Alber Universal Xplorer Industrial and Telecom Monitors (UXIM/UXIMe) and (UXTM) Battery Monitor

Getting Started Guide

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1. General UXIM/UXIMe/UXTM Information

The sections in this guide are used to successfully start up the Universal Xplorer Industrial Monitor (UXIM/UXIMe) and the Universal Xplorer Telecom Monitor (UXTM). This process ensures proper functionality and integrity of the UXIM/UXIMe/UXTM installation.

Warning: Only properly trained personnel should perform the operations described in this guide.

Refer to the Universal Xplorer Industrial Monitor (UXIM/UXIMe) Installation Guide (4200-136) for installing and setting up the software on system computers.

Refer to the Universal Xplorer Telecom Monitor (UXTM) Installation Guide (4200-197) for installing and setting up the software on system computers.

1.1 Recommended Tools

The following tools are required:

- Clamp on current meter/multimeter, Fluke 336 or equivalent.
- Temperature probe, Fluke 80T-IR or equivalent.
- Laptop computer or equivalent.

1.2 Assumptions

It is assumed that:

- The UXIM/UXIMe/UXTM configuration software has been installed and is functioning properly.
- Personnel performing the UXIM/UXIMe/UXTM startup have received proper training.

1.3   Startup Tasks

The following is list of steps necessary to successfully complete the UXIM/UXIMe/UXTM startup. Depending on the requirements for the installation, some of these steps may not be needed.

Start Up Task	Refer to Section
Verify installation	Verify Installation, page 3
Power up monitor	Power Up the Monitor, page 5
Configure and verify settings	Configure and Verify Settings, page 9
Verify voltage readings	Voltage Reading , page 30
Verify temperature readings	Temperature Reading Verification, page 31
Verify resistance readings	Internal Resistance Reading Verification, page 32
Verify system current readings	System Current Reading Verification, page 37
Verify digital inputs	Digital Input Verification, page 37
Verify alarm relay contacts	Alarm Relay Contact Verification, page 38
Verify RS-485 communications	RS-485 Communication Verification, page 39
Set to Monitor mode	Set to Monitor Mode, page 40

Table 1 - Startup Task List

2. Verify Installation

Refer to the Universal Xplorer Industrial Monitor (UXIM/UXIMe) Installation Guide (part number 4200-136) as necessary to complete the following sections. Refer to the Universal Xplorer Telecom Monitor (UXTM) Installation Guide (4200-097) as necessary to complete the following sections.

2.1   Equipment Mounting

Verify the unit is properly secure in the rack or on the wall. All cabling entering the unit should be neatly dressed and secured to prevent any inadvertent disconnections.

2.2   Ambient Temperature Sensor Connection

Confirm the ambient temperature sensor has been connected and placed appropriately to monitor ambient temperature.

2.3   Digital Input Connection

Verify the digital inputs have been wired properly according to sensor requirements (for voltage source or contact closure).

⚠️**Caution**: If a voltage source is used, ensure the digital inputs polarity is correct and the input voltage does not exceed 60Vdc. Otherwise, the equipment will be damaged.

2.4   Communication Connection

Verify RS-485 communication is wired correctly. If intermittent communication is experienced, lower the baud rate.

2.5   Alarm Contact Connection

Verify the alarm contact is properly wired to the facility monitor. Either a normally closed or normally open contact can be used and can be connected in a series or parallel scheme when accommodating multiple units on the same facility monitor alarm input.

2.6   Sense Lead Harness Connections

Referring to the Configuration Connection diagram in the Universal Xplorer Industrial Monitor (UXIM/UXIMe) Installation Guide or the Universal Xplorer Telecom Monitor (UXTM) Installation Guide, confirm all sense lead connections have been properly terminated and labeled.

2.7   Fused Load Lead Connections

Referring to the Configuration Connection diagram in the Universal Xplorer Industrial Monitor (UXIM/UXIMe) Installation Guide or the Universal Xplorer Telecom Monitor (UXTM) Installation Guide, confirm all fused load lead connections have been properly terminated and labeled.

Note: All cables must be connected to the correct points and properly crimped.

2.8   Checking the Load Cable Voltage Measurement Approximate Values

You must verify the voltages on the batteries. Use the following steps to verify the Load Cable Voltage Measurement Values.

1. Verify there are no fuses in the load cable fuse holders.
2. Verify the load cables are numbered.
3. Disconnect the load cables from the rear panel of the UXIM/UXIMe/UXTM
4. Verify pins in the connectors cannot short to each other or to any surface.

    Warning: High voltage may exist on the load cables.

5. Install the load cable fuses.
6. Connect the DMM (digital multimeter) positive (+) lead to the connector for load cable number 1.
7. Connect the DMM (digital multimeter) negative (-) lead to the connector for load cable number 2.
8. Refer to the following Load Cable Voltage table and verify the voltage is correct for your battery configuration.
9. Remove the DMM negative (-) lead from connector number 2 and connect it to the connector for load cable number 3.
10. Refer to the following Load Cable Voltage table and verify the voltage is correct for your battery configuration.
11. Continue measuring between load cable number 1 to the remaining load cables until all load cable voltages are verified.
12. After all voltages are verified, remove the DMM leads.

In the chart, the battery configuration is defined as Number of Strings x Number of Jars/Cells x Voltage of each Jar/Cell.

Load Cable Voltage Measurement Approximate Values (unit DC Volts) for Battery Connections						
Battery Configuration	Load Lead 1-2	Load Lead 1-3	Load Lead 1-4	Load Lead 1-5	Load Lead 1-6	Load Lead 1-7
1x24x2V	12V	24V	36V	48V	N/C	N/C
1x58x2V	20V	40V	60V	80V	100V	116V
1x59x2V	20V	40V	60V	80V	100V	118V
1x60x2V	20V	40V	60V	80V	100V	120V
1x61x2V	20V	40V	60V	80V	100V	122V
1x62x2V	20V	40V	60V	80V	100V	124V
1x20x6V	24V	48V	72V	96V	120V	N/C
1x10x12V	24V	48V	72V	96V	120V	N/C

Table 2 - UXIM/UXIMe Load Lead Cable Voltage Measurement Values for Battery Connections

Battery Config	Load 1-2	Load 1-3	Load 1-4	Load 1-5	Load 1-6	Load 1-7	Load 1-8	Load 1-9	Load 1-10	Load 1-11	Load 1-12	Load 1-13	Load 1-14	Load 1-15	Load 1-16	Load 1-17	Load 1-18	Load 1-19	Load 1-20	Load 1-21	Load 1-22	Load 1-23	Load 1-24
1X18X1V	6v	12v	18v																				
1X12X2V	8v	16v	24v																				
2X12X2V	8v	16v	24v	0v	8v	16v	24v																
1X24X2V	12v	24v	36v	48v																			
1X6X4V	12v	24v																					
2X6X4V	12v	24v	0v	12v	24v																		
3X6X4V	12v	24v	0v	12v	24v	0v	12v	24v															
4X6X4V	12v	24v	0v	12v	24v	0v	12v	24v	0v	12v	24v												
1X12X4V	12v	24v	36v	48v																			
2X12X4V	12v	24v	36v	48v	0v	12v	24v	36v	48v														
1X4X6V	6v	12v	18v	24v																			
2X4X6V	6v	12v	18v	24v	0v	6v	12v	18v	24v														
3X4X6V	6v	12v	18v	24v	0v	6v	12v	18v	24v	0v	6v	12v	18v	24v									
4X4X6V	6v	12v	18v	24v	0v	6v	12v	18v	24v	0v	6v	12v	18v	24v	0v	6v	12v	18v	24v				
1X8X6V	12v	24v	36v	48v																			
2X8X6V	12v	24v	36v	48v	0v	12v	24v	36v	48v														
3X8X6V	12v	24v	36v	48v	0v	12v	24v	36v	48v	0v	12v	24v	36v	48v									
1X3X8V	8v	16v	24v																				
2X3X8V	8v	16v	24v	0v	8v	16v	24v																
3X3X8V	8v	16v	24v	0v	8v	16v	24v	0v	8v	16v	24v												
4X3X8V	8v	16v	24v	0v	8v	16v	24v	0v	8v	16v	24v	0v	8v	16v	24v								
1X6X8V	16v	32v	48v																				
2X6X8V	16v	32v	48v	0v	16v	32v	48v																
3X6X8V	16v	32v	48v	0v	16v	32v	48v	0v	16v	32v	48v												
4X6X8V	16v	32v	48v	0v	16v	32v	48v	0v	16v	32v	48v	0v	16v	32v	48v								
1X2X12v	12v	24v																					
2X2X12v	12v	24v	0v	12v	24v																		
3X2X12V	12v	24v	0v	12v	24v	0v	12v	24v															
4X2X12V	12v	24v	0v	12v	24v	0v	12v	24v	0v	12v	24v												
1X4X12v	12v	24v	36v	48v																			
2X4X12v	12v	24v	36v	48v	0v	12v	24v	36v	48v														
3X4X12V	12v	24v	36v	48v	0v	12v	24v	36v	48v	0v	12v	24v	36v	48v									

Caption above table: Load Cable Voltage Measurement Approximate Values (unit DC Volts) for Battery Connections

Table 3 - UXTM Load Lead Cable Voltage Measurement Values for Battery Connections

⚠️ **Caution**: Connecting the load wires incorrectly could cause an equipment failure if a resistance test is performed. Such failures are not covered under warranty.

2.9 Power Up the Monitor

To power up the system, connect the load cables back into the UXIM/UXIMe/UXTM. The UXIM/UXIMe/UXTM unit uses the battery string current for power. No power supplies or outlets are needed. The LEDs will begin to scan in a repeated pattern once the system boots.

Note: In the UXIM/UXIMe, the normally open (NO) contact of the Hardware Alarm relay becomes active after successful bootup and stays in this state during normal operation. The relay changes state and the normally closed (NC) contact becomes active during a firmware upgrade or any of the following fault conditions:

1. Power fault

2. Application code fault accompanied by an unsuccessful recovery

3. MLM (load module) failed

2.10   Installing the UXIM/UXIMe/UXTM Configurator Software Application

To install the UXIM/UXIMe/UXTM Configurator application software, follow these steps:

1. Insert the Vertiv UXIM/UXIMe/UXTM Configurator CD and double click on **Install** or browse the CD for the **setup.exe** file. The **Welcome to the InstallShield Wizard for Alber UXIM/UXIMe and UXTM Configurator** window appears.

Figure 1 - Installation Welcome Window

2. Follow the prompts in the Vertiv UXIM/UXIMe and UXTM Configurator InstallShield wizard by clicking **Next.** The **Destination Folder** window appears for you to change the install to a different folder. If you want to change the folder click **Change…** Otherwise click **Next** to continue the installation.
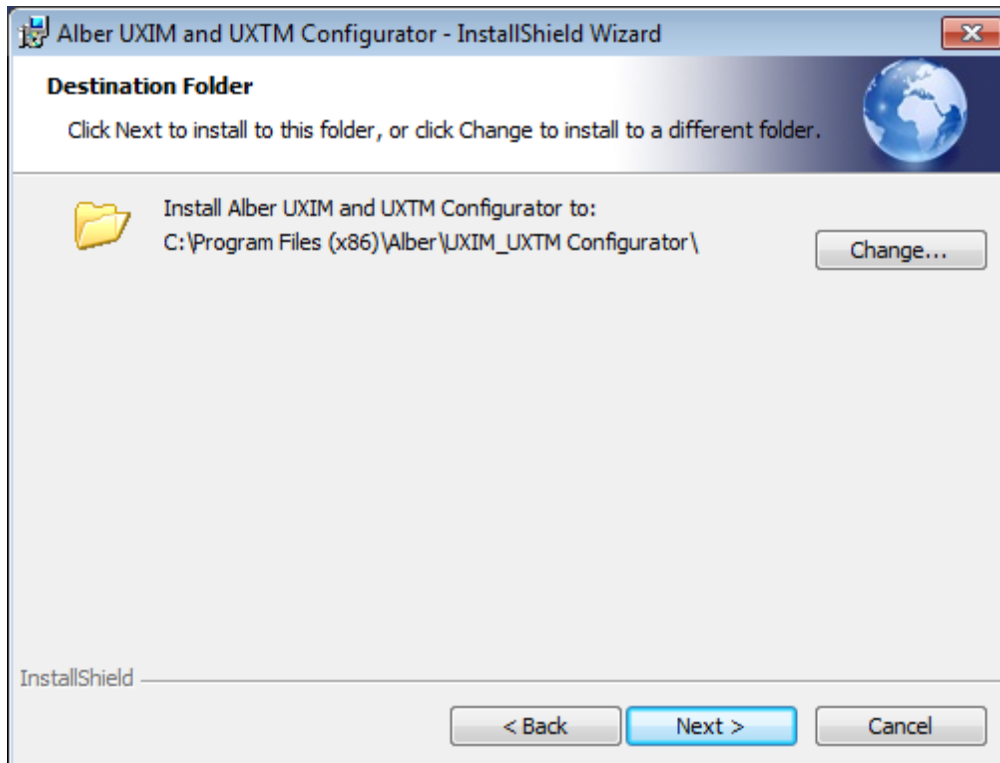
Figure 2 - Destination Tools General UXIM/UXIMe and UXTM Information

3. The **Ready to Install the program** window appears. Click **Install** to continue the installation.

Figure 3 - Installation Progress Bar

When the installation is complete the InstallShield Wizard Completed window appears.

**Figure 4 – UXIM/UXIMe and UXTM Installation
Complete**

4. Click **Finish** and the software installation for the UXIM/UXIMe and UXTM Configurator application is complete.

3. Configure and Verify Settings

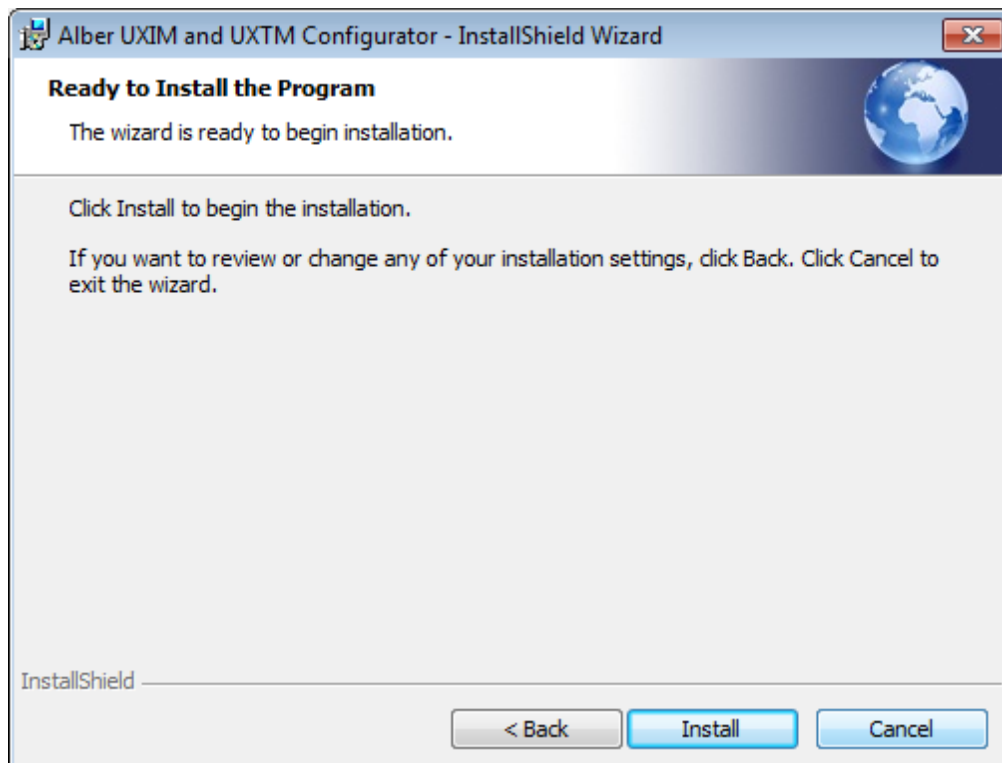If the UXIM/UXIMe/UXTM configuration software has not been installed on the computer, this must be completed now. To install the UXIM/UXIMe/UXTM configuration software, insert the program CD into the computer and follow the on-screen instructions. See section 2.12 for details.

3.1 Connect the Computer

Using the supplied cable (2025-108), connect the computer to the UXIM/UXIMe/UXTM via the USB connector on the front of the UXIM/UXIMe/UXTM.

Note: Your computer may take a few minutes to load a driver for the monitor if this is the first time you are making a USB connection to a UXIM/UXIMe/UXTM.

To establish a software connection to the UXIM/UXIMe/UXTM monitor, follow these steps.

1. Start the software by double clicking the desktop icon or selecting the Vertiv UXIM/UXIMe and UXTM Configurator under the Vertiv program group (All Programs, Alber, Alber UXIM/UXIMe and UXTM Configurator, Launch UXTM_UXIME.exe).
2. Click the **Connect to Monitor** icon. The Connecting to Monitor window appears
3. In the connection type area, click **USB**.
3. Click **Connect to Monitor**, the software connects and the Cell Voltage window appears

The following section discusses the general options available for establishing a software connection to a UXIM/UXIMe/UXTM monitor.

3.2 Connecting to a Monitor

To connect to an existing configured battery monitor, follow these steps:

1. Double click the **UXIM/UXIMe/UXTM** icon. The main UXIM/UXIMe/UXTM window appears.
2. Click **Connect to Monitor** icon. The Connecting to Monitor window appears.
3. In the Connection Type area, click the connection type that is available. Either **USB**, **Network**, or **Advanced**.

- **USB** - connects directly into a specific local Battery Monitor system. Typically the USB method is used by connecting a USB cable to a USB port on your computer then connecting the other end to the UXIM/UXIMe/UXTM device.
- **Network** - searches across several network connections and finds all the available Battery Monitors. This includes the device number, IP Address, port number, and serial number. The desired monitor is then selected from a list.
- **Advanced** – The desired battery monitor is selected from entries in a Monitor Address Book. The monitor name, IP Address and Port number are entered ahead of time in the Monitor Address Book under the File menu.

To connect to a battery monitor device on the network from a list of available monitors, follow these steps:

1. To find battery monitors on the network, click **Network** In the connection type area, then click **Find Battery Monitor**. The system searches across the network and displays the Device Number, IP Address, Port Number, and Serial Number of all the available battery monitors on the network.
2. Select the desired battery monitor for connection.
3. Click **Connect to Monitor**, the Monitor connects to the device and the Cell Voltage window appears.

To connect to a battery monitor at a specific IP address, follow these steps:

1. In the connection type area, click **Advanced**.
2. Select the desired monitor connection from the **Monitor** dropdown menu.
3. Click **Connect to Monitor**, the Monitor connects to the device and the Cell Voltage window appears.

   Note: In order to use this method you must first create an address book entry for the monitor in the Monitor Address Book under the file menu.
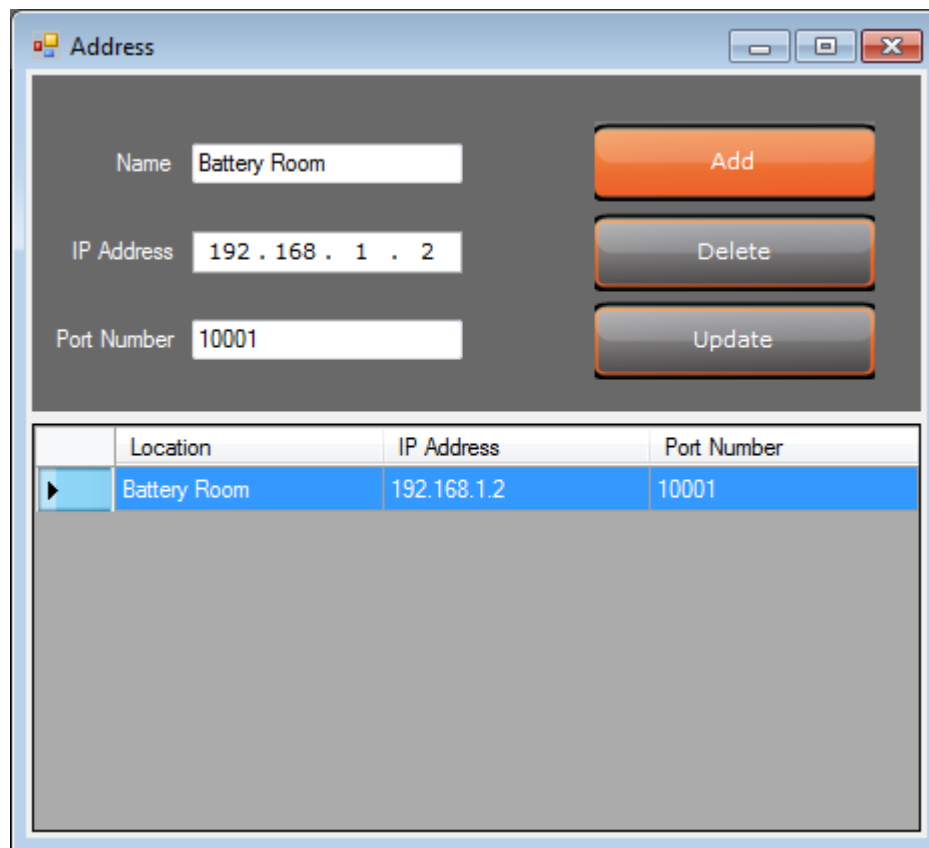

Figure 5 – Monitor Address Book Edit Window

Use the following steps to create a Monitor Address Book entry:

1. From the File menu select **Monitor Address Book**. The Address Book Edit Window appears (See figure 5).
2. Enter a Name for the battery monitor connection.
3. Enter the IP Address for the battery monitor connection. An IP Address is an identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32- bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 192.168.1.2 is an IP address.
4. Enter the Port Number of the battery monitor. The port number would typically be 10001 for UXIM/UXIMe/UXTM.
5. Click the Add button to save your entry. Save edits to an existing entry by clicking the Update button.

3.3   Viewing General Information about the UXIM/UXIMe/UXTM

To view general equipment information about the UXIM/UXIMe/UXTM do the following:

Click **Tools** on the navigation tree, the **General** tab appears as the default. The serial number, model number, firmware version, bootloader version and PCB Revision are view only for verification.
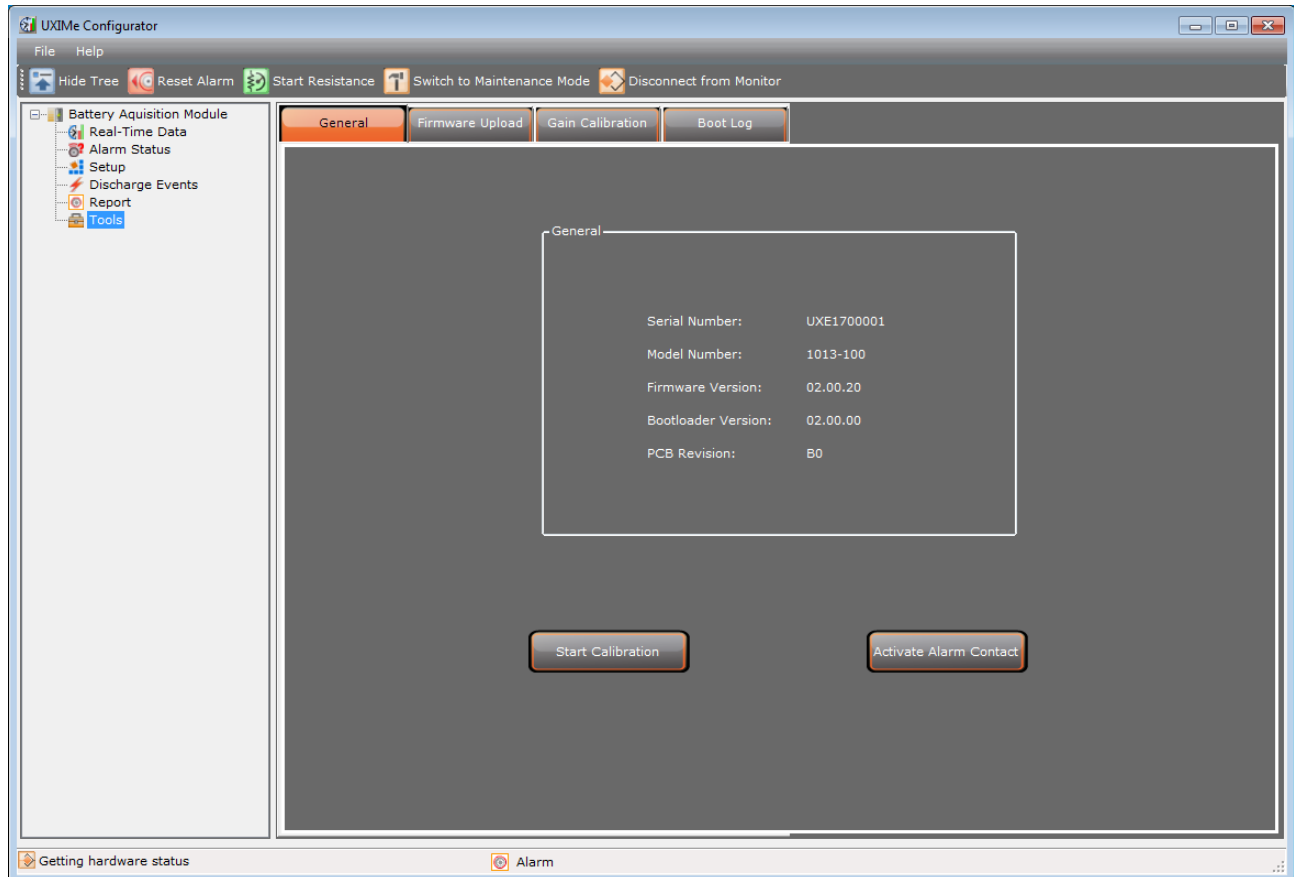

Figure 6 - Tools General UXIM/UXIMe/UXTM Information

3.4   Verify and Upgrade Firmware Version on the Device

Verify the latest firmware is installed and record the installed version in the Acceptance Report. The latest version can be found at the www.vertivco.com Web site. Vertiv recommends installing the latest version of firmware available.

To verify the firmware version on the device:

1. Check the installed version by clicking **Tools** on the navigation tree.

2. On the right side of the window, the system displays general information. The Application version is the current version installed. Note current installed firmware version and record it in the Acceptance Report in the Application Firmware Version space.

To upgrade the firmware on the device:

1. Click **Tools** on the navigation tree, then **Firmware Upload** tab.

Figure 7 - Tools Firmware Upload

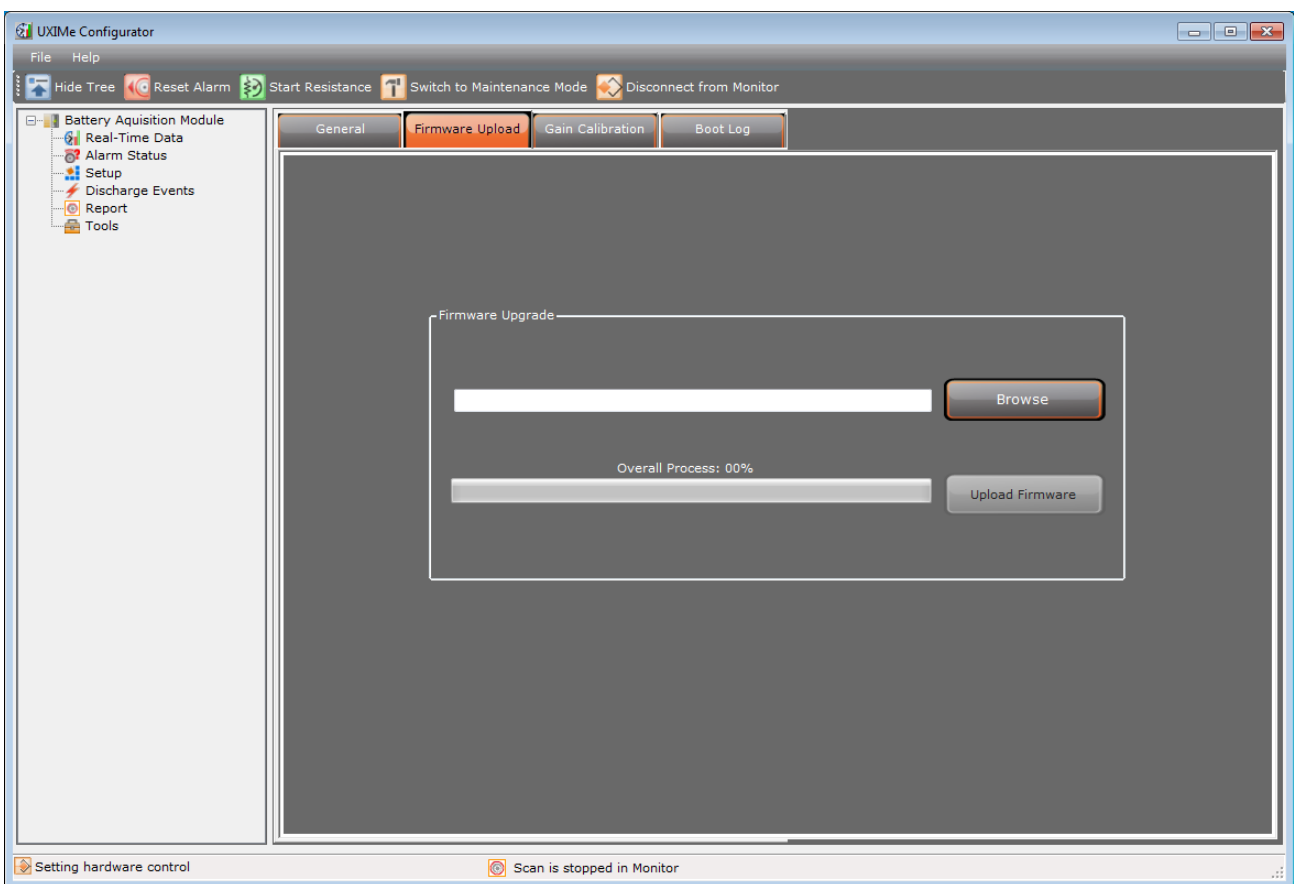2. Click **Browse** and navigate to the firmware file. The Firmware file defaults to "C:\Program Files\Alber\UXIM_UXIMe_UXTM Configurator\Firmware\UXIMe/UXTM". The file name is called UXIM.xim for UXIM, UXIM_E.xem for UXIMe and UXTM.xtm for UXTM.

3. Click **Upload Firmware** button.

4. Check the Application Version number on the **General** tab to verify the firmware upgrade was successful.

Note: In the UXIM/UXIMe, the normally closed (NC) contact of the Hardware Alarm relay becomes active during a firmware upgrade until the system reboots.

3.5   Boot Log Information

The boot log provides valuable diagnostics information about system resets. The latest information can be found on the Boot log Information tab.

To review the boot log information:

1. Click **Tools** on the navigation tree, then **Boot Log**.

2. The boot log window displays the following information:

    - **Boot log number** - shows the number of the log

    - **Reset Reason** - show the reason for the reset

    - **Reset Time** - shows the time of the reset

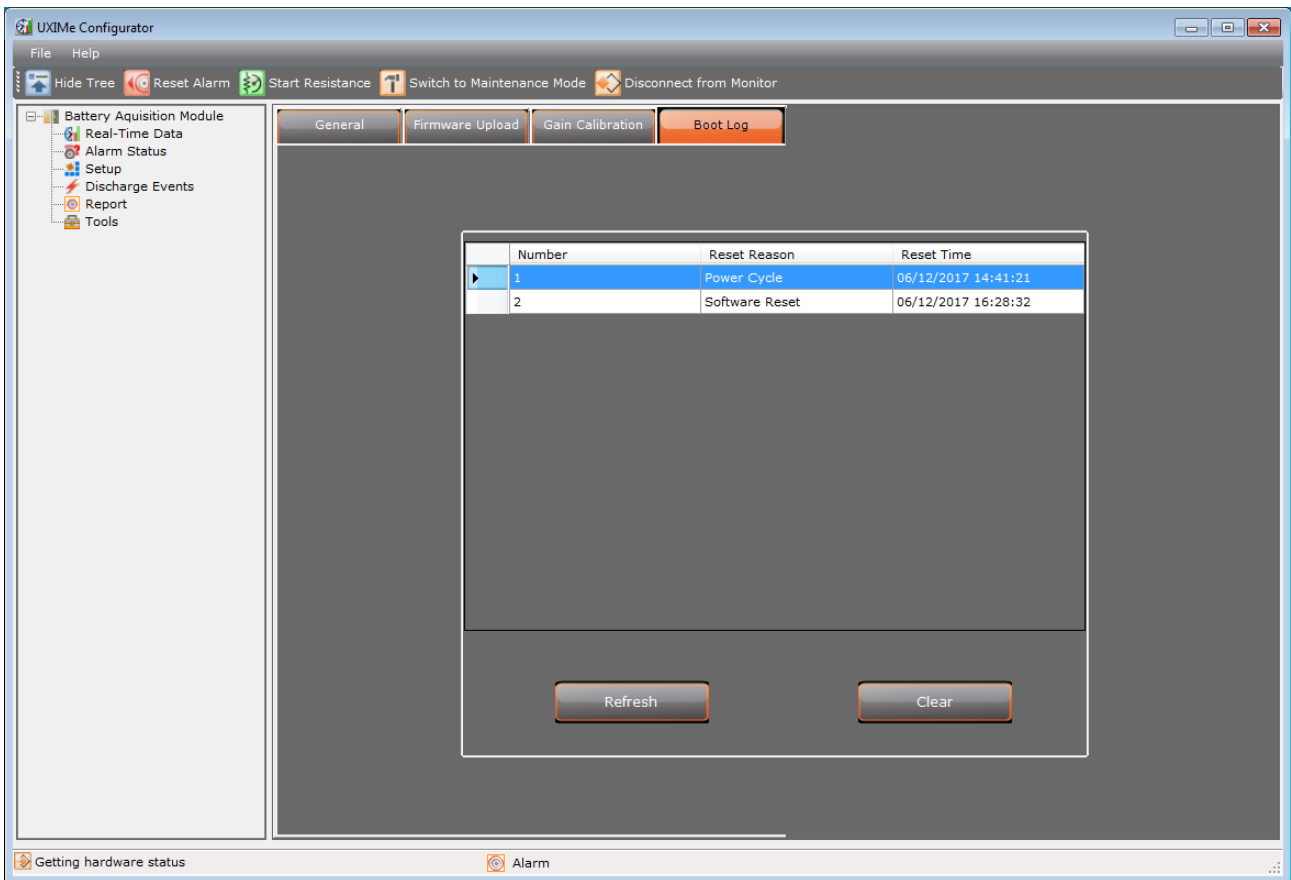3. To update the window with the latest system reset information, click **Refresh**.

Figure 8 - Tools Boot Log

4. To permanently delete the information and empty the log, click **Clear**.

3.6   Set General Settings

There are some general configuration parameters that must be set and saved to the UXIM/UXIMe/UXTM monitor. These settings can be found on the **General** tab under Setup.

To set the General settings on the UXIM/UXIMe/UXTM Configurator:

1. Click **Setup** on the navigation tree, the **General** tab appears as the default.
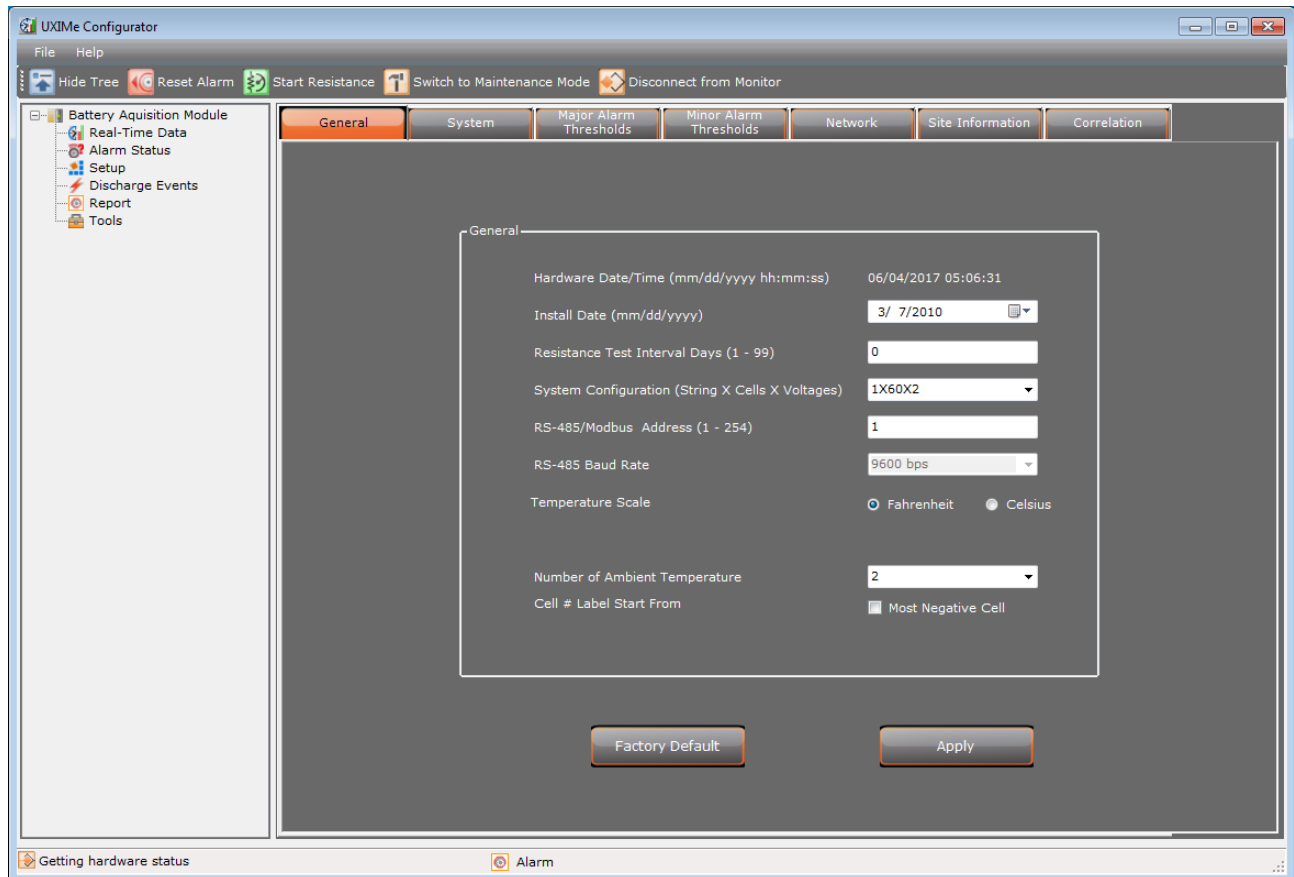

Figure 9 - Setup General UXIM/UXIMe/UXTM Settings

2. Use the drop down list to set the date the equipment was installed.
3. Set the resistance test interval in days. This determines when an internal resistance test is performed, based on an automatic timer. The test will execute at midnight when the number of days reach the specified interval.
4. Select the battery configuration from the System Configuration dropdown list. Battery configurations are constructed in the format: Number of Strings X Number of Cells X Cell Voltage. For example 1X24X2 is one string of 24, 2 volt cells.
5. RS-485/Modbus Address (1-254) - enter an address number for the UXIM/UXIMe/UXTM, minimum is 1 and maximum is 254.

Important: If you are using the Battery Xplorer Enterprise monitoring software and connection to a UXIM/UXIMe or UXTM device fails, go to the UXIM/UXIMe/UXTM Configurator application and verify the RS-485/Modbus Address (1-254) parameter is set to **0**. The RS-485/Modbus Address (1-254) parameter is located on the General tab. If another number is used besides zero the UXIM/UXIMe or UXTM devices will not connect or import data into the Database Import Manager. Also, the Battery Xplorer Enterprise software will not be able to monitor the UXIM/UXIMe or UXTM devices if the parameter is changed to another number.

6. Select the desired communication data rate from the RS-485 Baud Rate dropdown list. The list is grayed out for UXIM/UXIMe which has a fixed data rate of 9600 bps.
7. Select the temperature unit preference type of either Fahrenheit or Celsius. When Fahrenheit is selected, all temperature fields will be displayed in Fahrenheit. When Celsius is selected all temperature fields will be displayed in Celsius.
8. The Enable Cell Temperature option gives you the abilty to view temperature readings for each cell. To allow cell temperature readings, click the **Enable Cell Temperature** check box. To disable the hardware from detecting cell temperature readings, deselect the **Enable Cell Temperature** check box. **Note**: UXIM/UXIMe currently does not support Cell Temperature.
9. Select the Number of Ambient Temperature probes by clicking the drop down arrow to view and select to monitor none or one ambient temperature for UXTM. For UXIM/UXIMe select to monitor none, one or two ambient temperature
10. The **Cell # Label Start From** parameter allows you to match the numbering of cells in the monitor to the numbering of cells in the battery system. Check the box if the battery cells are numbered starting from the most negative cell. Leave the box unchecked if cells are numbered starting from the most positive cell.

11. Click **Apply** to save the settings to the monitor. All UXIM/UXIMe/UXTM general settings are saved. **Note**: Clicking **Apply**, also updates the monitor with the current date/time of the computer.

    If you want to revert to the factory default settings, click the **Factory Default** button and then click **Yes** in the warning box.

⚠️**Note**: Clicking the **Factory Default** button will delete all historical data stored in the monitor

The factory default settings for UXTM are:
- Install Date: 3/7/2010
- Resistance Test Interval: 0
- System Configuration: 1X24X2V
- RS-485/Modbus Address: 120
- RS-485 Baud Rate: 19200 bps
- Temperature Scale: Fahrenheit

The factory default settings for UXIM/UXIMe are:
- Install Date: 3/7/2010
- Resistance Test Interval: 0
- System Configuration: 1X60X2V
- RS-485/Modbus Address: 1
- RS-485 Baud Rate: 9600 bps
- Temperature Scale: Fahrenheit

3.7   System Settings

System UXIM/UXIMe/UXTM Configurator settings must also be set. These settings can be found under Setup on the System tab.

To set the System settings on the UXIM/UXIMe/UXTM Configurator:

1. Click **Setup** on the navigation tree, and then click the **System** tab to view all the system setup options.
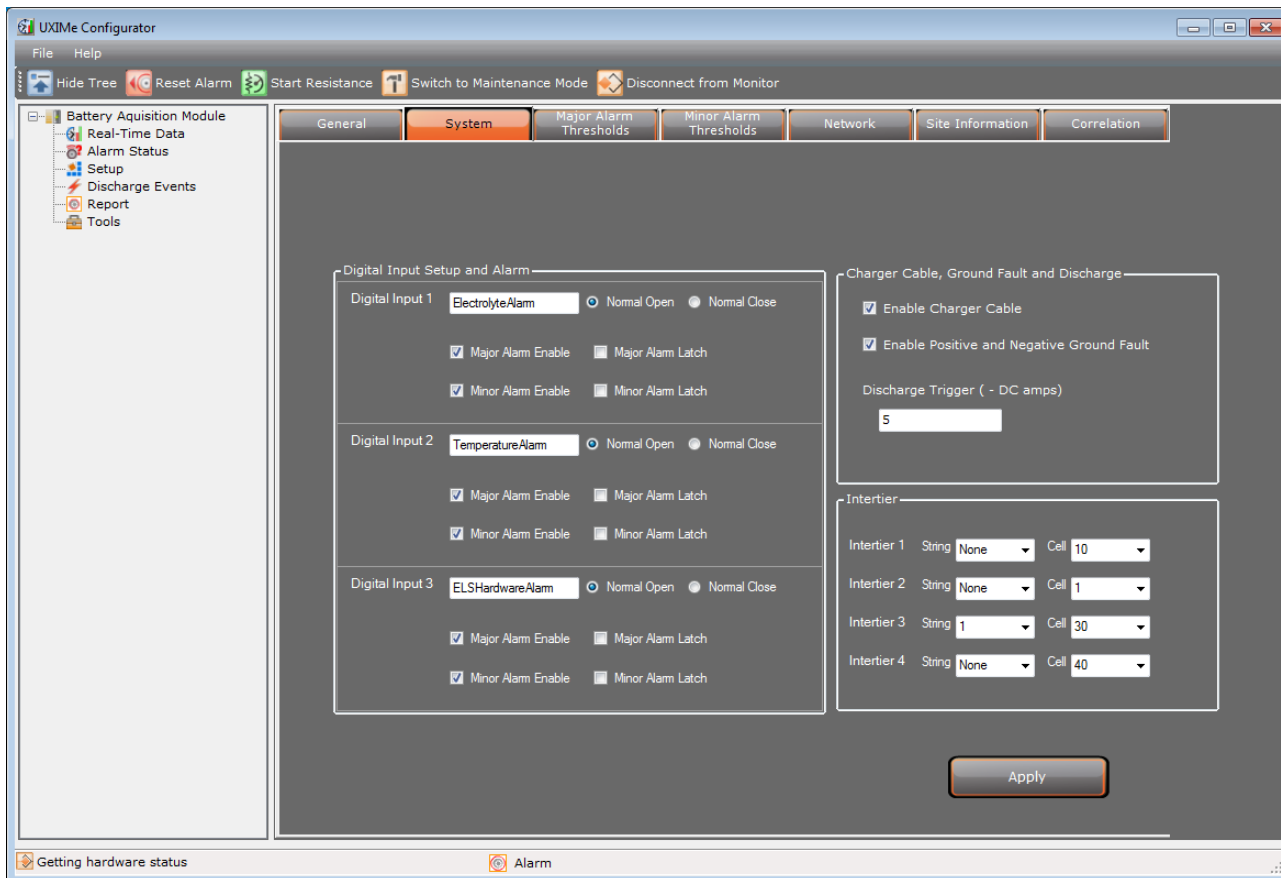

Figure 10 - System Setup for Digital Input Charger Cable, Ground Fault, Discharge and Intertier

2. Enter a name for the contact connected to each digital input and indicate if the contact is normally open or normally closed.
    o   If normal open is selected the alarm will be triggered when the contact closes.
    o   If normal closed is selected the alarm will be triggered when the contact opens.
3. Check the Major Alarm Enable, Minor Alarm Enable or both to enable a digital input alarm. To disable an alarm, leave the enable boxes unchecked. Each digital alarm can be enabled with or without a latch option. Checking the latch option will cause an alarm to stay active until manually reset using the Reset Alarm button under Alarm Status or the Alarm Reset button on the monitor. Without the latch option, alarms will reset automatically when the alarm condition clears. **Note**: Major alarms cause the Alarm Contacts/Parameter Alarm relay to activate.

ELS2 Integration: The Vertiv Electrolyte Level Sensor (ELS2) can be integrated with the UXIM/UXIMe through the use of the digital inputs.

- o Setup the digital inputs as follows:
  - Digital Input 1: Electrolyte Level Alarm – Normally Open
  - Digital Input 2: Temperature Alarm – Normally Open
  - Digital input 3: ELS Hardware Alarm – Normally Open
- o Ensure the monitor is configured for DRY CONTACTS (the appropriate jumpers must be installed) which is the factory default.
- o Connect the alarm cable provided with the ELS2system (1108-172-XX) between the ELSi2 relay outputs and the UXIM/UXIMe digital inputs.

4. Select the Charger Cable, Ground Fault and Discharge options:
   - o Click the check box to enable charger cable resistance alarm or leave the box unchecked to disable.
   - o Click the check box to enable positive and negative ground fault alarm or leave the box unchecked to disable.
   - o Enter a discharge trigger value in the range 1-35,000 amps. When the discharge current exceeds the set value the monitor goes into Discharge Mode and begins to log cell voltage, overall voltage and discharge current data. The default threshold is 50 amps.

5. In the Intertier area, select a string and cell number from the dropdown lists to specify the location of up to 4 intertiers.
   Note: The system automatically discovers the number of strings and cells in the system.
6. Click **Apply** to save the settings to the monitor. All UXIM/UXIMe/UXTM system settings are saved.

3.8   Set String and Cell for Major and Minor Alarm Thresholds

Each parameter monitored has a Major and Minor Alarm threshold level that causes an alarm to be activated if the level exceeds the threshold settings. Alarm Threshold settings can be found under Setup on the Major and Minor Alarm Thresholds tabs. In addition to entering a threshold value, you have the option to enable and latch the alarms using the associated check boxes. Any alarm that is enabled will generate an alarm event when its threshold is violated. Checking the latch option will cause an enabled alarm to stay active until manually reset using the Reset Alarm button under Alarm Status or the Alarm Reset button on the monitor. Without the latch option, enabled alarms will reset automatically when the alarm condition clears.

Note: Major alarms cause the Alarm Contacts/Parameter Alarm relay to activate.

To set the Major and Minor Alarm Thresholds values:

1. Click **Setup** on the navigation tree, then **Major or Minor Alarm Thresholds** tab. The window shows two types of alarms that you can modify, String alarms and cell alarms.

   - String Alarms include:
     - o **High Ambient Temperature (F)** - If the ambient temperature is a higher value than the threshold, this alarm appears. The temperature of the surrounding air that comes into contact with the battery is too warm. E.g., the battery room air temperature is too warm. The default threshold is 90 degrees.

     - o **Low Ambient Temperature (F)** - If the ambient temperature is a lower value than the threshold, this alarm appears. The temperature of the surrounding air that comes into contact with the battery is too cold. E.g., the battery room air temperature is too cold. The default threshold is 50 degrees.

o **High Overall Voltage (DC volts)** - If the overall voltage is a higher value than the threshold, this alarm appears. This is the battery voltage measured at its main positive and negative terminals. Excessive high voltage at any point in the DC system is undesirable because high voltage could result in too much heat and the loss of battery energy. The default threshold is 60 DC volts.

o **Low Overall Voltage (DC volts)** - If the overall voltage is a lower value than the threshold, this alarm appears. This is the battery voltage measured at its main positive and negative terminals. The default threshold is 40 DC volts.

o **High Discharge (-DC amps)** - If the discharge current is a higher value than the threshold, this alarm appears. The default threshold is 200 DC amps.

o **High Ripple Current (AC amps)** - If the ripple current noise level is a higher value than the threshold, this alarm appears. The current drawn by a cell has a high noise level characterized by a uniform waveform riding in the DC circuit. The default threshold is 1 AC amp.

o **High Float Current (DC mamps)** - If the float current is a higher value than the threshold, this alarm appears. The current drawn by a cell that is being float charged could be too high. Assuming the recommended float voltage is used, the cell will draw sufficient current to maintain itself fully charged. The default threshold is 5000 DC miliamps.

o **Low Float Current (DC mamps)** - If the float current is a lower value than the threshold, this alarm appears. The current drawn by a cell that is being float charged could be low. Assuming the recommended float voltage is used, the cell will draw sufficient current to maintain itself fully charged. The default threshold is 20 DC miliamps.

o **Cell to Ambient Delta (F)** - In a monitor with the cell temperature option, the system monitors the temperature difference between each cell and the room ambient. If the temperature difference is a higher value than the threshold, this alarm appears. The default threshold is 5.0 degrees.

- Enable Charger Cable

o **Charger Cable Positive (microhms)** – If the positive charger cable is at a higher resistance value in microhms than the specified threshold, the alarm will appear. The default threshold is 1000 microhms.

o **Charger Cable Negative (microhms)** – If the negative charger cable is at a higher resistance value in microhms than the specified threshold, the alarm will appear. The default threshold is 1000 microhms.

o **Positive Ground Fault (kohms)** – If the positive ground fault reading in kilohms is at a lower value than the specified threshold, the alarm will appear. The default threshold is 10 kilohms

o **Negative Ground Fault (kohms)** – If the negative ground fault reading in kilohms is at a lower value than the specified threshold, the alarm appears. The default threshold is 10 kilohms.

Thermal Runaway alarm:

There are two possible triggers for a thermal runaway alarm, Float Current and Cell to Ambient Delta. The Cell to Ambient Delta trigger is only available on a monitor that has the cell temperature option. If both parameters are enabled, the thermal runaway alarm will only be triggered when both have a higher value than their threshold setting. Checking the box for Latch on one or both parameters will cause a thermal runaway alarm to stay active until manually reset.

- **Cell to Ambient Delta (F)** - In a monitor with the cell temperature option, the system monitors the temperature difference between each cell and the room ambient. If this parameter is the only one enabled for thermal runaway detection and the temperature difference is a higher value than the threshold, the thermal runaway alarm appears. The default threshold is 5.0 degrees (F).

- **Float Current (DC mamps)** - If this alarm is the only one enabled for thermal runaway detection and the float current is a higher value than the threshold, the thermal runaway alarm appears. The default threshold is 0 DC miliamps.

- Major or Minor Cell Alarms include:

    - **High Cell Voltage (DC volts)** - If the cell voltage is a higher value than the threshold, this alarm appears. This is the voltage measured from the battery cell. Excessive high cell voltage at any point in the DC system is undesirable because high cell voltage could result in the advanced deterioration of battery life. The default threshold is 7.000 DC volts

    - **Low Cell Voltage (DC volts)** - If the cell voltage is a lower value than the threshold, this alarm appears. This is the voltage measured from the battery cell. Excessive low cell voltage at any point in the DC system is undesirable because low cell voltage could result in the loss of battery energy. The default threshold is 5.000 DC volts.

    - **High Cell Resistance (microhms)** - If the cell resistance is a higher value than the threshold, this alarm appears. The resistance of the battery cell is too high and could result in the advanced deterioration of battery life. The default threshold is 2000 microhms.

    - **Low Cell Resistance (microhms)** - If the cell resistance is a lower value than the threshold, this alarm appears. The resistance of the battery cell is too low and could result in the loss of battery energy. The default threshold is 500 microhms.

    - **High Cell Temperature (F)** - If the cell temperature is a higher value than the threshold, this alarm appears. The temperature of the battery cell is too high. The default threshold is 90.0 degrees.

    - **Low Cell Temperature (F)** - If the cell temperature is a lower value than the threshold, this alarm appears. The temperature of the battery cell is too cold. The default threshold is 50.0 degrees.

    - **High Intercell Resistance (microhms)** - If the intercell resistance is a higher value than the threshold, this alarm appears. The resistance of the connection between the terminals of two cells is too high and could result in the advanced deterioration of battery life. The default threshold is 500 microhms.

o **High Intertier (microhms)** – Enter the intertier resistance threshold value for each of up to four possible intertiers previously assigned on the System tab. Unassigned intertiers appear grayed out. If an assigned intercell has a higher resistance value than the threshold, this alarm appears.
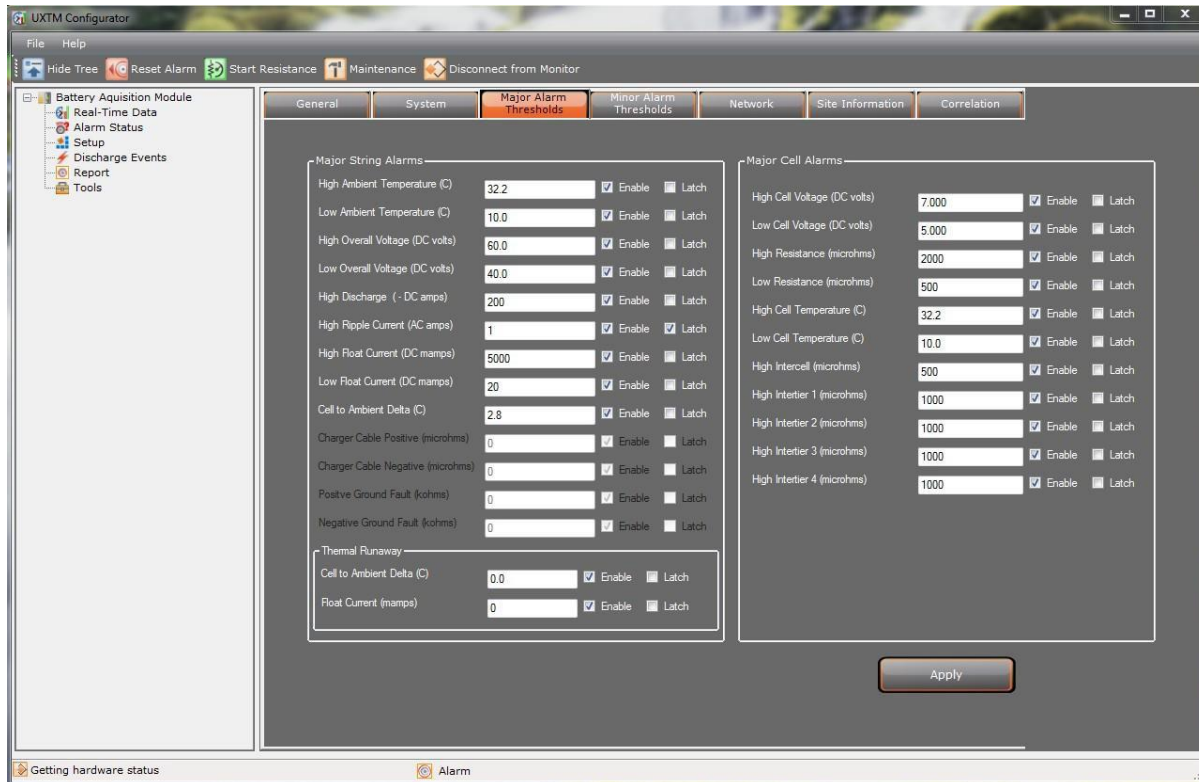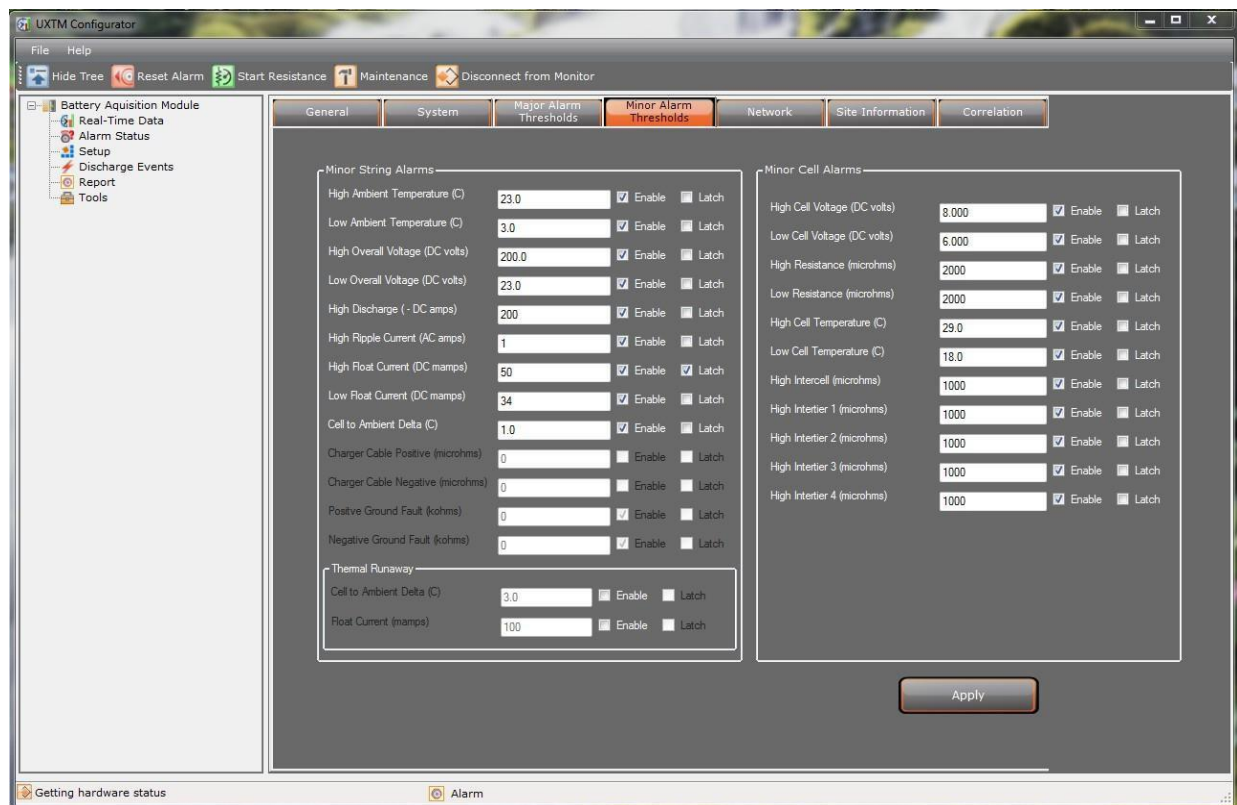

Figure 11 - Major Alarm Thresholds Setup

Figure 12 - Minor Alarm Thresholds Setup

2. Enter the value for each threshold setting to activate an alarm event when the threshold is violated.
3. All the alarms on the Major Alarm tab except High Intertier are enabled by default. You must uncheck the Enable box to disable them individually. Click **Apply** to save the settings to the monitor.

3.9   Setup Network Settings

The UXIM/UXIMe/UXTM Configurator allows for the following network connection options:
- IP Address
- Gateway
- Net Mask
- Port Number

These are different parameters for setting up a network connection to the UXIM/UXIMe/UXTM monitor.
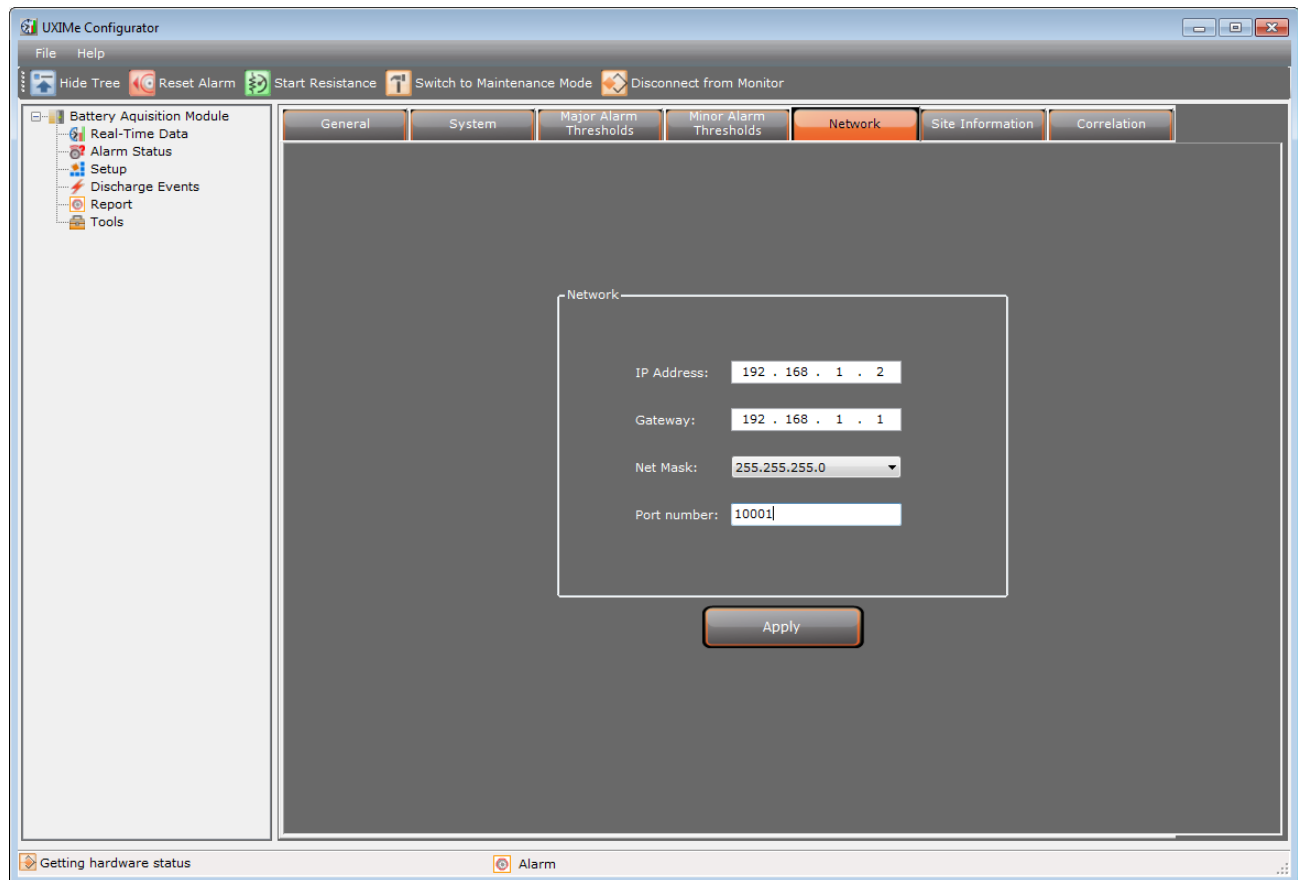
Figure 13 - Setup Network

To setup the network settings on the UXIM/UXIMe/UXTM Configurator follow these steps:

1. Click **Setup** on the navigation tree, then click **Network** tab and enter the IP address, gateway or net mask address in the following fields:

   - **IP Address** - modify the sample default IP address (xxx.xxx.x.xxx) and enter your specific IP address in the spaces provided.
   - **Gateway** - modify the sample gateway address and enter your specific gateway address in the spaces provided.
   - **Net Mask** - modify the sample net mask address and enter your specific net mask address in the spaces provided or use the drop down list to choose an available net mask address on the network.
   - **Port number** - modify the sample port number and enter your specific port number in the spaces provided.

2. Click **Apply** to save the network setup values.

3.10   Site Information

Review the latest site information. The latest information can be found on the Site Information tab.

To review the site information:

1. Click **Tools** on the navigation tree, then **Site Information**.

2. The system displays the following site information:

    •   **Location name** - enter name of the location where the device is installed.
    •   **Battery name** - enter the name of the battery
    •   **String 1 name** - enter the name of string 1
    •   **String 2 name** - enter the name of string 2
    •   **String 3 name** - enter the name of string 3
    •   **String 4 name** - enter the name of string 4

3. To apply the site information entries or changes, click **Apply**.
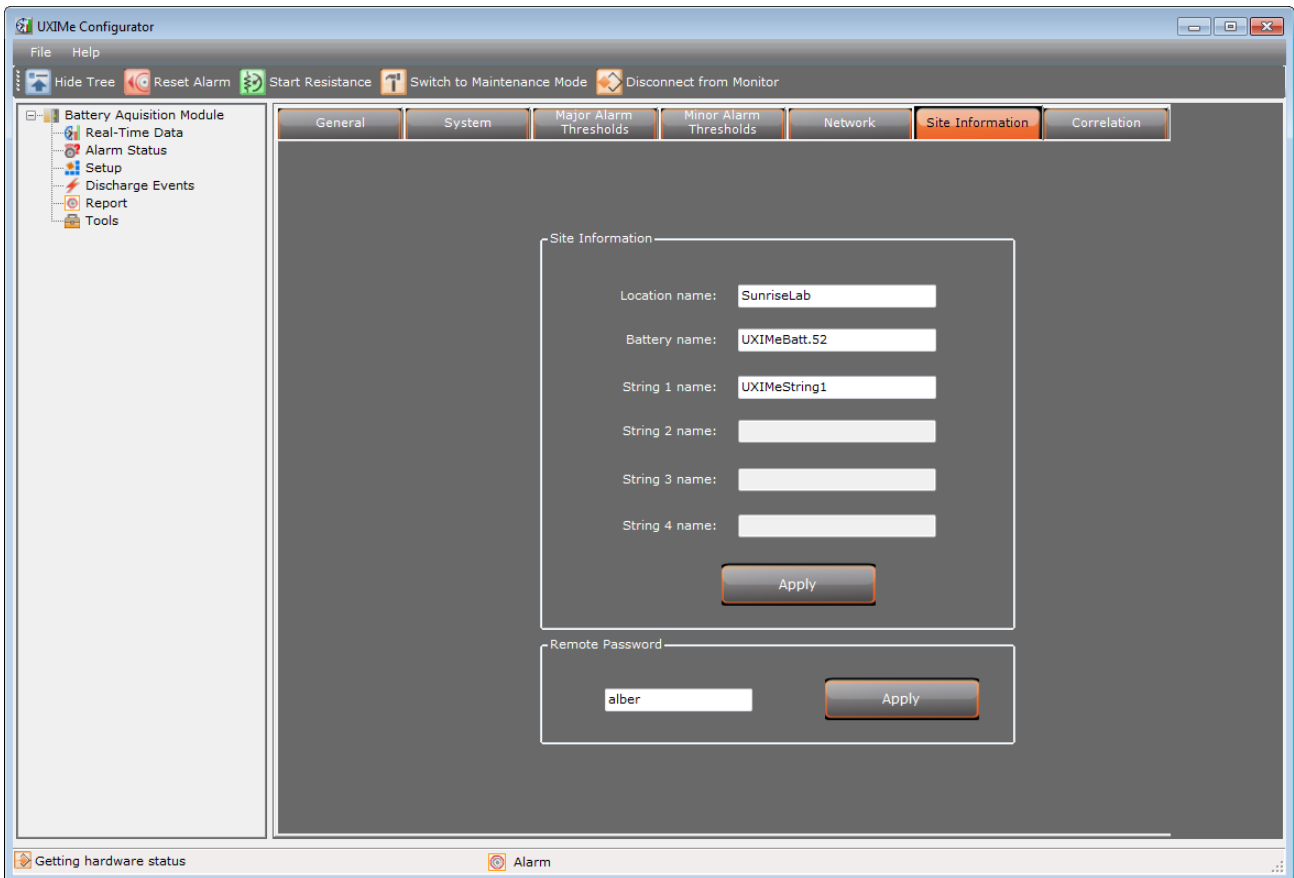
Figure 14 - Tools Site Information

4. In the remote password area, enter the password of your choice and click **Apply**.

Note: The UXIM/UXIMe only supports one battery string.

3.11 Correlation Settings

The Correlation settings allow correction factors to be established for the discharge current reading and the difference of internal resistance reading between the Vertiv Cellcorder (CRT) and UXTM/ UXIM/UXIMe battery monitors. Additionally, an Intercell Reference setting can be set to specify the intercell that will be used for measuring the float and discharge currents.

Why Are Correction Factors Needed?
The battery construction and the way in which the sense leads are connected to the battery could result in a difference in readings when compared to an alternate current measuring device or Cellcorder. Please refer to Section 10.2 – System with Dual or Multiple Positive and Negative Posts in the UXTM Installation Guide for a better understanding of these different types of battery constructions. The Internal Resistance Factor setting allows the resistance readings measured by the monitor to correlate with the readings measured by the Cellcorder.

Notes:
- When making measurements with the Cellcorder, it is advised to use the clamp style measurement leads to obtain the best repeatable results.
- When making Cellcorder measurements, placement of the test leads must be made as close as possible to the same location where the monitor sense leads are attached.
- If there are parallel strings being monitored, it is assumed that they are the same battery model and configuration with respect to battery layout and monitor installation. Therefore, only the correlation for the first string is needed.

To establish the internal resistance correlation factor, perform the following steps:
1. Perform an internal resistance test by selecting the Real-Time Data node within the navigational tree. Then select the Internal R tab followed by clicking **Start** below the bar graph.
2. Go to the Setup node within the navigational tree. Then select the Correlation tab. Under the Internal Resistance section, the average value will be populated automatically as a result of the internal resistance test previously taken in step 1. If there are any resistance readings that would be considered bad or significant outliers from the rest, these readings must be ignored and a new average manually calculated by excluding them. Enter this new manually calculated average into the Measured Average Value field.
3. Using a Cellcorder, manually take a set of resistance readings for each cell. If there are parallel strings, take the resistance measurements on the first string being monitored by the battery monitor.
4. Using a Cellcorder, repeat step 3 and manually take a second set of resistance readings of each cell. It is important to do at least two sets of readings to mitigate the inaccuracies caused by the manual placement of leads.
5. Calculate the average of the individual readings taken in step 1 by adding them all up and then dividing by the total number of readings. For example, if there are 24 cells there should be a total of 48 readings obtained from steps 3 and 4. Add all of these readings together and divide them by 48.
6. Enter this calculated average value into the "CRT Average Value" field and click **Apply**.
7. Perform a new baseline resistance test to obtain new values corrected with the correlation factor. To do this, enter the Internal R tab on the Real-time Data screen and perform a new resistance test, ensuring the Set baseline checkbox is selected.
8. Any new resistance test taken is automatically corrected based on the correlation factor established.

Discharge Current Factor - This setting allows the discharge current reading of the monitor to correlate with the actual discharge current. To obtain this correlation factor, it is necessary to temporarily place the battery under load while measuring the current with an alternate meter like a clamp-on current meter.

Notes:
- If resistance correlation will be used, this must be done prior to discharge current correlation.
- If there are parallel strings being monitored, it is assumed that they are the same battery model and configuration with respect to battery layout and monitor installation.
- A short discharge of the battery will be required to obtain the value.

To establish the discharge current correlation factor, perform the following steps:

1. Place a calibrated clamp-on current meter around one of the main battery cables to monitor the discharge current from the battery. If multiple strings are being monitored by the battery monitor, ensure this current measurement is being made on the first string.
2. Place a load on the battery while monitoring the clamp on measurement meter value.
3. Go to the Setup node within the navigational tree. Then click the **Correlation** tab. While the battery is being discharged, the Measured Value under the Discharge Current section should update in real-time. Monitor the reading of the clamp-on meter and when its value becomes stable, enter this value in the Actual Value field of the Discharge Current section and click **Apply**.
4. Remove the load from the battery.

Float Current Factor - To establish the Float current correlation factor, perform the following steps:

1. Using a calibrated current meter measure the float current entering the battery.
2. Go to the Setup node within the navigational tree. Then click the **Correlation** tab. Monitor the reading of the calibrated meter and when its value becomes stable, enter this value in the Actual Value field of the Float Current section and click **Apply**.

Ripple Current Factor - To establish the ripple current correlation factor, perform the following steps:

1. Using a calibrated current meter measure the ripple current entering the battery.
2. Go to the Setup node within the navigational tree. Then click the **Correlation** tab. Monitor the reading of the calibrated meter and when its value becomes stable, enter this value in the Actual Value field of the Ripple Current section and click **Apply**.

Intercell Reference – In most cases, this will remain as the default setting of Intercell 1. The only time this should be changed is when advised by a Vertiv representative.
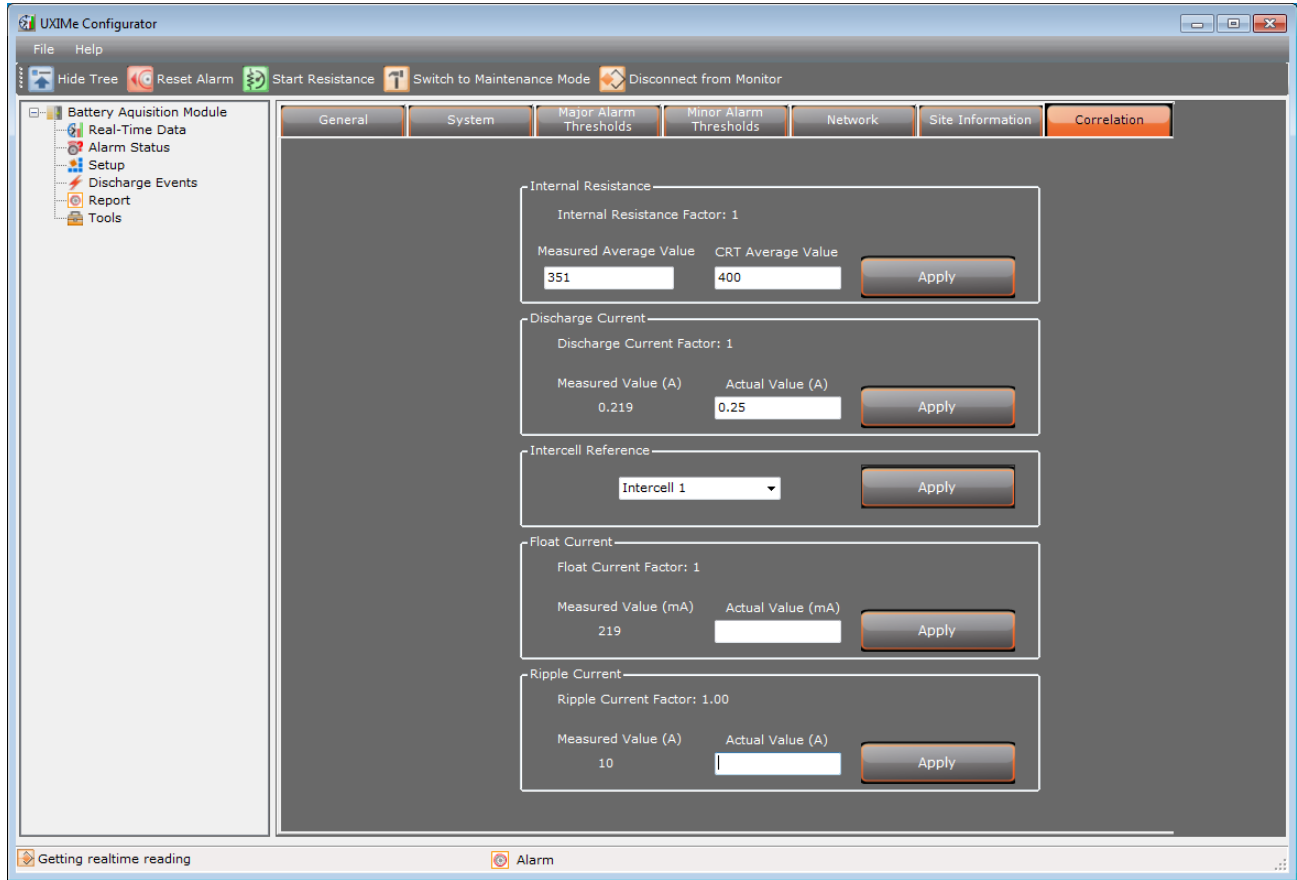
Figure 15 - Setup Correlation

3.12   Setting Baselines

In order to ensure accurate battery current readings, a special baseline resistance test must be run. In a multi-string battery system this test is best done with the strings isolated from each other.

To set baselines:

1.   Click the **Real-Time Data** on the navigation tree, then the **Internal R** tab.

2.   Enable the resistance test by checking the **Set baseline** checkbox.

3.   Click **Start**. Click **Yes** to continue baseline setup.
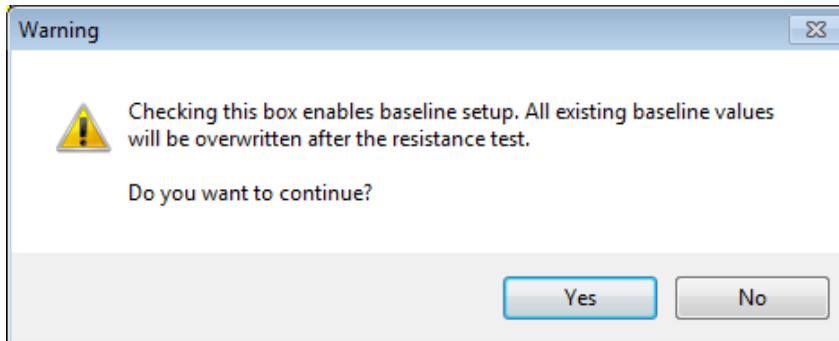
Figure 16 - Enabling Baseline Setup Message

4.   It may take five minutes for a typical system with 24 jars. Smaller systems will take less time.
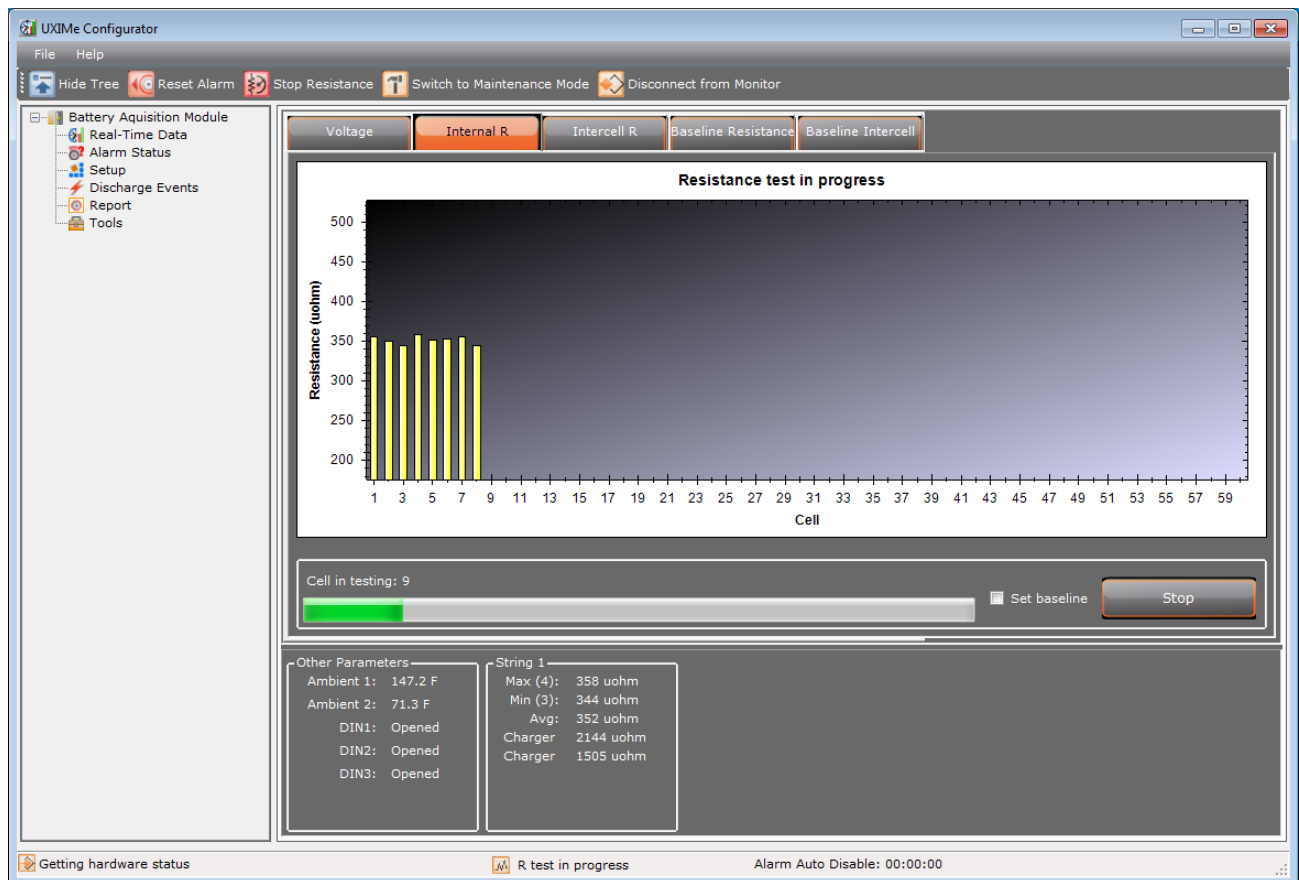
Figure 17 - Cell Internal Resistance

The system shows a progress bar of each cell going through a resistance test and gives the results when the resistance test completes. At the end of the test, a window appears informing you the resistance test for all cells are complete. The system is now ready to verify various parameters.

⚠ **Important Note**: The UXIM/UXIMe has a safety feature that restricts the number of resistance tests that can be performed within a 3 hour (180 min.) period. The number of allowed tests is configuration dependent as shown in the table below. For example a 1X24X2 configuration can be tested 6 times in a 180-minute time interval. Attempting to perform more resistance tests than specified in the table for a particular configuration will place the UXIM/UXIMe in a state where all resistance tests are disabled. The only way to exit this state is to cycle power (manually power down then power up) to the UXIM/UXIMe.

Configuration	Number of Allowable Tests per 180-Minutes
1X10X12	5
1X60X2	4
1X62X2	4
1X24X2	6
1X20X6	5

Table 4 – UXIM/UXIMe Allowed Resistance Tests per 180 Minutes

4. Verify System Parameters

This section describes how to verify various system parameters, settings and actions. Note the values, when instructed, in spaces on the Startup Acceptance Report that has been provided to you.

On the real-time data parameter windows, the voltage, temperature, internal resistance and intercell resistance tabs have the following mouse (right-click) short cuts for intuitive viewing options:
- **Copy** - copies the selected image to the clipboard for pasting into another document or spreadsheet.
- **Save Image As** - saves the selected image to a file to open in MS Paint, PhotoShop or other image programs.
- **Page Setup** - opens a page setup window to modify the paper size and source, orientation portrait or landscape, margins for left, right, top, and bottom.
- **Print** - opens a print window to select a printer and modify printer properties.
- **Show Point Values** - adds a check mark which turns on the point values as you hover over the cell graphs.
- **Un-Zoom** - undoes any previous zooming or panning and puts the graphics back to the Un-Zoom state.
- **Undo All Zoom/Pan** - brings the data to the starting point of the parameters. To view all measurements from top to bottom use the Set Scale to Default option.
- **Set Scale to Default** - puts the data in a state where you can see the cell parameters from top to bottom of the scale.

Note: For a more detailed view of the data, zoom into a particular cell parameter, left click and hold the mouse button and move the mouse over a set of cells or one cell. This allows for zooming into a particular cell. To zoom out of a cell, right-click the mouse and select **Unzoom** or **Undo all Zoom/Pan**. Or use the **Scroll Wheel** on the mouse to zoom in and out of the cell parameters.

4.1 Voltage Reading Verification

Two types of voltage readings must be verified. First, at least one cell/monobloc input must be verified to ensure the system is properly calibrated and operating within specifications. Only one input needs to be checked for accuracy, verify all other inputs are displayed. The second reading that must be verified is the Overall Voltage.

To verify the cell/monobloc input:

1. Click the **Real-Time Data** on the navigation tree, then **Voltage** tab.

2. Move the cursor over the **Cell 1** bar (for String 1, if using multiple strings) and enter the value displayed in the UXIM/UXIMe/UXTM Measured Value space of the Acceptance Report located in section 5 of this manual,.

3. Using a calibrated voltage meter, measure the same cell and enter the value measured in the Actual Measured Value space.

To verify the Overall Voltage input:

1. Observe the value of the Overall Voltage reading located in the summary section towards the bottom of the screen. Enter the value measured in the UXIM/UXIMe/UXTM Measured Value space for Overall Voltage.

2. Using a calibrated voltage meter, measure the actual overall voltage. Write the value measured in the Actual Measured Value space.
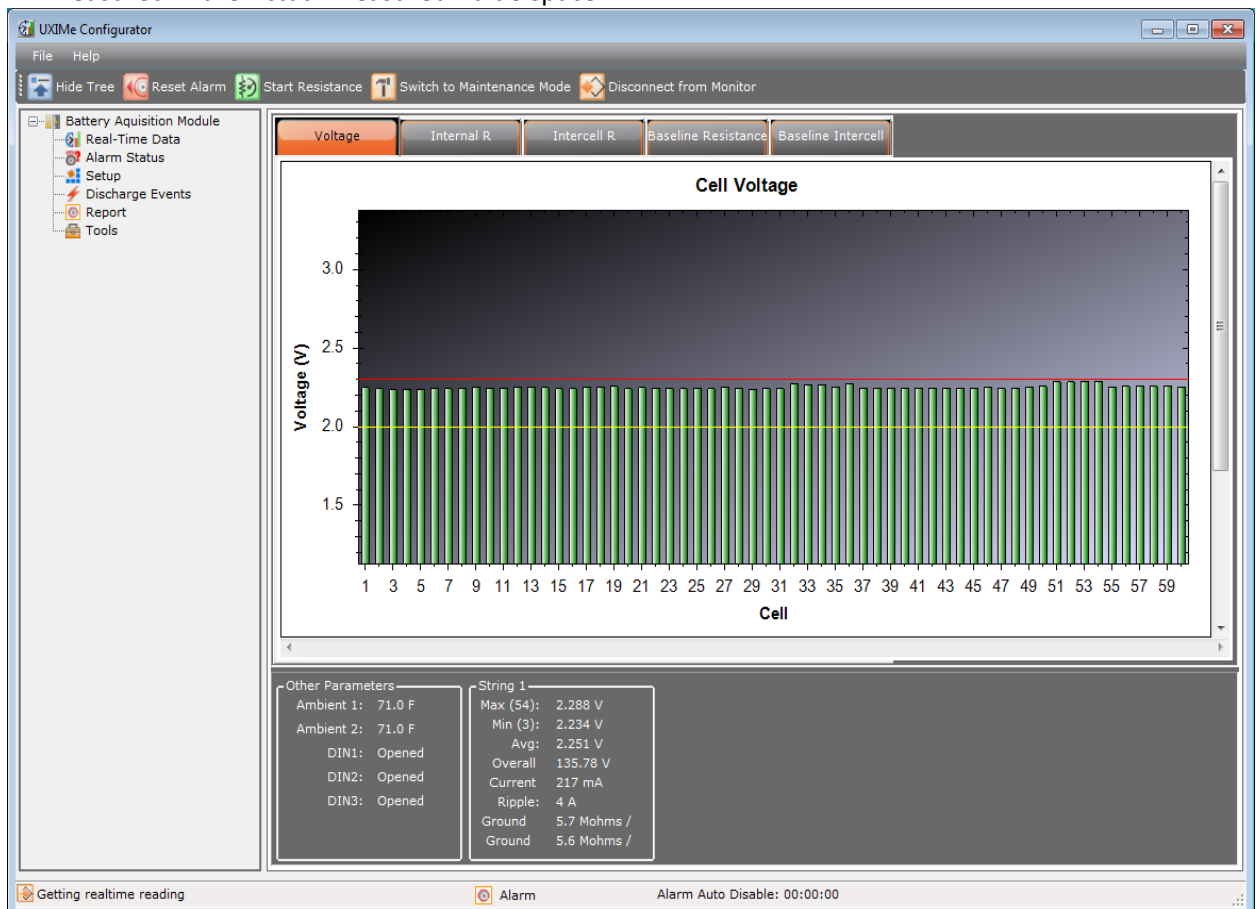
Figure 18 - Real Time Data Cell Voltage

Note: If voltage readings are outside tolerance specifications. Go to the General tab under Tools and click the **Start Calibration** button. After a few seconds voltage calibration will be completed.

4.2   Temperature Reading Verification

Two types of temperature readings must be verified. First, at least one cell/monobloc input must be verified to ensure the system is properly calibrated and operating within specifications. Only one input needs to be checked for accuracy, verify all other inputs are displayed. The second reading that must be verified is the Ambient Temperature reading.

Note: The cell temperature feature is currently not available for UXIM/UXIMe.

To verify the cell/monobloc input:

1. Click **Real-Time Data** on the navigation tree, then **Temperature** tab.
2. Move the cursor over the Cell 1 bar (for String 1, if using multiple strings). Enter the value measured in the Acceptance Report in the UXIM/UXIMe/UXTM Measured Value space.
3. Using a calibrated temperature meter, thermometer or fluke, measure the same cell. Write the value measured in the Actual Measured Value space.

To verify the Ambient Temperature input:

1. Observe the value of the Ambient Temperature reading located in the Other Parameters summary section towards the bottom of the screen. Write the value displayed in the UXIM/UXIMe/UXTM Measured Value space.
2. Using a calibrated thermometer measure the actual ambient temperature directly at the ambient temperature sensor. Write the value measured in the Actual Measured Value space.
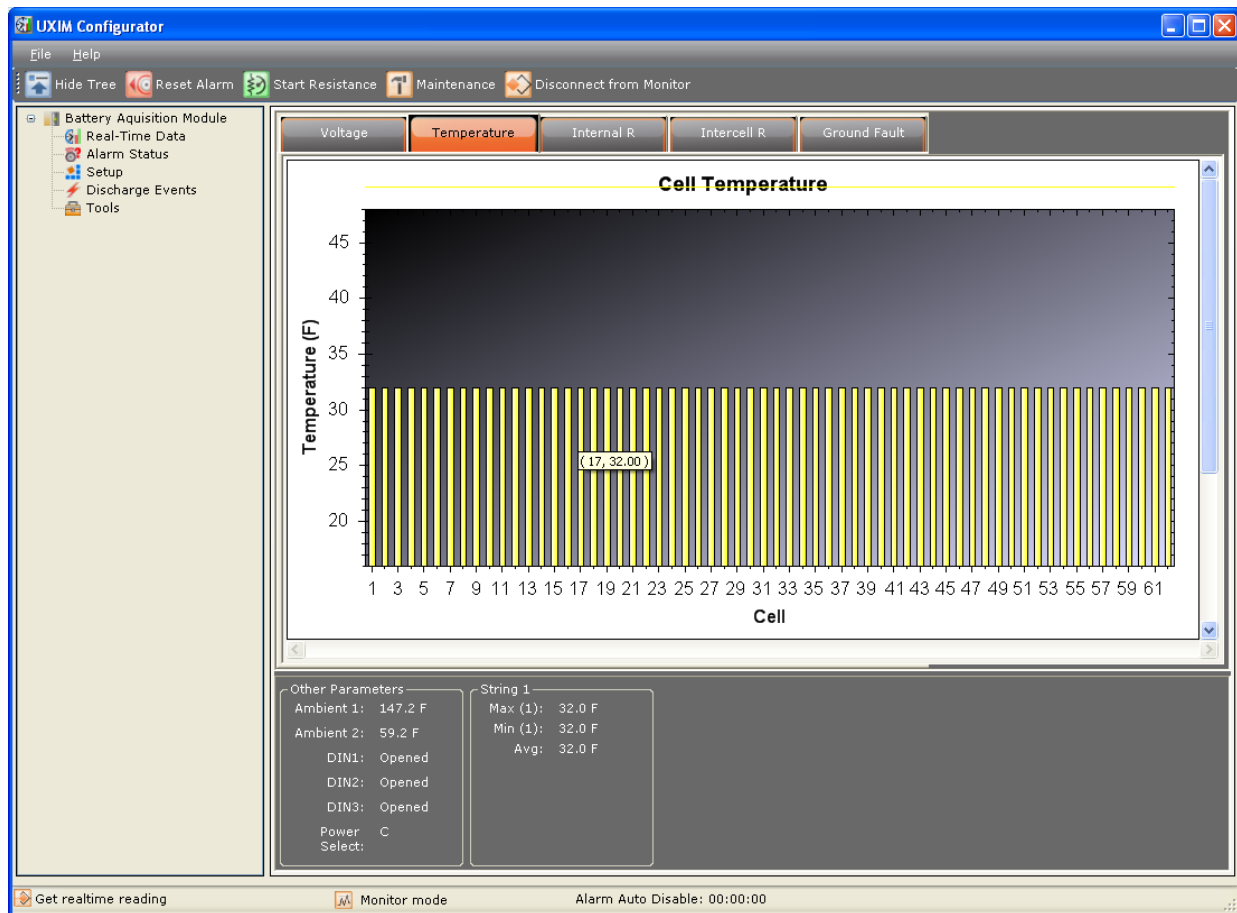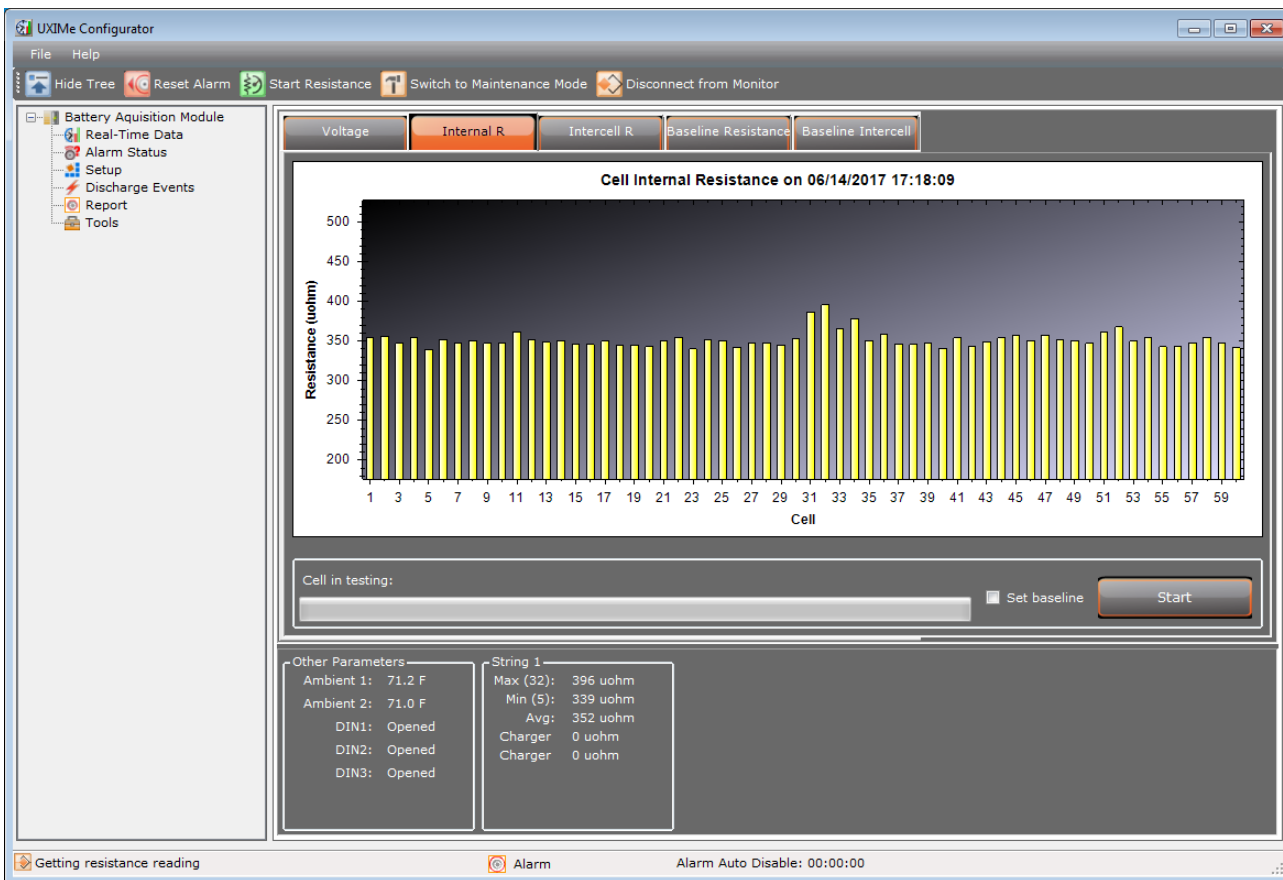
Figure 19 - Real Time Data Cell Temperature

4.3   Internal Resistance Reading Verification

An internal resistance test must be performed to verify the resistance readings.

To verify the internal resistance readings:

1. Click **Real-Time Data** on the navigation tree, then **Internal R** tab.

2. Click **Start**.

3. As the test progresses, new readings transfer to the computer for review.

4. Verify all internal cell and intercell resistance readings are correct for the cell or module tested.

5. If any readings are excessively high or low, do a retest and check for crimps in the cables and verify the connections are correct to those cells or modules.

6. Enter the average cell internal resistance reading in the Average Internal Resistance space under the UXIM/UXIMe/UXTM Measured Value column of the Acceptance Report.

Figure 20 - Real Time Data Internal Resistance

4.4   Intercell Resistance Reading Verification

An intercell resistance test must be performed to verify the intercell resistance readings.

To verify the intercell resistance readings:

1. Click **Real-Time Data** on the navigation tree, then **Intercell R** tab.

2. Click **Start**.

3. As the test progresses, new readings transfer to the computer for review.

4. Verify all intercell resistance readings are correct for the string tested.

    Note: If any readings are excessively high or low, verify the integrity of the connections to the affected cells or modules.

5. Enter the average intercell resistance reading in the Average Intercell Resistance space under the UXIM/UXIMe/UXTM Measured Value column of the Acceptance Report.
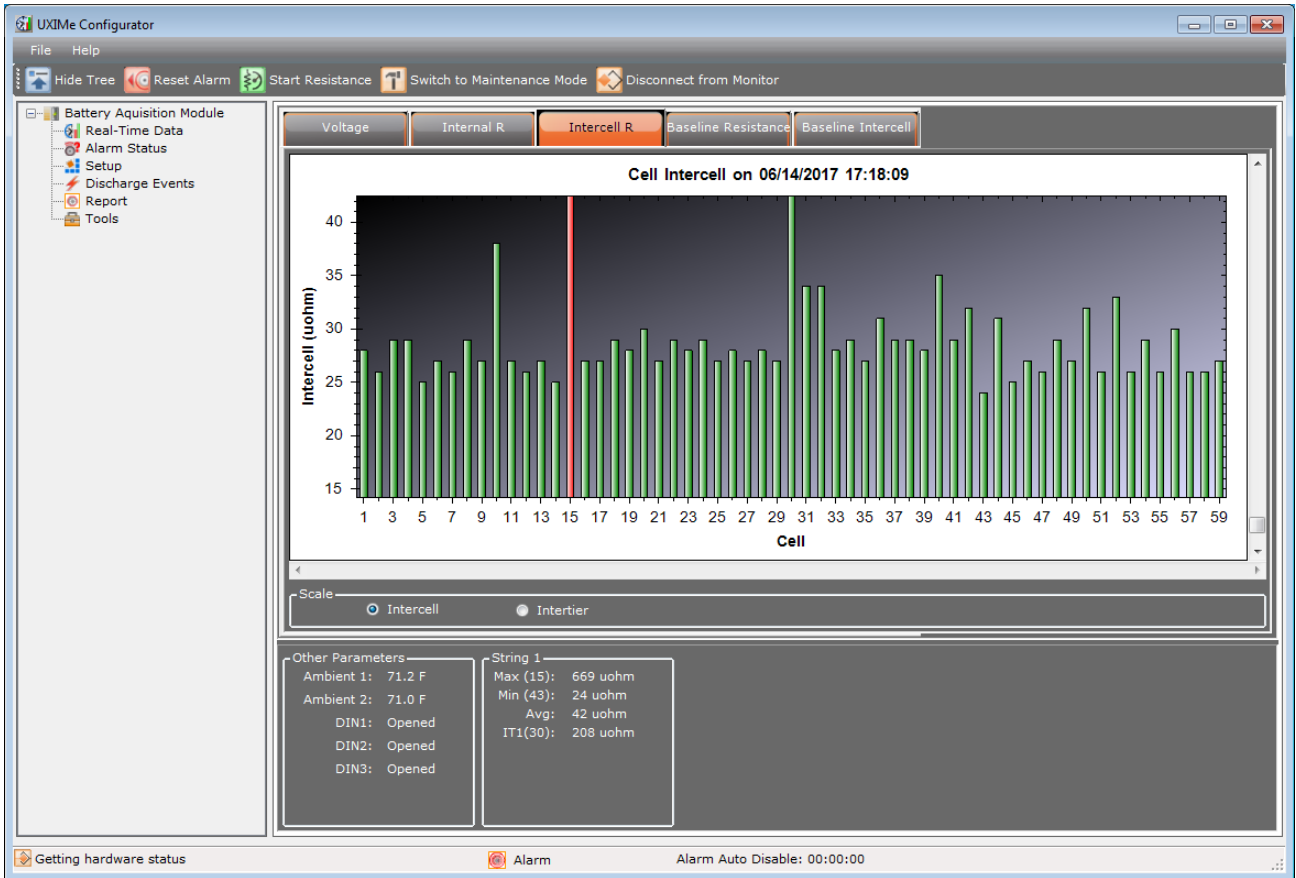
Figure 21 - Real Time Data Intercell Resistance

Note: The Intercell scaling view is the default display. You may toggle between the Intercell and Intertier view. To view the Intertier scaling view select the Intertier radio button. The window will show the Intertier resistance view.

4.5 Baseline Resistance Reading

Baseline resistance can be viewed on the Baseline Resistance Readings tab.

To view the baseline resistance readings:

1. Click **Real-Time Data** on the navigation tree, then **Baseline Resistance** tab.

2. Readings are displayed for your review.
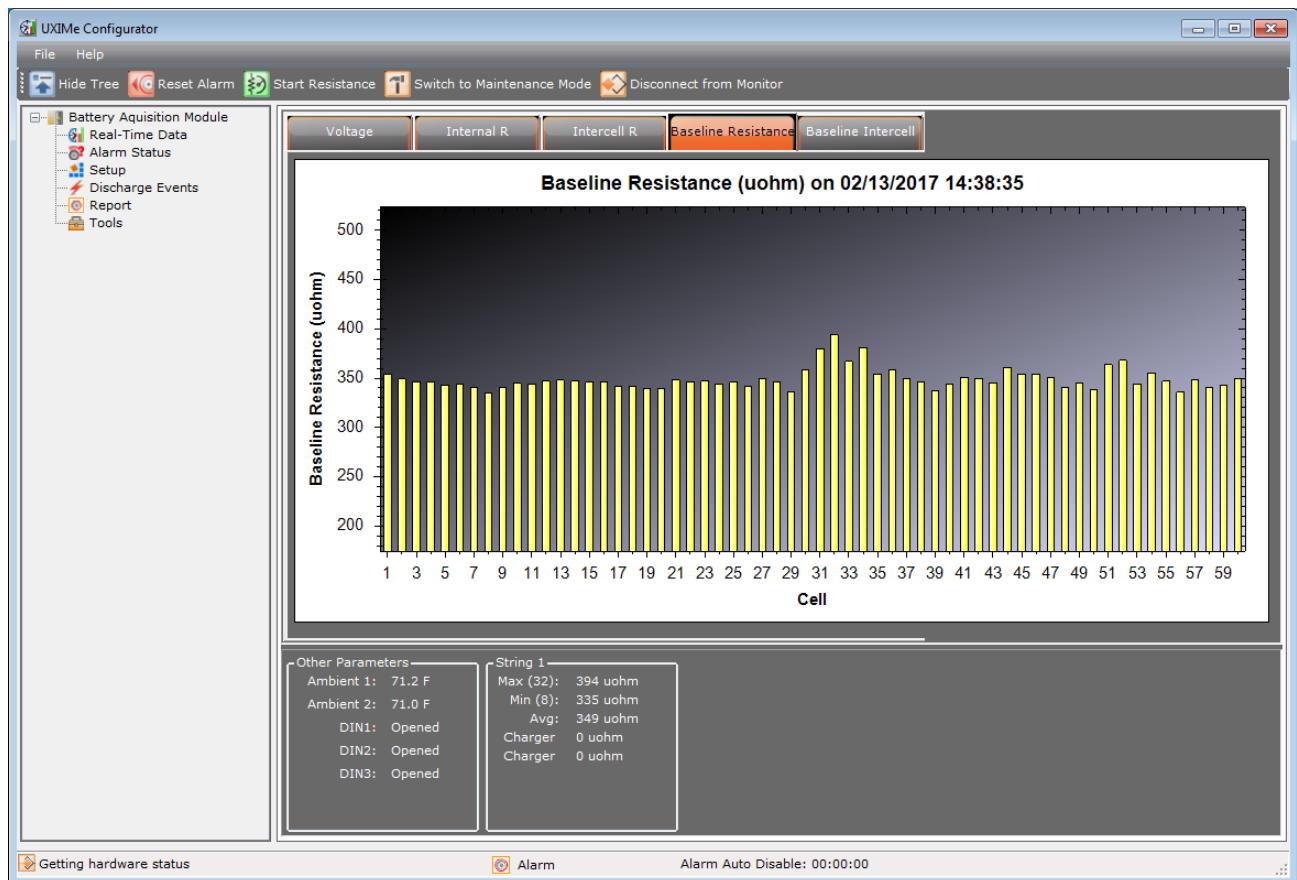
Figure 22 - Real Time Data Baseline Resistance

4.6   Baseline Intercell Reading

Baseline intercell can be viewed on the Baseline Intercell readings tab.

To view the baseline intercell readings:

1. Click **Real-Time Data** on the navigation tree, then **Baseline Intercell** tab.

2. Readings are displayed for your review.
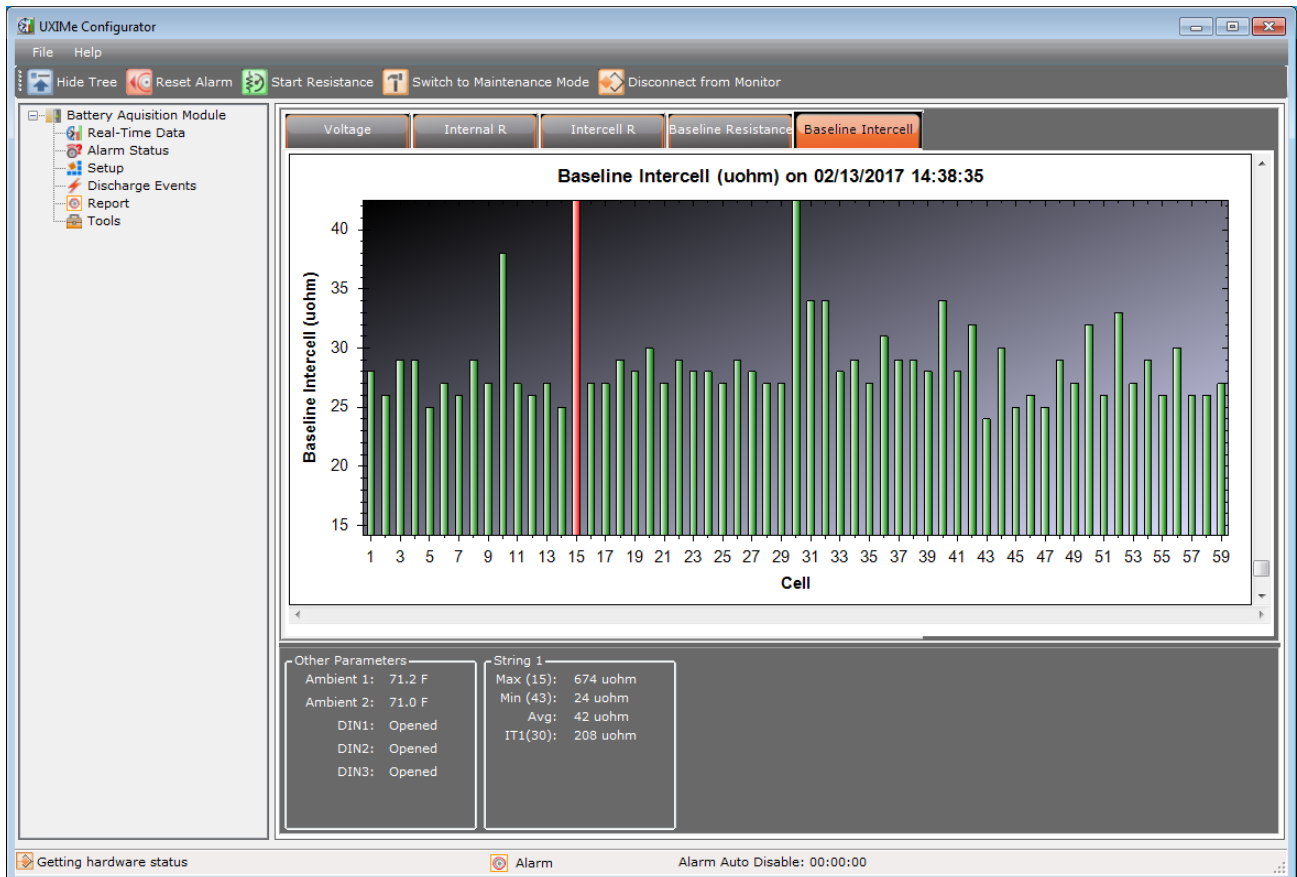
Figure 23 - Real Time Data Baseline Intercell

4.7   System Current Reading Verification

Performing this verification may not be possible, depending on the particular installation. This section requires placing a load on the battery for discharge current and inserting an ammeter in series with the battery to verify float and ripple current.

To verify the float and ripple current:

1. Click **Real-Time** on the navigation tree, then **Voltage** tab.

2. Insert a calibrated AC-DC ammeter in series with the battery string by temporarily disconnecting an intercell connector and replacing that connection with the meter.

3. Set the meter to read DC Amps and allow the current to stabilize.

4. Observe the Float Current displayed in the summary area at the bottom of the display. Write the displayed value in the Float Current space under the UXIM/UXIMe/UXTM Measured Value column.

5. Observe the ammeter reading. Write the meter reading in the Actual Measured Value column in the Float Current space.

6. Set the meter to measure AC Amps.

7. Observe the Ripple Current displayed in the summary area on the display. Write the displayed value in the Ripple Current space under the UXIM/UXIMe/UXTM Measured Value column.

8. Observe the ammeter reading. Write the meter reading in the Actual Measured Value column in the Ripple Current space.
9. Remove the meter from the battery and replace the intercell connector.

To verify the string current:

1. Click **Real-Time** on the navigation tree, then **Voltage** tab.

2. Place a calibrated clamp-on current probe across one of the interconnect cables within the battery string.

3. Place the string in discharge by placing a load on the battery.

4. Observe the String Current displayed in the summary area on the display. Write the displayed value in the String Current space under the UXIM/UXIMe/UXTM Measured Value column.

5. Observe the clamp-on meter reading. Write the meter reading in the Actual Measured Value column in the String Current space.

4.8   Digital Input Verification

Digital inputs are optional measured parameters and may not be installed. To verify the digital inputs, the state of the inputs must be changed by either simulating the state or causing the sensor to change state under real conditions.

To verify the digital inputs:

1. Click **Real-Time** on the navigation tree, then **Voltage** tab.

2. Observe the state of the digital inputs.

3. Change the state of these inputs either by simulating or causing the sensor to change state. Verify the screen shows the change of state.

4.9 Alarm Relay Contact Verification

There is a diagnostic tool that permits testing of the alarm relay by activating it under controlled circumstances.

To verify the alarm relay contact:

1. Click **Tools** on the navigation tree, the **General** tab appears as the default. The serial number, model number, application version, bootloader version and PCB Revision are view only for verification.

2. Click the **Activate Alarm Contact** button to activate the alarm relay, the button label will change to **De-activate Alarm Contact**. Click the button again to de-activate the alarm relay.

3. Verify the alarm contacts change state and activates the alarm within the building management system.
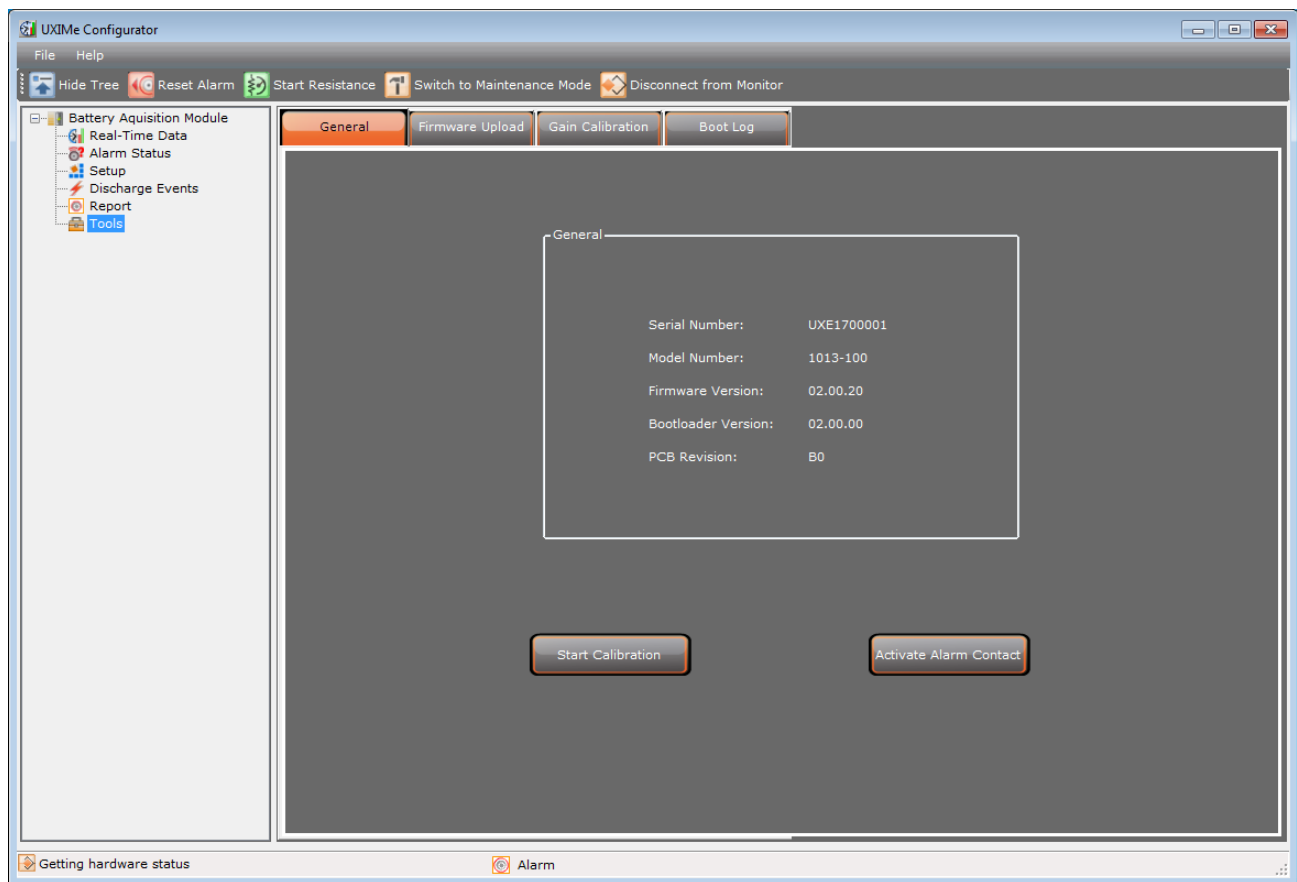
Figure 24 - Tools General UXIM/UXIMe/UXTM Information

4.10   RS-485 Communication Verification on a UXIM/UXIMe

Verification of RS-485 communication is confirmed by having valid communication with a remote controller designed to work with the UXIM/UXIMe. The default baud rate is 9600.

There is a jumper on the circuit board for selecting a termination resistor for the RS-485 connection. The RS-485 termination is enabled when the jumper is across Pins 1 and 2 (default), and is disabled when the jumper is not on Pins 1 and 2. See Figure 24 - RS-485 Jumper Location.

By default, these jumpers are installed and therefore must be removed from all but the last unit on the bus if multiple units are connected together.
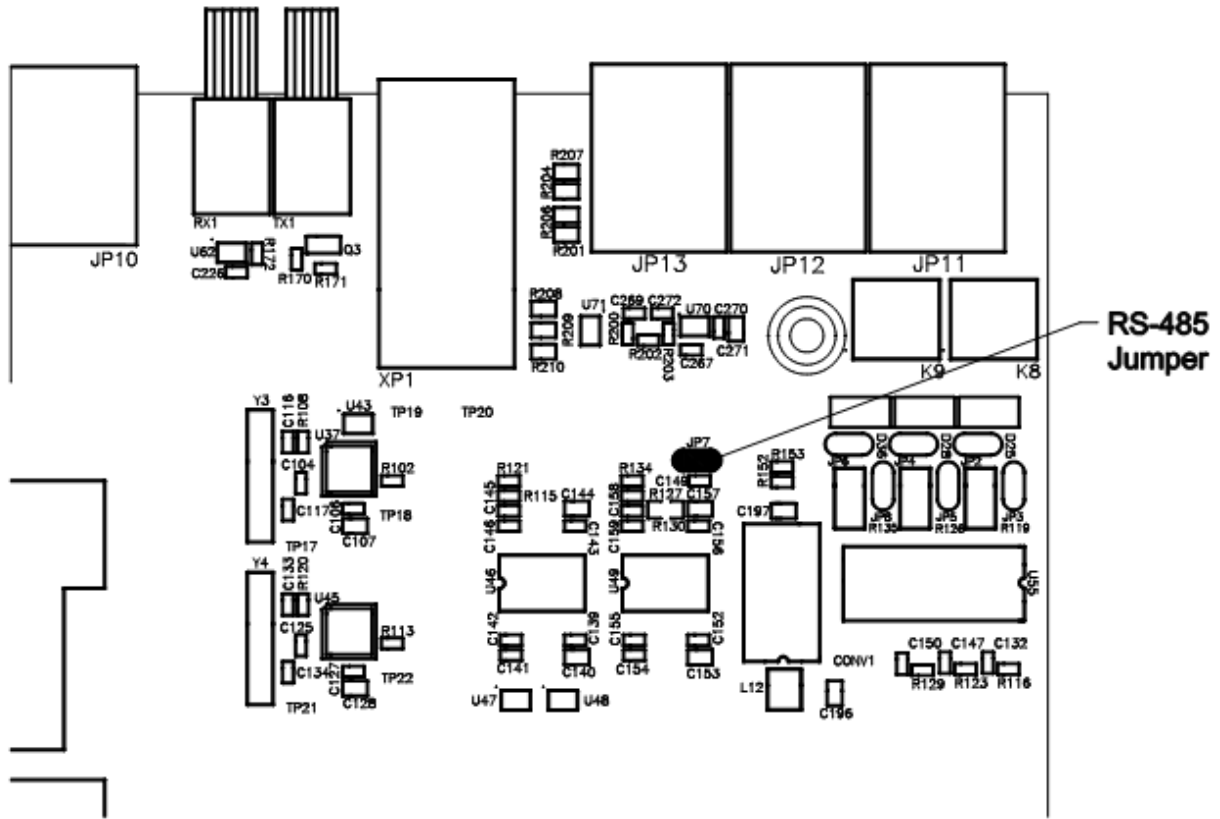
Figure 25 - RS-485 Jumper Location on a UXIM/UXIMe

4.11 RS-485 Communication Verification on a UXTM

Verification of RS-485 communication is confirmed by having valid communication with a remote controller designed to work with the UXTM. The default baud rate is 9600.

There is a jumper on the circuit board for selecting a termination resistor for the RS-485 connection. The RS-485 termination is enabled when the jumper is across Pins 1 and 2 (default), and is disabled when the jumper is not on Pins 1 and 2. See Figure 24 - RS-485 Jumper Location.

By default, these jumpers are installed and therefore must be removed from all but the last unit on the bus if multiple units are connected together.

Figure 26 - RS-485 Jumper Location on a UXTM

4.12 Set to Monitor Mode

The monitor may be placed, under software control, in two possible modes during normal operation. Maintenance mode is used to allow battery maintenance work to take place without causing the monitor to generate alarms. In order for the monitor to generate alarms the mode must be set to Monitor Mode. Click the **Switch Mode** toolbar button to change from Maintenance to Monitor Mode if necessary. The status bar at the bottom of the screen shows the current mode of the monitor.
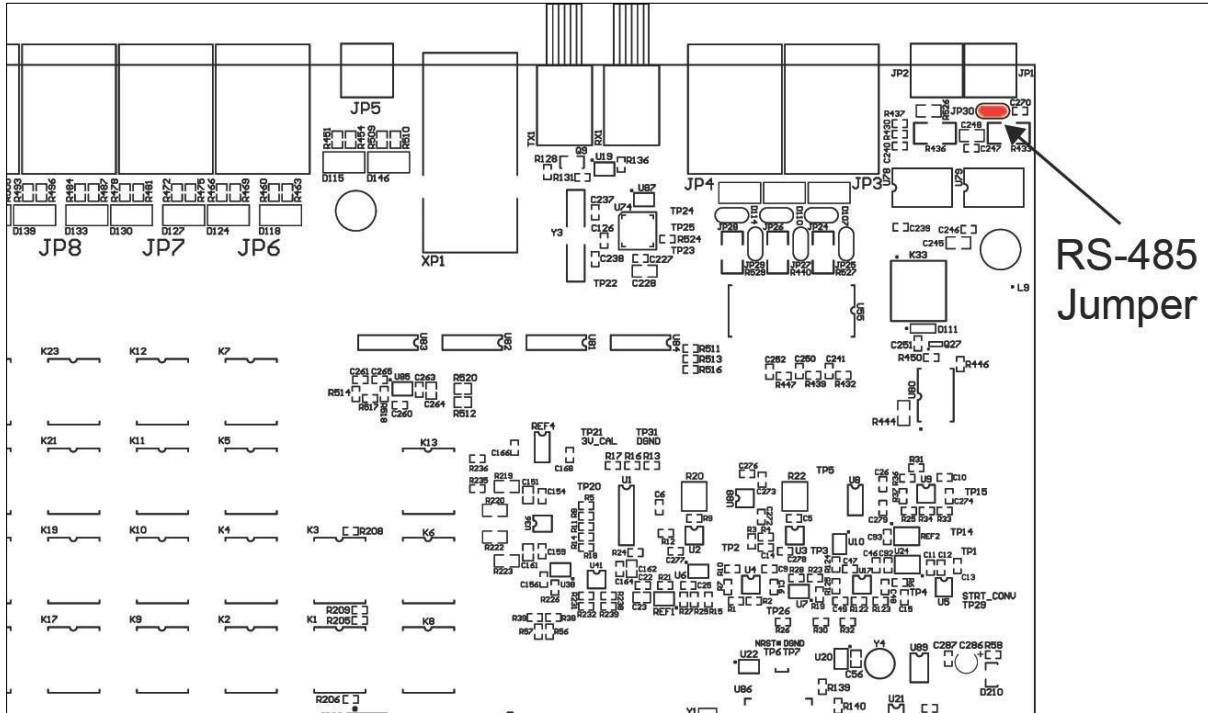
4.13 Viewing the UXIM/UXIMe/UXTM Hardware Status

The status bar at the bottom of the screen allows you to view a hardware status summary by clicking on the Maintenance mode icon to open a view window.

Note: The Hardware Status window is for view only.
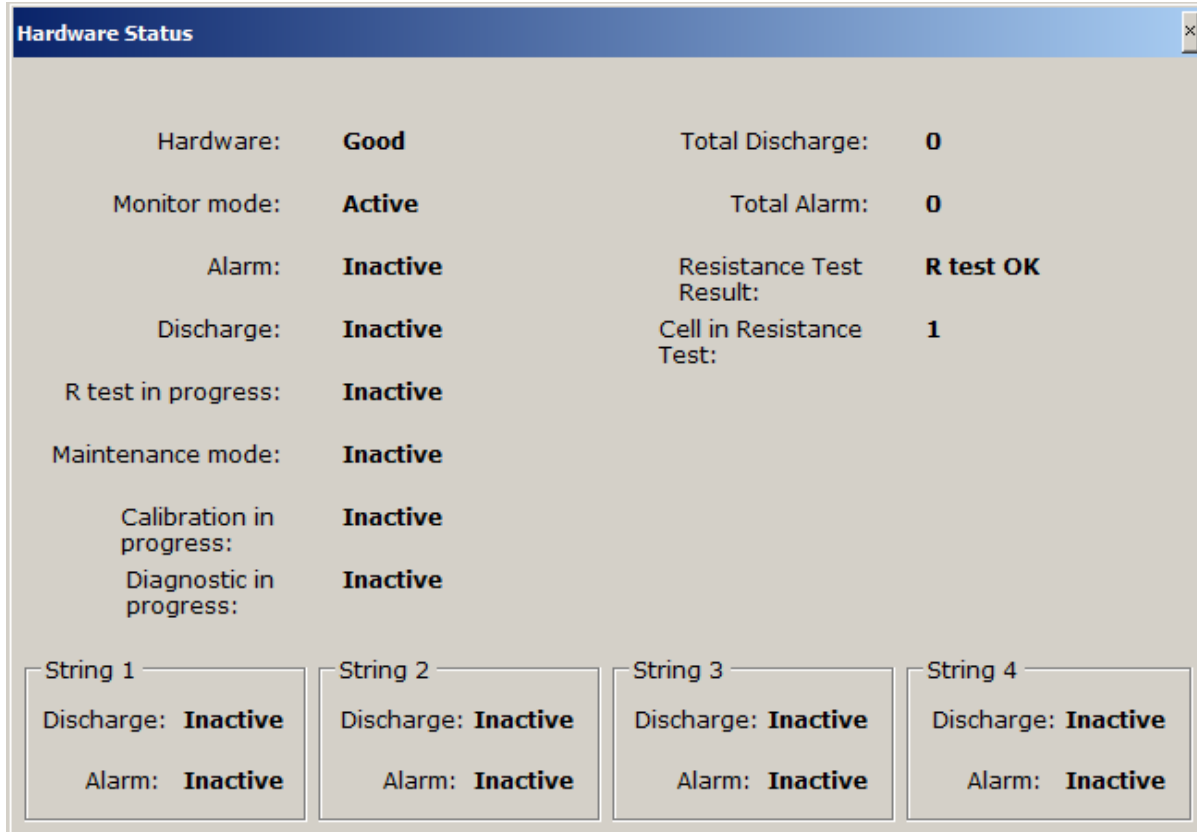
Figure 27 - Hardware Status Viewer for UXIM/UXIMe/UXTM

4.14   Viewing the UXIM/UXIMe/UXTM Alarm Status

The status bar at the bottom of the screen allows you to click on the Alarm Auto Disable icon to open a view window showing the alarm status such as enabled, disabled, and the time it took to disable the discharge and resistance alarms on the UXIM/UXIMe/UXTM Configurator.

Note: The Alarm Enable/Disable Status window is for view only.

To view this, click the **Alarm Auto Disable** icon and the Alarm Enable/Disable Status window appears.
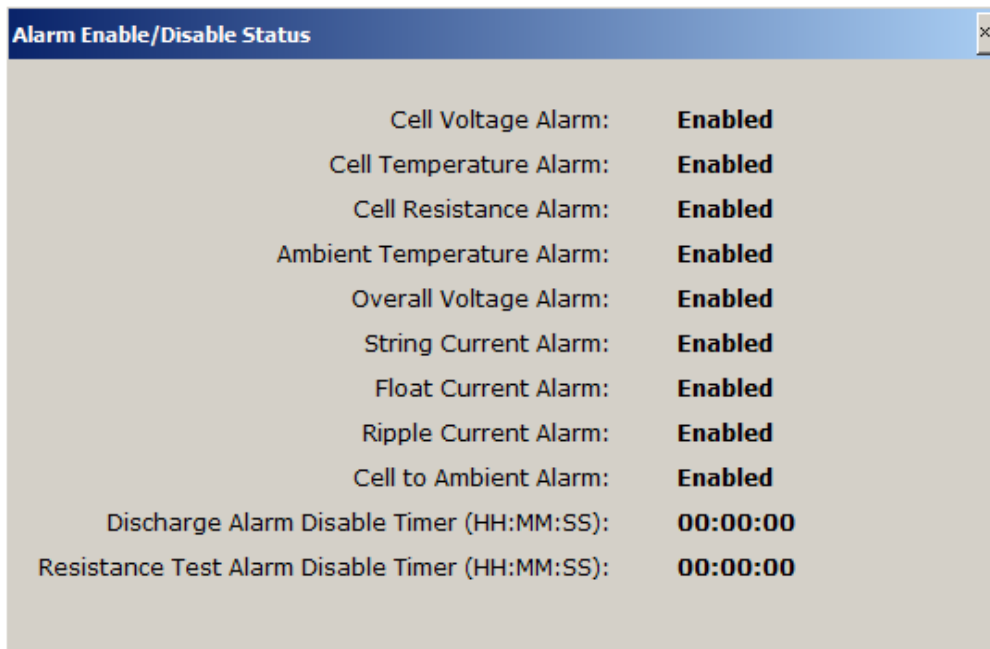
Figure 28 - Alarm Status Viewer for UXIM/UXIMe/UXTM

5. Viewing Discharge Events

5.1 Discharge Events for UXIM/UXIMe/UXTM

The Discharge Events item allows you to view a summary of battery discharge events. The Discharge Events window displays the start and end time of the discharge, lowest overall voltage, highest string current and end ambient temperature for each string that experienced a discharge event.
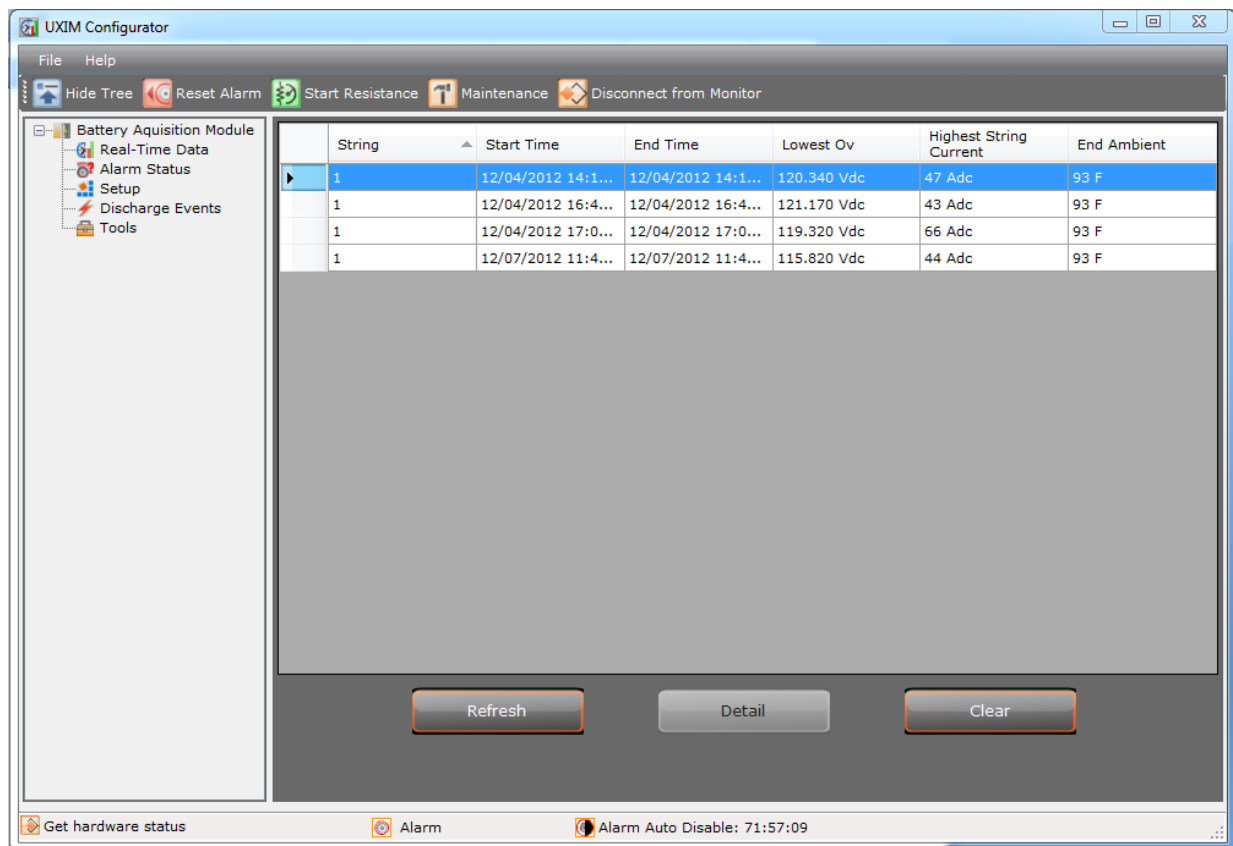
Figure 29 - Discharge Events Viewer for UXIM/UXIMe/UXTM

The Discharge Events window shows discharge records for the following:
- **String** – shows the number of the string in discharge
- **Start time** – time the discharge was started on the string in hours, minutes and seconds
- **End Time** – time the discharge ended on the string in hours, minutes and seconds
- **Lowest Ov** – lowest overall voltage on the string in volts
- **Highest String Current** – highest string discharge current recorded
- **End Ambient** – the ambient temperature at the end of the discharge

To view the details of a string discharge, click **Detail**. The Discharge Details window appears showing a Cell Voltage Discharge graph.

Figure 30 - Cell Voltage Discharge Details Viewer for UXIM/UXIMe/UXTM

- The Report Interval is used to modify playback speed.
- String reading shows the overall voltage.
- Current amps shows the discharge current.

Click the **Play** button to view a replay of cell voltage variations during the discharge. To stop the cell voltage discharge viewer click **Stop**. To close the Cell Voltage Discharge window, click the X in the top right corner.

6. Retrieving Historical Readings (UXIM/UXIMe)

The UXIM/UXIMe is capable of storing a typical years' worth of historical readings consisting of 1012 alarm events, 418 cell voltage snapshots (History Data) and 52 resistance tests. Historical alarm, resistance test and cell voltage readings can be retrieved from the UXIM/UXIMe monitor in the form of an Excel spreadsheet (.xls file).

To retrieve historical readings:

1. From the File menu drop-down list click **History Readings**.

2. Click **Retrieve History Readings from Monitor**.

3. Select a location for the file, enter a file name then click **Save**.

4. You may also choose to permanently delete each type of reading or clear all history readings from the monitor.

7. Startup Acceptance Report

To complete the UXIM/UXIMe/UXTM Startup Acceptance Report that follows, complete the Customer, Location and Commissioning Agent Information. The other spaces should have been filled in as instructed in previous sections of this guide.

UXIM/UXIMe/UXTM Startup Acceptance Report, Page 1 of 2	
Customer Information	
Customer Name	Customer Address
Customer Contact	
Customer Phone	
Customer Email	
Location Information	
Location Name	Location Address
Location Contact	
Location Phone	
Location Email	
Commissioning Agent Information	
Agent Name	Agent Address
Agent Phone	
Agent Email	
Date of Commissioning	
Equipment Information	
Model Number	System Configuration
Serial Number	Application Firmware Version
Installation Date	Bootloader Version
Cell/Monobloc Manufacturer	Cell/Monobloc Model Number

UXIM/UXIMe/UXTM Startup Acceptance Report, Page 2 of 2							
Parameter	**Actual Measured Value**	**UXIM/UXIMe /UXTM Measured Value**	**Tolerance**				**Pass/Fail**
Cell Voltage 1			1V range 2V range 4V range 6V range 8V range 12V range 16V range	0–4V 0–4V 0–6V 0–9V 0–12V 0–18V 0–24V	0.1% ±1mV 0.1% ±2mV 0.1% ±4mV 0.1% ±6mV 0.1% ±8mV 0.1% ±12mV 0.1% ±16mV		
Cell Temperature 1			±2°F				
Overall Voltage			0.5% ±100mv				
Float Current			±50ma				
Ripple Current			±5%				
String Current			1% ±1amp				
Ambient Temperature			±0.5°F				
Average Internal Resistance	**N/A**		**N/A**				**N/A**
Average Intercell Resistance	**N/A**		**N/A**				**N/A**

Acceptance Report Completed By: _____

Date: _____

Acceptance Report Received By: _____

Date: _____

8. Navigating through the UXIM/UXIMe/UXTM Monitor Application

The UXIM/UXIMe/UXTM monitoring system uses several views that provide intuitive utilization of the monitor application. From the UXIM/UXIMe/UXTM main menu, a user can access the following:

- Disconnect from Monitor
- Preference
- UXIM/UXIMe/UXTM Configurator

- Exit
- Help
- Documents/Online/About

The Dynamic toolbar allows for quick access to select the following:
- Show and Hide Tree
- Start/Stop resistance
- Disconnect from Monitor
- Reset alarm
- Monitor

Other features include:
- Real-time data, alarm status, setup, discharge events and tools are accessible by clicking on items in the system navigation pane.
- Graphical real time data appears to show important information at a glance.
- Tabs allow for one click access to panels that allow for battery information, such as:
  - Cell Voltage
  - General
  - Gain Calibration
  - Cell Temperature
  - Thresholds
  - Site Information
  - Internal Resistance
  - Network
  - Boot Log
  - Intercell Resistance
  - Firmware Upload

  Note: For additional information on specific panels and setup, refer to the help text.
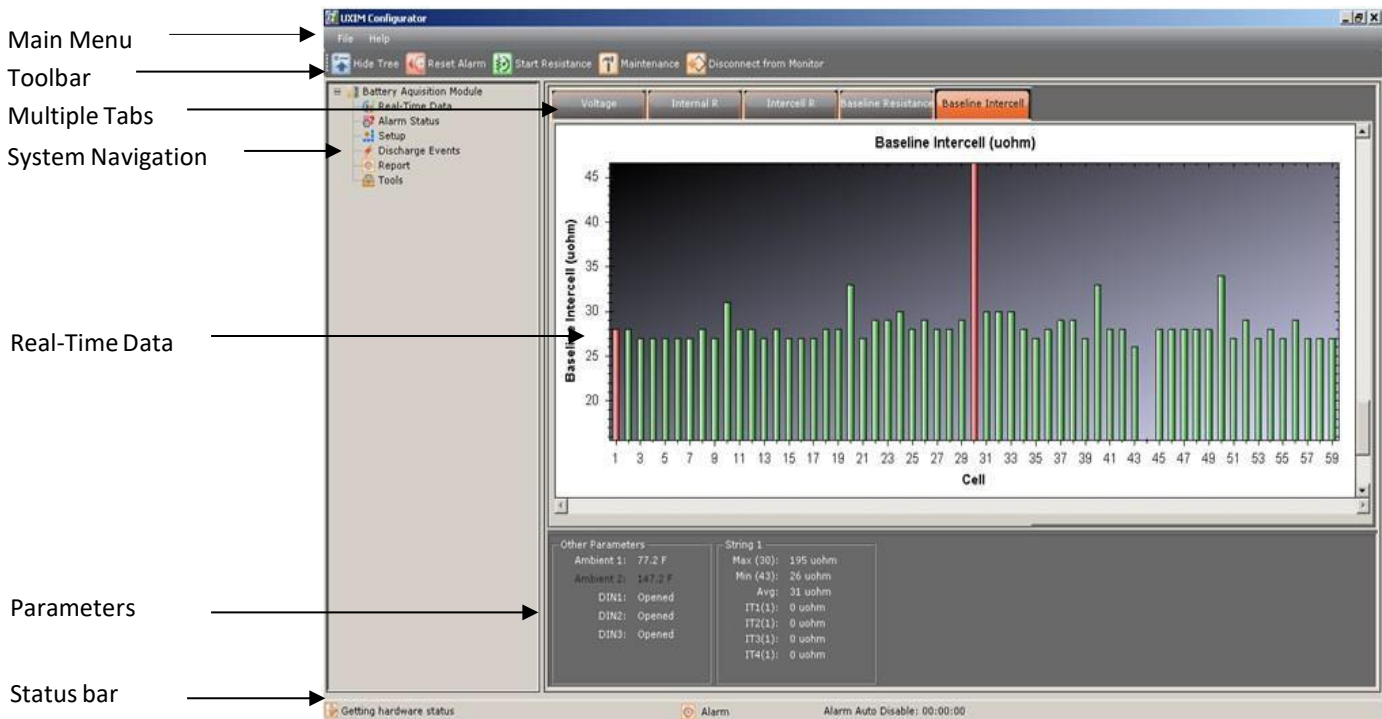
Figure 31 – UXIM/UXIMe/UXTM Main Window Navigation Description

9. Navigation Icons

The following icons inform you what the system is currently implementing in the application:

Icon	Description of Icon
UXIMe/UXTM Configurator	Represents that the UXIM/UXIMe/UXTM Configurator application is running.
Battery Acquisition Module	Represents the top icon level where all the information is stored.
Real-time Data	Display of battery data real-time. Data will be shown as graphical bar charts and tabular data.
Alarm Status	Represents the current alarm event status.
Setup	Represents where the parameters that can be configured.
Discharge Events	Represents where the discharge events are stored and saved.
Tools	Represents tools that are used for graph scaling, discharge events, and analysis events.

Table 5 - Navigation Icon Descriptions

10. Application Toolbar Icons

The following icons are located on the toolbar and indicate the changes that can be done to the application.

Icon	Description of Icon
Hide tree	Represents that the UXIM/UXIMe/UXTM Configurator navigation tree is off.
Display tree	Represents that the UXIM/UXIMe/UXTM Configurator navigation tree is on.
Reset Alarm	Resets any active alarms.
Start Resistance	Represents where to activate/start resistance test.
Stop Resistance	Represents where to deactivate/stop Resistance test.
Mode - Maintenance	To place the system in standby/maintenance mode. All alarms are currently disabled. **Note:** While in maintenance mode the device LEDs will be blinking amber.
Mode - Monitor	To place the system in normal scan/monitor mode. All parameters are currently monitored against preset thresholds.
Connect	Allows software to connect to physically connected hardware.
Disconnect from Monitor	Allows software to disconnect hardware.

Table 6 - Application Toolbar Icon Descriptions

11. Status Bar Icons

The following icons give information on the current status of the system:

Icon	Description of Icon
Connecting to hardware	Indication that PC is attempting connection to hardware.
Hardware connected	Indication that PC is successfully connected to hardware.
Not connected to hardware	Indication that PC could not connect to hardware.
Maintenance mode	Indicates device is in maintenance mode. **Note:** While in maintenance mode the device LEDs will blink amber.
Active Alarm	Indicate device has an active alarm.
Discharge in Progress	Indicates the battery being monitored is in discharge.
Alarms Auto Partial Disabled	Indicates when partial alarms are disabled.

Table 7 - Status Bar Icon Descriptions

12. Using the UXIM/UXIMe/UXTM Help Text

To get information on how to use the UXIM/UXIMe/UXTM monitoring system, use the help text provided in the UXIM/UXIMe/UXTM application. The help text can be accessed from the main menu by clicking **Help** then **Configurator Help**. Or Press **F1** from any specific window for context-sensitive help text. The UXIM/UXIMe/UXTM help window appears with the following options:

- Choose the **Contents** tab, (which is the defaulted view) from the left pane of the help window to view all the books and topics in the help text.
- Choose the **Index** tab from the left pane of the help window to view all the keyword entries in the help text.
- Choose the **Search** tab from the left pane of the help window to search and view all the searched entries in the help text.

13. Using the UXIM/UXIMe/UXTM Documentation

Documentation in the form of PDF files is provided in the UXIM/UXIMe/UXTM application. The documentation can be accessed from the main menu by clicking **Help** then **Documents**. The UXIM/UXIMe/UXTM application has the following user documentation:

- **Product Description Guide:** Gives information on the features, capabilities, system overview, operating modes, model numbers, panel controls and indicators and system specifications of the UXIM/UXIMe/UXTM monitoring system.
- **Installation Manual:** Provides safety information, preventative maintenance, system overview, system installation, materials needed, hardware configuration, installation considerations, mounting options.
- **Getting Started Guide:** Explains how to verify the setup of the UXIM/UXIMe/UXTM monitoring system.

  The Guide also provides information on using the features of the UXIM/UXIMe/UXTM application.