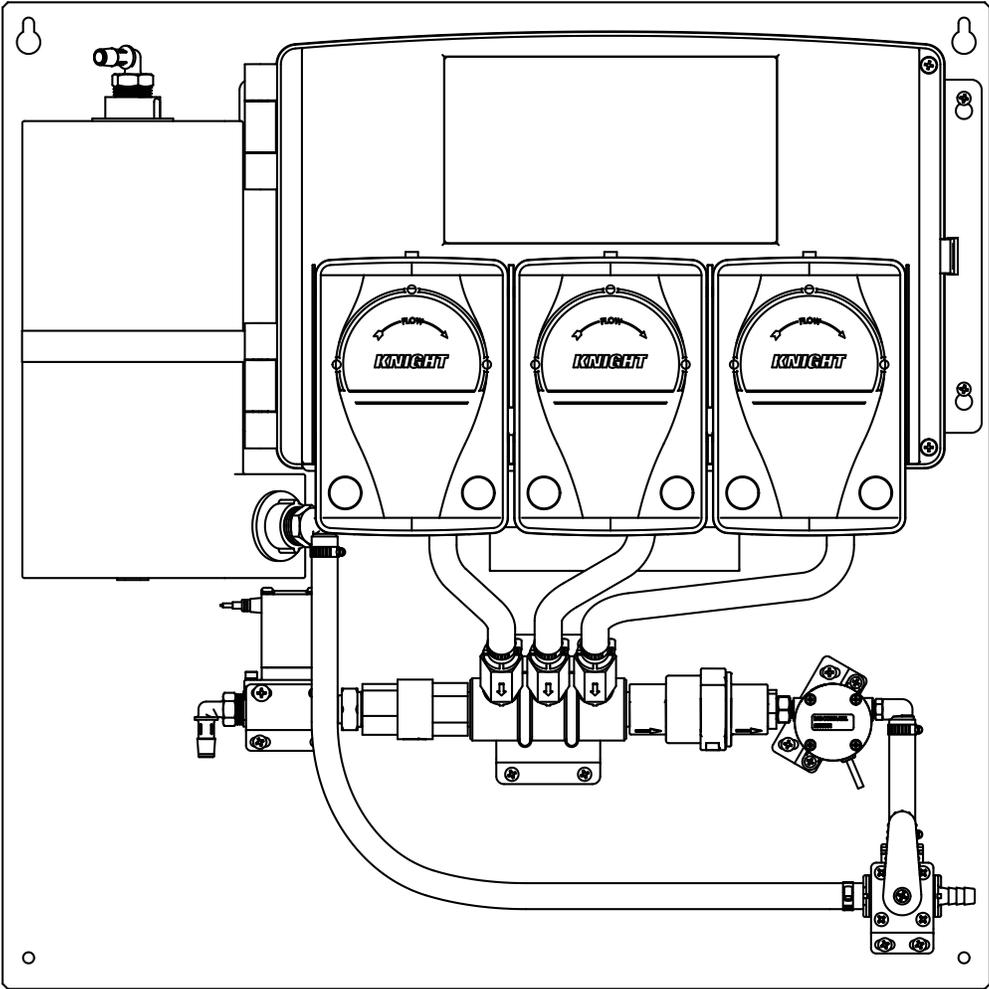


Connected OFB Unit

ON FARM BLENDING CONTROLLER & DISPENSER



Safety Symbol Explanations



READ MANUAL: Read and understand operator's instruction manual and all other safety instructions carefully before using this equipment, and keep the instruction manual for future reference. Failure to follow operating instructions could result in serious injury.



For safety purposes, disconnect the power cord if the Unit is not to be used for prolonged periods of time. Neglect could result in fire or electrical shock.



WARNING / CAUTION: This symbol indicates information that, if ignored, could possibly result in personal injury, physical damage or even death due to incorrect handling.



This symbol indicates that **Hazardous Voltages** are inside the enclosure.



Connect the ground terminal of AC inlet of this unit with the ground terminal provided at the building using the correct power cord; otherwise, fire or electric shock can result.



Always wear **protective clothing and eyewear** when working with chemical products.

Serial Label Marking Symbol Explanations



Certification marking: Products bearing this mark are certified by Canadian Organization (CSA) for both the U.S ("us" on the right of the logo) and Canadian ("c" on the left of the logo) markets according to the applicable U.S. and Canadian standards.



WEEE & RoHS: The Waste Electrical and Electronic Equipment Directive (**WEEE** Directive) is the European Community Directive 2012/19/EU on waste electrical and electronic equipment (**WEEE**) which, together with the **RoHS** Directive 2002/95/EC, became European Law in February 2003. Residents outside the European Union must dispose or recycle this product in accordance with local laws or regulations that apply.

Specifications

- Pollution Degree II
- Installation category I
- Altitude 2000m
- Humidity 5 to 95%
- For Indoor Use Only
- Temperature 5°C to 40°C
- Mains supply voltage fluctuations are not to exceed 10% of the nominal supply voltage
- The unit shall not be positioned so that it is difficult to operate the power disconnecting means
- Protection is impaired if the product is used in a manner not specified by the manufacturer

Safety Precautions

	CAUTION: Wear protective clothing and eye wear when operating system and dispensing chemicals. Observe safe handling and spillage instructions (MSDS) provided on chemical container or as supplied by chemical manufacturer.
	CAUTION: To avoid severe or fatal shock, physical injury, always disconnect main power when servicing the unit.
	CAUTION: When installing any equipment, ensure that all national and local safety, electrical and plumbing codes are met.
	CAUTION: Systems are to be installed with appropriate personnel to handle the weight of the units as outlined in the installation steps.
	CAUTION: Only approved, factory authorized technicians to service unit.

HANDLING POWER CORDS / POWER PLUGS

	WARNING: The supplied power cord is for use with this Unit only. Do not use it with other appliances. Doing so could result in fire or electric shock.
	WARNING: Do not use multi-socket adaptors. Doing so could result in fire or electric shock.
	WARNING: Touching the prongs of the power cable's plug with anything metallic constitutes a fire and electric shock hazard.
	WARNING: It is dangerous to handle the power cord plug with wet hands. Doing so could result in electric shock.
	CAUTION: Be sure to push the plug of the power cord fully into the wall outlet. Partially inserted plugs create an unstable connection that can result in unsafe buildup of heat.
	CAUTION: When disconnecting the power cord from the wall outlet, always pull the plug, not the cord. Pulling the cord can damage the power cord. Use of damaged power cords could result in fire or electric shock.
	CAUTION: When performing maintenance on the machine, always disconnect the power cord from the wall outlet.
	CAUTION: Unplug the power cord from the wall outlet before you move the machine. While moving the machine, take care that the power cord is not damaged under the machine. Failing to take these precautions could result in fire or electric shock.

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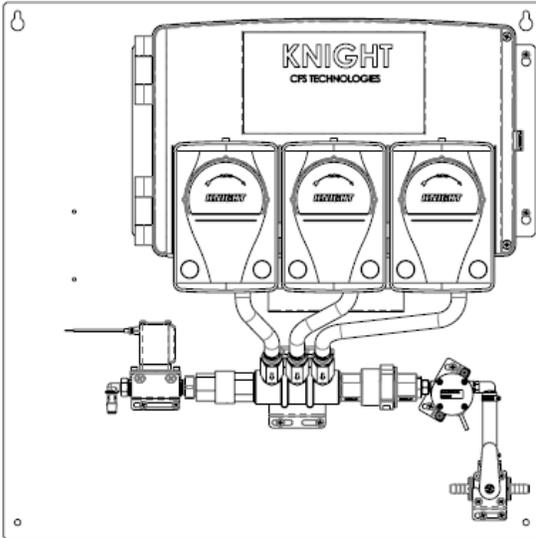
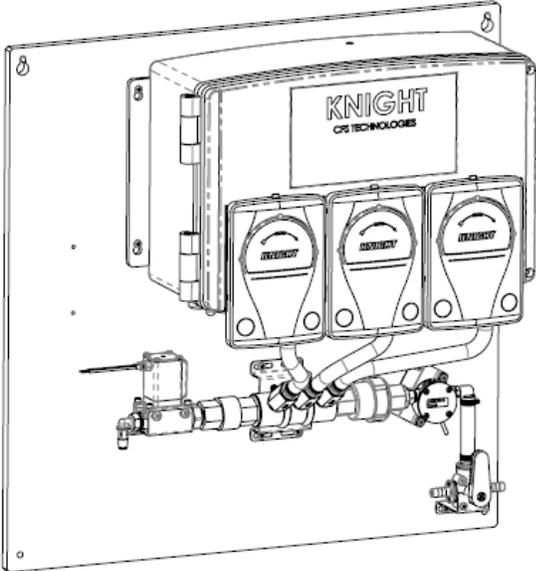
Application Overview

What the system does

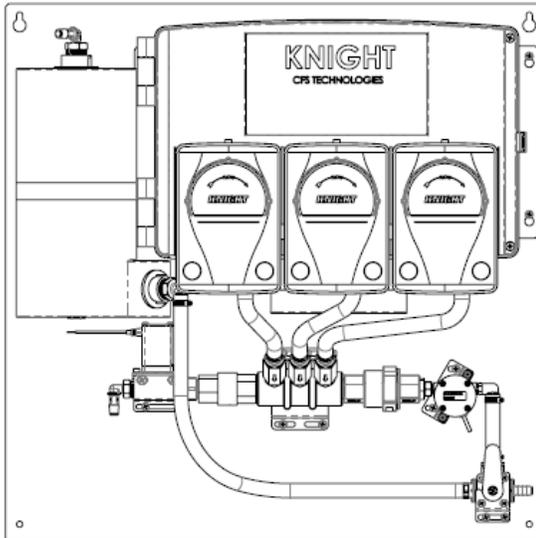
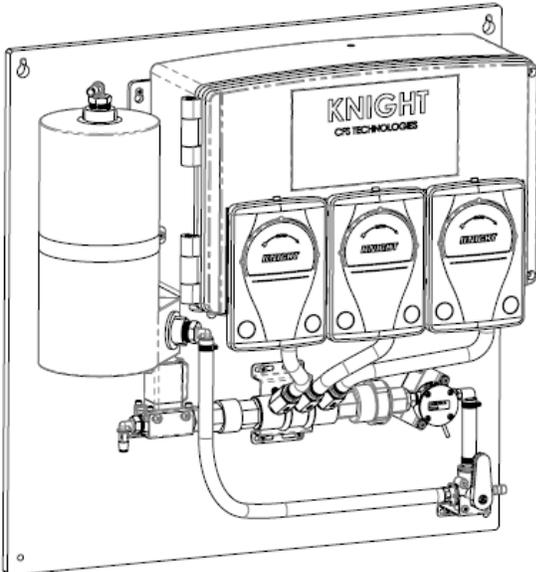
This system blends 1-3 chemicals + water, at user specified quantities to make ready-to-use chemicals for Teat Dip applications. The system automatically maintains the level of Teat Dip solution in an external tank based on a float sensor.

PRODUCT DESCRIPTION / CONFIGURATIONS

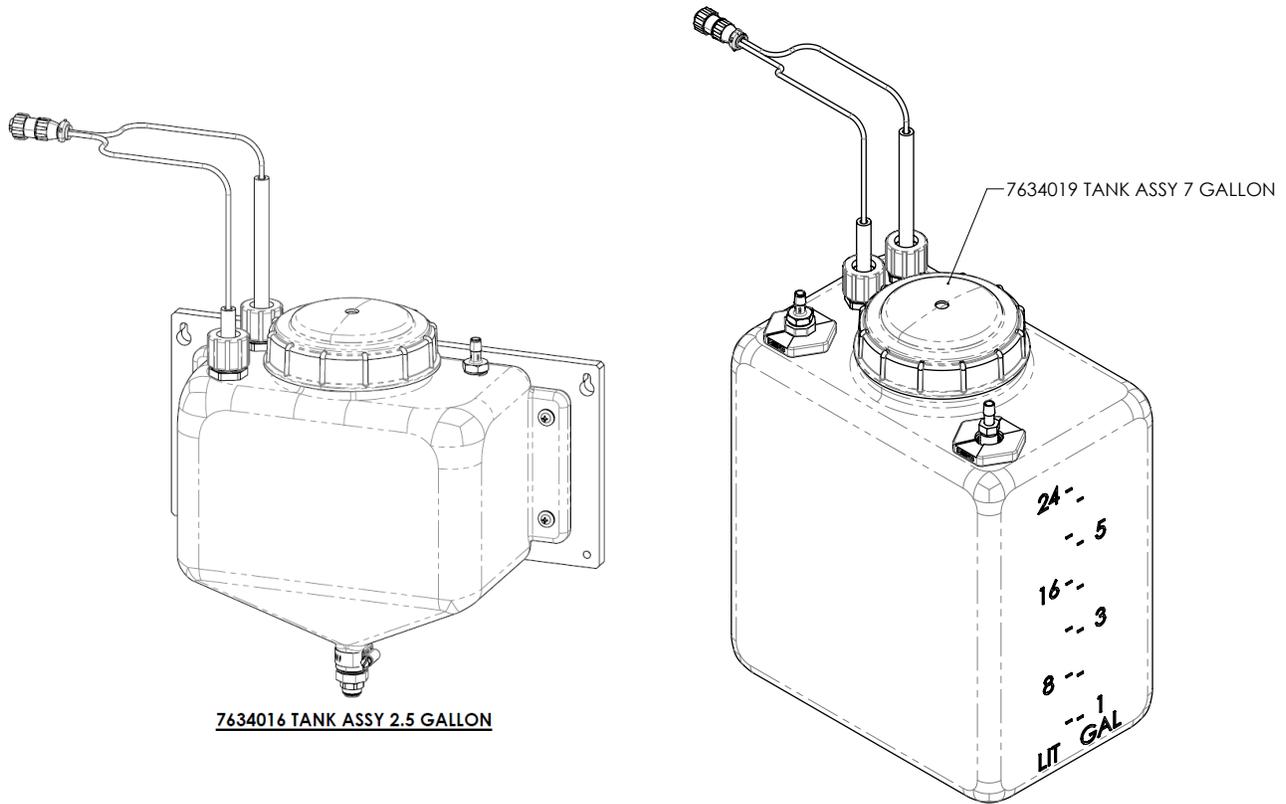
Standard unit without mixing tank



Standard unit with mixing tank



Product Descriptions / Configurations



PRE-SETUP

Power / Water Requirements

Power: 110-240 VAC, 15 A
Water: 20-40 PSI @ 1 GPM

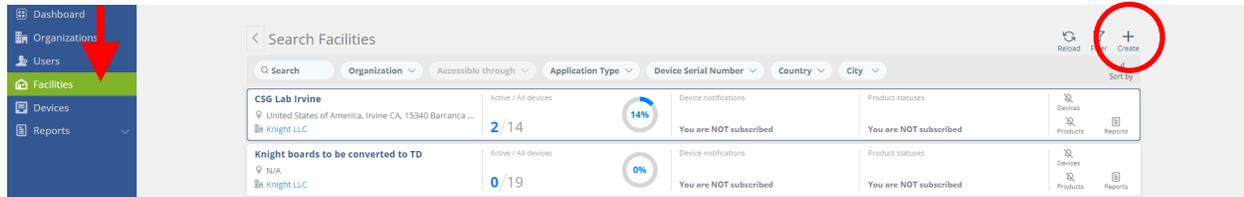
Tools / Hardware Required

Item	Description	Detail
1	Mounting hardware	Screws and/or bolts with anchors -(4) of each required for each panel
2	Drill and drill bits	For drilling into wall
3	Impact drill and driver bits	For mounting panel
4	Screw clamps and/or zip ties	For pickup tubing
5	2000 ml graduated cylinder	For calibrating
6	3/8" ID Nylobrade tubing	For chemical supply connection

Software Setup

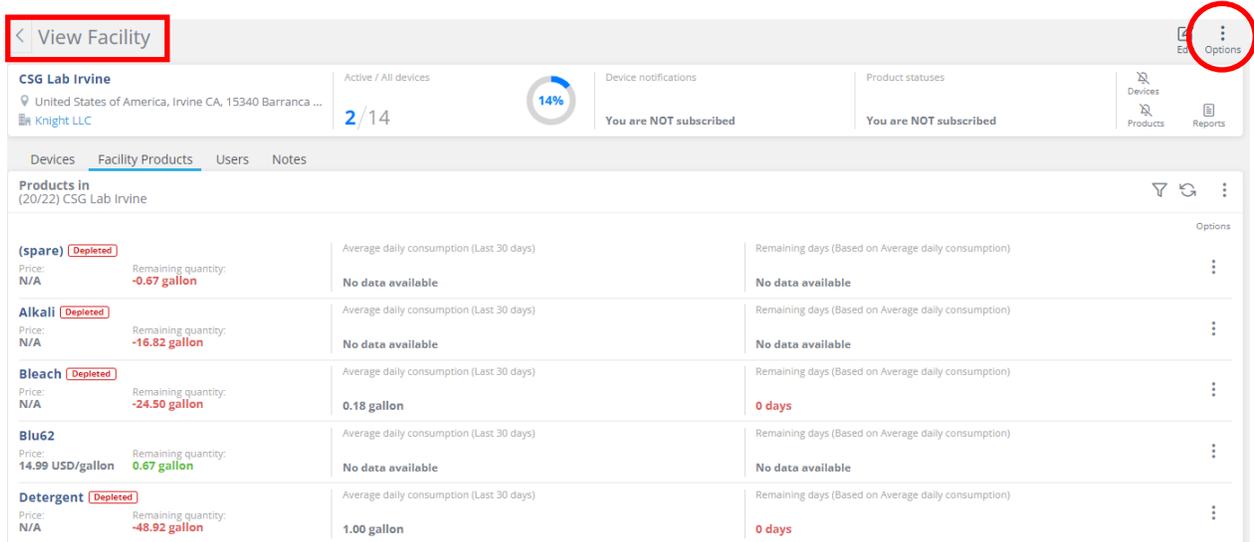
1—Create Facility

- a) Within Facilities tab click “Create”
- b) Enter facility name and choose facility owner (Organization)



2—Load Products

- a) Go to Facility home page (denoted by ‘View Facility’)
- b) Within “Facility Products” tab, click 3 dots as shown
- c) Click “Quick Add” or “Import Product”
- d) Choose products then click “Import”



3—Move Devices

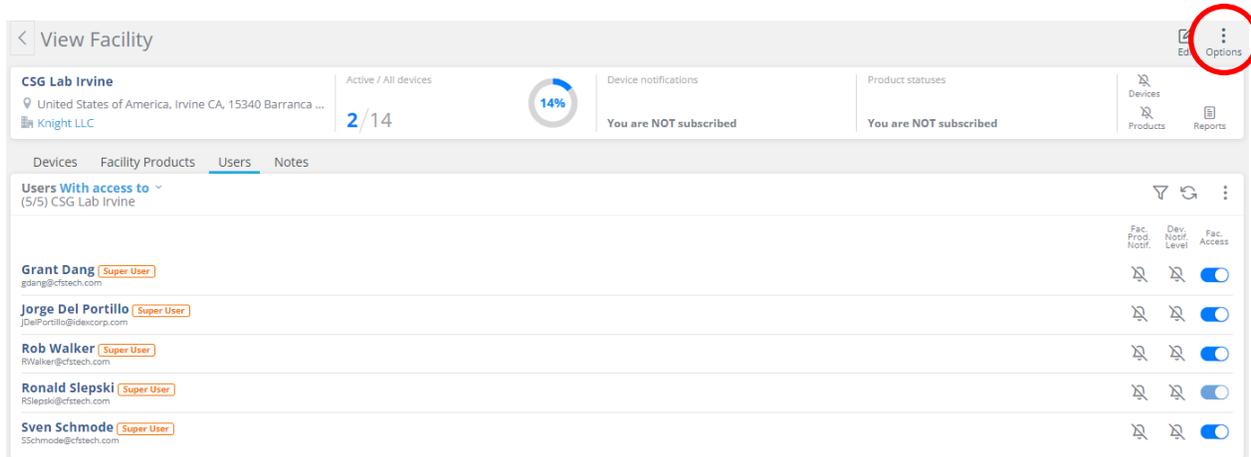
- a) Go to Equipment Inventory Facility and locate the unit S/N
- b) For that unit, click the Actions button and select Move Device
- c) When prompted, enter Facility name
- d) If prompted, map chemicals to each pump

NOTE: This assumes the User has access to inventory facility, and may require administrative assistance from someone else in the Organization

Software Setup

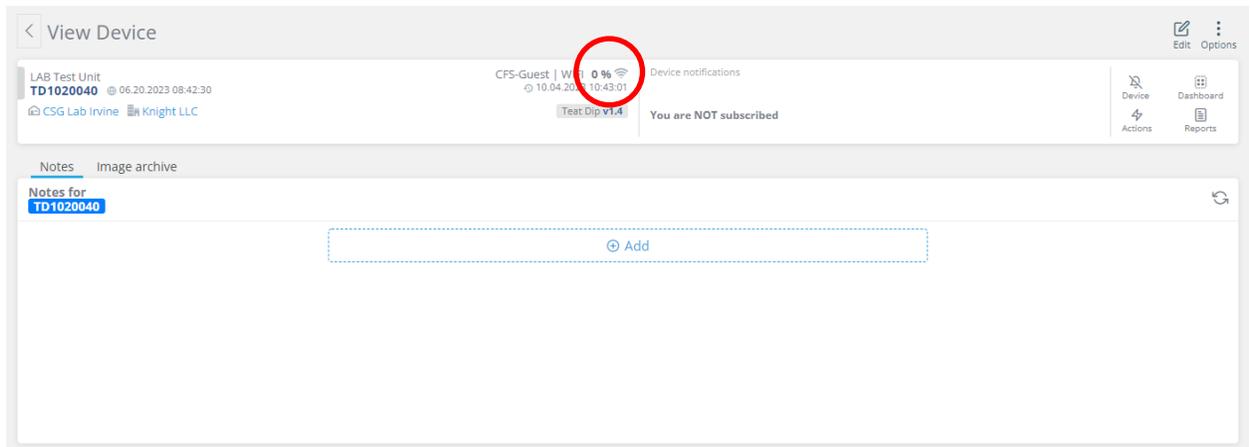
4—Add User Access

- a) Within “Users” tab, click 3 dots as shown
- b) Click “Grant user access” and search for user
- c) Click ‘Facility Access’ slider button to grant access



5—Check Device Status

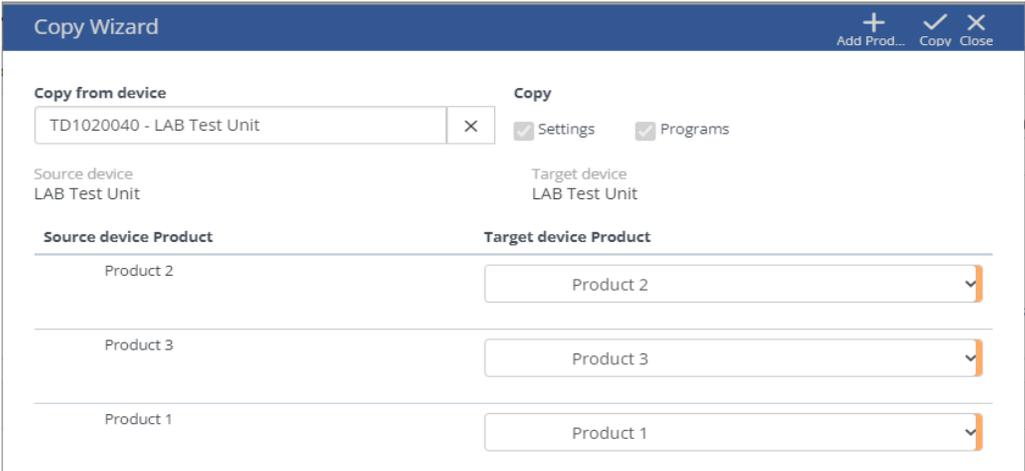
- a) Go to Device home page (denoted by ‘View Device’)
- b) When device is connected to the Internet, signal strength and tab will be blue



Software Setup

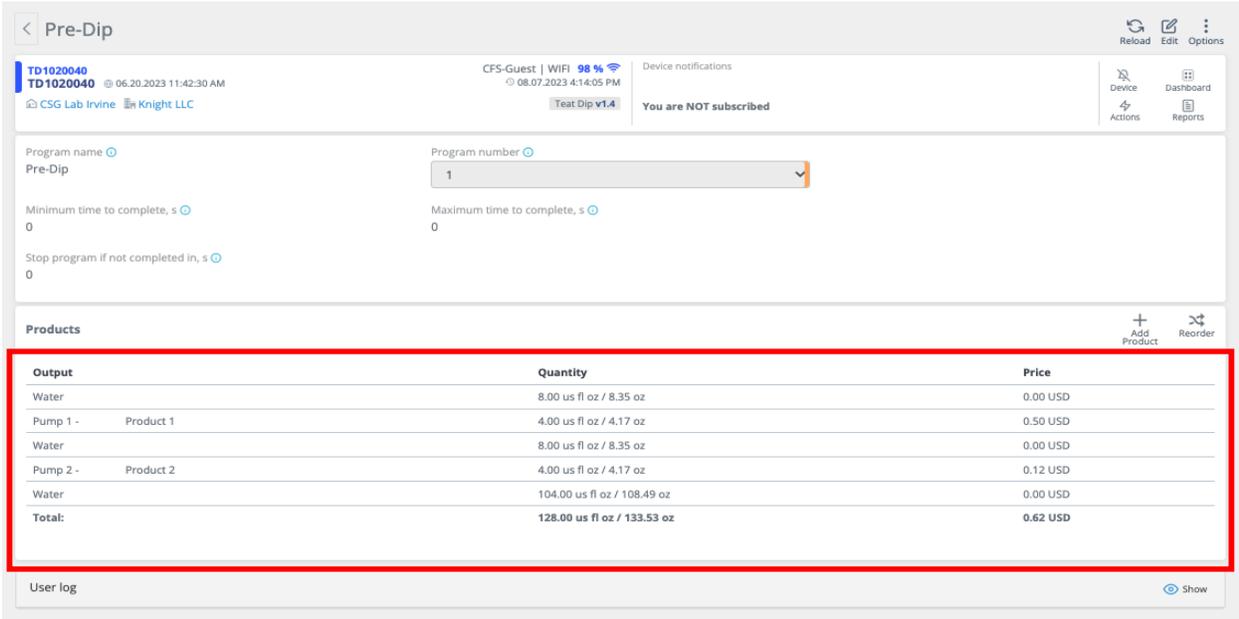
6—Copy Device Settings

- a) Both settings and formulas (programs) can be copied from an existing device
- b) From new device, click Actions -> Copy Wizard
- c) When prompted select source device
- d) Copying calibration settings not recommended



7—Adjust Device Programs

- a) From “View Device” page, click Options -> Programs (need a new screen capture, inserted before the one below)
- b) Click formula to edit
- c) Within the formula, adjust quantities as desired



8—Equipment Installation

- a) Proceed to Hardware Installation and calibration

Hardware Installation

1—Unpack

- a) Verify all items are present, including any required installation materials
- b) Ensure no physical damage to any components

2—Mount Dispenser Panel

- a) Ideally the panel is mounted directly above chemical containers and the pumps are at eye-level to the User
- b) This may require two people

3—Mount Tank Panel (if applicable)

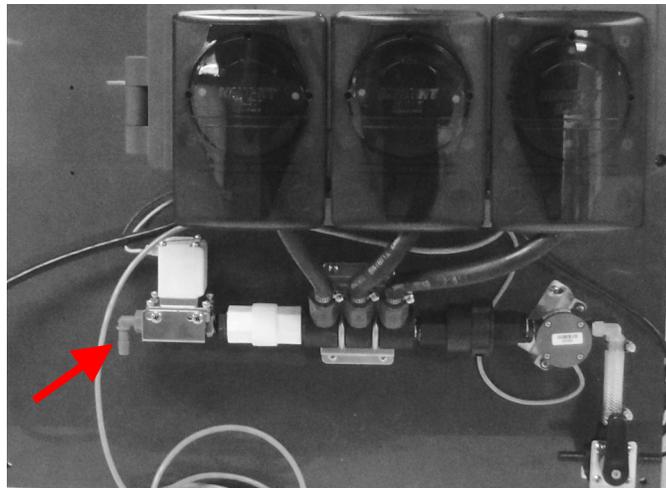
- a) Mount below output of Dispenser panel

4—Plug and Power

- a) Connect antenna and initially leave sitting on top of enclosure
- b) Plug system into AC receptacle
- c) Turn ON system via power switch located on bottom of enclosure

5—Install Water Supply Tubing

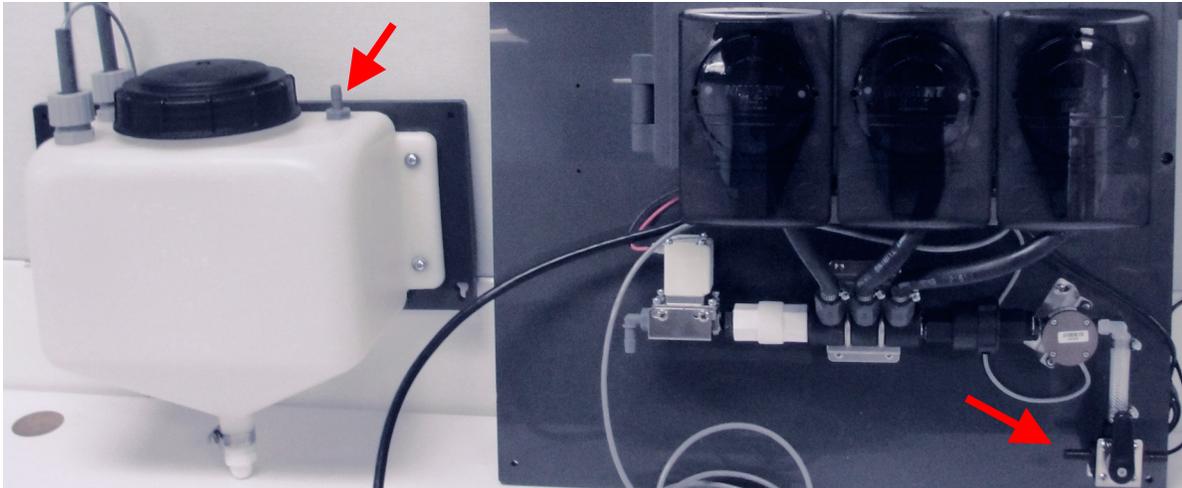
- a) Connect to cold water source
- b) Spigot fitting, hose and clamps provided



Hardware Installation

6—Install Tubing From 3-Way Valve To Tank

- a) Depending on model, install tubing from the top of the static mixing tank, or the 3-way valve



7—Install Tubing From 3-Way Valve To Calibration Vessel

- a) This is used for calibrating water and chemicals

8—Install Pickup Tubing

- a) Match chemical to appropriate pump, and insert pickup line directly into squeeze tube and secure with a clamp or zip tie
- b) A drum wand with a check valve is recommended

9—Set Floats

- a) Adjust float to desired level

10—Turn Water On

- a) Verify no leaks

11—Switch Calibration Valve

- a) Rotate 3-way calibration valve with the handle facing up
- b) Insert short tubing into 5 GAL bucket

12—Prime

- a) Prime water
- b) Prime chemicals one at a time
- c) Prime with water to flush any residual chemical

Hardware Installation

13—Calibrate Water

- a) Ensure 3-way valve is set with handle facing up
- b) Use 5 GAL bucket to catch water
- c) Pour water into graduated cylinder and measure total water in oz

14—Calibrate Chemicals

- a) Ensure 3-way valve is set with handle facing up
- b) Use graduated cylinder (2000 mL) to capture and measure chemicals in oz
- c) Nominal pump flow rate is 40 oz +/- 5 oz

15—Switch Calibration Valve

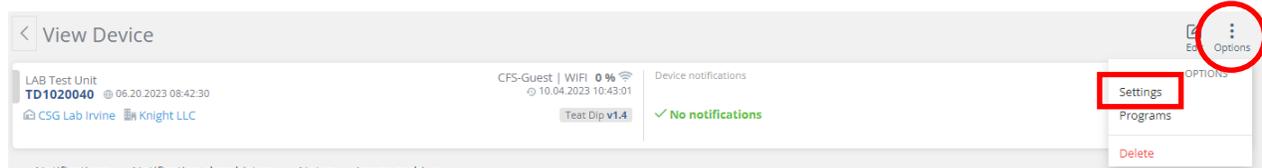
- a) Rotate calibration valve with the handle pointing left

16—Plug In Circular Float Connectors

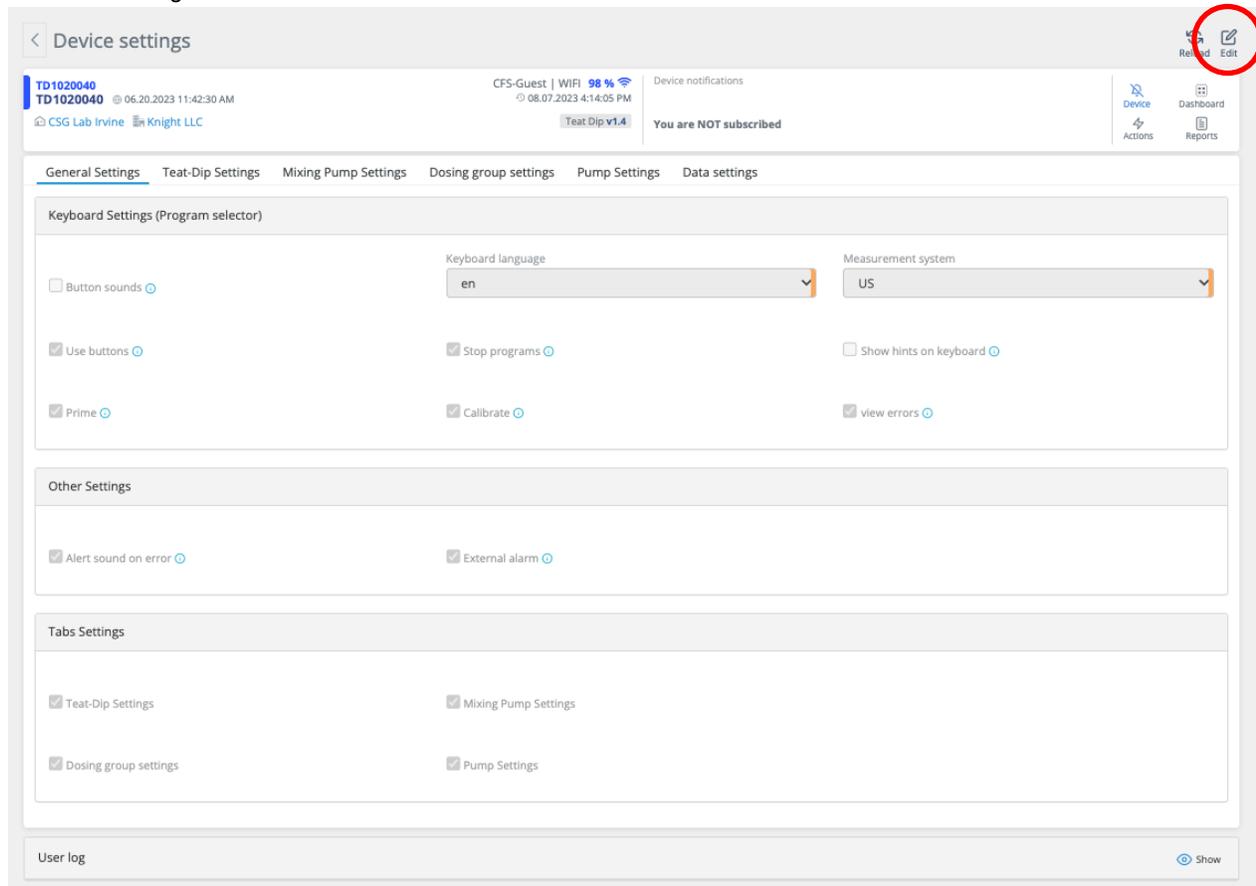
17—Titrate Mixture And Adjust Formulas

Device Settings — General

- From device main page (denoted by View Device), click Options -> Settings



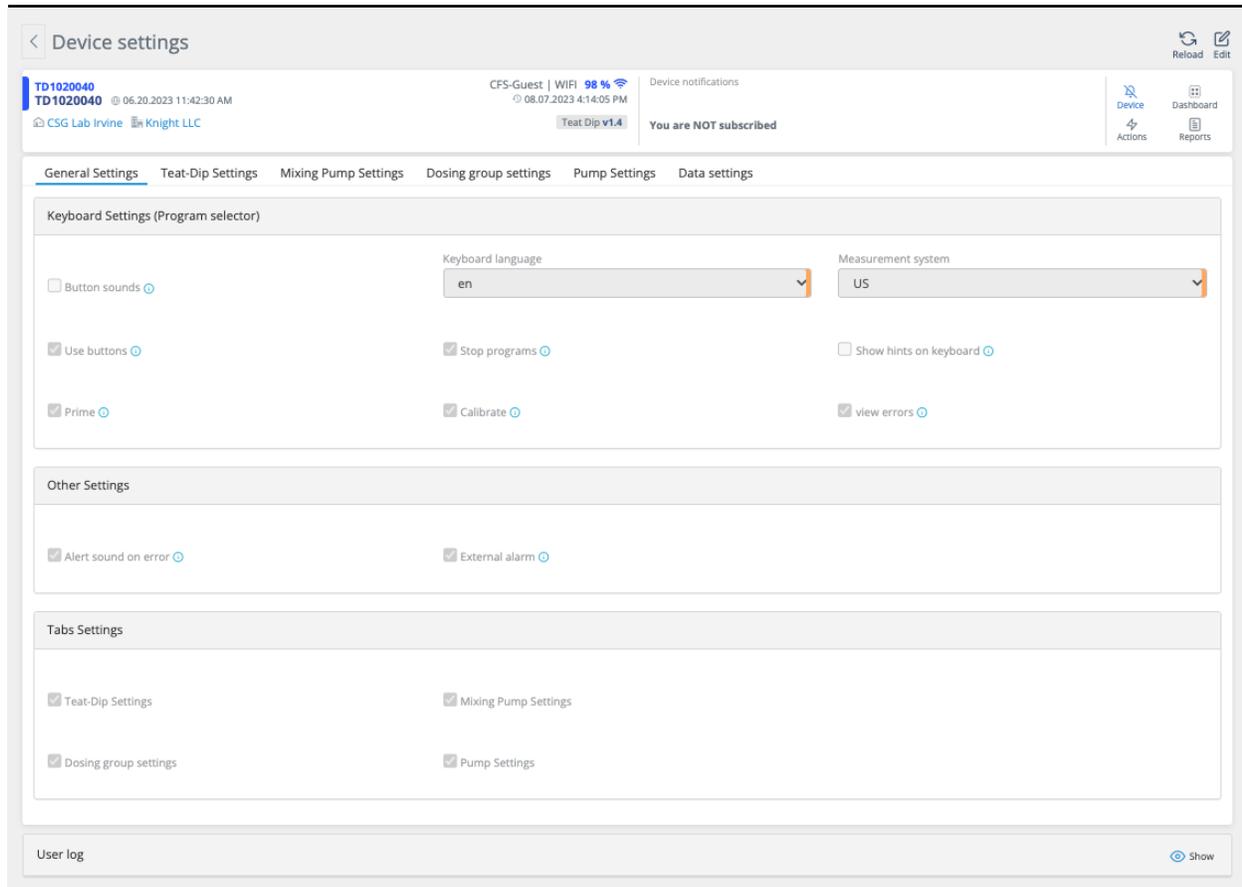
- To make changes to any and all settings, click the “Edit” button. Click “Save” to keep changes, or “Cancel” to discard changes.



Keyboard Settings (Program selector)

- Button sounds:** If enabled, system’s main board buzzer will sound short beeps as users are interacting with the keyboards.
- Use buttons:** You can enable or disable keyboard buttons. If you disable buttons, the keyboard can be used to only provide information.
- Prime:** Allow the user to prime pumps and water.
- Stop programs:** Allows the user to stop already running programs by pressing PROGRAM button.
- Calibrate:** Allow the user to calibrate pumps and water.
- Show hints on keyboard:** Two line keyboard will periodically show short information messages to help user interact with system. This option can be used to help people get to know how to use the keyboard.
- View errors:** If enabled, errors will be shown on keyboard and error sound will generate periodically (if sound is enabled) until errors are cleared. Error is cleared by clicking PROGRAM button. System can show last 5 errors . If disabled, system will generate error sound only once (if sound is enabled). Errors won’t be shown on keyboard, but they can be found in system reports.

Device Settings — General



Other Settings

Here is a list of general settings that are not related to other groups.

- Alert sound on error: Enables audible alarm from within the enclosure.
- External alarm (24 VDC only): Enables external beacon alarm (if installed).

Tab Settings

- Enables tab settings to be visible in platform (e.g. if mixing pump is not used, the tab can be disabled)

Device Settings — Teat Dip

< Device settings
Reload Edit

TD1020040 @ 06.20.2023 08:42:30

CSG Lab Irvine Knight LLC

CFS-Guest | WIFI 98 %

08.07.2023 13:14:05

Teat Dip v1.4

Device notifications

You are NOT subscribed

Device

Dashboard

General Settings
Teat-Dip Settings
Mixing Pump Settings
Dosing group settings
Pump Settings
Data settings

Basic Settings

Run batch signal selection

Signal 1 Invert run signal

E-Stop signal selection

Signal 2 Invert E-Stop signal

Batch Settings

Batch delay, s

10

Consecutive batches limit

No limit

Batch timeout, s

1800

User log
Show

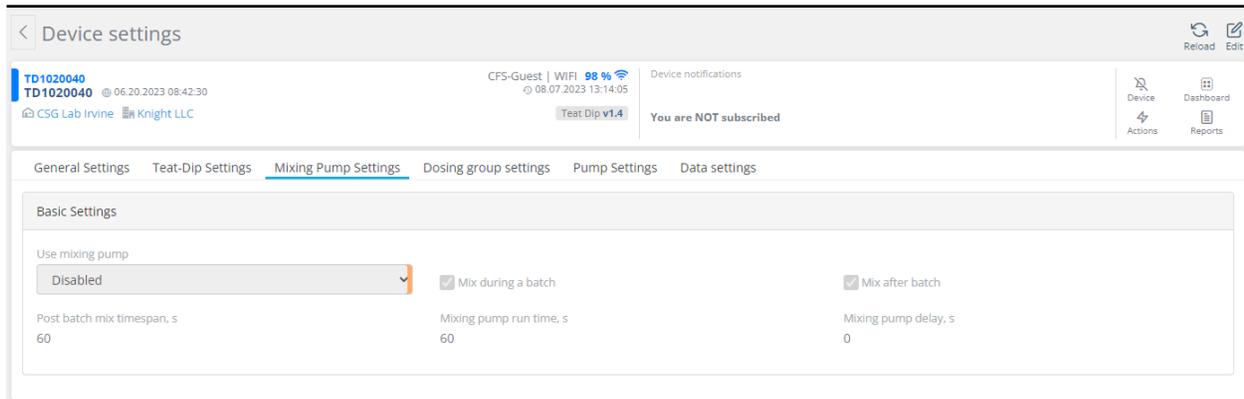
Basic Settings

- Run batch signal selection: This is the signal that initiates a batch process. The low level float is wired into Signal 1 by default.
- E-Stop signal selection: E-Stop signal selection: This is the signal that prevents an overflow condition. The high level float is wired into Signal 2 by default.

Batch Settings

- Batch delay: Time from batch initiation to start of blending cycle.
- Consecutive batches limit:
 - No limit - The system will make batches continuously without stopping
 - Limited - Used as a safety mechanism in the event of a ruptured tank or other failure. The system will stop after reaching the value of "Maximum consecutive batches", if there is no idle time between batches. When this value is reached, the system will pause for the time set by Batch timeout (in seconds), and then resume operation.

Device Settings — Mixing Pump Settings



Basic Settings

- Use mixing pump: Select the output to use to control external pump. Out can drive pump directly, or via a pilot valve. Output is 24 VDC only.
- Mix during a batch: Pump will operate during the batch process
- Mix after batch: Pump will operate after the batch process
- Post batch mix timespan: Sets intervals for pump operation after the batch process
- Mixing pump run time: The length of time the pump will run
- Mixing pump delay: The time delay before operating the pump

Device Settings — Dosing Group Settings

The screenshot displays the 'Device settings' page for 'Dosing group settings'. The top navigation bar includes 'General Settings', 'Teat-Dip Settings', 'Mixing Pump Settings', 'Dosing group settings' (selected), 'Pump Settings', and 'Data settings'. The 'Basic Settings' section is expanded, showing the following configurations:

- Flow sensor type: Dual pulse edge
- Flow sensor pulses/L: 2500
- Water relay: Default
- Disable flow meter for water:
- Calibration quantity, us fl oz/min: 179.20
- Calibration ticks: 7722
- Water alarm low flow rate, us fl oz/min: 5.00
- Water alarm high flow rate, us fl oz/min: 350.00
- Achieve flow rate, s: Fast (5s)
- Switching delay, s: Fast (0.5s)
- Product dose attempts: 3
- Product redose delay, s: 60
- Water dose attempts: 5
- Water redose delay, s: 60

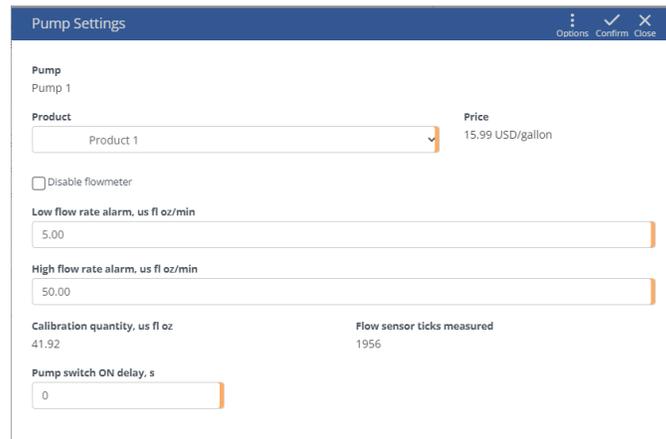
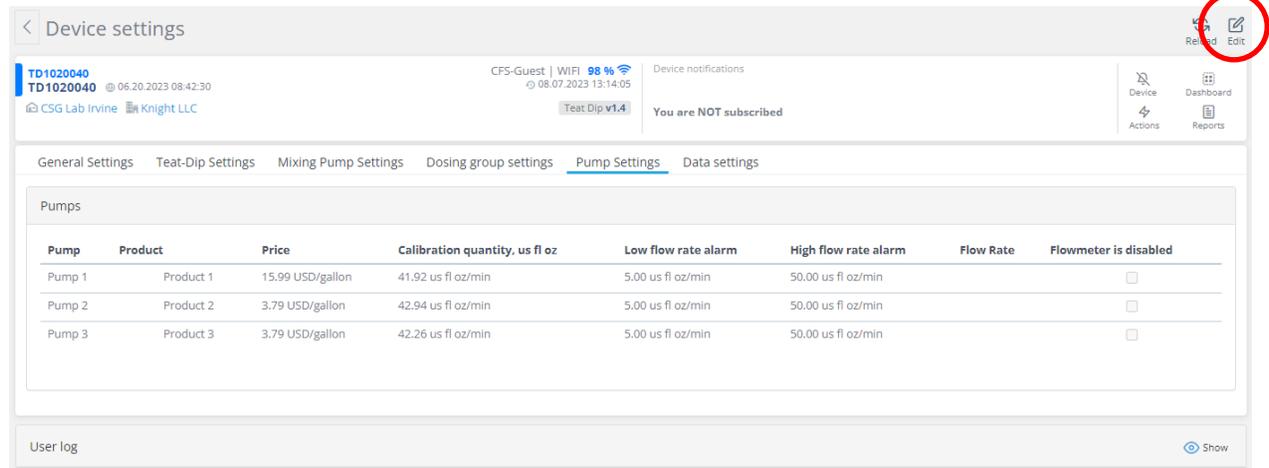
At the bottom of the settings page, there is a 'User log' section with a 'Show' button.

Basic Settings

- Flow sensor type: Always select Dual pulse edge by default
- Water relay: The output that corresponds to the water solenoid. If output relay fails, the output can be changed to another available output.
- Disable flow meter for water: Used to allow operation based on time, in the event of a flow meter failure. NOTE: After disabling, system will prompt the user to enter the observed flow rate
- Achieve flow rate: When calibrated properly, system calculates optimized flow rate check period in order to prevent overdosing in case of flowsensor problems. To handle cases where detergent simply runs out, system will try to reach flowrate for the specified amount of time the first 3 times after flowrate error. This allows air to be removed from tubing after detergent canister is changed. However, if the error keeps occurring, system will again use optimized time to reach flowrate.
- Switching delay: This option sets how fast the system should switch pumps and valves. Faster switch may shorten valve lifetime or cause leaks.
- Flow sensor pulses: ignore
- Product dose attempts: If the system detects a chemical low flow rate error, it will attempt dose again this number of times before producing and error.
- Product redose delay: The delay time between retries
- Water dose attempts: If the system detects a water low flow rate error, it will attempt dose again this number of times before producing and error.
- Water redose delay: The delay time between retries
- Flow sensor pulses: ignore
- With Flow meter enabled:
 - Calibration quantity: The amount of water captured/recorded from the last calibration
 - Calibration ticks: The amount of ticks associated with the volume of calibration quantity
- With Flow meter disabled:
 - Water flow rate: The observed flow rate of water
- Water alarm low flow rate: The low threshold for water flow rate. Any measured value smaller than this threshold will produce a low flow alarm.
- Water alarm high flow rate: The high threshold for water flow rate. Any measured value higher than this threshold will produce a high flow alarm.

Device Settings — Pump Settings

To add or edit pumps, click the “Edit” button

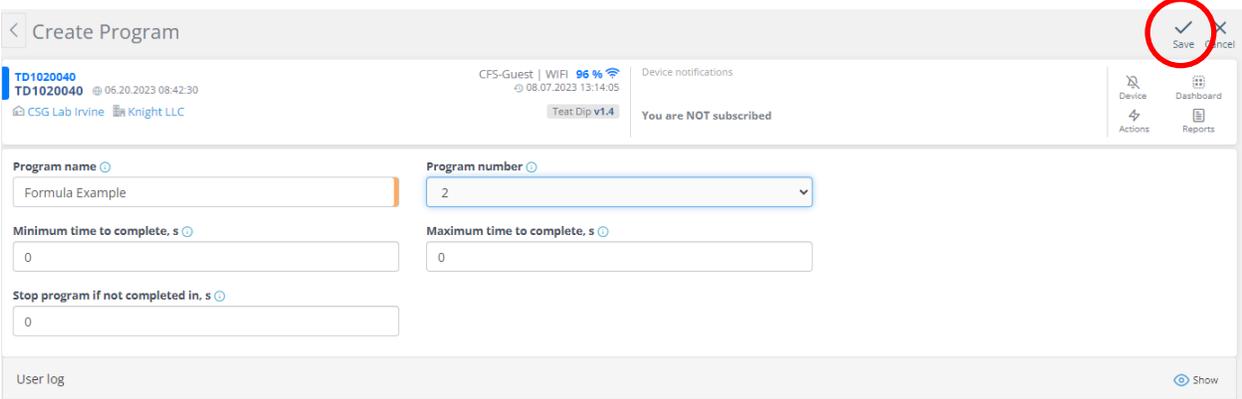
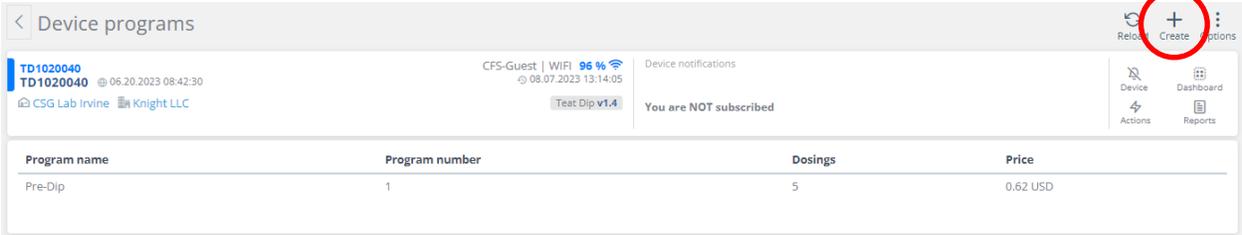
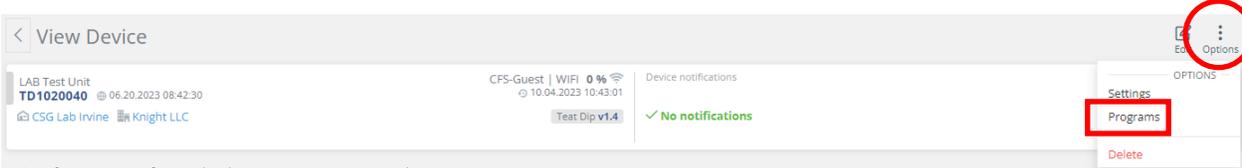


Basic Settings

- Pump: Pump number to assign product
- Product: Product to assign
- Price: Current price of chemical, set in Facility -> Facility Products -> Options -> Edit
- Disable flow meter: Used to allow operation based on time, in the event of a flow meter failure
NOTE: After disabling, system will prompt the user to enter the observed flow rate
- Low flow rate alarm: The low threshold for chemical flow rate. Any measured value smaller than this threshold will produce a low flow alarm.
- High flow rate alarm: The high threshold for chemical flow rate. Any measured value higher than this threshold will produce a high flow alarm.
- With Flow meter enabled:
Calibration quantity: The amount of chemical captured/recorded from the last calibration
Calibration ticks: The amount of ticks associated with the volume of calibration quantity
- With Flow meter disabled:
Flow rate: The observed flow rate of chemical
- Pump Switch ON delay: Used to account for any delay in pump start up (typically set to 0)

Creating A Formula

- From device main page (denoted by View Device), click Options -> Programs

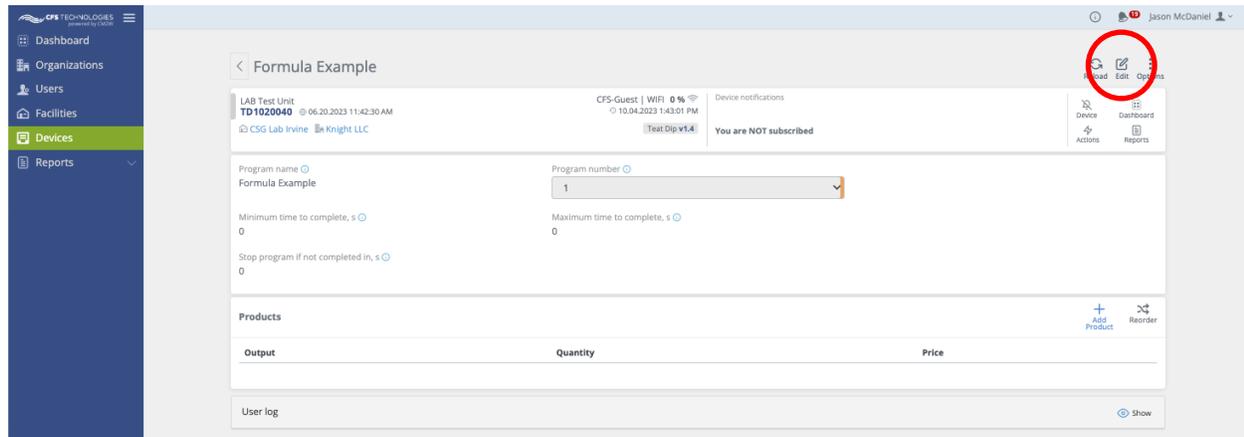


Device programs

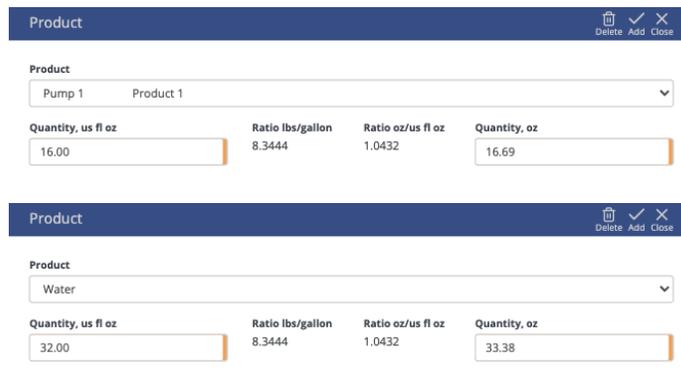
- -Click "Create" to start a new formula
- Pick program number and enter formula name
- Click "Save" when finished
- Click "Add products" to begin adding chemicals/water
- Click "Save" when finished
- Copy the formula to create new formulas faster

Creating A Formula

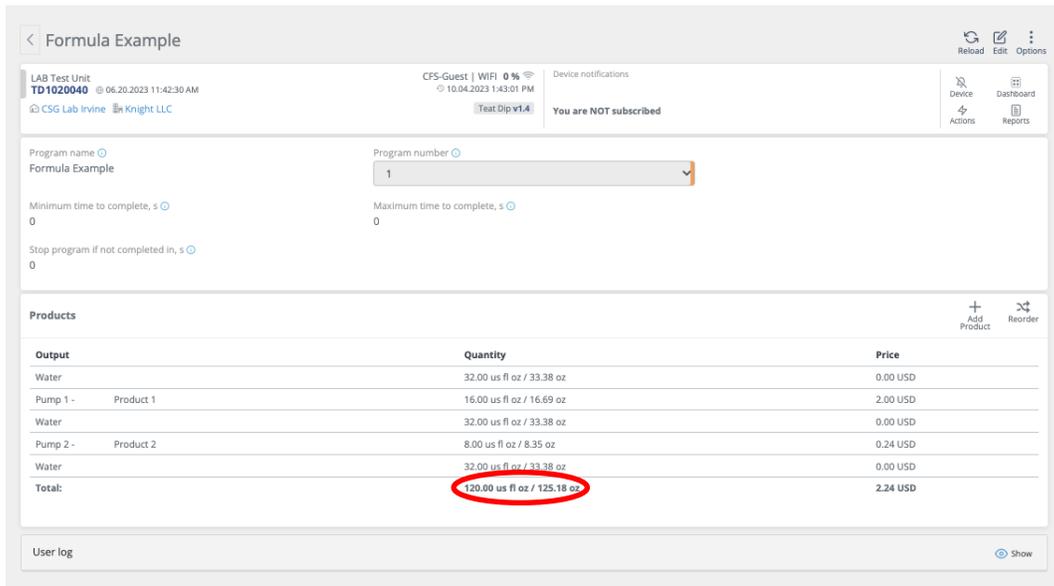
- Click “Edit”, then “+Add Product” to begin adding chemicals/water



- Examples of adding chemical and water are shown below



- When finished entering all items, click “Save”
- The total volume of water/chemical is listed at the bottom for reference



Formula Settings

< Pre-Dip
Reload Edit Options

TD1020040
TD1020040 @ 06.20.2023 11:42:30 AM
 CSG Lab Irvine Knight LLC

CFS-Guest | WiFi 98 %
 08.07.2023 4:14:05 PM
 Test Dip v1.4

Device notifications
 You are NOT subscribed

Device Dashboard
 Actions Reports

Program name

Program number

Minimum time to complete, s

Maximum time to complete, s

Stop program if not completed in, s

Products + Add Product Reorder

Output	Quantity	Price
Water	8.00 us fl oz / 8.35 oz	0.00 USD
Pump 1 - Product 1	4.00 us fl oz / 4.17 oz	0.50 USD
Water	8.00 us fl oz / 8.35 oz	0.00 USD
Pump 2 - Product 2	4.00 us fl oz / 4.17 oz	0.12 USD
Water	104.00 us fl oz / 108.49 oz	0.00 USD
Total:	128.00 us fl oz / 133.53 oz	0.62 USD

User log Show

- Program name is the name of the program. If program name is using only numbers and Latin letters, it will be shown on the keyboard (OLED type only). Device only supports program names up to 24 symbols in order to show them on the keyboard. Program name can also be seen in the reports.
- Program number can be in the range of 1 to 32. Older model keyboards will show the program number instead of the name. New OLED type keyboards will also show the program number in case the program name is not displayable.
- Minimum time to complete: System will generate a warning if program runs for less than this amount of time in seconds. Program will continue normally, only warning will be issued. Set to 0 if warning is not required.
- Maximum time to complete, s: System will generate a warning if program runs for longer than this amount of time in seconds. Program will continue normally, only warning will be issued. Set to 0 if warning is not required.
- Stop program if not completed in, s: System will generate an error if program runs for longer than this amount of time in seconds. Program will be stopped so that a new program can be started. Set to 0 to disable this feature.

Priming / Calibration

Calibration Guidelines

- (1) Do not attempt to calibrate without the proper measuring vessels. You will need a 1000 ml graduated cylinder every time you calibrate. NOTE: calibration volumes are typically between 500 ml and 1000 ml.
- (2) Calibrate on initial installation.
- (3) Calibration of at least 30 seconds is recommended.
- (4) Calibrate anytime concentrates of a different viscosity are to be used.
- (5) Calibrate at least once each season as ambient temperatures change.
- (6) Calibrate anytime you replace a pump squeeze tube.

NOTE: Each section will highlight in sequence as you advance through the calibration steps.

Remote calibration Close

Idle

Start calibration

Ready

Dosing type: Product

Output: Pump 1 Product 1

sec: 60

Calibrate Prime

Stop

Busy

Estimated remaining time (60s)

Stop

Enter Quantity

Current calibration quantity, us fl oz: 0.00

Calibration quantity, us fl oz: 0

Calibration ticks

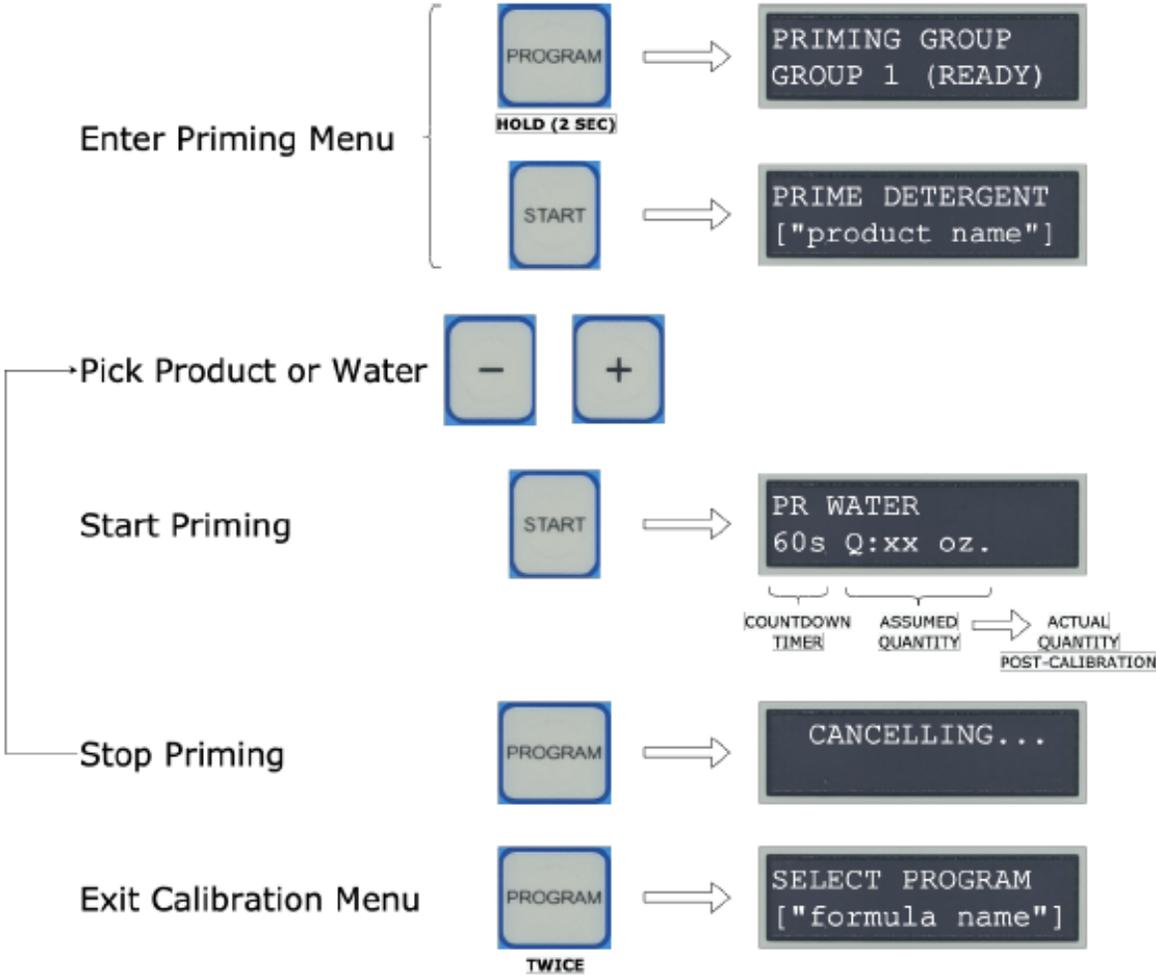
Save Cancel

Priming / Calibration From Keypad

IMPORTANT NOTES:

1. For priming/calibrating, the system requires the activation of the Washer distributor valve (a place for the fluid to go). Generally, Washer 1 is used to do this, but any Washer will work. Additional requirements as follows:
 - Washer must be 'Enabled' in the software
 - The Signal Interface Box for the Washer must be ON, addressed appropriately, and connected to the communication line back to the controller
 - The Washer must be in an 'IDLE' state (not running a formula)
2. For new installations, the pump/panel should be primed with water before priming chemicals
3. It is highly recommended to flush with water between each chemical to avoid chemical interactions

Priming Instructions:

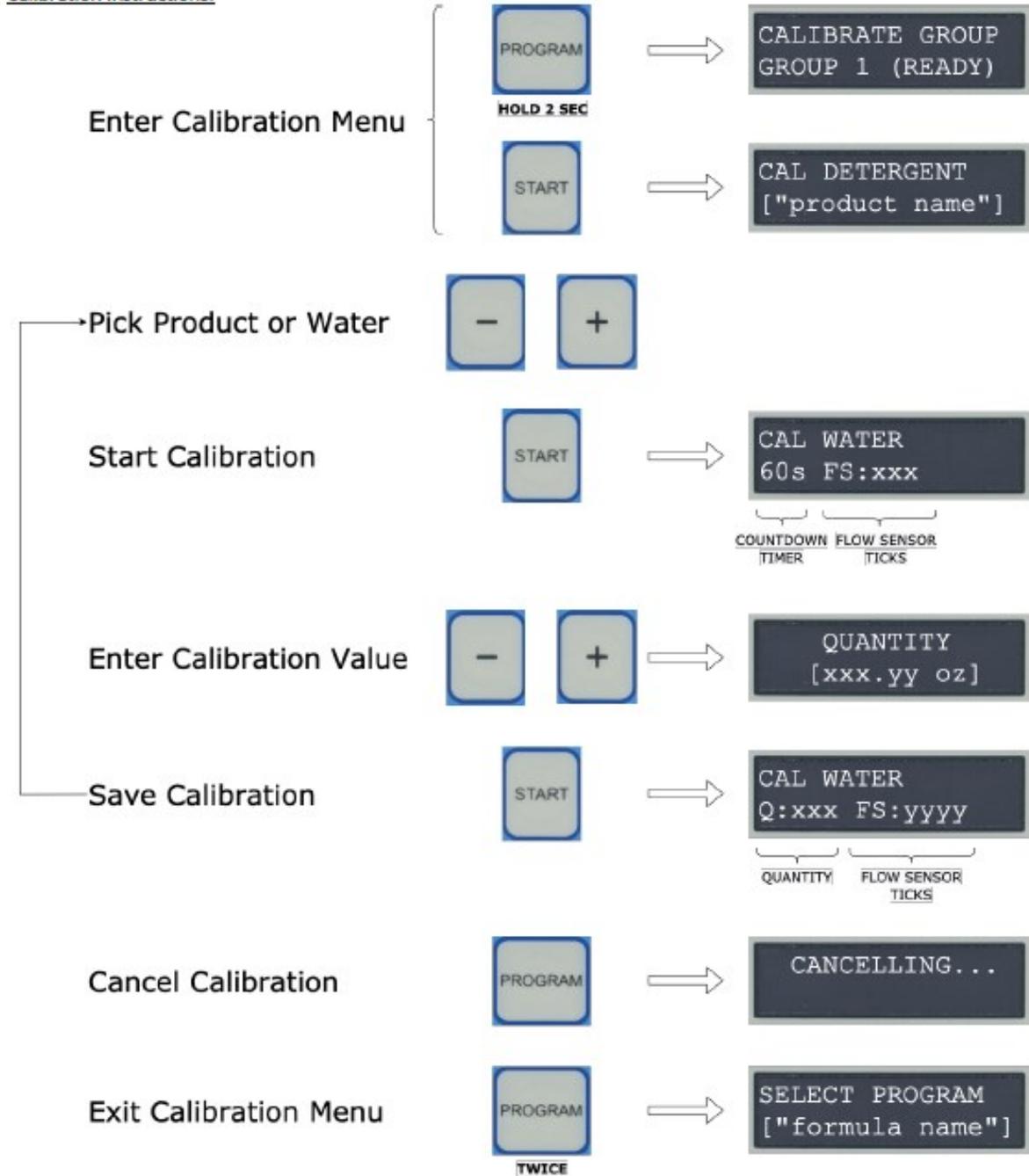


Priming / Calibration From Keypad

IMPORTANT NOTES:

1. See notes 1, 2 and 3 on Page 1
2. The system must be fully primed first
3. The 3-way calibration valve must be set appropriately, and then reset post calibration
4. Keyboard Calibration must be enabled first via Device -> Actions -> Keyboard Calibration
5. A 2000 mL graduated cylinder is recommended for systems using an electric pump
6. For systems that use an air pump, a 5 GAL bucket is also recommended for calibration overflow

Calibration Instructions:



Normal Operation

Batch Initiation

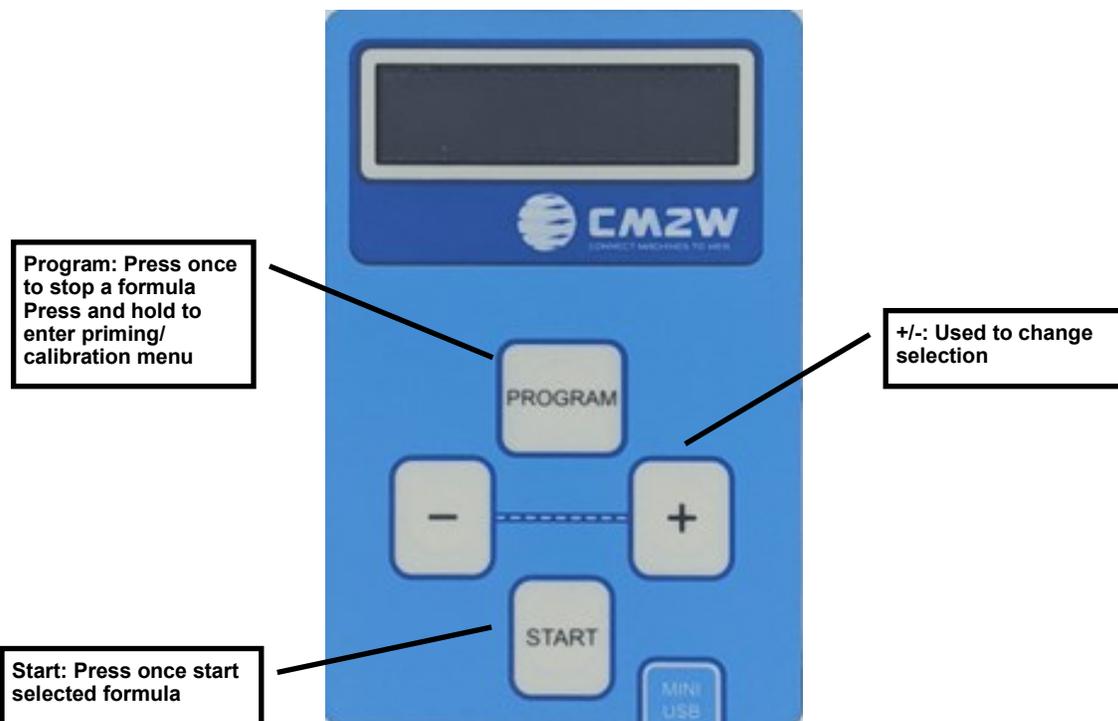
- (1) Use the + or - button to select the chemical blend you wish to dispense.
- (2) Press the START button.
- (3) When the float level drops in the RTU tank the unit will begin the dispensing sequence.

Dispensing

- Depending on the formula settings, pump 1, pump 2 and pump 3 begin pumping concentrate and/or water in the sequence setup in the formula settings. The flow meter registers the volume of fluid as it passes through. When the target volume is achieved for each fluid in the formula, the pump shuts off.
- During the blending sequence the system will show in real-time the volume of dispensed product in gallons or liters on the main controller display.
- During the blending sequence, if the microcontroller fails to receive the proper amount of pulses from the flow meter during any single increment of batching, the system will halt the blending sequence and display an error message on the screen.

Data Logging

- Upon completion of the blending sequence, usage data will be stored on the CM2W website. This report data can be accessed and viewed on your PC or a smartphone if using the CM2W app.



Software Reporting

To change report type click menu highlighted

The screenshot shows the 'Reports' page with the 'Detailed' report type selected in the left-hand menu. The main content area displays a table of events for the selected device and time period.

Event ID	Event Name	Event Source	Product Name	Flow Rate	Flow Rate Limit	Time
TD1020040	Program completed	Water	XT Ultra 10%	0.00 us fl oz	0.00 us fl oz	08:39:15
TD1020040	Water dose failed	Water	...	0.00 us fl oz	27.40 us fl oz	08:39:15
TD1020040	Low flow rate	Water valve	Water	0.00 us fl oz	10.00 us fl oz	08:39:15
TD1020040	Water dose retry	Water	...	0.00 us fl oz	27.40 us fl oz	08:38:25
TD1020040	Low flow rate	Water valve	Water	0.00 us fl oz	10.00 us fl oz	08:38:25
TD1020040	Water dose retry	Water	...	0.00 us fl oz	27.40 us fl oz	08:37:35
TD1020040	Low flow rate	Water valve	Water	0.00 us fl oz	10.00 us fl oz	08:37:35
TD1020040	Water dose retry	Water	...	0.00 us fl oz	27.40 us fl oz	08:36:45

Detailed Report

This report shows all usage for the device specified and requested time period.

The screenshot shows the 'Reports' page with the 'Total quantity' report type selected in the left-hand menu. The main content area displays a summary table for the selected facility.

Facility	Product quantity	Water quantity	Washed quantity	Cost per lbs	Cost
CSG Lab Irvine	19.20 us fl oz	0.90 gallon	0.00 oz	0.00 USD	0.86 USD

Total Quantity Report

A breakdown of how much product and water have been consumed in the requested time period. Click “...” for all details.

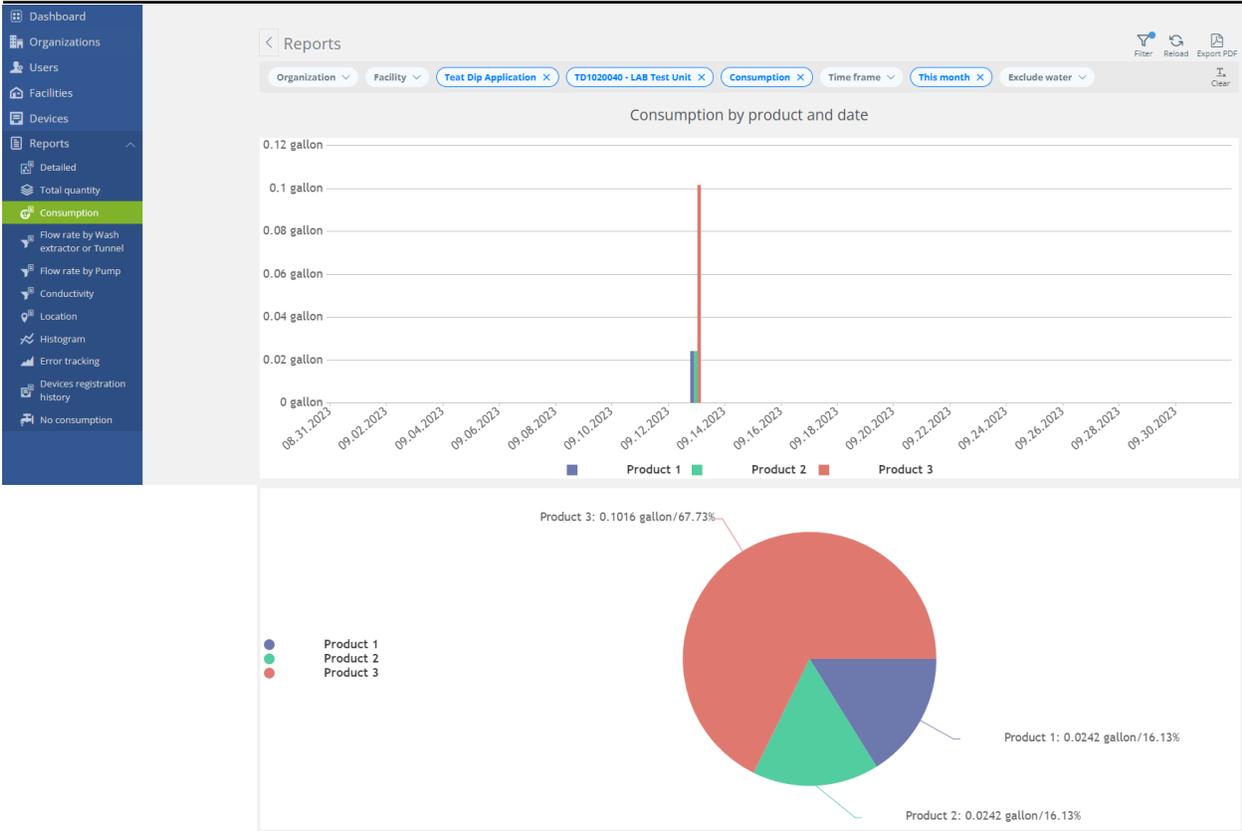
The screenshot shows the 'Reports' page with the 'Total quantity' report type selected in the left-hand menu. The main content area displays a summary table for the selected facility and a pie chart showing the breakdown of product consumption.

Facility	Product quantity	Water quantity	Washed quantity	Cost per lbs	Cost
CSG Lab Irvine	1.00 gallon	4.00 us fl oz	0.00 oz	0.00 USD	9.89 USD

Product	Product quantity	Cost
Product 1	0.50 gallon	8.00 USD
Product 2	0.50 gallon	1.89 USD

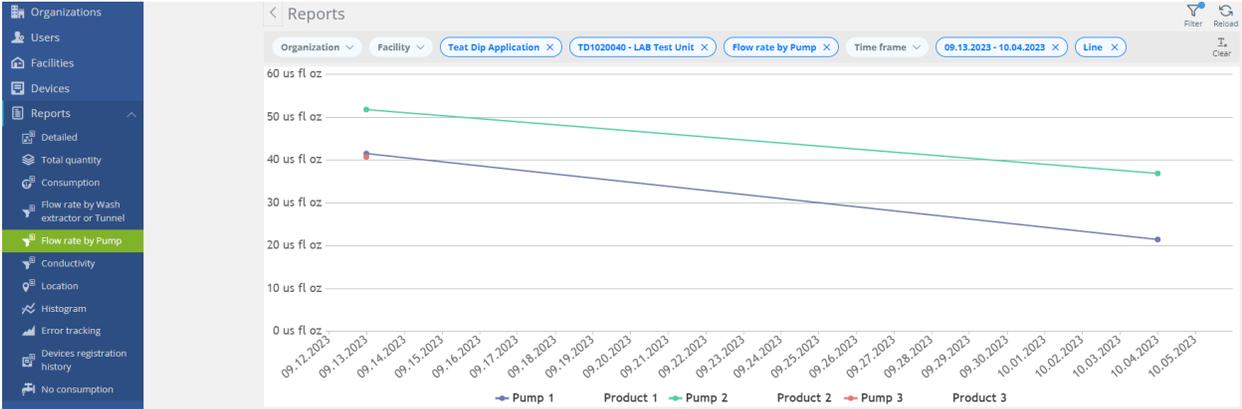
The pie chart shows the breakdown of product consumption, with 'Dummy Product 1' (blue) and 'Dummy Product 2' (red) representing the two product categories.

Software Reporting



Consumption Report

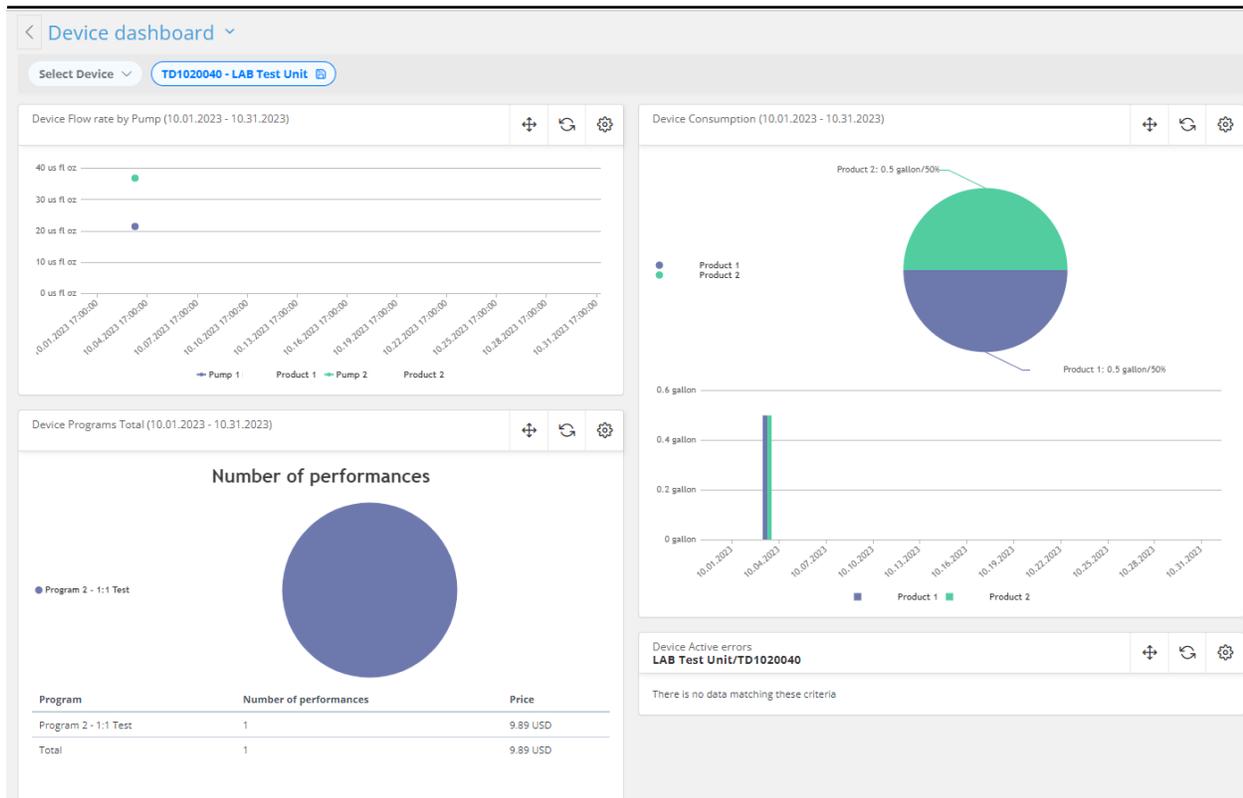
This report is a graphical representation of product consumption per day, over the requested time period.



Flow Rate by Pump Report

This is a graph of average daily flow rates for the requested period of time.

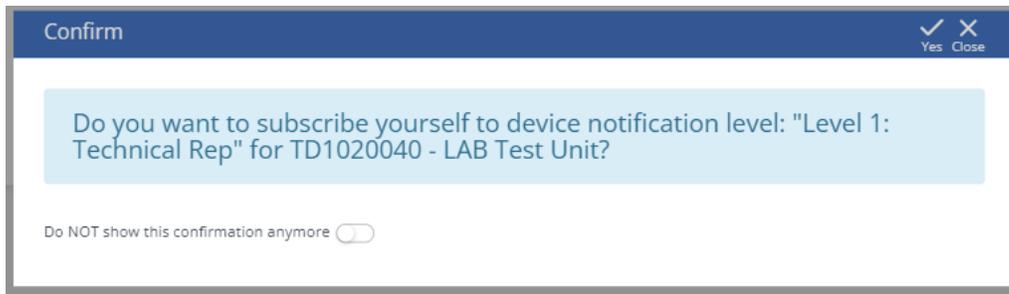
Dashboards



- Device flow by pump
- Number of performances
- Device consumption

The Device Dashboard is intended on displaying all of the reporting features described above, in one convenient location. To access the Device Dashboard, go to Device main page and click "Dashboard". This will create a tab of the device. To save, click disk icon next to tab name.

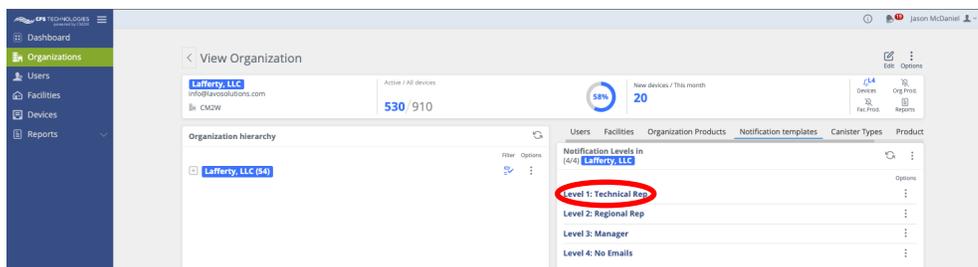
Email Alerts



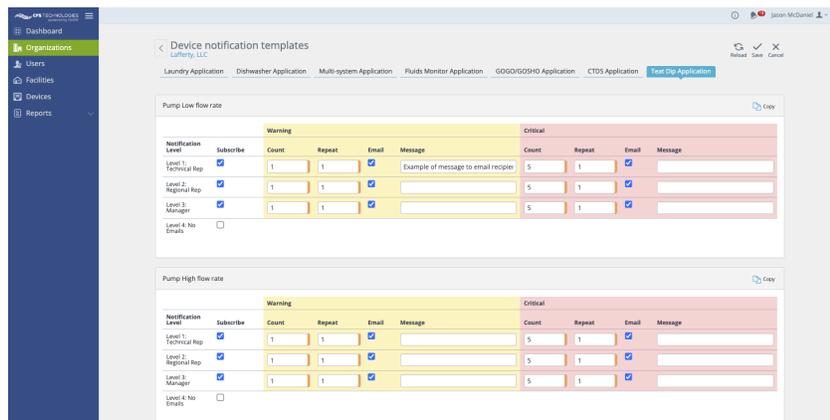
To receive email alerts, you must subscribe to the Device via Device main page by clicking the Device icon. Select appropriate level.

The levels are based on a tiered approach, where Level 1 receives notifications before users at other levels.

- Level 1 Technical Rep / Level 2 Regional Rep / Level 3 Manger / Level 4 No Emails / Notifications disabled



- Notification levels can be changed at the Organization level, which requires Super User status to access.
- These changes will apply to all Facilities within the Organization. Sub-organizations have their own Notification levels, so changes to the parent Organization’s notification settings will not change those of Sub-organizations.
- Click on any of the notification levels (e.g. Level 1 Technical Rep) to access Notification templates



- Warning messages differ from Critical messages, and provide a means differentiate the severity of errors
- Count is used to govern the frequency of alarm emails, and refers to the number of times the error needs to occur before sending an email
- Repeat is used to further minimize successive alarm emails
- Click “Subscribe” to enable individual alarm notifications on the website (alarm bell next to the User name at the top right of the screen)
- Click “Email” to enable individual email notifications
- Specific messages can be created for Warning and Critical alarms, such as items to check if the alarm is occurring
- Click “Save” when finished

Maintenance

Remove / install pump face plate

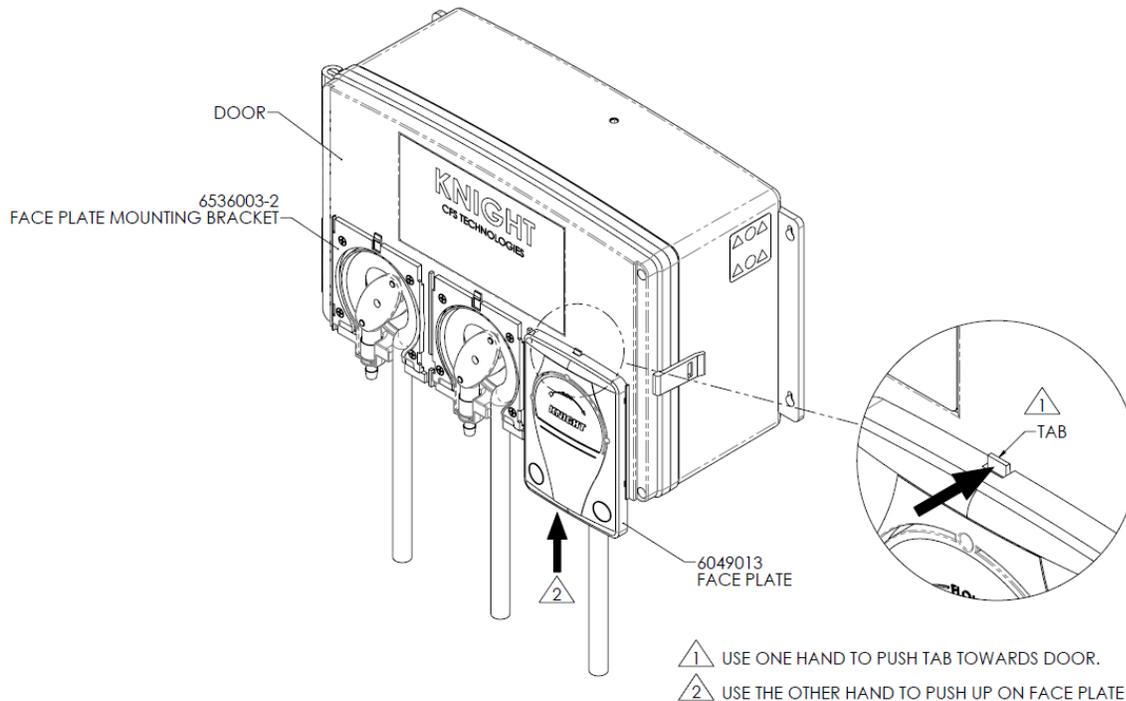
-  Removal or installation of the pump face plate for maintenance purposes should **ONLY** be performed by qualified and trained personnel who are considered the Responsible Body for the system.
-  The laundry facility operators of the system should **NEVER** attempt removal or installation of the pump face plate and should be made aware of this by the Responsible Body.
-  Access to internal parts are for Responsible Body (i.e. service personnel).

Removal

To remove the face plate, gently push back on the tab and slide the face plate up, then pull it away from the pump assembly.

Installation

Install the face plate into the slots and slide down so that the tab clicks into place.



Replacing squeeze tube

- (1) Bleed any pressure from discharge line.
- (2) Disconnect suction and discharge lines from tube.
- (3) Remove the faceplate of the pump per steps shown above.
- (4) Pull old tube out, being careful not to splash chemical. Insert new tube by squeezing into place.
- (5) Apply a small amount of silicone tube lube to the middle third of the tube where the rollers contact it.
- (6) Put the faceplate back on the pump per steps shown above.
- (7) Re-connect suction and discharge lines from tube.
- (8) Re-calibrate the pump and take note of the new flow rate for future reference

Troubleshooting

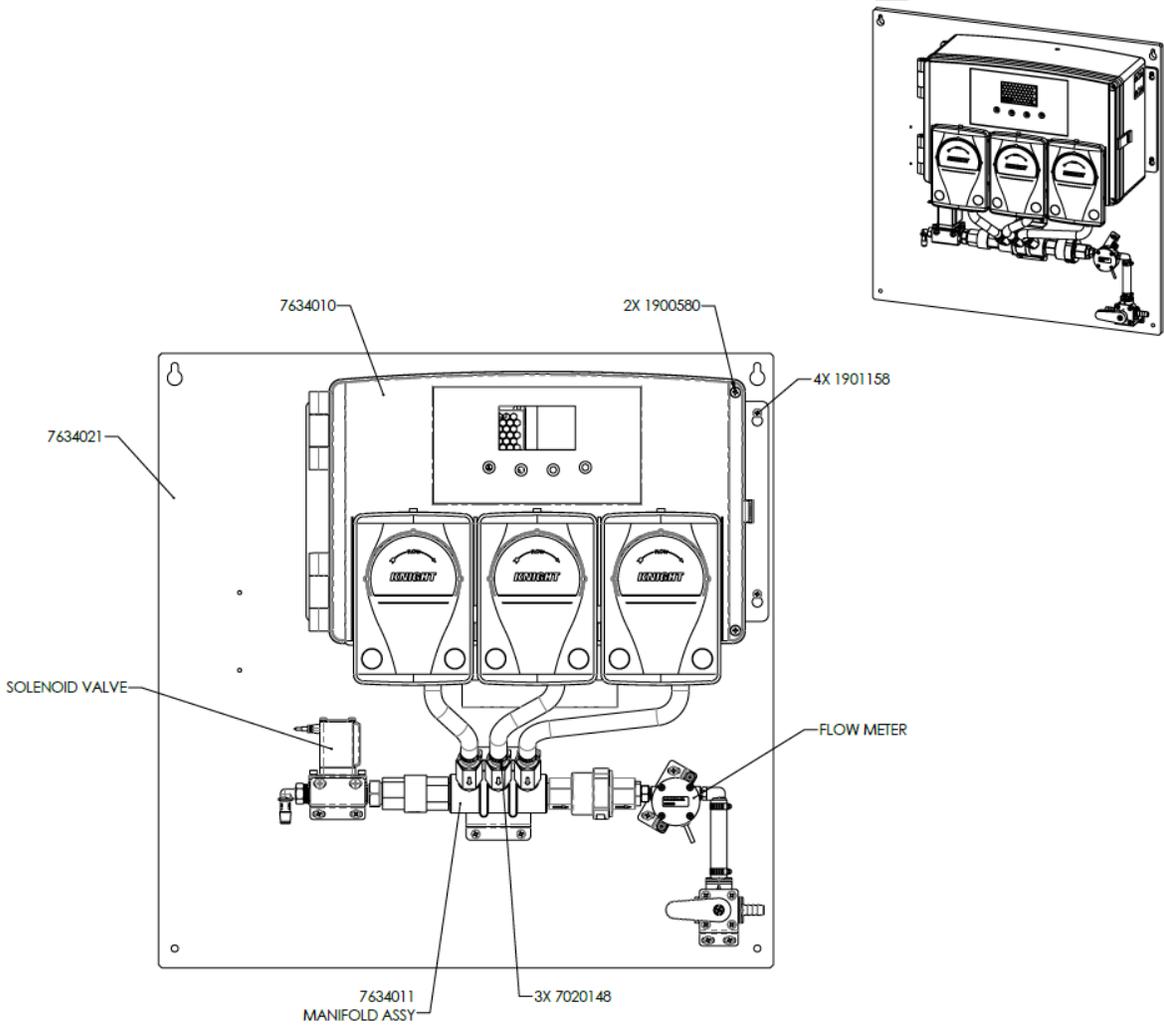
Error	Description	Solution/Action
System not running	System not making batches	<ol style="list-style-type: none"> 1. Verify that blue keypad display says "Running". If system says "Ready", select formula using "+/-" keys, and press "Start" 2. Verify floats are operational and plugged in
Not connected	System not connected to the Internet	<ol style="list-style-type: none"> 1. Verify antenna is installed, and in a location that is eye level or higher 2. If system is in a remote area, in a metal building, use cable extender to move the antenna to the outside of the building 3. If WiFi available, use 551-MODEM-WIFI-DB in place of cellular modem
Emergency Stop Mode	The chemical level in the tank is high enough to trigger the upper float	<ol style="list-style-type: none"> 1. Verify that the floats are positioned correctly (the volumetric space between lower and upper floats should allow for a complete batch) 2. Reduce the size of the batch to accommodate smaller tank sizes 3. Verify that float connections are clean and dry 4. Verify that the water solenoid closes completely when water should be off
Low Flow Rate (Water valve)	The flow rate observed is lower than the "Low flow rate limit" in settings	<p>If flow rate is always 0 oz/min</p> <ol style="list-style-type: none"> 1. Verify that water source is ON 2. Verify water solenoid operation and clean/replace if necessary 3. Verify flow meter operation and clean/replace if necessary <p>If flow rate is higher than 0 oz/min</p> <ol style="list-style-type: none"> 1. Set low flow rate limit for water accordingly (32 oz/min recommended) 2. Verify that the water source can supply enough water, otherwise, the use of a break tank is recommended 3. If water supply is adequate, verify that there are no obstructions in the manifold (inspect and clean solenoid and flow meter)

Troubleshooting

Error	Description	Solution/Action
Water dose failed	The system cannot measure water flow after 'X' attempts	<ol style="list-style-type: none"> 1. Verify that water source is ON 2. Verify water solenoid operation and clean/replace if necessary 3. Verify flow meter operation and clean/replace if necessary
Low Flow Rate (Pump X)	The flow rate observed is lower than the "Low flow rate limit" in settings	<p>If flow rate is higher than 0 oz/min</p> <ol style="list-style-type: none"> 1. Set low flow rate limit for chemical accordingly (10 - 20 oz/min recommended) 2. Verify that chemical drum is not empty 3. Check for squeeze tube wear 4. Verify pump operation 5. Verify no air leaks from pickup tubing connections 6. Check drum wand check valve and manifold check valve
Pump dose failed	The system cannot measure chemical flow after 'X' attempts	<ol style="list-style-type: none"> 1. Verify that chemical drum is not empty 2. Check for squeeze tube wear 3. Verify pump operation 4. Verify no air leaks from pickup tubing connections 5. Check drum wand check valve and manifold check valve
Batch Timeout	The system has reached the consecutive batch limit, without any inactive time between batches	<ol style="list-style-type: none"> 1. Verify that tank or suction hose from tank is not leaking 2. Verify proper operation of floats

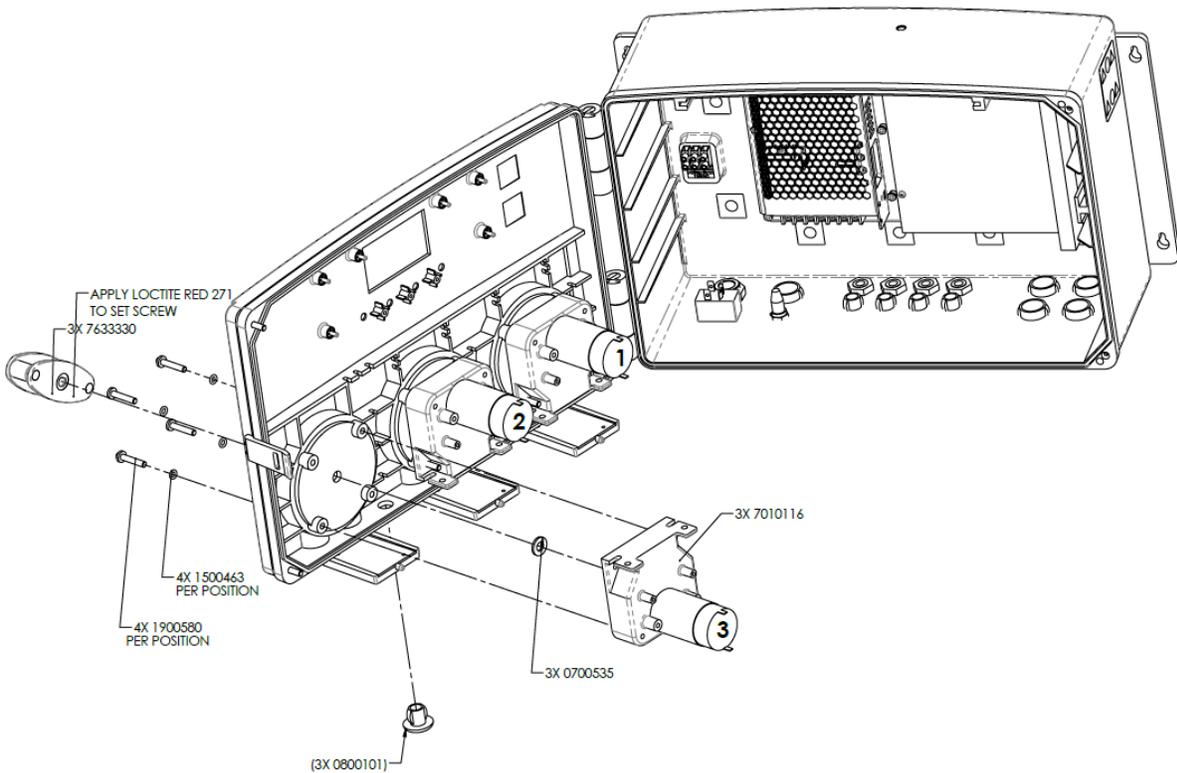
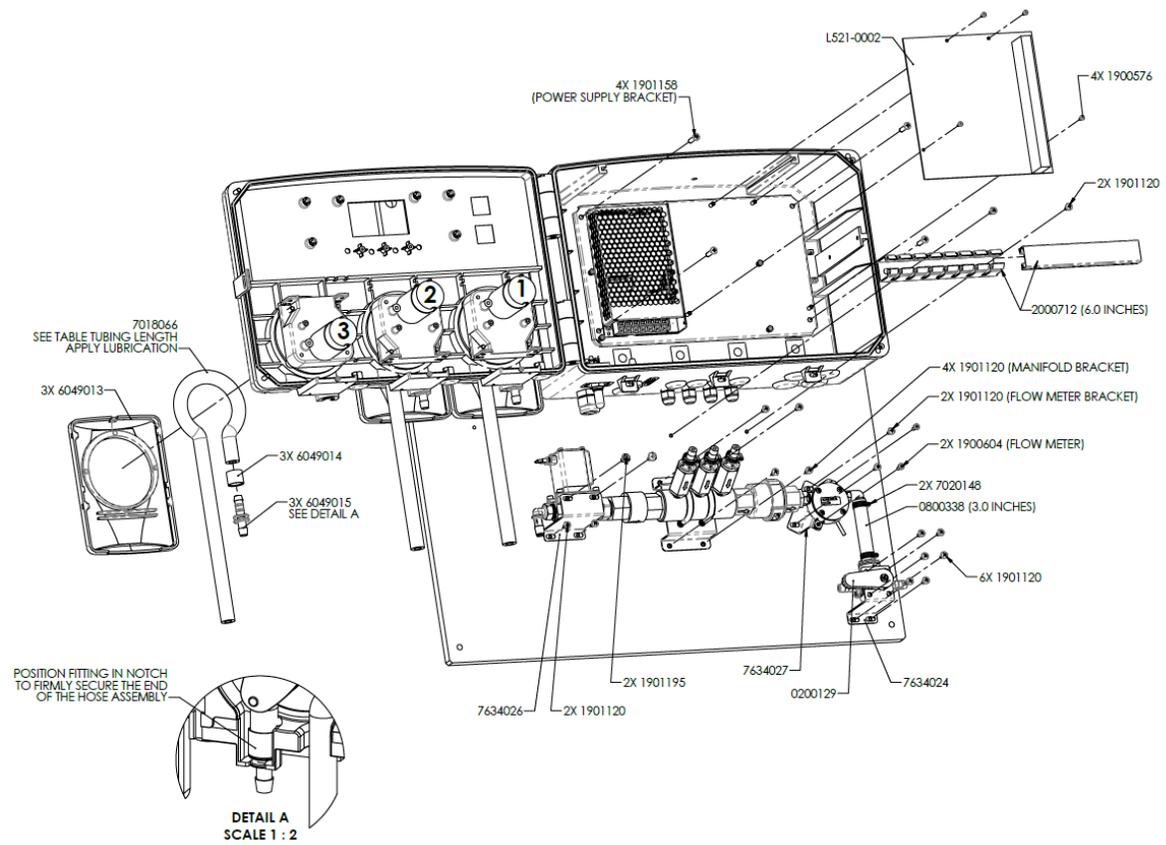
- Float problems—magnet in wrong direction

Spare Parts

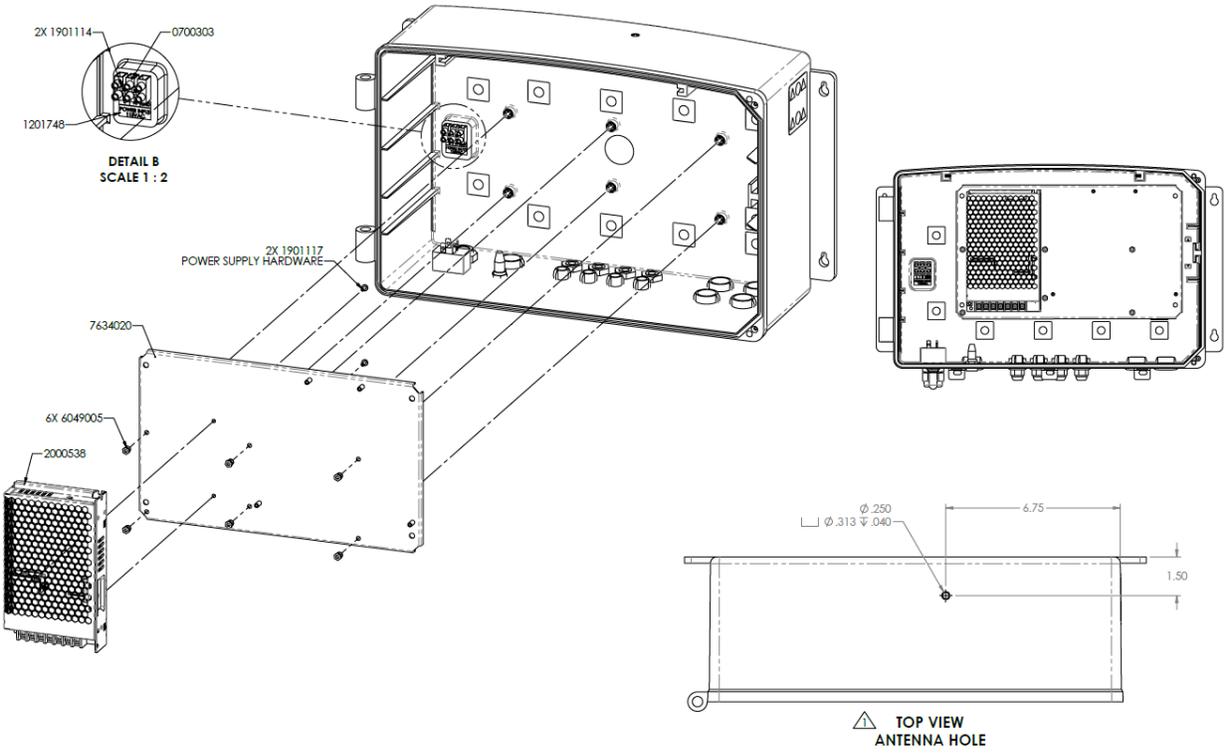
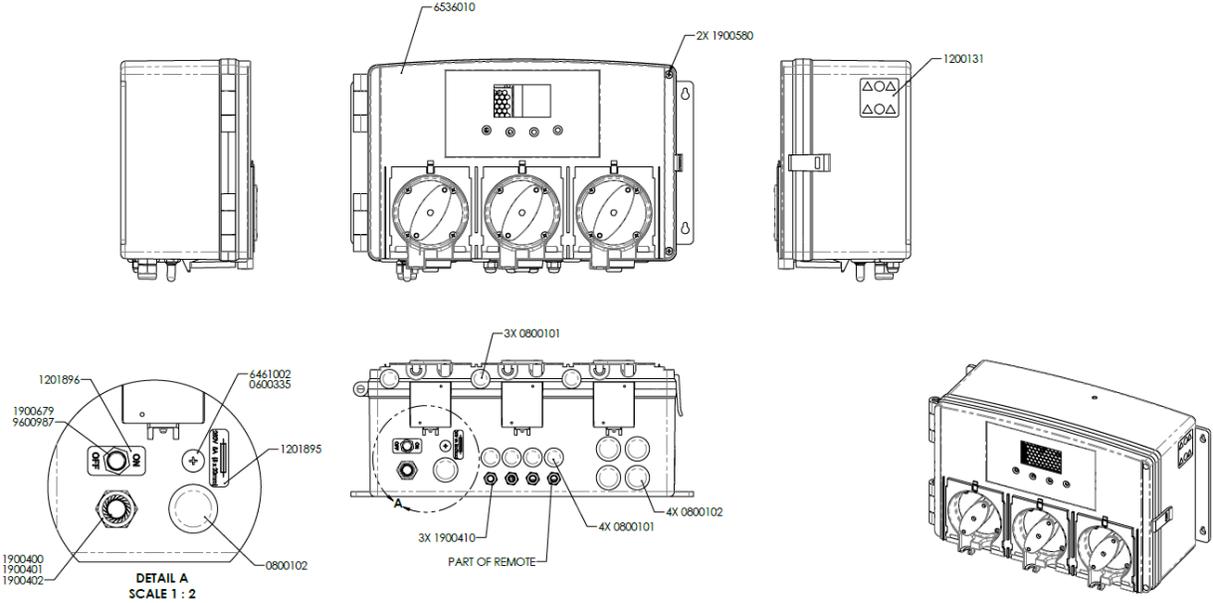


Part Number	Description
200129	Ball Valve, 3-Way, PP, EPDM, 3/8 Barb
6605203	Filter, 150 Micron, PP, .875 ID x 1.313 OD, .090 THK
7010116	Gear Motor, 110 RPM, 24 VDC, 800 series
7018066	Tube, T-66E, .350 ID .135 Wall
7633330	Roller Block, Yellow, T-50/T-66
7634011	ASSY, Manifold, OFB
7634012	Assy, In-Line Filter, FFKM' 1/2 FNPT
7634013	Kit, Secondary Mixer OFB
7634019	Tank Assy, OFB 7 Gallon
7634028	ASSY, Solenoid Valve, OFB Manifold
7634029	ASSY, Flow Meter OFB Manifold
7634034	Tank Assy, OFB 2.5 Gallon
7901245	Check Valve, Viton, Gray PVC, 3/8 Barb IN x 1/4 MNPT OUT
6536003-2	Pump faceplate
L521-0002	PCBA, Teat Dip

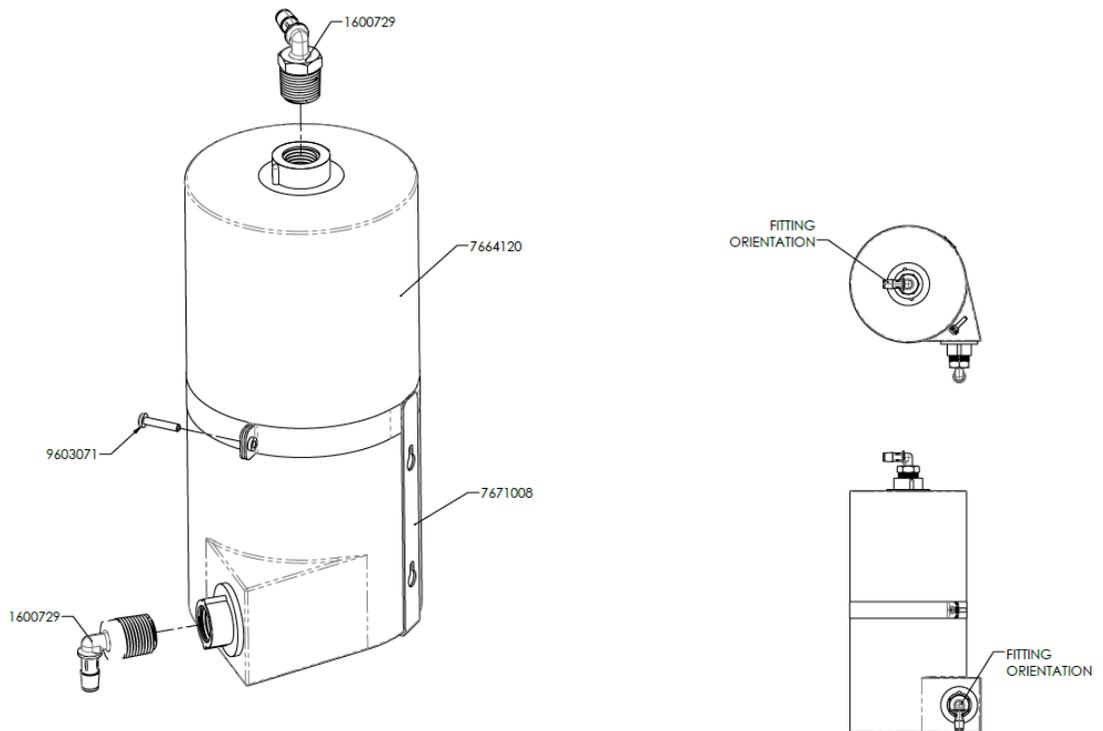
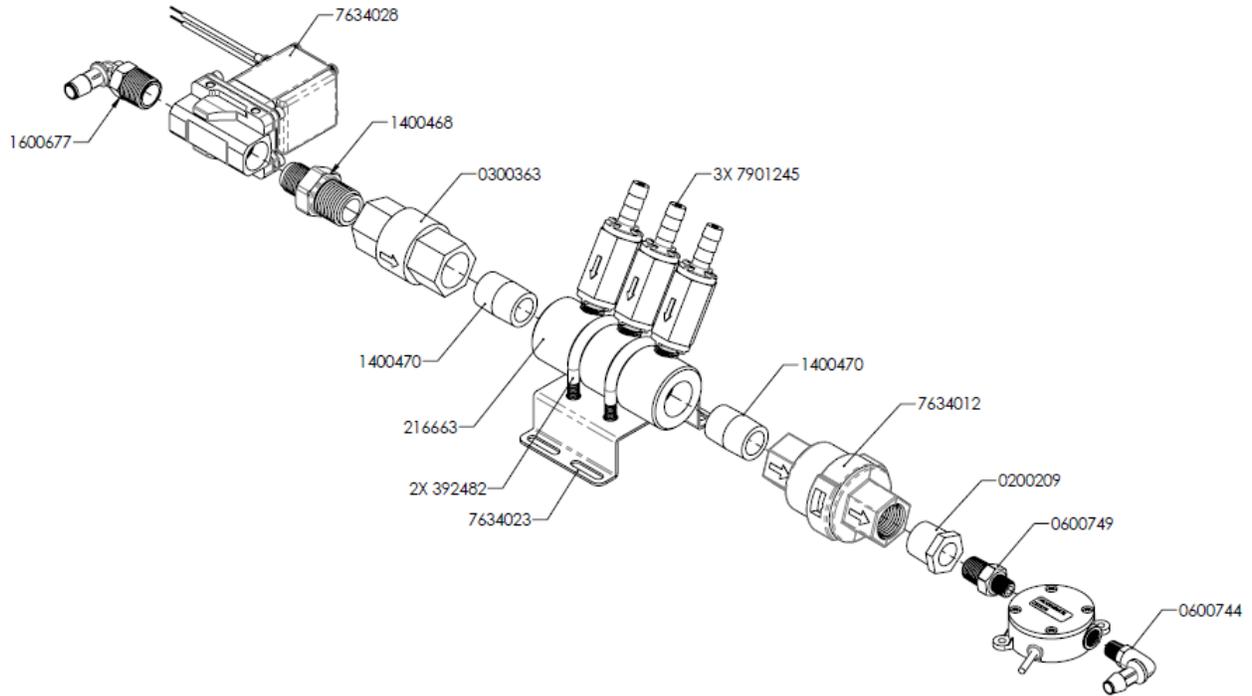
Parts Diagrams



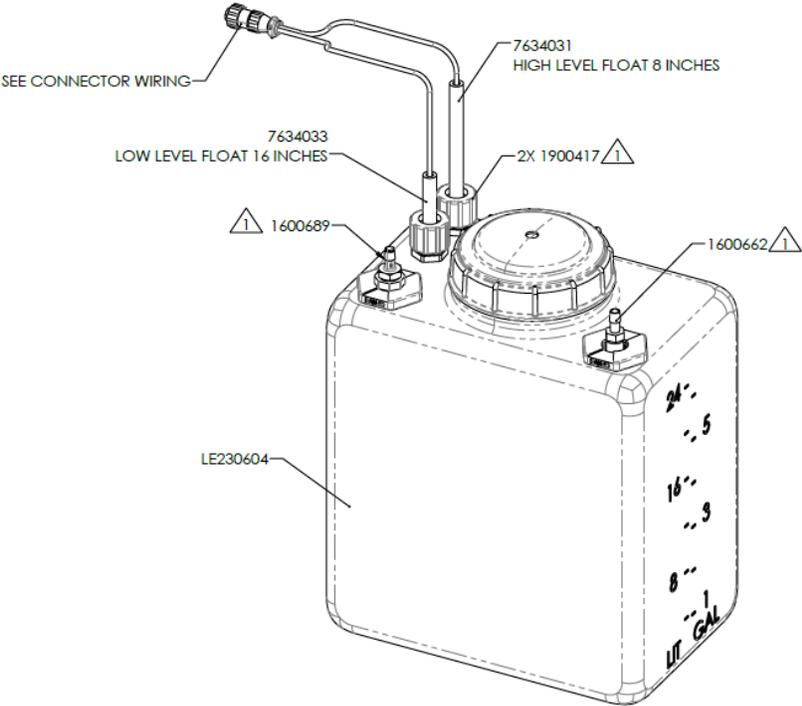
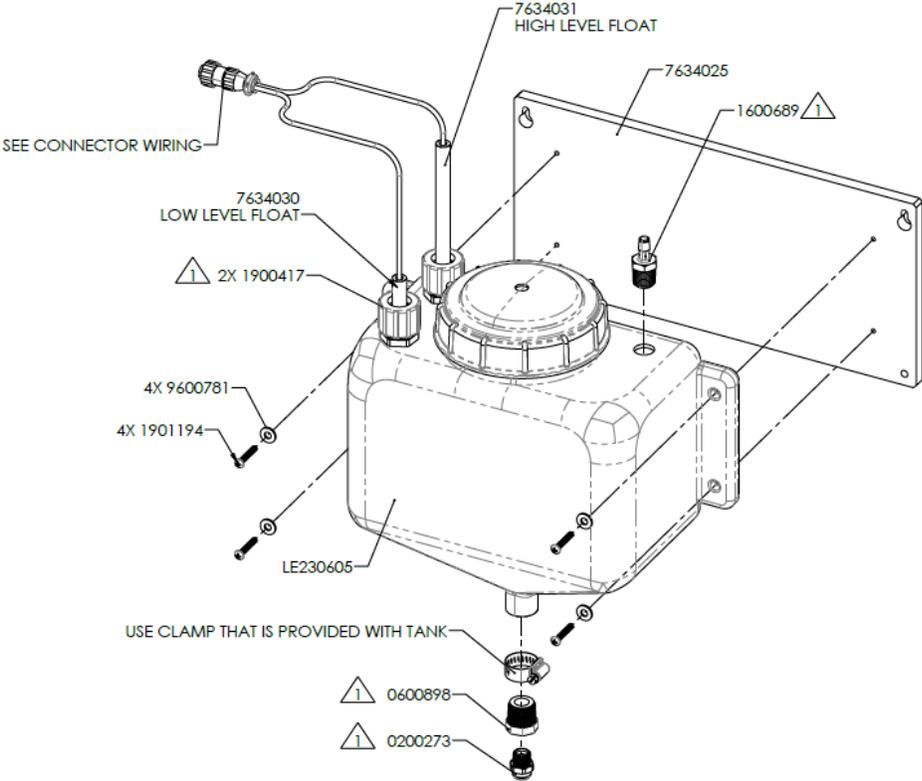
Parts Diagrams



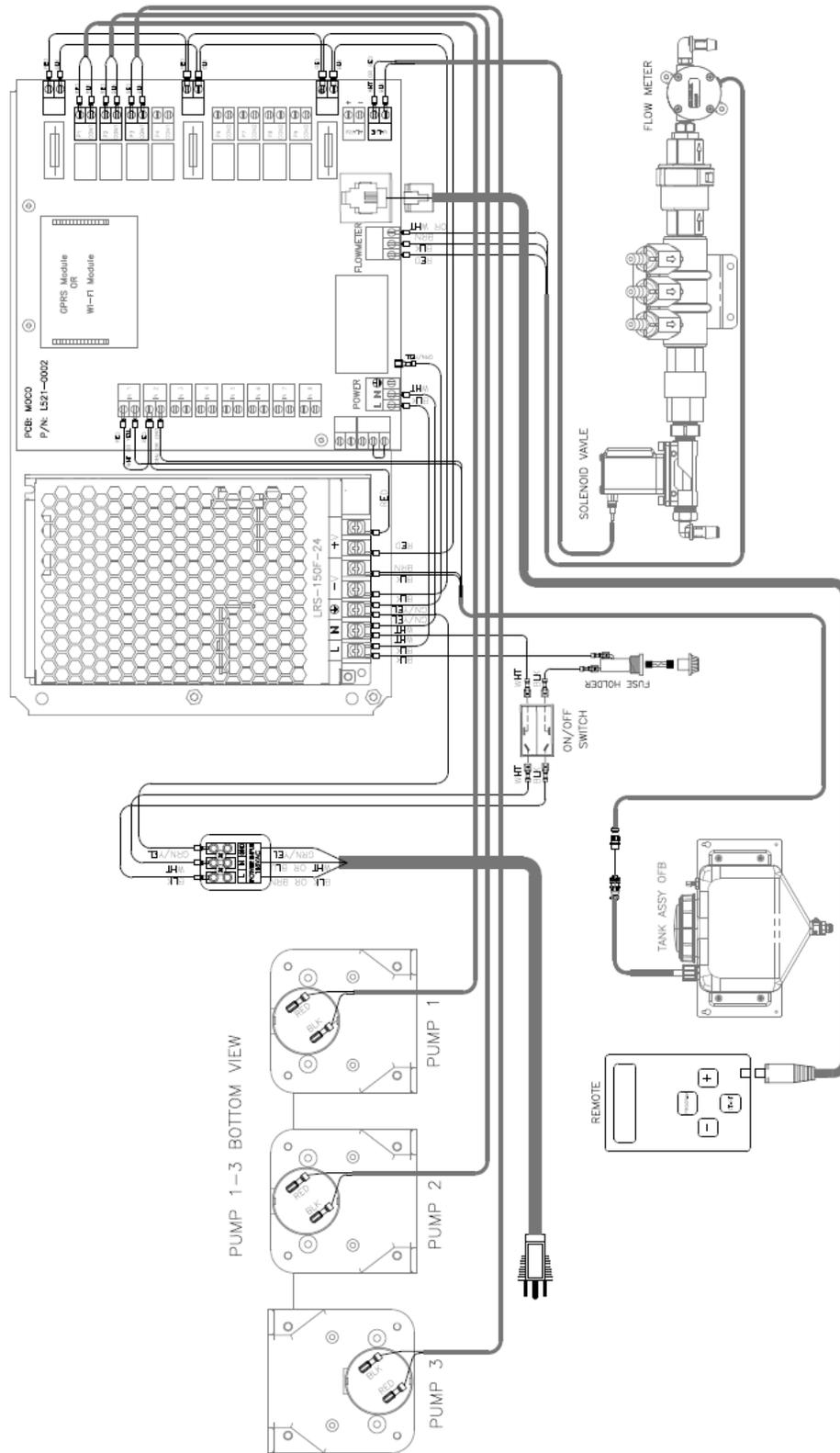
Parts Diagrams



Parts Diagrams



Wiring Diagrams



NOTES:

DISCLAIMER

Knight LLC does not accept responsibility for the mishandling, misuse, or non-performance of the described items when used for purposes other than those specified in the instructions. For hazardous materials information consult label, MSDS, or Knight LLC. Knight products are not for use in potentially explosive environments. Any use of our equipment in such an environment is at the risk of the user, Knight does not accept any liability in such circumstances.

WARRANTY

For complete product terms and conditions scan the QR code below or enter the following URL into your browser:
<http://cfstech.info/t-and-c>



SCAN



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