TS570R SMART CONTROLLER FOR AUGER VALVES

User Guide

CONTENTS

1. SAFETY

1.1 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 cannot be responsible for injuries or damages resulting from unintended applications of its equipment. Unintended uses may result form taking 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

1.2 Safety Precautions:

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

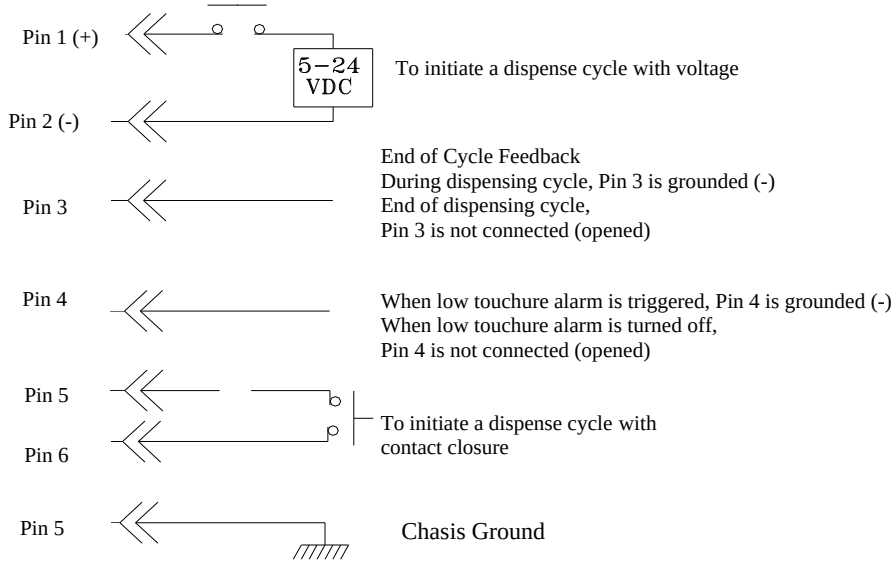
2. SYMBOL DEFINITIONS

Symbol	Description	Symbol	Description
	Run (Activate)		Setup
	Input Touchure		Counter reset
	Touchure Port A&B		Mac address
	Timed mode		Accept change
	Interrupt mode		Touchure calibration
	Teach mode		Save
	Purge mode		Reset time in Teach mode
	Dispense		IP address
	Reverse (suck back)		Cancel
	Run Method		Sequence Mode
	Continous Mode		Sequence Continous Mode
	E-Stop		Change Password
	Remote Server		On line
	Login/Logout		Off Line
	Controller type		Input Voltage

11. I/O CONFIGURATION AND END OF CYCLE FEEDBACK

During a dispense cycle, an open collector circuit closes and remains closed while the valve is dispensing. Pin 3 and 4 can be as feedback signal to synchronize with other devices. Power from an external source is allowed to pass through the circuit to operate a 5 to 24 VDC load. Power consumption must not exceed 250 mA. The load could be a relay, solenoid, counter, LED, or any device that will operate within a 5 to 24 VDC range and a maximum of 250 mA.

Note: During the dispense cycle, pin 3 will be grounded. Please make sure the external device (your machine that controls the dispenser/controller) has the same ground as the controller.



Pin 7, 8, and 9 = Available

9. MAINTENANCE

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

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

10. LIMITED WARRANTY

OK International warrants this product to the original purchaser for a period of 2 years from date of purchase to be free from material and workmanship defects but not normal wear-and-tear, abuse and faulty installation. Defective product or subassembly and components under warranty will be repaired or replaced (at OK International's option) free of charge. Customer with defective product under warranty must contact the nearest OK International office or distributor to secure a return authorization prior to shipping the product to the assigned OK International authorized service center. For nearest OK International office or distributor contact information, please visit www.techconsystems.com. OK International reserves the right to make engineering product changes without notice.

All returns must be issued with a Returns Authorization number, prior to return. Send warranty returns to:

Americas
OK International
10800 Valley View Street
Cytouch, CA 90630
+1 714 230 2398

Europe
OK International
Eagle Close Chandler's Ford Ind Est
Eastleigh, Hampshire
SO53 4NF
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Dover (Shenzhen) Industrial
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Yanxiang Industrial Zone, High Tech Road
Guangmin New District
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+86 21 64952662

3. SPECIFICATIONS

Size	290mm x 212mm x 98mm (11.4" X 8.3" X 3.9")
Weight	3.1 kg (6.8lbs)
Input Voltage	24VDC
Output Voltage Range	0-24 VDC
Rated Power	15W
Air Input	100 psi (6.9 bars) Max.
Air Output	0-99.9 Psi (6.9 bar)
Pollution Degree	II
Installation Category	I
Indoor Use	Altitude up to 2,000m (6,562ft)
Operating Temperature	0˚C to 50˚C (32˚F to 122˚F)
Storage Temperature	-10˚C to 60˚C (14˚F to 140˚F)
Max. Relative Humidity	80% for temperature up to 31˚C (87.8˚F) Decreasing linearly to 50% relative humidity at 40˚C (104˚F)
Timer	0.008-99.99 seconds
Cycle Mode	Timed, Interrupt, Teach, Purge
Timing Repeat Tolerance	+/- 0.001%
Cycle Rate	900 cycles/min
Display	Touch Screen, Resitive
Meets or exceed	CE, TUV and NRTL

4. FEATURES

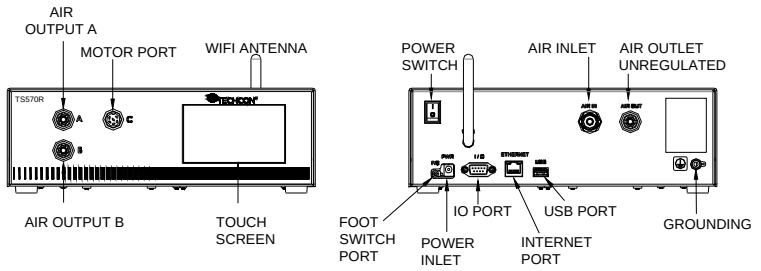


Figure 1.0

5. TO CONTROL AUGER VALVE

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

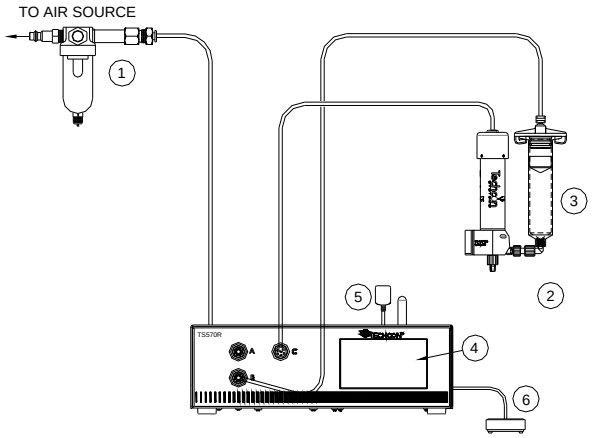


Figure 2.0

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

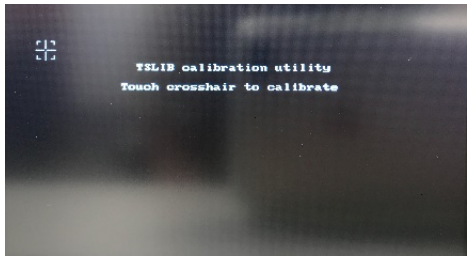
5.1 Connecting the Unit: (Refer to Figure 1.0 and 2.0)

1. Connect the power cord, foot switch to the back of the unit.
2. Connect Valve air hose to Port B
3. Touch the Power switch to turn on the unit.

8. TROUBLESHOOTING

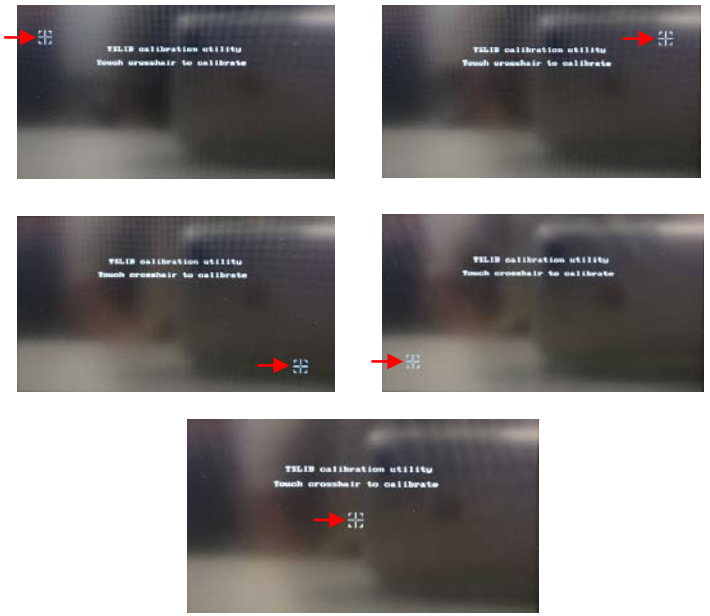
PROBLEM	POSSIBLE CAUSE	CORRECTION
Display does not light up	• No power inputs	• Check power cord connections • Turn on power
System will not actuate	• Supplied touchure dropped below "Low Touchure" setting	• Increase supplied touchure
	• Foot switch not plugged in or improperly plugged in	• Check foot switch connection
	• Defective foot switch	• Foot switch needs to be repaired or replaced
	• Broken wire or loose connection inside unit	• Unplug power cord and disconnect air supply. Remove cover and check for broken wires or loose connections
	• Defective solenoid	• Replace solenoid
	• Defective PC board	• Replace PC board
	• The valve motor draws over 400 mA	• Check valve (see section 5.6)
System will not touchurize	• Insufficient air touchure	• Increase air supply touchure
	• Air hoses not plugged in	• Check connection
	• Regulator defective	• Replace regulator
Inconsistent dispense	• 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

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's recommended that the stylus pen is used***



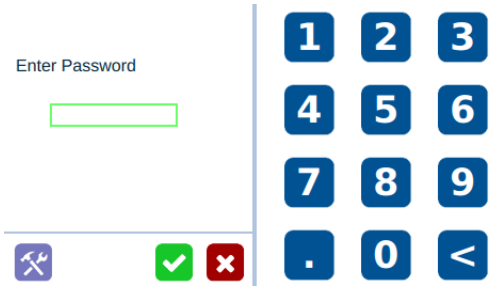
9. Wait until the system completes the rebooting sequence and the home screen is displayed

10. **Repeat sections 5.1.1 and 5.1.2 to re-calibrate the air pressure**

5.1.1 Login

1. Touch the Login icon to enter the login screen 

2. Enter "0000" in 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.

4. Touch the Setup icon to enter the setup screen

5. Touch the Calibration icon to enter calibration screen

Note: Make sure the air pressure line is not connected to the unit at this time.

6. Touch the 0 Icon to set the pressure to 0 

7. Now connect the supplied air pressure line to the back of the unit and turn up input air pressure to 100 psi

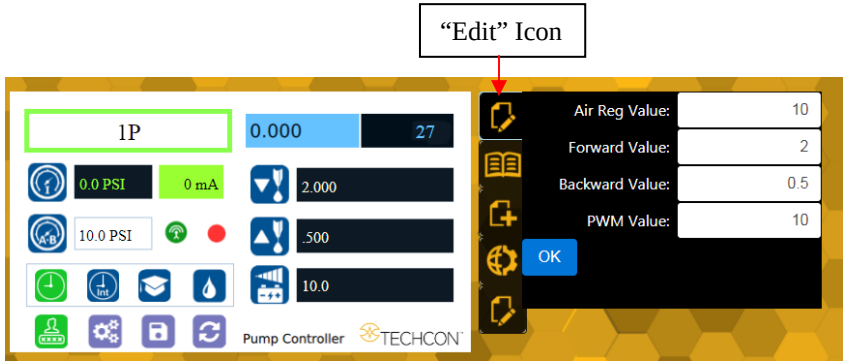
8. Touch the 100 Icon to set the pressure to 100 

Note: The digital values shown at "0" and "100" icons are for reference only. The actual calibrated values will be different.

9. Touch the Reboot icon to save the settings and reboot the system 

10. Wait until the system completes the rebooting sequence and the home screen is displayed

The unit is now calibrated and ready to operate



Proceed to make changes
Click "OK" button to save
The new parameter will be displayed on the controller.

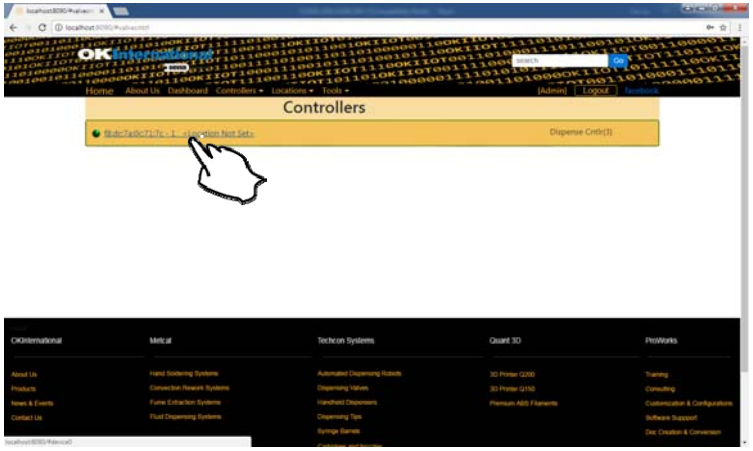
7. SOFTWARE UPGRADE

Note: For future software upgrade, follow the instructions below.

1. Download the latest software version from Techcon website 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

6.2 Making Parameters Adjustment from the websever

Go back to the webserver site and click on the “Controllers” menu
Click on the active controller link



The controller screen will be displayed in the webserver as shown below.
The controller parameters such as pressure and dispense time can be adjusted from the webserver.

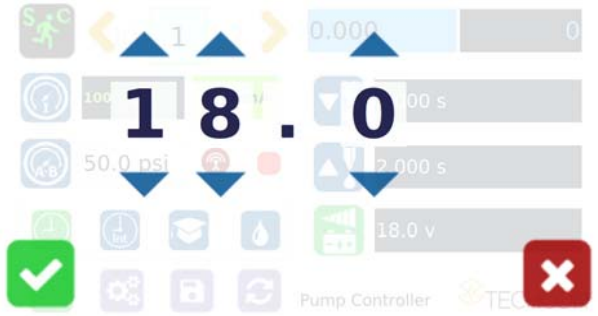
Click on the “Edit” icon
The parameter screen will appear as shown below:

5.2 Setup for Auger Valve without Encoder Motor

5.2.1 Voltage Input Adjustment

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

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 

5.2.2 Pressure Adjustment

Note: Pressure on port A is a contanst pressure.
Pressure on port B is synchronized with the motor signal. It only turns on when the dispense cycle is activated.

1. Touch the “Pressure A.B” icon to enter pressure setup screen 
2. Touch the Up and Down arrows to set the desired fluid pressure

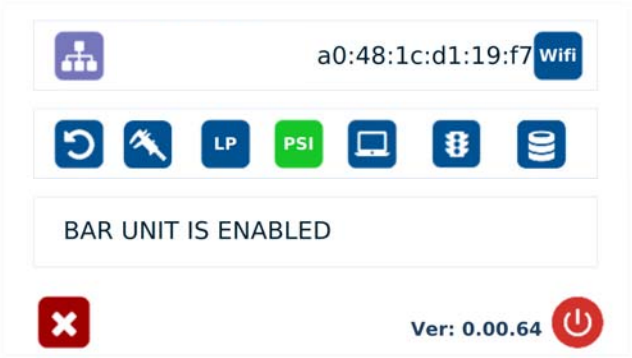
3. Touch the Check Mark icon to save and exit 

5.2.3 To Change Pressure Unit Display

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

1. Touch the Setup icon to enter the setup screen

2. Touch the "BAR" icon to change pressure unit to BAR



3. Touch the X icon to save and exit

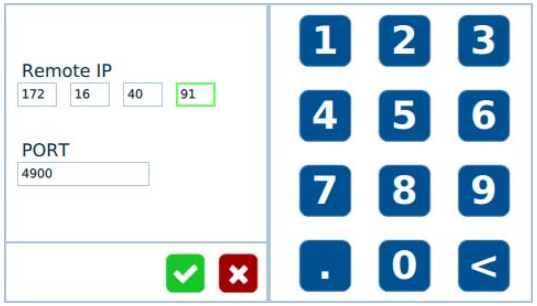
5.2.4 Manual/Purge Dispense Cycle Setting:

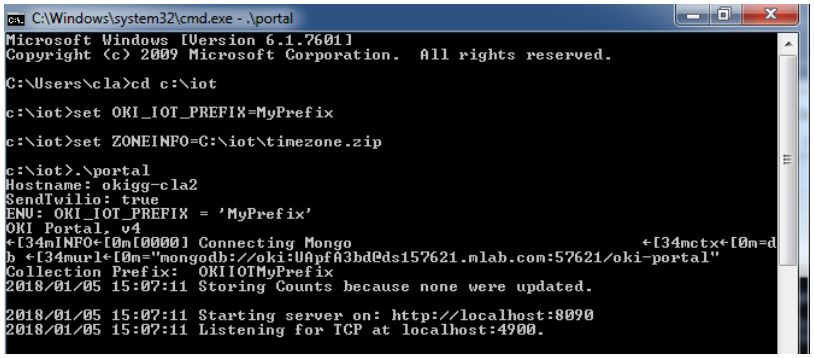
1. Touch the Purge icon to select purge cycle. The Purge icon will turn to green color.

2. Press and hold down the foot switch to activate the purge dispense cycle. Alternately, touch and hold the Run icon on the display to activate the purge dispense cycle.

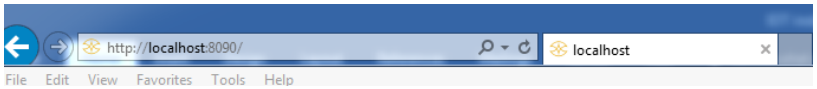
18. Go to the setup screen of the controller and touch the "Remote Server" icon

19. Enter the Server IPv4 address recorded in step #11 into Remote IP address box
20. Touch the green check mark icon to save
21. The controller is now connected to the webserver site.



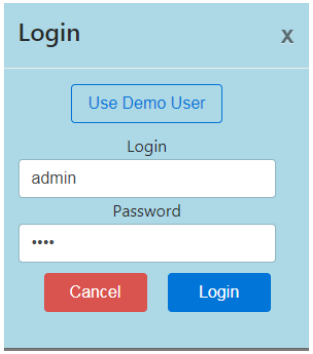


13. Go to any computer and open any web browser
14. Type in: http://localhost:8090/ then touch the enter button



You are now in the webserver site. The below screen will be displayed:

15. Click the “Login” button
16. Enter “admin” in the Login box
17. Enter “1001” in the Password box



5.2.5 Automatic Dispense Cycle Setting:

1. Touch the “Timed” mode icon to set the dispense time. The icon will turn to green color.
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 setup motor reverse time

5. Press the foot switch to activate the “Timed” dispense cycle. Alternately, 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 to green color.

5.2.6 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.

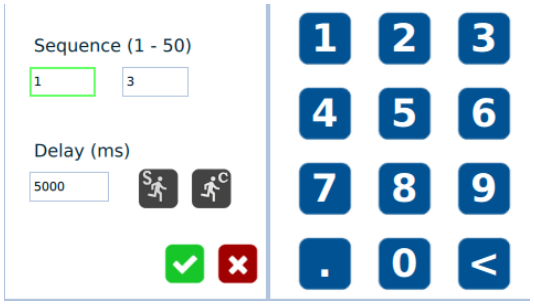
1. Touch the “Teach” icon to enter the teach mode
2. Touch the “Time Reset” icon to set timer to zero
3. Press and hold down the foot switch, the dispense time will be accumulated
4. Release the foot switch when the desired amount of fluid has dispensed
5. Touch the “Timed” icon to transfer the dispense time to “Timed” mode
6. The unit is now set to repeat this “Timed” cycle

5.2.7 To run in Continous Mode

The controller can be setup to repeat the run continuously.

1. Touch the Setup icon to enter the setup screen 

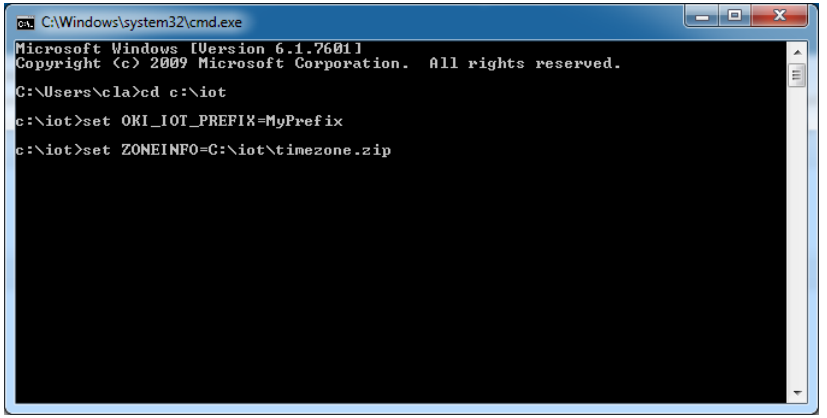
2. Touch the “Run Method” icon 



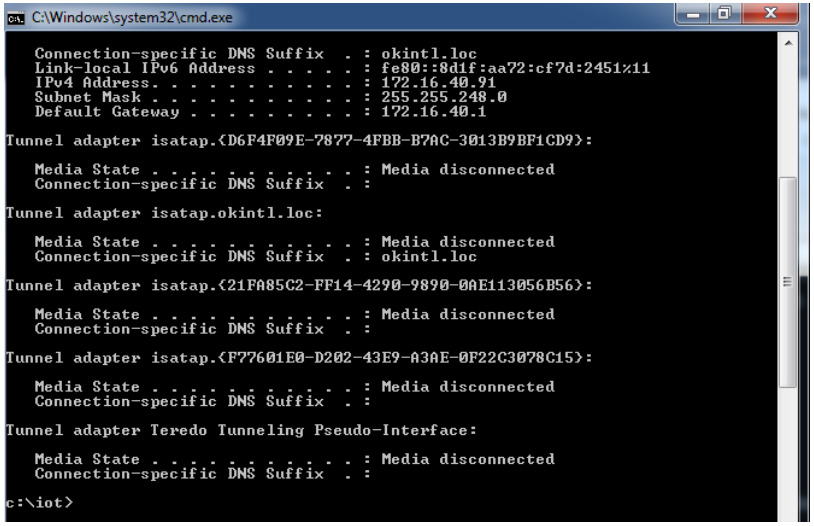
3. Enter the delay time (ex. 5000 ms)
4. Touch the “Countinous Run” icon 
5. Touch the Check Mark icon to save and exit 

The screen will look similarly to the screen below:

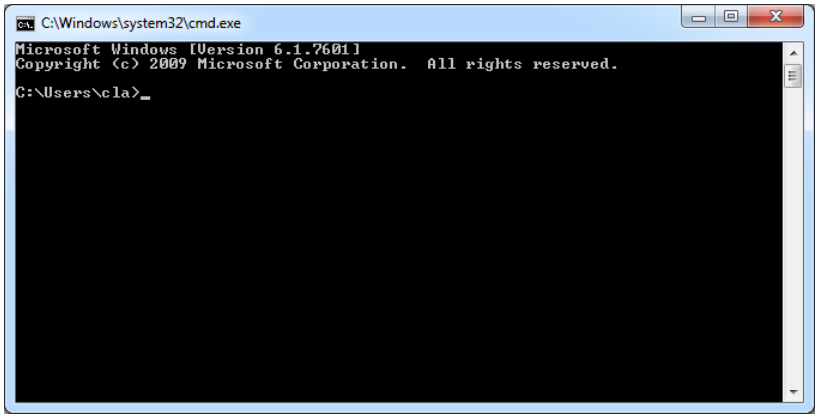
9. Type: “set ZONEINFO=C:\iot\timezone.zip” then touch the “Enter” button



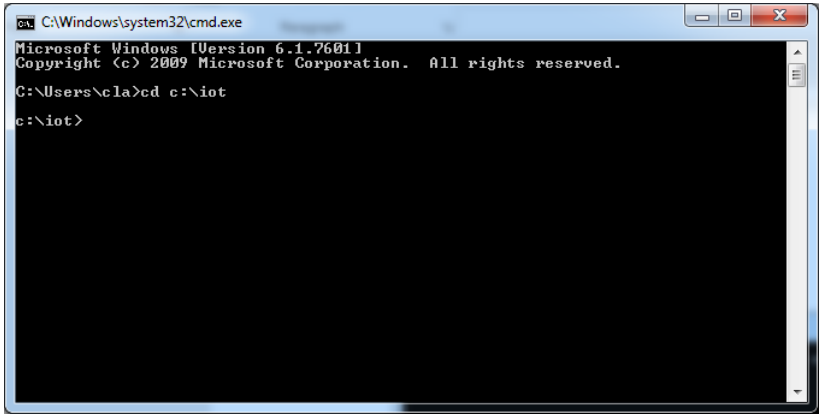
10. Type: “ipconfig” then touch the “Enter” button



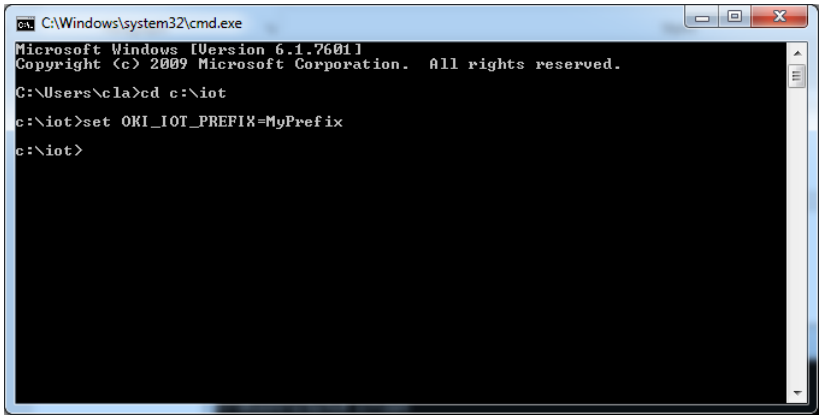
11. Record the Server IPv4 address show in the “IPv4 Address” line on the above screen; For this example, the Server IP address is: 172.16.40.91
    This address will be entered in the controller screen later.
12. Type: “.\portal” then touch the Enter button



7. Type: “cd :\iot” then touch the “Enter” button



8. Type: “set OKI_IOT_PREFIX=MyPrefix” then touch the “Enter” button



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 contiuously with 5000 ms delay 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.

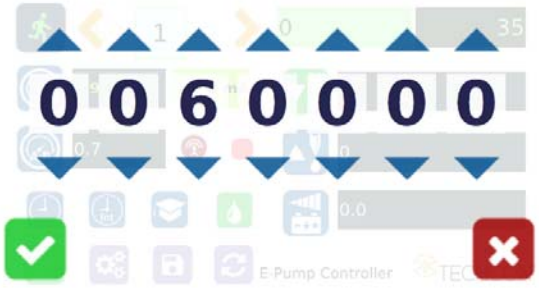
1. Touch the Setup icon to enter the setup screen 

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 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 input voltage

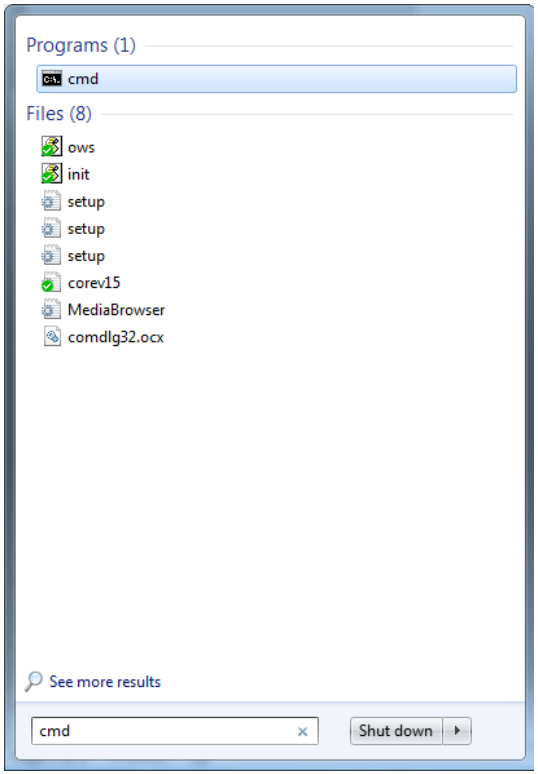
10. Touch the Check Mark icon to save and exit

6. INTERNET of Thing (IoT)

6.1 Setup webserver on the computer

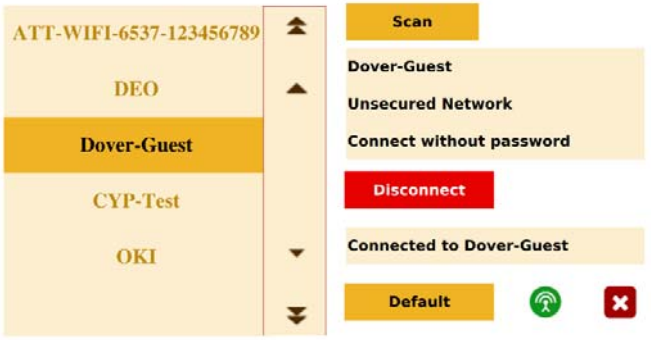
1. Go to Techcon Website (www.techconsystems.com) and download the following files to your computer:
   a. The "portal.exe" file
   b. The "timezone.zip" file
2. Create a new folder and name "IoT" or any desired name
3. Copy the "portal.exe" file and the "timezone.zip" file in the "IoT" folder
4. Click on the "Windows" start icon

5. Type: "cmd" in the box (as show below)



6. Touch the "Enter" button
   The screen should appear as shown below

7. Once the unit is successfully connected to the Wi-Fi network, the "Connect" tab will change to "Disconnect" and the online symbol will change to green



8. If the selected network is a secured network (password protected), first create a text file and type the network's password, then save the file as "password.txt"
9. Copy the "password.txt" file to a blank USB thumb drive. ***Note: Do not put the "password.txt" file inside a folder***
10. Insert the USB drive to the USB port located in the back of the unit
11. Touch "Connect" tab to connect. Once the unit is successfully connected to the Wi-Fi network, remove the USB drive from the USB port
12. Touch X icon to save and exit
13. Touch the IP Address icon and the unit will show an IP address

Note: Once the unit is turned off, the Wi-Fi connection is lost. To re-connect the unit back to the same network after the unit is turned on, repeat steps 1-4 and touch the "Default" tab.

5.4 Low Pressure Alarm Setting

Note: This controller is equipped with an adjustable "Low Pressure" alarm function. If the set pressure dropped below the "Low Pressure" setting, the controller will not activate. The "Low Pressure" setting is pre-set at the factory to 70 psi (4.8 bars). When the supplied pressure drops below 70 psi (4.8 bars) the unit will not function. The "Low Pressure" setting can be adjusted. Follow instruction below:

1. Touch the Setup icon to enter setup screen

2. Touch the Low Pressure (LP) icon to set the desired low pressure

3. Slide the pressure scale to set the desired low pressure threashold
4. Touch the X icon to save and exit

5.5 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.

5.5.1 To Store dispense parameters

1. Touch the forward or backward arrow to select desired memory cell.

2. Enter all desired dispense parameters then touch the “Save” icon to save the data.

5.5.2 To run in Single Sequence Mode

1. Touch the Setup icon to enter the setup screen

5.9 To Connect to Wi-Fi network.

1. Connect the antenna to the Wi-Fi connector located in the back of the unit
2. Touch the Setup icon to enter the setup screen

3. Touch the Wi-Fi icon to enter the network setup screen

4. Touch the “Scan” tab to scan for all available networks

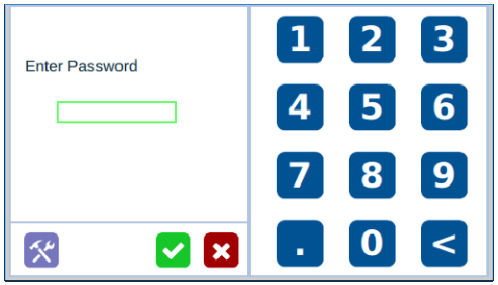
5. Touch the Up and Down arrows to select the desired network
6. If the selected network is an unsecured network (not password protected), touch “Connect” tab to connect.

5.8 To Change Password

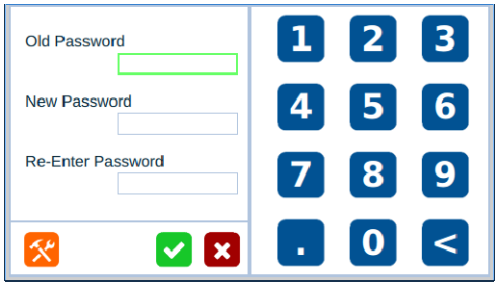
Note: The default password is "0000". To change password, follow the instructions below.

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



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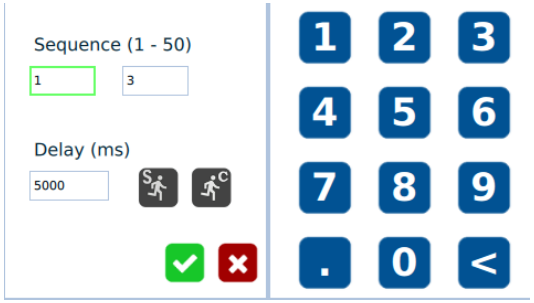
4. Touch the Check Mark icon to save 

5. Touch the X icon to exit 

2. Touch the Run Method icon 



3. Enter number of memory 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 similarly to the screen below:

Notes:

A. If there is no delay time entered in the setting, the operator has to 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.

5.5.3 To run in Continuous Sequence Mode

1. Follow step 1 to 2 above, and 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 similarly 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 5000 ms delay between each activation.

5.6 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

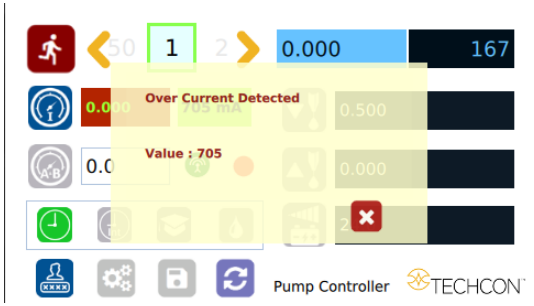
2. Touch the Counter Reset icon to reset counter

3. Touch the Check Mark icon to confirm

4. Touch the X icon to exit

5.7 Over Current Protection

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



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

If after the valve has been cleaned and the over current is still occurred then it is time to replace the motor.

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