCurrentLimit	2000-01-01 00:31:54	2000-01-01 00:00:43
3	OverCurrentLimit	2000-01-01 00:08:23	2000-01-01 00:31:37
4	AC Fail	2000-01-01 00:08:24	2000-01-01 00:31:37
5	BBU Fault	2000-01-01 00:29:33	2000-01-01 00:29:34
6	BBU Fault	2000-01-01 00:26:11	2000-01-01 00:26:12
7	BBU Fault	2000-01-01 00:24:48	2000-01-01 00:24:50
8	BBU Fault	2000-01-01 00:23:48	2000-01-01 00:23:49
9	BBU Fault	2000-01-01 00:03:23	2000-01-01 00:04:44
10	OverCurrentLimit	2000-01-01 00:00:22	2000-01-01 00:03:13
11	OverCurrentLimit	2000-01-01 00:09:31	2018-12-04 10:20:28
12	Not enough EDRs	2018-12-02 15:01:30	2018-12-02 15:02:03
13	Not enough EDRs	2000-01-01 00:12:31	2000-01-01 00:17:40
14	OverCurrentLimit	2000-01-01 00:00:17	2000-01-01 00:09:14
15	OverCurrentLimit	2018-02-06 15:20:40	2000-01-01 00:00:00
16	OverCurrentLimit	2018-02-06 14:41:23	2018-02-06 15:20:23
17	Not enough EDRs	2018-02-06 14:47:58	2018-02-06 15:05:04
18	OverCurrentLimit	2018-02-06 14:31:57	2018-02-06 14:41:06

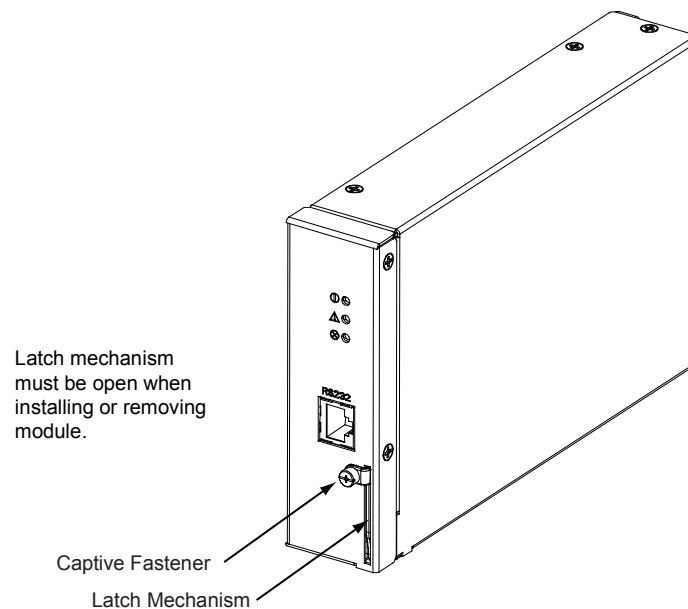
# INSTALLING THE SCC CONTROLLER

**WARNING!** To prevent damage to the latching mechanism, ensure the latch mechanism is in the open position when installing or removing an SCC Controller. NEVER hold the latch mechanism in the closed position when installing an SCC Controller into a module mounting assembly.

## Procedure

1. Unpack the SCC Controller.
2. Place the SCC Controller into its mounting slot without sliding it in completely.
3. Loosen the captive fastener on the SCC Controller's latch mechanism. Pull the latch mechanism to pivot it out of the SCC Controller's front panel (this also retracts the latch mechanism). See **Figure 5**.
4. Push the SCC Controller completely into the module mounting assembly.
5. Push the latch mechanism into the front panel of the SCC Controller. Tighten the captive fastener on the latch mechanism. This locks the SCC Controller securely to the module mounting assembly.

**Figure 5:** SCC Controller Latch Mechanism



# REPLACEMENT PROCEDURES

## SCC Controller Replacement



**DANGER!** Follow all “Important Safety Instructions” found in the documentation provided with the system the SCC Controller is installed in.



**WARNING!** *SCC CONTROLLER HANDLING.*

*Installation or removal of the SCC Controller requires careful handling. To avoid possibility of SCC Controller damage from static discharge, a static wrist strap grounded through a one megohm resistor should always be worn when handling the SCC Controller. ESD-protective packaging material must also be used when carrying/shipping the SCC Controller.*



**NOTE!** *Depending on your network security settings, when you remove a device that is connected to your network and assign the same IP address to the replacement device, you may not be allowed to communicate with the replacement device over the network. Contact your network administrator for assistance.*

The SCC Controller is hot swappable. It can be removed and installed with the system operating and without affecting the output bus.

### **Procedure**

1. Before performing this procedure, ensure the replacement SCC Controller contains the same configuration package as the existing SCC Controller. Refer to the Configuration Label on the side of the replacement SCC Controller for the Configuration Part Number.
2. Performing this procedure may activate alarms. Notify the appropriate personnel to disregard any future alarms associated with this system while this procedure is being performed.
3. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
4. Loosen the captive fastener on the SCC Controller’s latch mechanism. Pull the latch mechanism to pivot it out of the SCC Controller’s front panel (this also retracts the latch mechanism). See **Figure 5**.
5. Slide the SCC Controller completely from the module mounting assembly.
6. Place the replacement SCC Controller into its mounting slot without sliding it in completely.
7. Loosen the captive fastener on the replacement SCC Controller’s latch mechanism. Pull the latch mechanism to pivot it out of the SCC Controller’s front panel (this also retracts the latch mechanism). See **Figure 5**.
8. Push the replacement SCC Controller completely into the module mounting assembly.
9. Push the latch mechanism into the front panel of the replacement SCC Controller. Tighten the captive fastener on the latch mechanism. This locks the SCC Controller securely to the module mounting assembly.
10. Wait for the controller to finish booting and verify that the complete system operates normally.
11. Ensure that there are no local or remote alarms active on the system.



12. Notify appropriate personnel that this procedure is finished and to act upon any future alarms associated with this system.




# TROUBLESHOOTING

## SCC Controller Fault Symptoms and Troubleshooting

The fault indicators that can be displayed by the SCC Controller are as follows. Refer to **Table 13** for a list of possible causes and corrective actions.

- Status Indicator (Green) OFF
- Warning Indicator (Yellow) ON
- Alarm Indicator (Red) ON

**Table 13:** SCC Controller Troubleshooting

	Symptom	Possible Cause(s)	Suggested Action(s)
	Status Indicator (Green) On	Power is on and SCC is running.	No action required.
	Status Indicator (Green) Off	No input voltage.	Make sure there is input voltage.
Internal hardware problem.		Replace the SCC Controller.	
	Warning Indicator (Yellow) On	Any condition in which a rectifier or BBU has the Yellow indicator On.	Refer to the rectifier and BBU instructions.
	Alarm Indicator (Red) On	Any condition in which a rectifier or BBU has a Red indicator On or Flashing.	Refer to the rectifier and BBU instructions.
		Communication with a rectifier or BBU is lost.	Check for rectifier and BBU failures.
		A rectifier or BBU is missing.	Confirm that the inventory in the power system matches the configuration information.

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