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# TS577R Smart Controller for Auger Valves

## User Guide

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## From Our Team

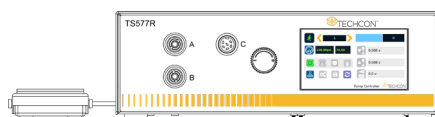
Thank you for choosing and putting your trust in our fluid dispensing systems to solve your dispensing needs. Over the years, we have strived to be the brand of choice for customers looking to make processes more efficient, improve industrial hygiene, enhance productivity, and increase/create value. We accomplish this by delivering dispensing solutions that are smarter, cleaner, and with superior accuracy and durability. Here at Techcon we value your business and will do everything we can to make you a satisfied customer.

Please know that no matter the industry, whether it be: aerospace, military, material packaging, industrial assembly, medical devices, or electronics, you're supported by a team of expert engineers who can solve your toughest manufacturing problems. Therefore, if at any time you experience issues with our product, please do not hesitate to reach us.

We guarantee we will resolve any problems you encounter to your satisfaction.

We hope to establish a long-lasting relationship.

Thanks again for choosing Techcon.



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# 1. SAFETY

## Intended Use

**WARNING:** Use of this equipment in ways other than those described in this User Guide may result in injury to persons or damage to property. Use this equipment only as described in this User Guide.































OK International/Techcon cannot be responsible for injuries or damage resulting from unintended applications of its equipment. Unintended consequences may result from the following actions:

- Making changes to equipment that has not been recommended in the User Guide
- Using incompatible or damaged replacement parts
- Using unapproved accessories or auxiliary equipment

## Safety Precautions

- Do not operate this unit above maximum ratings/settings
- Always wear appropriate personal protective clothing or apparel
- The fluid being dispensed may be toxic and/or hazardous. Refer to the fluid's Material Safety Data Sheet for proper handling and safety precautions
- Do not smoke or use open flames when flammable materials are being dispensed
- This equipment is for indoor use only

## 2. SYMBOL DEFINITIONS

Symbol	Description	Symbol	Description
	Run (Activate)		Setup
	Input Pressure		Counter Reset
	Pressure Port A&B		Firmware Upgrade
	Timed Mode		Accept Change
	Interrupt Mode		Pressure Calibration
	Teach Mode		Save
	Purge Mode		Reset Time in Teach Mode
	Dispense		IP address
	Reverse (Suck Back)		Cancel/Exit
	Run Method		Sequence Mode
	Continous Mode		Sequence Continous Mode
	E-Stop		Change Password
	Remote Server		Input Voltage
	Login/Logout		Controller Type
	Controller Mode		Robot Mode



### 3. SPECIFICATIONS

<b>Size</b>	290 mm x 212 mm x 98 mm (11.4" x 8.3" x 3.9")
<b>Weight</b>	2.98 kg (6.6lbs)
<b>Input Voltage</b>	24VDC
<b>Output Voltage Range</b>	0-24 VDC
<b>Rated Power</b>	15W
<b>Air Input</b>	100 psi (6.9 bars) Max.
<b>Air Output</b>	0-99.9 Psi (6.9 bar)
<b>Pollution Degree</b>	II
<b>Installation Category</b>	I
<b>Indoor Use</b>	Altitude up to 2,000 m (6,562 ft)
<b>Operating Temperature</b>	0 °C to 50 °C (32 °F to 122 °F)
<b>Storage Temperature</b>	-10 °C to 60 °C (14 °F to 140 °F)
<b>Max. Relative Humidity</b>	80% for temperature up to 31 °C (87.8 °F) Decreasing linearly to 50% relative humidity at 40 °C (104 °F)
<b>Timer</b>	0.008-99.99 seconds
<b>Cycle Mode</b>	Timed, Interrupt, Teach, Purge
<b>Timing Repeat Tolerance</b>	+/- 0.001%
<b>Cycle Rate</b>	900 cycles/min
<b>Display</b>	Touch Screen, Resitive
<b>Meets or exceed</b>	CE, TUV and NRTL



# 4. FEATURES

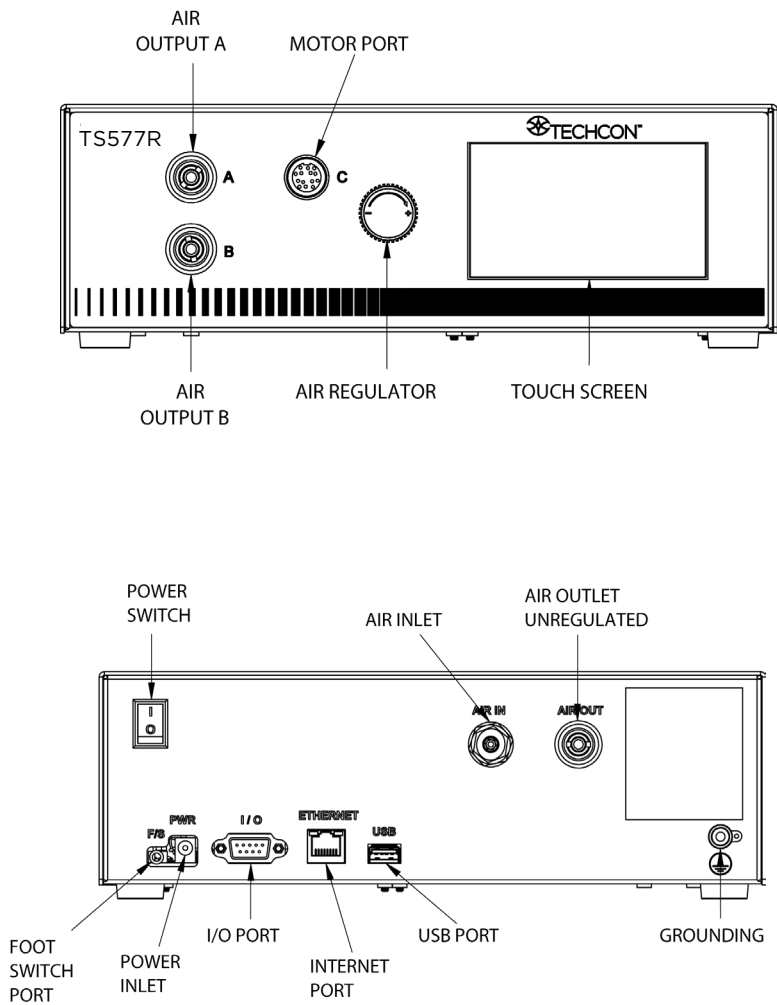


Figure 1.0



## 5. CONTROLLING THE AUGER VALVE

CAUTION: A 5-micron filter (TSD800-6) must be installed with the unit to ensure proper air filtration.

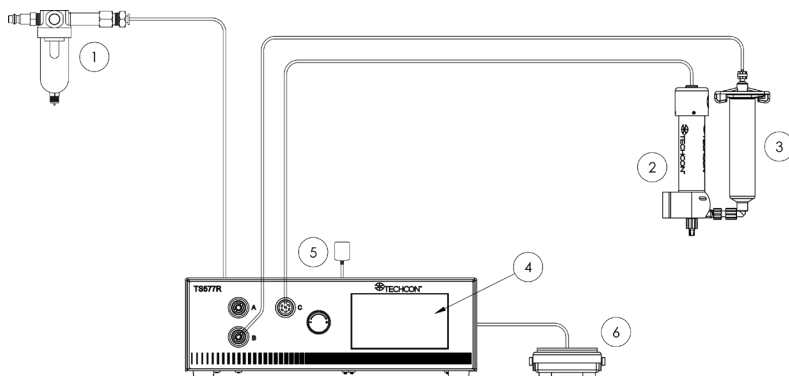


Figure 2.0

Item	Description
1	Air Filter
2	Valve (not included)
3	Syringe of material (not included)
4	Display
5	Power Adapter
6	Foot Switch

### 5.1. Connecting the Unit

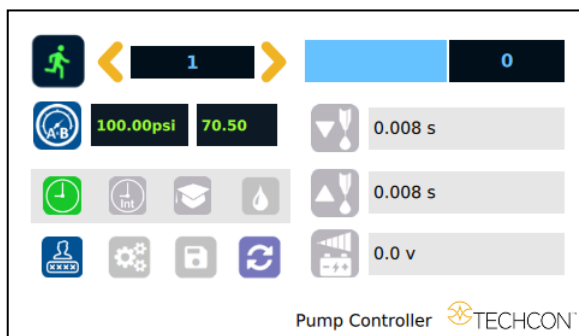
Refer to Figure 1.0 and 2.0.

1. Connect the Power Cord and Foot Switch to the back of the controller.

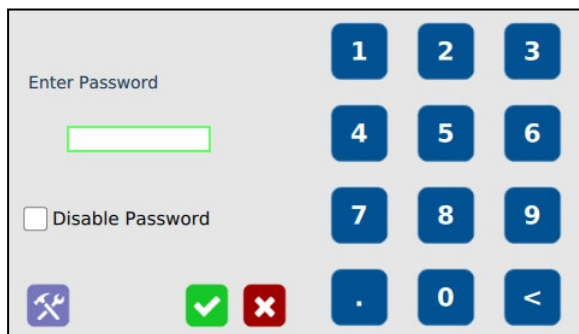
2. Connect the Valve Air Hose to Port B.
3. Touch the Power Switch to turn on the unit.

### 5.1.1. Login

1. Touch the Login icon to enter the login screen.



2. Enter "0000" in the Password window.



3. Touch the Check Mark icon to save and exit.




## 5.1.2. Pressure Calibration

NOTE: Pressure calibration must be performed when the unit is activated for the first time.

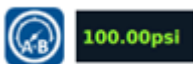
- Using a pressure gauge, verify the input pressure line is delivering approximately 100 psi.

**NOTE:** If the input pressure is not 100 psi, calibration will result in a mismatch between the display pressure and the actual pressure on output port A.B

- Once you have verified input pressure, touch the Calibration icon to enter the calibration screen. 



- Turn the Pressure Adjustment Knob counterclockwise until the wheel can no longer be turned.
- Touch the 0 icon to set the pressure to 0.
- Turn the Pressure Adjustment Knob clockwise until display output pressure is 100 psi.




- Touch the 100 icon to set the pressure to 100 psi.

**WARNING:** Do not turn the Pressure Adjustment Knob all the way clockwise. 100 psi upper bound should be set as soon as the display output pressure goes from 99 to 100 psi.

Continuing to turn the knob clockwise, despite pressure on display already being set at 100psi, will result in incorrect output pressure readings if the 100 icon were to be pressed at that time.

**NOTE:** The digital values shown at “0” and “100” icons are for reference only. The actual calibrated values will be different.

7. Touch the Reboot icon to save the settings and reboot the system. 
8. Wait until the system completes the rebooting sequence and the Home screen is displayed.

The unit’s pneumatic system is now calibrated and ready to operate.

## 5.2. Setup for Auger Valve without Encoder Motor

### 5.2.1. Select the Controlling Mode

The TS570R can be used as a stand-alone controller or can be integrated into any robotic system.

#### A. To Use as a Stand-Alone Controller

Go to the setup screen to check for Controlling Mode. If the icon “C” is showing, then it is already in stand-alone Controlling Mode. If the icon “R” is showing, press this icon to change to “C.”

Stand-Alone  
Controlling  
Mode



## B. To Use as an Integrated Controller with Robot or Automation


Press icon “C” to change to “R.”

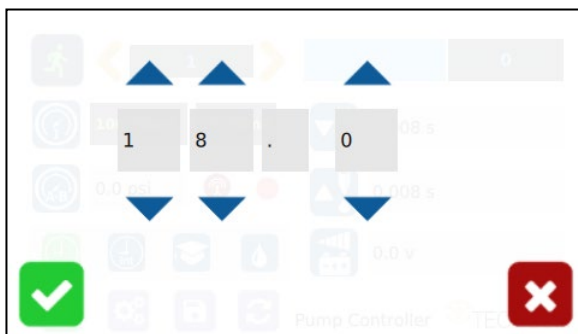
Robot Mode  
(integrate to  
robotic system)



### 5.2.2. Voltage Input Adjustment

**NOTE:** Input voltage controls the motor speed (RPM). Higher input voltage will *increase* motor speed and lower input voltage will *decrease* motor speed. Recommended input voltage range is 5-24 VDC.

1. Touch the Input Voltage Icon to enter the setup screen. 
2. Touch the Up and Down arrows to set the desired input voltage. Maximum input voltage is 24VDC.

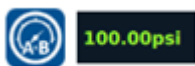


3. Touch the Check Mark icon to save and exit. 

### 5.2.3. Pressure Adjustment

**NOTE:** Pressure on port A is a constant pressure. Pressure on port B is synchronized with the motor signal. Port B only turns on when the dispense cycle is activated.

Output pressure on Port A and B will be displayed in the following window:



Pressure to port A.B can be adjusted from 0 to 100 psi by rotating the Pressure Adjustment Knob.

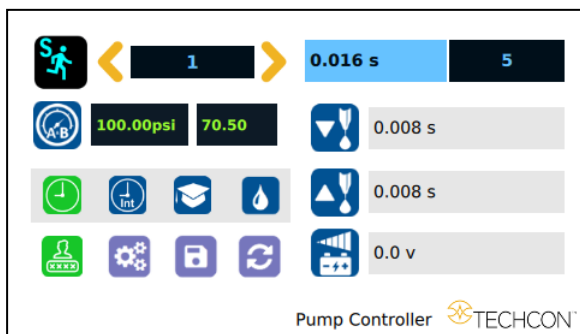
1. Rotate the Pressure Adjustment Knob in the counterclockwise direction to decrease output pressure.
2. Rotate the Pressure Adjustment Knob in the clockwise direction to increase output pressure.


**NOTE:** To ensure output pressure to A.B matches manual pressure adjustments, please make sure pressure calibration Section 5.1.2 has been completed.

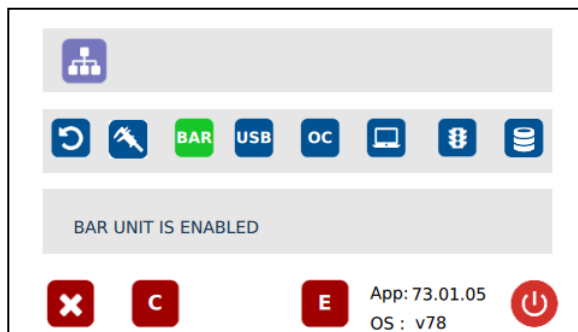
### 5.2.4. Change Pressure Unit Display


**NOTE:** The default pressure unit is PSI. To change the pressure units to BAR, follow the instructions below.

1. Touch the Setup icon to enter the setup screen.




2. Touch the “BAR” icon to change the pressure units to BAR. 





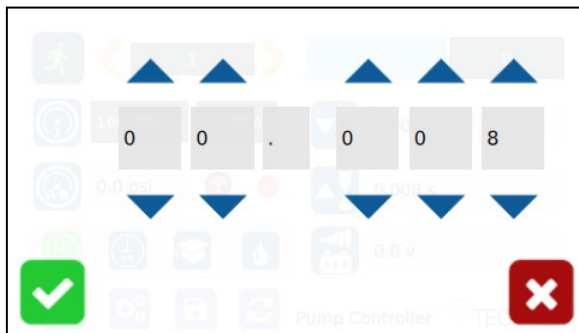
3. Touch the X icon to save and exit. 

### 5.2.5. Manual/Purge Dispense Cycle Setting


1. Touch the Purge icon to select Purge Cycle. The Purge icon will turn green. 
2. Press and hold down the foot switch or touch and hold the Run icon on the display to activate the Purge Dispense Cycle.

### 5.2.6. Automatic Dispense Cycle Setting

1. Touch the Timed Mode icon to set the Dispense Time. The icon will turn green. 
2. Touch the Dispense icon to enter the setup screen. 
3. Touch the Up and Down arrows to set the desired Dispense Time.




4. Touch the Check Mark icon to save and exit. 

**NOTE:** if suck back is needed, touch the Reverse icon to set up the Motor Reverse Time. 



5. Press the foot switch or touch the Run icon to activate the Timed Dispense Cycle.

**NOTE:** The unit has an Interrupt Mode feature. In this mode, the Timed Dispense Cycle can be disrupted if the foot switch is released and resumed when the foot switch is depressed again.

6. Touch the Interrupt icon to activate Interrupt Mode. The icon will turn green. 

### 5.2.7. Teach Mode Setting

In the teach mode, the dispense time will be accumulated as long as the foot switch is depressed. This is helpful in determining the required Dispense Time when Dispense Output is known.

1. Touch the Teach icon to enter Teach Mode. 
2. Touch the Time Reset icon to set the timer to zero. 
3. Press and hold down the foot switch, the dispense time will be accumulated.
4. Release the foot switch when the desired amount of fluid has dispensed.

5. Touch the Timed icon to transfer the dispense time to Timed Mode.

The unit is now set to repeat this Timed cycle.

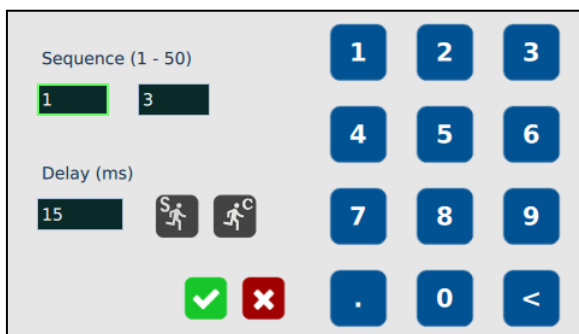
### 5.2.8. To Run in Continuous Mode

The controller can be set up to repeat the run continuously.

1. Touch the Setup icon to enter the setup screen.



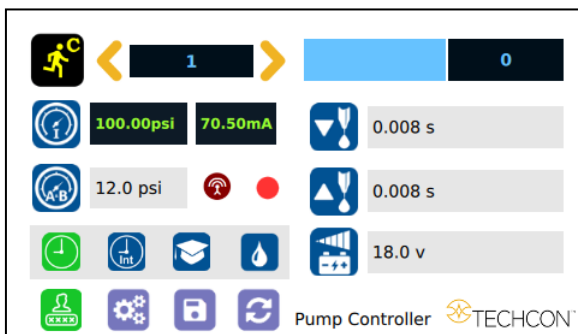
2. Touch the "Run Method" icon.



3. Enter the delay time (ex. 5000 ms).
4. Touch the Continuous Run icon.
5. Touch the Check Mark icon to save and exit.





The screen will look similar to the screen below:

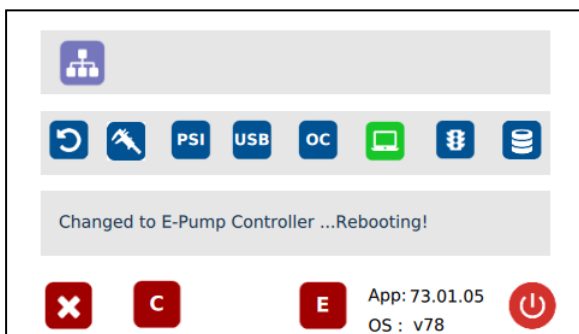


**NOTE:** If the controller is set to activate memory cell 1 and the delay time is set at 5000 ms, the controller will activate memory 1 *continuously* with 5000 ms delays between each activation.

### 5.3. Setup for Auger Valve with Encoder Motor

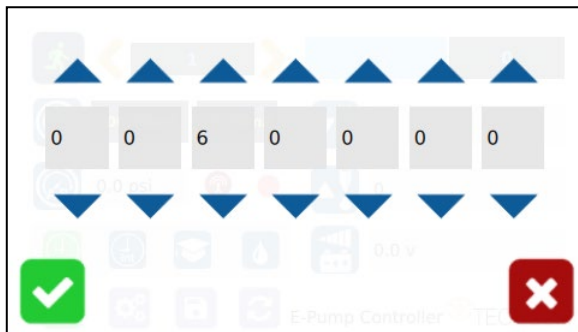
Procedure to control encoder motor valve is very similar to non-encoder valve. The dispense cycle of encoder motor valve is controlled mainly through encoder counts.

1. Touch the Setup icon to enter the setup screen. 
2. Touch the Controller Type icon to switch to Encoder Controller “E-Pump Controller.” 



3. Touch the X icon to save and exit. 

4. Touch the Dispense icon to enter the setup screen.



5. Touch the Up or Down arrows to set the Dispense Encoder Count.

**NOTE:** If suck back is needed, touch the Reverse icon to setup Motor Reverse Encoder Count.

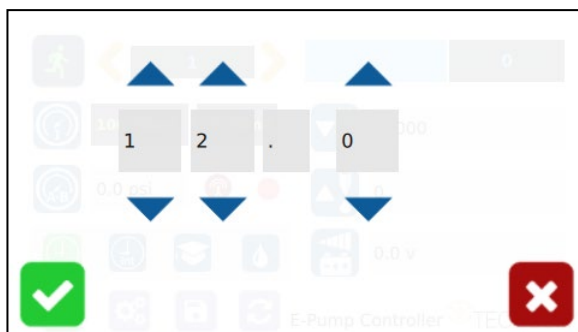


6. Touch the Check Mark icon to save and exit.



7. Select the desired dispense mode to continue (Timed, Interrupt, Teach or Purge).

8. Touch the Voltage icon to set voltage.



9. Touch the Up or Down arrows to set the Input Voltage.



10. Touch the Check Mark icon to save and exit.

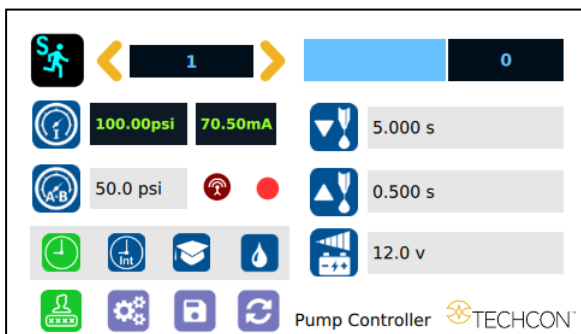


## 5.4. Stored Program in Memory cell


The unit has 50 memory cells to store all dispense parameters. The controller can activate all memory cells in sequence mode.

### 5.4.1. To Store Dispense Parameters

1. Touch the Forward or Backward arrow to select the desired memory cell. 
2. Enter all desired dispense parameters then touch the Save icon to save the data. 

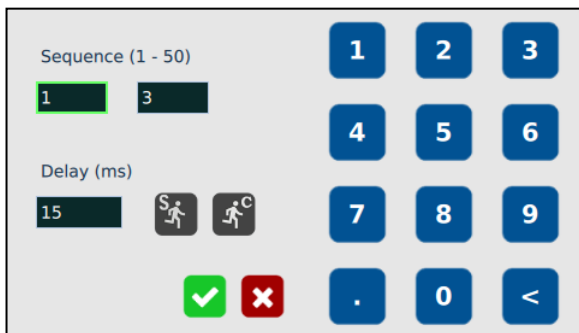


### 5.4.2. To Run in Single Sequence Mode

1. Touch the Setup icon to enter the setup screen. 



2. Touch the Run Method icon.



3. Enter the number of memories to be run in sequence (ex. 1 to 3).

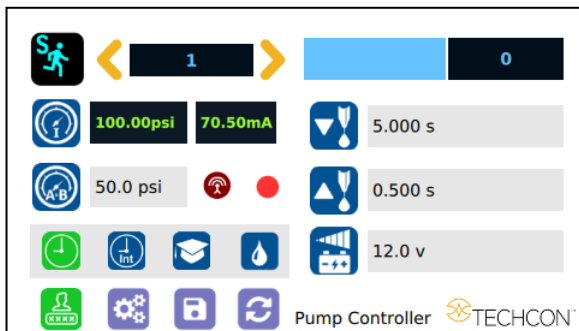
4. Touch the Sequence Mode icon.



5. Touch the Check Mark icon to save and exit.



The screen will look similar to the screen below:







## NOTES:

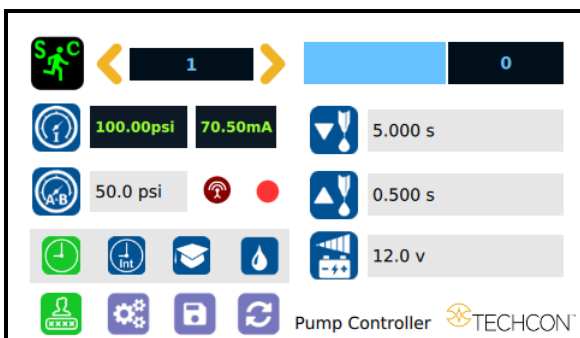
A. If there is no delay time entered in the setting, the operator must press the Foot Switch or touch the Run icon after each memory cell is completed to activate the next memory cell.

B. If delay time is entered in the setting, the controller will activate the next memory cell in sequence automatically.

### 5.4.3. To run in Continuous Sequence Mode

1. Follow steps 1 and 2 above, then enter the waiting time “Delay Time” between each activation.
2. Touch the Sequence Mode icon. 
3. Touch the Continuous Mode icon. 
4. Touch the Check Mark icon to save. 
5. Touch the X icon to exit. 



The screen will look similar to the screen below:

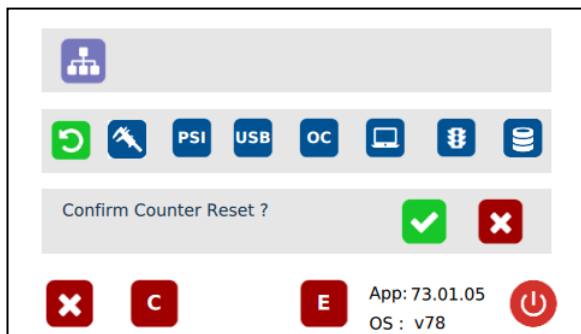


**NOTE:** If the Sequence Mode is set to activate Memory Cell 1 – 3, and the delay time is set at 5000 ms, the controller will activate Memory 1 to 3 continuously with a 5000 ms delay between each activation.

### 5.5. Cycle Counter

The cycle counter records the numbers of automatic dispense cycle being activated. Up to 999,999 cycles can be recorded. To reset the counter, follow steps below:

1. Touch the Setup icon to enter setup screen. 
2. Touch the Counter Reset icon to reset counter. 



3. Touch the Check Mark icon to confirm.

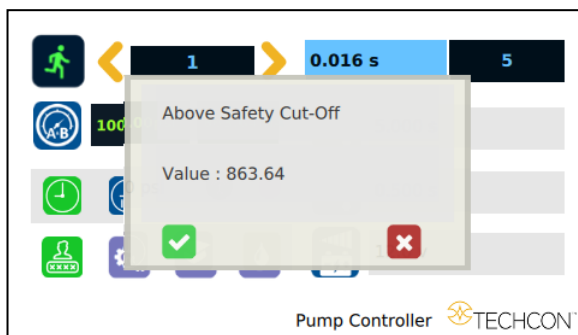


4. Touch the X icon to exit.



## 5.6. Over-Current Protection

This controller is equipped with over-current protection for the motor. If the motor current is over 400 mA, an “Over Current Detected” message will appear on the screen and the unit will be disabled.



When this issue occurs, check the valve for clogging. Clean the valve thoroughly if necessary.

If after the valve has been cleaned, if the over-current is still being triggered, it is time to replace the motor.

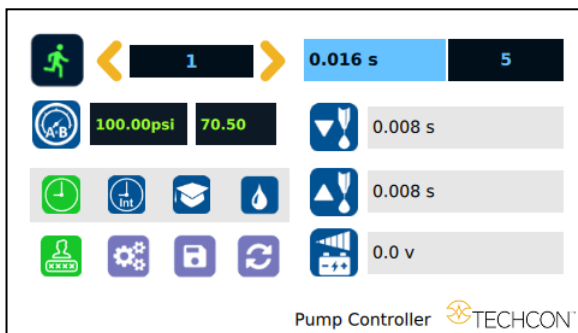
Touch the X icon to clear the over-current message and reset the unit.



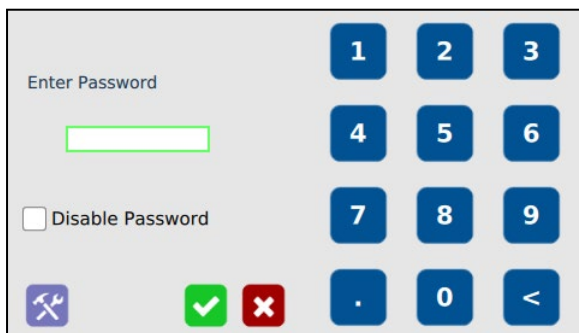
## 5.7. Changing the Password

**NOTE:** The default password is “0000.” To change password, follow the instructions below.

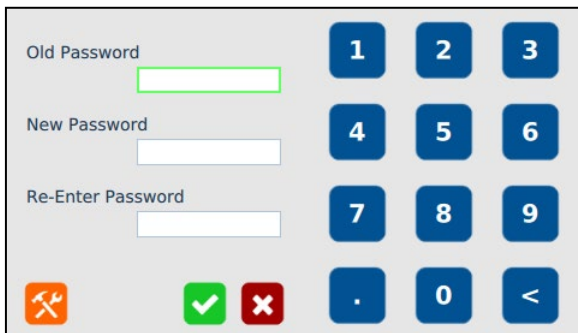
1. Touch the Login icon to enter the login screen.



2. Touch the Change Password icon.



3. Enter the old password, then enter the new password.



4. Touch the Check Mark icon to save.



5. Touch the X icon to exit.



### 5.8. Pin 3 Configuration:

Pin 3 is programable. It can be used as “Over-Current Indicator”, “Speed Sensitivity Alarm” or “Busy/Dispensing Indicator” / “End of Cycle Feedback.”

To use as “Over--Current Indicator” go to the setup menu and touch the CR icon. The CR/DP icon will change to green and the message “OVER CURRENT STATUS” will display.

Refer to Section 5.6 Over-Current Protection for information on the motor current protection.



Over current condition, Pin 3 is grounded (-)

Normal condition, Pin 3 is not connected (opened).

To use as “Busy/Dispense indicator” or “End of Cycle Feedback” go to the setup menu and touch the “CR/DP” icon. The “DP” icon will change to green color and the message “BUSY STATUS” will display.



During the dispense cycle, Pin 3 is grounded (-).  
At the end of the dispense cycle, Pin 3 is not connected (opened).

To use as “Speed Sensitivity Alarm,” go to the set-up menu and enable “Speed Sensitivity Alarm.” Reference section 5.16 for additional information.

For slow speed condition, Pin 3 is grounded.  
Normal condition, Pin 3 is not connected (opened).

## 6. SOFTWARE UPGRADE

For future software upgrades, follow the instructions below.

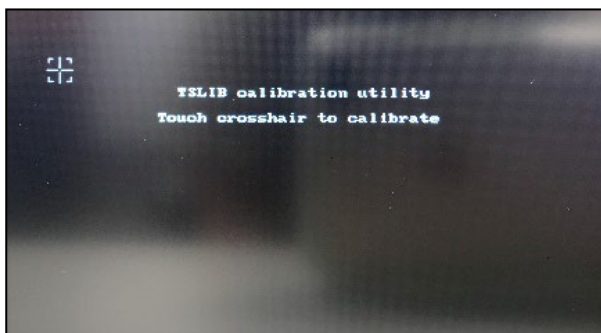
1. Download the latest version of the TS577R software from [www.techcon.com/software-updates](http://www.techcon.com/software-updates) and copy it to a blank USB thumb drive.

**NOTE:** Do not put the software file inside a folder.

2. Make sure that the unit is turned off.
3. Insert the USB drive to the USB port located in the back of the unit.
4. Turn on the unit.
5. Wait while the system is loading the new software. This process can take a few minutes.

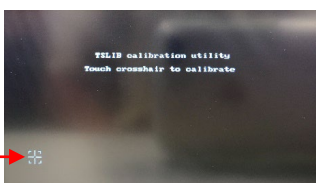
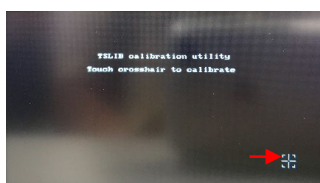
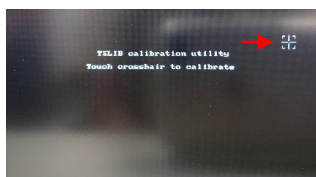
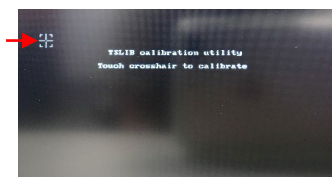


6. Wait until the system completes the software update from the USB drive and the first touch-screen calibration is displayed.



7. Remove the USB drive from the USB port before proceeding to the next step.
8. Follow the instructions on the display to calibrate the touch screen by touching the crosshair at five different points.

NOTE: In order to accurately calibrate the touch screen, it is recommended to use a stylus pen.



9. Wait until the system completes the rebooting sequence and the Home screen is displayed.
10. Repeat sections 5.1.1 and 5.1.2 to recalibrate the air pressure.

## 7. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Display does not light up	No power inputs.	Check power cord connections. Turn on power
System will not actuate	Supplied air pressure dropped below “Low Pressure” setting.	Increase supplied air pressure.
	Foot switch is not plugged in or is improperly plugged in.	Check the foot switch connection.
	Defective foot switch.	Repair or replace foot switch
	Broken wire or loose connection inside unit.	Unplug power cord and disconnect air supply. Remove the cover and check for broken wires or loose connections.
	Defective solenoid.	Replace the solenoid.
	Defective PC board.	Replace the PC board.
System will not pressurize	The valve motor draws over 400 mA.	Check valve (see section 5.6).
	Insufficient air pressure.	Increase air supply pressure.
	Air hoses not plugged in.	Check connection.
Inconsistent dispense	Regulator defective.	Replace regulator.
	Air bubbles in material.	De-air material.
	Dispense time is too low.	Increase dispense time.
	Needle clogged.	Replace needle.
	Motor started to burn out.	Replace motor.



## 8. MAINTENANCE

The dispenser is designed and built to be relatively maintenance free. To ensure trouble-free operation, please follow these steps:

1. Make certain the air supply is clean and dry.
2. Avoid connecting the unit to excessive moisture or solvent saturation.
3. Avoid connecting the air supply if it exceeds 100 psi (6.9 bars).
4. Use only amyl alcohol to clean the outside surface of the main housing.
5. Use only a soft cloth to clean the display screen.

## 9. LIMITED WARRANTY

OK International/Techcon warrants this product to the original purchaser for a period of two (2) years from the date of purchase to be free from material and workmanship defects, but does not warrant normal wear-and-tear, abuse and faulty installation. Defective products, subassemblies, or components under warranty will be repaired or replaced, at the option of OK International, free of charge. *Customers with defective products under warranty must contact the nearest OK International office or authorized distributor to secure a Return Authorization prior to shipping the product to the assigned OK International authorized service center.* For the nearest OK International office or authorized distributor, please visit [techcon.com](http://techcon.com).

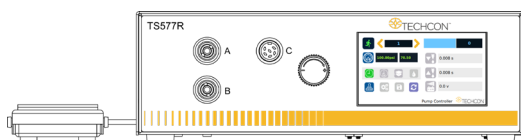
OK International reserves the right to make engineering product changes without notice.

Send warranty returns to:

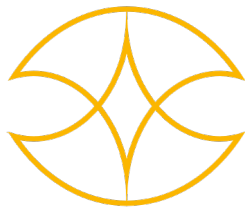
Americas  
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