Part Number: M2011, Rev. 3
Issue Date: 11/03/2017
Supersedes: 11/6/2015

OPW
FUEL MANAGEMENT SYSTEMS

M2011 - SiteSentinel® Nano®

Automatic Tank Gauge System

Configuration Guide

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NOTE: Before you use this guide, make sure you have the latest revision. Check the revision level of this document against the most current revision found at http://www.opwglobal.com/opw-fms/tech-support/manuals-how-to-videos. Download the latest revision if necessary.

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ISO 17025 ACCREDITED LABORATORY

OPW FUEL MANAGEMENT SYSTEMS
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Table of Contents

Links to Instructional Video

This manual includes web links and QR codes that link directly to the OPW training video “Configuring an OPW Nano Tank Gauge via the TCP/IP Port, a Browser and a Laptop” found on the OPWGlobal channel on YouTube.

This code and link will take you to the full video:

If you have a smartphone with a QR code scanner, you can scan the QR code to be taken directly to the YouTube video. If you are viewing this manual on a laptop, tablet or pc, click the QR image to open the link.

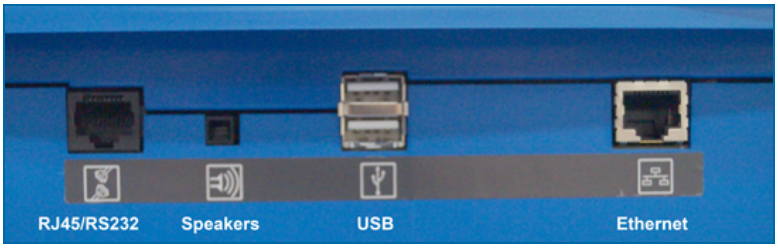
The Introduction section of the video will show you how to setup and view the configuration screens on a laptop.

The QR codes and links that accompany various sections in this manual will take you directly to the portion of the video that is related to the manual topic.

NOTE: The QR codes and web links in this manual are set to start the video at the appropriate spot for the topic where it is introduced. The video will continue to play till the end. You have the option to manually stop the video at the end of the topic or continue playing.

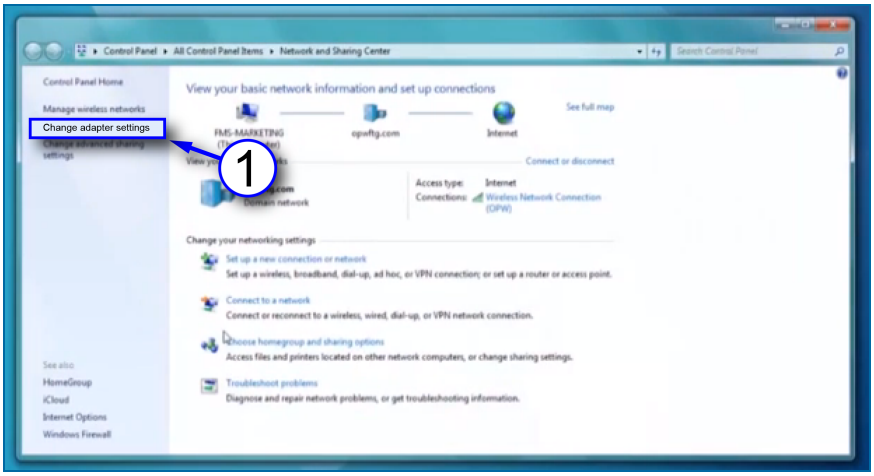
Direct Connection with a Crossover Cable

This section covers how to connect directly to the console using a standard RJ45 crossover cable.

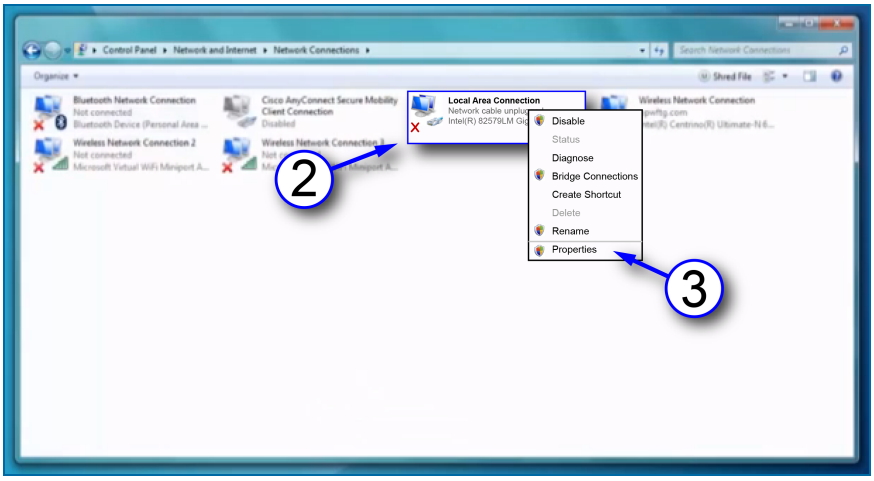


Connect an RJ45 crossover cable from your laptop ethernet port to the ethernet port on the bottom panel of the console.

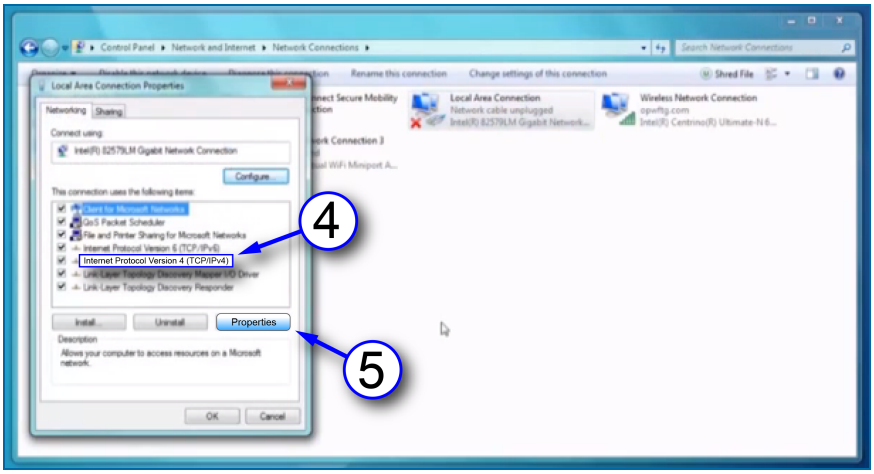
Navigate to Control Panel > All Control Panel Items > Network and Sharing Center on your laptop.



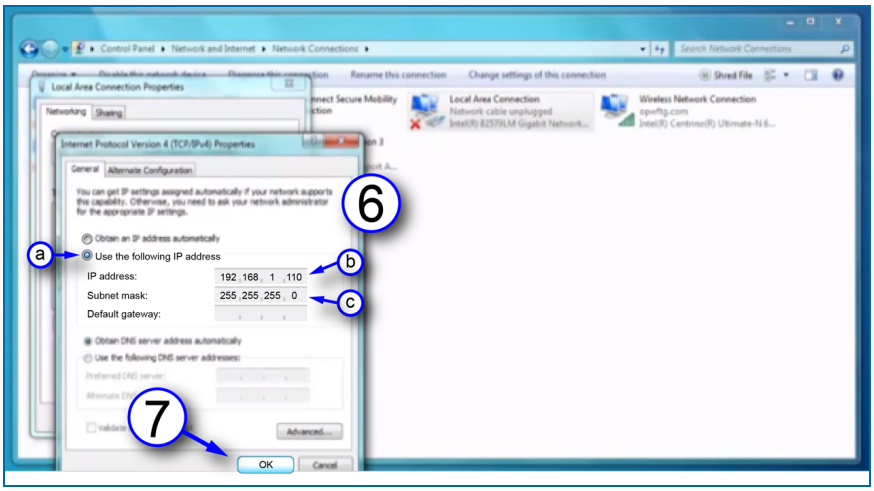
1. Click **Change adapter settings** in the left-side panel.



2. Right-click **Local Area Connections**.
3. Select **Properties** from the menu.



4. Select to highlight **Internet Protocol version 4 (IPv4)** on the list in the pop-up.
5. Click **Properties**.



6. Set the **IP address**. The unit comes shipped from the factory with the IP address 192.168.1.111. Your laptop must be set one number higher or one number lower to connect to the Nano with a crossover cable.

    a. Click the button next to **Use the following IP address**.

    b. Enter the IP address: **192.168.1.110**.

    c. Enter the Subnet mask: **255.255.255.0**.

7. Click **OK**.

Your laptop is now set up to communicate directly with your SiteSentinel® Nano®. Enter the IP address into your browser to connect.

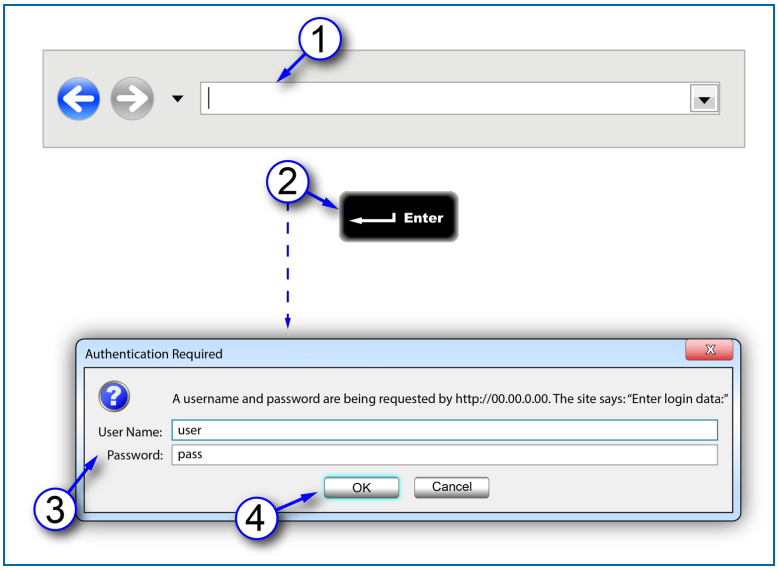
Section 1 Get Started

IMPORTANT: Make sure to remove the protective tab on the battery before you start the configuration procedure of the Nano. If this tab is not removed you will lose configuration if the system power is lost.

This section will detail the initial steps in getting your SiteSentinel® Nano® controller set up:

1.1 Login Procedure

Before you can log in to your Nano tank-gauge controller you will need to get the IP address for remote access of the controller from your site's IT Administrator.



Login Procedure

1. Enter the **IP address** into your web browser.
2. Push the **Enter** key on your keyboard.
3. Enter the default **User Name** (user) and **Password** (pass) into the pop-up prompt screen.
4. Click **OK** to enter the remote view of your tank-gauge controller.

Home Menu

After you log in to your Nano tank-gauge controller you will see the default Home Page. The Home Menu will show on the left side of the user interface.

Home Menu

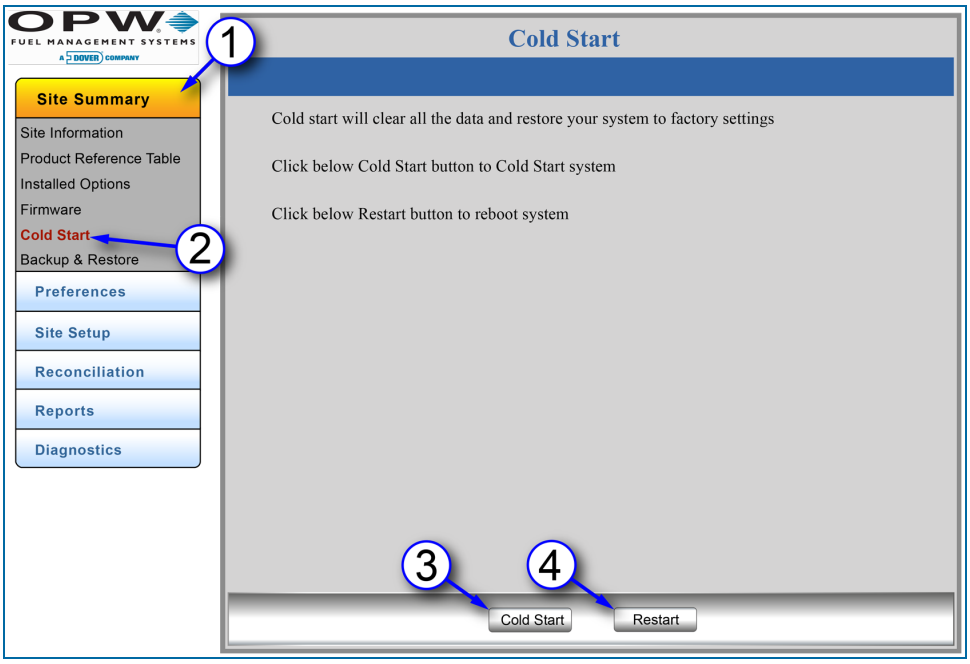
Click on a Home Menu item to open a sub-menu. Each of the sub-menu items will take you to screens that show options to setup, maintain and update the system. This manual will give step-by-step instructions with a screen image to illustrate the procedure.

1.2 Cold Start Procedure

Site Summary > Cold Start

NOTE: It is necessary for the tank-gauge controller to be cold-started before initial programming.

A **Cold Start** will reset the configuration settings of the Nano to its factory-installed defaults.



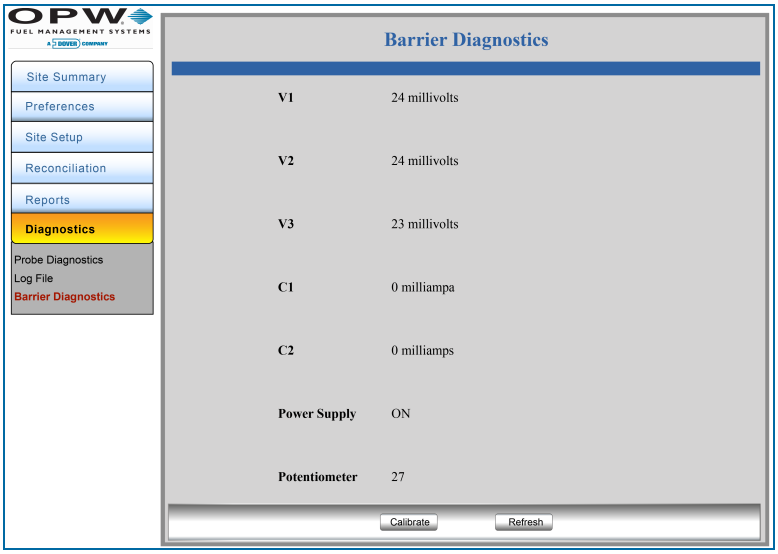
Cold Start

1. Click **Site Summary**.
2. Click **Cold Start**.
3. Click the **Cold Start** button to clear all data and restore the system to factory-installed settings. Wait for the Cold Start process to complete before continuing.
4. Click the **Restart** button to restart the system. This will not change any user settings.

1.3 Barrier Calibration

Diagnostics > Barrier Diagnostics

The Barrier Diagnostics screen displays status information for the four (4) I.S. Barrier positions. For more information on the Barrier Diagnostics screen see "Barrier Diagnostics" on page 96.

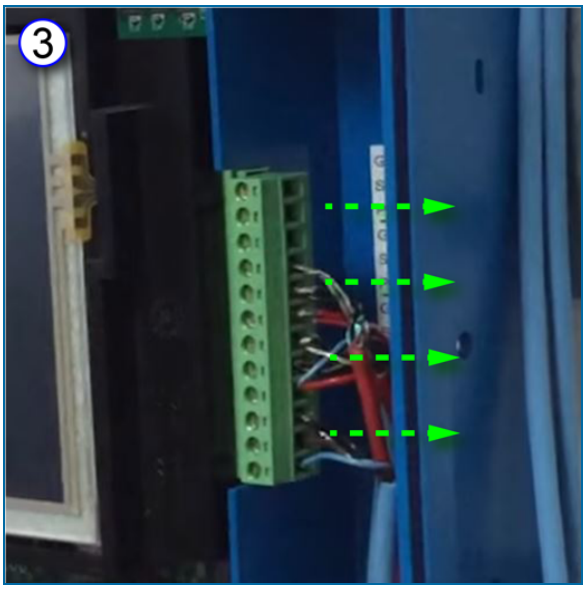


After the initial Cold Start of the system, the Barrier must be calibrated before you program devices attached to the barrier. The Potentiometer reading will show the Barrier's calibration factor. The factory default is 27 but after the barrier is calibrated it should show an approximate value between the mid-60s and lower 70s.

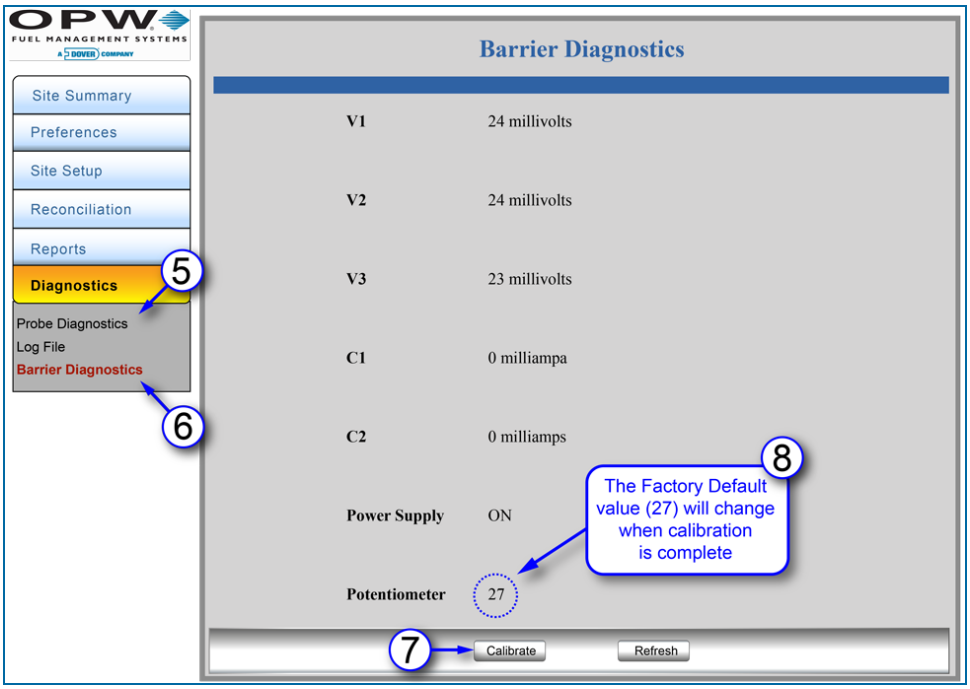
REMINDER: The Barrier must be re-calibrated after each Cold Start.

Follow the steps below to calibrate the Barrier:

1. Remove the console cover.
2. Turn off power to the unit.



3. Unplug the terminal block connector where the devices are connected to the Barrier.
4. Turn the power back on.

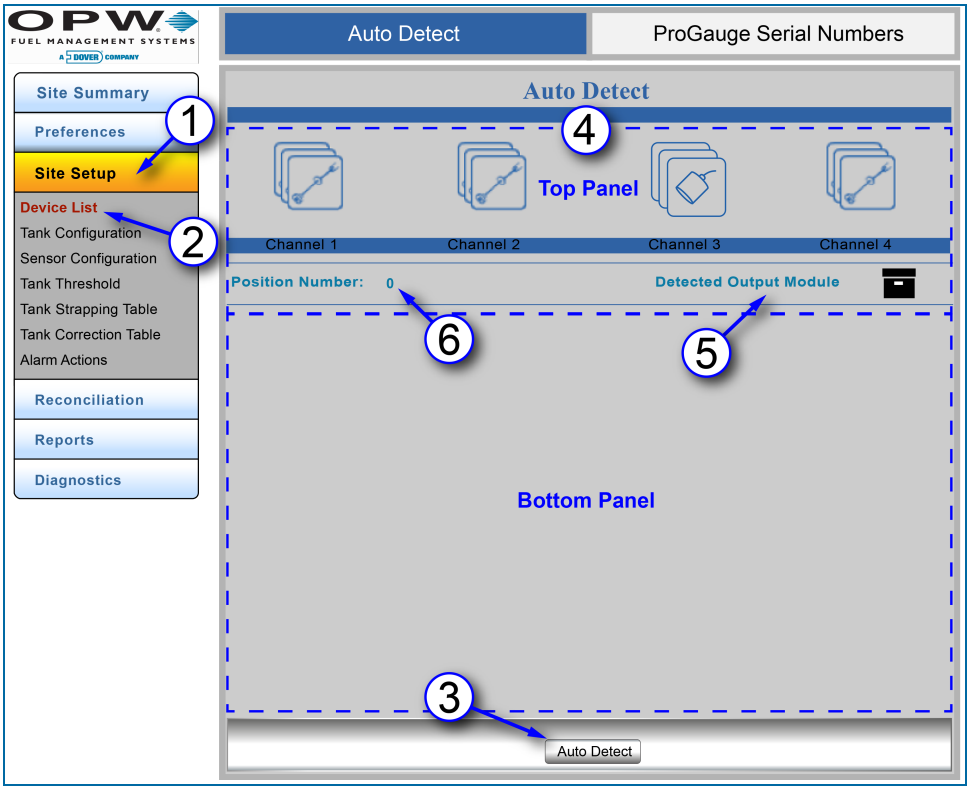


5. In the laptop display, select **Diagnostics** from the main menu.
6. Select **Barrier Diagnostics** from the sub-menu.
7. Click the **Calibrate** button at the bottom of the screen.
8. Calibration is automatic in the system. Wait for calibration to finish.
9. When calibration is completed, turn off power to the unit.

10. Re-connect the devices to the Barrier.
11. Turn the power back on.
12. Put the cover back on the unit.

1.4 Auto Detect System Devices

Site Setup > Serial Numbers / Auto Detect

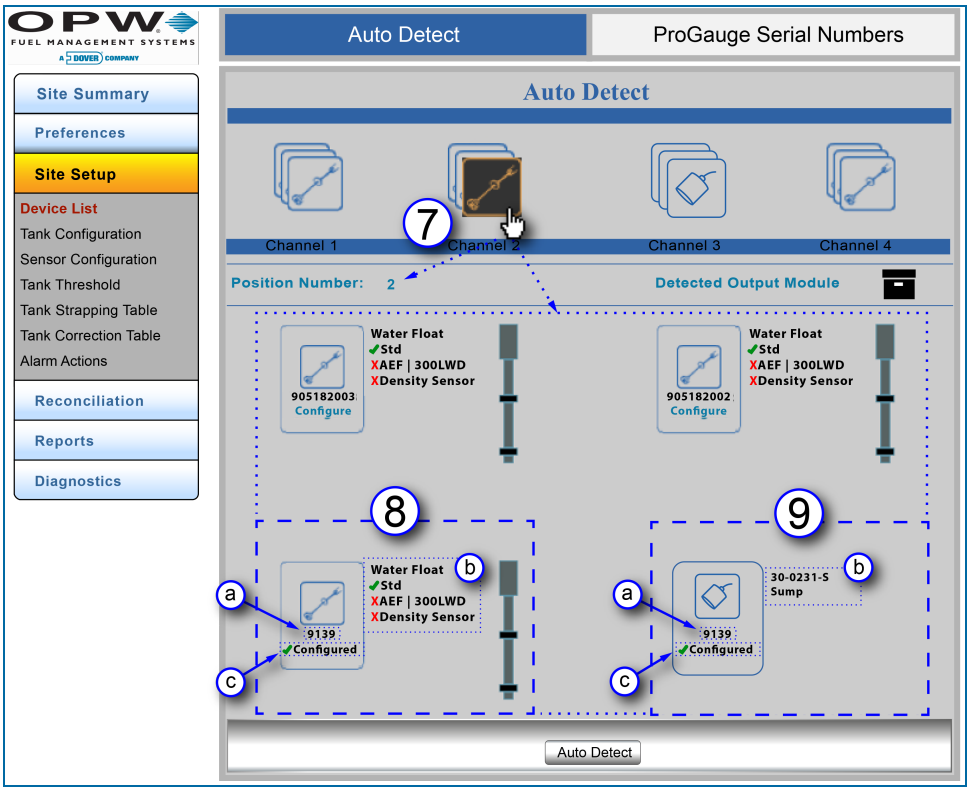


Auto Detect

Auto Detect will show the number of devices connected to each of the internal barrier positions. Devices that are connected during startup will be detected automatically.

1. Click **Site Setup**.
2. Click **Serial Numbers** (menu selection). There are two tabs at the top of the page, the Auto Detect tab for OPW probes, sensors and modules and the ProGauge Probe Serial Numbers tab. The Auto Detect tab will show by default. See Probe Serial Numbers for information on the configuration of ProGauge probes.
3. Click the **Auto Detect** button at the bottom of the screen.
4. Two (2) panels will come into view on the Auto Detect screen. The devices at each I.S. Barrier position will be shown in the **Top Panel**. The **Bottom Panel** will be empty at this time.

5. **Detected Output Module**: This icon will come into view to show that an OM4 is connected to the system (if applicable).
6. **Position Number**: This number identifies a selected I.S. Barrier position. The zero (0) in the screen above shows that no I.S. Barrier position has been selected.



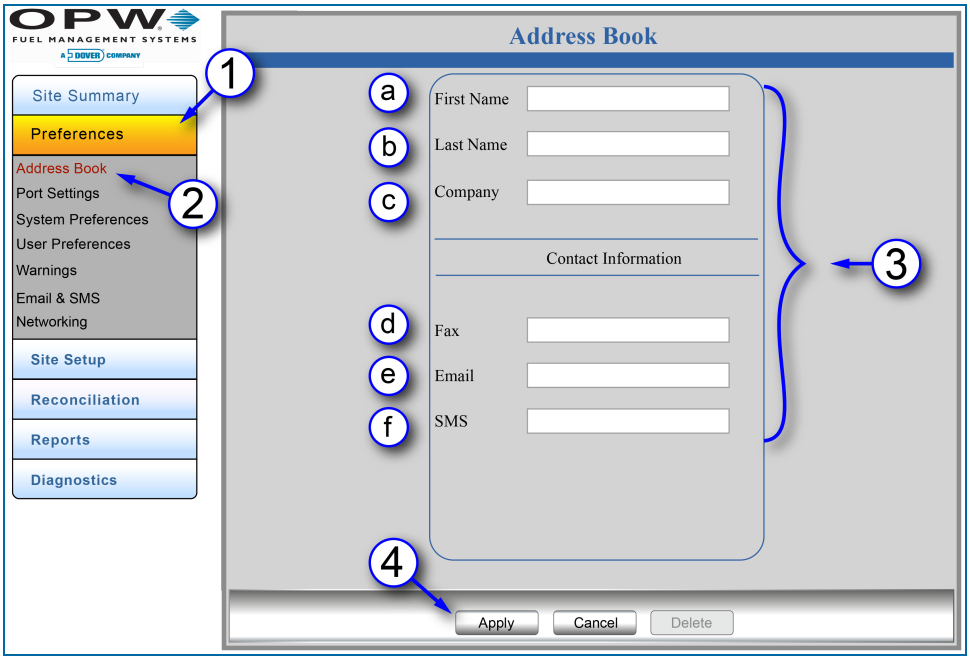
Auto Detect – Bottom Panel Information

7. Click the device icon at a Channel (I.S. Barrier position) to get information for all devices connected at that position. The icon color will change to orange on a black background. The Position Number will change to show the selected Channel (I.S. Barrier position) number. Information for each connected device at that position will come into view in the Bottom Panel.
8. Probe information includes:
    a. Serial Number: The serial number for each probe is located under the probe icon.
    b. Water Float: A green checkmark identifies the available float options for the probe. A red “X” identifies options not used on that probe. In the example above, the green checkmark next to Std identifies a Standard Water Float. The red “X” next to AEF (Aqueous Ethanol Float) and Density Meter shows that the probe does not have those options installed.
    c. Configured devices will show a green checkmark next to the word “Configured.” See "Tank Configuration" on page 54 for information on configuring probes.
9. Sensor information that shows includes:
    a. Serial Number: The serial number for each sensor shows under the sensor icon.
    b. Part Number and Application Type: The part number of the sensor shows next to the sensor icon with the application type. The four (4) sensor applications include: Site, Tank, Dispenser and Sump.

c. Configured devices will show a green checkmark next to the word “Configured.” See "Sensor Configuration" on page 59 for information on configuring sensors.

1.5 Address Book Entries

Preferences > Address Book

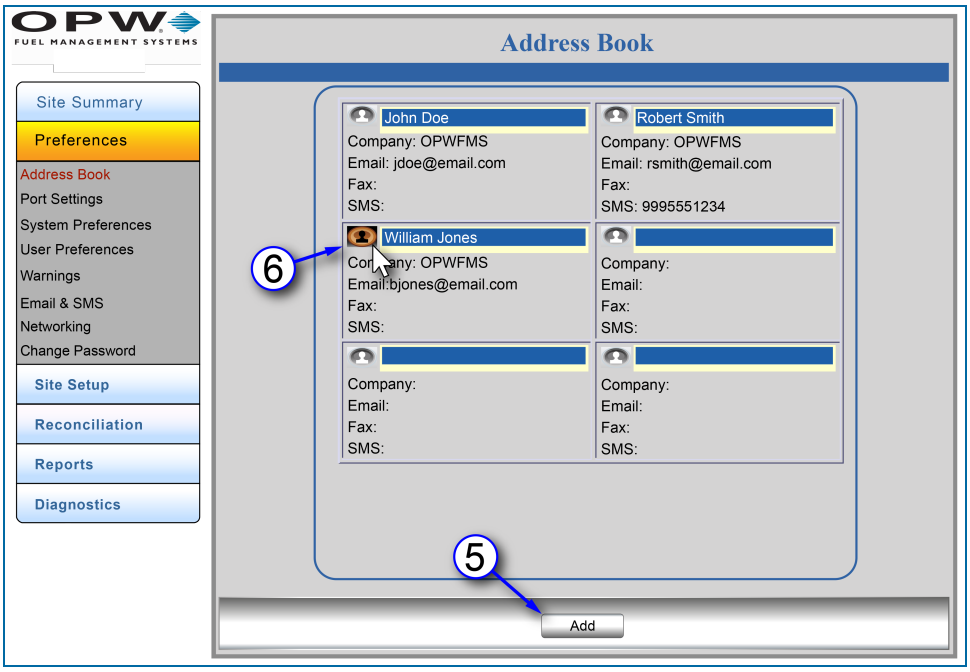


Address Book – Contact Information Entry

The **Address Book** stores all contact information used by the tank-gauge system. Address Book entries are used to reference Email, Fax and SMS notifications.

1. Click **Preferences**.
2. Click **Address Book**.
3. Enter **Contact Information** (all that apply).
    a. Enter First Name
    b. Enter Last Name
    c. Enter Company Name
    d. Enter Fax Number
    e. Enter Email Address
    f. Enter SMS Number

4. Click **Apply** to add the address entry. When the system is updated the Address Book Entries screen will come into view.



Address Book Entries

5. To add a new contact, click the **Add** button. The Contact Information screen will open and new contacts can be added. See Steps 3 and 4 above.

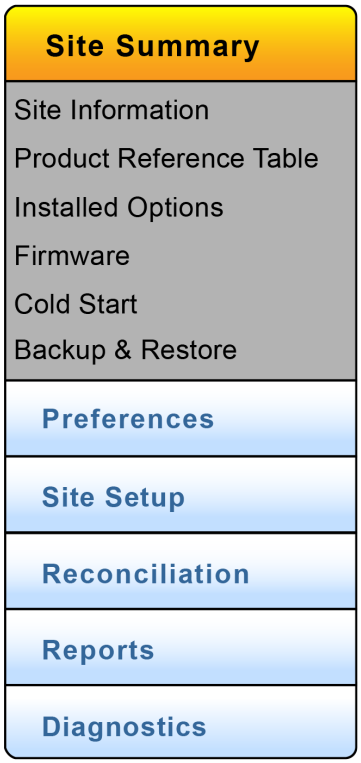
6. To edit an existing contact's information, click on the icon next to the name (when you hover the mouse pointer over the icon, the icon color will change). The Contact Information screen will open and the contact can be edited. See Steps 3 and 4 above.

NOTE: Address Book contacts will be used when sending reports and notifications from the browser interface. Address Book contacts will be used when sending reports from the console. Please refer to the M2012 Nano Operator's Guide for instructions on using the touchscreen interface.

Section 2 Site Summary

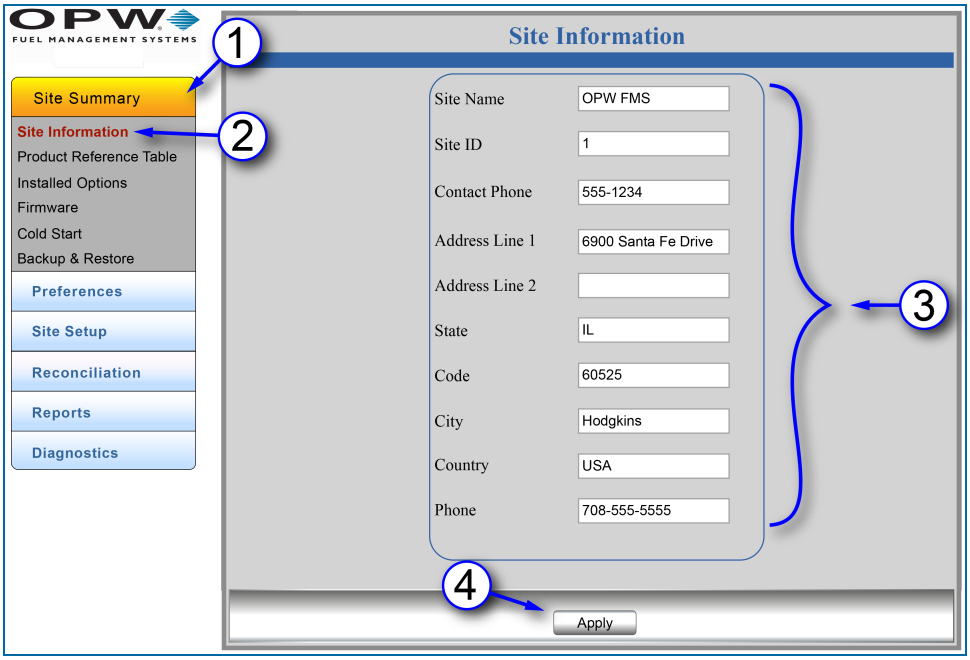
The Site Summary Menu displays links that access options to setup, maintain and update the following items:

- "Site Information" on the next page
- "Product Reference Table" on page 24
- "Installed Options" on page 25
- "Firmware" on page 26
- "Cold Start" on page 28
- "Backup and Restore" on page 29



2.1 Site Information

Site Summary > Site Information



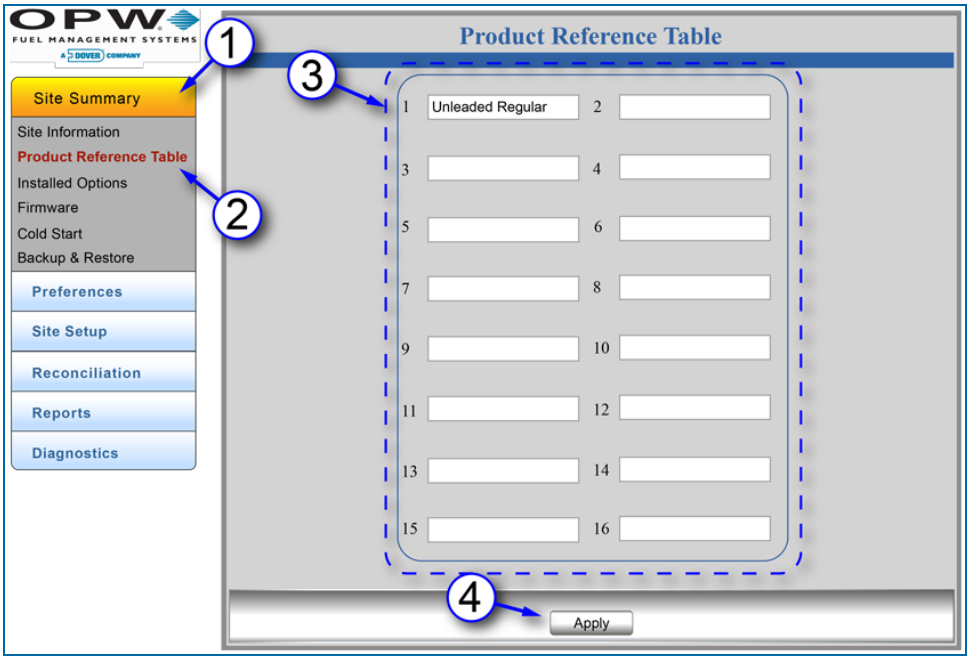
Site Information

The **Site Information** screen displays general information about a site. The *Site Name, Site ID, Address* and *Phone* are used in the headers for generated reports.

1. Click **Site Summary**.
2. Click **Site Information**.
3. Enter information details (where applicable).
4. Click **Apply**.

2.2 Product Reference Table

Site Summary > Product Reference Table



Product Reference Table

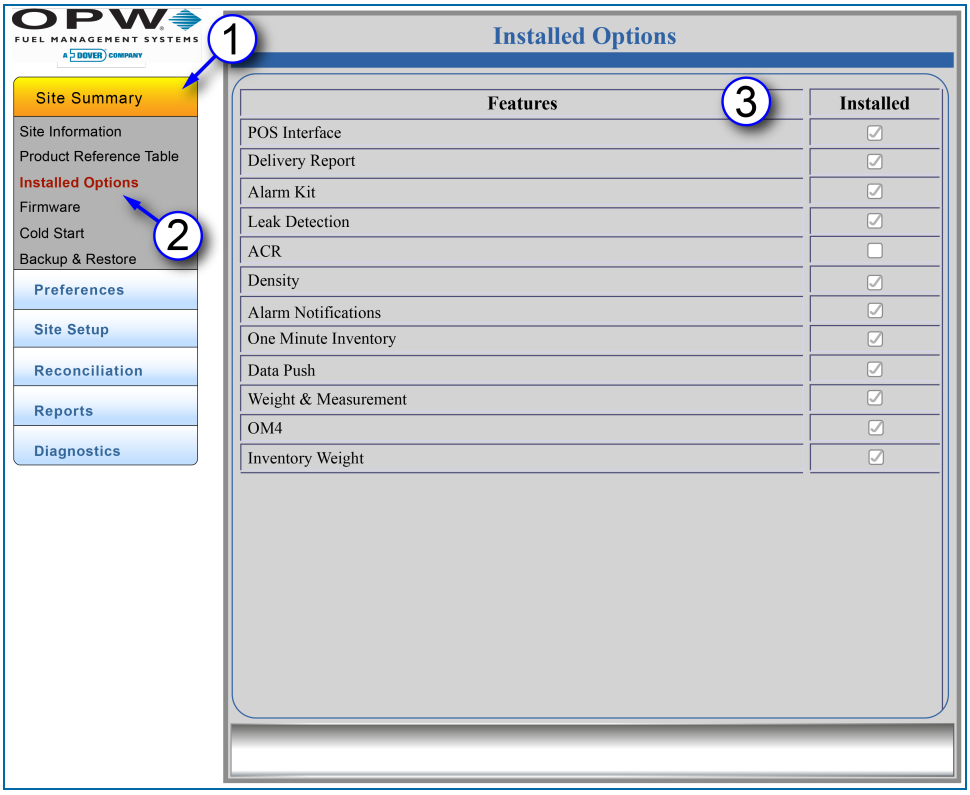
The **Product Reference Table** allows the user to add, edit and delete the products that are in use at the site. All products in the system will be displayed in numerical order based on their Product ID.

1. Click **Site Summary**.
2. Click **Product Reference Table**.
3. Enter the **Products** in use at the site. Up to 16 products can be listed. Products can be added, edited and deleted directly in the fields on this screen.
4. Click **Apply**.

NOTE: Products must be set up in the system prior to configuring any tanks/probes.

2.3 Installed Options

Site Summary > Installed Options



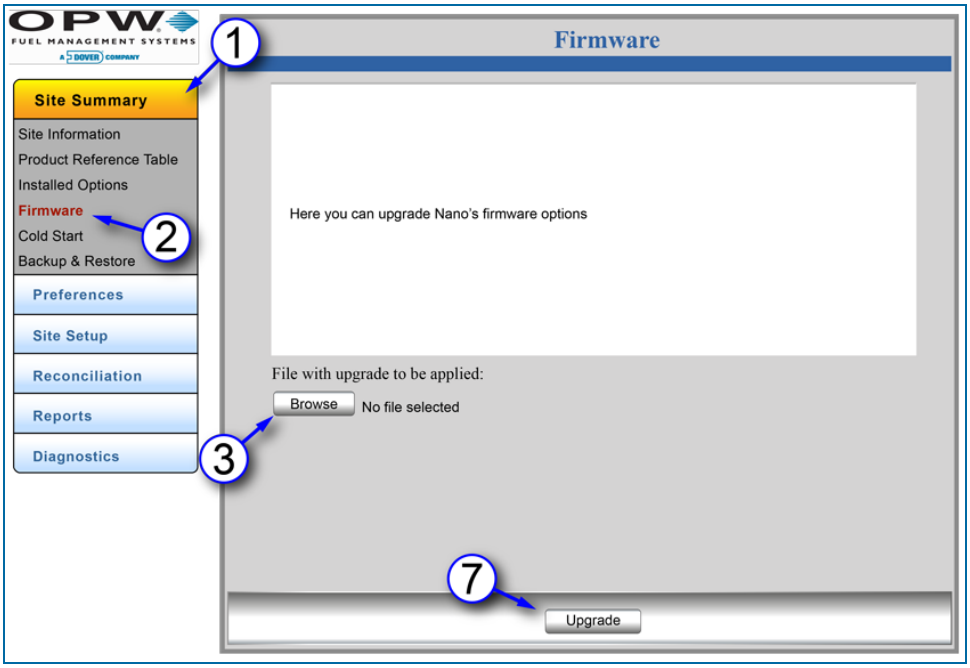
Installed Options

The **Installed Options** screen displays the options that were installed when the tank-gauge controller was purchased.

1. Click **Site Summary**.
2. Click **Installed Options**.
3. **Features** checked in the **Installed** column are enabled. Unchecked options were not purchased as part of the system package. These can be purchased separately and added by upgrading the **Option File (.ssr)**, described in the following section. Contact OPW Customer Service at Tel: 708 485-4200 for more information.

2.4 Firmware

Site Summary > Firmware



Firmware

This section describes the procedure for upgrading the Firmware.

1. Click **Site Summary**.
2. Click **Firmware**.
3. Click the **Browse** button and select the upgrade files from the location where they are stored. The files that can be upgraded include:
   - Firmware.zip (main application software)
   - HTML.zip (for remote browser UI upgrades)
   - Nano_DBUpgrade.sql (for database upgrades)
   - Option File XXXXXXX.ssr (the Xs identify the SD card serial number of the SiteSentinel® Nano® controller).
4. When the file has been selected it will show in the file bar at the bottom of the Firmware window.

5. Click the **Upload** button. This will transfer the file from its current location to the internal SD card (Secure Digital memory card).

NOTE: The .zip folders will automatically un-zip and the files will be moved to the correct file location(s).

6. When the transfer is complete, the upper pane of the Firmware screen will show the details of the file transferred.
7. Click the **Upgrade** button. When the upgrade is complete, the system will restart.

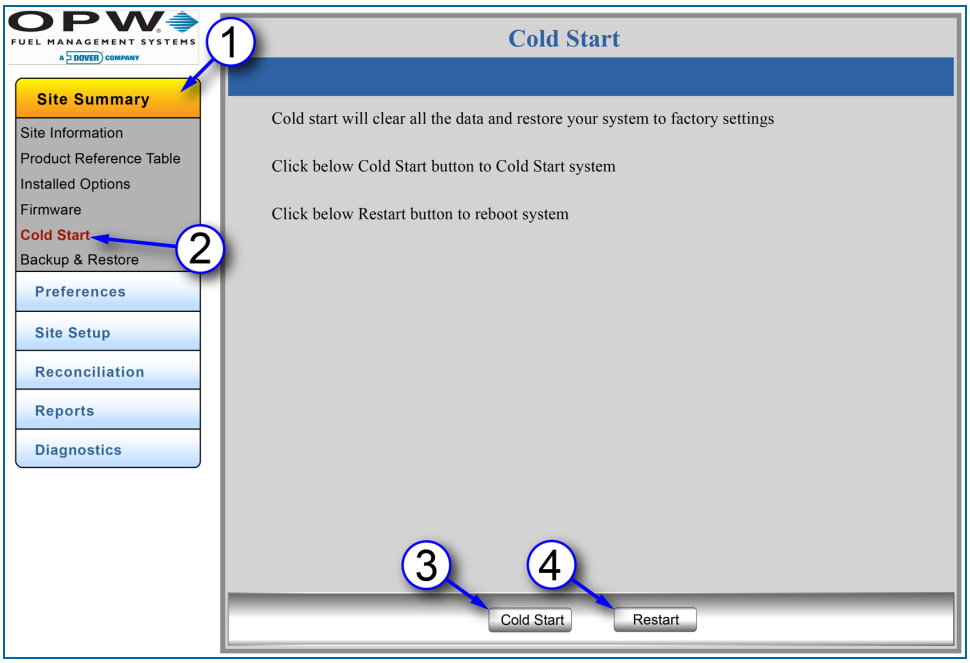
2.5 Cold Start

Site Summary > Cold Start

NOTE: It is necessary for the tank-gauge controller to be cold-started before initial programming.

Cold Start will reset the configuration settings of the SiteSentinel® Nano® to the factory-installed defaults.

During initial setup, if the tank-gauge controller was cold-started as in Section 1, Getting Started, it is not necessary to cold-start the controller again.



Cold Start

1. Click **Site Summary**.

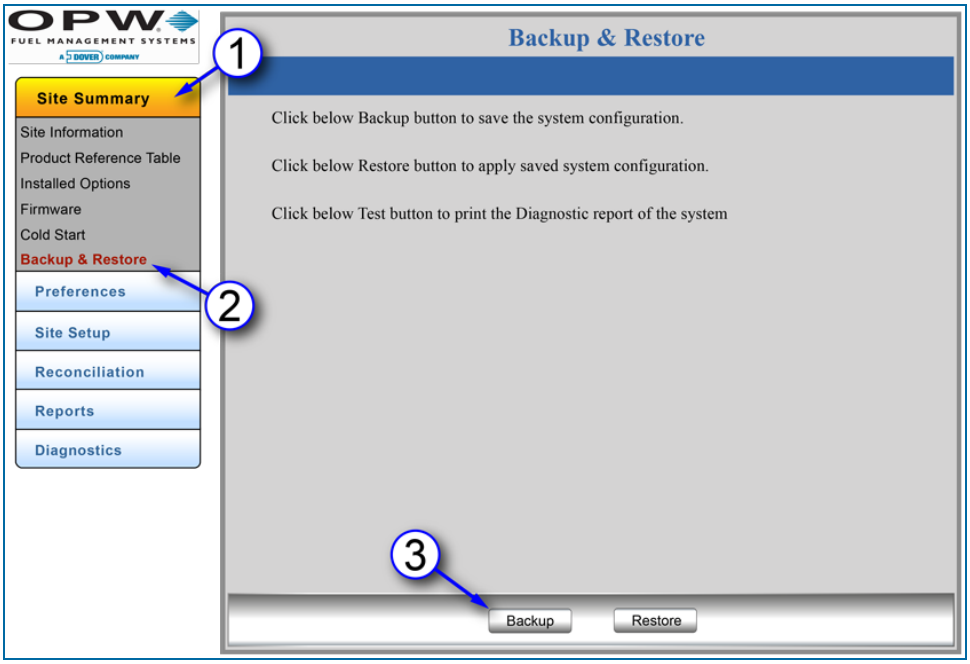
2. Click the **Cold Start** menu item.

3. Click the **Cold Start** button to clear all data and restore the system to factory-installed settings. Wait for Cold Start to complete before you continue.

4. Click the **Restart** button to restart the system. This will not change any user settings.

2.6 Backup and Restore

Site Summary > Backup & Restore



Backup and Restore

This section will demonstrate the procedures for backing up and restoring system files.

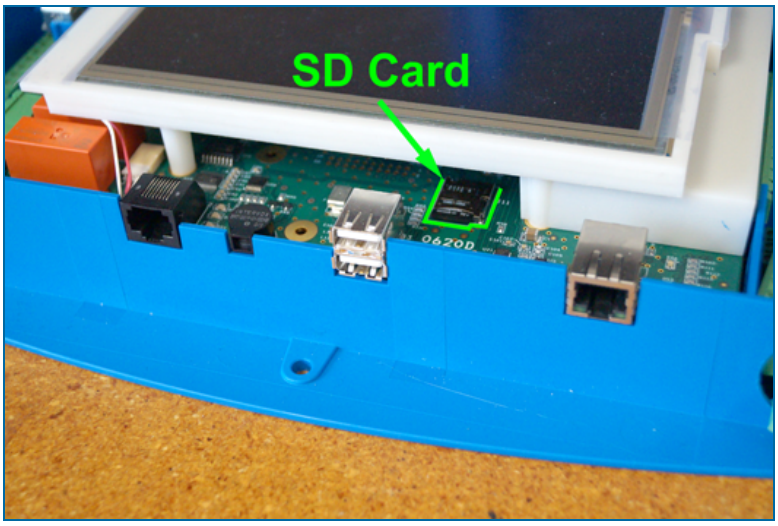
2.6.1 Create a Backup

1. Click **Site Summary** on the Home Menu.
2. Click **Backup & Restore**.
3. Click the **Backup** button. The Backup file will be created in the SD card with the filename, backup.txt (the SD card is provided with the controller PC board).

2.6.2 Restore

The files that were backed-up on the SD card can be put back into the controller main board using the Restore feature. This is necessary when the current configuration is lost for any reason.

1. Be sure the SD card is in its correct location on the board.



SD Card Location

2. Click the **Restore** button. The tank-gauge system will search for the backup.txt file that was created during the Backup procedure and set the tank-gauge system back to the last saved configuration.

NOTE: The Restore feature will be disabled when Lock Site Configuration has been selected on the User Preferences screen. See Section 9, Lock Site for information.

2.6.3 Store backup.txt files to a Personal Computer

After the Nano has been configured, it is recommended to make a backup of the SD Card files if configuration is ever lost.

1. Remove the SD card from the board. Put the SD card into the card reader slot of the computer (or a peripheral card reader device connected to the computer) where you want to save the file.
2. Copy the **backup.txt** file to a local system folder on the computer. Make sure the copied, backed up content contains a folder named “firmware” having the following items; **Load.xml, Nano_flasher.hex** and **Nano_iSite.hex**.

If the SD Card Loses Configuration

1. Remove the SD card from the board. Put the SD card into the card reader slot of the computer (or a peripheral card reader device connected to the computer) where you saved the file in Section 2.5.3, Step 2 above.
2. Copy the **backup.txt** file along with the contents of the “firmware” folder from Section 2.5.3, Step 2 to the original SD Card.

Restore Copied Backup Files

1. Be sure the SD card is in its correct location on the board (see Figure 2-8).
2. Inside the **load.xml** file, if the “Restore” tag is “true,” then the system gets restored from the **backup.txt** file only at the time of start-up.

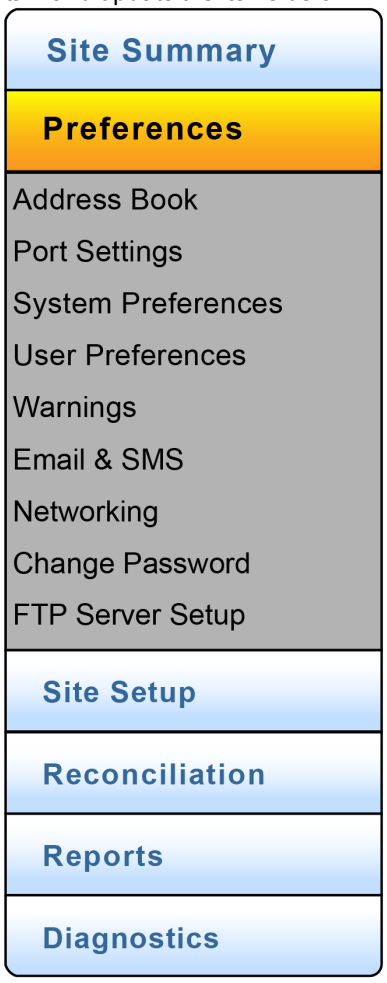
```
<Memory command>
   <Erase>false</Erase>
```

```
    <Restore>true</Restore>
</Memory command>
```

3. Restart the tank-gauge system. The tank-gauge system restores the configuration at start-up.

Section 3 Preferences

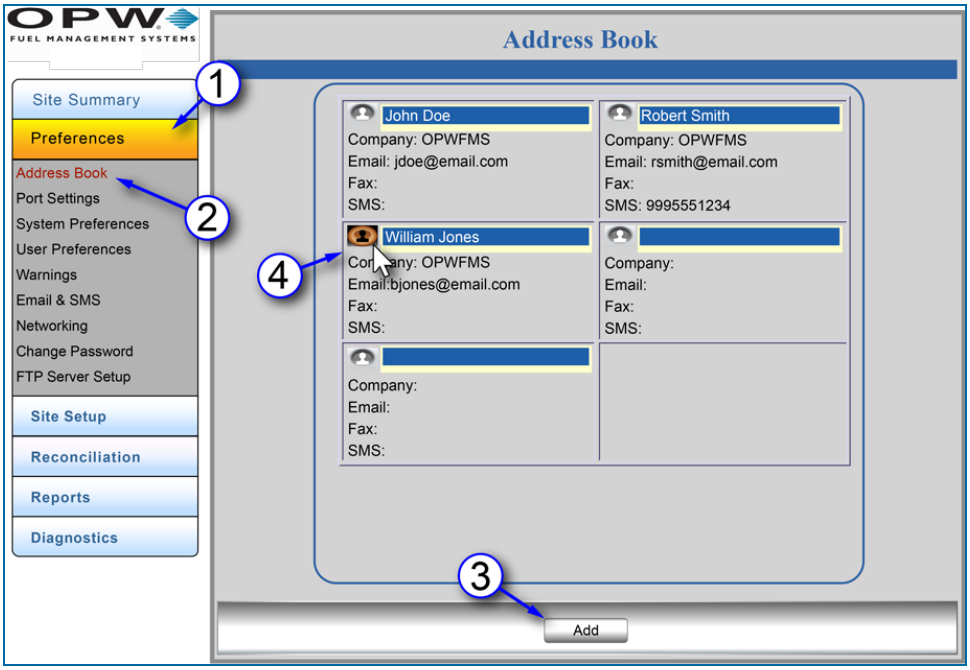
The Preferences Menu shows links to get access to options to setup, maintain and update the items below:



3.1 Address Book

Preferences > Address Book

3.1.1 Add and Edit Contacts

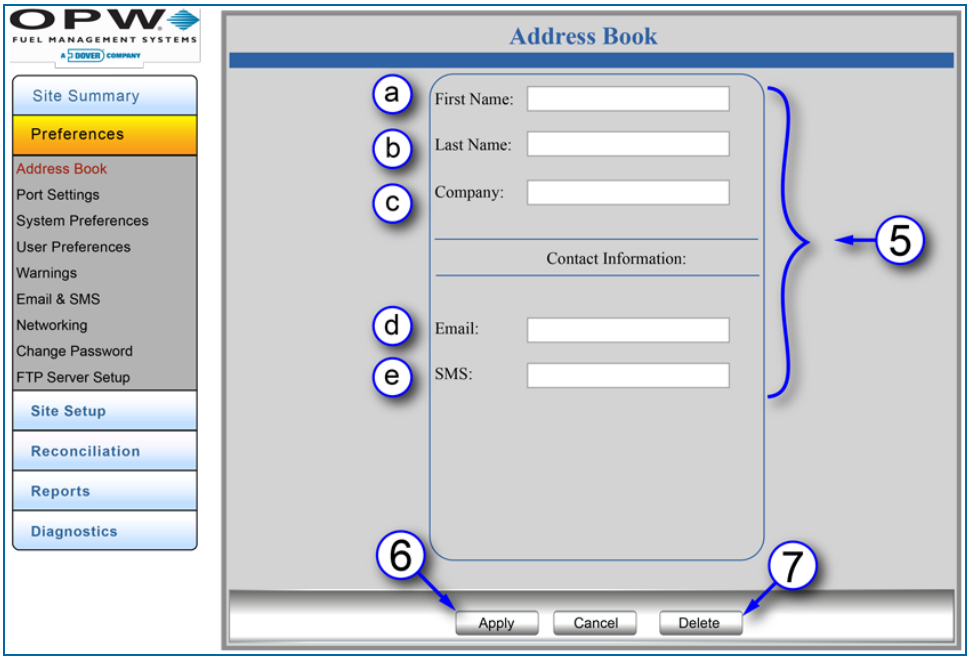


Address Book

This screen will come into view every time the Address Book is opened after the first contacts have been put in.

1. Click **Preferences**.
2. Click **Address Book**.
3. To add a new contact, click the **Add** button. The **Contact Information** screen will open and new contacts can be added. See Step 5.
4. To edit an existing contact's information, click on the icon next to the name (when you hover the mouse pointer over the icon, the icon color will change). The **Contact Information** screen will open. See Step 5.

3.1.2 Contact Information



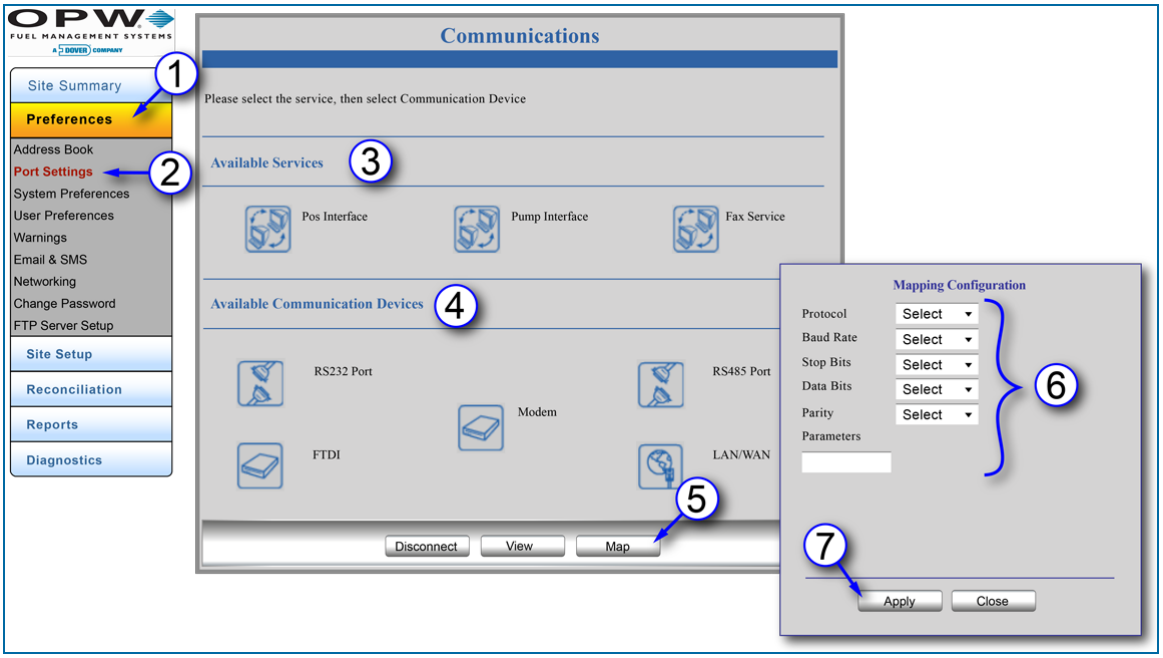
Contact Information

5. Enter new or edit current **Contact Information** (all that apply).
    a. First Name
    b. Last Name
    c. Company Name
    d. Email Address
    e. SMS Number
6. Click **Apply** to save the contact. Repeat these steps to enter more contacts. When the system has finished updating, the **Address Book** screen (Figure 3-2) will come into view again. You can review added or edited contact information from this screen.
7. To delete a contact from the **Address Book**, click on the **Delete** button at the bottom of the screen. All of that contact's information will be removed from the **Address Book**.

NOTE: Contacts will be used when sending reports from the controller. Please refer to the M2012 Nano Operator's Guide for instructions on using the touchscreen interface.

3.2 Port Settings

Preferences > Port Setting

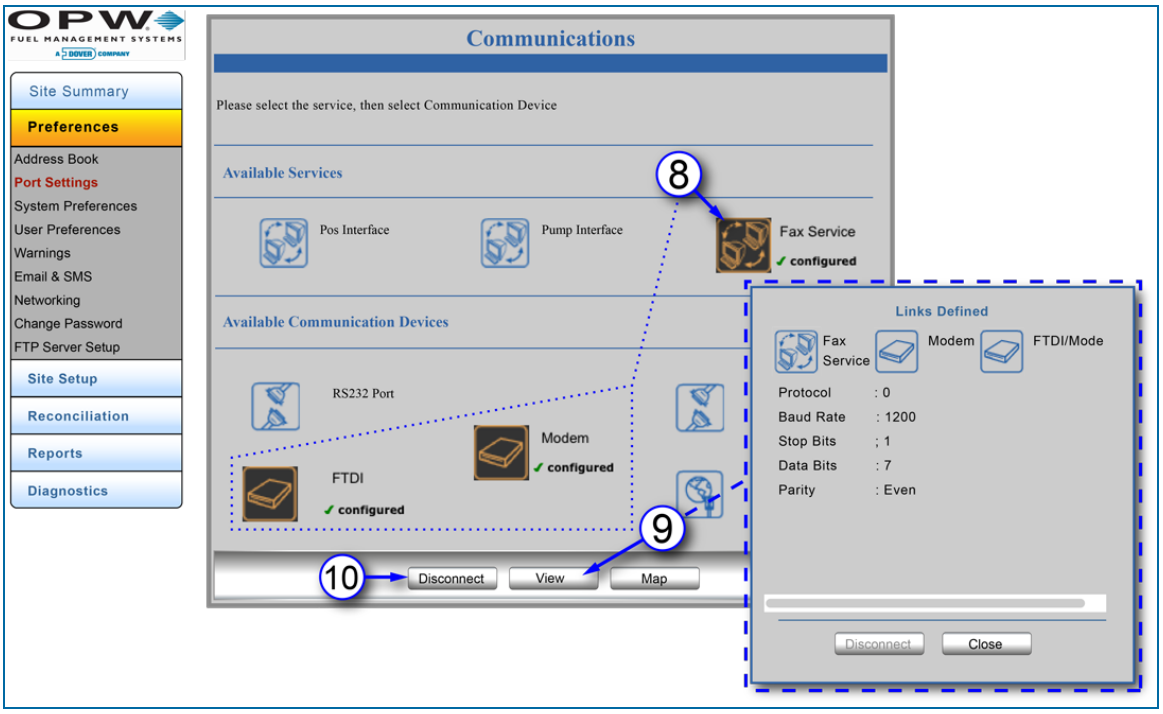


Port Settings - Communications - Mapping Configurations

The **Communications** screen provides options to connect communication ports to modules by choosing the service(s) to be linked to specific ports on the system. Some services can be linked to multiple ports, and be linked with other services on the same port. Each service is independently configured and linked to each port on the system.

1. Click **Preferences**.
2. Click **Port Settings**.
3. Select the **Available Service** you wish to assign.
4. Select the port you wish to link under **Available Communication Devices**.
5. Click **Map**.
6. Select **Protocol** and other connection specific details on the pop-up Mapping Configuration screen. Check with your site IT administrator for these details.
7. Click **Apply**.

Repeat Steps 1-7 to map additional services to ports.



Links Defined

After a service is mapped to a port, its icon will be shown with a green checkmark next to the word "configured" on the **Communications** screen.

To see the links of a mapped service:

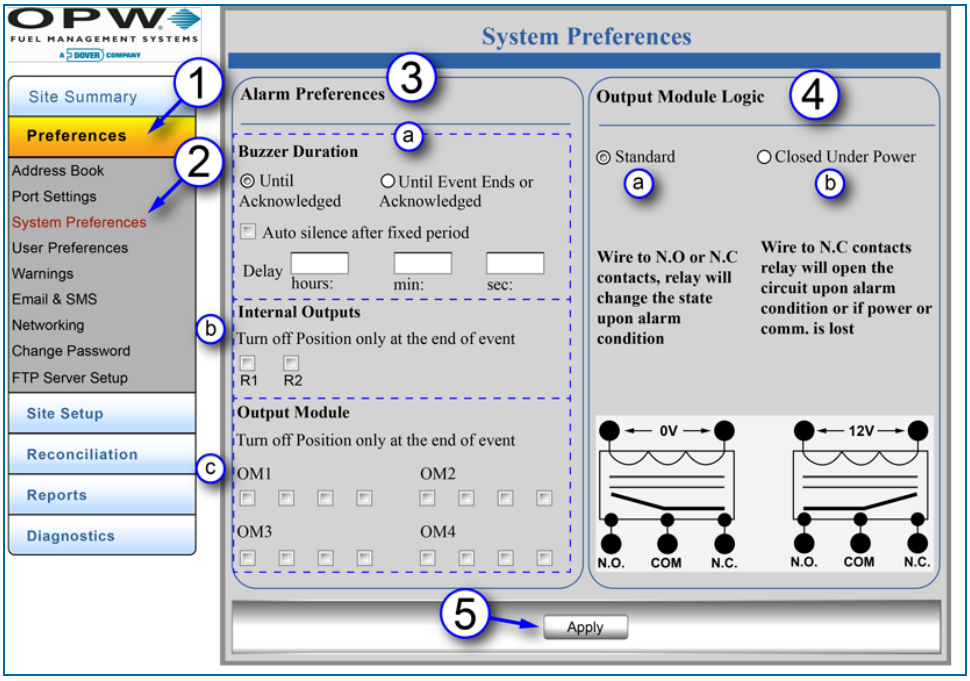
8. Click the icon of the service you want to see. The icon will change color to orange on a black background. The icons of connected communication devices will also change color and show a green checkmark with the word "configured."

9. Click **View** to see the parameters of the linked service and its connected communications device(s). A Links Defined pop-up will come into view that shows the configured parameters.

10. To disconnect a configured port connection, click the **Disconnect** button at the bottom of the screen.

3.3 System Preferences

Preferences > System Preferences



System Preferences

The **System Preferences** screen provides options for Alarm settings.

1. Click **Preferences**.
2. Click **System Preferences**.
3. **Alarm Preferences**: Select options for internal buzzer alarms.
    a. **Buzzer Duration**: How long the internal buzzer will sound when in an alarm condition.
        - **Until Acknowledged**: End the buzzer when the alarm is acknowledged.
        - **Until Event Ends or Acknowledged**: End the buzzer when the alarm event ends or is acknowledged, whichever occurs first.
        - **Auto Silence After Fixed Period**: Check this box to shut-off the internal buzzer after a set period of time.
        - Set the **Delay** time in hours, minutes and seconds.

b. **Internal Outputs**: Select from the two (2) internal relay checkboxes (Turn Off Position only at the end of event).

c. **Output Module** (if applicable): The Nano console can support up to four (4) **OM4** Output Modules with four relays each for a total of sixteen external relays. Select from the four (4) relay checkboxes (Turn Off Position only at the end of event) for an installed **OM4** module (shown on the screen as OM1-4).

NOTE: Any or all of the Internal and OM4 outputs can be used. If checked, the relay will only change state when the alarm ends.

4. **Output Module Logic**: Select between:

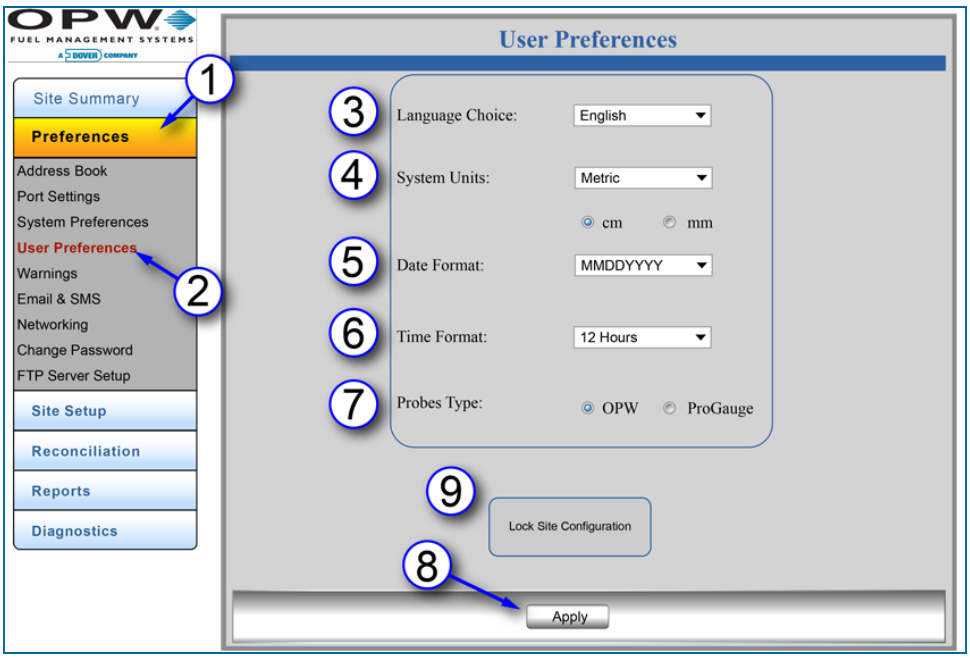
   a. **Standard** (where the relay is not energized when in the normal condition).

   b. **Closed Under Power** (where the relay is energized in the normal condition).

5. Click **Apply** to save changes to this screen.

3.4 User Preferences

Preferences > User Preferences



User Preferences

The **User Preferences** apply to the user that is currently logged into the tank-gauge system. To set up the signed-in User's Preferences:

1. Click **Preferences**.
2. Click **User Preferences**.
3. Select a **Language Choice** from the drop-down. This will set the language for the console's touchscreen GUI (Graphical User Interface).
4. Select the **System Units** (US or Metric) from the drop-down. When Metric is selected, options will come into view to select a unit of measure, either centimeters or millimeters.
5. Select a **Date Format** (MMDDYYYY or DDMMYYYY) from the drop-down.
6. Select a **Time Format** (24 Hours or 12 Hours) from the drop-down.
7. **Probes Type**: Select the applicable radio button for the type of probes that are in operation at the site.
8. Click **Apply** to save the selected preferences.

9. **Lock Site Configuration**: The Weight and Measurement (see "Installed Options" on page 25) feature lets the user lock the site to prevent any modifications once it has been configured. When the site is locked, all tank related parameters that affect calculation or reconciliation processes will be “grayed out” on the screens and cannot be changed.

IMPORTANT: Do not activate this feature until all tank parameters have been configured. See "Lock Site" on page 101 for instructions on using this feature.

3.5 Warnings

Preferences > Warnings

Warning Preferences

1. To set up Warning Alarms and Alarm Notifications:
2. Click **Preferences**.
3. Click the **Warnings** button to enter the preferences for system events and alarm settings.
4. **Alarms** are listed in the left-hand column:
    a. **Printer Failure**: Creates an alarm condition when a print job fails to print due to printer failure.
    b. **Power Failure**: Creates an alarm condition when power for the console is shut off.
    c. **Site Open/Close**: Creates an alarm action after the user clicks the Open or Close button on the home screen.
    d. **Internal Input Contact #1/#2**: Creates an alarm condition when the input is seen on contacts.
    e. **End of Day**: Creates an alarm condition at the end of the day.

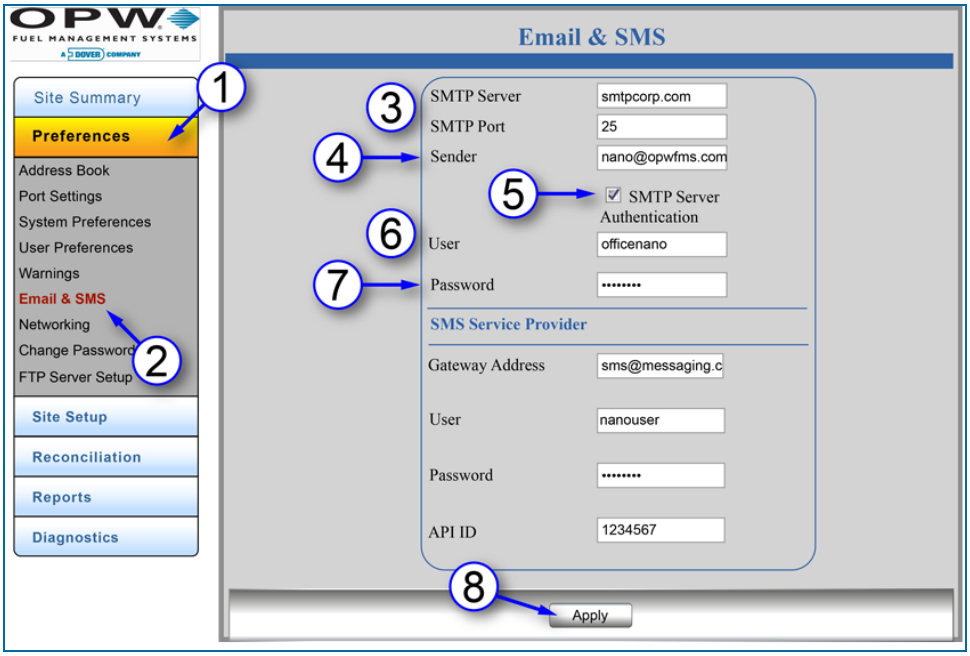
f. **ACR Comm. Fail**: Creates an alarm condition when communications are lost to the auto-reconciliation module.

5. Identify an **Alarm Action** for each **Alarm** by selecting the desired check boxes.
6. Identify the way that the **Alarm Notification** is to be sent (i.e., Email or SMS. Select from the recipients in the popup).
7. Identify whether an **Alarm Notification** will be sent through the **OM4** relays (select from the specified relay positions in the popup).
8. Click **Apply**.

NOTE: Repeat steps 1-8 for each alarm condition you want to include. When all settings are applied, click the **Apply** button to save the settings for the entire table.

3.6 Email and SMS

Preferences > Email and SMS

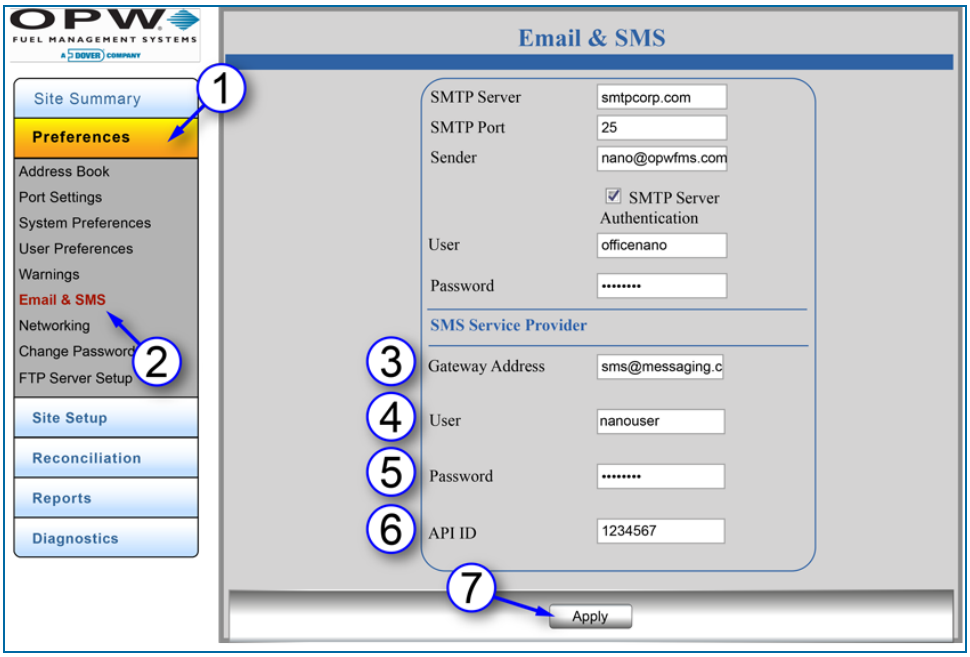


Email Setup

3.6.1 Setup Email Service

The Email field can sometimes be required if using SMTP authentication. Email service setup is used for SMS status reports and for sending alarms and scheduled electronic reports.

1. Click **Preferences**.
2. Click **Email & SMS**.
3. Enter **SMTP Server** address and the number of the communication **Port** where it is connected.
4. Enter the **Sender** address.
5. Select checkbox for **SMTP Server Authentication** if required.
6. Enter **User** name for email server.
7. Enter **Password** for the user.
8. Click **Apply**.

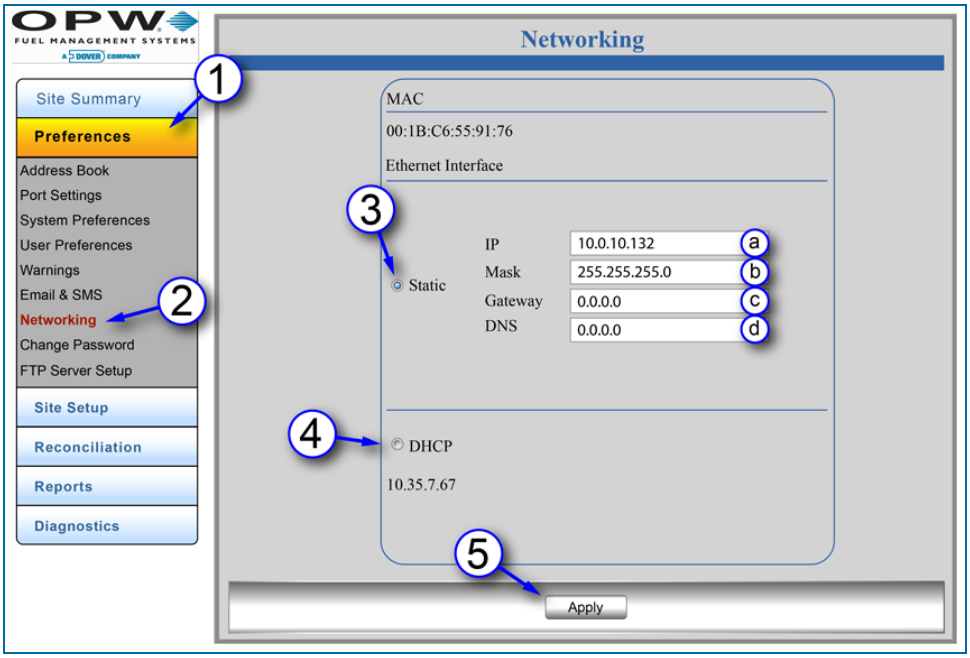


SMS Setup

1. Click **Preferences**.
2. Click **Email & SMS**.
3. Enter **Gateway Address**: This is the address of the site's SMS service provider.
4. Enter **User** ID.
5. Enter **Password**.
6. Enter the **API ID**given to you by your SMS Service Provider.
7. Click **Apply**.

3.7 Networking

Preferences > Networking



Networking

The **Networking** screen allows the user to select either a **Static** connection or a **DHCP** (Dynamic Host Configuration Protocol) connection and configure the incoming connection parameters for the tank-gauge system's Ethernet access.

1. Click **Preferences**.
2. Click **Networking**.

To set the **Static** connection type (speak with your site's IT Administrator to get the correct codes):

3. Click the **Static** radio button and enter the information for:
    a. **IP Address**: This is a user-defined IP address and will use the same IP address each time the tank- gauge system is connected to the network. This is the preferred connection type since the system will always have the same IP address when connecting to the network.
    b. **Network Mask** (used to modify how local IP numbers are interpreted locally).
    c. **Gateway** (if applicable): The IP address of the router to which your PC network is connected.
    d. **DNS** (if applicable): Domain Name System.

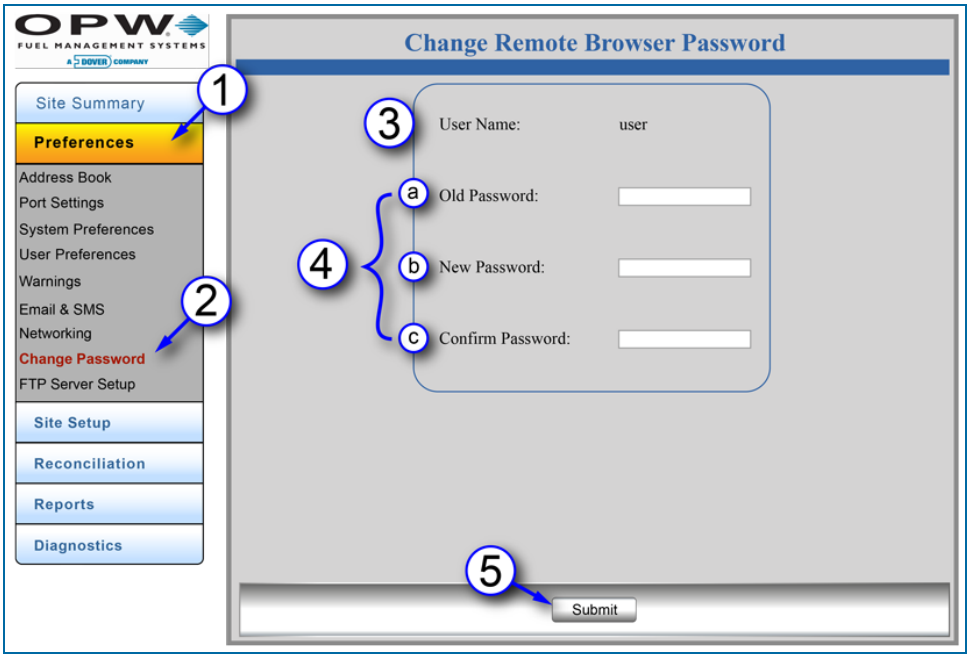
NOTE: Email cannot be sent from the Nano console without the correct Gateway and DMS.

DHCP connection:

4. If the **DHCP** connection type is selected, the default information provided by the server will be used. The IP address of the tank-gauge system could change each time it is connected to the network.
5. Click **Apply** to save the network connection parameters.

3.8 Change Password

Preferences > Change Password



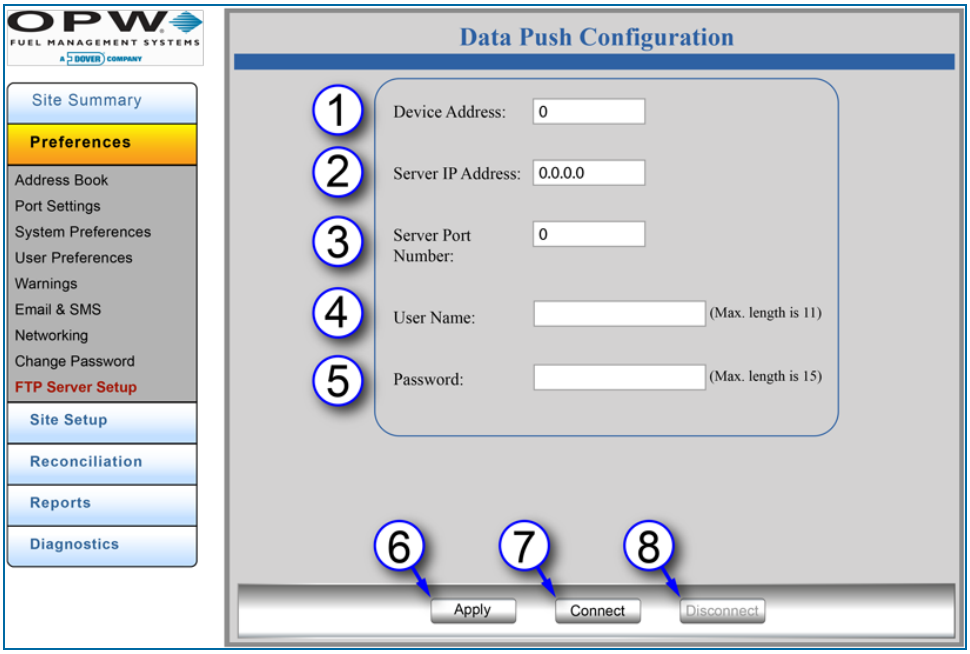
Change Password

To change the password for the remote browser:

1. Click **Preferences**.
2. Click **Change Password**.
3. The current **User Name** will show.
4. Enter the password information:
    a. Enter the current password that you used to log in to the system in the **Old Password** field.
    b. Enter the **New Password** you will use.
    c. Re-enter the new password in the **Confirm Password** field.
5. Click **Submit** to save the new remote browser password.

3.9 FTP Server Setup

Preferences > FTP Server Setup



FTP Server Setup

Data files can be shared by setting up a connection with a FTP (File Transfer Protocol) Server. This feature is available when the Data Push option is purchased and shows as an Installed Option. See "Installed Options" on page 25 for more information.

1. Enter the **Device Address** (Nano)..
2. Enter the **Server IP Address**. This is the destination where data files from the console will be shared.
3. Enter the **Server Port Number** where the console and server will communicate.
4. Enter a **User Name**. This field has a maximum length of 11 characters.
5. Enter a **Password**. This field has a maximum length of 15 characters.
6. Push the **Apply** button to complete the setup.
7. Push the **Connect** button to connect the Nano to the FTP Server. The Nano will automatically "push" tank information (Quantity, Temperature, Water Height, Product Height) as a .csv file (see the illustration below).

	A	B	C	D	E	F	G
1	ibank	DateTime	Tank	QTY	Temperature	Water	Height
2	6344	3/1/2017 5:59	1	292.15	19.4	0.85	113.19
3	6344	3/1/2017 5:59	2	478.06	20.1	-0.18	79.57
4	6344	3/1/2017 5:59	3	7083.74	18.89	0.14	152.08
5	6344	3/1/2017 5:59	7	9893.01	20.89	0.46	135.44
6	6344	3/1/2017 5:59	8	11056.9	20.9	0	79.16
7	6344	3/1/2017 6:00	1	292.15	19.4	0.85	113.19
8	6344	3/1/2017 6:00	2	478.06	20.1	-0.18	79.57
9	6344	3/1/2017 6:00	3	7084.19	18.87	0.14	152.08
10	6344	3/1/2017 6:00	7	9893.16	20.87	0.46	135.44
11	6344	3/1/2017 6:00	8	11057.21	20.89	0	79.16
12	6344	3/1/2017 6:01	1	292.15	19.4	0.85	113.19
13	6344	3/1/2017 6:01	2	478.06	20.1	-0.18	79.57
14	6344	3/1/2017 6:01	3	7084.24	18.84	0.14	152.08
15	6344	3/1/2017 6:01	7	9893.4	20.86		
	6344	3/1/		11057.4			

Tank Information

8. Push the **Disconnect** button to stop the data transfer.

Section 4 Site Setup Menu

The Site Setup Menu shows links to get access to options to set up your site's tanks and devices.

The Nano can support a mixed multi-drop combination of probes and sensors when OPW probes are connected.

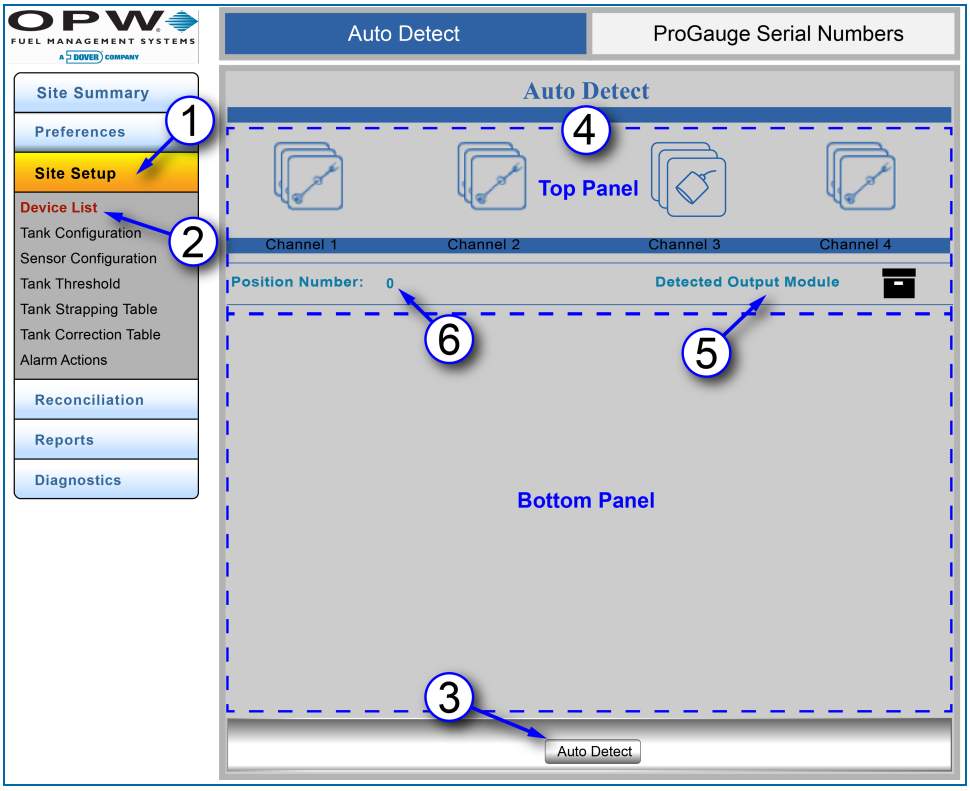
The Nano can now also support ProGauge probes. See the M2010 Nano Installation Guide for more information.

NOTE: It is possible to have OPW probes and sensors with ProGauge probes connected to a Nano. The OPW probes and sensors will have serial numbers and barrier positions auto-detected. The ProGauge probes must have their serial numbers entered into the configuration manually. ProGauge probes are connected to the Nano through their MagDirect barrier to the Nano RS485 connection. See the M2010 Nano Installation Guide for installation instructions.

Topics in this section include:

4.1 Device List

Site Setup > Device List



Auto Detect

There are two tabs at the top of the page, the Auto Detect tab for OPW probes, sensors and modules and the ProGauge Probe Serial Numbers tab. The Auto Detect tab will show by default. See Probe Serial Numbers for information on the configuration of ProGauge probes.

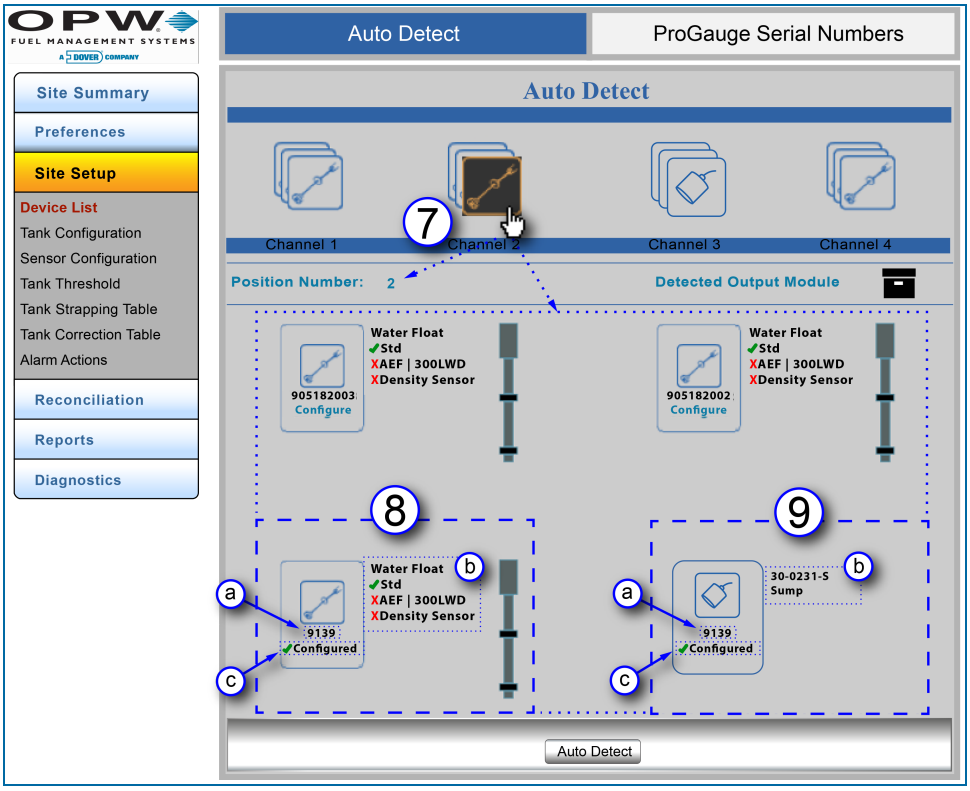
4.1.1 Auto Detect Tab

NOTE: During initial setup, if the devices were Auto-detected as in "Get Started" on page 10, it is not necessary to Auto-detect devices again.

Auto Detect will show the number of devices connected to each of the internal barrier positions. Devices that are connected during startup will be detected automatically.

1. Click **Site Setup**.

2. Click **Device List** (menu selection). The Auto Detect tab will show by default.
3. Click the **Auto Detect** button at the bottom of the screen.
4. Two (2) panels will come into view on the Auto Detect screen. The devices at each I.S. Barrier position will be shown in the **Top Panel**. The **Bottom Panel** will be empty at this time.
5. **Detected Output Module**: This icon will come into view to show that an OM4 is connected to the system (if applicable).
6. **Position Number**: This number identifies a selected I.S. Barrier position. The zero (0) in the screen above shows that no I.S. Barrier position has been selected.



Auto Detect – Bottom Panel Information

7. Click the device icon at a **Channel** (I.S. Barrier position) to get information for all devices connected at that position. The icon color will change to orange on a black background. The **Position Number** will change to show the selected **Channel** (I.S. Barrier position) number. Information for each connected device at that position will come into view in the Bottom Panel.
8. Probe information includes:
    a. **Serial Number**: The serial number for each probe is located under the probe icon.
    b. **Water Float**: A green checkmark identifies the available float options for the probe. A red **"X"** identifies options not used on that probe. In the example above, the green checkmark next to **Std** identifies a **Standard** Water Float. The red **"X"** next to AEF (Aqueous Ethanol Float) and Density Sensor shows that the probe does not have those options installed (300LWD is an upcoming feature that is not yet supported).

c. **Configured** devices will show a green checkmark ✓ next to the word “Configured.” See Section 4.2 Tank Configuration for information on configuring probes.

9. Sensor information that shows includes:

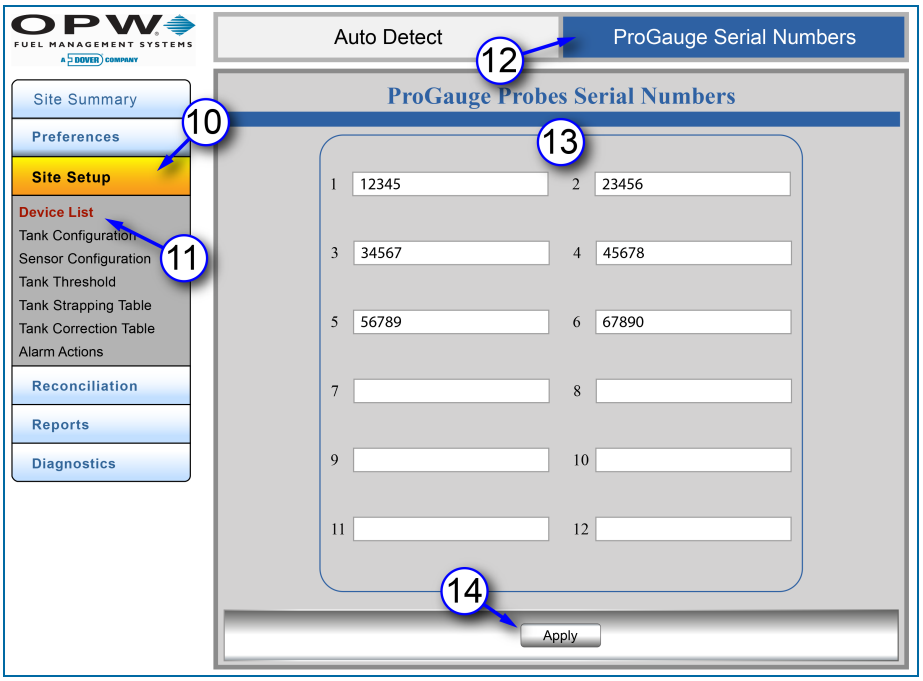
   a. **Serial Number**: The serial number for each sensor shows under the sensor icon.

   b. **Part Number and Application Type**: The part number of the sensor shows next to the sensor icon with the application type. The four (4) sensor applications include: Site, Tank, Dispenser and Sump.

   c. **Configured** devices will show a green checkmark ✓ next to the word “Configured.” See Section 4.3 Sensor Configuration for information on configuring sensors.

4.1.2 ProGauge Serial Numbers Tab

The ProGauge probe Serial Numbers must be entered into the system manually. For more information on ProGauge probe configuration see "ProGauge Probe Configuration" on page 105.

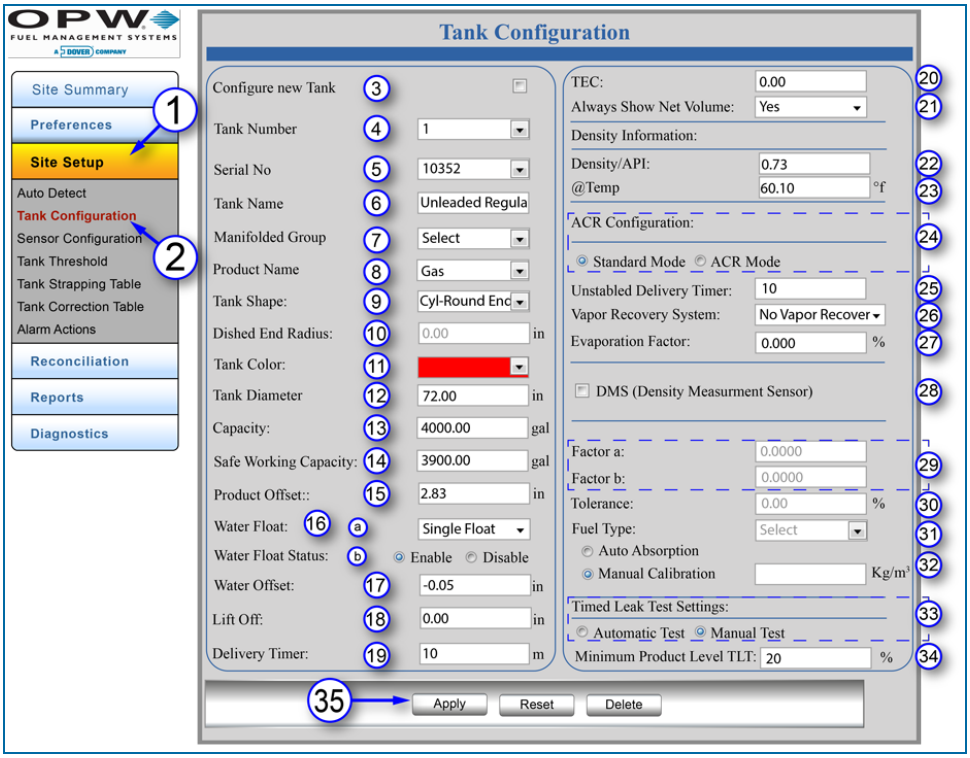


ProGauge Serial Numbers

10. Click **Site Setup**.
11. Click **Device List** (menu selection). The Auto Detect tab will show by default.
12. Select the **ProGauge Serial Numbers** tab.
13. Enter up to 12 applicable ProGauge probe serial numbers.
14. Click the **Apply** button.

4.2 Tank Configuration

Site Setup > Tank Configuration



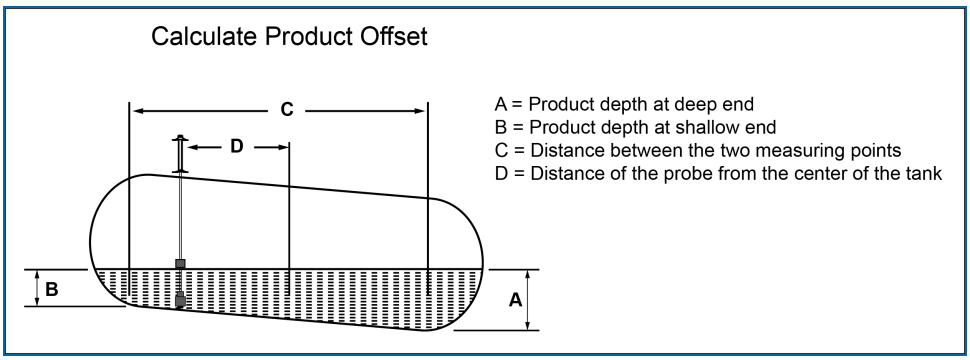
Tank Configuration

1. Click **Site Setup**.
2. Click **Tank Configuration**.
3. **Configure New Tank**: This box should only be checked when you are configuring a new tank. Leave this box unchecked if you are updating an existing tank configuration.
4. Select a **Tank Number**: A numerical value identifying the tank for reports (when setting up new tanks, make sure that the tanks are configured so that Tank 1 is set up with Tank ID 1, Tank 2 with Tank ID 2, etc.).
5. Select **Serial Number**: The serial number of a detected OPW probe, or a manually entered ProGauge probe.
6. Enter a **Tank Name**: Alphanumeric entry used to identify the tank in reports.
7. Select a **Manifolded Group** (if applicable): Select the manifold group related with the tank.

8. Select a **Product Name**: Product Type in the tank (see Section 2.2, Product Reference Table).

> **NOTE:** "Grayed out" selections can indicate that **Lock Site** Configuration has been selected on the User Preferences screen. See Section 9, Lock Site for information on this feature.

9. Select **Tank Shape**: The tank-gauge system supports these tank shapes:
    a. Rectangular (typical rectangular shaped tank)
    b. Cyl-Flat Ends (typical cylindrical steel tank)
    c. Cyl-Round Ends (typical cylindrical fiberglass)
    d. Cyl-Dished (typical cylindrical flat/round hybrid)
    e. Vertical (typical vertical or "straight" tank)
10. Enter **Dished End Radius** (where applicable). Enter the radius of the cylindrical ends of a cylindrical tank. Refer to the manufacturer's specification for dish-end radius value.
11. Select **Tank Color**: The identification color of the tank as it will show on the tank-gauge controller.
12. Enter **Tank Diameter**: The majority of tanks have a nominal diameter (height for vertical tanks) listed in the manufacturer's specifications. The actual size of a tank can be different from its supplied specification by several inches. Carefully measure the inside of each tank to be sure that the system data is accurate.
13. Enter **Capacity**: The tank volume is found from the nominal volume supplied by the manufacturer or through a measured fill.
14. Enter **Safe Working Capacity**: Automatically calculated to 95% of the tank's capacity and usually used as an overfill level. (Ullage = Safe Working Capacity – Product Volume).
15. Enter **Product Offset**: A numerical value calculated and added to the probe product offset to electronically "center" the probe in the tank. No compensation factor is necessary if the tank is perfectly level or if the probe is installed at or near the center of the tank.
    a. Product Offset is D x Pitch, where D = the distance of the probe from the center of the tank.
    b. Pitch equals (A-B) / C, where A = product depth at the deep (lower) end of the tank, B = product depth at the shallow (higher) end of the tank and C = the distance between A and B.



Calculate Product Offset

16. **Water Float**:
    a. Select a Water Float type from the dropdown. This indicates if the probe should be looking for a water float
        - No: The probe should not look for a water float.
        - Single Float: Indicates a water float is installed.
        - AEF: An Aqueous Ethanol Float is installed.
    b. **Water Float Status**:
        - Enable: A water float reading is always used. If a water-float error occurs, the probe will show an error and provide no product or water levels.
        - Disable: The probe will use the water-float readings unless a water-float error occurs. If an error occurs, the last good water-float position will be shown. If the product level drops below the last water level, the last water level shown is equal to the product level (the product level will be water).
17. Enter **Water Offset** (if applicable): A numerical value calculated and added to the probe water level. To calculate the water offset, the amount of water must be manually measured (usually by “sticking” the tank). The system measurement is then subtracted from the amount of water to yield the water offset. This is used to account for the float difference in the bottom of the tank.
18. Enter **Lift Off**: The amount of water it takes to lift the water float off the bottom of the tank.
19. Enter **Delivery Timer**: Enter the time it takes the product to settle after a delivery. Turbulence occurs during and following a delivery and can cause incorrect readings. Enter a time from 0 (disabled) to 59 minutes. After this time, normal probe monitoring continues.
20. Enter **TEC**: Tank Expansion Coefficient. This value is used to calculate the product density (Russia only).
21. **Always Show Net Volume**: The tank probe uses up to five (5) Resistance Temperature Detectors (RTD) (depending on the probe) to calculate the temperature-compensated volume. The controllers will only use the RTD(s) that are below the current product level to calculate the average temperature. When “Yes” is selected, net-corrected volume will show when the product level drops below the lowest RTD on the probe.

22. Enter Product **Density/API**: The tank-gauge system uses the Density/API number to calculate the product's expansion coefficient factor. Density/API can usually be obtained from the product distributor (it is often printed on the delivery ticket). The tank-gauge system will accept API numbers between 0 and 85, or density values 645 Kg/m^3 to 1,075 Kg/m^3 (LPG 350-637 kg/m3). The tank-gauge system will automatically determine whether an entry is an API number or a density value by the range in which it falls.

    The ranges below are allowed and are calculated by the Nano internally:

    350-637 Kg/m^3 (LPG) (Kg/m^3 ÷ 1000 = entered value)

    654-1075 Kg/m^3 (other fuels) (Kg/m^3 ÷ 1000 = entered value) 2.0-85 API = entered value

    90–273 API = entered value. Other values are invalid

    EXAMPLE:

    If you want to enter 845 (diesel standard density) Kg/m^3 then you would enter 0.845 (845 ÷ 1000 = 0.845). If you want to enter 750 (gasoline) Kg/m^3 then 0.750 needs to be entered (750 ÷ 1000 = 0.750).

    Typical API numbers for Common Liquids:

    Regular Gasoline = 62

    Unleaded Gasoline = 59

    Premium Unleaded Gasoline = 56

    Diesel = 34

    Kerosene = 42

23. Enter (Product Density/API Reference) **Temperature**: For standardized API or Density, the value for a product must be calculated at a reference temperature. For API numbers, the reference temperature is usually 60°F (16°C). For density, the reference temperature is 59°F (15°C) or 68°F (20°C). If the density API is measured using a hydrometer, the current product temperature must also be found.

24. **ACR Configuration**: Select whether the tank will be used with ACR or as a standard tank.

NOTE: ACR is used only when the auto-calibration and reconciliation module is in use. This must be purchased as an option. See "Installed Options" on page 25 for more information.

25. Enter **Unstable Delivery Timer**: Enter the time it takes the product to settle after a delivery. Turbulence occurs during and following a delivery and may cause erroneous readings. Enter a time from 0 (disable) to 59 minutes. After this time, normal probe monitoring resumes.

NOTE: The Delivery Timer is set at a default of 10 minutes.

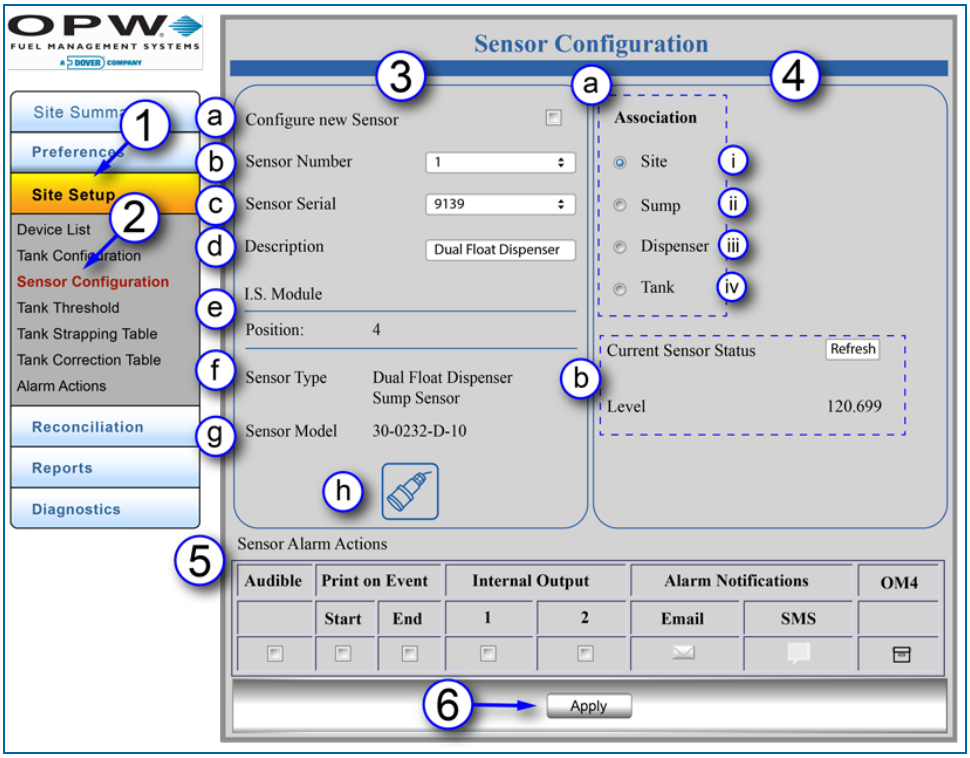
26. Select **Vapor RecoverySystem** (where applicable): The type of vapor recovery system in place. Select from the dropdown:
    a. No Vapor Recovery System, if no system is in operation.
    b. Stage 1 VR: Refers to a tank configuration that returns vapors to the transport truck as new fuel is being dropped into the underground storage tank.
    c. Stage 2 VR: Refers to a site configuration that supports reclaiming vapors from the vehicle that is being fueled at the dispenser.
    d. TVS: (Total Vapor Solution™ by OPW). Vacuum is drawn from the sales nozzles via the standard Stage 2 system and vapor passes directly to the storage tanks and is then processed into liquid and saturated vapor to increase the stock volume.
27. Enter **Evaporation Factor**: Used by an ACR system exclusively when ACR tank mode is selected to compute evaporation loss as a percentage of unit volume. For diesel products enter “0,” for unleaded products enter “0.17.”
28. Click the **DMS** checkbox if a Density Measurement Sensor is in use.
29. Enter **Density Factor** A & B: Density factors can be found printed on the sensor.
30. Enter Density **Tolerance** (if applicable): This is available when a density sensor is found or a density probe is linked. The recommended setting is 6%.
31. **Fuel Type** This will be used by an upcoming feature that is not yet supported.
32. **Auto Absorption** or **Manual Calibration** These will be used by an upcoming feature that is not yet supported.
33. Select **Timed Leak-Test Settings** (where applicable): Automatic Test or Manual Test.

NOTE: If an Automatic Test is selected, the system will try to run the test immediately (as long as there is no activity occurring in the configured tank). The default duration for the Automatic Leak-Test is 2 hours. After the first Auto Leak Test is run, the test will run again after 28 days (default configuration for Auto Leak-Test recurrence).

34. Enter **Minimum Product Level TLT**: The minimum percent of product permitted to do a Timed Leak Test.
35. Click **Apply** to save the tank settings. Click Reset to go back to the original settings. Click Delete to remove all of the information for the selected tank.

4.3 Sensor Configuration

Site Setup > Sensor Configuration



Sensor Configuration

1. Click **Site Setup**.
2. Click **Sensor Configuration**.

The Sensor Configuration screen will come into view. This screen has three (3) panels where information for each sensor in the system can be entered, stored and edited.

3. The left panel shows basic information for a detected sensor.
    a. **Configure new Sensor**: This box should only be checked when you are configuring a new detected sensor. Leave this box unchecked if you are updating an existing sensor configuration.
    b. Select a **Sensor Number**: A numerical value identifying the sensor for reports (when setting up new sensors, make sure that the sensors are configured so that Sensor 1 is set up with Sensor ID 1, Sensor 2 with Sensor ID 2, etc.).

c. **Sensor Serial**: Select the serial number of a detected sensor from the dropdown.

d. **Description**: A description of the sensor function.

e. **I.S. Module Position**: The Channel number of a detected sensor.

f. **Sensor Type**: The name of a detected sensor.

g. **Sensor Model**: The model number of a detected sensor.

h. The icon of the detected sensor will show at the bottom of this panel.

4. The right panel shows selections to specify the association of a selected sensor and to get information on the sensor's status once it has been configured.

   a. Select an **Association** for the detected sensor. Each sensor can be associated with one (1) of four (4) monitoring locations.

      i. Site: To monitor site activity.

      ii. Sump: To monitor activity for a sump application.

      iii. Dispenser: To monitor activity within a dispenser. When this option is selected, a dropdown will come into view to specify the dispenser (pump) number.

      iv. Tank: To monitor activity within a tank. When this option is selected, a dropdown will come into view to specify the Tank number.

   b. To get information on the **Current Sensor Status** push the **Refresh** button. The current liquid Level being monitored will show (in the units selected from the User Preferences screen).

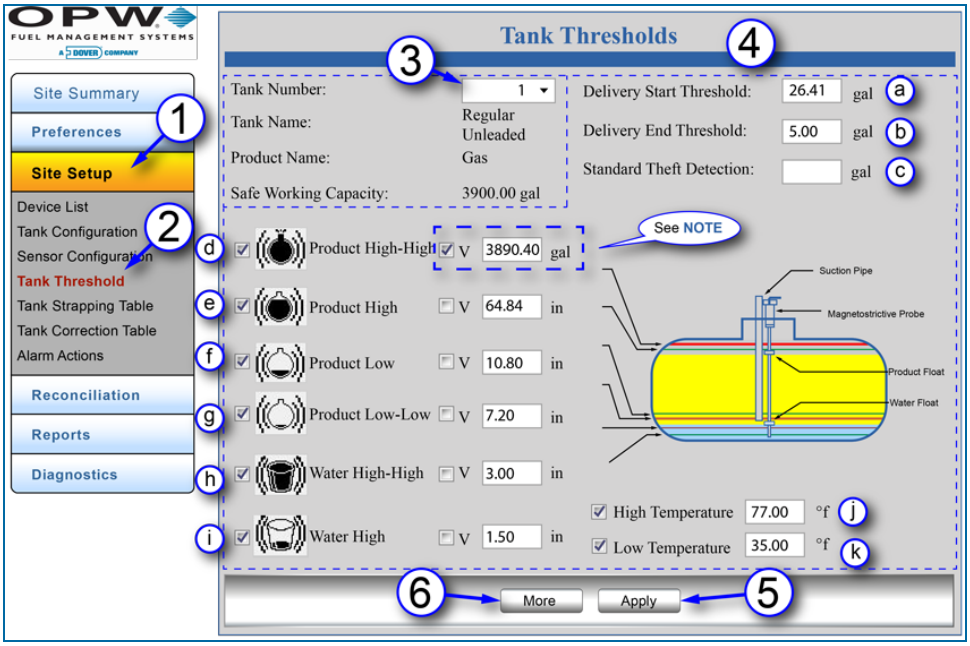
5. **Sensor Alarm Actions** can be set up in the bottom panel:

   - **Audible Alarm**: Will sound the internal buzzer when an Alarm/Event occurs. Buzzer duration can be changed in **Settings > System Preferences > System** and will be global to all audible Alarm/Events.
   - **Print on Event**: Sends event information to a connected printer.
   - **Start**: The tank-gauge system will print Alarm/Event when an Alarm/Event starts.
   - **End**: The tank-gauge system will print Alarm/Event when an Alarm/Event ends.
   - **Internal Output Contacts**:
     - Internal Output Contact **1** will close when an Alarm/Event occurs.
     - Internal Output Contact **2** will close when an Alarm/Event occurs.
   - **Email**: A maximum of five (5) contacts can be emailed when an Alarm/Event occurs.
   - **SMS**: A maximum of five (5) contacts can be notified via text message when an Alarm/Event occurs.
   - **OM4**: An Alarm/Event will be sent through the OM4 relays.

6. Click **Apply** to save the sensor configuration.

4.4 Tank Thresholds

Site Setup > Tank Thresholds



Tank Thresholds

The **Tank Thresholds** screen allows the user to set the value for alarm/event conditions.

NOTE: The Units of Measure that display on this screen will be the units selected earlier in the User Preferences screen.

1. Click **Site Setup**.
2. Click **Tank Threshold** (the Tank Thresholds screen will be opened automatically after the first tank has been configured).
3. **Select the Tank Number**. The screen will show the **Tank Name**, **Product Name** and **Safe Working Capacity** that were entered in the Tank Configuration screen.
4. Enter values for each of the following limits:
    a. **Delivery Start Threshold**: Specifies the amount of minimum product increase required to start delivery detection. The recommended setting is 40 liters (10.6 gal).

b. **Delivery End Threshold**: The quantity of gallons/liters added per minute to show the end of the delivery. The recommended value is 5 liters (1.3 gal).

c. **Standard Theft Detection**: Theft Detection is in operation when the site is closed. If the level of fuel decreases more than the value entered in this field, it will cause an alarm condition.

NOTE: To set a threshold in operation, click the box next to the threshold icon to add a check mark.

For the product and water levels that follow, the default measurement is height in inches/centimeters. To measure by volume, check the box next to the "V" to change the Unit of Measure to US Gallons/Liters (see example in Figure 4-7).

These thresholds are pre-calculated based on tank size.

d. **High-High Product**: When the product level is more than this threshold an alarm will occur to warn of a possible overfill condition. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.

e. **High Product**: When the product level is more than this threshold an alarm will occur to warn of a possible overfill. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.

f. **Low Product**: When the product level drops below this threshold an alarm will occur to tell the operator that product should be ordered. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.

g. **Low-Low Product**: When the product level drops below this threshold an alarm will occur to warn that the product level in the tank is critically low. This threshold can be used to turn off submersible or suction pumps to prevent damage if the pump runs dry. This threshold should be set higher than the pickup for the submersible pump or suction pipe. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.

h. **High-High Water**: When the water level is more than this threshold an alarm will occur. This alarm warns of a water level in the tank that has reached a critical level and must be examined. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.

i. **High Water**: When the water level is more than this threshold an alarm will occur as a pre-warning to a High-High condition. The default is 1.5 in (3.8 cm). To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you would like the threshold to be by Height or by Volume, then enter a value for the threshold.

j. **High Temperature**: When the product temperature is more than this threshold an alarm will occur. To set this threshold in operation, click the box next to the icon to add a check mark. Enter a value for the threshold.

k. **Low Temperature**: When the product temperature drops below this threshold an alarm will occur. To set this threshold in operation, click the box next to the icon to add a check mark. Enter a value for the threshold.

NOTE: High-High Water and High Water thresholds are only available when the Water Float is set to “Enable” on the In-Tank Probe screen (see "Tank Configuration" on page 54, Step 16).

5. Click **Apply** to save the Tank Threshold information.

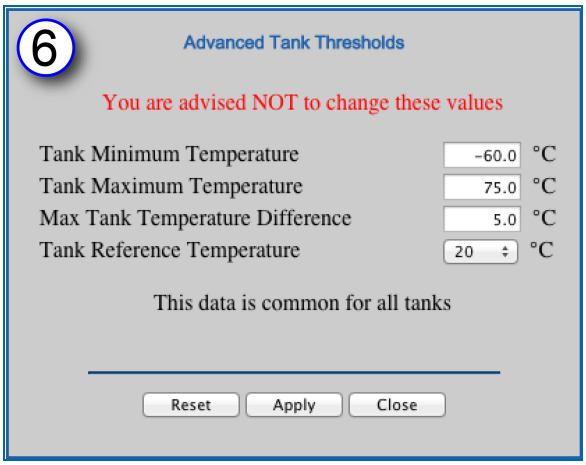


Figure 4-1 Advanced Tank Thresholds

6. Push the **More** button to get access to the **Advanced Tank Thresholds** screen.

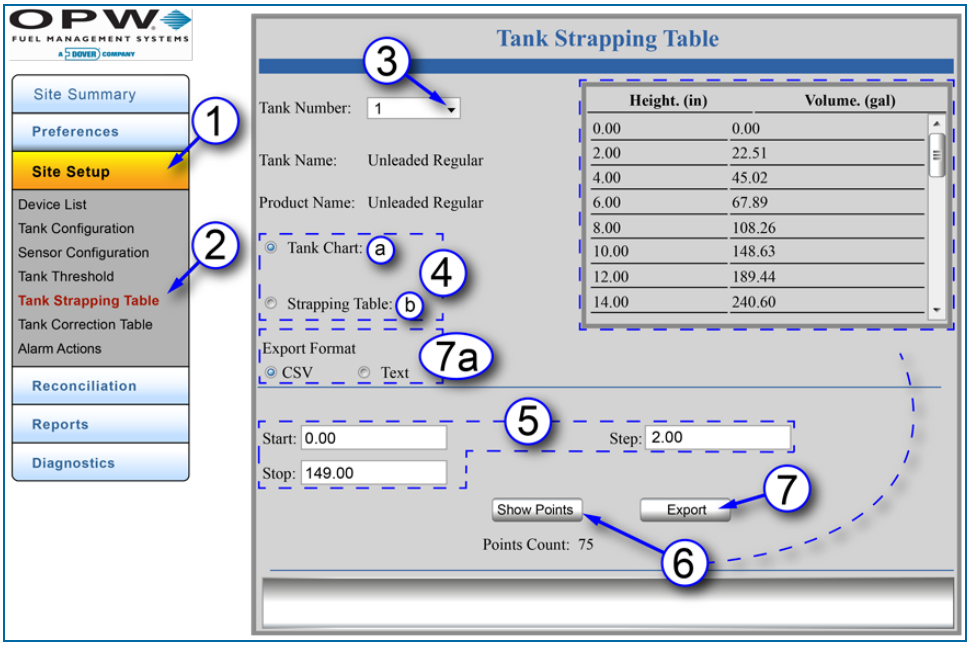
- The minimum and maximum temperatures on this screen are used to determine if the temperature value of a thermistor is out of range. The values set in the system are by default. A temperature from a probe that is reported out of range could indicate a faulty thermistor.

IMPORTANT: It is advised to not change these default values.

- The Tank Reference Temperature is used to calculate product net-volume, weight and density. The default Tank Reference Temperature is 68°F/20°C (users in the UK and Russia will set this at 59°F/15°C).

4.5 Tank Strapping Table

Site Setup > Tank Strapping Table



Tank Strapping Table

The **Tank Strapping Table** and **Tank Chart** are used to display the volume of the tank at different product levels based on the current Tank Configuration settings (i.e., tank shape, diameter, capacity, correction chart, etc.).

1. Click **Site Setup**.
2. Click **Tank Strapping Table**.
3. Select a **Tank Number**.
4. Select Tank Chart or Strapping Table.
    a. The **Tank Chart** option is selected by default and is calculated for tanks set up in either **Standard** or **ACR** (Auto Calibration and Reconciliation) mode (see "Tank Configuration" on page 54, Step 24).
    b. The **Tank Strapping Table** is only used for tanks set up in **ACR** mode (see "Tank Configuration" on page 54, Step 24). The table shows product volume at levels based on equal tank “segments” as specified in the **Advanced Autocalibration** screen (see Auto Calibration). The tank height where one segment ends and another begins is called the

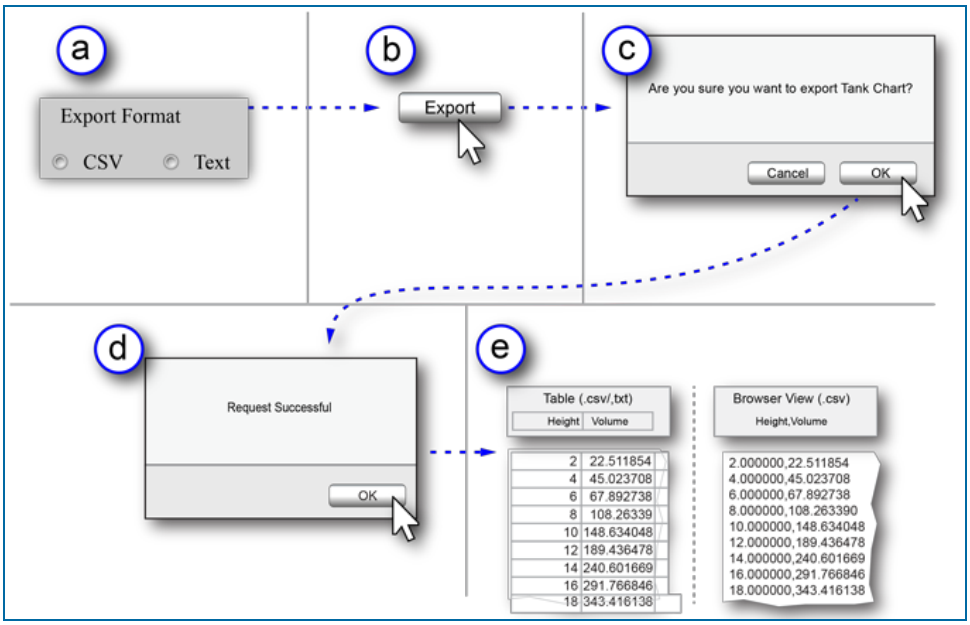
Strapping Point. The table for strapping points (tank height and volume) is called the **Strapping Table**. The system will add more correction values based on calculations of data received from the probe and pump sales (other hardware required) to make real-time adjustments to volume.

NOTE: When the **Tank Strapping Table** button is selected only the **Export** button in the lower panel stays active. Skip to step 7 below for instructions on exporting the Tank Strapping Table values to a browser or spreadsheet.

5. If the **Tank Chart** button is selected, a **Start** point, **Stop** point and **Step** measurement can be entered. The Step measurement is the (height) distance between the points shown in the tank chart. The default value for this entry is 2.00. The lowest increment that may be entered for this value is 0.5.
6. Click **Show Points** to show the height-to-volume measurements throughout the tank's height for the selected start/stop range (a "Request successful" pop-up will come into view. Click the **OK** button). The Height / Volume panel will come into view in the upper-right corner of the screen. Use the scrollbar along the right side of the panel to see more measurement results (if the pop-up shows "Request failed," click **OK** and click the **Show Points** button again. If unsuccessful after several tries, notify your site IT administrator).

NOTE: The Points Count is calculated as the difference between the Stop and Start points, divided by the Step points (rounded up to the nearest whole number).

4.5.1 Export Tank Chart/Tank Strapping Table



Export

7. To **Export** the **Tank Chart** or **Tank Strapping Table** results to a web-browser/spreadsheet table or as a Text file:

a. Select the **Export Format**. CSV (Comma Separated Values) can be used to export and save the table as a .csv file. Text will export and save the table in .txt format.

b. Click the **Export** button.

c. The confirmation screen “Are you sure you want to export Tank Chart?” will pop up. Click **OK**.

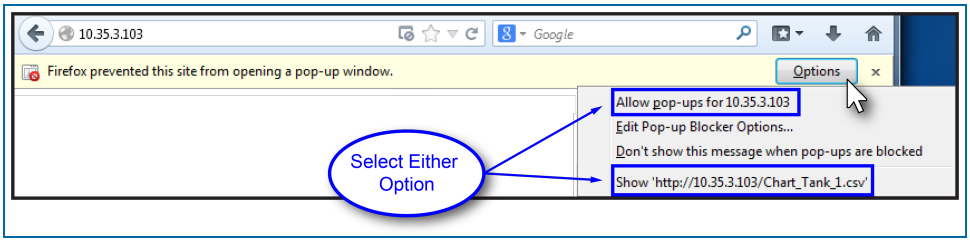
d. A “Request Successful” popup will come into view. Click the **OK** button (if the popup shows “Request failed,” click **OK** and click the **Export** button again. If unsuccessful after several tries, notify your site IT administrator).

e. A .csv (comma separated values) or .txt file will be created.

NOTE: The .csv file can be exported to a web-browser or a spreadsheet and depends on your browser settings or if you have a spreadsheet program installed on your computer. No matter how the file is exported it will supply the same information as the Tank Chart. If exporting the Tank Strapping Table for an ACR-enabled tank the information will be supplied as in step 4b above. If your computer has a spreadsheet program installed such as Microsoft Excel, you might be prompted to open or save the file to your hard drive. It can then be opened as a spreadsheet.

If you do not have a spreadsheet program installed, the file will open in another browser window or tab. The Height and Volume values are displayed as decimals out to six (6) places, separated by a comma (e.g., 2.000000,22.511854).

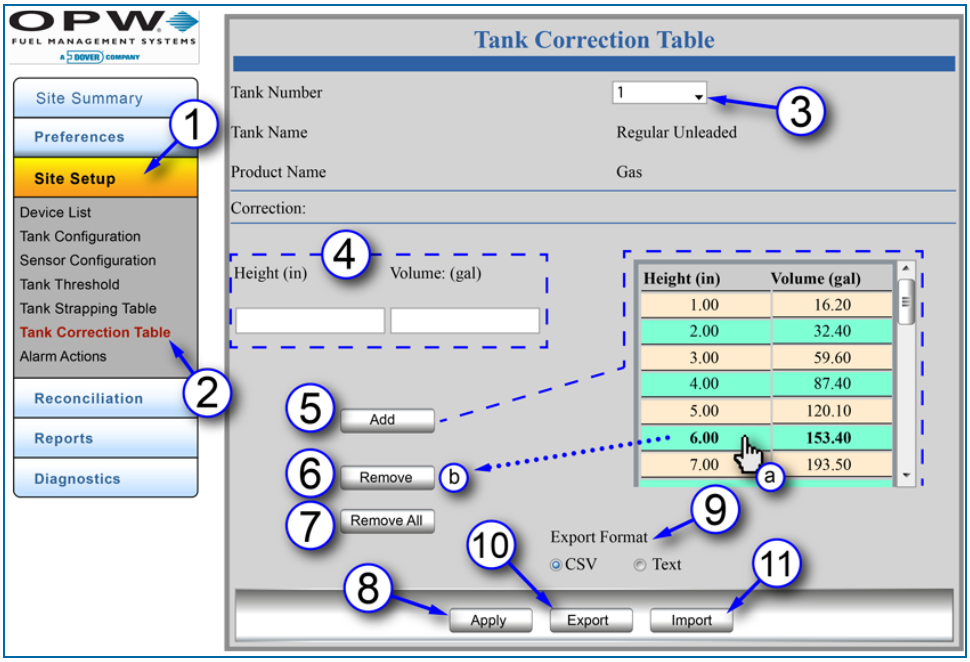
NOTE: If your browser is set to block pop-ups, click the Options button on the pop-up bar. Select one of the options that will allow the .csv file to open.



Allow Popups

4.6 Tank Correction Table

Site Setup > Tank Correction Table



Tank Correction Table

The **Tank Correction Table** allows the user to adjust the measurement-to-volume conversion based on a tank chart. This is used if there are dents or other obstructions in the tank, or if the tank is an abnormal shape.

These values are entered as height and volume measurements for particular points throughout the tank. Points may be added or removed at any time.

NOTE: Correction entries do not have to be put in numerical sequence; the system will organize them automatically. A maximum of 450 correction points can be added.

1. Click **Site Setup**.
2. Click **Tank Correction Table**.
3. Select a **Tank Number**. The Tank Name and Product Name will come into view under the Tank selection box.
4. Enter the **Height** and **Volume**.

5. Click the **Add** button. The values you entered will come into view on the table. Repeat steps 4 and 5 to add more correction points for a tank.
6. To remove individual correction points:
    a. Click on a correction point on the table to highlight it (it will change to bold numbers).
    b. Click the **Remove** button.
7. To remove all points from the table, click the **Remove All** button.
8. Click Apply to save the table entries.

Import/Export Feature

The **Import/Export** feature allows the user to import and export the tank-correction table when setting up tanks of the same type.

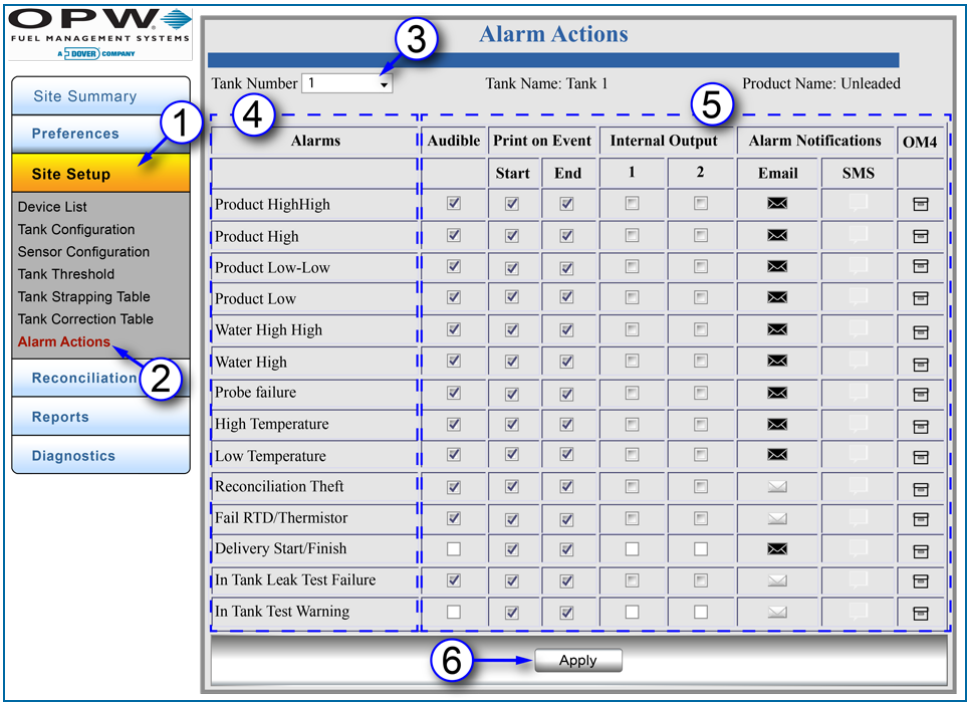
9. Select the **Export Format**. CSV (Comma Separated Values) can be used to export and save the table as a .csv file. Text will export and save the table in .txt format.
10. To Export a Tank Chart, click the **Export** button. Select the file name and location for the tank chart and click **Apply.**
11. To Import a Tank Chart, click the **Import** button. Select a file to import. Click **Open** to import the file. Click **Apply** to save the table information.

NOTE: Either a .csv or .txt file can be imported. The console will accept and read both file types.

"Grayed out" selections can mean that **Lock Site** Configuration has been selected on the User Preferences screen. See Section 9, Lock Site for information on this feature.

Alarm Actions

Site Setup > Alarm Actions



Alarm Actions

The **Alarm Actions** screen allows the user to select the actions taken when the alarm/event condition occurs. Each tank is set up individually in this chart.

NOTE: If using Email or SMS, set up the options in the Address Book prior to establishing Alarm Actions. See "Email and SMS" on page 43 for information on how to set up these options. See "Address Book" on page 33 for information on how to set up contacts.

1. Click **Site Setup**.
2. Click **Alarm Actions**.
3. Select a **Tank Number**. The Tank Name and Product Name will come into view at the top of the screen.
4. Each of the **Alarms** can be setup with an **Alarm Action** (see next step).

5. **Alarm Actions**: To activate an **Alarm Action** for each event, select the checkbox in the appropriate column. Click **Apply** to save the Alarm Actions.
6. Click **Apply** to save.

4.6.1 Alarms/Events

- **Product High-High**: Occurs when product in the tank is equal to or exceeds what is defined as the Product High-High Threshold.
- **Product High**: Occurs when product in the tank is equal to or exceeds what is defined as the Product High Threshold.
- **Product Low-Low**: Occurs when product in the tank is equal to or less than what is defined as the Product Low-Low Threshold.
- **Product Low**: Occurs when product in the tank is equal to or less than what is defined as the Product Low Threshold.
- **Water High-High**: Occurs when water in the tank is equal to or exceeds what is defined as the Water High-High Threshold.
- **Water High**: Occurs when water in the tank is equal to or exceeds what is defined as the Water High Threshold.
- **Probe Failure**: Occurs when the system does not receive all or part of the probe data.
- **High Temperature**: Occurs when the product in the tank is equal to or greater than its defined High Temperature Threshold.
- **Low Temperature**: Occurs when the product in the tank is equal to or less than its defined Low Temperature threshold.
- **Reconciliation Theft**: Occurs when the product has been detected to leave the tank when the tank gauge system is set to close.
- **Fail RTD/Thermistor**: Occurs when the probe temperature-sensing circuitry is not working properly (i.e., temperature corrected product level could be off).
- **Delivery Start/Finish**: Occurs when a delivery is detected.
- **In-Tank Leak Test Failure**: Occurs when leak test has failed.
- **In-Tank Test Warning**: Occurs when the tank-gauge system has not been able to run a complete leak test in the defined period.

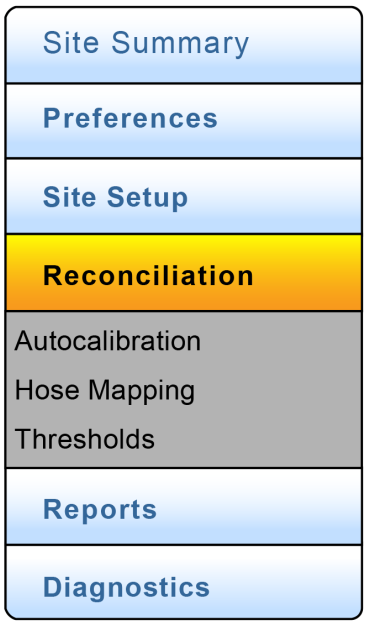
4.6.2 Alarm Actions

- **Audible Alarm**: Will sound the internal buzzer when an Alarm/Event occurs. Buzzer duration can be changed in **Settings > System Preferences > System** and will be global to all audible Alarm/Events.
- **Print on Event**: Sends event information to a connected printer.
- **Start**: The tank-gauge system will print Alarm/Event when an Alarm/Event starts.
- **End:** The tank-gauge system will print Alarm/Event when an Alarm/Event ends.
- **Internal Output Contacts**:
  - Internal Output Contacts **1** will close when an Alarm/Event occurs.

    - Internal Output Contacts **2** will close when an Alarm/Event occurs.
- **Email**: A maximum of five (5) contacts can be emailed when an Alarm/Event occurs.
- **SMS**: A maximum of five (5) contacts can be notified via text message when an Alarm/Event occurs.
- **OM4**: An Alarm/Event will be sent through the OM4 relays.

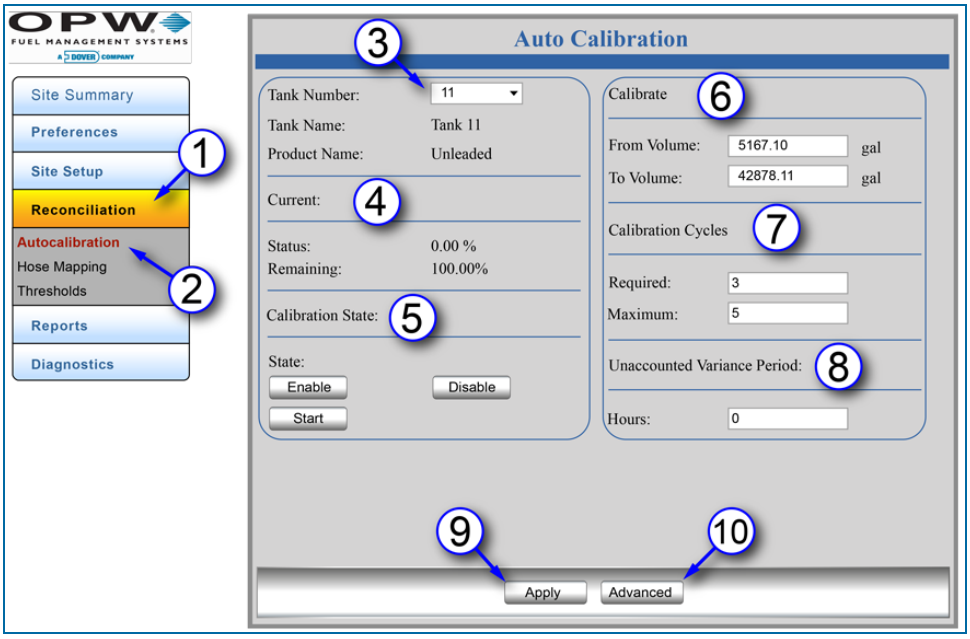
Section 5 Reconciliation

The Reconciliation menu shows options to set up parameters for ACR (Auto Calibration and Reconciliation, where applicable) and set up the pumps in the tank-gauge system and link those pumps to individual tanks.



5.1 Auto Calibration

Reconciliation > Auto Calibration



Auto Calibration

In **ACR** mode, tank auto calibration parameters can be set to run, restart or stop the auto calibration process. Each tank has a range of operation and the **Auto Calibration** feature lets the user select the tank calibration range. **Auto Calibration** makes sure that the Tank Strapping Table is as accurate as possible. This is done by making adjustments based on fuel sales and gauge readings at selected levels in the tank.

1. Click **Reconciliation**.
2. Click **Auto Calibration**.
3. Select a **Tank Number**. The **Tank Name** and **Product Name** will come into view.
4. The **Current** parameter is where the user can monitor the auto calibration procedure. The percentage (%) is calculated as a ratio of the number of calibration cycles completed in the calibration volume range (see Step 6) and the total necessary number of calibration cycles for this segment (see Step 7).
5. The **Calibration State** parameter lets the user see if auto calibration is in operation, and to Enable, Disable or Start the auto calibration process.
    a. **Enable** and **Disable** operations have no effect on the auto calibration-strapping table.

b. The **Start** operation lets the user start auto calibration from the beginning (the auto calibration- strapping table is calculating the base on tank configuration, [e.g., tank diameter, shape and volume], and the tank correction table). The counters for completed segments are reset to zero.

6. The **Calibrate** parameter specifies the entire calibration volume range in which auto calibration strapping- table segments will be changed.
7. The **Calibration Cycles** parameter sets the required and maximum calibration-cycle values for each segment.

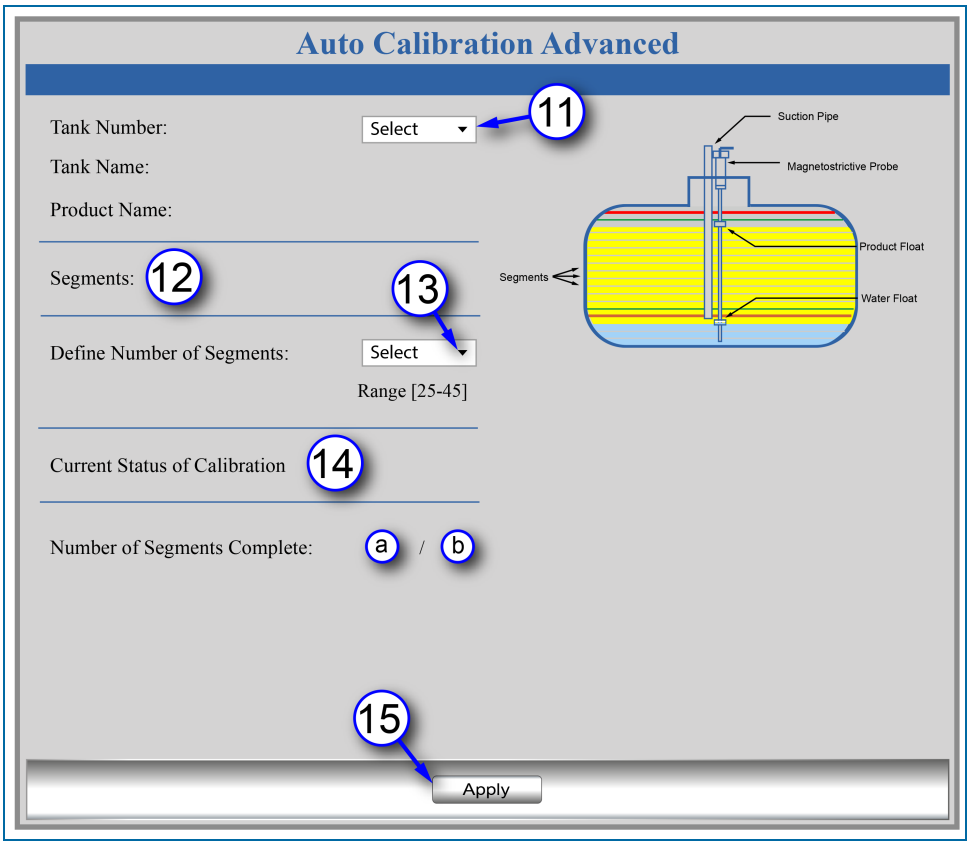
    a. The **Required** calibration-cycles value specifies the auto calibration status percentage (%). When each segment within the specified auto calibration volume range is at this required value, the auto calibration process is complete. Because not all segments in one auto calibration cycle are changed, some segments can be changed more than the required value.

    b. The **Maximum** calibration cycles value parameter sets the number of auto calibration cycles in which the segments will not be changed if the auto calibration process is not complete (the minimum is 5 and the maximum is 10).

8. The **Unaccounted Variance Period** parameter allows the user to specify how many hours will be calculated during reconciliation for unaccounted variance volume.
9. Click **Apply** to save the Auto Calibration screen settings.

NOTE: "Grayed out" selections can mean that **Lock Site Configuration** has been selected on the **User Preferences** screen. See Section 9, Lock Site for information on this feature.

10. Click the **Advanced** button to bring up the **Auto Calibration Advanced** parameters screen.



Auto Calibration Advanced

11. Select a **Tank Number**. The Tank Name and Product Name will come into view.

12. **Segments**: The tank height will be divided into a number of equal segments for the auto calibration process.

13. **Define Number of Segments**: Select a number from the drop-down in the range from 25 to 45.

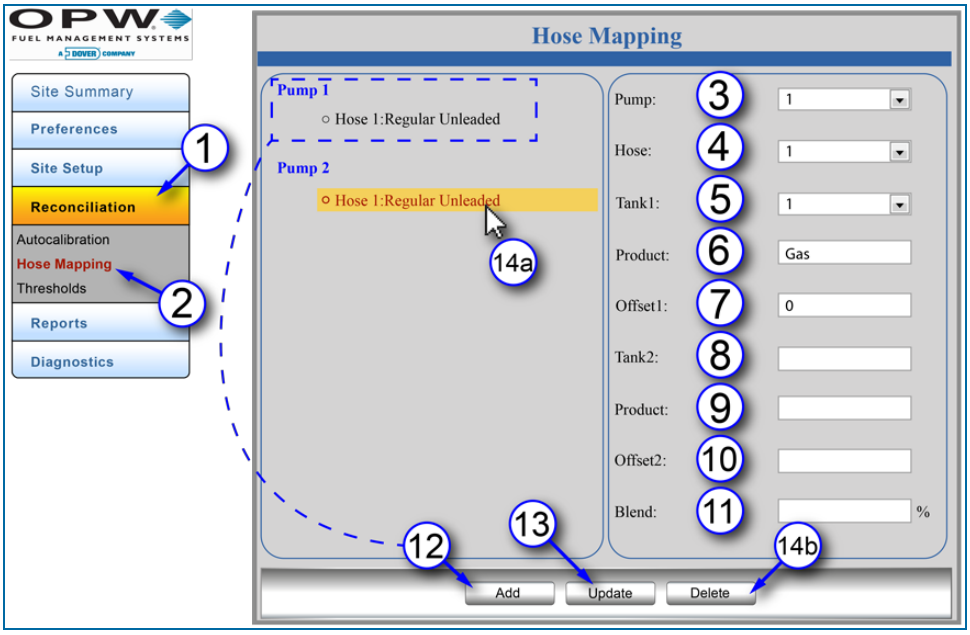
NOTE: The tank height where one segment ends and another begins is called the **Strapping Point**. The table for strapping points (tank height and volume) is called the **Strapping Table** (see "Tank Strapping Table" on page 64).

NOTE: The yellow product color on the picture shows the auto calibration range, which is specified by “From Volume” and “To Volume” during auto calibration configuration (see Step 6 above).

14. **Current Status of Calibration** shows:
    a. The number of segments in the auto calibration range that have completed auto calibration.
    b. The total number of segments selected in Step 13.
15. Click **Apply** to save the **Advanced Auto Calibration** screen settings.

5.2 Hose Mapping

Reconciliation > Hose Mapping



Hose Mapping

In **ACR** mode, the hose map must be set up. The hose map displays what hoses are connected to which tanks.

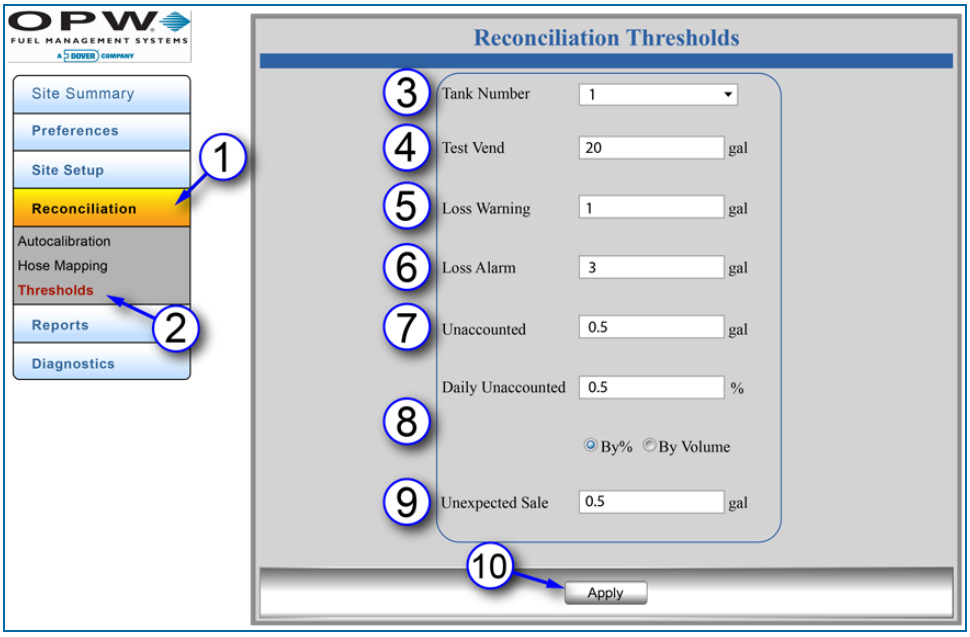
NOTE: Up to 32 dispensers can be set up in the system.

1. Click **Reconciliation**.
2. Click **Hose Mapping**.
3. Select the **Pump**.
4. Select the **Hose** related to the selected Pump.
5. Select the **Tank** related to the selected Hose.
6. The **Product** type will come into view when the Tank is selected.
7. Enter product **Offset1** (Offset that the meter is calibrated to, if applicable, on a “per hose” basis).

8. Select **Tank2** (if applicable).
9. The **Product** type will come into view when the Tank is selected (if applicable).
10. Enter product **Offset2** (if applicable, on a “per hose” basis).
11. Enter the percentage (%) of product **Blend** (if applicable).
12. Click **Add** to link the product and tank to that hose. The **Pump**, **Hose** and **Product** type will come into view on the left panel. Repeat Steps 3-12 for additional hose mapping.
13. Click **Update** when all necessary connections have been completed.
14. To **Delete** a Map:
    a. Click on the Hose/Product Map to be deleted in the left panel. It will be highlighted as in the Figure above.
    b. Click **Delete**.

5.3 Thresholds

Reconciliation > Thresholds



Thresholds

In **ACR** mode, the user can set up Reconciliation Thresholds.

1. Click **Reconciliation**.

2. Click **Thresholds**.

3. Select a **Tank Number**.

4. Enter a value for **Test Vend**: The quantity of product used in the calibration of hose meters (i.e., a product level increased by this quantity is accepted).

5. Enter a value for **Loss Warning**: A warning that identifies service hourly losses.

6. Enter a value for **Loss Alarm**: An alarm that identifies service hourly losses.

7. Enter a value for **Unaccounted**: A change of product level that cannot be accounted for during reconciliation.

8. Enter a value for **Daily Unaccounted**: A daily change of product level that cannot be accounted for during reconciliation. To measure by percentage, select the **By%** radio button. To measure by gallons/liters, select the **By Volume** radio button.

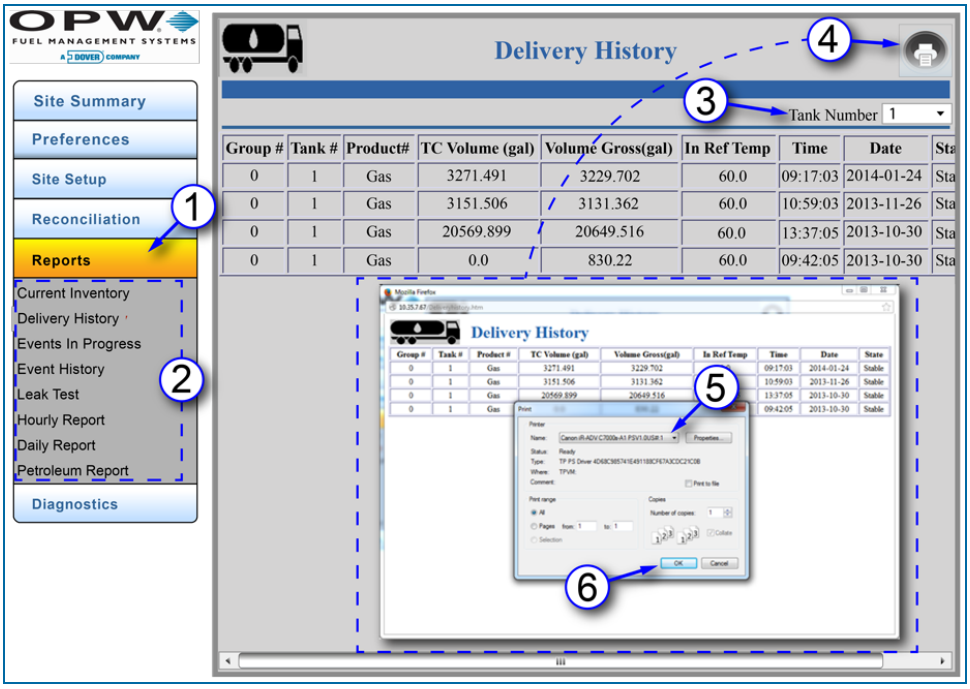
9. Enter a value for **Unexpected Sale**: An alarm will occur when the tank is in a quiet mode and product loss is sensed.

10. Click **Apply** to save the **Reconciliation Threshold** settings.

Section 6 Reports

The **Reports** menu shows options to set up, see, print and send specified reports of the tank-gauge system.

6.1 Print Reports



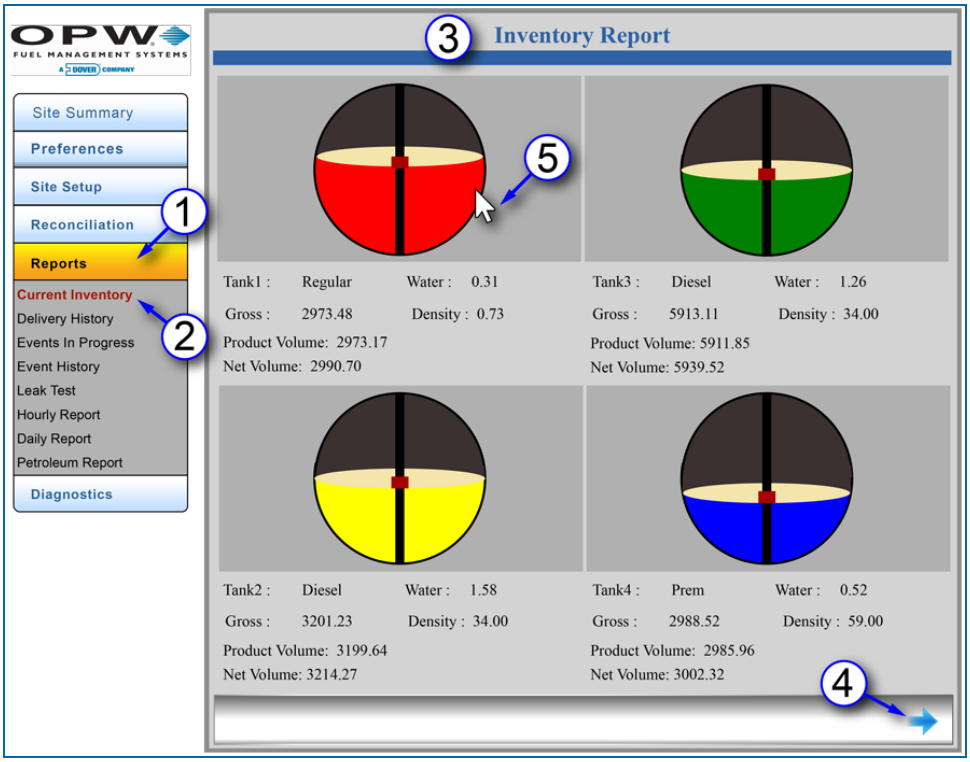
Print Reports

All reports in the **Reports Menu** can be sent to a connected printer for print output (a report can also be saved to your PC as a pdf file if that option is available in your browser's print dialogue).

1. Click **Reports**.
2. Select a **Report** from the Reports menu.
3. Select a **Tank Number** from the drop-down list (when applicable).
4. Click the **Print** icon in the upper-right corner of the screen. A picture of the report and a print dialogue box will come into view.
5. Select a printer from the drop-down list in the print dialogue box (where applicable).
6. Click **OK/Send/Print/Save** to send the report to the selected printer or save.

6.2 Current Inventory

Reports > Current Inventory

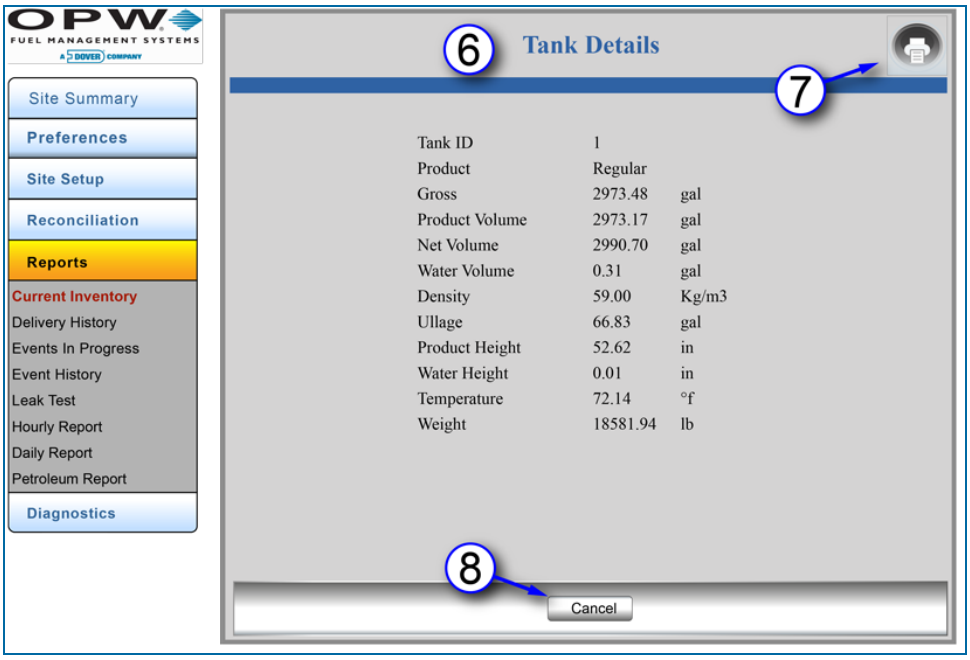


Current Inventory

The **Current Inventory** report shows information for each tank at the time the report is run. The report includes Tank ID, Water volume, Gross product volume, product Density, Product Volume and product Net Volume [product volume adjusted for temperature (reference temperature of 63°F / 15°C) and expansion/contraction].

1. Click **Reports**.
2. Click **Current Inventory**.
3. The report includes **Tank ID**, **Water** volume, **Gross** product volume, product **Density**, **Product Volume** and product **Net Volume** [product volume adjusted for temperature (reference temperature of 63°F / 15°C) and expansion/contraction].
4. If there are more tanks in the system, click the blue navigation arrow in the bottom right of the screen to go to the next page (use the right and left blue navigation arrows that come into view to scroll through the available Inventory Report screens).

5. Click on a tank graphic to open the **Tank Details** screen.

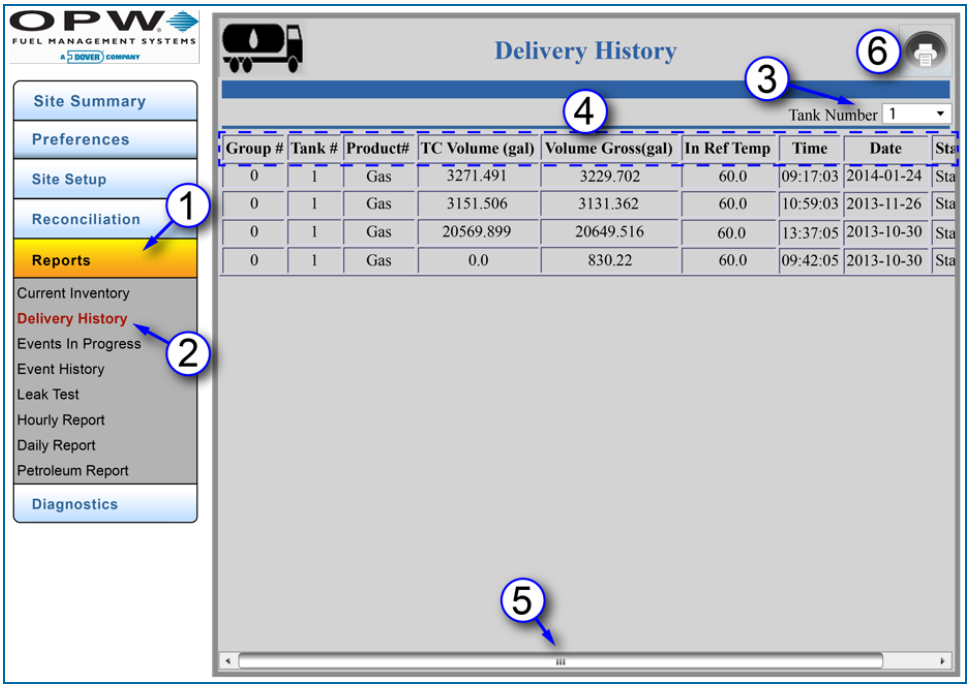


Tank Details

6. The **Tanks Details** screen shows an expanded list of tank parameters.
7. Click the **Print** icon in the top right of the screen to open the print dialog if the report is to be printed or saved. Refer to the instructions in "Print Reports" on page 82.
8. If it is not necessary to print or save the report, click the **Cancel** button to go back to the Inventory Report screens.

6.3 Delivery History

Reports > Delivery History



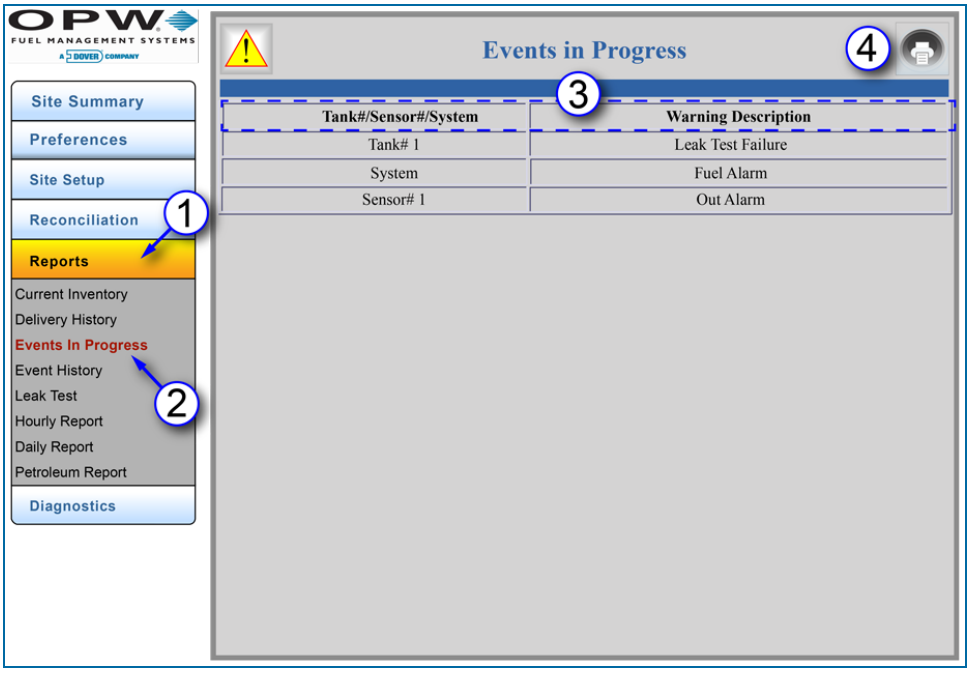
Delivery History

The **Delivery History** report shows information about the latest delivery for each tank.

1. Click **Reports**.
2. Click **Delivery History**.
3. Select a **Tank Number**.
4. This report shows information for Group (if applicable), Number, Tank Number, Product ID, Temperature Corrected (TC) Volume, Gross Volume, In Ref Temperature (normally set to 60°F for the US or 15°C for international markets), Time of delivery, Date of delivery and current tank State.
5. Use the **Scroll Bar** at the bottom of the screen to see parts of the screen that are hidden.
6. To print the **Delivery History** report, click the Print icon in the top right of the screen. Refer to the instructions in "Print Reports" on page 82.

6.4 Events in Progress

Reports > Events in Progress



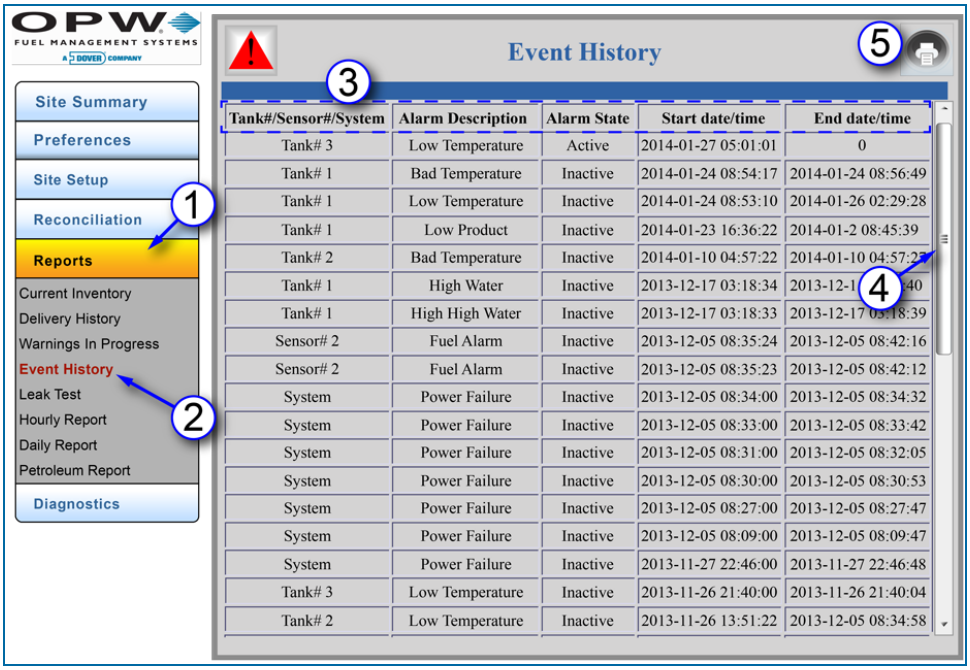
Events in Progress

The **Events In Progress** report shows all current tank and system warnings.

1. Click **Reports**.
2. Click **Events in Progress**.
3. This report shows information for Tank#/Sensor#/System and a short Warning Description.
4. To print the **Events in Progress** report, refer to the instructions in "Print Reports" on page 82.

6.5 Event History

Reports > Event History



Tank#/Sensor#/System	Alarm Description	Alarm State	Start date/time	End date/time
Tank# 3	Low Temperature	Active	2014-01-27 05:01:01	0
Tank# 1	Bad Temperature	Inactive	2014-01-24 08:54:17	2014-01-24 08:56:49
Tank# 1	Low Temperature	Inactive	2014-01-24 08:53:10	2014-01-26 02:29:28
Tank# 1	Low Product	Inactive	2014-01-23 16:36:22	2014-01-2 08:45:39
Tank# 2	Bad Temperature	Inactive	2014-01-10 04:57:22	2014-01-10 04:57:23
Tank# 1	High Water	Inactive	2013-12-17 03:18:34	2013-12-1 :40
Tank# 1	High High Water	Inactive	2013-12-17 03:18:33	2013-12-17 03:18:39
Sensor# 2	Fuel Alarm	Inactive	2013-12-05 08:35:24	2013-12-05 08:42:16
Sensor# 2	Fuel Alarm	Inactive	2013-12-05 08:35:23	2013-12-05 08:42:12
System	Power Failure	Inactive	2013-12-05 08:34:00	2013-12-05 08:34:32
System	Power Failure	Inactive	2013-12-05 08:33:00	2013-12-05 08:33:42
System	Power Failure	Inactive	2013-12-05 08:31:00	2013-12-05 08:32:05
System	Power Failure	Inactive	2013-12-05 08:30:00	2013-12-05 08:30:53
System	Power Failure	Inactive	2013-12-05 08:27:00	2013-12-05 08:27:47
System	Power Failure	Inactive	2013-12-05 08:09:00	2013-12-05 08:09:47
System	Power Failure	Inactive	2013-11-27 22:46:00	2013-11-27 22:46:48
Tank# 3	Low Temperature	Inactive	2013-11-26 21:40:00	2013-11-26 21:40:04
Tank# 2	Low Temperature	Inactive	2013-11-26 13:51:22	2013-12-05 08:34:58

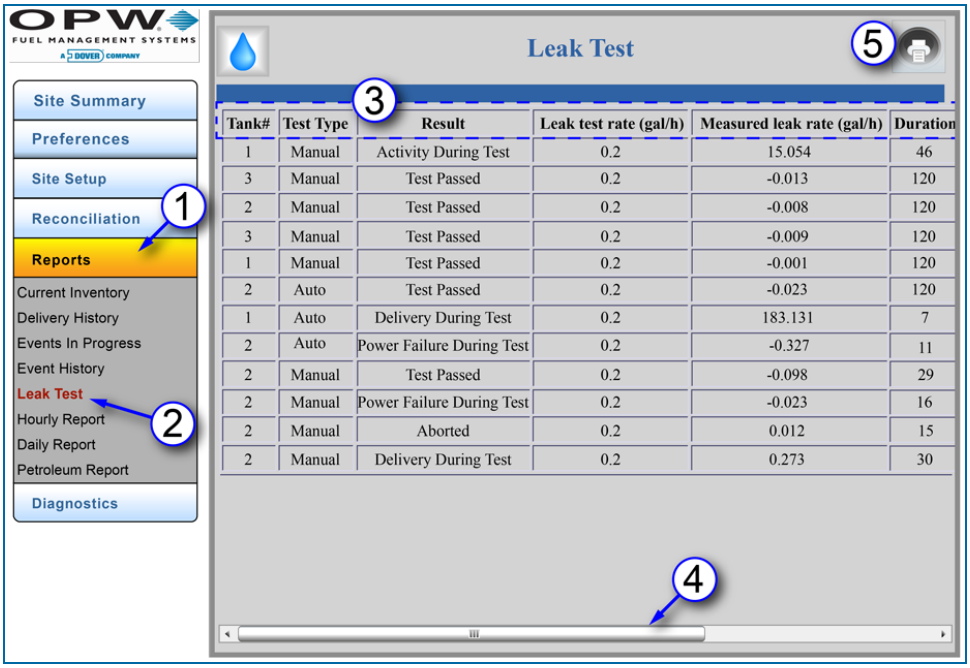
Event History

The **Event History** report shows the activity and current status of alarms in the system.

1. Click **Reports**.
2. Click **Event History**.
3. This report shows information for Tank#/Sensor#/System, a short Alarm Description, Alarm State
4. (Active or Inactive), Start Date/Time and End Date/Time.
5. Use the **Scroll Bar** on the right of the screen to see more Event History results.
6. To print the **Event History** report, refer to the instructions in "Print Reports" on page 82.

6.6 Leak Test

Reports > Leak Test



Tank#	Test Type	Result	Leak test rate (gal/h)	Measured leak rate (gal/h)	Duration
1	Manual	Activity During Test	0.2	15.054	46
3	Manual	Test Passed	0.2	-0.013	120
2	Manual	Test Passed	0.2	-0.008	120
3	Manual	Test Passed	0.2	-0.009	120
1	Manual	Test Passed	0.2	-0.001	120
2	Auto	Test Passed	0.2	-0.023	120
1	Auto	Delivery During Test	0.2	183.131	7
2	Auto	Power Failure During Test	0.2	-0.327	11
2	Manual	Test Passed	0.2	-0.098	29
2	Manual	Power Failure During Test	0.2	-0.023	16
2	Manual	Aborted	0.2	0.012	15
2	Manual	Delivery During Test	0.2	0.273	30

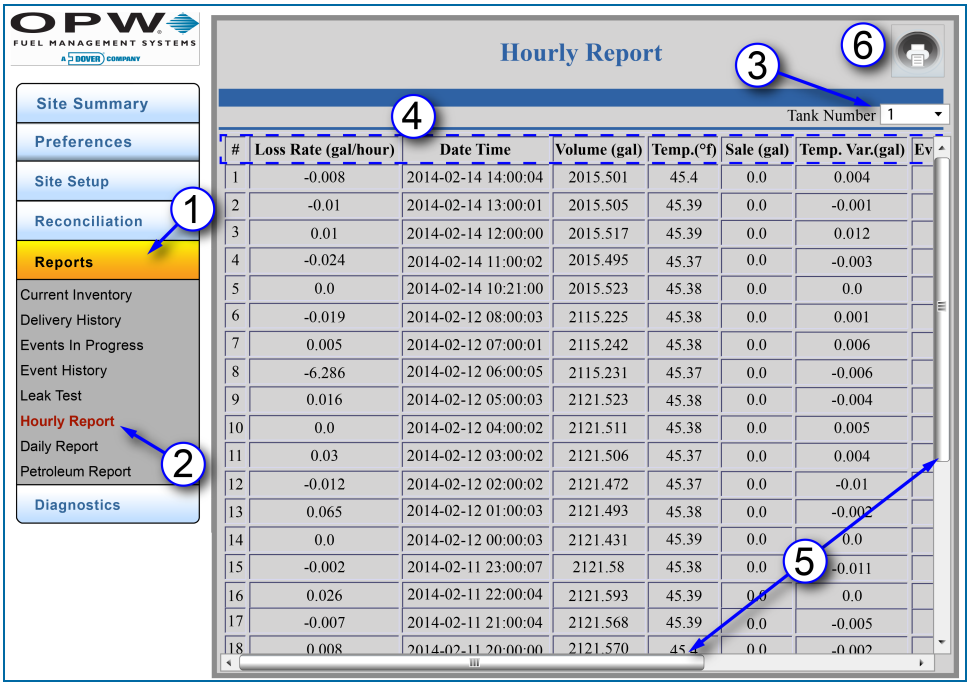
Leak Test

The **Leak Test** report shows the latest leak test information for each tank.

1. Click **Reports**.
2. Click **Leak Test**.
3. This report shows information for Tank Number, Test Type (auto or manual), the test Results (passes, failures and detections), the Leak Test Rate, Measured Leak Rate, the Duration of the test (in minutes), the Temperature Corrected Volume, and the Date and Time of the test.
4. Use the **Scroll Bar** on the bottom of the screen to see more Alarm History results (TC Volume, Time and Date).
5. To print the Leak Test report, refer to the instructions in "Print Reports" on page 82.

6.7 Hourly Report

Reports > Hourly Report



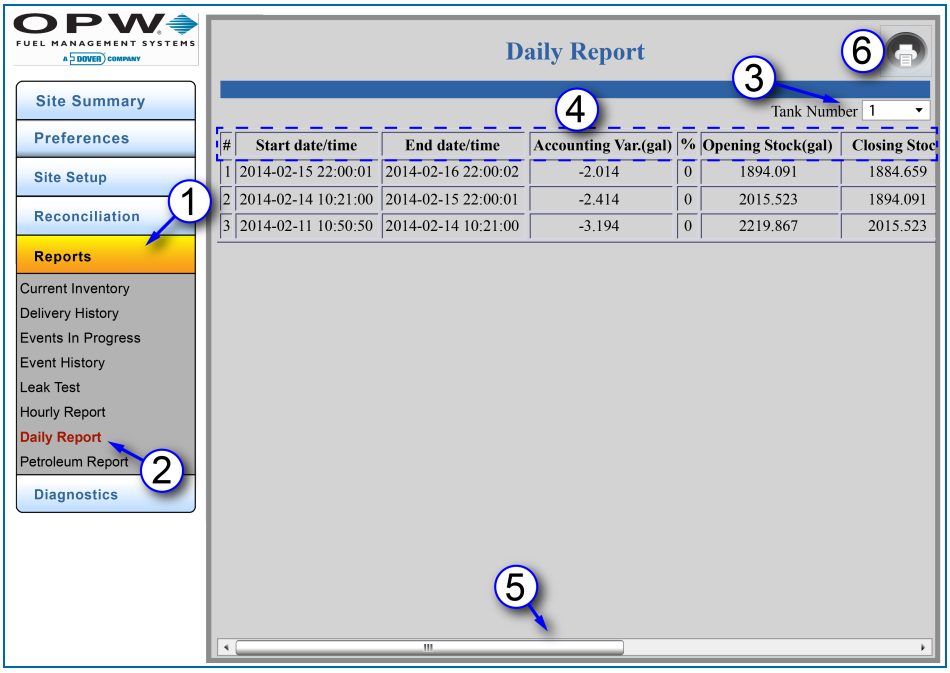
Hourly Report

The **Hourly Report** shows tank activities for each hour over a 24-hour period.

1. Click **Reports**.
2. Click **Hourly Report**.
3. Select a **Tank Number**.
4. The report will show the Number (#), Loss Rate, the Date and Time for each hour, product Volume, product Temperature, Sale, product Temperature Variance, Evaporation Variance and Water Variance.
5. Use the **Scroll Bar** on the right side of the screen to see more Hourly results. Use the **Scroll Bar** on the bottom of the screen to see Evaporation Variance and Water Variance.
6. To print the **Hourly Report**, refer to the instructions in "Print Reports" on page 82

6.8 Daily Report

Reports > Daily Report



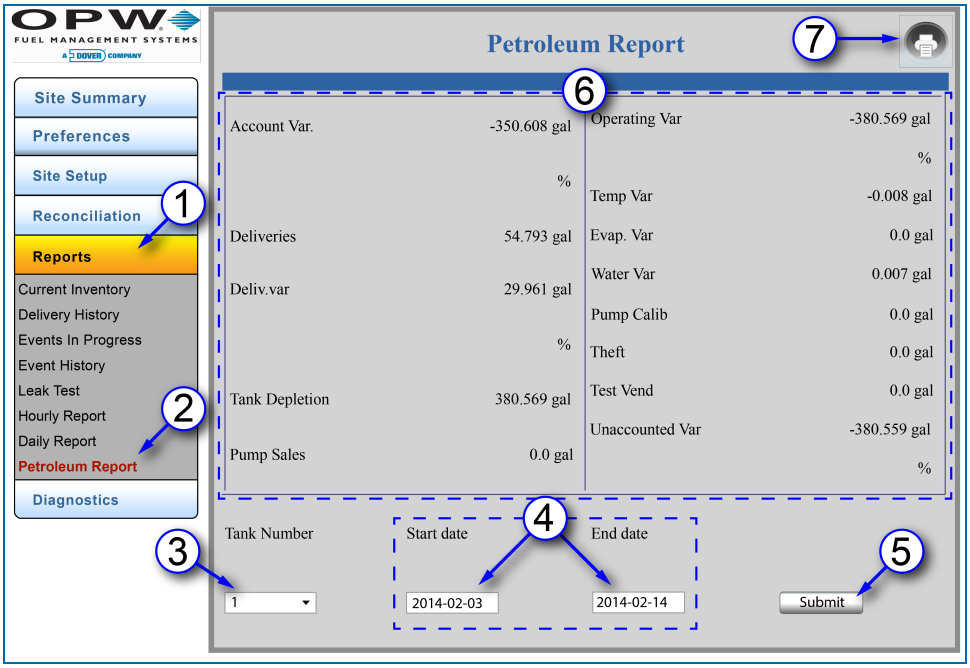
Daily Report

The **Daily Report** shows the daily status for each tank.

1. Click **Reports**.
2. Click **Daily Report**.
3. Select a **Tank Number**.
4. This report shows information for the Number (#), Start date/time, End date/time, Accounting Variance, Accounting Variance Percentage (%), Opening Stock, Closing Stock, Gross Deliveries, Delivery Variance, Delivery Variance Percentage (%), Tank Depletion, Pump Sales, Operating Variance, Operating Variance Percentage (%), Temperature Variance, Evaporation Variance, Water Variance, Pump Calibration, Theft, Test Vend, Unaccounted Variance, and Unaccounted Variance Percentage (%).
5. Use the **Scroll Bar** at the bottom of the screen to see more daily results.
6. To print the **Daily Report**, refer to the instructions in "Print Reports" on page 82.

6.9 Petroleum Report

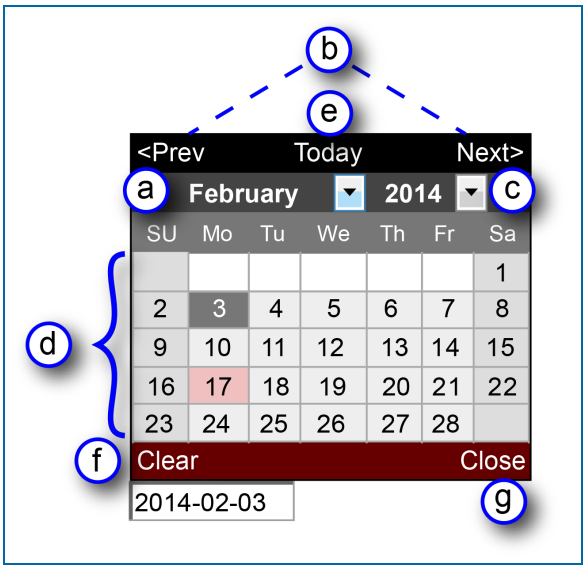
Reports > Petroleum Report



Petroleum Report

The **Petroleum Report** shows the status of a selected tank over a given date range.

1. Click **Reports**.
2. Click **Petroleum Report**.
3. Select a **Tank Number**.



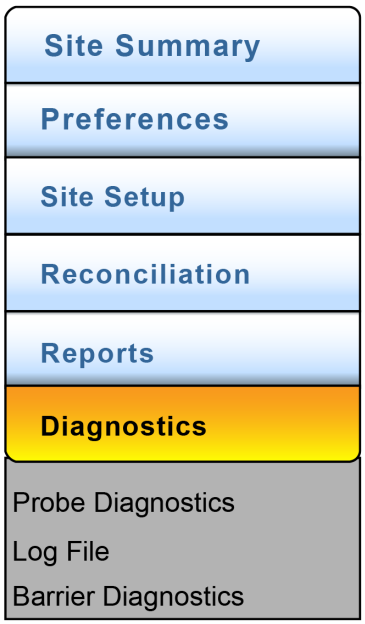
Date Picker

4. Select the **Start Date** and **End Date** by clicking the white boxes. Use the pop-up **Date Picker**(s) to select the date range.
    a. Select the month from the month drop-down menu.
    b. As an alternative, the month can be selected using the **<Prev** or **Next>** buttons.
    c. Select the year (if needed) from the year drop-down menu.
    d. Select a date by clicking directly on the calendar display. The pop-up will automatically close when a date is selected.
    e. Click on the **Today** button if at any time you want to return to the current date.
    f. Click the **Clear** button to remove the date showing in the white box on the main display.
    g. Click the **Close** button to close the Date Picker without making a selection.
5. Click **Submit** after both dates have been selected.
6. This report shows information for the selected date range for Accounting Variance, Account Variance Percentage (%), Deliveries, Delivery Variance, Delivery Variance Percentage (%), Tank Depletion, Pump Sales, Operating Variance, Operating Variance Percentage (%), Temperature Variance, Evaporation Variance, Water Variance, Pump Calibration, Theft, Test Vend, Unaccounted Variance, and Unaccounted Variance Percentage (%).
7. To print the **Petroleum Report**, refer to the instructions in **Section 6.2, Print Reports**.

Section 7 Diagnostics

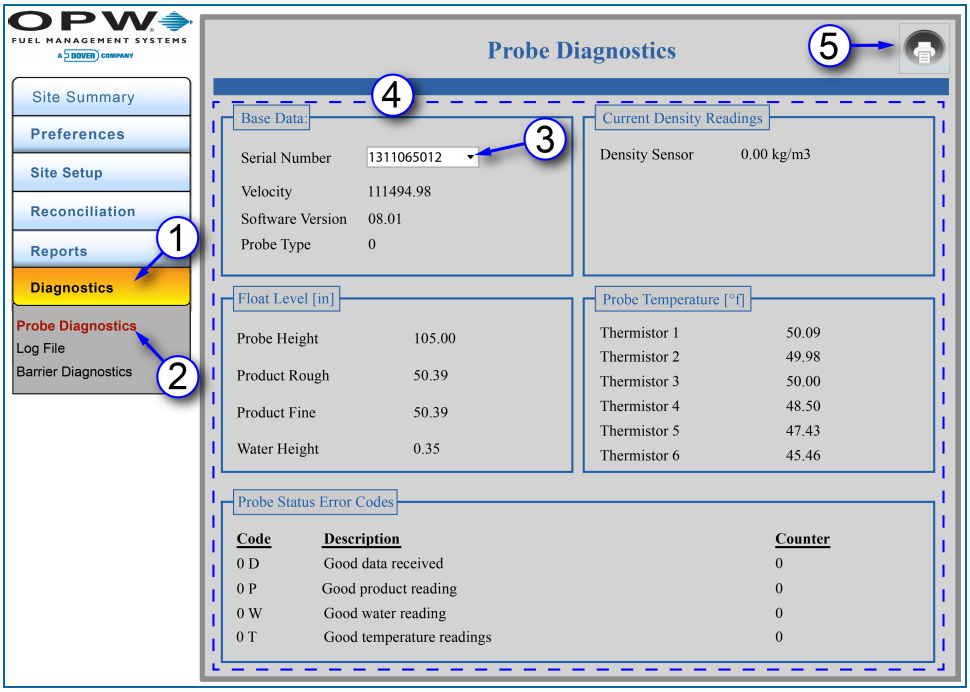
The Diagnostics menu shows options related to system information that can be used to monitor system performance and for troubleshooting.

- "Probe Diagnostics" on the next page
- "qLog File Screen" on page 95
- "Barrier Diagnostics" on page 96 (for systems with OPW probes connected to the internal barrier)



7.1 Probe Diagnostics

Diagnostics > Probe Diagnostics



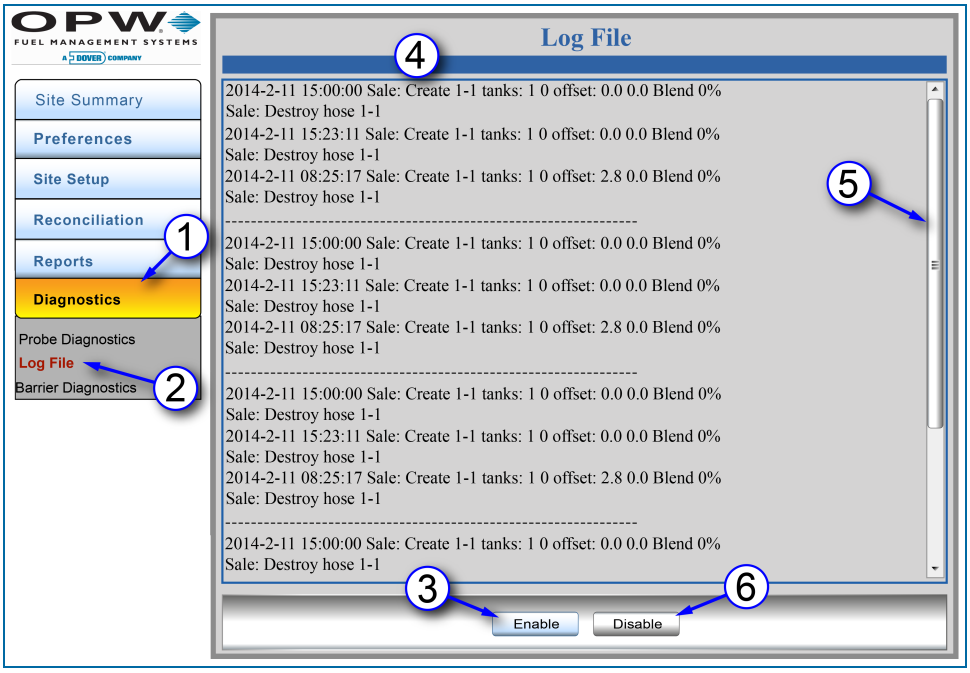
Probe Diagnostics

The **Probe Diagnostics** screen shows status information for each installed probe.

1. Click **Diagnostics**.
2. Click **Probe Diagnostics**.
3. Select a probe **Serial Number** from the drop-down.
4. Information will come into view related to the selected probe's Base Data, Float Level, Current Density Readings, Probe Temperature and Probe Status Error Codes.
5. To print the **Probe Diagnostics** screen, refer to the instructions in "Print Reports" on page 82.

7.2 qLog File Screen

Diagnostics > Log File



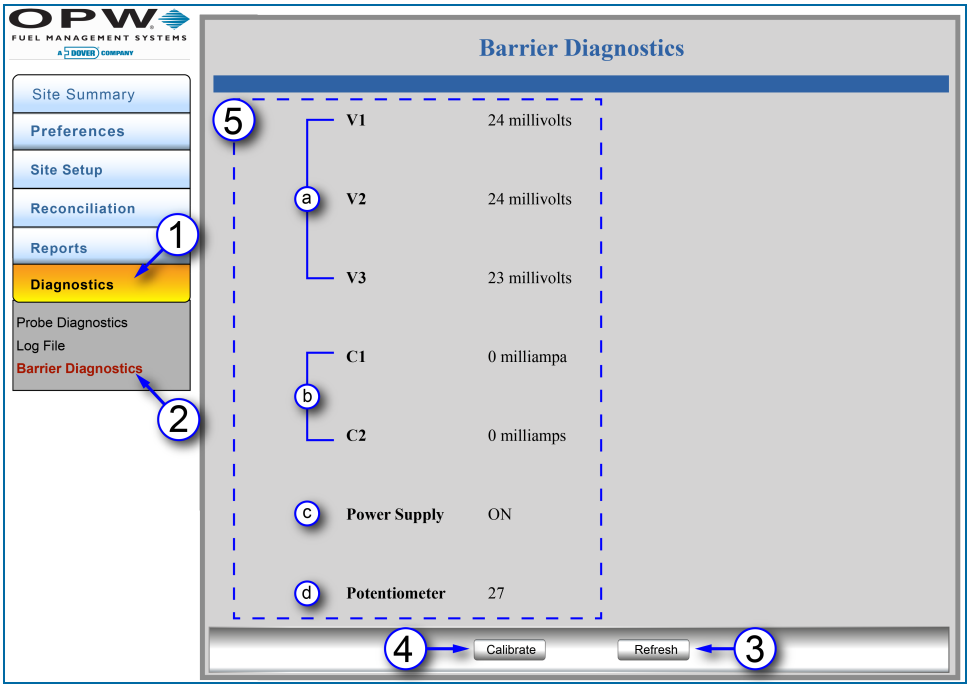
Log File

The **Log File** screen is used for troubleshooting the tank-gauge system.

1. Click **Diagnostics**.
2. Click **Log File**.
3. Click the **Enable** button to create the Log File.
4. The **Log File** entries will come into view on the main screen.
5. Use the **Scroll Bar** on the right of the screen to see more Log File results.
6. Click the **Disable** button to clear the Log File.

7.3 Barrier Diagnostics

Diagnostics > Barrier Diagnostics



Barrier Diagnostics

The **Barrier Diagnostics** screen shows status information for the four (4) I.S. Barrier positions and is provided as a debug feature. Tech/Customer Support could request this information when troubleshooting the tank-gauge system.

1. Click **Diagnostics**.
2. Click **Barrier Diagnostics**.
3. Click **Refresh** to update the current values displayed on the screen.

IMPORTANT: Make sure all probes and/or sensors are disconnected before you continue to Step 4.

4. Click **Calibrate** and wait for the system to self-adjust the voltage.
5. Information for these parameters will be shown:

a. **V1-V2-V3**: Barrier voltages (in millivolts)

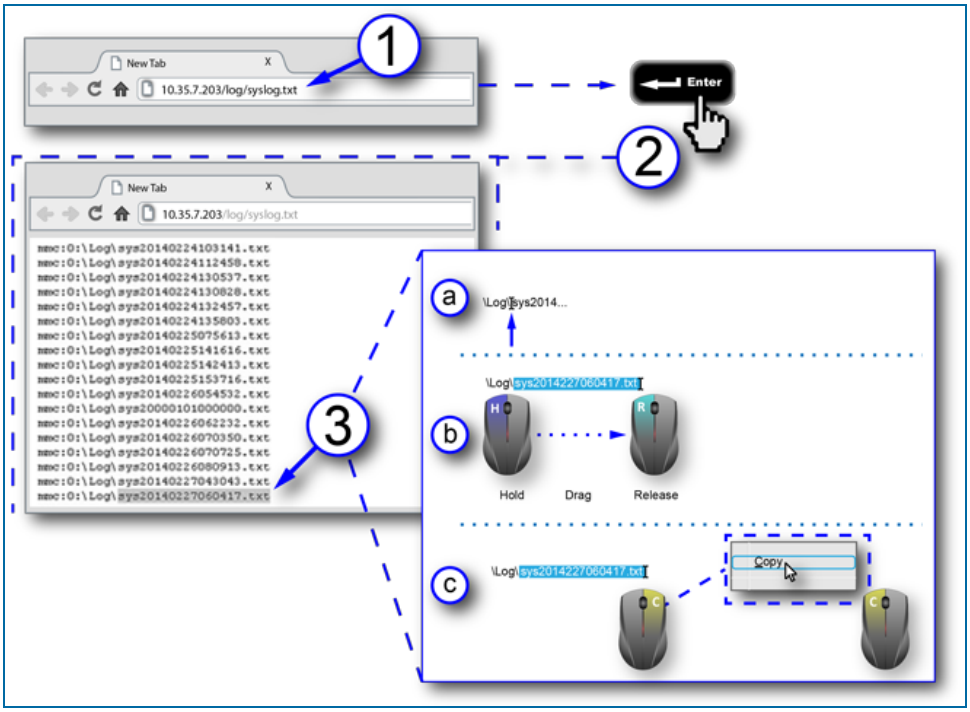
b. **C1-C2**: Current (in milliamps)

c. **Power Supply**: ON/OFF

d. **Potentiometer**: Current setting

Section 8 Syslog File

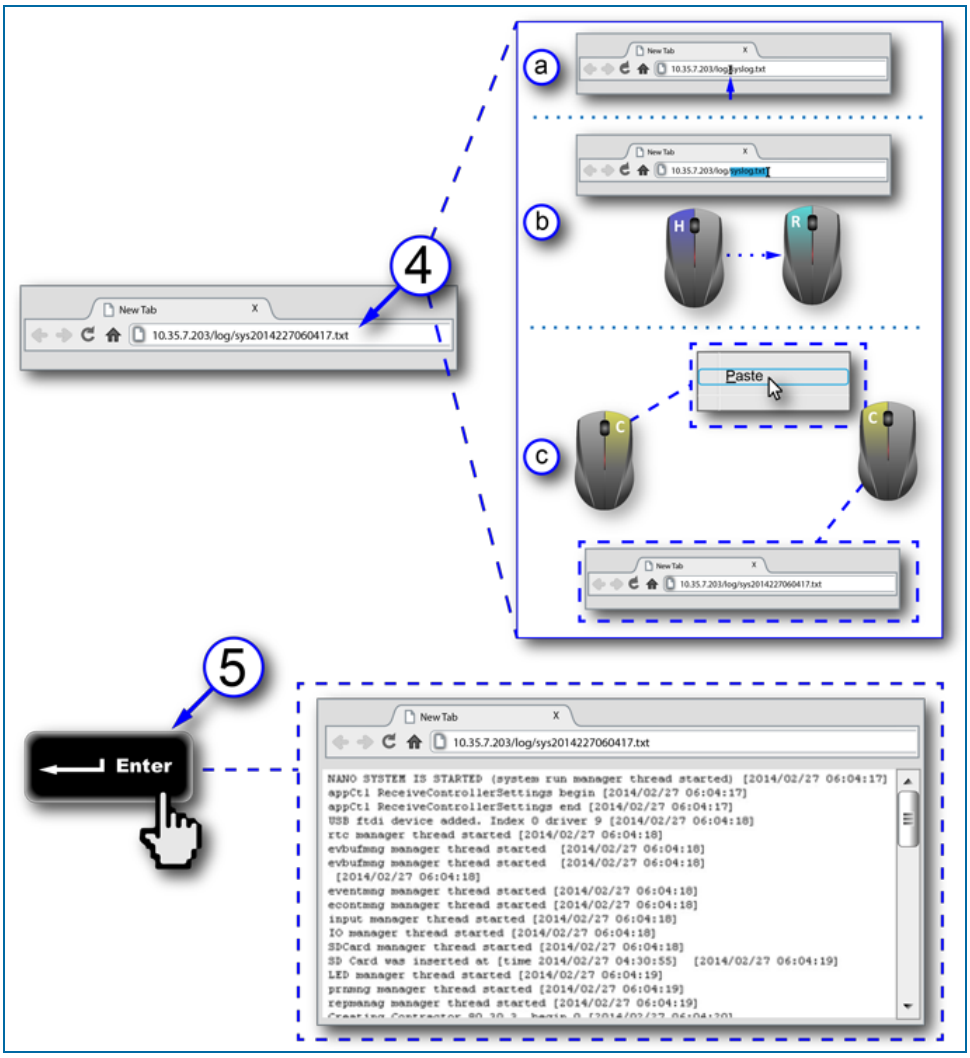
IMPORTANT: This procedure describes how to get access to the Syslog Files stored in the system and is provided as a debug feature. Tech Support could request this information when troubleshooting the tank-gauge system.



View Syslog File

1. Type the following into the address bar of your web browser: (The X's represent the IP address of the console) **XX.XX.X.XXX/log/syslog.txt**.
2. Push the **Enter** key on your keyboard. The **syslog** files will come into view.
3. Highlight and copy the file name you want to see.
    a. Insert the mouse cursor into the file between **Log** and **sys**.
    b. **Hold** down the ***left*** mouse button. **Drag** the mouse to the right so the cursor highlights the whole file name. **Release** the ***left*** mouse button.
    c. Click the ***right*** mouse button. A pop-up menu will come into view and the mouse cursor will change to an arrow pointer. Find the word **Copy** and position the arrow cursor over it. Click the ***left*** mouse button. The highlighted text will be stored on the computer's "clipboard."

NOTE: The Syslog file names are stored in the format "sysYYYYMMDDHHMMSS.txt" so that all files are named with a date/time stamp.



Syslog File View

4. Paste the copied text into the browser.
    a. Insert the mouse cursor into the address bar of your browser between **log/** and **syslog**.
    b. **Hold** down the ***left*** mouse button. **Drag** the mouse to the right so the cursor highlights **syslog.txt**. **Release** the ***left*** mouse button.
    c. Click the ***right*** mouse button. A pop-up menu will come into view and the mouse cursor will change to an arrow pointer. Find the word **Paste** and position the arrow cursor over it. Click the ***left*** mouse button. The stored text will come into view as part of the new file path in the browser's address bar.
5. Push the **Enter** key on your keyboard. The selected **Syslog** File will come into view.

The information below is stored in the Syslog Files:

- User activity on the GUI (console touchscreen) and remote browser
- Any Events that occurred in the system (e.g., Delivery, Alarms, Compliance, etc.)
- Heap Memory information

- System restarts
- Date/Time stamps

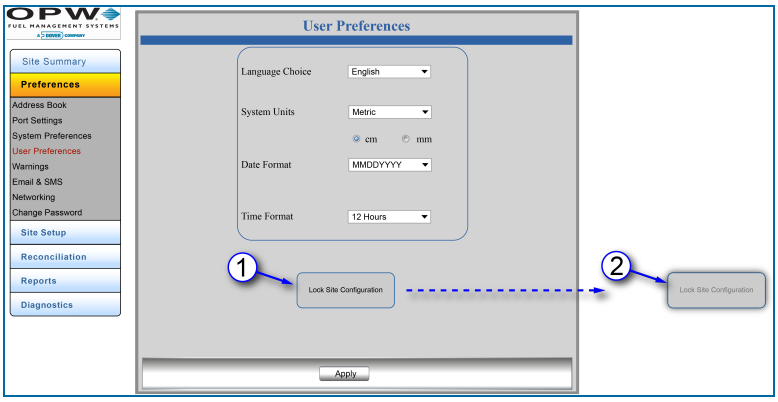
NOTE: This file can be printed, or saved as a pdf file. Select Print from your browser's Tools or Customize menu to bring up the Print dialogue.

Section 9 Lock Site

The **Weight and Measurement** feature lets the user lock the site to prevent any modifications once it has been configured. When the site is locked, all tank related parameters that have an effect on calculation or reconciliation processes will be “grayed out” on the screens and cannot be changed.

NOTE: These features are valid only when user has purchased the Weight and Measurement option (see "Installed Options" on page 25).

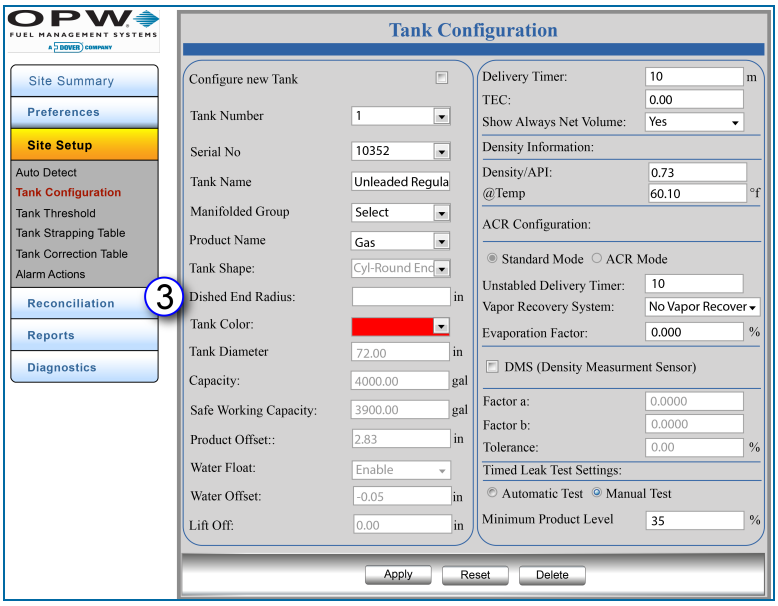
To lock the site after configuration is complete:



Lock Site Configuration

1. The **Lock Site** button will show on the **User Preferences** page only when this option is enabled.
2. When this option is selected the button will be “grayed out” and cannot be selected again as the site will be locked.

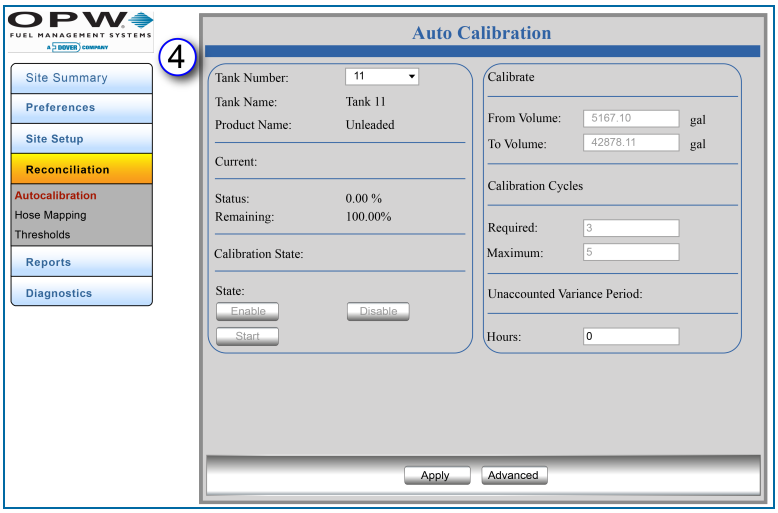
IMPORTANT: Make sure all necessary parameters have been set for all tanks in the system before the Lock Site Configuration button is selected.



Tank Configuration with Locked Fields

3. Once the site is locked the user cannot modify the tank related configuration. The user cannot add or delete a tank and the following fields will be “grayed out” on the Tank Configuration screen:

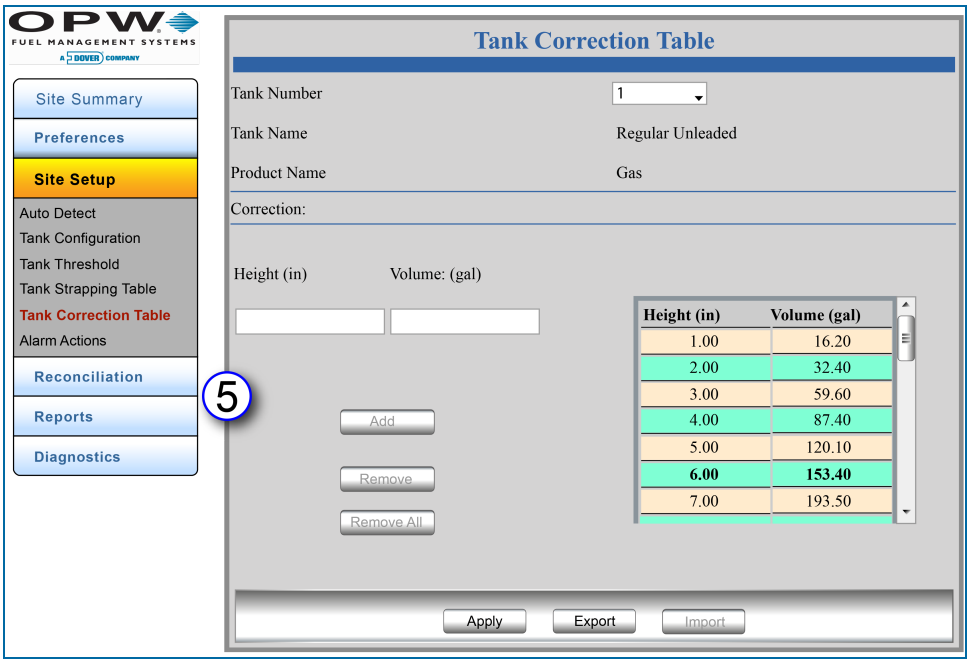
- Tank Shape
- Dished End Radius
- Tank Diameter
- Tank Volume
- Safe Working Capacity
- Water Float Offset
- Lift Off
- Water Float Type
- Tank Type (Standard or ACR)
- DMS



Auto Calibration with Locked Fields

4. The user cannot modify any calibration related parameter on the Autocalibration screen (in the Reconciliation menu). The following fields will be “grayed out” on the Autocalibration screen:

- State
- From Volume
- To Volume
- Calibration Cycle
- Number of Segments under advance calibration setting



Tank Correction Table with Locked Buttons

5. The user cannot modify Tank Correction Table data. It cannot be imported. Only the export option will be available. The following fields will be “grayed out” on the Tank Correction Table screen:

- Add
- Remove
- Remove All
- Import

These fields will remain grayed out even after a Cold Start. The site cannot be configured.

Restore functionality will not be enabled if site is locked.

To unlock the site:

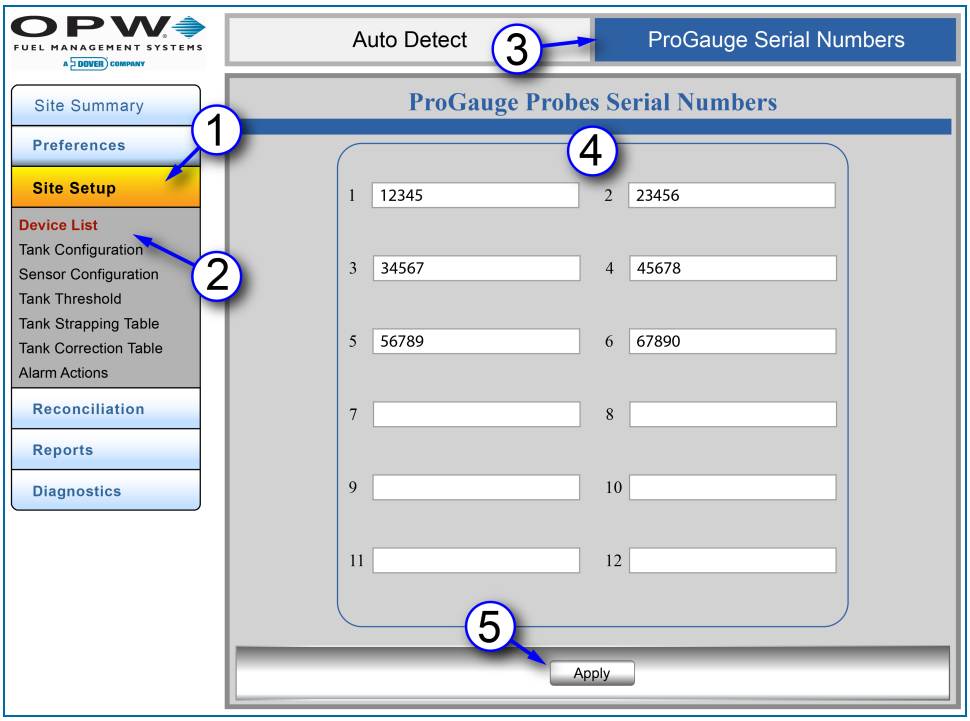
- The unlock option will be enabled only when the system SD card is removed.

NOTE: A certification sticker will have been placed on the SD card when the system was certified. This sticker will be destroyed when the SD card is removed. It will then be necessary to recertify once the system has been reconfigured.

- The user must switch off the system, remove the SD card and then boot the system. When the system has been booted the first screen will appear with the Unlock Site and Restart options (or the controller can be restarted normally).
- The user will select Unlock Site and Restart and re-insert the SD card.

On the next boot the site will be unlocked and the user will again be able to add/delete/modify tank related parameters.

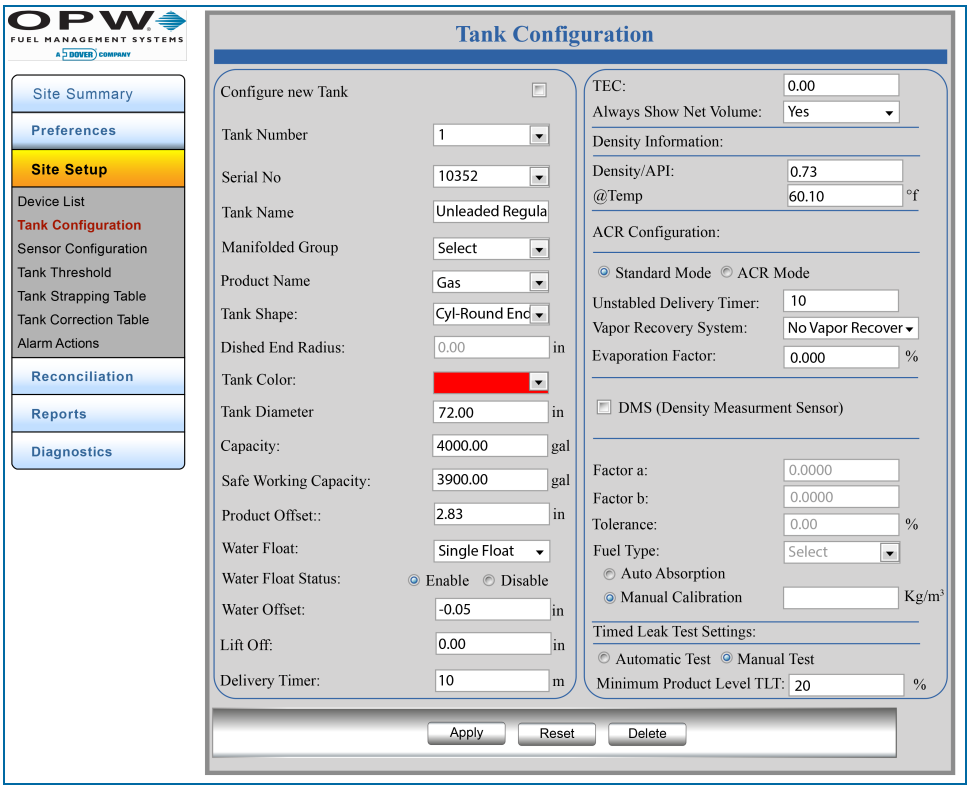
Section 10 ProGauge Probe Configuration



ProGauge Serial Numbers Tab

Since ProGauge probes are connected to the NANO through an external barrier or receiver they cannot be auto-detected like the OPW-FMS probes. The probe serial numbers can be entered into the Nano system directly.

1. Click **Site Setup**.
2. Click **Device List** (menu selection). The Auto Detect tab will show by default.
3. Select the **ProGauge Serial Numbers** tab.
4. Enter up to 12 applicable ProGauge probe serial numbers.
5. Click the **Apply** button.

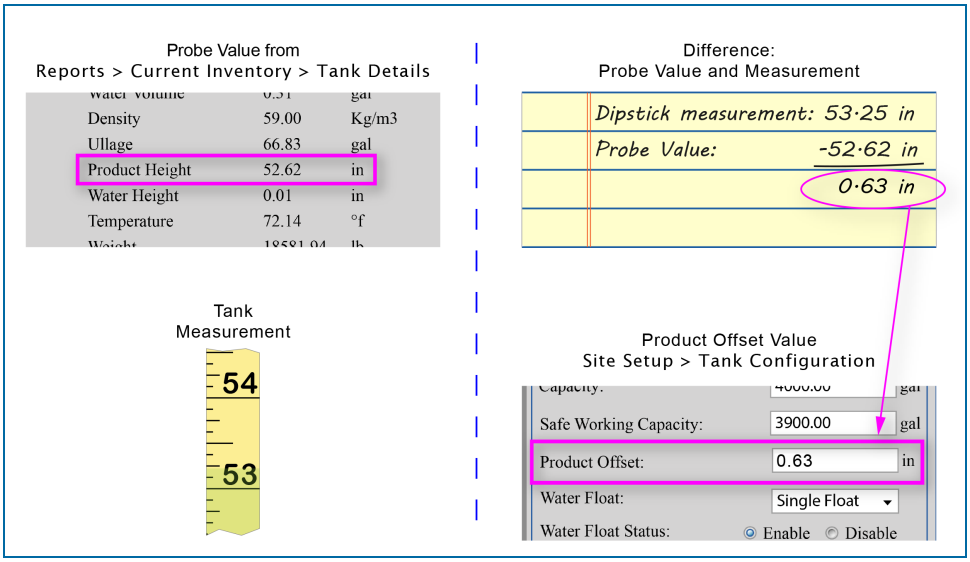


Tank Configuration Screen

A site that is set up with Tokheim ProGauge probes will be configured in much the same way as OPW-FMS probes. Features that are not available will be grayed out. Refer to "Tank Configuration" on page 54 for information on configuration parameters.

ProGauge product and water floats are configured differently than OPW-FMS probe floats. The instructions below show the procedures to calculate the offset values to be entered into the Tank Configuration screen.

ProGauge Product Float



Product Offset Calculation

An easy calculation is used to find the value for Product Offset in the Tank Configuration screen. You must have the Product Height value from the probe and the mechanical dipstick measurement to do this calculation.

NOTE: You must first set up the Tank Configuration without the Product Offset because you must get the Product Height value from the probe to do the calculation.

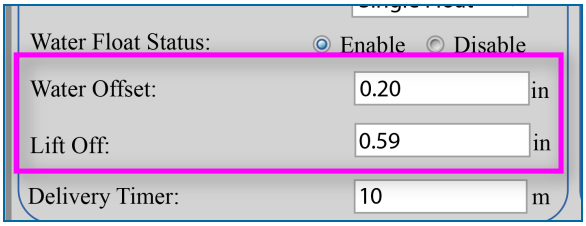
- When the Tank Configuration has been set up, go to Reports > Current Inventory and click the graphic of the correct Tank Number to open its Tank Details screen. Note the Product Height value.

REMINDER: The unit of measure was set up in "User Preferences" on page 39.

- Take a mechanical dipstick measurement and note the value.
- Calculate the *difference* between these two (2) values.
- Go to Site Setup > Tank Configuration. Select the correct **Tank Number** and enter the calculated difference into the **Product Offset** field.
- Push the **Apply** button to save this value.

ProGauge Water Float

The ProGauge water float is buoyant (begins to float) when the water level is at 15 mm (0.59 in.). A 20 mm (0.79 in.) offset is typically entered as default because the display will show the water level as zero until the float actually becomes buoyant (while the probe *transmits* 15 mm [.059 in.] it shows a value of zero (0) in the console display until it reaches buoyancy at a level of 20 mm [0.79 in.]).



To show a more accurate value for Water Height in "Current Inventory" on page 83 (see Reports > Current Inventorystep 5):

- Enter a value of 15 mm / 0.59 in. into the Lift Off field (the amount of water it takes to lift the water float off the bottom of the tank).
- Enter a value of 5 mm / 0.20 in into the Water Offset field (added to the Lift Off to equal the 20 mm / 0.79 in. buoyancy value of the float).

Revisions

Revision #	ECO	Effective	Software Version	Key Changes
0	624	7/29/14		Initial Release
1	696	3/3/15		W&M, Language Support
2	834	11/6/15	1.38	Sensor and Mixed Multi-Drop support
3	1187	11/03/17		Tokheim/ProGauge probe support

NOTE: It is possible that older software versions might not support all features

Warranty

OPW Fuel Management Systems warrants that all OPW Tank Gauge and Petro Vend Fuel Control systems supplied by OPW Fuel Management Systems to the Original Purchaser will be free from defects in material and/or workmanship under normal use and service for a period of 12 months from the date of installation or 15 months from the date of shipment from OPW. Additionally, OPW Fuel Management Systems warrants that all upgrades and replacement parts (new and remanufactured) supplied by OPW Fuel Management Systems will be free from defects in material and workmanship under normal use and serviced for a period of 90 days from the date of installation or for the remainder of the system's original warranty, whichever is greater, as set forth in the first sentence of this statement. The foregoing warranties will not extend to goods subjected to misuse, neglect, accident, or improper installation or maintenance or which have been altered or repaired by anyone other than OPW Fuel Management Systems or its authorized representative. The buyer's acceptance of delivery of the goods constitutes acceptance of the foregoing warranties and remedies, and all conditions and limitations thereof.

If a claim is made within the warranted time period that any equipment and/or remanufactured part is defective in material or workmanship under normal use and service, such equipment and/or remanufactured part shall be returned to OPW Fuel Management Systems, freight prepaid. If such equipment or remanufactured part is found by OPW Fuel Management Systems in its sole judgment to be defective in material or workmanship under normal use and service, OPW Fuel Management Systems shall, at its sole option, repair or replace such equipment and/or remanufactured part (excluding, in all instances, fuses, ink cartridges, batteries, other consumable items, etc.) OPW Fuel Management Systems shall not be held responsible for data loss or retrieval on returned products.

The warranties, as set forth above, are made expressly in lieu of all other warranties, either expressed or implied (including, without limitation, warranties of merchantability and fitness for any particular purpose and of all other obligations or liabilities on OPW Fuel Management Systems' part.) Further, OPW Fuel Management Systems neither assumes, nor authorizes any other person to assume for it, any other liability in connection with the sale of the systems, or any new/replacement part that has been subject to any damage from any act of nature or any force majeure. Any terms proposed by the Original Purchaser either orally or in writing are expressly rejected. The terms and conditions expressed in this document may only be changed upon the express written consent of OPW Fuel Management Systems.

The term "Original Purchaser" as used in these warranties shall be deemed to mean the authorized OPW Fuel Management Systems' distributor to which the system or any new/replacement part was originally sold. These warranties may be assigned by the original purchaser to any of its customers who purchase any OPW Fuel Management Systems' systems or new/replacement parts. This document shall be governed by and construed in accordance with the law of the State of Illinois. OPW Fuel Management Systems and Original Purchaser agree that any legal action or proceeding under or with respect to this document may ONLY be brought in the courts of the State of Illinois, or the United States District Court having jurisdiction in the City of Hodgkins, Illinois. Original Purchaser expressly consents to personal jurisdiction in any of the above-mentioned forums and agrees to waive all defenses based on improper venue or inconvenient form should an action be brought therein.

The sole liability of OPW Fuel Management Systems, for any breach of warranty, shall be as set forth above. OPW Fuel Management Systems does not warrant against damage caused by accident, abuse, faulty or improper installation or operation. In no event shall manufacturer's liability on any claim for damages arising out of the manufacture, sale, delivery or use of the goods exceed the original purchase price of the goods. In no event shall OPW Fuel Management Systems be liable for any direct, indirect, incidental or consequential damage or loss of product.

TERMS

Ex-works our factory, Hodgkins, Illinois, USA
Installation not included.
All trade names are registered. Patents pending.
Subject to engineering improvement and/or other changes.

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