# Summit E for Dairy CIP

Installation and Operating Manual

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## SAFETY


*This symbol on the front of the unit means Caution (refer to accompanying documents).*

*Ce symbole situé sur la partie avant de l'appareil signifie « Mise en garde (consulter les documents joints).*

*Dieses Symbol vorne auf dem Gerät bedeutet. Vorsicht (siehe beiliegende Unterlagen)'.*

*These symbols on or inside the unit mean:*

*Les symboles suivants apposés à l'intérieur ou à l'extérieur de l'appareil signifient:*

*Die Symbole an oder im Gerät bedeuten Folgendes:*

*Direct current*
*Courant continu*
*Gleichstrom*

*Alternating current*
*Courant alternatif*
*Wechselstrom*

*PROTECTIVE CONDUCTOR TERMINAL*
*BORNE DE PROTECTION POUR CONDUCTEUR*
*SCHUTZLEITERANSCHLUSS*



*On (Supply)*
*En marche (Alimentation)*
*Ein (Stromversorgung)*

*Off (Supply)*
*Arrêt (Alimentation)*
*Aus (Stromversorgung)*

*Caution, risk of electric shock*
*Attention : risque de choc électrique*
*Vorsicht! Gefahr eines elektrischen Schlages*


*High voltage. Disconnect all power to this unit before servicing. Servicing should only be performed by qualified service personnel.*

*Mise en garde haute tension. Couper toutes les alimentations électriques de l'appareil avant de procéder à l'entretien ou à des réparations. L'entretien et les réparations doivent être effectués par un personnel qualifié conformément à la réglementation en matière de câblage électrique.*

*Vorsicht: Hochspannung. Vor der Wartung vom Netzstrom entfernen. Die Wartung darf nur von qualifiziertem Servicepersonal und gemäß den örtlichen Bestimmungen für elektrische Verdrahtung erfolgen.*


- *High voltage trigger signals may be present even when the dispenser is switched off.*


- *We recommend that personal protective equipment (such as safety glasses, gloves, face shields and aprons) be worn during installation and servicing.*
- *Adding or replacing pumps, pump tubes or other components should only be performed by qualified personnel.*
- *Ajouter ou remplacer des pompes, des tuyaux de pompes ou d'autres composants ne doit être effectué que par un personnel qualifié.*
- *Der Einbau oder Ersatz von Pumpen, Pumpenschläuchen oder anderen Komponenten sollte nur von qualifiziertem Fachpersonal durchgeführt werden.*


- *Electrical connections should only be performed by trained personnel in accordance with local electrical wiring regulations.*
- *Les connexions électriques doivent être effectuées par un personnel qualifié en se conformant au code de l'électricité local.*
- *Elektrische Anschlüsse sollten nur von Fachkräften gemäß den anwendbaren Bestimmungen für elektrische Installationen vorgenommen werden.*


- *If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.*
- *Wird das Gerät nicht gemäß den Herstelleranweisungen verwendet, kann die Schutzvorrichtung des Geräts beeinträchtigt werden.*


- *Only use trigger and main power wiring hole connections which provide strain relief, such as cable glands, strain reliefs, or conduit connections. Conduit is recommended.*
- *Use only double-insulated (0.8 mm)*

*reinforced wire for main power and trigger connections, subject to local electrical code requirements.*

- *Auxiliary enclosure ground wire must be connected to the right ground lug stud, under the lock nut.*


*Trigger voltages must all be either above or below 42 VAC/60 VDC. Do not mix trigger voltages less than 42 VAC/60 VDC and greater than 42 VAC/60VDC on the same unit.*

*Les tensions de déclenchement doivent être toutes soit supérieures soit inférieures à 30 V tension RMS/42 V crête/60 V courant continu. Ne pas mélanger des tensions de déclenchement inférieures ou supérieures à ces limites sur le même appareil.*

*Alle Auslösespannungen müssen entweder über oder unter 30 V Effektivspannung / 42 V Spitzenspannung / 60 V Gleichspannung liegen. Auslösespannungen über und unter diesen Grenzwerten dürfen nicht am gleichen Gerät kombiniert werden.*

# INTRODUCTION

Summit E dispenses chemicals with two-to-eight pumps and 16-formulas, handling a variety of industrial, CIP, and laundry applications. You program the dispenser using a hand-held programmer. Once you have programmed your Summit E, the programmer doesn't need to remain attached to the dispenser for the system to execute pump requests. However, the programmer is still required for:

- Re-priming the pumps
- Viewing data without a computer
- Changing formulas.

You use different formulas when the dispenser pumps different volumes or mixtures of chemicals, such as if you used a certain set of chemicals (a "formula) for a daily CIP cleaning and a different set for annual cleaning. With laundry applications, you may use detergent, bleach and softener for white laundry, and just detergent and softener for colors.

Installations that use only one formula don't require formula selection. In these cases, there is no need to have a separate programmer for each account. The data can be downloaded to each account's dispenser using the same programmer.

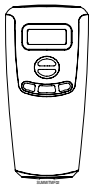


*Figure 1. Programmer*

# SPECIFICATIONS

## E PUMP BOX (3 PUMPS)

| Width | Height | Depth | Weight |
|---|---|---|---|
| 30.8 cm | 18.7 cm | 13.6 cm | 3.72 kg |
| 12.1 in | 7.4 in | 5.3 in | 8.2 lbs |

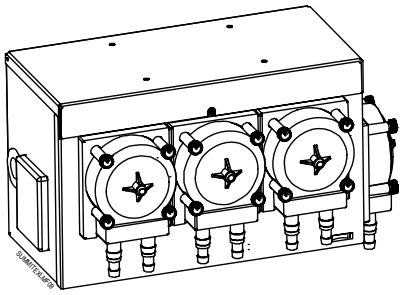


*Figure 2b. Summit E Small Pump Box*

## RATINGS AND CONFORMANCE FOR ALL SYSTEM MODULES

CSA, UL, CE: EN61010, EN61326, using Pollution Degree 2, Installation Category II.

TUV: GS (pump box only, not required on low-voltage programmer)

Intended for indoor use only.

### Enclosure Material

Stainless 304

### Pumps (2000, 600 or 100 Series)

Peristaltic, dual roller, self-priming and self-checking

### Power (not CE Compliant)

90-260 VAC, 47-440 Hz, 65 watts

### CE Compliant Power

100-240 VAC 50/60 Hz, mains supply fluctuations not to exceed ± 10%

### Transport Tubing

10mm or 3/8" nylobraid, EVA, or equivalent for 600 Series pumps

### Water Valve Output

24 VDC, 0.5 Amps

### Altitude

Maximum operating altitude 2000 meters (6500 feet)

### Pump Drive Outputs

24 VDC, 1 amp nominal (2 amp max)

### Power Switch

On/off rocker switch on pump box

### Internal Ambient Temperature Range

41 - 104ºF (5 - 40ºC)

### Humidity

Maximum humidity 90% at up to 40°C (104°F)

### Mounting

Screw-mounting, using holes on back of box, or optional rail-mounting. Indoor use only.

### Nominal Flowrate

2000 Series Pump: 2000 ml/min (67.6 oz/min) with standard Biwall tubing

600 Series Pump: 500 ml/min (16.9 oz/min) with standard EPDM tubing

100 Series Pump: 100 ml/min (3.4 oz/min) with standard high-flow flex tubing

Three Summit E pumps can run simultaneously. E's maximum pump run time is 5 minutes on, 10 minutes off.

When multiple chemicals are requested simultaneously, the highest number pump runs first to minimize wait time for ancillaries.

### Pump Distance

The distance you can pump depends on:

- Pump size
- Transport tube diameter
- Chemical viscosity

#### Pump Distance Guidelines

600 Series pumps can pump up to 20-30 feet (6-9 meters).

Long tube runs shorten tube life, so we recommend avoiding them.

### Alarm Output

Alarm output: 24 VDC, 0.5 Amp max

## TRIGGER MODULE (TR-6000 OR TR-8000)

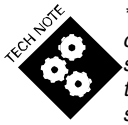
| Width | Height | Depth | Weight |
|---|---|---|---|
| 13.3 cm | 10.2 cm | 3 cm | 0.15 kg |
| 5.25 in | 4 in | 1.2 in | 0.32 lbs |

### Trigger Inputs

TR-6000: 6, optically-isolated, independent (separate common)
TR-8000: 8, optically-isolated (one common)

### Trigger Input Ratings

24 - 120 VDC, 24 - 240 VAC, 47K ohm impedance*




**47k-ohm impedance limits the trigger input current to 5mA or less. See **Programming** section for voltage sensitivity setting. Each of the trigger channels is optically isolated from the system.*

### Power

5 VDC, supplied by pump box

### Connection

Plug-and-play, 8-pin RJ-45 telephone cable, connected to pump box. Maximum distance from pump box to trigger module is 100' (30.5 meters).

## PROGRAMMER

| Width | Height | Depth | Weight |
|---|---|---|---|
| 7.6 cm | 15 cm | 3.8 cm | 0.15 kg |
| 3 in | 6 in | 1.5 in | 0.32 lbs |

### Display

2-line, 8-character LCD, "Super Twist"

### Power

5 VDC, supplied by pump box

### Connection

8-pin, RJ-45 telephone-type plug-and-play cable, connected to trigger module. Maximum distance from pump box to programmer is 100' (30.5 meters).

# MODES OF OPERATION

## FORMULA MODE

In Formula Mode, each of the 8 triggers can initiate up to 3 pump actions.

- Use with washers that have mechanical or chart-type controllers.
- Allows for 16 formulas, where you can run up to 3 pumps from any of the 8 triggers.
- Allows you to program delay times prior to each pump's run cycle. Pump amounts are set volumetrically.
- Runs a single formula if the programmer is disconnected.

## SEQUENCE MODE

- Operator selects load class name formula from the programmer, just as in Formula Mode.
- Operates using only the drain signal as a trigger.
- Useful for non-programmable, fixed-cycle washers, or washers where triggers are difficult to find.
- Performs one step per drain signal. Possible steps are:
  1. "I" to ignore a particular trigger (wait for next trigger signal).
  2. Pump actions. Up to 3 different pumps may be activated per step, each pump having its own distinct chemical amount. In addition, each pump may be programmed with its own delay time. Delay time countdown begins when the trigger signal is received.
  3. "E" to end a sequence.
- Allows you to program up to 16 formula sequences.
- Allows you to program up to 16 steps per sequence. You can configure them to run with or without a drain signal, or without pressing the start button. By using the auto-start feature, the sequence will automatically begin when the operator starts the washer.

## OTHER MODES

Relay and Latched Mode also exist on Summit E, but they aren't usually used in dairy applications and are not discussed in this manual. Please see our extended-length manual on our website beta-technology.com for further information.

# ORDERING INFORMATION

### Recommended Spare Parts and Accessories

| | |
|---|---|
| Cable Extension Kit, 25 Feet | 068855 |
| 100' Cable | 1204588 |
| Low Level Drum Lance | 1201180 |
| Low Level Sonic Alarm | 1200452 |
| Strain Relief PG16 0.5" | 090369 |
| Alarm I/O Connectors | 1201005 |
| 600 Series Motor/Gearbox | 093493 |
| Strain relief, PG16, 3/4" | 090369 |
| Standpipe for single 3/8"ID-1/2"OD Nylobraid tube, PVC snap-in 1/2"ID x 18" long | 1202756 |
| Standpipe and footvalve, 1/2"ID, 1/2" FPT w/ 1/2"MPT-1/2"B fitting | 1202522 |
| Suction lance w/ low level alarm, 3/8"B | 1201071 |

# OPERATION

Generally the system is programmed so it receives an electric signal, or "trigger," and then it pumps chemical(s) as programmed during installation. If manual activation is required, one can setup the dispenser in "triggerless" sequence mode so that just pressing the left arrow "action button" on the programmer will cause the pumps to run as programmed.

- When working in Sequence Mode, the end user pushes the ACTION button to start the sequence. If automatic start is enabled with a "start" trigger on T3, it is only necessary to select the sequence name with the +/– buttons).
- To cancel a sequence that is in progress, hold the ACTION key down for 5 seconds.
- If the programmer is disconnected while in Latched, Formula or Sequence Mode, the dispenser will continue to run the formula that is selected.


*If the power is toggled, formula will reset to formula/sequence #1.*

*On E pump boxes, a light on the front of the pump box shows when the power is on.*

# INSTALLATION AND SETUP

#### Factory Default Programming Values

- Trigger Mode: Relay
- Formula names: F1 to F16
- Trigger voltage selection: High ("h") (65 – 240 VAC)
- Language: English
- Units: oz

### Mounting Pump Box


*Mounting the Summit too high may result in compromised flow rates and excessive tube wear.*

1. Install screws into the wall such that pump box will be at eye level.
2. Mount pump box(es) directly onto the wall by aligning the keyhole slots with the screws.

### Connecting Pump and Transport Tubing

#### Pump Tubing


*To protect against pressurized chemical spray, wrap a rag around tube connections when replacing tubes, and always wear gloves and safety glasses.*

*Pour une protection contre les projections de produits chimiques pressurisées, entourer les connexions avec un chiffon pendant le remplacement des tubes.*

*Zum Schutz vor unter Druck stehenden Chemikalien sollte beim Austauschen der Rohre ein Lappen um die Anschlüsse gewickelt werden*

Position chemical drums as close to the dispenser as possible to minimize the suction tube run length.

#### Transport Tubing


*Do not run tube above electrical connections and boxes. Provide adequate clearances near steam pipes and other hot surfaces.*


*The viscosity of the products being pumped will impact flow rate and the maximum distances chemical can be transported.*

For 100 or 600 Series pumps we recommend 10 mm or 3/8" ID tubing. Connect the transport tube to the right pump barbs and run the tube to the washer. Special 100 Series pump tubing like Viton for dry cleaning or solvent pumping applications may require 1/4" transport tubing.

For 2000 Series pumps, use a 1/2" ID or larger tubing for chemical suction and transport to the washer. For viscous chemicals, use 3/4" ID tubing for suction and transport to the washer.

Regardless of the pump size, we recommend stiff tubing such as nylobraid when pumping viscous chemicals, especially if the product is over 100 centerpoise.

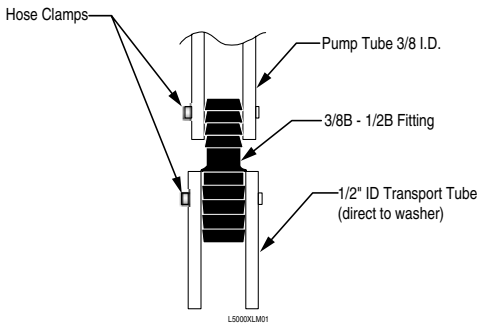
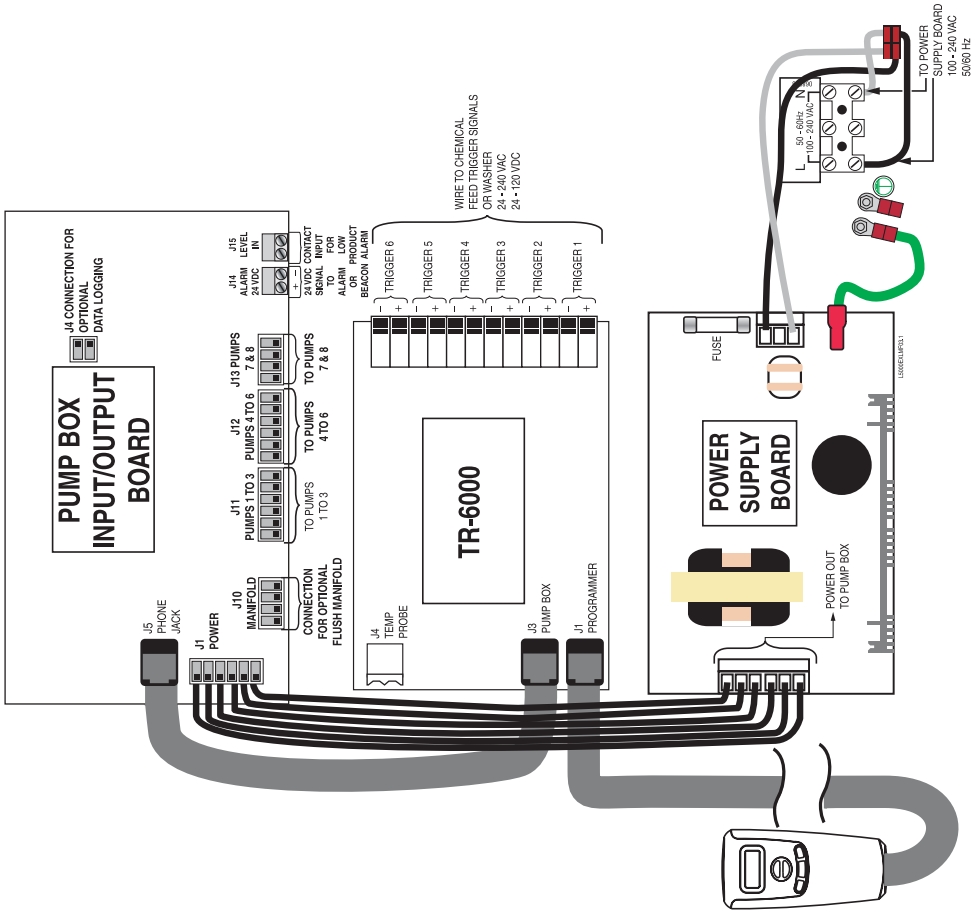



*Figure 2a. 2000 Series Tube Fitting Connection*

*Never use transport tubing under 3/8" ID, except with 100 Series pumps. Smaller tubing can reduce the flow rate, especially when pumping chemicals over longer distances. You may need larger diameter tubing if pumping chemicals over 4.5 meters (15 feet).*

1. Connect transport tubing to pump inlet/outlet barb fittings.
2. Secure with metal hose clamps.




*Fiugre 3a. Summit E System Pump Box Wiring*

## Wiring: Main / Ground Connections

### Opening the Unit

1. On the pump box, loosen the screws on the front of the dispenser cover. The lid can then be lifted and door tilted open.

- *Use only double-insulated (0.8 mm) reinforced wire for main power and trigger connections, subject to local electrical code requirements.*

- *Trigger and main-power wiring must have connections that provide strain relief, such as cable glands, strain reliefs or conduit connections. Conduit is recommended.*
- *A circuit breaker must be included in the building installation. It must be installed in close proximity to the equipment and within easy reach of the operator, and it must be marked as the disconnecting device for the equipment.*

- *Hole plugs must be used on holes through which you have not routed wires.*

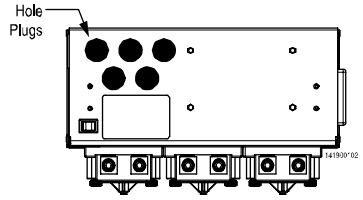



*Figure 3d.Summit E, 3-Pump, Bottom View*

- *If wires are routed through holes, the holes must also be plugged using cable glands, conduit, etc.*
- *Use 15 amp branch circuit protection.*
- *When installing power wiring through a conduit fitting, electrical insulation must be provided to prevent the wires from wearing against possible sharp edges of the fitting.*
- *Utiliser un câble renforcé à double isolation (0,8 mm) pour les connexions de l'alimentation principale et celles de déclenchement, en se conformant aux exigences du code de l'électricité local.*
- *Les câbles de déclenchement et d'alimentation principale doivent être dotés de connexions fournissant une réduction de tension telles que goupilles de câble, réducteur de tension ou raccords de conduit. Les raccords de conduit sont recommandés.*
- *Un disjoncteur doit faire partie de l'installation de bâtiment. Il doit être installé à proximité de l'équipement, être facilement accessible par l'opérateur et porter l'indication qu'il est destiné à déconnecter l'équipement.*
- *Des bouchons doivent être posés sur les trous par lesquels aucun câble ne passe.*
- *Si les fils électriques passent dans des trous, les trous doivent également être bouchés à l'aide de goupilles de câble, d'un conduit, etc.*
- *Utiliser une protection de la dérivation de 15 ampères.*
- *Lorsque les fils électriques sont installés en passant par un raccord de conduit, prévoir une isolation électrique afin d'éviter que les câbles ne s'usent au contact des angles à vif du raccord.*

- *Für Netz- und Auslöseanschlüsse dürfen nur doppelt isolierte (0,8 mm), verstärkte Drähte verwendet werden, die alle anwendbaren Bestimmungen und Normen für elektrische Installationen erfüllen.*
- *Die Anschlussseiten der Auslöse- und Netzleitungen müssen mit einer geeigneten Spannungsentlastung, wie z. B. Kabelstutzen, Spannungsentlaster oder Kabelrohrverbindungen, ausgestattet sein. Ein Kabelrohr ist empfehlenswert.*
- *Bei der Gebäudeinstallation muss ein Leistungsschalter verwendet werden. Dieser Schalter muss in unmittelbarer Nähe des Gerätes installiert werden, leicht für den Bediener erreichbar und als Trennvorrichtung für das Gerät gekennzeichnet sein.*
- *Öffnungen, durch die keine Drähte geführt werden, müssen mit Blindstopfen verschlossen werden.*
- *Wenn die Kabel durch Löcher hindurch verlegt werden, müssen die Löcher durch Kabelverschraubungen, Kabelrohre usw. zugestopft werden.*
- *Den Schaltkreis mit einer 15-A-Sicherung schützen.*
- *Beim Installieren von Stromkabeln durch einen Kabelrohranschluss muss elektrische Isolierung verwendet werden, um die Leitungen vor den ggf. scharfen Kanten des Anschlusses zu schützen.*

*Never splice Summit telephone cables together, because this frequently results in an unreliable connection and "system errors". Instead, use the Cable Extension Kit, #068855 to join two 25' (7.6 meter) cables together into a 50' (15.2 meter) cable. A 100' cable can be used between the pump box and the trigger module if in Relay Mode with no programmer, but you must never use two 100' cables as problems will result.*

1. Crimp a 10-12 GA (4mm$^2$) ground wire to one of the ring terminals on the bottom of the pump box using a Panduit CT550 or CT-100 installation tool.

   Sertir un fil de mise à la terre de 4 mm$^2$ sur l'une des cosses situées sur la base de l'âme de la pompe à l'aide d'un outil Panduit CT550 ou CT-100.

   Einen 10-12 ga (4 mm$^2$) Erdungsdraht unter Verwendung des Panduit CT550 oder CT-100 Installationswerkzeugs an einen der Ringkabelschuhe an der Unterseite des Pumpenkastens crimpen.

   *Grounding is required for safety. It also increases the dispenser's resistance to electrical noise.*
   *La mise à la terre est requise pour des raisons de sécurité. Elle protège également la résistance du distributeur contre les parasites d'origine électrique.*
   *Zur Gewährleistung der Sicherheit ist ein Erdungsanschluss erforderlich. Dadurch wird auch die Beständigkeit des Spenders gegen elektrisches Rauschen verbessert.*

2. Connect the mains voltage to terminal strip according to its "L" (hot) and "N" (neutral) label designations (See Figure 3). The mains input is rated for 100-240 VAC,

50-60 Hz, 65 watts. There is no difference in wiring between 100 and 240 volt power supply.

CAUTION!

*Failure to properly ground the system may cause the system to exceed emissions standards.*

CAUTION!

*The ground wire must be longer than the mains wires.*

CAUTION!

*Power connections must be made by qualified service personnel in accordance with local wiring codes. The mains connection should contain a service disconnect and circuit breaker suitable for the application.*

CAUTION!

*We recommend that you attach the main system ground to the bottom ring terminal to provide a more secure ground connection.*

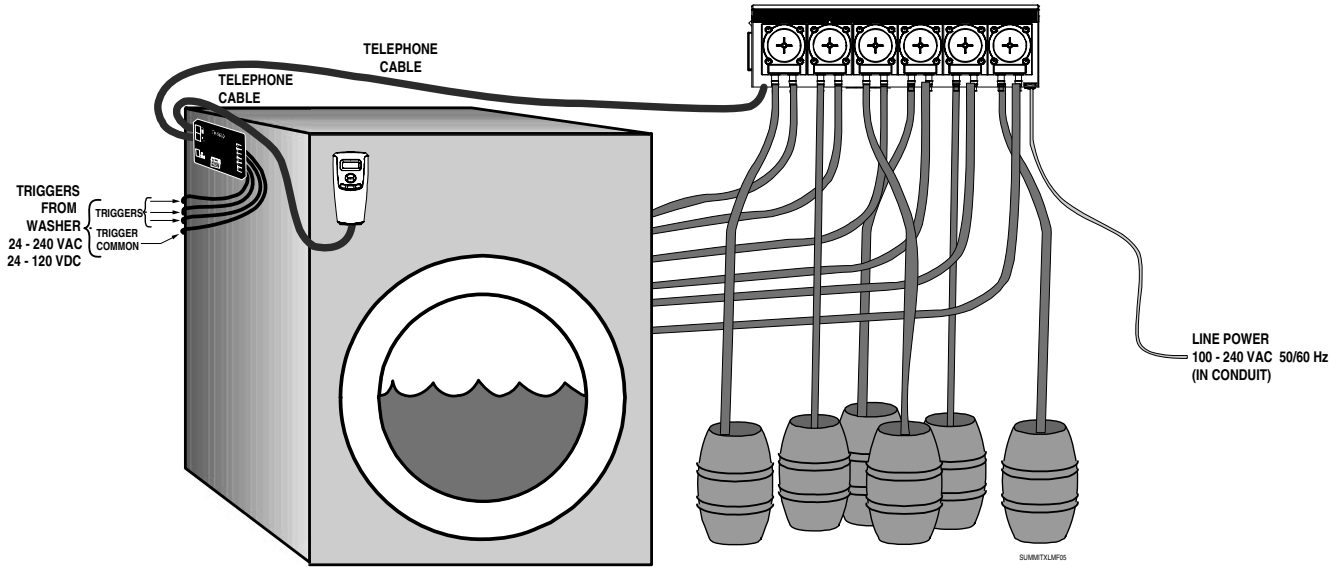



*Figure 4. Summit Installation with TR8000 Trigger Module*

## Wiring: Trigger Signals

CAUTION!

*Ensure that the trigger wire voltage and temperature rating are suitable for the application.*

*As the current required for the triggers is only 5mA, the wires may be of any convenient size. Wires must have the appropriate insulation for the trigger voltages being used.*

The trigger circuit board serves as the high-voltage interface between the washer supply trigger signals and the Summit. It also serves as the wiring connection point between the programmer and the Summit E pump box.

The TR-6000 comes in a separate enclosure for mounting inside the washer, or preinstalled inside the pump box.

The TR-8000 always comes in a separate enclosure for mounting inside the washer. Inside washer mounting must be in a location that restricts access to its high-voltage wiring connections and ensures that all creepage and clearance distances are maintained between primary and secondary circuits.

1. If using an external trigger board, use the second cable to attach the trigger board to the pump box PCB.

TECH NOTE

*If the cable is too long, coil the extra cable and tie wrap it to a fixed point so the weight of the cable won't be pulling on the cable plug socket.*

*If the washer is more than 25' (7.6 meters) from the pump box, use a Cable Extension Kit (068855) to extend the wire. Maximum length from the pump box to the programmer is 100' (30.5 meters). If the cable is extended over 100', system errors could result. Do not splice wires, as this often creates an unreliable connection. Special crimping tools and training are required to do this reliably.*

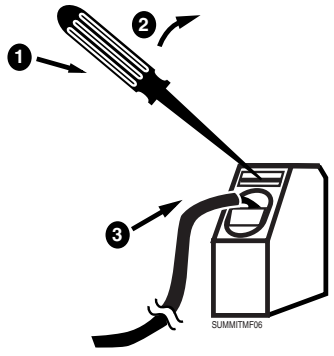



*Figure 5. Opening Wire Clamp Window*

2. Connect supply triggers to terminals: trigger wire #1 to trigger #1"+", trigger wire #2 to trigger #2"+" and so on, going from left to right as you face the terminal strip. As shown in Figure 5, insert a small screwdriver into the top hole to open the wire clamp windows.
3. Connect common: The TR-8000 uses one common (indicated by a "–") for all eight triggers. Connect common

to "– (T1-T8)". The TR-6000 has separate commons with jumpers between them, so one common such as T1- is usually sufficient, but you can attach separate commons if you need to.

### Sequence Mode Connection Information

### Manual-Start Connections

For standard Sequence Mode installations, connect the drain signal to trigger 1 (T1"+"). Pushing the ACTION button will start the sequence.

### Auto-Start Connections

For automatic start triggering in Sequence Mode, connect the T1 signal as described above. Connect a "start" signal to T3. The start signal can be any signal that indicates the start of the wash process, such as machine-on light. In this mode, it is not necessary to press the ACTION key (the T3 signal represents this action.).

### Formula Mode Connections

The Formula Mode trigger signals are typically derived from flush hopper solenoid signals, or are dedicated supply signals provided by the washer manufacturer. Consult the washer schematic.

## Low Level Alarm Input Wiring

Connect low-level sensor input(s) to LEVEL IN on the pump box's circuit board. If there are too many inputs to fit, combine all wires of the same color with wire nuts, and have another wire go from each wire nut to LEVEL IN. Any contact closure across the input will cause the dispenser to display a LOW CHEM alarm, while also providing a 24 VDC 0.5 Amp alarm output.

## Alarm Output Wiring

Summit provides a 24 VDC output. It will activate whenever an alarm condition is present.

- To activate an alarm with the 24 VDC output, connect any 24 VDC alarm device to ALARM 24V. When using the audible alarm (code #1200452), mount the alarm in a conduit hole under the unit. Use wire nuts to extend the wires, and connect the red wire to ALARM 24V+ and the black wire to ALARM 24V–.


*24 VDC alarm output is fuse-limited to 0.5 Amp.*


*Do not remove the covers from the motors. A small amount of conductive dust could, over time, come out of the motors and damage the PCB.*

## Chemical Pump Assignment

- Pump assignment is from left to right. Pump 1 is the leftmost pump, and pump 2 is the next pump to its right.
- Smart Relay Mode triggering associates trigger numbers with numerically corresponding pump numbers: trigger 1 with pump 1, trigger 2 with pump 2, etc.

## Programmer Mounting

1. Attach the programmer to the washer at about eye level. You can attach it to the washer using the Velcro strips provided, or you can mount it with the mounting feet and screws.
2. Choose a surface not prone to excessive vibration, direct water spray, or excessive steam.
3. Using the cable provided, connect the programmer to the trigger module.

# PROGRAMMING

All programming, data retrieval, and system diagnostics are done from the programmer, using the following keys:

| | |
|---|---|
|   | + or – keys change the value of the blinking number or letter. Pressing + and – simultaneously will change any alphanumeric character to "M", and will change any numeric field to its minimum value. |
|  | CURSOR key: Moves the cursor around the screen, changing which field is selected. |
|  | ACTION key: Initiates an action such as priming. This button does not change settings. |
|  | MENU key: Advances to the next menu screen. |

## PASSWORDS

Passwords are used to control access to programming and technician levels of the system. The screens and functions of the Summit are organized into 3 levels of access.

The first, or default password level is "Operator". This level requires no password. The screen access of this level is limited to diagnostic screen viewing and formula selection.

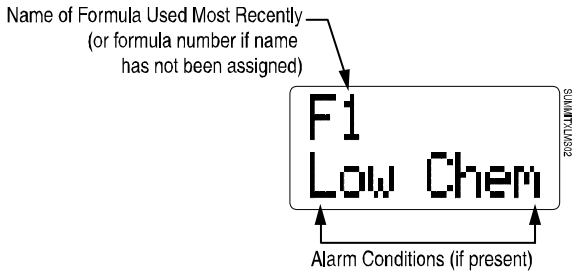
Entering the technician default password "123" will provide access to the second level "Technician" screens. This level permits pump priming, viewing of formula count logs, viewing of pump run time and several diagnostic screens.

By entering the Programmer password, "890" you will have complete access to all screens and features. This access includes the ability to change passwords. It cycles through the Technician screens before the Programming screens.

## Operator-Level Access (no password entry required)

When you power the Summit, the software version of the programmer displays on the bottom line for 2 seconds then the software version of the pump box displays for two seconds along with "E". Then the Formula Select screen appears.

After the Power-Up screen disappears, the following screen appears:




*Screen 0: Formula Select Screen*

Pressing "+" displays the next formula (F2).

Once you have programmed names to each of your formulas, this screen will display the 2-line *name* of the formula most recently used.

If an alarm condition(s) exists, the bottom line will alternately flash the alarm message(s) with the second line of the name of the formula most recently used. The top line name will not flash. For example, let's say you have a formula named "White Sheets", and Low Chemical and No Flow alarms occur. The top line will continue to say "White", while the bottom line will flash alternately between "No Flow", "Low Chem" and "Sheets".

*If in Sequence Mode AND a sequence cycle is active AND the second line of the selected formula name is not blank, then the second line of the formula name will be displayed periodically on the bottom line of the LCD display, along with any alarm messages.*

You can cancel alarm messages by pressing the ACTION key, or correcting the alarm condition. No-flow alarms will clear when the "End" pump runs. If a no-flow alarm is displayed continuously, you probably need to change the "End" pump setting. Pressing the ACTION key will only cancel the alarm displayed on the screen. You will need to press the ACTION key once for each separate alarm while the alarm message is displayed on the screen.

## Alarm Messages

**"Low Chem" Alarm**

If you have connected a low-level sensor to the "Level" input on the pump box I/O board, a "Low Chem" message appears when the contact closure is open. If you clear this alarm without correcting the low-product condition, the alarm will again reactivate after 15 minutes. As the intent of the low-level alarm is to warn the operator that the product supply is about to run out, the Summit will continue pumping despite the alarm.

**"No Flow" Alarm**

A no-flow alarm occurs when:

1. An electrical or mechanical problem prevents a pump from working.
2. A trigger is active for longer than 5 minutes in Smart Relay Mode. In this mode, each trigger has a 5-minute time limit. If a trigger is active for longer than 5 minutes, then the Summit assumes that the trigger is "stuck", and a no flow alarm will occur. No more feed commands will be sent to the pump box for that trigger until the trigger turns off and then turns back on.
4. The pump box detects that a pump has been running continuously for five minutes, at which point it turns off and a No Flow alarm is issued.

**Hygiene Alarm**

A Hygiene alarm occurs when wash water temperature fails to maintain the programmed minimum temperature for the programmed time duration required for a specific formula. Please see our extended length manual on our website beta-technology.com for further information.

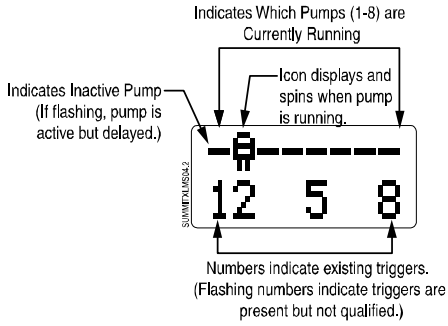
**System Alarm**

A system alarm indicates system components (trigger board, pump box, or programmer), cannot communicate.

*System alarms cannot be canceled. They will be cleared automatically by the system only when the fault is corrected.*

## Diagnostic Information (for Formula Mode)

When in Operator-Level access, pressing and holding the CURSOR key displays diagnostic information.



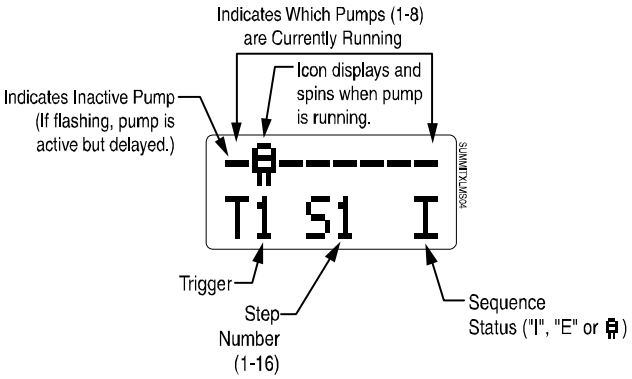

*Screen 1. Diagnostic Information for Formula Mode*

Screen 1 shows an example of some system diagnostic information. From this screen, we can see that pump 2 is currently running, and pumps 1, 3, 4, 5, 6, 7 and 8 are not. Triggers 1, 2, 5, and 8 are active, and triggers 3, 4, 6 and 7 are not.

If a trigger is active, but not yet qualified, its number flashes. See **Trigger Qualification** sections for more information.

## Diagnostic Information for Sequence Mode

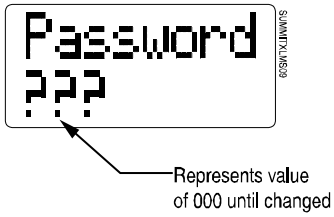
The status of the "Sequence" is displayed on the bottom line. For this example, the bottom line shows that trigger 1 (T1) is active, you are on step 1 (S1), and that the function of S1 is "I"(Ignore trigger). The other sequence status options are "E" for "End" a blank space for a delay or a pump icon if one or more pumps is running.




*Screen 1a. Diagnostic Information, Sequence Mode*

### Password

Pressing and holding the MENU key for 5 seconds takes you to the **Password** screen**.** The default Technician-Level password is 123. The default Programmer-Level password is 890. See **Change Passwords** section for directions on setting passwords.




*Screen 2. Password Screen*

The bottom line will display "???" represents a value of "000" until you change it to your password.

1. Use the "+" or "–" keys to enter the correct number, and press the CURSOR key to navigate to the next number until you've entered the entire password. If you enter an incorrect password, you will return to Operator Level access.
2. Press MENU key to advance to the next level of menu screens.

Once in Technician or Programmer-Level access, holding down the MENU button for 5 seconds will send you back to Operator-Level access. To prevent the unit from being inadvertently left in Technician or Programmer-Level access, the screen returns to Operator access if no buttons are pressed for 15 minutes.

## Technician-Level Access

## (Technician or Programmer Password Entry Required)


*Summit will still respond to triggers in Technician-Level access.*

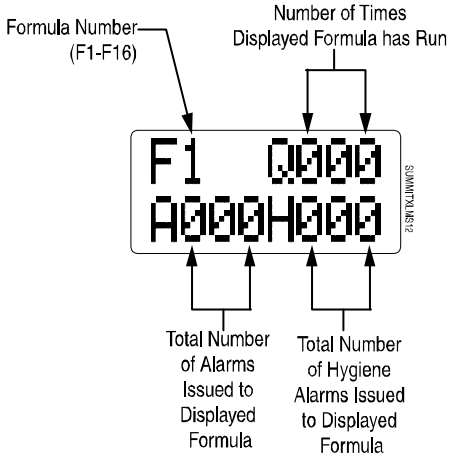
### Prime Pumps

Select pumps 1 through 8 using the "+" or "–"keys. Press and hold the ACTION key to prime the selected the pump.


*Screen 3. Prime Pumps*

The displayed pump icon spins to indicate that it is priming. Press MENU key to proceed to next screen.

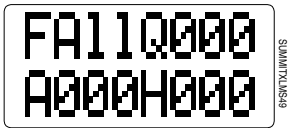
### Formula Count




*Screen 4. Formula Count Values*

Screen 4 automatically updates to show the latest formula count values. The formula number (F) in the upper-left corner is selectable between 1 and 16 using the "+" or "–" keys. The letters Q, A, and H represent different formula count values as noted above.

To view the total count for all formulas, select "FAll".




*Screen 4a. Counts for All Formulas*

A formula can only log one "A" and one "H" alarm for each time it runs.

Alarms will not be logged if they occur between formulas in Sequence Mode.

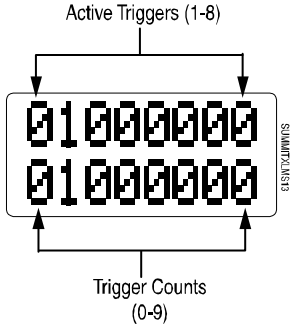
With Programmer-Level access, you can clear all logged counts for the selected formula by pressing and holding the ACTION key for 2 seconds.

To clear formula counts for all formulas at once, go to Programmer-Level access and select "FAll" then press and hold the ACTION key for 2 seconds.

### Trigger Status and Counter

This diagnostic screen can be used to view the current state (on/off) of the supply trigger signals. It can also be used to "capture" trigger events that occur during the wash cycle. This screen automatically updates to show the latest trigger status.

This screen can also be used to log trigger counts for Sequence and Formula Mode programming, or to troubleshoot wrong or unwanted signals issued by the washer controller.




*Screen 5. Trigger Status*

Trigger 1 is on the left and trigger 8 is on the right. Once a trigger's count has reached 9, it remains there until a new wash load begins. With Programmer-Level access, pressing the ACTION key resets the selected trigger's count to 0.

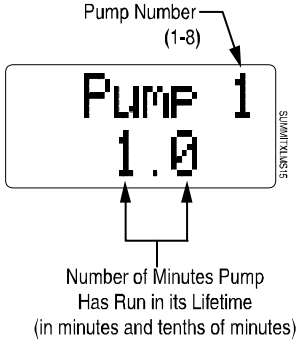
The Screen 5 example shows that trigger 2 is active, and that the remaining 7 are inactive. Trigger 2 has executed once, and the remaining 7 triggers have never executed.

NOTE *For a trigger to be counted, it must meet the **Trigger Qualification** screen's criteria for duration and voltage. If it doesn't, the Summit will read the signal as electrical noise and disregard it.*

Smart Relay Mode has no filter time, so the programmer will count triggers of any duration. See **Smart Relay Trigger Qualification** for more information.

### Pump Run Times

This screen automatically updates to show total run time for the selected pump.




*Screen 6. Pump Run Times*

NOTE *Because we test our systems prior to shipment, your Summit might show a pump runtime value such as 0.1 instead of 0.0 at its initial power-up.*

The maximum value for this screen is 6500.

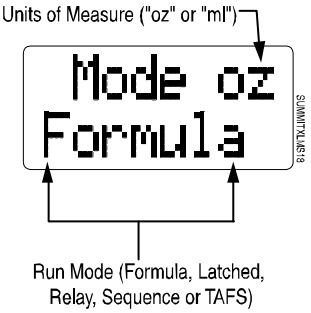

The pump run time data may be reset to zero (in Programmer-Level access only) by pressing and holding the ACTION key for 2 seconds.

## Programmer-Level Access

From the password screen, enter the Programmer-Level access password. The following screens and functions will then be presented:

NOTE *Summit will not respond to triggers in Programmer-Level access.*

### Setting Mode and Units of Measure




*Screen 8. Setting Mode and Units of Measure*

The Screen 8 example shows the units of measure set to "oz", and the mode set to "Formula."

Because "oz" is the default unit of measure, press the "+" or "–" keys to select "ml".

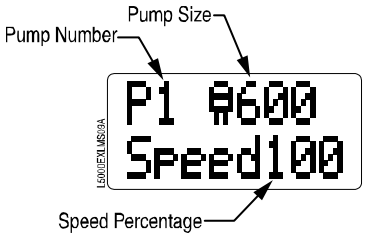
Press the CURSOR key to move to the bottom line and select trigger mode.

Press and hold the "+" or "–" key for 2 seconds to scroll between "Formula", "Latched", "Relay" and "Sequence"..

Press and hold the "+" or "–" key for 2 seconds to scroll between "Formula", "Latched" and "Sequence"

NOTE *Once you have selected "oz" or "ml", all subsequent units of measure will be based on it.*

### Speed Control and Pump Size




*Screen 9a. Speed Control*

Reducing pump speed bolsters dosing accuracy and increases tube life with viscous products such as built detergents. Generally, if you find a chemical has a flow rate 1/2 that of thinner chemicals, you should reduce pump speed to 40%. If the flow rate is only 1/3 less than other chemicals, reduce the flow

rate to 60%. **Always recalibrate after reducing speed because the flow rate can change.**

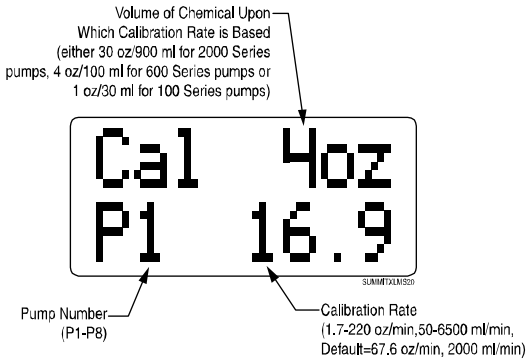
The pump size is factory preset and doesn't need to be changed during installation. If you change the size of a pump or add a pump this setting needs to be changed. To change the setting:

1. Select the pump number and press the CURSOR key to highlight the pump size.
2. Hold down the "+" or "—" key for two seconds.

You can select a pump size of 100 or 600 Series.

### Pump Calibration

Summit pumps chemical based on volumetric calibration. This means that once you have calibrated the pumps, you will not need to adjust your formula for differing flow rates when changing chemicals or compensating for tube wear. Also, for Smart Relay Mode, you will define the volumes you want to pump without having to use the calibrated flow rate in defining trigger on-time.




*Screen 9. Calibration*

Screen 9 shows that pump 1 (P1) pumps 16.9 ounces (500 ml) per minute, calibrated from a pump volume of 4 ounces.

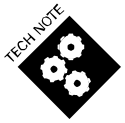
Calibration rate is displayed in the lower right corner. The calibration rate is displayed as xxxx if "ml" is selected, and xxx.x if "oz" is selected.

### How to Calibrate Summit Pumps

1. Position the end of the selected pump's discharge tube over measuring cylinder.
2. The volume to pump is shown on the top right of the screen:
   - 900 ml (30 oz) for the 2000 Series pump
   - 100 ml (4 oz) for the 600 Series pump
   - 30 ml (1 oz) for the 100 Series pump
3. Press and hold the ACTION key, collecting the calibration amount in a measuring cylinder. The calibration rate field is replaced with a spinning pump icon.
4. When the calibration amount has been pumped, release the ACTION key.
5. The new flowrate will be automatically calculated, displayed in place of the default setting, and saved to memory.


*As you approach the desired amount, you may "pulse" the pump on and off until the proper amount is pumped. Calibration is not "memorized" until you exit calibration screen or change the pump number selection.*

If you do not run the pump long enough to create a realistic calibration value, "----" will be displayed. Press the ACTION key again to resume calibration.

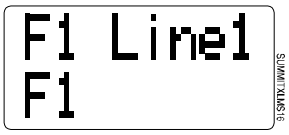



*Try to get to the calibration amount within 2-3 presses of the ACTION key, because tapping the ACTION key repeatedly to pump the whole calibration amount will make the calibration inaccurate. If you have to press the ACTION key more than three times, it is best to change the pump number back, and recalibrate the ensure maximum accuracy.*

If you overshoot the calibration amount, switch to another pump, and then switch back and repeat steps 1-4.

### Creating Formula Names

Summit lets you use both the top and bottom lines of the screen to name your formulas. The top line is called "Line 1" and the bottom line is "Line 2". Entering formula name data is not required for system operation.

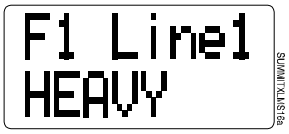



*Screen 10a. Creating Formula Names, Line 1*

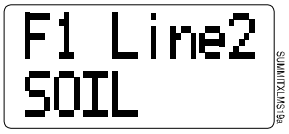
You will begin by naming the top line of F1.


*If the programmer language selected is Japanese, only Japanese katakana characters will be selectable.*

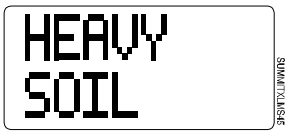
1. "Line 1" flashes on the top line.
2. Use the "+" and "–" keys to change each digit of the bottom line. Press "+" and "–" simultaneously to change the "F" to "M".
3. Use the CURSOR key to advance to the next character.




4. CURSOR back to top line of the screen, and then press the "+" or "–" key to advance to change to "Line 2", and repeat steps 2 and 3 to name the second line of F1.




*Screen 10b. Assigning Formula Names, Line 2*




*Screen 10c. 2-Line Formula Name*

5. Once you have entered the first formula name, press the CURSOR key to return to the top line.
6. Press the "+" key to enter the next formula (F2) name. Repeat steps 1 to 5 for all formulas.

**Making Formulas Non-Selectable**

There is a simple method to prevent a specific formula number from being selectable, so formulas not being used are not displayed on the programmer.

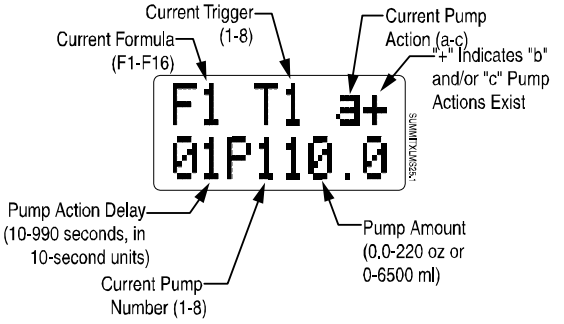
1. Go to the Formula Names screen and CURSOR to one of the characters in the formula name.
2. Press and hold the ACTION key for 5 seconds. The formula name will change to blank characters and the formula will not appear in Run Mode.

## Mode Programming

Only the selected Mode's programming screen will appear on the programmer.

### Formula Mode Programming

In Formula Mode, you can program as many as 3 separate pump actions ("a", "b", and "c") for each trigger. Pump actions consist of a delay (bottom left of screen) and a pump amount (bottom right of screen).




*Screen 11a. Formula Mode Programming*

Screen 11a shows each Formula Mode programming element, with examples of programmed parameters. These parameters show that in Formula 1 we want trigger 1 (T1), to tell pump 1 (P1) to pump 10 oz of formula 1 (F1) after a 10-second delay.

The "+" to the right of the "a" indicates we have programmed T1 to initiate additional pump actions ("b" and/or "c").

1. Using the "+" and "–" keys, scroll to the formula (F1 to F16) that you will program.
2. CURSOR to the trigger (T) field, and scroll to desired trigger.
3. CURSOR past the "a", and set pump delay time (if any) for pump action "a" in 10-second increments.
4. CURSOR to pump (P) number field and scroll to select the number of the pump that will perform pump action "a".
5. CURSOR to the pump amount field and select the volume of chemical for the pump to dispense.
6. Repeat steps 3-5 for pump actions "b" and/or "c" for selected trigger.
7. Repeat steps 2-6 for all triggers for selected formula.
8. Repeat steps 1-7 for all formulas.

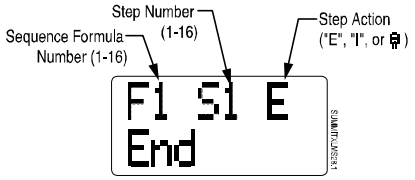
Once a trigger is received and qualified (see **Trigger Qualification for Formula, Latched or Sequence Mode**), the pumps will initiate their assigned delays and actions whether the trigger stays on or not. If the trigger occurs twice, the pump will perform the action for the formula twice. Use Latched Formula Mode if you want the Summit to only react to each trigger once per load.

**Can I change which formula is being dosed mid-cycle?**
This can be done in Formula or Latched Mode, but with the following stipulations:

- The current pump action will complete.
- You must change formula prior to basing any later pump actions on it. Because the last "End" pump is usually counted as formula completion, the new formula is the one that would be logged. An exception to this would be if the "End" pump setting was left as P1, and P1 ran prior to switching the formula name.

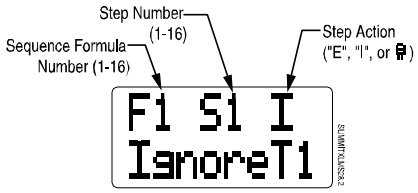
### Sequence Mode Programming

In contrast to Formula Mode's usual use of fill-valve signals to trigger chemical pumps, Sequence Mode typically uses the drain valve signal to indicate a drain has just ended, and a wash or rinse is beginning. By counting the number of drains, you determine when to dose chemical. For example, if for " bright colors" (or some other load class), we find that the washer drains twice before pre-wash, we would program step 1 and step 2 as "I" (Ignore). Step 1 is performed when the sequence is started, typically by pressing the ACTION button. Step 2 would be performed when the first drain signal is received after the pre-wash. We would program a pump action for step 3, which would be dosing the main wash. If there were 2 rinses after main wash, before final rinse, we would set steps 4 and 5 to "I" (Ignore), and step 6 to a pump action to add softener. We would then set the step after the last pump action to "E" (End), which logs the load as completed in the Formula Count screen.

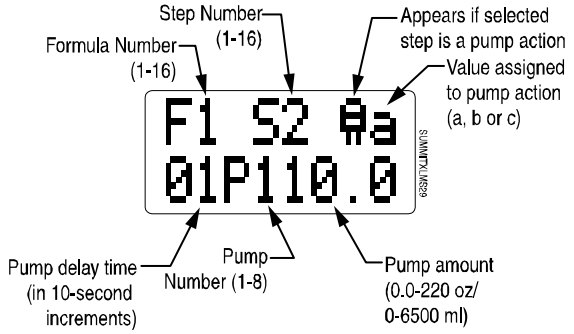



*Screen 11d. Sequence Mode Programming. "E"(End) is the default value for each step and is used as the last step in a sequence.*

Use the "+" and "–" keys to scroll to desired step (S) and formula (F) numbers, and to the step action ("E", for End "I" for Ignore, or pump icon for a pump action) to be associated with each sequence step.




*Screen 11e. Sequence Mode Programming. "I"(Ignore) selection on the far right causes the system to skip a trigger.*




*Screen 11f. Sequence Mode Programming, Programming Pump Actions.*

In the Screen 11f example, step 2 (S2), pump action "a" consists of pump 1 (P1) taking a 10-second delay before pumping 10 ounces of formula 1 (F1). If there were one or more other pumps actions for S2, a "+" sign would appear in place of the "a" in the top right of the screen. No other pump actions exist for S2 in this example.

NOTE *The pump information on the second line of Screen 11f only appears when a pump action (rather than "I" or "E") is assigned for the step action.*

To program a pump action:

1. Select desired formula (F) number.
2. CURSOR to step number (S) and use the "+" and "–" keys to select desired number.
3. CURSOR to the bottom line, and select a pump delay time, if desired, in 10-second increments.
4. CURSOR to the right side of the pump (P) field and input the volume of the formula to be pumped following the delay.
5. If you want to program "b" and/or "c" pump actions for this step, repeat steps 3 and 4.
6. Repeat these steps for all sequences.

TECH NOTE *Pressing the ACTION key while a step number is flashing inserts a new step and shifts the previously-displayed step number down (e.g., the previous S2 becomes S3) and the new step's default state value is "I" (IgnoreT1).*

**Operational Details**

- T1 and T2 are ignored during pump delays and pump actions.
- While T2 is active, consecutive pump steps run without needing T1 triggers to activate them.
- If the first step (S) #1 is a pump amount (instead of "I"), the pump will start immediately when the sequence is started (after any delay programmed for that step).
- The "E" event is initiated by the completion of the previous (last) pump event. There need not be an actual T1 event.
- If the same pump receives a second instruction to feed while already feeding, it will wait until the first feed is complete before beginning the second feed. The second feed will not be cancelled, nor will its volume be reduced.

## Sequence Mode Configuration Options

**Washer with no triggers**

To run sequences without a T1 signal, set T2 to "–" in the **Trigger Qualification** screen. Sequences will rely on pump delay times to "know" when to pump during the wash cycle. Setting the T2 to a "–" tells the system to run without a T1 signal.

The sequence is started when the operator presses the ACTION key. The sequence will then run to completion. After completion of the formula sequence, pressing the ACTION key will start another formula sequence.

**Automatic start**

If trigger 3 (T3) is attached to the washer-on signal, the sequence displayed on the programmer will start automatically. This eliminates the need to push the ACTION button, though you will still need to select the correct load type/sequence name. Leave the T2 default setting as "+" to wait for a T1 signal before starting each successive step.

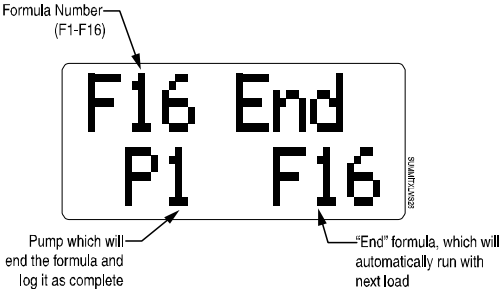
**Automatic start with no T1 drain triggers**

Set T2 to "–" in the **Trigger Qualification** menu and connect the washer-on signal to T3. Sequences of pump steps will occur automatically when the washer-on signal is received.

## End Pump Assignment (for Formula Mode)

Pressing the MENU key from Formula, Latched or Smart Relay programming screens takes you to the End Pump Assignment screen. The "End Pump" determines which pump action will log the formula as complete, and allows the system to change the formula number automatically when a formula ends.

The default "End" pump is P1.You will select the pump that will signal the end of the selected formula (F1-F16), and log the formula as complete. Each formula can have a different "End" pump.




*Screen 12. End Pump/End Formula Assignment*

The Screen 12 example shows pump 1 (P1) will be the last pump that runs for formula 16 (F16). Once P1 has finished its

assignment, F1 will log as complete in the Formula Counts screen.

1. Use the “+” and “–” keys to scroll to the formula number (F) for which you will create an “End” pump.
2. CURSOR to the bottom line, and make sure it says “End” on the left side.
3. CURSOR to the pump (P) field, and use the “+” and “–” keys to select the “End” pump.

**Example of End Pump Assignment**

Suppose the “End” pump is set to pump 8 on a washer using only 3 triggers, and none of those 3 triggers has a pump action for pump 8. The Summit will perform each pump action once, and then wait indefinitely for the pump 8 action that will reset the latch for the next wash load. Because that action never occurs, the latch never resets and continues ignoring signals. Changing the formulas will not reset the latch, because the dispenser will still be waiting for pump 8, but turning the power off and on will reset the latches.

**General Notes on End Pump Assignment**

- This menu does not appear in Sequence Mode. In Sequence Mode, the formula is logged as complete when the “E” step is reached.
    - Formulas will be logged as complete regardless of whether an alarm occurred. Alarms will be logged at the same time as the formulas are logged.

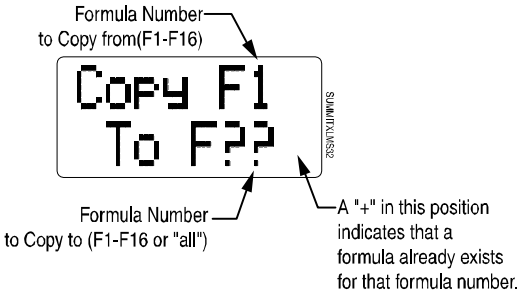
### New Formula Assignment

This option allows another formula to be automatically chosen when a certain formula is complete. This is especially useful for preventing the addition of bleach if the operator forgets to select a new formula for the next load.

Any formula number can be assigned as the “End” formula (F1-16). The default “End” formula is the current formula.

### Formula Copy (for Formula Mode)

The Formula Copy feature allows you to copy an existing formula and all of its properties to another formula for faster programming.



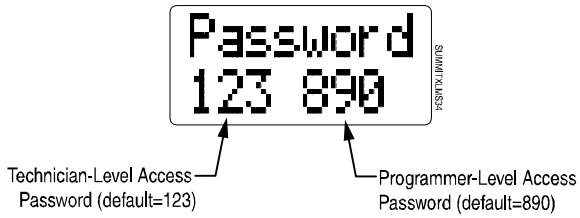

*Screen 13. Formula Copy*

Press and hold the ACTION key for 2 seconds to copy the formula shown on the top line to the formula shown on the bottom line.


*Copying a formula to “all” will overwrite all other formulas.*

*When a “+” is displayed in the lower right corner, a formula already exists for the formula number to which you are copying. The existing formula will be overwritten after you press the ACTION key.*

### Change Passwords



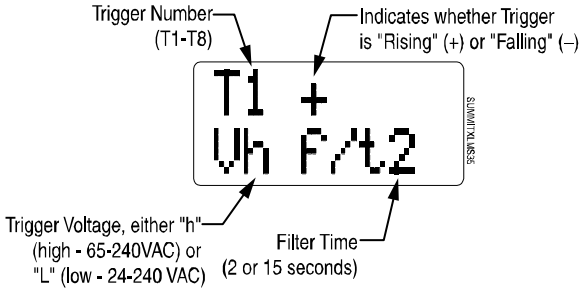

*Screen 14. Creating Technician/Programmer-Level Passwords*

Change passwords using the “+” and “–” keys and the CURSOR key to move across the screen.

Entering a “000” password for either level means that no password is required for that level of access. Entering 000 for the Programmer level access will allow anyone access to all screens, and the ability to alter programming data, regardless of whether the technician level access is 000.

### Trigger Qualification

Set voltage and filter time parameters in this screen to protect against false or intermittent trigger signals. The system can also be programmed to accept high or low voltage signals. In most installations, you will not need to modify these settings.




*Screen 15. Trigger Setup*

The Screen 15 example shows that trigger 1 (T1) is “rising” (+). A rising trigger edge indicates that the trigger activates when voltage is present, where a “falling”(–) trigger edge indicates that the trigger activates when voltage disappears. Default setting is “+”. The most common reason for changing trigger polarity is changing the T1 signal when in Sequence Mode.

Screen 15 also shows that the trigger is high (h) voltage, indicating that it is between 65 and 240 VAC. Either the “h” or “L” setting can be used with 24-120 VDC.


*The trigger circuit is designed to withstand voltages up to 240 VAC independent of the threshold setting. No damage will occur if you select an inappropriate setting. The trigger voltage selection is a detection threshold setting only.*

The filter time (f/t) is the amount of time you want the trigger to be active before the dispenser acts upon it. Screen 15 shows that the Summit will begin the trigger action after the signal has been

active for the default time of 2 seconds. Select 15 if your system is particularly vulnerable to erroneous triggering caused by electrical noise.

1. Using the "+" and "–" keys, select the trigger you wish to qualify.
2. Use the CURSOR key to move to the bottom line, and select high ("h") or low ("L") voltage.
3. Use the CURSOR key to move to the filter time (f/t) field, and select a filter time of either 2 or 15 seconds.

## Copying ("Cloning") Washer Setup Data from One Pump Box to Another

This feature allows you to copy or "clone" setup information from the Summit main pump box to a programmer, and then download the setup to other pump boxes. This allows you to do all programming for several Summits at one time, rather than having to configure each washer or account individually. Even if you are copying to a dispenser with different pump and dose sizes for a different-size washer, copying will save you time because you won't need to re-enter formula names. Also, it is faster to adjust a formula rather than re-enter it completely.

This feature can also be used when troubleshooting, to overwrite an Summit's programming with either blank settings or different settings.

The only information that cannot be copied is pump run time data, trigger counts, calibration amounts and formula counts.

**Receiving Cloned Setups**


*Screen 17. Receiving Cloned Setups*

Pressing the ACTION key from Screen 17 "clones" all of the Summit's programmed setups from its main pump box to the programmer. During cloning, a right arrow icon flashes in the lower left-hand corner of the display.

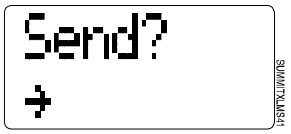

If an error occurs during cloning, "Error" will be displayed at the bottom of the screen. If this occurs, check the cable connections and try again.


When cloning (upload from pump box to programmer) is done, the bottom line returns to its original state as shown in Screen 17.

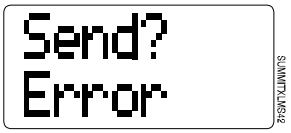
**Sending Cloned Setups**


*Screen 18. Sending Cloned Setups*

Pressing the ACTION key from Screen 18 copies all data from the programmer to the Summit's main pump box memory. Any existing run time data, trigger counts, and calibration amounts in the pump box will remain the same. During cloning, a right arrow icon flashes in the lower left-hand corner of the display.

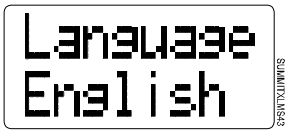



If an error occurs during cloning, the screen will display the word "Error" on the bottom line. If this occurs, check the cable connections and try again.




## Language Selection

Pressing the "+" or "– "keys takes you through the different language options.




*Screen 19. Language Selection*

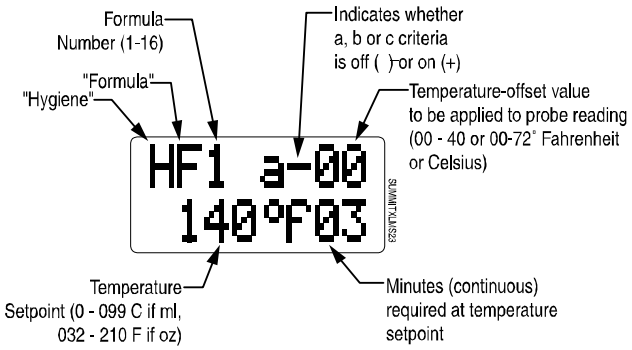
Available language selections are English, Portuguese ("Portuges"), French-Canadian ("FrCanada"), Finnish, Turkish, French, German, Spanish and Japanese. Default language is English.

## Hygiene Verification

The Hygiene Verification issues an alarm whenever the wash water fails to maintain a certain temperature for a certain amount of time.

3 different criteria, (a, b, or c) may be set for hygiene verification. This is intended to accommodate time/temperature options such as 90º for 3 minutes OR 80º for 10 minutes.

Only ONE criterion needs to pass per formula. An alarm will only occur if the formula fails ALL criteria. For example, if a, b OR c is met, the formula passes. If neither a, b NOR c is met, the formula fails.




*Screen 20. Hygiene Verification*

Screen 20 shows that criterion "a" requires that the wash water maintain a temperature of 140 degrees Fahrenheit for 3 minutes. The "–" in the top center of the screen indicates that for formula 1 (F1), criterion "a" is turned off. This means that temperature and duration requirements for "a" do not apply to F1, but may apply to another formula.

**Temperature Offset Value**

Screen 20 also shows an "temperature offset value" of "00". The temperature offset value can be set to correct for a temperature probe that may vary a few degrees from the actual temperature. For example, if you know that your temperature probe reading is 10 degrees below the actual temperature of the wash water, you can create an offset value of 10. The programmer will incorporate this offset value in its temperature reading, so you will always see the actual temperature of the wash water when you view this screen.

1. By default, criterion "a" is turned off, as indicated by the "–" in the top center of the screen. If you want criterion "a" active for the current formula, use the "+" or "–" key to change the "–" to a "+".
2. CURSOR to the top right of the screen to enter an offset value, if desired, between 0 and 40 degrees Fahrenheit (if oz is selected) or Celsius if ml is selected.
3. Advance to the bottom line using the CURSOR key, and set the temperature and duration requirements for criterion "a".
4. Repeat for criteria "b" and "c".
5. Repeat for all formulas that have hygiene requirements, setting the "+"/"–" appropriately based on hygiene requirements.

NOTE

- *Changing a criterion affects all other formulas using that criterion. a, b, and c are the same for all formulas.*
- *To pass hygiene a criterion, the formula's time at or above the temperature setpoint must occur over a continuous time period.*

For each module to receive chemical, select the module number and change the pump's "—" to its number to assign the pump to the module number on the top line. In the example below, pump 3 will pump to module 1. You must assign the pumps. If the pumps are not assigned to modules, they will not run.

# MAINTENANCE

## PUMP MOTOR AND TUBE REPLACEMENT SCHEDULE

CAUTION!

*Switch the Summit power off at the pump box to ensure trigger signals do not initiate dosing during maintenance.*

*Die Summit am Pumpenkasten ausschalten, um sicherzustellen, dass das Auslösesignal während der Wartungsarbeiten die Dosierung nicht auslöst.*

Because every installation is different, an exact tube replacement schedule is difficult to specify. With use, the tube slowly evolves from round to oval, and the amount of chemical pumped decreases. By regularly checking the amount of chemical pumped, you can determine general tube life. We recommend that you closely monitor the time it takes the original tube to reach the end of its flex life, and then establish a replacement schedule. Once the flow rate goes down to 50% of its original flow rate, it has reached the end of its flex life and should be replaced. Replacing tubes at regularly scheduled intervals ensures more accurate product use and reduces service calls. In general, using short, large-diameter feed lines will improve pump tube life and tubes will last over a year with optimal hydraulic and chemical conditions.

NOTE

*It is very important not to let the tubes wear to the point where they tear and allow chemicals to leak.*

*Die Schläuche dürfen sich nicht so weit abnutzen, dass sich Risse bilden und ein Austreten der Chemikalien möglich wird.*

CAUTION!

*To protect against pressurized chemical spray, wrap a rag around tube connections when replacing tubes.*

*Pour une protection contre les projections de produits chimiques pressurisées, entourer les connexions avec un chiffon pendant le remplacement des tubes.*

*Zum Schutz vor unter Druck stehenden Chemikalien sollte beim Austauschen der Rohre ein Lappen um die Anschlüsse gewickelt werden.*

CAUTION!

*We recommend that personal protective equipment (such as safety glasses, gloves, face shield and apron) be worn during servicing.*

CAUTION!

*Before servicing, be aware of potential static head pressure and the possibility of chemical exposure.*

NOTE

- *Other than occasional wiping of external surfaces with a dry cloth, no cleaning of equipment is required.*
- *À part essuyer de temps en temps les surfaces extérieures avec un chiffon sec, cet appareil ne nécessite aucun entretien.*
- *Die Außenseite des Gerätes gelegentlich mit einem trockenen Tuch abwischen. Ansonsten ist keine Reinigung erforderlich.*

# TROUBLESHOOTING

## ALARMS

| Problem | Possible Cause | Solution |
|---|---|---|
| System Alarm | 1. System components cannot communicate | 1. a) Check telephone cord connections to the trigger module, programmer and main PCB.<br><br>b) Remove telephone cord and replace. Try this a couple of times to see if connection is established.<br><br>c) Try a different telephone cord. System Alarms cannot be cleared without correcting problem.<br>d). If you spliced or crimped the cord connections, splice/crimp them again. We recommend that you use the cord that comes with the unit, uncut, because field-crimped telephone cord connections are a leading cause of system errors. |
| | 2. You are not using the correct programmer. | 2. Make sure you are using the GREY programmer. The white programmer is for the Summit OPL. |
| Hygiene Alarm | Wash water temperature didn't meet the programmed parameters | Check wash water temperature. Incidents will be recorded. Most alarms can be cleared by pressing the ACTION key. **See Screen 4.** |
| Low Chemical Alarm | Chemical level is low. | Check chemical supply. |
| No Flow Alarm | 1. Water flow past the flow switch has dropped below the required minimum flow of 1.1 liters (0.3 GPM). | 1. Check water source for required flow. See Specifications. If flow is within specifications, inspect flow switch plunger and spring for damage or debris. |
| | 2. Debris obstructing flow switch operation or damaged plunger or spring in flow switch | 2. Alarm condition will clear automatically once correct water flow is restored. |
| | 3. Trigger present for more than 5 minutes | 3. Press CURSOR key to check if a trigger is locked on. Reprogram that trigger if micro-controlled washer. If not, use a different trigger. |

## VOLTAGE TRIGGER PROBLEMS

| | | |
|---|---|---|
| Valid triggers received, but pumps do not pump | 1. Incorrect programming of voltage type (high or low) or state (rising or falling).<br>2. Flickering triggers caused by electrical noise. If in Formula Mode, chemical volumes not programmed.<br>3. Filter time set to 15 seconds.<br>4. Still in programming mode. | 1. Correct programming. (See Screen 15 or 16, depending on mode of operation selected).<br>2. Use diagnostics Screen 5 to validate presence of triggers. If triggers present but flashing, indicates not acted upon yet. If electrical noise, use filter time qualifier (See Screen 15, filter time qualifier for Formula, Latched or Sequence Mode). Ensure chemical dosage amounts are programmed, if in Formula Mode.<br>3. If filter time set to 15 seconds, pump will not start pumping until after the 15 seconds is reached.<br>4. Pumps will not activate while still in programming mode. Exit programming mode. |
| No display at programmer<br>Keine Anzeige am Programmiergerät. | 1. No incoming power or blown power supply.<br>*Keine Stromversorgung oder Netzteil durchgebrannt.*<br>2. Problem with communications cables.<br>*Problem mit den Kommunikationskabeln.* | 1. Check incoming power. Replace power supply if necessary.<br>*Stromversorgung überprüfen. Falls erforderlich, Netzteil ersetzen.*<br>2. Check communications cable from programmer and connections to internal pump box modules.<br>*Kommunikationskabel vom Programmiergerät und Verbindungen zu den internen Pumpenkastenmodulen überprüfen.* |
| System will only run Formula 1. | Programmer not attached | Without the programmer attached, there is no way to change formula numbers. The system will keep running the same formula Reattach the programmer if formula selection is required. |

## PUMP PROBLEMS

| | | |
|---|---|---|
| One pump not working, or runs backwards. | 1. Wires to motor may be reversed.<br>2. Incorrect polarity.<br>3. No chemical amount programmed for the pump. | 1. Check pump wiring connections. Correct if reversed.<br>2. Check trigger signal polarity (in most cases polarity should be "+").<br>3. Set a chemical amount for the pump. |
| All pumps not working<br>*Pumpen funktionieren nicht.* | 1. Power off.<br>*Gerät ausgeschaltet.*<br>2. Trigger signal not being received from the washer<br>*Auslösesignal wird nicht von der Waschmaschine empfangen.*<br>3. Wire from pump box to programmer is too long.<br>*Kabel vom Pumpenkasten zum Programmiergerät ist zu lang.* | 1. Make sure power is on.<br>*Überprüfen, ob die Pumpe eingeschaltet ist.*<br>2. Make sure that a trigger signal is being received from the washer.<br>*Die Sicherung im Netzteil überprüfen. Bei durchgebrannter Sicherung Netzteil ersetzen.*<br>Make sure trigger signal is being received from the washer, unless running in triggerless Sequence Mode.<br>*Sicherstellen, dass das Auslösesignal von der Waschmaschine empfangen wird.*<br>3. Make sure that the wire length from the pump box to the programmer is under 100' (30.5 meters).<br>*Sicherstellen, dass das Kabel vom Pumpenkasten zum Programmiergerät nicht länger als 30,5 m ist.* |
| Pumps won't prime | 1. Flush water flow is insufficient or off. | 1. Restore water flow. |
| Pumps on but not pumping chemical. | Too much vacuum created. | 1. Make sure supply line is not up against the side or bottom of the chemical drum.<br>2. Supply lines may be too small for viscous chemicals, or run is too long.<br>3. Check for kinks in intake supply.<br>4. Pump tube may be worn, or there may be an air leak on intake side of pump. |
| Pump turns on too late. | 1. A delay has been programmed for that pump.<br>2. Trigger qualifier screen is set for incorrect voltage type/state.<br>3. System current consumption too high | 1. Reduce delay time in Programming screen (see Screens 11a and 11b).<br>2. See "Valid triggers received but pumps do not pump" under **Voltage/Trigger Problems.**<br>3. Verify that tubing is installed as recommended. Using small tubing can increase pumps' electrical current consumption such that a pump delay is possible when attempting to run all pumps at once. |
| Wrong pump runs. | 1. Incorrect pump/trigger assignment.<br>2. Incorrect pump motor wiring. | 1. Check programming to ensure that correct pump is assigned to correct trigger.<br>2. Check pump motor wiring harness to ensure that it is correctly connected to the main PCB. It could be one pin off. |
| Pumps turn on and off repeatedly while dosing. | Smart Relay Mode call rate low. | 1. The system is designed so the pumps can cycle on and off. Running in this manner will not effect performance or motor longevity.<br>2. To prevent pumps from turning on and off, use a call rate larger than the flow rate shown on the calibration screen. For example, if the flow rate is 20 oz/min, use a call rate that is over 0.3 oz/min, such as 0.5 oz/min. |

## PASSWORDS

| | | |
|---|---|---|
| My password doesn't work. | Someone has changed the password. | Contact Technical Support |

## LATCHED MODE PROGRAMMING

| | | |
|---|---|---|
| In Latched Formula Mode, pumping occurred on the first wash load but not on the second or third loads. | End pump is set to pump that doesn't receive triggers, and the latch fails to reset | Change end pump assignment to a pump that receives a trigger. See **Latched Formula Mode** programming section. |
| Each load is being logged as two loads. | Usually occurs when the "End" pump signal is received, and then occurs again prior to the wash load's completion. | This may happen if the final rinse solenoid is the "End" pump, and it is used twice. To prevent this from happening, assign a pump delay and a '0' dosage amount to any pump other than the "End" pump, as a separate pump action for the "End" pump trigger signal. The pump delay must last until the final spin cycle to ensure that no further erroneous signals are received. While pump delay is active, all signals will be ignored, and the wash load will only be counted as one complete formula. |

## CLONING

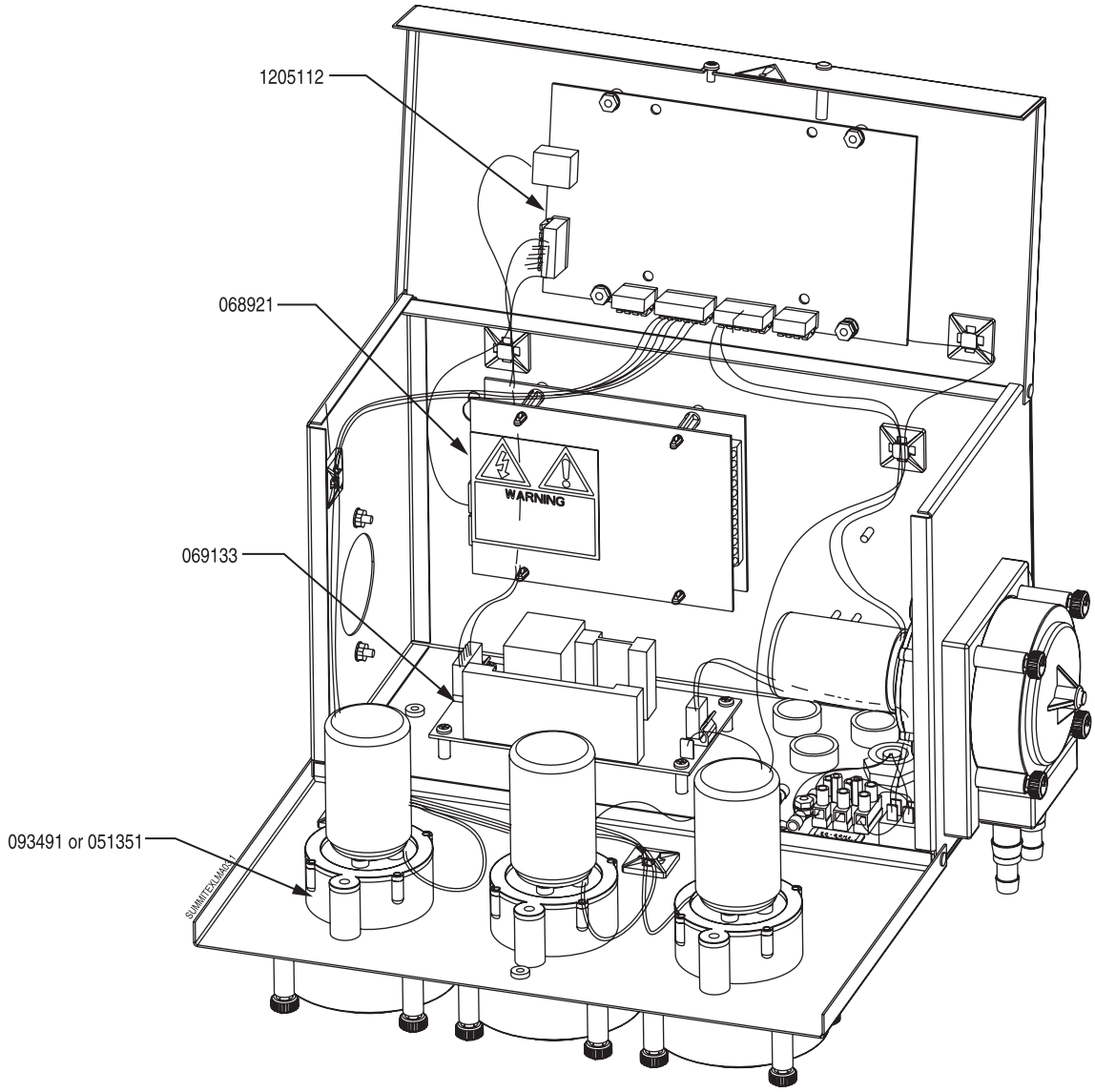
| | | |
|---|---|---|
| "Error" is displayed when I attempt to clone my programmer. | 1. Damaged cable.<br>2. Defective programmer. | 1. Check communications cables and plugs for damage. Replace as necessary.<br>2. Plug both programmers into pump box and verify working. |

## OTHER PROBLEMS

| | | |
|---|---|---|
| Pressing the ACTION key doesn't cancel the System alarm. | System alarms cannot be cancelled. A System alarm indicates the dispenser components are not communicating. | 1. Turn power off.<br>2. Check cables for damage. If any cables have exposed wires, replace them and proceed to #5.<br>3. Disconnect and reconnect the telephone-type connectors, making sure they are free of moisture, dirt, or other foreign matter.<br>4. Restore power.<br>5. If the alarm is still displayed on the programmer, use a voltmeter to check the alarm output on the pumpbox PCB's 24 VAC alarm output. If there is no voltage output for the alarm, the pump box PCB probably needs to be replaced.<br>6. If there is a voltage output, turn the power off and replace the washer interface module. Then restore power.<br>7. If the alarm is still displayed, turn power off again, replace original washer interface module, and attach a different programmer. |
| **I exited Program mode and a No Flow alarm started flashing** | Trying to prime or calibrate a pump that is not attached will cause this symptom. | 1. Cancel the alarm by pressing the ACTION key.<br>2. If the alarm persists, check programmed information to be sure that you have not programmed pump amounts to pumps that do not exist. |

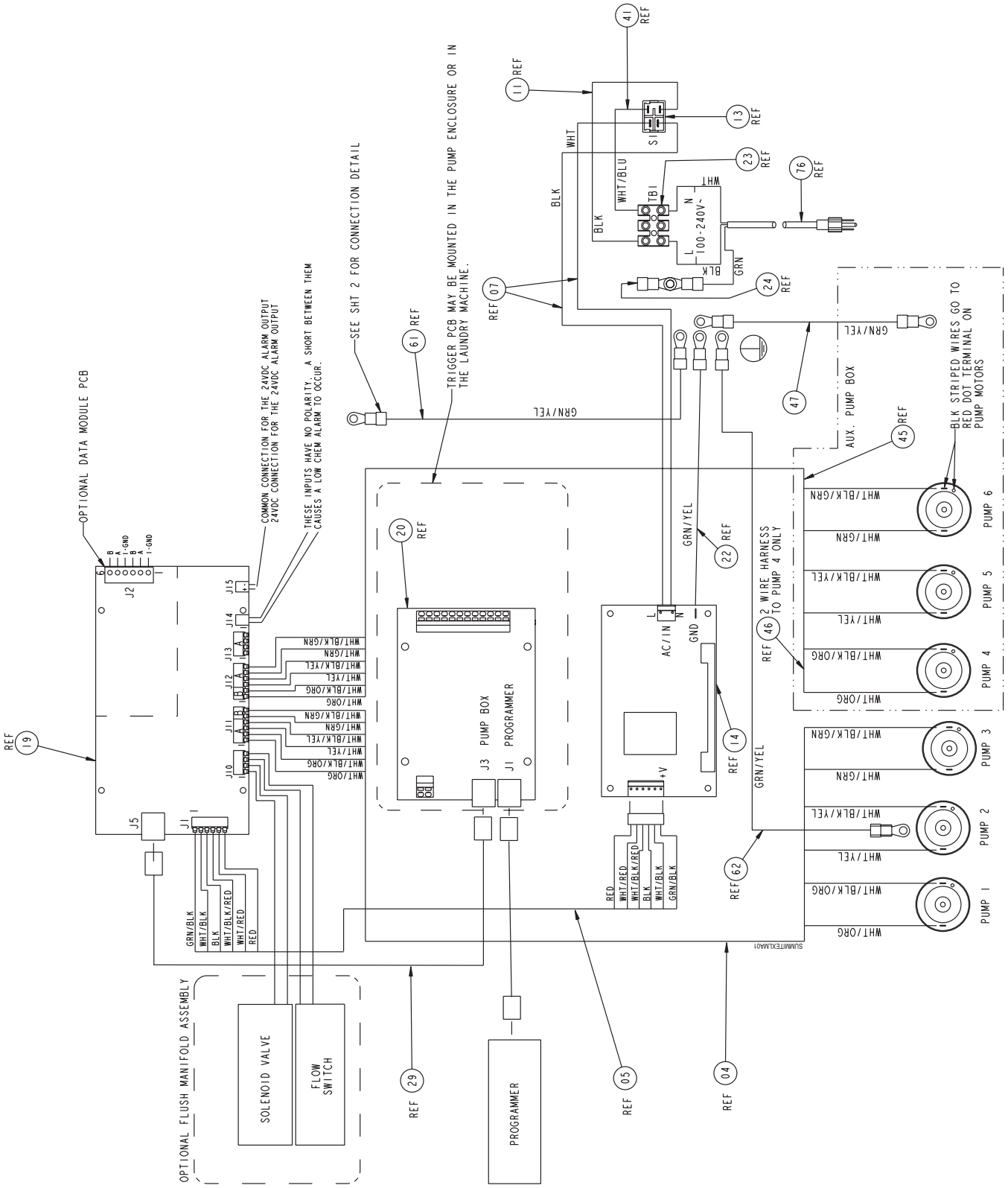
# DRAWING LIBRARY

## SUMMIT E ENCLOSURE




| Code# | Description |
|---|---|
| 093491 | 600 Series motor gearbox |
| 051351 | 100 Series motor gearbox |
| 069133 | Summit E power supply |
| 068921 | TR-6000 trigger board |
| 1205112 | Summit E pump driver PCB |

# SUMMIT E 4-PUMP WIRING DIAGRAM



# APPENDIX-SUMMIT DATA

The Summit Data Module consists of a data logging PCB which can be used with Summit E. To determine if your dispenser is compatible with Data, look for **all three** of the following components on the dispenser's main PCB:

- A Molex pin connector (J13) labeled "PUMPS 7-8"
- A pin connector (J4) labeled "Data Module"
- A light-emitting diode (LED) labeled "D11".

See Figure D1 for the position of these components.

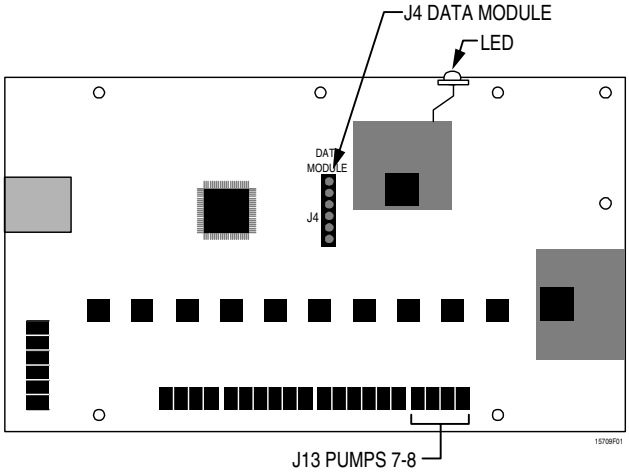



*Figure D1. Dispenser main PCB, component locations*

The Summit Data Module must be used in conjunction with ManageNet Software (sold separately).

For detailed instruction on the use of ManageNet software see the ManageNet Installation and Operation Manual. This document assumes the user has at least a rudimentary knowledge of ManageNet.

## INSTALLATION OF THE DATA MODULE

1. Ensure that the dispenser is off by disconnecting the power (the LED should not be lit).
2. Remove the Data PCB from the packing material.
3. Place the Data PCB over the Main PCB as shown. The six pins of pin connector J4 (labeled "Data Module") near the center of the main PCB must insert into the complementary connector on the underside of the Data PCB. The pins must be lined up correctly, with one pin in each hole with the outer edges of the Data PCB exactly aligned with those of the dispenser main PCB. Be careful not to bend the pins. See Figure D1a.

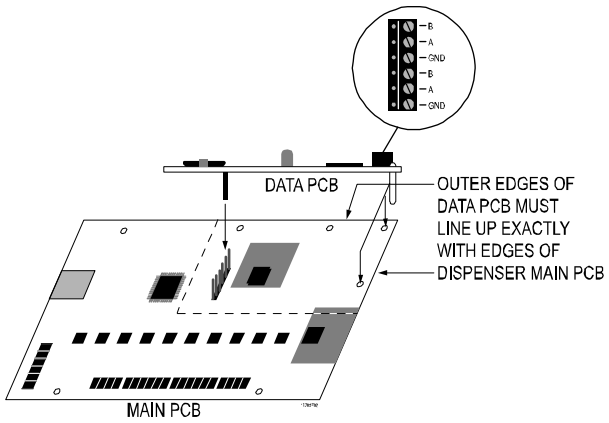


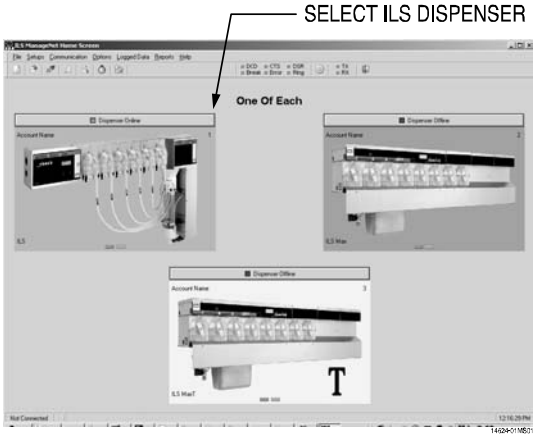

*Figure D1a. Data PCB alignment over main PCB*

4. The white spacers will line up with their respective holes as shown. Click the PCB into place.

Proceed with software installation as described in the software installation and operation manual.

## GENERAL TIPS FOR USE OF SUMMIT DATA MODULE

1. In order for a Data Module-equipped Summit E to work with ManageNet software, it is necessary that it emulate an ILS dispenser.
2. When setting up Summit E with the Data Module, these dispensers do not appear in the ManageNet 3.11 pick list. Select **ILS** for each Summit E you plan to set up. A graphic of ILS will appear (see Figure D2).
3. When connecting a Data Module-equipped Summit E, you must set the clock and purge the memory prior to setup. Purging the memory will not affect the formulas. Information on setting the clock and purging memory is discussed later in this document.




*FigureD2. Data-capable Summit E will appear as ILS in ManageNet*

4. Cloning of formulas must be done with the handheld programmer and can not be done via the ManageNet Software.

## COMMUNICATION CAPABILITY

1. Communication between ManageNet and the Summit Data Module is one way (for the most part). ManageNet can retrieve and log data from the Data Module but cannot program the dispenser. ***All programming of the dispenser must occur at the dispenser using the handheld programmer.***
2. ManageNet does have access to setups used exclusively for data-logging purposes. These setups can be viewed and/or set remotely using ManageNet. These setups are not accessible via the handheld programmer, and may not be copied to another Data by cloning.

### Communication Summary

Setups related to the actual dispensing of chemicals may be made only via the handheld programmer, not by ManageNet. Setups related to data logging may be made only via ManageNet, and not by the handheld programmer.

## VERSIONS OF MANAGENET SUPPORTED

A Data Module-equipped Summit E may be used with either version 2 or version 3 of ManageNet. It was specifically tested with versions 2.1 and 3.11. This document refers to the use of Data Module-equipped Summit E with ManageNet version 3.11. Older versions may have slight differences in operation.

## BASIC SETUP

The Data Module in a Summit E connects to a ManageNet-capable computer in the same manner as an ILS or an ILS Max. A two-wire cable (A and B, with an optional ground wire) is run from the J2 terminal block on the Data Module to an RS-232 to RS-485 converter or to a protocol converter.

The A terminal on the Data board connects to the B terminal on the protocol converter. The B terminal on the Data board connects to the A terminal on the protocol converter.

When daisy-chaining multiple Data boards together, A terminals connect to A terminals and B terminals connect to B terminals. See Figure D3 for the location of the J2 terminal block on the Data Module.

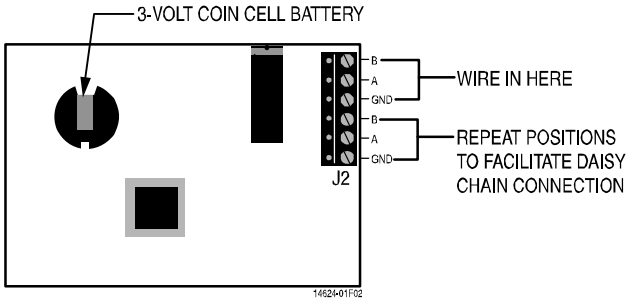



*Figure D3. Data Module*

As with the ILS and ILS Max, the Summit Data Module may be built into a dispenser network via a daisy chain arrangement. The connector positions (A, B & GND) repeat on the J2 terminal block to facilitate daisy chaining (see Figure D3). Consult the ManageNet installation and operating manual for further details on wiring multiple dispensers.

The network address of Data Module-equipped Summit Es is set using the handheld programmer. When a Data Module is plugged in, a new setup screen appears, allowing the network ID to be set to any number between 01 and 99. Each dispenser in a network must have a unique address.

When using ManageNet to connect to or create an account containing Data Module-equipped Summit E's, **ManageNet must be told that the Data Module-equipped dispenser is an ILS.** If ManageNet is told to poll the network to see which dispensers are present, it will recognize the Data Modules in the network as ILS dispensers.

Data Module-equipped Summit E's will appear in the ManageNet main window as ILS dispensers (the graphic will be that of an ILS).

**Important**: It is difficult to tell the difference between Summit E Data and ILS from the ManageNet software screens without actually looking at the dispensers. Be sure to record the address you assign to each dispenser to prevent confusion.

## SETTING NETWORK ID ADDRESSES

Each dispenser must have its own unique network ID address in order to track its performance with Data. To create network ID address for each dispenser:

1. Make sure programmer is connected to dispenser for which you are setting network ID.
2. Press the MENU button until you get to the following screen:


*Figure D4. Network ID screen*

3. Press the SCROLL button until you get to the number on the bottom line and assign an address number to the dispenser between. The number can be from 1 to 99.
4. Repeat for each dispenser, giving each dispenser a unique ID number.

## SETTING THE CLOCK AND PURGING THE DATA LOGGING MEMORY

After selecting the dispenser's network address, use ManageNet to set the clock at the **Synchronize Clocks Window**. The chemical pump run time and squeeze tube time in service dates will be set to the current clock time and date, so the clock time should be checked and adjusted if necessary **prior to performing a purge.**

### The Purge Screen

The purge screen allows the logged data to be purged (erased). It is important to purge a Data Module before setup to ensure that no old data is present. ***This purge has no effect on the formulas***; it clears the data logged in ManageNet to allow the

program to start logging data with empty files. This helps prevent confusion and erroneous reporting.

To perform a purge, go to the **"Purge?"** screen (see Figure D4a); press and hold the 'action' button until a flashing arrow appears to signify that the purge is in progress.


*Figure D4a. Purge Screen*

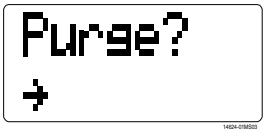



*Figure D4b. Purge in progress*

The purge takes 30 to 60 seconds to complete, at which time the flashing arrow will disappear.

After a purge, the logged data memory will be blank, and all of the setups that affect that Data Module will be gone. The clock is not affected by a purge. The setups may be restored after the purge by resending them from ManageNet.

## BACKUP BATTERY

The Data Module has a 3 volt coin cell battery (see Figure D3) to run the internal clock (BR2330 Panasonic).

Under normal circumstances, this battery should last several years. A bad battery will cause the clock setting to revert to the default value if power to the unit is lost. Cycle records will show incorrect dates and times after the power loss. If the battery ever needs replacing, you can slip it out and slip a new battery into the battery holder (code #058942). When you replace the clock battery, you must reset the clock. Set the clock from the **Synchronize Clocks Window** as described under **SETTING THE CLOCK AND PURGING THE DATA LOGGING MEMORY**. Following this, you should perform a logged data purge to properly clear any corrupted data.

## MANAGENET SETUPS, WINDOW BY WINDOW

### Account Setup Window

All the settings adjusted in this window will be recognized and accepted by the Data Module except the metric/US units setting. The Metric/US units setting must be done at the dispenser using the handheld programmer as well as in the General Account Setup Window. Be sure the same units (metric or US) are used in both areas.

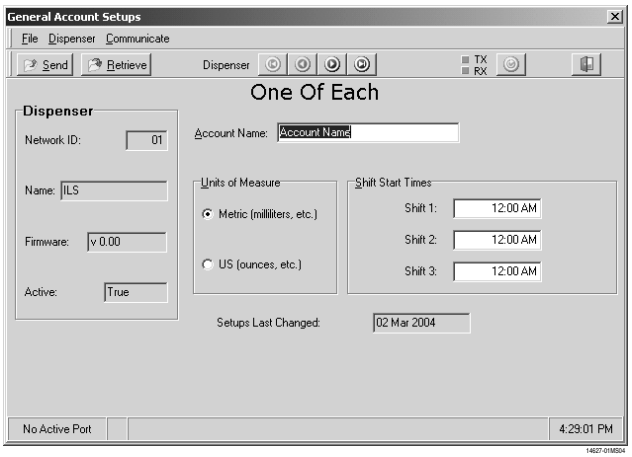



*Figure D5. General Account Setup Window*

### Chemical Supply Setup Window

- The Dilution Factor, Minimum Water Temperature, and Force Slow Speed settings will be ignored by the Data Module, and default values will be returned when read.
- The Pump Speed Calibrations from this window will not be accepted by the Data Module. A value of zero will be displayed. Calibration of the pumps on Data Module-equipped Summit E must be done using the handheld programmer.

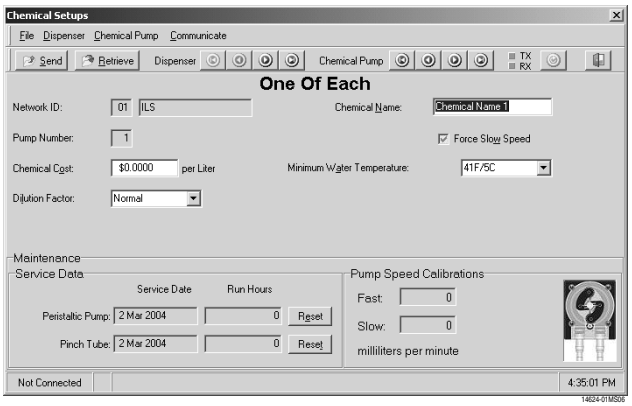



*Figure D6. Chemical Supply Setup Window*

Other settings on this screen relate to data logging, and will be honored by the Data Module.

### Washer / Transport Pump Setup Window

Only the Washer Name setting from this window will be recognized by the Data Module. All other settings modified in the screen will be ignored. The Transport Pump Service Date and Run Hours are fixed, and can not be changed.

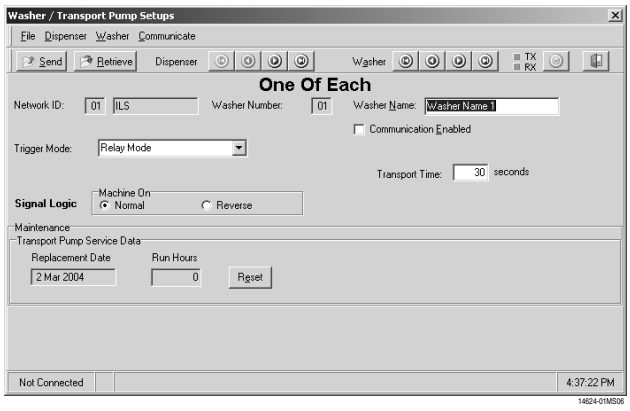



*Figure D7. Washer/Transport Pump Settings*

## Load Classification Setups Window

All the settings in this window will be recorded and used by the Data Module. However, special consideration must be given to the classification names. The classification names are used for reporting only and will not appear in the Formula Name screens on the handheld programmer. **Classification names must be programmed in ManageNet and formula names must be programmed at the dispenser using the handheld programmer.** Mismatched names could cause confusion in the washer cycle log, so the person doing the setup must ensure that the two sets of names agree.


*Data Module-equipped Summit E's have a maximum of 16 formulas; the **Load Classification Window** in ManageNet allows you to input up to 30. Therefore, only formulas 1 through 16 will be used and classifications 17 through 30 will not be logged. Unlike an ILS, the Data Module will never log an unidentified cycle, so there is no need to enter the run time and weight for unidentified cycles into classification 30.*

## Trigger Setup Window

None of the settings made via this screen apply to data logging so all will be ignored by the Data Module.

## Synchronize Clocks Window

This window works just as with an ILS, setting the date and time used by the battery-backed clock on the Data Module.

## Backup (Retrieve All) and Restore (Send All)

These two operations work with Data Module-equipped Summit E's as they do with ILS. All setup information can be sent or retrieved in a single operation.

The Data Module will ignore those settings that don't apply to it such as information intended for a second washer (a feature supported by ILS but not supported by Summit E). When ManageNet retrieves setups information from the Data Module, the Data Module will send back default data for those settings it doesn't support.

## Retrieve RAM Image and Send RAM Image

These two operations do not work with Data Module-equipped Summit E. Attempting to use them will cause dispenser communication errors.

For more information on the operation of ManageNet see the ManageNet Installation and Operation Manual.

## NOTICE REGARDING CHANGES

Material in this manual is subject to change without notice. Special circumstances involving important design, operation, or application information will be released via Equipment Technical Bulletins. Every effort has been made to ensure this information is accurate, but no guarantee is made as to the accuracy or completeness of this document.

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