

2025-0429

DATE:

**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**

<b>CAUTION:</b> 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.
<b>CAUTION:</b> To avoid severe or fatal shock, physical injury, always disconnect main power when servicing the unit.
<b>CAUTION:</b> When installing any equipment, ensure that all national and local safety, electrical and plumbing codes are met.
<b>CAUTION:</b> Systems are to be installed with appropriate personnel to handle the weight of the units as outlined in the installation steps.
<b>CAUTION:</b> Only approved, factory authorized technicians to service unit.

### HANDLING POWER CORDS / POWER PLUGS

<b>WARNING:</b> 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.
<b>WARNING:</b> Touching the prongs of the power cable's plug with anything metallic constitutes a fire and electric shock hazard.
<b>WARNING:</b> It is dangerous to handle the power cord plug with wet hands. Doing so could result in electric shock.
<b>CAUTION:</b> 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.
<b>CAUTION:</b> 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.
<b>CAUTION:</b> When performing maintenance on the machine, always disconnect the power cord from the wall outlet.
<b>CAUTION:</b> 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

<u>ltem</u>	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)

Dashboard					(
Organizations	< Search Facilities				S 7 +
🖢 Users	Q Search Organization × Accessi	le through 🗸 Application	n Type V Device Serial Number V	Country × City ×	
Facilities					Sort by
Devices	CSG Lab Irvine	Active / All devices	Device notifications	Product statuses	22 Devices
🗎 Reports 🛛 🗸	In Knight LLC	<b>2</b> /14	You are NOT subscribed	You are NOT subscribed	Products Reports
	Knight boards to be converted to TD	Active / All devices	Device notifications	Product statuses	22 Devices
	♀ N/A ≣n Knight LLC	<b>0</b> /19	You are NOT subscribed	You are NOT subscribed	Products Reports

#### 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"

< View Faci	lity						E	Ed Options
CSG Lab Irvine ♥ United States of / ■ Knight LLC	America, Irvine CA, 15340 Barranca	Active / All devices 2/14	14%	Device notifications You are NOT subscribed		Product statuses You are NOT subscribed	오 Devices 오 Products	Reports
Devices Facili	ity Products Users Notes							
Products in (20/22) CSG Lab In	vine						$\nabla$	G :
(spare) Depleted Price: N/A	Remaining quantity: -0.67 gallon	Average daily consumption (Last 30 da	ys)		Remaining days (Basi No data available	ed on Average daily consumption)		Options
Alkali Depleted Price: N/A	Remaining quantity: -16.82 gallon	Average daily consumption (Last 30 da	iys)		Remaining days (Basi	ed on Average daily consumption)		* *
Bleach Depleted Price: N/A	Remaining quantity: -24.50 gallon	Average daily consumption (Last 30 da	iys)		Remaining days (Base	ed on Average daily consumption)		* *
Blu62 Price: 14.99 USD/gallon	Remaining quantity: <b>0.67 gallon</b>	Average daily consumption (Last 30 da	iys)		Remaining days (Bas	ed on Average daily consumption)		:
Detergent Deplete Price: N/A	ed Remaining quantity: -48.92 gallon	Average daily consumption (Last 30 da	iys)		Remaining days (Base	ed on Average daily consumption)		:

#### 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

< View Facility						Ed	Options
CSG Lab Irvine V United States of America, Irvine CA, 15340 Barranca Knight LLC	Active / All devices 2/14	14%	Device notifications You are NOT subscribed	Product statuses You are NOT subscribed	ିନ୍ଦୁ Devices ନିନ୍ଦୁ Product	2	(iii) Reports
Devices Facility Products Users Notes							
Users With access to (5/5) CSG Lab Irvine					7	7 5	. :
					Fac. Prod. Notif.	Dev. Notif. Level	Fac. Access
Grant Dang Super User gdang@cfstech.com					Ď	Ŷ	
Jorge Del Portillo Super User JDelPortillo@idexcorp.com					Ď	Ŷ	
Rob Walker Super User RWalker@cfstech.com					Ŷ	Ŷ	
Ronald Slepski (Super User) RSlepski@cfstech.com					Ď	Ĵ	
Sven Schmode Super User					Ŷ	Ĵ	

#### 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

< View Device	$\frown$	Edit Options
LAB.Test Unit <b>TD1020040</b> ⊕ 06.20.2023 08.42:30 ⓓ CSG Lab Irvine  III Knight LLC	CFS-Guest   Wil: 0 % ♥     Device notifications     X       ⊙ 10.04.202 (10.43.01)     Teat Dip v1.4     You are NOT subscribed     4	Dashboard
Notes Image archive		
Notes for TD1020040		S
	● Add	

### **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

Copy Wizard		+ ✓ X Add Prod Copy Close
Copy from device	Сору	
TD1020040 - LAB Test Unit	X Settings Progr	rams
Source device LAB Test Unit	Target device LAB Test Unit	
Source device Product	Target device Product	
Product 2	Product 2	4
Product 3	Product 3	Y
Product 1	Product 1	Y

#### 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

< Pre-Dip				G ( Reload E	dit Options
TD1020040 TD1020040 ⊕ 06.20.2023 11:42:30 AM ⓒ CSG Lab Irvine ≣n Knight LLC	CFS-Guest   WIFI 98 % 🗢 · 08.07.2023 4:14:05 PM Teat Dip v1.4	Device notifications You are NOT subscribed		Device 47 Actions	Dashboard E Reports
Program name () Pre-Dip Minimum time to complete, s ()	Program number 🕤 🚺 1 Maximum time to complete, s 🗿	۷			
0 Stop program if not completed in, s 0	0				
Products				+ Add Product	NG 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 / 10	18.49 oz	0.00 USD		
Total:	128.00 us fl oz / 1	33.53 oz	0.62 USD		

#### 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

< View Device			[2] Ed Options
LAB Test Unit <b>TD1020040</b> ⊕ 06.20.2023 08.42:30 GC CSG Lab Irvine In Knight LLC	CFS-Guest   WIFI <b>0</b> % ⊙ 10.04.2023 10:43.01 Teat Dip <b>v1.4</b>	Device notifications	Settings Programs
			Delete

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

< Device settings			Reilad Edit
TD 1020040 TD 1020040 ⊕ 06 20 2023 11:42:30 AM	CFS-Guest   WIFI 98 % O 08.07.2023 4:14:05 PM Teat Dip v1.4 You are NOT subscribed	Device 47 Actions	Dashboard III Reports
General Settings Teat-Dip Settings Mixing Pump Settings	Dosing group settings Pump Settings Data settings		
Keyboard Settings (Program selector)			
Button sounds 📀	Keyboard language en	Measurement system	~
🖉 Use buttons 💿	🕼 Stop programs 🔾	Show hints on keyboard 💿	
Prime 🔾	Calibrate O	View errors 🔾	
Other Settings			
Alert sound on error 💿	🕼 External alarm 🔾		
Tabs Settings			
Teat-Dip Settings	Mixing Pump Settings		
Cosing group settings	Pump Settings		
User log			Show

#### 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

< Device settings			Reload Edit
TD1020040 TD1020040 © 06.20.2023 11:42:30 AM © CSG Lab Irvine Br Knight LLC	CFS-Guest   WIFI 98 % O 08.07.2023 414:05 PM Teat Dip v1.4 You are NOT subscribed	Dev A4	ce Dashboard
General Settings Teat-Dip Settings Mixing Pump Settings	Dosing group settings Pump Settings Data settings		
Keyboard Settings (Program selector)			
Button sounds 🕤	Keyboard language en	Measurement system	Y
🛃 Use buttons 🕢	Stop programs O	Show hints on keyboard O	
Prime 🕥	Calibrate 🕜	view errors 🔾	
Other Settings			
Alert sound on error O	🕼 External alarm 🔾		
Tabs Settings			
Teat-Dip Settings	Mixing Pump Settings		
Dosing group settings	Pump Settings		
User log			Show

#### **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

Consecutive batche No limit	es limit	v					
Batch delay, s 10							
Batch Settings							
Signal 2		~	Invert E-Stop signal				
E-Stop signal select	ion						
Signal 1		~	Invert run signal				
Run batch signal se	lection						
Basic Settings							
General Settings	Teat-Dip Settings	Mixing Pump Settings	Dosing group settings Pr	ump Settin	gs Data settings		
TD1020040 TD1020040 ⊕ 06.20	0.2023 08:42:30 Knight LLC		CFS-Guest   WIFI	98 % 奈 3 13:14:05 Dip v1.4	Device notifications You are NOT subscribed	Device 47 Actions	Dashboard
< Device set	tings						G B Reload Edit

#### **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**

< Device settings					Reload Edit
TD1020040 TD1020040 (#) 06.20.2023 08:42:30 CSG Lab Irvine (#) Knight LLC	CFS-Guest   WIFI <b>98 % 중</b> ⊙ 08.07.2023 13:14:05 Teat Dip <b>v1.4</b>	Device notifications You are NOT subscribed		Device 4 Actions	Dashboard Tashboard Tashboard
General Settings Teat-Dip Settings Mixing Pump Settings Basic Settings	Dosing group settings Pump Setti	ngs Data settings			
Use mixing pump Disabled Post batch mix timespan, s 60	Mix during a batch Mixing pump run time, s 60	M 0	Mix after batch bring pump delay, s		

#### **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**

< Device settings		Reload E
TD1020040 TD1020040 ⊕ 06:20:2023 08:42:30 ⓒ CSG Lab Irvine ∰ Knight LLC	CFS-Guest   WIFI 98 %	Device Dashboard 47 III Actions Reports
General Settings Teat-Dip Settings Mixing Pump Settings	Dosing group settings Pump Settings Data settings	
Basic Settings		
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	
User log		Show

#### **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

6 Lab Irvine	5.20.2023 08:42:30		CFS-Guest   WIFI S (0) 08.07.2023 Teat D	8 % > Device notifications 13:14:05 ip v1.4 You are NOT subscri	bed		Device 47 Actions
neral Setting mps	s Teat-Dip Settir	ngs Mixing Pump Set	tings Dosing group settings Pu	mp Settings Data settings			
_	roduct	Price	Calibration quantity, us fl oz	Low flow rate alarm	High flow rate alarm	Flow Rate	Flowmeter is disabled
ump P				5.00 us fl.oz/min	50.00 us fl.oz/min		
ump P ump 1	Product 1	15.99 USD/gallon	41.92 us fl oz/min	5.00 45 11 02511111	50.00 05 11 02 11 111		
ump P ump 1 ump 2	Product 1 Product 2	15.99 USD/gallon 3.79 USD/gallon	41.92 us fl oz/min 42.94 us fl oz/min	5.00 us fl oz/min	50.00 us fl oz/min		

Pump Settings	Coptions Confirm Close
Pump	
Pump 1	
Broduct	Price
Product 1	15.99 USD/gallon
Disable flowmeter	
Low flow rate alarm, us fl oz/min	
5.00	
High flow rate alarm, us fl oz/min	
50.00	
Calibration quantity, us fl oz	Flow sensor ticks measured
41.92	1956
Pump switch ON delay, s	

#### **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

VIEW DEVICE						Ed Options
LAB Test Unit TD1020040 @ 06.20.2023 08:42:30	CFS-Guest   WIFI 0% 🛜 (0) 10.04.2023 10:43:01	Device notifications			Settings	- OPTIONS
CSG Lab Irvine IIII Knight LLC	Teat Dip v1.4	✓ No notifications		L	Programs	
					Delete	
< Device programs					C Reloat C	+ : ireate options
TD1020040 TD1020040 @ 05.20.2023 08:42:30	CFS-Guest   WIFI 96 % 🛜 (9 08.07.2023 13:14:05	Device notifications			Ŕ	
🗠 CSG Lab Irvine 📓 Knight LLC	Teat Dip v1.4	You are NOT subscribed			Actions	Reports
Program name F	rogram number		Dosings	Price		
Pre-Dip 1			5	0.62 USD		
< Create Program	(SS-Guert I MIE) 66 M 📚	Device notifications			(	Save Orncel
Create Program	CFS-Guest   WIFI <b>96 % 奈</b> ⊙ 08.07.2023 13:14.05	Device notifications			्रू Device	Save Ancel
Create Program           TD1020040           TD1020040           ⊕ 06.20.2023 08:42:30	CFS-Guest   WIFI 96 95	Device notifications You are NOT subscribed			Device 47 Actions	Save Ancel
Create Program           TD102040           ₩ CSG Lab Irvine           Program name ①	CFS-Guest   WiFI 96 % ? 0 80 7.2023 13:14:05 Test Dip v1.4. Program number ()	Device notifications You are NOT subscribed			) Device 4 Actions	Save Oncel
Create Program	CFS-Guest   WIFI 96 % ?	Device notifications You are NOT subscribed	~		Device 4 Actions	Save Grincel Dashboard E Reports
<ul> <li>&lt; Create Program</li> <li>TD1020040 ⊕ 06.20.2023 08.42:30</li> <li>Image: CSG Lab Irvine ■ Knight LLC</li> <li>Program name ③</li> <li>Formula Example</li> <li>Minimum time to complete, s ③</li> </ul>	CFS-Guest   WIFI 96 %	Device notifications You are NOT subscribed	~		Actions	Save Orncel
<ul> <li>Create Program</li> <li>Tp1020040 ⊕ 06.20.2023 08:42:30</li> <li>Image: CSG Lab Irvine I Knight LLC</li> <li>Program name ○</li> <li>Formula Example</li> <li>Minimum time to complete, s ○</li> <li>0</li> </ul>	CFS-Guest   WIFI 96 96 • 0 08.07.2023 13:14:05 Teat Dip v1.4 Program number () 2 Maximum time to complete, \$ () 0	Device notifications You are NOT subscribed	•		ू Device क्र Actions	Save Uncel
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#### 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

Provide the Character of the Character o						6	👏 🕮 Jason
<ul> <li>Dashboard</li> <li>Organizations</li> </ul>	[	< Formula Example				Gi ( Ricoad B	Edit Optims
<ul> <li>Osers</li> <li>Facilities</li> <li>Devices</li> </ul>		LAB Test Unit <b>TD1020040</b> © 06.20.2023 11:42:30 AM © CSG Lab Irvine IIIn Knight LLC	CFS-Guest   WIFI 0% 🗇 © 10.04.2023 1:43:01 PM Teat Dip v1.4	Device notifications You are NOT subscribed		Device 47 Actions	Dashboard
🖹 Reports 🗸 🧹		Program name 🗿 Formula Example	Program number () 1	V			
		Minimum time to complete, s o Stop program if not completed in, s o	Maximum time to complete, s 🖸 0				
		Products				+ Add Product	X\$ Reorder
		Output	Quantity		Price		
		User log					Show

• Examples of adding chemical and water are shown below

Product				Delete Add Clos
Product				
Pump 1 Product 1				~
Quantity, us fl oz	fl oz Ratio Ibs/gallon Ratio oz/us fl oz	Quantity, oz		
	8 3444	1 0/132		
16.00 Product	0.3444	1.0432	16.69	ش v ×
16.00 Product		1.0432	16.69	圃 🗸 🗙 Delete Add Clos
16.00 Product Product Water	0.209	1.0432	16.69	道 🗸 X Delete Add Clos
16.00 Product Product Water Quantity, us floz	Ratio Ibs/gallon	Ratio oz/us fl oz	16.69 Quantity, oz	间 🗸 X Delete Add Clos

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

B Test Unit 01020040   06.20.2023 11:42:30 AM	CFS-Guest   WIFI 0 % @ Device notifications	A III
CSG Lab Irvine 🖩 Knight LLC	Teat Dip v1.4 You are NOT subscribed	47 E
ogram name 🕕	Program number 📀	
rmula Example	1	
nimum time to complete, s 🕢	Maximum time to complete, s () 0	
op program if not completed in, s 🕢		
oducts		+ > Add Reo Product
Jutput	Quantity	Price
Vater	32.00 us fl oz / 33.38 oz	0.00 USD
ump 1 - Product 1	16.00 us fl oz / 16.69 oz	2.00 USD
Vater	32.00 us fl oz / 33.38 oz	0.00 USD
ump 2 - Product 2	8.00 us fl oz / 8.35 oz 0.24 USD	
Vater	32.00 us fl oz / 33.38 oz 0.00 USD	
otal:	120.00 us fl oz / 125.18 oz	2.24 USD

## **Formula Settings**

< Pre-Dip				Reload Edit Options
TD 1020040 TD 1020040 @ 06.20.2023 11:42:30 AM ⓒ CSG Lab Irvine ≣n Knight LLC	CFS-Guest   WIFI 98 % 穼 $\odot$ 08.07.2023 4:14:05 PM Teat Dip v1.4	Device notifications You are NOT subscribed		Device Dashboard
Program name © Pre-Dip	Program number 💿	V		
Stop program if not completed in, s ()	0			
Products				+ X Add Product Reorder
Output	Quantity		Price	$\mathbf{}$
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 / 10	8.49 oz	0.00 USD	
Total:	128.00 us fl oz / 1	33.53 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	X Close
Idle	
Start cali	bration
Ready	
Dosing type	Output
Product	Pump 1 Product 1
sec	
60	
Calibrate	Prime
Stop	
Stop	
Busy	
Estimated remaining time (60s)	Stop
Enter Quantity	
Current calibration quantity, us fl oz	Calibration quantity, us fl oz
0.00	0
Calibration ticks	
Save	Cancel

## **Priming / Calibration From Keypad**

#### IMPORTANT NOTES:

- 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

Grganizations	< Reports			$\frown$				Filter Reload Options
🧕 Users	Organization V Fac	ility V Teat Dip Application	X TD1020040 - LAB Te	st Unit X Detailed X Time	frame $\vee$ This month X	All event types $$		<u>T</u> *
🔂 Facilities								Clear
🖃 Devices								↓ 09.13.2023
🖹 Reports 🛛 🔿	TD1020040 TD1020040 🖻 CSG Lab Irv	ine Program completed		XT Ultra 10%	0.00 us fl oz	0.00 USD	0.00 us fl oz	C 08:39:15 C 08:34:44 O 4min 31s
🛃 Detailed				•••				
😂 Total quantity	TD1020040 TD1020040 🖻 CSG Lab Irv	ine Water dose failed	Event source Water	Total dosed ammount for attempts so far 0.00 us fl oz	Target dose ammount 27.40 us fl oz	Attempts 5		© 08:39:15
💞 Consumption	TD1020040	Event	Event source	Product name	Flow Rate	Flow rate limit		Č 08:39:15
Flow rate by Wash extractor or Tunnel	TD1020040 🖻 CSG Lab Irv	ine Low flow rate	Water valve	Water	0.00 us fl oz	10.00 us fl oz		
📲 Flow rate by Pump	TD1020040 TD1020040 🖻 CSG Lab Irv	ine Water dose retry	Event source Water	Dosed ammount for current attempt 0.00 us fl oz	Total dosed ammount for attempts so far 0.00 us fl oz	Target dose ammount 27.40 us fl oz	Attempts 5	© 08:38:25
Y <sup>B</sup> Conductivity	701020040	Event	Event source	Product name	Flow Rate	Flow rate limit		A 08-38-25
<b>♀</b> <sup>®</sup> Location	TD1020040 🖻 CSG Lab Irv	ine Low flow rate	Water valve	Water	0.00 us fl oz	10.00 us fl oz		00.20.20
	TD1020040	Event Water dose retry	Event source	Dosed ammount for current attempt	Total dosed ammount for attempts so	Target dose	Attempts	© 08:37:35
📶 Error tracking	TD1020040 @ CSG Lab Irv	ine water dose reary	Water	0.00 03 11 02	0.00 us fl oz	27.40 us fl oz	-	
Devices registration history	TD1020040 TD1020040 🛍 CSG Lab Irv	ine Event Low flow rate	Event source Water valve	Product name Water	Flow Rate 0.00 us fl oz	Flow rate limit 10.00 us fl oz		© 08:37:35
📇 No consumption	TD1020040 TD1020040	ine Water dose retry	Event source Water	Dosed ammount for current attempt 0.00 us fl oz	Total dosed ammount for attempts so far 0.00 us fl oz	Target dose ammount 27.40 us fl oz	Attempts 3	© 08:36:45

#### **Detailed Report**

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

	< Reports					
🖢 Users		ity X Test Dis Application	TD1020040 - LAB Tost Linit	X Tatal quantity X Time	frame X This month X	Froug by Encility
Facilities	organization v Pacifi	reat bip Application				aroup by racinty v
Devices	Facility	Product quantity	Water quantity	a Washed quantity	Cost per lbs	Cost
🖹 Reports 🛛 🔿	CSG Lab Irvine	19.20 us fl oz	0.90 gallon	0.00pz	0.00 USD	0.86 USD
Detailed						
😂 Total quantity						

#### Total Quantity Report

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

< Reports						Filter	G Reload	Options
Organization $\vee$ Facility $\vee$	Teat Dip Appl	ication X TD1020040 - LAB Test Unit >	Total quantity X Time frame	✓ Last month X	Group by Facility $ \lor $			$\underline{\underline{T}}_{\star}$ Clear
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			
Dummy	Dummu	Product 2	0.50 gallon		1.89 USD			
Product 2	Product 1							
			^					

## **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

AND TECHNOLOGIES =			<ol> <li>Iason McDaniel</li> </ol>
	< View Organization		
🧕 Users	Active / All devices	the defendation of the second	(L4 N
	info@lavesolutions.com	58%) 20	Devices Org Prod.
Devices	In CM2W 530/910	$\sim$	Fac.Prod. Reports
🗄 Reports 🛛 🗸	Organization hierarchy	G Users Facilities Organization Products Notificat	tion templates Canister Types Product
		Filter Options Notification Levels in	<i>G</i> :
	Lafferty, LLC (54)	P :	Ortices
		Level 1: Technical Rep	
		Level 2: Regional Rep	1
		Level 3: Manager	
		Lovel 4: No Empile	
		Level 4: No cmails	

- 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

												0	₿ <b>©</b> jaso	in Mi
Dashboard Drganizations Users	E	< Device no	otification	templates								G Reload	✓ X Save Cancel	4
		Laundry Applica	tion Dishwas	her Application	Multi-system	Application	Fluids Monitor Application GOGO/	GOSHO Applicati	on CTDS App	lication	Teat Dip Application			
		Pump Low flow r	ate										🔈 Сору	
				Warning				Critical						
		Notification	Subscribe	Count	Repeat	Email	Message	Count	Repeat	Email	Message			
		Level 1: Technical Rep		1	1	🛛	Example of message to email recipier	5	1					
		Level 2: Regional Rep		1	1	🛛		5	1					
		Level 3: Manager		1	1	<b>1</b>		5	1					
		Level 4: No Emails	rate										Сору	
													_	
		Notification Level	Subscribe	Count	Repeat	Email	Message	Count	Repeat	Email	Message			
		Level 1: Technical Rep		1	1	] 🛛		5	1					
		Level 2: Regional Rep		1	1	) 🛛		5	1					
		Level 3: Manager		1	1	<b>8</b>		5	1					
		Level 4: No Emails	0											

- 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

#### Installation

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. 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> <li>Verify that blue keypad display says "Running". If system says "Ready", select formula using "+/-" keys, and press "Start"</li> <li>Verify floats are operational and plugged in</li> </ol>
Not connected	System not connected to the Internet	<ol> <li>Verify antenna is installed, and in a location that is eye level or higher</li> <li>If system is in a remote area, in a metal building, use cable extender to move the antenna to the outside of the building</li> <li>If WiFi available, use 551-MODEM-WIFI</li> <li>-DB in place of cellular modem</li> </ol>
Emergency Stop Mode	The chemical level in the tank is high enough to trigger the upper float	<ol> <li>Verify that the floats are positioned correctly (the volumetric space between lower and upper floats should allow for a complete batch)</li> <li>Reduce the size of the batch to accom- modate smaller tank sizes</li> <li>Verify that float connections are clean and dry</li> <li>Verify that the water solenoid closes completely when water should be off</li> </ol>
Low Flow Rate (Water valve)	The flow rate observed is lower than the "Low flow rate limit" in settings	If flow rate is always 0 oz/min 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 If flow rate is higher than 0 oz/min 1. Set low flow rate limit for water accord- ingly (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 me- ter)

# Troubleshooting

Error	Description	Solution/Action
Water dose failed	The system cannot measure wa- ter flow after 'X' attempts	<ol> <li>Verify that water source is ON</li> <li>Verify water solenoid operation and clean/replace if necessary</li> <li>Verify flow meter operation and clean/ replace if necessary</li> </ol>
Low Flow Rate (Pump X)	The flow rate observed is lower than the "Low flow rate limit" in settings	If flow rate is higher than 0 oz/min 1. Set low flow rate limit for chemical ac- cordingly (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> <li>Verify that chemical drum is not empty</li> <li>Check for squeeze tube wear</li> <li>Verify pump operation</li> <li>Verify no air leaks from pickup tubing connections</li> <li>Check drum wand check valve and manifold check valve</li> </ol>
Batch Timeout	The system has reached the con- secutive batch limit, without any inactive time between batches	<ol> <li>Verify that tank or suction hose from tank is not leaking</li> <li>Verify proper operation of floats</li> </ol>

• Float problems—magnet in wrong direction



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









# 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





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