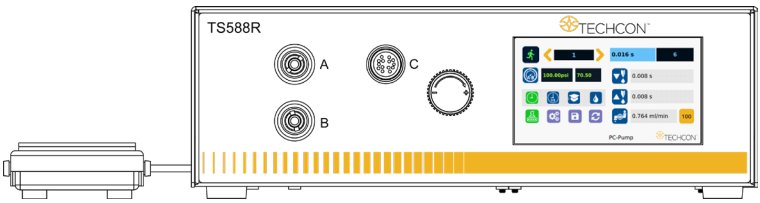

TS588R Smart Controller for PC Pumps

User Guide

7508-0510

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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.

Techcon/OK International cannot be responsible for injuries or damage resulting from unintended applications of its equipment. Unintended uses may result from 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
	Pressure Port A&B		Counter Reset
	Timed Mode		Exit
	Interrupt Mode		Accept Change
	Teach Mode		Pressure Calibration
	Purge Mode		Save
	Dispense		Reset Time in Teach Mode
	Reverse (suck back)		IP address
	Run Method		Sequence Mode
	Remote Server		Sequence Continuous Mode
	E-Stop		Continuous Mode
	Login/Logout		Change Password
	Volume		Flow Rate
	Pump Series		Firmware Upgrade
	Pump Calibration		Weight
	Run one revolution		Run
	Density		Over Current
	Dispense Indicator		Reset Settings
	Speed Sensitivity Alarm		Robotic Mode
	Controller Mode		Restart

3 SPECIFICATIONS

Size	290 mm x 212 mm x 98 mm (11.4" x 8.3" x 3.9")
Weight	2.8 kg (6.17 lbs)
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 2,000 m (6,562 ft)
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 temperatures 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	Up to 900 cycles/min
Display	Touch Screen, Resistive
Meets or exceed	CE, TUV and NRTL

4 FEATURES

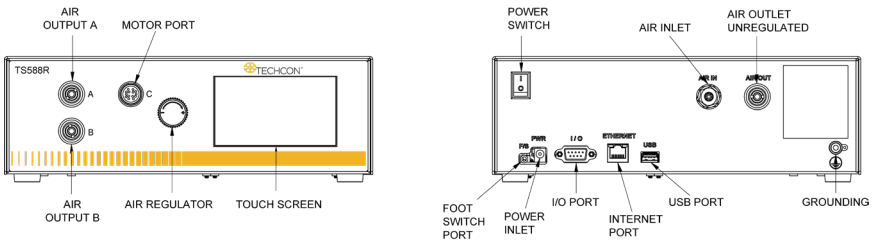


Figure 1.0

5 OPERATION

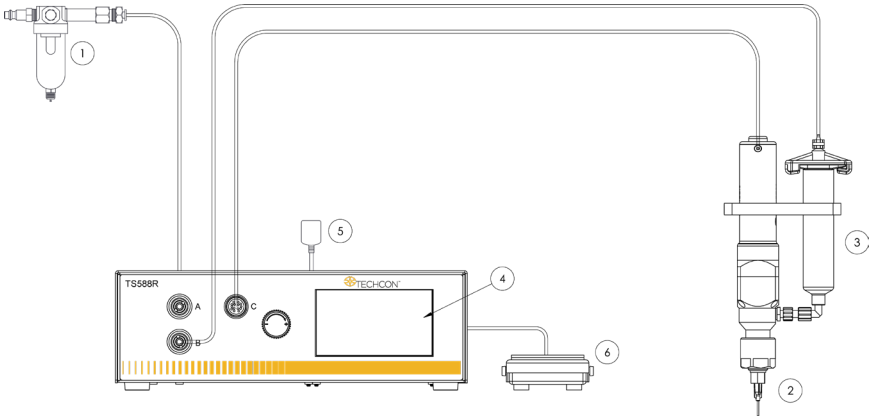


Figure 2.0

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

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

5.1 Connecting The Unit

Please refer to figures 1 & 2 above.

Step 1: Connect the power cord and foot switch to the back of the unit.

Step 2: Connect the valve air hose to either Port A or Port B.

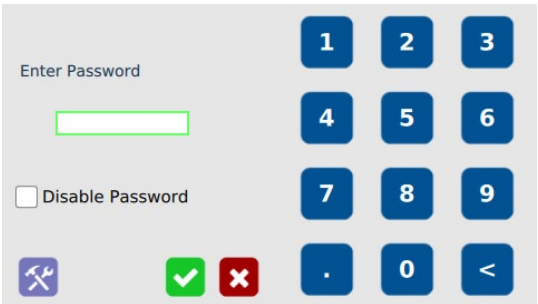
Step 3: Press the Power switch to turn on the unit.

5.2 Login

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

Step 2: Enter “0000” in the Password window.

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



5.3 Calibration

5.3.1 Pressure Calibration

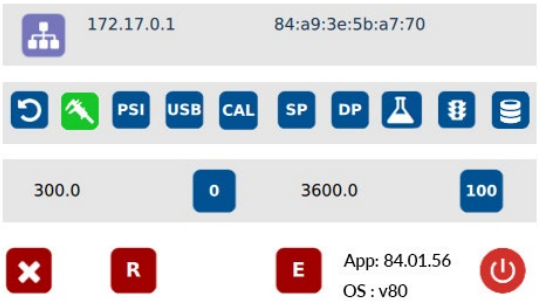
Note: Pressure calibration must be performed when the unit is activated for the first time.

Step 1: Using a pressure gauge, verify that the input pressure line is delivering approximately 100 psi.

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

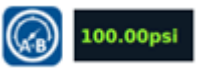
Step 2: Touch the Setup icon to enter the setup screen. 

Step 3: Once you have verified input pressure, touch the Calibration icon to enter the calibration screen. 



Step 4: Turn the pressure adjustment knob counterclockwise until the wheel can no longer be turned.

Step 5: Touch the 0 icon to set the pressure to 0. 

Step 6: Turn the pressure adjustment knob clockwise until the displayed output pressure is 100 psi. 

Step 7: Touch the 100 icon to set the pressure to 100. 

WARNING: Do not turn the 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 the pressure on the 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 the "0" and "100" icons are for reference only. The actual calibrated values will be different.

Step 1: Touch the Reboot icon to save the settings and reboot the system . 

Step 2: 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.

5.3.2 Pump Calibration

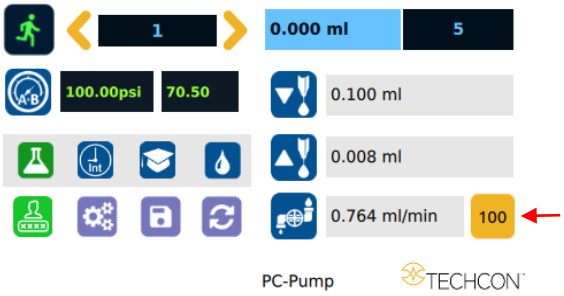
Each stator/rotor assembly has slight variation in volume due to manufacturing tolerances, therefore pump calibration is recommended for the following event:

- New pump installation
- New rotor replacement
- New stator replacement

In addition, after the pump has been used for a period of time, the rotor and stator may have worn out slightly, which will cause the volume per revolution to change. To ensure accurate dispense volume, pump calibration is recommended every 100,000 cycles.

Performing the following calibration will help to determine the correct volume per revolution of your pump.

- Attach the desired dispense needle to the pump outlet.
- Refer to figure 2.0 for proper pump and fluid connections.



Note: Volume mode must be set in home page prior to pump calibration

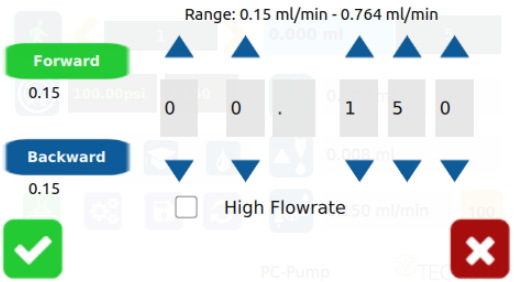
Step 1: Touch the Pump Series icon to select the correct pump that is being connected to the unit 

Note: The default setting is for pump series 100.

Step 2: Touch the Flow Rate icon to enter the flow rate setup screen. 

Step 3: Touch the Up and Down arrows to enter the desired flow rate in ml/ min. Do not exceed the recommended max flow rate.

Note: For more information about flow rate settings, refer to section 5.5.

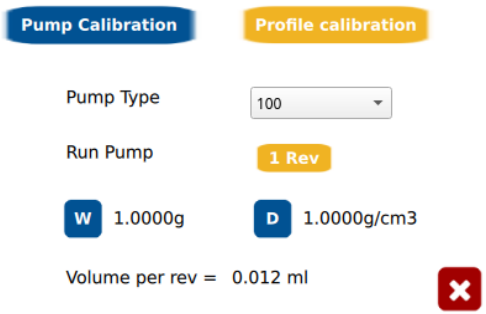


Step 4: Touch the Check Mark icon to save and exit. 

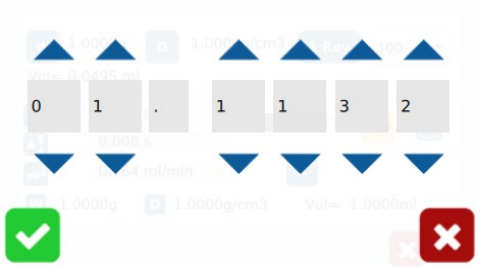
Step 5: Touch the Setup icon to enter the setup screen.

Note: Controller mode must be set to controller 'C' in the set-up menu

Step 6: Touch the CAL icon to enter the Pump Calibration screen.



Step 7: Touch the D icon to enter the density of the dispensed material in gram/cm^3



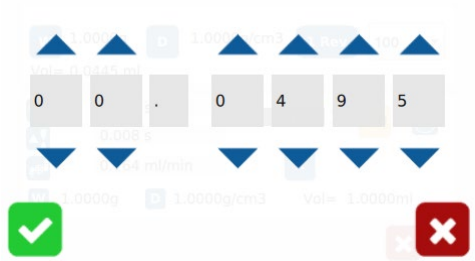
Step 8: Touch the Check Mark icon to save and exit.

Step 9: Touch the "1 Rev" icon to run the pump for one full revolution.

Note: The dispensed material must be collected and accurately weighed.

Step 10: Repeat step 9 two more times. Weigh and record the average weight of all three dispensed samples for the next step.

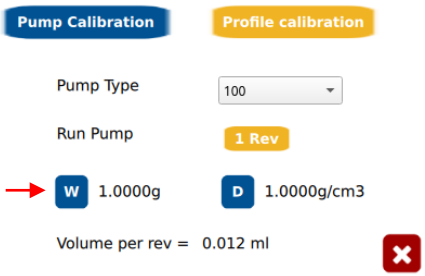
Step 11: Touch the W icon to enter the average weight of the dispensed sample in grams.



Step 12: Touch the Check Mark icon to save and exit.

Step 13: The calibration screen will look similar to the screen below.

Note: The dispensed volume per one revolution is automatically calculated.



Step 14: Touch the X icon to save and exit.

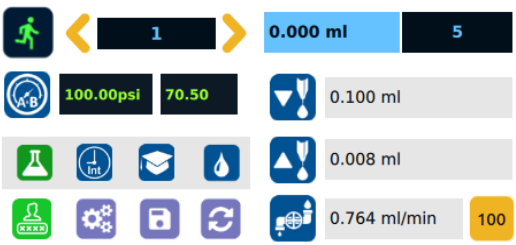
5.3.3 Profile Calibration

Normally after performing Pump Calibration, the pump is ready to dispense accurately. However, if the dispense cycle requires a partial revolution to achieve the target volume, the output volume may have a slight variation because the unique shape of the stator cavity is not uniform. The Dispense Cycle Calibration will adjust the motor counts to meet the target volume.

To ensure accurate dispensing, Profile Calibration is recommended for each dispense profile.

Note: Controller mode must be set to controller 'C' in the set-up menu and Volume mode must be set in the Home page prior to Profile Calibration.

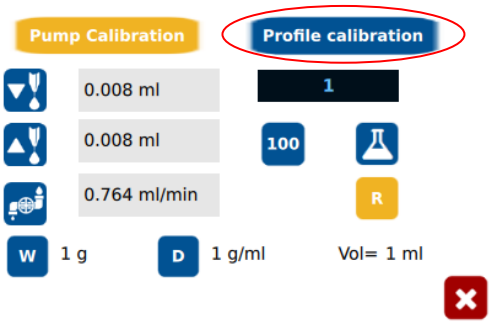
Step 1: Enter all desired dispense parameters, then touch the Save icon to save the data.



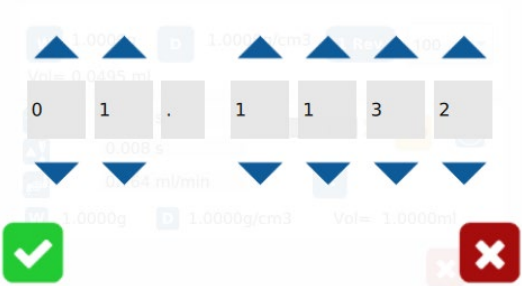
Step 2: Touch the Setup icon to enter the setup screen.

Step 3: Touch the CAL icon to enter the calibration screen.

Step 4: Touch Profile Calibration at the top of the screen.



Step 5: Touch the D icon to enter the density of the dispensed material in gram/cm^3



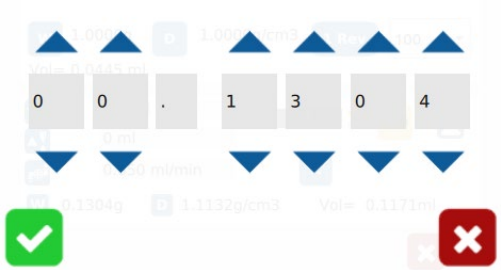
Step 6: Touch the Check Mark icon to save and exit.

Step 7: Touch the R icon to run the pump according to the dispense parameters.

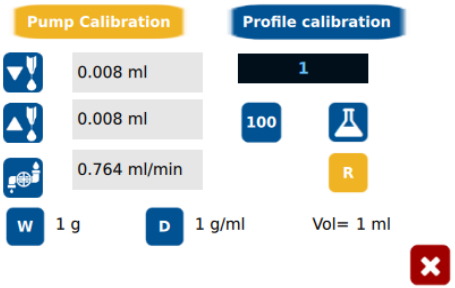
Note: The dispensed material must be collected and accurately weighed.

Step 8: Repeat step 7 two more times. Weigh and record the average weight of all three dispensed samples for the next step.

Step 9: Touch the W icon to enter the weight of the dispensed sample in grams.



Step 10: Touch the Check Mark icon to save.



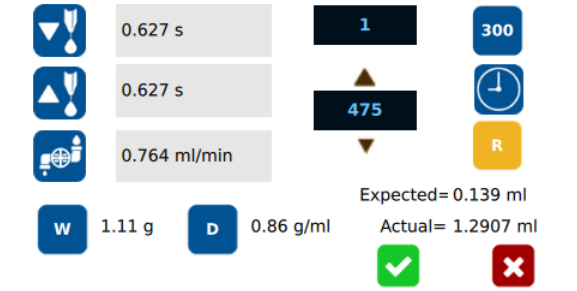
Step 11: Touch the X icon to exit.

5.3.4 Timed Mode Calibration

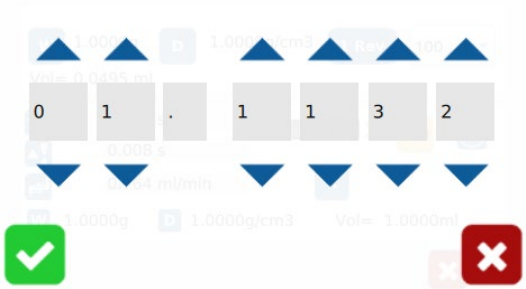
Step 1: Touch the Setup icon to enter the setup screen.

NOTE: Make sure timed mode is selected (as shown, icon will be a small beaker).

Step 2: Touch the Cal icon to enter the calibration screen.



Step 3: Touch the D icon to enter the density of the dispensed material in gram/cm^3 



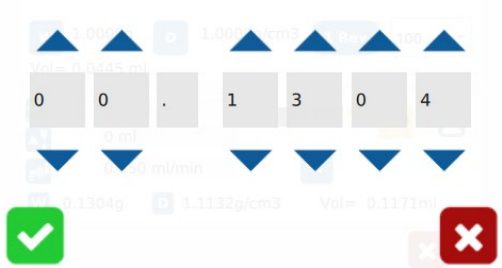
Step 4: Touch the Check Mark icon to save and exit. 

Step 5: Touch the R icon to run the pump according to the dispense parameters. 

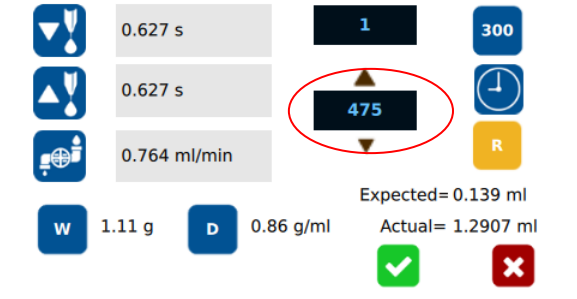
Note: The dispensed material must be collected and accurately weighed.

Step 6: Repeat step 5 two more times. Weigh and record the average weight of all three dispensed samples for the next step.

Step 7: Touch the W icon to enter the weight of the dispensed sample in grams. 



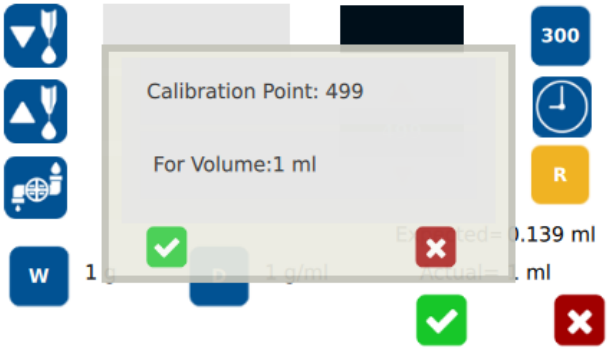
Step 8: Touch the Check Mark icon to save.



Note: The Calibration Point value (circled above) can be increased or decreased to 'fine-tune' the dispensing volume manually. If this value is changed, step 5 must be completed afterwards.

Increasing the calibration point value will result in an increase in dispensed material, and vice versa. It is recommended to not change the value >5% per trial. The goal is that the expected volume be the same as the actual volume.

Step 9: Press the green Check Mark once more to confirm the calibration point value.

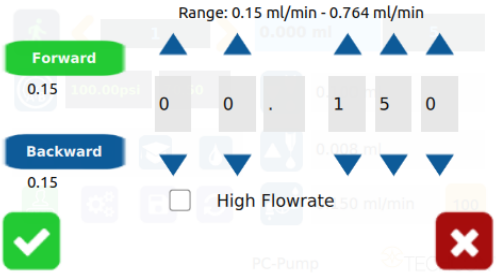


5.4 Flow Rate Setting

Each PC Pump series has a recommended maximum flow rate. Make sure to check the PC Pump flow rate specs before operating.

The standard flow rate setting does not allow the operator to enter a flow rate value higher than the recommended flowrate.

Step 1: Touch the Flow Rate icon to enter the flow rate setup screen.

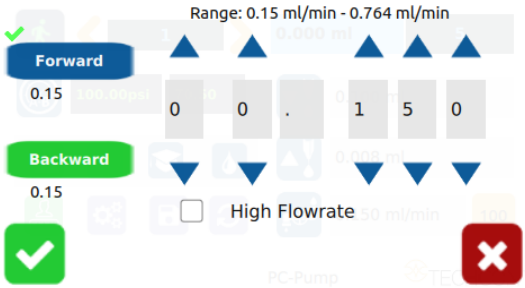


Note: The flow rate screen will enable users to adjust forward and backwards dispensing flow rates.

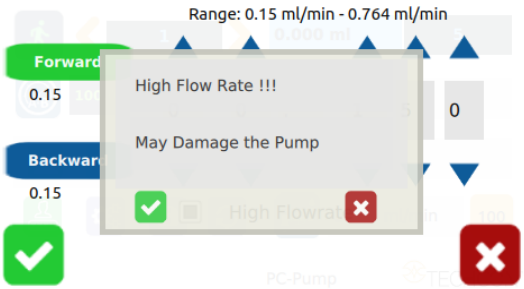
Step 2: Touch the Forward icon and click on the Up and Down arrows to set the desired flow rate in ml/minute.

Step 3: Touch the Backward icon to save the forward flow rate setting (will see green check mark over forward icon).

Step 4: Touch the Up and Down arrows to set the desired flow rate for reverse (suckback) in ml/minute.

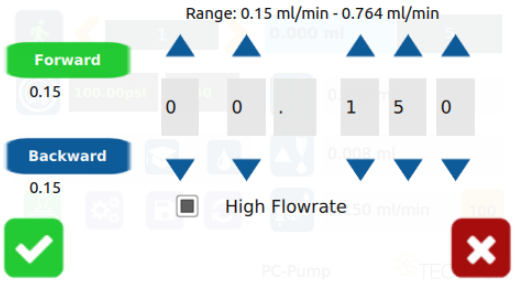


Step 5: If maximum or higher than recommended max flow rate is desired, touch the High Flowrate checkbox and the High Flow Rate message will appear.



Step 6: Touch the X icon to confirm.

Step 7: Touch the Up and Down arrows to set the desired high flow rate in ml/minute.



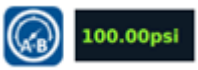
Step 8: Touch the Check Mark icon to save and exit.

WARNING: Running the pump at higher than recommended maximum flow rate for a long duration will reduce the stator life.

5.5 Pressure Adjustment

Note: Pressure on port A and B provides constant regulated pressure. These two pressure outlets can be used to pressurize the fluid reservoir to feed fluid to the PC pump.

Step 1: Output pressure adjustments on port A and B will be displayed in the following window.



Pressure to port A.B can be adjusted from 0-100 psi by rotating the pressure adjustment wheel.

Step 2: Rotate the adjustment wheel in the counterclockwise direction to decrease output pressure.

Step 3: Rotate the adjustment wheel in the clockwise direction to increase output pressure.

Note: To ensure output pressure to A.B matches manual pressure adjustments, please make sure the pressure calibration in Section 5.3 has been completed.

5.6 To Change Pressure Unit Display

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

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

Step 2: Press the "PSI/BAR" icon to change the pressure units.

Step 3: Touch the X icon to save and exit.

5.7 Manual/Purge Dispense Cycle Settings

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

Step 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.

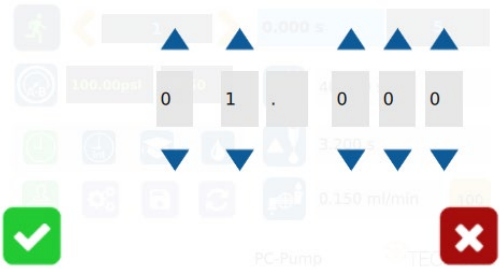
5.8 Automatic Dispense Cycle Setting

5.8.1 Timed Mode

Step 1: Touch the "Timed" mode icon to set the dispense time. The icon will turn green. 

Step 2: Touch the "Dispense" icon to enter the time setup screen. 

Step 3: Touch the Up and Down arrows to set the desired dispense time.



Step 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. 

Step 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.

Step 6: Touch the Interrupt icon to activate Interrupt mode. The icon will turn green. 

Note: This feature is designed to work only in controller 'C' mode.

5.8.2 Volume Mode

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

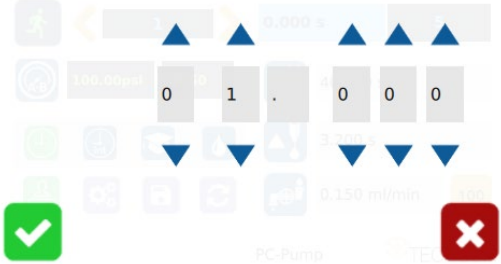
Step 2: Touch the “Volume” icon to switch to volume mode.

Step 3: Press the X icon to save and exit.

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

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

Step 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.

Note: This feature is designed to work only in controller ‘C’ mode.

5.9 Teach Mode Setting

In 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.

Step 1: Touch the Teach icon to enter the teach mode. 

Step 2: Touch the Time Reset icon to set the timer to zero. 

Step 3: Press and hold down the foot switch. The dispense time will be accumulated.

Step 4: Release the foot switch when the desired amount of fluid has dispensed.

Step 5: Touch the Timed icon to transfer the dispense time to Timed mode. 

Step 6: The unit is now set to repeat this Timed cycle.

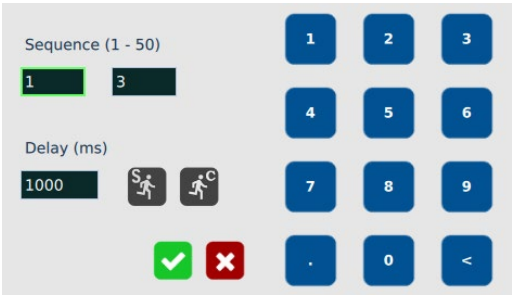
Note: This feature is designed to work only in controller 'C' mode.

5.10 To run in Continuous Mode

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

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

Step 2: Touch the Run Method icon.

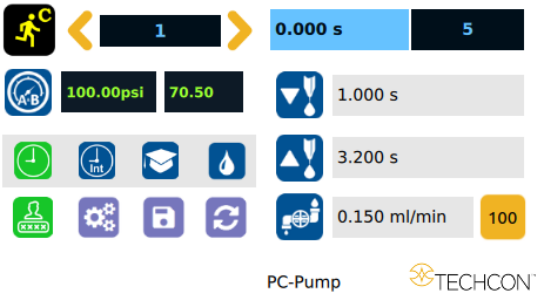


Step 3: Enter the delay time (ex. 1000 ms).

Step 4: Touch the Continuous Run icon.

Step 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 1000 ms, the controller will activate memory 1 contiuously with 1000 ms delay between each activation.

Note: This feature is designed to work only in controller 'C' mode.

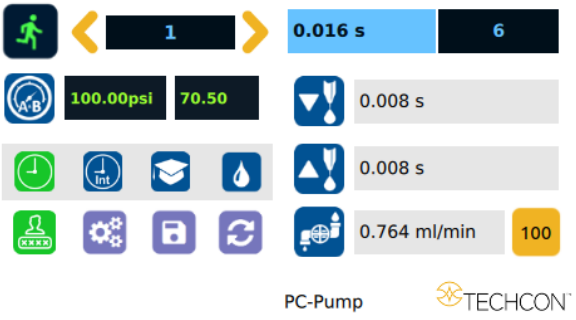
5.11 Stored Programs in the Memory Cell

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

5.11.1 To Store Dispenser Parameters

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

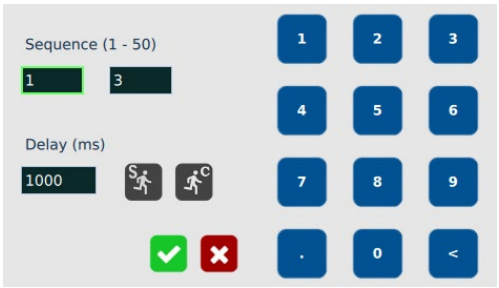
Step 2: Enter all desired dispense parameters, then touch the Save icon to save the data.



5.11.2 To run in Single Sequence Mode

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

Step 2: Touch the Run Method icon.

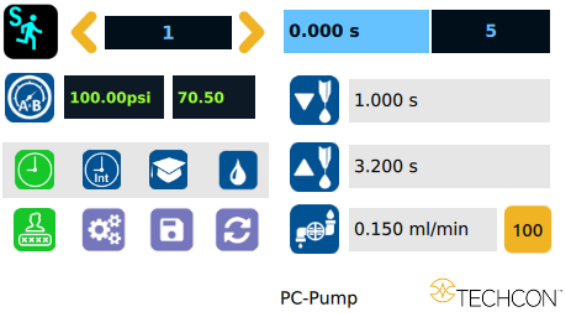


Step 3: Enter number of memories to be run in sequence (ex. 1 to 3).

Step 4: Touch the Sequence Mode icon.

Step 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 has to press the foot switch after each memory cell is completed to activatte the next memory cell.

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

Note: This feature is designed to work only in controller 'C' mode. Controller may misbehave if programs in the sequence do not have the same "Volume/Time mode" in the set-up menu.

5.11.3 To run in Continuous Sequence Mode

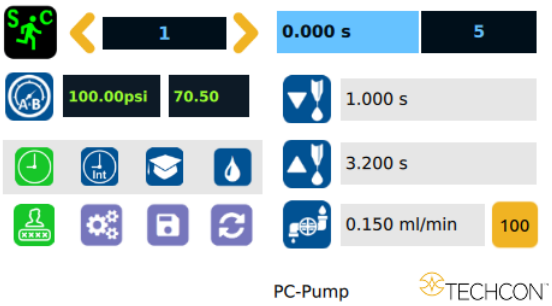
Step 1: Follow steps 1 & 2 above and enter the waiting time "delay time" between each activation.

Step 2: Touch the Sequence Mode icon.

Step 3: Touch the Continuous Mode icon.

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

The screen will look similar to the screen below:



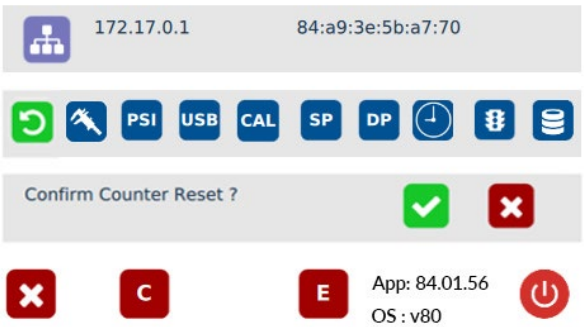
Note: If the sequence mode is set to activate memory cell 1 – 3, and the delay time is set at 1000 ms, the controller will activate memory 1 to 3 continuously with 1000 ms delay between each activation.

Note: This feature is designed to work only in controller 'C' mode. Controller may misbehave if programs in the sequence do not have the same "Volume/Time mode" in the set-up menu.

5.12 Cycle Counter

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

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



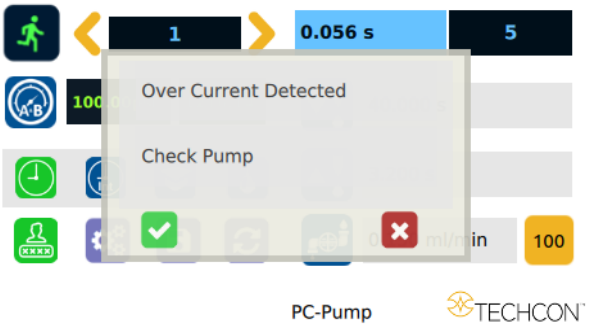
Step 2: Touch the Counter Reset icon to reset the counter.

Step 3: Touch the Check Mark icon to confirm.

Step 4: Touch the X icon to exit.

5.13 Over Current Protection

This controller is equipped with over curricular protection for the motor. When the motor current is higher than the "over current" threshold, the message "Over Current Detected" will appear on the screen as shown below and the unit will be disabled.



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

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

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

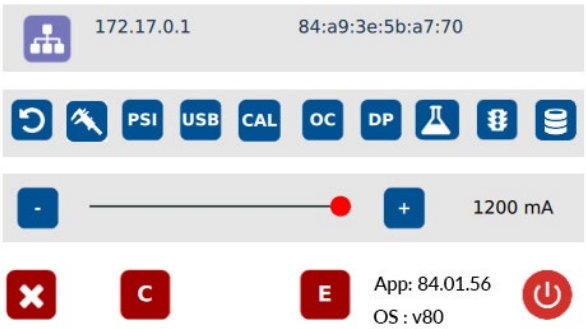
5.13.1 Over Current Setting

The default over current threshold value is 400 mA. However, the user can reset the threshold to any desired value.

Step 1: Go to the Setup screen.

Step 2: Touch the “OC/SP” icon and toggle to OC. 

Step 3: Slide the “Over Current” bar to set desired value.

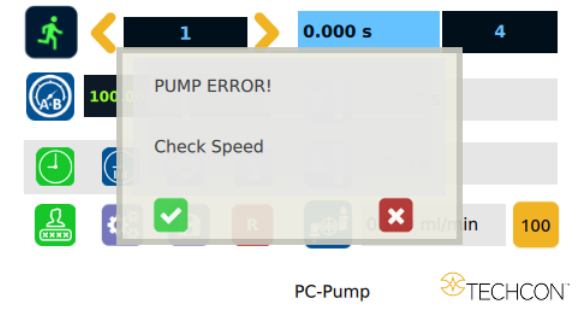


5.14 Speed Sensitivity Alarm

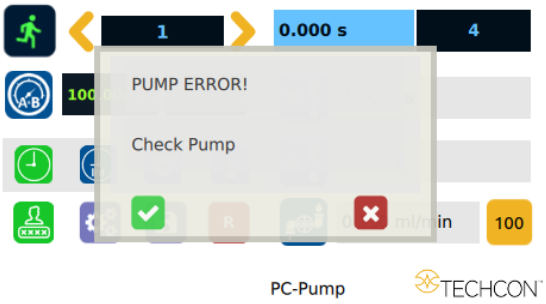
The controller is equipped with a Slow/Fast motor speed detection feature. This feature is designed to detect when the motor starts up slower than it should or when abnormal motor behaviors begin to cause the motor to run above the acceptable speed threshold.

Note: This feature is only available in Robotic mode.

When the motor starts-up slower or faster than it should, an error message “PUMP ERROR! Check speed” will appear on the display.



If the system detects the pump slowing down during the dispensing run, “PUMP ERROR! Check Pump” will appear on the display



Note: when error messages appear, check the valve for any clogging. Clean the valve thoroughly if necessary.

If after the valve has been cleaned, an error message continues to appear, please re-adjust your sensitivity setting. If adjusting the sensitivity doesn’t resolve the issue, disable the speed sensitivity alarm, and observe over current behaviors reference section 5.15 for additional information. If issues persist, it is most likely time to replace the motor.

Touch the X icon to clear the Speed error message and reset the unit.

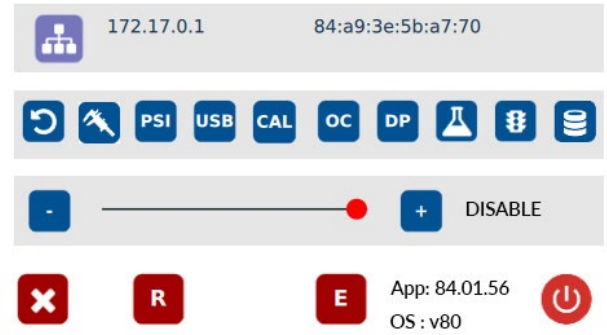
5.14.1 Speed Sensitivity Setting

The sensitivity of this alarm can be adjusted by going to the set-up menu and clicking “SP/OC’ icon. Make sure “SP/OC” icon is toggled to SP.

Step 1: Go to the Setup screen.

Step 2: Touch OC/SP icon and toggle to SP.

Step 3: Slide the “speed sensitivity” bar to set desired sensitivity detection level.



There are three sensitivity levels available: Sensitive, Intermediate, and Normal. By default, the speed sensitivity feature is disabled.

The sensitivity alarm will need to be adjusted based on the user's material properties, pump type, and programmed flow rate.

5.15 Robotic Mode

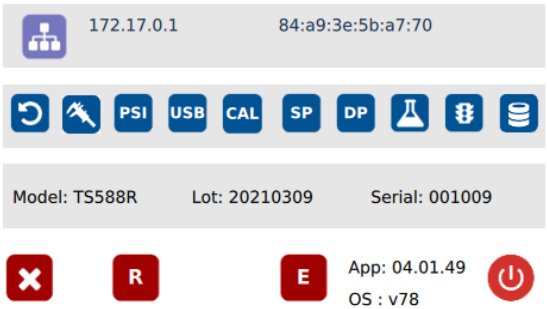
Techcon controllers have a dedicated mode called Robotic Mode, which is designed for fast-paced communication between the controller and an external PLC or Techcon series robot.

Please reference section 11 for information on available I/O configurations of the rear I/O port of the controller.

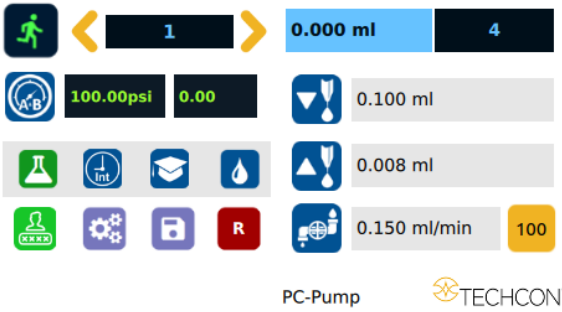
To enable Robotic Mode:

Step 1: Go to the setup screen.

Step 2: Touch the C/R icon and toggle to R.



In the Home page, you will see an R icon replace the reset time icon. 



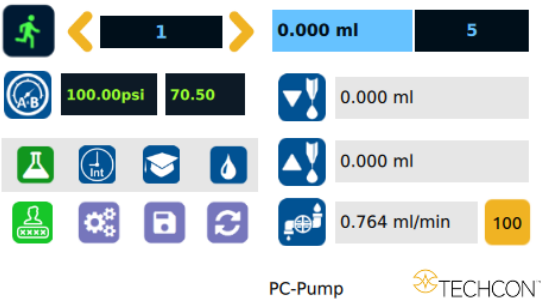
Note: The GUI will not update and/or provide feedback on dispensing run time when running robotic mode.

WARNING: For fast-paced processes in which a PLC or Techcon robot is used, users may encounter inconsistencies in their dispensing runs if their controller mode is not switched to robotic mode.

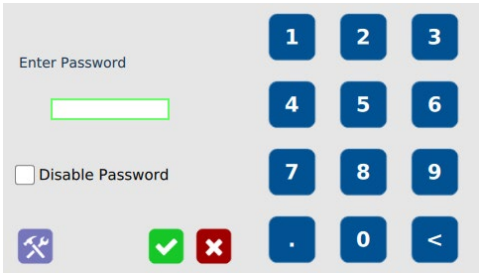
5.16 To Change the Password

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

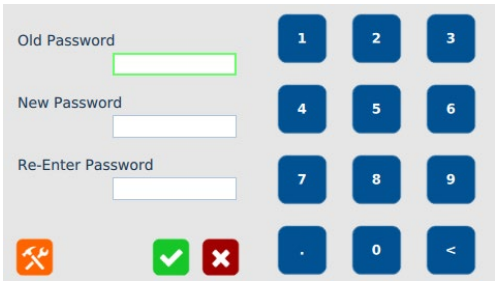
Step 1: Touch the Login icon to enter the login screen. 



Step 2: Touch the Change Password icon.



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



Step 4: Touch the Check Mark icon to save.

Step 5: Touch the X icon to exit.

NOTE: The password can be disable by checking the box next to "Disable Password." If the password is forgotten, please contact our technical support team for assistance with resetting the password.

6 INTERNET OF THINGS (IoT) VIA TCP BUILDER

The IoT enabled function allows users to:

- Monitor controller and valve performance remotely
- Make parameters adjustment remotely
- Collect data

6.1 Required Preparations

Step 1: Connect the TS588R controller to your local network using an ethernet cable.

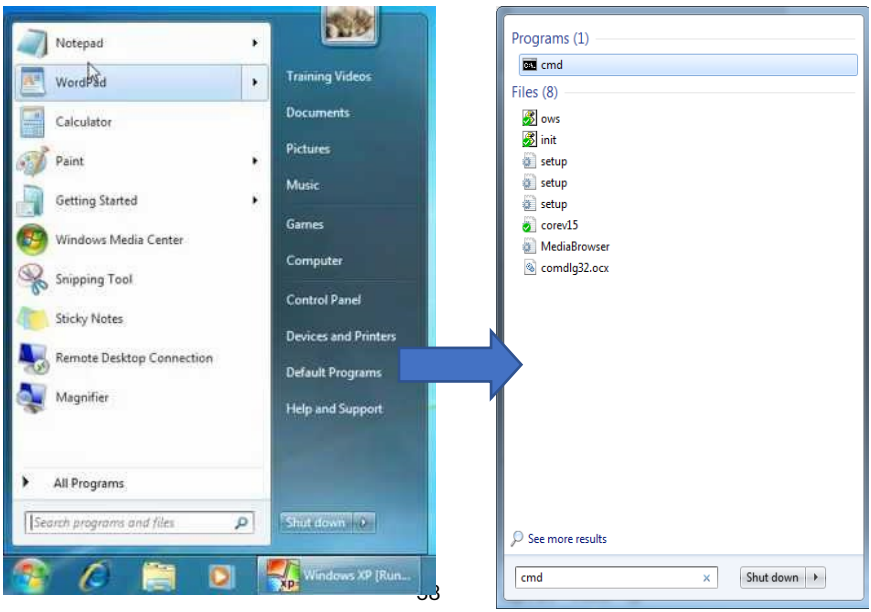
Step 2: Prepare a computer with access to the internet.

Step 3: Install “TCP Builder” for configuring the valve controller using RCP on TCP. https://www.drk.com.ar/builder.php

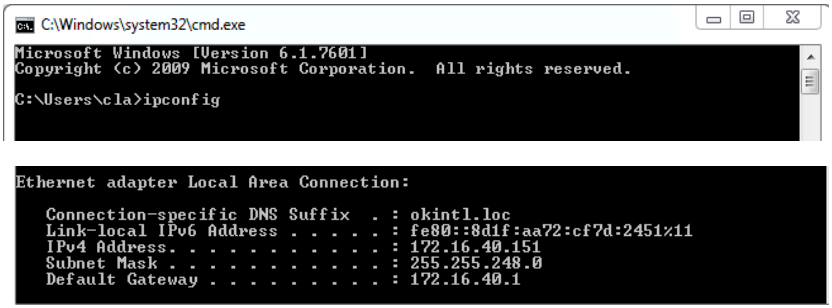
6.2 Obtaining IP Address and Setting up Server on Controller

Step 1: Click on the Windows start icon.

Step 2: Type “cmd” in the box, then press Enter.



Step 3: Type “ipconfig,” then press Enter.

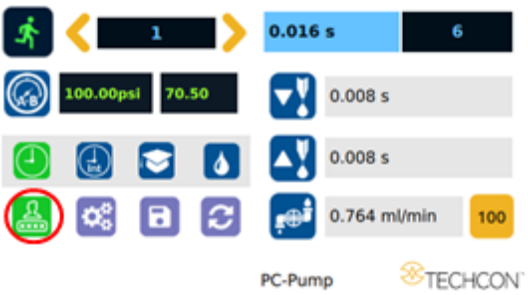


Step 4: Record the IPv4 address shown in the “IPv4 Address” line on the above screen. For this example, the Server IP address is: 172.16.40.151

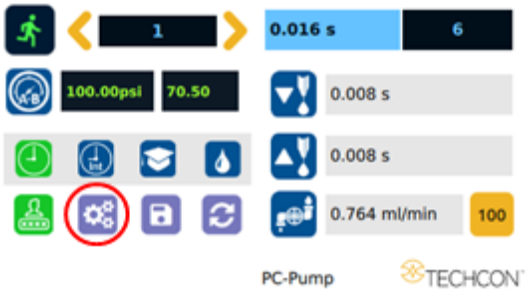
This IP address will be entered in the controller screen.

Step 5: Make sure the ethernet cable is connected to the ethernet port of the controller.

Step 6: Login to the valve controller.



Step 7: Navigate to the setup page.



Step 8: Verify the IP address of the controller appears in the top header.

Step 9: Go to the setup screen of the controller and touch the Remote Server icon.

Step 10: Enter the IPv4 address (IP of computer running TCP Builder) recorded in step #4 into Remote IP address box. Leave port at 4900.

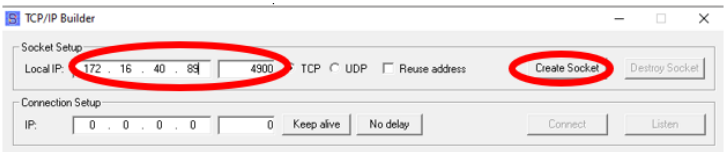
Step 11: Touch the green Check Mark icon to save.

Note: By default, controller is set-up to dynamic IP. Configuring the valve controller with static/dynamic is user choice. This can be done on the same remote server configuration interface. In static mode, the ideal server IP for the controller may be entered.

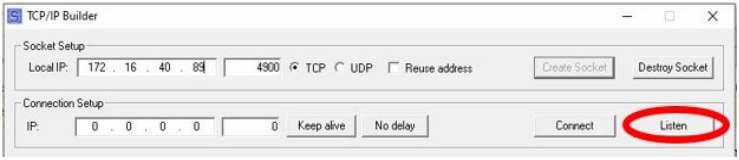
6.3 Remote Connection

Connect remotely to the valve controller using the TCP/IP builder software:

Step 1: Create a TCP IP socket for the valve controller to Communicate with PC. Enter the IP address of PC in “Local IP”. Set the port number to “4900” and press create socket.



Step 2: Press “Listen” for the controller to connect with the server.



Step 3: Wait for the connection to be successful.

Note: Both the server IP and controller IP need to be connected to the same local network. In this case both are connected to 172.16.40.XXX

6.3 Communication

There are two communication packets in RCP. One to read the profile information and the other to reconfigure the profile value.

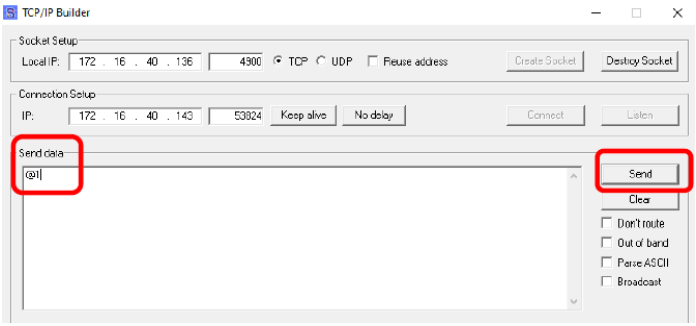
6.3.1 Retrieving a Profile Manually Using TCP/IP

User shall use the following command to retrieve the profile using any TCP IP tool that is set up as a server:

```
@<Profile Number>
```

Step 1: To retrieve current program data from program 1 on the controller, in SEND DATA field enter @<TS program#> and click <SEND> .

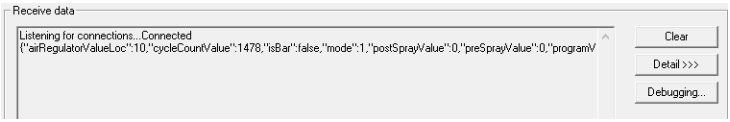
Example: @1 means retrieve data from program 1; @10 means program 10, etc.



Note: JSON string format for TS588R (Pump Controller)

```
{"airRegulatorValueLoc":0,"backwardValue":500,"cutoffCurrent":1200,"cycleCountValue":0,
"forwardValue":1500,"isBar":false,"mode":1,"programValue":1,"pwmValue":0}
```

Step 2: After retrieval, current program# data should show in the "Received data" field.



6.3.2 Set profile manually using TCP/IP

User shall use the following command to update any profile from a remote machine that is using any TCP IP tool this is set up as a server:

```
#<Profile Number/Name>#<Profile Data in JSON format>
```

"Profile Data" must be in the same format that is received from issuing "@" command.

It's important that the program number/name and the parameter value (programValue) are the same for updating a profile. If not, the system will not update the profile in the device.

On receiving the "#" command successfully, the system will update and load the profile.

1. To modify program parameters, enter #<Profile Number># and type the data line in JSON format in the "Send data" field.

Note: you can copy, paste, and modify from the "Receive data" line.

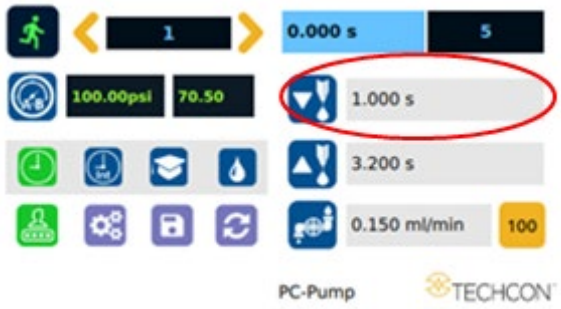
2. To modify program #1 forward run time from 10.000s to 1.000s, enter: #1# (Profile data in JASON format) as shown below.

Received Data:
{"airRegulatorValueLoc":0,"backwardValue":0,"cutoffCurrent":"735.00","cycleCountValue":654,"densityCal":"1.0000","forwardValue":10.000,"isBar":false,"maxFlow":false,"mode":3,"offsetBackwardCount":0,"offsetForwardCount":0,"pcPumpType":"100","programValue":1,"pwmValue":0.55,"pwmrevsValue":0.35,"volume":false,"volumeCal":"1.0000","weightCal":"1.0000"}

Send Data:
#1#{"airRegulatorValueLoc":0,"backwardValue":0,"cutoffCurrent":"735.00","cycleCountValue":654,"densityCal":"1.0000","forwardValue":1.000,"isBar":false,"maxFlow":false,"mode":3,"offsetBackwardCount":0,"offsetForwardCount":0,"pcPumpType":"100","programValue":1,"pwmValue":0.55,"pwmrevsValue":0.35,"volume":false,"volumeCal":"1.0000","weightCal":"1.0000"}

3. Click the Send button to transmit to the controller.

4. Verify the new data was received and updated on the GUI.



Warning: you cannot update the field for output pressure A.B using TCP Builder. The output pressure field is read directly from the pressure regulator sensor.

6.3.3 PSI-L/O Alarm

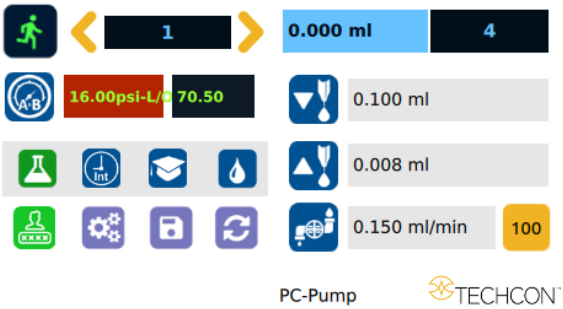
TCP enables users to set a lower threshold limit on the output pressure. If output pressure were to drop below this threshold limit, function of the motor will be disabled.

Note: This feature is only enabled in controller 'C' mode.

To enable this feature, update the pressure field "airRegulatorValueLoc":0 to a value in the range of 1-100.

Once you update this field the response on the controller will depend on whether the output pressure on the controller is greater than or less than the entered value on TCP.

If the pressure value entered on TCP is greater than the current output pressure, the controller will alert the user by indicating the pressure status to low by showing "psi-L/O" message.



To exit out of this error state, the user can manually adjust the pressure on the controller to a value greater than or equal to that set on TCP.

If the pressure value entered on TCP is less than the current output pressure on the controller, then the status of the controller will remain unchanged. However, if the pressure were to be adjusted to a value *less* than that entered on TCP, "psi-L/O" message will appear.

To disable "psi-L/O" feature set "airRegulatorValueLoc":0

To exit TCP Builder perform the following:

a. Clear SEND DATA field using 'Clear button'

b. Clear RECEIVE DATA field using 'Clear button'

c. Click the 'Destroy Socket' button

d. Click the 'Exit' button for TCP/IP Builder software

7 SOFTWARE UPGRADE

Software upgrades can be done locally through a USB upload method.

Note: If your unit has an Application and Driver version that pre-dates App:4.01.40 and OS v78, you will need to install the kernel image (PWU file) as well.

Note: Kernal Image file is provided upon request by contacting our Technical Support team.

7.1 Kernal Image (PWU file) Loading Procedure

1. Step 1: Prepare a blank USB thumb drive.

   Step 2: Copy the kernal image file titled "update_dart_0.0.XX.pwu" into the blank USB drive.

   Step 3: Verify that the unit is off.

   Step 4: Insert the USB drive into the USB port located in the back of the unit.

   Step 5: Turn the unit on.

   Step 6: The system should display a screen similar to the one shown below.

Note: This procedure can take a few minutes.

Step 7: Remove the USB drive from the USB port before proceeding to the next step.

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 a stylus pen be used.

Step 9: Wait until the system completes the re-booting sequence and the Home screen is displayed.

Step 10: Repeat section 5.3 to re-calibrate the air pressure.

7.2 Application and Driver Upgrade through USB

Please note: Application and Driver are packaged together in the same folder titled "PC_PUMP".

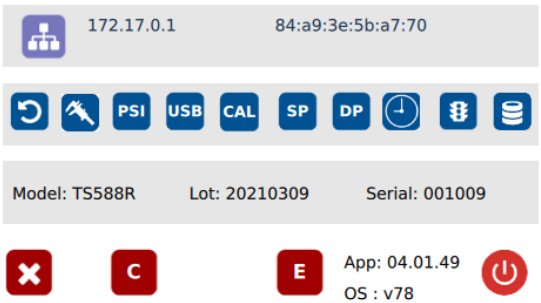
Step 1: Download the latest Application and Driver files from our Techcon website. Contact our Technical support for assistance confirming latest revision.

Step 2: Unzip and copy the "PC_PUMP" folders onto a blank USB thumb drive.

Step 3: Turn on the unit.

Step 4: Insert the USB drive into the USB port located in the back of the unit.

Step 5: Touch the Setup icon to enter the setup screen.



Step 6: Touch the USB icon to upload the latest software file. 

Step 7: Wait while the system is loading the new software file and rebooting.

Note: Do not turn off power during the rebooting sequence.

Step 8: Once the system completes the rebooting sequence, the Home screen is displayed.

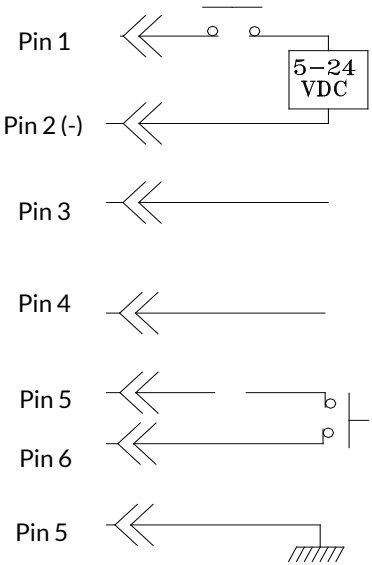
Step 9: Remove the USB drive from the USB port.

Verify Application and Driver version are displayed in the set-up menu.

8 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 used as a 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.



To initiate a dispense cycle with

See “Section 11.1 Pin 3 Configuration” on the next page

Open Pin, No Connection

To initiate a dispense cycle with contact closure

Chassis Ground

Pin 7, 8, and 9 = No

8.1 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 color and the message “OVER CURRENT STATUS” will display as show below.

Refer to *Section 5.13 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 as show below.

During dispense cycle, Pin 3 is grounded (-)
End of dispense cycle, Pin 3 is not connected (opened)

To use as “Speed Sensitivity Alarm” go to set-up menu and enable “Speed sensitivity Alarm”. Reference section 5.14 for additional information.

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

9 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 pressure dropped below "Low Pressure" setting • Foot switch not plugged in or improperly plugged in • Defective foot switch • Broken wire or loose connection inside unit • Defective solenoid • Defective PC board • The valve motor draws over 400 mA	• Increase supplied pressure • Check foot switch connection • Foot switch needs to be repaired or replaced • Unplug power cord and disconnect air supply. Remove cover and check for broken wires or loose connections • Replace solenoid • Replace PC board • Check valve (see section 5.6)
System will not pressurize	• Insufficient air pressure • Air hoses not plugged in • Regulator defective	• Increase air supply pressure • Check connection • Replace regulator
Inconsistent dispense	• Air bubbles in material • Dispense time is too low • Needle clogged • Motor started to burn out	• De-air material • Increase dispense time • Replace needle • Replace motor

10 MAINTENANCE

The dispenser is designed and built to be relatively maintenance free. To assure trouble-free operation, please follow below 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 to an air supply exceeding 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.

11 LIMITED WARRANTY

Techcon/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 Techcon's/OK International's option) free of charge. Customers with defective product under warranty must contact the nearest Techcon office or distributor to secure a return authorization prior to shipping the product to the assigned Techcon authorized service center. For the nearest Techcon office or distributor, please visit www.techcon.com/distributors. Techcon/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:

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