

SiteSentinel® Integra® Configuration Manual

Part Number: M2021

Revision: 0



Integra®

DFS Worldwide Brands



IMPORTANT: Before you use this manual, make sure you have the most recent revision. Look at the revision of this document to make sure it agrees with the most current revision found in the FMS Technical Library. Download the latest revision if necessary.



IMPORTANT: If you have an installation in an area that has possible internet connectivity issues, it is recommended to either print or download these manuals to a mobile device (mobile phone, tablet or iPad) before you go to the installation site.



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NOTE: All references to other manuals and instructions in this manual can be found in the FMS Technical Library. Make sure you have the most recent revision.

Related Manuals

Other related manuals necessary to install, configure, maintain or use this product:

[M1800 SiteSentinel Integra Installation Manual](#)

[M2021 SiteSentinel Integra Configuration Manual](#)

[M2022 SiteSentinel Integra Operator Manual](#)



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Listings and Certifications



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Section 1 Getting Started

This section has been included to show the necessary steps to prepare your SiteSentinel® Integra® console for use.

Topics covered in this section include:

- ["Login Procedure" on the next page](#): Procedure for initial log-in to the system
- ["Cold Start \(Initial\)" on page 12](#): The initial Cold Start procedure to prepare the system for first use
- ["Level 0 Auto Detection \(Modules\)" on page 14](#): Auto Detect procedure for modules connected to the system
- ["Device Detection" on page 16](#): Auto Detect procedures for devices (probes and sensors) connected to the system

Links to Instructional Video

This guide includes web links and QR codes that link directly to the OPW training video “Demonstration of SiteSentinel® iSite/Integra™ Programming” found on the OPWGlobal channel on YouTube.

Scan the code or click the link below to see the full video.



<https://www.youtube.com/watch?v=cUmB1x0yldY>

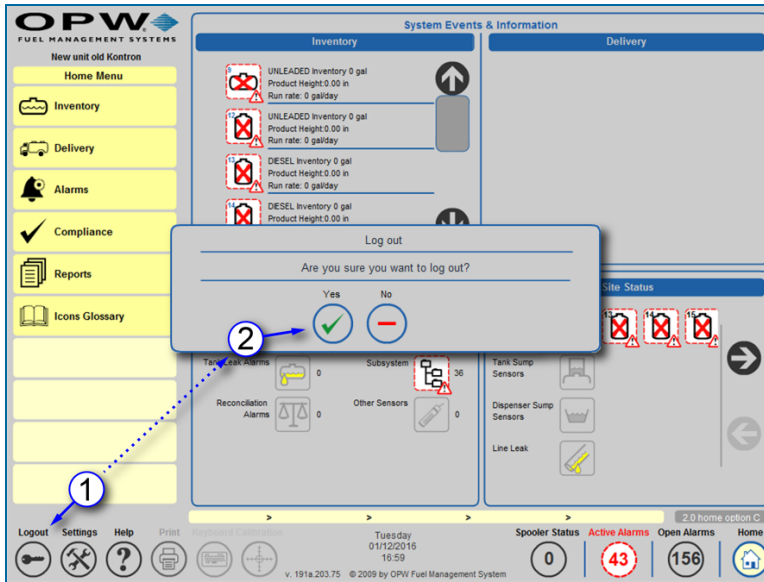
The QR codes and links that accompany various sections in this manual will take you directly to the portion of the video that is related to the topic in the guide.



NOTE: The QR codes and web links in this guide are set to start the video playback at the applicable spot for the topic in the guide. 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.

1.1 Login Procedure

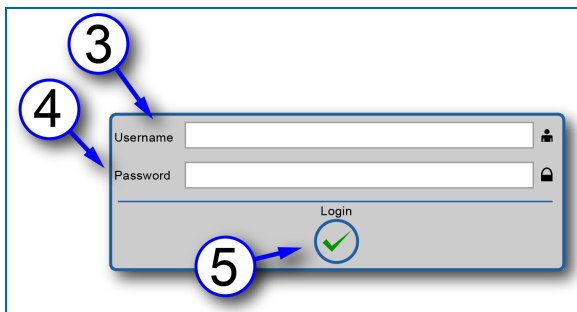
When the system is initially powered up, the **default** user will automatically be logged in. The default user has minimal rights to the system and can only open the Home screen and change user preferences. To change any other settings in the system, the user must log in as the **administrator**.



Logout

To access the **Login** screen, users must first log out of the *default* user and log in using the *administrator* login.

1. Click the **Logout** key icon on the **Main Toolbar**.
2. A popup screen will come into view asking, “Are you sure you want to log out?” Click the **Yes** button (if you do not wish to log out at this time, click the **No** button).



Login

The login screen allows users to log in to the system and make changes or view information based on security access levels. The default administrator login has full rights to the system.

3. Enter the **Username**. The default Username is “Administrator.”
4. Enter the **Password**. The default Password is “*” (this is the asterisk symbol; hold the shift key and hit 8).

5. Push the **Login** button.



NOTE: It is suggested that users change the default administrator password and enter any other usernames you wish to create after configuration is complete.

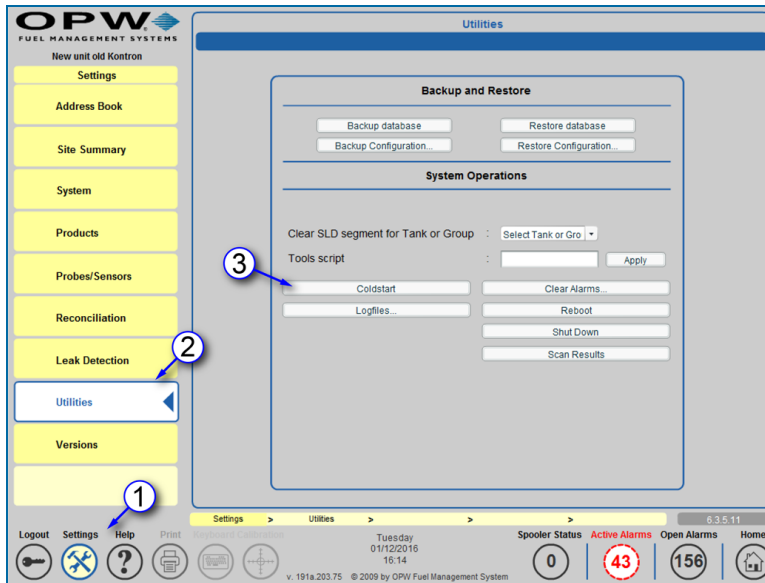


IMPORTANT: Do not lose this password once it has been changed to avoid the need to reprogram steps.

If an additional user is not created and the administrator password is lost, the only way to gain access to the gauge is by sending system database information to OPW Engineering.

If the administrator *password* is changed, the user name “Administrator” becomes case sensitive and must use upper case “A.”

1.2 Cold Start (Initial)



Cold Start

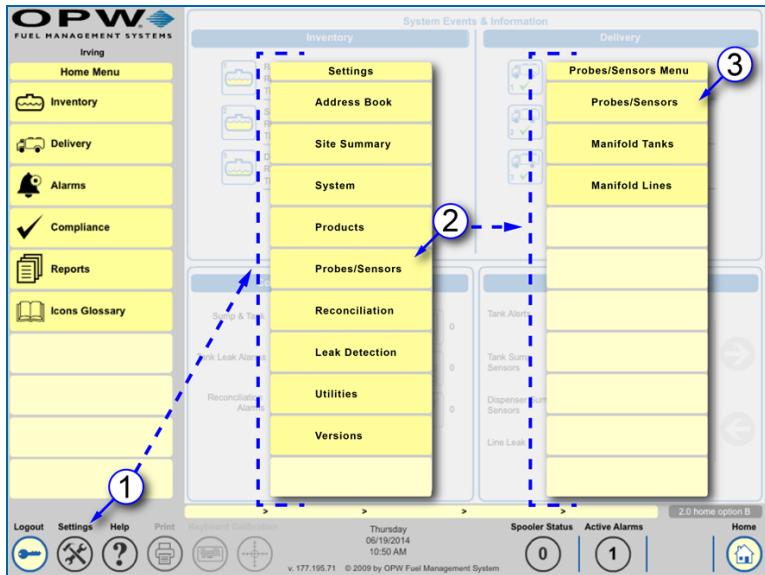
The gauge must be cold started before initial programming.

1. Select **Settings** from the Main Toolbar (left-bottom corner).
2. Select **Utilities**.
3. Push the **Cold Start** button. The system will stop and the database will be cleared and reconfigured to its default values when the tank-gauge console restarts. This will take several minutes to complete.



NOTE: After a Cold Start, the user must log out, and log back in as an administrator (see ["Login Procedure" on page 10](#)).

1.3 Module Detection (VSmart, Smart, OM4 and LIM)



Navigation to Probes/Sensors Screen



NOTE: If connecting to a VSmart Module over a LAN connection, other programming must take place before this step (See ["Communications" on page 40](#)).

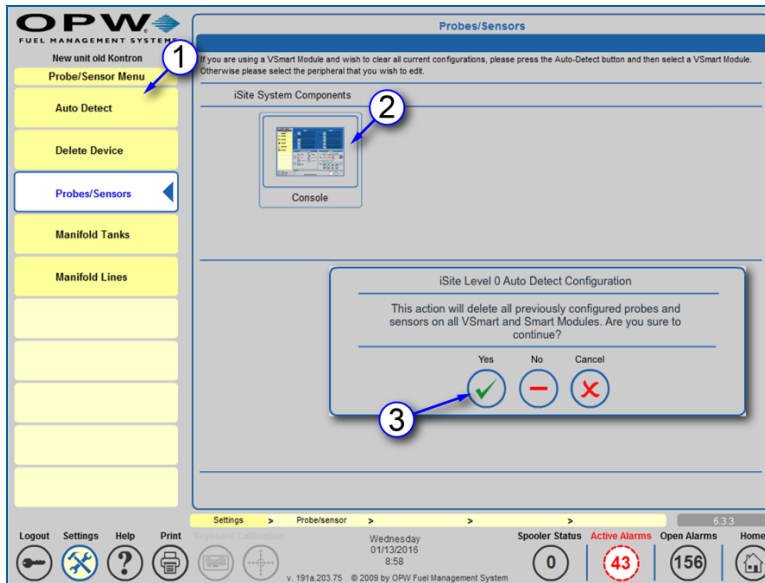
Module Detection allows the user to find each module that is connected to the system, including Vsmart Modules, Smart Modules, OM4 Modules and LIM.



IMPORTANT: The SiteSentinel® Integra 100® console only supports connection to the **Internal VSmart Module**.

1. Push the **Settings** button on the **Home** screen. The Settings menu will come into view.
2. Select the **Probes/Sensors** tab on the Settings menu. The Probes/Sensors menu will come into view.
3. Select the **Probes/Sensors** tab on the Probes/Sensors menu. The Probes/Sensors screen will come into view.

1.4 Level 0 Auto Detection (Modules)



Auto Detect Modules

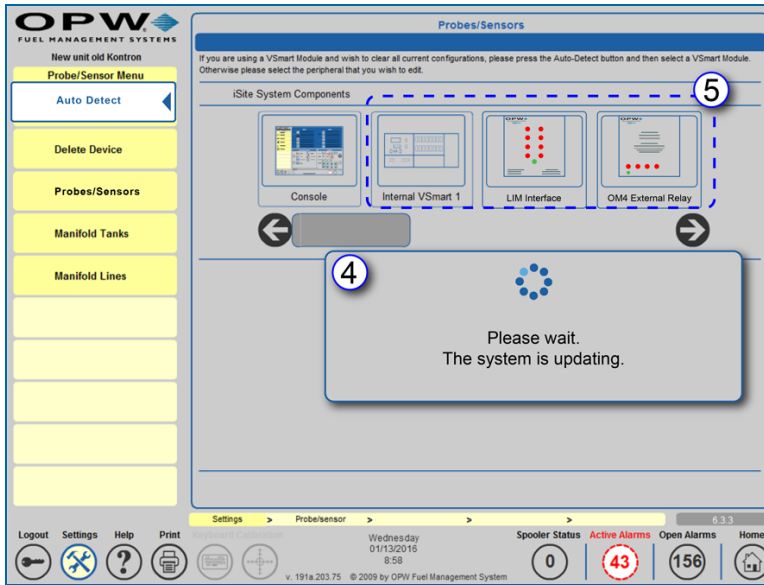
1. Select the **Auto Detect** tab on the Probes/Sensors menu.
2. Push the **Console** icon on the Probes/Sensors screen.
3. Select **Yes** on the Level 0 Auto Detect Configuration pop-up screen.



NOTE: When the system is powered up for the first time there is no applicable data that needs to be retained so, "Yes" should be selected when configuring new installations. This will delete all current configurations and find all modules.



NOTE: If you are adding a new module to the system, select "No." This will only find new modules and will not overwrite any existing configuration.



Level 0 Auto Detect Complete

4. Wait for the unit to detect all attached Level 0 devices.



NOTE: This could take several minutes if there are several Level 0 devices connected to the system.

5. All connected modules will be shown.



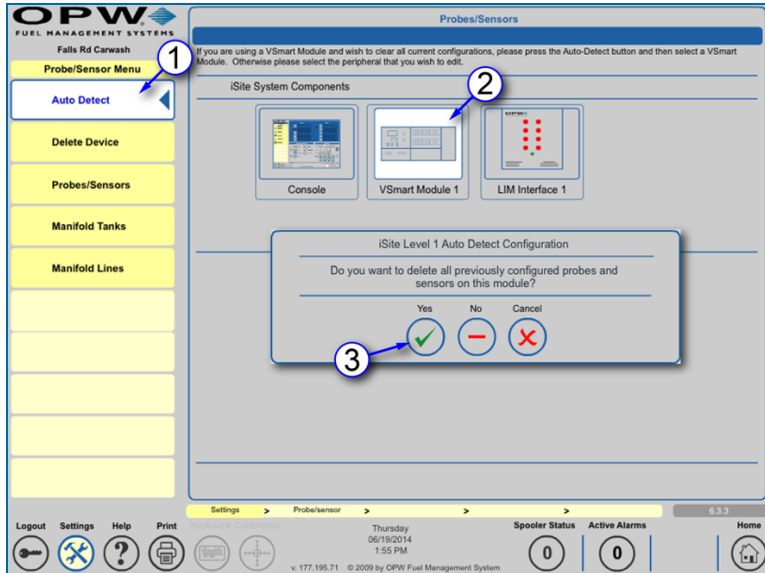
TIP: If a scroll bar and arrows are displayed you can scroll back and forth to view more devices.



NOTE: SiteSentinel® Integra 100® console only supports connection to the **Internal VSmart Module**.

1.5 Device Detection

1.5.1 Level 1 Auto-Detection



Level 1 Auto Detection

1. Select the **Auto Detect** tab on the *Probes/Sensors* menu.
2. Push the **Vsmart Module** icon on the *Probes/Sensors* screen.



NOTE: The SiteSentinel® Integra 100™ console only supports connection to the **Internal VSmart Module**.

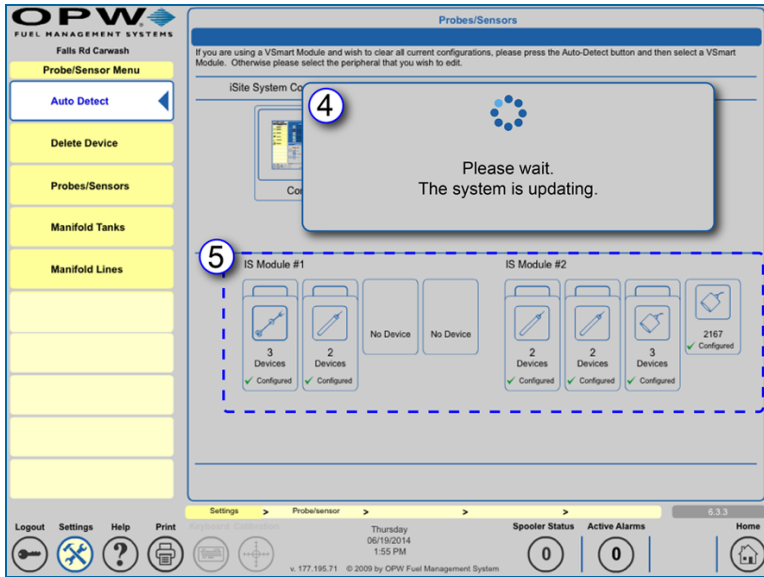
3. Select **Yes** on the *Level 1 Auto Detect Configuration* pop-up screen.



NOTE: To delete all current configurations and find all devices, push **YES**.




NOTE: To only find new devices without overwriting any existing configuration, Push **NO**.



Level 1 Auto Detection Continued

4. Wait for the tank-gauge to detect all digital probes and sensors connected to the **VSmart**.

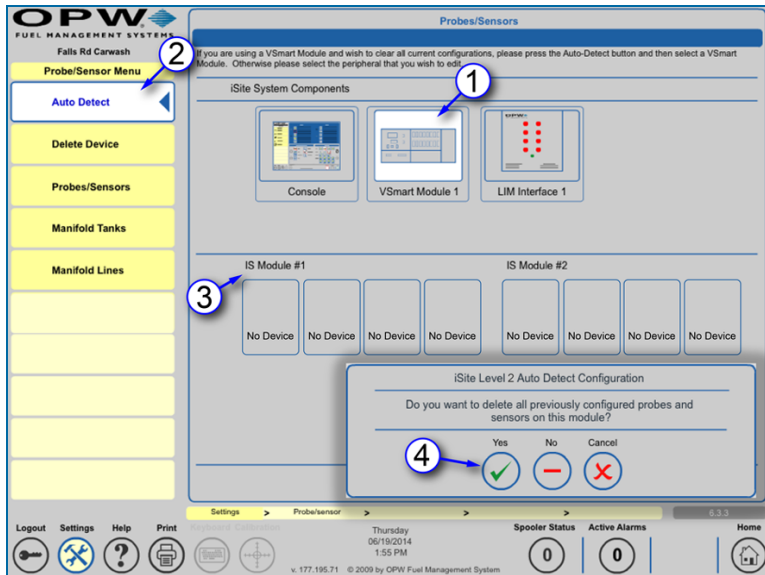
 **NOTE:** This could take several minutes if there are several Level 1 devices connected to the system.

5. Make sure that the results match the number of probes and sensors that are physically connected to the **Vsmart** barrier(s).

Repeat steps 1-5 for each additional **VSmart** connected to the gauge.

 **NOTE:** Please note that Auto Detection cannot be performed on Smart Modules.

1.5.2 Level 2 Auto-Detection



Level 2 Auto-Detection



NOTE: Level 2 Auto Detection is normally done only when replacing or adding a sensor or probe.

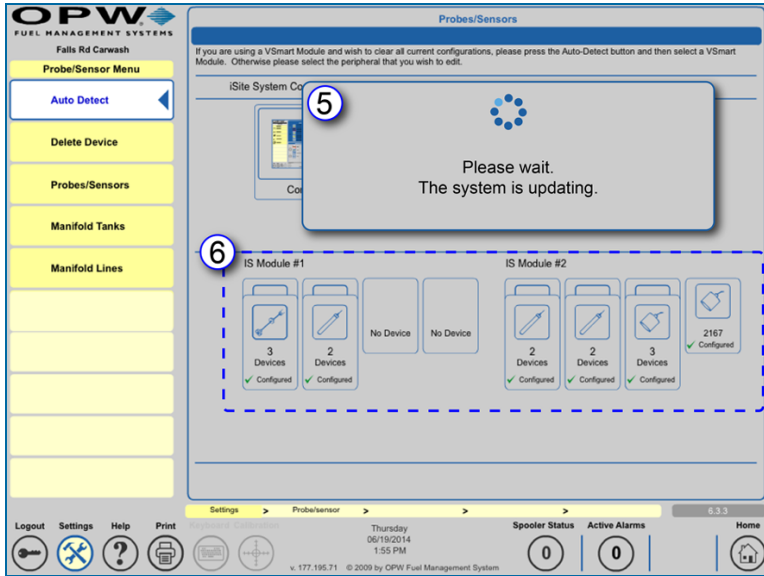
1. Click on the **VSmart** module that contains the barrier position that you wish to auto-detect.
2. Select **Auto Detect** from the *Probe/Sensors* menu
3. Select the barrier position you want to auto detect.
4. Select **Yes** on the Level 2 Auto Detect Configuration pop-up screen.



NOTE: To only find new devices without overwriting any existing configuration, Push **NO**. This will replace that device on the selected channel and display the new device along with a notice of conflict. Once approved, this conflict will no longer be displayed.



Conflicted Device



Level 2 Auto-Detection Continued

5. Wait for the system to detect all devices connected to the selected barrier position.



NOTE: This could take several minutes if there are several Level 2 devices connected to the selected barrier position.










6. Verify that the tank-gauge has detected all digital devices connected to the barrier position.



NOTE: All Level 2 devices will be configured later in the startup process (configured devices will be marked as configured with a green check mark).

For sensors, probes, EECO probes, AST Flex probes and probes with density meters that are shown as being connected you can add/edit information by accessing the Device Configuration screen. LLD devices and Density probe configuration screens can also be accessed from the Tanks Configuration screen. For LIM devices, go to the LIM Configuration and LIM Diagnostic screens to add/edit device information.

Below is a list of possible configured devices with proper device detection:

	Probe can be auto-detected for VSmart Modules and added manually for Smart Modules.
	EECO Probe (SiteSentinel® Integra 500® only) can only be auto-detected for VSmart Modules and requires additional (manual) configuration.
	AST Flex Probe (SiteSentinel® Integra 500™ only) can only be auto-detected for VSmart Modules and requires additional (manual) configuration.
	Probe with Density Meter can be auto-detected for VSmart Modules and added manually for Smart Modules.
	Density Probe can only be auto-detected for VSmart Modules.
	Digital Sensor can only be auto-detected for VSmart Modules. NOTE: All sensor icons for service type are listed on the Icon Glossary screen, which can be accessed from the Home Screen in your tank-gauge system console.
	Analog Sensor (SiteSentinel® Integra 500™ only) can only be added manually for VSmart and Smart Module. NOTE: Analog Sensors are the same as Digital Sensors; however, please note the person image in the Analog Sensor icon. This indicates that the device must be configured manually and that thresholds must also be configured.
	LLD Device (SiteSentinel® Integra 500™ only) can only be auto-detected for VSmart Modules.
	Unknown Device cannot be recognized by the system.



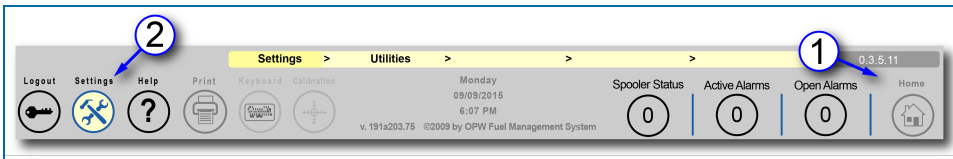
TIP: For a complete glossary of icons with corresponding description, select the **Icons Glossary** tab from the *Home Menu*. See Appendix A "[Icon Alarm Conditions](#)" on page 158 for a key to the icon conditions and the alarms they show.

Section 2 Address Book

After verifying that all installed devices are communicating with the gauge, begin the programming process.



TIP: This would be an ideal opportunity for the electrician or installation crew to begin installing 3M™ Scotchcast™ packs on all probe and sensor wiring connections. Consult your installation manual ([M1800 Integra Installation Manual](#)) section on Waterproof Electrical Connections, for details.



Main Toolbar

1. If you are not already on the Home screen, click on the **Home** icon of the *Main Toolbar* to access that screen.
2. Click the **Settings** icon of the *Main Toolbar* to begin the setup process.

NOTE: If there has been more than 27 minutes of inactivity on the gauge you will be required to log out and log back in before you start the programming process.

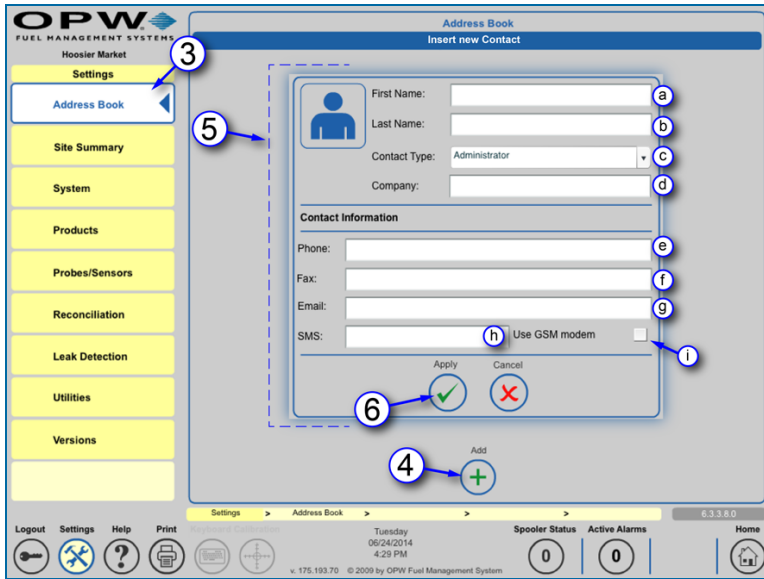


Some technicians find it easier to program the tank-gauge using a laptop or tablet that is equipped with a flash enabled browser connected to the tank-gauge via a crossover LAN cable. The default address of the tank-gauge is 169.254.1.111. Your device will require a static IP address in the same subnet and a different IP address than the gauge itself. For instance, your PC could be configured for a static IP address of 169.254.1.110 or 169.254.1.112. Once an active LAN connection has been established with the gauge, a technician would simply open any flash enabled browser and connect to 169.254.1.111. The default login screen will come into view.

Video: Adding Contacts to the Address Book

To watch the instructional video for "Adding Contacts to the Address Book," scan or click the QR code below.





Address Book Insert New Contact

3. Select the **Address Book** tab on the *Settings* menu.
4. Select the **Add** button.
5. The **Insert New Contact** screen will come into view. Enter the new contact information.
 - a. **First Name** of the new contact.
 - b. **Last Name** of the new contact
 - c. Select a **Contact Type** from the drop-down menu. The choices are:
 - i. Administrator
 - ii. Manager
 - iii. Technician

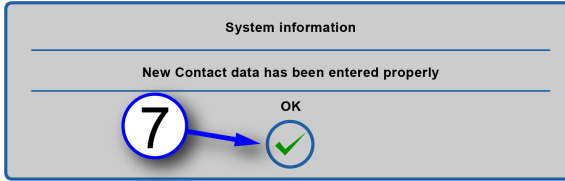


NOTE: Contact names are only for alarm and reporting communications only. Adding an entry to the Address Book does not allow login privileges or the ability to control the tank-gauge.

- d. **Company** name.
- e. **Phone** number of the contact.
- f. **Fax** number of the contact (this is a required field to allow the gauge to send alarms and notices by Fax to this contact).
- g. **Email** address of the contact (this is a required field to allow the gauge to send alarms and notices by Email to this contact).
- h. **SMS** number of the contact (this is a required field to allow the gauge to send alarms by SMS text messaging to this contact).

- i. Select **Use GSM Modem** (optional) if connected with an SMS number that is serviced by an external GSM modem connected to the tank-gauge console. If this option is not selected, each SMS is sent using an “Email/SMS” external gateway service company.

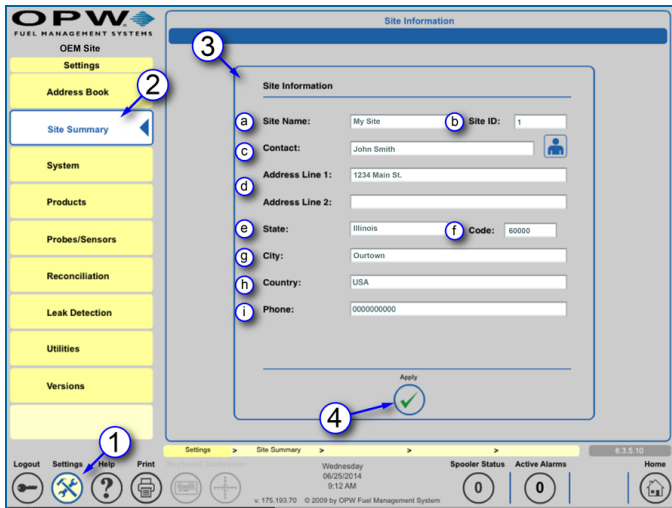
6. Click **Apply** when complete and the new contact confirmation message will appear.



Insert Contact Confirmation

7. Select **OK** to confirm the new contact data has been entered properly.

Section 3 Site Summary



Site Summary > Site Information

The **Site Information** screen displays general information about a site.

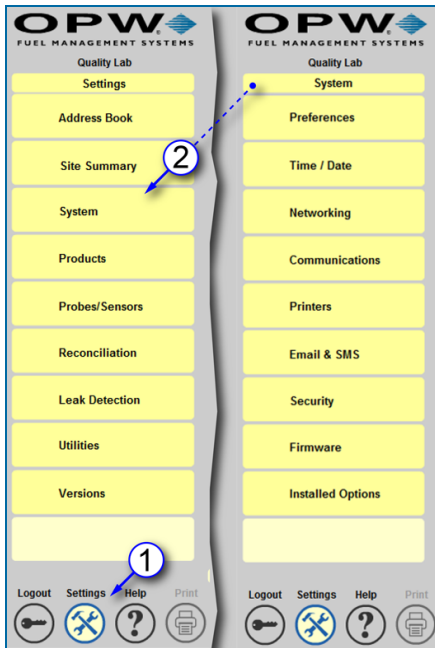
1. Click the **Settings** icon of the *Main Toolbar*.
2. Select the **Site Summary** tab on the *Settings* menu.
3. The **Site Information** screen will come into view. Enter the site information:
 - a. Enter the **Site Name**. This will be the name that will appear as the header on all reports generated by the gauge. This name will also be displayed below the OPW logo in place of "OEM Site" on all screens after all of the site information is entered and applied.
 - b. If a **Site ID** number is to be associated with this site enter it here.
 - c. The site's primary **Contact** name.



NOTE: Click the "person" icon next to **Contact** to assign an individual from the *Address Book* as the site's **primary Contact**.

- d. The site's street **Address**
 - e. **State**
 - f. Postal **Code**
 - g. **City**
 - h. **Country**
 - i. Main **Phone** number for the site
4. Click **Apply** to save the information.

Section 4 System Menu



Settings > System Menu

The System menu shows selections related to internal system setup parameters. To access the System menu:

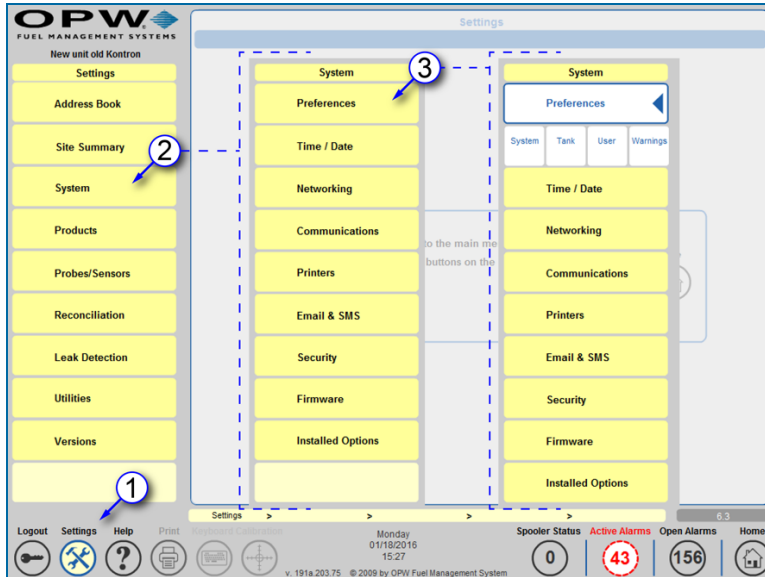
1. Click **Settings**.
2. Click **System**. The System menu will come into view

Topics covered in the System menu include:

- ["Preferences" on the next page](#): System, User, Tank and Warning preferences
- ["Set the System Time and Date" on page 37](#)
- ["Networking" on page 38](#): Set up and connect to your site's network
- ["Communications" on page 40](#): Set up the communication ports within the system to communicate to modules and perform notifications
- ["Printer Setup \(Optional\)" on page 59](#): Connect a Network Printer to the System
- ["Email and SMS Setup" on page 60](#): Set up the system for Notifications through Email and Text Messaging
- ["Security Programming \(Tank Gauge User Accounts and Permission Levels\)" on page 61](#): Add and edit users and Access settings
- ["Firmware" on page 63](#): Update the installed firmware
- ["Installed Options" on page 65](#): See all purchased options and enable or disable them

4.1 Preferences

From the Preferences menu the user can access options to setup, maintain and update System, Tank, User and Warning Preferences.

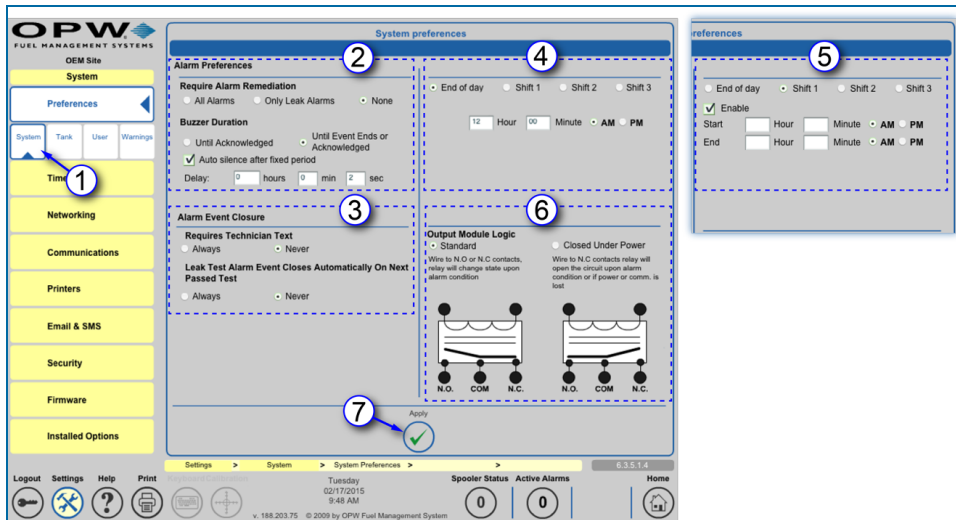


Settings > System > Preferences

To access the **Preferences** menu:

1. Push the **Settings** button on the *Home* screen. The *Settings* menu will come into view.
2. Select the **System** tab to access the *System* menu.
3. Select the **Preferences** tab from the *System* menu. This will open the *Preferences* sub-menu.

4.1.1 System Preferences



System Preferences

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

1. Select **System** from the *Preferences* sub-menu.
2. Set the **Alarm Preferences**.
 - **Require Alarm Remediation:** Allows users to identify when to require alarm remediation. Users can select between *All Alarms*, *Only Leak Alarms* and *None* (no remediation).



NOTE: Remediation is a record of the technician's action to remedy the cause of an alarm condition.

- **Buzzer Duration:** Allows users to identify how long they want the internal buzzer to sound when it is in an alarm condition. Select to end the buzzer when the alarm is acknowledged (*Until Acknowledged*), or when the event ends or the alarm is acknowledged (*Until Event Ends* or *Acknowledged*).
 - **Auto-silence after fixed period:** Allows the gauge to automatically silence the audible alarm after a set period of time. The visual alarm remains on the screen. The Delay time can be set in hours, minutes or seconds.
3. Set the **Alarm Event Closure**.
 - **Requires Technician Text:** The user can select if technician text is Always or Never required when remediation of an alarm condition occurs.
 - **Leak Test Alarm Closes Automatically on Next Passed Test:** The user can select if a leak-test alarm will Always or Never end when the next leak test is passed.
 4. Set **End of Day** time: Typically, this is used with ACR sites (for [SiteSentinel® Integra 500® only](#)) to identify the end of the day for reports. Enter the Hours/Minutes and select AM or PM.
 5. Set **Shift** times:

- Select a Shift radio button.
 - Check the **Enable** checkbox that comes into view.
 - The **Start** and **End** time options will come up. Enter the Hours/Minutes and select AM or PM.
6. **Output Module Logic:** The user can select *Standard* (where the relay is not energized when in normal condition), or *Closed Under Power* (where the relay is energized in the normal condition).



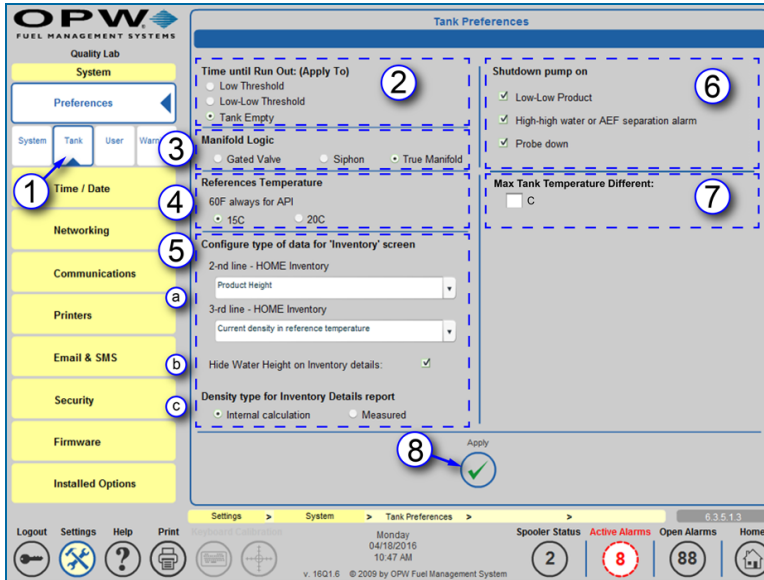
NOTE: Closed Under Power is typically used for STP motor controls and overfill alarms where a constant alarm is necessary or if disabling a pump would be required when the console is turned off.



IMPORTANT: Output Module Logic affects all internal and external (OM4) output relays in the system.

7. Click the **Apply** button to save **System Preferences**.

4.1.2 Tank Preferences



Tank Preferences

1. Select **Tank** from the *Preferences* sub-menu.
2. **Time Until Run Out:** Allows users to select a run out level: *Low Threshold*, *Low-Low Threshold* or *Tank Empty*. The **Time Until Run Out** level is calculated based on the run rate.



NOTE: The Run Rate is based on a seven (7) day rolling average.

3. **Manifold Logic:** Allows users to define the type of manifold system that is in use.
 - **Gated Valve:** By using a Gate Valve, any tank in the manifold group can be isolated. Product may or may not be able to move freely between all of the tanks in the manifold set.
 - **Siphon:** Product moves freely through all tanks in the manifold group. The STP produces vacuum on a siphon bar between two or more tanks causing the product levels to balance out equally between tanks. Deliveries will also be dispersed equally between all tanks in the manifold group.
 - **True Manifold:** In above ground tanks, the siphon bar is on the bottom of the tank and the hydrostatic pressure of the fuel in each tank of the manifold group allows the product levels to balance out equally between tanks.



IMPORTANT: This setting is critical for accurate tank testing.



NOTE: *Manifold Logic* cannot be configured while an SLD leak test is in progress

4. **Reference Temperature:** Select the temperature to use as a reference when referring to API density.



NOTE: 15C is the standard used for most applications. 20C is used only in Russia.

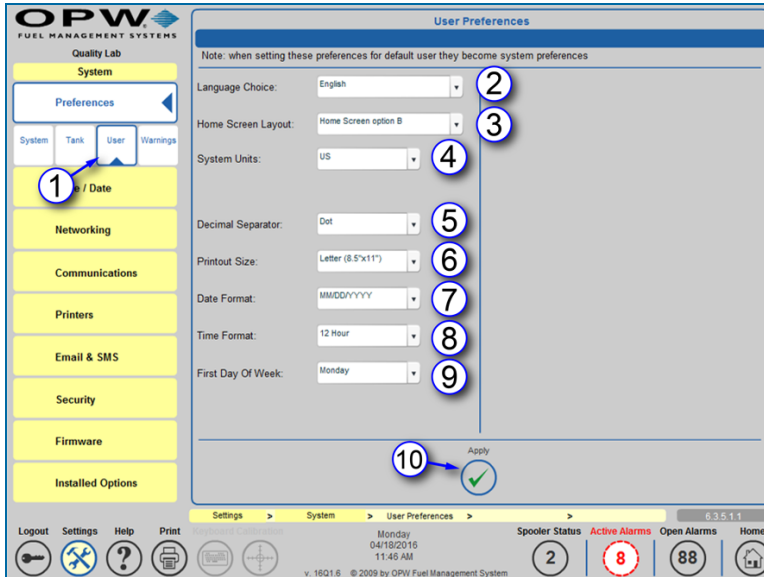
5. **Configure type of data for 'Inventory' screen:** This part of the panel is where Inventory information is configured for the **Inventory** panel of the **Home** screen. See M2022 SiteSentinel® Integra® Operator's Guide for more information on the Home screen panels.
 - a. **2nd / 3rd line - HOME Inventory:** Select options from the dropdown lists to configure the **Home** screen **Inventory** panel.
 - b. **Hide Water Height on Inventory details:** Check this box to not include the Water Height on the **Inventory Details** screen (see [M2022 Operator's Guide](#), Inventory Details).
 - c. **Density type for Inventory Details report:** Select a radio button to show if Density uses an **Internal calculation** or **Measured** on the Inventory details screen and report.
6. **Shutdown pump on:** Allows users to define the event that the STP will be shut down by the system.



IMPORTANT: Shutdown pump on: Can only function when an installed LIM is being used.

7. **Max Tank Temperature Difference:** Use this feature to set a min/max temperature level to turn a connected, relay controlled temperature control device on and off. Set this max temperature value (in °C) as applicable with the High and Low Temperature Thresholds. See ["Tank Thresholds" on page 90](#) for more information on the Temperature Thresholds.
8. Push the **Apply** button to save *System Preferences*. Push **OK** on the confirmation pop-up.

4.1.3 User Preferences



User Preferences

1. Select **User** from the *Preferences* sub-menu. From this screen you can select the settings for the user that is currently logged in.



NOTE: Setting these preferences for the default user sets the default system preferences for the tank-gauge system.

2. Select a **Language** from the list in the dropdown box.
3. Select a **Home Screen Layout** from the list in the dropdown menu.
 - **Inventory + Delivery:** These will be the only panels displayed.
 - **Home Screen option B:** Four (4) panels will be displayed: Inventory, Delivery, Compliance & System Alarms (active alarms) and Site Status.
 - **Home Screen option C:** Four (4) panels will be displayed: Inventory, Delivery, Compliance & System Alarms (active and non-active alarms) and Site Status.

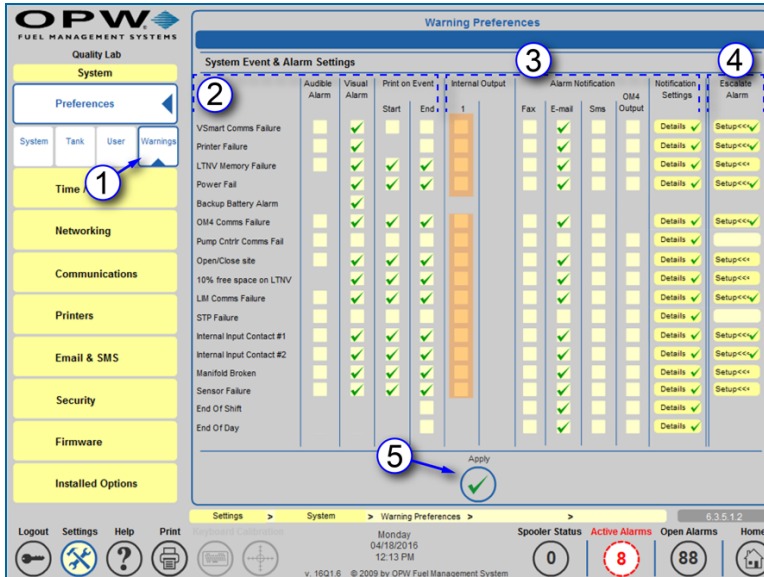


TIP: For more information on **Home Screen Layouts** see *M2022-SiteSentinel® Integra® Operator's Guide*.

4. Select System **Units** from the dropdown list (Metric, US or Imperial).
5. Select a **Decimal Separator** from the dropdown list (Dot or Comma).

6. Select a **Printout Size** from the dropdown list to match the paper stock of your printer (8 1/2" x 11" Letter size or 210mm x 297mm A4 size).
7. Select a **Date Format** from the dropdown list (MM/DD/YYYY, DD/MM/YYYY or YYYY/MM/DD).
8. Select a **Time Format** from the dropdown list (12 hour or 24 hour).
9. Select a day as the **First Day of Week** from the dropdown list.
10. Click the **Apply** button to save *User Preferences*.

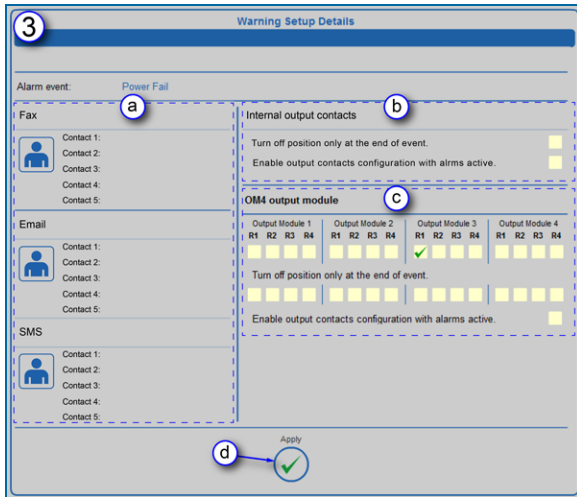
4.1.4 Warning Preferences




Warning Preferences

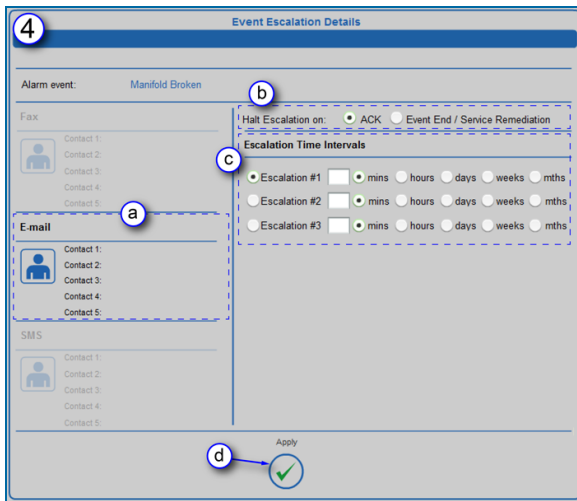
4.1.4.1 Set System Warnings

1. Select **Warning** from the *Preferences* sub-menu.
2. For any of the **System Events** in the left-hand column select any of the available **Alarm Settings** (shown as a pale yellow square): *Audible Alarm*, *Visual Alarm* or *Print on Event* at either the Start or End of the Event.
 - **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.
 - **Visual Alarm:** Start an action on an external visual alarm that is connected to the special terminal in the SiteSentinel® Integra®.
 - **Print on Event:**
 - ◆ **Start:** SiteSentinel® Integra® will print Alarm/Event when an Alarm/Event starts
 - ◆ **End:** SiteSentinel® Integra® will print Alarm/Event when an Alarm/Event ends




Warning Setup Details

3. The user can customize Alarms and Notifications. Audible alarms can be controlled by the Internal Output Contacts or through an OM4 Output (if applicable). Notifications can be sent through Fax, Email or SMS to any of the contacts in the Address Book. When any of these options is selected the **Details** button under *Notification Settings* is activated. When the **Details** button is selected the *Warning Setup Details* screen will come into view with more available options.
 - a. When **Details** is selected for an **Alarms Notification** method (Fax/Email/SMS) that method will be activated on the *Warning Setup Details* screen. Notifications can be sent to up to five (5) Address Book contacts. To select contacts for any of these methods click the  icon to go to the *Address Book*, select the first contact and Click **Apply**. Repeat this procedure for any other contacts you wish to assign.
 - b. Internal output contacts will close when an Alarm/Event occurs. When **Details** is selected for an *Internal Output Contact*, an option will show on the *Warning Setup Details* screen to “Turn off position only at the end of event.” If you wish to activate this option, check the yellow box. Check the box for “Enable output contacts configuration with alarms active” to use this feature.
 - c. OM4 relay position(s) will toggle when an Alarm/Event occurs. OM4 relay logic can be changed in *Settings \ System \ Preferences \ System* and will be global to all OM4 Alarm/Events. When **Details** is selected for an OM4 Output, options will show on the *Warning Setup Details* screen. Select an OM4 relay position by checking one of the yellow boxes. If you wish to activate “Turn off position only at the end of event,” check the yellow box for the selected relay position. Check the box for “Enable output contacts configuration with alarms active” to use this feature.
 - d. When all applicable options have been selected, click the **Apply** button to save these changes.



Event Escalation Details

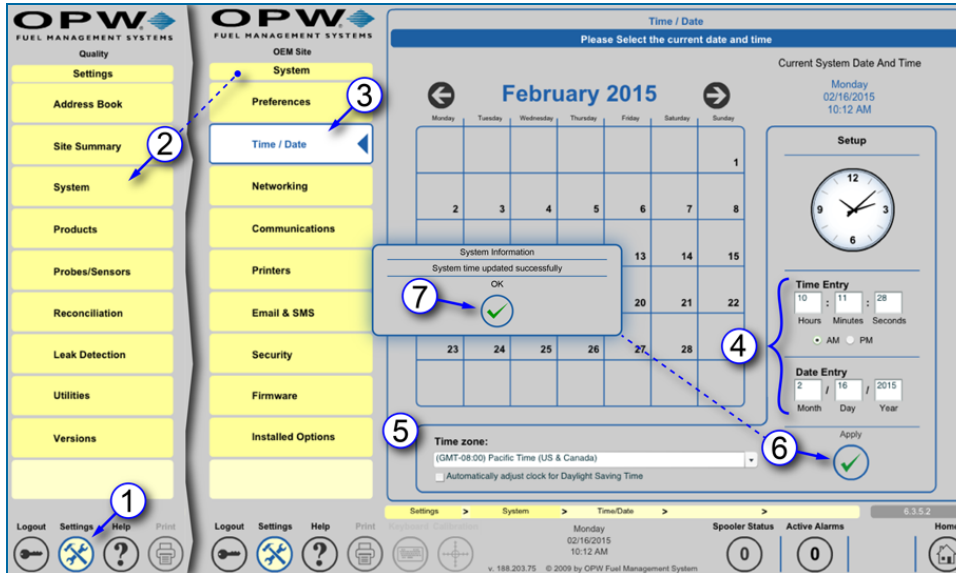
4. Notifications can be escalated through Fax, Email or SMS to any of the contacts in the Address Book if events are not acknowledged or ended within a specified period of time. When any of these options is selected, the **Setup** button under *Escalate Alarm* is activated. When the **Setup** button is selected the *Event Escalation Details* screen will come into view with more available options.
 - a. When **Setup** is selected for an *Alarms Notification* method (Fax/Email/SMS) that method will be activated on the *Event Escalation Details* screen. Notifications can be sent to up to five (5) Address Book contacts. To select contacts for any of these methods click the  icon to go to the Address Book, select the first contact and Click **Apply**. Repeat this procedure for any other contacts you wish to assign.
 - b. Escalation can be halted by selecting either **ACK** (escalation will stop when the event is acknowledged) or Event End / Service Remediation.
 - c. **Escalation Time** Intervals can be set for up to three (3) Escalations by entering a number and selecting minutes, hours, days, weeks or months.
 - d. When all necessary options have been selected, click the **Apply** button to save these changes.
5. When all applicable options from all sub-screens have been selected and applied, click the **Apply** button to save all *Warning Preferences*.

4.1.4.2 Alarm/Event Conditions

- **VSmart Comms Failure:** (SiteSentinel® Integra 500® only) creates an alarm condition when communication to the VSmart Module is lost.
- **Printer Failure:** Causes an alarm condition when a print job fails to print due to printer fail or paper outage.
- **LTVN Memory Failure:** Causes an alarm condition when the internal USB key is removed.
- **Power Fail:** Causes an alarm condition when power for the console is shut off.
- **Backup Battery Alarm:** Causes an alarm condition when the backup battery is nearing failure.

- **OM4 Comms Failure:** (SiteSentinel® Integra 500® only) causes an alarm condition when OM4 communications are lost or the OM4 is powered off.
- **Pump Controller Comms Failure:** Causes an alarm condition when communications are lost to the Q-RIM or IDPOS dispenser.
- **Open/Close Site:** Causes an alarm action after user pushes the Open or Close button on home screen.
- **10% Free Space on LTNV:** Causes an alarm condition when less than 10% space remains on internal USB Key.
- **LIM Comms Failure:** (SiteSentinel® Integra 500® only) causes an alarm condition when LIM communication is lost.
- **STP Comms Failure:** (SiteSentinel® Integra 500® only) causes an alarm condition for STP Start Failed or STP Stop Failed or STP communication lost.
- **Internal Input Contact #1/#2:** Causes an alarm condition when the input is seen on contacts.
- **Manifold Broken:** Causes an alarm condition when the manifold falls outside normal programmed offset.
- **Sensor Failure:** Causes an alarm condition when a sensor failure occurs.
- **End of Shift:** Causes a condition at shift end for printing or notification.
- **End of Day:** Causes a condition at end of day for printing or notification.

4.2 Set the System Time and Date



Set System Time and Date

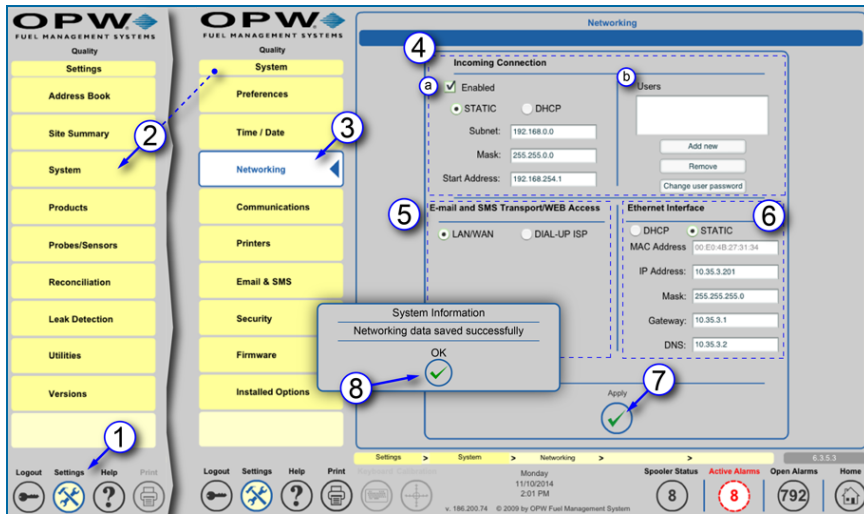
1. Push **Settings**.
2. Select **System** from the *Settings* menu.
3. Select **Time / Date** from the *System* menu.
4. Make any changes to the time and date using the **Time Entry** (Hours / Minutes / Seconds and AM / PM) and **Date Entry** (Month / Day / Year) fields.



IMPORTANT: The time set in the console must be within ten (10) minutes of the NTP time-server in use at the site. Consult with your site IT Administrator for details.

5. Select the **Time zone** for the region where the site is located from the drop-down. Check the box labeled "Automatically adjust clock for Daylight savings Time" if you want the clock to update automatically on dates when Daylight Savings Time begins and ends.
6. Click **Apply**. The *Systems Time Update* confirmation pop-up will come into view.
7. Click the **OK** button in the confirmation popup to save the *Time and Date* settings.

4.3 Networking



Networking



NOTE: Before configuring this screen consult your site's IT Administrator to determine the correct settings and obtain the correct codes for each section.

1. Push **Settings**.
2. Select **System** from the *Settings* menu.
3. Select **Networking** from the *System* menu.
4. **Incoming Connection:** If an Incoming Connection is necessary:
 - a. Check the **Enabled** box and select either a *Static* or *DHCP* connection as directed by your site's IT Administrator. If a *Static* connection is selected add the information for Subnet, Mask and Start Address. If the **DHCP** connection type is selected, the default information provided by the server will be used.
 - b. Create **User**: this username and password will be used in creating the connection and is not the login to the SiteSentinel® Integra™ console.
 - i. Push **Add New**.
 - ii. Enter **User**.
 - iii. Enter **Password**.
 - iv. Re-enter **Password** to confirm.
5. **Email & SMS Transport:** Select either *LAN/WAN* or *Dialup ISP* as directed by your site's IT Administrator. If *LAN/WAN* is selected no options need to be configured. If *Dialup ISP* is selected enter the Username, Password and Dial Out phone number.
6. **Ethernet Interface:** Select either a *DHCP* or *Static* connection as directed by your site's IT Administrator. If the *DHCP* connection type is selected, the default information provided by the server

will be used. If a Static connection is selected add the information for IP Address, Mask, Gateway and DNS (consult with your site's IT Administrator to obtain the correct codes).

7. Click **Apply**. The *System Information* confirmation pop-up will come into view.
8. Click the **OK** button in the confirmation pop-up to save the *Networking* settings.

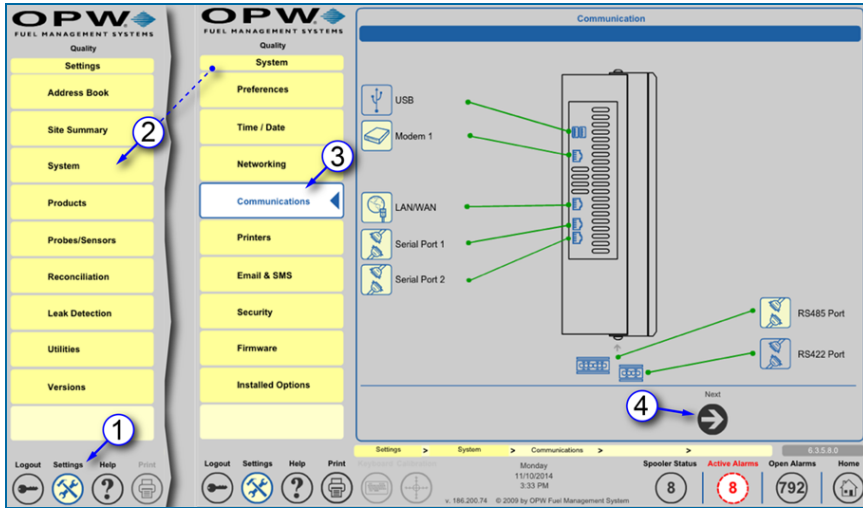
4.4 Communications

The Communications screens allow the user to setup the communication ports within the system to communicate to modules and perform notifications. The user can link a device or service(s) to specific ports on the system. Some services can be linked to multiple ports and link with other services on the same ports. Each service is independently configured and linked to each port on the system.

Topics in this section include:

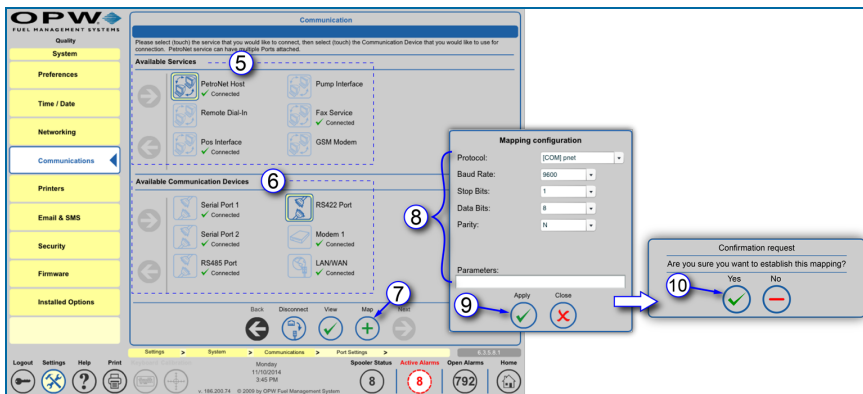
- ["Port Connections" on the next page](#)
- Petro-Net ["Petro-Net™ Host Setup " on page 44](#)
- ["Remote Dial-in Setup" on page 47](#)
- ["POS \(Point of Sale\) Interface Setup" on page 48](#)
- ["Pump Interface Setup" on page 51](#)
- ["Fax Service Setup" on page 53](#)
- ["GSM Modem Setup" on page 54](#)
- ["Dial-in Networking Connection \(Incoming Connection\)" on page 55](#)

4.4.1 Port Connections



Communications

1. Push **Settings**.
2. Select **System** from the *Settings* menu.
3. Select **Communications** to begin programming. The *Communications* screen shows all available ports in the tank-gauge system. An icon with a yellow background represents a configured port.
4. Push **Next**. A screen will come into view showing the *Available Services* and the *Available Communication Devices*.



Available Services and Available Communication Devices

5. Select the **Available Service** (protocol) that you wish to assign. An icon will change to a yellow background when it has been selected.
6. Select the **Communication Device** (port) that you want to assign. An icon will change to a yellow background when it has been selected.
7. Push **Map**. The *Mapping Configuration* popup will come into view.
8. Enter protocol and other connection specific details on the *Mapping Configuration* popup screen.

9. Push **Apply** to save the mapping configuration. A confirmation popup will come into view.
10. Push **Yes** to confirm.

To configure more services and devices, push the Back button to go back to the port connections screen.

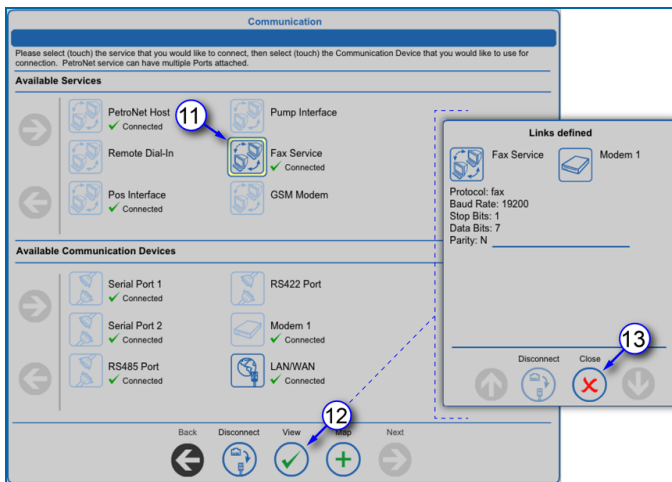


NOTE: Petro-Net Host can be connected to multiple ports in the system.

Services and devices that have been configured in the system will show a green check mark next to the word “Connected.”

Established links can be viewed at any time to see the configuration details. Links can also be disconnected to change configuration

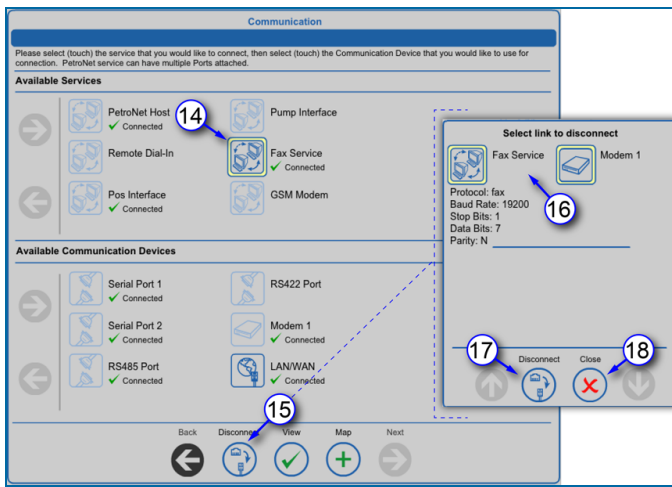
4.4.1.1 View Defined Links



View Defined Links

11. Select a connected service or device. The icon will activate and change to show a yellow border.
12. Push **View** to see the *Links Defined* pop-up. The service and connected device will be displayed along with the mapped configuration details.
13. Push **Close** to close the pop-up.

4.4.1.2 Disconnect a Link



Disconnect a Link

14. Select a connected service or device. The icon will activate and change to show a yellow border.
15. Push **Disconnect** to see the *Select Link to Disconnect* pop-up. The service and connected device will be displayed along with the mapped configuration details.
16. Select either icon in the link. Both icons will show active.
17. Push **Disconnect**. The service and device will no longer be connected to each other.
18. Push **Close** to close the pop-up.

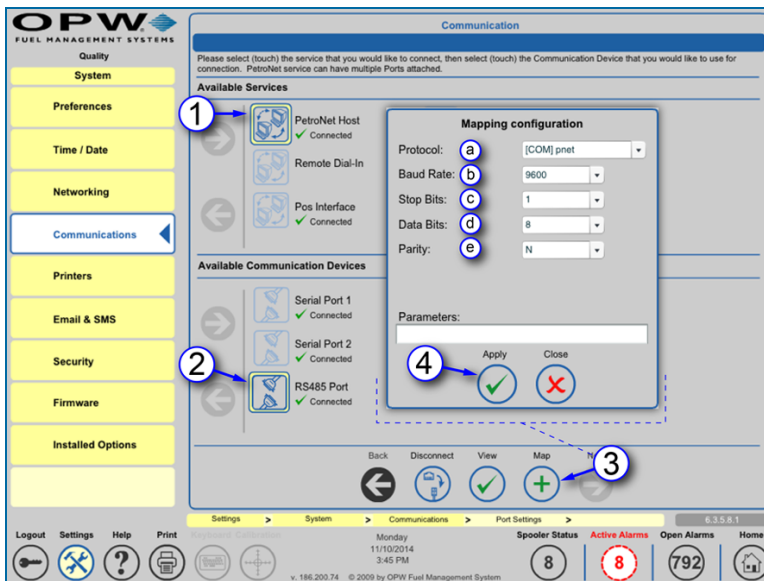
4.4.2 Petro-Net™ Host Setup

(for SiteSentinel® Integra 500® only)



NOTE: When setting up Petro-Net Host, none of the settings will need to be changed and should be left at the default values.

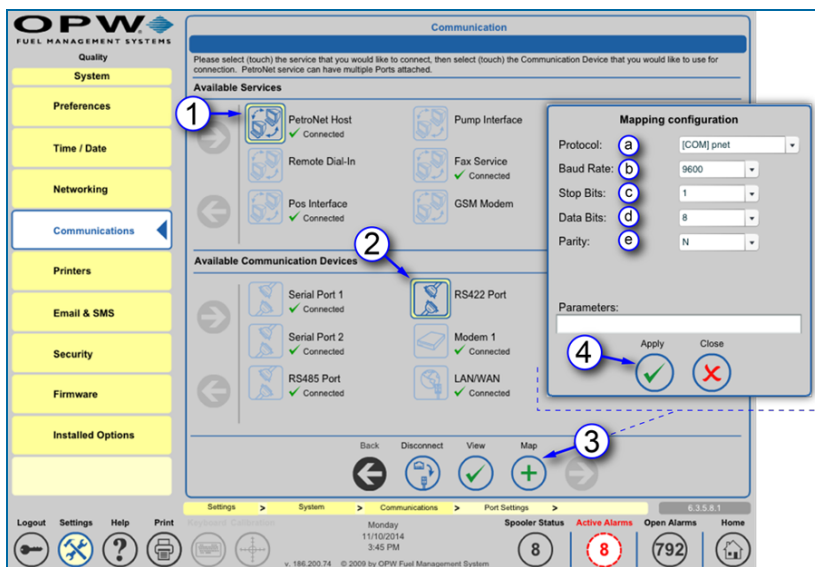
Petro-Net™ Host Setup through the RS-485 Port: (this is the default setup)



Petro-Net™ through RS485

1. Push **Petro-Net Host**.
2. Push **RS-485 Port**.
3. Push **Map**.
 - a. Select **Protocol** (COM pnet is Standard).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
4. Push **Apply** to map.

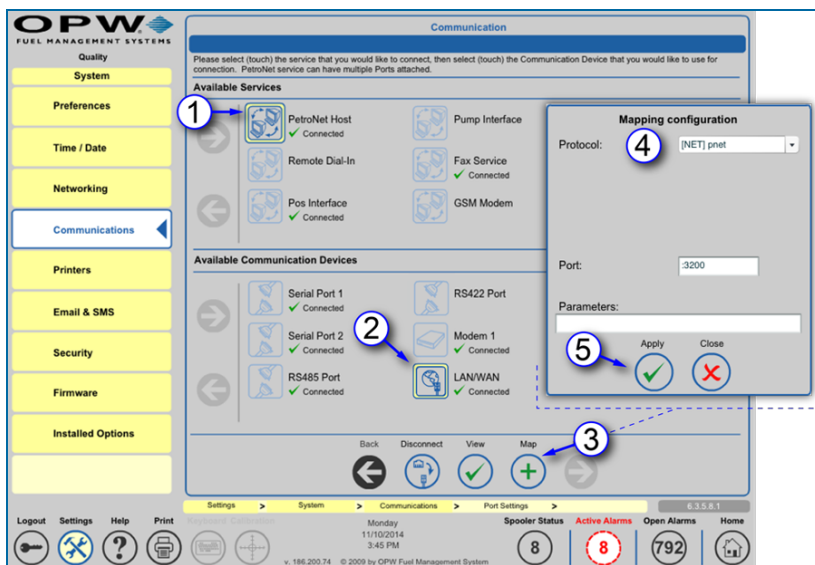
Petro-Net™ Host Setup through the RS422 Port:



Petro-Net™ through RS422

1. Push **Petro-Net Host**.
2. Push **RS-422 Port**.
3. Push **Map**.
 - a. Select **Protocol** (COM pnet is Standard).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
4. Push **Apply** to map.

Petro-Net™ Host Setup through the LAN/WAN Port (Ethernet):



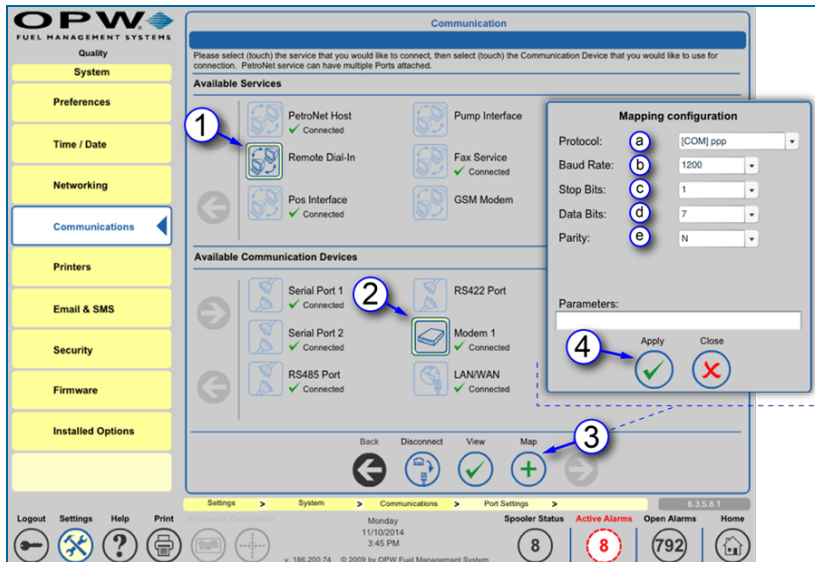
Petro-Net™ through LAN/WAN (Ethernet)

1. Push **Petro-Net Host**.
2. Push **LAN/WAN**.
3. Push **Map**.
4. Select **Protocol** ([NET] pnet is Standard).
5. Push **Apply** to map.



NOTE: When setting up Petro-Net™ Host, none of the settings will need to be changed and should be left at the default values.

4.4.3 Remote Dial-in Setup



Remote Dial-In Setup

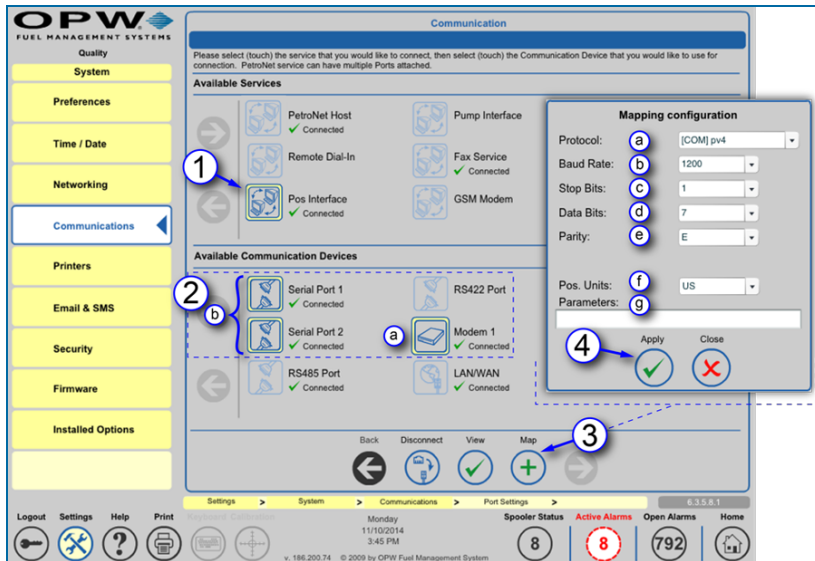
1. Push **Remote Dial-In**.
2. Push **Modem**.
3. Push **Map**.
 - a. Select **Protocol** (COM ppp is Standard).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
4. Push **Apply** to map.



NOTE: Only internal modems on the tank-gauge console can be linked to a remote dial-in connection. Set the highest baud rate for better results when connecting to the console. For more details on remote dial-in setup, see ["Networking" on page 38](#) for complete dial-up connection configuration.

4.4.4 POS (Point of Sale) Interface Setup

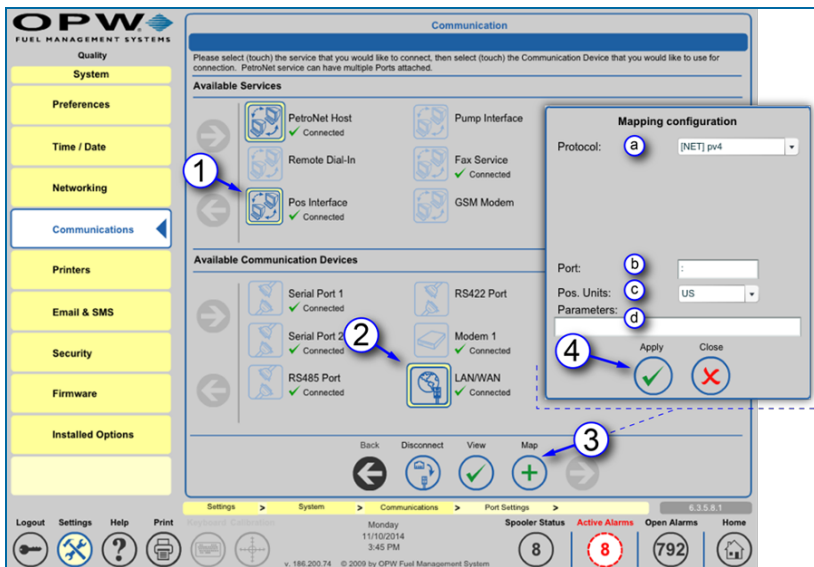
POS Setup through the Modem Port or a Serial Port:



POS Interface Setup

1. Push **POS Interface**.
2. Select a device to map the *POS Interface*.
 - a. Push **Modem** to map *POS Interface* through the *Modem Port*.
 - b. Push **Serial 1** or **Serial 2** to map *POS Interface* through one of the *Serial Ports*.
3. Push **Map**.
 - a. Select **Protocol** (PV4, TLS250, TLS350, scp350 and Smith).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
 - f. Select **POS Units**.
 - g. Enter **Parameters** (if applicable).
4. Push **Apply** to map.

POS Setup through the LAN/WAN Port:



POS Setup through the LAN/WAN Port

1. Push **POS Interface**.
2. Push **LAN/WAN**.
3. Push **Map**.
 - a. Select **Protocol** (PV4, TLS250, TLS350, scp350 and Smith).
 - b. Enter **Port Number**.
 - ◆ SCP-350-2377
 - ◆ TLS-350 -2374
 - ◆ TLS-250-2375
 - ◆ PV4-2372
 - ◆ Gilbarco Block-2373
 - ◆ Wayne IDPOS-35555.



TIP: Any port can be used if ":" (colon) is placed in front of the port number.

- c. Select **POS Units**.
 - d. Enter **Parameters** (if applicable).
4. Push **Apply** to map.



NOTE: SCP350 protocol will be applied when using the Phoenix Premier™ OPW (PPO) software to poll the gauge.

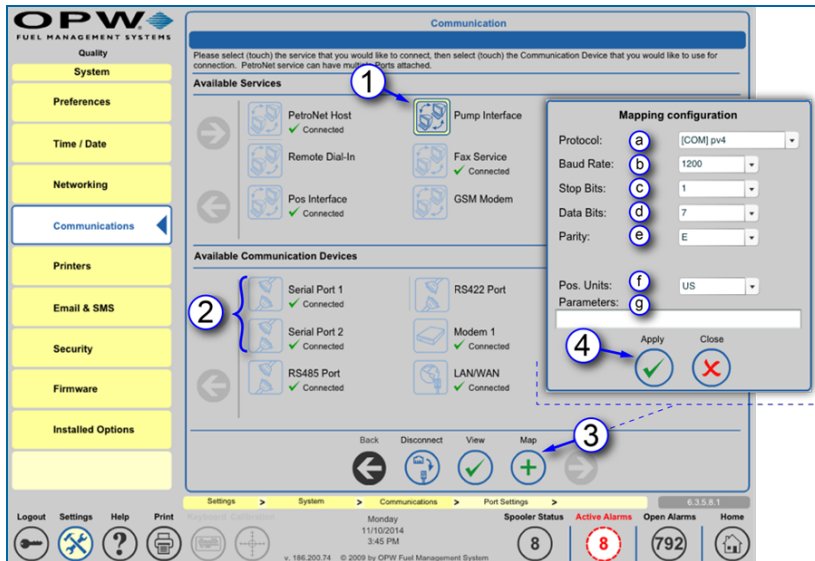
4.4.4.1 Video: Mapping a POS Port

To watch the instructional video, "Mapping a POS Port," scan or click the QR code below.



4.4.5 Pump Interface Setup

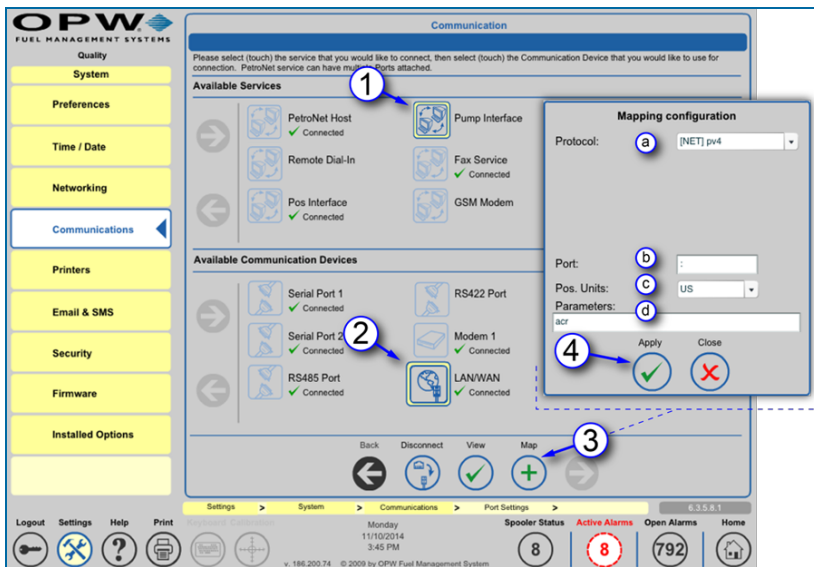
Pump Interface Setup through a Serial Port:



Pump Interface Setup through a Serial Port

1. Push **Pump Interface**.
2. Push **Serial 1** or **Serial 2** to map the *Pump Interface* through one of the *Serial Ports*.
3. Push **Map**.
 - a. Select **Protocol** (PV4, GenB or EECO350).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
 - f. Select **POS Units**.
 - g. Enter **Parameters** (if applicable).
4. Push **Apply** to map.

Pump Interface Setup through the LAN/WAN (Ethernet) Port:

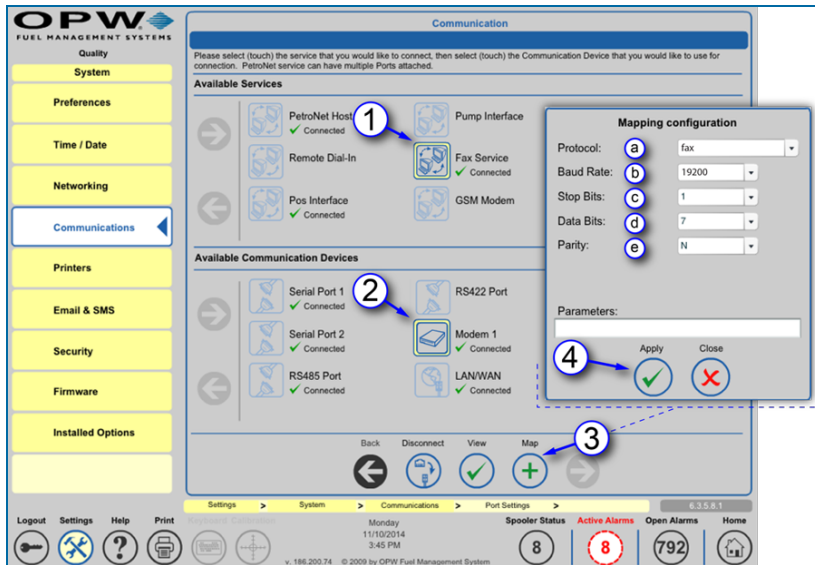


Pump Interface Setup through the LAN/WAN (Ethernet) Port

1. Push **Pump Interface**.
2. Push **LAN/WAN** to map the *Pump Interface* through the *LAN/WAN (Ethernet) Port*.
3. Push **Map**.
 - a. Select Protocol (PV4, idpos, GenB or EECO350).
 - b. Enter **Port Number**.
 - ◆ PV4 – 2472 (could be 2372)
 - ◆ Gilbarco Block - 2373
 - ◆ Wayne IDPOS - 35555
 - c. Select **POS Units** (if applicable).
 - d. Enter **Parameters** (if applicable).
4. Push **Apply** to map.

4.4.6 Fax Service Setup

Fax Service Setup through the Modem Port:

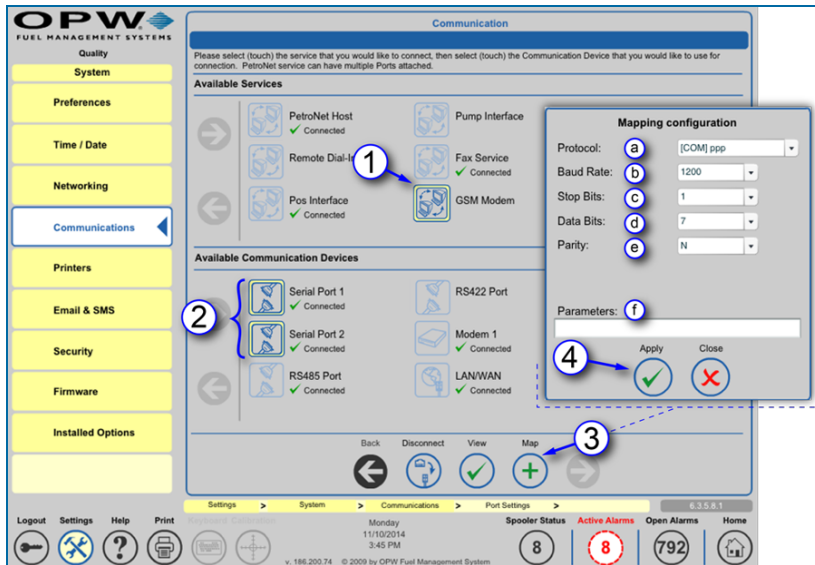


Fax Service Setup through the Modem Port

1. Push **Fax Service**.
2. Push **Modem** to map the *Fax Service* through the *Modem Port*.
3. Push **Map**.
 - a. Select **Protocol** (fax is standard).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
4. Push **Apply** to map.

4.4.7 GSM Modem Setup

GSM Modem Setup through a Serial Port:

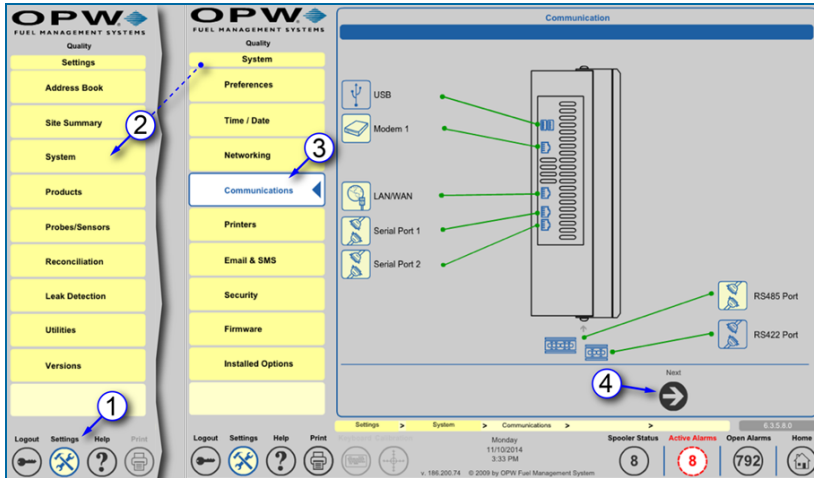


GSM Modem Setup through a Serial Port

1. Push **GSM Modem**.
2. Push **Serial Port 1** or **Serial Port 2** to map the *GSM Modem* through one of the *Serial Ports*.
3. Push **Map**.
 - a. Select **Protocol** (fax is standard).
 - b. Select **Baud Rate**.
 - c. Select **Stop Bits**.
 - d. Select **Data Bits**.
 - e. Select **Parity**.
 - f. Enter **Parameters** (if applicable).
4. Push **Apply** to map.

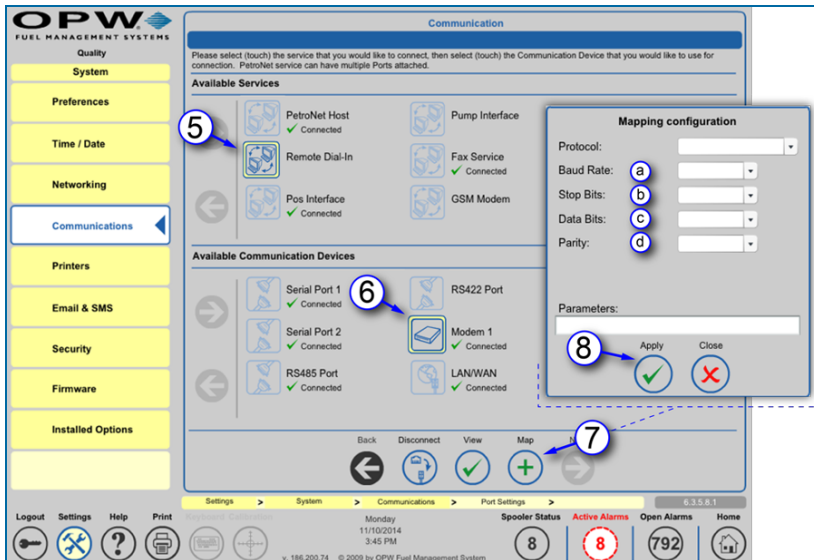
4.4.8 Dial-in Networking Connection (Incoming Connection)

Link Dial-in Connection to the Modem Port:



Communications Navigation

1. Push **Settings**.
2. Push **System**.
3. Push **Communications**.
4. Push **Next** at the bottom of the screen to enter the configuration setup.

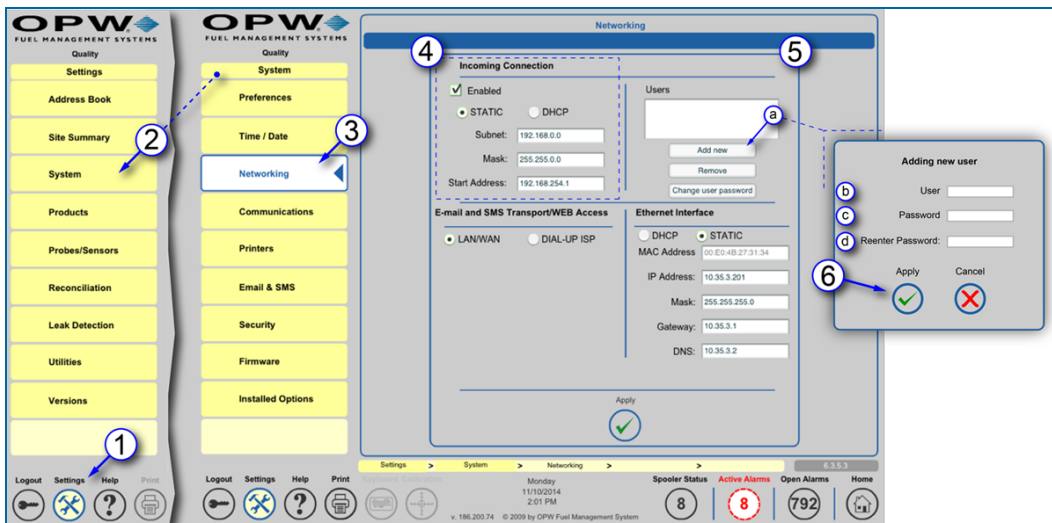


Link Dial-in Connection to the Modem Port

5. Select **Remote Dial-In** from the top of the list.
6. Select the **Modem** from the bottom of the list.

7. Push **Map**.
 - a. Set **Baud Rate** (set to match the remote PC).
 - b. Set **Stop Bits**.
 - c. Set **Data Bits**.
 - d. Set **Parity**.
8. Push **Apply**.

Set up Connection Information:



Set up Connection Information

1. Push **Settings**.
2. Push **System**.
3. Push **Networking**.
4. Select an **IP Scheme** (Static is standard and will use provided IP).
5. Create **User**:



IMPORTANT: This username and password will be used only when creating a connection and is not the login to the tank-gauge console.

- a. Push **Add New**.
 - b. Enter **User**.
 - c. Enter **Password**.
 - d. Re-enter **Password** to confirm.
6. Push **Apply**.

Create a Dial-up Network Connection on the PC:

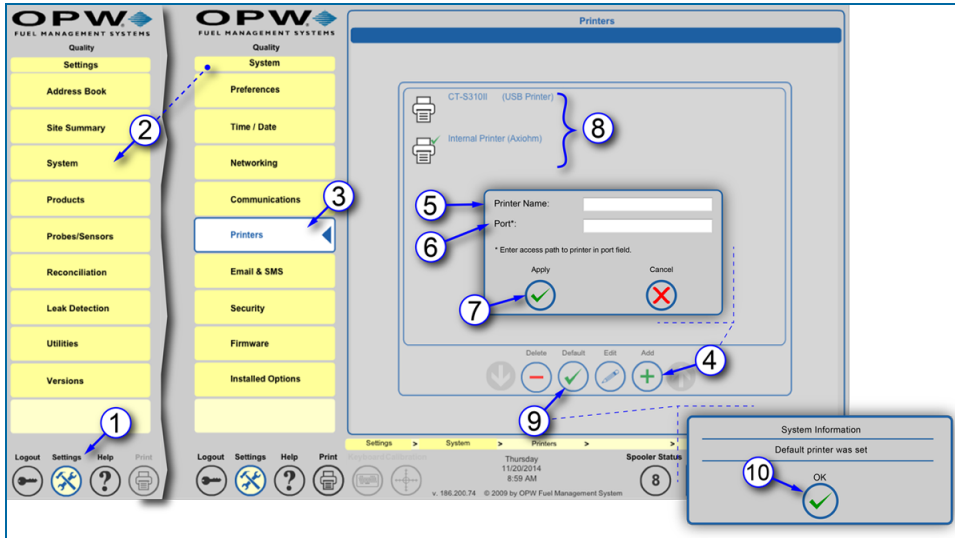
1. Open **My Network Places** on PC.
2. Select **View Network Connections** (located under *Network Tasks*).
3. Select **Create New Connection** (located under *Network Tasks*). The *Network Connection Wizard* will open.
 - a. Select **Next**.
 - b. Select **Connect to the network at my workplace**.
 - c. Select **Dial-up Connection**.
 - d. Select the **modem** being used on the PC.
 - e. Enter **Company Name**.
 - f. Enter the **phone number** for the line that is connected to the tank-gauge console.
 - g. Select **Connection Availability**.
 - h. Push **Finish**.
4. Open a Dial-up Connection:
 - a. Enter **User Name** (this is the username created on the *Networking* screen of the tank-gauge console).
 - b. Enter **Password** (the password created for the above user in the tank-gauge console).
 - c. Verify **Phone Number**.
 - d. Push **Dial**.
5. Once Dial-up Connection is established:
 - a. Open your Internet browser.
 - b. Enter **Start Address** from the *Networking* screen into the address bar of the Internet browser (IP address is located under Incoming Connections in upper left of the screen).



NOTE: Dial-up networking connection will allow the user to dial into the tank-gauge console via a phone line to view/edit configuration. This connection will display the information just as if the user was looking at the console or connected through an Ethernet connection.

4.5 Printer Setup (Optional)

In the **Printer Setup Screen** the user can add, edit, configure and select a default printer. The printer feature is optional for the tank gauge console.



Printer Setup

4.5.1 Adding a Printer

1. Push **Settings**.
2. Push **System**.
3. Push **Printers** on the *System* menu to enter the Printers setup screen.
4. Push **Add**. A popup will come into view.
5. Enter **Printer Name** (user-defined).
6. Enter **Port** (port number or access path of printer).
7. Push **Apply** to add the printer.

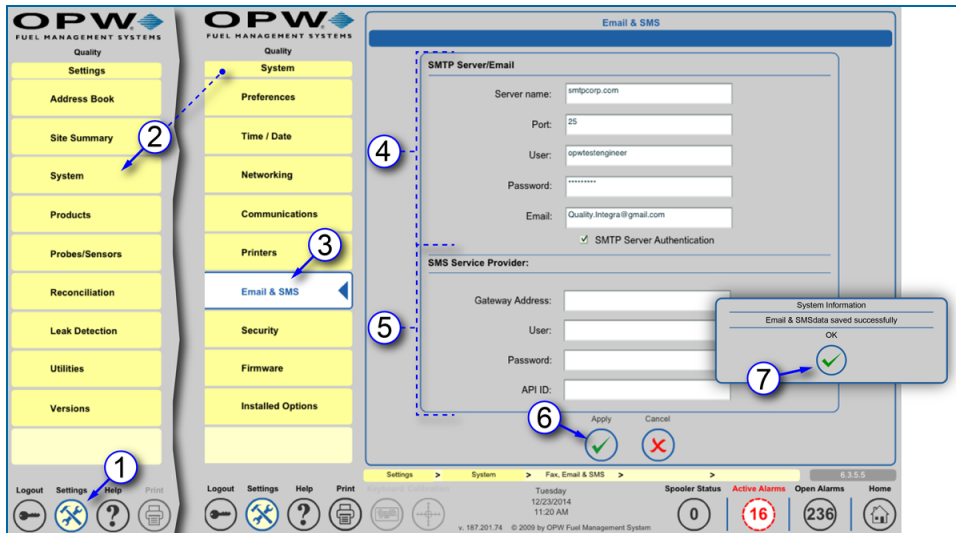


NOTE: OPW USB printers are automatically added.
If prompted, enter Driver information (the printer must support native PCL drivers).

4.5.2 Selecting a Default Printer

8. Select the **Printer** you want to be the default printer.
9. Push the **Default** button at the bottom of the screen. A confirmation popup will come into view.
10. Push **OK** to confirm. A green check mark next to a printer icon identifies the selected default printer.

4.6 Email and SMS Setup



Email & SMS Setup

1. Push **Settings**.
2. Push **System**.
3. Select **Email & SMS** on the sub-menu to access the Email and SMS programming screen.
4. Enter **SMTP** email information. This information is usually provided by the site's IT department. If the site does not have an IT department or a SMTP service, OPW recommends SMTP2GO – worldwide SMTP Service <http://www.smtp2go.com>.
5. Enter **SMS Service Provider** information. If the end user is not using SMS protocol proceed to the next step.



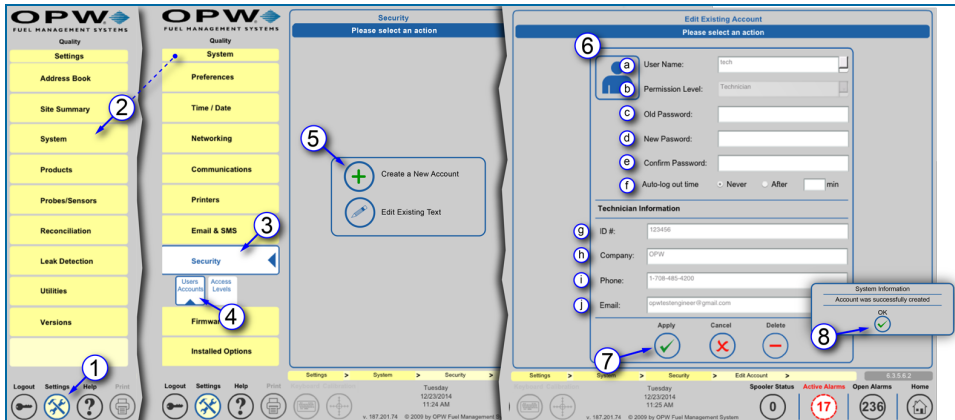
NOTE: SMS Service requires a properly configured SMTP server and a SMS API account through Clickatell <http://www.clickatell.com>.

6. Push **Apply** to save any changes made to this screen.
7. Push **OK** in the pop up window to complete the *Email and SMS* setup.

4.7 Security Programming (Tank Gauge User Accounts and Permission Levels)

4.7.1 Add/Edit Users

The Security section allows users to add or edit new users in the system. These security names are used to log into the system at the login screen.



Add/Edit New Users

1. Push **Settings**.
2. Push **System**.
3. Push the **Security** button.
4. Push **User Accounts**.
5. Select **Create a New Account** or **Edit Existing Account** depending on the required action and user Access Level.
6. Enter Information.
 - a. **Username**: Unique to each user configured in the system. This name is used to log into the system.
 - b. Select the **Permission Level**: Used to grant each user different access levels to the system. The Access Levels section under the Security button determines this level. This level restricts users to certain screens on the tank gauge system.
 - c. Enter **Old Password** (this option only shows when Edit Existing Account is selected in Step 5).
 - d. Enter **Password**: To be used at the login screen to access the tank gauge system.
 - e. Enter Password again to **Confirm Password**.

- f. Select **Auto-Logout Time**: Determines system's automatic behavior for logged-in users who show inactivity on the console screen after a defined period of time. If the "After" option is selected, the system will automatically log out after the defined time in minutes, or if the "Never" option is selected, the system will automatically log out. For all connections, the "Never" option cannot be selected and the user is always automatically logged out after 27 minutes. The "After" option with a time value of less than 27 minutes works normally.
- g. Enter **Tech ID #** (if applicable): Identification number assigned to a technician by his or her company to use as a reference for each technician. This number is similar to an employee number. Tech ID # is also used for alarm remediation service.

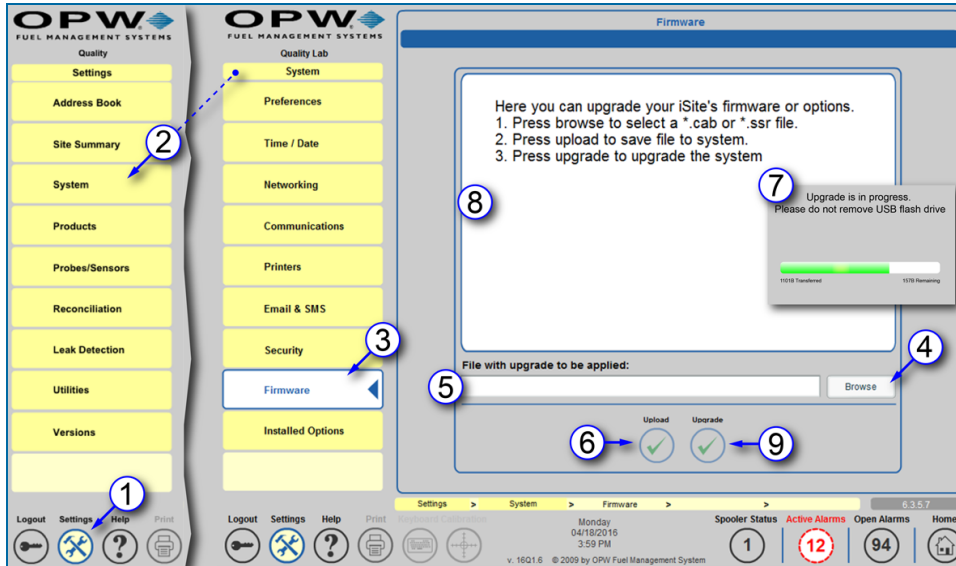


NOTE: Tech ID # is only required for a Tech login.

- h. Enter **Company Name**.
 - i. Enter **Phone Number**.
 - j. Enter **Email Address**.
7. Push **Apply**.
 8. Push **OK** in the pop up to save changes.

Complete steps 1-8 for each additional account when setting up new accounts.

4.8 Firmware



Upgrade Firmware

This section shows the Firmware upgrade procedure.

1. Push **Settings**.
2. Push **System**.
3. Push **Firmware**.
4. Push the **Browse** button. Select the upgrade files (.cab or .ssr) from the location where the update files are stored.



NOTE: Use the same procedure if the upgrade is done locally at the console screen.



IMPORTANT: Multiple .cab files should be run in alphabetical order, one at a time.

5. When the file is selected it will show in the file bar at the bottom of the Firmware window.
6. Select the **Upload** button to upload the file. The file is moved from its current location (a remote laptop drive or a local USB memory key inserted in the side of the tank gauge console) to the internal CF card to prepare the upgrade procedure.
7. During the transfer a file progress indicator will come into view. The indicator shows the number of bytes transferred on the left and the number of bytes remaining on the right.
8. When the transfer is complete, the upper pane of the Firmware screen will show information about the file that was transferred.

9. Select the **Upgrade** button to complete the procedure. The tank gauge console will automatically restart.



NOTE: Not all .cab or .ssr file upgrades will require a reboot.



TIP: For more information on the software upgrade procedure refer to [FMM00-20-4438 Integra/iSite Software Upgrade Procedure](#).



4.9 Installed Options

Feature	Option Control		
	Other Components Required	Software	Installed/ Enabled
Advanced Leak Detection			
Dynamic Leak Test (SLD)	None	Yes	<input checked="" type="checkbox"/>
0.2gph In-Tank Leak Test	None	Yes	<input checked="" type="checkbox"/>
0.1gph In-Tank Leak Test	None	Yes	<input checked="" type="checkbox"/>
LLD Compliance	None	Yes	<input checked="" type="checkbox"/>
LLD Ultimate	None	Yes	<input checked="" type="checkbox"/>
POS And Pump Controller Interfaces			
POS Protocols (250, 350, Smith's, PV4)	Compatible 3rd Party Equipment	Yes	<input checked="" type="checkbox"/>
PV4 ACR Mode	Compatible 3rd Party Equipment	Yes	<input checked="" type="checkbox"/>
Gilbarco Generic-B (Block Protocol) ACR Mode	Compatible 3rd Party Equipment	Yes	<input checked="" type="checkbox"/>
Tank Calibration Security Lock			
Weights and Measures Calibration Lock	None	Yes	<input checked="" type="checkbox"/>
Site			
Built-in LCD	None	Yes	<input checked="" type="checkbox"/>
Daily Password	None	Yes	<input checked="" type="checkbox"/>
VSmart, LHM, OM4 support	None	Yes	<input checked="" type="checkbox"/>

Installed Options

The Installed Options screen shows the installed hardware and software options in the system. This information is stored in the ESN (Electronic Serial Number) chip on the main board of the console. The ESN number for your system shows in the screen header. This number is necessary when an *.ssr file is needed to update system options.

1. Push **Settings**.
2. Push **System**.
3. Push **Installed Options**.
4. 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 "[Firmware](#)" on page 63. Contact OPW Customer Service at Tel: 708 485-4200 for more information.
5. The system **ESN Number** shows at the top of the screen in the screen header.

Section 5 Products

In the **Products** screen the user can add, edit, and delete products that are at the site. All products in the system will be displayed in numerical order based on their Product ID. It is possible to add blended and non-blended products, as well as other fuel-type categories.



NOTE: Blended Products can only be added when using a reconciliation-enabled system (ACR) (for SiteSentinel® Integra 500® only).

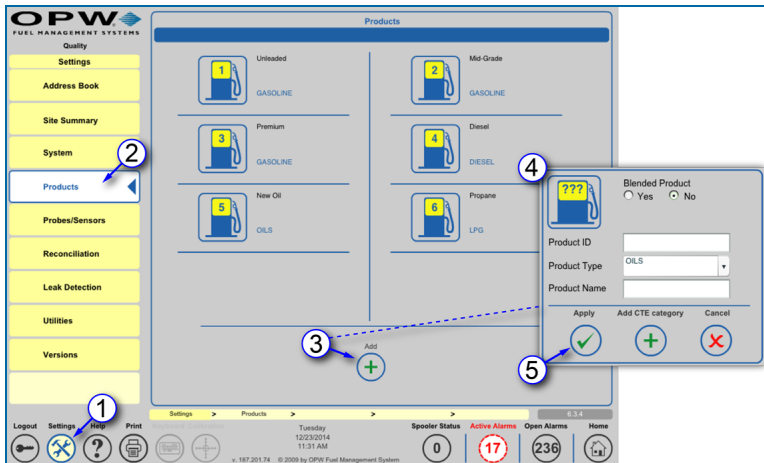


IMPORTANT: Products must be set up in the system prior to the configuration of any tanks/probes.

Topics covered in this section include:

- ["Add a Product" on the next page](#)
- ["Add a CTE Category \(for Product Type Dropdown\)" on page 68](#)
- ["Add A Non-Blended Product" on page 69](#)
- ["Add A Blended Product" on page 70](#)

5.1 Add a Product



Add Products

1. Push **Settings**.
2. Push **Products**.
3. Push the **Add** button at the bottom middle of the screen.
4. Enter the site-specific information for the product (these options will be explained in detail in Sections 11.3 and 11.4).



NOTE: If connecting the tank gauge to a point of sale system (POS), the product code must match what is programmed into the POS.



NOTE: Veeder-Root POS systems are limited to a total of 16 products.



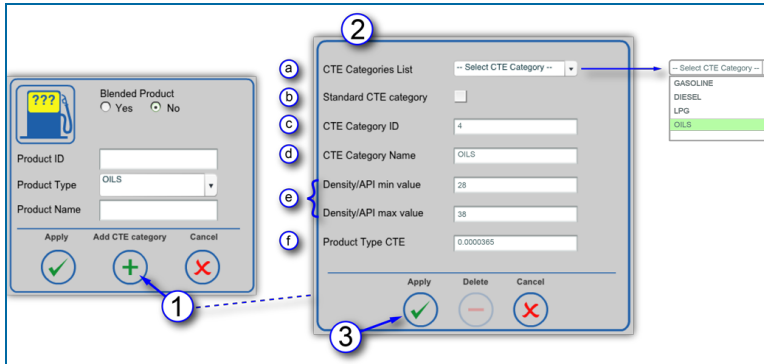
IMPORTANT: Pure products must be created before blended products. See Sections 11.3 and 11.4 for details on non-blended (pure) and blended product setup.



TIP: If the product type is not available for the product that is being programmed, proceed to Section 11.2.

5. Push **Apply**.

5.2 Add a CTE Category (for Product Type Dropdown)



Add CTE Category

If a Product Type is not available on the dropdown list in the Add Product window, it will need to be defined in the system.

1. Push the **Add CTE Category** button on the Add Product window. A new window will come into view where the new product type can be defined (CTE is the Coefficient of Thermal Expansion, a value used to determine tank expansion based on fuel volume).
2. Enter the information for the new fuel type:
 - a. The **CTE Categories List** dropdown shows all standard product types as well as new product types previously defined in the system. If a standard product type is selected, the **Standard CTE Category** box will be checked and the CTE Category ID and CTE Category Name will be populated automatically with the values stored in the system. The system will also use stored minimum and maximum Density/API and CTE values for the selected standard product.
 - b. Select a **Standard CTE Category** (optional). A Standard CTE category automatically calculates the coefficient of thermal expansion (CTE) based on the minimum and maximum density values. If you are setting up a non-standard product type do not check this box.
 - c. Create a **CTE Category ID**. The ID number must start at four (4) or higher (0-3 are used by the system for standard product types).
 - d. Enter a **CTE Category Name** (e.g. if a new CTE category is being created for Diesel Exhaust Fluid the CTE category could be named DEF).
 - e. Enter the **Density/API** min and max values.
 - f. Enter the **Product Type CTE** if the check box in step 2b was not checked.
3. Push Apply.

5.3 Add A Non-Blended Product

The screenshot shows a dialog box for adding a product. It includes a 'Blended Product' section with 'Yes' and 'No' radio buttons. Below this are three input fields: 'Product ID' (07), 'Product Type' (OILS), and 'Product Name' (Old Oil). At the bottom are three buttons: 'Apply' (with a checkmark icon), 'Add CTE category' (with a plus icon), and 'Cancel' (with a minus icon). Numbered callouts 1-5 point to the 'No' radio button, the 'Product ID' field, the 'Product Type' dropdown, the 'Product Name' field, and the 'Apply' button respectively.

Add a Non-Blended Product

1. Select the **No** radio button under **Blended Product** to indicate a non-blended product.
2. Enter a 2-Digit **Product ID**: This identifies the product by number as a reference for reports and POS protocols (when using POS protocols, the Product ID must be limited to the maximum number supported by the selected POS protocol).



NOTE: A list must be added for each protocol.

3. Select a **Product Type** from the dropdown. This is the type of product (e.g., Diesel, Gasoline, Oil or a user-defined product type).
4. Enter Product Name: A user-defined entry to identify the product (e.g., Unleaded).
5. Press "Apply" to add the product to the product list.

Repeat these steps for each additional non-blended product to be added.

5.4 Add A Blended Product

The image shows four sequential screenshots of a software interface for adding a blended product. Each screenshot is labeled with a circled number from 1 to 5.
1. The 'Blended Product' radio button is selected.
2. The 'Product ID' field contains '07' and the 'Product Name' field contains 'Mid Grade'.
3. The 'High Stock' dropdown menu is open, showing options: Unleaded, Premium, Diesel, and New Oil. 'Premium' is selected.
4. The 'Low Stock' dropdown menu is open, showing options: Unleaded, Premium, Diesel, and New Oil. 'Unleaded' is selected. Below the dropdowns, the 'Blend Ratio' is shown as 60% for High Stock and 40% for Low Stock.
5. The 'Apply' button (a green checkmark) is highlighted.

Add a Blended Product

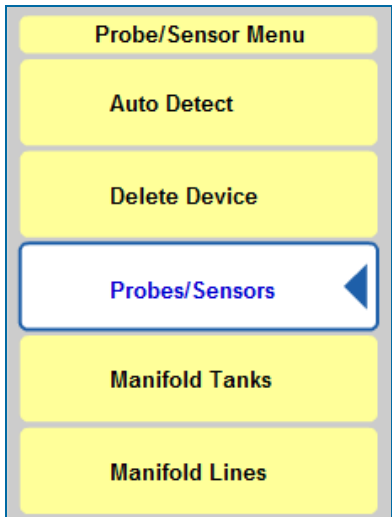
1. Select the **Yes** radio button under **Blended Product** to indicate that this will be a blended product. The window will expand to show three fields.
2. Enter the required information into each of the fields:
 - a. Enter a 2-Digit **Product ID**: This identifies the product by number as a reference for reports.
 - b. Enter a **Product Name** to describe the type of blended product.
 - c. Select the **High Stock** product from the dropdown list. The High Stock is the product that will have the higher percentage in the total mixture (this must also be the higher octane of the two blended fuels). When the High Stock has been selected the Low Stock field will come into view.



NOTE: You can only blend products of the same type (e.g. premium unleaded gasoline and regular unleaded gasoline). They must be defined in the **CTE Category** (see "[Add a CTE Category \(for Product Type Dropdown\)](#)" on page 68) to be available in the dropdown. If two products of the same type are not available the error "No other product of the same type can be found" will pop up.

3. Select the **Low Stock** product from the dropdown list. The Low Stock is the product that will have the lower percentage in the total mixture (this must also be the lower octane of the two blended fuels). When the Low Stock has been selected the Blend Ratio field will come into view.
4. Enter the **High Stock** percent (%) from 1-99. The Low Stock % will automatically be calculated in the system and be displayed to show the **Blend Ratio** (High Stock % + LowStock % = 100%).
5. Push **Apply** to add the Blended Product in the system.

Section 6 Probes/Sensors

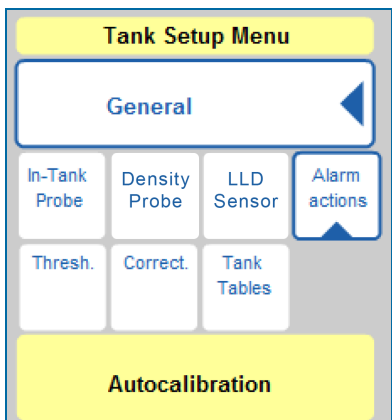


Probes/Sensors Menu

The auto-detection of modules and devices was discussed in the ["Getting Started" on page 9](#) section of this guide. This section will show the steps to configure the devices connected to the modules and the tanks that the devices will monitor.

The simple navigational structure in this section lets you drill down from a module to a connected device (probe/sensor). Topics related to these screens include:

- ["Add Devices Manually" on page 73](#): Add new devices, configure multi-drop devices, delete modules, IS Barrier positions and devices.
- ["Device Setup \(In-Tank Probe\)" on page 79](#): Configure probes in tanks
- ["Sensors" on page 109](#) configuration
- ["Manifold Tanks" on page 119](#): Set up a series of tanks to form a Manifold Group.
- ["Manifold Lines" on page 122](#)



Tank Setup Menu

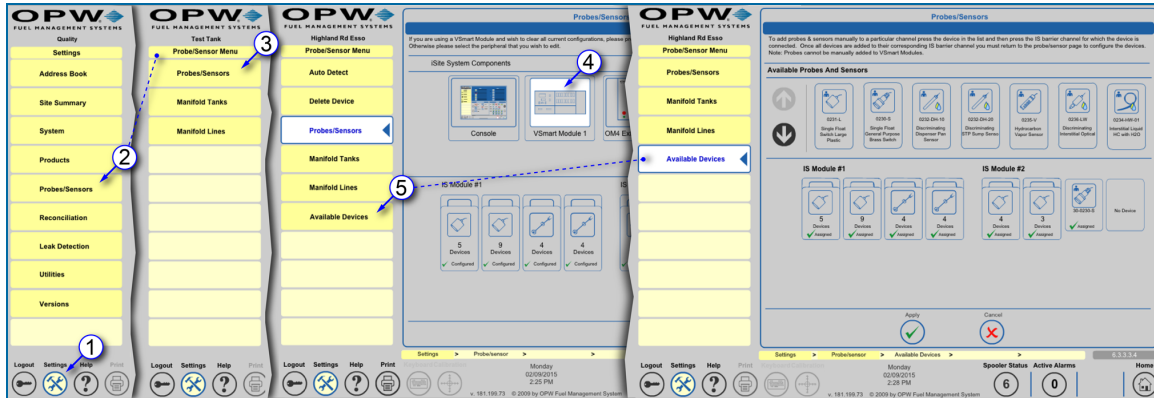
- ["Tank Setup" on page 89](#): From the probe screens you can drill down to the tank level and set up parameters related to:
 - ["Tank Thresholds" on page 90](#)
 - ["Tank Correction Table" on page 93](#) values
 - Set up ["Tank Tables" on page 95](#)
 - ["Alarm Actions \(In-Tank\)" on page 101](#)
 - ["Density Probe" on page 98](#)
 - ["Volumetric Line Leak Detection \(LLD\) Sensor " on page 99](#)
 - ["Autocalibration" on page 106](#): Set autocalibration parameters for ACR (Autocalibration and Reconciliation) enabled tanks.

6.1 Add Devices Manually

Once a module has been detected, devices can be added manually to its applicable I.S. positions.

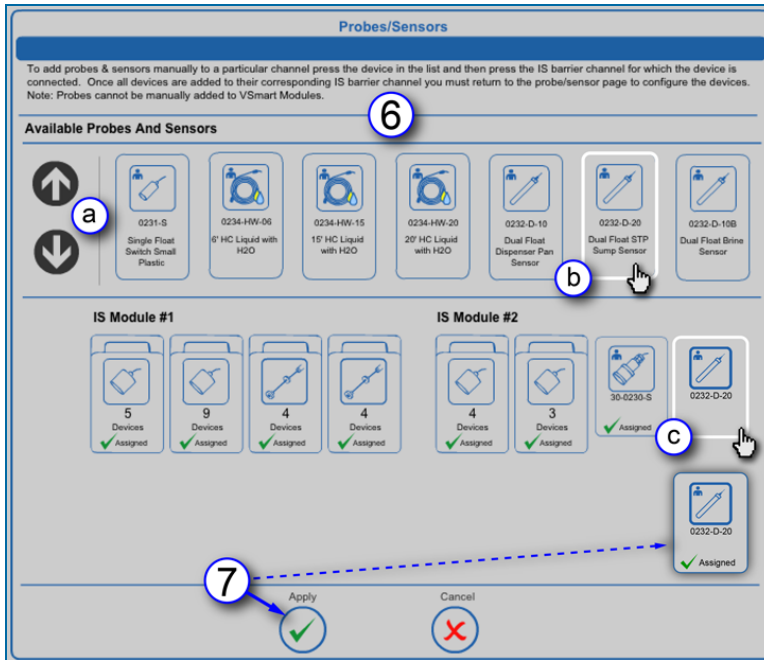


NOTE: It is possible to add Analog Sensors to a VSmart Module and to a Smart Module in the SiteSentinel® Integra 500®. Probes and Probes with a Density Meter can only be added to a Smart Module.



Add Devices Manually

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Probes/Sensors** from the Probes/Sensors menu.
4. Select the **VSmart** module where you will manually add the device.
5. Select **Available Devices** from the expanded Probes/Sensors menu. A new screen will open.

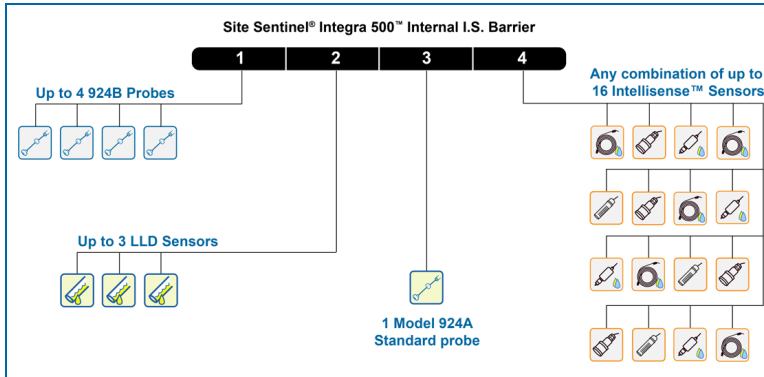


Available Probes and Sensors

6. The panel will show all of the available devices for the system under **Available Probes and Sensors** on the Probes/Sensors screen.
 - a. Use the up and down navigational arrows to scroll through all of the available selections.
 - b. Select the device you want to add. The icon border will change to white.
 - c. Select the barrier position where you want to add the device. The device icon and its part number will be added to that position.
7. Push **Apply**. Connected positions will be marked “Assigned” and be indicated by a green check mark.

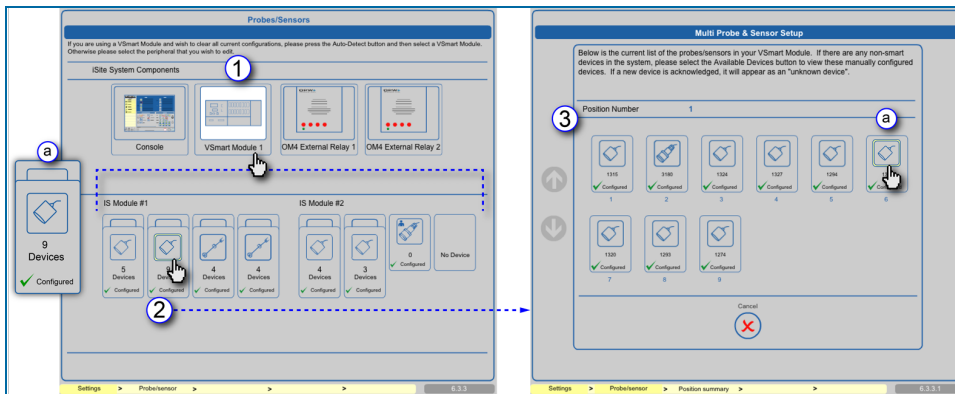
6.1.1 Multi-Drop Probe and Sensor Setup

Each VSmart Module detected can connect up to four (4) standard probes, three (3) LLD sensors (for SiteSentinel® Integra 500® only) or 16 digital sensors for each of its four (4) channel positions.



NOTE: The SiteSentinel® Integra 100® has an Internal VSmart Module only. The SiteSentinel® Integra 500® has an Internal VSmart Module and can also have up to seven (7) external VSmart Modules installed.

Analog sensors. EECO probes and AST probes are not supported by the multi-drop function.



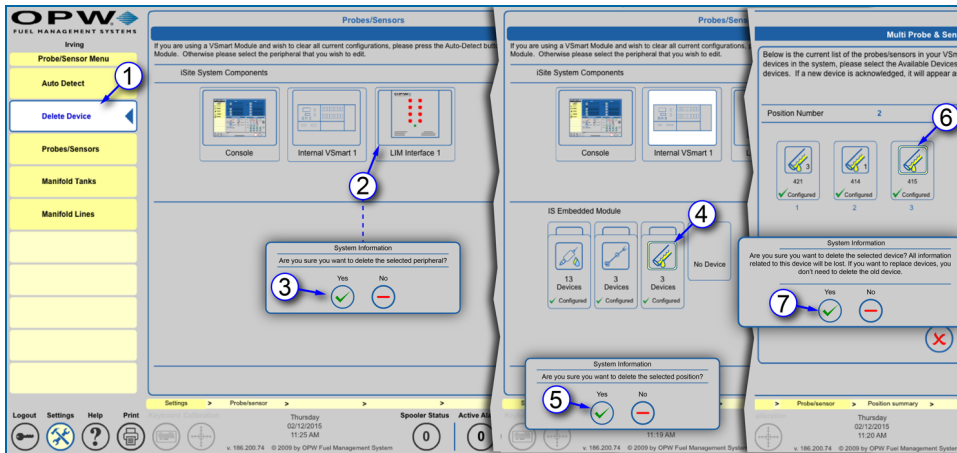
Multi-Drop Probe and Sensor Setup

1. Select a module from the Probes/Sensors screen to see its multi-drop positions (if applicable). The multi-drop positions will come into view in the lower panel.
 - a. The multi-drop function is indicated by a pair of device icons and shows the number of devices connected to each multi-drop barrier position.
2. Select the multi-drop position you want to view. The **Multi Probe and Sensor Setup** screen will come into view.
3. The Multi Probe and Sensor Setup screen lists all of the devices connected at the selected barrier position.

- a. Select a device from the list. A setup screen for the device will come into view. Sensors and Probes have different setup screens. Probe setup is described in Section ["Configure a Standard Probe" on page 80](#). Sensor setup is described in ["Sensors" on page 109](#).

6.1.2 Delete Modules, IS Barrier Positions and Devices

The **Delete Device** function allows you to remove a selected module, barrier position or single device from the system configuration.



Delete Modules, IS Barrier Positions and Devices

1. Select the **Delete Device** tab of the Probes/Sensors menu.

6.1.2.1 Delete a Module

2. Select the **module** (VSmart, Smart, OM4 or LIM) to delete. A popup will come into view to ask “Are you sure you want to delete the selected peripheral?”
3. Select **Yes** to delete the module. Select **No** to cancel the action.

6.1.2.2 Delete an I.S. Barrier Position

4. Select the **Barrier Position** (or, Probe, Sensor or LLD if only one device is connected to that position) to delete after a module has been selected and the connected devices are displayed. A popup will come into view and ask “Are you sure you want to delete the selected position?”
5. Select **Yes** to delete all of the connected devices on that barrier position. Select **No** to cancel the action.

6.1.2.3 Delete a Single Device from a Barrier Position

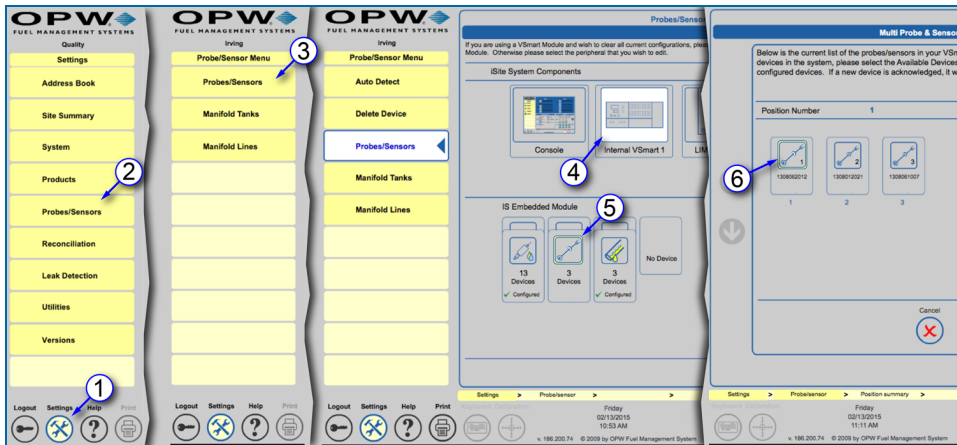
6. Select the individual **Probe** or **Sensor** to delete after a module has been selected, the connected devices displayed and a barrier position shows in the Multi Probe and Sensor screen, A popup will come into view to ask “Are you sure you want to delete the selected device? All information related to this device will be lost. If you want to replace devices, you don’t need to delete the old device.”
7. Select **Yes** to delete the device. Select **No** to cancel the action.



NOTE: All configurations and reports associated with a deleted device or module will also be deleted.

6.2 Device Setup (In-Tank Probe)

This section shows the process for in-tank probe configuration in the system.



Navigation to Tank Setup

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Probes/Sensors** from the Probes/Sensors menu.
4. Select the **module** that has the probe(s) to be configured.
5. Select the **barrier position** where the probe(s) is connected.



NOTE: For multi-drop probes, select the individual probe from the next screen. If only one probe is connected to the barrier, the configuration screen will come up next.

6. Select the **probe** to be configured. The **In-Tank Probe** screen will come into view.

The sections that follow will show how to use the **General** tab of the **Tank Setup Menu** to access the In-Tank Probe, Tank Thresholds, Tank Correction, Tank Tables, Density Probe, LLD Sensor Configuration and Alarm Actions screens.

Continued

6.2.1 Configure a Standard Probe

When an individual probe has been selected, the **In-Tank Probe** screen will come up in the main panel and the **Tank Setup Menu** will open in the left-side panel. The **General** tab will open by default with several sub-menu items. The In-Tank Probe sub-menu tab opens by default.

The screenshot shows the 'In-Tank Probe' configuration interface. The left sidebar contains the 'Tank Setup Menu' with a 'General' tab selected. The main panel is divided into several sections: 'Tank #', 'Name', 'Product', 'Tank Shape', 'Tank Diameter', 'Dished-End Radius', 'Capacity', 'Safe Working Capacity', 'Product Offset', 'Water Float', 'Water Offset', 'Active During Delivery', and 'Stage II Vapor Recovery'. On the right, there are sections for 'Dual STP', 'Integrated Density Sensor', 'Density Information', and 'ACR Configuration'. At the bottom, there are buttons for 'Lock Tank', 'Maintenance', 'Apply', 'Delete', 'Cancel', 'Verify Density Device Values', and 'Probe Diagnostics'. The bottom status bar shows 'Settings', 'Sensor', 'Position summary', 'Tank Setup', 'In-Tank Probe', and 'Home'.

In-Tank Probe Configuration

1. Enter the **Tank ID**: A numerical value identifying the tank for reports and POS protocols. When using POS protocols, the tank ID must be limited to the maximum number supported by the selected POS protocol.



NOTE: A list must be added for each protocol.

2. Enter **Name**: Alphanumeric entry used to identify the tank in reports.
3. Select **Product**: Product Type in the tank.
4. Select **Tank Shape**: The tank gauge system supports the following:
 - a. **Straight**: (typical vertical tanks)
 - b. **CYL**: Flat Ends (typical cylindrical steel tank)
 - c. **CYL**: Round Ends (typical cylindrical fiberglass)
 - d. **Dished**: (typical cylindrical flat/round hybrid)

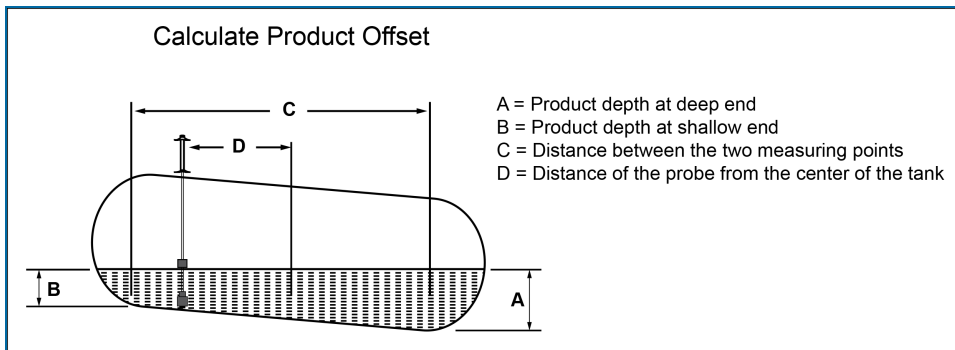


NOTE: When setting up multi-compartment tanks, special conditions may apply. For example, if the compartment tank has two round ends facing the same direction, you would select CYL-Flat Ends.

5. Enter **Tank Diameter**: The majority of tanks have a nominal diameter (or height for vertical tanks) listed in the manufacturer's specifications. The actual size of a tank can vary several inches from its supplied specification. Therefore, it is strongly recommended that the inside of each tank be measured carefully to ensure accurate system data.
6. Enter **Dished-End Radius** (applicable if Tank Shape is set to "Dished"): Enter the radius of the cylindrical ends of a cylindrical tank. Refer to the manufacturer's specification for dish-end radius value.
7. Enter **Capacity**: The tank volume is determined from the nominal volume supplied by the manufacturer or through measured fill.
8. **Safe Working Capacity**: Automatically calculated to 95% of the tank's capacity and generally is used as an overflow level.
 - **Ullage**= Safe Working Capacity minus (-) Product Volume.



NOTE: The Safe Working Capacity percentage can be adjusted by entering a value that equals the percentage necessary. For example: A tank with a capacity of 56,327 L (14,880 gal) has a default Safe Working Capacity of 53,511 L (14,136 gal). If it is necessary to change this value to 98%, enter the value in liters/gallons (55,199 L / 14,582 gal) in this field.



Calculate Product Offset

9. 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 required if the tank is perfectly level or if the probe is installed at or near the center of the tank.
 - **Product Offset** is $D \times \text{Pitch}$, where D = the distance of the probe from the center of the tank.
 - **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 .

10. Select **Water Float** (Yes/No/Disable): Defines if the probe should be looking for a water float, as well as how to respond to each water float setting.
 - **Yes:** 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.
 - **No:** The probe will not look for a water float and always show zero for water, even if a water float is installed.
 - **Disable:** 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 displayed. If the product level drops below the last water level, the last water level displayed is equal to the product level (product level will be water).
11. Select **Water Float 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.
12. Select whether or not the water float should be **Active During Delivery**: Delivery turbulence can cause the water float to give false water or probe alarms. For this reason, the recommended setting is “No.”
13. **Stage II Vapor Recovery**: Specify the type of Vapor Recovery System installed on the site and used by the SLD algorithm. Select No, Regular Nozzle or ORVR Nozzle according to your application requirements.
14. **Dual STP**: Makes it possible to switch a tank to work with two STP pumps.
15. Enter **Density Sensor Constants** (supplied with density sensor) (if applicable): If the system detects a density sensor, two additional fields will be available to set the density float constants A and B. If a density probe is linked, another additional field will be available.
16. Enter **Product Density/API**: The tank gauge system uses the Density/API number to determine the product’s expansion coefficient factor. Density/API can usually be obtained from the product distributor. The tank gauge system will accept API numbers between 0 and 85, or density values 645 kg/m³ to 1,075 kg/m³ (LPG 350-637 kg/m³, and will automatically determine whether an entry is an API number or a density value by the range in which it falls.
17. Enter **@ Temp** (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 (15.6°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 determined.
18. Enter **Density Tolerance** (if applicable): Available when a density sensor is detected or a density probe is linked. The recommended setting is 30%.
19. Enter **Delivery Timer** (if applicable): 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.

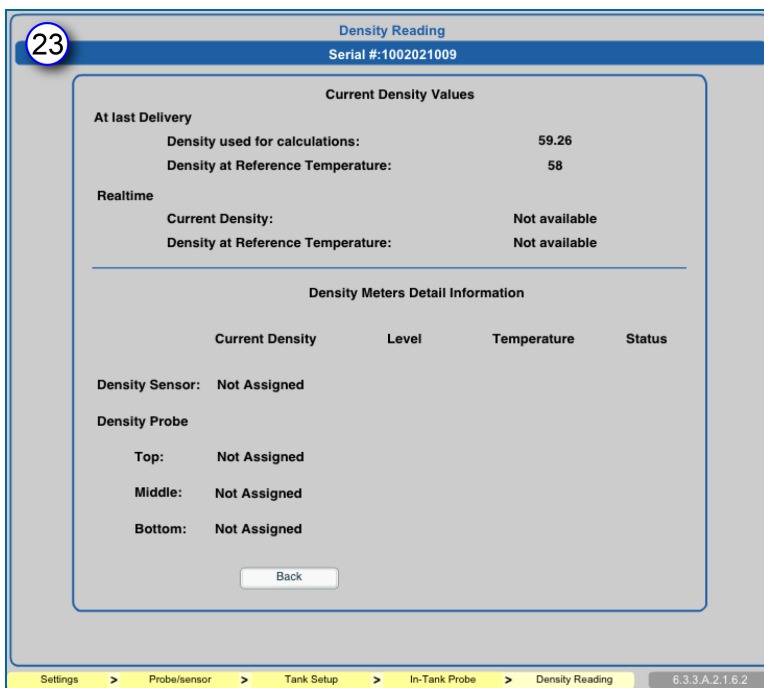


NOTE: The Delivery Timer is set at a default of 0 minutes so multiple compartments can be dropped without printing multiple delivery reports

20. TEC refers to "Tank Expansion Coefficient." This value is used to determine tank expansion based on fuel volume. This calculation is not used in the United States.
21. Select the Tank Mode: Tanks will run as Standard tanks unless ACR (Auto-Calibration and Reconciliation) is enabled.
22. Enter Evaporation Factor: Used by an ACR system exclusively when ACR tank mode is selected to compute evaporation loss as a percent of unit volume. For diesel products enter "0," for unleaded products enter ".17".



NOTE: ACR is only available for SiteSentinel® Integra 500®.



Density Reading Screen

23. **Verify Density Device Values:** If a density probe or density sensor is in use, push this button to bring up the Density Reading screen. This screen displays Current Density Values and Density Meter Detail Information. If the selected probe has an **Aqueous Ethanol Float** connected, this button will be labeled "Verify Separation Device Values" and will show applicable values. See ["Aqueous Ethanol Float \(AEF\)" on page 88](#) for more information on the AEF.



Probe Diagnostics

24. **Probe Diagnostics:** Push this button to bring up the Probe Diagnostics screen. This screen displays important information related to the probe that can help with troubleshooting.

a. **Base Data**

- ◆ Serial Number: The serial number of the detected probe.
- ◆ Velocity: The amount of time for the signal to travel from the head to the reference point on the probe and back to the head.
- ◆ Probe Model: The model number of the detected probe.
- ◆ Software Version: The current software version of the probe.
- ◆ Build Number: The build number of the probe.
- ◆ Build Date: The date the probe was built.
- ◆ Probe Class: Specifies if the probe is analog or digital.

b. **Float Levels**

- ◆ Probe Height: Shows the height of the probe.
- ◆ Product Rough: The first reading of the product float.
- ◆ Product Fine: The product float height after 16 samples.
- ◆ Water Height: The water float height.



NOTE: These heights are the actual heights of the magnets on the probe shaft and do not include offset values when calculated by the system.

c. **Probe Temperatures**

- ◆ Shows the temperature reading at the head and at each thermistor across the probe length.

- d. **Probe Status Error Codes:** Shows error codes for the probe itself. As the error continues, the counter will increase until the top value of 255. The codes are broken down into four (4) categories, Product Float, Water Float, Temperature (RTD) and Static Data codes.

Product Float Codes

- 0P - Good product reading
- 1P - No product pulses received
- 2P - Pulses over maximum length of probe
- 3P - Pulses under minimum length of probe
- 4P - Too many product pulses
- 5P - Negative jitter of 0.10" (occurs more than 30 times per second)
- 6P - Negative jitter of 0.15" (occurs more than 30 times per second)

Water Float Codes

- 0W - Good water reading
- 1W - No water pulses received
- 2W - Pulses over maximum length of probe
- 3W - Pulses under minimum length of probe
- 4W - Too many water pulses
- 5W - Negative jitter of 0.10" (occurs more than 30 times per second)
- 6W - Negative jitter of 0.15" (occurs more than 30 times per second)

Temperature (RTD) Codes

- 0T - Good temperature readings
- 1T - No temperature pulses received
- 2T - Temperatures received out of order
- 4T - Too many temperature pulses

Static Data Codes

- 0D - Good data received
- 1D - No data received
- 2D - Too many data characters

- 3D - Checksum invalid
- 4D - Too many data pulses
- 5D - Bad data characters received

e. **Current Density Reading**

- ◆ Shows the current density reading if a density probe or sensor is connected to this probe



NOTE: Water float selections will only be available once the catalog number of a probe reflecting two (2) floats is entered.

Lock Tank



Lock Tank Icon

25. **Lock Tank:** If the Weights and Measures Calibration Lock option is installed, the Lock Tank button will be available. The Lock Tank feature lets you secure the tank configuration. For example, when an Authorized Official selects the Lock Tank option, the "Apply" and "Delete" buttons go out of view. Select the option when access rights (see "[Access Levels](#)" on page 1) are set up to turn on the **Unlock Tank** feature. This user must insert a USB drive into the USB port and restart the system. After this operation, the user can Unlock Tank configuration.
26. Push **Apply** to save the configuration.
27. **Maintenance Mode:** When the tank-gauge is in Normal mode all features purchased by the user are enabled. In **Maintenance** mode, alarm information is not sent by SMS (text messages), faxes or Emails, but can still be printed to the default printer that is connected to the tank gauge system. Maintenance mode is useful to keep alarm message interference from other functions when service technicians are doing maintenance activities on tanks or sensors.
 - Push the **Maintenance** button. A popup will come into view that asks, "Are you sure you want to start Maintenance Mode?"
 - Select **Yes** to enter Maintenance mode.

6.2.2 Configure an AST Flex Probe or EECO Probe

3

Tank #: 3

Name: ZB3

Product: Rzepak

Tank Shape: Horizontal Vertical

Tank Height: 118.11 in

Capacity: 31701 gal

Safe Working Capacity: 30116 gal

Product Offset: 0 in

Water Float: Yes No Disable

Water Offset: 0 in

Active During Delivery: Yes No

LLD Yes No

Density Information

Density / API: 895

@ Temp: 59 °F

CTE: 0.04

Delivery Timer: 1 min.

Flex Probe Information

Catalog #: 7100V134R1XF2L154

Wire Speed: 9.019999999999999 uS \ In

Serial #: 111111

ACR Configuration

Tank Mode: Standard ACR

Evaporation Factor: 0 %

Lock Tank Apply Delete Cancel

Probe Diagnostics

In-Tank Probe with AST Flex Probe

This screen will show when an **AST Flex Probe** or **EECO Probe** is installed. The information included in this screen is similar to the standard probe in "[Configure a Standard Probe](#)" on page 80 and adds the parameters that follow:

1. Enter **Catalog Number**: The number pulled from the yellow tag on a flex probe to identify the probe classification. For an EECO probe, this will be the model number.
2. Enter the **Wire Speed**: The number pulled from the yellow tag on the Flex probe or the label on the EECO probe to identify the amount of time it takes the signal to travel to the end of the probe and back.
3. Enter the **Serial Number**: The number pulled from the yellow tag of the flex probe or the label of the EECO probe to identify the specific probe.
4. When all information has been entered, push **Apply** to save the configuration.

6.2.2.1 Aqueous Ethanol Float (AEF)

In-Tank Probe
Serial #:1405061033

1

Tank # 1
Name unloaded
Product unleaded
Tank Shape CYL - Flat Ends
Tank Diameter 96.00 in
Capacity 7896 gal
Safe Working Capacity 7501 gal
Product Offset 0.00 in

Aqueous Ethanol Float
Active During Delivery Yes No

Stage II Vapor Recovery: NO

Dual STP Yes No

Aqueous Ethanol Float
A -186.873 B 2357.518

Density Information
Density / API 59
@ Temp 60 °F

TEC 0

ACR Configuration
Tank Mode Standard ACR
Evaporation Factor: 0.17 %

Apply Delete Cancel Verify Separation Device Values
Probe Diagnostics

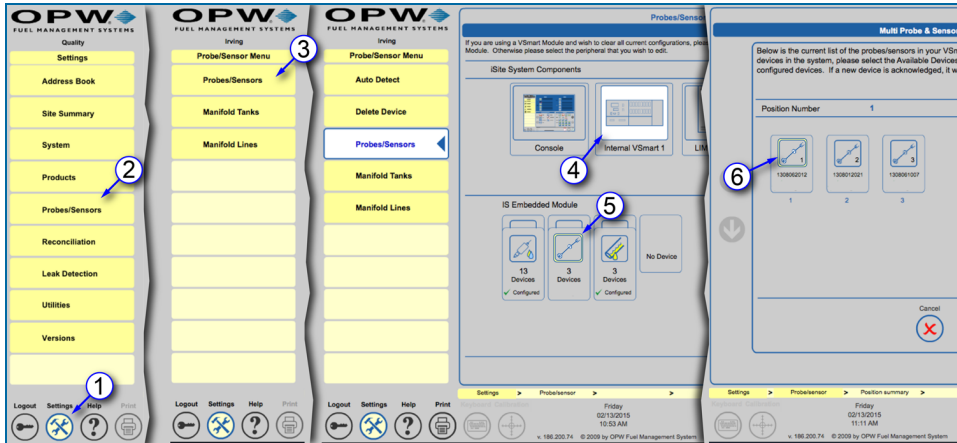
Settings > Probe/sensor > Tank Setup > In-Tank Probe > 6.3.3.A.2.1.6

Aqueous Ethanol Float

This screen will show when an **Aqueous Ethanol Float (AEF)** is installed. The information included in this screen is similar to the standard probe in "[Configure a Standard Probe](#)" on page 80 and adds the parameters that follow:

1. Select whether or not the AEF float should be **Active During Delivery**: Delivery turbulence can cause the AEF float to give false alarms. For this reason, the recommended setting is "No."
2. Factory-etched **A** and **B** factors can be found directly on the AEF float. Enter the A and B factor numbers into these fields.

6.3 Tank Setup



Tank Setup Navigation

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Probes/Sensors** from the Probes/Sensors menu.
4. Select the **module** that has a probe in the tank you want to set up.
5. Select the **barrier position** where the probe is connected.



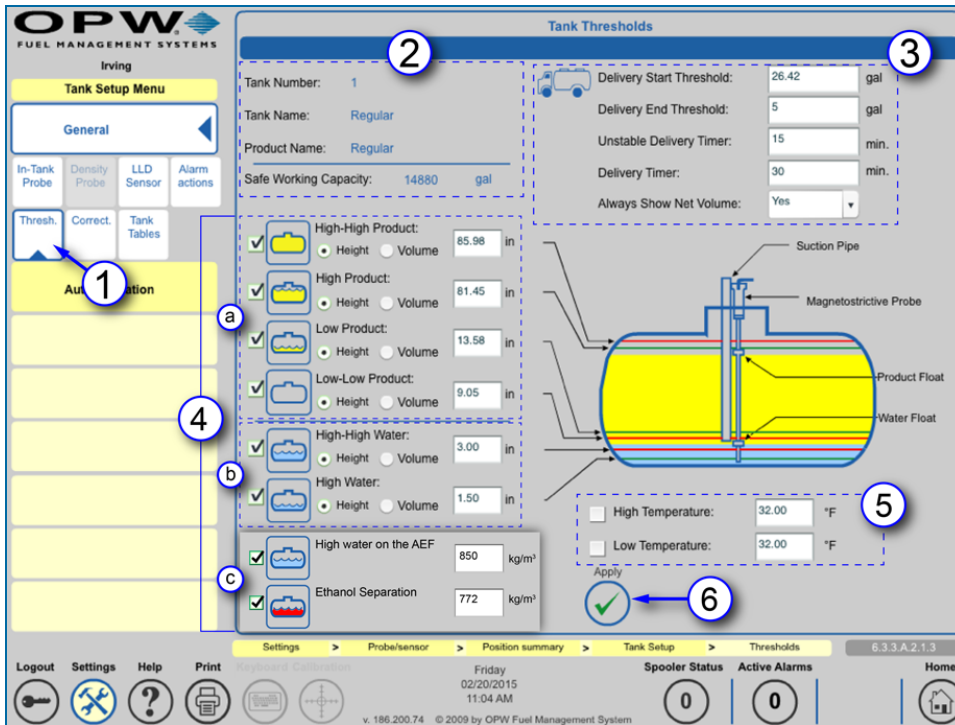
NOTE: For multi-drop probes you will select the individual probe from the next screen. If only one probe is connected to the barrier, the configuration screen will come up next.

6. Select the **probe** connected to the tank to be set up. The **In-Tank Probe** screen will come into view.

The sections that follow will show how to use the **General** tab of the **Tank Setup Menu** to access the In-Tank Probe, Tank Thresholds, Tank Correction, Tank Tables, Density Probe, LLD Sensor Configuration and Alarm Actions screens.

Continued

6.3.1 Tank Thresholds



Tank Thresholds

The **Tank Thresholds** screen allows the user to set values for alarm/event conditions. See ["Tank Setup" on the previous page](#) to see the steps to access the **General Tab** of the **Tank Setup Menu**.

1. Select the **Threshold** tab of the sub-menu on the General tab of the Tank Setup Menu. The Tank Thresholds screen will come into view.
2. The Tank Number, Name, Product and Safe Working Capacity will be shown as set up in the probe setup.
3. Define the Delivery alarm thresholds. Enter a value or select an option for each of the following:
 - **Delivery Start Threshold:** Specifies the amount of minimum product increase required to initiate the start of delivery detection. The recommended setting is 40 liters (10.6 gallons).
 - **Delivery End Threshold:** Amount of gallons/liters added per minute to reference the end of the delivery. This value is normally 0.
 - **Theft Alarm Threshold / Unstable Delivery Timer:** Tanks set up in Standard Mode will show **Theft Alarm Threshold** in this position. Tanks set up in ACR Mode will show **Unstable Delivery Timer**. See ["Configure a Standard Probe" on page 80](#) Step 21 for more information.
 - ◆ **Theft Alarm Threshold** (Standard Tank Mode): Specifies the amount of product loss to cause a theft alarm.
 - ◆ **Unstable Delivery Time Threshold** (ACR Tank-Mode Enabled): Specifies the amount of time that must pass after the unstable delivery in order to prepare a stable delivery report.

- **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.
- Select **Show Net Volume:** The tank probe uses up to five (5) RTDs (Resistance Temperature Detector) (depending on 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 the product level drops below the lowest RTD in the probe, this setting will select whether or not to show net corrected volume.

4. Define the product and water level alarm thresholds.



IMPORTANT: For these thresholds to be activated, the checkbox next to the threshold icon must be selected.



NOTE: Water levels will only be displayed when a water float is in use and set to “Enable” on the In-Tank Probe screen.



TIP: The default measurement is Height in inches/centimeters. To set the system to measure by volume, select the radio button next to Volume to change the Unit of Measure to US Gallons/Liters.

a. **Product** level alarm thresholds:

- ◆ **High-High Product:** When the product level is above this threshold, an alarm will occur to warn of a possible overflow condition. Enter a value for this threshold.
- ◆ **High Product:** When the product level is above this threshold an alarm will occur to warn of a possible overflow. Enter a value for this threshold.
- ◆ **Low Product:** When the product level drops below this threshold an alarm will occur to tell the operator that product should be ordered. Enter a value for this threshold.
- ◆ **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. Enter a value for this threshold.

b. **Water** level alarm thresholds (where applicable):

- ◆ **High-High Water:** When the water level is above 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. Enter a value for this threshold.
- ◆ **High Water:** When the water level is above this threshold an alarm will occur as a pre-warning to a High-High condition. The default is 1.5 in (3.8 cm). Enter a value for this threshold.

- c. **AEF** alarm thresholds (where applicable):
 - ❖ **High water on the AEF:** When the water level is above this threshold an alarm will occur. The value is expressed as kg/m³. Enter a value for this threshold.
 - ❖ **Ethanol Separation:** When the ethanol separation is above this threshold an alarm will occur. The value is expressed as kg/m³. Enter a value for this threshold.
5. Define the product temperature level alarm thresholds.
 - ❖ **High Temperature:** When the product temperature is above this threshold an alarm will occur. To set this threshold in operation, click the box to add a check mark. Enter a value for this threshold.
 - ❖ **Low Temperature:** When the product temperature drops below this threshold an alarm will occur. To set this threshold in operation, click the box to add a check mark. Enter a value for this threshold.
6. Push **Apply** to save these settings.

6.3.2 Tank Correction Table

OPW FUEL MANAGEMENT SYSTEMS
OEM Site

Tank Setup Menu
General

In-Tank Probe Density Probe LLD Sensor Alarm actions
Thresh. Correct. Tank Tables

Autocalibration

Tank end Shape Correction Table

Tank Number: 1
Tank Name: Tank 1
Product Name: Unleaded

Correction:

Height: in Volume: gal

Product Height:	in	Volume:	gal
1		24	
2		68	
3		124	
4		191	
5		266	
10		744	
20		2050	

Add Remove Remove All

Lock tank correction table Apply: Import Data Export Data

Logout Settings Help Print Keyboard Calibration Monday 02/23/2015 9:24 AM Spooler Status 0 Active Alarms 2 Home

v. 188.203.75 © 2009 by OPW Fuel Management System 6.3.3.A.2.1.4

Tank End Shape Correction Table

The **Tank End Shape Correction Table** lets you adjust the measurement-to-volume conversion based on a tank chart. This is used to make up for an irregularly shaped tank end, or if there are dents or other obstructions in the tank. These values are entered as height and volume measurements for specified points through the tank. Points may be added or removed at any time.



NOTE: Correction entries do not have to be put in sequential order; the SiteSentinel® Integra® system will organize the sequence of entries.

1. Select the **Correction** tab of the sub-menu below the General tab of the Tank Setup Menu. The Tank End Shape Correction Table screen will come into view.
2. The Tank Number, Tank Name and Product Name will show at the top of the panel.
3. Enter the **Height** (in inches/cm) and **Volume** (in gal/L).
4. Push **Add**. The values will show in the chart.
5. Repeat steps 3-4 for each correction point.
6. Push **Apply** to save the Correction table values.
7. Individual points can be removed from the table:
 - a. Select the point to be deleted (it will be highlighted).

- b. Push **Remove** to delete the single point values (push Apply to save).
8. To delete all points on the table push **Remove All**. Push **Apply** to save.

6.3.2.1 Import/Export Feature



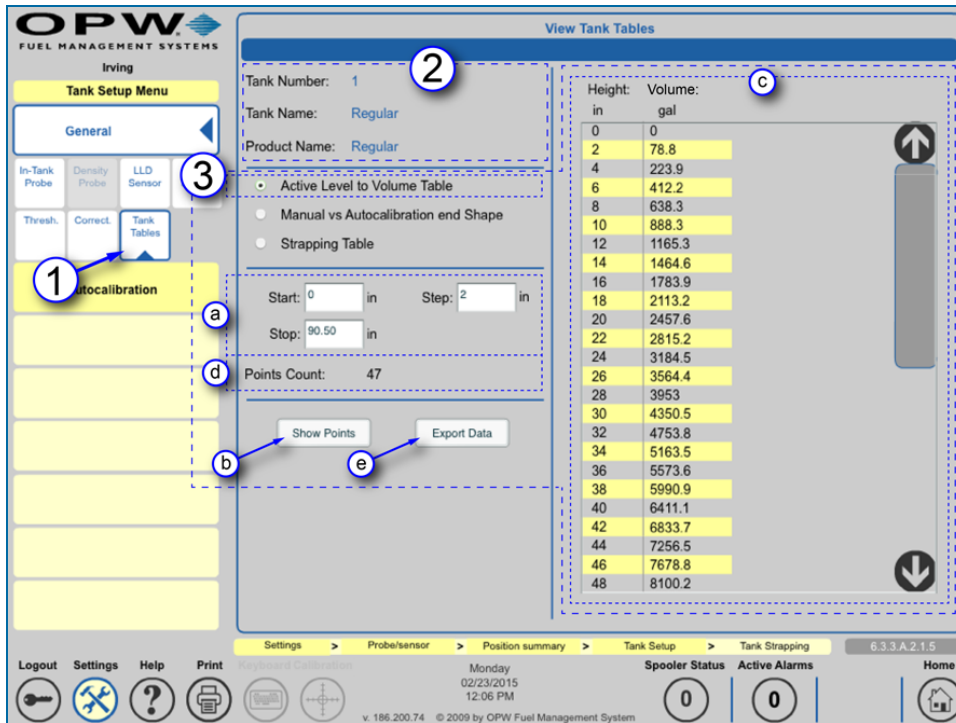
TIP: Use the **Import/Export** feature to set up tanks of the same type.

9. Once a table has been saved in the system it can be saved for export as a file in your connected PC:
 - Select the **Export Data** button
 - In the save prompt, enter a name for the file, select a location for the tank chart and push **Save**.
10. A table can be imported to a new tank configuration from a previously saved file:
 - Select the **Import Data** button
 - Navigate through the Windows Explorer to find the file to import, highlight the file and push **Open**.

6.3.2.2 Lock Tank Correction Table

11. Push the **Lock tank correction table** button to prevent the table from being changed without authorization.

6.3.3 Tank Tables

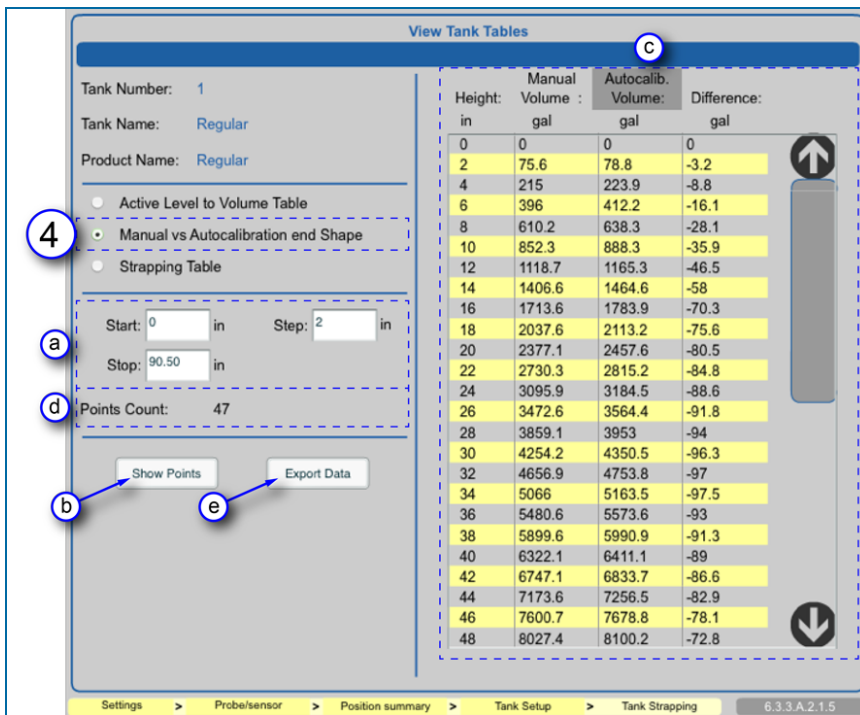


View Tank Tables

The **Tank Tables** are used to show 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.).

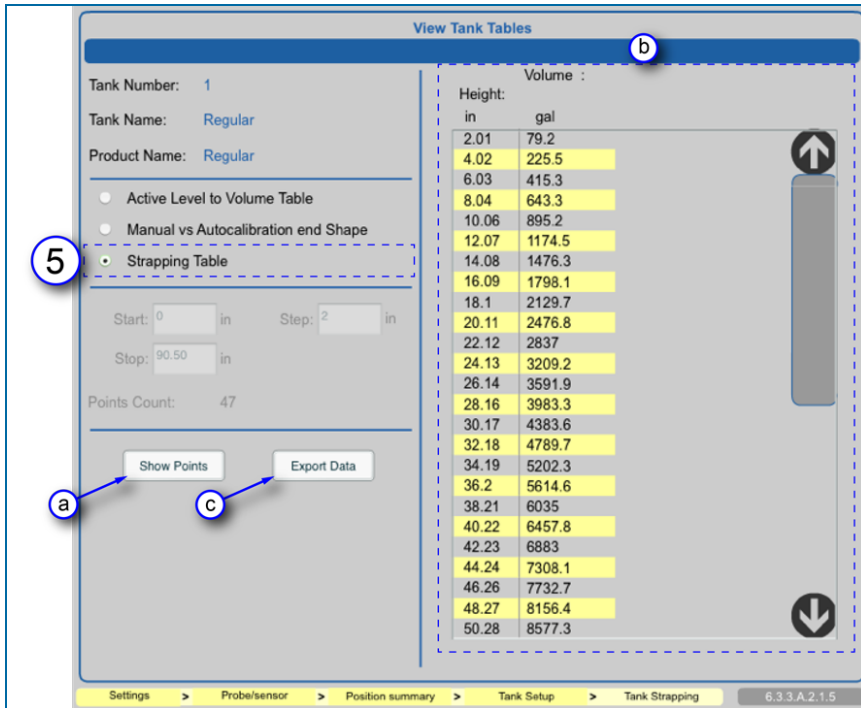
1. Select the **Tank Tables** tab of the sub-menu on the General tab of the Tank Setup Menu. The View Tank Tables screen will come into view.
2. The Tank Number, Tank Name and Product Name will show at the top of the panel.
3. The **Active Level to Volume Table** radio button is selected by default and is calculated for tanks set up in either Standard or ACR (Auto Calibration and Reconciliation) mode. For a tank in Standard mode the other selections will be unavailable and grayed-out.
 - a. Enter a **Start** point, **Stop** point and **Step** measurement (in inches/cm). 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.
 - b. Push the **Show Points** button.
 - c. The **Height-to-Volume** step measurements for the selected start/stop range will show in the right panel.
 - d. The total **Points Count** is shown below the Start/Stop/Step selections.
 - e. This table can be saved for export as a file in your connected PC:
 - ◆ Select the **Export Data** button

- ◆ In the save prompt, enter a name for the file, select a location for the tank chart and push **Save**.



Manual vs Autocalibration End Shape

- The **Manual vs Autocalibration end Shape** radio button can only be selected when a tank is configured in ACR mode (SiteSentinel® Integra 500® only).
 - Enter a **Start** point, **Stop** point and **Step** measurement (in inches/cm). 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.
 - Push the **Show Points** button.
 - The **Height-to-Volume** (for both, Manual calculation and Autocalibration volumes) step measurements for the selected start/stop range will show in the right panel. The last column shows the volume difference between manual and autocalibration.
 - The total **Points Count** is shown below the Start/Stop/Step selections.
 - This table can be saved for export as a file in your connected PC:
 - ◆ Select the **Export Data** button
 - ◆ In the save prompt, enter a name for the file, select a location for the tank chart and push **Save**.



Strapping Table

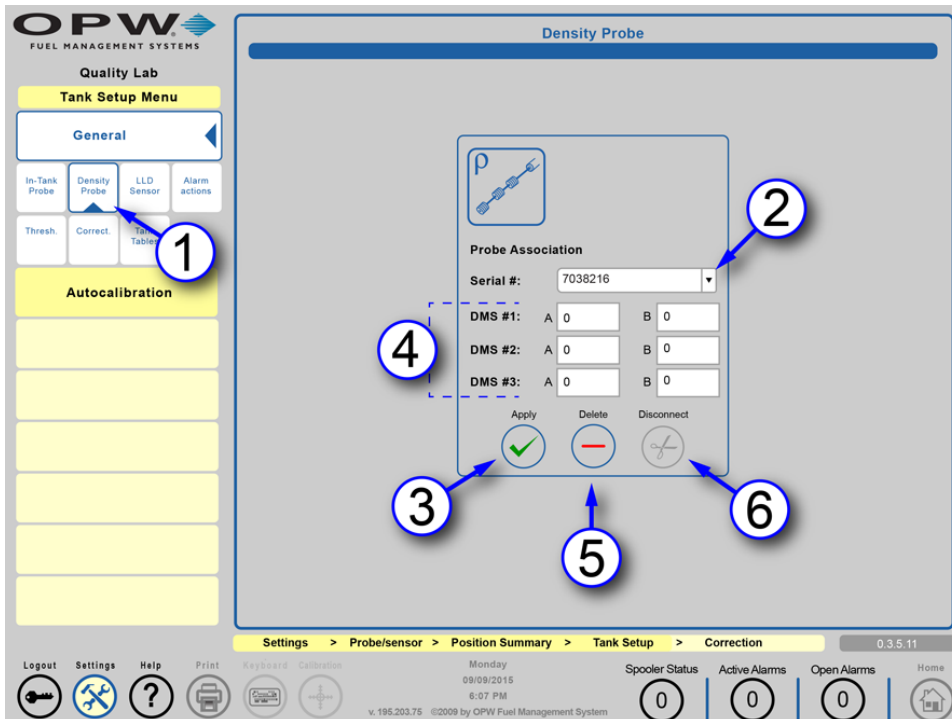
5. The **Strapping Table** radio button can only be selected when a tank is configured in ACR mode (SiteSentinel® Integra 500® only).



NOTE: On ACR-enabled tanks, the system will add correction values based on calculations of data received from the probe and pump sales (additional hardware required) to modify the tank-strapping table.

- a. Push the **Show Points** button.
- b. The **Height-to-Volume** step measurements based on the number of tank strapping segments defined in the "[Advanced Autocalibration Parameters](#)" on page 108 screen will show in the right panel.
- c. This table can be saved for export as a file in your connected PC:
 - ◆ Select the **Export Data** button
 - ◆ In the save prompt, enter a name for the file, select a location for the tank chart and push **Save**.

6.3.4 Density Probe



Density Probe

The user can connect or disconnect Density Measurement devices to the tank from this screen. If an available Density device has been detected the **Density Probe** sub-menu tab will be turned on in the General tab of the Tank Setup Menu.

1. Push the **Density Probe** tab to open the Density Probe configuration screen.
2. The **Serial #** dropdown list shows the available density probes.
3. After selecting a density probe Serial #, push **Apply** to identify the selected density probe in a specific tank.
4. Enter the **A** and **B** factors for each **Density Measurement Sensor** (DMS) connected to the probe from this screen. The A and B factors are etched directly on the sensor.
5. To delete the probe from the system, push the **Delete** button.
6. When a Density Probe has been configured the **Disconnect** button will come on. This gives the option to disconnect the probe if it ever becomes necessary.



NOTE: The terms used in the field, Density Probe, Density Sensor (DMS) and Density Float (DMF) are interchangeable. All refer to the density measurement device installed on a probe to accurately measure the density of a specified fuel type (i.e. gasoline, diesel, LPG). The configuration procedure is the same as above for each device.

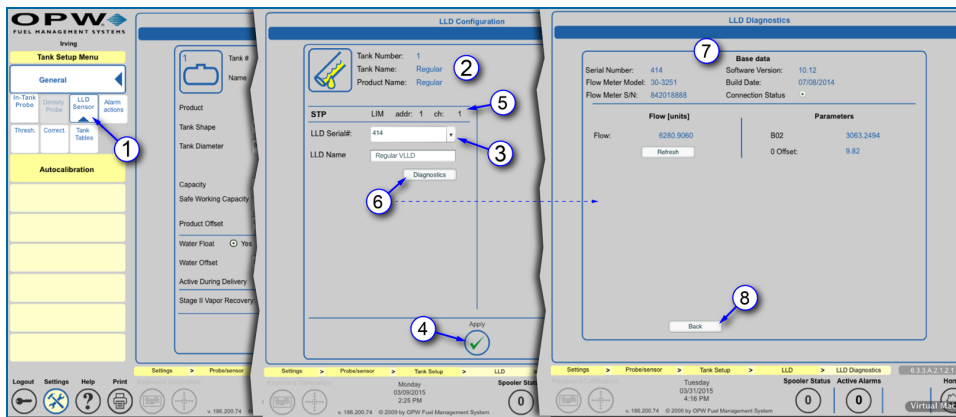
6.3.5 Volumetric Line Leak Detection (LLD) Sensor

(for SiteSentinel® Integra 500® only)



LLD Sensor Icon

The **LLD Sensor** is designed with an internal flow sensor to detect and measure volume changes in the pressurized product pipe. It is used in conjunction with a submersible turbine pump (STP) to monitor volume changes in the product piping when no fuel is being dispensed. The LLD will cause an alarm condition if an actual leak is detected.



LLD Sensor Setup

1. Select **LLD Sensor** from the General sub-menu. The LLD Configuration screen will come into view.



NOTE: This configuration screen will only be available if there is a sensor eligible to configure to a specific tank during tank configuration (when the LLD Sensor menu option is available, it shows that the tank parameters have been configured, saved and the system has detected an available LLD Sensor connected to a VSmart channel).

2. The **Tank Number**, **Tank Name** and **Product Name** will be shown at the top of the panel.
3. Select the **LLD Serial #** to be configured from the dropdown menu. The dropdown will show all of the serial numbers of all LLD sensors that are available to be connected to the Submersible Turbine Pump (STP) installed in the tank being configured.
4. Push the **Apply** button to configure the LLD Sensor.

To complete the LLD configuration do the steps in the **Probes and Sensors Setup** screen in "[Line-Leak Interface Module \(LIM\) Setup](#)" on page 116.

5. When the configuration is complete, this screen will show the LLD associated with the configured LIM Address and LIM Channel.
6. Push the Diagnostics button to see current information for the selected LLD. The LLD Diagnostics screen will come into view.
7. The LLD Base Data, Flow, Parameters and Configuration setup will be displayed.



TIP: Use the Refresh button to get the most recent data if this screen has been left idle.

8. Push the Back button to return to the LLD Configuration screen.

For more information on LLD Sensors see the sections on ["Leak Detection" on page 134](#) and ["Line-Leak Interface Module \(LIM\) Setup" on page 116](#).

6.3.5.1 STP Error

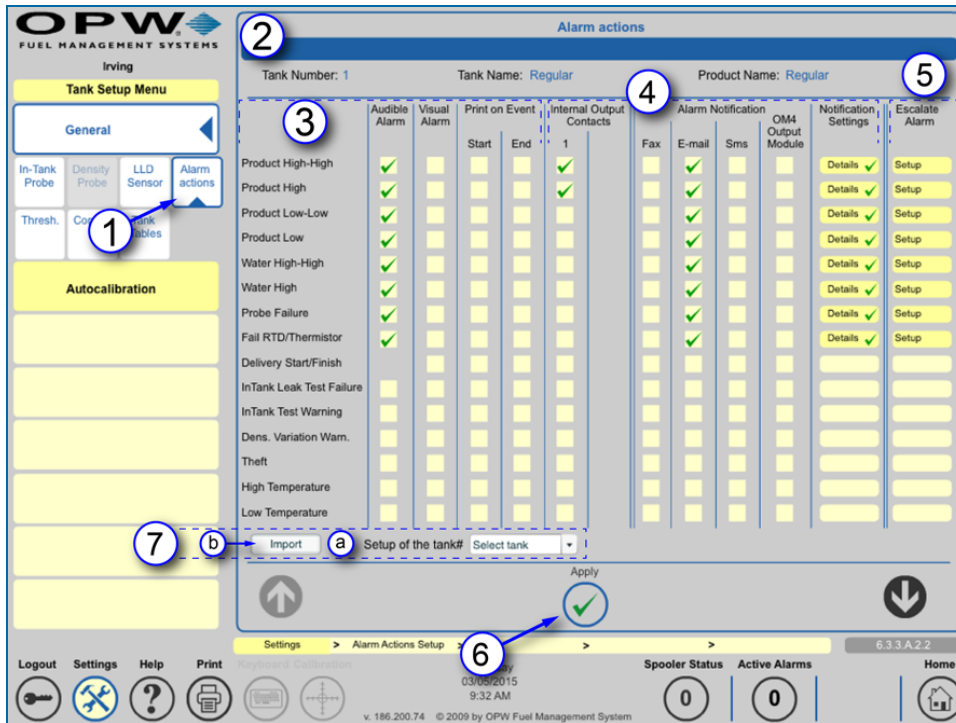
In the event that two STP's supply a single manifolded line and the system experiences an STP OFF error condition (only on the STP with the deadhead valve), then the system is in alarm and is unable to run an LLD 3.0 GPH catastrophic test.



NOTE: While the alarm condition has been raised, the STP is permanently running and the system has no control over the STP via the LIM relay in this scenario.

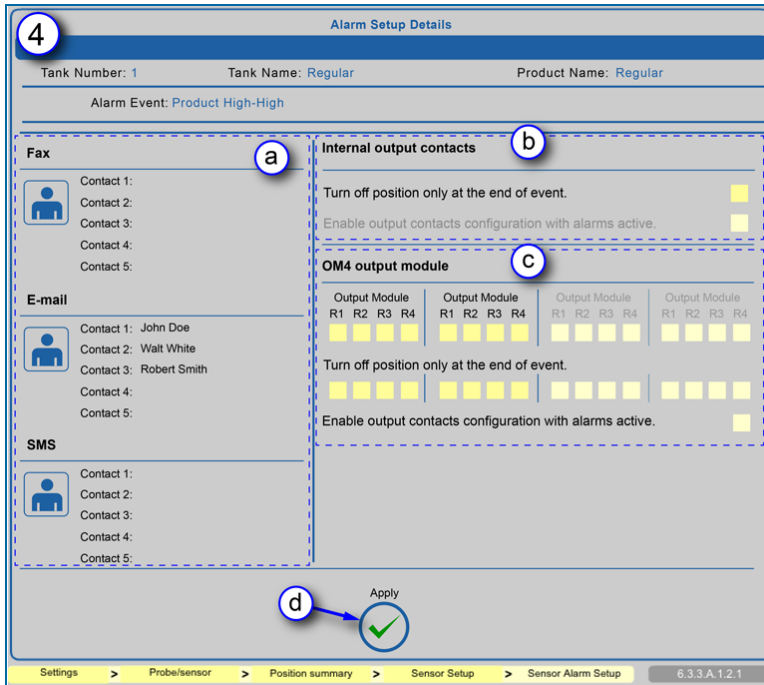
In the event that two STP's are supplying a single manifolded line and the system experiences an STP OFF error condition (on the STP with an LLD sensor fitted), then the system's alarm condition will raise, but the LLD 3.0 GPH catastrophic test will still run while the STP is permanently running.

6.3.6 Alarm Actions (In-Tank)




Tank Alarm Actions

1. Select **Alarm Actions** from the General sub-menu.
2. The **Tank Number**, **Tank Name** and **Product Name** will show at the top of the panel.
3. For any of the **System Events** in the left-hand column, select any of the available **Alarm Settings** (shown as a pale yellow square):
 - **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.
 - **Visual Alarm:** Start an action on an external visual alarm that is connected to the special terminal in the SiteSentinel® Integra®.
 - **Print on Event:**
 - ◆ **Start:** SiteSentinel® Integra® will print an Alarm/Event when an Alarm/Event starts.
 - ◆ **End:** SiteSentinel® Integra® will print an Alarm/Event when an Alarm/Event ends.

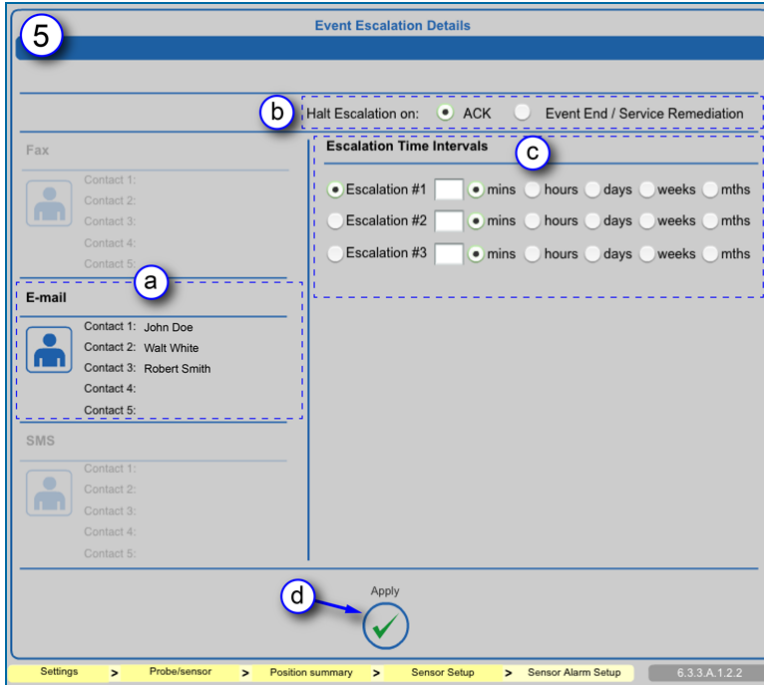


Tank Alarm Details


4. **Alarm Notifications** can be customized. Audible alarms can be controlled by the Internal Output Contacts or through an OM4 Output (if applicable). Notifications can be sent through Fax, Email or SMS to any of the contacts in the Address Book. When any of these options is selected the **Details** button under **Notification Settings** is turned on. When the **Details** button is selected the **Alarm Setup Details** screen will come into view with more available options.
 - a. When the **Details** button is selected for an Alarms Notification method (Fax/Email/SMS) it will be turned on in the Alarm Setup Details screen. Notifications can be sent to up to five (5) Address Book contacts. To select contacts for any of these methods, click the  icon to go to the Address Book, select the first contact and push **Apply**. Repeat this procedure for any other necessary contacts.
 - b. **Internal output contacts** will close when an Alarm/Event occurs. When **Details** is selected for an Internal Output Contact, an option will show on the Warning Setup Details screen to “Turn off position only at the end of event.” To turn on this option, check the yellow box.
 - ◆ “Enable output contacts configuration with alarms active:” An internal output contact can be set up while there is an active alarm in the system. If this selection is available, check the yellow box to turn this feature on (if applicable).
 - c. OM4 relay position(s) will toggle when an Alarm/Event occurs. OM4 relay logic can be changed in **Settings \ System \ Preferences System** and will be global to all OM4 Alarm/Events. When **Details** is selected for an OM4 Output, options will show on the Warning Setup Details screen. Select an OM4 relay position by checking one of the yellow boxes. To turn on “Turn off position only at the end of event,” check the yellow box for the selected relay position.

- ◆ “Enable output contacts configuration with alarms active:” An internal output contact can be set up while there is an active alarm in the system. If this selection is available, check the yellow box to turn this feature on (if applicable).

d. When all necessary options have been selected, click **Apply** to save these changes.


























Tank Alarm Event Escalation Details

- Notifications can be escalated through Fax, Email or SMS to any of the contacts in the Address Book if events are not acknowledged or ended within a specified period of time. When any of these options is selected, the Setup button under **Escalate Alarm** is activated. When the Setup button is selected the **Event Escalation Details** screen will come into view with more available options.
 - When the **Setup** button is selected for an Alarms Notification method (Fax/Email/SMS) it will be turned on in the Event Escalation Details screen. Notifications can be sent to up to five (5) Address Book contacts. To select contacts for any of these methods, click the  icon to go to the Address Book, select the first contact and push **Apply**. Repeat this procedure for any other necessary contacts.
 - To stop Escalation, select either **ACK** (escalation will stop when the event is acknowledged) or **Event End / Service Remediation**.
 - Escalation Time Intervals** can be set for up to three (3) Escalations. Enter a number and select minutes, hours, days, weeks or months.
 - When all necessary options have been selected, click the **Apply** button to save these changes.
- When all necessary options from all sub-screens have been selected and applied, click the **Apply** button to save all Alarm Actions.
- Alarm Actions can be imported from another tank that has been configured.

- a. Select the tank number of the tank to be imported from the **Setup of the Tank Number (#)** dropdown.
- b. Push the **Import** button. All alarm actions, notification and escalation settings from the selected tank configuration will automatically be set up in the current tank.

6.3.6.1 Alarm and Event Icons

	<p>Product High-High: Occurs when product in the tank is equal to or more than what is specified as the Product High-High Threshold.</p>
	<p>Product High: Occurs when product in the tank is equal to or more than what is specified as the Product High Threshold.</p>
	<p>Product Low: Occurs when product in the tank is equal to or less than what is specified as the Product High Threshold.</p>
	<p>Product Low-Low: Occurs when product in the tank is equal to or less than what is specified as the Product Low-Low Threshold.</p>
	<p>Water High-High: Occurs when product in the tank is equal to or more than what is specified as the Water High-High Threshold.</p>
	<p>Water High: Occurs when product in the tank is equal to or more than what is specified as the Water High Threshold.</p>
	<p>Probe Failure: Occurs when the probe does not see all or part of the probe data.</p>
	<p>Fail RTD/Thermistor: Occurs when the probe temperature-sensing circuitry is not working properly (i.e., temperature corrected product level could be off).</p>
	<p>Delivery Start/Finish: Occurs when a delivery is detected.</p>
	<p>In-Tank Leak Test Failure: Occurs when a leak test has failed.</p>

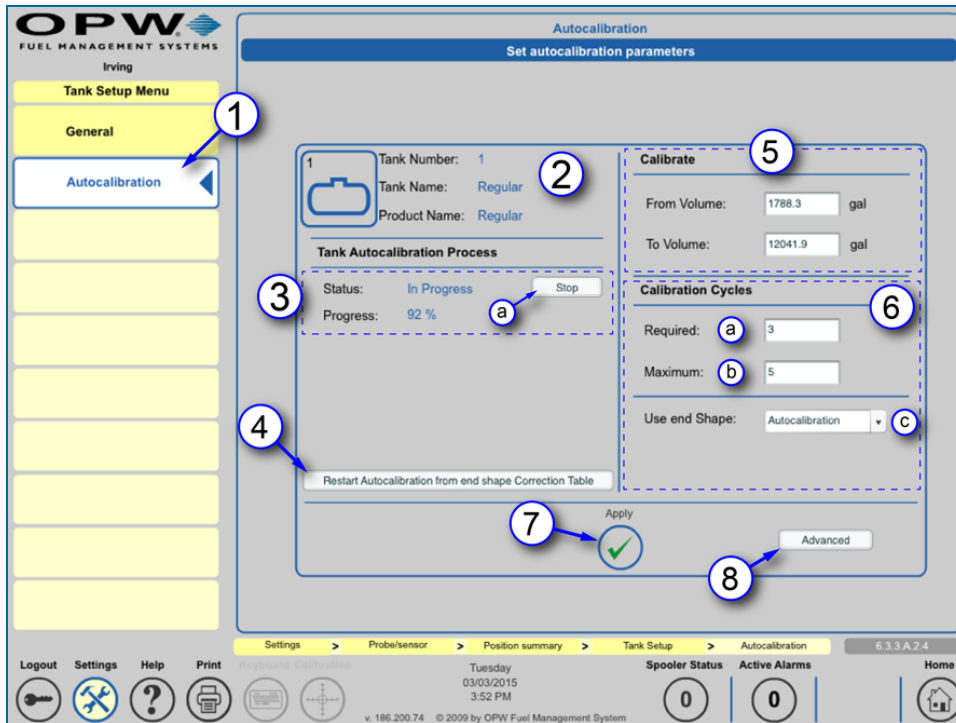
	In-Tank Test Warning: Occurs when the system has not been able to run a complete leak test in the specified period.
	Density Variation Warning: Occurs when the density tolerance level is more than the specified density level.
	Theft: Occurs when product has been sensed to leave the tank when the system is set to close.
 	High Temperature: Occurs when the product in the tank is equal to or more than its specified High Temperature Threshold.
 	Low Temperature: Occurs when the product in the tank is equal to or less than its specified Low Temperature threshold.
  	LLD Leak Test Failed: There are separate alarms for the 0.1 and the 0.2 GPH LLD Leak Test Failed alarm.
	LLD 0.2 Periodic Failure: Occurs when a 0.2 LLD leak test should be started, but the time period when this was to occur expired and a passed test was not done.
	LLD 0.1 Periodic Failure: Occurs when a 0.1 LLD leak test should be started, but the time period when this was to occur expired and a passed test was not done.
	LLD Sensor Failure: An alarm occurs when the LLD Sensor senses a hardware error.



TIP: For a complete glossary of icons with corresponding description, select the **Icons Glossary** tab from the Home Menu.

6.4 Autocalibration

(for SiteSentinel® Integra 500® only)

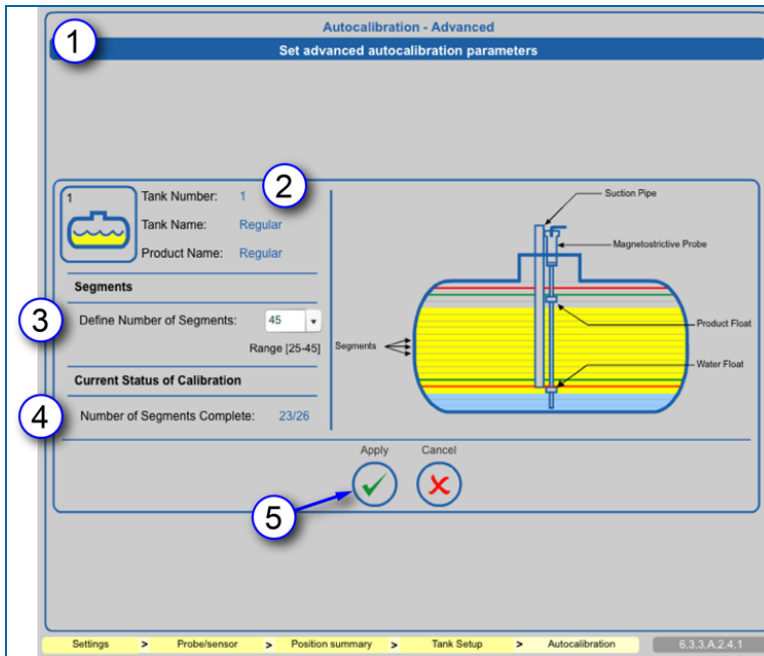


Autocalibration

1. Select **Autocalibration** from the Tank Setup Menu. The Set Autocalibration Parameters screen will come into view.
2. The **Tank Number**, **Tank Name** and **Product Name** will show at the top of the panel.
3. The **Tank Autocalibration Process** portion of the panel will show the **Status** (In Progress/Finished) and the **Progress** (as a percentage).
 - a. Push the **Stop** button to end the Autocalibration process.
4. Push the **Restart Autocalibration from End Shape Correction Table** button to autocalibrate using the values that were set up in the "[Tank Correction Table](#)" on page 93.
5. The **Calibrate** parameter specifies the full calibration volume range that autocalibration strapping-table segments will be changed.
6. The **Calibration Cycles** parameter sets the *Required* and *Maximum* calibration-cycle values for each segment.
 - a. The **Required** calibration-cycles value specifies the autocalibration status percentage (%). When each segment within the specified autocalibration volume range is at this required value, the autocalibration process is complete. Because not all segments in one autocalibration cycle are changed, some segments can be changed more than the required value.

- b. The **Maximum** calibration cycles value parameter sets the number of autocalibration cycles in which the segments will not be changed if the autocalibration process is not complete (the minimum is 5 and the maximum is 10).
 - c. **Use End Shape:** Select either Autocalibration or Manual from the dropdown.
- 7. Push the **Apply** button to save these settings.
- 8. Push the **Advanced** button to go to the Set Advanced Autocalibration Parameters screen.

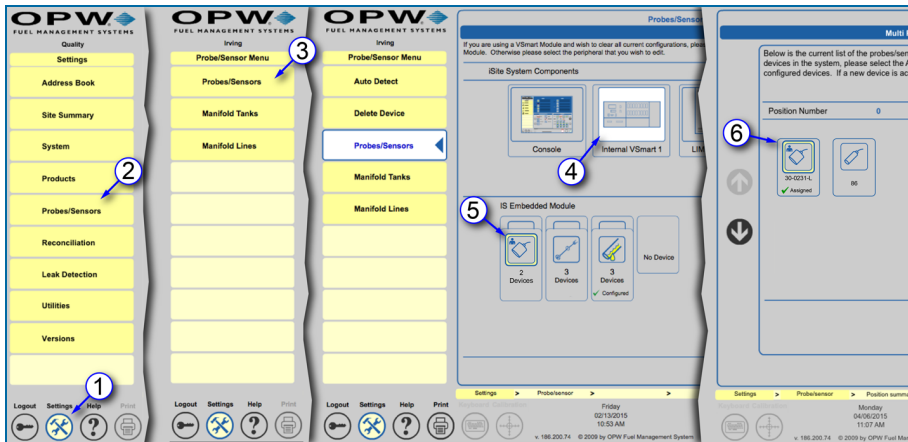
6.4.1 Advanced Autocalibration Parameters



Advanced Autocalibration

1. The **Set Advanced Autocalibration Parameters** screen will come into view when the **Advanced** button is pushed on the ["Autocalibration" on page 106](#) screen.
2. The **Tank Number**, **Tank Name** and **Product Name** will show at the top of the panel.
3. Select a number from the dropdown (from 25-45) labeled **Define Number of Segments** below the **Segments** parameter.
 - The tank height is divided into equal segments based on the number selected in the dropdown.
 - The tank height where one segment ends and another segment begins is called the Strapping Point
 - The table of strapping points (height to volume at each segment) is called the Strapping Table (see ["Strapping Table" on page 97](#))
 - The yellow product color on the picture shows the autocalibration range (defined by "From volume" and "To volume" in Section 14.4, Step 11 above)
4. The **Current Status of Calibration** parameter shows the number of segments in the range that have completed the required calibration cycles value.
5. Push **Apply** to save the number of segments selected.

6.5 Sensors



Sensor Setup Navigation

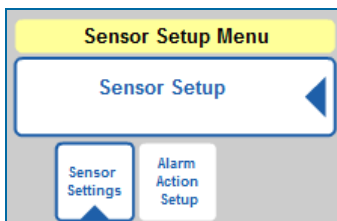
After the auto-detection process is complete, the installed Smart Sensors will be available for programming. Minimum programming is necessary for Smart Sensors in the system. Most of the sensor's information is supplied to the tank gauge console through the IntelliSense™ board on the sensor.

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Probes/Sensors** from the Probes/Sensors menu.
4. Select the **module** that has the Smart Sensor to be set up.
5. Select the **barrier position** where the Smart Sensor is connected.



NOTE: For multi-drop Smart Sensors, select the individual sensor from the next screen. If only one sensor is connected to the barrier, the configuration screen will come up next.

6. Select the **Smart Sensor** to be set up. The **Sensor Settings** screen will come into view.



Sensor Setup Menu

The **Sensor Settings** tab of the Sensor Setup menu opens by default with the Sensor Settings screen. The selected sensor's configuration parameters are specified in this screen.

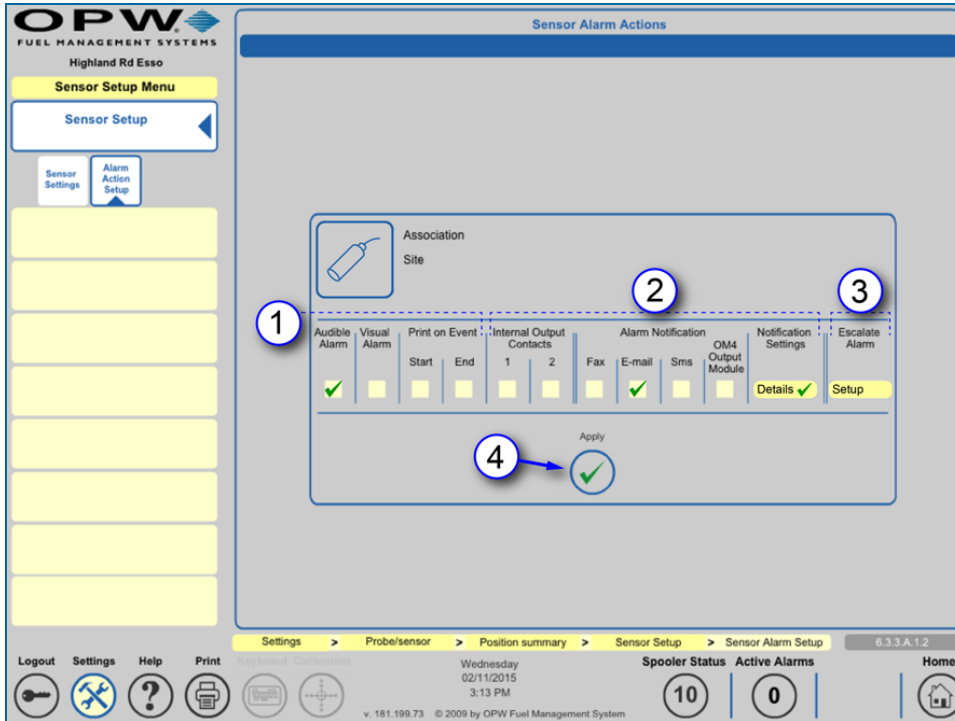
Alarm parameters for the selected sensor will be specified in the **Alarm Action Setup** tab. See "[Alarm Actions \(Sensors\)](#)" on page 111.

6.5.1 Sensor Settings

Sensor Settings

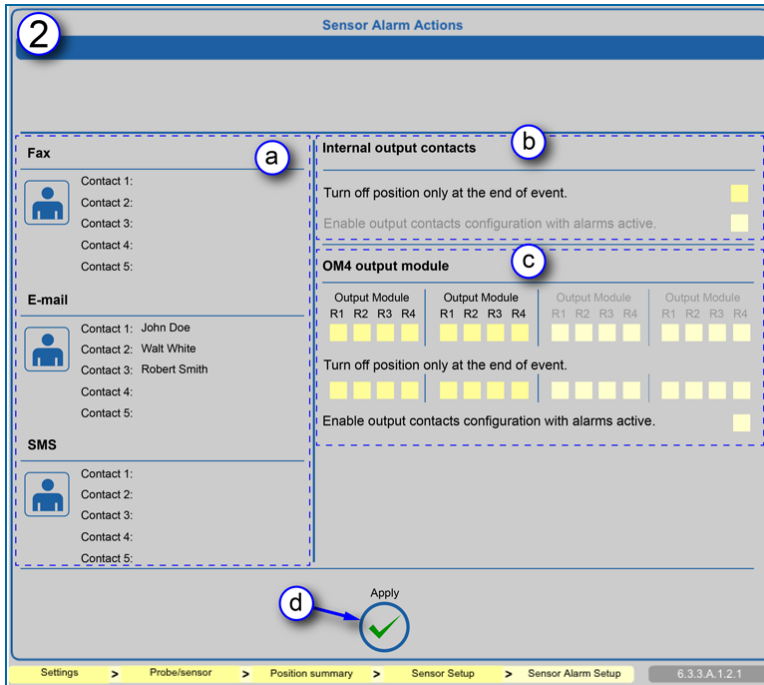
1. The Smart Sensor IntelliSense™ board will have sent much of the selected sensor's information to the console. This information shows when the Sensor Settings screen comes up. The information will include the Sensor type, model number and serial number as well as the connection to an IS Module (Device, number, channel and position numbers).
2. A sensor number and description can be entered in the fields under **IS Module** if necessary. If it becomes necessary to turn off the sensor, check the **Disabled** checkbox. Uncheck the box to turn the sensor back on.
3. Select an **Association**. Select the radio button next to the **Tank**, **Dispenser** or **Site** to be linked:
 - If **Tank** is selected: Two (2) fields will come into view. Select the **Tank Number** from the dropdown and enter information about the sensor related to the tank in the **Description** field.
 - If **Dispenser** is selected: A dropdown will come into view to select the **Pump Number**.
 - If **Site** is selected, the sensor will be related to a site function. There are no fields added with this selection.
4. The **Current Sensor Reading** (Level) is shown in the right-side panel. Push the **Refresh** button at any time to update this information.
5. Push **Apply** to save the Sensor Settings.
6. Once the Sensor Settings have been saved, select **Alarm Action Setup** from the Sensor Setup sub-menu to configure alarms for this device. The **Sensor Alarm Actions** screen will come into view. See ["Alarm Actions \(Sensors\)" on the next page.](#)

6.5.2 Alarm Actions (Sensors)




Sensor Alarm Actions

- To set sensor alarms, select any of the available Alarm Settings (displayed as a pale yellow square):
 - 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.
 - Visual Alarm:** Start an action on an external visual alarm that is connected to the special terminal in the SiteSentinel® Integra®.
 - Print on Event:**
 - Start:** SiteSentinel® Integra® will print an Alarm/Event when an Alarm/Event starts.
 - End:** SiteSentinel® Integra® will print an Alarm/Event when an Alarm/Event ends.

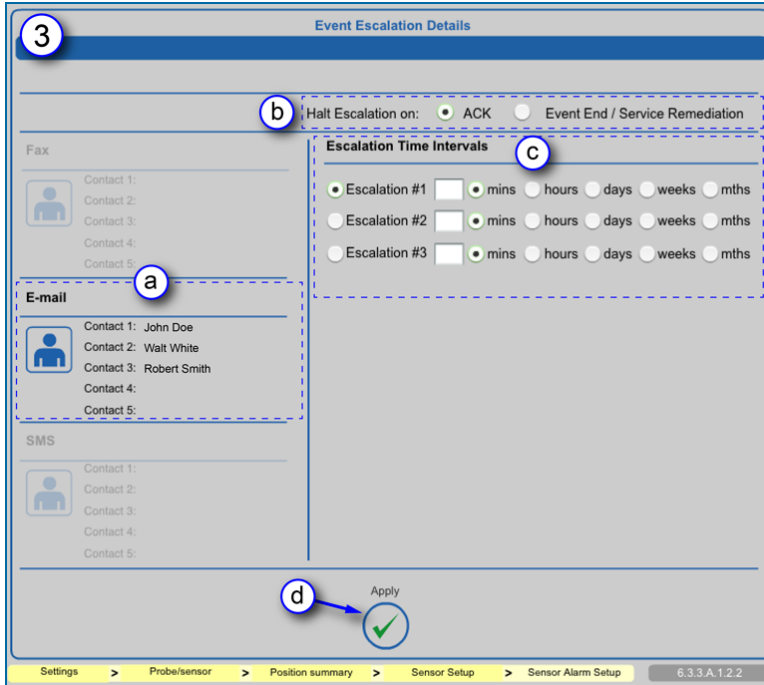


Sensor Alarm Details


2. **Alarm Notifications** can be customized. Audible alarms can be controlled by the Internal Output Contacts or through an OM4 Output (if applicable). Notifications can be sent through Fax, Email or SMS to any of the contacts in the Address Book. When any of these options is selected the **Details** button under **Notification Settings** is turned on. When the **Details** button is selected the **Alarm Setup Details** screen will come into view with more available options.
 - a. When the **Details** button is selected for an Alarms Notification method (Fax/Email/SMS) it will be turned on in the Alarm Setup Details screen. Notifications can be sent to up to five (5) Address Book contacts. To select contacts for any of these methods, click the  icon to go to the Address Book, select the first contact and push **Apply**. Repeat this procedure for any other necessary contacts.
 - b. **Internal output contacts** will close when an Alarm/Event occurs. When **Details** is selected for an Internal Output Contact, an option will show on the Warning Setup Details screen to “Turn off position only at the end of event.” To turn on this option, check the yellow box.
 - ◆ “Enable output contacts configuration with alarms active:” An internal output contact can be set up while there is an active alarm in the system. If this selection is available, check the yellow box to turn this feature on (if applicable).
 - c. OM4 relay position(s) will toggle when an Alarm/Event occurs. OM4 relay logic can be changed in **Settings \ System \ Preferences System** and will be global to all OM4 Alarm/Events. When **Details** is selected for an OM4 Output, options will show on the Warning Setup Details screen. Select an OM4 relay position by checking one of the yellow boxes. To turn on “Turn off position only at the end of event,” check the yellow box for the selected relay position.

- ◆ “Enable output contacts configuration with alarms active:” An internal output contact can be set up while there is an active alarm in the system. If this selection is available, check the yellow box to turn this feature on (if applicable).

d. When all necessary options have been selected, click **Apply** to save these changes.



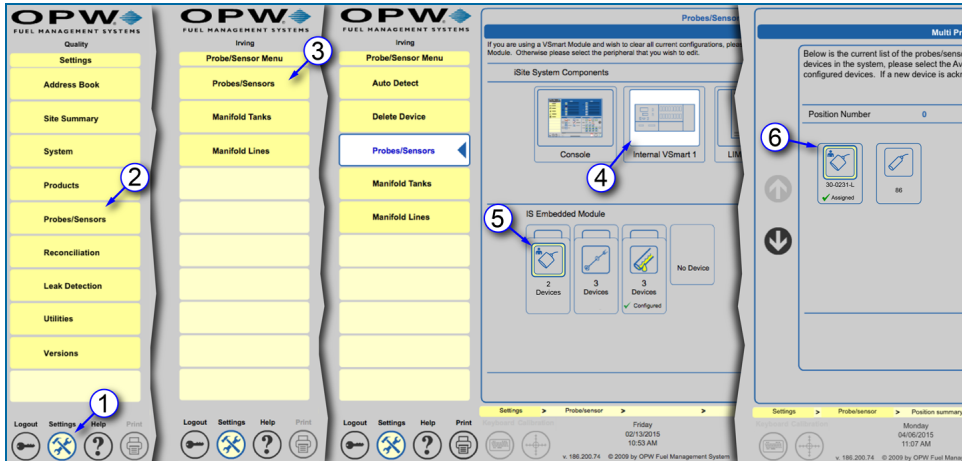
Sensor Alarm Event Escalation Details

- Notifications can be escalated through Fax, Email or SMS to any of the contacts in the Address Book if events are not acknowledged or ended within a specified period of time. When any of these options is selected, the Setup button under **Escalate Alarm** is activated. When the Setup button is selected the **Event Escalation Details** screen will come into view with more available options.
 - When the **Setup** button is selected for an Alarms Notification method (Fax/Email/SMS) it will be turned on in the Event Escalation Details screen. Notifications can be sent to up to five (5) Address Book contacts. To select contacts for any of these methods, click the  icon to go to the Address Book, select the first contact and push **Apply**. Repeat this procedure for any other necessary contacts.
 - To stop Escalation, select either **ACK** (escalation will stop when the event is acknowledged) or **Event End / Service Remediation**.
 - Escalation Time Intervals** can be set for up to three (3) Escalations. Enter a number and select minutes, hours, days, weeks or months.
 - When all necessary options have been selected, click the **Apply** button to save these changes.
- When all necessary options from all sub-screens have been selected and applied, click the **Apply** button to save all Alarm Actions.

6.5.3 Program Non-Smart Sensors

SiteSentinel® Integra 500® only

Non-Smart Sensors do not have the IntelliSense™ board on the sensor wiring. These sensors must be added manually to the system (refer to ["Add Devices Manually" on page 73](#)) and then programmed.



Sensor Setup Navigation

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Probes/Sensors** from the Probes/Sensors menu.
4. Select the module that has the Assigned Sensor you want to set up.
5. Select the barrier position where the Assigned Sensor is connected.



NOTE: For multi-drop Sensors you will select the individual sensor from the next screen. If a single sensor only is connected to the barrier, the configuration screen will come up next.

6. Select the Assigned Sensor you want to set up. The Sensor Settings screen will come into view.

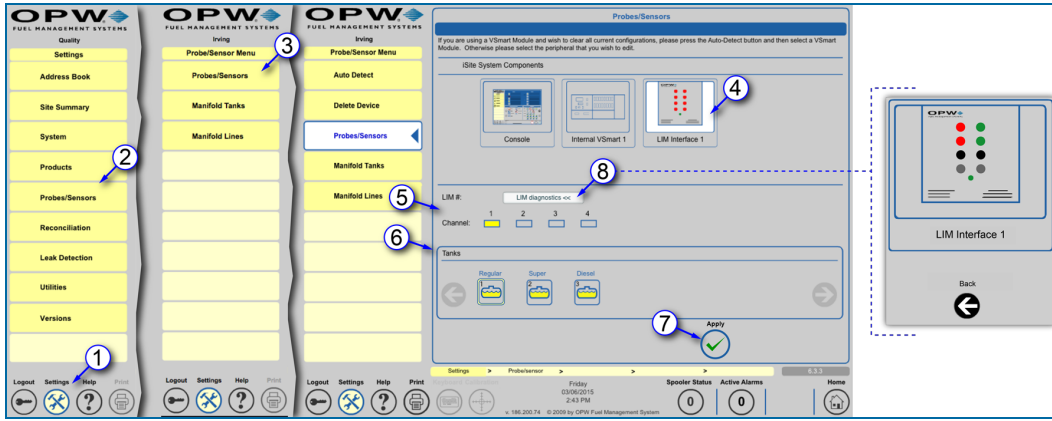


Non-Smart Sensor Settings

7. Enter the sensor Serial Number. The remaining information will have been entered when this device was manually entered.
8. A sensor number and description can be entered in the fields under **IS Module** if necessary. If it becomes necessary to turn off the sensor, check the **Disabled** checkbox. Uncheck the box to turn the sensor back on.
9. Select an **Association**. Select the radio button next to the Tank, Dispenser or Site to be linked:
 - If **Tank** is selected: Two (2) fields will come into view. Select the **Tank Number** from the dropdown and enter information about the sensor related to the tank in the **Description** field.
 - If **Dispenser** is selected: A dropdown will come into view to select the **Pump Number**.
 - If **Site** is selected, the sensor will be related to a site function. There are no fields added with this selection.
10. For a Non-Smart Sensor, you will need to set up **Upper Thresholds**, **Lower Thresholds** or both. This will depend on the sensor type. To configure a single float switch sensor, the upper threshold will normally be disabled (check the **Not Used** box). Default threshold values should not be changed unless it is necessary for the alarm to trigger sooner or later than the current value.
11. The **Current Sensor Reading** (Level) is displayed in the right-side panel. This information can be updated at any time by pushing the Refresh button.
12. Push **Apply** to save the Sensor Settings.
13. Once the Sensor Settings have been saved, select **Alarm Action Setup** from the Sensor Setup sub-menu to configure alarms for this device. The Sensor Alarm Actions screen will come into view. These alarms are configured the same as for Smart Sensors. See ["Alarm Actions \(Sensors\)" on page 111](#) for information.

6.5.4 Line-Leak Interface Module (LIM) Setup

SiteSentinel® Integra 500® only



Line-Leak Interface Module (LIM) Setup

The LIM is a four (4) channel external device that controls and monitors submersible turbine pump (STP) activities by monitoring the input/output status of the dispenser hook signals and STP relays.

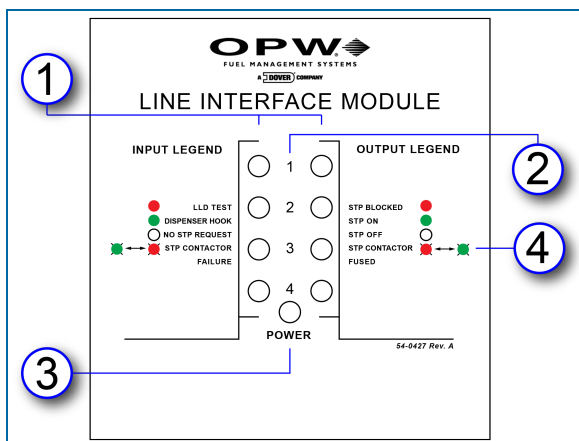
If a LIM (Line-Leak Interface Module) is connected to your system it should already have been detected earlier. See "[Level 0 Auto Detection \(Modules\)](#)" on page 14 for information. The instructions below will take you through the LIM setup.



NOTE: The SiteSentinel® Integra 500® can support a maximum of four (4) LIMs modules.

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Probes/Sensors** from the Probes/Sensors menu.
4. Select the **LIM** to be set up. The four (4) LIM channels and all available tanks will come into view in the lower panel.
5. Select a **LIM channel** to map.
6. Select the **tank** to be connected with the LIM.
7. Push the **Apply** button that comes into view to map the selected LIM channel to the selected tank. A confirmation dialogue box will come into view. Select **Yes** to complete the setup. The channel button will turn yellow and the tank icon will show with a yellow frame to confirm that they have been successfully mapped.
8. **LIM Diagnostics:** Push this button to view the current state of the connected LIM.



6.5.4.1 LIM Front Panel Legend



LIM Front Panel Label

The LED lights on the front panel of the LIM show the status of the various LIM functions. Each channel is shown with input (left) and output (right) status LEDs. The Input Legend and Output Legend describe what each LED light indicates.

1. Input (nozzle signal) and output (STP contractors) LED lights.
2. LIM channel indicator.
3. Power indicator.

4. Blinking lights on the legend are indicated by these symbols:  

LED Legend for LIM Diagnostics

The LIM Diagnostics screen displays the current LIM status refreshing automatically every five (5) seconds. Under normal conditions of use, the LIM module LED input/output status lights will show the following:

GREEN/GREEN: The dispenser hook signal is activated and the STP controller signals the pump to turn on. If the input LED shows RED, this indicates that the tank gauge system is in control and performing line diagnostics.

RED/GREEN: The tank gauge system is performing a line leak test. During 0.2 or 0.1 GPH scheduled precision tests, the RED LED will stay on longer (maybe several hours).

GREEN/RED: Indicates that the dispenser hook signal is detected, but an alarm condition was identified. The LIM blocks the signal to the STP and the pump will not turn ON.



IMPORTANT: Please note that the customer always takes priority if no problem is detected in the line. This cancels any test in progress.

If the HV INPUT does not detect high voltage feedback from the STP contactor when the relay is closed, the LIM module will flash, indicating contactor failure.

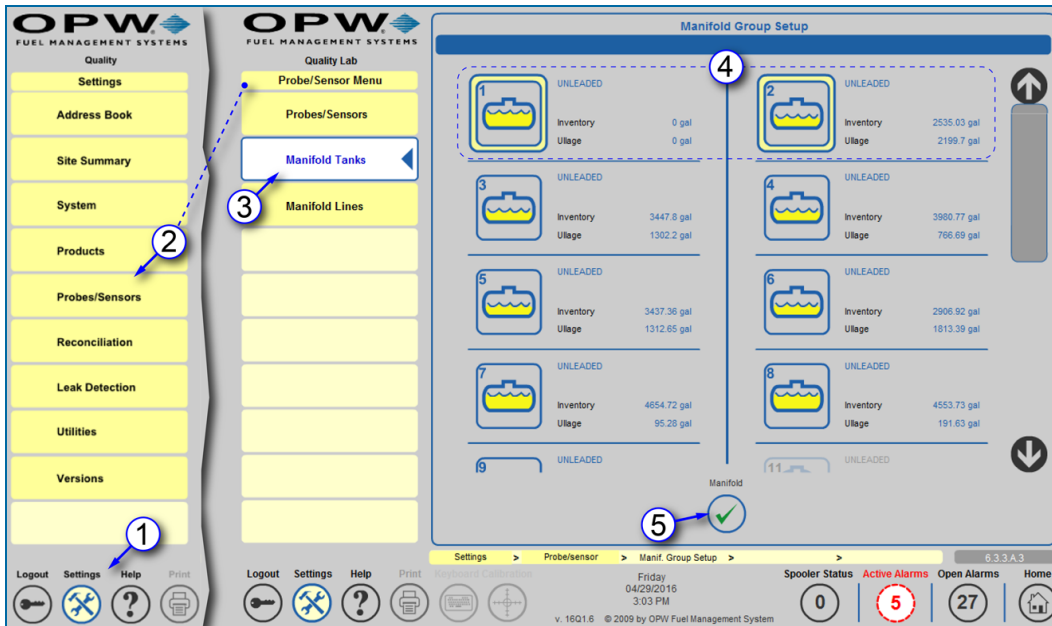
If the HV INPUT continues to detect high voltage feedback from the STP after the relay is opened, the LIM module will flash, indicating contactor fused off and there is a problem with the line.

A 3.0 GPH catastrophic test is performed after activation of the STP if there is no customer hook request for the product associated.

6.5.4.2 LIM Installation Procedure Guide – M00-20-8321-LIM

For additional information detailing LIM installation and wiring setups refer to [M00-20-8321-LIM Line Interface Module Installation Procedure Guide](#).

6.6 Manifold Tanks



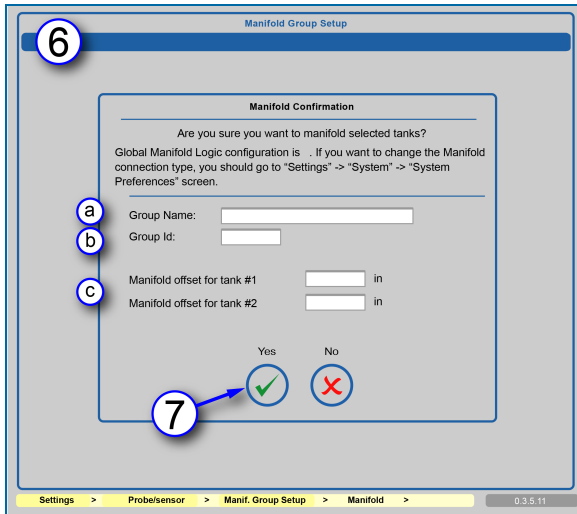
Manifold Tank Group Setup

The **Manifold Group Setup** screen is used to specify the tank configuration of a manifold group in use at a site. The first screen shows all of the tanks in the system and any current manifolded tanks. Up to nine (9) tanks can be selected to be programmed for a manifold group.



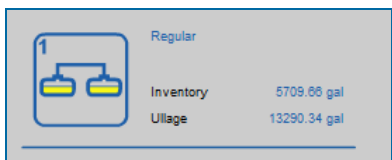
IMPORTANT: Only tanks containing the same product type can be manifolded.

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Manifold Tanks** from the Probe/Sensor menu.
4. Select the tanks (up to nine [9]) to be set up in the manifold group.
5. Push the **Manifold** button. The setup screen will come into view.



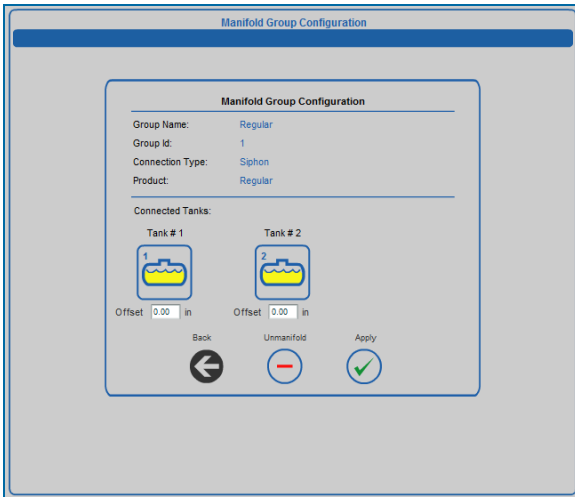
Manifold Group Setup

6. Enter data related to the selected group to manifold.
 - a. Enter a **Group Name**.
 - b. Enter a number as a **Group ID**.
 - c. The **Manifold Offset** for each of the tanks in the manifold refers to a differential in readings between the tanks. If the system senses a level at or greater than the set value it will trigger a tank siphon break alarm.
7. To save the Manifold Group in the system push the **Yes** button. To reject this configuration push **No** to return to the first Manifold Group screen.



Manifold Group Icon

Once a Manifold Group is set up it will show in the first Manifold Group Setup screen as a **Manifold** icon. The icon will show the Group ID, the product type, current Inventory and ullage levels. Push the **Manifold Group** icon to go to the **Manifold Group Configuration** screen.



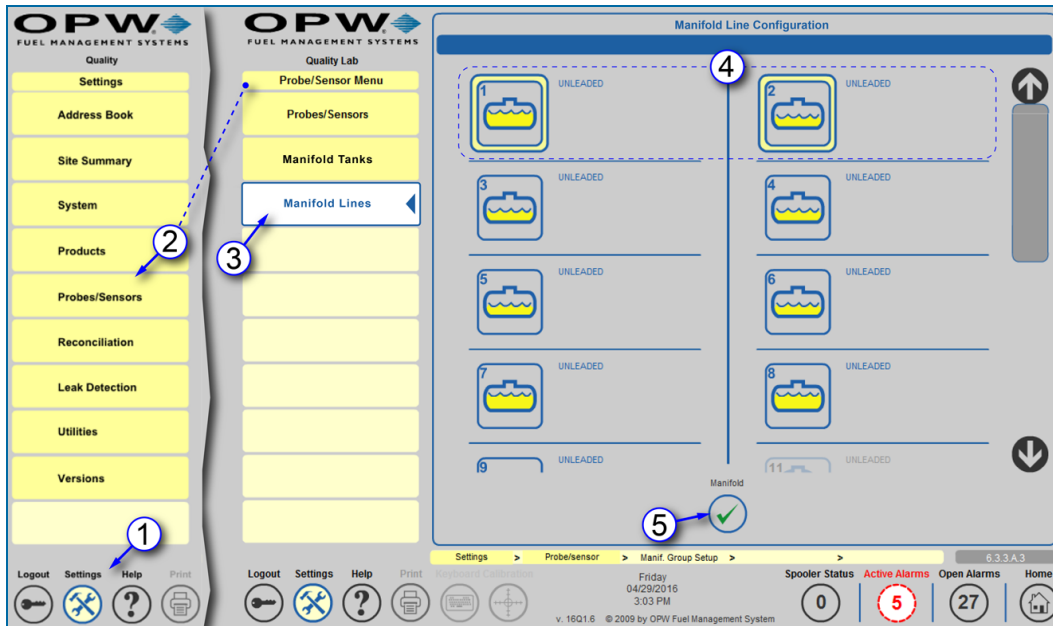
Manifold Group Configuration

The Manifold Group Configuration screen will show information about the selected manifold including:

- **Group Name**
- **Group ID**
- **Connection Type:** The connection type is set up in ["Tank Preferences" on page 29](#) under **Manifold Logic**.
- **Product** type
- The **Connected Tanks** in the manifold
- Each tank's **Offset** value

If it ever becomes necessary to break the manifold down to individual tanks, push the **Unmanifold** button for instructions.

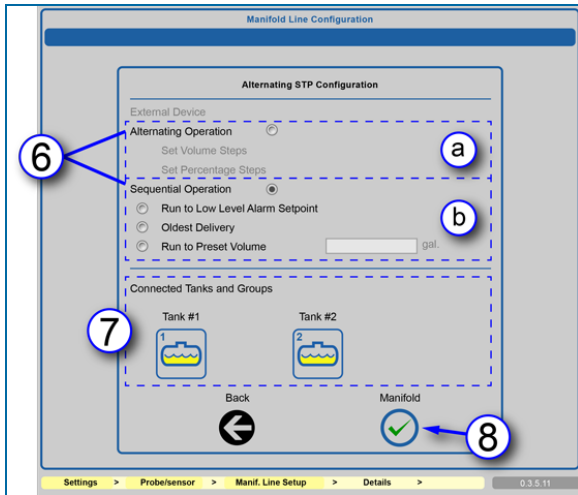
6.7 Manifold Lines



Manifold Line Configuration

The **Manifold Line Configuration** screen is used to map the lines and specify the operation of STPs (Submersible Turbine Pumps) of a manifold group in use at a site. The first screen shows all of the tanks in the system and any current manifolded line configurations.

1. Push **Settings**.
2. Select **Probes/Sensors** from the Settings menu.
3. Select **Manifold Lines** from the Probe/Sensor menu.
4. Select the tanks/groups to be set up in the manifold line configuration.
5. Push the **Manifold** button. The setup screen will come into view.

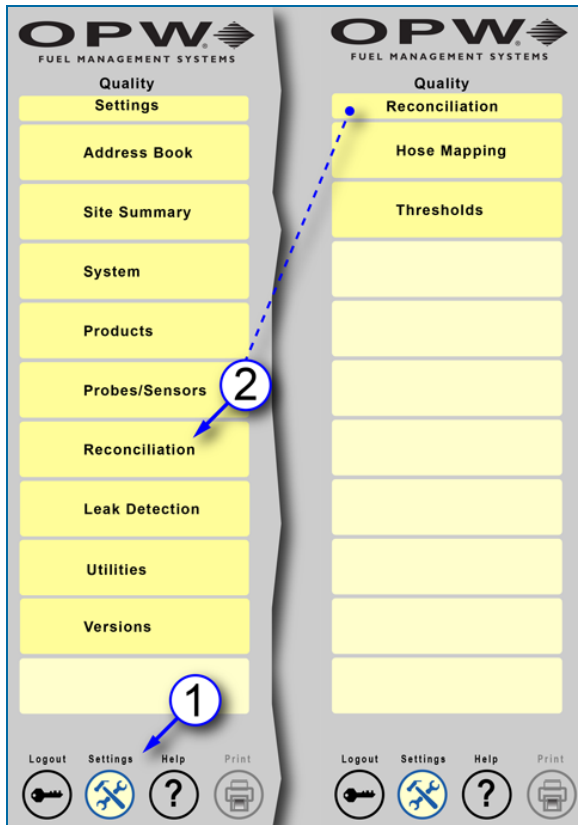


STP Configuration

6. Select either **Alternating** or **Sequential** Operation.
 - a. In an **Alternating** operation configuration the tanks will be depleted equally by either steps in Volume or by Percentage. When the **Alternating Operation** radio button is selected, these added options will be turned on.
 - b. In a **Sequential** operation configuration the tanks will be depleted based on one of three selections
 - ◆ **Run to Low Level Alarm Setpoint**
 - ◆ **Oldest Delivery**
 - ◆ **Run to Preset Volume:** When this option is selected the field for entering a value (in gallons/liters) will be turned on.
7. The bottom panel shows the tanks and groups that have been selected for this manifold line.
8. Push the **Manifold** button to save this configuration.

Section 7 Reconciliation

For SiteSentinel® Integra 500® only

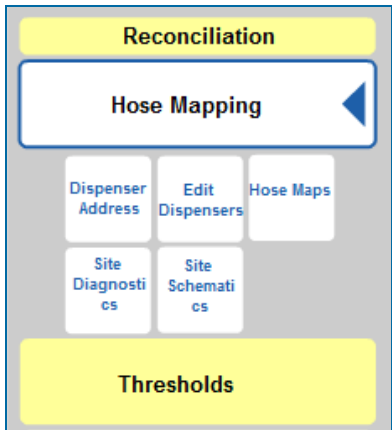


Reconciliation Menu Navigation

Reconciliation is available for SiteSentinel® Integra 500® systems. To access the Reconciliation menu:

1. Push **Settings**.
2. Push **Reconciliation**. The Reconciliation menu will come into view with two (2) menu options:
 - ["Hose Maps" on page 128](#): Configure the dispensers pumps and hoses of the site in the system.
 - ["Reconciliation Thresholds" on page 132](#): Reconciliation Thresholds can be configured for tanks set up in **ACR** mode.

7.1 Hose Mapping Menu

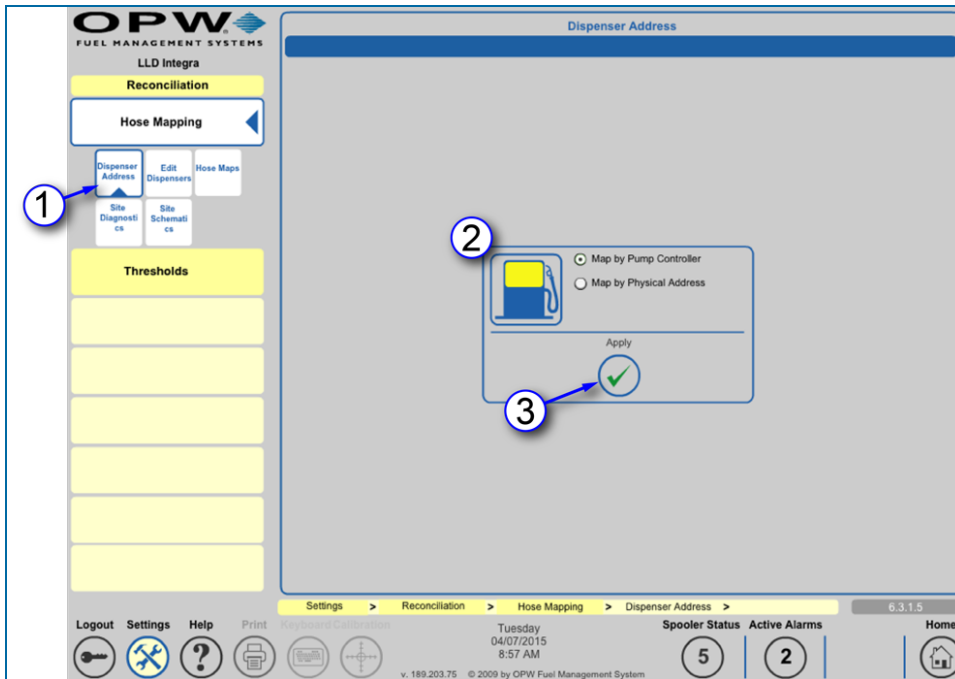


Hose Mapping Menu

The **Hose Mapping** menu has five (5) options to configure dispensers, pumps and hoses in the system:

- ["Dispenser Address Setup" on the next page](#): Options to map the site's dispensers.
- ["Edit Dispensers" on page 127](#): Add, edit or delete dispensers in the system.
- ["Hose Maps" on page 128](#): Hoses can be mapped to tanks in ACR mode.
- **Site Diagnostics**: Is not used at this time.
- ["Site Schematics" on page 130](#): To see which tanks are mapped to specified hoses.

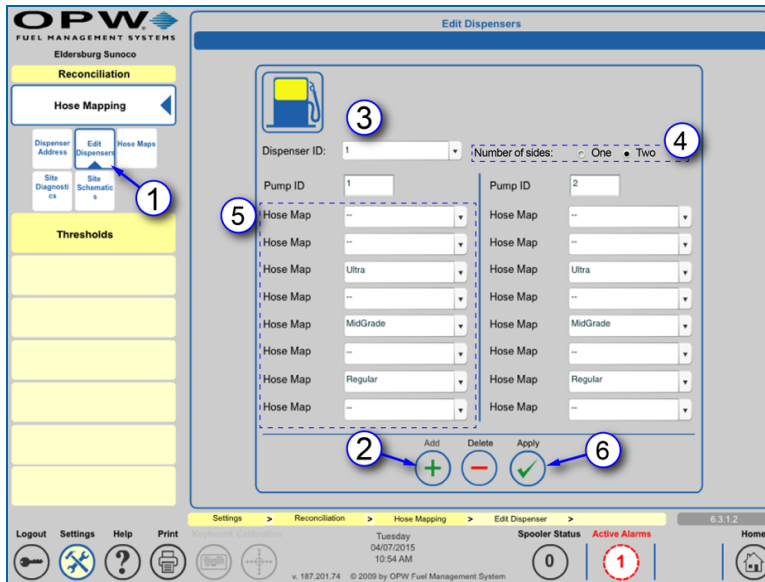
7.1.1 Dispenser Address Setup



Dispenser Address Setup

1. Select **Dispenser Address** from the Hose Mapping sub-menu.
2. Select one of the dispenser address method options:
 - **Map by Pump Controller:** The dispensers will be addressed as a pump as a whole (e.g., 1A and 1B).
 - **Map by Physical Address:** The pumps will be addressed by the pump number and the sides of the pump.
3. Push **Apply** to save this configuration.

7.1.2 Edit Dispensers



Edit Dispensers

Dispensers can be added, edited and deleted from the system in the Edit Dispensers tab of the Hose Mapping menu.

To **Add** dispensers:

1. Select **Edit Dispensers** from the Hose Mapping sub-menu.
2. Push the **Add** button.
3. When Add is pushed the system will set the **Dispenser ID** number and add it to the dropdown.
4. Select a radio button for the **Number of Sides** of the dispenser. When a number of sides is selected the system will set the **Pump ID** number(s).
5. Select the applicable product(s) for hoses from the dropdowns.
6. Push **Apply** to save the dispenser configuration.

Repeat steps 1-6 for each dispenser.

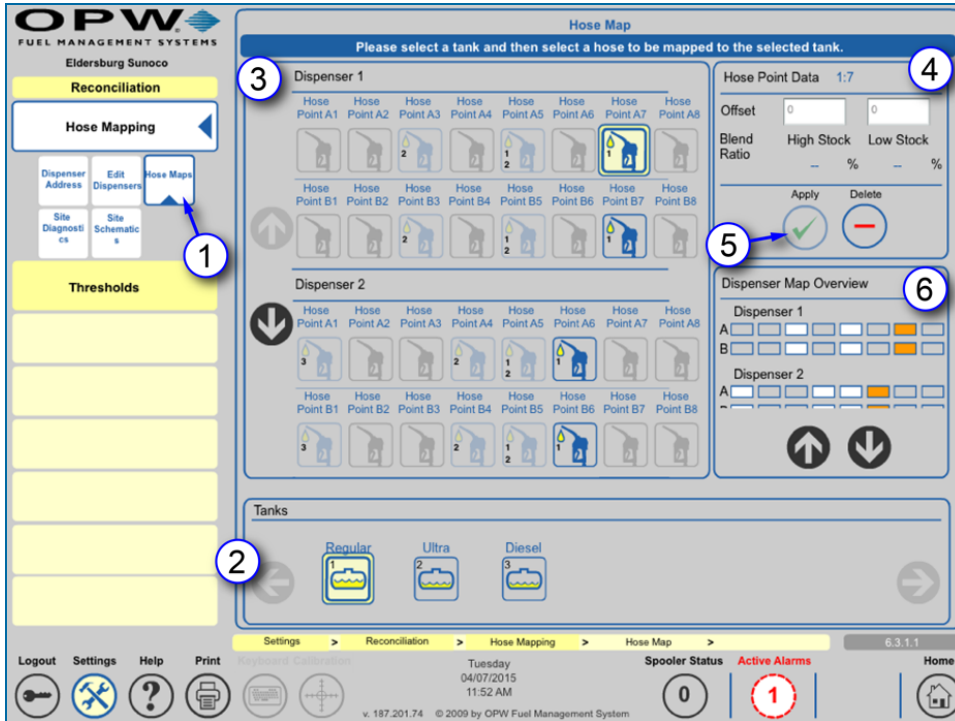
To **Edit** dispensers:

- Select a **Dispenser ID** from the dropdown (set up in step 3 above).
- Select the applicable product(s) for hoses from the dropdowns as in step 5 above.
- Push **Apply** to save the dispenser configuration.

To **Delete** a dispenser:

- Select a **Dispenser ID** from the dropdown as in step 2 above.
- Push the **Delete** button. Select **Yes** from the verification popup.

7.1.3 Hose Maps



Hose Map

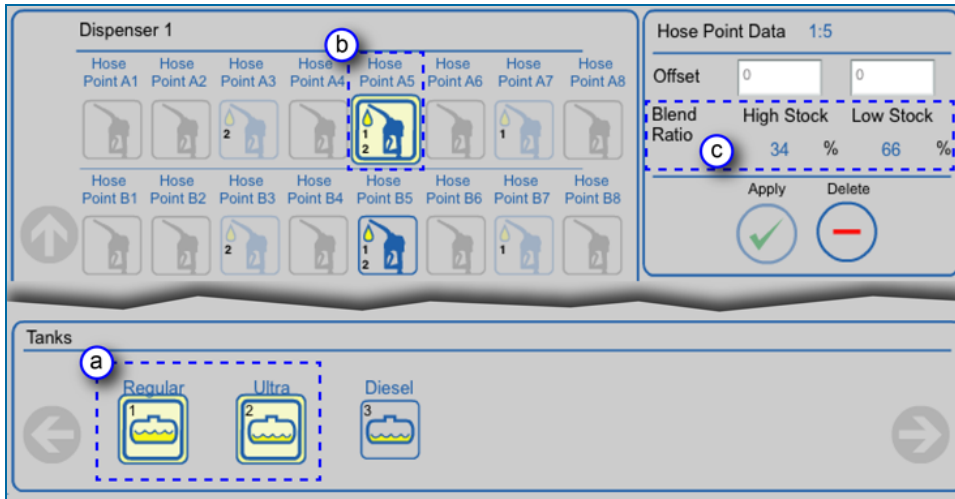
The Hose Map must be set up when a tank is set up in ACR mode.

1. Select the **Hose Map** tab from the Hose Mapping sub-menu.
2. Select a tank from the **Tanks** list in the bottom panel.
3. Select the hose to map in the top-left panel.



NOTE: Configured hose icons are marked with a yellow drop and the number of the connected tank.

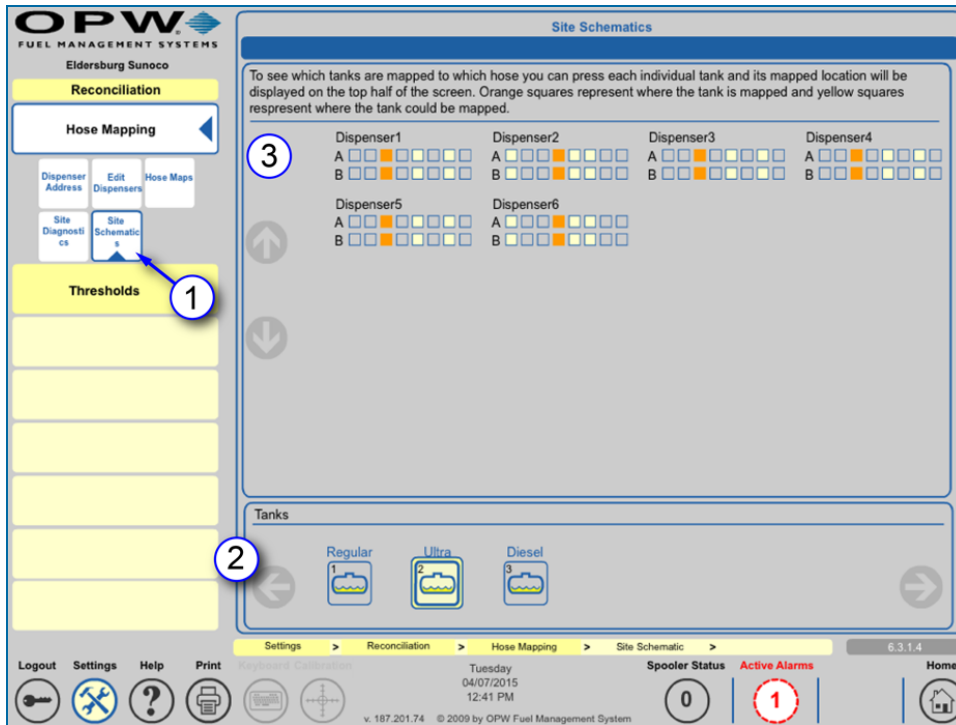
4. Hose Data is shown in the top-right panel.
 - **Hose Point Data** shows the dispenser number and the Hose Point position.
 - **Offset** is available on a "per hose" basis. If available, the data related to the variance of a meter can be entered. The value entered is in gallons/liters (i.e., 0.001 gallons is a normal offset; it can be plus (+) or minus (-) the value).
 - The **Blend Ratio** will show when a hose is mapped to two (2) tanks of the same product type that make up a blended product. The blend ratio will have been set up earlier in the tank-gauge configuration. Refer to ["Add A Blended Product" on page 70](#) for details. To map a blended product:



Map a Blended Product

- a. Select the two tanks of products to be blended.
 - b. Select the hose to map. The configured hose icon will be marked with a yellow drop and the numbers of both of the connected tanks.
 - c. The Blend Ratio will be displayed in the top-right panel.
5. Push **Apply** to save the Hose Map configuration.
 6. The **Dispenser Map Overview** panel identifies which hoses are connected to a selected tank with an orange square. The white squares identify hoses mapped to other tanks.

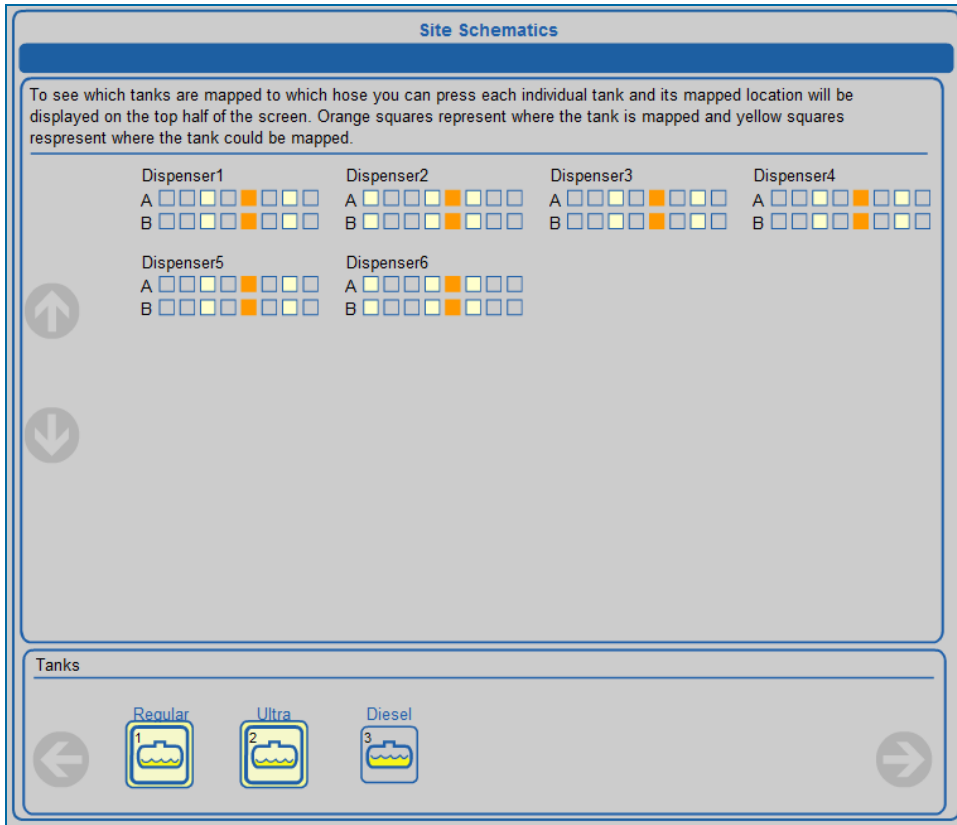
7.1.4 Site Schematics



Site Schematics

The configured hose to tank maps can be seen for all dispensers in the **Site Schematics** screen.

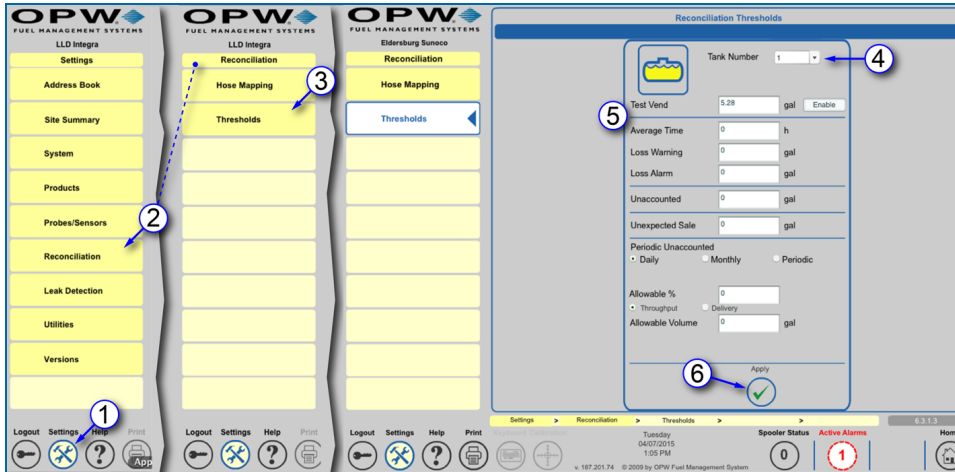
1. Select **Site Schematics** from the Hose Mapping sub-menu.
2. Select a tank in the bottom panel to see the dispenser hose connections.
3. When a tank is selected the mapped hoses for each dispenser will show as an orange square in the top-panel graphic. The yellow squares indicate hoses that are mapped to other tanks.



Blended Map

Mapped hoses for blended products can be seen when the two (2) tanks that contain the products in the blend are selected together.

7.2 Reconciliation Thresholds



Reconciliation Thresholds

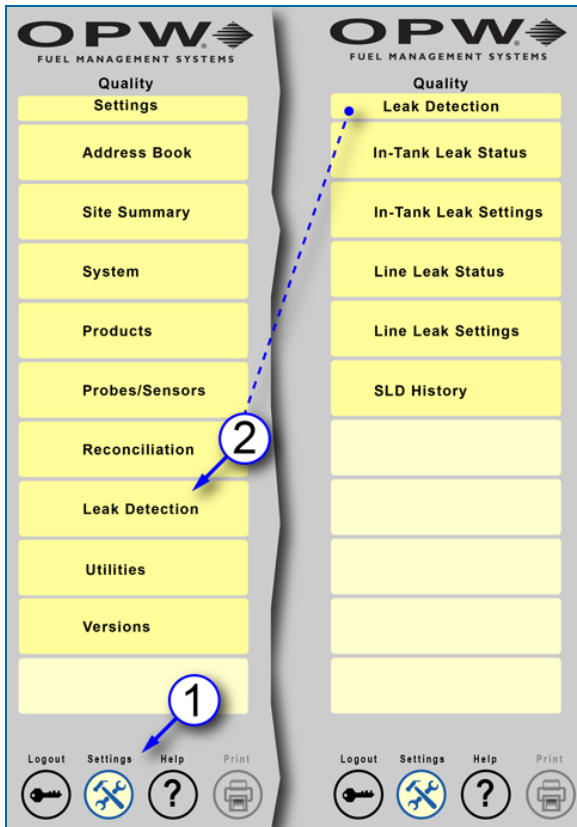
Tanks in ACR mode can be set up to specify **Reconciliation Thresholds** for alarm and warning parameters in this screen.

1. Push **Settings**.
2. Select **Reconciliation** from the Settings Menu.
3. Select **Thresholds** from the Reconciliation Menu.
4. Select a **Tank Number** from the dropdown.
5. Enter values for applicable thresholds
 - **Test Vend**: The amount of product used in the calibration of hose meters (i.e., a rise of this amount is tolerated).
 - **Average Time**: Specify an approximate time limit (in hours) for calibration.
 - **Loss Warning**: Warning that identifies service hourly losses.
 - **Loss Alarm**: Alarm that identifies service hourly losses.
 - **Unaccounted**: Shows an unknown loss variation that occurs during the reconciliation process.
 - **Unexpected Sale**: For tanks in Standard mode (not ACR mode, and when the tank is in a quiet mode and product loss occurs), will cause an unexpected sale alarm if the loss is more than this value.
 - **Periodic Unaccounted**: An unknown loss variation that occurs during the reconciliation process. Select Daily, Weekly or Periodic.
 - **Allowable %**: The permitted percentage loss either as Throughput or Delivery.
 - **Allowable Volume**: A permitted volume loss during reconciliation.
6. Push **Apply** to save the Reconciliation Thresholds.



NOTE: If zero (0) is used in any field, that threshold will not be in operation.

Section 8 Leak Detection

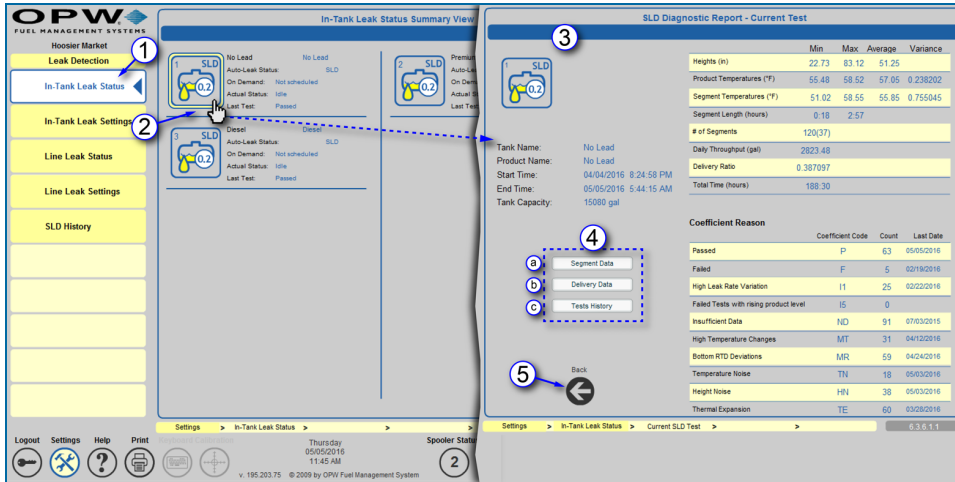


Leak Detection Navigation

The Leak Detection menu has options to configure In-Tank and Line leak settings. To access the Leak Detection menu:

1. Push **Settings**.
2. Push **Leak Detection**. The Leak Detection menu will come into view with five (5) menu options:
 - ["In-Tank Leak Status" on the next page](#): See leak detection test results for a selected tank.
 - ["In-Tank Leak Settings" on page 137](#): Set up the parameters for In-Tank leak tests.
 - ["Line Leak Status" on page 144](#): A summary of the current status of a selected configured line on the system.
 - ["Line Leak Settings" on page 145](#): Set up and edit parameters for a selected VLLD sensor in the system.
 - ["SLD History" on page 146](#): See status reports for selected dates.

8.1 In-Tank Leak Status



In-Tank Leak Status

1. Push **In-Tank Leak Status** on the Leak Detection menu. The In-Tank Leak Status Summary View screen will come into view.



NOTE: This screen shows the leak status of Underground Storage Tanks (UST) and groups. Individual tanks show first, then manifold groups (for Statistical Leak Detection [SLD] test runs only).

2. Select a tank. The **SLD Diagnostic Report - Current Test** screen will come into view.
3. The **SLD Diagnostic Report - Current Test** screen shows a summary of results for the latest test.
4. Select one of the options below to access more information for the system tests.

The screenshot shows the 'SLD Segment Information' screen. It displays a table with columns for Date, Time, Length, and various sensor readings (mn, smn, sta, sht, mt, mr1, mh, tave, ht). The table contains multiple rows of data for different test segments.

Date	Time	Length	mn	smn	sta	sht	mt	mr1	mh	tave	ht
04/04/2016	0:24:58 PM	0.23	0.813536	0.075300	0.000410	0.000296	0.033560	0.047757	0.006109	12.2809	135.266338
04/04/2016	0:41:02 PM	1.35	-0.657896	0.153566	0.000491	0.000588	0.034746	0.035708	0.000992	12.3566	133.949176
04/04/2016	11:28:45 PM	1.30	-0.634433	0.120345	0.000524	0.000443	0.034080	0.033262	0.001046	12.4169	133.955719
04/05/2016	1:11:13 AM	2.53	-0.301283	0.154060	0.000635	0.000572	0.030557	0.030648	0.002106	12.4970	133.895526
04/05/2016	4:17:46 AM	0.57	-0.467879	0.072141	0.000534	0.000239	0.030342	0.030470	0.001493	12.5563	133.854681
04/05/2016	6:41:29 AM	0.39	-0.171147	0.096097	0.000207	0.000207	0.022059	0.033024	0.001052	12.5969	133.516133
04/05/2016	10:30:25 PM	0.20	0.084625	0.099053	0.000766	0.000462	-0.013318	0.013378	0.000997	13.2752	86.999333
04/05/2016	11:03:59 PM	2.00	-0.168189	0.054993	0.000729	0.000200	0.000864	0.010077	-0.000116	13.2870	86.847867
04/06/2016	1:04:09 AM	1.59	-0.076406	0.064911	0.000683	0.000342	0.005971	0.005703	-0.000063	13.3000	86.847376
04/06/2016	3:04:13 AM	1.59	-0.162883	0.038804	0.000758	0.000121	0.006951	0.006544	-0.000333	13.3140	86.846967
04/06/2016	5:04:43 AM	1.23	0.478889	0.134779	0.000456	0.000591	0.007002	0.006170	0.002613	13.3250	86.848010
04/07/2016	11:26:04 PM	1.59	-0.475315	0.210843	0.001209	0.000772	0.036431	0.039335	0.002521	12.1068	133.406136
04/08/2016	6:38:45 AM	1.48	-0.078101	0.063799	0.000502	0.000198	0.018495	0.020325	0.001638	12.2951	132.849447
04/08/2016	5:57:28 AM	0.29	0.243122	0.063548	0.000717	0.000131	0.058917	0.058624	0.011953	10.5780	194.818352
04/09/2016	10:29:02 PM	2.10	-0.172911	0.153906	0.001113	0.000469	0.037748	0.036932	0.004622	11.6798	163.148590
04/10/2016	2:53:29 AM	1.56	-0.509975	0.117763	0.000692	0.000385	0.035631	0.035760	0.003172	11.8480	163.059014
04/10/2016	5:02:28 AM	0.32	-0.018078	0.157479	0.000691	0.000552	0.043427	0.045908	0.006558	11.8991	162.995386
Min:		0.18	-1.41939	0.018383	0.000134	0.000076	-0.01933	-0.018585	-0.002215	10.578042	57.730152
Max:		2.57	0.027457	0.279741	0.002077	0.000084	0.058917	0.055824	0.024302	14.743332	211.112538
Average:		1.33	0.058196	0.096040	0.000687	0.000332	0.011064	0.013208	0.001086	13.256358	130.172648

SLD Segment Information

- a. Push the **Segment Data** button to access the latest test information shown by Date, Time and Length of each segment of the test. There is a summary of the Minimum, Maximum and Average of each parameter. Push the **Back** button to go back to the **SLD Diagnostic Report - Current Test** screen.

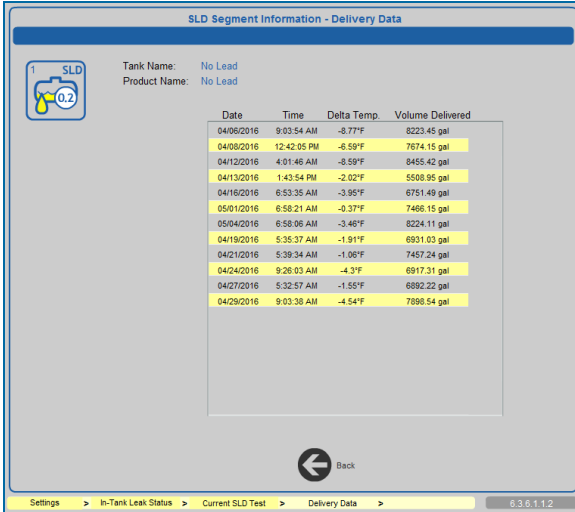
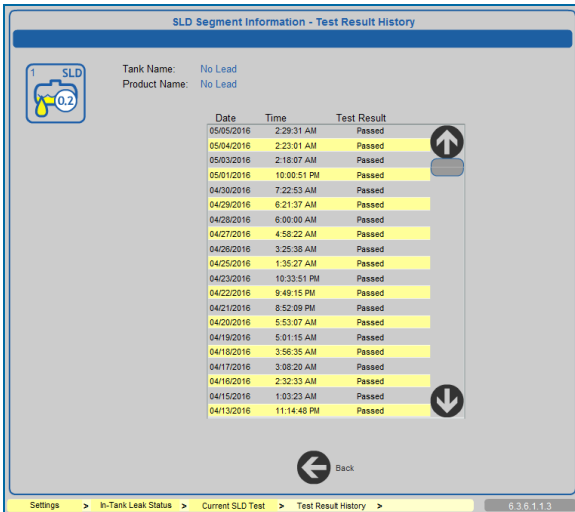


Figure 8-1 Delivery Data

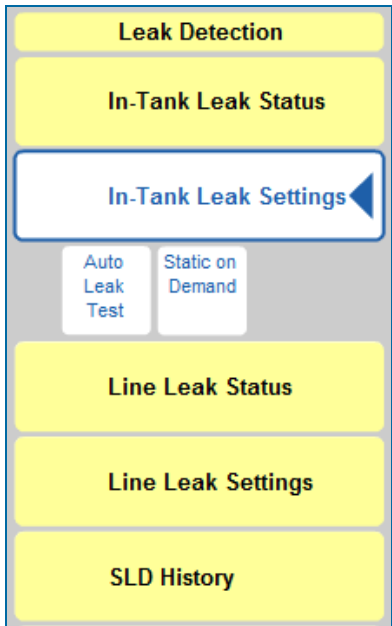
- b. Push the **Delivery Data** button to access delivery information shown by Date and Time. Push the **Back** button to go back to the **SLD Diagnostic Report - Current Test** screen.



Test Result History

- c. Push the **Test History** button to access the **Test Results History** screen. Push the **Back** button to go back to the **SLD Diagnostic Report - Current Test** screen.
5. Push the **Back** button on the **SLD Diagnostic Report - Current Test** screen to go back to the **In-Tank Leak Status Summary View** screen.

8.2 In-Tank Leak Settings



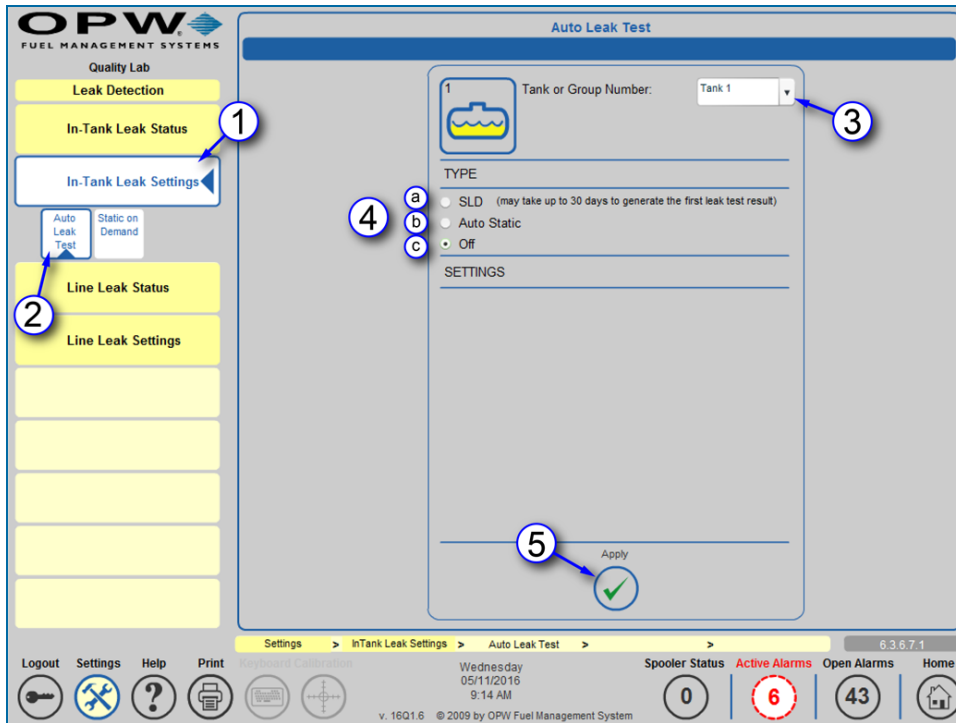
In-Tank Leak Settings Sub-Menu

The **In-Tank Leak Settings** option of the Leak Detection menu has two (2) tabs:

["Auto Leak Test" on the next page](#): Parameters can be set for recurring automatic tests.

["Static On Demand" on page 142](#): Parameters can be set for a single test to be run "now" or at a scheduled date and time.

8.2.1 Auto Leak Test



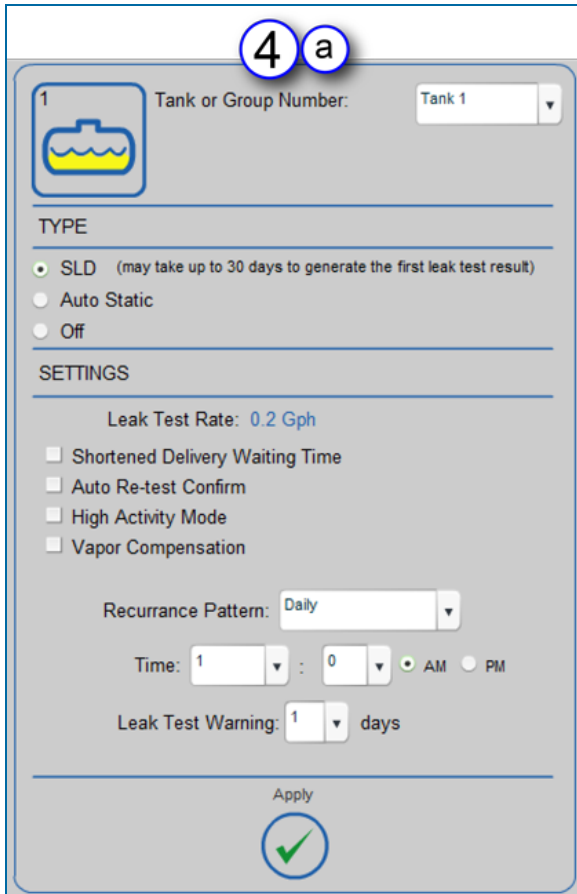
Auto Leak Test Setup

1. Push **In-Tank Leak Settings** on the Leak Detection menu.
2. Push the **Auto Leak Test** tab of the In-Tank Leak Settings option.
3. Select a **Tank or Group Number** from the dropdown.



NOTE: Only an SLD type test can be done if a manifold group is selected.

4. Select a test **Type**.



SLD Test Setup

a. **SLD** Test setup:

- ◆ Select any of the checkboxes to use the options:
 - Shortened Delivery Wait Time
 - Auto Re-test Confirm
 - High Activity Mode
 - Vapor Compensation
- ◆ Select the **Recurrence** parameters:
 - Recurrence Pattern (Daily, Weekly, Monthly)
 - Time
 - Leak Test Warning days
- ◆ Push **Apply** to save the setup.

4 **b**

1 Tank or Group Number: Tank 1

TYPE

SLD (may take up to 30 days to generate the first leak test result)
 Auto Static
 Off

SETTINGS

Leak Test Rate: 0.2 Gph

Duration: 0 h :00 min

Recurrence Pattern: Daily

Leak Test Warning: 1 days

Min. Volume: %

Apply

Auto Static Test Setup

b. **Auto Static** test setup:

- ◆ Set the test **Duration** in hours and minutes
- ◆ Set the **Recurrence Pattern** (Daily, Weekly, Monthly)
- ◆ Set the **Leak Test Warning** days
- ◆ Set the **Minimum Volume** percentage
- ◆ Push **Apply** to save the setup.

c. **Off**: This is the default setting when a tank or group is first selected in Step 3. Select this option to turn off a scheduled test.

Repeat these steps for more tanks or tests.

5. Push **Apply** to save the settings.



IMPORTANT: To comply with EPA regulations, the required monthly static leak test Volume percentage must be set to 50% or higher.



NOTE: The SLD type test does not give an EPA-approved leak test unless enough data is collected. It will give a warning to set an On Demand Leak Test (See ["Static On Demand" on the next page](#)) to be compliant.

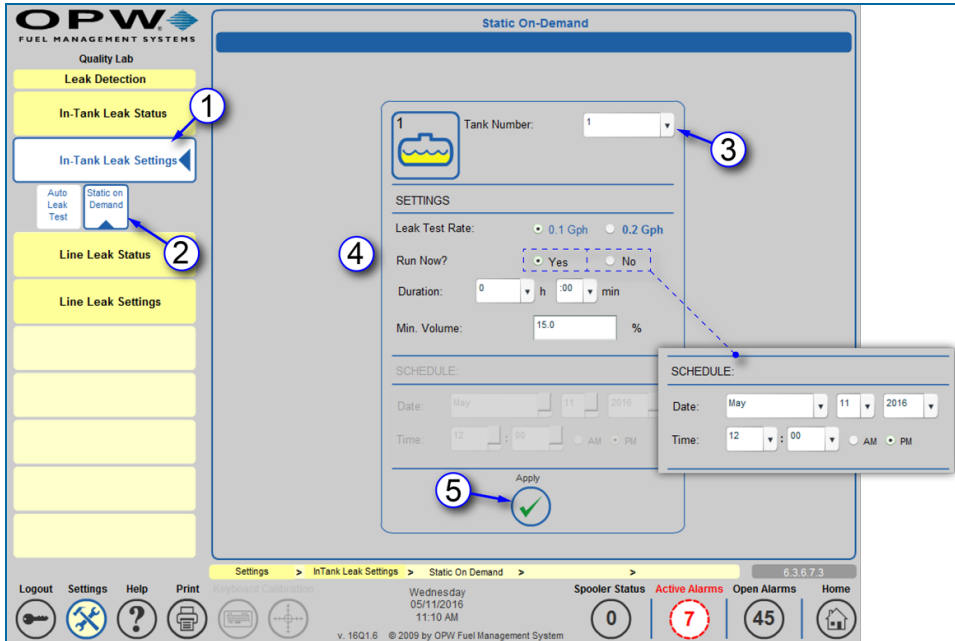


TIP: A Tank System is specified as one tank or a manifold group.

EXAMPLE:

Two Manifolder 15,000 gallon tanks are considered to be one 30,000 gallon Tank System. it cannot have a throughput of more than 131,000 gallons per month for both tanks.

8.2.2 Static On Demand



Static On Demand Test Setup

The Static On Demand screen is used to set up a leak test that can be run immediately or scheduled at a later time.



NOTE: This feature can only be used with non-manifolded Underground Storage Tanks that contain a standard CTE product.

1. Push **In-Tank Leak Settings** on the Leak Detection menu.
2. Push the **Static on Demand** tab of the In-Tank Leak Settings option.
3. Select a **Tank Number** from the dropdown.
4. Select the **Settings** options:
 - **Leak Test Rate:** Select either the 0.1 gallon per hour or 0.2 gallon per hour rate.



NOTE: This test is static only and can be used for the 0.1 Gph annual tightness test or a 0.2 Gph test at any time (the Minimum Volume must be above the required EPA regulation).

- **Run Now?:** Select **Yes** to run the test immediately when the Apply button is pushed. Select **No** to turn on the **Schedule** panel and set up the test to run later (set the date and time when the test will run).
- Set up the **Duration** of the test in hours and minutes.

- Enter the **Minimum Volume** necessary before the test can run.
5. Push **Apply** to save the settings.

8.3 Line Leak Status

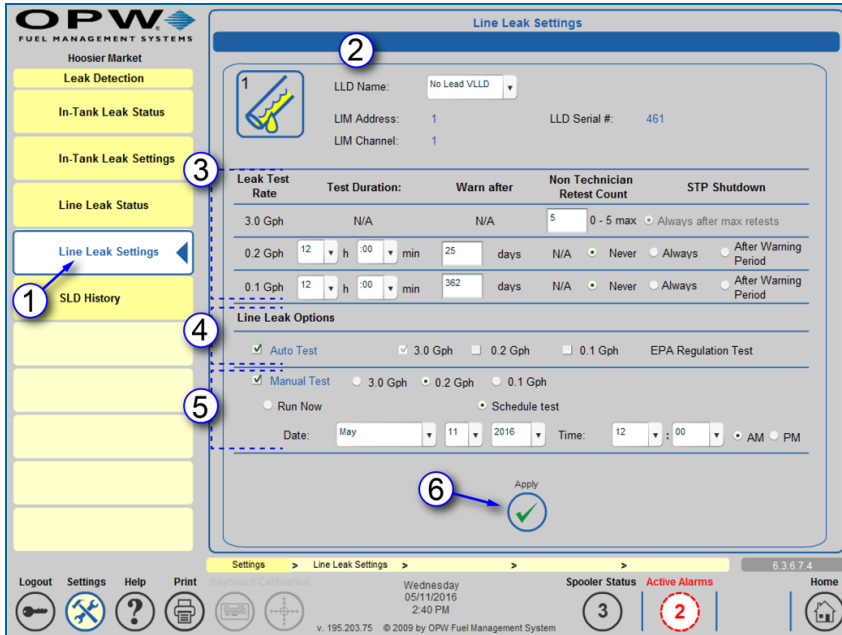
The screenshot displays the 'Line Leak Status Summary View' in the OPW Fuel Management System. The interface is divided into a sidebar menu on the left and a main content area. The sidebar menu includes options like 'Leak Detection', 'In-Tank Leak Status', 'In-Tank Leak Settings', 'Line Leak Status' (which is selected and highlighted), 'Line Leak Settings', and 'SLD History'. The main content area shows three VLLD sensors: 'No Lead VLLD', 'Prem VLLD', and 'Dsl VLLD'. Each sensor card provides details such as fuel type, auto-leak status, on-demand status, actual status, last test results, and test type. A status bar at the bottom of the screen shows 'Spooler Status' and 'Active Alarms'.

Line Leak Status

A check on the current status of a configured line on the system can be done through the **Line Leak Status Summary View**.

1. Push **Line Leak Status** on the Leak Detection menu.
2. The summary screen will show:
 - All connected VLLD sensors in the system
 - Fuel type monitored
 - Auto-Leak Status
 - On Demand status
 - Actual Status (current)
 - Last Test results
 - Test Type

8.4 Line Leak Settings



Line Leak Settings

Systems that use installed VLLD Sensors can set up test parameters in the Line Leak Settings screen.

1. Push **Line Leak Settings** on the Leak Detection menu.
2. Select an **LLD Name** from the dropdown. Its LIM Address, Channel number and Serial number will come into view in the top panel.
3. Parameters for each of the three (3) types of **Leak Test Rates** can be set up.
 - It is recommended to keep the 0.1 Gph and 0.2 Gph **Test Duration** at the default 12 hours 0 minutes. This can be changed if necessary.
 - It is recommended to keep the 0.1 Gph **Warn after** period set at 14 days and the 0.2 Gph **Warn after** period set at 180 days. These can be changed if necessary.
 - An STP Shutdown can be configured to occur after a failure of the 0.1 Gph or 0.2 Gph tests (Never, Always or After Warning Period).
4. If the **Auto Test** checkbox is selected, the options will be turned on. The 3.0 Gph test is checked by default as it is a mandatory **EPA Regulation Test**. It will be done each time the STP turns off. If the options are purchased, the system will go into Auto Test mode and do 0.2 Gph or 0.1 Gph Tests at the same time as the 3.0 Gph test.
5. A **Manual Test** can be set up for any of the three (3) test types. Select **Run Now** to run the test immediately when the Apply button is pushed. Select **Schedule Test** to turn on the Schedule options and set up the test to run later (set the date and time when the test will run).
6. Push **Apply** to save the settings.

8.5 SLD History

The screenshot shows the OPW Fuel Management System interface. On the left is a sidebar menu with options: Leak Detection, In-Tank Leak Status, In-Tank Leak Settings, Line Leak Status, Line Leak Settings, and SLD History (highlighted with a blue arrow and callout 1). The main area is titled 'SLD Reports History' and shows a calendar for May 2016. The calendar has green checkmarks on days 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, and 31. Callout 2 points to the calendar header. Callout 3 points to the 'Information' panel on the right, which lists three leak tests: Leak Test 1 (05/05/2016 2:29:31 AM), Leak Test 2 (05/05/2016 10:40:03 PM), and Leak Test 3 (05/05/2016 12:08:57 PM). The bottom status bar shows 'Logout', 'Settings', 'Help', 'Print', 'Spooler Status', 'Active Alarms', and 'Home'.

SLD Reports History

1. Push **SLD History** on the Leak Detection menu.



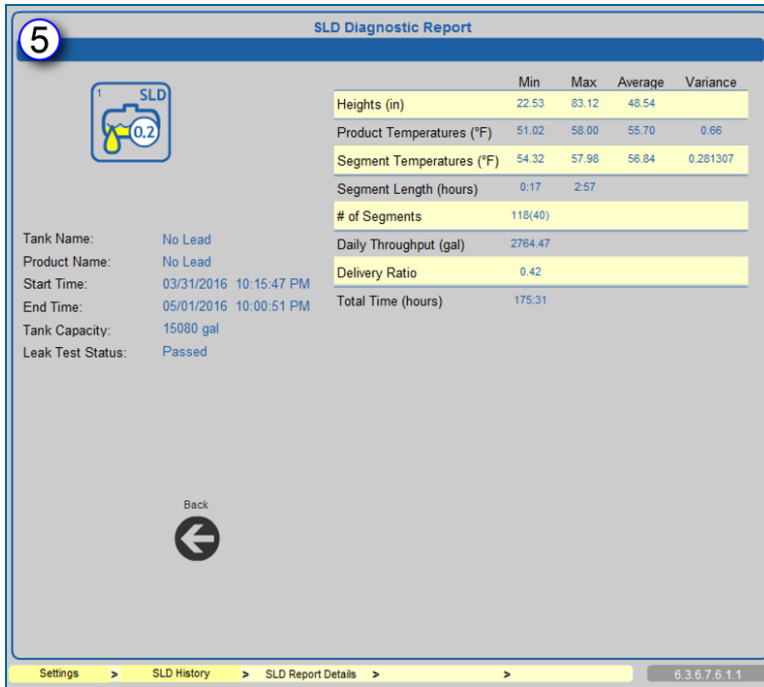
NOTE: This menu selection is only available when an LLD Sensor(s) has been installed and configured.

2. A Calendar will come into view that shows the dates of all tests for that month (days that a test occurred will have a green check mark). Use the left and right arrows to navigate through the months. To see the tests for one day push the date.
3. The **Information** panel on the right shows all of the tests that occurred during the month. If a date is selected only the tests for that date will show. Use the up and down arrows to navigate through the tests. Push a test icon to select a test. The Leak Test Status Report Details screen will come into view.



Leak Test Status Report Details

- The **Leak Test Status Report Details** screen shows information applicable to the selected test. Use the Back button to go back to the SLD Reports History screen. Push the **SLD Detailed Diagnostic Report** button to go to the SLD Diagnostic Report screen.



SLD Diagnostic Report

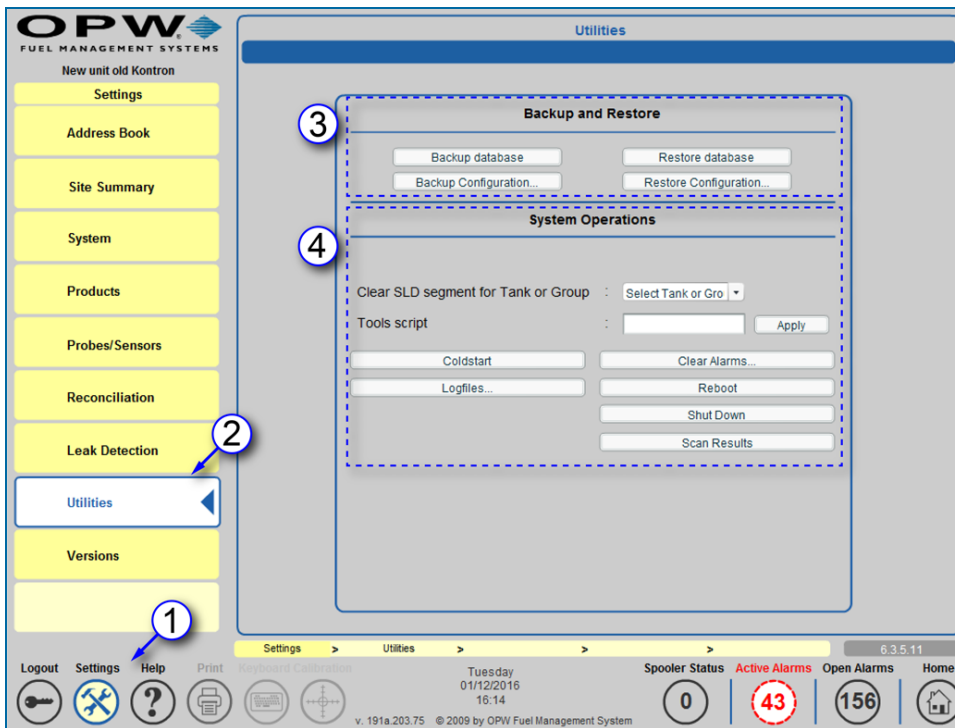
5. The **SLD Diagnostic Report** screen shows the applicable information for the selected test in a Report form that can be printed. Use the Back button to go back to the Leak Test Status Report Details screen.

Section 9 Utilities

The Utilities screen shows options for **Backup and Restore** operations and gives other options for technical **System Operations** of the tank-gauge system.



IMPORTANT: These operations have an effect on the performance of the system and must be done very carefully to prevent the loss of data or system functionality.



Utilities

1. Push **Settings**.
2. Select **Utilities** from the Settings menu. The Utilities screen will come into view.
3. The top panel contains the controls for "[Backup and Restore](#)" on page 151 functions (these functions will be shown below).
 - Backup and Restore Database
 - Backup and Restore Configuration
4. The bottom panel contains the controls for several "[System Operations](#)" on page 153 (these operations will be described in greater detail below).
 - Clear SLD segment data (where applicable)
 - Apply a Tools Script
 - Cold Start the console

- Clear Alarms
- See Logfiles
- Reboot and Shut Down the system
- See Scan Results

9.1 Backup and Restore

The tank-gauge system keeps all necessary data, such as site configuration, products, hoses, pumps, tanks, reports, deliveries and leak test results in a database. This feature is useful if data loss occurs.

It is possible to configure the site on one tank-gauge console and copy this configuration to another console with the Backup and Restore features.



IMPORTANT: Both tank-gauge consoles must have the same software version!

9.1.1 Backup System Configuration

The **Backup Configuration** button is used to save the configuration to a file.



IMPORTANT: During the restore process, the tank gauge system clears ALL previously stored data! The backup file contains only configuration data (i.e., site, tanks, sensors, pumps and hoses). It does NOT contain reports, leak test results or deliveries.

1. Push the **Backup Configuration** button in the top panel of the Utilities screen.
2. Select **Yes** from the confirmation pop-up.
3. Select the location where you want the Backup Configuration file to be stored and push **Save**.

9.1.2 Restore System Configuration

The **Restore Configuration** button is used to import a saved configuration file.

1. Push the **Restore Configuration** button in the top panel of the Utilities screen.
2. Select **Yes** from the confirmation pop-up.
3. Find the location where the Backup Configuration file is stored.
4. Select the Backup Configuration file and push **Save**.

9.1.3 Backup System Database

1. Push the **Backup Database** button from the top panel of the Utilities screen.
2. Select **Yes** from the confirmation pop-up.
3. Select the location where you want the Backup Database file to be stored and push **Save**.

9.1.4 Restore Database

1. Push the **Restore Database** button from the top panel of the Utilities screen.
2. Select **Yes** from the confirmation pop-up.
3. Find the location where the Backup Database file is stored.
4. Select the Backup Database file and push **Save**.

More Information



TIP: For more information on the Backup and Restore functions download the [M00-20-4438 SiteSentinel and iSite Software Upgrade Procedure](#) guide.



9.2 System Operations

The **Systems Operations** panel of the Utilities screen shows options related to system maintenance, troubleshooting and startup/shutdown.

9.2.1 Clear SLD segment for Tank or Group



NOTE: This feature is only available with a Technician login.

- Select a **Tank or Group** number from the dropdown.
- Push the **Apply** button that comes into view. ALL SLD segment data for the selected tank or manifold group will be cleared.

9.2.2 Tools Script

The Tools Script is only used when it is necessary to troubleshoot the system when talking to a Tech Support representative. The representative will give you the script code.

- Type the script into the field.
- Push **Apply**.

Your Tech Support representative will give instructions on how to proceed with the next steps.

9.2.3 Coldstart



REMINDER: A Cold Start will reset the database to its default values.



NOTE: The gauge must be cold started before initial programming. See "[Cold Start \(Initial\)](#)" on [page 12](#) for more information.

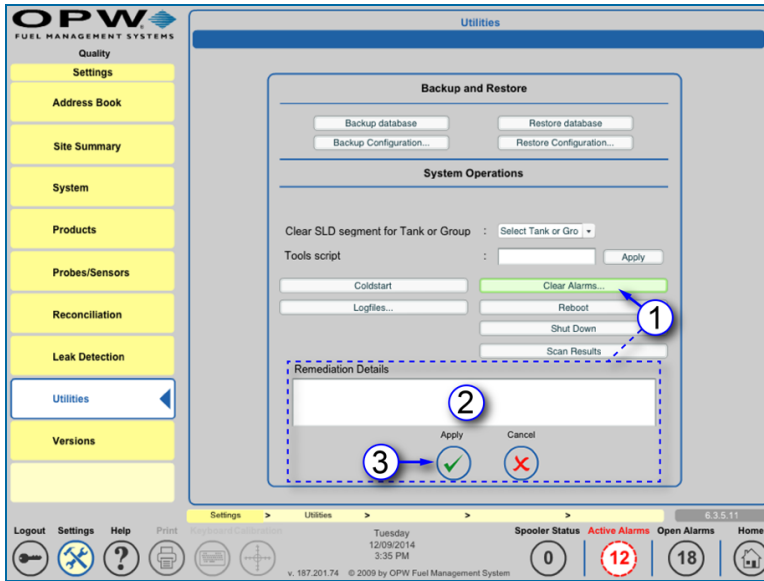
Push the Cold Start button. The system will stop and the database will be cleared and reconfigured to its default values when the tank-gauge console restarts. This will take several minutes to complete.

After a Cold Start, the user must log out, and log back in as an administrator (see "[Login Procedure](#)" on [page 10](#), steps 3-5).

9.2.4 Clear Alarms

Each alarm that appears on the Alarm screen must be acknowledged. The Open Alarms value (count of unacknowledged alarms) is shown in a circle found at the right-hand side of the Main Toolbar next to the Home button. The Open Alarms value shows only for remediation.

Use the Clear Alarms option to acknowledge and add remediation information to all open alarms.



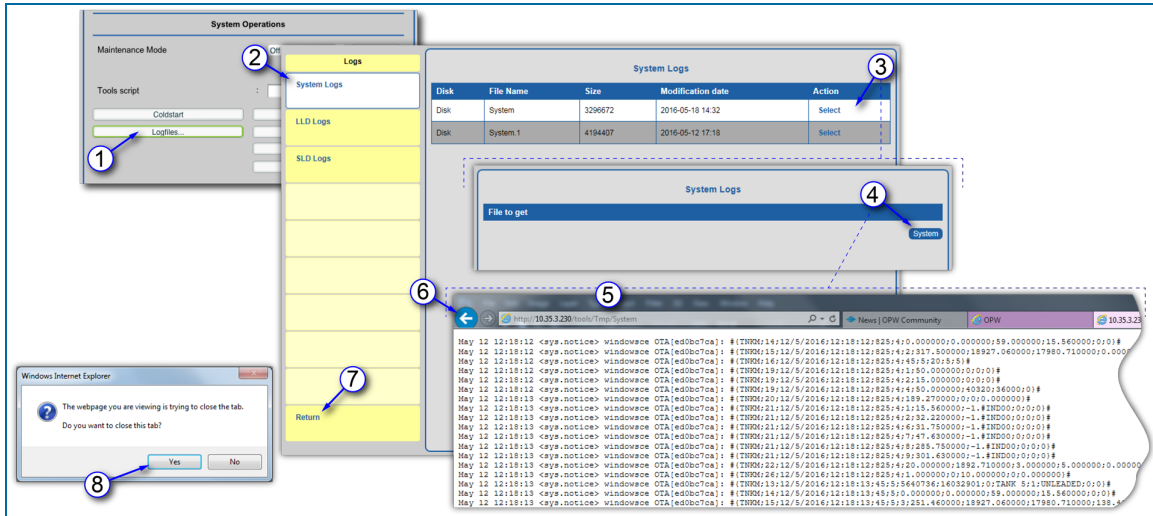
Clear Alarms

1. Push the **Clear Alarms** button. The **Remediation Details** text box will come into view.
2. Enter text to attach to each alarm. See [M2022 Integra Operator Manual](#) for information on alarm remediation.
3. Push **Apply** to save this information.

The QR code and web-link below will take you to the short instructional video [SiteSentinel Integra - Clearing Alarms](#) that can be found on the OPW Global channel on YouTube (search OPW Global or OPW University on YouTube.com)



9.3 See Logfiles



Access Logfiles


Three (3) types of Logs can be accessed through the Logfiles button on the Utilities screen; System Logs, LLD Logs and SLD Logs. This instruction is intended for non-technician logins to access the logfile information through a web browser.

1. Push the **Logfiles** button. The Logs screen will come into view.
2. Select a Log type from the **Logs** menu. The available logfiles for the selected Log type will come into view in a table in the right panel. The table will show columns for Disk, File Name, Size of the file, the Modification date and an Action column.
3. To see a logfile, click its **Select** link in the **Action** column of the table. The screen will change to show the **File to Get**.
4. Click the button labeled with the selected file on the right side of the screen.
5. A browser window will come into view that shows the selected log information.
6. The browser tab or window can be closed directly or you can click the **Back** button to go back to the Log screen.
7. Click the **Return** link in the bottom tab of the Log menu. A confirmation popup will come into view.
8. Click **Yes** on the popup to close the Logfile screen and go back to Utilities.

9.3.1 Scan Results

Click the **Scan Results** button.

Utilities		
Date/Time	Reboot	Status
05/17/2016 12:58 AM	OPW ScanDisk is running because last scanning was more than 30 days ago	FAT is consistent, All Errors have been fixed
04/06/2016 11:45 AM	OPW ScanDisk is running because last scanning was more than 30 days ago	FAT is consistent, All Errors have been fixed
02/24/2016 07:14 AM	OPW ScanDisk is running because there is no system closure marker	FAT is consistent, All Errors have been fixed
02/04/2016 12:00 AM	OPW ScanDisk is running because there is no system closure marker	FAT is consistent, All Errors have been fixed
02/04/2016 08:25 AM	OPW ScanDisk is running because last scanning was more than 30 days ago	FAT is consistent, All Errors have been fixed
12/22/2015 07:42 AM	OPW ScanDisk is running because last scanning was more than 30 days ago	FAT is consistent, All Errors have been fixed
10/13/2015 08:38 AM	OPW ScanDisk is running because there is no system closure marker	FAT is consistent, All Errors have been fixed
10/04/2015 00:10 AM	OPW ScanDisk is running because there is no system closure marker	FAT is consistent, All Errors have been fixed
10/01/2015 04:20 PM	OPW ScanDisk is running because last scanning was more than 30 days ago	FAT is consistent, All Errors have been fixed
08/21/2015 01:32 AM	OPW ScanDisk is running because there is no system closure marker	FAT is consistent, All Errors have been fixed

Close


Settings > Utilities > > > 6.3.5.11

Scan Results

The **Scan Results** screen will show the date and time, reason for the automatic scan and the results of the scan.

Section 10 Versions

The **Versions** option of the Settings menu shows a list of all system modules, dll and exe files and their version numbers.

OPW FUEL MANAGEMENT SYSTEMS
LLD Integra

Settings
Address Book
Site Summary
System
Products
Probes/Sensors
Reconciliation
Leak Detection
Utilities
Versions

Modules versions





Module name	Version	Information
OS WinCE	1.7.0.20	Integra
Core	1.2.0.195	OPWFMS Package
Std-Reports	20140411.75	OPWFMS Package
UI	2.00C.203	OPWFMS Package
System DB	357	
astp.dll	1, 0, 1, 13	
astpPS.dll	1, 0, 0, 1	
axiohm.dll	2, 0, 0, 1	
BRDdriver.dll	01.00A	
ConfigModule.dll	1, 2, 0, 24	
crypto.dll	1, 0, 0, 1	
dao.dll	1, 1, 1, 22	
DBRestoreModule.dll	2, 0, 0, 10	

Logout Settings Help Print
Wednesday 05/18/2016 12:11 PM
v. 16Q1.6 © 2009 by OPW Fuel Management System

Spooler Status: 0 Active Alarms: 5 Open Alarms: 35 Home

Versions

Appendix A - Icon Alarm Conditions

	No Alarms
	In Alarm Outline dashed red - Red warning triangle
	Alarm Acknowledged Outline solid blue - Red warning triangle
	Alarm Over But Not Acknowledged Outline solid blue - Blue warning triangle

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.

Revision History

Revision #	ECO #	Effective	Software Version*	Key Changes
0	438	1/14/13		Initial Release
1	528	11/5/13		Revised menu content to reflect latest version of menus. Revised installation information and diagrams.
2	1168	5/10/17		Removed network printer setup, update branding
M2021_r0	1390	tbd	v 17Q2.1	Added Max Temp Difference to Tank Pref screen. Maintenance mode moved from Utilities to In-Tank Probe screen. Updated Firmware upgrade procedure.



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

