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M2011 - SiteSentinel[®] Nano[®] Automatic Tank Gauge System Configuration Guide







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Links to Instructional Video

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

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



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

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

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



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





Direct Connection with a Crossover Cable



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



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

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



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







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



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





Outer Area Connection Properties III Internet Protocol Version 4 (FCH/EVel) Properties Internet Secure Mebbility Local Area Connection (Particular Cable unplugged) Weekes Network Cable (Particular Cable Unplugged) Internet Protocol Version 4 (FCH/EVel) Properties Internet Cable Unplugged Intel® Cable Unplugged General Atematic Configuration Intel® Continue(®) UT (Particular Configuration Intel® Cable Unplugged Too con get 9 artificipa assigned automatically if your retrievels assessing for the appropriate 9 britismy. Intel® Cable Unplugged	
Contract Advantation Configuration Contract Advantation Contract Advantation Contract Advantation Contract Advantation Contract Advantation	
You can get IP settings assigned automatically if your network apports this capability. Otherwise, your need to ask your network administrator	
You can get IP settings assigned automatically if your network supports this capabity. Otherwise, you need to ask your network administrator	
this capability. Otherwise, you need to ask your network administrator	
O Obtain an IP address automatically	
Use the following IP address	
IP address: 192 168 1 110	
Subnet mask: 255 255 0	
Default gateway:	
Obtain DNS server address automatically	
O Use the following DNS server addresses:	
Use the following DRS server addresses: Instruct DRS server:	

- 6. Set the **IP address**. The unit comes shipped from the factory with the IP address 192.168.1.111. Your laptop must be set one number higher or one number lower to connect to the Nano with a crossover cable.
 - a. Click the button next to Use the following IP address.
 - b. Enter the IP address: 192.168.1.110.
 - c. Enter the Subnet mask: 255.255.255.0.
- 7. Click OK.

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





Section 1 Get Started



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

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

- "Login Procedure" on the next page
- "Cold Start Procedure" on page 13
- "Barrier Calibration" on page 14
- "Auto Detect System Devices" on page 17
- "Address Book Entries" on page 20





1.1 Login Procedure



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

Enter I I
Authentication Required
A username and password are being requested by http://00.00.0.00. The site says: "Enter login data:" User Name: user Password: pass OK Cancel

Login Procedure

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





Home Menu



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



Home Menu

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





1.2 Cold Start Procedure

Site Summary > Cold Start



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

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



Cold Start

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





1.3 Barrier Calibration

Diagnostics > Barrier Diagnostics



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

		Barrier Diagnostics
Site Summary Preferences	VI	24 millivolts
Site Setup Reconciliation	V2	24 millivolts
Reports Diagnostics	V3	23 millivolts
Probe Diagnostics Log File Barrier Diagnostics	CI	0 milliampa
	C2	0 milliamps
	Power Supply	ON
	Potentiometer	27
		Calibrate Refresh

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



Follow the steps below to calibrate the Barrier:

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







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

		Barrier Diagnostics
Site Summary Preferences	V1	24 millivolts
Site Setup Reconciliation	V2	24 millivolts
Reports Diagnostics	V3	23 millivolts
Probe Diagnostics Log File Barrier Diagnostics	Cl	0 milliampa
6	C2	0 milliamps
	Power Supply	ON The Factory Default value (27) will change when calibration is complete
	Potentiometer	27
	7-	Calibrate Refresh

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





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



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1.4 Auto Detect System Devices

Site Setup > Serial Numbers / Auto Detect



	Auto Detect	ProGauge Serial Numbers
A DOVER COMPANY		
Site Summary	Auto I	Detect
Preferences	4	
Site Setup		
Device List		Panel
Tank Configuration		
Sensor Configuration	Channel 1 Channel 2	Channel 3 Channel 4
Tank Threshold	Position Number: 0	Detected Output Module
Tank Strapping Table	+	/
Tank Correction Table	(6)	(F)
Alarm Actions		(5)
Reconciliation	i de la companya de la company	
Reports	1	1
Diagnostics		
Diagnostics	Bottom	Panel
	1	
	1	l l
	1	1
	1 Contraction of the second	1
	1 Contraction of the second seco	1
	1	1
	Auto	Detect

Auto Detect

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

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





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



Auto Detect - Bottom Panel Information

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





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



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1.5 Address Book Entries

Preferences > Address Book



	Address Book
Site Summary Preferences Address Book Port Settings System Preferences User Preferences Warnings Email & SMS Networking Site Setup Reconciliation Reports Diagnostics	a First Name b Last Name c Company Contact Information d Fax e Email f SMS
	Apply Cancel Delete

Address Book – Contact Information Entry

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

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





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

		Add	ress Book	
Site Summary Preferences Address Book Port Settings System Preferences User Preferences Warnings Email & SMS Networking Change Password Site Setup Reconciliation Reports Diagnostics	6	John Doe Company: OPWFMS Email: jdoe@email.com Fax: SMS: William Jones Cort, any: OPWFMS Email: bjones@email.com Fax: SMS: Company: Email: Fax: SMS:	Add	

Address Book Entries

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



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





Section 2 Site Summary

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

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

Site Summary

Site Information

Product Reference Table

Installed Options

Firmware

Cold Start

Backup & Restore

Preferences

Site Setup

Reconciliation

Reports

Diagnostics





2.1 Site Information

Site Summary > Site Information



	1 Site	Information
Site Summary	Site Name	OPW FMS
Site Information Product Reference Table	2 Site ID	1
Installed Options Firmware	Contact Phone	555-1234
Cold Start Backup & Restore	Address Line 1	6900 Santa Fe Drive
Preferences	Address Line 2	
Site Setup	State	L
Reconciliation	Code	60525
Reports	City	Hodgkins
Diagnostics	Country	USA
	Phone	708-555-5555
	4	Apply

Site Information

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

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





2.2 Product Reference Table

Site Summary > Product Reference Table



	Product Reference Table
Site Summary	3 1 Unleaded Regular 2
Site Information Product Reference Table	
Installed Options Firmware Cold Start	
Backup & Restore	
Site Setup	
Reconciliation	
Reports Diagnostics	
	4 Apply

Product Reference Table

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

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





2.3 Installed Options

Site Summary > Installed Options



1 Installed Options			
Features 3	Installed		
POS Interface			
Delivery Report			
Alarm Kit			
Leak Detection			
ACR			
Density			
	Features 3 POS Interface Delivery Report Alarm Kit Leak Detection		

Installed Options

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

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





2.4 Firmware

Site Summary > Firmware



	1 Firmware				
Site Summary Site Information Product Reference Table Installed Options Firmware Cold Start Backup & Restore Preferences Site Setup	Here you can upgrade Nano's firmware options				
Reconciliation Reports Diagnostics	File with upgrade to be applied: Browse No file selected				
	Upgrade				

Firmware

This section describes the procedure for upgrading the Firmware.

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





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



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

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





2.5 Cold Start

Site Summary > Cold Start



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

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

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



Cold Start

1. Click Site Summary.

2. Click the Cold Start menu item.

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

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





2.6 Backup and Restore

Site Summary > Backup & Restore





Backup and Restore

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

2.6.1 Create a Backup

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

2.6.2 Restore

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

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







SD Card Location

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



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

2.6.3 Store backup.txt files to a Personal Computer

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

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

If the SD Card Loses Configuration

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

Restore Copied Backup Files

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

<Memory command>

<Erase>false</Erase>





<Restore>true</Restore>

</Memory command>

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





Section 3 Preferences

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

- "Address Book" on the next page
- "Port Settings" on page 35
- "System Preferences" on page 37
- "User Preferences" on page 39
- "Warnings" on page 41
- "Email and SMS" on page 43
- "Networking" on page 45
- "Change Password" on page 47
- "FTP Server Setup" on page 48

Site Summary

Preferences

Address Book

Port Settings

System Preferences

User Preferences

Warnings

Email & SMS

Networking

Change Password

FTP Server Setup

Site Setup

Reconciliation

Reports

Diagnostics





3.1 Address Book

Preferences > Address Book



3.1.1 Add and Edit Contacts

Site Summary 1 Preferences Address Book Port Settings System Preferences Warnings Email & SMS Networking Change Password FTP Server Setup Site Setup Reconciliation Reports Diagnostics		Address Book					
Add	Preferences Address Book Port Settings System Preferences User Preferences Warnings Email & SMS Networking Change Password FTP Server Setup Site Setup Reconciliation Reports	Company: OPWFMS Email: jdoe@email.com Fax: SMS: Corr_any: OPWFMS Email:bjones@email.com Fax: SMS: Corr_any: OPWFMS Email:bjones@email.com Fax: SMS: Company: Email: Fax: SMS: Company: Company: Email: Fax: SMS: Company:					

Address Book

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

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





3.1.2 Contact Information

	Address Book				
Site Summary	a First Name:				
Preferences	b Last Name:				
Address Book					
Port Settings	C Company:				
System Preferences					
User Preferences	Contact Information:				
Warnings					
Email & SMS					
Networking	(d) Email:				
Change Password					
FTP Server Setup	(e) SMS:				
Site Setup					
Reconciliation					
Reports					
Diagnostics					
	Apply Cancel Delete				

Contact Information

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



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





3.2 Port Settings

Preferences > Port Setting



		Communications			
Site Summary Preferences	Please select the service, then select Comr	nunication Device			
Address Book	Available Services				
System Preferences User Preferences Warnings Email & SMS	Pos Interface	Pump Interface	Fax Service		
Networking		<u> </u>			Mapping Configuration
Change Password	Available Communication Devices	(4)		Protocol	Select -
FTP Server Setup				Baud Rate	Select •
Site Setup				Stop Bits	Select •
Reconciliation	RS232 Port		RS485 Port	Data Bits	Select • > (6)
		Modem		Parity	Select •
Reports				Parameters	
Diagnostics	FTDI		LAN/WAN		
	Discor	nnect View I	Map	(7)	
				-	
					Apply Close
			l	_	

Port Settings - Communications - Mapping Configurations

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

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

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





Links Defined

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

To see the links of a mapped service:

- 8. Click the icon of the service you want to see. The icon will change color to orange on a black background. The icons of connected communication devices will also change color and show a green checkmark with the word "configured."
- 9. Click **View** to see the parameters of the linked service and its connected communications device(s). A Links Defined pop-up will come into view that shows the configured parameters.
- 10. To disconnect a configured port connection, click the **Disconnect** button at the bottom of the screen.




3.3 System Preferences

Preferences > System Preferences





System Preferences

The System Preferences screen provides options for Alarm settings.

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





- b. **Internal Outputs**: Select from the two (2) internal relay checkboxes (Turn Off Position only at the end of event).
- c. **Output Module** (if applicable): The Nano console can support up to four (4) **OM4** Output Modules with four relays each for a total of sixteen external relays. Select from the four (4) relay checkboxes (Turn Off Position only at the end of event) for an installed **OM4** module (shown on the screen as OM1-4).



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

- 4. Output Module Logic: Select between:
 - a. Standard (where the relay is not energized when in the normal condition).
 - b. Closed Under Power (where the relay is energized in the normal condition).
- 5. Click **Apply** to save changes to this screen.





3.4 User Preferences

Preferences > User Preferences



	User Preferences
Site Summary Preferences	3 Language Choice: English
Address Book Port Settings	4 System Units: Metric -
System Preferences	⊚ cm
User Preferences Warnings	5 Date Format: MMDDYYYY -
Email & SMS Networking Change Password	6 Time Format: 12 Hours
FTP Server Setup Site Setup	Probes Type: OPW ProGauge
Reconciliation Reports Diagnostics	9 Lock Site Configuration
	Apply

User Preferences

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

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





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



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





3.5 Warnings

Preferences > Warnings



Site Summary	Alarms	Audib	le Print or	n Event	Internal	Output	Alarm	Notif	icatio	ns Ol
Preferences			Start	End	1	2	Emai	1	SM	s
Address Book Port Settings	Printer Failure			Please S	Select	0		j	ų	6
System Preferences User Preferences b	Power Failure		Anthony	/ Bryan	t				ņ	6
Warnings Email & SMS 2 C	Site Open/Close		Jonatha Dwayne				P	T	ļ	6
Networking Change Password	Internal Input Contact #1							Ì	ņ	Ē
TP Server Setup	Internal Input Contact #2			Z		Z	×		SMS	
	End of Day						<u>w</u> r			5
Reports (ACR Comms Fail					ĺ	Please	e Sele	ct	0
Diagnostics		LG				Position OM1	P1	P2	P3	P4
				Арр	lv.	OM1 OM2				
					.,	OM3				
-						OM4				

Warning Preferences

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





- f. **ACR Comm. Fail**: Creates an alarm condition when communications are lost to the autoreconciliation module.
- 5. Identify an Alarm Action for each Alarm by selecting the desired check boxes.
- 6. Identify the way that the **Alarm Notification** is to be sent (i.e., Email or SMS. Select from the recipients in the popup).
- 7. Identify whether an **Alarm Notification** will be sent through the **OM4** relays (select from the specified relay positions in the popup).
- 8. Click Apply.



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





3.6 Email and SMS

Preferences > Email and SMS



Site Summary 1 3 SMTP Server smtpcorp.com Preferences 4 3 SMTP Port 25 Sender nano@opwfms.com 5 SMTP Server Address Book 6 7 SmtP Server Port Settings 5 ✓ SMTP Server System Preferences 6 ✓ ✓ Warnings 6 ✓ ✓ SmtS Service Provider Change Password 7 SmtS Service Provider Gateway Address sms@messaging.c Site Setup Reconciliation Password … Password … Reports Diagnostics ID 1234567 10 1234567		Email & SMS	
Apply	Site Summary Preferences Address Book Port Settings System Preferences User Preferences User Preferences Warnings Email & SMS Networking Change Password FTP Server Setup Site Setup Reconciliation Reports	3 SMTP Port 25 Sender nano@opwfms.com 6 Image: SMTP Server Authentication User officenano Password Image: SMS Service Provider Gateway Address sms@messaging.c User nanouser Password Image: SMS Service Provider Gateway Address sms@messaging.c User nanouser Password Image: SMS Service Provider API ID 1234567	

Email Setup

3.6.1 Setup Email Service

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

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





	Emai	il & SMS
Site Summary	SMTP Server	smtpcorp.com
Preferences	SMTP Port	25
Address Book	Sender	nano@opwfms.com
Port Settings		SMTP Server
System Preferences User Preferences	User	officenano
Warnings		
Email & SMS	Password	
Networking	SMS Service Provid	ler
Change Password	Gateway Address	sms@messaging.c
Site Setup	4 User	nanouser
Reconciliation	5 Password	
Reports Diagnostics	6 API ID	1234567
	7	Apply

SMS Setup

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





3.7 Networking

Preferences > Networking



Site Summary Preferences Address Book Port Settings System Preferences Warnings Email & SMS Q Change Password FTP Server Setup Site Setup Reports Diagnostics MAC MAC 00:1B:C6:55:91:76 Ethermet Interface 3 IP 10.0.10.132 @ Static Mask 25:255:255.0 D 0.0.0 C 0.0.0 C O: IB:C6:55:91:76 Ethermet Interface IP 10.0.10.132 @ Static Mask 25:255:255.0 Diagnostics IP IP 10.0.0.0 IP 10.0.0.0 IP IP		Networking
Apply	Preferences Address Book Port Settings System Preferences User Preferences Warnings Email & SMS Networking Change Password FTP Server Setup Site Setup Reconciliation Reports	00:1B:C6:55:91:76 Ethernet Interface 3 P 10.0.10.132 (a) Mask 255.255.0 (b) Gateway 0.0.00 (c) DNS 0.0.0 (d) © DHCP

Networking

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

- 1. Click Preferences.
- 2. Click Networking.

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

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





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

DHCP connection:

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





3.8 Change Password

Preferences > Change Password



	Change Remote Browser Password
Site Summary Preferences	3 User Name: user
Address Book Port Settings System Preferences	a Old Password:
User Preferences Warnings	4 b New Password:
Email & SMS Networking Change Password	C Confirm Password:
FTP Server Setup Site Setup	
Reconciliation Reports	
Diagnostics	5
	Submit

Change Password

To change the password for the remote browser:

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





3.9 FTP Server Setup

Preferences > FTP Server Setup

	Data Push Configuration							
Site Summary Preferences Address Book Port Settings System Preferences User Preferences Warnings Email & SMS Networking	1 Device Address: 0 2 Server IP Address: 0.0.0 3 Server Port 0 Number: 0 0 4 User Name: (Max. length is 11)							
Change Password FTP Server Setup Site Setup Reconciliation Reports Diagnostics	5 Password: (Max. length is 15) 6 7 8							
	Apply Connect Disconnect							

FTP Server Setup

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

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





	A	В	C	D	E	F	G
1	ibank	DateTime	Tank	QTY	Temperature	Water	Height
2	6344	3/1/2017 5:59	1	292.15	19.4	0.85	113.19
3	6344	3/1/2017 5:59	2	478.06	20.1	-0.18	79.57
4	6344	3/1/2017 5:59	3	7083.74	18.89	0.14	152.08
5	6344	3/1/2017 5:59	7	9893.01	20.89	0.46	135.44
6	6344	3/1/2017 5:59	8	11056.9	20.9	0	79.16
7	6344	3/1/2017 6:00	1	292.15	19.4	0.85	113.19
8	6344	3/1/2017 6:00	2	478.06	20.1	-0.18	79.57
9	6344	3/1/2017 6:00	3	7084.19	18.87	0.14	152.08
10	6344	3/1/2017 6:00	7	9893.16	20.87	0.46	135.44
11	6344	3/1/2017 6:00	8	11057.21	20.89	0	79.16
12	6344	3/1/2017 6:01	1	292.15	19.4	0.85	113.19
13	6344	3/1/2017 6:01	2	478.06	20.1	-0.18	79.57
14	6344	3/1/2017 6:01	3	7084.24	18.84	0.14	152.08
15	6344	3/1/2017 6:01	7	9893.4	20.86	0.22	- 44
-	6344	3/1/-		11057.4			

Tank Information

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





Section 4 Site Setup Menu

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

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

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



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

Topics in this section include:

- "Device List" on the next page
 - "Auto Detect Tab" on the next page (for OPW probes, sensors and modules)
 - "ProGauge Serial Numbers Tab" on page 53 (for ProGauge probes)
- "Tank Configuration" on page 54
- "Sensor Configuration" on page 59 (with OPW probes)
- "Tank Thresholds" on page 61
- "Tank Strapping Table" on page 64
- "Tank Correction Table" on page 67
- "Alarms/Events" on page 70



Site Summary

Preferences

Site Setup

Device List

Tank Configuration

Sensor Configuration

Tank Threshold

Tank Strapping Table

Tank Correction Table

Alarm Actions

Reconciliation

Reports

Diagnostics





4.1 Device List

Site Setup > Device List



Auto Detect

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

4.1.1 Auto Detect Tab



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

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

1. Click Site Setup.





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



Auto Detect - Bottom Panel Information

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





- c. **Configured** devices will show a green checkmark ✓ next to the word "Configured." See Section 4.2 Tank Configuration for information on configuring probes.
- 9. Sensor information that shows includes:
 - a. Serial Number: The serial number for each sensor shows under the sensor icon.
 - b. **Part Number and Application Type**: The part number of the sensor shows next to the sensor icon with the application type. The four (4) sensor applications include: Site, Tank, Dispenser and Sump.
 - c. **Configured** devices will show a green checkmark ✓ next to the word "Configured." See Section 4.3 Sensor Configuration for information on configuring sensors.

4.1.2 ProGauge Serial Numbers Tab

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

	Auto Detect	ProGauge Serial Numbers
Site Summary	ProGauge Probe	es Serial Numbers
Preferences 10	1	3
Site Setup	1 12345	2 23456
Device List		
Tank Configuration Sensor Configuration (11)	3 34567	4 45678
Tank Threshold		
Tank Strapping Table Tank Correction Table	5 56789	6 67890
Alarm Actions		
Reconciliation	7	8
Reports		
Diagnostics	9	10
	11	12
	14	
	A	pply

ProGauge Serial Numbers

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





4.2 Tank Configuration

Site Setup > Tank Configuration



			Tank (Config	uration	
Site Summary	Configure new Tank	3			TEC: Always Show Net Volume:	0.00 Yes
Preferences	Tank Number	4	1	•	Density Information:	
Site Setup	Serial No	(5)	10352		Density/API:	0.73
uto Detect	Tank Name	6	Unleaded Re	gula	@Temp	60.10 °f
ensor Configuration	Manifolded Group	7	Select	•	ACR Configuration:	
nk Threshold	Product Name	8	Gas	•	Standard Mode © ACR	
ank Strapping Table	Tank Shape:	9	Cyl-Round En	c 💌	Unstabled Delivery Timer: Vapor Recovery System:	10 No Vapor Recover -
arm Actions	Dished End Radius:	10	0.00	in	Evaporation Factor:	0.000 %
Reconciliation	Tank Color:	(1)		•		
Reports	Tank Diameter	(12)	72.00	in	DMS (Density Measurm	ent Sensor)
Diagnostics	Capacity:	13	4000.00	gal		
	Safe Working Capacity:	14	3900.00	gal	Factor a:	0.0000
	Product Offset::	15	2.83	in	Factor b:	0.00 %
	Water Float: 16)	Single Float	•	Fuel Type:	Select 💌
	Water Float Status:) 0	Enable © Dis	able	 Auto Absorption Manual Calibration 	Kg/m ³
	Water Offset:	17	-0.05	in		
	Lift Off:	18	0.00	in	Timed Leak Test Settings:	al Test
	Delivery Timer:	(19)	10	m	Minimum Product Level TL	
	35	-	Apply	Reset	Delete	

Tank Configuration

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





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



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

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



Calculate Product Offset





16. Water Float:

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





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

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

350-637 Kg/m³ (LPG) (Kg/m³ ÷ 1000 = entered value)

654-1075 Kg/m³ (other fuels) (Kg/m³ ÷ 1000 = entered value) 2.0-85 API = entered value

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

EXAMPLE:

If you want to enter 845 (diesel standard density) Kg/m³ then you would enter 0.845 (845 \div 1000 = 0.845). If you want to enter 750 (gasoline) Kg/m³ then 0.750 needs to be entered (750 \div 1000 = 0.750).

Typical API numbers for Common Liquids:

Regular Gasoline = 62 Unleaded Gasoline = 59 Premium Unleaded Gasoline = 56 Diesel = 34 Kerosene = 42

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



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

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



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





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



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

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





4.3 Sensor Configuration

Site Setup > Sensor Configuration



	Sensor Cor	
Site Summ	Configure new Sensor	Association
Preferences b	Sensor Number 1	© Site
Site Setup Device List	Sensor Serial 9139 🗘	© Sump
Tank Configuration	Description Dual Float Dispenser	🔊 Dispenser 🛄
Sensor Configuration Tank Threshold	I.S. Module	© Tank (V
Tank Strapping Table	Position: 4	Current Sensor Status Refresh
Tank Correction Table	Sensor Type Dual Float Dispenser b Sump Sensor	
Reconciliation	Sensor Model 30-0232-D-10	·
Reports Diagnostics	b	
	Sensor Alarm Actions	
5	Audible Print on Event Internal Output	Alarm Notifications OM4
	Start End 1 2	Email SMS
	6 Apr	ply

Sensor Configuration

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

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

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





- c. Sensor Serial: Select the serial number of a detected sensor from the dropdown.
- d. **Description**: A description of the sensor function.
- e. I.S. Module Position: The Channel number of a detected sensor.
- f. Sensor Type: The name of a detected sensor.
- g. Sensor Model: The model number of a detected sensor.
- h. The icon of the detected sensor will show at the bottom of this panel.
- 4. The right panel shows selections to specify the association of a selected sensor and to get information on the sensor's status once it has been configured.
 - a. Select an **Association** for the detected sensor. Each sensor can be associated with one (1) of four (4) monitoring locations.
 - i. Site: To monitor site activity.
 - ii. Sump: To monitor activity for a sump application.
 - iii. Dispenser: To monitor activity within a dispenser. When this option is selected, a dropdown will come into view to specify the dispenser (pump) number.
 - iv. Tank: To monitor activity within a tank. When this option is selected, a dropdown will come into view to specify the Tank number.
 - b. To get information on the Current Sensor Status push the Refresh button. The current liquid Level being monitored will show (in the units selected from the User Preferences screen).
- 5. Sensor Alarm Actions can be set up in the bottom panel:
 - Audible Alarm: Will sound the internal buzzer when an Alarm/Event occurs. Buzzer duration can be changed in Settings > System Preferences > System and will be global to all audible Alarm/Events.
 - **Print on Event**: Sends event information to a connected printer.
 - Start: The tank-gauge system will print Alarm/Event when an Alarm/Event starts.
 - End: The tank-gauge system will print Alarm/Event when an Alarm/Event ends.
 - Internal Output Contacts:
 - Internal Output Contact 1 will close when an Alarm/Event occurs.
 - Internal Output Contact 2 will close when an Alarm/Event occurs.
 - **Email**: A maximum of five (5) contacts can be emailed when an Alarm/Event occurs.
 - **SMS**: A maximum of five (5) contacts can be notified via text message when an Alarm/Event occurs.
 - **OM4**: An Alarm/Event will be sent through the OM4 relays.
- 6. Click **Apply** to save the sensor configuration.





4.4 Tank Thresholds

Site Setup > Tank Thresholds



	Tank Thresholds 4
Site Summary Preferences Site Setup	Tank Number: 1 Delivery Start Threshold: 26.41 gal a Tank Name: Regular Unleaded Delivery End Threshold: 5.00 gal b Product Name: Gas Standard Theft Detection: gal c Safe Working Capacity: 3900.00 gal b
Device List Tank Configuration Sensor Configuration Tank Threshold Tank Strapping Table	See NOTE Suction Pipe
Tank Correction Table Alarm Actions Reconciliation Reports	
Diagnostics	\checkmark (\checkmark)Water High-High \checkmark V3.00in \checkmark High Temperature77.00 \circ f \bigcirc \checkmark (\checkmark) \checkmark Low Temperature35.00 \circ f \checkmark (\checkmark) \checkmark Low Temperature \diamond f \checkmark
	6 More Apply 5

Tank Thresholds

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

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

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





- b. **Delivery End Threshold**: The quantity of gallons/liters added per minute to show the end of the delivery. The recommended value is 5 liters (1.3 gal).
- c. **Standard Theft Detection**: Theft Detection is in operation when the site is closed. If the level of fuel decreases more than the value entered in this field, it will cause an alarm condition.



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

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

These thresholds are pre-calculated based on tank size.

- d. **High-High Product**: When the product level is more than this threshold an alarm will occur to warn of a possible overfill condition. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.
- e. **High Product**: When the product level is more than this threshold an alarm will occur to warn of a possible overfill. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.
- f. Low Product: When the product level drops below this threshold an alarm will occur to tell the operator that product should be ordered. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.
- g. Low-Low Product: When the product level drops below this threshold an alarm will occur to warn that the product level in the tank is critically low. This threshold can be used to turn off submersible or suction pumps to prevent damage if the pump runs dry. This threshold should be set higher than the pickup for the submersible pump or suction pipe. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.
- h. High-High Water: When the water level is more than this threshold an alarm will occur. This alarm warns of a water level in the tank that has reached a critical level and must be examined. To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you wish the threshold to be by Height or by Volume, then enter a value for the threshold.
- i. **High Water**: When the water level is more than this threshold an alarm will occur as a prewarning to a High-High condition. The default is 1.5 in (3.8 cm). To set this threshold in operation, click the box next to the icon to add a check mark. Select whether you would like the threshold to be by Height or by Volume, then enter a value for the threshold.
- j. **High Temperature**: When the product temperature is more than this threshold an alarm will occur. To set this threshold in operation, click the box next to the icon to add a check mark. Enter a value for the threshold.
- k. **Low Temperature**: When the product temperature drops below this threshold an alarm will occur. To set this threshold in operation, click the box next to the icon to add a check mark. Enter a value for the threshold.





-

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

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

6 Advanced Tank Thresholds	
You are advised NOT to change these	values
Tank Minimum Temperature	-60.0 °C
Tank Maximum Temperature	75.0 °C
Max Tank Temperature Difference	5.0 °C
Tank Reference Temperature	20 ‡ °C
This data is common for all tank	CS
Reset Apply Close)

Figure 4-1 Advanced Tank Thresholds

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

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



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

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





4.5 Tank Strapping Table

Site Setup > Tank Strapping Table



	Tank St	rapping Table	
Site Summary	Tank Number: 1	Height. (in)	Volume. (gal)
Preferences		0.00	0.00
	Tank Name: Unleaded Regular	2.00	22.51
Site Setup		4.00	45.02
Device List	Product Name: Unleaded Regular	6.00	67.89
Tank Configuration		8.00	108.26
Sensor Configuration	Tank Chart:	10.00	148.63
Tank Threshold	(4)	12.00	189.44
Tank Strapping Table	© Strapping Table: b	14.00	
Tank Correction Table	; = = = = = = ;		
Alarm Actions	Export Format (7a)		x
Reconciliation	© CSV _ ⊙ Text		١
			1
Reports	Start: 0.00	Step: 2.00	
Diagnostics	Stop: 149.00		
			(7)
	Show Points	Export	
	Points Count:	75	11
		(6)	

Tank Strapping Table

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

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





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



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

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



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

4.5.1 Export Tank Chart/Tank Strapping Table



Export

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





- a. Select the **Export Format**. CSV (Comma Separated Values) can be used to export and save the table as a .csv file. Text will export and save the table in .txt format.
- b. Click the **Export** button.
- c. The confirmation screen "Are you sure you want to export Tank Chart?" will pop up. Click OK.
- d. A "Request Successful" popup will come into view. Click the **OK** button (if the popup shows "Request failed," click **OK** and click the **Export** button again. If unsuccessful after several tries, notify your site IT administrator).
- e. A .csv (comma separated values) or .txt file will be created.



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

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



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

♦ 3 10.35.3.103	ଢୈ ☆ ଟ ଫ 🚺 ▾ Google	₽ 🖬 🕈 👘
Firefox prevented this site from opening a pop-up windo	w.	<u>Options</u> ×
		Allow pop-ups for 10.35.3.103
	\sim	Edit Pop-up Blocker Options
	ect Either	Don't show this message when pop-ups are blocked
	Option	Show 'http://10.35.3.103/Chart_Tank_1.csv'

Allow Popups





4.6 Tank Correction Table

Site Setup > Tank Correction Table



	Tank Correction Table				
Site Summary	Tank Number		1	-2	
Preferences	Tank Name		Regular Unleaded	3	
Site Setup	Product Name		Gas		
Device List	Correction:				
Tank Configuration					
Sensor Configuration	(4)				-
Tank Threshold	Height (in) V	olume: (gal)	Height (in)	Volume (gal)	_hI
Tank Strapping Table			1.00	16.20	_ = I
Tank Correction Table	[]		2.00	32.40	
Alarm Actions			3.00	59.60	
Reconciliation (2			4.00	87.40	
Reconciliation	(5) Add		5.00	120.10	_
Reports	Add		6.00	n 153.40	
			7.00	193.50	
Diagnostics	6 Remo	ve b		a 199.50	- - -
			(9)	-	
	(7) Remove	Export	Format		
			© Text	(11)	
	8	0.031	- Text		
	0				
		Apply Expo	t Import		

Tank Correction Table

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

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



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

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



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

Import/Export Feature

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

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

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

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





Alarm Actions

Site Setup > Alarm Actions



]	Tank Na	ma: Tank					
		me. Tank	1	_ (5)	Product Nar	ne: Unleade	d
Audible	Print o	n Event	Internal		Alarm No	tifications	OM4
	Start	End	1	2	Email	SMS	
Z		1			×	ļ.	8
Z	V	1				Ļ	8
Z	V	1			\mathbf{X}	ļ.	8
Z	Z	2			\mathbf{X}		8
Z	V	7			×	ļ.	8
		2			\mathbf{X}	Ļ	8
Z							8
	V	7			\mathbf{X}		8
	2	2				ļ.	8
2	2	2				ļ.	8
Z	Z	Z				ļ.	8
	Z	2			\mathbf{X}	ļ.	8
2						ļ.	8
	2	2					8
							_
		Start Ø Ø	Start End Ø Ø Ø	Start End I Ø Ø Ø F Ø Ø Ø F Ø Ø Ø F Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F Ø Ø Ø Ø F </td <td>Start End 1 2 Ø Ø Ø F F Ø Ø Ø F F Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F <</td> <td>Start End 1 2 Email Ø Ø Ø F F E Ø Ø Ø F F F Start Ø Ø Ø Ø F F F Start Ø Ø Ø Ø Ø F F Start Ø Ø Ø Ø Ø F F Start Ø Ø Ø Ø Ø Ø F F Start Ø Ø Ø Ø Ø Ø Ø Start Ø <</td> <td>Start End 1 2 Email SMS V V V F F SM SMS V <td< td=""></td<></td>	Start End 1 2 Ø Ø Ø F F Ø Ø Ø F F Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F Ø Ø Ø Ø F F <	Start End 1 2 Email Ø Ø Ø F F E Ø Ø Ø F F F Start Ø Ø Ø Ø F F F Start Ø Ø Ø Ø Ø F F Start Ø Ø Ø Ø Ø F F Start Ø Ø Ø Ø Ø Ø F F Start Ø Ø Ø Ø Ø Ø Ø Start Ø <	Start End 1 2 Email SMS V V V F F SM SMS V <td< td=""></td<>

Alarm Actions

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



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

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



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

4.6.1 Alarms/Events

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

4.6.2 Alarm Actions

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



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





Section 5 Reconciliation

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

- "Auto Calibration" on the next page
- "Hose Mapping" on page 77
- "Thresholds" on page 79



	Site Summary
	Preferences
	Site Setup
	Reconciliation
A	utocalibration
Н	ose Mapping
T	hresholds
	Reports




5.1 Auto Calibration

Reconciliation > Auto Calibration



	3 Auto Calibration	
Site Summary Preferences Site Setup Reconciliation Autocalibration Hose Mapping Thresholds Reports Diagnostics	Tank Number: 11 Tank Name: Tank 11 Product Name: Unleaded Current: 4 Status: 0.00 % Remaining: 100.00% Calibration State: 5 State: Disable Statt Disable Start 0	
	9 Apply Advanced	

Auto Calibration

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

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





- b. The **Start** operation lets the user start auto calibration from the beginning (the auto calibration- strapping table is calculating the base on tank configuration, [e.g., tank diameter, shape and volume], and the tank correction table). The counters for completed segments are reset to zero.
- 6. The **Calibrate** parameter specifies the entire calibration volume range in which auto calibration strapping- table segments will be changed.
- 7. The **Calibration Cycles** parameter sets the required and maximum calibration-cycle values for each segment.
 - a. The **Required** calibration-cycles value specifies the auto calibration status percentage (%). When each segment within the specified auto calibration volume range is at this required value, the auto calibration process is complete. Because not all segments in one auto calibration cycle are changed, some segments can be changed more than the required value.
 - b. The **Maximum** calibration cycles value parameter sets the number of auto calibration cycles in which the segments will not be changed if the auto calibration process is not complete (the minimum is 5 and the maximum is 10).
- 8. The **Unaccounted Variance Period** parameter allows the user to specify how many hours will be calculated during reconciliation for unaccounted variance volume.
- 9. Click **Apply** to save the Auto Calibration screen settings.



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





Au	to Calibration Adva	nced
Tank Number: Tank Name: Product Name: Segments: 12 Define Number of Segments:	Select Select	Suction Pipe Magnetostrictive Probe Product Float
Current Status of Calibration	a / b	
	15 Apply	

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

Auto Calibration Advanced

- 11. Select a Tank Number. The Tank Name and Product Name will come into view.
- 12. **Segments**: The tank height will be divided into a number of equal segments for the auto calibration process.
- 13. Define Number of Segments: Select a number from the drop-down in the range from 25 to 45.



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

1	-	
		1
	\sim	·

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





14. Current Status of Calibration shows:

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





5.2 Hose Mapping

Reconciliation > Hose Mapping



	Hose Mapping
Site Summary Preferences Site Setup	Pump 1 I o Hose 1:Regular Unleaded Pump 2 Pump: 3 1 Hose: 4 1
Reconciliation	• Hose 1:Regular Unleaded Tank1: 5 1
Autocalibration Hose Mapping Thresholds	14a Product: 6 Gas
Reports 2	Offset1: 7 0
Diagnostics	Tank2: 8
, v	Product: 9
, in the second s	Offset2: (10) Blend: (11) %
	Add Update Delete

Hose Mapping

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



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





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





5.3 Thresholds

Reconciliation > Thresholds



	Reconciliation Thresholds
Site Summary	3 Tank Number 1
Preferences	Test Vend 20 gal
Reconciliation	5 Loss Warning 1 gal
Autocalibration Hose Mapping Thresholds	6 Loss Alarm 3 gal
Reports 2	Unaccounted 0.5 gal
Diagnostics	Daily Unaccounted 0.5 %
	[®] By% [®] By Volume
	Unexpected Sale 0.5 gal
	10
	Apply

Thresholds

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

- 1. Click Reconciliation.
- 2. Click Thresholds.
- 3. Select a Tank Number.

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

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

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

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

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





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

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





Section 6 Reports

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

- "Current Inventory" on page 83
- "Delivery History" on page 85
- "Events in Progress" on page 86
- "Event History" on page 87
- "Leak Test" on page 88
- "Hourly Report" on page 89
- "Daily Report" on page 90
- "Petroleum Report" on page 91



Site Summary
Preferences
Site Setup
Reconciliation
Reports
Current Inventory
Delivery History
Events In Progress
Event History
Leak Test
Hourly Report
Daily Report
Petroleum Report
Diagnostics





6.1 Print Reports

Summary erences Setup nciliation	Group #	Tank #	Duo du ot#			(3)			
Setup nciliation	0	Tank #	Duoduot#				Tank Nu	mber 1	•
nciliation 1			Product#	TC Volume (gal)	Volume Gross(gal)	In Ref Temp	Time	Date	St
ⁱⁿ 1		1	Gas	3271.491	/ 3229.702	60.0	09:17:03	2014-01-24	St
1	0	1	Gas	3151.506	/ 3131.362	60.0	10:59:03	2013-11-26	St
	0	1	Gas	20569.899	20649.516	60.0	13:37:05	2013-10-30	St
	0	1	Gas	0.0	830.22	60.0	09:42:05	2013-10-30	Sta
In Progress istory st Report Im Report Inostics				1 Gas 1	Canon RI-ADV C2006-43 PSV1 dudit 1 Ready TP-5 Deve 40603651416451180CF67A020 weet TPVM trans cape Capies N Number of capies	5 105 133 09.4 Properties 09.4 Properties 09.4 Processite 09.4	7:03 2014-01-1 9:03 2013-11-1	26 Stable 30 Stable	

Print Reports

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

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





6.2 Current Inventory

Reports > Current Inventory





Current Inventory

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

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





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

	6 Tar	k Details		
Site Summary				7
Preferences	Tank ID	1		-
Site Setup	Product Gross	Regular 2973.48	gal	
Reconciliation	Product Volume	2973.17	gal	
Reports	Net Volume Water Volume	2990.70 0.31	gal gal	
Current Inventory	Density	59.00	Kg/m3	
Delivery History	Ullage	66.83	gal	
Events In Progress	Product Height	52.62	in	
Event History	Water Height	0.01	in	
Leak Test	Temperature	72.14	°f	
Hourly Report	Weight	18581.94	lb	
Daily Report				
Petroleum Report				
Diagnostics				
	8			
		Cancel		

Tank Details

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





6.3 Delivery History

Reports > Delivery History



				Deli	very History	3		6)
Site Summary					4			umber 1	•
references	Group #	Tank #	Product#	TC Volume (gal)	Volume Gross(gal)	In Ref Temp	Time	Date	Sta
ip	0	1	Gas	3271.491	3229.702	60.0	09:17:03	2014-01-24	Sta
(1)	0	1	Gas	3151.506	3131.362	60.0	10:59:03	2013-11-26	Sta
	0	1	Gas	20569.899	20649.516	60.0	13:37:05	2013-10-30	Sta
	0	1	Gas	0.0	830.22	60.0	09:42:05	2013-10-30	Sta
: Test Iy Report / Report Jleum Report agnostics									
	1			5	<u> </u>				

Delivery History

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

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





6.4 Events in Progress

Reports > Events in Progress



	Events	in Progress
Site Summary	Tank#/Sensor#/System	3
Preferences	Tank# 1	Leak Test Failure
Site Setup	System	Fuel Alarm
Reconciliation 1	Sensor# 1	Out Alarm
Reports Current Inventory Delivery History Events In Progress Event History Leak Test Hourly Report Daily Report Petroleum Report Diagnostics		

Events in Progress

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

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





6.5 Event History

Reports > Event History



A DOVER COMPANY		Event History							
Site Summary	Tank#/Sensor#/System	Alarm Description	Alarm State	Start date/time	End date/time				
Preferences	Tank# 3	Low Temperature	Active	2014-01-27 05:01:01	0				
ite Setup	Tank# 1	Bad Temperature	Inactive	2014-01-24 08:54:17	2014-01-24 08:56:49				
(1	Tank# 1	Low Temperature	Inactive	2014-01-24 08:53:10	2014-01-26 02:29:28				
econciliation	Tank# 1	Low Product	Inactive	2014-01-23 16:36:22	2014-01-2 08:45:39				
eports	Tank# 2	Bad Temperature	Inactive	2014-01-10 04:57:22	2014-01-10 04:57:23				
rent Inventory	Tank# 1	High Water	Inactive	2013-12-17 03:18:34	2013-12-1 4 :40				
very History	Tank# 1	High High Water	Inactive	2013-12-17 03:18:33	2013-12-17 03:18:39				
rnings In Progress	Sensor# 2	Fuel Alarm	Inactive	2013-12-05 08:35:24	2013-12-05 08:42:10				
ent History	Sensor# 2	Fuel Alarm	Inactive	2013-12-05 08:35:23	2013-12-05 08:42:12				
k Test	System	Power Failure	Inactive	2013-12-05 08:34:00	2013-12-05 08:34:32				
Irly Report	System	Power Failure	Inactive	2013-12-05 08:33:00	2013-12-05 08:33:42				
y Report	System	Power Failure	Inactive	2013-12-05 08:31:00	2013-12-05 08:32:05				
oleum Report	System	Power Failure	Inactive	2013-12-05 08:30:00	2013-12-05 08:30:53				
iagnostics	System	Power Failure	Inactive	2013-12-05 08:27:00	2013-12-05 08:27:47				
	System	Power Failure	Inactive	2013-12-05 08:09:00	2013-12-05 08:09:47				
	System	Power Failure	Inactive	2013-11-27 22:46:00	2013-11-27 22:46:48				
	Tank# 3	Low Temperature	Inactive	2013-11-26 21:40:00	2013-11-26 21:40:04				
	Tank# 2	Low Temperature	Inactive	2013-11-26 13:51:22	2013-12-05 08:34:58				

Event History

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

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





6.6 Leak Test

Reports > Leak Test



				Leak Test	5	
Site Summary	Tank#	Test Type	3 Result	Leak test rate (gal/h)	Measured leak rate (gal/h)	Duration
Preferences	1	Manual	Activity During Test	0.2	15.054	46
Site Setup	3	Manual	Test Passed	0.2	-0.013	120
Reconciliation (1)	2	Manual	Test Passed	0.2	-0.008	120
Reconcination	3	Manual	Test Passed	0.2	-0.009	120
Reports	1	Manual	Test Passed	0.2	-0.001	120
Current Inventory	2	Auto	Test Passed	0.2	-0.023	120
Delivery History	1	Auto	Delivery During Test	0.2	183.131	7
Events In Progress	2	Auto	Power Failure During Test	0.2	-0.327	11
Event History	2	Manual	Test Passed	0.2	-0.098	29
Leak Test	2	Manual	Power Failure During Test	0.2	-0.023	16
Hourly Report (2)	2	Manual	Aborted	0.2	0.012	15
Daily Report Petroleum Report	2	Manual	Delivery During Test	0.2	0.273	30
Diagnostics	•		w		4)	Þ

Leak Test

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

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





6.7 Hourly Report

Reports > Hourly Report



UEL MANAGEMENT SYSTEM	s		Hou	rly Repo	rt	3	6	7
Site Summary			4			T	ank Number 1	
Preferences	#	Loss Rate (gal/hour)	Date Time	Volume (gal)	Temp.(°f)	Sale (gal)	Temp. Var.(gal)	Ev
Site Setup	1	-0.008	2014-02-14 14:00:04	2015.501	45.4	0.0	0.004	
	2	-0.01	2014-02-14 13:00:01	2015.505	45.39	0.0	-0.001	
Reconciliation	3	0.01	2014-02-14 12:00:00	2015.517	45.39	0.0	0.012	
Reports	4	-0.024	2014-02-14 11:00:02	2015.495	45.37	0.0	-0.003	
Current Inventory	5	0.0	2014-02-14 10:21:00	2015.523	45.38	0.0	0.0	
Delivery History	6	-0.019	2014-02-12 08:00:03	2115.225	45.38	0.0	0.001	
events In Progress	7	0.005	2014-02-12 07:00:01	2115.242	45.38	0.0	0.006	
Event History	8	-6.286	2014-02-12 06:00:05	2115.231	45.37	0.0	-0.006	
eak Test	9	0.016	2014-02-12 05:00:03	2121.523	45.38	0.0	-0.004	Ē
lourly Report	10	0.0	2014-02-12 04:00:02	2121.511	45.38	0.0	0.005	Π
Daily Report	11	0.03	2014-02-12 03:00:02	2121.506	45.37	0.0	0.004	H
Petroleum Report	12	-0.012	2014-02-12 02:00:02	2121.472	45.37	0.0	-0.01	
Diagnostics	13	0.065	2014-02-12 01:00:03	2121.493	45.38	0.0	-0.002	
	14	0.0	2014-02-12 00:00:03	2121.431	45.39	0.0	0.0	
	15	-0.002	2014-02-11 23:00:07	2121.58	45.38	0.0	5 -0.011	
	16	0.026	2014-02-11 22:00:04	2121.593	45.39	0.5	0.0	
	17	-0.007	2014-02-11 21:00:04	2121.568	45.39	0.0	-0.005	
	18	0.008	2014-02-11 20:00:00	2121.570	45.4	0.0	-0.002	

Hourly Report

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

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





6.8 Daily Report

Reports > Daily Report



			Da	aily Report		3	6 🗖
Site Summary	h			4		Tank Numl	oer 1 🔻
Preferences	#	Start date/time	End date/time	Accounting Var.(gal)	%	Opening Stock(gal)	Closing Sto
Site Setup	1	2014-02-15 22:00:01	2014-02-16 22:00:02	-2.014	0	1894.091	1884.659
(1)	2	2014-02-14 10:21:00	2014-02-15 22:00:01	-2.414	0	2015.523	1894.091
Reconciliation	3	2014-02-11 10:50:50	2014-02-14 10:21:00	-3.194	0	2219.867	2015.523
Vertivery History Vertis In Progress Verti History eak Test Nourly Report Vertoleum Report Diagnostics							
	4		5	2			

Daily Report

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

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





6.9 Petroleum Report

Reports > Petroleum Report



		Petroleu	m Report	7→₽
Site Summary Preferences	Account Var.		Operating Var	-380.569 gal
Site Setup Reconciliation		%	Temp Var	% -0.008 gal
	Deliveries	54.793 gal	Evap. Var	0.0 gal
Reports Current Inventory	Deliv.var	29.961 gal	Water Var	0.007 gal
Delivery History	i i		Pump Calib	0.0 gal
Events In Progress	1	%	Theft	0.0 gal
Event History Leak Test Hourly Report	I I Tank Depletion	380.569 gal	Test Vend	0.0 gal
Daily Report Petroleum Report	l Pump Sales	0.0 gal	Unaccounted Var	-380.559 gal
Diagnostics	Tank Number	Start date 2014-02-03	End date 2014-02-14	Submit

Petroleum Report

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

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







Date Picker

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





Section 7 Diagnostics

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

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



Site Summary
Preferences
Site Setup
Reconciliation
Reports
Diagnostics
Log File
Barrier Diagnostics





7.1 Probe Diagnostics

Diagnostics > Probe Diagnostics



	_	Probe Diagnostics	5-
Site Summary Preferences Site Setup Reconciliation Reports Diagnostics Probe Diagnostics Log File Barrier Diagnostics 2	Base Data. Serial Number 1311065012 Velocity 111494.98 Software Version 08.01 Probe Type 0 Float Level [in] 105.00 Probe Height 105.00 Product Rough 50.39 Product Fine 50.39 Water Height 0.35 Probe Status Error Codes Code Description 0 D Good data received	3 Current Density R Density Sensor Probe Temperatur Thermistor 1 Thermistor 2 Thermistor 4 Thermistor 5 Thermistor 6	0.00 kg/m3
	0 P Good product reading 0 W Good water reading		0 0
	0 T Good temperature readin	gs	0

Probe Diagnostics

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

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





7.2 qLog File Screen

Diagnostics > Log File



	Log File
Site Summary	2014-2-11 15:00:00 Sale: Create 1-1 tanks: 1 0 offset: 0.0 0.0 Blend 0% Sale: Destroy hose 1-1
Preferences	2014-2-11 15:23:11 Sale: Create 1-1 tanks: 1 0 offset: 0.0 0.0 Blend 0% Sale: Destroy hose 1-1
Site Setup	2014-2-11 08:25:17 Sale: Create 1-1 tanks: 1 0 offset: 2.8 0.0 Blend 0% Sale: Destroy hose 1-1
Reconciliation	2014-2-11 15:00:00 Sale: Create 1-1 tanks: 1 0 offšet: 0.0 0.0 Blend 0%
Reports	Sale: Destroy hose 1-1
Diagnostics	2014-2-11 15:23:11 Sale: Create 1-1 tanks: 1 0 offset: 0.0 0.0 Blend 0% Sale: Destroy hose 1-1
Probe Diagnostics	2014-2-11 08:25:17 Sale: Create 1-1 tanks: 1 0 offset: 2.8 0.0 Blend 0% Sale: Destroy hose 1-1
Log File Barrier Diagnostics 2	2014-2-11 15:00:00 Sale: Create 1-1 tanks: 1 0 offset: 0.0 0.0 Blend 0% Sale: Destroy hose 1-1
	2014-2-11 15:23:11 Sale: Create 1-1 tanks: 1 0 offset: 0.0 0.0 Blend 0% Sale: Destroy hose 1-1
	2014-2-11 08:25:17 Sale: Create 1-1 tanks: 1 0 offset: 2.8 0.0 Blend 0% Sale: Destroy hose 1-1
	2014-2-11 15:00:00 Sale: Create 1-1 tanks: 1 0 offset: 0.0 0.0 Blend 0% Sale: Destroy hose 1-1
	Enable Disable

Log File

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

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





7.3 Barrier Diagnostics

Diagnostics > Barrier Diagnostics



	Barrier Diagnostics	
Site Summary Preferences	5 VI 24 millivolts	
Site Setup Reconciliation	I a V2 24 millivolts I	
Reports Diagnostics	V3 23 millivolts	
Probe Diagnostics Log File <mark>Barrier Diagnostics</mark>	C1 0 milliampa	
2	C2 0 milliamps	
	C Power Supply ON	
	a Potentiometer 27	
	4 Calibrate Refresh - 3	

Barrier Diagnostics

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

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

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

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



- a. V1-V2-V3: Barrier voltages (in millivolts)
- b. C1-C2: Current (in milliamps)
- c. Power Supply: ON/OFF
- d. Potentiometer: Current setting





Section 8 Syslog File

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



View Syslog File

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



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







Syslog File View

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

The information below is stored in the Syslog Files:

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



- System restarts
- Date/Time stamps



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



Section 9 Lock Site

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



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

To lock the site after configuration is complete:

	User Preferences	
Site Summary Preferences	Language Choice English	
Address Book Port Settings	System Units Metric 💌	
System Preferences User Preferences	© em © mm Date Format MMDDYYYY ▼	
Warnings Email & SMS Networking		
Change Password Site Setup	Time Format 12 Hours -	
Reconciliation		2
Reports Diagnostics	Lock Site Configuration	Lock Site Configuration
	Apply	

Lock Site Configuration

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



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





	Tank Configuration					
Site Summary	Configure new Tank			Delivery Timer:	10	m
Preferences	Tank Number	1	•	TEC: Show Always Net Volume:	0.00 Yes	
Site Setup	Serial No	10352	•	Density Information:		
nto Detect	Tank Name	Unleaded F	legula	Density/API: @Temp	0.73	
nk Threshold	Manifolded Group	Select	•	ACR Configuration:	00.10	
nk Strapping Table nk Correction Table	Product Name	Gas	•	Standard Mode ACR	Mode	
arm Actions	Tank Shape:	Cyl-Round		Unstabled Delivery Timer:	10	
Reconciliation 3	Dished End Radius:		in	Vapor Recovery System:	No Vapor Re	cover
Reports	Tank Color:		•	Evaporation Factor:	0.000	
Diagnostics	Tank Diameter	72.00	in	DMS (Density Measurm	ent Sensor)	
	Capacity:	4000.00	gal	Factor a:	0.0000	
	Safe Working Capacity:	3900.00	gal	Factor b:	0.0000	
	Product Offset::	2.83	in	Tolerance:	0.00	-
	Water Float:	Enable	Ŧ	Timed Leak Test Settings:		
	Water Offset:	-0.05	in	© Automatic Test 🥥 Manu	al Test	
	Lift Off:	0.00	in	Minimum Product Level	35	
						_
		Apply	Re	eset Delete		

Tank Configuration with Locked Fields

- 3. Once the site is locked the user cannot modify the tank related configuration. The user cannot add or delete a tank and the following fields will be "grayed out" on the Tank Configuration screen:
- Tank Shape
- Dished End Radius
- Tank Diameter
- Tank Volume
- Safe Working Capacity
- Water Float Offset
- Lift Off
- Water Float Type
- Tank Type (Standard or ACR)
- DMS





	Auto	Calibration
4 Site Summary Preferences Site Setup Reconciliation Autocalibration Hose Mapping Thresholds Reports Diagnostics	Tank Number: 11 Tank Name: Tank I1 Product Name: Unleaded Current: Status: 0.00 % Status: 100.00% Calibration State: State: State: Disable Statr Disable	Calibrate From Volume: 5167.10 gal To Volume: 42878.11 gal Calibration Cycles 3 3 Required: 3 3 Maximum: 5 9 Unaccounted Variance Period: 9 9 Hours: 0 9
	Apply	Advanced

Auto Calibration with Locked Fields

- 4. The user cannot modify any calibration related parameter on the Autocalibration screen (in the Reconciliation menu). The following fields will be "grayed out" on the Autocalibration screen:
- State
- From Volume
- To Volume
- Calibration Cycle
- Number of Segments under advance calibration setting





		Tank Correction	1 Table		
Site Summary	Tank Number Tank Name	1 Reg	↓ ular Unleaded		
Preferences Site Setup	Product Name	Gas			
Auto Detect Tank Configuration Tank Threshold	Correction: Height (in) Volume: (g	al)			
Tank Strapping Table Tank Correction Table Alarm Actions			Height (in) 1.00	Volume (gal) 16.20	
Reconciliation Reports	5 Add		2.00 3.00 4.00	32.40 59.60 87.40	
Diagnostics	Remove		5.00 6.00 7.00	120.10 153.40 193.50	
	Remove All	ŀ			-
		Apply Export	Import		

Tank Correction Table with Locked Buttons

- 5. The user cannot modify Tank Correction Table data. It cannot be imported. Only the export option will be available. The following fields will be "grayed out" on the Tank Correction Table screen:
- Add
- Remove
- Remove All
- Import

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

Restore functionality will not be enabled if site is locked.

To unlock the site:

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



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

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

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





Section 10 ProGauge Probe Configuration

	Auto Detect 3 ProGauge Serial Numbers
Site Summary	ProGauge Probes Serial Numbers
Preferences	4
Site Setup	1 12345 2 23456
Device List	
Tank Configuration Sensor Configuration	3 34567 4 45678
Tank Threshold	
Tank Strapping Table	5 56789 6 67890
Tank Correction Table	5 56789 6 67890
Alarm Actions	
Reconciliation	7 8
Reports	
Diagnostics	9 10
	11 12
	5
	Apply

ProGauge Serial Numbers Tab

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

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





	Tank Configuration					
Site Summary	Configure new Tank		TEC: Always Show Net Volume	0.00 e: Yes •		
Preferences	Tank Number	1 💌	Density Information:			
Site Setup	Serial No	10352 💌	Density/API:	0.73		
Device List	Tank Name	Unleaded Regula	@Temp	60.10 °f		
Sensor Configuration	Manifolded Group	Select 🔹	ACR Configuration:			
ank Threshold ank Strapping Table	Product Name	Gas 🔹	Standard Mode © AG			
ank Strapping Table	Tank Shape:	Cyl-Round Enc 💌	Unstabled Delivery Timer Vapor Recovery System:	no Vapor Recover		
larm Actions	Dished End Radius:	0.00 i	n Evaporation Factor:	0.000 %		
Reconciliation	Tank Color:	•		0.000		
Reports	Tank Diameter	72.00 i	n DMS (Density Measu	rment Sensor)		
Diagnostics	Capacity:	4000.00 g	al			
)	Safe Working Capacity:	3900.00 g	al Factor a:	0.0000		
	Product Offset::	2.83 i	n Tolerance:	0.0000 %		
	Water Float:	Single Float 👻	Fuel Type:	Select 👻		
	Water Float Status:	Enable Disable	© Auto Absorption			
	Water Offset:	-0.05 i	Manual Calibration	Kg/n		
	Lift Off:	0.00 i	n Timed Leak Test Settings			
	Delivery Timer:	10 r	 Automatic Test Mainimum Product Level 			
		Apply Re	set Delete			

Tank Configuration Screen

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

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

ProGauge Product Float







Product Offset Calculation

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



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

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



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

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





ProGauge Water Float

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

Water Float Status:	© Enable © Disable	
Water Offset:	0.20 in	l
Lift Off:	0.59 in	
Delivery Timer:	10 m	

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

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





Revisions

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



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





Warranty

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

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

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

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





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