

# TS580R SMART CONTROLLER FOR PC PUMPS

User Guide



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## 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 Pressure	n	Counter reset
	Pressure Port A&B	\$	Mac address
(-)	Timed mode		Accept change
	Interrupt mode	×	Pressure calibration
	Teach mode	E	Save
4	Purge mode	रर	Reset time in Teach mode
	Dispense	÷ť	IP address
	Reverse (suck back)	×	Cancel
**	Run Method	; <del>'</del> f	Sequence Mode
.¢ ₽	Continous Mode	े इ	Sequence Continous Mode
0	E-Stop	*	Change Password
0))	Remote Server	R	On line
XXXXX XXXXX	Login/Logout	R	Off Line
Д	Volume		Flow Rate

## 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.





## 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 Cypress, CA 90630 +1 714 230 2398

## Europe

OK International Eagle Close Chandler's Ford Ind Est Eastleigh, Hampshire SO53 4NF United Kingdom +44 2380 489 100

## Asia

Dover (Shenzhen) Industrial Equipment Manufacturing Co., LTD. 4th Floor East, Electronic Building Yanxiang Industrial Zone, High Tech Road Guangmin New District Shenzhen, P.R.C +86 21 64952662

## www.techconsystems.com

## 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	Ш	
Installation Category	Ι	
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 PC PUMP

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

## 8. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Display does	<ul> <li>No power inputs</li> </ul>	<ul> <li>Check power cord</li> </ul>
not light up		connections
		• Turn on power
System will not	<ul> <li>Supplied pressure</li> </ul>	<ul> <li>Increase supplied</li> </ul>
actuate	dropped below "Low	pressure
	Pressure" setting	
	• Foot switch not plugged	• Check foot switch
	in or improperly	connection
	plugged in	
	• Defective foot switch	<ul> <li>Foot switch needs to be repaired or replaced</li> </ul>
	<ul> <li>Broken wire or loose</li> </ul>	<ul> <li>Unplug power cord and</li> </ul>
	connection inside unit	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	• Check valve (see section
	over 400 mA	5.6)
System will not	<ul> <li>Insufficient air pressure</li> </ul>	<ul> <li>Increase air supply</li> </ul>
pressurize		pressure
	• Air hoses not plugged	<ul> <li>Check connection</li> </ul>
	in	
	Regulator defective	Replace regulator
Inconsistent	• Air bubbles in material	• De-air material
aispense	• Dispense time is too low	• Increase dispense time
	• Needle clogged	• Replace needle
	Motor started to burn	· F
	out	• Replace motor

## **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 either Port A or Port B.

3. Press the Power switch to turn on the unit.

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 login screen





## 5.1.2 Pressure Calibration

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











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

# IPC 0 25 0.0 PSI 0 mA 2.000 21.0 PSI Image: Structure in the structur

21

2

1

8.0

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

instantiliti value x	-	And in case of the local data in the	w.	000
C @ locatheat ICI	K/P-al-ecret			0- g
07001101100 107001101107 1000101107 100000000	A Design of the second	IIOKIIOID IIOOKIIOID IIOKIIOID IIOKIIOID IIOVIIO IIIOKIIOID IIIOKIIOID IIIOKIIOID IIIOKIIOID IIIOKIIO IIIIOKIIO IIIIOKIIO IIIIO IIIIOKIIO IIIIO IIIIO IIIIO IIIIO IIIIO IIIIO IIIIO IIIIO IIIIO IIIIO IIIIIO IIIIO IIIIO IIIIIO IIIIO IIIIIO IIIIO IIIIO IIIIO IIIIIO IIIIIO IIIIIO IIIIIO IIIIIO IIIIII IIIIIO IIIIIII IIIIIIII	OKIIOTIIII010 OKIIOTIII0100 0001010000110100 0111000000 111000000 Admini Log	1101061100011101100 01010001100001100 0110100011000110011 0110100011000110011 011010001100011001100011000011000000
E.C.				
•	Edic7a0c71/7c - 1 +Location Not Sets		Dispense Criti	-1.H
	14			
Carladana altora al	Address -	Tinche and Postdore	0.000	Decision
*Unierrarikinal	they a	acticon systems	QUAR 30	1TOVORKS
	Hand Soldering Systems	Automated Dispersing Roticts		
	Convector Rework Systems			
iews & Events				Customaster & Configuration
	Flat Dispersing Systems	Charments Tam		
		Byrrige Barets		Sufiware Support. Doc Oreation & Conversion

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.

Controllers	
/JoT Demo +1US:California:Cypress	Dispense Ctrl
emo - 1PCAsia China Shenzhen	PCPump Ctrl
00 PSt 0 mA 2000	
🐼 21.0 PSI 😨 🗢 🔼 1.000	

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

## 5.2 Dispensing

## 5.2.1 Flow Rate Setting

Note: Each PC Pump version has a fix maximum flow rate. Make sure to check the PC Pump flow rate specs before operating.

1. Touch the "Flow Rate" icon to enter the setup screen



2. Touch Up and Down arrows to set the desired flow rate in ml/minute



3. Touch the Check Mark icon to save and exit



## 5.2.2 Pressure Adjustment

Note: Pressure on port A and B provides constant regulated pressure.

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  $\mathbf{Q}_{\mathbf{S}}^{\mathbf{S}}$ 



<b>H</b>	a0:48:1c:d1:19:f7 wifi
5 🔦	LP PSI 📕 😫 😫
BAR UNIT IS	ENABLED
×	Ver: 0.00.64

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 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.

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

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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:

## 5.2.5.1 Timed Mode

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. Press the check mark icon to save and exit



Note: if suck back is needed, touch the "Reverse" icon to setup motor reverse time



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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.



## 5.2.5.2 Volume Mode

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



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<b>#</b>	a0:48:1c:d1:19:f7 wifi
<b>D</b> 🔦	LP PSI 📕 🕄
VOLUME MO	DDE SELECTED
X	Ver: 0.00.64

3. Press the X icon to save and exit

Note: To switch back to time mode, touch the "Timed" icon

- 4. Touch the "Dispense" icon to enter the setup screen
- 5. Touch the Up and Down arrows to set the dispense volume



Note: if suck back is needed, touch the "Reverse" icon to setup reverse volume

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



10. Type: "ipconfig" then touch the "Enter" button

C:\Windows\system32\cmd.exe	
Connection-specific DNS Suffix .: okintl.loc Link-local IPv6 Address : fe80::8d1f:aa72:cf7d:2451%11 IPv4 Address : 172.16.40.91 Subnet Mask : 255.255.248.0 Default Gateway : 172.16.40.1	*
Tunnel adapter isatap.{D6F4F09E-7877-4FBB-B7AC-3013B9BF1CD9}:	
Media State : Media disconnected Connection-specific DNS Suffix . :	
Tunnel adapter isatap.okintl.loc:	
Media State : Media disconnected Connection-specific DNS Suffix . : okintl.loc	
Tunnel adapter isatap.{21FA85C2-FF14-4290-9890-0AE113056B56}:	Ξ
Media State : Media disconnected Connection-specific DNS Suffix . :	
Tunnel adapter isatap.{F77601E0-D202-43E9-A3AE-0F22C3078C15>:	
Media State : Media disconnected Connection-specific DNS Suffix . :	
Tunnel adapter Teredo Tunneling Pseudo-Interface:	
Media State : Media disconnected Connection-specific DNS Suffix . :	
c:\iot>	

- 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. Turpe "branche" then touch the Enter button
- 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



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





3. Enter the delay time (ex. 5000ms)

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:



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 delay between each activation.

5.3 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 10 Psi (0.7 bars). When the supplied pressure drops below 10 Psi (0.7 bars) the unit will not function. The "Low Pressure" setting can be adjusted. Follow the instructions below.





## 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)

Programs (1)
cmd
Files (8)
🗭 ows
🈹 init
🗿 setup
🛍 setup
a setup
orev15
MediaBrowser
lease comdlg32.ocx
₽ See more results
cmd Y Shutdown b

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

- 6. If the selected network is an unsecured network (not password protected), touch "Connect" tab to connect.
- 7. Once the unit is successfully connected to the Wi-Fi network, the "Connect" tab will change to "Disconnect" and the online symbol will

ch	ange to green 💿				
	ATT-WIF1-6537-123456789	\$	Scan		
	DEO		Dover-Guest		
	DEO		Unsecured Networ	'k	
	Dover-Guest		Connect without p	assword	
	CYP-Test		Disconnect		
	окі	•	Connected to Dove	ar-Guest	
		Ŧ	Default	1	×

- 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.

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. Press the X 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 desired memory cell.



LP

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



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## 5.4.2 To run in Single Sequence Mode

1. Touch the Setup icon to enter the setup screen



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2. Touch the Run Method icon

Sequence (1 - 50)	123
Delay (ms) 5000 <b>S</b> 夜 <b>衣</b> <sup>C</sup>	4 5 6 7 8 9

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

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:



## 5.8 To Connect to Wi-Fi network.

1. Connect the antenna to the Wi-Fi connector located in the back of the unit

 $\mathbf{Q}_{0}^{0}$ 

Wifi

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

## 5.7 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



## Notes:

- A. If there is no delay time entered in the setting, the operator has to press the foot switch after each memory cell is completed to activatte 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 step 1 to 2 above and enter the waiting time "delay time" between each activation.
- 2. Touch the "Sequence Mode" icon
- .s°
- 3. Touch the "Continuous Mode" icon



4. Touch the Check Mark icon to save and 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.

## 5.5 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 the setup screen					
	<b>#</b>	c:d1:19:f7	:d1:19:f7 wifi		
	۵ 🔦 🕒	BAR 📕	8	3	
	Model No:TS580R L	ot No:15012018	Serial No:003	1035	
	×		Ver: 0.00.64	C	
2. Touch the Counter Reset icon to reset counter					
	<b></b>	a0:4	8:1c:d1:19	9:f7 Wifi	
	5 🔦 🛯	P BAR		8	
	Confirm Count	ter Reset ?	<b>~</b>	×	
	×		Ver: 0.0	0.64	
3.	Press the check mark ico	on to confirm			
4.	Press the X icon to exit	×			

## 5.6 Over Current Protection

This controller is equipped with the over current protection for motor. If the motor current is over 800 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 thoroughtly 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.

