L5000Plus

Beta

Troubleshooting Guide

Contents

Safety

Always wear the required Personal Protective Equipment (including gloves and goggles that must be worn when potentially exposed to any hazardous materials and when carrying out hazardous work tasks). Turn the dispenser off during cleaning and note that parts may be contaminated with product. If possible, flush tubing out with water prior to carrying out any maintenance. For information on products that are used in this dispenser, please carefully read the product label and Material Safety Data Sheet (MSDS).

Electrical installation of this dispenser should only be performed by trained personnel in accordance with local electrical wiring regulations. Before working on this dispenser, isolate it from any electrical source and lock out/tag out.

Disconnect all power to this unit before servicing. Electrical installation of this dispenser should only be performed by trained personnel in accordance with local electrical wiring regulations. Before working on this dispenser, isolate it from any electrical source and lock out/tag out.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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/60 VDC on the same unit.

Adding or replacing pumps, pump tubes or other components should only be performed by qualified personnel.

Grounding is required for safety. It also increases the dispenser's resistance to electrical noise. Failure to properly ground the system may cause the system to exceed emissions standards.

The ground wire must be no longer than the mains wires.

If wires are routed through holes, the holes must also be plugged using cable glands, conduit, etc.

L5000Plus

ALARMS

Problem	Possible Cause	Solution
System Alarm	1. System components cannot communicate	1. a) Check cord connections to the TR8000 L, programmer and main PCB. b) Remove cord (between programmer and TR8000 L) and replace. Try this a few times to see if connection is established. c) Try a different cord. System Alarms cannot be cleared without correcting problem. 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 cord connections are a leading cause of system errors.
	2. You are not using the correct programmer.	2. Make sure you are using the XL GREY programmer. The white programmer is for the old Summit/L5000 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** in **L5000Plus Programming Guide.**
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 gallons) per minute.	1. Check water source for required flow. If flow is sufficient, 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 (in Relay Mode only).	3. Press CURSOR key to check if a trigger is locked on. Reprogram that trigger if using a micro-controlled washer. If not, use a different trigger.
	4. Flush disconnected	4. If you want to disconnect the flush manifold you must unplug it, change the transport time to 0 in the Flush Transport Time Screen (**Screen 21** in **L5000Plus Programming Guide**), exit the Flush Transport Time Screen and then turn the power off and on. If you do not perform each of these steps, the system will behave as though a flush is still connected, issuing a no flow alarm with each feed.
	5. Pump motor failure	5. Check pump motor wiring. Replace pump motor if necessary.

FLUSH MANIFOLD

System pumps but flush doesn't operate.	No apparent flush activity yet pumps dose chemical into manifold.	Check flow switch for proper operation. No flow (or flow < 1.1 LPM/0.3 GPM) should indicate an "open" contact across flow switch leads. Check with Ohmmeter. Ensure water pressure is within specification limits.
Transport time, Screen 21, does not appear when programming and using flush manifold.	Pump box is not recognizing the flush manifold	Check electrical connection from manifold harness, manifold PCB (if applicable to the manifold installed) and J10 on the pump box PCB. NOTE: The pump box only recognizes the flush manifold if it is plugged in before the unit is powered up.
Solenoid valve will not open	Water pressure too high	Install a water pressure regulator where pressure exceeds 60 PSI (4.14 Bar) on input water supply to unit.
Solenoid valve will not open	Electrical problem	1. Ensure 24 VDC to coil from PCB while manually priming. 2. Check resistance (ohms) of solenoid coil. Disconnect wires from solenoid valve and measure across two coil terminals. Should measure approx. 60-130 ohms.
Manifold flushes continuously and no chemical pumps activate	Triggering non-existent pumps	1. In Relay Mode, non-existent pumps (unused pump positions which can be up to position 8) must have a programmed call rate of "0", or if they are triggered, the higher-numbered pump will activate first (in this case, the non-existent pump) and the flush will come on and remain open, making it appear as though the solenoid is stuck open. 2. In other modes, non-existent pumps must have a dose amount of "0" or a similar problem could occur.

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).	1.	Correct programming. (See **Screen 15** in **L5000Plus Programming Guide**).
	2.	Flickering triggers caused by electrical noise. If in Formula Mode, chemical volumes not programmed.	2.	Use diagnostics (See **Screen 5** in **L5000Plus Programming Guide**) to validate presence of triggers. If trigger is present but flashing, this indicates it has not yet been acted upon. If electrical noise is the cause, use filter time qualifier (See **Screen 15** in **L5000Plus Programming Guide**). Ensure chemical dosage volumes are programmed, if in Formula Mode.
	3.	Filter time set to 15 seconds.	3.	If filter time set to 15 seconds, pump will not start pumping until after the 15 seconds is reached.
	4.	Still in programming mode.	4.	Pumps will not activate while still in programming mode. Exit programming mode.
No display at programmer	1.	No incoming power or blown power supply.	1.	Check incoming power. Replace power supply if necessary.
	2.	Problem with communications cables.	2.	Check communications cable from programmer and connections to internal pump box modules.
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 (except when in Smart Relay or TAFS Mode). Reattach the programmer if formula selection is required.	

PUMP PROBLEMS

One pump not working, or runs backwards.	1. Wires to motor may be reversed or not firmly seated.	1. Make sure that pumps' Molex connectors are in the correct locations and firmly seated on main PCB.
	2. Incorrect polarity.	2. Check trigger signal polarity (in most cases polarity should be "+").
	3. No chemical volume programmed for the pump.	3. Set a chemical volume for the pump.
All pumps not working	1. Power off.	1. Make sure power is on.
	2. Molex connectors not firmly seated on main PCB	2. Make sure pump's Molex connectors are firmly seated on main PCB.
	3. Trigger signal not being received from the washer	3. Make sure trigger signal is being received from the washer, unless running in triggerless Sequence Mode.
	4. Wire from pump box to programmer is too long.	4. Make sure that the wire length from the pump box to the programmer is less than 30.5 meters (100 feet).
	5. XPRT TUNL flush selected but pump module assignments not done.	5. Assign pumps to tunnel modules.
	6. Programmer shows a manifold screen when no manifold is attached.	6. Refer to **Disconnecting a Flush Manifold** in the **L5000Plus Programming Guide**.
Pumps won't prime	1. Flush water flow is insufficient or off.	1. Restore water flow.
	2. Flush used to be attached, but is no longer.	2. Ensure flush PCB isn't attached to pump box PCB. To disconnect the flush manifold you must unplug it, change the transport time to 0 in the Flush Transport Time Screen (**Screen 21** in **L5000Plus Programming Guide**), exit the Flush Transport Time Screen and then turn the power off and on. If you do not perform each of these steps for disconnecting a flush manifold, you will continue to have pump problems.
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.
		2. Supply lines may be too small for viscous chemicals, or run is too long.
		3. Check for kinks in intake supply.
		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.	1. Reduce delay time in Programming screen (see Screens 11a and 11b).
	2. Trigger qualifier screen is set for incorrect voltage type/state.	2. See "Valid triggers received but pumps do not pump" under **Voltage/Trigger Problems.**

	3. System current consumption too high	3. Verify that tubing is installed as recommended. Using small tubing can increase pumps' electrical current consumption and cause a pump delay.
Wrong pump runs.	1. Incorrect pump/trigger assignment. 2. Incorrect pump motor wiring.	1. Check programming to ensure that correct pump is assigned to correct trigger. 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. Use the default call rate of 10 ml (0.3 oz)/second with 600 Series pumps and 3 ml (0.1 oz) per second with 100 Series pumps. 2. To prevent pumps from turning on and off, use a call rate larger than the flow rate shown on the Calibration Screen (**Screen 9** in **L5000Plus Programming Guide**). 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 Customer Service.

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 **Screen 11b** in **L5000Plus Programming Guide.**
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" volume 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. 2. Defective programmer.	1. Check communications cables and plugs for damage. Replace as necessary. 2. Plug both programmers into pump box and verify they are 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. 2. Check cables for damage. If any cables have exposed wires, replace them and proceed to #5. 3. Disconnect and reconnect the telephone-type connectors, making sure they are free of moisture, dirt, or other foreign matter. 4. Restore power. 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. 6. If there is a voltage output, turn the power off and replace the washer interface module. Then restore power. 7. If the alarm is still displayed, turn power off again, replace original washer interface module, and attach a different programmer.
I exited programming access 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. 2. If the alarm persists, check programmed information to be sure that you have not programmed pump volumes to pumps that do not exist.
Programmer displays version screen at power-up but will not advance to subsequent screens.	This is caused by an open circuit on one of the 8 conductors of either the Ethernet cable that goes from the programmer to the trigger module, or the Ethernet cable that goes from the trigger module to the pump box.	Use a volt meter to determine which cable has the open circuit. Once you determine which cable has the open circuit, replace the cable.
I want to select AFS, but I can't get the programmer to advance between values	Not holding the "+" or "—" key down long enough	Press and hold the "+" or "—" key for 5 seconds each between selection until you arrive at the desired value (A-F)