Configuration Guide

Eltek Smartpack and Compack Controllers

Smartpack2 Master Controller

Smartpack S Controller

Compack Controller

Smartpack2, Smartpack S, and Compack

Doc. No. 370013.063, Issue 1
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1. Overview

This configuration guide provides instructions for the following Eltek controllers:

- Smartpack2 Master
- Smartpack S
- Compack

The procedures herein describe how to establish controller communication using a computer and how to apply parameter settings through both the web interface and display panel. Screenshots for the web interface are taken from the Compack controller (unless otherwise noted). Screenshots for the display panel are taken from the Smartpack2 Master controller.

For the Smartpack2 Master and Smartpack S controllers, setup can be performed through either the web interface or display panel.

NOTICE: The **Compack** controller does not have a display panel and therefore requires the use of a computer and an Ethernet connection for the web interface in order to adjust parameters.

NOTICE: The **Smartpack2** Master controller display must be unlocked in order to enter the Main Menu. At the default status screen, press the UP arrow key, DOWN arrow key, and then the ENTER key to unlock the screen and enter the Main Menu.

NOTICE: The **Smartpack S** controller's navigation keys are slightly different from the Smartpack2 controller's keys in that the ENTER and CANCEL (X) keys also function as the LEFT and RIGHT keys, respectively, as follows:

- ENTER: A short press of this key navigates to the LEFT. A long press (or, "press-and-hold") performs an ENTER or confirm action.
- CANCEL (X): A short press of this key navigates to the RIGHT. A long press performs a CANCEL or abort action.

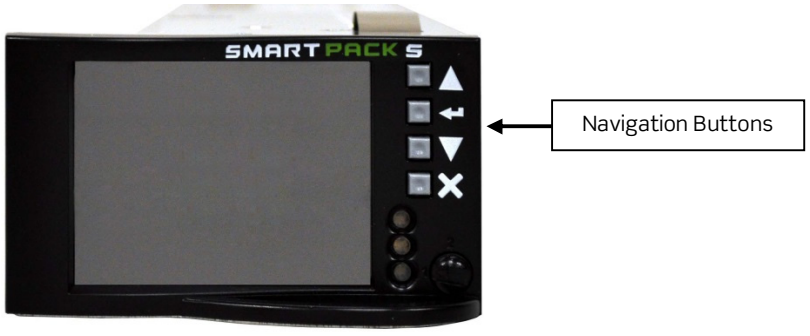


Figure 1 - Smartpack S Controller Navigation Buttons

REVISION NOTE: This guide was written to Compack controller software revision **2.1.2** and Smartpack2 controller software revision **2.2**. Some menus and options may vary as later revisions are released.

Passwords

Passwords are required to edit fields and apply changes. The following are the default passwords for each interface:

- Web interface: The administrative password required to make changes is entered when logging in to the interface. By default, the credentials are:

  User name: **admin**
  Password: **admin**

- Display: The administrative password (PIN, in this case) is entered when selecting a field to edit. By default, the PIN is **0003**.

2. Direct Network Connection to the Controller

The following procedure describes the most reliable method for establishing a direct connection between a computer and an Eltek controller, which facilitates access through the web interface.

Requirements

NOTICE: Adjusting settings on the Compack controller requires the use of a computer and an Ethernet connection. The Smartpack2 and Smartpack S controllers can be configured using either the display panel or a connection to a computer.

Before connecting to and accessing an Eltek controller by computer, the following items and information must be collected:

- Make sure the User Guides for the controller and system are on hand. If not, please visit the Eltek ShareFile site (https://eltek.sharefile.com) and download the appropriate documents.
- Install the Eltek Network Utility (ENU) on the computer to be used. This utility can be downloaded from the Internet (http://msm.eltek.com/enu).
- Identify the operating system of the computer to be used.
  - Required Operating Systems: Microsoft® Windows XP or later (Windows Vista, Windows 7, etc.)
- Identify the web browsers available on the computer to be used.
  - Required Web Browsers: Internet Explorer 9 or later; or Mozilla Firefox 12.0 or later.

  NOTICE: Internet Explorer 9 is not available for Windows XP. In this case, Mozilla Firefox 12.0 or later should be downloaded to the computer to ensure full functionality of the web interface.

  The web interface is fully tested using Internet Explorer 9 and Firefox 12.0. Limited tests are also performed using Chrome, Safari and Opera with success. However, no guarantee is given that full functionality is achieved with these browsers.
- OPTIONAL: It may be advantageous in some cases to install Eltek's *PowerSuite* program on the computer to be used, especially if the computer is running Windows XP and it is not possible to install one of the required web browsers. *PowerSuite* is on the CD provided with the controller. It can also be downloaded from Eltek's FTP site (ftp://ftp.eltek.com); please contact Eltek for the current credentials.

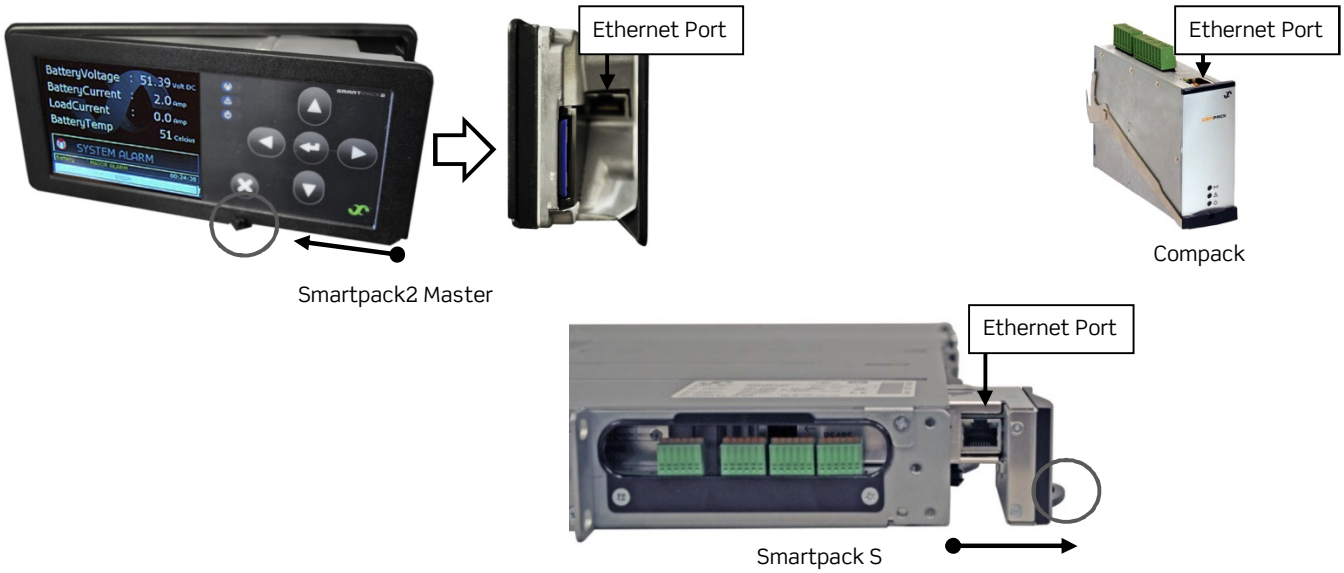
NOTICE: *PowerSuite* is not covered in this guide. If necessary, please consult the documentation provided on the CD as well as the online help file at http://onlinedocs.eltek.com/wip4/mywip/powersuite; please contact Eltek for the current credentials.

IMPORTANT: The following Eltek interfaces require the computer ports specified to be available (i.e., not blocked by the local network administration or IT group):

- Eltek Network Utility:
  - UPD port 20034
  - TCP port 80
- Web Interface:
  - TCP port 80
  - TCP port 443
- PowerSuite:
  - UDP port 4002

Procedure

1. Connect an Ethernet cable (either cross-over or straight-through) to the controller and computer Ethernet ports.



2. Launch the Eltek Network Utility (ENU) on the computer.

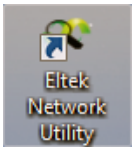


Figure 2 - Eltek Network Utility Icon

3. After the ENU program opens, click on the search button (magnifying glass icon) in the upper left corner to find the controller. Wait for the window to populate.

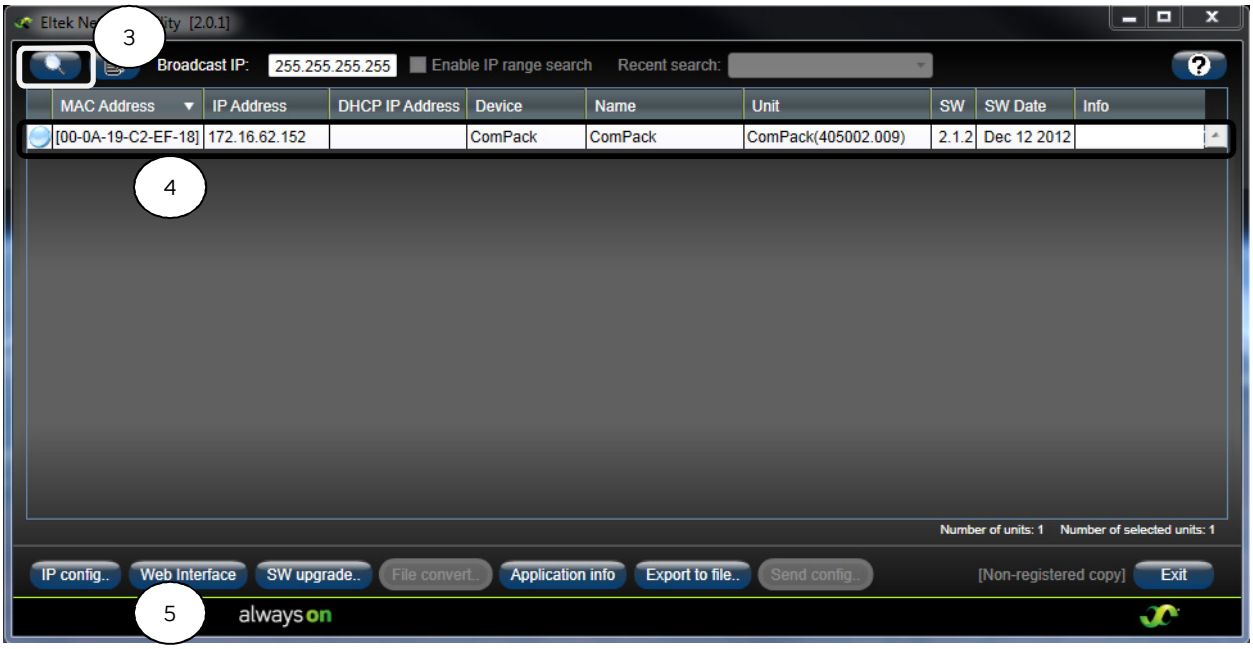


Figure 3 - Eltek Network Utility Window

4. Click on the controller line to select it.

NOTICE: By default, Eltek controllers are shipped with a static IP address of **192.168.10.20**.

5. Click on the "Web Interface" button.

6. Does the Login page appear in the web browser? See Figure 4.

Figure 4 - Web Interface Login Page

- If YES, then skip to step 20.
- If NO, then the controller's IP address must be changed to be closer to the IP address of the computer. Continue to the next step.

7. On the computer, launch a "Command Prompt" window. This can be done in one of two ways:
   - Click the "Start" button, select "Run", type "cmd" in the text field, and click the "OK" button.
   - Click the "Start" button, select "All Programs", select "Accessories", and then select "Command Prompt".

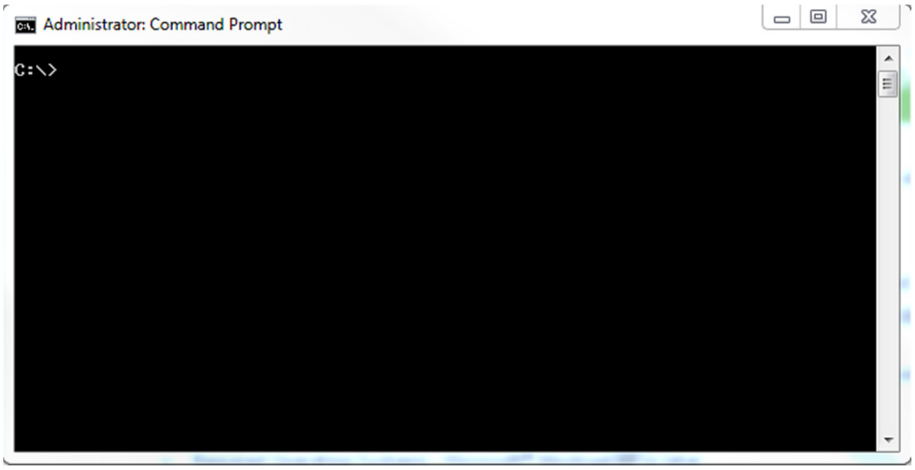


Figure 5 - Command Prompt Window

8. At the command prompt, type "ipconfig" and press [ENTER]. A series of lines appears listing all of the TCP/IP identities of the computer.
9. Find the heading "Ethernet adapter Local Area Connection" (or similar text); it may be necessary to scroll upwards a ways in the command prompt window. Locate the "IPv4 address" line and write down or copy the address. It consists of four sets of numbers separated by three periods (in the form **xxx.xxx.xxx.xxx**). This address is needed in step 15.
10. Type "exit" at the prompt to close the Command Prompt window.
11. In the ENU program, select the controller and click on the "IP Config..." button. The "Ip configuration" window appears.
12. Click on the "Clear IP" button.
13. Make sure the check box under "DHCP" is NOT checked (empty).
14. Click in the field under "IP Address" until the box is highlighted and a cursor appears.

15. Type an address that is close to the IP address of the computer. The first three numbers (or octets) should be exactly the same to ensure that both the computer and controller are on the same network; the last number (octet) should be different by a few digits.

    For Example: If the computer's IPv4 address is **192.168.1.30**, then use the first three numbers (192.168.1) exactly as they appear for the controller. For the last number, pick something close to the computer's last number, like "35". The resulting IP address for the controller in this example will be **192.168.1.35**.

    NOTICE: If an invalid address is entered, the box shows a red outline. Leading zeros should be omitted.

16. Click the "Submit" button. There may be a "click" from the controller as it reboots to apply the new IP address. Allow 30 seconds for the controller to finish the reboot cycle.

17. Click the "Close" button of the "Ip configuration" window.

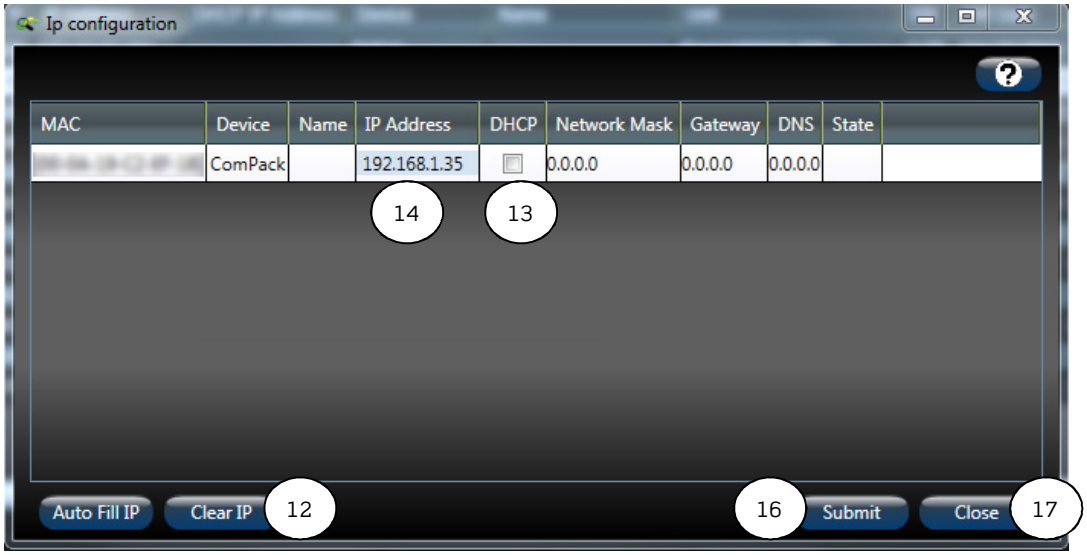


Figure 6 - Ip Configuration Window

18. After the controller reboots, return to the main window of the ENU program and click the search button again. The controller appears in the list with the new IP address.

19. Select the controller and click the "Web Interface" button. The login page appears. See Figure 4.

20. Click the "LOGIN" link.

21. At the prompt, type in the username and password. The defaults are:

    Username: **admin**

    Password: **admin**

    NOTICE: The username and password are case-sensitive. If these credentials do not work, then they have been changed on site. Consult site personnel and/or site documentation for the current credentials.

Controller connection is now established. Make sure to logout from the controller when finished.

NOTICE: If the controller is to be connected to a local area network (LAN), contact the local network administrator to determine if a static IP address is to be assigned or if the IP address will be assigned dynamically (DHCP). Use the "Ip configuration" window to set the controller IP configuration according to the instructions from the network administrator. Refer to steps 11– 17 again if necessary.

RECOMMENDATION: If connecting the controller to a LAN after setup, make sure to check connectivity through the network!

For controllers with a display (Smartpack2, Smartpack S), the controller's IP address can be found at the following location:

Main Menu > Sys.Config. > PowerSystem > General System Config. > Agent IP Address

3. Setting Float Voltage

CAUTION: Refer to the battery manufacturer's documented specifications for recommended float voltage per battery cell. It is the user's responsibility to enter proper battery parameters.

NOTICE: Float voltage is calculated based on the voltage required per battery cell.

Setting Float Voltage through the Web Interface

To set float voltage through the web interface:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Power System" (below the "Power System" heading), then "System Voltages".
3. Locate the field called "Reference voltage".
4. Enter the voltage per cell required. The float voltage value appears in parentheses to the far right.
5. Click the diskette icon in the lower right-hand corner to save the change. The voltage value in parentheses updates to reflect the new float voltage value.

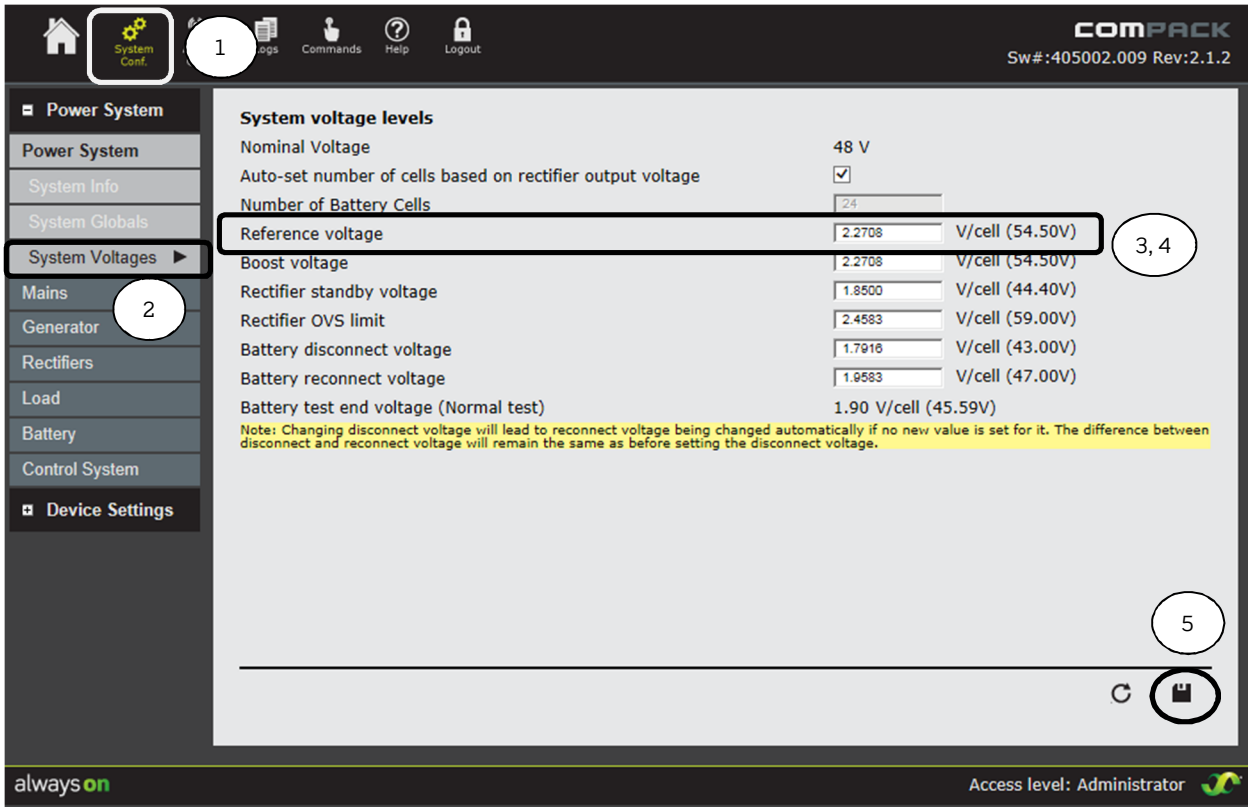


Figure 7 - Setting Float Voltage through the Web Interface

Setting Float Voltage through the Display Panel

To set float voltage through the display panel:

1. From the Main Menu, select "Sys. Config".
2. Select "Power System".
3. Select "General System Config".
4. Select "Reference Voltage [V/Cell]".
5. Enter the PIN. The default PIN is 0003.
6. Enter the float voltage desired per cell.
7. Press the [ENTER] key to save the change.

The float voltage is now set.

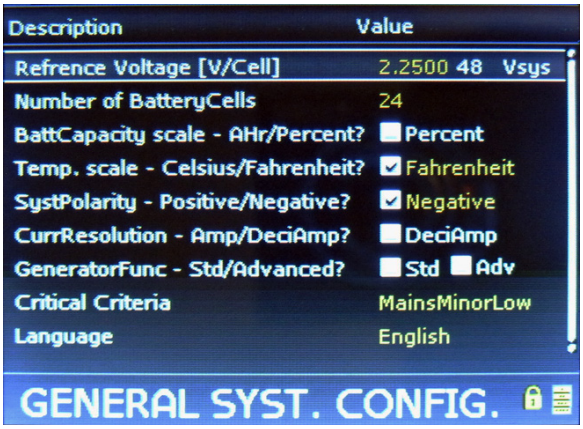


Figure 8 - Setting Float Voltage Through the Display Panel

4. Setting Rectifier Current Limit

Rectifier current limit restricts total output current of all rectifiers.

Setting the Rectifier Current Limit through the Web Interface

To set rectifier current limit through the web interface:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Rectifier" (below the "Power System" heading), then "Configuration".
3. To turn on rectifier current limit, locate the "Current limit" line and select the check box next to the word "Enable".
4. To set the current limit value, enter the desired maximum current value in the field "Current limit value".
5. Click the diskette icon in the lower right-hand corner to save changes.

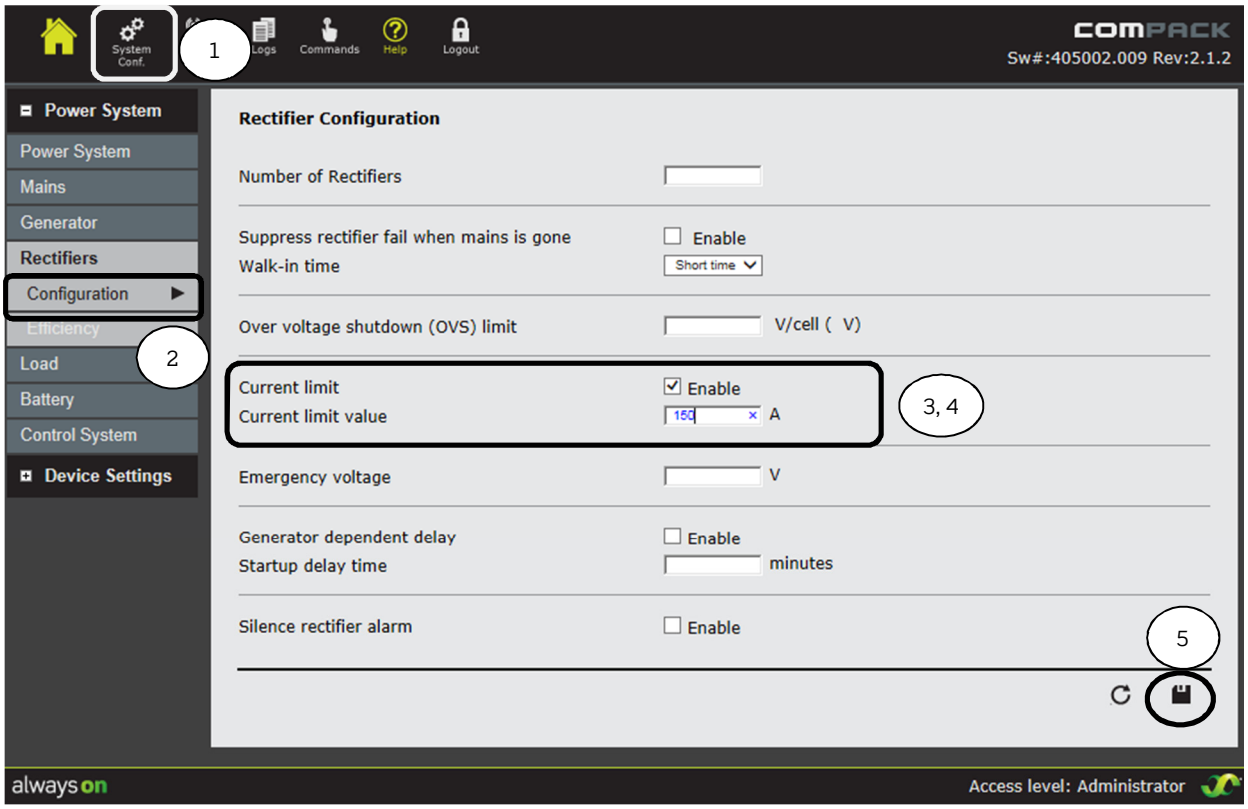


Figure 9 - Setting Rectifier Current Limit through the Web Interface

Setting the Rectifier Current Limit through the Display Panel

To set rectifier current limit through the display panel:

1. From the Main Menu, select "Sys. Config".
2. Select "Rectifiers". This opens the "RECTIFIER CONFIG." screen.

Figure 10 - Setting Rectifier Current Limit through the Display Panel

NOTICE: If there are multiple rectifier bays connected to separate Smartpack2 Basic controllers, a screen appears that says "Sel. Group(up/dwn):TOT"; simply press [ENTER] again on this screen. If a multiple rectifier bay configuration does not exist, the "RECTIFIER CONFIG." screen appears automatically.

3. Select "Rect. CurrentLimit enable-On/Off?"
4. Enter the PIN. The default PIN is 0003.
5. Use the UP or DOWN arrow keys to place a check mark in the box.
6. Press the [ENTER] key to save the change.
7. Select "Rect. CurrentLimit value [A]".
8. Enter the current value desired.
9. Press the [ENTER] key to save the change.

Rectifier current limit is now set.

5. Setting Battery Charging Current Limit

Battery current limit restricts charge current. Eltek controllers have two separate current limit parameters for different power situations: Mains (normal AC utility service) and Generator (AC backup).

NOTICE: A shunt is required in order to use battery current limit.

Setting the Battery Charging Current Limit through the Web Interface

To set battery charging current limit through the web interface:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Battery" (below the "Power System" heading), then "Current Limit".
3. To turn on battery current limit, locate the "Battery current limitation" line and select the check box next to the word "Enable".
4. To set current limit values, enter the prescribed maximum current value in the fields for "Mains feed current limit" (normal AC service) and "Generator feed current limit" (if applicable; check site and generator specifications).

NOTICE: Normally the value for "Generator feed current limit" is lower than "Mains feed current limit". If the "Generator" limit is not going to be used, then simply put the same value here as the "Mains feed current limit".

5. Click the diskette icon in the lower right-hand corner to save changes.

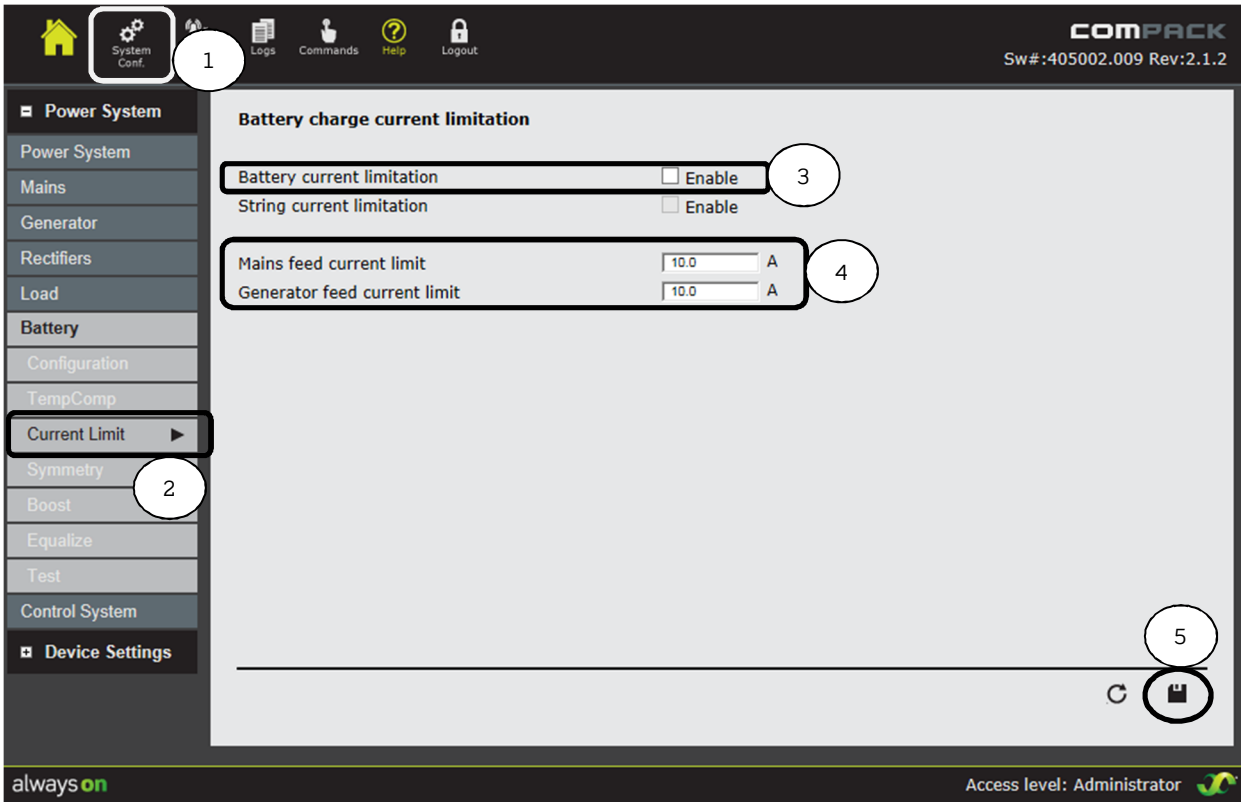


Figure 11 - Setting Battery Charging Current Limit through the Web Interface

Setting the Battery Charging Current Limit through the Display Panel

To set battery charging current limit through the display panel:

1. From the Main Menu, select "Sys. Config".
2. Select "Battery".
3. Select "Battery Config".
4. Select "Battery CurrentLimit - On/Off?"
5. Enter the PIN. The default PIN is 0003.
6. Use the UP or DOWN arrow keys to place a check mark in the box.

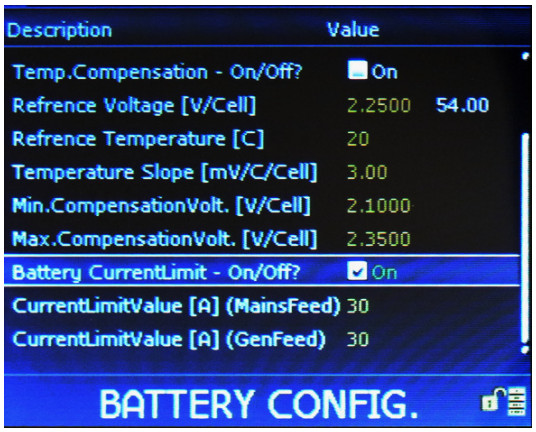


Figure 12 - Setting Battery Charging Current Limit through the Display Panel

7. Press the [ENTER] key to save the change.
8. Select "CurrentLimitValue [A] (MainsFeed)".
9. Enter the current value desired for when the system is on regular AC utility service.
10. Press the [ENTER] key to save the change.
11. If a current limit setpoint is desired for AC generator power, then select "CurrentLimitValue [A] (GenFeed)".
12. **NOTICE:** Normally the value for "Generator feed current limit" is lower than "Mains feed current limit". If the "Generator" limit is not going to be used, then simply put the same value here as the "Mains feed current limit".
13. Enter the current value desired for when the system is on AC generator back-up.
14. Press the [ENTER] key to save the change.

Battery charging current limit is now set.

6. Battery Discharge Testing

CAUTION: Battery discharge testing requires the specifications from the battery manufacturer. DO NOT proceed with battery testing of any kind without having the documented specifications on hand. If unavailable, contact the battery manufacturer directly. Eltek does not provide battery discharge specifications.

There are two methods of executing battery discharge testing: Simplified and Normal.

- The "Simplified" test does not use the battery table for reference (see page 22 for details on the battery table); instead, it relies on user-entered values to determine whether the batteries are able to discharge for the entire duration specified ("Max duration") or meet the amp-hour value ("Max discharge") before falling to the voltage per cell specified in the "End voltage" field. All three parameters are user-defined, but must be within the specifications provided by the battery manufacturer. The test stops when any one of the parameters mentioned above (Max duration, Max discharge, or End voltage) is reached.
- The "Normal" test relies on the battery table for reference, using the battery specifications to determine end voltage. The only editable parameter that affects termination of the test is "Max duration".

NOTICE: Under "Normal Test", battery discharge results are evaluated only if the test is stopped by reaching "End voltage". Results are discarded if a test is terminated due to reaching "Max duration" or any other reasons (such as manually stopping the test).

Other configurable parameters on the Battery Test Configuration page:

- "Guard time" is the number of hours that a battery test should be delayed after a loss of AC input power.
- "Interval test" facilitates regular, periodic battery testing and also accommodates the inhibiting testing during certain months (for example, summer months).
- "Automatic test" initiates testing when AC input power is lost. Data is recorded only if "End voltage" is reached.
- "Discontinuance test" is an advanced battery feature that is used to detect defective or failed battery cells in unbalanced battery strings. It requires at least two battery strings and a separate shunt in each string. The Discontinuance Test is not covered in this document.

Setting Battery Discharge Testing through the Web Interface

To set battery discharge testing through the web interface:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Battery" (below the "Power System" heading).
3. Click on "Test".
4. Enter settings as required for the batteries. Refer to the descriptions of the fields above.
5. Click on the save icon ("diskette") to save changes.

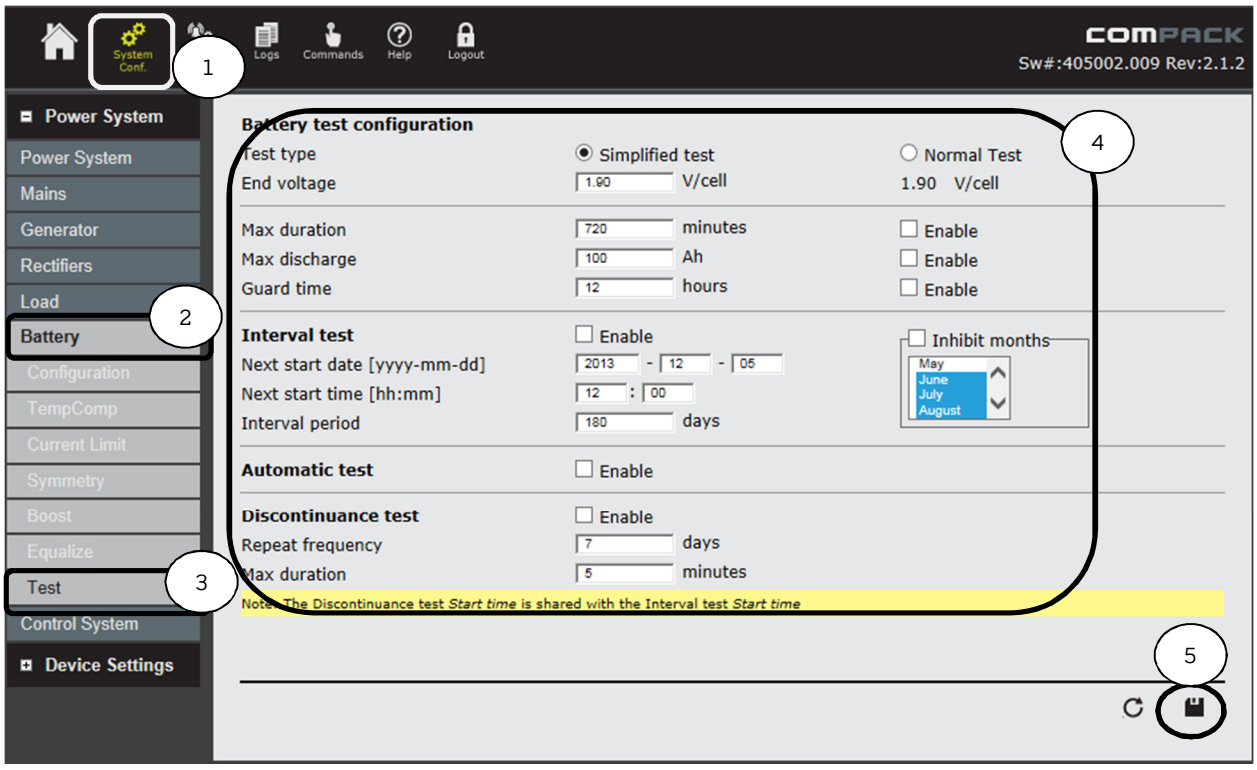


Figure 13 - Battery Test Page (Simplified test selected)

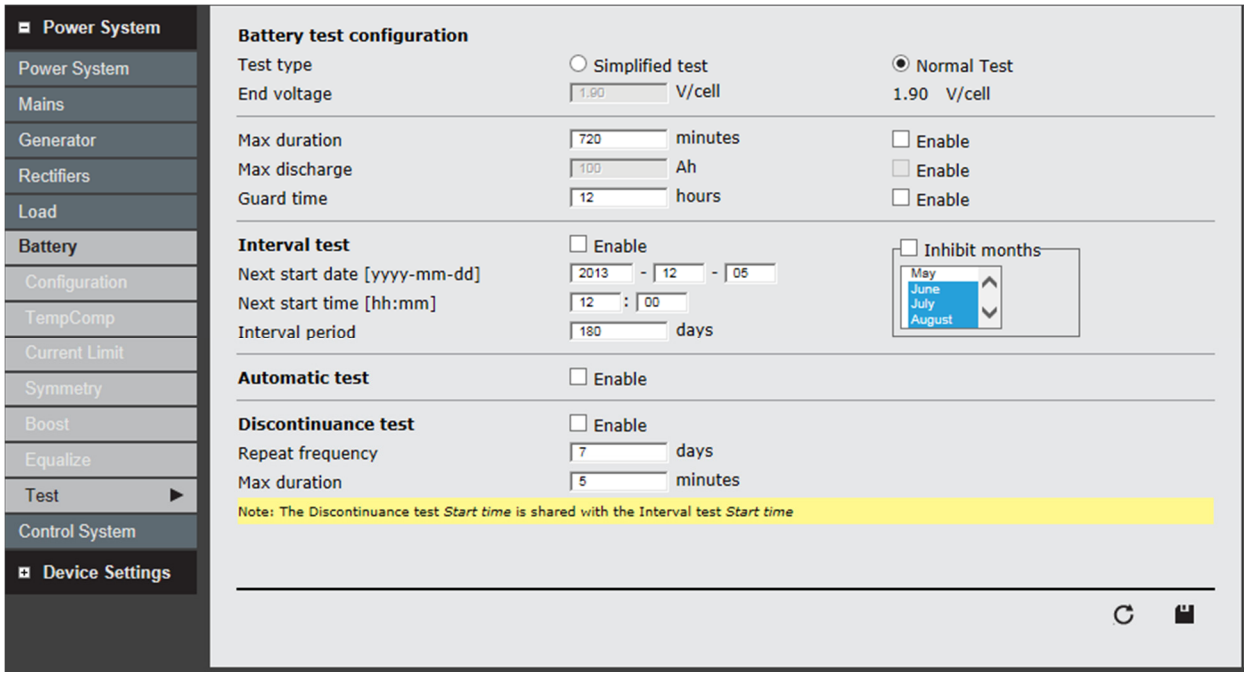


Figure 14 - Battery Test Page (Normal test selected)

NOTICE: The battery table is located under the "Configuration" menu. To access the battery table, choose System Conf. > Power System > Battery > Configuration > [Edit battery table].

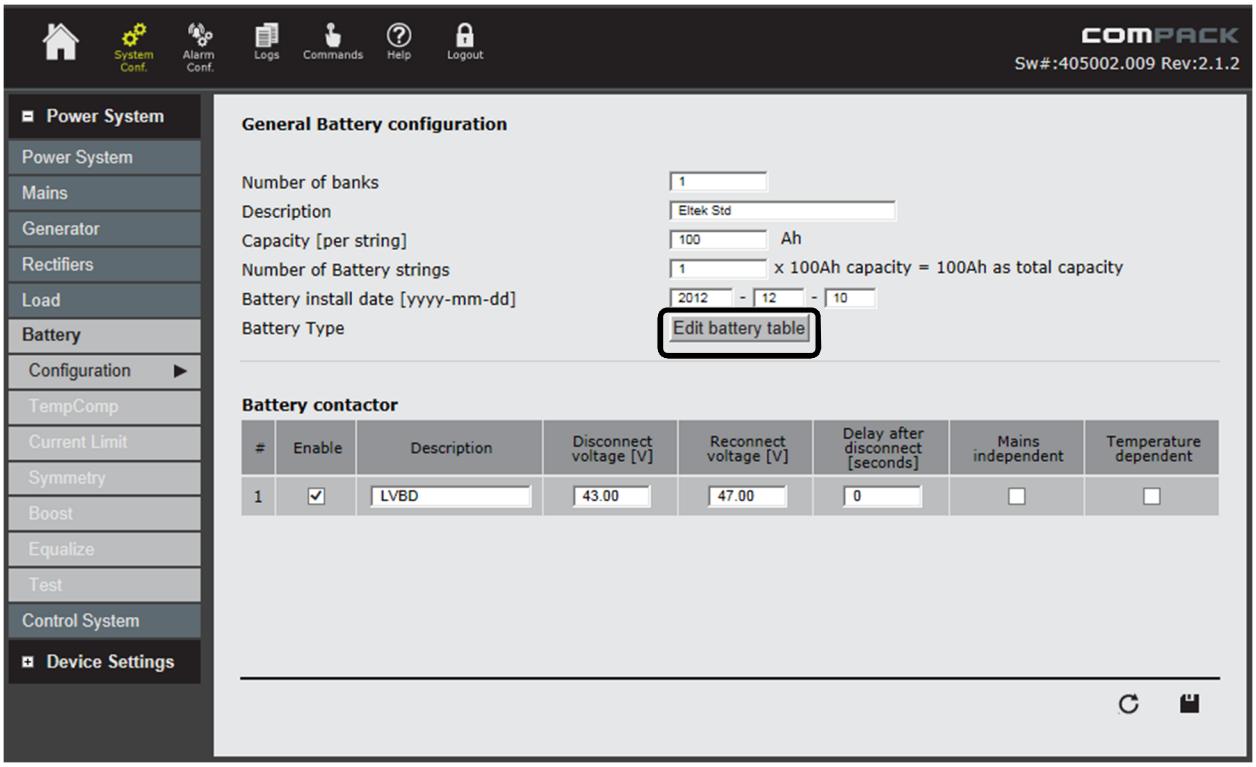


Figure 15 - Location of the Battery Discharge Table

NOTICE: The battery table can be adjusted only through the web interface. It cannot be changed through the display.

Battery Discharge Testing through the Display Panel

To set battery discharge testing through the display panel:

1. From the Main Menu, select "Sys. Config".
2. Select "Battery".
3. Select "BatteryTest Config".
4. The first line is "Normal or Simplified BattTest?" To set "Normal" battery testing, leave the first box unchecked. To set "Simplified" battery testing, select the box by pressing the [ENTER] key, then enter the PIN. The default PIN is 0003.

NOTICE: The text to the right of the box always says "Simple", regardless of whether the box is checked or not. An unchecked box is "Normal"; a checked box is "Simplified". See Figure 16.

5. Use the UP or DOWN arrow keys to place a check mark in the box.
6. Press the [ENTER] key to save the change.
7. Adjust the other parameters as desired. Refer to the parameter descriptions above for details.

NOTICE: As of the controller revision at the time this document was written, there were 18 lines that can be set, covering three pages. Scroll down to see all parameters.

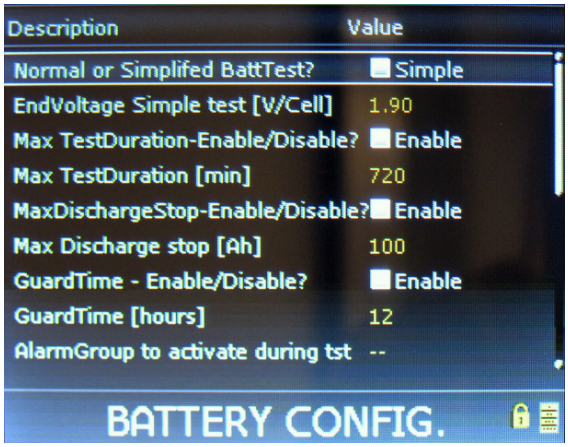


Figure 16 - Battery Discharge Test (Page 1)

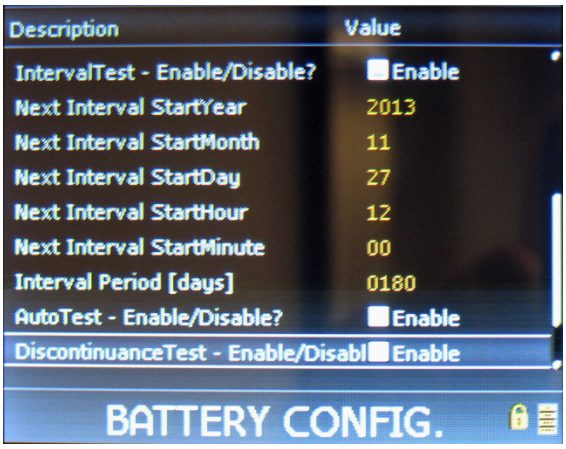


Figure 17 - Battery Discharge Test (Page 2)

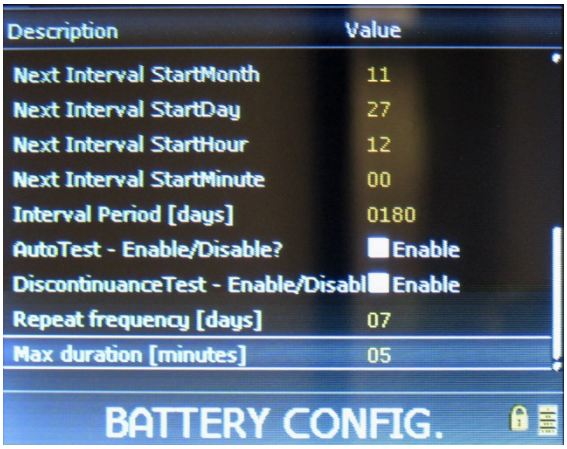


Figure 18 - Battery Discharge Test (Page 2-3)

7. Battery Temperature Compensation

CAUTION: Battery temperature compensation requires specifications from the battery manufacturer. DO NOT proceed without having the documented specifications on hand. If unavailable, contact the battery manufacturer directly. Eltek does not provide battery specifications.

Battery temperature compensation adjusts battery charging voltage after a predefined temperature threshold has been exceeded. The reference voltage and temperature slope are specifications provided by the battery manufacturer. Maximum and minimum compensation voltage should also be defined to protect load equipment.

The fields available are:

- Temperature Compensation – check the box to enable Temperature Compensated Charging parameters. Clicking again on the box (uncheck) disables the parameters.
- Minimum Compensation Voltage – minimum charging voltage per battery cell (protects connected load equipment).
- Maximum Compensation Voltage – maximum charging voltage per battery cell (protects connected load equipment).
- Reference Voltage – charging voltage per battery cell recommended by the battery manufacturer at the reference temperature specified in the "Reference Temperature" field.
- Reference Temperature – the reference temperature in degrees Celsius that the battery manufacturer specifies for the charging voltage entered in the "Reference Voltage" field.
- Temperature Slope – compensation factor in millivolts per degree Celsius per battery cell recommended by the battery manufacturer

Setting Battery Temperature Compensation through the Web Interface

To set battery temperature compensation through the web interface:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Battery" (below the "Power System" heading).
3. Click on "TempComp".

4. Enter settings as required for the batteries. See the descriptions of the fields above.
5. Click on the save icon ("diskette") to save changes.

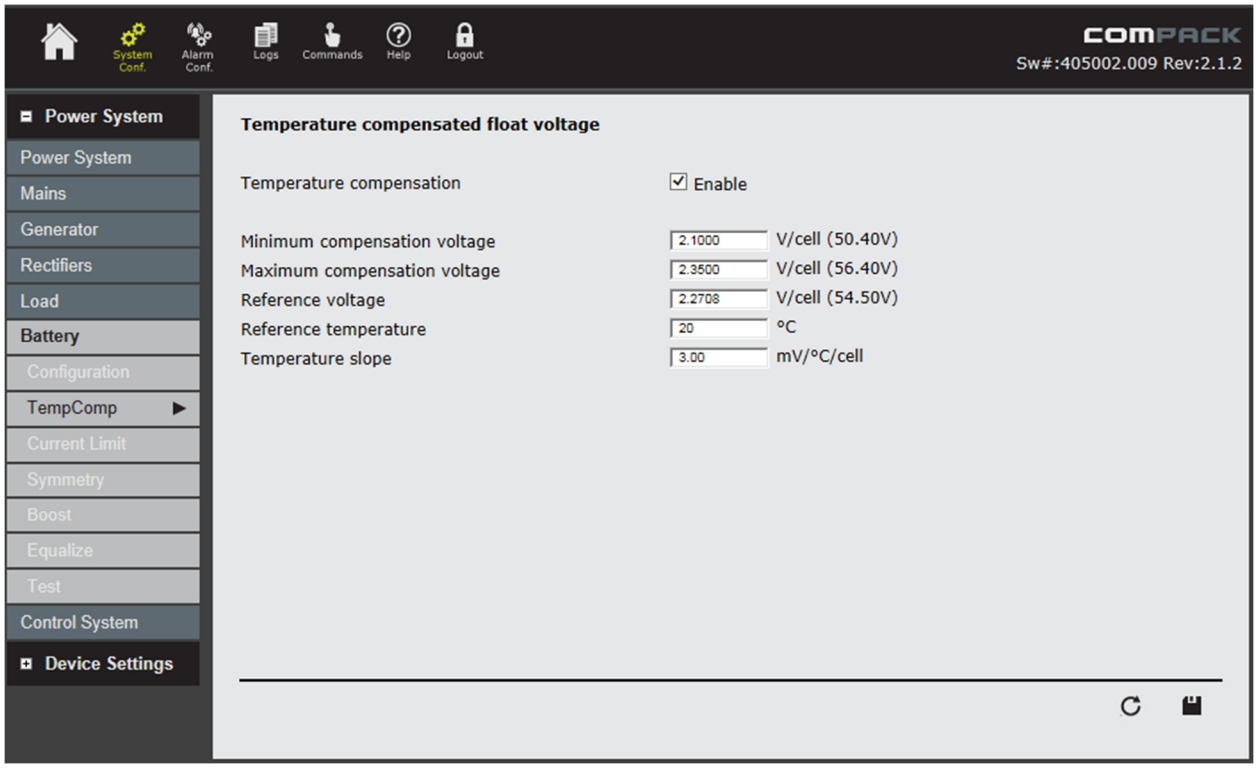


Figure 19 - Setting Battery Temperature Compensation through the Web Interface

Setting Battery Temperature Compensation through the Display Panel

To set battery temperature compensation through the display panel:

1. From the Main Menu, select "Sys. Config".
2. Select "Battery".
3. Select "Battery Config".
4. Use the down arrow key to scroll to "Temp. Compensation – On/Off?"

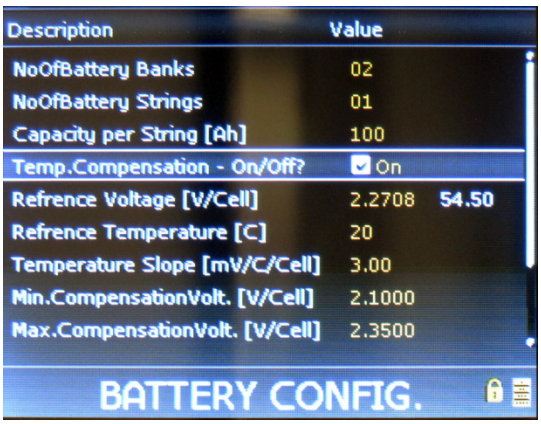


Figure 20 - Battery Temperature Compensation through the Display Panel

This and the next five lines are for temperature compensation (down through "Max.CompensationVolt. [V/Cell]")

5. To enable Temperature Compensation, select the box by pressing the [ENTER] key, then enter the PIN. The default PIN is 0003.
6. Use the UP or DOWN arrow keys to place a check mark in the box.
7. Press the [ENTER] key to save the change.
8. Adjust the other parameters as desired. Refer to the parameter descriptions above for details.

8. Setting Alarms

Alarm settings are configured in the "Alarm Configuration" section of both the web interface and display menus. Alarm or temperature inputs are assigned to alarm groups. Alarm groups, in turn, are assigned to output relays. These assignments are user-configurable. The diagram below (Figure 21) illustrates how inputs can be assigned to alarm groups, and how alarm groups can be assigned to output relays. The assignments in the diagram are just examples.

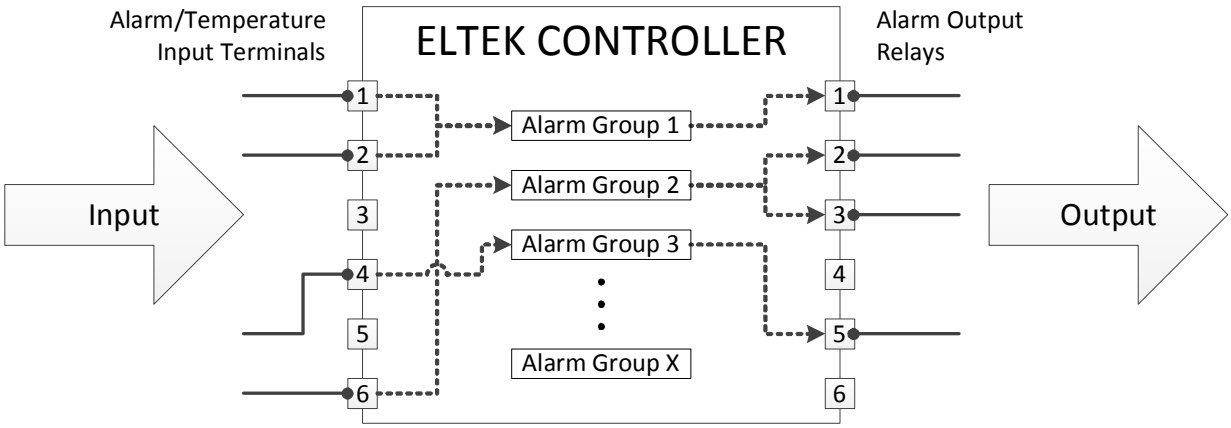


Figure 21 - Alarm Assignments Overview

The next two sections explain different parts of the diagram above (Figure 21). **INPUT ALARMS** explains what the inputs are on the "Inputs" page of the controller and how to assign them to alarm groups. **OUTPUT ALARM RELAYS** explains the "Outputs" page of the controller, how to assign alarm groups to relays, and how to rename alarm groups.

NOTICE: Each controller has different alarm input/output interfaces:

- The Compack controller has three inputs and three output relays; they are located on the top of the controller.
- The Smartpack2 controller does not have any input/output terminals built in; instead, an Eltek I/O Monitor is required. I/O Monitors feature six alarm inputs and six output relays.
- The Smartpack S controller has six inputs and six output relays; they are located on the left side of the controller (when viewed from the front).

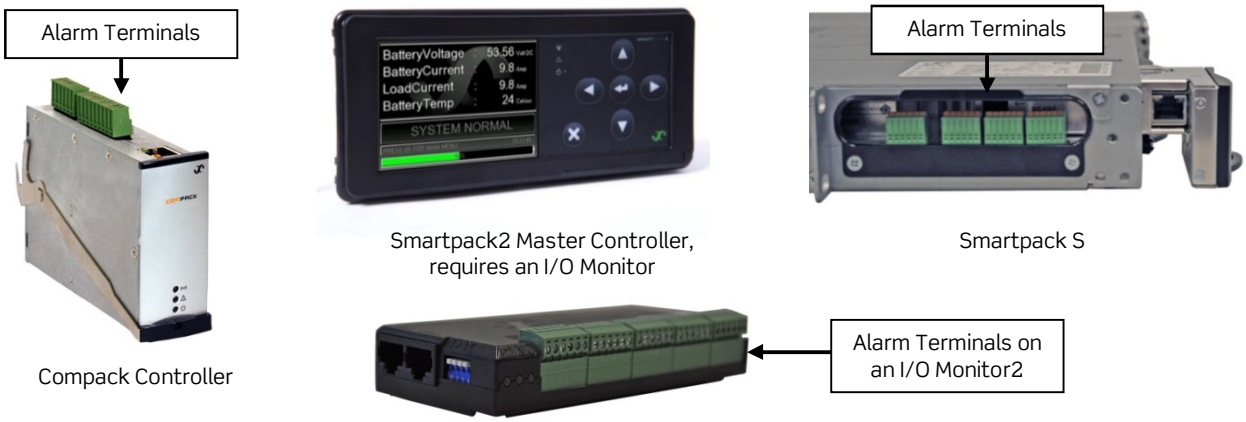


Figure 22 - Input Alarms

Input Alarms

There are three categories of input alarms:

- **Temperature:** Temperature inputs are just one of several possible designations for the input alarm terminals (three for the Compack controller; six for the Smartpack S; six for an I/O Monitor2 connected to the Smartpack2). Enabling the input for Temperature indicates that a temperature probe is connected to the input terminal selected.
- **Virtual Input:** Virtual inputs are for use as manual triggers to toggle an assigned alarm output relay on command. There is no physical terminal associated with these; they are "virtual".
- **Programmable Input (ProgInput):** Programmable inputs are the designations for the input alarm terminals, with the exception of temperature probes. The programmable input designation can be used for relay input (normally open or normally closed), diode matrix, clock input, or voltage.

NOTICE: The input terminals used for Temperature are the same physical terminals used for the Programmable Inputs ("ProgInput"). If the Temperature input is enabled, then the corresponding programmable input farther down on the list turns gray and cannot be configured. Similarly, if the Programmable Input is enabled, then the corresponding Temperature input turns gray and cannot be configured.

Setting an Input Alarm through the Web Interface

To setup an input alarm through the web interface:

1. Click on the "Alarm Conf." icon in the top menu bar.
2. In the left menu bar, click on "Inputs" and wait for the list to populate.
3. Find the input to set and click on the edit icon (gears). Wait for the edit window to populate.

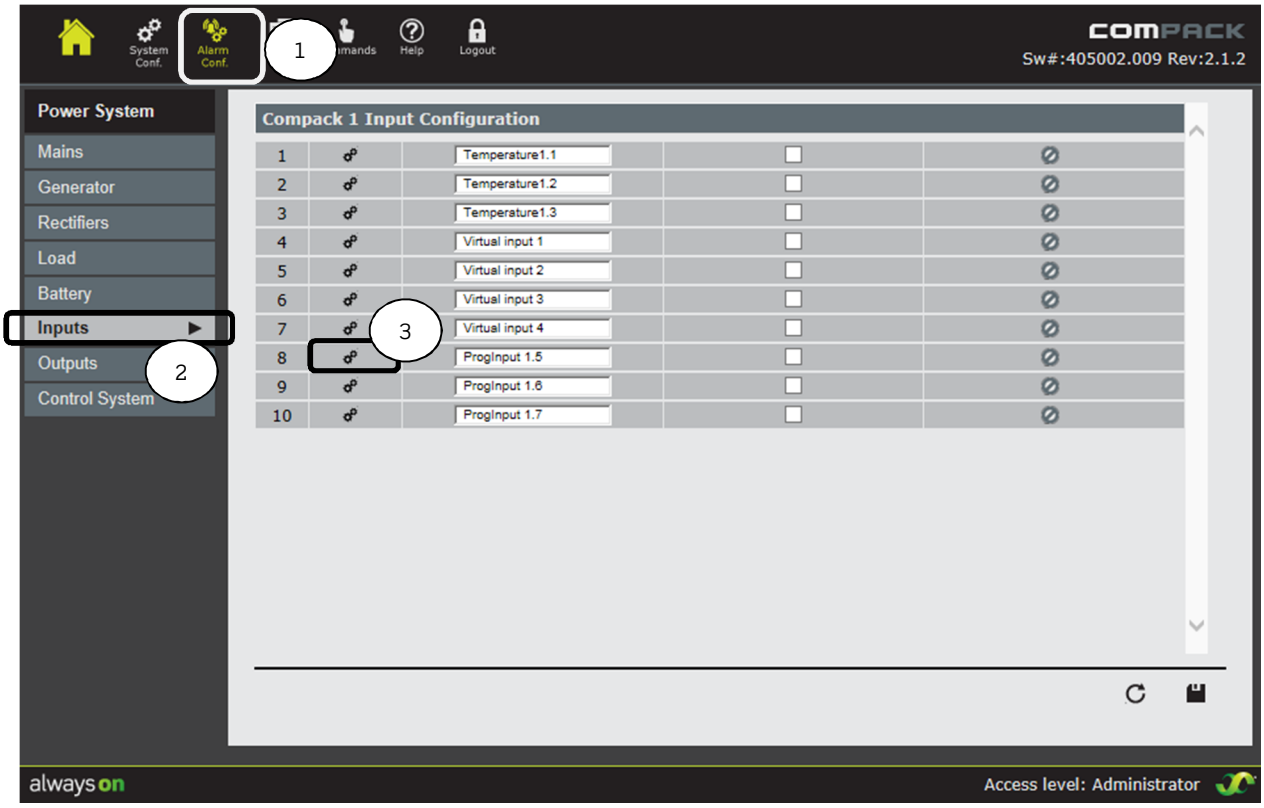


Figure 23 - Alarm Inputs Page (Compack Controller)

4. Check the "Enable" box (Figure 24).
5. Set the "Event" type. For a virtual input, leave "Event" as "Event".
6. Select alarm group to trigger when the alarm event occurs.

   NOTICE: For Programmable Inputs only, click on the "Calibration" tab. Select the type of input.
7. Click the "Save" icon (diskette symbol in the lower right corner) to save changes.
8. Assign alarm group to a relay, if not done so already. See the next section for Output Alarm Relays.

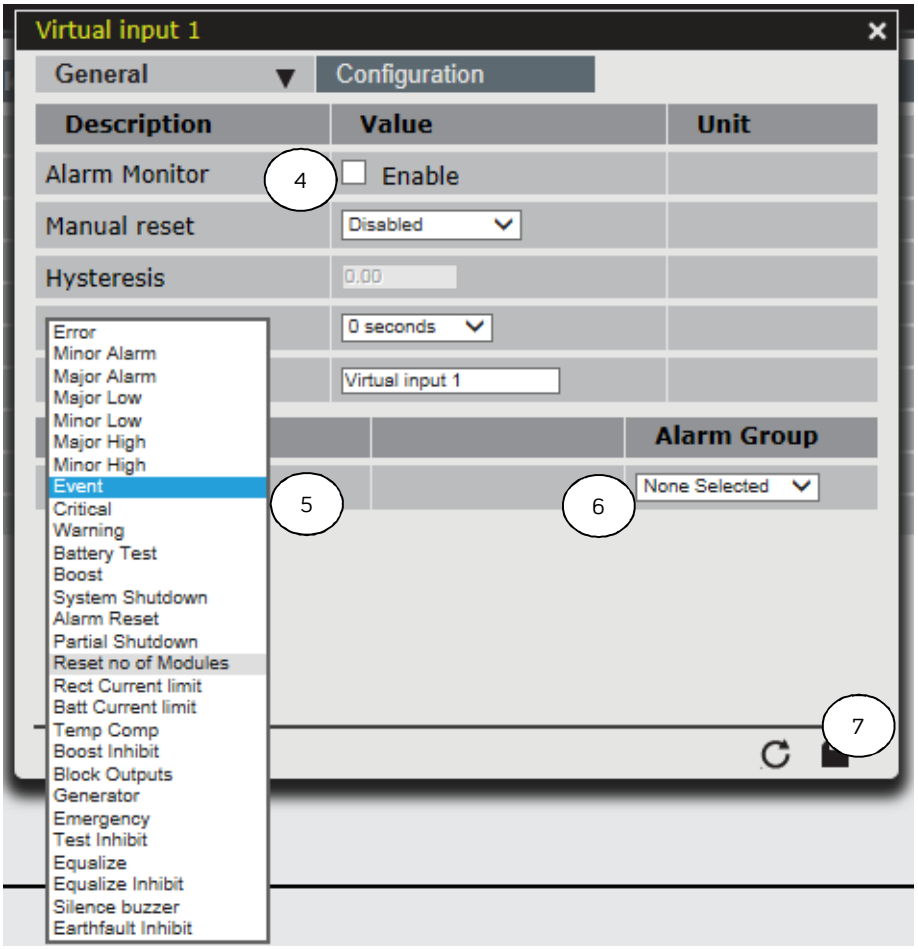


Figure 24 - Alarm Input Edit Window

Setting an Input Alarm through the Display Panel

To set up an input alarm through the display panel:

1. From the Main Menu, select "AlarmConfig".
2. Select "Inputs".
3. Select the input to program.
4. Select the first line and use the UP or DOWN arrow key to place a check mark in the "Enable" box.

   Press the [ENTER] key, then enter the PIN. The default PIN is 0003.
5. Select other parameters to adjust as needed.

Figure 25 - Setting Up an Input Alarm through the Display Panel

6. Press the [X] key to return to the "Inputs" page.

Input alarm is set.

Output Alarm Relays

Output alarm relays are form-C contacts that are triggered if mapped to one or more alarm groups.

Setting Output Relays through the Web Interface

To set output relays through the web interface:

1. Click on the "Alarm Conf." icon in the top menu bar.
2. In the left menu bar, click on "Outputs" and wait for the list to populate. This can take about a minute to complete.

NOTICE: At the top of the window is a drop-down box called "Select Unit". Use this to select the control unit to which the alarms are connected. This is particularly important for the Smartpack2 Master controller, since the unit itself only has an audible buzzer to assign to the alarm groups. For the Smartpack2 controller, I/O Monitors are required for external alarm input and output; the appropriate I/O Monitor must be selected in the drop-down menu in order to modify alarm relay assignments.

1. For each alarm group that should trigger an output relay, place a check in the box under the relay(s) desired. Relays can be assigned to multiple alarm groups, and alarm groups can trigger multiple relays.

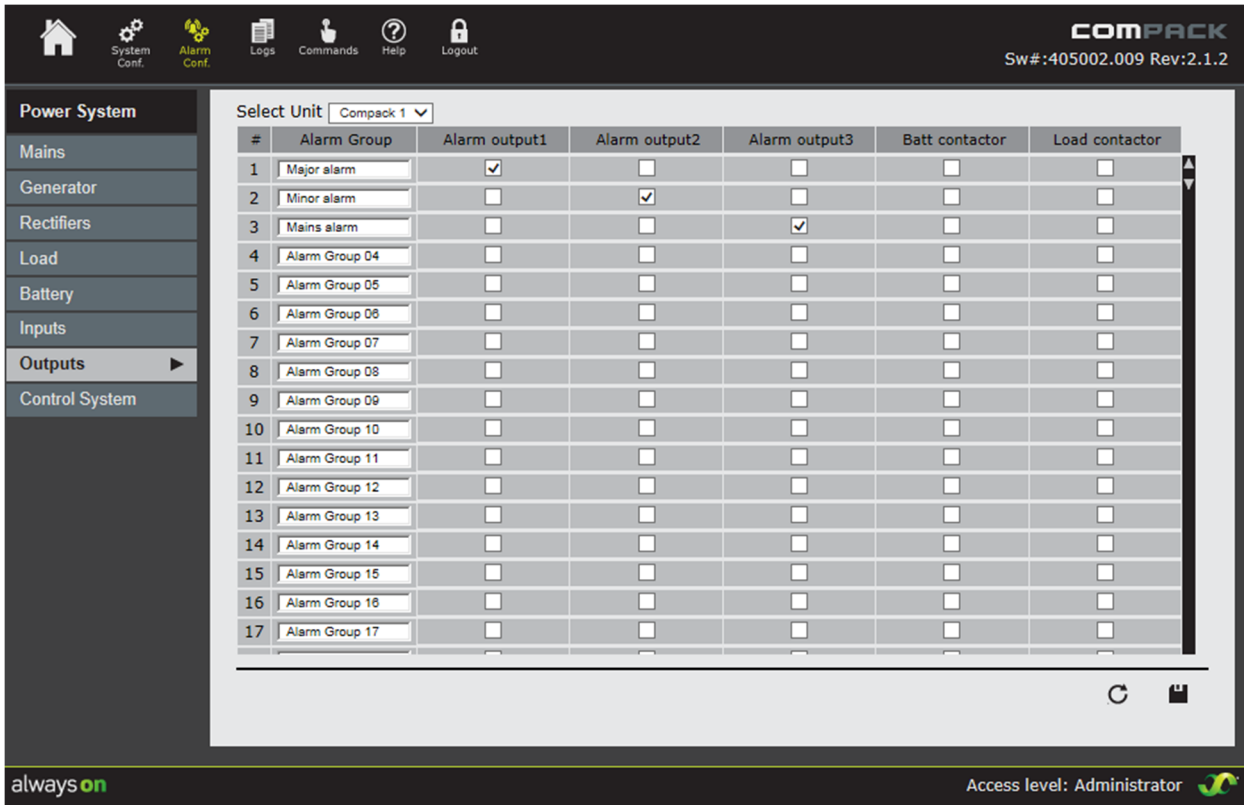


Figure 26 - Alarm Outputs Page (Compack Controller)

2. Change alarm group names as desired to reflect the alarm to be indicated by that group. Click in the "Alarm Group" field to edit the name.
3. Click the "Save" icon (diskette symbol in the lower right corner) to save changes.

Setting Output Relays through the Display Panel

To set output relays through the display panel:

1. From the Main Menu, select "AlarmConfig".
2. Select "Outputs". Wait for the page to populate, which can take about a minute to complete.

   NOTICE: All available alarm relays from all controllers and monitors in the system are listed on this page.

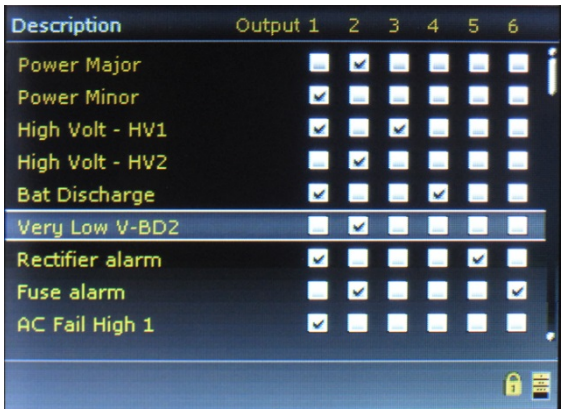


Figure 27 - Setting Output Relays through the Display Panel

3. Press the [ENTER] key to select an alarm group.
4. Enter the PIN. The default PIN is 0003.
5. Use the RIGHT and LEFT arrow keys to point to the output relay that the alarm group should trigger. Use the UP and DOWN arrow keys to place a check mark in the box. Press [ENTER] to save the change.

   More than one relay can be selected. Note that there are six output alarm relays for the Smartpack2 controller (using the I/O Monitor2 device).

Output alarm relays are set. Use the same process for other alarm groups as needed.

Alarm Setpoints

Since all alarm parameters are set essentially in the same manner, the following instructions demonstrate how to set Battery Voltage alarm parameters as an example. As the diagram in Figure 28 illustrates, this section explains how to setup alarm inputs (Internal Alarm Parameters in this example), how to assign the parameters to alarm groups, and how to assign alarm groups to output relays.

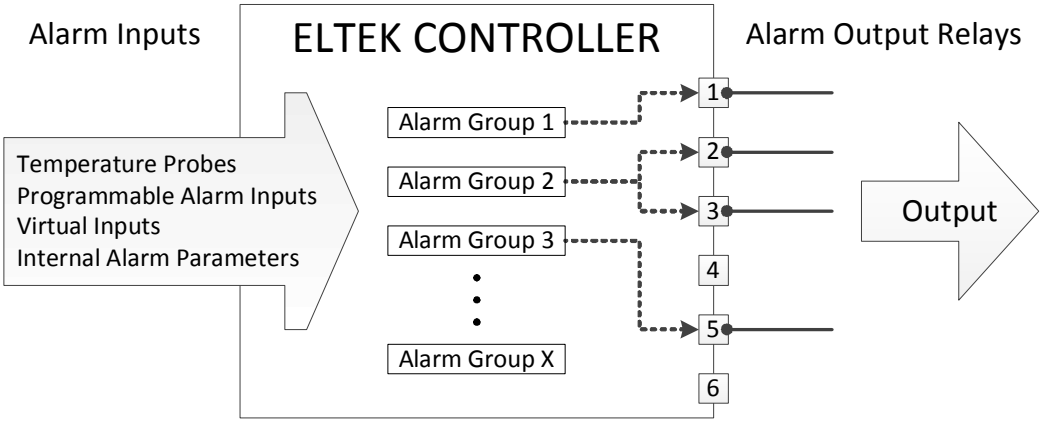


Figure 28 - Alarm Groups to Output Relays

Please note that the screenshots are taken from the Compack controller; the process is identical for Smartpack2 and Smartpack S controllers.

Setting Alarm Battery Voltage Alarm through the Web Interface

To set alarm Battery Voltage alarm parameters through the web interface:

1. Click on the "Alarm Conf." icon in the top menu bar.
2. In the left menu bar, click on the "Battery" and wait for the list to populate.
3. Under the "Battery Alarm Configuration" bar, find "BatteryVoltage" (it should be line #1) and click on the "Edit" icon (gear symbol).
4. The edit window opens up. Locate the "Alarm Monitor" line and check the "Enable" box.

NOTICE: The edit window may vary from revision to revision. Some edit windows have a "General" tab and a "Calibration" tab; if so, click on the "General" tab.

5. At the very bottom of the edit window is where alarm thresholds are set. For Battery Voltage there are four events: Major High, Minor High, Minor Low, and Major Low. Configure parameters as desired. Click the "Save" icon (diskette symbol in the lower right corner) to save changes.
6. Note the "Alarm Group" assignments next to each "Event" line. Click on the drop-down arrow to see the alarm groups available.

   The output relay assignment of the alarm group and the alarm group name can be changed on the "Outputs" page. In this example, "Alarm Group 06" will be changed for the "Major Low" parameter of the Battery Voltage alarm.

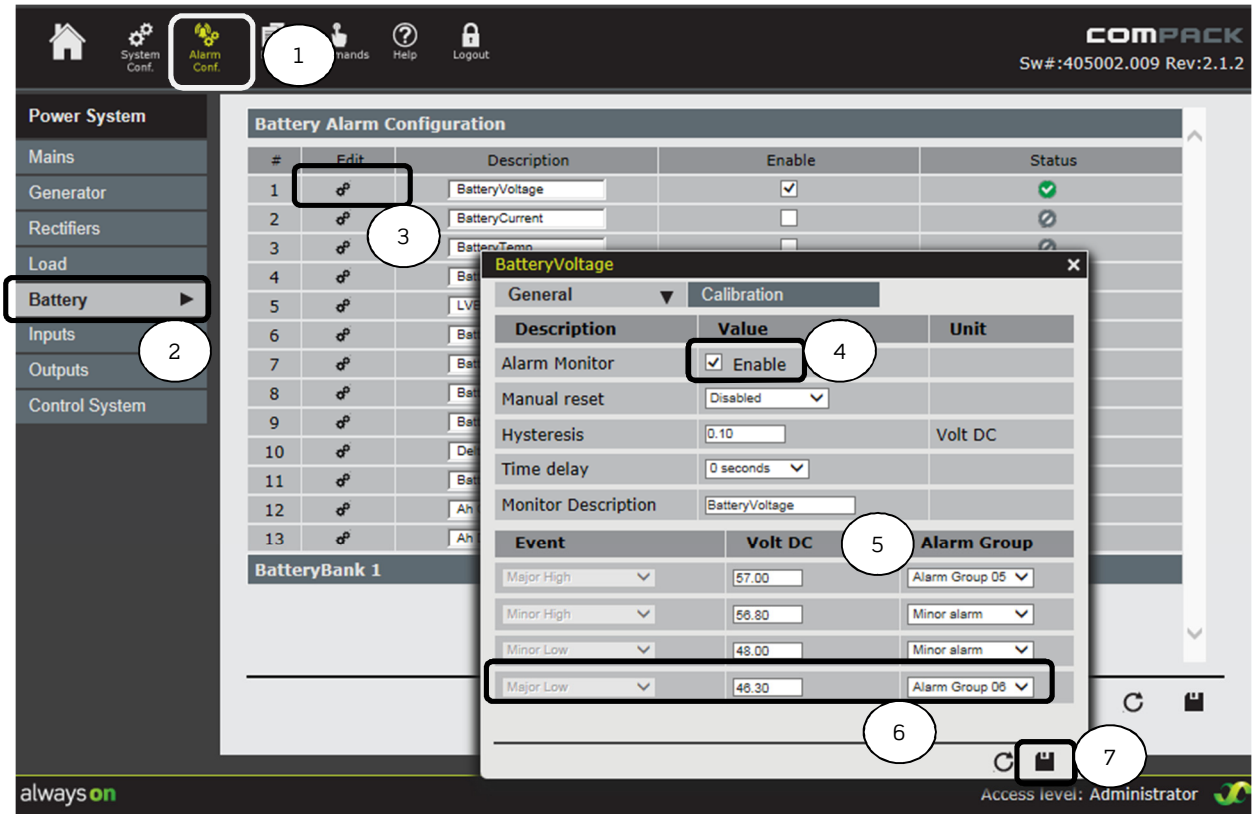


Figure 29 - Battery Voltage Alarm Configuration

7. In the current edit window, click the Save icon and then close the edit window.
8. Select "Outputs" in the left menu bar. Wait for the window to populate, which can take about a minute to complete.

NOTICE: At the top of the window is a drop-down box called "Select Unit". Use this to select the control unit to which the alarms are connected. This is particularly important for the Smartpack2 Master controller, since the unit itself only has an audible buzzer to assign to the alarm groups. For the Smartpack2 controller, I/O Monitors are required for external alarm input and output; the appropriate I/O Monitor must be selected in the drop-down menu in order to modify alarm relay assignments.

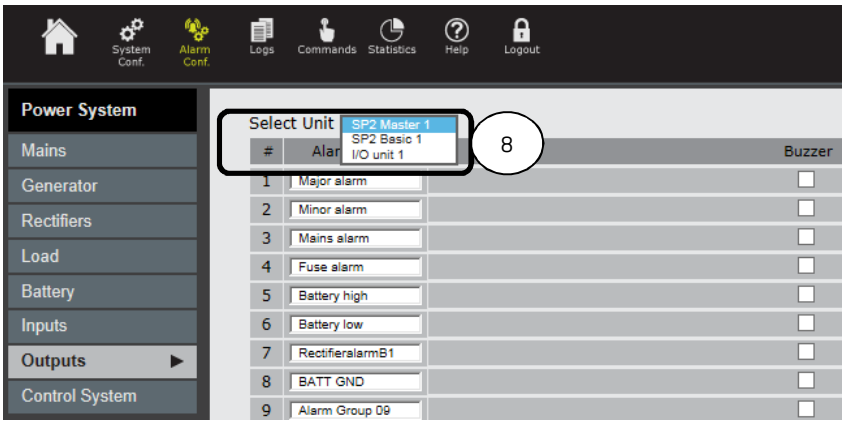


Figure 30 - Smartpack2 Alarm Outputs Page (Multiple Control/Monitor Units)

9. Locate the line of the alarm group assigned to the alarm event ("Alarm Group 06" in this example; see Figure 31).
10. Click in the field under "Alarm Group" and type in a distinctive name for this alarm group. In this example, the name is changed to "BatteryLowMajor" (line 6 in Figure 31).
11. Next, select the output relay that the alarm should trigger. In this example, "Alarm output1" is selected because it is the default for all major alarms. Note, too, that there are only three output alarm relays for the Compack controller.

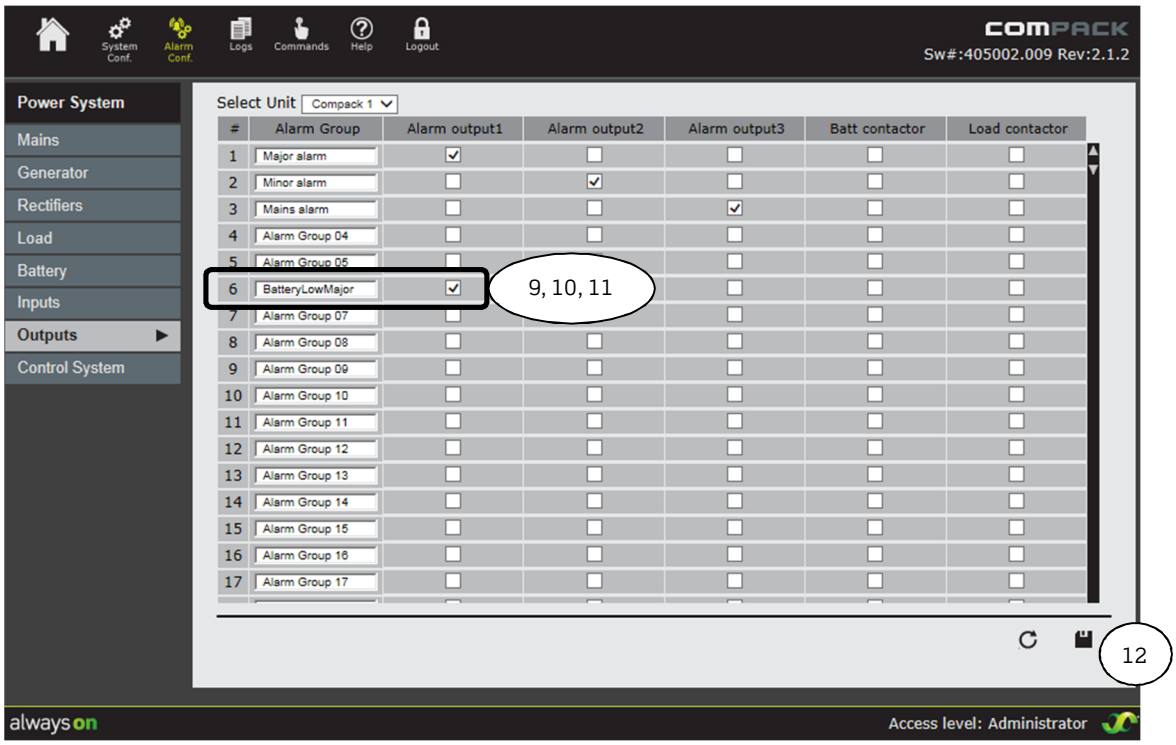


Figure 31 - Alarm Output Page (Compack Controller)

12. Click the "Save" icon (diskette symbol in the lower right corner) to save changes.
13. Return to the Battery Voltage edit window by clicking on "Battery" in the left menu bar.
14. Locate "BatteryVoltage" (line #1) and click on the "Edit" icon (gear symbol).
15. After the window populates, click on the "Alarm Group" box in the "Major Low" event line.
16. Find and select "BatteryLowMajor".
17. Click the "Save" icon (diskette symbol in the lower right corner) to save changes.

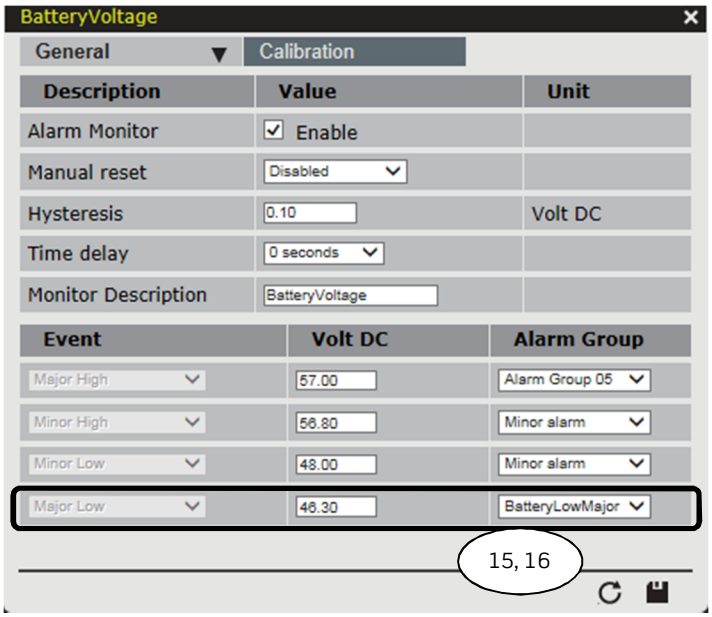


Figure 32 – Battery Voltage Edit Window

Setting Alarm Battery Voltage Alarm through the Display Panel

To set alarm Battery Voltage alarm parameters through the display panel:

1. From the Main Menu, select "AlarmConfig".
2. Select "Battery".
3. Select "BatteryVoltage".
4. Select "Monitor - Enable/Disable?"
5. Enter the PIN. The default PIN is 0003.

6. Use either the UP or DOWN arrow key to place a check mark in the box.
7. Press the [ENTER] key to save the change.
8. At the bottom of the page is where alarm thresholds are set. For Battery Voltage there are four events: Major High, Minor High, Minor Low, and Major Low. Each event has an "Alarm Level" setting (voltage setting) and "Alarm Group" setting (for output relay assignment). Use the [ENTER] key to select an event parameter to change. Use the UP and DOWN arrow keys to adjust the settings.
9. Note the "Alarm Group" assignments for each event. Use the [ENTER] key to select an alarm group to change. Use the UP and DOWN arrow keys to see the alarm groups available.

   The output relay assignment of the alarm group and the alarm group name can be changed on the "Outputs" page. In this example, the "MajorLowAlarmGroup" parameter is set to "Very Low V-BD2" (very low voltage, battery discharge).

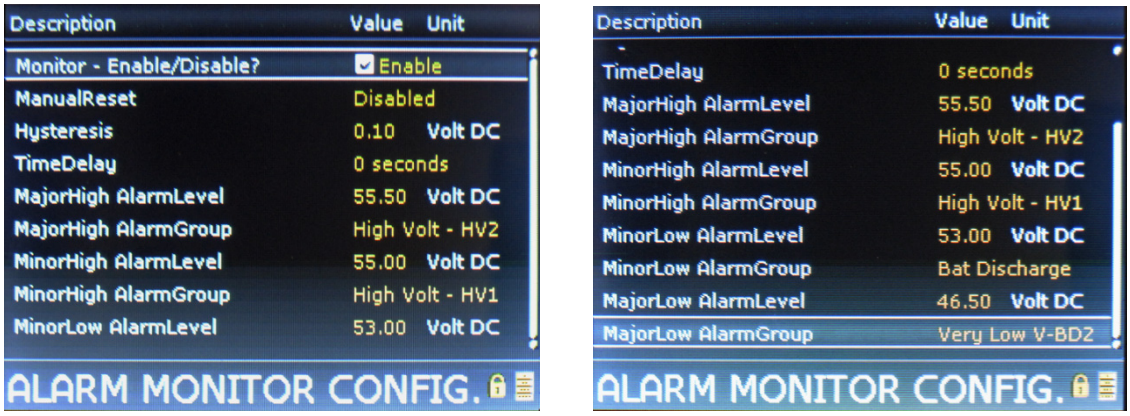


Figure 33 – Setting Alarm Group Assignments

10. Press the [X] key twice to return to the Alarm Configuration menu.
11. Select "Outputs". Wait for the page to populate, which can take about a minute to complete.

NOTICE: All available alarm relays from all controllers and monitors in the system are listed on this page.

12. Locate the line of the alarm group assigned to the alarm event ("Very Low V-BD2" in this example) and press the [ENTER] key to select the alarm group.
13. Use the RIGHT and LEFT arrow keys to point to the output relay that the alarm group should trigger. Use the UP and DOWN arrow keys to place a check mark in the box. Press [ENTER] to save the change.

More than one relay can be selected. Alarm output relay 2 is selected in the example. Note that there are six output alarm relays for the Smartpack2 controller (using the I/O Monitor2 device).

14. Return to the Battery Voltage page. To do this, press the [X] key once, then select "Battery", and then select "BatteryVoltage".
15. Find "MajorLowAlarmGroup" and confirm that the alarm group is still "Very Low V-BD2". If not, then press the [ENTER] key and use the UP or DOWN arrow key to find "Very Low V-BD2". Press [ENTER] to save the change.

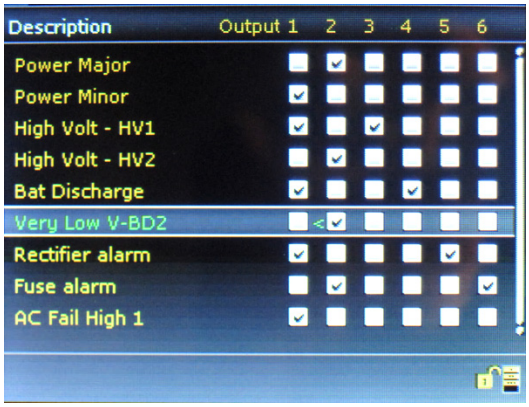


Figure 34 - Setting Battery Voltage

Battery Voltage is now set. Use the same process for other parameters as needed.

9. Alarm Relay Test

The alarm relays can be tested manually through both the web interface and display.

CAUTION: Testing alarm relays causes alarm conditions. Make sure monitoring equipment and personnel are aware of such testing and will not be adversely affected. It is not recommended to test alarm relays from an off-site location!

CAUTION: Some controller units list low-voltage disconnect (LVD) contactors. Activating these contactors will open them and disconnect any batteries or loads connected!

Testing Output Relays through the Web Interface

To test output relays through the web interface:

1. Click on the "Commands" icon in the top menu bar.
2. In the left menu bar, click on "Output Test".
3. All output relays for the unit indicated in the "Output Test" box are displayed. The duration of the test can be set by changing the number of seconds in the "Output Test duration" box.

   NOTICE: Use the "Output Test" drop-down menu to select the control unit to which the alarms are connected. This is particularly important for the Smartpack2 Master controller, since the unit itself does not have any output relays. For the Smartpack2 controller, I/O Monitors are required for external alarm output; the appropriate I/O Monitor must be selected in the drop-down menu in order to test alarm output.

   NOTICE: The "Output Test duration" setting is only available in the web interface.
4. Click the "Apply" button to change the state of the relay. The state change lasts for as long as specified in the "Output Test duration" box.

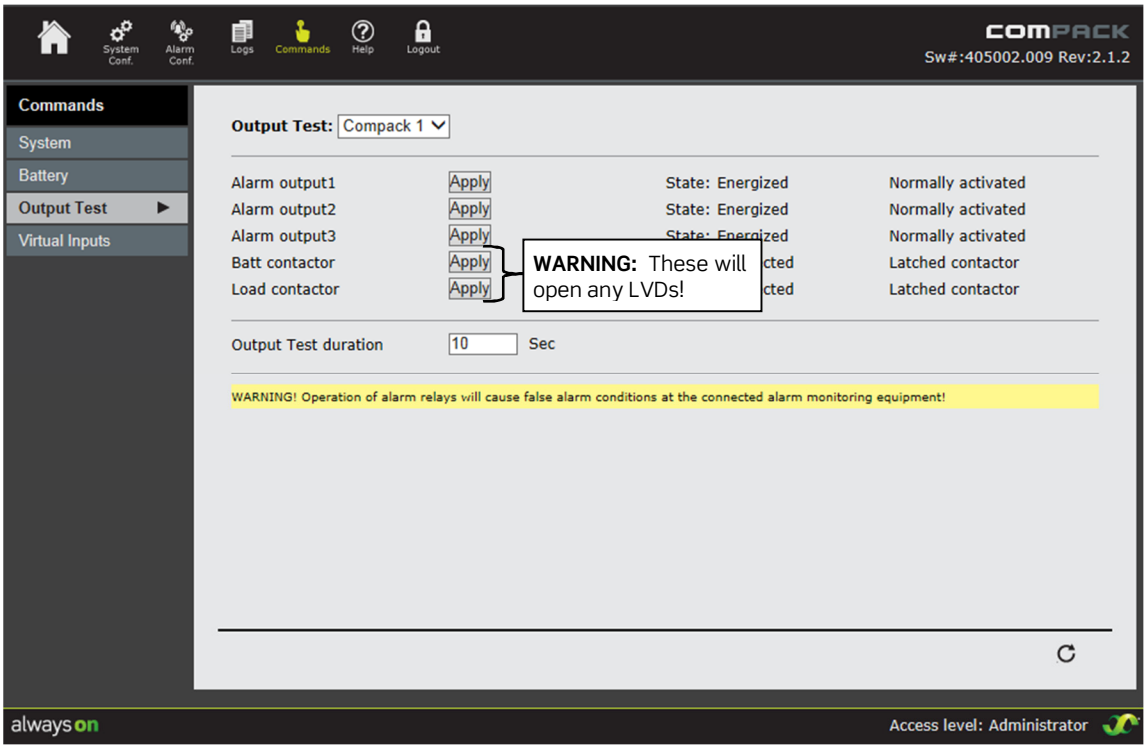


Figure 35 - Testing Output Relays through the Web Interface

Testing Output Relays through the Display Panel

To test output relays through the display panel:

1. From the Main Menu, select "Commands".
2. Select "Output Test".
3. All output relays for the unit indicated in the "Output Test" box are displayed.

   NOTICE: The "Output Test duration" setting is only available in the web interface.

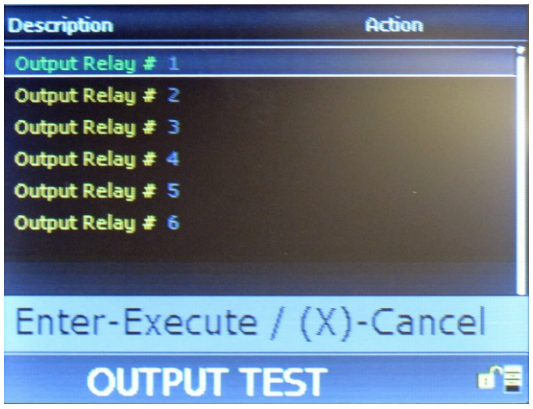


Figure 36 - Testing Output Relays through the Display Panel

4. Select an output relay to test.
5. Enter the PIN. The default PIN is 0003.
6. Press the [ENTER] key to execute the test, or select the [X] key to cancel.

Alarm relay test is complete.

10. Setting Site Information (web only)

NOTICE: Site information can be set through the web interface only, not through the display. However, site information is readable through the display at the following path:

Main Menu > Logs/Reports > Inventory Report

In the web interface, site information is set on the System Info page, where details about the site and the power system installation are entered. Entering a field value is optional, but it is highly recommended for future identification, maintenance and traceability.

To Set Site Information through the Web Interface

To set site information through the web interface:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Power System".
3. Click on "System Info".
4. Fill in the fields as desired. All fields are optional.
5. Click on the save icon (diskette) to save changes.

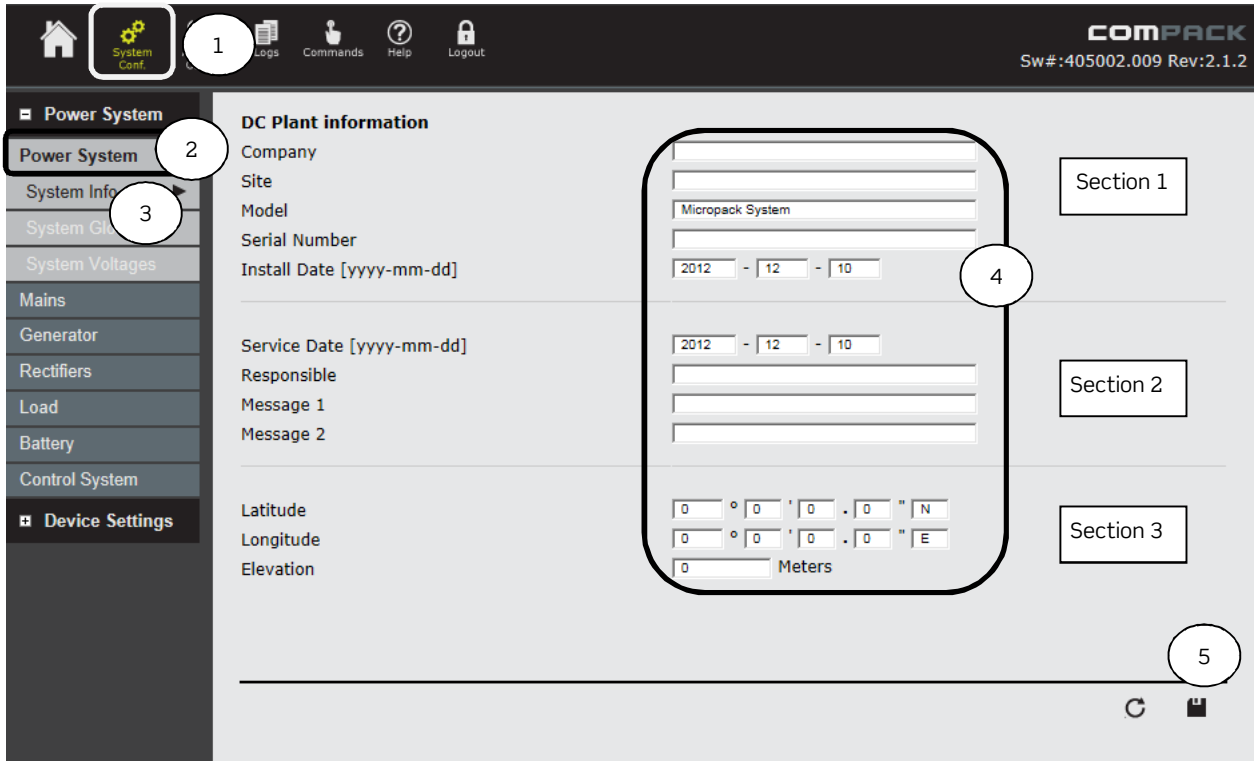


Figure 37 - System Information Page

The following fields are available (refer to Figure 37):

Section 1:

- Company – Name of the company that owns the power system
- Site – Name and/or ID of the site
- Model – Power system model (refer to documentation provided with the system)
- Serial Number – System serial number or other identification number
- Install Date – Installation date (year, month, day)

Section 2:

- Service Date – Date of latest service (year, month, day)
- Responsible – Person or company that serviced the power system
- Message lines (1 and 2) – Free-form fields for any messages related to services performed on the power system (results, unresolved issues, etc.)

Section 3:

- Latitude – Latitude of the site (degrees, hours, minutes, hemisphere [north or south])
- Longitude – Longitude of the site (degrees, hours, minutes, direction [east or west])
- Elevation – Site elevation (in meters)

11. Setting SNMP Communication (web only)

NOTICE: This feature is only available through the web interface, not through the display. Simple Network Management Protocol (SNMP) settings through the web interface are available from software revision **2.2** and later. Screenshots in this section are from the Smartpack2 controller.

Eltek controllers use SNMP v3. They also support SNMP v1 and SNMP v2c.

This section describes the setup required to establish the Eltek controller as an object on an existing network communicating via SNMP. Any other details regarding the network, Network Management System (NMS), or SNMP configuration for the installation site must be obtained from local systems administration (IT) and associated documentation. The SNMP version, network settings, security protocols, community strings, etc. should be provided by the local IT group.

For details on using various SNMP applications with Eltek controllers, please see document #2155710 - *How to SNMP with Eltek Controllers*.

To access the SNMP Settings pages:

1. Click on the "System Conf." icon in the top menu bar.
2. In the left menu bar, click on "Device Settings" to expand the menu.
3. Under Device Settings, click on "SNMP Settings". The "General SNMP Configuration" page appears.

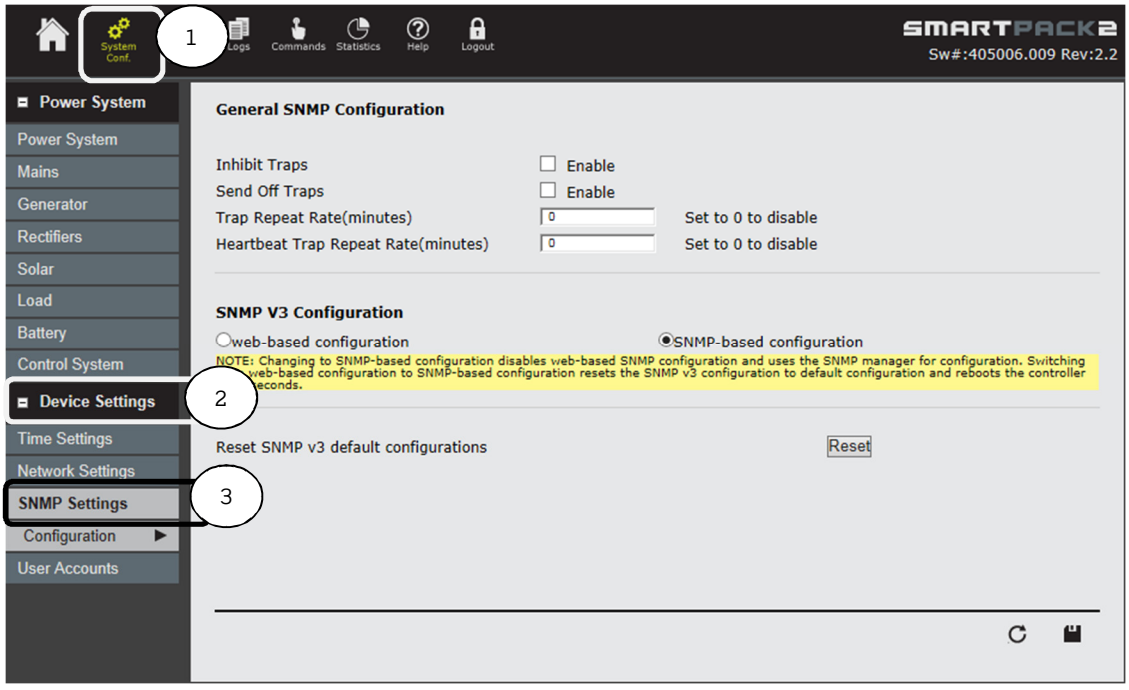


Figure 38 - SNMP Settings Configuration Page, Default

General SNMP Configuration

- Inhibit Traps – This feature is used in conjunction with the "Block Outputs" command, which is intended for use during system service to prevent false alarms from being transmitted. Enabling the "Inhibit Traps" field when "Block Outputs On" is enabled prevents traps from being sent on the network.

  NOTICE: The "Block Outputs" command times out if there is no user activity. This command is only available through the display panel menu.

  Main Menu > Commands > Block Outputs On

- Send Off Traps – Enabling this field sends a trap when an event or alarm returns to normal status (in other words, when the alarm or notice turns "off").
- Trap Repeat Rate (minutes) – Interval in minutes of how frequently a trap message should be sent when an event or alarm is in active status. Enter the number zero ("0") to disable.
- Heartbeat Trap Repeat Rate (minutes) – Interval in minutes of how frequently a heartbeat trap (signal) should be sent. Enter the number zero ("0") to disable.

SNMP v3 Configuration: Web-based / SNMP-based

By default, the controller is set to "SNMP-based configuration", which means that an SNMP management application will be used to configure the controller's SNMP settings rather than the controller's web interface.

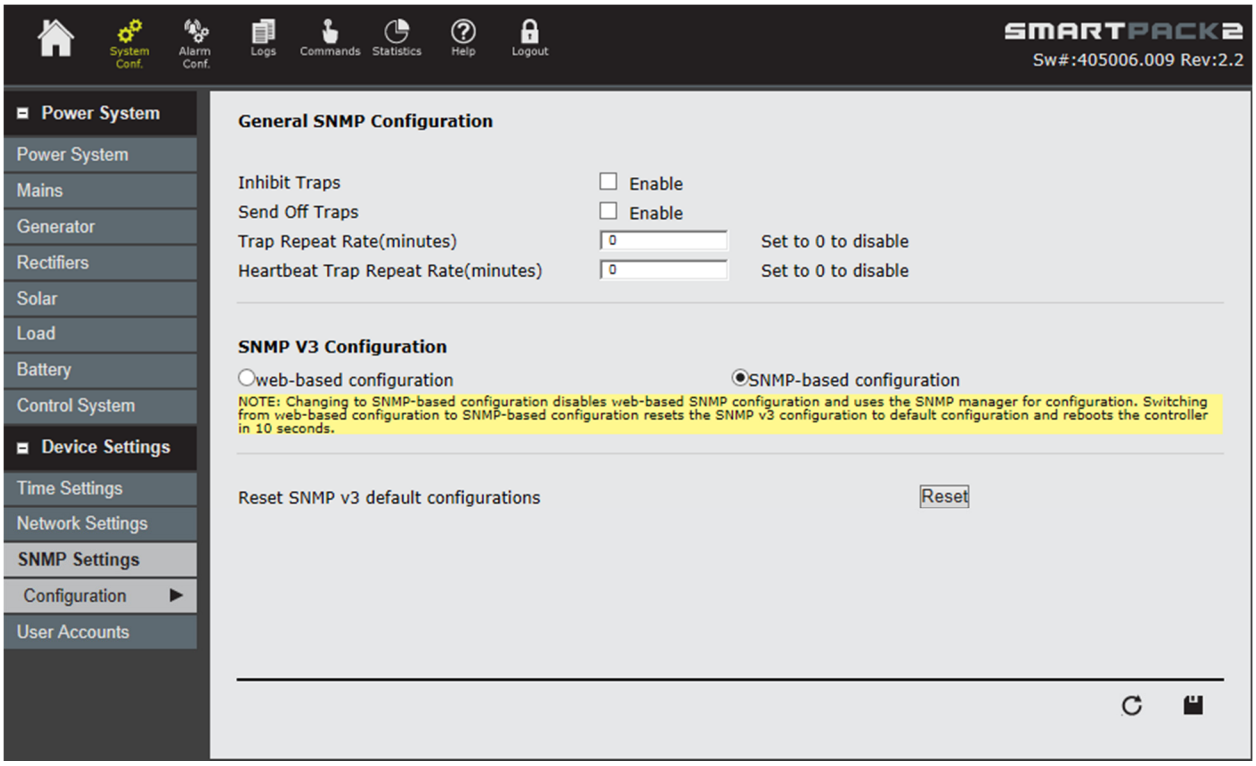


Figure 39 - SNMP Settings Configuration Page, Default

Where permissible, a "web-based configuration" option is available to configure the controller's SNMP settings through the web interface. When the radio button is selected, the following menus appear on the left menu bar (see Figure 40):

- USM Users
- V1/V2 Community
- Traps

These pages are only available when "web-based configuration" is selected.

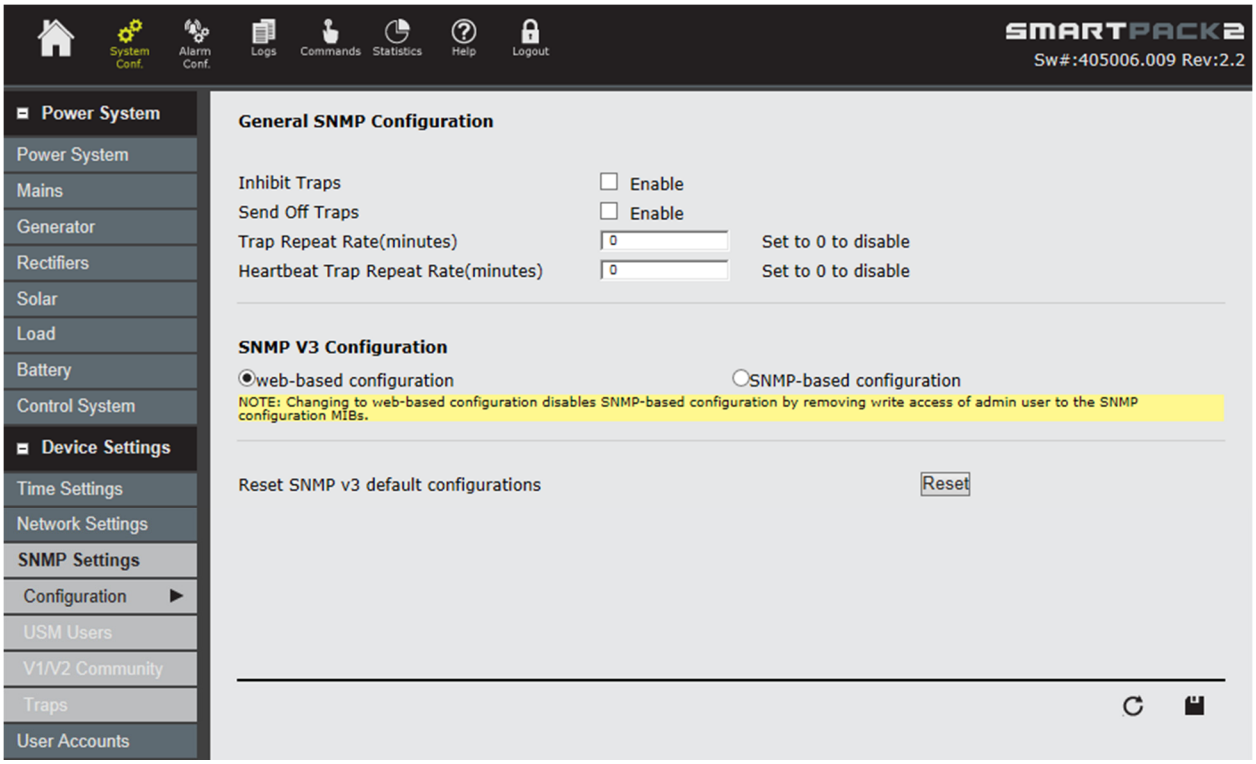


Figure 40 - SNMP Settings Configuration Page, Web-Based Configuration Selected

- Reset SNMP v3 default configurations – This button resets the default SNMP configuration. It is especially useful if some condition has resulted in the NMS being blocked out of the controller, for instance, if the all the USM users were accidentally deleted.

CAUTION: As with any "Reset" configuration command, all customized settings are lost when executed. Additionally, the controller reboots when this command is executed. The following warning appears when the "Reset" button is clicked:

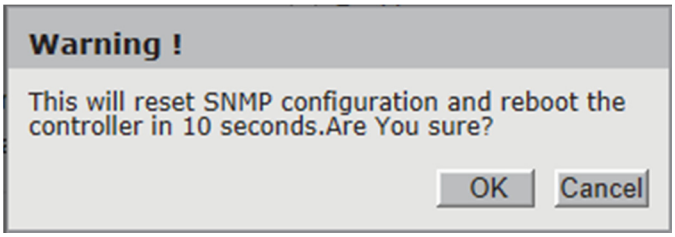


Figure 41 - Reset Warning

The following sections outline the pages for web-based configuration. See Table 1 for a summary of the configuration order for SNMP v3 and v1/v2c.

Table 1 - Web-Based Configuration Order

	SNMP v3	SNMP v1/v2c
USM Users	Set users	Set users (legacy support)
V1/V2 Community	N/A	Set community names
Traps	Configure trap receivers with USM users	Configure trap receivers with community names

USM Users Page

The USM Users page is where user accounts are created and configured. By default, the first four accounts (1-4) are set for standard SNMP v3 users. Accounts 5 and 6 are set for SNMP v2c and SNMP v1 networks, respectively. All user accounts can be modified.

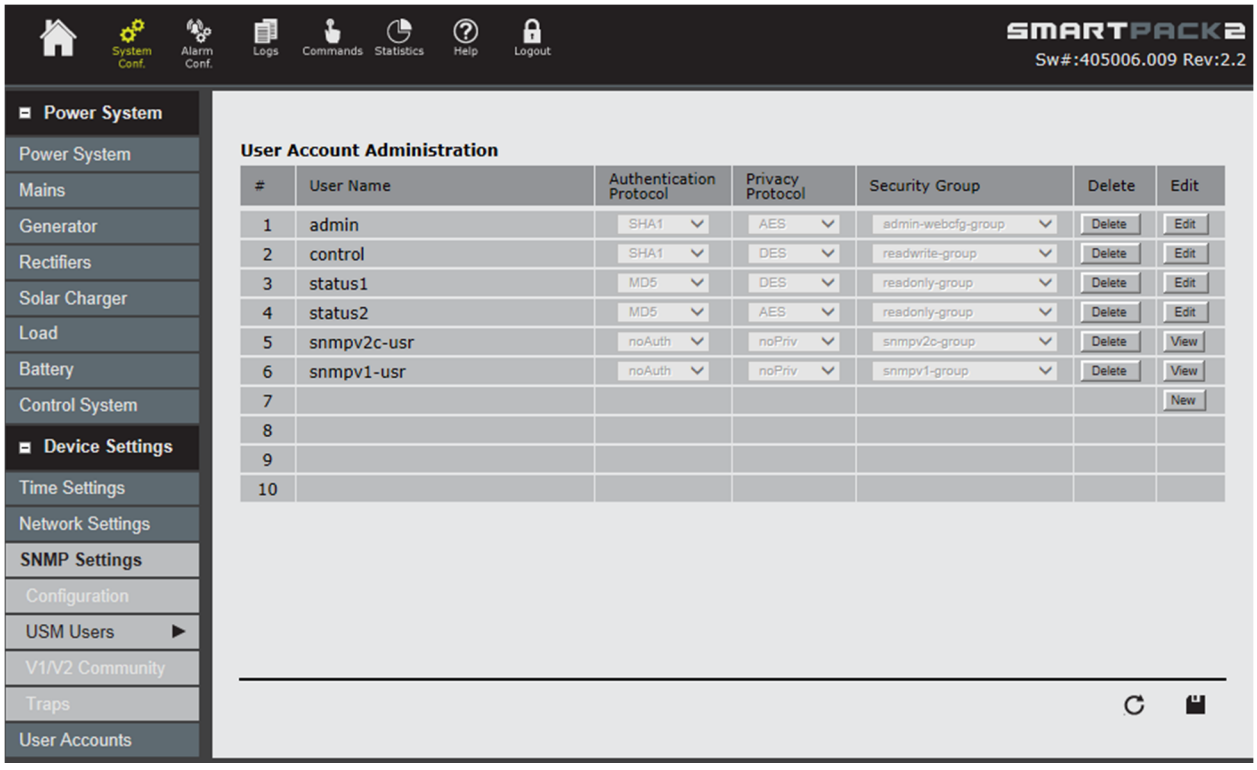


Figure 42 - USM Users Page

The Authentication Protocol and Privacy Protocol fields only apply to SNMP v3. User accounts set up for SNMP v2c and v1 show "noAuth" for Authentication and "noPriv" for Privacy, since these protocols are not supported in those versions.

SNMP v3 Authentication Protocols: MD5, SHA1

SNMP v3 Privacy Protocols: DES, AES

A passphrase field is provided for both Authentication and Privacy Protocols.

Security Groups for SNMP v3 are "admin-group", "readwrite-group", and "readonly-group". Groups "snmpv2c-group", "snmpv12c", and "snmpv1-group" are for legacy support of the older versions of SNMP.

SNMP v3 user accounts can be edited; only the Authentication and Privacy protocols and passphrases can be changed.

SNMP v2c and v1 accounts can only be viewed, not edited (Figure 43).

SNMP v3 **SNMP v1/v2c**

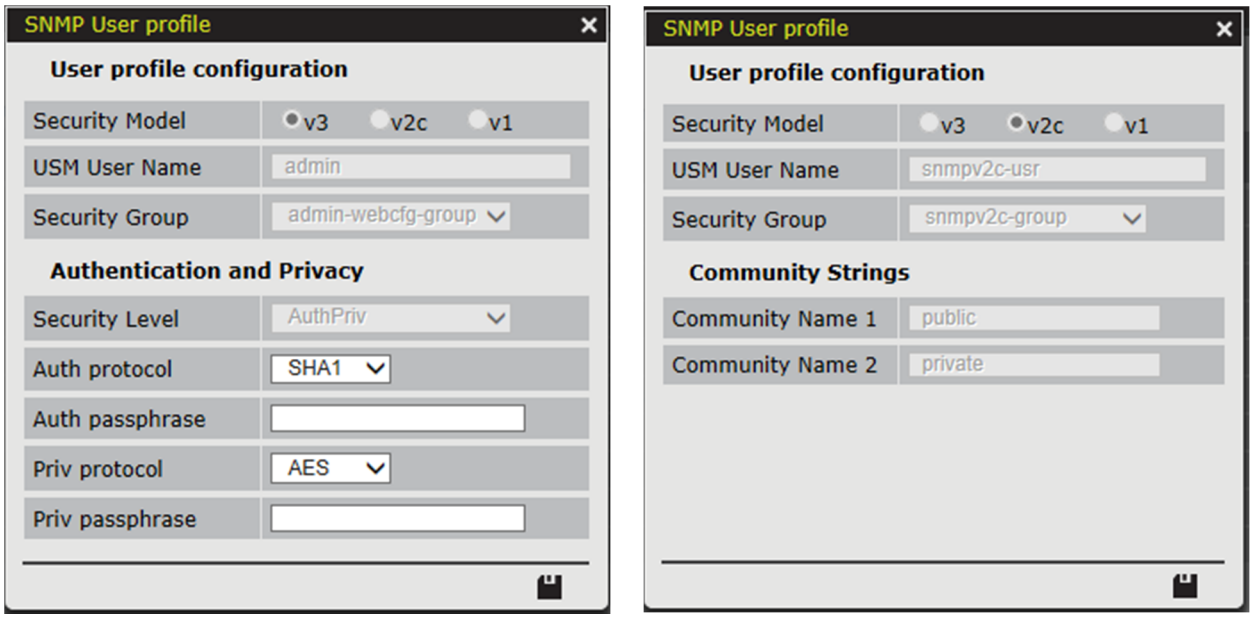


Figure 43 - User Account Edit/View Windows

User accounts can be deleted by clicking on the "Delete" button (see Figure 42).

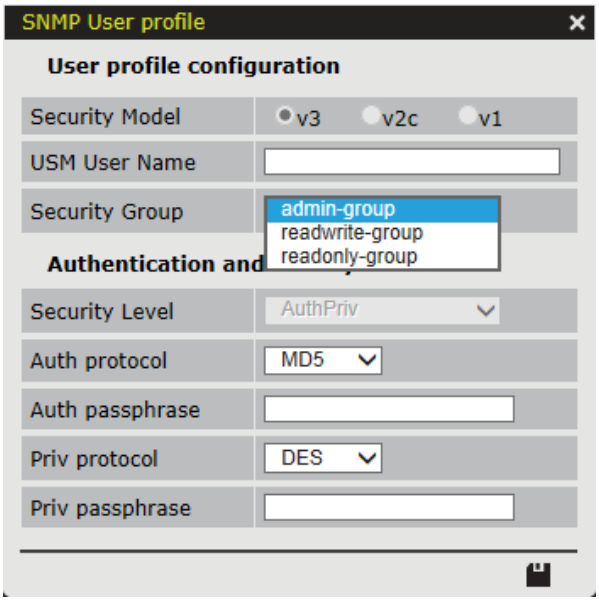
To create a new user account, click the "New" button, located under the "Edit" column of the first unassigned row (Figure 42). The maximum number of accounts that can be assigned is 10.

When creating a new user, select the SNMP Security Model, and then click the "Continue..." button.

NOTICE: The SNMP Security Model cannot be changed after the "Continue..." button is clicked.

Figure 44 - SNMP Version Selection for New User Profile

SNMP v3



SNMP v1/v2c

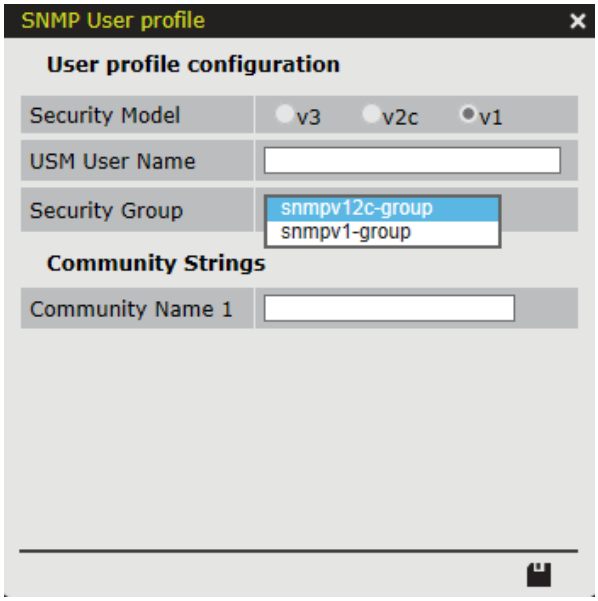


Figure 45 - New User Account Edit Windows

V1/V2 Community Page

This page is where to enter community strings for SNMP v1 and v2c "authentication". New and existing community names/strings are modified on this page. As the page name implies, this configuration page is for SNMP v1 and v2c only.

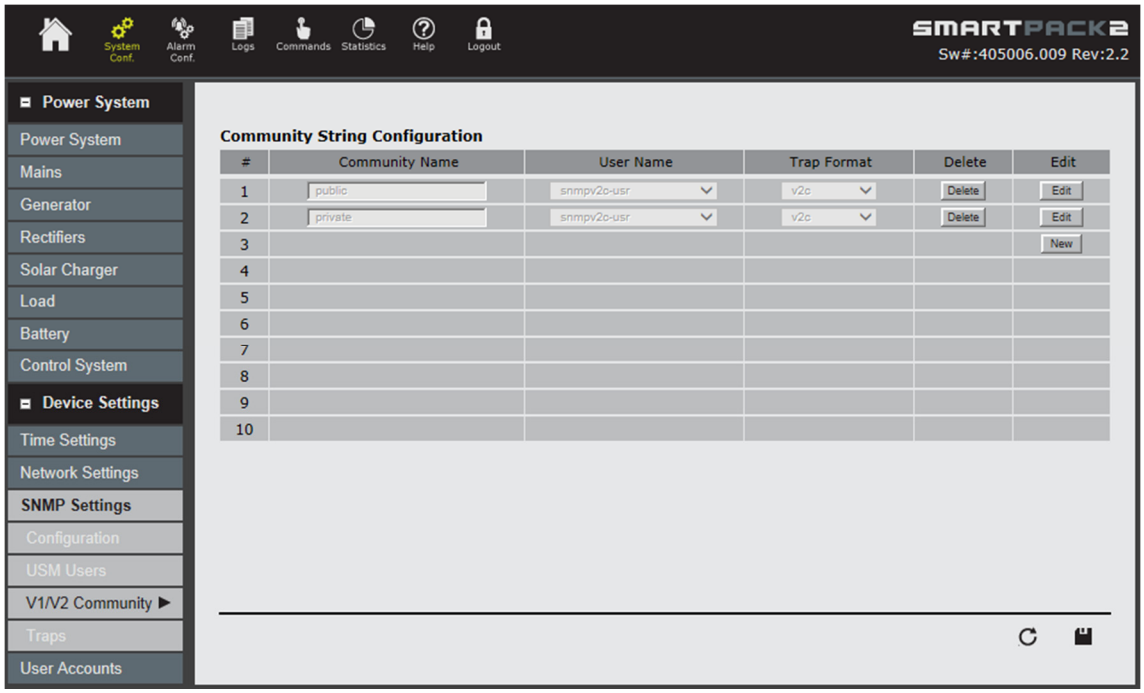


Figure 46 - Community Page

The "Community Name" field can be edited by pressing the "Edit" button on the far right of an existing row.

To create a new community string profile, click the "New" button, located under the "Edit" column of the first unassigned row. The maximum number of community strings that can be assigned is 10.

NOTICE: The "User Name" field requires v1 or v2c user accounts set up under the "USM Users" page.

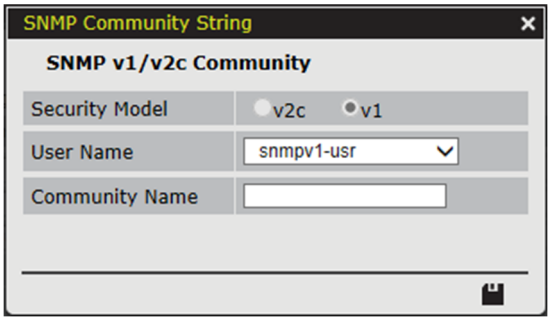


Figure 47 - User Name

Traps Page

The traps page is for setting up the IP addresses of devices that are to receive traps sent by the Eltek controller. By default several rows are set up as examples for each SNMP version with IP address 127.0.0.1 (localhost). All rows can be deleted and/or edited.

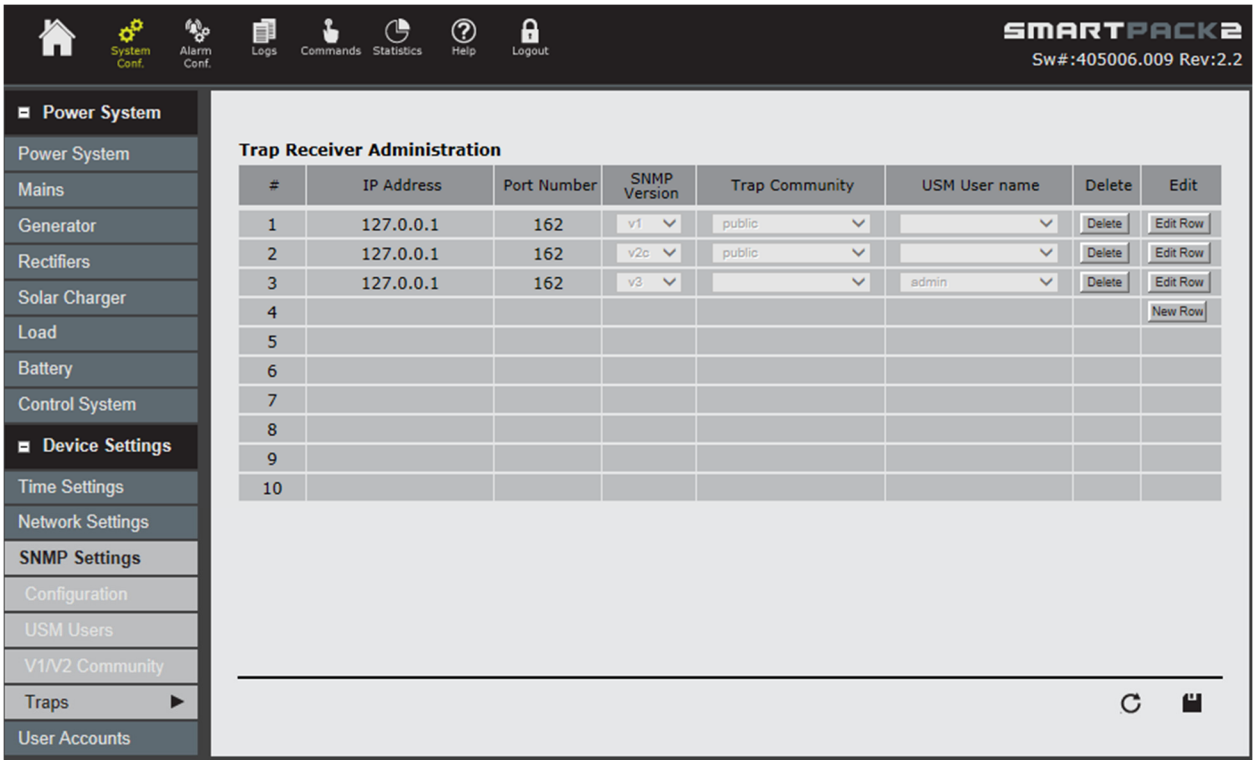


Figure 48 - Traps Page

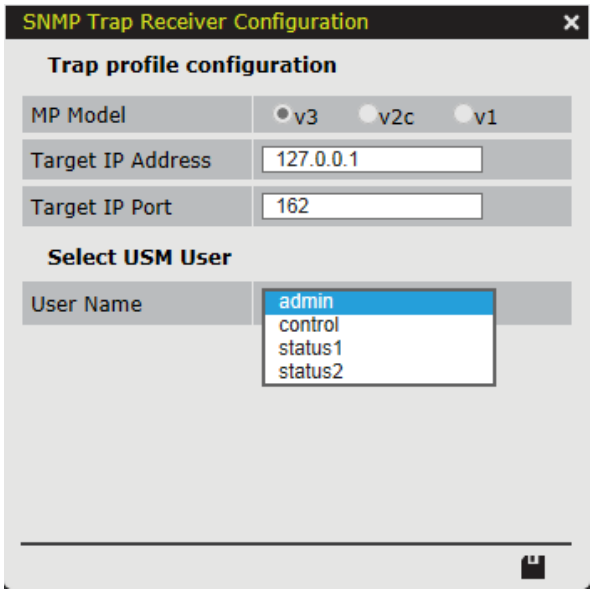
Press the "Edit Row" button to customize the IP address of the destination device that receives the traps.

"Trap Community" comes from the "Community Name" strings set under "V1/V2 Community". Community strings must be configured for SNMP v1 and/or v2c before traps can be setup.

"USM User name" comes from "USM Users" and only applies to SNMP v3 (since v3 has no "trap community").

This difference (Trap Community vs. USM User Name) is reflected in the configuration windows.

SNMP v3



SNMP v1/v2c

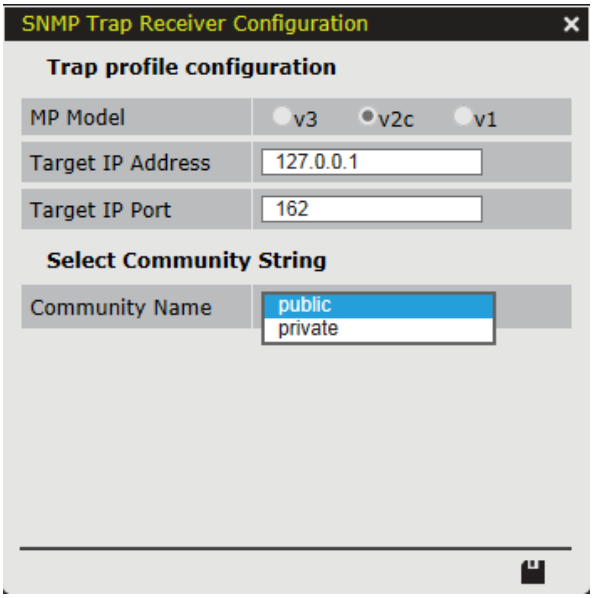


Figure 49 - Trap Receiver Configuration Windows

Table 2 - Alarm Traps (Eltek MIB branch 10)

Trap	Description
alarmPowerSystemTrap	This Trap is sent when an alarm condition occurs in the power system.
alarmBatteryTrap	This Trap is sent when an alarm condition occurs in the Battery subsystem.
alarmLoadGroupTrap	This Trap is sent when an alarm condition occurs in the Load subsystem.
alarmMainsTrap	This Trap is sent when an alarm condition occurs in the Mains subsystem.
alarmRectifierTrap	This Trap is sent when an alarm condition occurs in the Rectifier subsystem.
alarmControlSystemTrap	This Trap is sent when an alarm condition occurs in the Control-system subsystem.
alarmDcDcTrap	This Trap is sent when an alarm condition occurs in the DCDC converter subsystem.
alarmInputsTrap	This Trap is sent when an alarm condition occurs in the Inputs subsystem.
alarmOutputsTrap	This Trap is sent when an alarm condition occurs in the Outputs subsystem.
alarmGeneratorTrap	This Trap is sent when an alarm condition occurs in the Generator subsystem.
alarmSolarChargerTrap	This Trap is sent when an alarm condition occurs in the SolarCharger subsystem.
alarmWindChargerTrap	This Trap is sent when an alarm condition occurs in the WindCharger subsystem.
infoHeartBeatTrap	When enabled, this trap transmits a periodic "heartbeat" signal to indicate that the system is connected and operational.

SNMP Implementation

To configure the controller for the Network Management System (NMS):

1. Compile the Eltek MIB files in the NMS database.
2. Add the Eltek controller object to the management map.
3. Ping the controller to verify connectivity.
4. Define and configure trap handling and SNMP users (especially for SNMP v3).

The Management Information Base (MIB) files for Eltek controllers are available only from Eltek. Please contact Eltek Technical Support at 1-800-435-4872 or techsupport.us@eltek.com for the latest MIB files.

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