

# Town and Country Plastics pH Controller Operations Manual

Refer to Drawings below for Schematics of Enclosure

TOWN & COUNTRY PLASTICS  
*Customized For Precision*

**Project:** T&C Single Tank pH Controller ON\_OFF  
**Model#** PHCP-1000MV\_LST  
**Document No:** 122121\_TC



# Town and Country Plastics pH Controller

## Operations Manual

The following symbols are used in these operating instructions



**ATTENTION**



**NOTE**

### 1. Safety Notes

- *Please observe the notes in these operating instructions in conjunction with the data provided are supplied in order to maximize the efficiency and operation of the system:*
  - Installation and maintenance work is to be performed only by qualified personnel whom are certified for the actions to be completed and understand fully the scope of work.
  - Tools used for installation and/or maintenance are to be appropriate for the application.
  - Switch off the supply voltage to the enclosure prior to any work performed in all cases.
  - Safety precautions must be taken when dealing with any part of the system that is under pressure prior to commencement.
  - Take suitable precautions to prevent inadvertent operation or damage by unauthorized action.

#### 1.1. Delivery

Immediately after receipt of the system, verify all components are undamaged and match the packing slip accompanying the shipment. If there are any discrepancies, please contact Ryan Herco Flow Solutions

### 2. General



Only properly trained and qualified individuals should perform installation procedures. Failure to follow the instructions held within or use of improper tools and procedures during the installation will invalidate the system warranty.



Ensure that all fittings and terminations are retightened before installation as they may have come loose during shipping.

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### 3. Electrical Power Requirements



All electrical connections should be sealed properly to prevent water from entering the conduit. Failure to do so will invalidate the warranty.



Follow local, State, and Federal regulations in addition to all company policies in regard to wiring. It is up to the installation team to determine and follow relevant guidelines.



The power supply to the panel should be conditioned in order to protect the system, as well as ensure proper operation. Voltage sags and spikes can be damaging over time.



At the time of commissioning, it is suggested that the incoming power source (i.e. voltage, phase and frequency) is verified before applying power to the system.



Refer to the electrical drawings for the system power supply and wiring interconnection requirements.



A visual inspection is necessary to verify that no damage occurred during shipment and that there are no loose wire terminations.

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### 4. Equipment Installation and Commissioning Procedure

4.1. Connect external devices in accordance with drawing 122121\_TC



Figure 2

4.2. Connect Mixer Pump 1 (Figure 2)

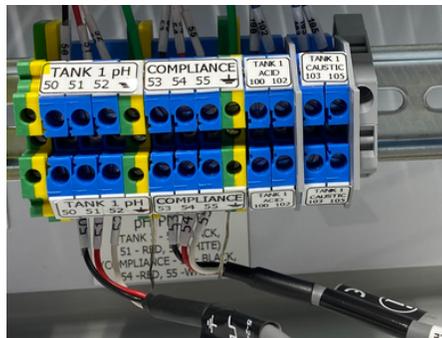


Figure 3

4.3. Connect Metering Pumps (Figure 3)

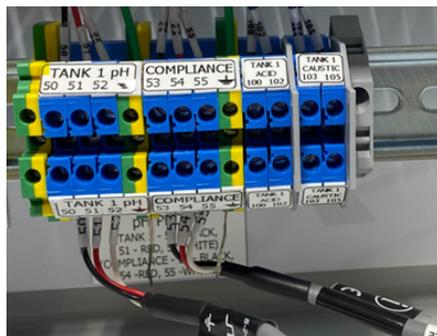


Figure 4

4.4. Connect pH Probes (Figure 4)

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4.5. Connect Tank Level, Containment switches and Chemical Tank level Inputs if required (Figure 5)



Figure 5

4.6. Connect BMS Inputs if appropriate. (Figure 6)



Figure 6

4.7. Connect BMS Outputs if appropriate (Figure 7)



Figure 7

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- 4.8. Ensure incoming power from the main power source is removed prior to connecting to the enclosure power terminals as shown in Figure 7 and all Lock out Tag out procedures are followed.
- 4.8.1. Verify the Main Circuit breaker is in the “OFF” position.
  - 4.8.2. Connect appropriate wire to the power Terminals. This step should be completed by a qualified technician.
  - 4.8.3. Verify all circuit breakers are in the “ON” position prior to placing the main circuit breaker in the “ON” position.
  - 4.8.4. Close and latch the Enclosure door.
  - 4.8.5. Verify proper voltage at the main power source and apply external power to the enclosure



Figure 7

- 4.8.6. System will power up and PLC will initialize. This will take a few minutes to fully initialize. Upon completion you should see appropriate values populate the pH fields. (Figure 8)

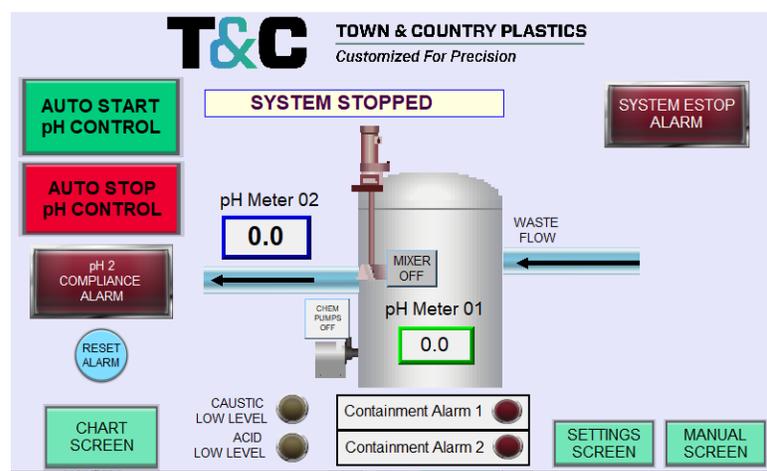


Figure 8

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## 5. Main Enclosure

### 5.1. Layout Exterior

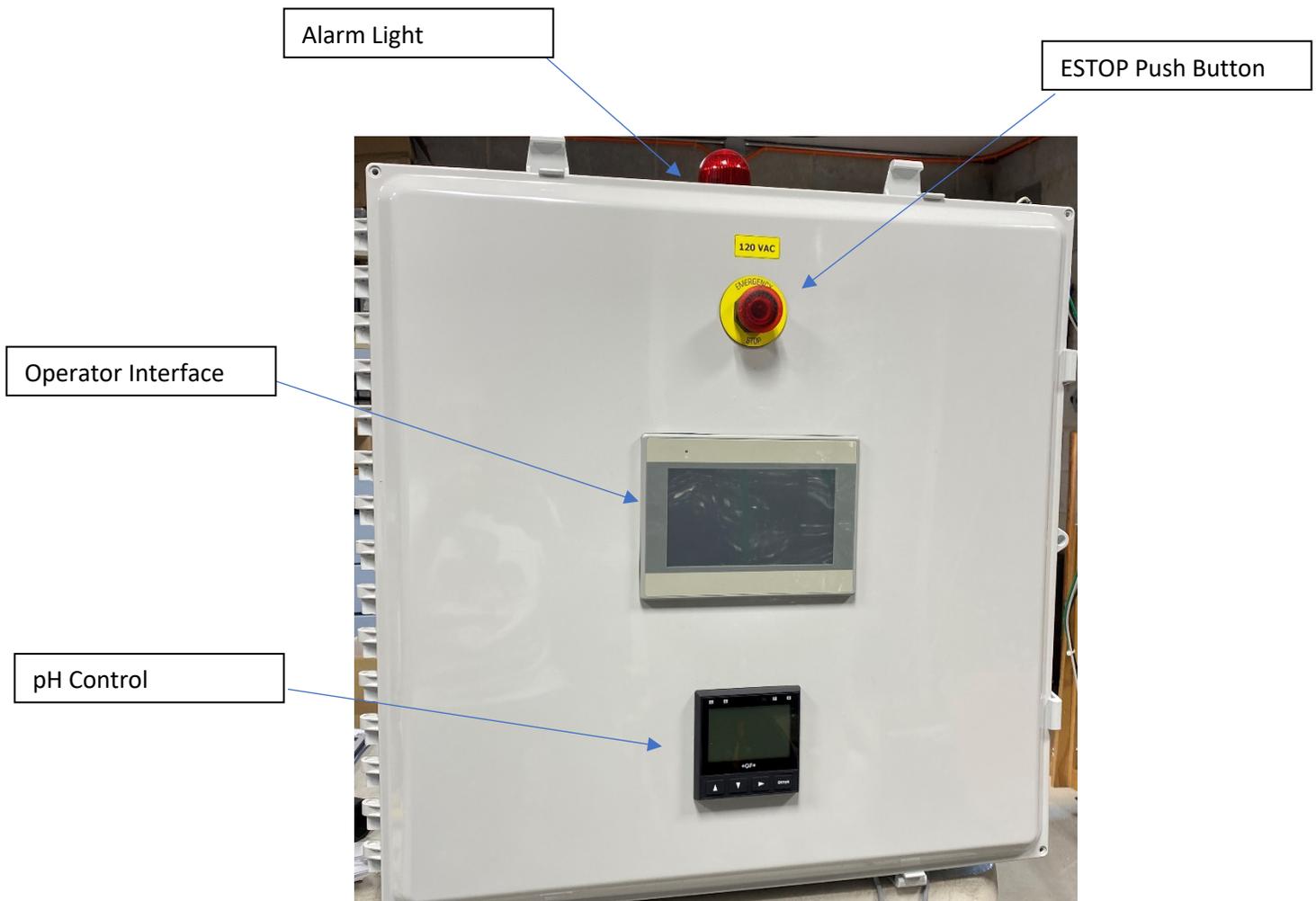


Figure 9

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### 5.2. Main Enclosure layout Interior

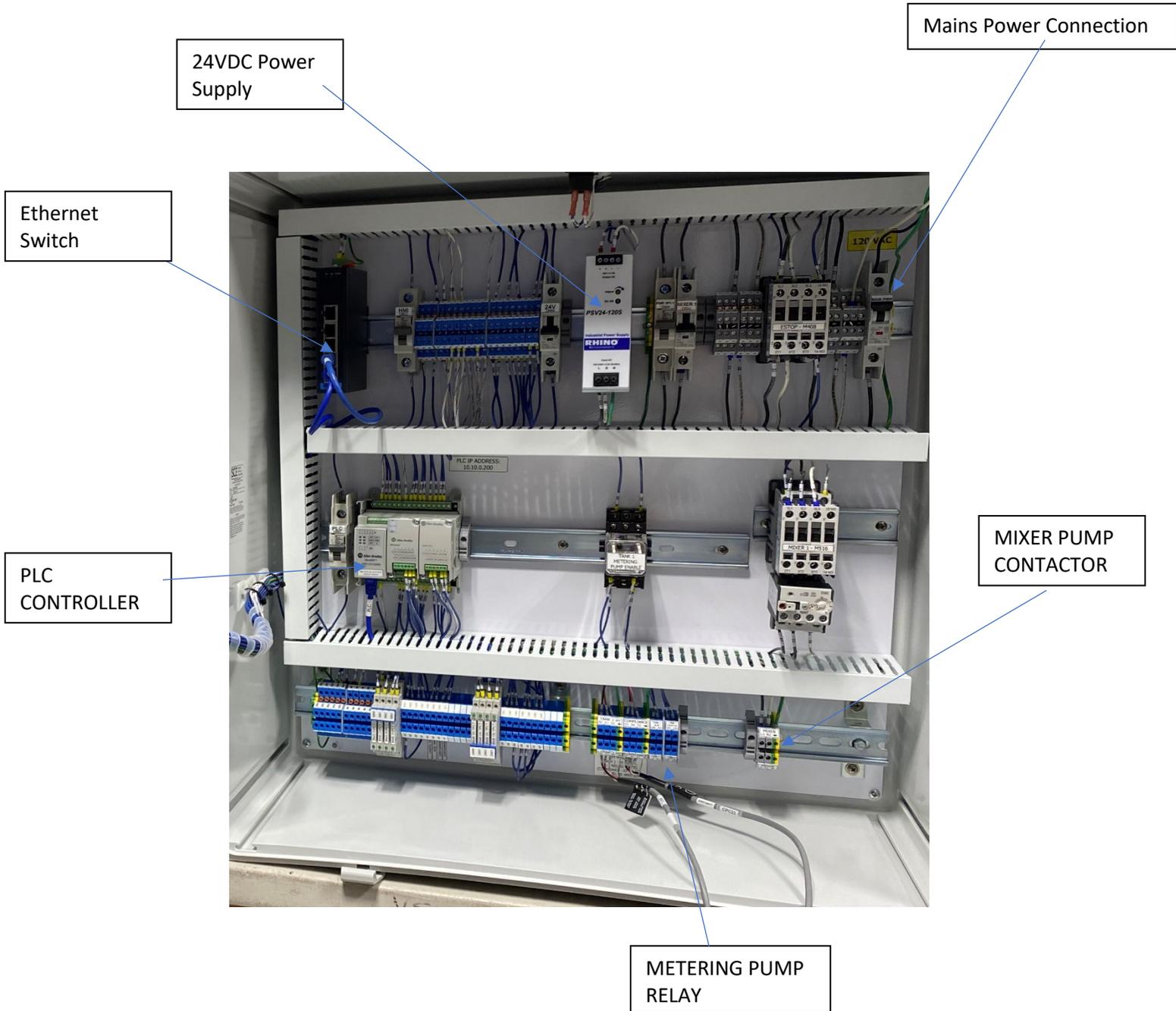


Figure 10

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### 6. HMI Layout

#### 6.1. MAIN SCREEN LAYOUT

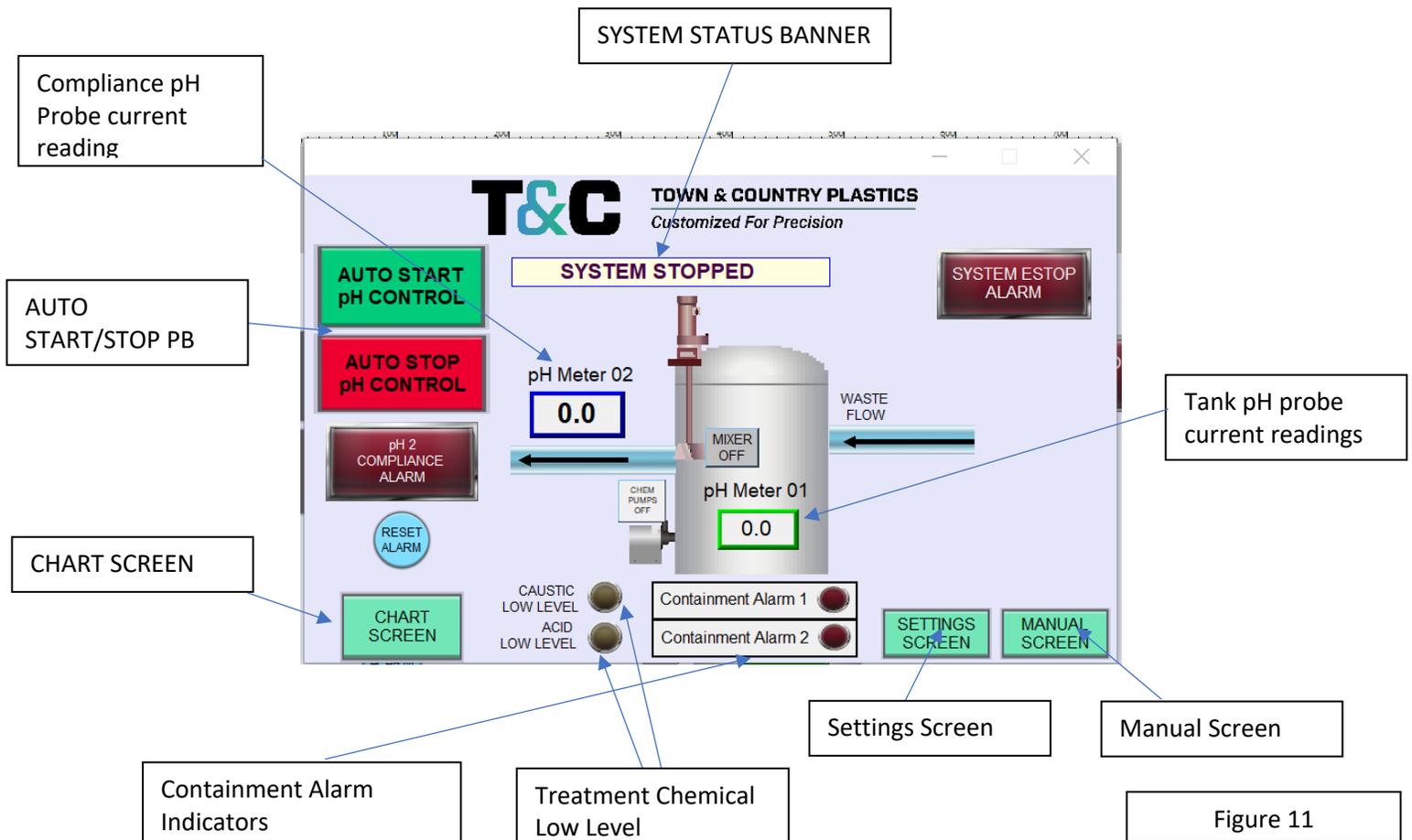


Figure 11

- 6.1.1. pH Meter 2 -Compliance Probe current reading
- 6.1.2. Chart Screen PB allows access to the chart screen
- 6.1.3. Auto Stat/Stop PB places system into automated Run mode. Stop PB terminates the Auto treatment of the storage tanks
- 6.1.4. Containment alarm Indicators illuminate if a leak is detected in the containment tanks
- 6.1.5. Treatment Chemical Low level alarm indicates upon a low level in treatment chemicals
- 6.1.6. Manual Screen PB allows access to the Manual control of Mixers and Metering Pumps
- 6.1.7. Setting Screen PB allows access to the Timer and pH setting values and parameters
- 6.1.8. Tank Probe current readings display the current actual values

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6.1.9. System Status Banner will indicate the current mode of the controller

### 6.2. CHART SCREEN

6.2.1. Displays and Charts the Current and archival value of the Compliance probe pH3

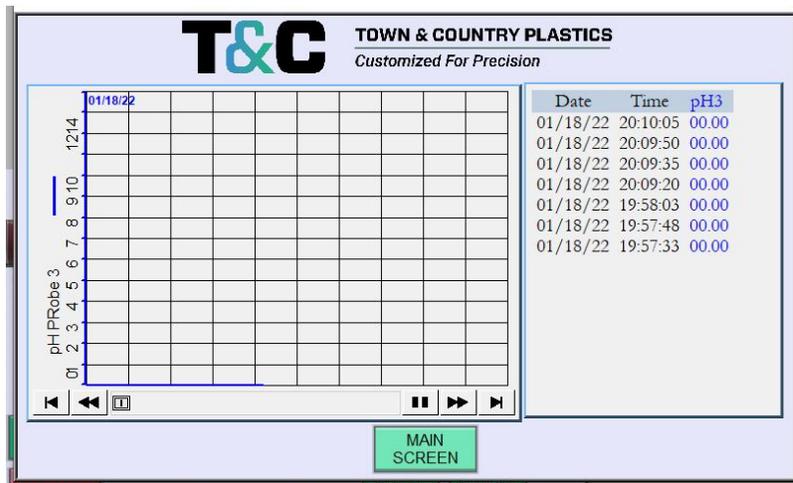


Figure 12

### 6.3. MANUAL SCREEN

6.3.1. Allows for the manual control of the Mixer Motors as well as the manual control of the metering pumps

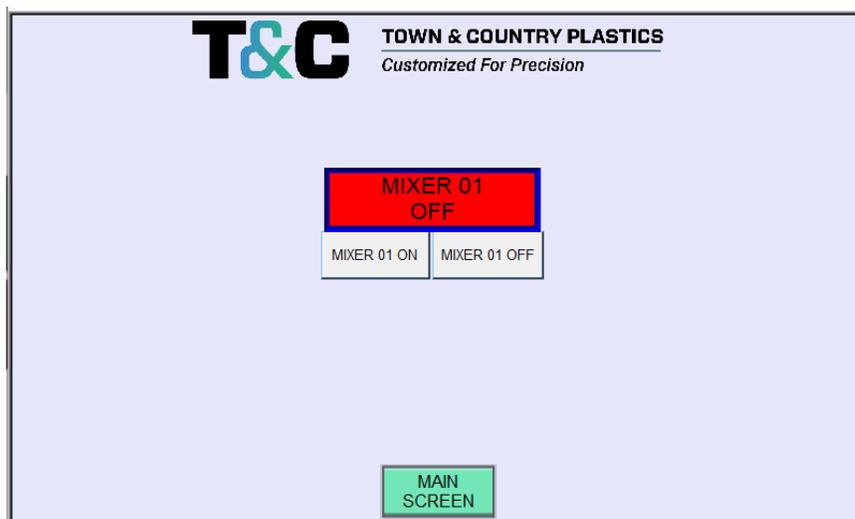


Figure 13

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6.4. Settings screen. Allows for manipulation of the pH limits for all probes as well as the Mixer ON/OFF Delays and Alarm Delay Timer.

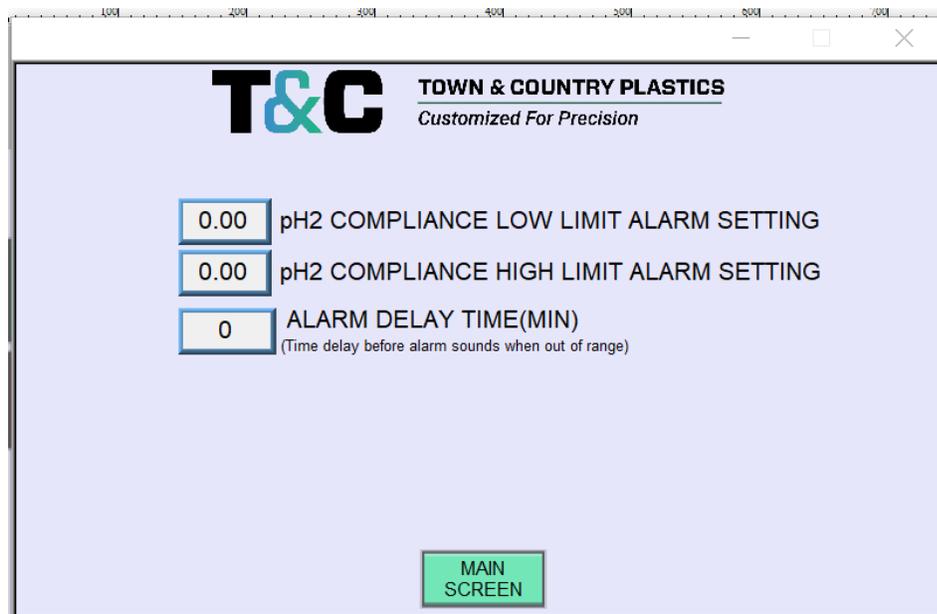


Figure 14

- 6.4.1. pH2 Low Limit – Enter the value of the lower limit for allowable pH Readings outside this value will turn on the Alarm indicator
- 6.4.2. pH2 High Limit – Enter the value of the upper limit for allowable pH Readings outside this value will turn on the Alarm indicator
- 6.4.3. Alarm Delay- This is the time period when expired will turn on the Alarm

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## **7. Signet 9950 pH Controller**

**7.1. Refer to the attached PDF Document.**

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### 8. Auto Operation

- 8.1. Ensure the system is not Estopped and functioning as expected and pH values are reading appropriately.
- 8.2. Verify in the settings screen the appropriate values are entered for the pH levels, Mixer Off delays and alarm delay timer.
- 8.3. Press the Auto Start pushbutton on the HMI.
- 8.4. The banner will indicate system is in AUTO MODE.
- 8.5. If pH2 value is outside the allowable limits beyond the Alarm Delay Timer the pH2 Compliance Alarm will appear on the screen (see figure 16) and the Alarm light will flash. The alarm can be reset but will reappear if pH3 remains outside the limits.
- 8.6. To stop the automated addition of chemicals and pH control push the Stop Button. The system Banner will display System Stopped.

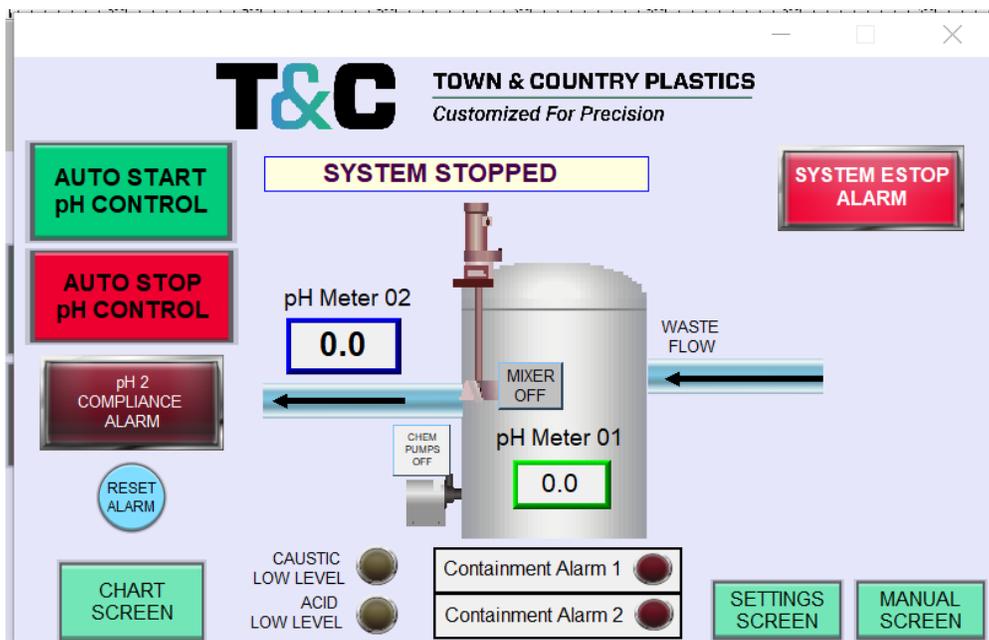


Figure 16

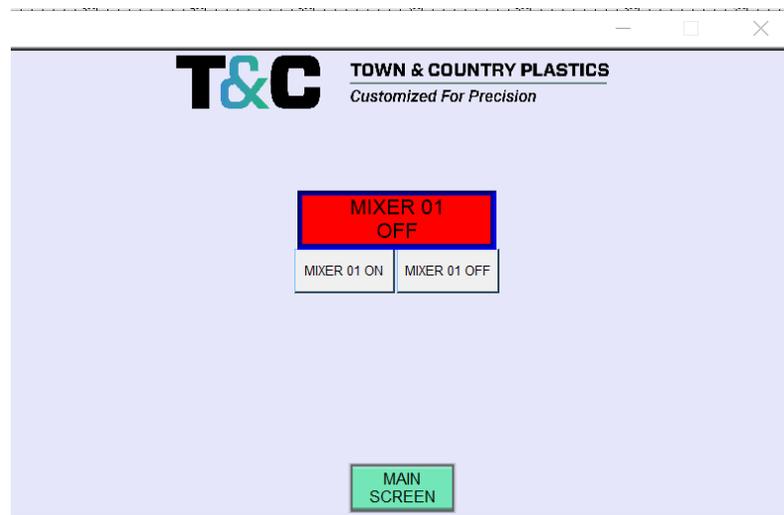
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### 9. Manual control



- 9.1. Press the All Stop pushbutton and ensure the Banner indicates the system is stopped.
- 9.2. Operate the mixers directly from the HMI. Upon completion of desired operation place all manual controls to the off position.
- 9.3. Return to the Main Screen and place the system back in Auto Mode if desired.

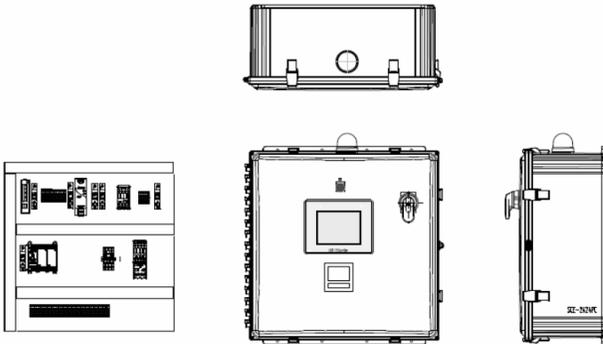


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## SCHEMMATICS



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	<b>T&amp;C Single Tank pH Controller ON_OFF</b> Enclosure Layout	Document Number: 122121_TC	Sheet: 2 of 6	Rev. Date: 6/28/2022 2:53:56 PM	Rev.: 12/07/2018
Mod/Revision #1 Mod/Revision #2 Mod/Revision #3		 Town & Country Plastics, LLC 81 - 9 Tenth Line Matthews, NC 28105		Sheet Created by: M Virella	

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