Triton

Integrated Fuel Management System

OPERATION MANUAL

SIMPLEX
Insight Onsite

I. WARNINGS AND CAUTIONS

I-A. Safety Information Symbols

The following images indicate important safety information:


This General warning symbol points out important information that, if not followed, could Endanger personal safety and/or property.


This Explosion warning symbol points out potential explosion hazards.


This Fire warning symbol points out potential fire hazards.


This Electrical warning symbol points out potential electrical shock hazards.

I-B. Warnings


Improper operation of this equipment such as neglecting its maintenance or being careless can cause possible injury or death. Permit only responsible and capable persons to install, operate, and/or maintain this equipment.


Potentially lethal voltages and amperages are present in these machines. Ensure all steps are taken to render the machine safe before attempting to work on the equipment.

All hardware covered by this manual have dangerous electrical voltages and can cause fatal electrical shock. Avoid contact with bare wires, terminals, connections, etc., on the hardware, if applicable. Ensure all appropriate covers, guards, grounds, and barriers are in place before operating the equipment. If work must be done around an operating unit, stand on an insulated dry surface to reduce shock hazard.

Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. DANGEROUS ELECTRICAL SHOCK MAY RESULT.

If trained personnel must stand on metal or concrete while installing, servicing, adjusting, or repairing this equipment, place insulative mats over a dry wooden platform. Work on the equipment only while standing on such insulative mats.

Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock or may get caught in moving components causing injury.


Keep a fire extinguisher near the hardware at all times. Do NOT use any carbon tetra-chloride type extinguishers. Its fumes are toxic, and the liquid can deteriorate wiring insulation. Keep the extinguisher properly charged and be familiar with its use. If there are any questions pertaining to fire extinguisher, please contact the local fire department.

The National Electrical Code (NEC), Article 250 requires the frame of the equipment to be connected to an approved earth ground and/or grounding rod. The grounding will help prevent dangerous electrical shock that might be caused by a ground fault condition or by static electricity. Never disconnect the ground wire.

Wire gauge sizes of electrical wiring, cables and cord sets must be adequate to handle the maximum electrical current (ampacity) to which they will be subjected.

Before installing or servicing this (and related) equipment, make sure that all power voltage supplies are completely turned off at their source. Failure to do so will result in hazardous and possibly fatal electrical shock.

In case of accident caused by electrical shock, immediately shut down the source of the electrical power. If this is not possible, attempt to free the victim from the live conductor. AVOID DIRECT CONTACT WITH THE VICTIM. Use a nonconducting implement, such as a rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and seek immediate medical attention.


The illustrations in the manual are examples only and may differ from your unit.

II. TRITON

II-A. INSTALLATION

The TRITON can be installed in 3 ways

1. Bolted to the wall
2. Bolted to the floor
3. Mounted on a stand

Mounting the TRITON to a Wall or Floor

The TRITON can be secured to a wall using the mounting tabs or the floor using the pre-drilled mounting flanges running the height and length of the cabinet or both. Verify that the surface the TRITON is being mounted to and the mounting hardware are sufficient to support the TRITON's weight.

Simplex is not responsible for damages occurring because of insufficient support.

Attaching the TRITON to a stand:

To attach the TRITON to a stand, simply attach the stand to a concrete pad using the pre-drilled holes in the base's feet, then attach the TRITON to the base via the mounting holes on the sides.

III. TRITON FIELD CONNECTIONS

III-A. Installation Overview

The TRITON should be mounted, then wired to the power source, install float assemblies and any other sensors or system integration connections. Once mounted and properly wired, the TRITON must be set up/programmed.

III-B. Installing Wiring

The TRITON must be completely wired prior to applying power. Failure to follow the wiring information and provided wiring diagram shipped with the unit may result in product damage and loss of warranty coverage. See job specific wiring diagrams shipped with the unit for more details.

III-C. Installing Cable Access

To bring cabling into the controller, pull / drill a hole into the enclosure at a location of your choosing and install comparably rated conduit connector for access to the controller.

III-D. Installing Float Assemblies

To install the float assemblies, push the latch handles on the assembly down and slide the coupler off. Install the coupler in the base tank. Place the assembly in the coupler and secure the assembly to the coupler using the latches.

If there are any questions about wiring the TRITON, please contact Simplex directly. Simplex is not responsible for damage due to incorrect wiring installation.

IV. CONTROLLER OVERVIEW

HMI Controller Screens

Main Screen

The **Main Screen** displays the general overview of the unit allowing the user to see:

- **BASE TANK LEVEL**
- **POLISHED FUEL TOTALS**
- **FUEL TEMPERATURE**
- **COALESCER INLET PRESSURE**
- **COALESCER OUTLET PRESSURE**
- **COALESCER DIFFERENTIAL PRESSURE**
- **PUMP STATUS**
- **OVER TEMPERATURE SWICTH STATUS**
- **FLOW SWITCH STATUS**
- **PUMP RUNTIME**
- **WATER DRAIN STATUS (OPTIONAL)**
- **ADDITIVE INJECTION SYSTEM STATUS (OPTIONAL)**

The user may also access the following:

Main Menu, **Test Heater** button, **Additive Pump** controls (if applicable), **Disable Heater** button, **Manual Mode** controls, and **Alarm History**. (See **Figure 1**)

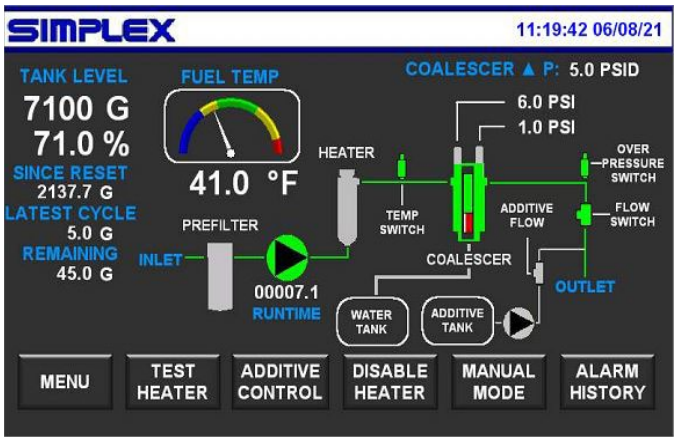

Figure 1: Main Screen

Main Menu

From the Main Menu, the user has access to the following:

- System Setup screen
- Tank Detail screen
- User Level Status
- CPU status
- Help Menu
- Pump Runtime Reset button

(See **Figure 2**)

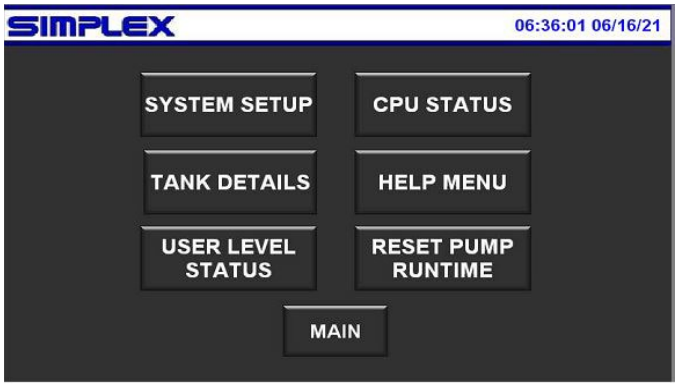

Figure 2: Main Menu

Help Menu

The Help Menu accesses the on-board help files including system setup information and alarm definitions. (See **Figure 3**)

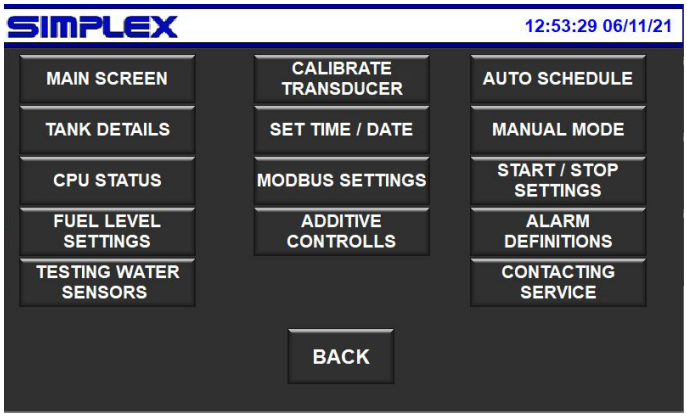

Figure 3: Help Menu

Reset Pump Runtime

Resets the runtime meter for the on-board pump.

CPU Status Screen

The current PLC CPU status is displayed here.

1. General PLC Health
   PLC Running – Running or Stopped
   PLC Battery
   Modules OK – Monitors expansion modules
   Analog channels 1-4 – Monitors the analog inputs for broken or missing transducers

2. Each time the PLC is powered up or down, the time and date are displayed.

(See **Figure 4**)

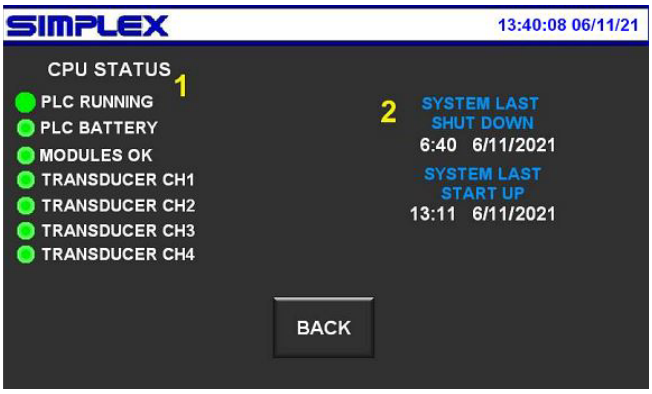

Figure 4: CPU Status

Tank Detail Screen

Displays the current base tank information.

1. **Fuel level** in Gallons/Liters and Percent
2. **Fuel level graphic**
3. **Fuel temperature** in °F/°C
4. **Polished Fuel Totals**
   Since Reset -Total fuel polished since totalizer was reset
   Latest Cycle -The most resent volume of polished. This total reset each time the pump engages.
   Remaining – If the operator has selected to polish a specific amount of fuel, the remaining amount of fuel will be displayed here.

5. **Reset Totals** – Resets the fuel totalizer.
   (See **Figure 5**)

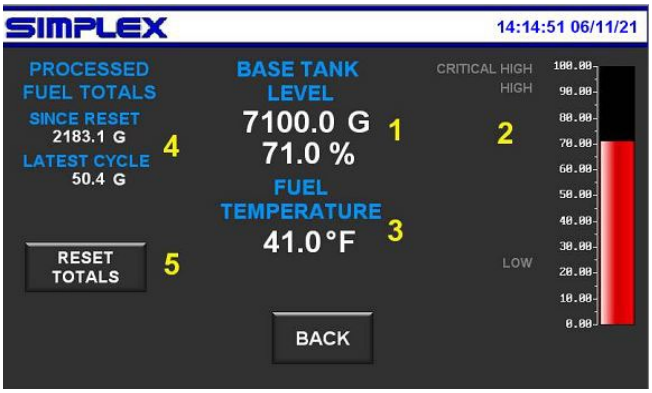

Figure 5: Tank Detail

User Levels Screen

The user defined level alarms are displayed here. Each alarm setpoint displays the alarm name, current setpoint value in percent, and if the alarm is active.

If the alarm setpoint = 0, the alarm is considered **DISABLED**.
(See **Figure 6**)

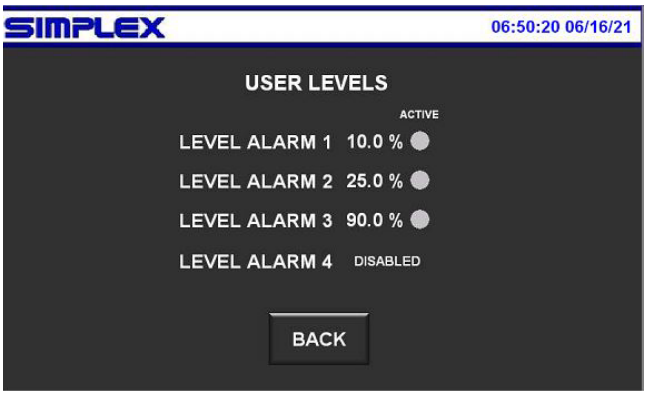

Figure 6: User Levels Status

NOTE: Each alarm is displayed in the **Alarm Banner** at the bottom of the HMI, the **Alarm History** page and building management system. The **TRITON** will not act on these levels unless otherwise stated. Please refer to the drawing package shipped with the unit.

V. SYSTEM SETUP

System Setup Screen

Provides access to the system setup and calibration of the unit features. (See **Figure 7**)

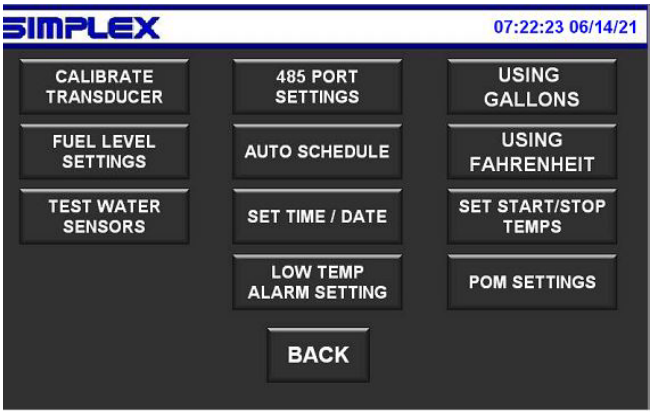

Figure 7: System Setup Menu

Calibrate Transducer

NOTE: The transducer must be removed from the base tank prior to calibration.

1. Tank Depth – Enter the **TANK INSIDE DIMENSION** of the base tank in inches.
2. XDCR@20mA – Enter the total read length of the transducer at 20mA in inches. This will be either the **MEASURING RANGE** or the 0-**XXX**" dimension (typically 170" unless otherwise stated)

NOTE: The above dimensions may be found on the float assembly drawing in the package shipped with the unit.

3. **Gallons** – Enter the tank maximum capacity in gallons.
4. **Zero Transducer** button – Once all the above information has been entered, press the Zero Transducer button to complete the calibration process.
(See **Figure 8**)

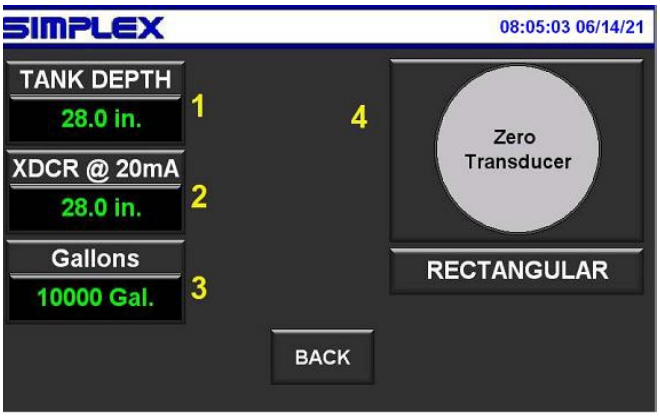

Figure 8: Transducer Calibration Screen

The float assembly may now be placed in the base tank.

Custom Fuel Level Setting

The customer may program 4 custom fuel levels to trigger alarms/warning.

1. First select whether the alarm should be activated when the fuel level is either **GREATER THAN** or **EQUAL TO** (**≥**) or **LESS THAN** or **EQUAL TO** (**≤**) the required tank level.
2. Enter the required tank level in percent.
3. The default (hard coded) level alarms.

In this example:
Setpoint 1 will trigger if the level of the tank drops to or less than 10%
Setpoint 4 will trigger if the level rises to or above 95%

0% = the setpoint is disabled.
(See **Figure 9**)

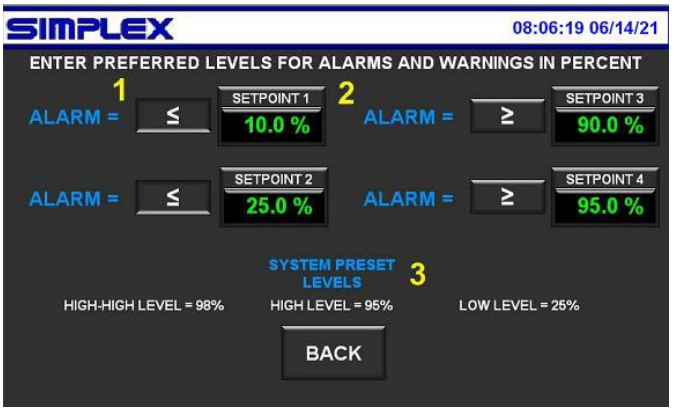

Figure 9: Fuel Level Settings Screen

RS-485 Port Setting Screen

The TRITON comes standard with Modbus communications via the on-board 2 wire serial RS-485 port. The RS-485 Settings screen allows the user to program the port with site specific communication setting.

1. **Current Settings** – displays the current communication settings.
2. **Parity** – Select NONE, EVEN or ODD.
3. **Baud Rate** – Select the requires baud rate 1200-115200.
4. **Stop Bits** – Either 1 or 2.
5. **Unit ID** – Device ID/Address
6. **Accep**t – Press to load the new port settings.

(See **Figure 10**)

Figure 10: 485 Setting Screen

Optional POM (Pluggable Option Module)

If a POM is installed, the POM Settings button will appear on the System Settings screen. With the addition of an optional **Ethernet POM**, the **TRITON** is capable communicating via **Modbus over IP**. An optional **RS-485 POM** is also available. See below.

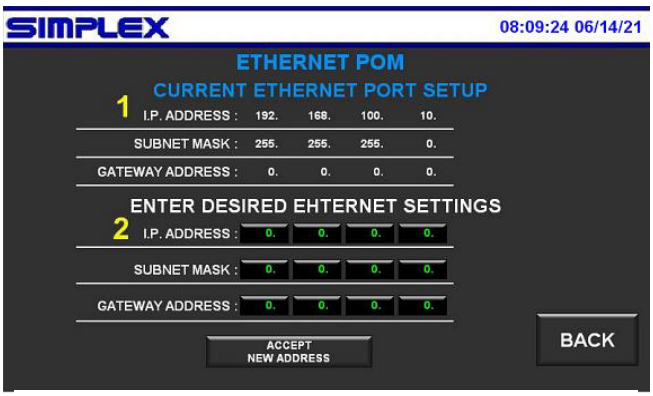

Figure 11: Ethernet POM Settings

Ethernet POM

1. **Current Ethernet Setup** – Displays the current IP address of the module.
2. **Enter New IP Address**, **Subnet Mask** and **Gateway** the press **Accept New Address** button to apply the changes.

(See **Figure 11**)

Serial 485 POM

1. **Current Settings** – displays the current communication settings.
2. **Parity** – Select NONE, EVEN or ODD.
3. **Baud Rate** – Select the requires baud rate 1200-115200.
4. **Stop Bits** – Either 1 or 2.
5. **Unit ID** – Device ID/Address
6. **Accep**t – Press to load the new port settings.

(See **Figure 12**)

Figure 12: 485 POM Settings

Auto Schedule

The **TRITON** can be programmed to automatically run a weekly filtration cycle by selecting the day(s) of the week and either the **Start** and **Stop** time or the **Start** time and **Volume**.

1. Select the day(s) of the week the unit shall run.
2. Select either **By Start/Stop** time or **By Volume**
3. Enter the **Start Time**.
4. Enter the **Stop Time** for the cycle. (See **Figure 13**) or the **Volume** of product the filter should polish before stopping. (See **Figure 14**)

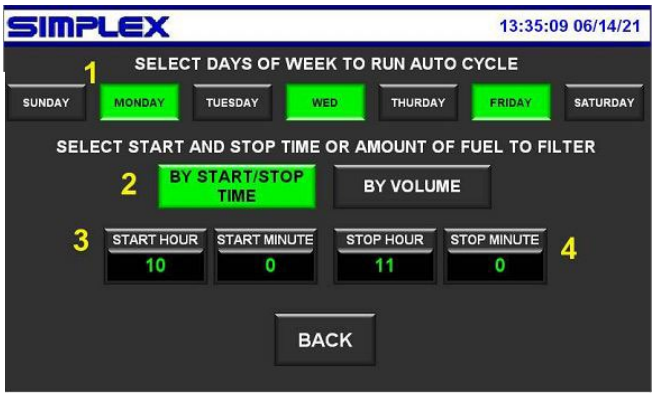

Figure 13: By Start/Stop Time

Figure 14: By Start Time and Volume

Set Time/Date

NOTE: The system time and date **MUST** be set for the **Auto Schedule** to work properly.

1. Current system time and date.
2. Enter **Year**, **Month** and **Day of Month**.
3. Enter **Hour** and **Minute**.
4. Press **Accept** to load the new settings.
5. **Daylight Savings Time** (**DST**) On/Off button.

NOTE: It is not necessary to press the Accept button when toggling **DST** on and off. (See **Figure 15**)

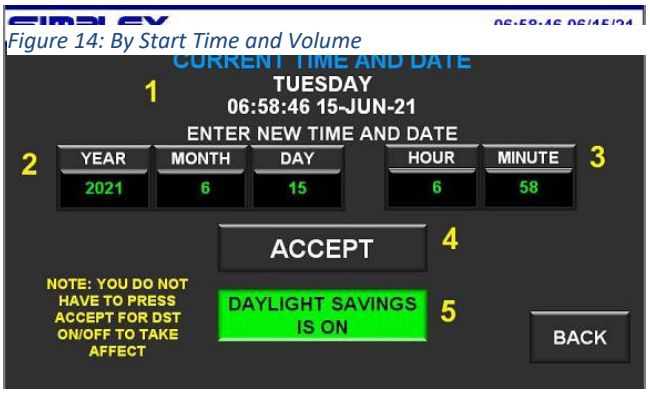

Figure 15: Set Time/Date

Start/Stop Temperature

Tank heater start and stop temperatures.

1. Current settings.
2. Enter the heater Start Temp.
3. Enter the heater Stop Temp.
4. Acceptable temperature ranges.
5. Load Default temperature settings.

Default Setting:
Start Temp. = 35°F (1.67°C)
Stop Temp. = 50°F (10°C)
(See **Figure 16**)

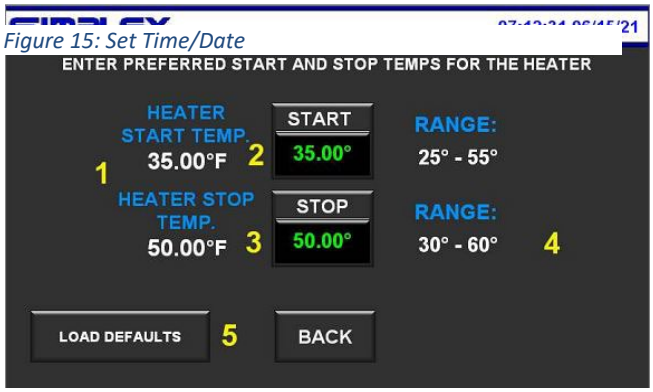

Figure 16: By Heater Start and Stop Temperatures

Low Temperature Alarm

A low temperature alarm may be programmed to alert personnel that the heater may not be working properly.

The alarm should be set below the start temperature of the heater to prevent nuisance alarms.

Default = 20°F (-6.67°C)

(See **Figure 17**)

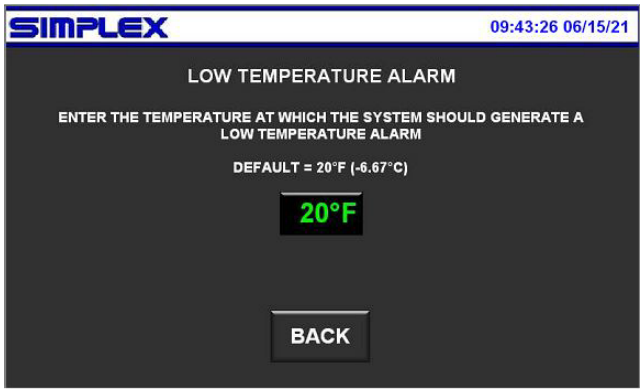

Figure 17: Low Temperature Alarm

Display Settings

The **TRITON** may be configured to display either **Imperial** or **Metric** volume and temperatures.

1. Toggle between Gallons and Liters.
2. Toggle between Fahrenheit and Celsius.

NOTE: Be sure to use the same units when using the numeric entry boxers that the unit is configured for.

(See **Figure 18**)

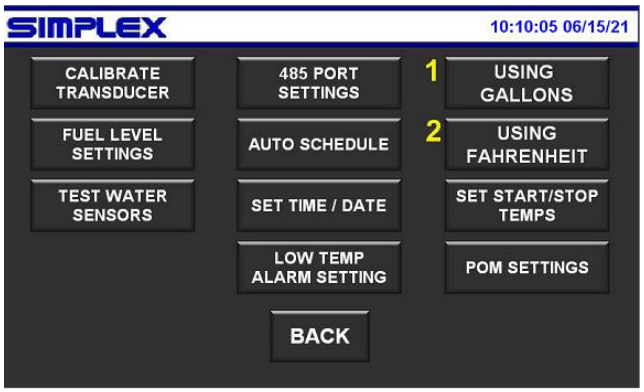

Figure 18: Display Settings

VI. SYSTEM OPERATION

FILTRATION

The **TRITON** may be operated in either the **MANUAL** or **AUTOMATIC** mode.

Manual Filtration

When the **HOA** (Hand-Off-Auto) switch is placed in **MANUAL**, **HMI** will automatically switch to the **Manual Mode** screen. (See **Figure 19**)

If the HOA is in manual, the Manual mode screen may also be reached by pressing the MANUAL MODE button on the main screen. (See **Figure 20**)

Manual filtration functions in either of 2 ways.
1. The operator may enter a specific amount of product, in either Gallons or Liters, in the **AMOUNT TO FILTER** field then press the **START MANUAL FILTRATION** button. The pump motor will start and continue running until the specified amount has been reached.
2. If the **AMOUNT TO FILTER** is 0, the pump motor will run until the **STOP** button has been pressed or the **HOA** switch is placed in Off.

NOTE: The unit should never be left unattended while running in the **MANUAL MODE**!

Automatic Filtration

In the **AUTO** mode, the system will start and stop based on the user programmed **Auto Schedule.**

If the user has **BY START/STOP TIME**, the system will start at the selected time and day and run until the programmed stop time has been reached.
(See **Figure 21**)

If the use has selected **BY VOLUME**, the system will start at the selected time and day and stop once the specific volume of product has been reached.
(See **Figure 22**)

NOTE: The volume of product is an approximation based on the pump **GPM/LPM** and the pump run time.

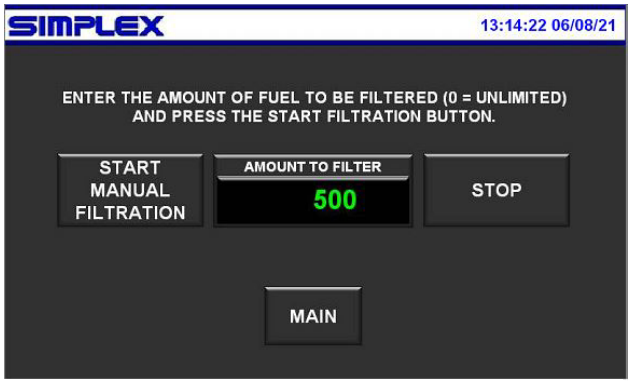

Figure 19: Manual Mode

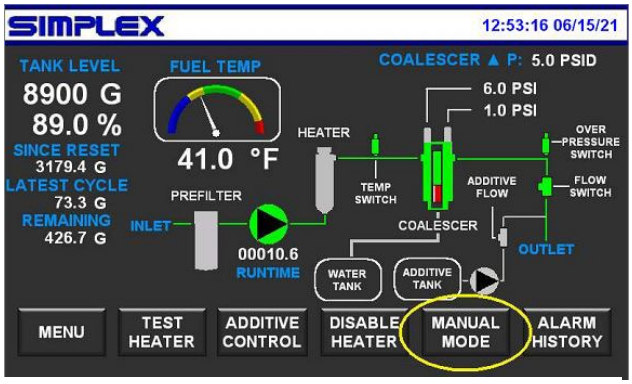

Figure 20: Manual Mode

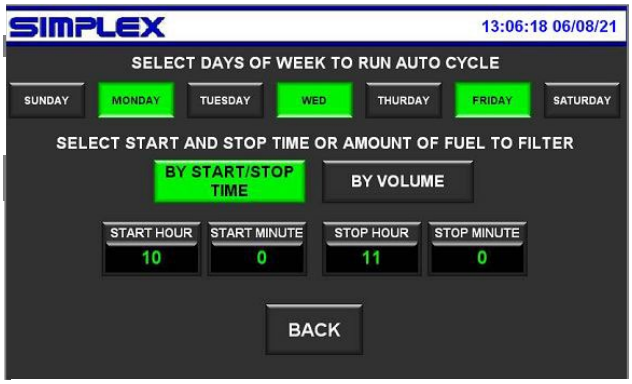

Figure 21: Automatic By Start/Stop Time

Figure 22: By Volume

HEATER OPERATION

Anytime the pump is running, in either Manual or Auto, and flow has been verified by the flow switch, the heater will activate if the product temperature drops to the Heater Start setpoint. The heater will be deactivated when the product temperature reaches the Heater Stop Setpoint.

If the system is performing an auto filtration cycle and the heater activates, the system will continue to run until the temperature stop setpoint has been reached even if the auto cycle has ended. The same is true if performing a manual filtration cycle (if the pump is running).

Cooldown Feature:
Once the product temperature has reached the heater stop setpoint, the pump will continue to run for 30 seconds to cool the heater elements and chamber to prevent them from overheating. This feature operates in **AUTO** and **MANUAL** (if the pump is running only in manual).

NOTE: Placing the **HOA** switch in the **Off** position automatically disables the heater.

Disable Heater button:
Disable Heater button prevents the heater from running without the **HOA** being placed in the **Off** position. Disabling the heater will generate a local alarm and report the status to the **Building Management System** via **Modbus**, if connected. (See **Figures 23** & **24**)

Test Heater button:
The **Test Heater** button appears when the product temperature is above the heater start setpoint and below the stop setpoint. This allows the user to manually start the heater and warm the product to the heater stop temperature. (See **Figure 25**)

If the pump is not running when Test Heater is pressed, the system will start the pump, verify flow via the flow switch and then activate the heater.

Stop Heater button:
Once the heater has been activated, the **Stop Heater** button will appear and allows the user to manually shut off the heater. This does **NOT** disable the heater should the product temperature drop below the start heater setpoint. (See **Figure 26**)

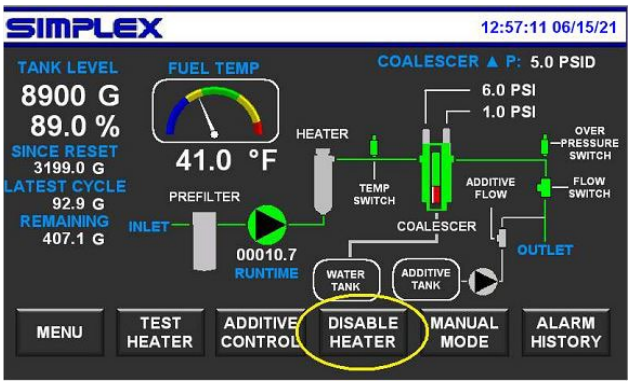

Figure 23: Disable Heater Button

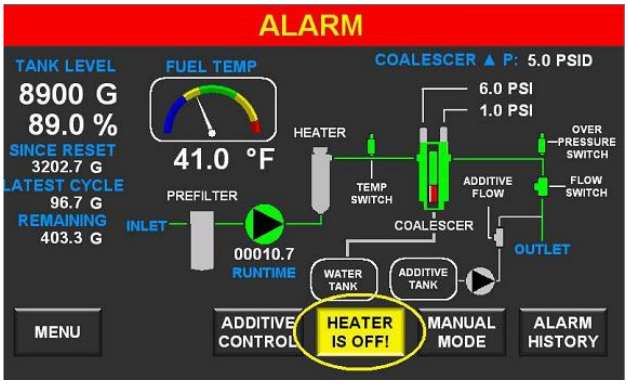

Figure 24: Disable Heater Button

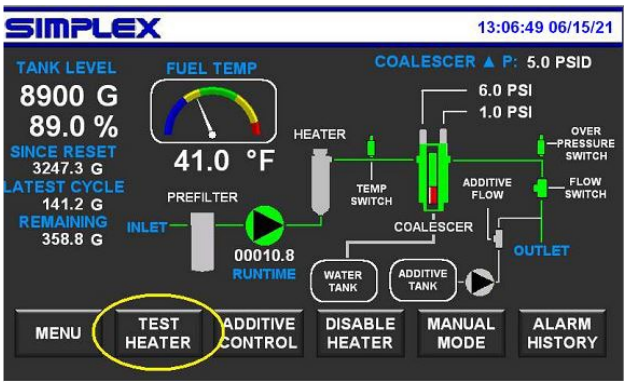

Figure 25: Test Heater Button

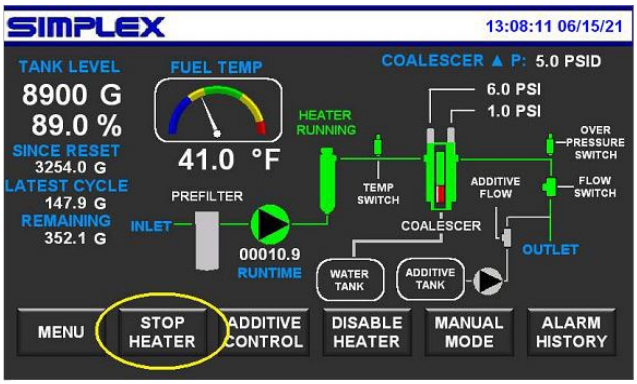

Figure 26: Stop Heater Button

FILTERING

The filtration process consists of a **Prefilter** and a **Coalescer (Final Filter)**.

Prefilter:
The Prefilter consists of a spin-on element responsible for removing particulate 30 microns and larger.

Coalescer (Final Filter):
The Coalescer consists of a filter canister containing a 5-micron element for fine filtration and water separation.

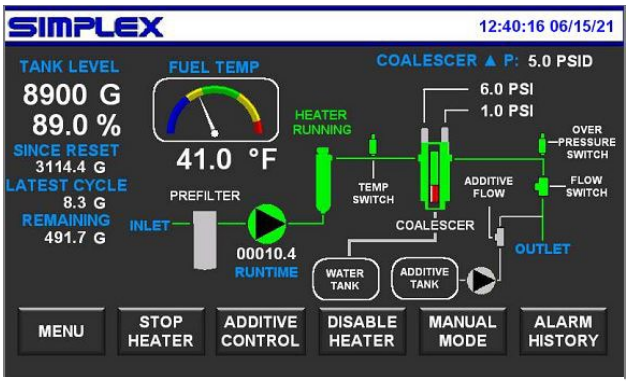

Figure 27: Coalescer Differential

Two pressure transducers are mounted on the filter housing (1 Inlet and 1 Outlet). The PLC compares the readings from both transducers to determine the **Coalescer Differential Pressure**.
(See **Figure 27**)

Check Coalescer Alarm:
As the filter element collects debris, the canister **PSID** (**Pounds per Square Inch Differential**) will begin to rise. Once the **PSID** reaches **15**, a **CHECK COALESCER** alarm is triggered indicating the filter element needs replacing.

Water In Coalescer Alarm:
Near the base of the filter canister is a site glass and a water sensor. (See **Figure 28**)

Figure 28: Water Sensor

As the filter runs, water is collected in the bottom of the canister. Once the water reaches the level of the site glass, a **WATER IN COALSCER** alarm is triggered. The water must be drain off by opening the hand valve at the bottom of the canister. (See **Figure 29**)

Figure 29: Drain Valve

System Safety Features

Over Temp Switch:
Should the liquid leaving the heater canister reach 110°F (43.3°C), the heater will be disabled, and the pump continue to run until the switch resets.

Overpressure Switch:
Should the pressure in the plumbing of the TRITON reach 60PSI, a System Overpressure alarm is triggered.

Flow Switch:
When the pump runs, moving liquid in the plumbing triggers the switch to open, indicating flow. If the switch remains closed or closes anytime the pump is running, an alarm will be triggered 30 seconds later, and the pump stopped.

VII. OPTIONAL FEATURES

Automatic Water Drain:

The automatic water drain system uses three water sensors to determine the water level in the canister.
1 mounted above the site glass
2 mounted in a manifold located at the bottom of the filter canister.

These sensors only activate when submerged in water.

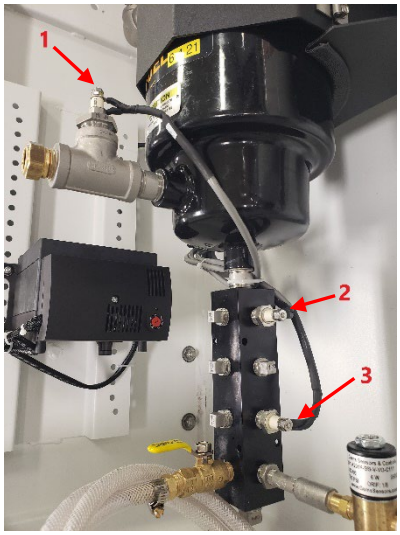

Figure 30: Water Sensors

Water Sensors:
1. **Top Sensor**: Begins the water drain process when it senses water in the site glass assembly.
2. **Middle Sensor**: Stops the water drain process when it no longer detects water.
3. **Bottom (Safety) Sensor**: The Bottom is the only sensor that must always submerged in water. If the sensor no longer detects water, the pump will stop running and a **Fuel in Waterline** alarm is triggered. This prevents the filter from draining fuel/product into the wastewater holding tank.

General Operation:
As the system runs, water is collected in the bottom of the filter canister. When the **Top Sensor** detects water, the water drain solenoid will begin to pulse on and off in 1 second intervals. The pressure from the pump forces water from the canister, past the solenoid and into the wastewater holding tank. The HMI will also indicate that the Water Drain is active. (See **Figure 31**)

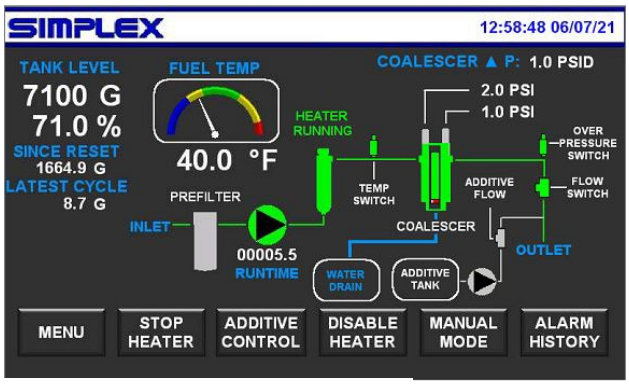

Figure 31: Water Drain Active

Once the water drops below the **Middle Sensor**, the solenoid will stop pulsing and the water drain process will stop.

Should fuel/product reach the **Bottom Sensor**, an alarm is triggered, and filter operations will stop until the alarm is cleared.

High Water:
As the auto drain feature works, the wastewater is sent to the **Water Holding Tank**. The operator can see how much water is in the tank via the site glass installed on the front of the tank. Located on the top of the tank is a float assembly which will trigger a **High Water** alarm if the water level in the tank reaches it. The **High Water** alarm also acts as a back up to the Bottom (Safety) Sensor. If triggered, the **High Water** alarm will stop the pump to prevent any further water/fuel/product from entering the tank.
(**See Figure 32**)

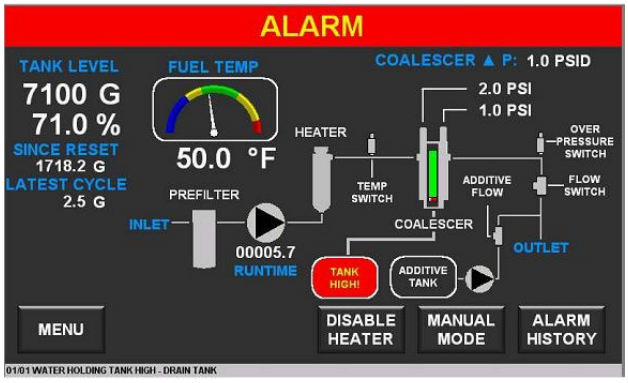

Figure 32: High Water Alarm

Additive Injection System:

The **Additive System** allows the operator to pump chemical additives into the product returning to the base tank. The **Additive System** will only operate if the main pump and motor are running. This is to ensure the additive is being sent to the base tank.

The main pump must be running for **Additive Control** button to appear. (See **Figure 33**)

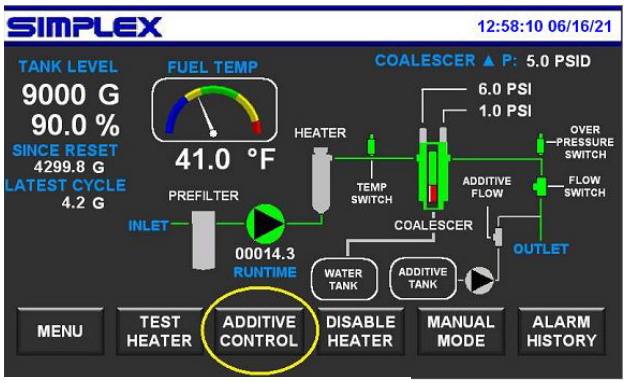

Figure 33: Additive Control Button

Additive Control:

The **Additive Control Screen** displays the status of the system:

Additive Pump:
- Pump Running - Status
- Pump Stopped - Status

Pump Overload:
- Overload OK - Status
- Overload Tripped - Alarm

Pump Loss of Flow:
- Flow Detected - Status
- No Flow - Status
- Loss of Flow - Alarm

Additive Tank:
- Additive OK - Status
- Additive Low – Warning/Alarm

(See **Figure 34**)

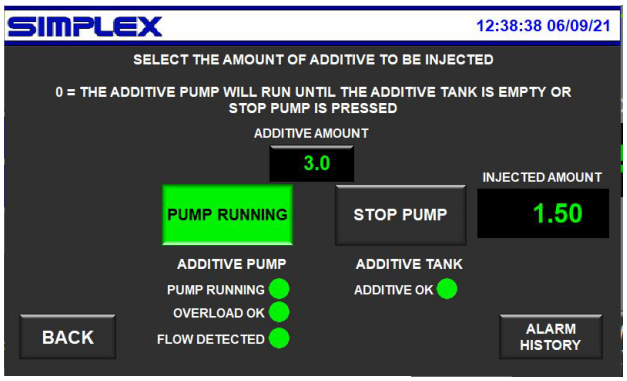

Figure 34: Additive Control Screen

General Operation:

1. Fill the **Additive Tank** with the product to be injected.
2. If the system is not running, start a manual filtration cycle.
3. Press **Additive Control**.
4. Choose either to inject a specific amount of product or enter 0.
5. Press **Start Pump**.
6. If a specific amount has been chosen, the **Additive Pump** will run until the selected amount has been reached. The remaining amount of additive to be injected will appear at the right of the **Stop Pump** button.
7. If 0 is selected, the **Additive Pump** will run until the additive tank is empty.

The **Stop Pump** button may be pressed at any time to stop the process.

NOTE: If the main pump stops running, the **Additive Pump** will also stop.

VIII. Alarms

Alarm History Screen:

The Alarm History Screen displays all the current and previously active alarms in the HMI memory. All active alarms will appear highlighted, display the alarm name and the time and date it was triggered. Inactive alarms will appear subdued, display the alarm name, the time and date it was triggered, and the time and date it cleared.

The operator may clear any inactive alarms by pressing the Clear All button in the lower right of the screen.
(See Figure 35)

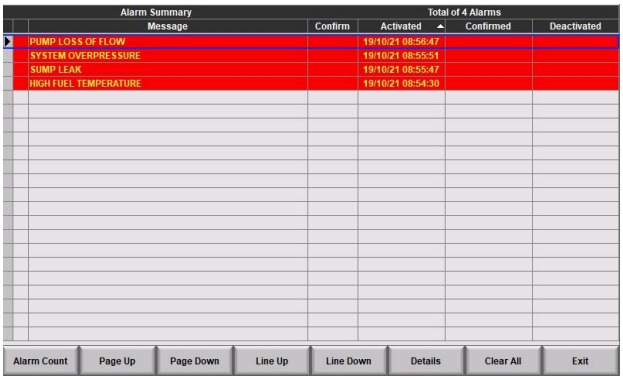

Figure 35: Alarm History

Alarm	Triggered By	Action Taken
Tank Low	Level Transducer	25%(typical) Tank Level Audio Visual Alarm Stops Pump and Heater
Tank High	Level Transducer	95%(typical) Tank Level Audio Visual Alarm
Tank Critical High	Level Transducer	98%(typical) Tank Level Audio Visual Alarm
Base tank Leak	Float Switch	Audio Visual Alarm Stops Pump and Heater
Loss of Flow	Flow Switch	Audio Visual Alarm Stops Pump and Heater
Sump Leak	Float Switch	Audio Visual Alarm Stops Pump and Heater
Overload	Motor Starter Tripped	Audio Visual Alarm Stops Pump and Heater

Alarm	Triggered By	Action Taken
System Overpressure	Pressure Switch	Audio Visual Alarm Stops Pump and Heater
Check Coalescer	Pressure Transducer	Audio Visual Alarm Stops Pump and Heater
High Temperature	Temperature Switch	Audio Visual Alarm Stops Pump and Heater
Low Battery	PLC CPU	Audio Visual Alarm
PLC Not Running	PLC CPU	HMI Banner
Broken or Missing Transducer	PLC CPU	Audio Visual Alarm
High Temperature Alarm	Temperature Switch	Audio Visual Alarm Stops Pump and Heater
User Level Alarm 1-4	Level transducer	Audio Visual Alarm
Check Coalescer	Pressure Transducers	Audio Visual Alarm Stops Pump and Heater
Water in Coalescer	Water Sensor	Audio Visual Alarm Stops Pump and Heater

Alarm	Triggered By	Action Taken
Fuel In Waterline	Water Sensor	Audio Visual Alarm Stops Pump and Heater
High Water Tank	Float Switch	Audio Visual Alarm Stops Pump and Heater
Additive Tank Low	Float Switch	Audio Visual Alarm Stops Additive Pump
Additive Pump Loss of Flow	Flow Switch	Audio Visual Alarm Stops Additive Pump
Additive Pump Overload	Temperature Switch	Audio Visual Alarm Stops Additive Pump

APPENDIX A – COALESCER SERVICE

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Filter Cartridge Replacement

NOTE: Follow all local guidelines and procedures regarding the handling and disposal of all waste products and materials.

Simplex is not responsible for mishandling of waste products or materials.

The following items are recommended:
-PPE (Personal Protective Equipment) Refer to site specific requirements.
-Approved waste containers and equipment. E.g., barrels, bags, buckets, rags etc.
-Approved Spill Containment kit.
-1 2-5 gallon bucket rated for the filter waste product
-Rags/towels rated for the filter waste product
-1 Medium Standard Screwdriver
-12oz. non-distilled water (tap water or non-potable water preferred)
-1 small container of lubricating grease.
-1 New Filter Cartridge

1. Close the **TRITON inlet** and **outlet** isolation valves and place the **HOA** switch in **OFF**.
2. Place the bucked under the filter canister.
3. Place the canister drain dose into the bucket.
4. Open the canister **Drain Valve**. (See **Figure 34**)
5. Open the **Purge Valve**.
6. Allow the canister to drain into the bucket.
7. Once the flow begins to slow, loosen the knob bolts in the top of the filter housing. (See **Figure 34**)
8. Allow the canister to separate from the house by about an inch.
9. The canister will continue to drain.
10. As the canister continues to drain, loosen the knob bolts until the collar at the top of the canister can be rotated off the bolts but leave the collar in place at this time.

NOTE: The filter cartridge should fall away from the nipple in the bottom of the filter housing. If it does not, use the screwdriver to GENTLY pry the cartridge away from the nipple. Proceed to step 11.

11. The spring around the nipple may slide off at this time. This is normal.
12. Once the cartridge is separated from the housing, rotate the canister collar off the bolts.
13. Cartridge may now be removed from the canister and placed in a waste receptacle.
14. Allow any remaining liquid to drain into the bucket.
15. Close the Drain Valve.

If the system does not have the optional auto water drain feature, proceed to **Step 22**.

Figure 33

Figure 34: Drain Valve

Figure 25: Purge Valve and Knob Bolts

16. Pour half the container of water into the bottom of the canister.
17. Place the canister back onto the bolts in the top of the housing but **DO NOT** tighten them at this point.
18. From the **HMI** select **MENU>SYSTEM SETUP>TEST WATER SENSORS**. (See **Figure 36**)
19. Press the **SENSOR POWER** button.
20. The **BOTTOM** sensor should be green. If the **MIDDLE** sensor is also green this is fine.
NOTE: If the **BOTTOM** sensor is not illuminated, take hold of the water sensor manifold at the bottom of the canister, and agitate it. This allows the lighter liquid trapped below the water to rise to the top.
21. Once the sensor light(s) are illuminated, press the **Sensor Power** button to turn the sensors off and return to the **Home Screen**.

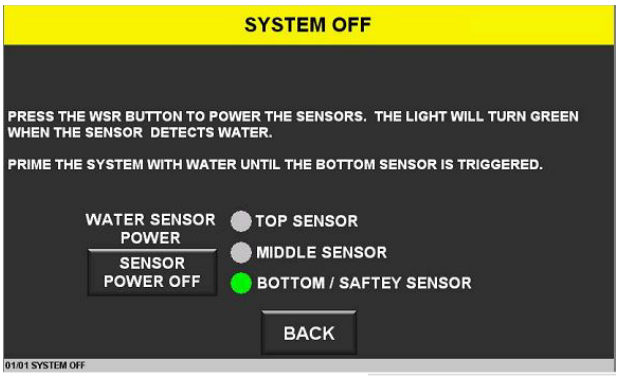

Figure 36: Test Water Sensor Screen

22. Place the new filter cartridge in the canister.
23. Remove the canister casket located in the base of the filter housing.
24. Grease the new gasket shipped with the replacement cartridge and install it in the base.
25. Rotate the collar back onto the bolts. Reinstall the spring if needed.
26. Tighten the knob bolts. Ensure that the mouth of the cartridge slips over the nipple on the housing.
27. Once the bolts are tight, close the **Purge Valve** and open the **TRITON inlet** and **outlet** isolation valves.
28. Verify all valve positions:
    Inlet Isolation Valve: Open
    Outlet Isolation Valve: Open
    Canister Drain Valve: Closed
    Purge Valve: Closed
29. Place the **TRITON** in manual and start a **Manual Filtration Cycle**.
30. Place a rag over the **Purge Valve**.
31. As the canister begins to fill, using the rag, slightly open the Purge Valve.

NOTE: **DO NOT** open the Purge Valve more than 1 full turn!

32. Once the air is out and the canister is full, close the **Purge Valve** tightly.
33. As the **TRITON** runs, look for any leaks around the canister gasket, **Purge Valve** and **Drain Valve**.
34. Allow the **TRITON** to run for an additional 5 minutes to allow the water sensors time to check in. If no alarms appear, the system is primed.
35. Disposed of the old cartridge, waste fuel/water and soiled rags.

Contact Simplex

for all your Load Bank and Fuel Supply needs.

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