

SWE



USER'S MANUAL

REVISION 3.04

SWE SeaSafe Observer™ User's Manual (SDOC-033)



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SECTION 1. SWE SEASAFE OBSERVER™ OVERVIEW

The official SWE SeaSafe Observer™ Graphical User Interface (GUI) is used to communicate with any SWE SeaSafe® lithium-ion battery packs via RS485 Modbus ASCII (or RTU) to obtain key status and diagnostic data from the pack's Battery Management System (BMS). Information such as the Estimated Remaining Capacity, Voltage, Temperature, Current, and State (Standby / Charging / Discharging) are all easily visible through the SWE SeaSafe Observer™ dashboard.

Additionally, SWE SeaSafe Observer™ allows you to see plots of all the key variables seen on the dashboard over time, any status and error messages that may be sent, as well as to log this data to a file in real-time.

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SECTION 2. INSTALLATION

SECTION 2.1. DEFINITIONS



This icon means that there is information that may need to be noted.



This icon means that if directions are not followed, errors or instability of the SWE SeaSafe Observer™ may occur.

SECTION 2.2. REQUIREMENTS

Device: Desktop or Laptop PC

Operating System: Windows® 7 with SP1 or Higher (32-bit or 64-bit),
Windows® 8.1 or higher (32-bit or 64-bit), or
Windows® 10 (latest update) (32-bit or 64-bit)

RAM: 1GB or higher.

Memory: Hard drive space of 325 MB (Installed), 550 MB (installer ZIP file), and 685 MB (extracted ZIP file)

SWE SeaSafe Observer™: Version 3.03.001 or higher

SECTION 2.3. SOFTWARE INSTALLATION PROCEDURE

The SWE SeaSafe Observer™ is delivered as a downloadable ZIP file:



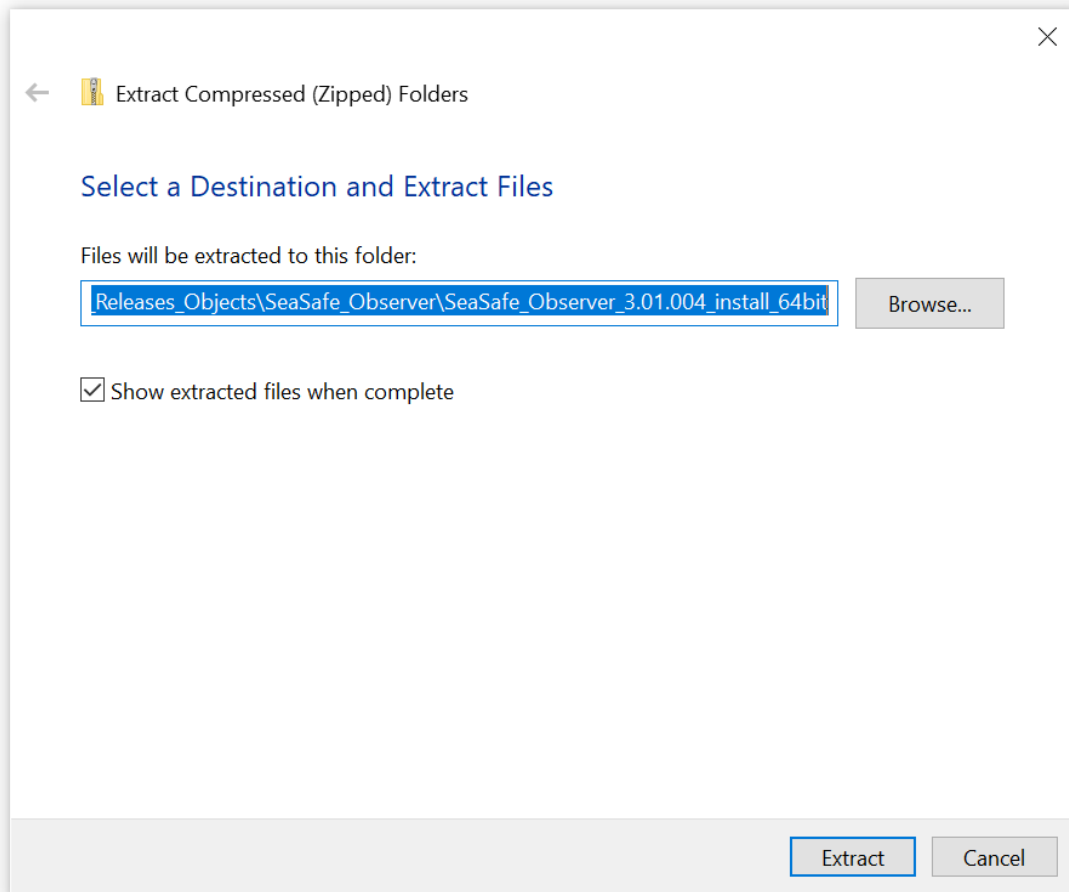
SeaSafe_Observer_3.03.001_install_64bit.zip

After downloaded on your Windows PC, right click on the directory above and run Extract All.

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✓ SeaSafe_Observer_3.01.004_install_64bit.zip 9/25/2020 12:00 PM Compressed (zipped)... 489,806 KB



Click the Extract button and your files will be extracted into a directory as named.

Go to that directory with the extracted SeaSafe Observer and run the installation as shown below:

The installation of the SWE SeaSafe Observer™ is done from a single executable (.exe). The executable will install the SWE SeaSafe Observer™ application.

Downloads > SeaSafe_Observer_3.01.004_install_64bit

Name	Date modified	Type	Size
bin	10/12/2020 10:47 AM	File folder	
license	10/12/2020 10:47 AM	File folder	
supportfiles	10/12/2020 10:47 AM	File folder	
nidist.id	9/25/2020 11:56 AM	ID File	1 KB
setup.exe	8/30/2019 12:02 PM	Application	5,327 KB
setup.ini	9/25/2020 11:56 AM	Configuration settings	25 KB

Simply double-click on **setup.exe** and follow the prompts to install the application and its required drivers.

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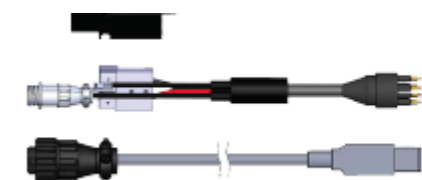
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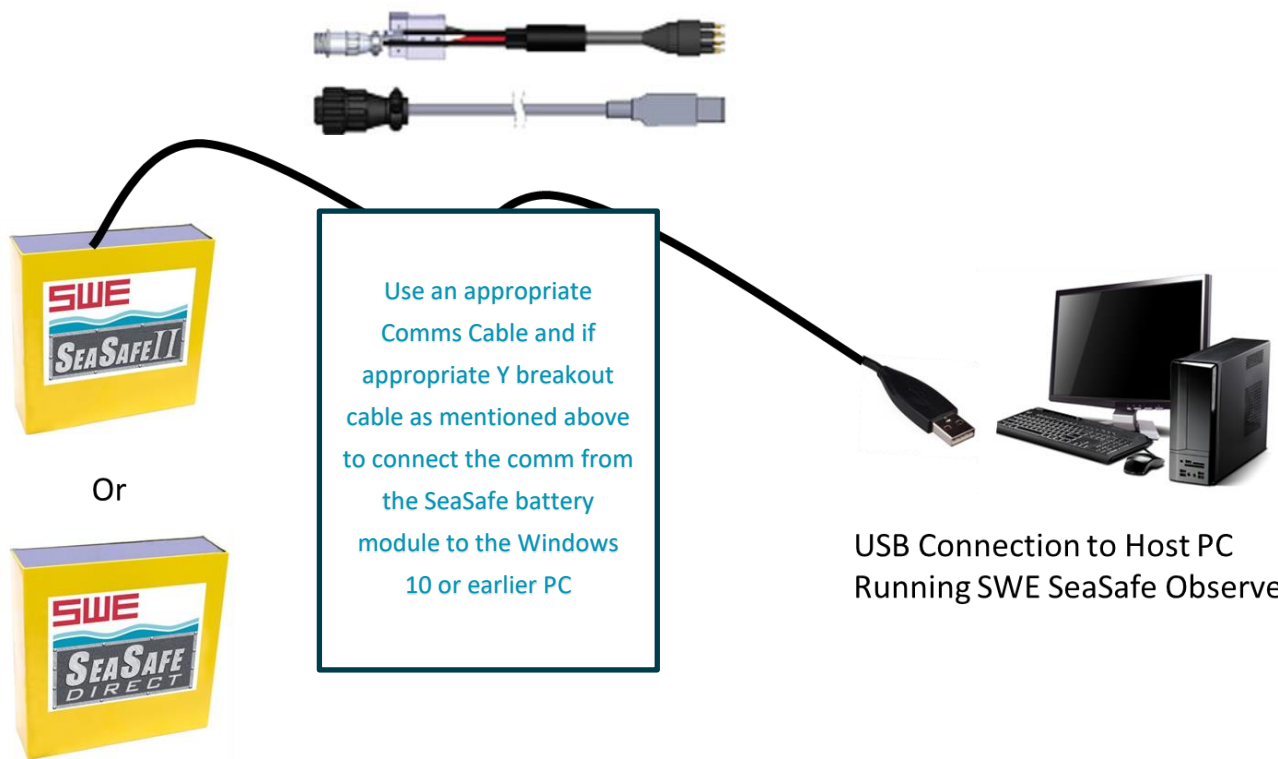
SECTION 2.4. HARDWARE SETUP

The following diagram shows an example of how to connect your SWE SeaSafe® battery module to your PC through a RS-485-to-USB convertor prior to running SWE SeaSafe Observer™.

1. IF SeaSafe II or SeaSafe ENDURANCE,
 - a. just connect your Comms cable with built in PC USB from the battery comms cable connector of the battery module to the PC USB port.
2. If SeaSafe Direct,
 - a. Just connect your appropriate Y breakout cable for power and comms breakout to your SeaSafe Direct subsea conenctor, then
 - b. Connect your Comms cable with built in PC USB from the battery comms cable connector of the battery module Y breakout cable to the PC USB port.



- Y cable from SeaSafe® Direct to charger and comms
- Comms cable from battery to PC USB



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OR

SeaSafe Endurance

Any of the SeaSafe Battery module product lineup will work with SeaSafe Observer via the RS485 Comms connection.

THE FULL PRODUCT LINE-UP



USE DIRECT IN WATER



USE IN PBOF CASE



USE IN 1 ATM PV

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An Alternate prior hardware configuration for communication transceiver uses an Easy SYNC, as shown below.

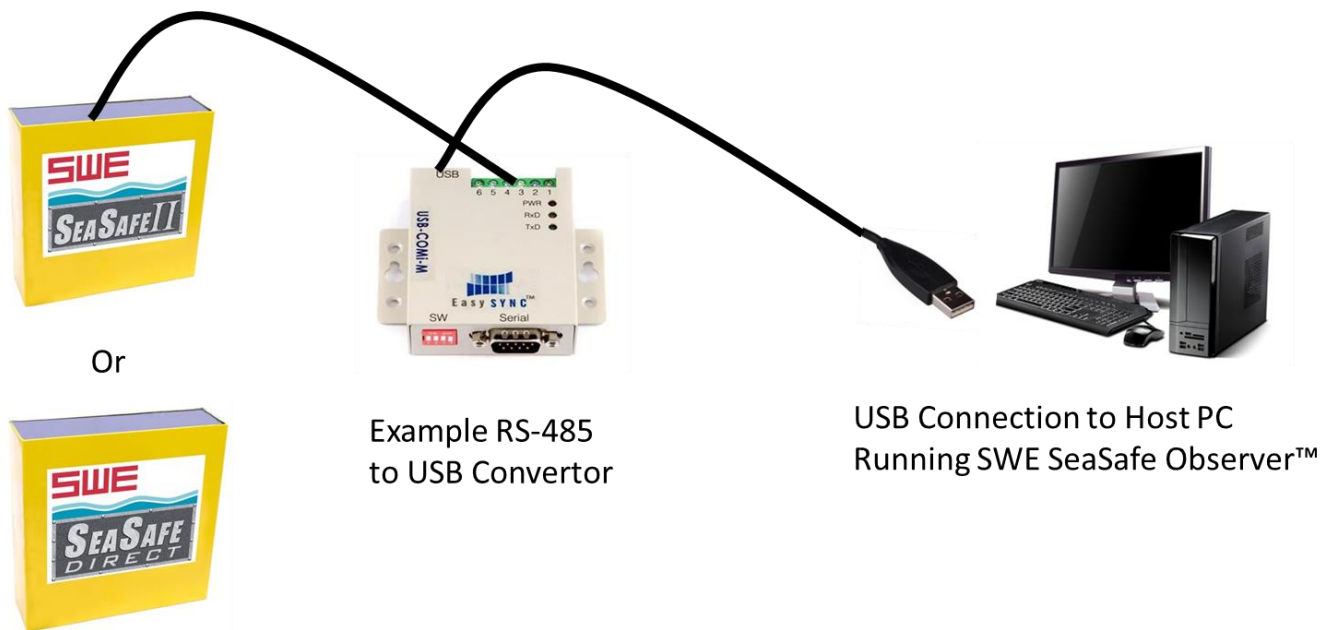


Figure 1 - Connection Setup

Please refer to your specific SWE SeaSafe Battery Module drawings for the correct pinout for the communications connector.

SECTION 2.5. SEASAFE OBSERVER CONFIGURATION FILE CREATOR

Once installation has completed, unless you have been provided a configuration file by SWE, it is suggested that you start by running the **SeaSafe Observer Configuration File Creator** from your Windows™ Start Menu.

After starting the program, you will be asked if you wish to modify an existing configuration file or create a new one from scratch. Click on your choice to be presented with either a dialogue box to choose which configuration file to modify, or to start creating a new file.

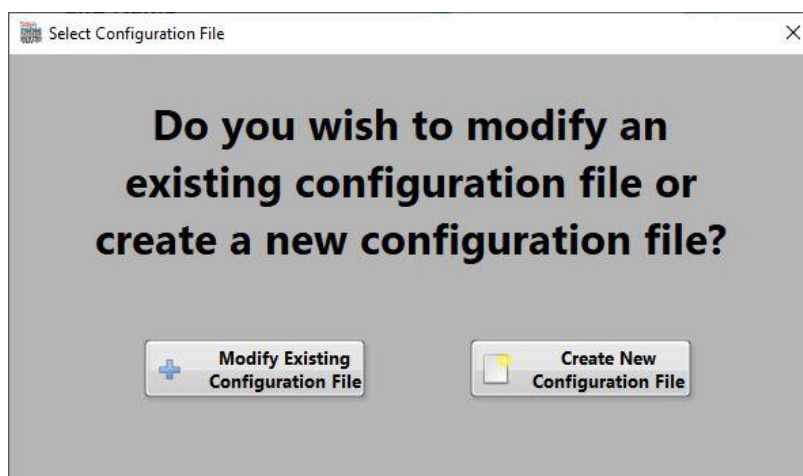


Figure 2 - Modify or create new configuration file

SECTION 2.5.1. MODIFY EXISTING CONFIGURATION FILE

Once you've selected this choice, you will be prompted to select the configuration file you wish to modify. Clicking the small folder icon will bring up a file manager dialogue box which you can use to navigate to the configuration file to be modified. Click **OK** in the file manager dialogue and then again in the **Select Configuration File** dialogue and the values will be loaded into each of the fields from the chosen configuration file. However, if instead of hitting **OK**, you hit **Cancel**, no values will be loaded into the **Configuration File Creator** and it will be as if you had selected the **Create New Configuration File** button.

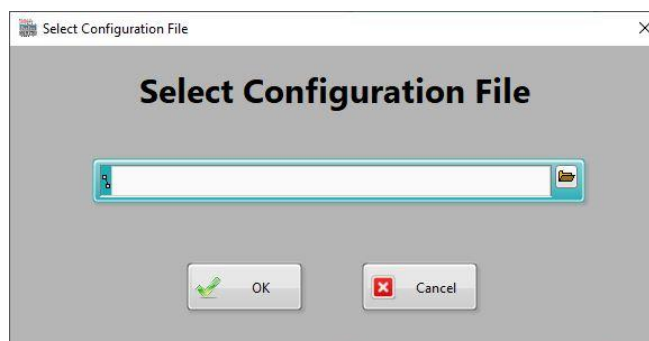


Figure 3 - Select Config File Dialogue Box

SECTION 2.5.2. CREATE NEW CONFIGURATION FILE

When creating a new configuration file from scratch, the default path to the location of SWE SeaSafe Observer(TM) configuration files will typically be loaded into the **Select Configuration File Location** field. However, if this is not filled in, you should click on the small folder icon to specify the location for the file to be saved.

Once that is complete, fill out the **Enter Configuration File Identifier** field with the following syntax representing the particular configuration of your setup:

<Number of Series Modules><Number of Parallel Modules>

For example, if your system is a 2-series, 1-parallel setup, the configuration file identifier would be, **2s1p**. After hitting Enter, the **Configuration File** field will be filled out with the path and filename of the newly created file, *C:\Users\Public\Documents\SWE SeaSafe Observer\Configuration\Config_2s1p.ini*. Click **OK** to finish creation of this file.

If the configuration file folder already contains a file of that name, you will be required to enter a different identifier in the steps above, regardless of whether you click **OK** or **Cancel**. If you have entered a unique identifier which does not already exist, you can click **OK** to create the new configuration file or **Cancel** to exit the creation dialogue and start over with the whole process.

Once the configuration file naming is complete, this will appear in the **Configuration File Directory and Name** field.

SECTION 2.5.2.1. SYSTEM ID

The user should fill in any alphanumeric description for the **System ID** that they wish. Typically this is some type of serial number for the SWE SeaSafe® module battery system.

SECTION 2.5.2.2. SYSTEM CONFIGURATION

This should match the same naming convention the user specified when the configuration file was created above, e.g. **2s1p**.

SECTION 2.5.2.3. MODULE IDS

This field should contain a list of the MODBUS addresses of every SWE SeaSafe® battery module within the system, ordered from lowest to highest in potential (voltage) from String 1 to String N, separated by commas. For example, if you have a 4-series, 2-parallel system where MODBUS IDs 1 through 4 are in String 1 and MODBUS IDs 5 through 8 are in String 2, the **Module IDs** field should be written as:

1, 2, 3, 4, 5, 6, 7, 8

Note that SWE SeaSafe Observer™ will read the data coming from the modules in potential (voltage) order across each string prior to moving to the next highest module in each string. In our example above, this would mean that the modules would be read in the following order:

1, 5, 2, 6, 3, 7, 4, 8

SECTION 2.5.2.4. NUMBER OF CELLS IN MODULE

This field should be filled with the actual number of battery cells within your SWE SeaSafe® battery module(s). For a typical 30 V module, this would be set to **8**.

SECTION 2.5.2.5. FULL CHARGE CAPACITY

This field represents the full charge capacity in percentage that the SWE SeaSafe® module was designed to reach before stopping the allowance of charge. This value is typically set to **90(%)** in order to increase the longevity of the cells and module.

SECTION 2.5.2.6. SERIAL COMMUNICATIONS PORT

See **Serial Communications Port**.

SECTION 2.5.2.7. SERIAL BAUD RATE

See **modbus mode- ascii** or **rtu**.

SECTION 2.5.2.8. SERIAL PARITY

See **Serial Parity**.

SECTION 2.5.2.9. MODULE POLL RATE

See **Module Poll Rate**.

SECTION 2.5.2.10. LOW CAPACITY ALARM

See **Low Capacity Alarm**.

SECTION 2.5.2.11. SHOW NORMALIZED RELATIVE CAPACITY?

See **Show Normalized Relative Capacity?**

SECTION 2.5.2.12. SAVE DATALOGS ON START?

See [Save Datalogs on Start?](#)

SECTION 2.5.2.13. PROMPT FOR DATALOG DIRECTORY?

See [Prompt for Datalog Directory?](#)

SECTION 2.5.2.14. DEFAULT DATALOGS PATH

See [Default Datalogs Path.](#)

SECTION 2.5.2.15. CONFIGURATION PASSWORD ON?

See [Configuration Password On?](#)

SECTION 2.5.2.16. CONFIGURATION PASSWORD

See [Configuration Password.](#)

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SECTION 2.6. STARTING SWE SEASAFE OBSERVER™

Once installed, you can start SWE SeaSafe Observer™ by clicking **SeaSafe Observer** in your Windows™ Start Menu. After starting the program, the user is prompted with a System Message window. If no configuration file is found, a warning is issued in this window and the SWE SeaSafe Observer™ program will close once **OK** is clicked. If a single configuration file is found in the configuration directory, the program will be immediately started and you will be presented with the **Dashboard** screen. However, if multiple configuration files are found in the configuration directory, the user will be prompted to pick from the list of all the files found. Once a configuration file is selected, the user should click **OK** and it will be loaded, presenting the user with the **Dashboard** screen.

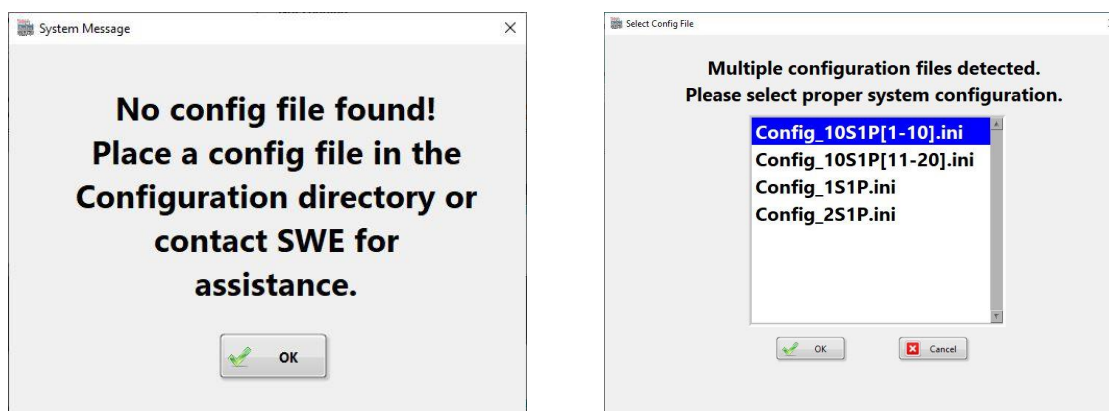


Figure 4 - Configuration Files Not Found and Multiple Files Found

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SECTION 3. SWE SEASAFE OBSERVER™ DASHBOARD

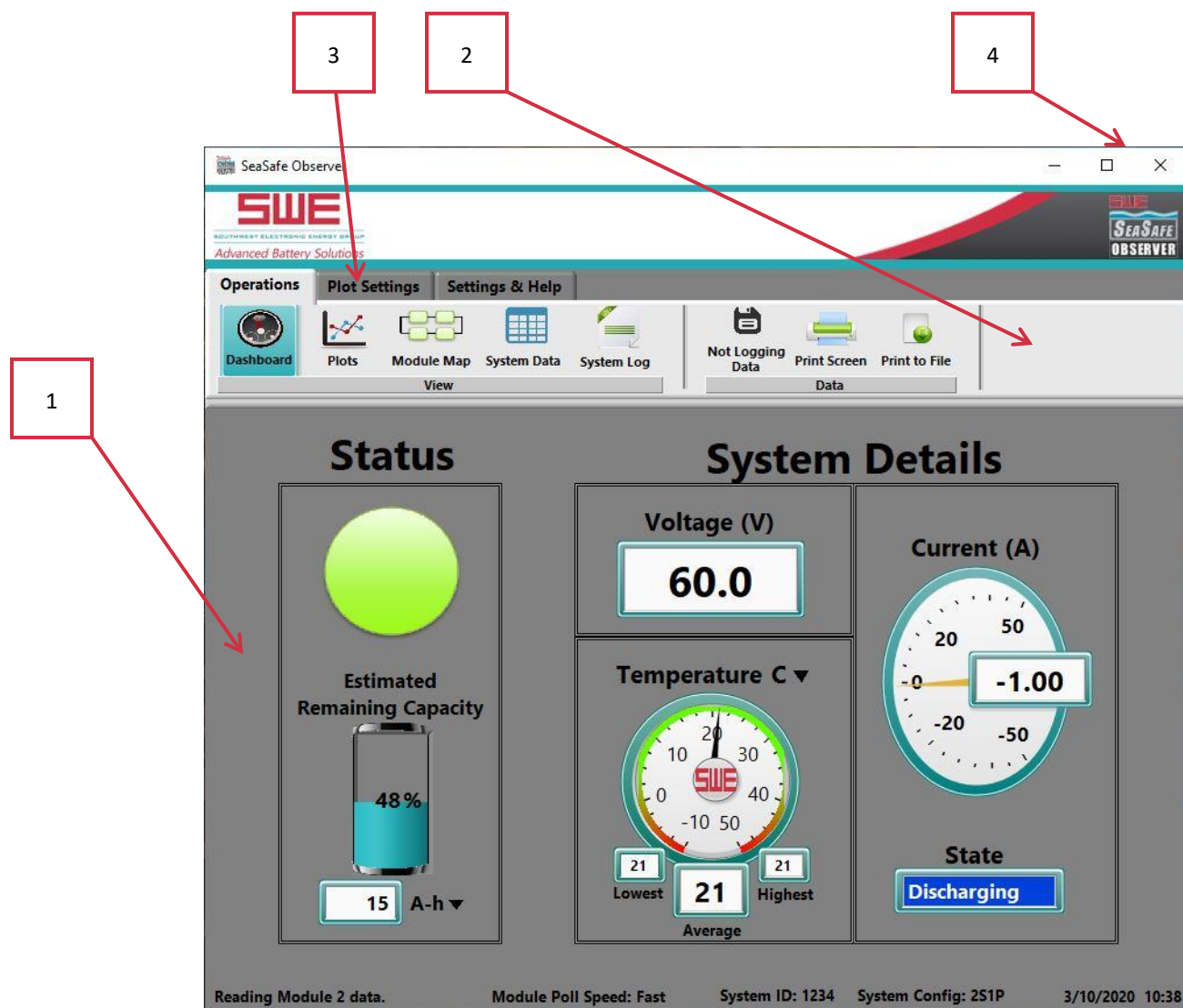


Figure 5 - SWE SeaSafe Observer™ Home Screen

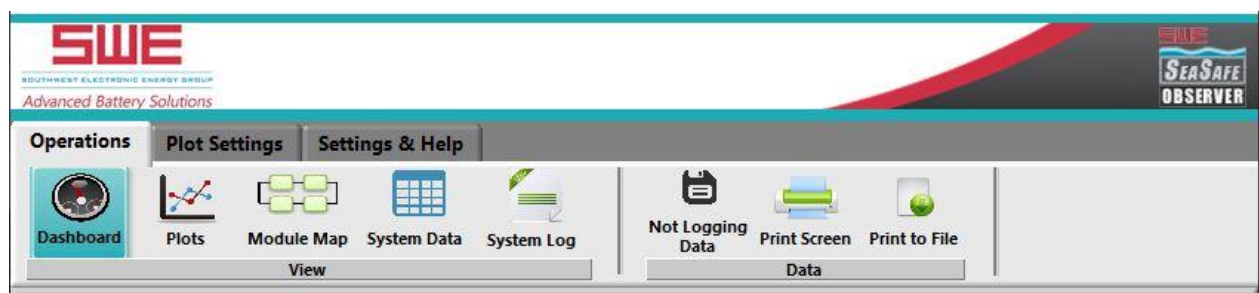
1. **Display Area:** All graphs and charts will be displayed here once those functions have been selected.
2. **Ribbon:** Most of the functions for SWE SeaSafe Observer™ are controlled from the ribbon.
3. **Ribbon Tabs:** Various functions of the SWE SeaSafe Observer™ are on the other tabs shown and will be explained in detail later in the manual.
4. **Window Functions:** Minimize, Maximize and Close the SWE SeaSafe Observer™ window using these standard application buttons.

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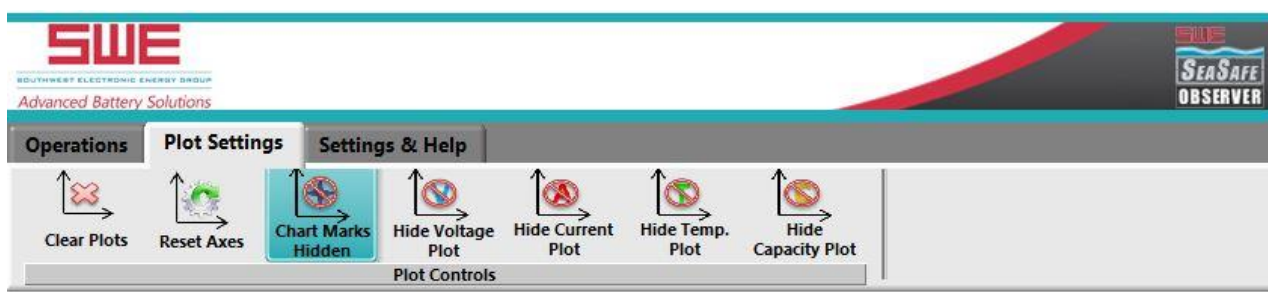


SECTION 3.1. RIBBON TABS

Operations Tab



Plot Settings Tab



Settings and Help Tab



Figure 6 – SWE SeaSafe Observer™ Tabs

The function of each button for a given tab will be explained in the following sections.

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SECTION 4. OPERATIONS TAB

The **Operations** Tab displays most of the SWE SeaSafe Observer™ status details and operating conditions.

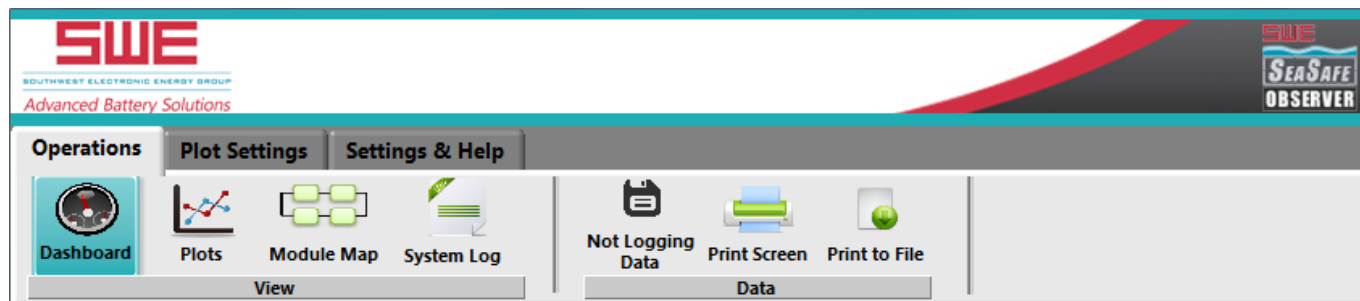


Figure 7 - Operations Tab

SECTION 4.1. DASHBOARD

The SWE SeaSafe Observer™ **Dashboard** is the screen that users will likely find themselves using the most. It gives users a quick overview of the key battery status and operating conditions for monitoring purposes.

SECTION 4.1.1. STATUS

The **Status** section of the **Dashboard** gives an easy to understand Green/Yellow/Red visual indication of how the battery is functioning, as well as displaying the current **Estimated Remaining Capacity** of the pack as both a percentage and user-selectable value in Amp-hours (A-h) or Watt-hours (W-h) by clicking on the ▼ icon.

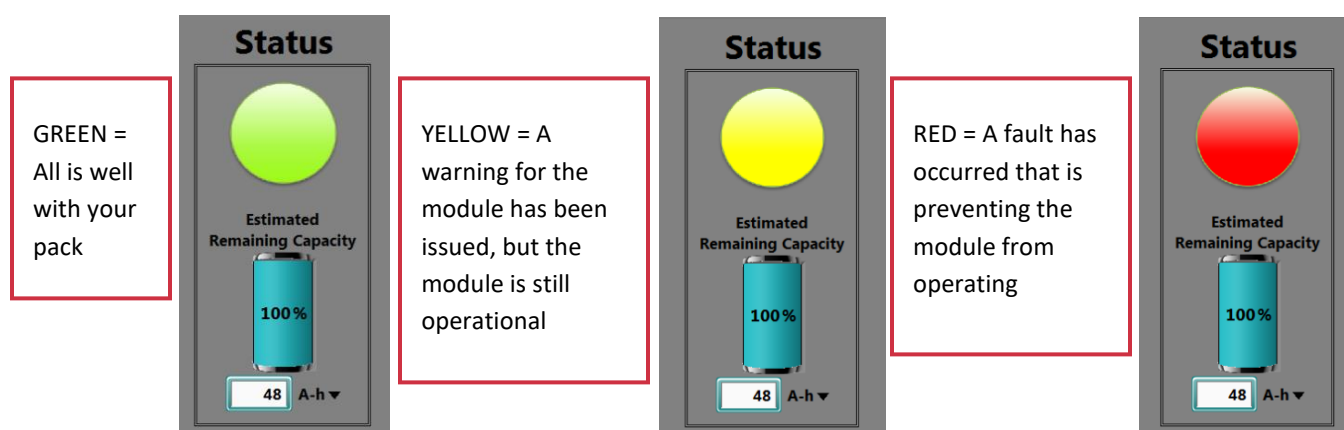


Figure 8 - Battery Status indicators for Green, Yellow, and Red

Users can click on the Green/Yellow/Red Status indicator at any time and it will take them to the **System Log** (please see [System Log](#) for details)

SECTION 4.1.2. SYSTEM DETAILS

The **System Details** section of the **Dashboard** gives a quick look at the current pack Voltage, Temperature, Current, and State.

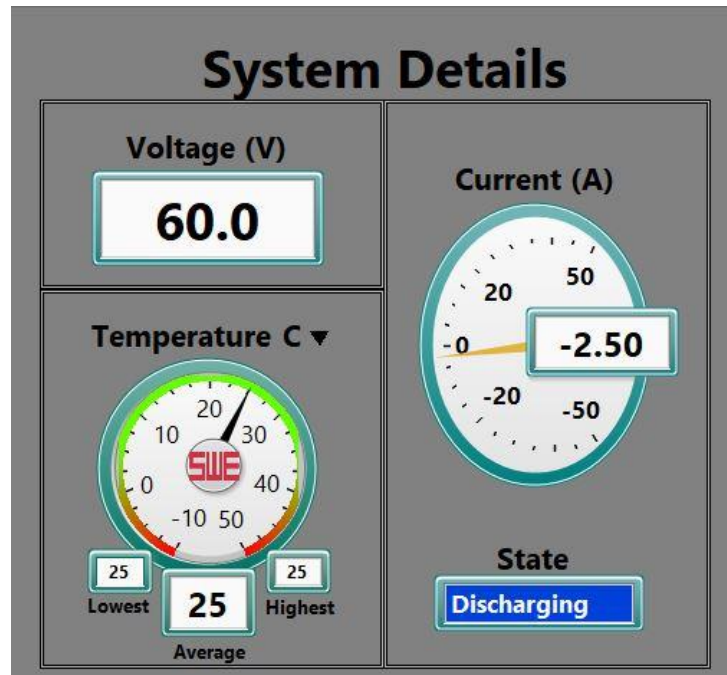


Figure 9 - Module Details

SECTION 4.1.2.1. VOLTAGE (V)

The **Voltage** of the pack is displayed in Volts.

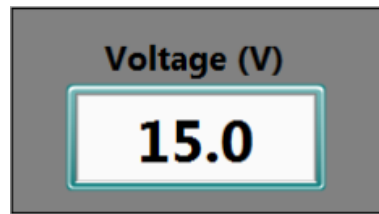


Figure 10 - Voltage display

SECTION 4.1.2.2. TEMPERATURE (°C OR °F)

The average **Temperature** of the pack is displayed in both analog (dial) and digital (box below dial) in either °C or °F, selectable by clicking on the ▼ icon. Note, the Plots (see [Plots](#) for details) will also reflect the particular units chosen for the **Temperature** display. The range of temperatures displayed on the analog meter can be adjusted by double-clicking on any of the numbers displayed and typing in a new number. The number you click on will be highlighted in black, allowing you to edit it, and the meter will then auto-scale itself based on what you typed. As a best practice, it is usually most helpful to click on the most negative value and most positive value to re-scale the analog meter for the most detailed resolution. For instance, if your battery is currently next to you on your desktop, it would likely be helpful to set the minimum value to something like 23 °C (room temperature) and set the maximum to something around 40 °C. The current highest and lowest temperatures of all modules in the system are also displayed. Note, these highest and lowest temperatures are NOT the historical high and low, but rather the current temperatures.

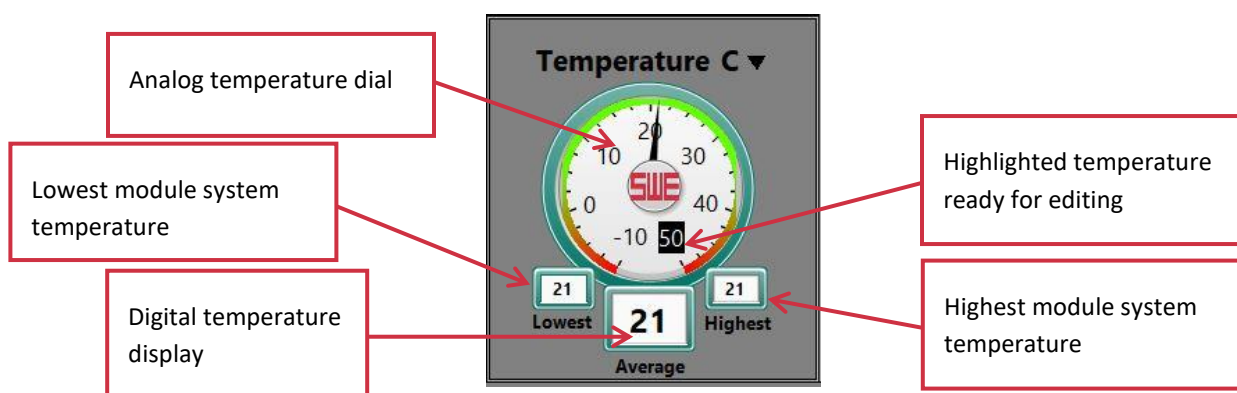


Figure 11 - Temperature display

SECTION 4.1.2.3. CURRENT (A)

The **Current** of the pack is also displayed in both analog (dial) and digital (box inset on the dial). As with the **Temperature** display, the range of values shown can be changed by clicking on any of the actual numbers on the analog meter.

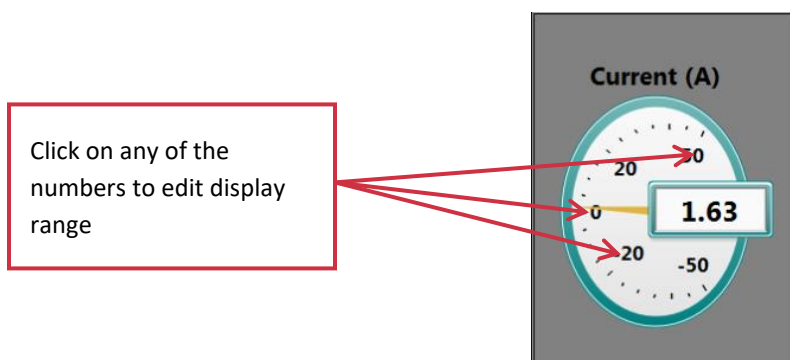


Figure 12 - Current display

SECTION 4.1.2.4. STATE

The **State** display will reflect the current state of the battery pack (Charging, Discharging, or Standby) as understood by the BMS. Note that the **State** is calculated based on the net difference between any incoming charge current and any outgoing discharge current. So if your charge current is higher than your discharge current, the **State** will show as “charging.” Likewise, if your discharge current is larger than your charge current, the **State** will show as “discharging.”

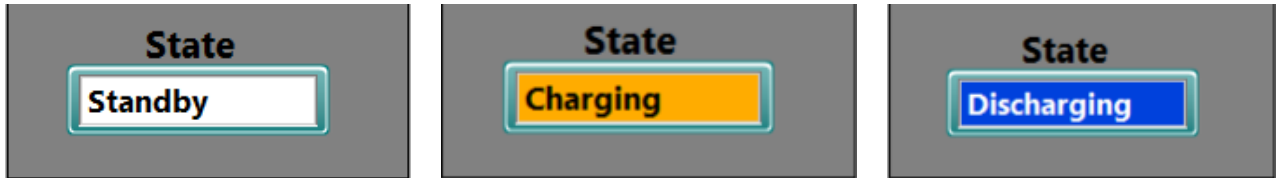
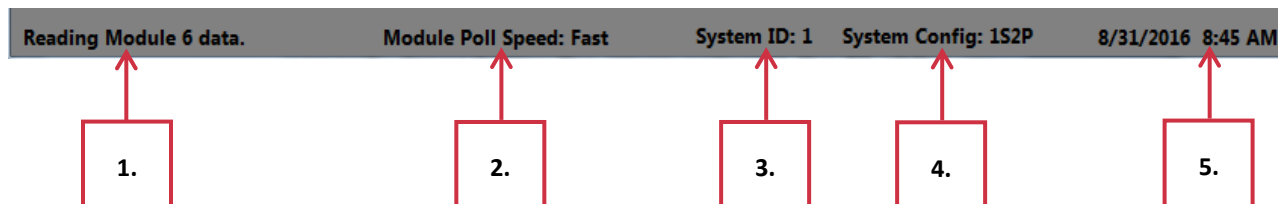


Figure 13 - State of Battery according to BMS

SECTION 4.1.3. ADDITIONAL OPERATIONS INFO



SECTION 4.1.3.1. SYSTEM MESSAGES

1. The lower-left corner of the **Dashboard** window will always display the latest system message that is being captured to the **System Log**.

SECTION 4.1.3.2. MODULE POLL SPEED

2. The polling speed used to update the SWE SeaSafe Observer™ logs, plots, and **Dashboard** is displayed near the middle of the additional information portion of the screen. Please see [Module Poll Rate](#) for more details.

SECTION 4.1.3.3. SYSTEM ID

3. The **System ID** section of the screen will show the system identifier defined in the configuration file using the **System ID** field. This is meant to be a unique identifier for a battery system consisting of multiple SWE SeaSafe™ modules, typically the serial number of the battery system.

SECTION 4.1.3.4. SYSTEM CONFIG

4. The **System Config** section of the screen will show the battery module configuration in terms of the number of series and parallel modules as specified in the SWE SeaSafe Observer™ configuration file.

SECTION 4.1.3.5. DATE/TIME

5. The current date and time are shown in the lower right-hand corner of the dashboard.

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SECTION 4.2. PLOTS

The **Plots** button will show a real-time plot of the battery pack's Current, Voltage, Temperature, and Capacity. Each axis has its own color-coding, scaling, and individual chart markers to distinguish the plot lines on a screen if displayed or printed in black and white or grayscale.

Similar to the **Temperature** and **Current** displays on the **Dashboard**, you can click on any of the numbers listed on the different axes to re-scale them to your preferred liking.

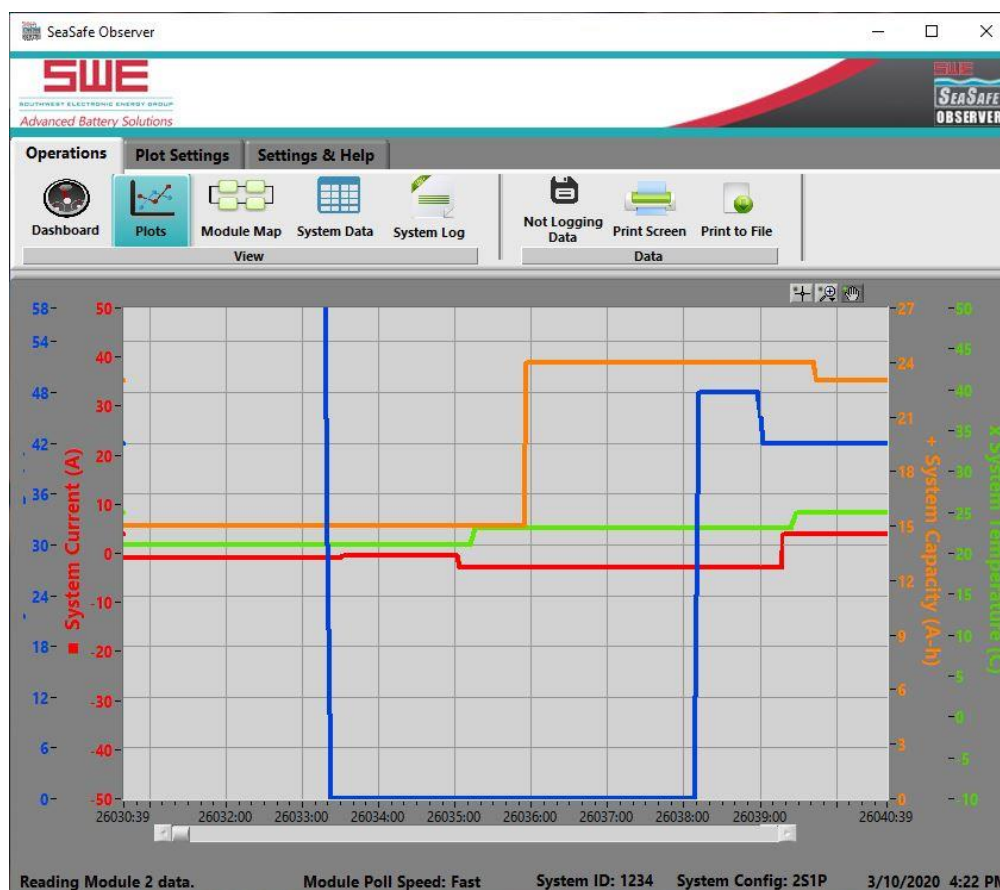


Figure 14 - Plots view

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SECTION 4.3. MODULE MAP

The **Module Map** button will bring up a graphical representation of the system as defined by the system configuration in the config file. Additionally, this screen will display the overall system voltage, current, and capacity, as well as the average of all of the modules' temperatures in the system.

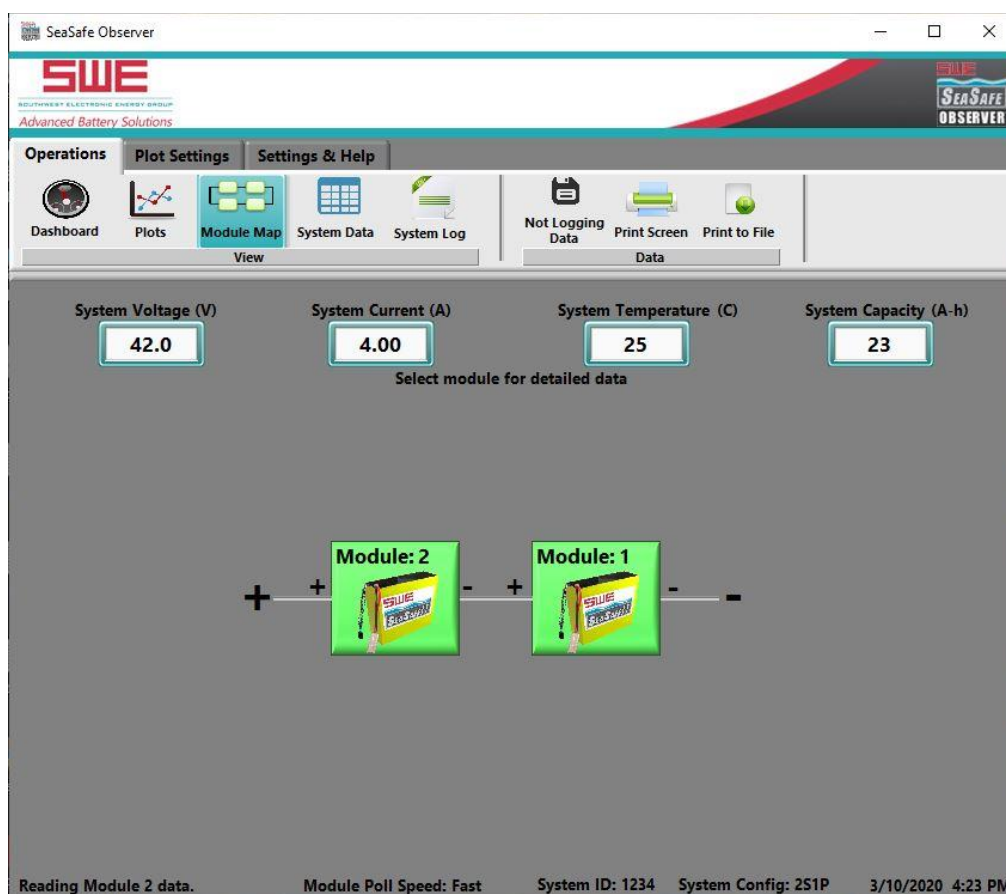


Figure 15 - Module Map

Clicking on any of the module icons in the **Module Map** screen will bring up a new **Module Data** window allowing you to view specific information about that particular module including the Battery Management System's firmware and bootloader revisions, voltage, current, estimated remaining capacity, temperature, and individual cell voltages.

Additionally, clicking on the **Module Messages** button (or the Green/Yellow/Red icon next to the Module ID) in the **Options** section of the screen will allow you to see any persistent fault messages that may have been issued for that specific module while clicking on the **Save Module Data** button will start saving all of the detailed BMS values for that specific module to a file.

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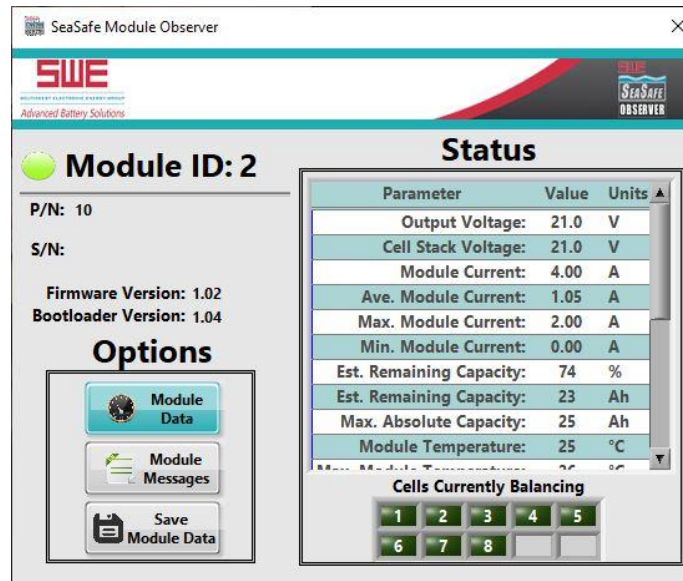


Figure 16 - Displaying the Module Data

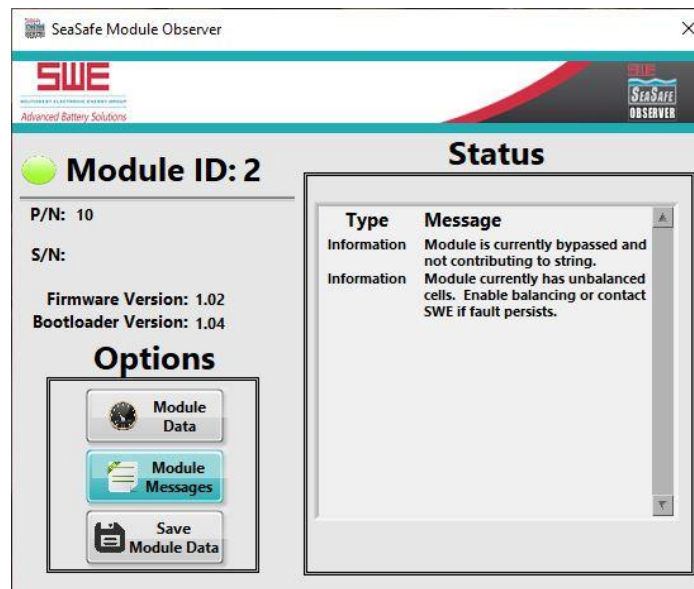


Figure 17 - Displaying the Module Messages

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SECTION 4.4. SYSTEM DATA

The **System Data** button provides a detailed list view of all the critical data for every module in the system. The calculated **String Voltages** (sum of all module output voltages in a string) and **String Currents** (average of all module currents in a string) are also displayed.

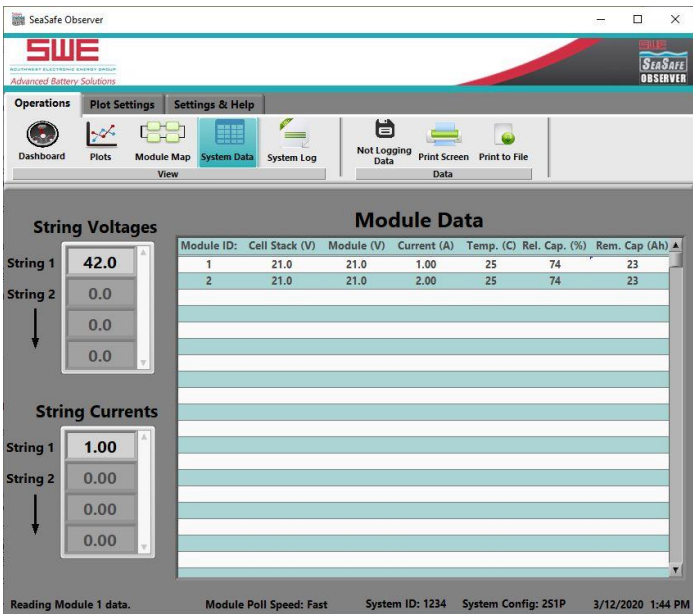


Figure 18 - Displaying the System Data

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SECTION 4.5. SYSTEM LOG

The **System Log** is created every time the application is opened and contains a history of the previous 100 system messages which have been issued by SWE SeaSafe Observer™ at whatever current polling rate is set. Please see [Module Poll Rate](#) for more details. Informational system messages indicating when SWE SeaSafe Observer™ is reading the BMS information, whether the battery is currently charging or discharging, and various other updates will appear in this log. While this window is limited to the last 100 messages, **ALL** messages are logged in `syslog_<time stamp>.CSV` in the **System Logs** folder on your hard drive.

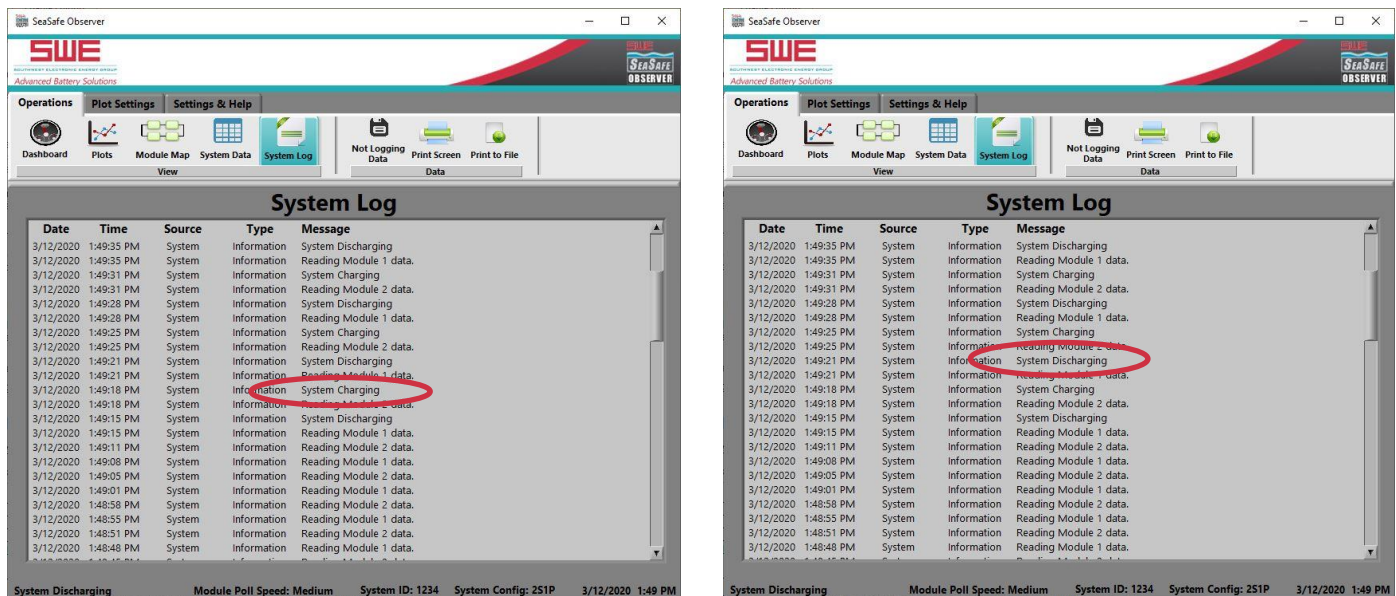


Figure 19 - System Log showing Charging and Discharging

Additionally, the **System Log** will contain any fault messages that may occur while SWE SeaSafe Observer™ is connected to the battery pack. The log shows the location and criticality (information, warning, or fault) of the message. If a warning or a fault is detected, the **System Log** icon will turn yellow or red, respectively, to bring your attention to this. Clicking on the icon will cause it to return to its normal default color. The icon will continue to stay yellow or red for as long as the warning/fault is reported from a module. If the warning/fault goes away, the icon will return to its normal color, but a yellow and/or red dot will be displayed at the top of the icon to show that a previous warning/fault was reported. Further review of the **System Log** is then recommended to determine the specifics of the warning/fault.

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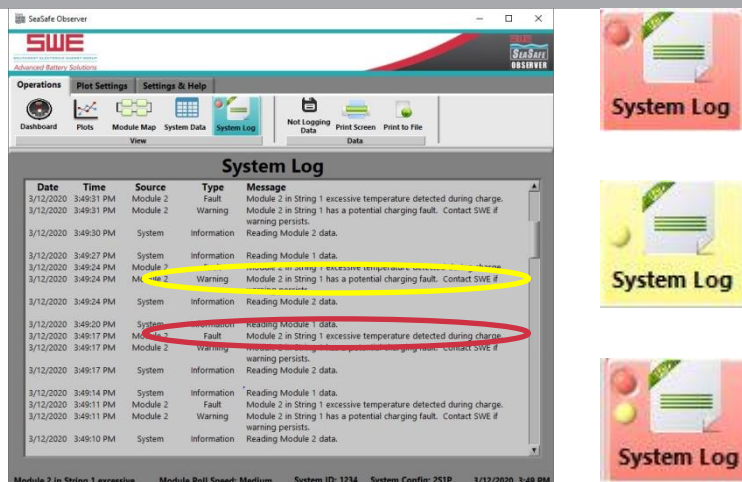


Figure 20 - System Log showing fault/warning information and icons

In addition to module warnings and faults, SWE SeaSafe Observer™ will also issue two different communication faults when communication is lost with the module.

1. If the PC loses communication with your RS485 to USB converter, the following fault message is issued:
 - a. *"No communication cable detected! Confirm cable is plugged in, serial port is not in use and/or port is correct in config file."*
2. If the PC can communicate with the RS485 to USB converter but not to the battery module, the following fault message is issued:
 - a. *"Module X in String Y has lost communication with SeaSafe Observer host"*

SECTION 4.6. LOGGING DATA

SWE SeaSafe Observer™ allows you to save all of the **System Data** (Voltage, Current, Temperature, and Capacity) and **Module Data** for each module in the system to a separate datalog file on your hard drive. You can control whether or not you wish to save the logged data to a file by clicking on the appropriate button as shown below.



Figure 21 - Log data button

Note that if you start **Logging Data** when a System or Module Log file already exists, SWE SeaSafe Observer™ will ask you whether you wish to continue appending data to the current file or start a new datalog file.

See **Observer Config** for details on configuring the behavior of the data-logging function at startup and the location for the logs to be saved.

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SECTION 4.7. PRINT SCREEN

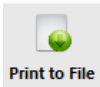
Clicking on



will automatically print a screen capture of the current screen to the default printer in your Windows®

SECTION 4.8. PRINT TO FILE

Clicking on



will bring up a dialogue box which allows the user to save a screen capture of the current screen as a **JPEG**,

BMP, or **PNG**.

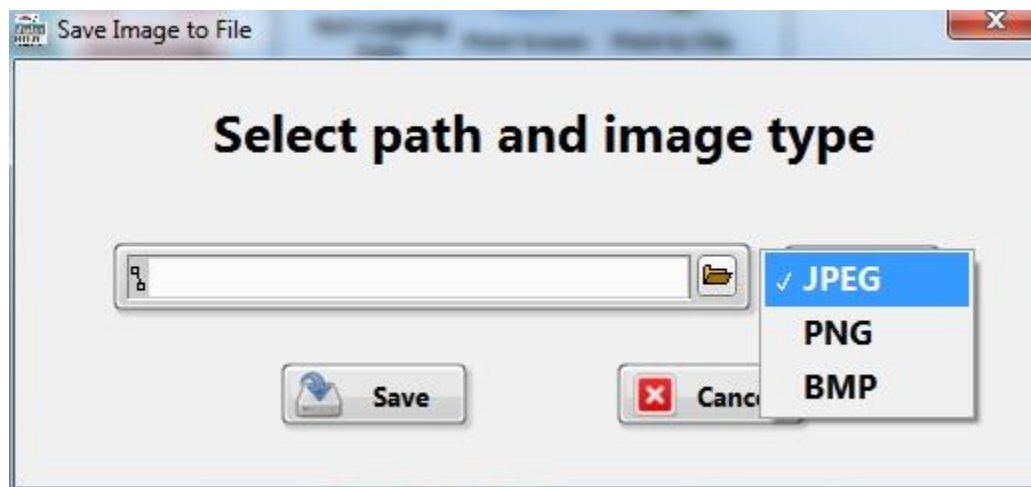


Figure 22 - Print to file dialogue box

The default path for the image to be stored will be the *Public Documents\SWE SeaSafe Observer* folder.

SECTION 5. PLOT SETTINGS TAB

The **Plot** screen's look and feel is controlled by the buttons located on the **Plot Settings** tab.

SECTION 5.1. CLEAR PLOTS

The  button will clear all of the data currently drawn on the plot.

SECTION 5.2. RESET AXES

Pressing the  button will automatically reset all four plotted variables' displayed ranges to an auto-scaled value that allows for all respective data points in the plot to be shown for each axis.

SECTION 5.3. CHART MARKS HIDDEN

By default, the individual chart markers for each plot type are hidden. The icon will be displayed as  if this is the case. You can enable chart markers (for help in distinguishing the various plots if printed out or displayed in grayscale vs. in full color) by clicking on this  button. Doing so will cause the icon to change to display . You can then click that same icon to once again clear all the chart markers.

SECTION 5.4. HIDE VOLTAGE PLOT

Clicking on the  button will cause the **Voltage Plot** to toggle between being hidden and revealed again, causing the icon to shift between  and .

SECTION 5.5. HIDE CURRENT PLOT

Clicking on the  button will cause the **Current Plot** to toggle between being hidden and revealed again, causing the icon to shift between  and .

SECTION 5.6. HIDE TEMP. PLOT

Clicking on the  button will cause the **Temperature Plot** to toggle between being hidden and revealed again, causing the icon to shift between  and .

SECTION 5.7. HIDE CAPACITY PLOT

Clicking on the  button will cause the **Capacity Plot** to toggle between being hidden and revealed again, causing the icon to shift between  and .

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SECTION 6. SETTINGS & HELP

SECTION 6.1. OBSERVER CONFIG

Clicking the **Observer Config** button will bring up a **System Configuration** window that will allow you to change certain key parameters affecting how SWE SeaSafe Observer™ communicates and behaves.



Note: Access to the **Observer Config** screen is controlled via a password, the default being “**observer**”. Simply type the password into the dialogue box that pops up and you will get access to the configuration parameters. Note that this password can be changed to anything you desire in the **Configuration Password** field.

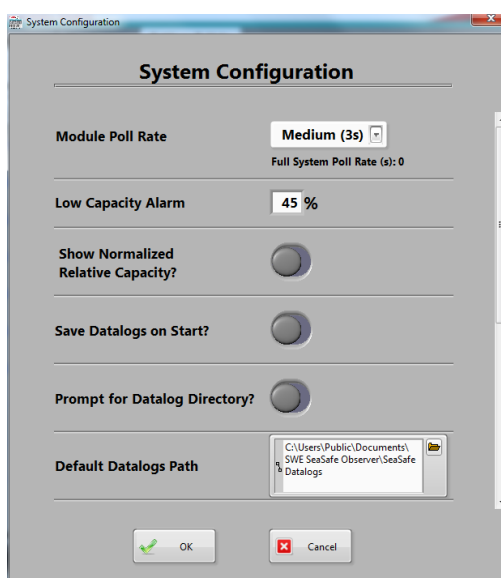


Figure 23 - Observer™ Configuration screen (top view on left, scrolled down view on right)

SECTION 6.1.1. MODULE POLL RATE

The **Module Poll Rate** pulldown setting allows you to pick between three different rates for querying and displaying/updating the SWE SeaSafe Observer™. For a system containing more than one module, each module will be queried at the chosen rate. For example, if **Medium Rate** is chosen in a three-module system, the sequence would be:

1. Read Module 1
2. Wait 3 seconds
3. Read Module 2
4. Wait 3 seconds
5. Read Module 3
6. Wait 3 seconds
7. Read Module 1
8. Etc.

The choices available for **Module Poll Rate** are as follows:

Slow Rate – Updates every 10 seconds

Medium Rate (default) – Updates every 3 seconds

Fast Rate – Updates every 0.5 seconds

SECTION 6.1.2. LOW CAPACITY ALARM

The **Low Capacity Alarm** setting allows you to custom-configure when SWE SeaSafe Observer™ warns you that the battery's state of charge is going below a defined threshold. You can type any percentage into this field between 0 and 100%. SWE recommends that you typically set this to around 10% as the minimum capacity to allow before recharging your battery.

SECTION 6.1.3. SHOW NORMALIZED RELATIVE CAPACITY?

The **Show Normalized Relative Capacity** toggle slider allows you have SWE SeaSafe Observer™ divide the estimated remaining capacity by the fully charged capacity as specified in the configuration file. The toggle switch will appear as



when active and



when deactivated.

SECTION 6.1.4. SAVE DATALOGS ON START?

The **Save Datalogs on Start?** toggle slider allows you to change the default behavior of SWE SeaSafe Observer™ and begin storing the **System Log**, **Error Log**, **Module Data Log**, and **System Data Log** to a file, immediately. The toggle switch will

appear as



when active and



when deactivated.

SECTION 6.1.5. PROMPT FOR DATALOG DIRECTORY?

The **Prompt for Datalog Directory?** toggle slider allows you to change the default datalog directory path of SWE SeaSafe Observer™ and begin storing the **System Data Log** and **Module Data Logs** into this new path. Additionally, folders for both

the **Error Log** and **System Log** files will be created within this directory. The toggle switch will appear as



when

active and



when deactivated.

SECTION 6.1.6. DEFAULT DATALOGS PATH

This allows you to specify a new default directory path for all of your datalogs to be stored.

SECTION 6.1.7. CONFIGURATION PASSWORD ON?

The **Configuration Password On?** toggle slider allows you to access the **Observer Config** screen without a password if deactivated.

The toggle switch will appear as



when active and



when deactivated.

SECTION 6.1.8. CONFIGURATION PASSWORD

This field allows you to specify a new password that is used to protect the **System Configuration** screen.

SECTION 6.1.9. SERIAL COMMUNICATIONS PORT

This field allows you to select via pull-down menu the appropriate COM port on your Windows™ PC which is listed as the **USB Serial Port(COM#)** in Device Manager->Ports(COM & LPT) to be used to communicate with your battery module(s).

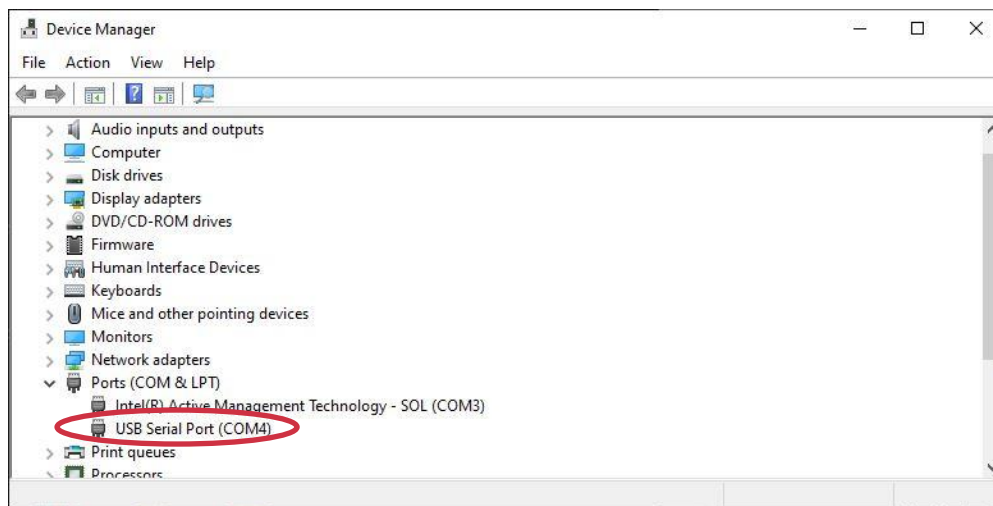


Figure 24 - Device Manager showing which COM port to choose

SECTION 6.1.10. MODBUS MODE- ASCII OR RTU

This field allows you to select via pull-down menu the appropriate MODBUS communications mode of ASCII or RTU (Remote Terminal Unit) mode to serially communicate between your PC and battery modules. The default from the factory is set to ASCII.

SECTION 6.1.11. SERIAL BAUD RATE

This field allows you to select via pull-down menu the appropriate baud rate used to serially communicate between your PC and battery modules. The default from the factory is set to 115200.

SECTION 6.1.12. SERIAL PARITY

This field allows you to select via pull-down menu the appropriate parity used to serially communicate between your PC and battery modules. The default from the factory is set to **Even**.

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SECTION 6.2. MODULE CONFIG

Clicking the **Module Config** button will bring up a **Module Maintenance** window that will allow you to scan for modules, test and change communication parameters, change module IDs, turn module output on and off, reboot modules, check and reset the Short Circuit Detection Counter (SCDC) should you need to do so, reset the gas gauge, and perform a factory configuration update.



Note: Access to the **Module Config** screen is controlled via a password, the default being “**Se@S@fe**”. Simply type the password into the dialogue box that pops up and you will get access to the configuration parameters.



Note: The **Module Maintenance** application is also available outside of the SWE SeaSafe Observer™ application and can be directly accessed by clicking on **SeaSafe Module Maintenance** in your Windows™ Start Menu.



Note: As seen in the warning in the figure below, changing the MODBUS register data of any of the modules may cause you to have to update the current configuration file or create a new one and restart SWE SeaSafe Observer™ to get it to communicate properly again.

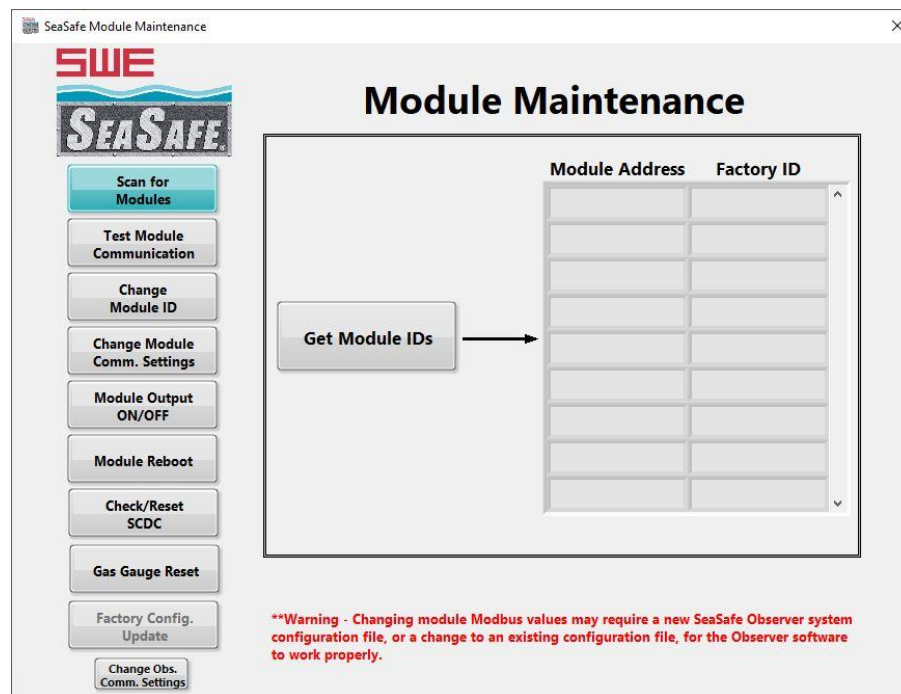


Figure 25 - Module Maintenance screen after pressing the Module Config button

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SECTION 6.2.1. SCAN FOR MODULES

Selecting the **Scan for Modules** button (default for the **Module Maintenance** screen) and then clicking the **Get Module IDs** button will cause SWE SeaSafe Observer™ to scan through all 247 unreserved module IDs connected to the MODBUS to determine which Module IDs are connected.

Once pressed, a progress bar will appear indicating that the scanning has begun. The **Stop Search** button may be pressed at any time and any module IDs found up to that point will be displayed. Once scanning is complete, any Module IDs found will be listed under the **Module Address** column along with information regarding the lot number for that module being listed in the **Factory ID** column. A **Factory ID** of “PR” indicates that the particular battery module was part of a prototype run.

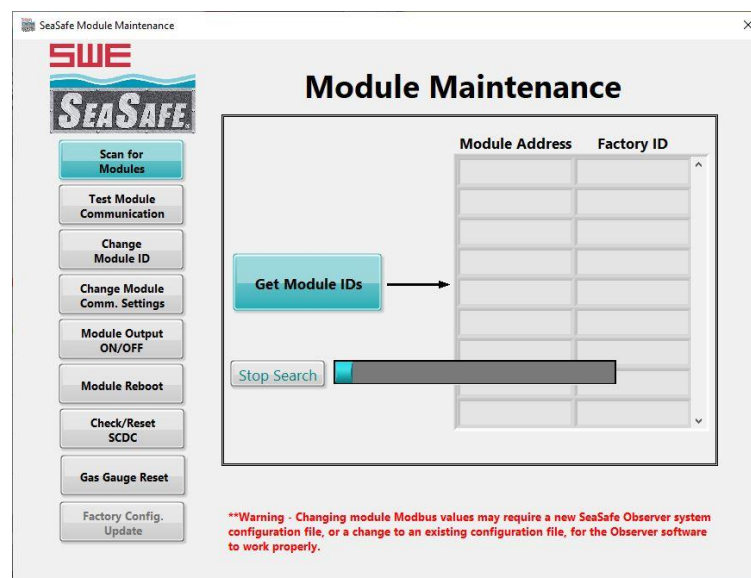


Figure 26 - Progress bar while scanning for modules

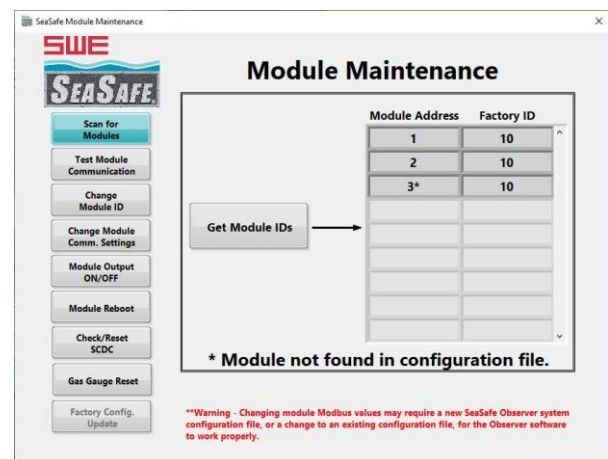
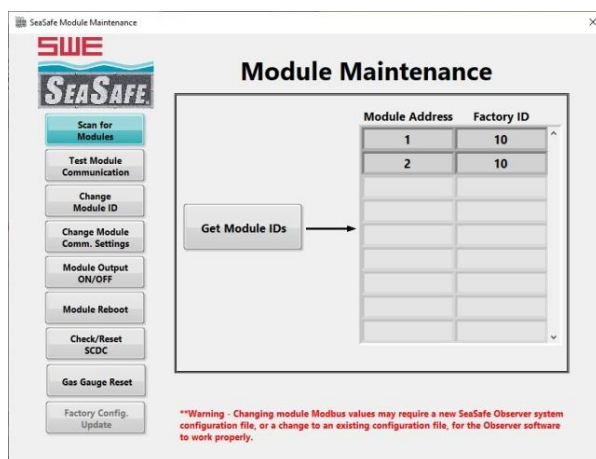


Figure 27 - Scanning results showing when both modules were already present in the configuration file, as well as when new modules were found

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SECTION 6.2.2. TEST MODULE COMMUNICATION

Clicking on the **Test Module Communication** button will bring up a screen with another **Test Module Communication** button that allows you to enter any Module ID located in the system and verify that communication successfully works. Success or failure is indicated by a Green or Red indicator beneath the “**Success?**” heading.

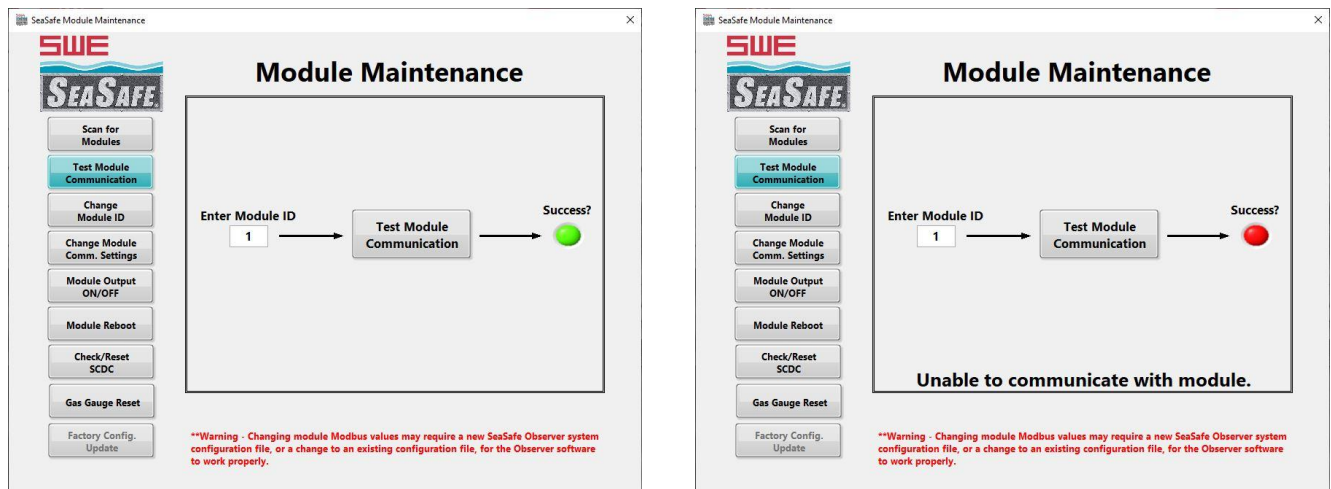


Figure 28 - Output of a successful and failed comms test

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SECTION 6.2.3. CHANGE MODULE ID

Clicking on the **Change Module ID** button will bring up a screen with another **Change Module ID** button that allows you to change any Module ID located in the system to another Module ID, as long as the new Module ID is not already in use.

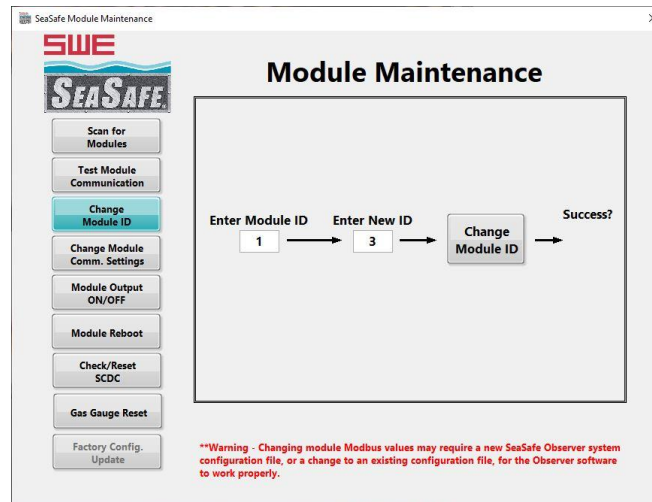


Figure 29 - Change Module ID screen

Success or failure will be indicated with a Green or Red indicator beneath **Success?** as previously described.

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SECTION 6.2.4. CHANGE MODULES COMM. SETTINGS

Clicking on the **Change Module Comm. Settings** button will bring up a screen that will allow you to change the communications settings for each module in your system. You can select the

- **Modbus Mode**
- **Baud Rate** and
- **Parity**

for each module via a pulldown menu and set these by clicking on the **Update Comm. Settings**. Success or failure will be indicated with a Green or Red indicator beneath **Success?** as previously described.

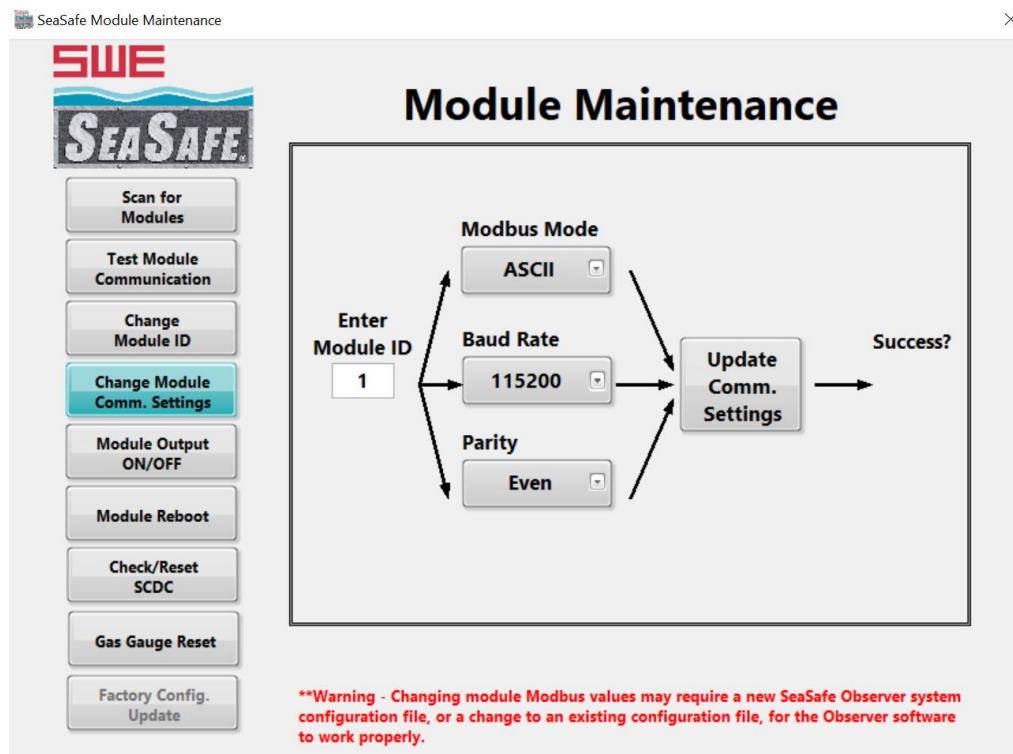


Figure 30 - Change Module Communications screen

SECTION 6.2.5. MODULE OUTPUT ON/OFF

Clicking on the **Module Output ON/OFF** button will bring up a screen that will allow you to enable or disable the output from each module in your system. Upon entering this particular screen, the **Output On** or **Output Off** will reflect their status as a cyan box under the **Module Output State**.

After pressing either the **Turn Output On** or the **Turn Output Off** buttons, a 5-second countdown **Wait** timer will start and the **Module Output State** will be updated to illuminate either the **Output On** or the **Output Off** status icons.

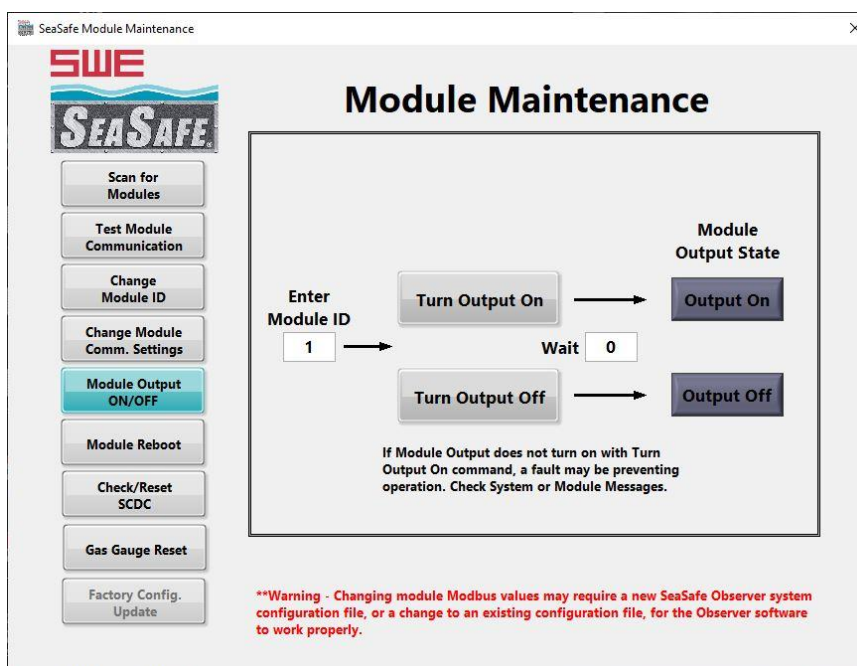


Figure 31 - Module Output ON/OFF Screen

SECTION 6.2.6. MODULE REBOOT

Clicking on the **Module Reboot** button will bring up a screen that will allow you to soft reboot a given module in your system by clicking the **Reboot Module** button. Success or failure will be indicated with a Green or Red indicator beneath **Success?** as previously described.

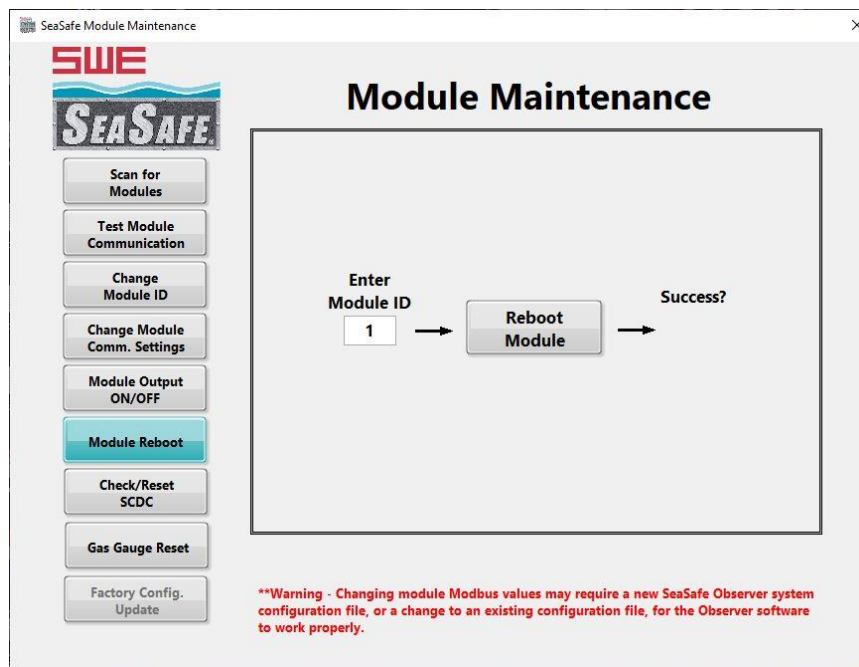


Figure 32 - Reboot Module Screen

SECTION 6.2.7. CHECK/RESET SCDC

Clicking on the **Check/Reset SCDC** button will bring up a screen that will allow you to check the current value of the Short Circuit Detection Counter (SCDC) or reset it back to zero by clicking on the appropriate button after entering a specific Module ID, as seen in the figure below.

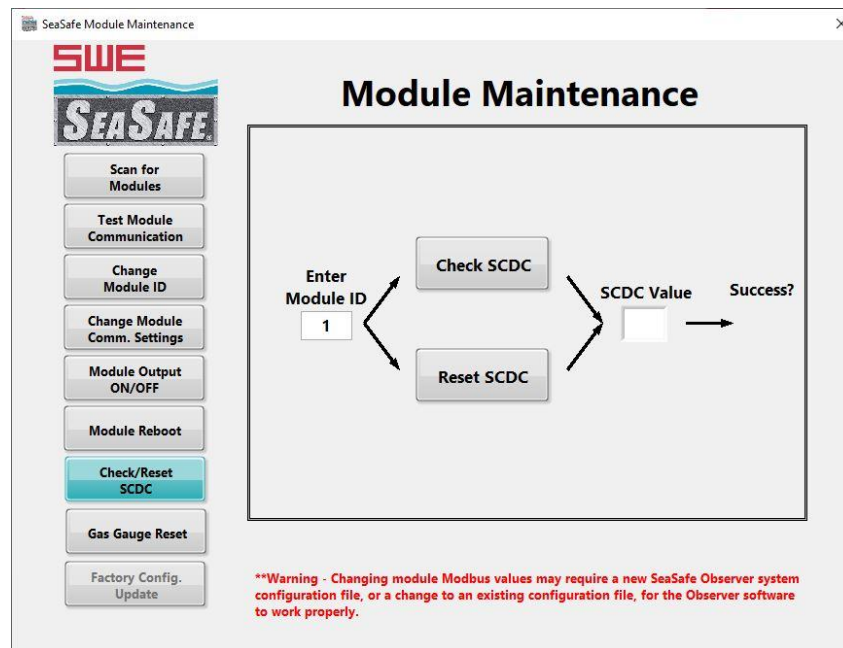


Figure 33 - Check/Reset SCDC screen

Success or failure will be indicated with a Green or Red indicator beneath **Success?** as previously described.

SECTION 6.2.8. GAS GAUGE RESET

Clicking on the **Gas Gauge Reset** button will bring up a screen that will allow you to check the specified modules current Absolute (**Abs. Capacity**) and Relative Capacity (**Rel. Capacity**) by clicking **Check Capacity**. Additionally, you can completely reset the gas gauging by clicking on the appropriate button after entering a specific Module ID, as seen in the figure below. Once **Reset Gas Gauge** has been clicked, a soft reset will be triggered and a wait timer will prevent any further reading/writing to the module while it is rebooting. Once the reboot has completed, the new **Abs. Capacity** and **Rel. Capacity** will be displayed.

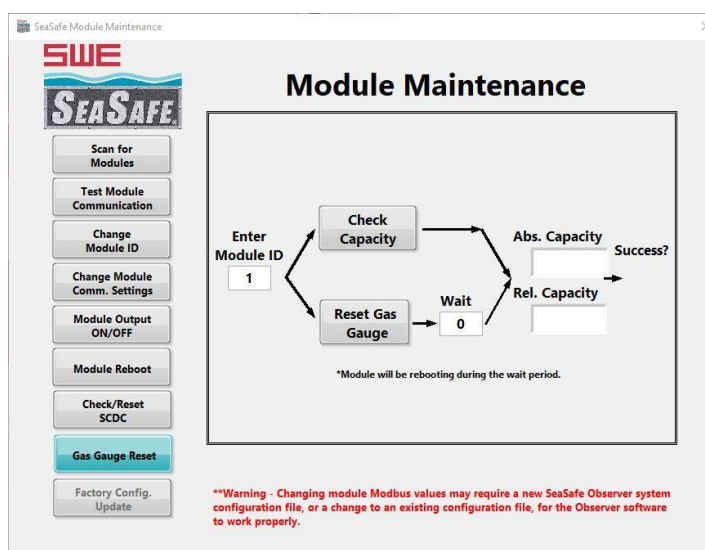


Figure 34 - Gas Gauge Reset Screen

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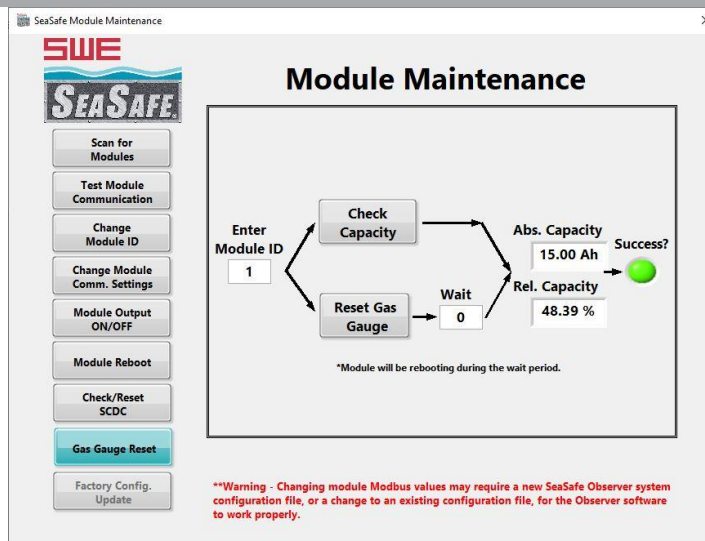


Figure 35 - Checking Capacity

SECTION 6.2.9. FACTORY CONFIG. UPDATE

Clicking on the (typically grayed out) **Factory Config. Update** button will bring up a screen that will allow you to load a new SWE-provided SWE SeaSafe® configuration file that will change certain registers within the battery module, itself. Pressing the **Load Configuration** button will display a dialog box to select the provided config. file. Once selected, the configuration will automatically begin to load. Success or failure will be indicated with a Green or Red indicator beneath **Success?** as previously described.

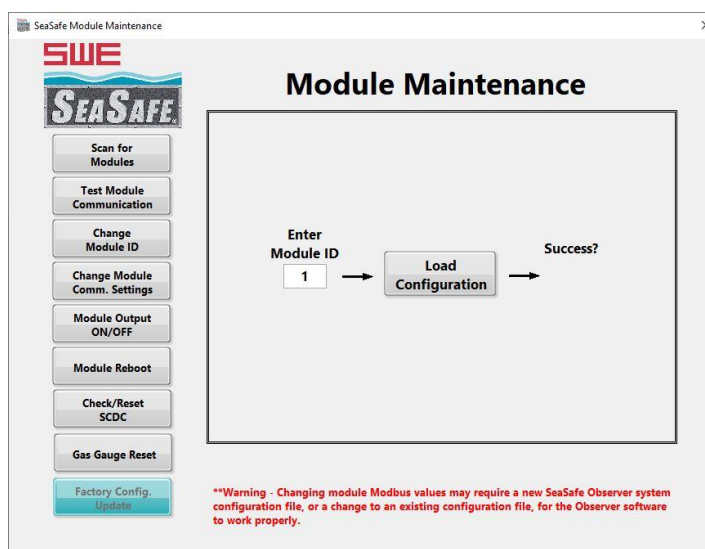


Figure 36 - Factory Config. Update Screen

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SECTION 6.3. HELP

Clicking on  will bring up the following screen concerning contact info for any technical support you may have.



Figure 37 - Technical Support Info

SECTION 6.4. SWE SEASAFE® DATASHEET

Clicking on  will bring up the following screen showing the contact info to use to obtain the latest SWE SeaSafe® battery module datasheet or other technical documentation.



Figure 38 - Technical Support Info

SECTION 6.5. ABOUT OBSERVER™

Clicking on  will bring up the following screen displaying details about SWE SeaSafe Observer™.

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About SeaSafe Observer



SeaSafe Observer™

Version 3.01.004

Southwest Electronic Energy.

281.240.4000

www.swe.com

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SWE CONFIDENTIAL

Figure 39 - About SWE SeaSafe Observer™

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SECTION 7. SUPPORT

Should you have questions about SWE SeaSafe Observer™ that are not answered by this User's Manual, support inquiries or questions should be directed to SWE at seasafe@swe.com.

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