



OPERATORS MANUAL FOR Mi-T-M®  
***WX-0037, WX-0102, WX-0134 and WX-0135***  
pH control system



CAUTION  
RISK OF INJURY!


READ MANUAL BEFORE OPERATING!

This manual is important and must remain with the unit when you sell it!


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## WARNING

 **WARNING:** This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## WARNING

 **WARNING:** This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# INTRODUCTION

Congratulations on the purchase of your new Mi-T-M pH control system! You can be assured your Mi-T-M pH control system was constructed and designed with quality and performance in mind. Each component has been rigorously tested to ensure the highest level of acceptance.

This operator's manual was compiled for your benefit. By reading and following the simple safety, installation, operation, maintenance and troubleshooting steps described in this manual, you will receive years of trouble free operation from your new Mi-T-M pH control system. The contents of this manual are based on the latest product information available at the time of publication. Mi-T-M reserves the right to make changes in price, color, materials, equipment, specifications or models at any time without notice.

## ! IMPORTANT !

These paragraphs are surrounded by a "SAFETY ALERT BOX". This box is used to designate and emphasize Safety Warnings that must be followed when operating this pH control system. Accompanying the Safety Warnings are "signal words" which designate the degree or level of hazard seriousness. The "signal words" used in this manual are as follows:

**DANGER:** Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

**WARNING:** Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.

**CAUTION:** Indicates a potentially hazardous situation which, if not avoided MAY result in minor or moderate injury.



The symbol set to the left of this paragraph is a "Safety Alert Symbol". This symbol is used to call attention to items or procedures that could be dangerous to you or other persons using this equipment.

**ALWAYS PROVIDE A COPY OF THIS MANUAL TO ANYONE USING THIS EQUIPMENT. READ ALL INSTRUCTIONS BEFORE OPERATING THIS pH CONTROL SYSTEM AND ESPECIALLY POINT OUT THE "SAFETY WARNINGS" TO PREVENT THE POSSIBILITY OF PERSONAL INJURY TO THE OPERATOR.**

Inspect for signs of obvious or concealed freight damage. If damage does exist, file a claim with the transportation company immediately. Be sure that all damaged parts are replaced and that the mechanical and electrical problems are corrected prior to operation of the unit. If you require service, contact Mi-T-M Customer Service.

### CUSTOMER SERVICE

CALL OUR TOLL-FREE NUMBER

for the Sales or Service Center nearest you!

800-553-9053

Please have the following information available for all service calls:

1. Model Number
2. Date and Place of Purchase

# PACKAGE CONENTS

Carefully unpack your new Mi-T-M pH control system. Check the contents against the packing list. Contact the freight line if a damage claim is required on any component. The following items are the basic equipment sent with your pH control system.

1. Main control box.
2. Chemical feed/pickup tubes.
3. Chemical feed strainer.
4. Plumbing assembly.
5. pH probe.
6. Wiring diagram
7. This manual

# SPECIFICATIONS

**WX-0102/WX-0135**

**WX-0037/WX-0134**

**ELECTRICAL:**

120 vac supply  
0.6 amp

230 vac supply  
0.3 amp

**CHEMICAL FEED RATE:**

48 ml/min. *Please note this is with chemicals having a viscosity similar to water.*

Mode	Range	Resolution	Accuracy
pH	-2.00 to 16.00 pH	0.01 pH	±0.1% ± 1 digit
Temperature	-10.0 to 120.0 °C	0.1 °C	±0.3 °C

pH Controller:	
Recognized pH buffers	US (4.01, 7.00, 10.01) or NIST (4.00, 6.86, 9.18)
pH Temperature compensation	Manual/Auto -10.0°C to 120.0 °C
pH Buffer Temperature range	0.0°C to 60.0 °C
pH Electrode Offset recognition	+/-100 mV at pH 7.00
	+108.3 mV/-91.7 mV at pH 6.86
pH Electrode Slope recognition	+/- 30% at pH 4.00, 4.01, 9.18, 10.01
Input impedance	>10 <sup>12</sup> Ω
Calibration end point sensing	Yes
Temperature:	
Temperature sensor	Thermistor 10k ohm at 25 °C, (User selectable)
	Resistor ( PT1000) or Manual
Controller:	
Control type	Two ON/OFF control
Relay output (Resistive load only)	5A at 115VAC or 2.5A at 220VAC
General:	
Keys	Audio feedback in all keys
Power	100VAC to 240VAC , 50/60Hz
Ambient Temperature range	0.0 to 50.0 °C
Case	IP65, 1/8DIN case, depth 90mm
Weight	290 g



# IMPORTANT SAFETY WARNINGS



**WARNING:** When using this product, basic precautions should always be observed, including the following:  
READ ALL SAFETY WARNINGS BEFORE USING pH CONTROL SYSTEM

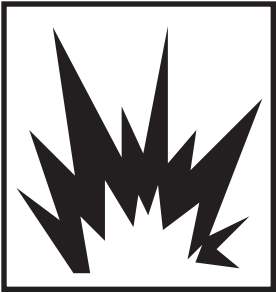




HAZARD	POTENTIAL CONSEQUENCE	PREVENTION
<p data-bbox="180 268 532 327"><b>RISK OF ELECTRIC SHOCK OR ELECTROCUTION</b></p> 	<p data-bbox="561 268 976 457">Serious injury or death could occur if the pH control system is not properly grounded. Your pH control system is powered by electricity and may cause electric shock or electrocution if not installed properly.</p> <p data-bbox="561 1056 976 1140">Electrical shock may occur if pH control system is not operated properly.</p> <p data-bbox="561 1293 976 1377">Serious injury or death may occur if electrical repairs are attempted by unqualified persons.</p>	<p data-bbox="1016 268 1547 352">Installation of this unit, including all electrical connections, must comply with all local, state and national codes.</p> <p data-bbox="1016 373 1547 541">This product must be grounded. Connect to a GFCI circuit breaker when available. If the unit should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. Do not ground to a gas supply line.</p> <p data-bbox="1016 562 1547 709">Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the system is properly grounded.</p> <p data-bbox="1016 730 1547 867">Always be certain the unit is receiving proper voltage (+/- 5% of the voltage listed on the nameplate). Before installing electrical connections, be certain the power switches are in the "OFF" position.</p> <p data-bbox="1016 888 1547 909">Keep all connections dry and off the ground.</p> <p data-bbox="1016 930 1547 1066">Do not touch pump, pump motor, discharge piping or water when the unit is connected to the power supply; regardless of whether the unit is operating correctly or experiencing an operation failure.</p> <p data-bbox="1016 1087 1547 1171">DO NOT allow metal components of the pH control system to come in contact with live electrical components.</p> <p data-bbox="1016 1192 1547 1308">Never operate the pH control system with safety guards/covers removed or damaged. Ensure all electrical covers are securely in place when unit is operating.</p> <p data-bbox="1016 1329 1547 1434">Any electrical wiring or repairs performed on this pH control system should be done by Authorized Service Personnel in accordance with National and Local electrical codes.</p> <p data-bbox="1016 1455 1547 1770">Before opening any electrical enclosure, always shut off the pH control system and drain the water. Disconnect the pH control system from the power source. If the power disconnect is not in sight, lock it in the open position and tag it to prevent power usage. (Never assume the pH control system is safe to work on just because it is not operating, it could restart at any time! Always disconnect from the power source.) Allow the pH control system to cool down. Service in a clean, dry, flat area.</p>



# IMPORTANT SAFETY WARNINGS

READ ALL SAFETY WARNINGS BEFORE USING pH CONTROL SYSTEM




HAZARD	POTENTIAL CONSEQUENCE	PREVENTION
<p><b>RISK OF EXPLOSION OR FIRE</b></p>  	<p>Serious injury or death could occur from an explosion or fire caused by a system electric spark.</p>	<p>This unit must be placed in an area that is well ventilated, free of flammable vapors, combustible dust, gases or other combustible materials.</p>
<p><b>RISK OF BURSTING</b></p> 	<p>Serious injury or death could occur from bursting caused by excessive pressure in the system.</p> <p>Serious injury may occur if attempting to start the pH control system when the pump is frozen.</p>	<p>Do not use this pH control system to pump flammable material! An explosion could occur from a gas vapor buildup inside the system.</p> <p>In freezing temperatures, the unit must always be warm enough to ensure there is no ice formation in the pump. Do not start the pH control system if it has been in a freezing environment without first allowing the pump to thaw.</p>
<p><b>RISK OF BURNS</b></p> 	<p>Serious injury may occur from touching the electrical motor. This area can remain hot for some time after the pH is shutdown.</p>	<p>Never allow any part of your body to contact the electrical motor until cooled.</p>
<p><b>RISK FROM MOVING PARTS</b></p> 	<p>Serious injury may occur to the operator from moving parts on the pH control system.</p>	<p>Do not operate the unit without all protective covers in place.</p> <p>Follow the maintenance instructions specified in the manual.</p>



# IMPORTANT SAFETY WARNINGS



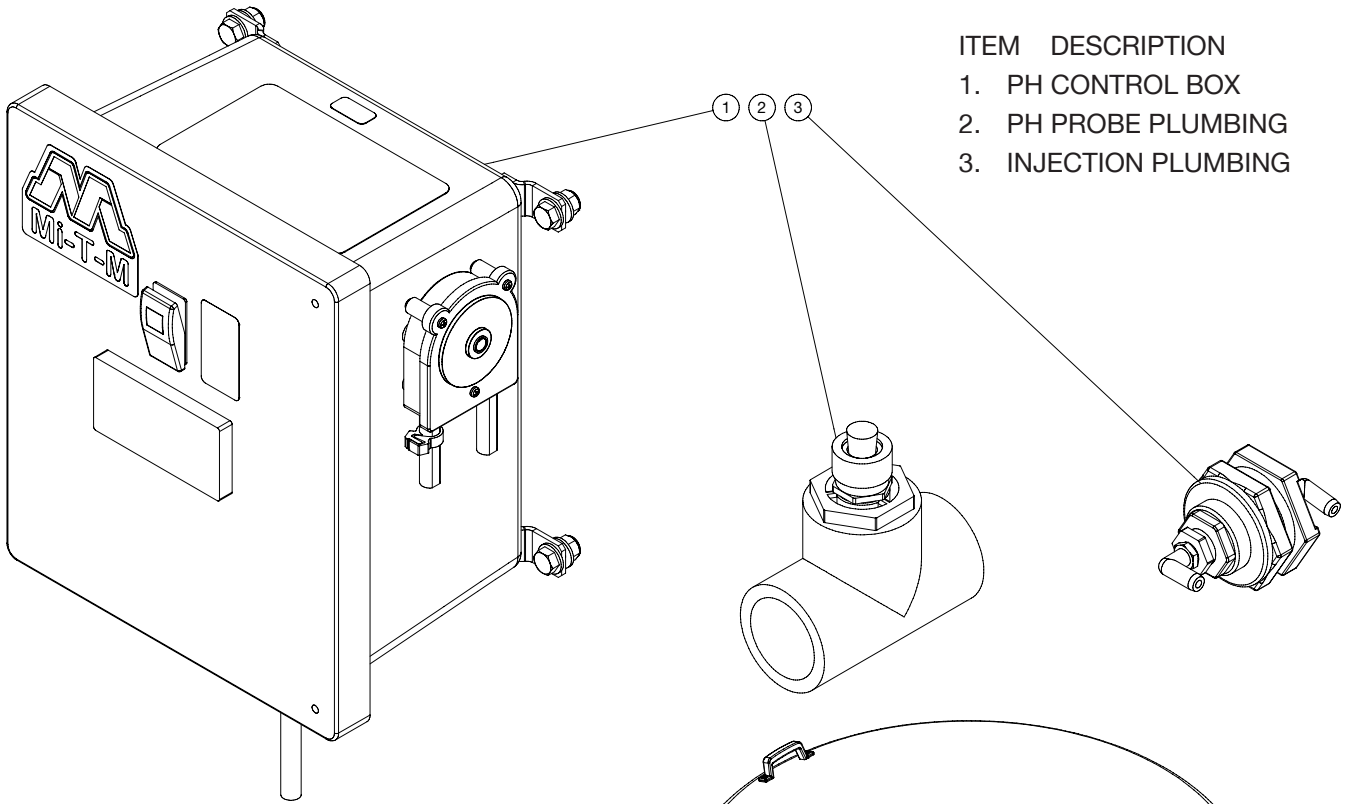
READ ALL SAFETY WARNINGS BEFORE USING pH CONTROL SYSTEM

HAZARD	POTENTIAL CONSEQUENCE	PREVENTION
<p><b>RISK OF BODILY INJURY</b></p> 	<p>Injury may occur from the pH control system.</p>	<p>DO NOT DRINK THE WATER IN THE pH CONTROL SYSTEM!! This is non-potable water and is not suitable for consumption.</p> <p>DO NOT allow children to operate this unit.</p> <p>DO NOT overreach or stand on unstable support.</p> <p>Wet surfaces can be slippery, wear protective foot gear and keep good footing and balance at all times.</p> <p>Know how to stop the pH control system. Be thoroughly familiar with controls.</p> <p>Before servicing, ALWAYS shut off the pH control system.</p>

**!SAVE THESE INSTRUCTIONS!**

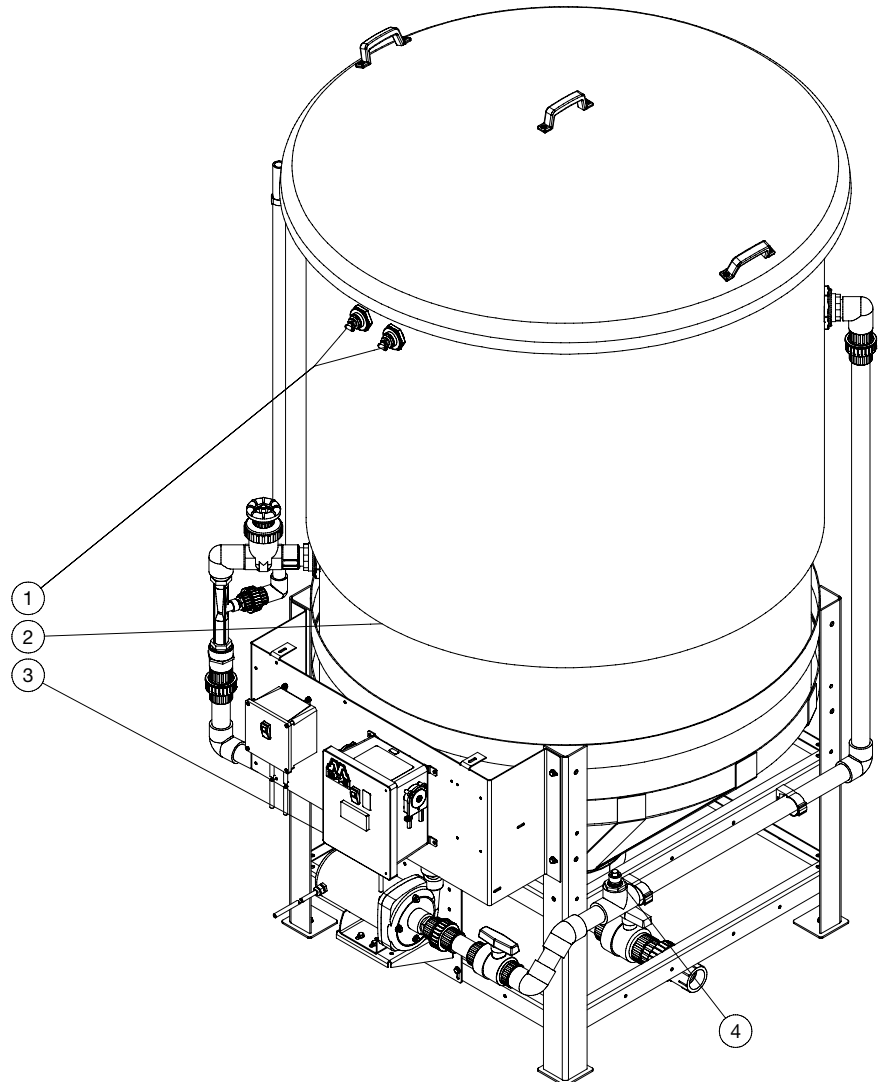
# FEATURES VIEW (SINGLE)

SINGLE PH CONTROL SYSTEM FEATURES - WX-  
0037\_0102 061019 MLK



- | ITEM | DESCRIPTION        |
|------|--------------------|
| 1.   | PH CONTROL BOX     |
| 2.   | PH PROBE PLUMBING  |
| 3.   | INJECTION PLUMBING |

SINGLE\_DUAL PH CONTROL SYSTEM WITH WTA-600 -  
WX-0037\_0102\_0134\_5 072419 MLK



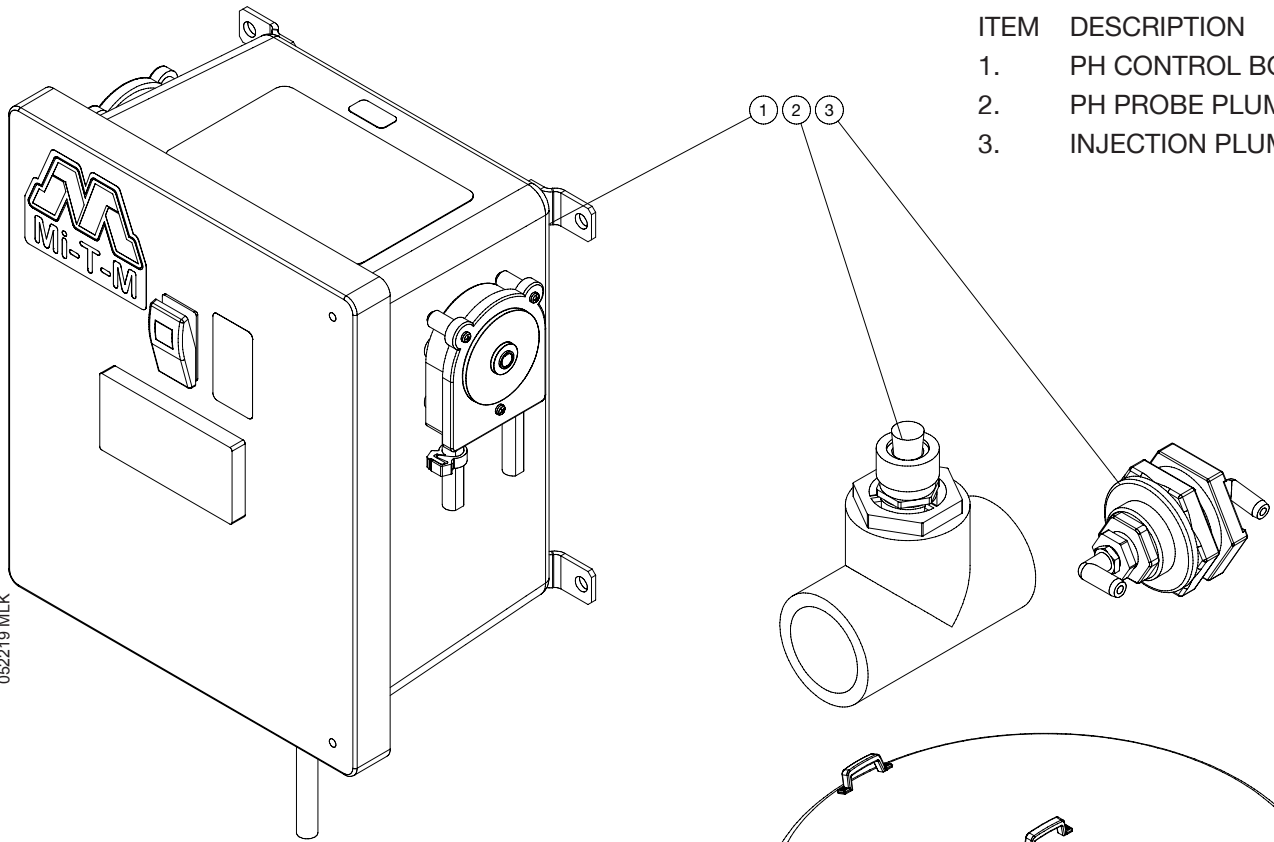
- | ITEM | DESCRIPTION         |
|------|---------------------|
| 1.   | INJECTION PLUMBING  |
| 2.   | MAIN ASSEMBLY       |
| 3.   | DUAL PH CONTROL BOX |
| 4.   | PH PROBE PLUMBING   |



# FEATURES VIEW (DUAL)

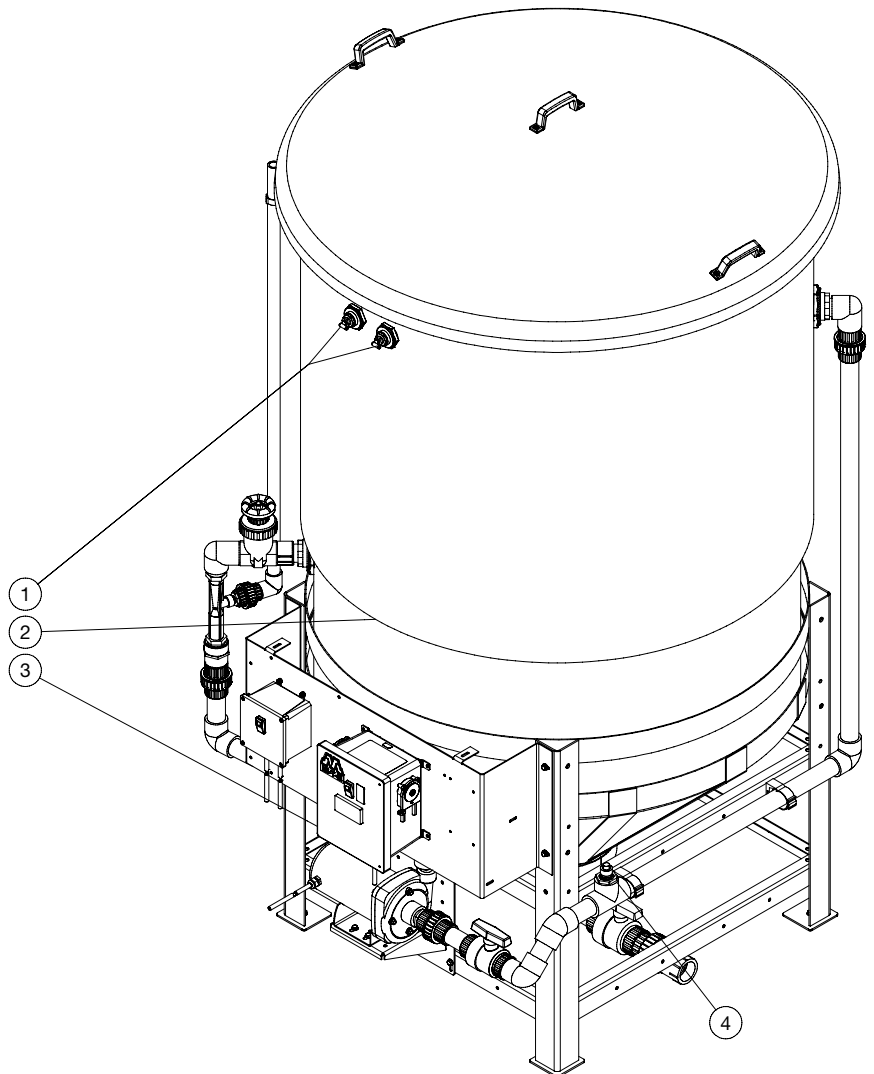
DUAL PH CONTROL SYSTEM FEATURES - WX-0134\_5  
052219 MLK

- | ITEM | DESCRIPTION        |
|------|--------------------|
| 1.   | PH CONTROL BOX     |
| 2.   | PH PROBE PLUMBING  |
| 3.   | INJECTION PLUMBING |



SINGLE\_DUAL PH CONTROL SYSTEM WITH WTA-600 -  
WX-0037\_0102\_0134\_5 072419 MLK

- | ITEM | DESCRIPTION         |
|------|---------------------|
| 1.   | INJECTION PLUMBING  |
| 2.   | MAIN ASSEMBLY       |
| 3.   | DUAL PH CONTROL BOX |
| 4.   | PH PROBE PLUMBING   |



# INSTALLATION

## PLUMBING INSTALLATION:

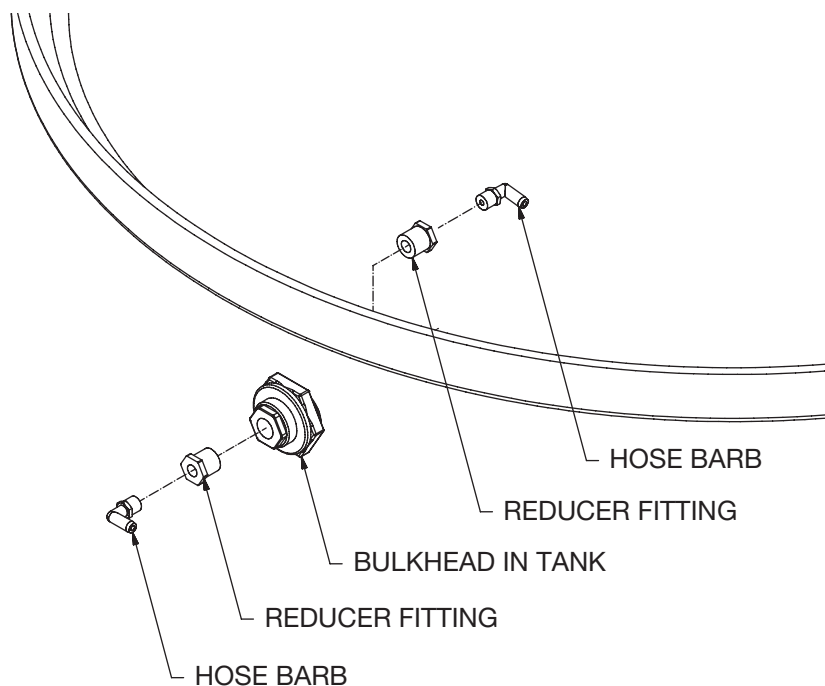
The first plumbing assembly includes a bulkhead, reducer and elbow with hose barb. This assembly is used to deliver the PH adjusting chemical to the tank/system. This usually recommended to be installed at the top of the treatment tank.

The system also comes with chemical hose. Attach a section of hose with a hose mender from the pump outlet to inlet side of bulkhead and another section of chemical hose with hose mender from the inlet of the pump to the strainer that will be placed in the PH adjusting chemical.

**NOTE: OTHER CONFIGURATIONS FOR CHEMICAL INJECTION ARE POSSIBLE, CONSULT FACTORY WITH QUESTIONS.**

The second plumbing assembly is for the PH probe. This consists of a reducing tee, reducer, and aluminum strain relief, plug and probe holder. Attach the plumbing upstream of the adjusting tank or in a recirculation line of the tank. When probe is not installed use the plug to prevent leaking.

Use the PH probe installation instructions below for installing the probe. The control box will sometimes be mounted along with the water treatment unit. If not use mounting screws and locate a suitable spot to mount it keeping in mind the PH probe comes with a 10ft connector.



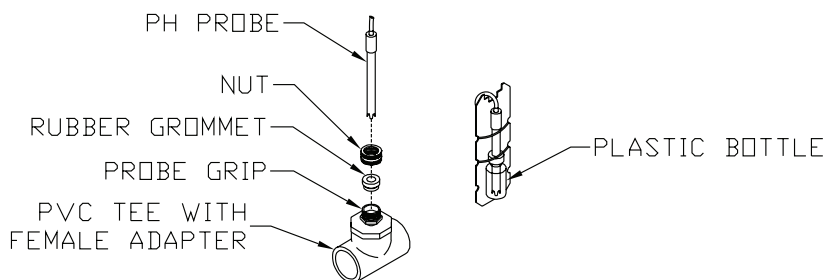
## PH PROBE INSTALLATION:

The next item of installation after you have plumbed everything is to install the pH probe. Make sure your waste stream has some water in it. If you need to run your pump briefly, do so. You have an aluminum strain relief with a rubber stopper in it. **MAKE SURE THE PRESSURE IS OUT OF THE PLUMBING LINE.** Remove the nut on the strain relief. Then, remove the rubber stopper and metal washer that retains the stopper. Replace the aluminum nut onto the strain relief base. **DO NOT** tighten yet. Insert the probe through the nut, and into the plumbing line. Your probe should be inserted so the tip of it is approximately at the center of the plumbing line. Now you may tighten the nut to seal the probe in.

**NOTE: DO NOT OVERTIGHTEN: YOU CAN SHATTER THE GLASS PROBE.**

Next, connect the BNC connector on the probe to the BNC connector on the bottom of the main control box. You are finished with the probe installation. Make sure to save the plastic bottle with liquid from the end of the pH probe to be used in case of winter storage.

## pH Sensor Probe



# INSTALLATION

## ELECTRICAL HOOKUP:

*NOTE: THE WX-0037/WX-0134 WILL REQUIRE A 230V POWER SOURCE AND THE WX-0102 /WX-0135 WILL REQUIRE A 120V POWER SOURCE.*

If the PH control system comes with another water treatment unit this box will sometimes be wired into the water treatment unit for power, if not power can easily be drawn from the main unit's control box at installation. If the PH control system comes alone it is your responsibility to wire into a proper power source. Consult the attached Separate Power wiring diagrams on this manual.

Once the PH control system is wired in for power, the switch can be turned on. The light on the switch and the PH meter should both turn on. The PH meter will already be set and calibrated from the factory.

## PH CONTROLLER PROGRAMMING

WX-0037 and WX-0102 single action pH options will come programmed and on measure mode with the following parameters set.

- **Temperature Compensation:** 03 MAN (No use of a temperature probe, manually can adjust temperature but this is normally is not required as long as temperature is in the 60°F-80° it has a small effect on pH reading.)
- **Manual temperature set at 70°F.**
- **7.00 Buffer and 4.01 Buffer:** Controller is calibrated on STAND using a 7 pH buffer solution or calibrator, then a 4.00 buffer calibrator for SLOPE. This will never need to be changed.
- **pH relay 1 selected for HI1:** Relay 1 will be closed if the probe reads HIGH over the set point (+ 1/2) the hysteresis. This relay will turn on the chemical pump, low pH chemical to be used to lower pH. Relay 1 can be changed to LOW1 to work in the opposite direction; if probe reads below set point the chemical pump will turn on to add high pH chemical.
- **Set point 1 is 7.00:** pH point at which (+,-) half the hysteresis, the relays will close to turn on chemical pump.
- **Hysteresis is at 0.20:** The range around the set point that the relays will turn on and off. At a set point of 7.00, the relay will close between 7.10 and 6.90.
- Set point 2, Relay 2 and Hysteresis 2 is not used in a single action option.

WX-0134 and WX-0135 dual action pH controllers will come programmed and on measure mode with the following parameters set.

- **Temperature Compensation:** 03 MAN (No use of a temperature probe, manually can adjust temperature but this is normally is not required as long as temperature is in the 60°F-80° it has a small effect on pH reading.)
- **Manual temperature set at 70°F.**
- **7.00 Buffer and 4.01 Buffer:** Controller is calibrated on STAND using a 7 pH buffer solution or calibrator, then a 4.00 buffer solution or calibrator for SLOPE. Keep set to this unless using an N.I.S.T (4.01, 6.86, 9.18 buffer solution).
- **pH relay 1 selected for LOW1:** Relay 1 will be closed if the probe reads under the set point (+ 1/2) the hysteresis. This relay will turn on the chemical pump, high pH chemical to be used to raise the pH.
- **Set point 1 is 6.00:** pH point at (+,-) half the hysteresis, the relays will close to turn on chemical pump.
- **Hysteresis 1 is at 0.20:** The range around the set point that the relays will turn on and off. At a set point of 6.00, the relay will close between 5.90 and 6.10.
- **pH relay 2 selected for HI2:** Relay 1 will be closed if the probe reads over the set point (+ 1/2) the hysteresis. This relay will turn on the chemical pump, low pH chemical to be used to lower the pH.
- **Set point 2 is 9.00:** pH point at (+,-) half the hysteresis, the relays will close to turn on chemical pump.
- **Hysteresis 2 is at 0.20:** The range around the set point that the relays will turn on and off. At a set point of 9.00, the relay will close between 9.10 and 8.90.

Use the following instructions for setting brand new controllers out of the box, or making changes to already programmed units.

## FRONT PANEL

The front panel consists of a 4-digit LCD display and 4 keys.

1. [ **MODE** ] key:

- 1a. In the Measure mode, this key will switch the display in sequence from pH, Temperature, ORP absolute mV, ORP relative mV and back to pH again.
- 1b. In the Calibration/Setting mode, pressing this key for three seconds will move you back to the previous parameter in the case when recalibration / resetting is required.

# INSTALLATION

## 2. [ UP ] key:

2a. In the Calibration mode, pressing this key will show the next possible option. In the Setting mode, pressing this key will show the next possible option and increases the numeral increment.

2b. In the Measure mode, pressing this key and [ENTER] key at the same time, the unit will enter the Calibration mode.

## 3. [ DOWN ] key:

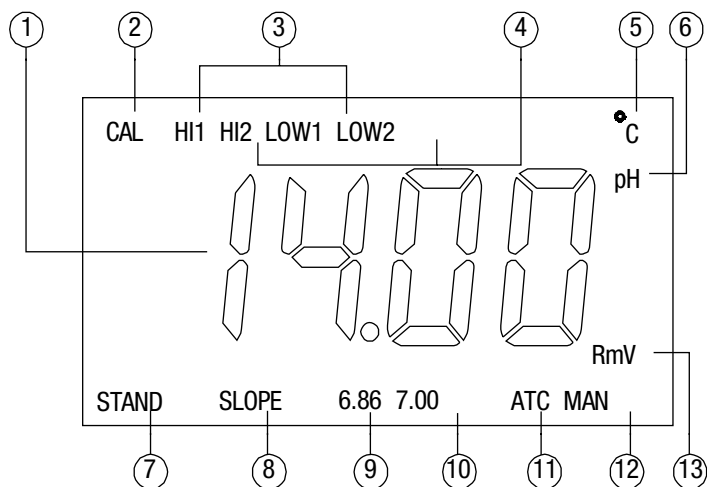
3a. In the Calibration mode, pressing this key will show the next possible option. In the Setting mode, pressing this key will show the next possible option and decreases the numeral increment.

3b. In the Measure mode, pressing this key and [ENTER] key at the same time, the unit will enter the Setting mode.

## 4. [ ENTER ] key:

In any mode where the user can change the settings, pressing this key will save the new settings. If no change has been made then pressing this key will just move the user to the next setting.

## LCD SCREEN



1. Major LCD display.

2. **CAL** – This icon will be displayed if the meter is in the Calibration/Setting mode.

3. **HI1 & LOW1** – These icons, when displayed, indicate relay action and relay number.

4. **HI2 & LOW2** – These icons, when displayed, indicate relay action and relay number.

5. **°C** – Temperature and unit display.

6. **pH** – Unit indicator.

7. **STAND** – This icon will blink before Buffer 1 calibration. The icon will stay on while Buffer 1 is being calibrated.

8. **SLOPE** – This icon will blink before Buffer 2 calibration. The icon will stay on while Buffer 2 is being calibrated.

9. **6.86** – The 6.86 buffer group: 6.86, 4.00, 9.18.

10. **7.00** – The 7.00 buffer group: 7.00, 4.01, 10.01.

11. **ATC** – This icon will be displayed when a temperature probe is connected.

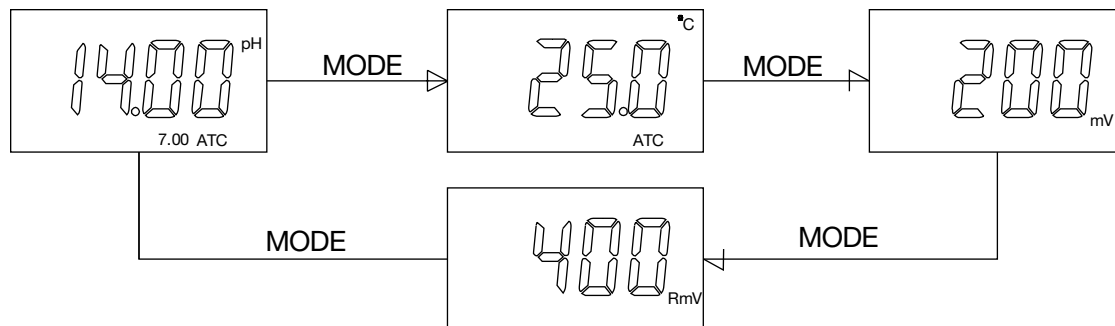
12. **MAN** – This icon will be displayed when a temperature probe is not connected.

13. **RmV** – Unit indicator.

# INSTALLATION

## MEASURE MODE

Turning on the unit will always display the **Measure mode**. This instrument is designed to provide 4 distinct measurements:



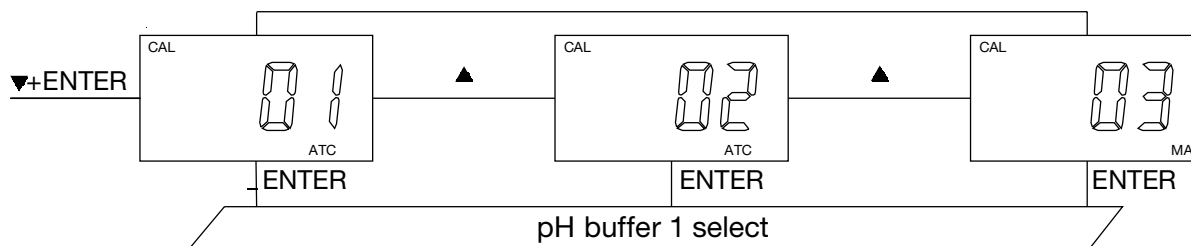
1. **pH** – The degree of acidity or alkalinity of the solution.
2. **Temperature** – Current temperature of the solution.
3. **ORP mV** – A measurement of absolute ORP mV.
4. **ORP RmV** – A measurement of relative ORP mV. The offset value at the RmV calibration will be added to the ORP absolute value to display the ORP relative value.

*Note: ORP relative value range: ORP absolute value - 1000mV to ORP absolute value + 1000mV Pressing [MODE] key in the **Measure mode** will cycle the display from the four modes above.*

## SETTINGS MODE

Pressing [DOWN] key and [ENTER] key at the same time, the meter will enter into the Setting mode.

1. Temperature compensation select:



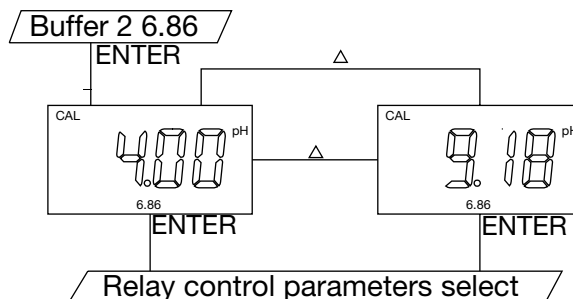
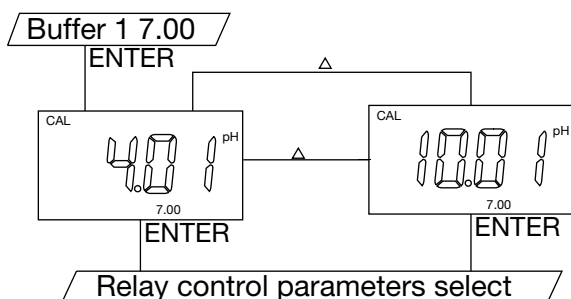
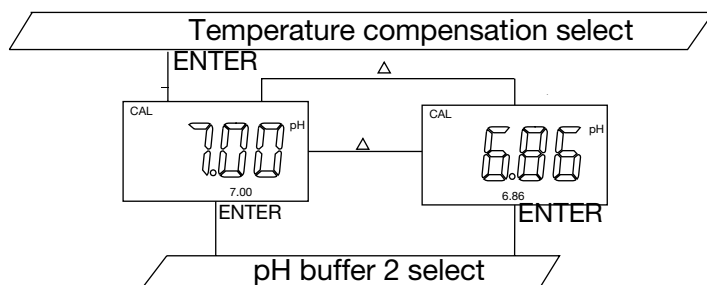
Pressing [UP] key or [DOWN] key in this screen will cycle the display from 01 (Thermistor: 10k ohm), 02 (Resistor: PT1000), 03 (Manual) modes above.

Select the preferred temperature compensation mode, press [ENTER] key to save, and enter the next setting screen.

# INSTALLATION

## PH BUFFER 1 SELECT:

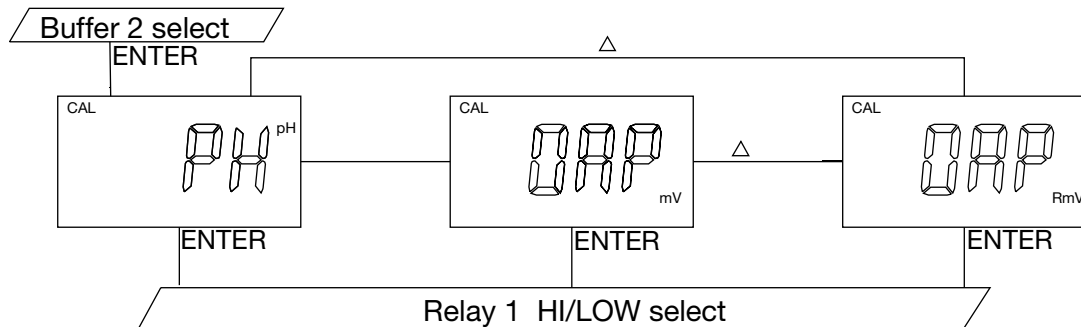
Pressing **[UP]** key or **[DOWN]** key in this screen will cycle the display from 7.00, 6.86 buffer above. Select the preferred buffer, press **[ENTER]** key to save, and enter the next setting screen.



Pressing **[UP]** key or **[DOWN]** key in this screen will cycle the display from 4.01, 10.01 (or 4.00, 9.18) buffer above. Select the preferred buffer, press **[ENTER]** key to save, and enter the next setting screen.

*Note: The pH buffer 2 is either 4.01 or 10.01 if select 7.00 buffer at pH buffer 1 select screen. The pH buffer 2 is either 4.00 or 9.18 if select 6.86 buffer at pH buffer 1 select screen.*

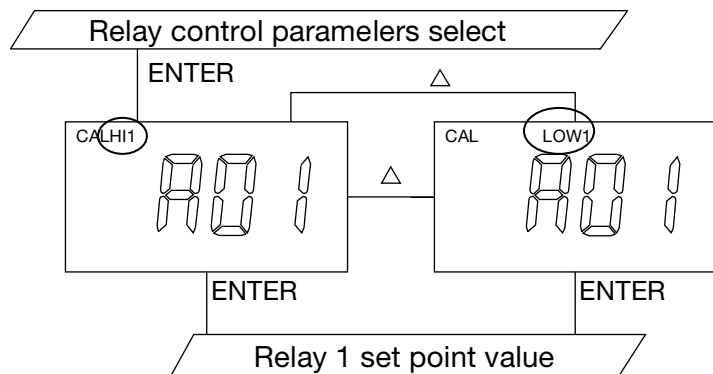
## RELAY CONTROL PARAMETERS SELECT:



Pressing **[UP]** key or **[DOWN]** key in this screen will cycle the display from pH, ORP mV ORP RmV modes above. Select the preferred mode, press **[ENTER]** key to save, and enter the next setting screen.

*Note: The relay will work with the choice of parameters.*

# INSTALLATION

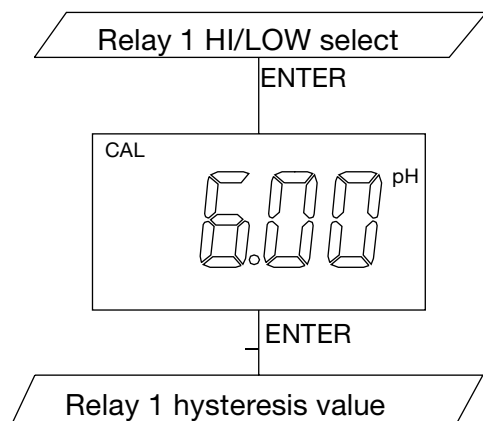


Pressing **[UP]** key or **[DOWN]** key in this screen will cycle the display from HI, LOW modes above. Select the preferred mode, press **[ENTER]** key to save, and enter the next setting screen.

*Note: See "Controlling the relays" page.*

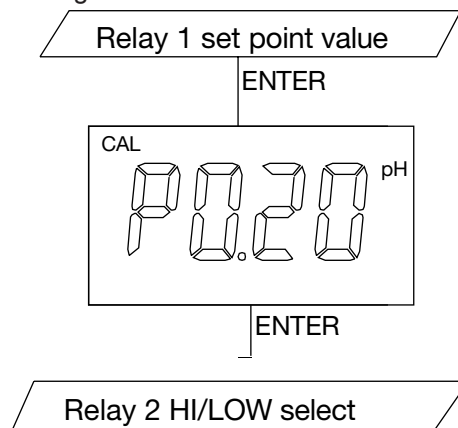
Relay 1 set point value:

Pressing **[UP]** key or **[DOWN]** key in this screen to adjust the value, press **[ENTER]** key to save, and enter the next setting screen.



Relay 1 hysteresis value:

Pressing **[UP]** key or **[DOWN]** key in this screen to adjust the value, press **[ENTER]** key to save, and enter the next setting screen.



Relay 2 High / Low select: Same as "Relay 1 work way select"

Relay 2 set point value: Same as "Relay 1 set point value"

Relay 2 hysteresis value: Same as "Relay 1 hysteresis value"

# INSTALLATION

## PH CALIBRATION MODE

The TX20 uses 2-point calibration for pH. The first point must be 6.86/7.00, and the second point can either be 4.00/4.01 or 9.18/ 10.01.

In the pH Measure mode, pressing [UP] key and [ENTER] key at the same time to allow the meter to go to the pH Calibration mode.

## CONTROLLING THE RELAYS

### 1. ISOLATION VOLTAGE:

The maximum isolation voltage of the relay output contacts is 1500 VDC. The voltage differential between the relay output contacts and the load should not exceed 1500 VDC.

### 2. OUTPUT LOAD:

The current through the relay output contacts should not exceed 5 Amp at 115 VAC and 2.5 Amp at 230 VAC in order not to cause permanent damage to the relay contacts. This rating is specified for resistive loads only.

### 3. RELAY ACTION, RELAY SET POINT AND HYSTERESIS VALUE:

Relay Action	Effective RELAY-ON Set Point	Effective RELAY-OFF Set Point
HI	S.P. + (1/2 H.V)	S.P. - (1/2 H.V)
LOW	S.P. - (1/2 H.V)	S.P. + (1/2 H.V.)

If the relay action is set to **HIGH**, the relay will turn **ON** at (Set Point +1/2 Hysteresis ), and will turn **OFF** at (Set Point -1/2 Hysteresis ).

If the relay action is set to **LOW**, the relay will turn **ON** at (Set Point -1/2 Hysteresis ), and will turn **OFF** at (Set Point +1/2 Hysteresis ).

There are two Independent relays the user can bind to the **pH, ABSOLUTE mV** or **RELATIVE mV mode**. The user can only bind the two relays to one reading mode at a time. The user can change this anytime by changing option at the **setting mode**.

#### Note:

1. The ideal set point range for pH is 0.00 to 16.00 pH.
2. The ideal set point range for absolute mV is -2000 to 2000 mV.
3. The ideal set point range of for relative mV is -3000 to 3000 mV.

## OPERATION:

At this point the PH control system is ready for operation. The system will now read the PH of the water and the metering pump will activate when the PH is out of the range of the desired set point. If properly installed, the pump will begin adding chemical to the system to start balancing the PH.

*NOTE: If the metering pump is activated but the rollers fail to spin, the rollers of the pump might be stuck. You should be able to manually spin the roller by hand to get these started. Add lubricant to the rollers if the problem persists.*



# MAINTENANCE

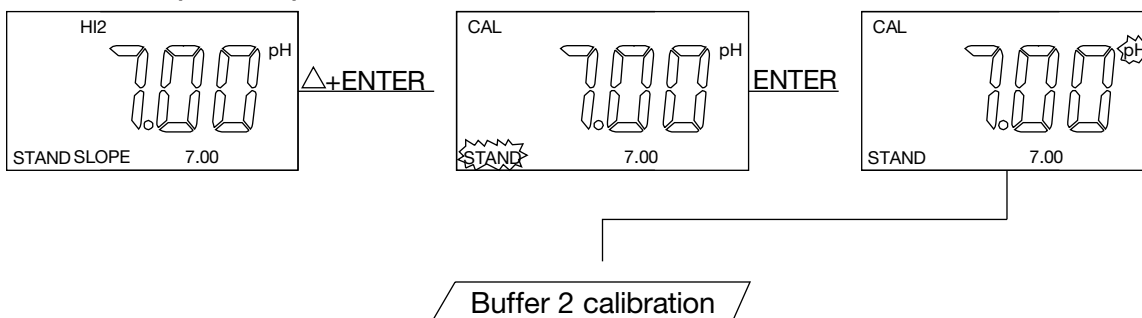
## MAINTENANCE:

- Clean pH probes every 1-2 months.
  - Close water valves and loosen aluminum strain relief around probe to remove.
  - Use water or vinegar and a soft cloth or Q-tip to wipe away build up on the probe.
  - Place probe back in line, with tip at center of piping. Tighten strain relief around probe. **DO NOT OVERTIGHTEN.**

*Note: probes will be damaged if they are allowed to dry out. If they will be exposed to air for more than a few hours keep tip submerged in water or the storage solution that comes with the probe.*

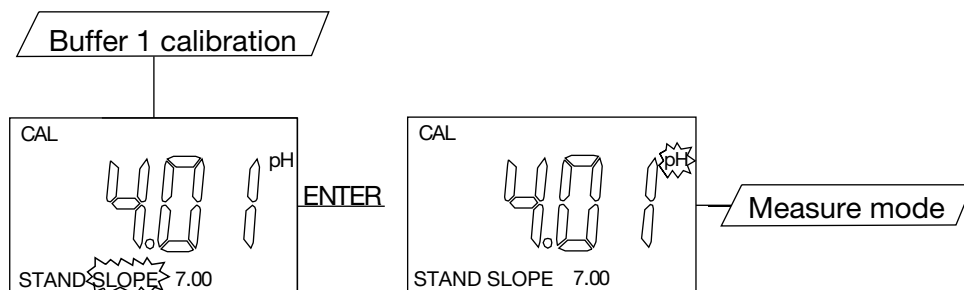
*Note: probes have a shelf life of about 1 year so it's recommended to replace the probes yearly.*
- Calibration of pH meter. You should recalibrate the external meter 1 or 2 times a year. You should also always recalibrate the meter when a pH probe has been replaced. Follow the calibration instructions below for the pH meter. An electronic calibrator can be used in place of the buffer solutions.

## BUFFER 1 (STAND) CALIBRATION:



Enter into the pH calibration mode, the "STAND" icon will flash, the unit is ready to be standardized at the first buffer. Rinse the pH and ATC/Temp probes in distilled water and immerse them in the first buffer solution (either 7.00 or 6.86). Allow temperature reading to stabilize, then press "ENTER" key to calibrate. The "pH" icon will flash until the unit detects a stable reading. Once the unit calibrates the first point, the "SLOPE" icon will flash. The unit is ready to be sloped at the second buffer.

## BUFFER 2 (SLOPE) CALIBRATION:



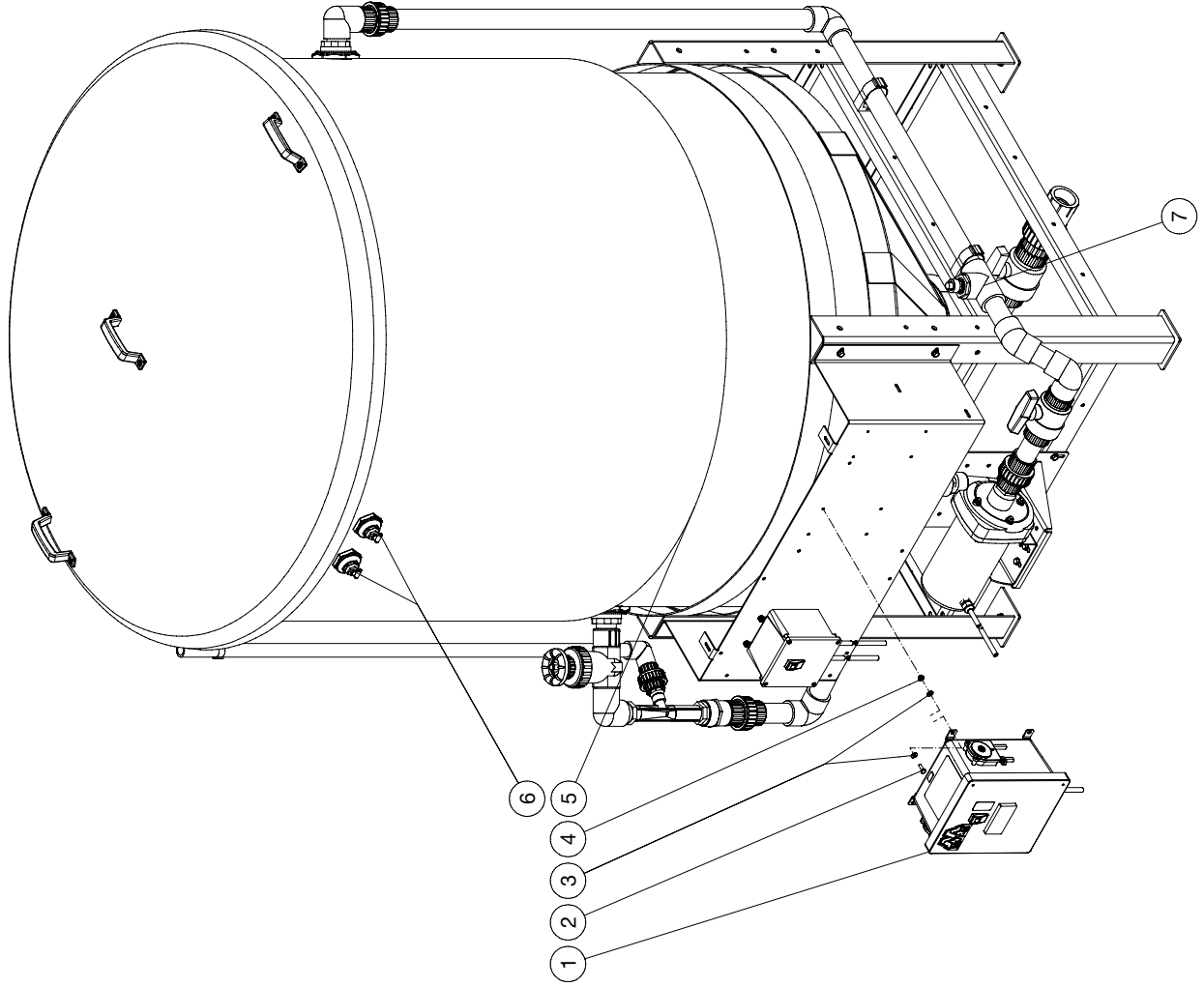
Rinse the pH and ATC/Temp probe in distilled water and immerse them in the second buffer solution (either 4.00/4.01 or 9.18/10.01). Allow temperature reading to stabilize, then press "ENTER" key to calibrate. The "pH" icon will flash until the unit detects a stable reading. Once the unit calibrates the second point and the unit will automatically exit the calibration mode and goes to the pH Measure mode. Dual point calibration is complete.

*Note: In the Setting mode (1. Temperature compensation select), select 03 (Manual temperature compensation mode) if no temperature probe is being used. Press the [UP] key or [DOWN] key in the Manual temperature compensation mode to adjust the value to that of the test solution temperature. Then calibrate buffer 1 and buffer 2.*

# TROUBLESHOOTING

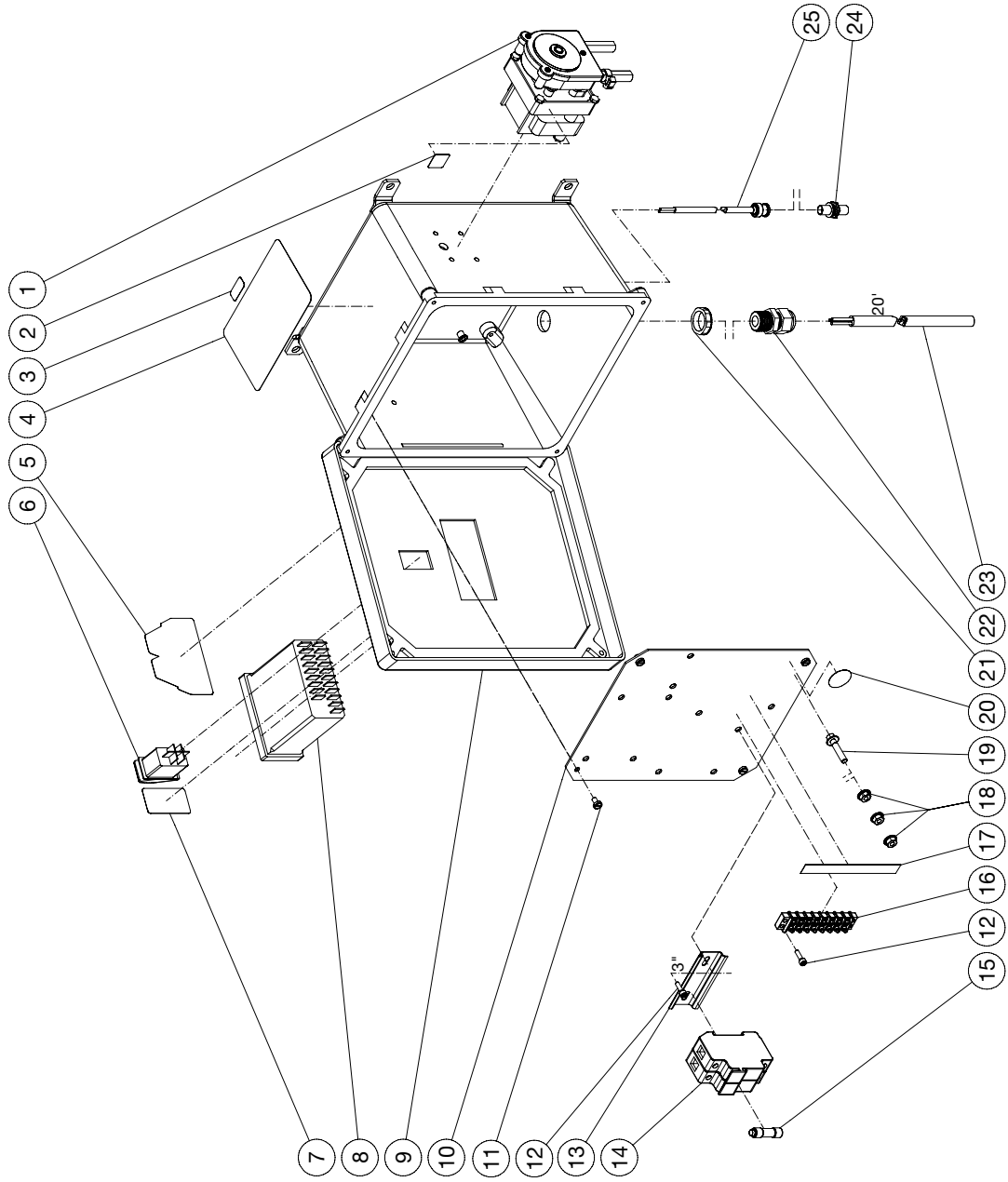
pH/ORP Display	Temperature Display	Display Mode	Possible cause(s) [Action(s)]
"OvEr"	-10.0~120.0°C	pH measure mode	pH > 16.00pH [Recalibrate]
"Undr"	-10.0~120.0°C	pH measure mode	pH < -2.00pH [Recalibrate]
"OvEr"	"OvEr"	pH measure mode	a. Temperature > 120.0°C. [Bring buffer solution to lower temperature.] [Replace temperature probe.] b. No temperature sensor. [Adjust the manual temperature to -10~120°C.]
"OvEr"	"Undr"	pH measure mode	a. Temperature < -10.0°C. [Bring buffer solution to higher temperature.] [Replace temperature probe.] b. No temperature sensor. [Adjust the manual temperature to -10~120°C.]

# NOTES



WX-0134_5 WX-0037_0102 MAIN ASSEMBLY CONTROL 072419 MLK			
MAIN ASSEMBLY			
ITEM	DESCRIPTION	Mi-T-M #	QTY
1	DUAL PH CONTROL BOX	N/A SEP.	1
2	BOLT	27-5016	4
3	WASHER	28-0121	8
4	NUT	30-5202	4
5	MAIN ASSEMBLY	N/A SEP.	1
6	INJECTION PLUMBING	N/A SEP.	1
7	PH PROBE PLUMBING	N/A SEP.	1

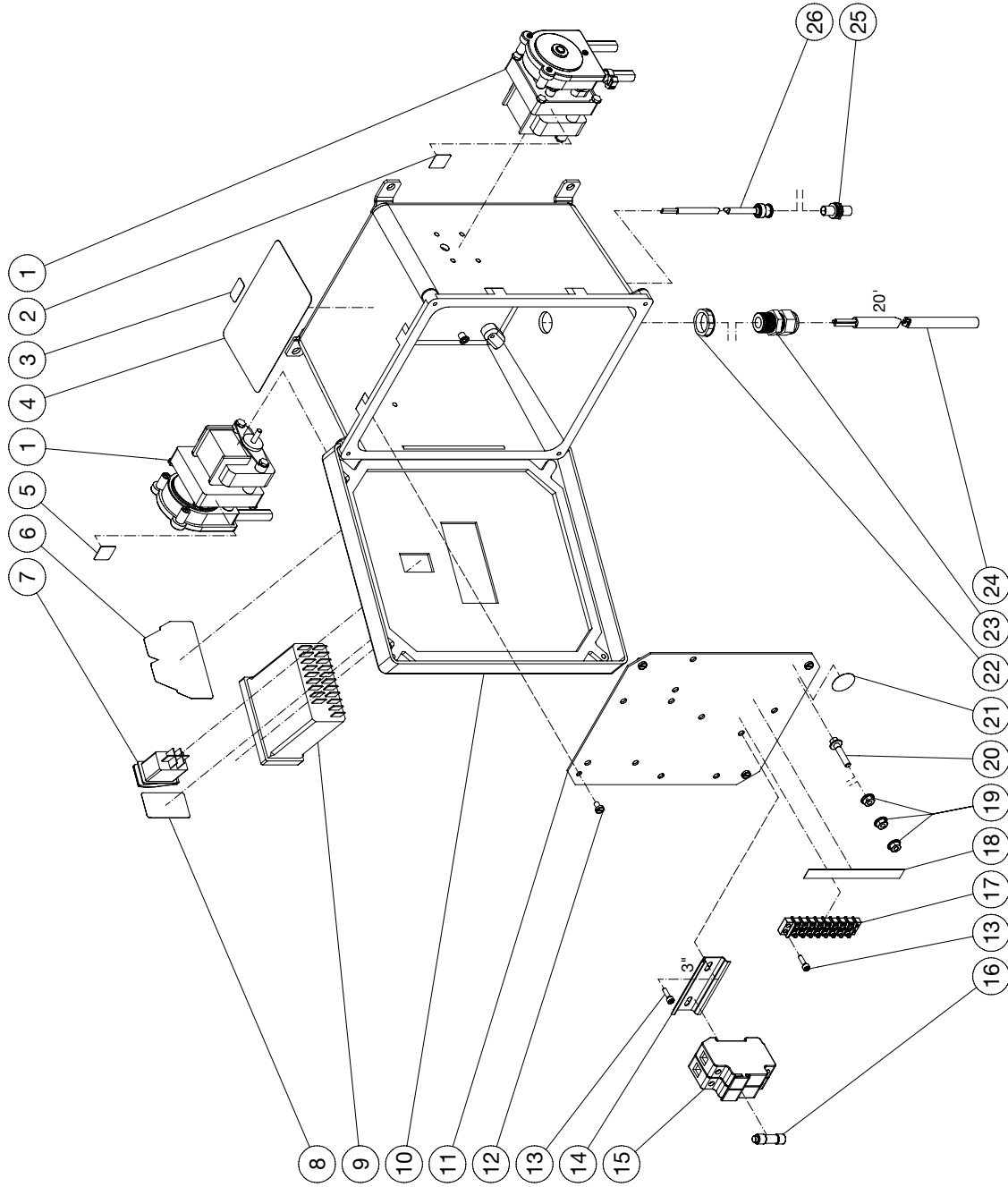
# SINGLE PH CONTROL BOX WX-0037 AND WX-0102



WX-0037\_102 CONTROL PANEL ASSEMBLY-1 070219 MLK

CONTROL PANEL				
ITEM	DESCRIPTION	PART #	QTY	
1	PUMP PERISTALTIC (WX-0037)	3-0182	1	
-	PUMP PERISTALTIC (WX-0102)	3-0316	1	
2	DECAL #2	N/A	1	
3	DECAL - 230V (SEE 71-0156) (WX-0102)	N/A	1	
-	DECAL - 120V (SEE 71-0156) (WX-0037)	N/A	1	
4	DECAL - RISK OF ELECTROCUTION (SEE 71-0156)	N/A	1	
5	DECAL - #2M	34-2168	1	
6	SWITCH (WX-0037)	32-0771	1	
-	SWITCH (WX-0102)	32-0669	1	
7	DECAL - ON/OFF	N/A	1	
8	PH/ORP CONTROLLER	32-1251	1	
9	ELECTRICAL BOX	32-079901	1	
10	ELECTRICAL BOX PANEL	20-0972A06	1	
11	SCREW	N/A	4	
12	SCREW	27-8835	4	
13	DIN RAIL *(ONE FOOT REQUIRED)	32-0316	1	
14	FUSE HOLDER (WX-0037)	32-1006	1	
-	FUSE HOLDER (WX-0102)	32-0473	1	
15	FUSE (WX-0037)	32-0740	2	
-	FUSE (WX-0102)	32-0740	1	
16	TERMINAL STRIP	32-0436	1	
17	DECAL - TERMINAL STRIP	N/A	1	
18	NUT	30-3022	3	
19	BOLT	27-8898	1	
20	DECAL - GROUND PICTORIAL (SEE 71-0156)	N/A	1	
21	ELECTRICAL LOCKNUT	32-0108	1	
22	STRAIN RELIEF	32-0437	1	
23	CORD *(TWENTY FEET REQUIRED)	32-0074	1	
24	ADAPTOR	32-0777	1	
25	ADAPTER W/CABLE	32-0776	1	
-	DECAL SET	71-0156	1	
*MUST ORDER IN ONE FOOT LENGTHS				

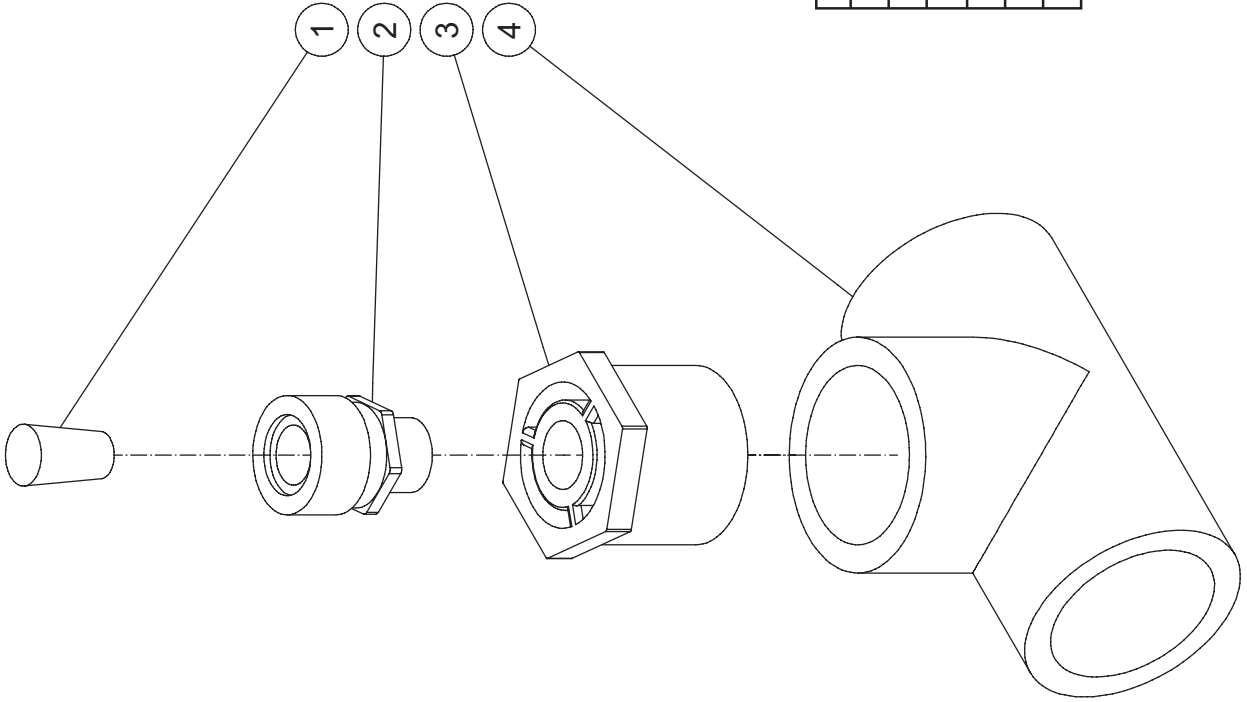
# DUAL PH CONTROL BOX WX-0134 AND WX-0135





CONTROL PANEL				
ITEM	DESCRIPTION	PART #	QTY	
1	PUMP PERISTALTIC (WX-0134)	3-0182	2	
-	PUMP PERISTALTIC (WX-0135)	3-0316	2	
2	DECAL #2	N/A	1	
3	DECAL - 230V (SEE 71-0156) (WX-0134)	N/A	1	
-	DECAL - 120V (SEE 71-0156) (WX-0135)	N/A	1	
4	DECAL - RISK OF ELECTROCUTION (SEE 71-0156)	N/A	1	
5	DECAL #1	N/A	1	
6	DECAL - #2M	34-2168	1	
7	SWITCH (WX-0134)	32-0771	1	
-	SWITCH (WX-0135)	32-0669	1	
8	DECAL - ON/OFF	N/A	1	
9	PH/ORP CONTROLLER	32-1251	1	
10	ELECTRICAL BOX	32-079901	1	
11	ELECTRICAL BOX PANEL	20-0972A06	1	
12	SCREW	N/A	4	
13	SCREW	27-8835	4	
14	DIN RAIL *(ONE FOOT REQUIRED)	32-0316	1	
15	FUSE HOLDER (WX-0134)	32-1006	1	
-	FUSE HOLDER (WX-0135)	32-0473	1	
16	FUSE (WX-0134)	32-0740	2	
-	FUSE (WX-0135)	32-0740	1	
17	TERMINAL STRIP	32-0436	1	
18	DECAL - TERMINAL STRIP (SEE 71-0156)	N/A	1	
19	NUT	30-3022	3	
20	BOLT	27-8898	1	
21	DECAL - GROUND PICTORIAL (SEE 71-0156)	N/A	1	
22	ELECTRICAL LOCKNUT	32-0108	1	
23	STRAIN RELIEF	32-0437	1	
24	CORD	32-0074	1	
25	ADAPTOR	32-0777	1	
26	ADAPTER W/CABLE	32-0776	1	
-	DECAL SET	71-0156	1	
*MUST ORDER IN ONE FOOT LENGTHS				

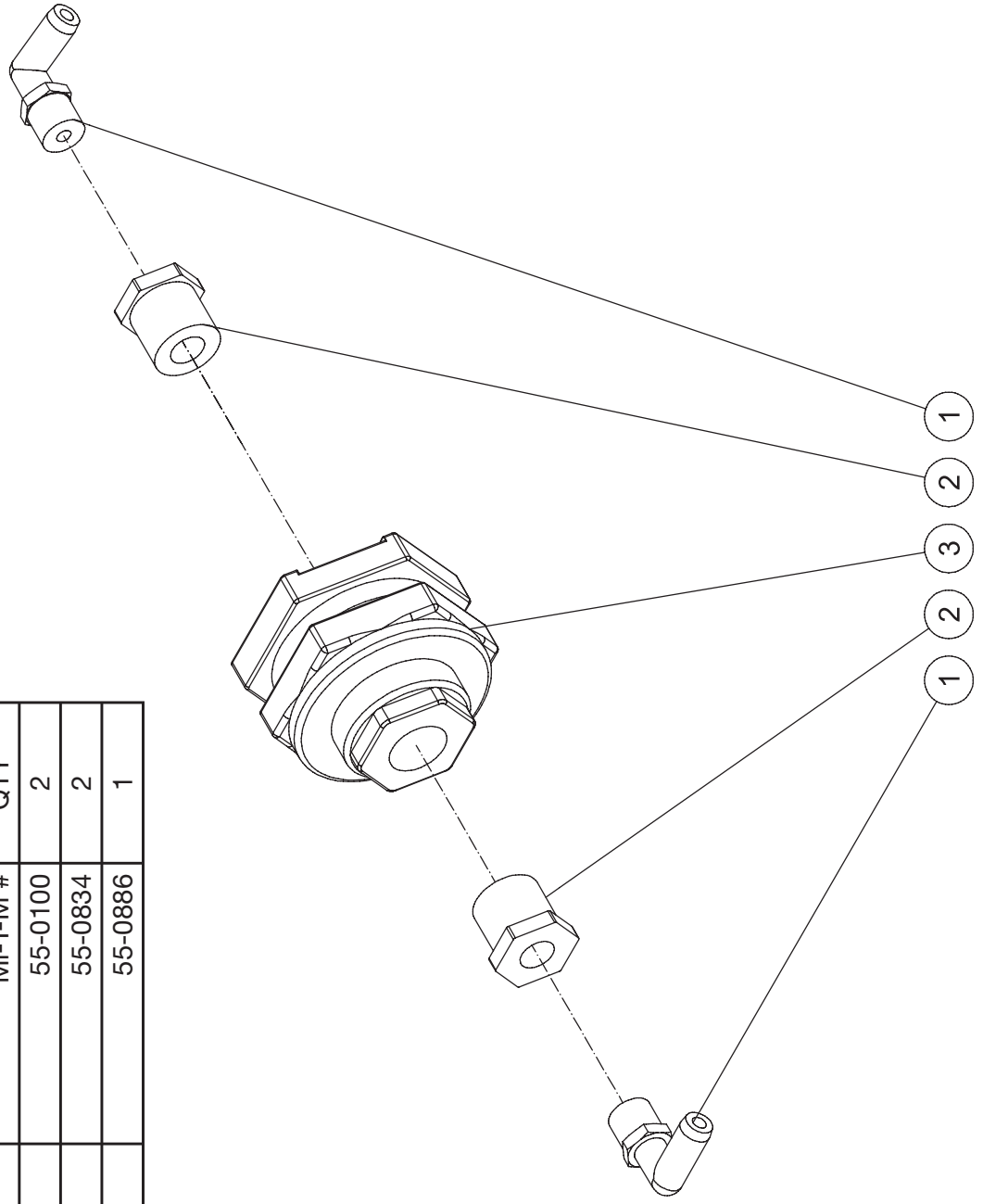
# PH PROBE PLUMBING



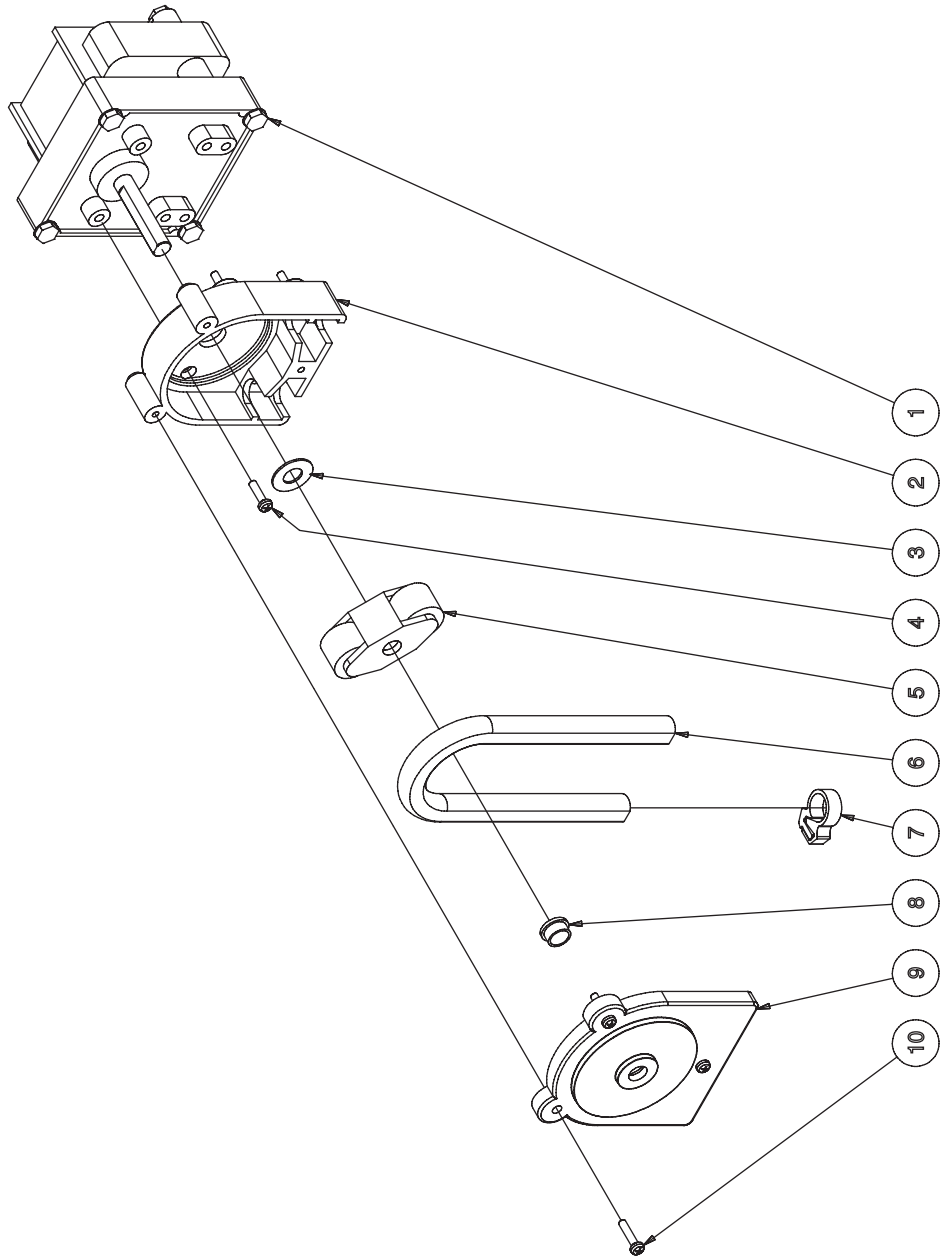
PH PROBE PLUMBING 040417 MLK			
PH PROBE PLUMBING			
ITEM	DESCRIPTION	Mi-T-M #	QTY
1	PLUG	32-1203	1
2	STRAIN RELIEF	32-0550	1
3	REDUCER	55-1631	1
4	TEE	55-1601	1

# CHEMICAL INJECTION PLUMBING

CHEMICAL INJECTION PLUMBING 040214 MLK			
CHEMICAL INJECTION PLUMBING			
ITEM	DESCRIPTION	Mi-T-M #	QTY
1	ELBOW	55-0100	2
2	REDUCER	55-0834	2
3	BULKHEAD	55-0886	1



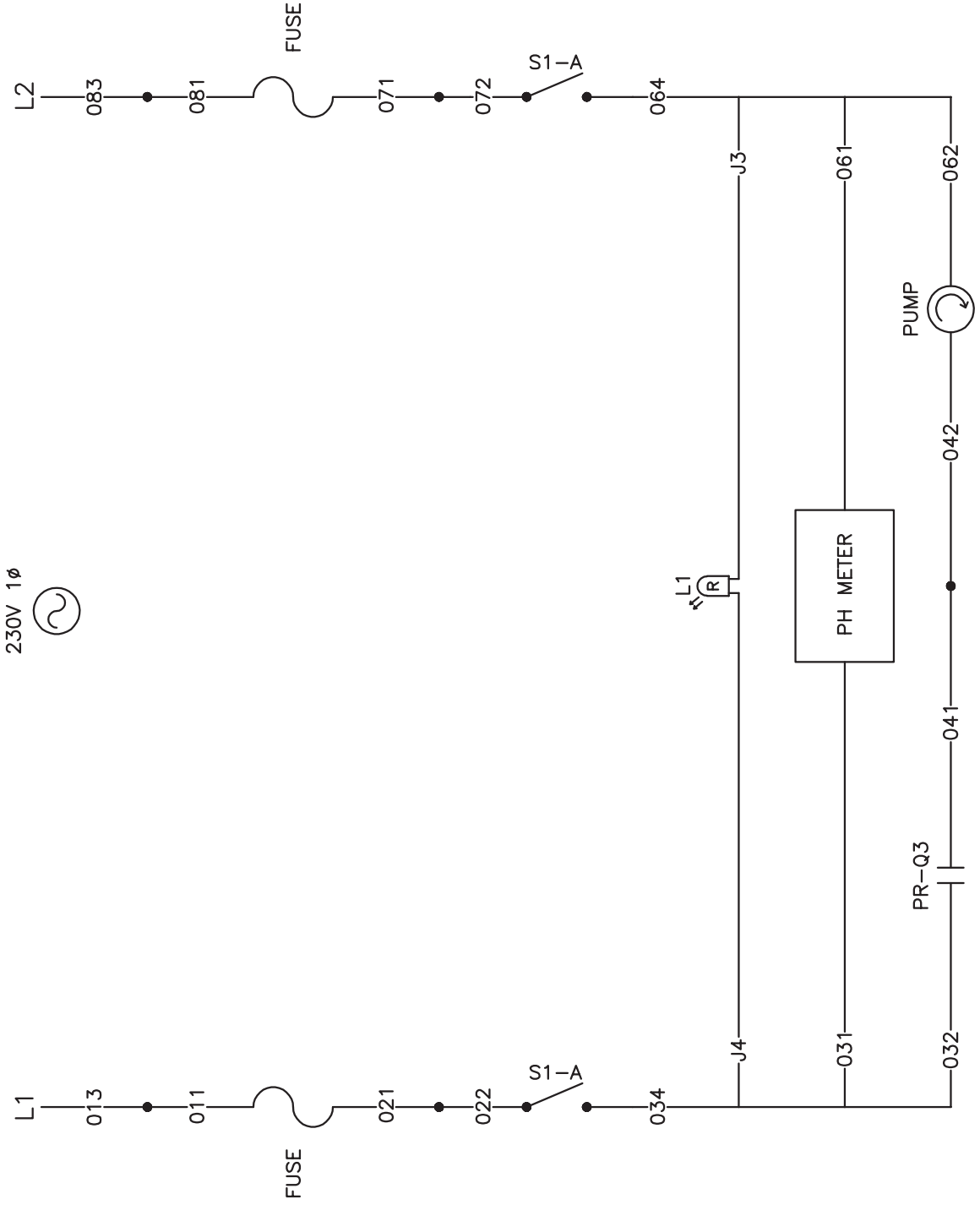
# PUMP (3-0182 AND 3-0316)



3-0182-042604-ASY

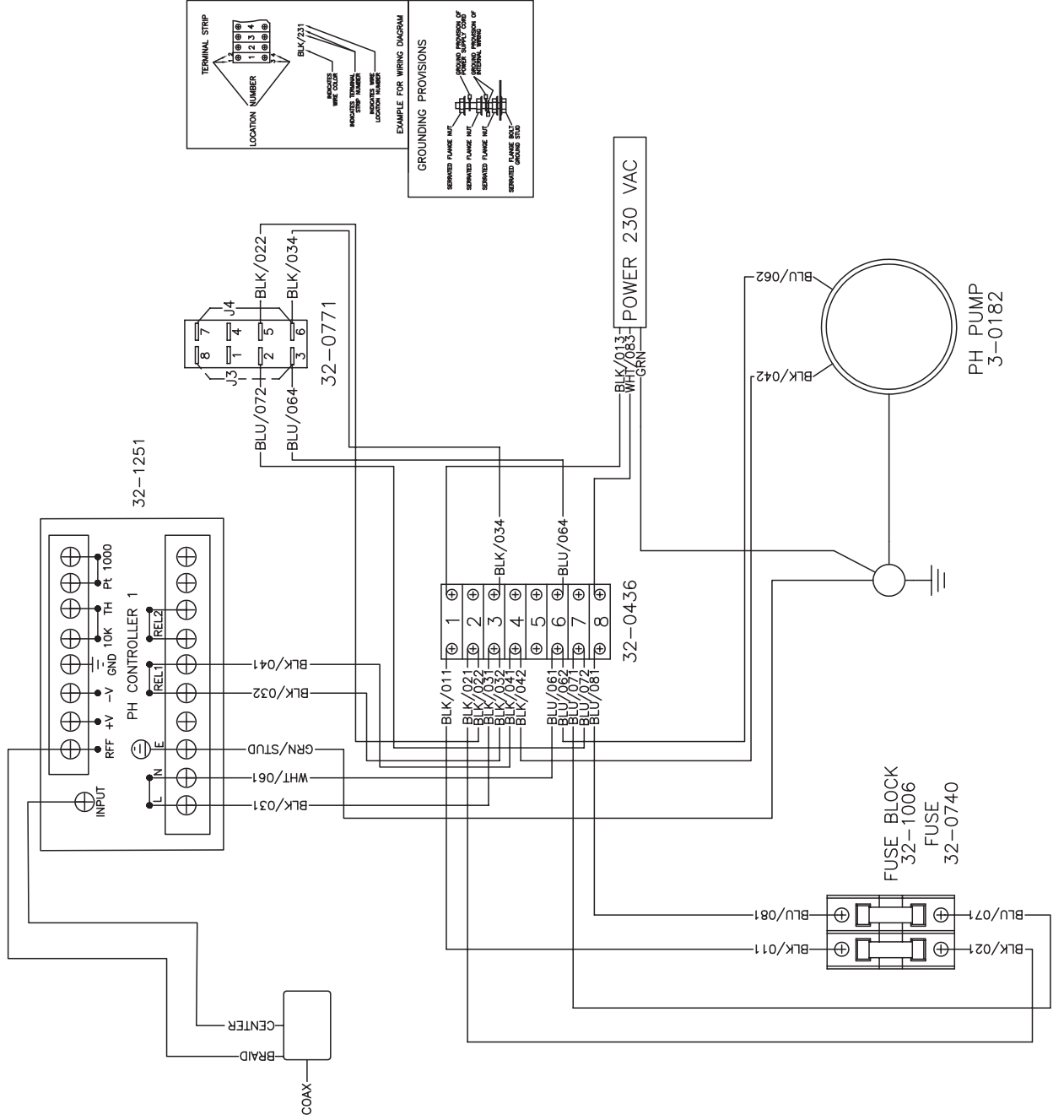
PH/ORP PUMP (3-0182)			
REF. #	DESCRIPTION	PART#	QTY.
1	Motor	N/A	1
2	Housing (See 70-0245)	N/A Sep.	1
3	Screw	27-2771	4
4	Washer (See 70-0245)	N/A Sep.	1
5	Roller Bracket Assembly	46-0830	1
6	Tube	15-0205	1
7	Clamp	42-0028	1
8	Bushing	9-0080	1
9	Pump Cover (See 70-0245)	N/A Sep.	1
10	Screw (See 70-0245)	N/A Sep.	3
	PH/ORP Pump Kit (Includes 2, 4, 5, 9, 10)	70-0245	1
	PH/ORP Pump (Includes 1- 10)	3-0182	1

# WIRING SCHEMATIC WX-0037 SEPARATE POWER

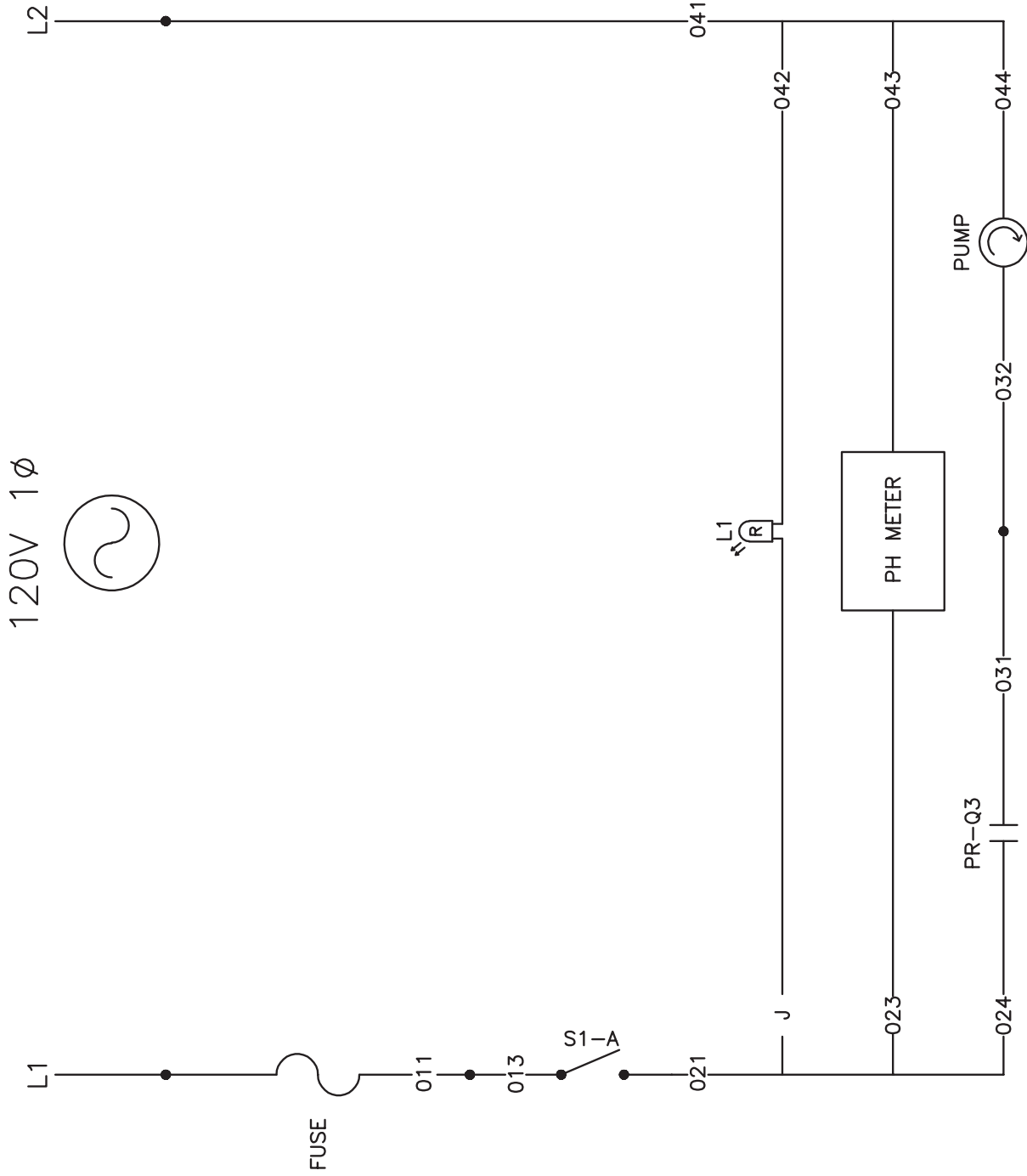


WIRING SCHEMATIC WX-0037 - Separate Power NEW CONTROLLER 060519 MLK

# WIRING DIAGRAM WX-0037 SEPARATE POWER



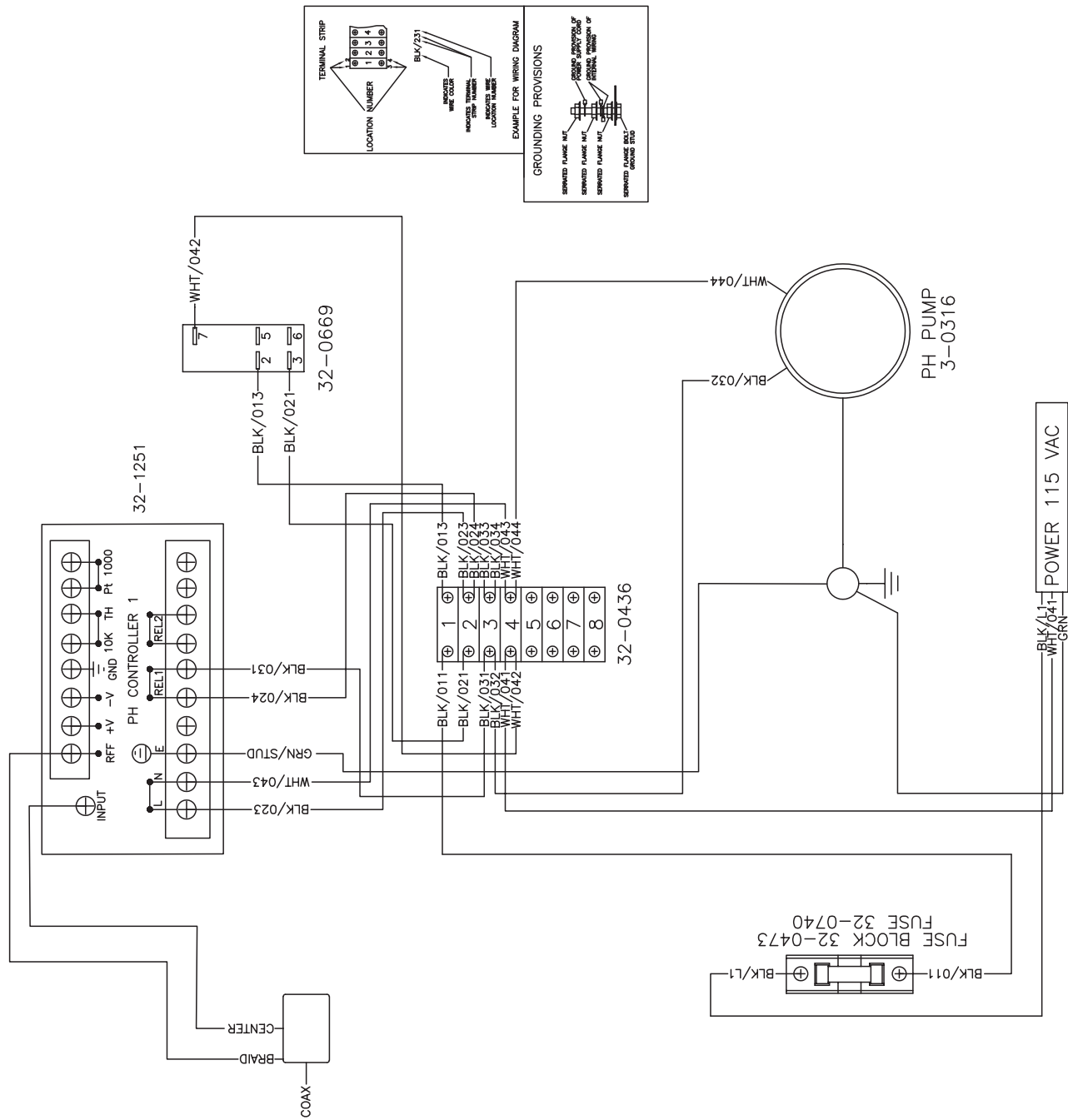
# WIRING SCHEMATIC WX-0102 SEPARATE PANEL POWER



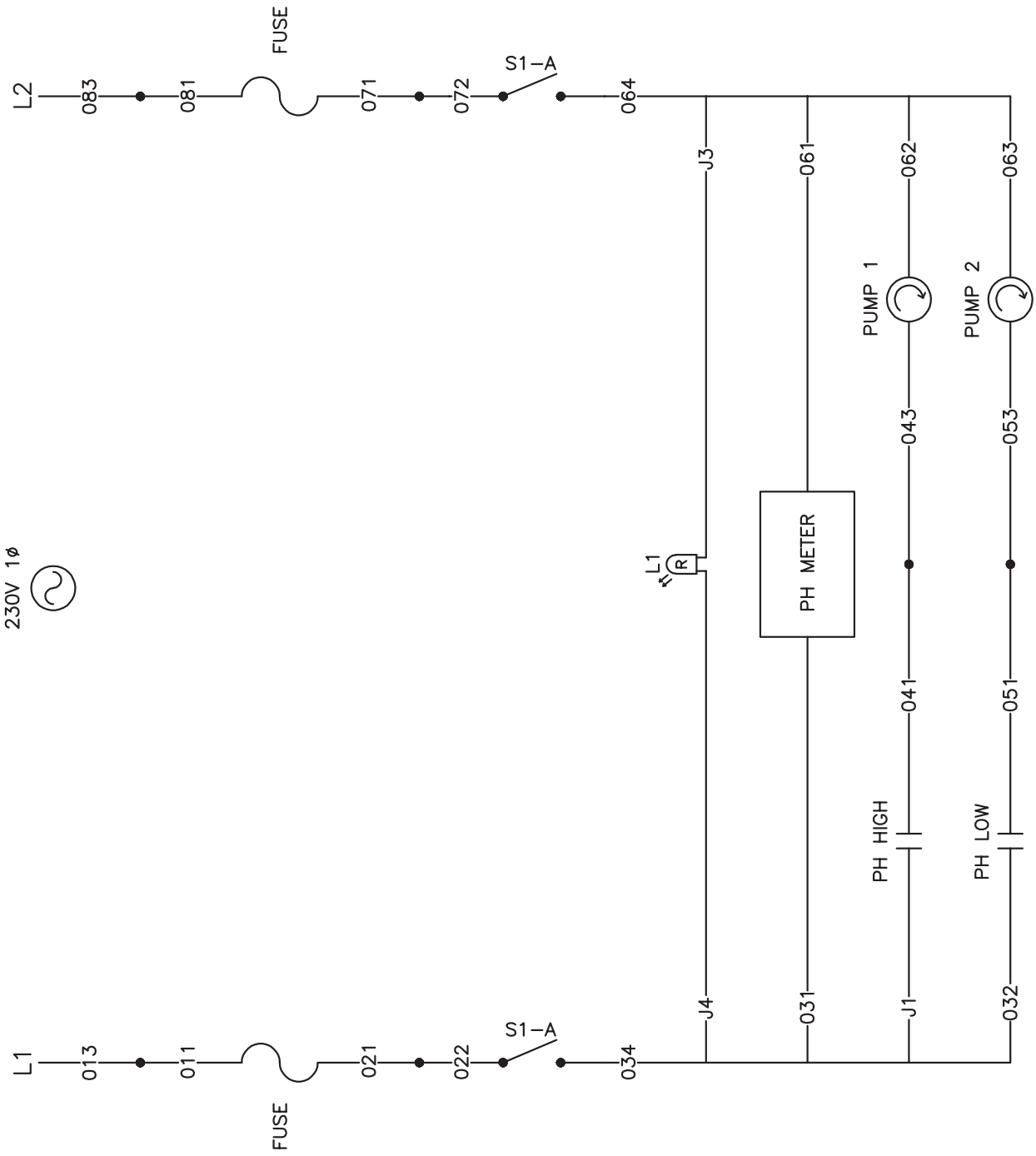
WIRING SCHEMATIC - WX-0102 - SEPERATE POWER NEW CONTROLLER 060719 MLK



# WIRING DIAGRAM WX-0102 SEPARATE PANEL POWER

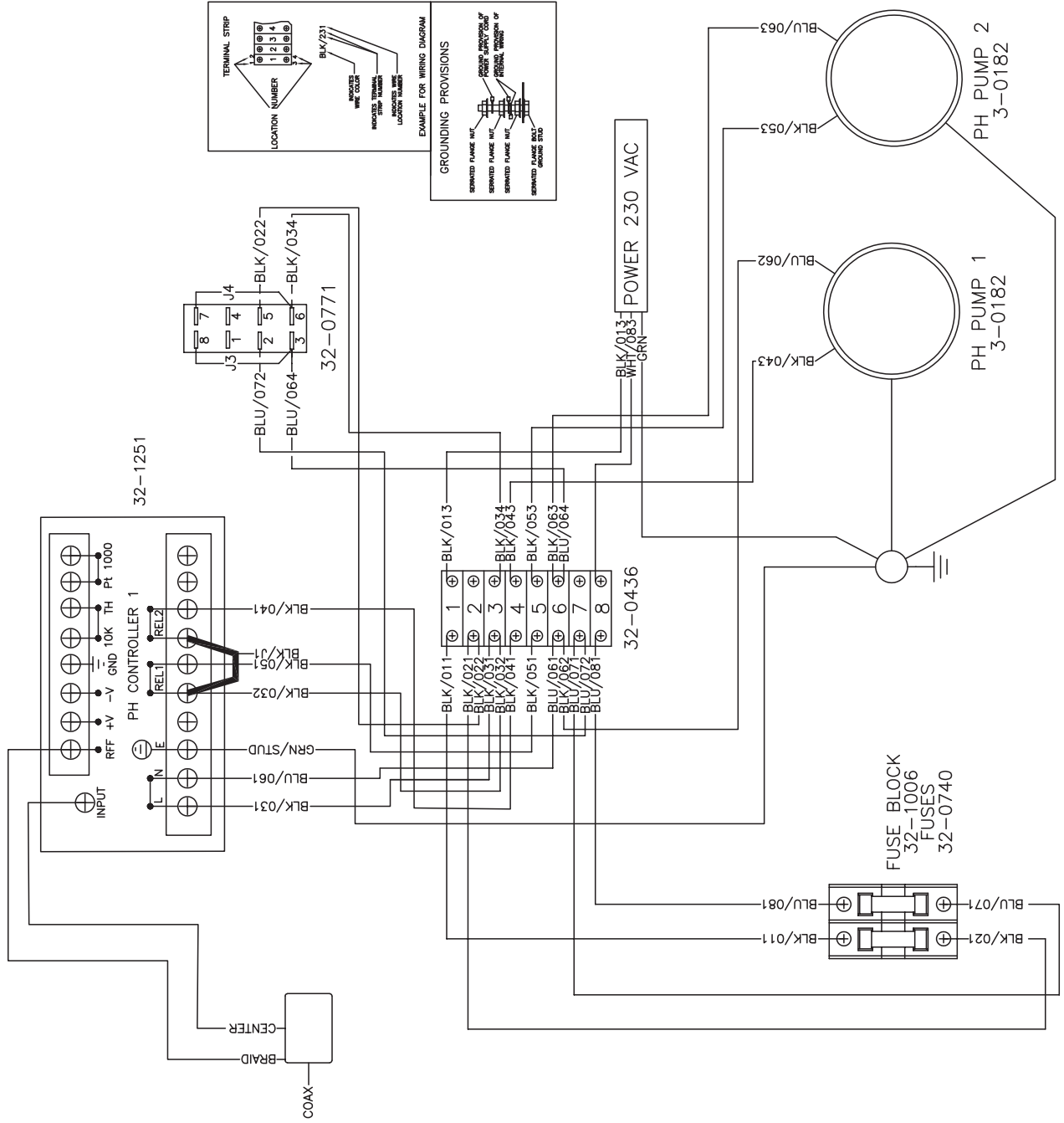


# WIRING SCHEMATIC WX-0134 HIGH AND LOW PH ADJUSTMENT

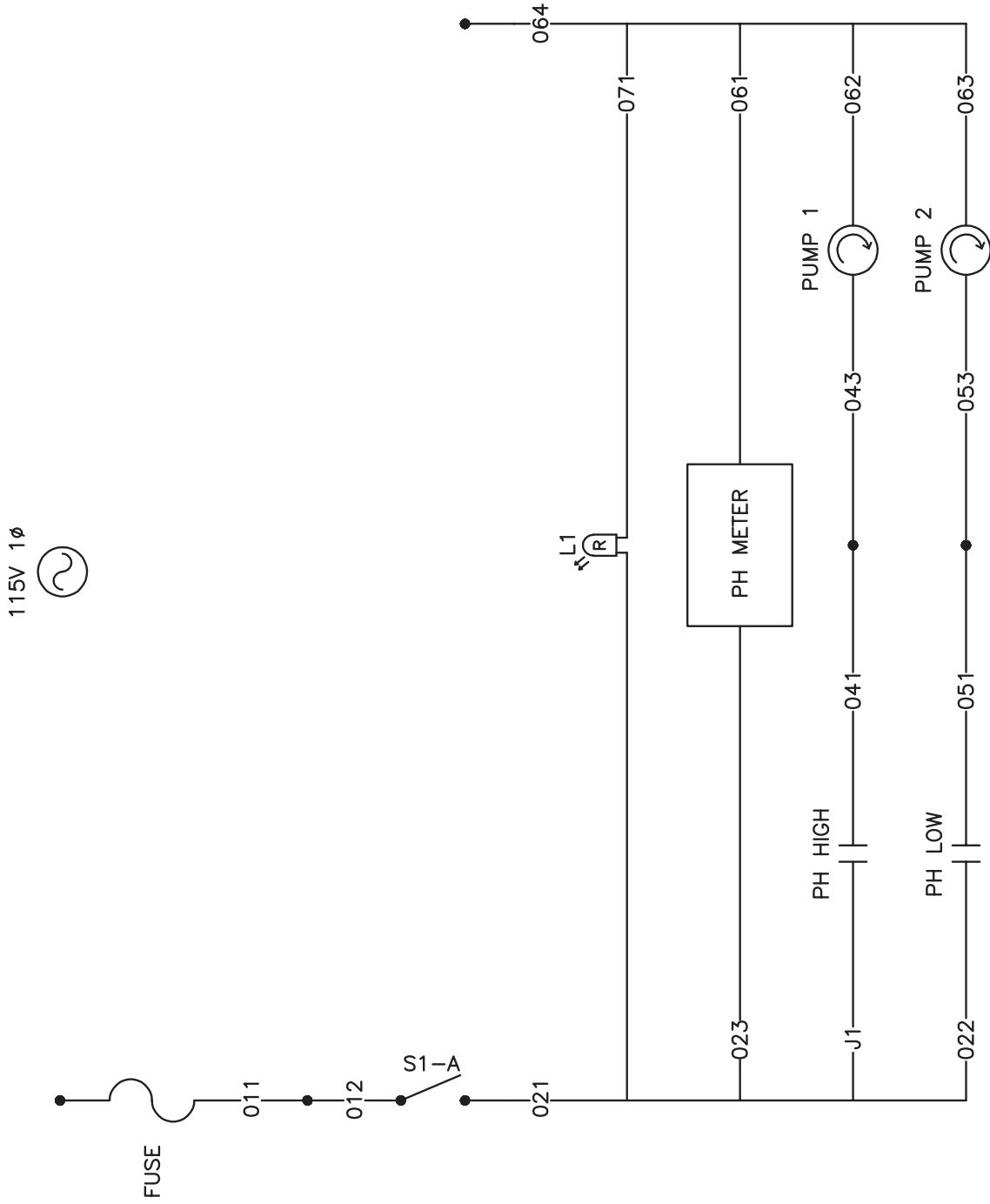


WIRING SCHEMATIC - WX-0134 - HIGH & LOW PH ADJUSTMENT 230V NEW CONTROLLER 060719 MLK

# WIRING DIAGRAM WX-0134 HIGH AND LOW PH ADJUSTMENT



# WIRING SCHEMATIC WX-0135 HIGH AND LOW PH ADJUSTMENT



WIRING SCHEMATIC - WX-0135 - HIGH & LOW PH ADJUSTMENT 115V NEW CONTROLLER 060719 MLK





## STATEMENT OF WARRANTY

Mi-T-M warrants all parts (except those referred to below) of your new pH control system to be free from defects in materials and workmanship for one year from the date of original purchase.

Defective parts not subject to normal wear and tear will be repaired or replaced at Mi-T-M's option during the warranty period. In any event, reimbursement is limited to the purchase price paid.

### EXCLUSIONS

1. The motor is covered under separate warranty by its respective manufacturer and is subject to the terms set forth therein.
2. Normal wear parts:

Seals	Filters	Gaskets
O-rings	Packings	Pistons
Valve Assembly	Brushes	Filtering Media
Sensors		
3. Parts damaged due to:
  - normal wear, misapplication, modifications/alterations, abuse,
  - operation at other than recommended speeds, pressures or temperature,
  - the use of caustic liquids,
  - chloride corrosion or chemical deterioration,
  - fluctuations in electrical or water supply,
  - operating unit in an abrasive, corrosive or freezing environment.
4. Parts damaged by failure to follow recommended:
  - installation, operating and maintenance procedures.
5. This warranty does not cover the cost of:
  - normal maintenance or adjustments,
  - labor charges,
  - transportation charges to Service Center,
  - freight damage.
6. The use of other than genuine Mi-T-M parts will void warranty. Parts returned, prepaid to Mi-T-M's factory or to an Authorized Service Center will be inspected and replaced free of charge if found to be defective and subject to warranty. There are no warranties which extend beyond the description of the face hereof. Under no circumstances shall Mi-T-M bear any responsibility for loss of use of the unit, loss of time or rental, inconvenience, commercial loss or consequential damages.



Manufactured by Mi-T-M  
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