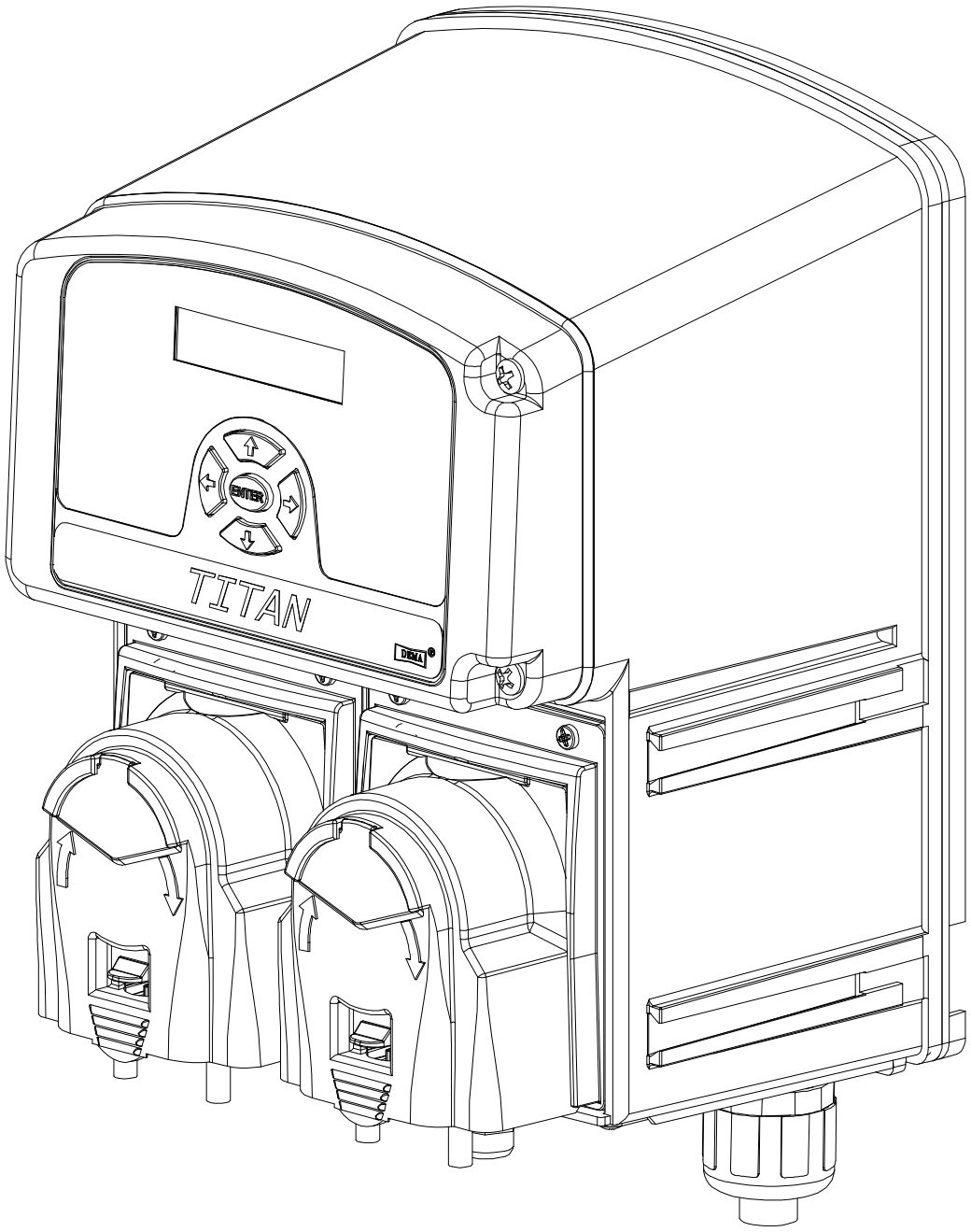
DEMA *TITAN*™ WAREWASH CONTROL
T-812 & T-813 SERIES



DEMA Engineering Company
10020 Big Bend Blvd.
St. Louis, MO 63122
(800) 325-3362 or (314) 966-3533
www.demaeng.com

DEMA *TITAN™* WAREWASH CONTROL
T-812 & T-813 SERIES

PURPOSE:
The *Titan™* ware wash system controls all chemical delivery functions for dish machines and similar warewash applications. The system has an advanced power supply that will accept 100V–250V 50/60Hz. The *Titan™* responds to detergent and rinse triggers in the range of 20V–500V 50/60Hz. The *Titan™* has been designed for simple installation, set up, and operation.

English:	Press ENTER ▯ and then use ⬆ and ⬇ to choose your preferred language. Press ENTER ▯ again to select.
Portugu▯s:	Pressionar ENTER ▯ utilize ⬆ e ⬇ escolha o idioma preferido. Pressione ENTER ▯ para selecionar.
Espa›ol:	Oprimir ENTER ▯ utilize ⬆ y ⬇ escoger el idioma preferido. Oprimir ENTER ▯ para seleccionar.
Fran▯ais:	Poussez ENTRER ▯ employez ⬆ et ⬇ choisir votre langue préférable. Poussez ENTRER ▯ encore seléctionner.

This is the American language group. Other groups are available; i.e. the Australian group: English, French, Dutch and Japanese.

The Titan has an Auto Switchover feature that allows automatic switching from Concentration to Probeless in the case of a probe fault, (and back again if the fault clears). This feature allows continued operation of the dish machine while cutting down on unnecessary service calls. Conditions that can activate this feature are the following:

- Open probe – a probe wire is disconnected or there is lime buildup on the tips.
- Closed probe – a piece of flatware may be lying across the probe tips.
- Detergent not feeding properly – too much or too little detergent.

PARTS CHECKLIST:

ITEM	PART NO.	DESCRIPTION	T-812-LL	T-812-DL	T-813-LLL	T-813-DLL
A.	904-8T	Check Valve/ Rinse Line ¼" OD	1	1	1	1
B.	80-55	Bulkhead Fitting with Liquid Feed Injection Elbow ¼"	1		1	
C.	58-5	Overflow Elbow Kit		1		1
D.	81-16-1	Tie Wrap 8" lg.	5	5	8	8
E.	80-66	Pickup Tube Assembly 10"	2	1	3	2
F.	81-182-1	¼" x ¼" JG Union	4	2	6	4
G.	25-68-20 100-12-SV1	20 ft. x 1/8"ID LDPE (detergent) 16 ft. x 1/16"ID LDPE (rinse/sani)	1 1	1 1	1 2	1 2
H.	C-12B	Conductivity Cell	1	1	1	1
I.	904-8KY	Check Valve/ ¼ Comp x 1/8 NPT			1	1

DEMA *TITAN™* WAREWASH CONTROL
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TITAN™ SYSTEM INSTALLATION:

WARNING: Installation of DEMA products must meet all applicable electrical codes and regulations established by national, city, county, parish, provincial or other agencies. It is possible that electrical codes and regulations require that a certified electrical contractor or engineer perform the electrical installation. For questions, contact a certified electrician.

ALL ELECTRICAL POWER MUST BE TURNED OFF TO THE HEATING ELEMENTS AND DISH MACHINE PRIOR TO BEGINNING INSTALLATION.

UNIT MUST BE PROPERLY GROUNDED (EARTHED).

Dish Room Survey

Prior to installation, take a complete survey of the dish room. Determine the desired placement of the Titan™ and chemicals. Also, determine how the electrical connections will be made. Main power and trigger cords must run through a nonmetallic ½" conduit system.

1. Locate the electrical connection point. The input power may be 100V – 250V 50/60Hz. Check with the manufacturer of the machine to determine if there are dedicated terminals available for this installation.

2. Properly ground the dispenser to Earth ground.

3. Mount the Titan™ unit on a flat vertical surface, away from splashing and steam originating from the machine. The unit must be placed so that it can be easily observed and serviced. The mounting bracket is attached to the back of the Titan™ and is held there by a single screw attached to the bottom of the unit. Remove (and retain) the screw. Slide the mounting bracket down to remove it from the unit. Read the instructions attached to the mounting bracket to finish installation of the Titan™.

4. If the Titan™ will be operating in the concentration mode locate the proper position for the probe in the wash tank. The probe must be installed below the water level, normally 1-2"(30-50 mm) from the bottom of the tank. Probe must be kept away from heating elements, pump intake, drains and incoming water supply.

5. Install the detergent injection fitting above the probe (if a probe is used) to obtain a rapid reading of all chemicals entering the wash tank.

6. Install the rinse line injection fitting into the rinse line tap provided by the manufacturer of the machine. If a tap is not provided, follow the manufacturer's recommendations for installing this fitting.

7. Install the sanitizer injection fitting (if sanitizer is being used) into the rinse line tap provided by the manufacturer of the machine. If a tap is not provided follow the manufacturer's recommendations for installing this fitting.

1. Connect power to the Titan™ per the dish machine manufacturer's recommendations. Constant power should be supplied to the Titan™ anytime the dish machine power is on. Power to the Titan™ should not be supplied via the wash motor on the dish machine.

2. Connect the **detergent trigger** (brown and white wires) to the dish machine per the dish machine manufacturer's recommendations. The Titan™ should receive a detergent trigger any time the wash motor is running.

3. Connect the **rinse trigger** (black and red wires) to the dish machine per the dish machine manufacturer's recommendations. The Titan™ should receive a rinse trigger any time the rinse solenoid is powered.

Tubing Connections
Included in the installation kit is low-density polyethylene (LDPE) tubing. The tubing can be used to connect from the chemical container, to the pump, and from the pump to the injection fittings on the machine.

Peristaltic Pump Applications, Chemical Pickup
Measure the length of the tubing needed on the suction side from the chemical container to the pump and cut the tubing to proper length. Install the tubing into the pickup tubes (Grey PVC) through the compression nut, and tighten the nut. Route the tubing to the suction side of the pump. The flow direction is clockwise. Push the tubing onto the pump quick connect fitting. Use the same procedure on the outlet of the squeeze tubing and route the LDPE tubing to the injection point of the machine. Cut off all excess tubing and keep tubing away from hot surfaces and sharp edges to prevent damage or leakage.

See Detergent and Rinse Tubing Connections below for specific information concerning discharge tube connection.

Detergent Tubing Connections
1) Install the bulkhead fitting into the dish or cleaning machine wash tank. Included with the kit is a bulkhead fitting that will accept the discharge of the detergent at the machine. There are two fittings depending on if the Titan™ has a detergent pump or solenoid valve. For either fitting a 7/8" diameter hole is needed to be cut above the waterline in the side of the dish machine wash tank to accommodate the bulkhead fitting.
   Note: When using a concentration probe, the bulkhead fitting should be located directly above the concentration probe.

- **DETERGENT PUMP** - The fitting will have a ¼" compression fitting that will accept the ¼" LDPE pump discharge tubing.

- **SOLENOID VALVE** - The fitting will have a barb fitting designed for a 5/8" I.D. tube.

2) Attach Tubing to fittings:

- When using the detergent pump simply run the tubing from the outlet of the pump to the ¼" compression fitting on the bulkhead fitting.
- When using the solenoid valve run the ¼" tubing from the quick connect fitting on the outlet of the valve to the siphon breaker for the solid bowl or powder feeder. Additionally, it will be necessary to attach a ¼" water supply tube to the inlet of the solenoid valve. The water pressure must not exceed 125psi.

Rinse/Sanitizer Tubing Connections

NOTE: To confirm identify which pump is the rinse and which is the sanitizer, press the rinse prime button and see which pump runs, and press the sanitizer prime button and see which pump runs.

1) Install 1/4" compression by 1/8" NPT rinse injection check valve (included in installation kit) into the rinse manifold on the dish or cleaning machine per the machine manufacturer's recommendations.
   NOTE: Each application may require specific hardware that is not included in the installation kit.

2) Connect the ¼" OD LDPE tubing between the ¼" rinse check valve and the discharge side of the peristaltic rinse squeeze tubing.

Cleaning Instructions

Do not expose inside of unit to moisture! Do not expose unit to direct water/chemical spray! Clean external shell with damp cloth.

COMMENTS AND CLARIFICATIONS

Changing Settings

All settings change the same way. Press ENTER ⍞ to modify any setting. The cursor will be displayed (a flashing block format or an underscore for text entry). Use ⬆ or ⬇ to modify the setting. Press ENTER ⍞ to save the result and clear the cursor.

Secret Code

Two codes are available, User Code and Programming Code. Both codes must be entered when entering a new program. ⬅ and ➡ are used to move between the digits. ⬆ and ⬇ are used to change the digit. When modifying a program the two codes can only be viewed and changed in programming mode. In user mode, the programming code can be entered to get into the programming mode. 0000 is the default for both codes.

NEW PROGRAM
This option will only be displayed if the dispenser has not been programmed the first time. Press ENTER ⍐ to enter a new program. When entering a new program ⬆ and ⬇ are used to move to the next option. ⬅ and ➡ are ignored. If no key is pressed for two minutes, NEW PROGRAM mode will be exited, the company logo will be displayed, and all entries will be saved.

SYSTEM ACCESS
This option will only be displayed if the dispenser has already been programmed. Press ENTER ⍐. You will be prompted for an access code. If no key is pressed for 30 minutes, SYSTEM ACCESS mode will be exited, the company logo will be displayed and all entries will be saved.

Code Reset
This is not a menu option and cannot be done from the keypad. If, for any reason, the codes are forgotten the access codes can be cleared. Turn the power to the dispenser off. Open the front cover of the dispenser. There are two yellow test points in the middle of the board. Connect them together with an insulated wire and turn on the power. Next, turn the power back off. Remove the connection from the two test points. When the power is turned back on, the prompts will ask for a NEW PROGRAM. All of the program previously input will be retained. When the **Programming** code is requested, it will default to 0000 and may be reentered.

NOTE: All previous programs will NOT be erased.

Press ⬅ at any of the submenu options to get to the System Access Menu.

External Alarm, (Aux. Alarm)
There are two .250" (6.4mm) spade terminals on the left side of the control board. There is a 24VDC output for an external alarm (buzzer, relay, etc.). (+) is the top terminal, (-) is the bottom terminal.

When sitting idle, the control will display the company logo with the backlight off. When triggers are received, they will be displayed with the backlight on for five seconds and then replaced with the company logo. The trigger message(s) will be replaced with any alarm messages if alarms occur. The alarm messages will remain, with the backlight on, until the alarms are cleared. An audible alarm will sound if there is an alarm condition and a trigger is present. Pressing any key will mute the alarm until the next trigger. The alarm will automatically mute when triggers are lost.

DEMA *TITAN*™ WAREWASH CONTROL
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INITIAL PROGRAMMING OF THE *TITAN*™

Following in **bold** is the initial programming menu as it will appear in the display window. Pressing any key will display the company name and illuminate the backlight. Use ⬆ and ⬇ to step between the options in the first (**bold**) column and then use enter ⍓ to select the option and ⬇ to step through the option selections to the right. Press enter ⍓ again to select the new option. If a key is not pressed within 10 seconds the company name will be displayed and the backlight will turn off.

DEMA Engineering
St. Louis, MO

LANGUAGE		*Idioma*	*Idioma*	*Langue*
ENGLISH		*Portugu⌊s*	*Espa⟩ol*	*Fran⏐ais*
⬇				
DETERGENT PRIME*	➡	*DET. PRIME PRIMING*	*DET. PRIME STOPPED*	
⬇				
RINSE PRIME*	➡	*RINSE PRIME PRIMING*	*RINSE PRIME STOPPED*	
⬇				
SANITIZER PRIME*	➡	*SANITIZER PRIMING*	*SANITIZER STOPPED*	
⬇				
DET SP INPUT ***	➡	*DETERGENT STATUS DISPLAY*		
⬇				
RACK COUNT 00000		(This is a view only record.) 0-49999		
⬇				
DESCALE	➡	*DESCALE*		
ENTER TO START **		*ENTER TO STOP*		
⬇				
NEW PROGRAM	➡	*SYSTEM ACCESS*	(*SYSTEM ACCESS* cannot be entered until after NEW PROGRAM is completed)	

* A default timer of two minutes will stop the pump if it is not stopped manually.

** Pressing enter ⍓ inhibits all dispenser functions for three cycles for a door machine or until the detergent trigger becomes inactive after three minutes accumulated run time for a conveyor machine. Pressing ENTER during the descale cycle will terminate the descale mode.

*** See explanation on page 20.

DEMA *TITAN*™ WAREWASH CONTROL
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CONTROL MODE AUTO SWITCHOVER ⬇

SWITCHOVER ALARM INACTIVE ➡ *SWITCHOVER ALARM ACTIVE* ⬇

(This allows a message to be displayed if Auto Switchover is enabled and the control switches from concentration to probeless. Setting this to inactive will inhibit the display.)

⬇

SWITCH MESSAGE

(This allows the entry of a customized message to be displayed when a switchover occurs. Pressing ENTER ⍓ displays the current

SERVICE DISPENSER SOON

message and allows it to be changed, letter by letter, with the UP ⬆ and DOWN ⬇ keys.)

⬇

MACHINE TYPE CONVEYOR ➡ *MACHINE TYPE DOOR*

(This allows the selection of Door or Conveyor mode. The status may only be changed in Programming mode. Conveyor is the default mode.)

⬇

TRIGGER MODE DETERGENT/RINSE ➡ *TRIGGER MODE NO TRIGGER INPUT* *TRIGGER MODE DETERGENT ONLY* *TRIGGER MODE RINSE ONLY*

NOTE: Four trigger options are available. DETERGENT/RINSE allows the traditional two trigger input. RINSE ONLY, requires only a rinse trigger. Rinse functions operate normally and detergent functions occur during the rinse trigger. DETERGENT ONLY, requires only a detergent trigger. The detergent operates normally. In conveyor mode, the rinse runs with the trigger. In door mode, the rinse additive is dispensed following the loss of the detergent trigger. NO TRIGGER INPUT, will cause both the rinse and the detergent functions to run whenever there is power to the dispenser. DETERGENT/RINSE is the default mode.

DIRTY H2O ALARM INACTIVE ➡ *DIRTY H20 ALARM ACTIVE* → Press "ENTER" and input time to indicate how long dish machine should run before alarm sounds.*****
(1 hr. min – 4 hrs. max)

COMPANY NAME

DEMA Engineering St. Louis, MO

← (Insert <u>your</u> company name here.)

NOTE: Pressing "ENTER" displays the current company name and allows it to be changed, letter by letter, with the ⬆ and ⬇ keys (press and hold down to 'fast cycle'). The empty 'space' is between the← and ! symbols. Press ⍓ to save.

*** The dirty H2O alarm will 'reset' after the tank has been drained and refilled.**

DEMA *TITAN*™ WAREWASH CONTROL
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ALARM VOLUME
5 0 – 10

CONC. SET POINT (Concentration set point default is 50)
50 0 – 1000

FEED RATE (Controls the rate of approach to the set point to help control overshoot.
5 1 – 10 The default is 5.)

ALARM DELAY (The time delay before a detergent alarm will sound in concentration
05:00 mm:ss mode. It starts when the concentration is below the set point and is not increasing. It may be set from 5 seconds to 10 minutes. The default setting is 5 minutes.)

FEED LIMIT (The time delay from when the concentration alarm starts until the
10:00 mm:ss detergent pump is stopped. It may be set from 5 seconds to 10 minutes. The default setting is 10 minutes.)

RECHARGE TIME (This is the time detergent will be dispensed in probeless mode after
00:01 mm:ss the initial charge is dispensed. This time is not used in the no trigger door mode. It may be set from 1 second to 5 minutes. The default is 1 second.)

(Either **DEAD CYCLES** or **DWELL TIME** will display depending on weather DOOR or CONVEYOR was selected earlier under MACHINE TYPE)

DEAD CYCLES (**Door machine only**. Set for how many 'dead cycles' (or door closings) where
1 0-10 no detergent is dispensed. Detergent will dispense on the first cycle after the last dead cycle. The default is 1 dead cycle.)

DWELL TIME (**Conveyor machine only.** Set for how long the machine will run before
01:30 mm:ss adding a recharge. The default is 45 seconds.)

INITIAL CHARGE (This is the dispense time of the initial charge in probeless mode. The charge
00:15 mm:ss time is triggered by a main dispenser power interruption, the rinse limit being reached, or the charge clock time being reached. It may be set from 1 second to 10 minutes. The default is 15 seconds.)

CHARGE CLOCK (Set this to how long the dish machine should be 'off' before an 'initial charge'
01:00 hh:mm is dispensed. It may be from 5 minutes to 16 hours. The default is 1 hour.)

(Everything in this block is displayed in Probeless Mode only. Otherwise continue below the block.)

DETERGENT ALARM *DETERGENT ALARM*
INACTIVE *ACTIVE*

DETERGENT TYPE DETERGENT TYPE (These are displayed only if alarm active.)
LIQUID DRY

Note: When detergent type is liquid, the alarm is active, and the control is set to probeless, use a DEMA 82.15.1 Low Level Probe connected to the probe input.

DET. ALARM CAL.
CAL WATER ENTER

DET. ALARM CAL.
CALIBRATING

DET. ALARM CAL.
CAL CHEM ENTER

DET. ALARM CAL.
CALIBRATING

DET. ALARM CAL.
SUCCESSFUL

DET. ALARM CAL.
FAILED

NOTE: The DETERGENT ALARM CALABRATION setting is only available when the control mode is set to probeless, the DETERGENT ALARM is active, and the detergent type is dry. This is used in conjunction with a **581E** bowl with sensor connections. Pressing enter ⍞ prompts the user to place the detergent capsule in the bowl with the lid on the capsule. When this is done pressing enter ⍞ again causes water to be passed through the bowl so that the control can measure the base conductivity. A calibration message is displayed. The control then prompts the user to remove the lid from the chemical capsule and place it in the bowl. Pressing enter ⍞ again dispenses chemical so that the dispenser can measure the conductivity of the chemical/water mix. A calibration message is displayed. If the two readings are sufficiently different, an alarm set point is calculated and a success message is displayed. If the readings are the same, a fail message is displayed and the alarm is set to inactive.

RINSE SPEED
50 0 – 100%

(The speed of the rinse motor may be set from 0 to 100. The motor runs during adjustment. The default is 50.)

RINSE DELAY
0 0 – 15s

(This is the time from when a rinse trigger is received until the rinse pump starts. It may be set from 0 seconds to 15 seconds. The default is 0 seconds.)

RINSE LIMIT
-- 15 – 70s

(This is the maximum time the rinse pump will be allowed to run. If the limit is active and reached it will cause the next charge in probeless mode to be an initial charge. It may be set from 15 seconds to 30 seconds. Advancing beyond 30 seconds causes the rinse limit to be inactive. The default for door machines is 18 seconds. The default for conveyor machines is inactive.)

RINSE LENGTH
12 5 – 75s

(The length of the rinse cycle for one rack. In a conveyor machine this is used for the Rack Counter. Every time the rinse runs for this length of time a rack is counted. In a door machine using only a detergent trigger, this is the length of the rinse cycle following the loss of the trigger. The default is 12 seconds.)

RINSE ALARM INACTIVE — *RINSE ALARM ACTIVE*

RINSE TYPE LIQUID — RINSE TYPE DRY (These are displayed only if alarm active.)

Note: When rinse type is liquid, the alarm is active, and the control is set to probeless, use a DEMA 82.15.1 Low Level Probe connected to the rinse alarm input.

RINSE ALARM CAL. *CAL WATER ENTER* → *RINSE ALARM CAL.* *CALIBRATING*

RINSE ALARM CAL. *CAL CHEM ENTER* → *RINSE ALARM CAL.* *CALIBRATING* → *RINSE ALARM CAL.* *SUCCESSFUL* / *RINSE ALARM CAL.* *FAILED*

NOTE: The RINSE ALARM CALABRATION setting is only available when the control mode is set to probeless, the RINSE ALARM is active, and the rinse type is dry. This is used in conjunction with a **581E** bowl with sensor connections. Pressing enter ⌂ prompts the user to place the rinse capsule in the bowl with the lid on the capsule. When this is done pressing enter ⌂ again causes water to be passed through the bowl so that the control can measure the base conductivity. A calibration message is displayed. The control then prompts the user to remove the lid from the chemical capsule and place it in the bowl. Pressing enter ⌂ again dispenses chemical so that the dispenser can measure the conductivity of the chemical/water mix. A calibration message is displayed. If the two readings are sufficiently different, an alarm set point is calculated and a success message is displayed. If the readings are the same, a fail message is displayed and the alarm is set to inactive.

SANITIZER SPEED
5 0 – 100%

(The sanitizer speed may be set from 0 to100. The sanitizer pump is active during adjustment. Setting the speed to 0 will cause other sanitizer settings to be skipped and the prime function will not be available.)

SANITIZER ALARM INACTIVE — *SANITIZER ACTIVE*

Note: When the sanitizer alarm is active, use a DEMA 82.15.1 Low Level Probe connected to the sanitizer input.

SANITIZER MODE RUN WITH RINSE — *SANITIZER MODE RUN WITH DET.*

ENTER NEW CODE — *ENTER PROG CODE 0000* → ← *LEFT ACCEPTS 0000 OTHER TO REJECT* → *NEW CODE SAVED*

DEMA Engineering
St. Louis, MO

DEMA *TITAN*™ WAREWASH CONTROL
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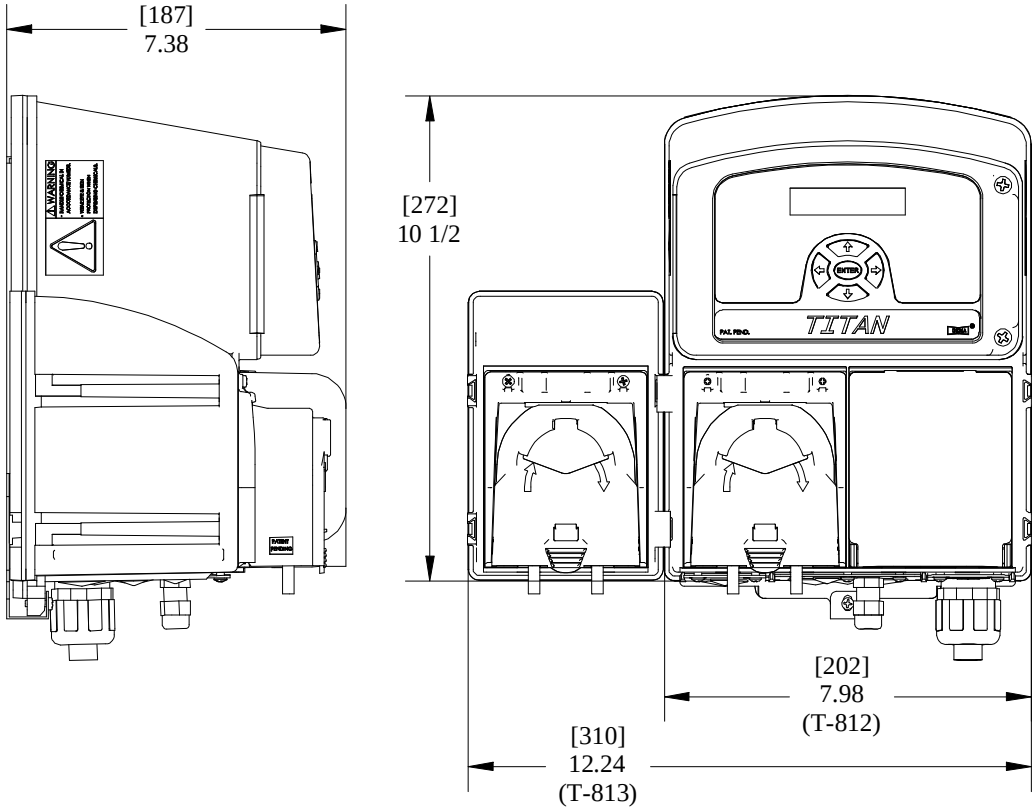
Technical Specifications

Main Power	100V – 250V 50/60 Hz 1.5A
Trigger Inputs	20-500V 50/60Hz <20mA
Motor/Solenoid Rating	24 VDC
Case	ABS
Size W x H x D	10-5/8" H x 8" W x 7" D
Shipping Weight	10 lb.



INSTALLATION KIT PARTS

81-21-9 Installation Kit for T-813-LLL	
Part No.	**Description**
25-68-20	LDPE Tubing ¼"OD x 20'(3 in kit)
80-66	10" Pick Up Tube ¼"ID(3 in kit)
C-12B	Conductivity Cell
904-8P	Check Valve/Sanitizer Line
904-8T	Check Valve/Rinse Line
81-16-1	8" Tie Wraps (5 in kit)
80-55	Liquid Feeding Elbow ¼"
81-16	Liquid Tight Feed Through

81-21-10 Installation Kit for T-813-DLL	
Part No.	**Description**
25-68-20	LDPE Tubing ¼"OD x 20'(2 in kit)
80-66	10" Pick Up Tube ¼"ID(2 in kit)
C-12B	Conductivity Cell
904-8P	Check Valve/Sanitizer Line
904-8T	Check Valve/Rinse Line
81-16-1	8" Tie Wraps (5 in kit)
58-5	Overflow Elbow
81-16	Liquid Tight Feed Through

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TITAN ELECTRONIC KITS

DEMA KIT NUMBER	DESCRIPTION
81-118-20	Kit – Titan Control Board & Display
81-118-11-1	Kit – Titan Trigger Board w/Two Input Cables
81-118-11-2	Kit – Titan Trigger Board w/Terminal Block
81-118-11-3	Kit – Titan Trigger Board w/One 5-Conductor Cable
81-118-12	Kit – Two Trigger Cables
81-118-13	Kit – Power Supply w/Power Cord
81-118-14-1	Kit – Power Switch – Titan – U.S.
81-118-14-2	Kit – Power Switch – Titan – International
81-115-1	Power Cord – Round Jacked
81-155-2	Power Cord – Agency Approved

Return Policy
No merchandise may be returned for credit without DEMA Engineering Company's written permission. Return Merchandise Authorization (RMA) number required in advance of return.

Warranty
DEMA products are warranted against defective material and workmanship under normal use and service for one year from the date of manufacture. This limited warranty does not apply to products that have a normal life shorter than one year or failure and damage caused by chemicals, corrosion, improper voltage supply, physical abuse or misapplication. Rubber and synthetic parts such as "O"-rings, diaphragms, squeeze-tubes and gaskets are considered expendable and are not covered under warranty. This warranty is extended only to the original buyer of DEMA products. If products are altered or repaired without prior approval of DEMA, this warranty will be void.

Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge. F.O.B. factory DEMA assumes no liability for damages. Return merchandise authorization number to return units for repair or replacement must be granted in advance of return.

NOTE:
This unit shall be used within the following limits:

For Indoor Use Only!
Max Altitude: 2000 Meters
Environmental Temp: 0 – 40 °C
Installation Category: II
Pollution Degree: II

Disclaimer: The integrity and operational characteristics of this unit are not guaranteed outside of the above mentioned parameters. Use of this unit outside of these parameters nullifies warranty.

DEMA *TITAN*™ WAREWASH CONTROL
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SYSTEM ACCESS

Window Display (step ⬇)	Options (select then step ⬚, ⬇)		
DEMA Engineering St. Louis, MO			
LANGUAGE **ENGLISH**	*Idioma* *Portugu⌊s*	*Idioma* *Espa⟩ol*	*Langue* *Fran⁄ais*
DETERGENT PRIME *	*DET. PRIME PRIMING*	*DET. PRIME STOPPED*	
RINSE PRIME *	*RINSE PRIME PRIMING*	*RINSE PRIME STOPPED*	
SANITIZER PRIME *	*SANITIZER PRIMING*	*SANITIZER STOPPED*	
DET SP INPUT ***	*DETERGENT STATUS DISPLAY*		
RACK COUNT 00000	0-49999		
DESCALE **ENTER TO START ****	*DESCALE* *ENTER TO STOP*		
SYSTEM ACCESS	(NOTE: **SYSTEM ACCESS** cannot be entered until after NEW PROGRAM is completed.)		

SYSTEM ACCESS allows you to enter any of the below listed parameters.

* A default timer of two minutes will stop the pump if it is not stopped manually.

** Pressing enter ⬚ inhibits all dispenser functions for three cycles for a door machine or until the detergent trigger becomes inactive after three minutes accumulated run time for a conveyor machine. Pressing ENTER during the descale cycle will terminate the descale mode.

*** See explanation on page 20.

DISPENSER SET UP PARAMETERS

CONCENTRATION PARAMETERS

PROBLESS PARAMETERS

RINSE CONTROL PARAMETERS

NOTE: To see what is listed under each of these parameters, or to go directly to a parameter, look for the parameter listed in **bold** in a heading block below such as this **one.**

DISPENSER SET UP PARAMETERS

Press the enter button⬚, then you can step ⬇ through everything under the heading block and 'fine tune' the data that was initially programmed under NEW PROGRAM.

DEMA *TITAN*™ WAREWASH CONTROL
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SANITIZER SET UP PARAMETERS

(See **Note:** on previous page)

DIAGONSTIC MODE

END PROGRAMMING PRESS ENTER

ENTER CODE
0000

* Indicates those functions that can only be changed in Programming Mode and cannot be changed in User Mode.

PROGRAMING MODE or **USER MODE** (This will be displayed briefly)

DISPENSER SET UP PARAMETERS

RACK COUNT
00002

RACK COUNT
LEFT TO RESET

***CONTROL MODE**
AUTO SWITCHOVER

**CONTROL MODE*
CONCENTRATION

**CONTROL MODE*
PROBLESS

***SWITCHOVER ALARM**
INACTIVE

**SWITCHOVER ALARM*
ACTIVE

(This allows a message to be displayed if Auto Switchover is enabled and the control switches from concentration to probeless. Setting this to inactive will inhibit the display.)

**SWITCH MESSAGE*

(This allows the entry of a customized message to be displayed when a switchover occurs. No audible alarm will sound. Pressing ENTER ⍁ displays the current

SERVICE
DISPENSER SOON

message

and allows it to be changed, letter by letter, with the LEFT ⬅ and RIGHT ➡ keys.)

***MACHINE TYPE**
CONVEYOR

**MACHINE TYPE*
DOOR

(This allows the selection of Door or Conveyor mode. The status may only be changed in Programming mode. Conveyor is the default mode.)

DEMA *TITAN*™ WAREWASH CONTROL
T-812 & T-813 SERIES

***TRIGGER MODE**
DETERGENT/RINSE

**TRIGGER MODE* *NO TRIGGER INPUT*

**TRIGGER MODE* *DETERGENT ONLY*

**TRIGGER MODE* *RINSE ONLY*

NOTE: Four trigger options are available. DETERGENT/RINSE allows the traditional two trigger input. RINSE ONLY, requires only a rinse trigger. Rinse functions operate normally and detergent functions occur during the rinse trigger. DETERGENT ONLY, requires only a detergent trigger. The detergent operates normally. In conveyor mode, the rinse runs with the trigger. In door mode, the rinse additive is dispensed following the loss of the detergent trigger. NO TRIGGER INPUT will cause both the rinse and the detergent functions to run whenever there is power to the dispenser. DETERGENT/RINSE is the default mode.

DIRTY H2O ALARM INACTIVE ➡ *DIRTY H20 ALARM ACTIVE* → Press "ENTER" and input time to indicate how long dish machine should run before alarm sounds. *****

COMPANY NAME

DEMA Engineering
St. Louis, MO

← (Insert <u>your</u> company name here.)

NOTE: Pressing "ENTER" displays the current company name and allows it to be changed, letter by letter, with the ⬆ and ⬇ keys (press and hold down to 'fast cycle'). The empty 'space' is between the← and ! symbols. Press ⍞ to save.

ALARM VOLUME
2 0-10

ENTER NEW CODE *ENTER USER CODE* *← LEFT ACCEPTS 0000* *NEW CODE SAVED*
0000

RETURN TO SYSTEM ACCESS ⬅

*** The Dirty H2O alarm will 'reset' after the tank has been drained and refilled.**

CONCENTRATION PARAMETERS

CONC. SET POINT
398 0 – 1000

(Concentration set point default is 50)

FEED RATE
5 1 – 10

(Controls the rate of approach to the set point to help control overshoot. The default is 3.)

ALARM DELAY
02:00 mm:ss

(The time delay before a detergent alarm will sound in concentration mode. It starts when the concentration is below the set point and is not increasing. It may be set from 5 seconds to10 minutes. The default setting is 25 seconds.)

FEED LIMIT
10:00 mm:ss

(The time delay from when the concentration alarm starts and the detergent pump is stopped. It may be set from 5 seconds to 10 minutes. The default setting is 25 seconds.)

RETURN TO SYSTEM ACCESS ⬅

PROBELESS PARAMETERS

RECHARGE TIME
00:01 mm:ss

(This is the time detergent will be dispensed in probeless mode after the initial charge is dispensed. This time is not used in the no trigger door mode. It may be set from 1 second to 5 minutes. The default is 3 seconds.)

(Either **DEAD CYCLES** or **DWELL TIME** will display depending on weather DOOR or CONVEYOR was selected earlier under MACHINE TYPE)

DEAD CYCLES
1 0-10

(**Door machine only**. Set for how many 'dead cycles' (or door closings) where no soap is dispensed. Soap will dispense on the first cycle after the last dead cycle. The default is 1 dead cycle.)

DWELL TIME
01:30 mm:ss

(**Conveyor machine only.** Set for how long the machine should run before adding a recharge. The default is 45 seconds.)

INITIAL CHARGE
00:15 mm:ss

(This is the dispense time of the initial charge in probeless mode. The charge time is triggered by a main dispenser power interruption, the rinse limit being reached, or the charge clock time being reached. It may be set from 1 second to 10 minutes. The default is 45 seconds.)

CHARGE CLOCK
01:00 hh:mm

(Set this to how long the dish machine should be 'off' before an 'initial charge' is dispensed. It may be from 10 minutes to 16 hours. The default is 1 hour.)

(Everything in this block is displayed in Probeless Mode only. Otherwise continue below the block.)

NOTE: → * Indicates those functions that can only be changed in Programming Mode and cannot be changed in User Mode.

***DETERGENT ALARM INACTIVE**	***DETERGENT ALARM ACTIVE**
***DETERGENT TYPE LIQUID**	*DETERGENT TYPE DRY

Note: When detergent type is liquid, the alarm is active, and the control is set to probeless, use a DEMA 82.15.1 Low Level Probe connected to the probe input.

DET. ALARM CAL.
CAL WATER ENTER

DET. ALARM CAL.
CALIBRATING

DET. ALARM CAL.
CAL CHEM ENTER

DET. ALARM CAL.
CALIBRATING

DET. ALARM CAL.
SUCCESSFUL

DET. ALARM CAL.
FAILED

NOTE: The DETERGENT ALARM CALABRATION setting is only available when the control mode is set to probeless, the DETERGENT ALARM is active, and the detergent type is dry. This is used in conjunction with a **581E** bowl with sensor connections. Pressing enter ⍞ prompts the user to place the detergent capsule in the bowl with the lid on the capsule. When this is done pressing enter ⍞ again causes water to be passed through the bowl so that the control can measure the base conductivity. A calibration message is displayed. The control then prompts the user to remove the lid from the chemical capsule and place it in the bowl. Pressing enter ⍞ again dispenses chemical so that the dispenser can measure the conductivity of the chemical/water mix. A calibration message is displayed. If the two readings are sufficiently different, an alarm set point is calculated and a success message is displayed. If the readings are the same, a fail message is displayed and the alarm is set to inactive.

RETURN TO SYSTEM ACCESS ←

RINSE CONTROL PARAMETERS

RINSE SPEED
51 0 – 100%

(The speed of the rinse motor may be set from 0 to 100. The motor runs during adjustment. The default is 50.)

RINSE DELAY
1 0 – 15s

(This is the time from when a rinse trigger is received until the rinse pump starts. It may be set from 0 seconds to 15 seconds. The default is 0 seconds.)

RINSE LIMIT
-- 15 – 70s

(This is the maximum time the rinse pump will be allowed to run. If the limit is active and reached it will cause the next charge in probeless mode to be an initial charge. It may be set from 15 seconds to 30 seconds. Advancing beyond 30 seconds causes the rinse limit to be inactive. The default for door machines is 18 seconds. The default for conveyor machines is inactive.)

RINSE LENGTH (The length of the rinse cycle for one rack.)
13 5 – 75s

NOTE: * Indicates those functions that can only be changed in Programming Mode and cannot be changed in User Mode.

***RINSE ALARM INACTIVE**	**RINSE ALARM ACTIVE*
***RINSE TYPE LIQUID**	*RINSE TYPE DRY

Note: When rinse type is liquid, the alarm is active, and the control is set to probeless, use a DEMA 82.15.1 Low Level Probe connected to the rinse alarm input.

RINSE ALARM CAL. *CAL WATER ENTER*

RINSE ALARM CAL. *CALIBRATING*

RINSE ALARM CAL. *CAL CHEM ENTER*

RINSE ALARM CAL. *CALIBRATING*

RINSE ALARM CAL. *SUCCESSFUL*

RINSE ALARM CAL. *FAILED*

NOTE: The RINSE ALARM CALABRATION setting is only available when the control mode is set to probeless, the RINSE ALARM is active, and the rinse type is dry. This is used in conjunction with a **581E** bowl with sensor connections. Pressing enter ⍞ prompts the user to place the rinse capsule in the bowl with the lid on the capsule. When this is done pressing enter ⍞ again causes water to be passed through the bowl so that the control can measure the base conductivity. A calibration message is displayed. The control then prompts the user to remove the lid from the chemical capsule and place it in the bowl. Pressing enter ⍞ again dispenses chemical so that the dispenser can measure the conductivity of the chemical/water mix. A calibration message is displayed. If the two readings are sufficiently different, an alarm set point is calculated and a success message is displayed. If the readings are the same, a fail message is displayed and the alarm is set to inactive.

RETURN TO SYSTEM ACCESS ⬅

SANITIZER SET UP PARAMETERS

NOTE: * Indicates those functions that can only be changed in Programming Mode and cannot be changed in User Mode.

SANITIZER SPEED
5 0 – 100%

(The sanitizer speed may be set from 0 to100. The sanitizer pump is active during adjustment. Setting the speed to 0 will cause other sanitizer settings to be skipped and the prime function will not be available.)

***SANITIZER ALARM INACTIVE**	** SANITIZER ALARM ACTIVE*

Note: When the sanitizer alarm is active, use a DEMA 82.15.1 Low Level Probe connected to the sanitizer input.

***SANITIZER MODE**
RUN WITH RINSE

**SANITIZER MODE*
RUN WITH DET.

RETURN TO
SYSTEM ACCESS

DIAGNOSTIC MODE

(No alarms are active in DIAGNOSTIC MODE. The control functions will operate normally.)

DET RIN SAN
000000 0000

(This screen displays the level of the sensor inputs. The detergent displays the probe reading in concentration and the alarm input reading in probeless. An asterisk (*) is displayed to indicate the presence of a trigger.)

DET SP INPUT
C + 0398 0000

(This screen displays the detergent status. The first character in the second line is "P" if the dispenser is in probeless mode and "C" for concentration mode. The next character is only displayed when a trigger is present. When a trigger is present "I" is displayed during an initial charge, "D" during a dwell or dead cycle, "T" during a recharge, "+" when the pump is running in concentration mode, or "-" when the pump is not running during concentration mode. The next number is the set point in concentration mode or the alarm point in probeless mode. The other number is the detergent sensor or probe reading.)

RIN SP INPUT
D R 0015 0000

(This screen displays the rinse status. The first character in the second line is "L" for liquid rinse or "D" for dry rinse product. The next character is "D" for delay, "R" for rinse product dispensing, or "L" for rinse limit reached. The next number is the rinse alarm set point. "----" is displayed if the alarm is inactive. The other number is the rinse sensor reading.)

SAN SP INPUT
L 0015 0000

(This screen displays the sanitizer status. The first character in the second line is "L" for liquid sanitizer product. The next character is "+" when the pump is running, or "-" when it is not. The next number is the sanitizer alarm set point. "----" is displayed if the alarm is inactive. The other number is the sanitizer sensor reading.)

FEED OVER UNDER
0000 0000

**FEED OVER UNDER*
LEFT TO RESET

(**See **NOTE** next page)

PROBE OPEN SHORT
0000 0000

**PROBE OPEN SHORT*
LEFT TO RESET

(***See second **NOTE** next page)

RETURN TO
SYSTEM ACCESS

** **NOTE:** This screen displays the total switchover count for OVER and UNDER feedings. The number below OVER is the count of switchovers caused by the dispenser feeding more than twice the INITIAL CHARGE time without reaching the set point. The number below UNDER is the count of switchovers caused by the concentration remaining above the set point for more than four times the DWELL TIME or DEAD CYCLES. The OVER count is usually caused by a "scaled" probe, a leaky drain, a leaky water supply valve, or excessive splashing of rinse water into the wash tank. The UNDER count is most often caused by no make up water being added or extreme wash tank contamination (very high soil load). A large number of counts in either of these areas are a reason to review the dispenser setup especially the PROBELESS Parameters.

*** **NOTE:** This screen displays the total switchover counts for an open probe or a shorted probe. Note that a probe must be shorted for at least 30 seconds before it is counted. This gives the short (usually flatware) time to clear. An open probe counts immediately.

END PROGRAMMING? 🗒
PRESS ENTER

DEMA *TITAN*™ WAREWASH CONTROL
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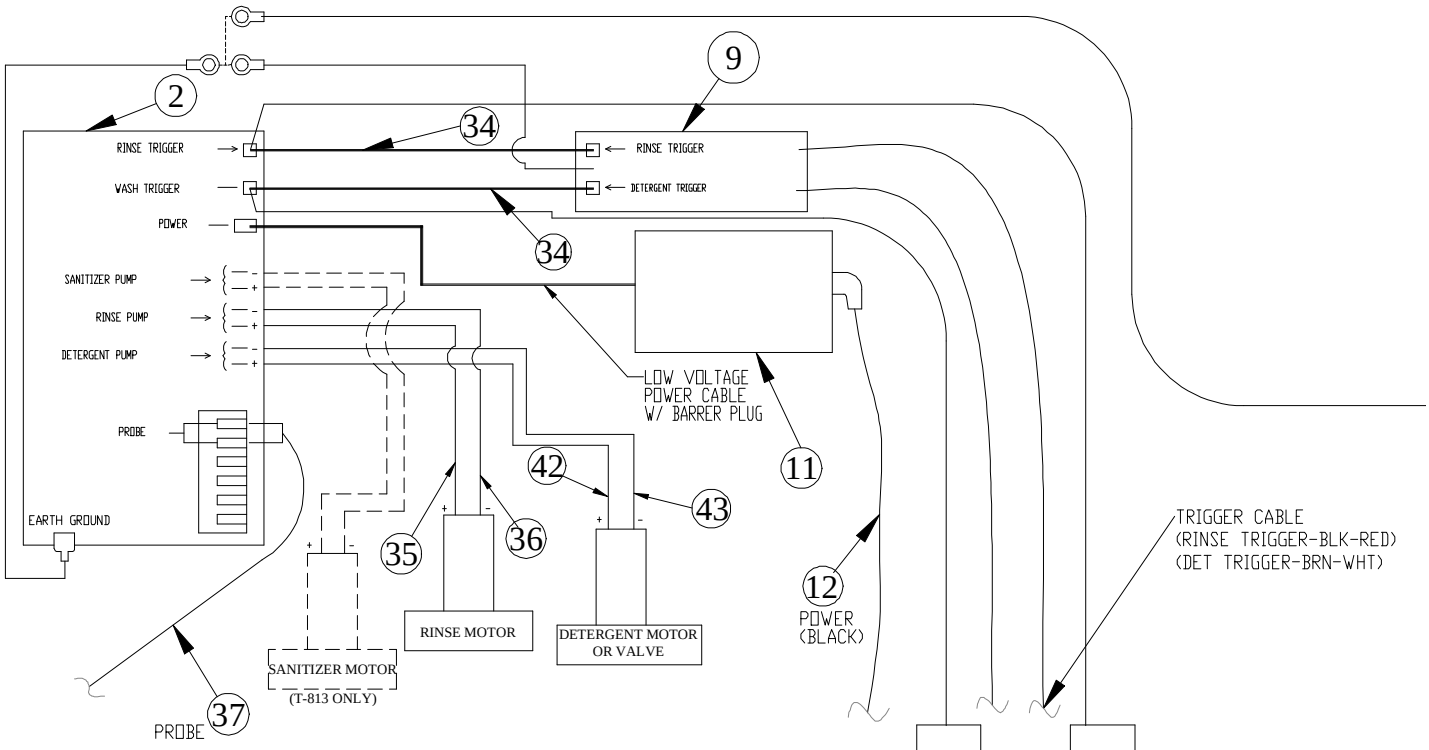
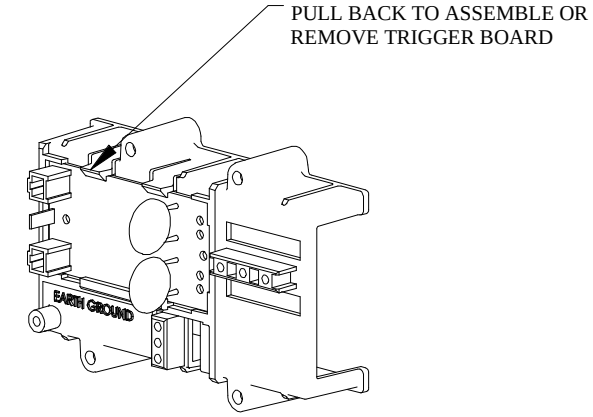
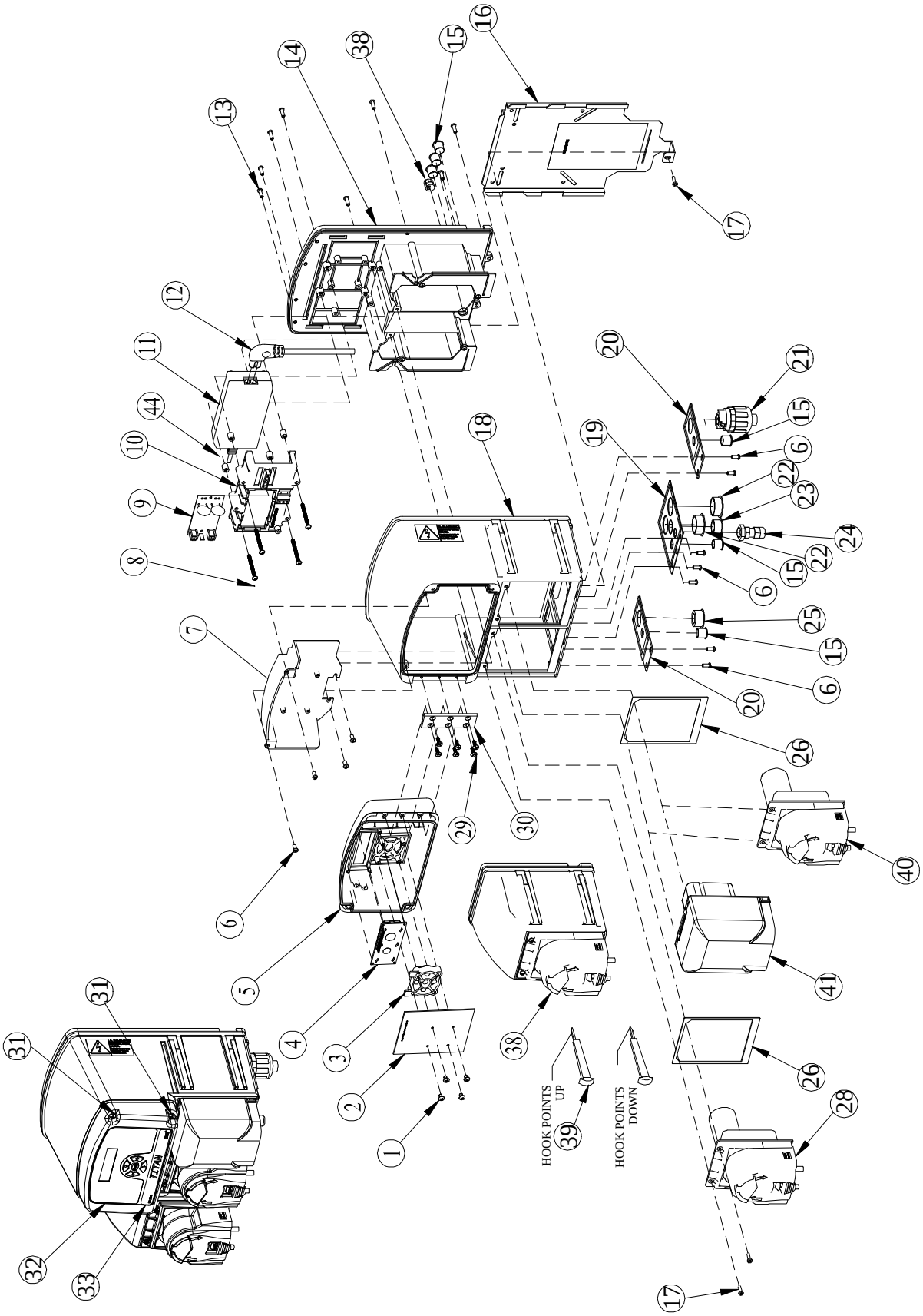




ASSEMBLED VIEW OF TRIGGER BOARD &
POWER SUPPLY BRACKET (ITEMS 9 & 10)

DEMA *TITAN*™ WAREWASH CONTROL
T-812 & T-813 SERIES

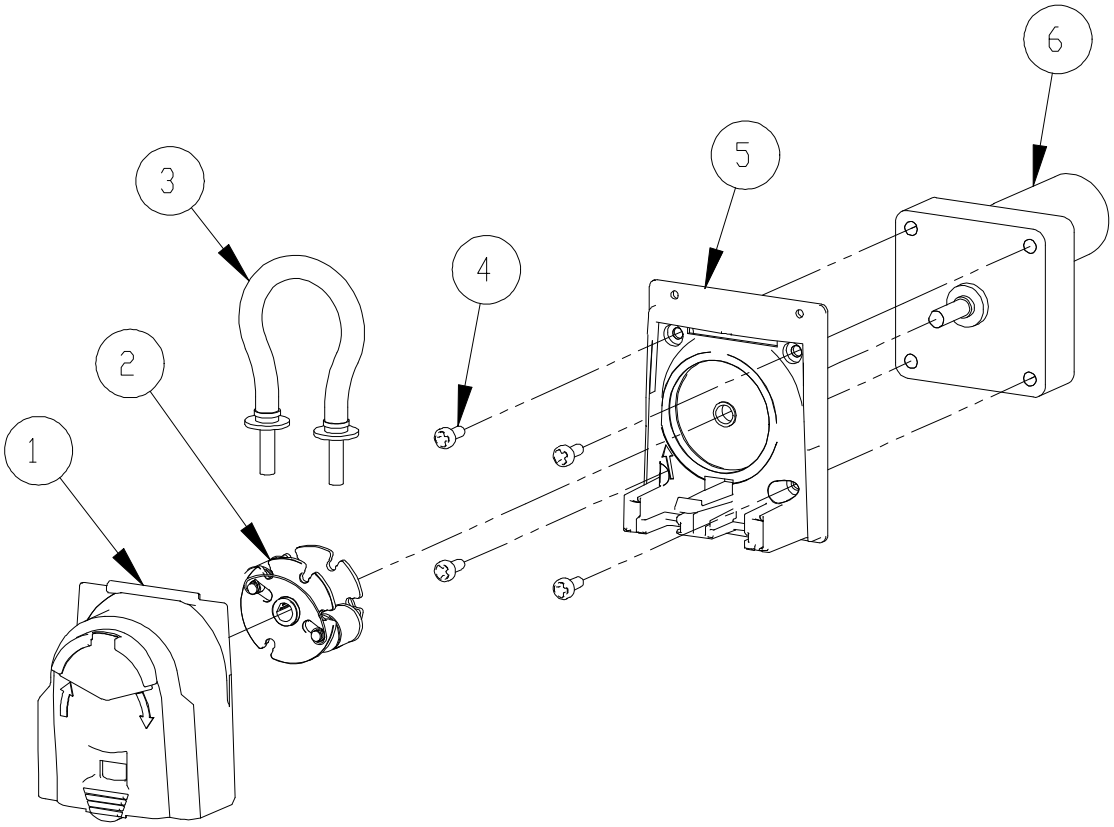


DEMA *TITAN*™ WAREWASH CONTROL
T-812 & T-813 SERIES

NO.	QTY.	DEMA NO.	DESCRIPTION
1	4	81-20-1	#4 HI-LO SCREW
2 4	1	81-118-20	CONTROL BOARD AND DISPLAY ASSY.
3	1	81-147-1	KEY PAD
5	1	81-139-1	CONTROL COVER
6	11	44-116-2	#8 X 3/8" HI-LO SCREW
7	1	81-137-1	FIRE WALL
8	4	41-63-10	#8-32 X 1 3/4 PHIL. SS SCREW
9	1	81-118-11-3	TRIGGER BOARD
10	1	81-138-1	POWER SUPPLY BRACKET
11	1	81-118-13	POWER SUPPLY (includes 81-155-2 power supply cable)
12	1	81-155-2	POWER SUPPLY CABLE
13	8	44-116-1	#8 X 1/2 HI-LO SCREW
14	1	81-170-1	ENCLOSURE ASSY. BACK
15	7	81-47-1	1/2" HOLE PLUG
16	1	81-187-1	MOUNTING BRACKET
17	5	41-40-2	#6-32 X 1/2 PHIL SS SCREW
18	1	81-168-1	ENCLOSURE ASSY.
19	1	81-186-8	LARGE ACCESS PANEL ASSY.
20	1 1	81-186-5 81-186-6	SMALL ACCESS PANEL ASSY. W/TWO HOLE PLUGS SMALL ACCESS PANEL ASSY. W/CONDUIT FITTING
21	1	81-148-3	CONDUIT FITTING
22	2	81-47-6	1" HOLE PLUG
23	1	81-47-5	3/4" HOLE PLUG
24	1	81-16	LIQUID FEED THRU
25	1	81-47-4	HOLE PLUG - ½”
26	2	81-159-1	GASKET - PUMP BASE
27	1	81-178-1	VALVE BRACKET ASSY.
28	1	81-118-29-2	MOTOR AND RINSE PUMP HEAD ASSEMBLY - 15 RPM (For T-812-LL, T-813-LLL)
29	6	81-19-7	#8 SCREW (HINGE SCREW)
30	1	81-140-1	HINGE
31	2	81-29-2	CAPTIVE SCREW
32	1	L1019	DISPLAY LABEL
33	1	L1020	TITAN LABEL
34	2	81-153-1	TRIGGER CABLE
35	2	81-32-44	RED CABLE ASSEMBLY
36	2	81-32-43	BLACK CABLE ASSEMBLY
37	1	81-181-2	PROBE CABLE – 15’ Lg.
38	1	81-118-18	PUMP MODULE ASSY. - SANITIZER (For T-812-LLL, T-812-DLL)
39	2	81-144-1	SIDE MODULE JOINT
40	1	81-118-29-1	MOTOR AND DETERGENT PUMP HEAD ASSEMBLY - 60 RPM (SEE BREAKOUT DRAWING)
41	1	81-118-19	SOLENOID VALVE KIT (For T-811-D, T-812-DL, T-813-DLL)
42	1	81-32-49	RED CABLE ASSEMBLY 16”
43	1	81-32-48	BLACK CABLE ASSEMBLY 16”
44	4	81-193	SPACER

DEMA *TITAN*™ WAREWASH CONTROL
T-812 & T-813 SERIES

PUMP ASSEMBLY

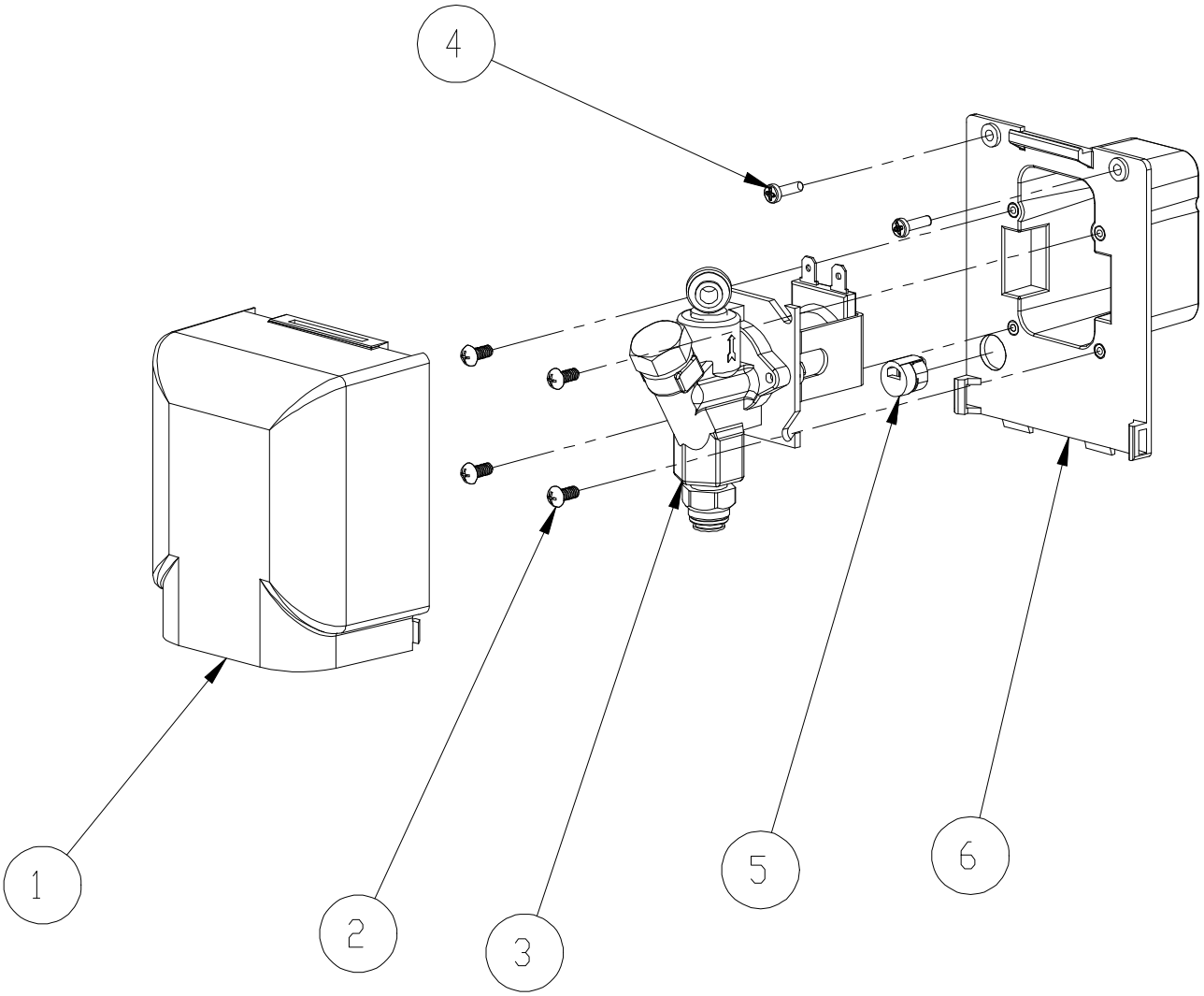


81-118-29-1 (60 rpm) Motor & Detergent Pumphead Assy. (all the above).
81-118-29-2 (15 rpm) Motor & Rinse/Sanitizer Pumphead Assy. (all the above).

NO.	QTY.	DEMA NO.	DESCRIPTION
1	1	81-174-1	PUMP COVER
2	1	81-118-28-1 (Detergent) 81-118-28-2 (Rinse/Sanitizer)	ROLLER ASSY.
3	1	81-177-1 (Detergent) 81-177-2 (Rinse/Sanitizer)	SQUEEZE TUBE (includes plastic connectors)
		----------	----------
	2	81-176-1 (Detergent) 81-175-1 (Rinse/Sanitizer)	Plastic connectors only
4	4	25-85-2	SCREW
5	1	81-128-2	PUMP BASE
6	1	80-59-60MK (Detergent) 80-59-15MK (Rinse/Sanitizer and Pump Module Assembly.)	GEARMOTOR
1 oz.		81-17-5	SILICONE LUBE PACKET

DEMA *TITAN*™ WAREWASH CONTROL
T-812 & T-813 SERIES

VALVE ASSEMBLY



81-118-19 SOLENOID VALVE KIT (all the above)

NO.	QTY.	DEMA NO.	DESCRIPTION
1	1	81-146-1	VALVE COVER
2	4	41-63-2	MACHINE SCREW
3	1	81-180-1	TITAN VALVE ASSY.
4	2	41-40-2	SS SCREW
5	1	81-183-1	CABLE STRAIN RELIEF
6	1	81-178-1	VALVE BRACKET ASSY.