AmeriWater
The Water Purification Specialists

pH ADJUST
ACID CHEMICAL FEED SYSTEM
OPERATION & MAINTENANCE MANUAL

Manufactured With Pride
In The USA

www.ameriwater.com • 800-535-5585

AmeriWater • 3345 Stop 8 Rd. • Dayton, OH 45414

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SECTION 1, GENERAL INFORMATION

1.1 INTRODUCTION

The AmeriWater pH Adjust Acid Chemical Feed System is designed to deliver acid to the incoming city tap water as a means of pretreatment in front of the water purification system to adjust pH chemistry in the water. The pH Adjust Acid Chemical Feed System is used for lowering pH of the incoming feed water.

1.2 SEQUENCE OF OPERATION

The feed water (high pH) flows through the pH Adjust Acid Chemical Feed System flow switch, which signals the acid injection pump to operate. The flow switch will shut down the acid injection pump when there is no water flow through the system. The feed water then enters the mixing chamber where acid is injected into the water stream, and thoroughly mixed with the water. As the treated water exits the mixing chamber, the pH sensor monitors the pH level and sends a signal to the injector control. The control adjusts the injection pump stroke rate according to the pH of the water exiting the mixing chamber.

The pH Adjust Acid Chemical Feed System control is factory set at 7 pH with a proportional band setting of 1. This means that the system will inject acid into the feed water in order to lower the pH to 7. When the pH of the water is at 8 pH or above, the acid injection pump will operate at full capacity (The maximum strokes per minute your system is configured at). As the pH of the water decreases, the control lowers the stroke rate of the injection pump until the desired level of 7 pH is reached, at which time the controller will shut off the injection pump. In the event the treated water drops below 7 pH, an audible and visual alarm will activate to alert the operator of the low pH condition.

The pH Adjust Acid Chemical Feed System chemical tank includes a low level sensor (float switch) that will activate a warning light in the event that the acid level in the tank is within 8” of bottom of tank. The low-acid warning light, as well as the low pH audible and visual alarms, are activated on the main control panel located in the water room and on a optional remote panel located in the treatment area.

Please read the entire Operation Manual before using the pH Adjust Chemical Feed System. Be sure to verify the intended application of the device and understand all safety precautions associated with the intended application. The Operation Manual should be kept near the system and used as a reference and troubleshooting guide. Contact AmeriWater with any questions at 1-800-535-5585 Monday through Friday 8:00 a.m. to 5:00 p.m. eastern standard time.

For after hours emergencies call 1-800-535-5585 and follow the recorded instructions. Our on-call technician will return your call as soon as possible.

1.3 RESTRICTIONS ON USE

Federal law restricts this device to sale by or on the order of a physician for use as a component in a water purification system for hemodialysis. This device is only intended for use of 10% Hydrochloric Acid (6.6 Baume) for acid solution.

1.4 SPECIFICATIONS

Materials of Construction: CE- ceramic, EPDM-Ethylene propylene diene monomer,FKM-Fluoroelastomer, GFRPP-Glass fiber reinforced polypropylene, PE-Polyethylene, PTFE-Polytetrafluoroethylene, PCTFE-Polychlorotrifluoroethylene,PVC-Polyvinylchloride (translucent),PVDF-Polyvinylidenefluoride, M-PVC-Machined polyvinylchloride

Electrical Requirements:	115V / 60Hz		
Indicators:	Adjustable Stroke Rate and Stroke Length Low Acid level light		
	LCD pH display		
Maximum Chemical Output:	Gallons Per Day	=	14.4
	Gallons Per Hour	=	0.6
	Liters Per Day	=	54.72
Minimum Flow Switch GPM	1.0 GPM		
Maximum Injection Pressure	150 psi		
Turndown Ratio	1800:1		

Minimum / Maximum System Flow Rates 3GPM TO 26GPM

Important Note: Use only 10% Hydrochloric Acid (6.6 Baume) for acid solution!

SECTION 2, IDENTIFICATION OF COMPONENTS

2.1 pH ADJUST ACID CHEMICAL FEED SYSTEM

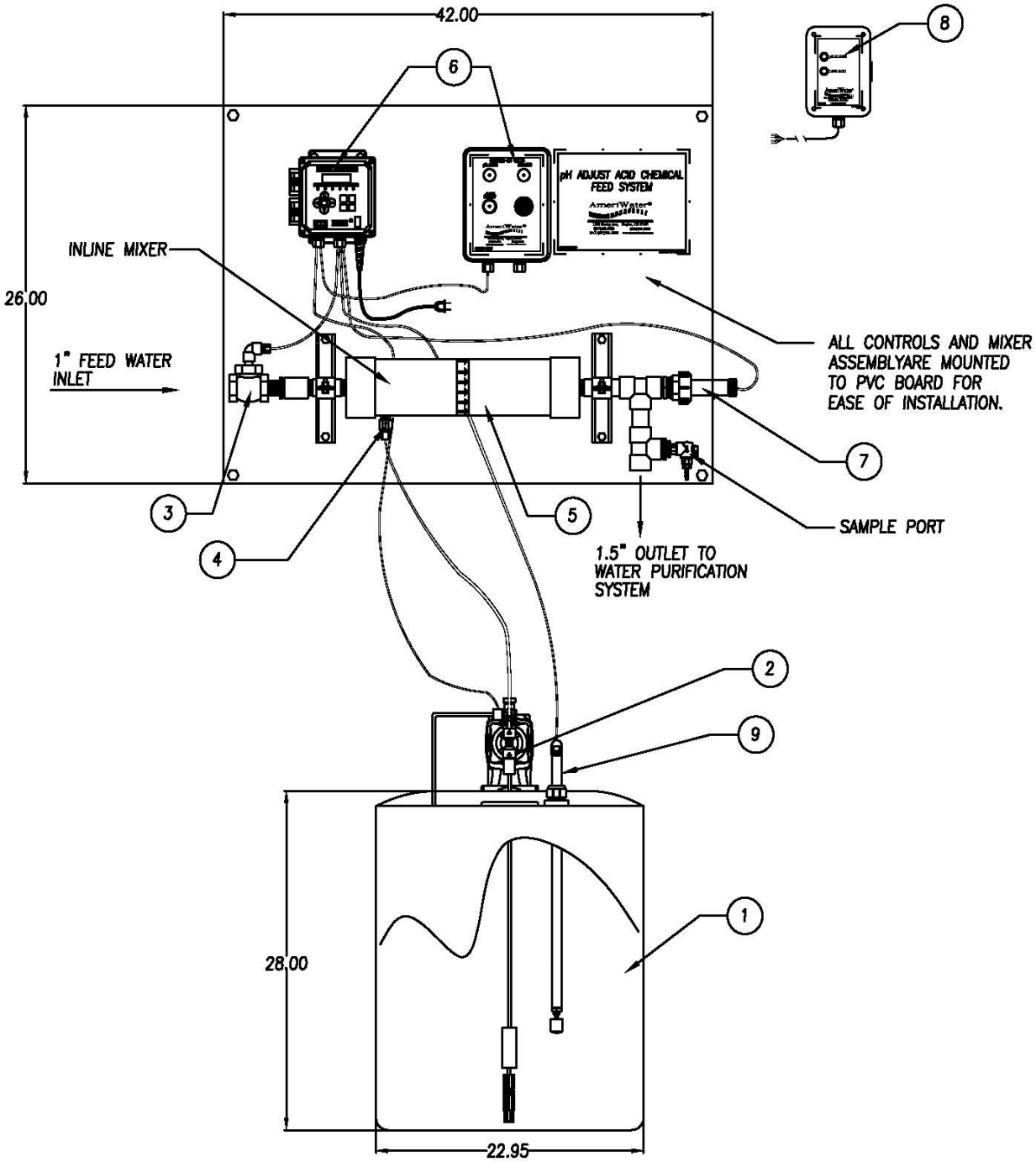


FIGURE 1

Items 1-9 correspond to figure 1:

1. **Solution Tank with Level Sensor –** Tank for holding chemical that includes a level sensor to alert the user when the amount of chemical in the tank is low.

2. **Injection Pump –** Metering pump that injects small amounts of chemical into the tap water stream.

3. **Flow Sensor Switch –** Signals the injection pump to inject chemical when tap water is flowing and to stop injecting chemical when the tap water flow stops.

4. **Injection Point –** Point of injection into the tap water stream.

5. **In-Line Mixer –** Mixes the injected chemical with the tap water.

6. **Control & Alarm –** Controls injection and alerts user of high or low pH conditions.

7. **pH Electrode –** pH sensor for monitoring pH. Sensor send signal to the alarm in high or low pH conditions.

8. **Remote Alarm Panel(Optional)-** Remote alarm at nurse's station.

9. **Float Switch –** Solution tank low acid float.

Items 10-16 correspond to figure 2:

10. **Backlit LCD Display –** LCD display

11. **Output LEDs –** Program control outputs

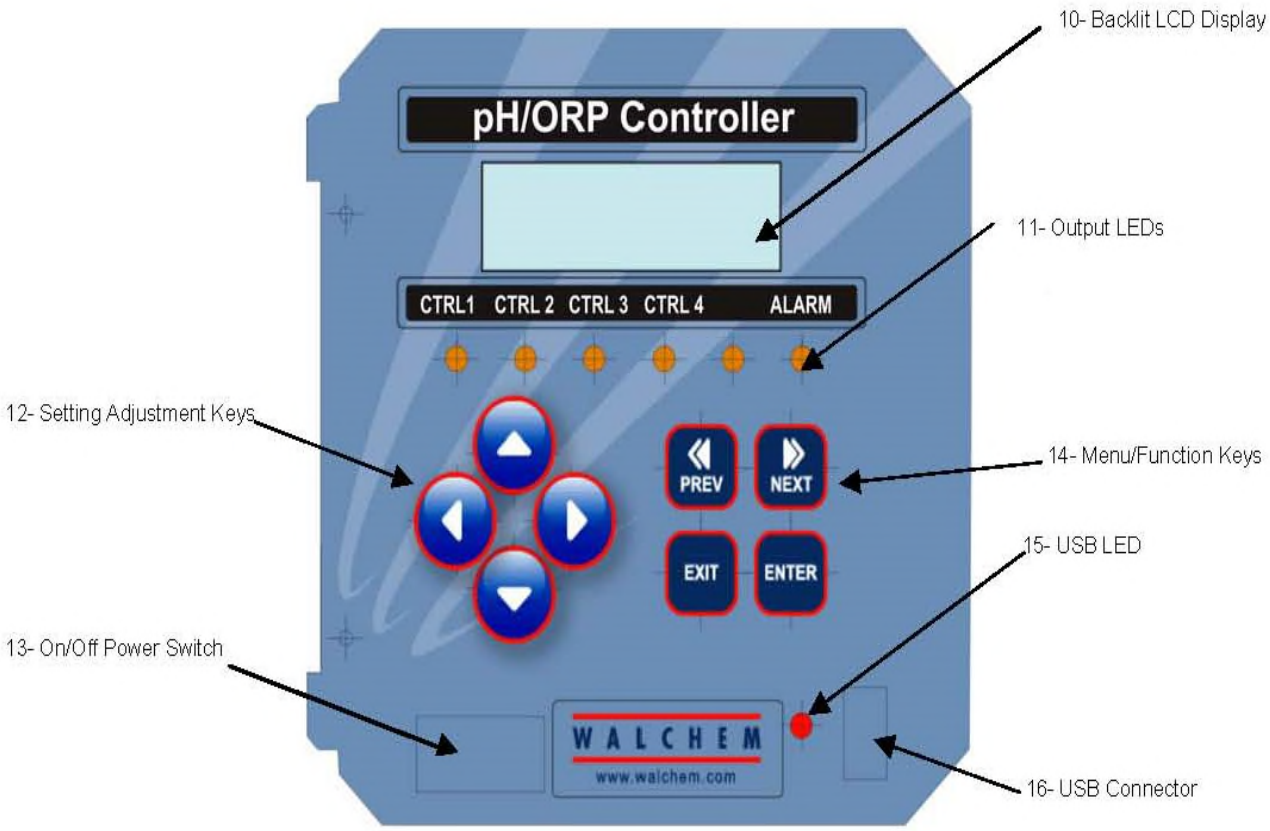
12. **Setting Adjustment Keys –** Setting keys

13. **On/Off Power Switch –** Switch to turn off control.

14. **Menu Function Keys –** Keys to scroll thru control menu.

15. **USB LED –** LED light showing USB port is being used.

16. **USB Connector –** Connector for USB FLASH DRIVE



Display

A summary screen is displayed while the WPH/WDP controller is on. If you have a single sensor (WPH), this display will show a bar graph of the pH/ORP relative to the set point, the numeric sensor reading, and current operating conditions. If you have two sensors (WDP), the bar graph will be replaced by the other sensor's reading.

Towards the center of the bar graph are the (S)'s, which represent the set points. The bar graph grows from the left hand side, and the point furthest to the right indicates where the process value is relative to the set points.

The bottom line of the summary screen displays the following potential status messages: Probe Error, Temp Sensor Err, Calibration Time, Output Timeout, High/Low Alarm, Range Alarm, In Range Output, Output On, Probe Wash, Probe Wash Hold, Normal and Interlock

FIGURE 2

SECTION 3, INSTALLATION AND OPERATION

CAUTION: **When using chemical feed pumps, basic safety precautions should always be followed to reduce risk of fire, electric shock, and personal injury. Failure to follow these instructions could result in death or serious injury. Be sure to read all instructions before use.**

CAUTIONARY SYMBOLS

CAUTION, RISK OF POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL, IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE.

Open by qualified service personnel only!

Refer to this Operation and Maintenance Manual for instructions and safety considerations.

3.1 GENERAL SAFETY CONSIDERATIONS

- Always wear protective clothing including gloves and safety glasses when working on or near chemical metering pumps.
- Inspect tubing regularly when replenishing chemical solution for cracking or deterioration and replace as necessary.
- Follow directions and warnings provided with the chemicals from the chemical manufacturer. It is important to understand the safety hazards involved with the chemicals being used.
- Never repair or move the metering pump while operating. Always disconnect electrical power.
- Air purges should be performed when the pump-chamber contains no fluid at the time of start-up. Also purge air out of chemical feed line during startup. As a safety measure, connect the return tubing to the air bleed valve and bypass fluid back to the storage tank or suitable drain.
- **WARNING:** Injecting too much acid into the feed water will result in low pH water being supplied to the reverse osmosis machine. Water below 6 pH may allow contaminants to pass through the reverse osmosis membrane, which can cause patient injury, illness, or death. It is important to verify that the Acid Chemical Feed system is adjusted properly and the pH is monitored as recommended.

3.2 INSTALLATION

1. The pH Adjust Acid Chemical Feed System should be installed after the blend valve and backflow preventer and before the first water treatment system component in a water treatment system.

2. Install the pH Adjust Acid Chemical Feed System solution tank on a firm, level floor. Be sure to follow all local plumbing and electrical codes.

WARNING: Always install float switch 8" from bottom of tank (See figure 3).

Tank Drawing:

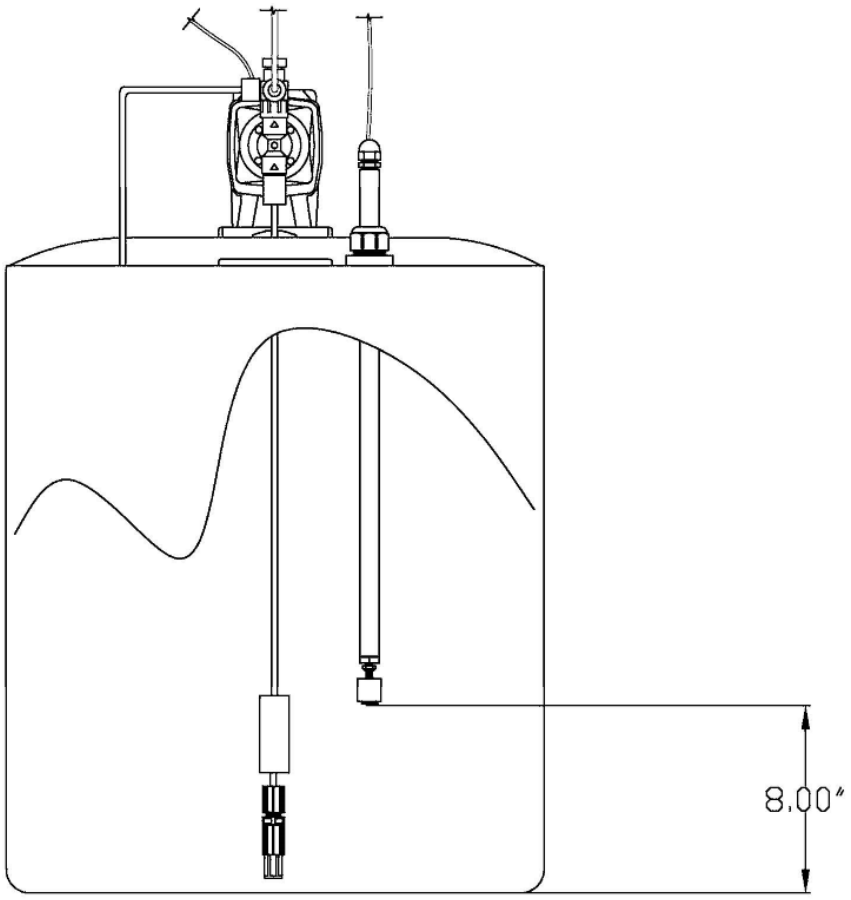


FIGURE 3

3. Mount the injection control and header panel on the wall near a 115 V outlet as shown in the figure 1 in section 2.1. Make sure panel is level. Refer to startup, section 3.3 for calibration and installation of pH sensor.

4. Make float switch connections to the labeled terminals on the injection control. Reference page 27.

5. Fill the solution tank with customer supplied 10% Hydrochloric Acid (6.6 Baume) and follow the pump priming procedure.

Important Note: Only for use with 10% Hydrochloric Acid (6.6 Baume)

CAUTION: If you are diluting acid, never add water to acid! Adding water to acid will result in the water boiling, causing the water/acid solution to splatter. Always add acid to water to prevent the risk of injury.

3.3 STARTUP

1. ITEMS NEEDED FOR STARTUP OF SYSTEM

- pH test strips
- 4.0 pH buffer solution
- 7.0 pH buffer solution

2. SETUP AND CALIBRATION OF pH SENSOR

A. INSTALLING THE pH SENSOR

- Remove electrode from bottle of fluid.
- Install small electrode into pH sensor.

B. 2 PT CALIBRATION OF pH SENSOR

1. Rinse Electrode

- Remove the electrode from the process and rinse it off with water. Press **ENTER** to go to the next step. Display will read first buffer.

2. First Buffer

- This is a prompt to place the electrode in the first buffer. In a few seconds the controller will automatically go to the next step.

3. 1st Buffer 7.00

- The top line will show the temperature and the mV output from the electrode. The bottom line will read "1st Buffer" on the left hand side and either "??.??" or a pH value on the right hand side. If it

reads a pH value, that means that it has recognized the buffer solution. Once the buffer value is recognized, it will stop flashing and the mV value will begin flashing. Once this has stabilized, it will stop flashing and go on to the next step. If it reads "??.??", that means it hasn't recognized the buffer solution because the mV output of the electrode is too far away from a standard buffer solution's theoretical mV value. If it can't recognize the buffer solution, the controller will beep and display "Unknown Buffer", and then display its best guess. Press **ENTER** to accept that guess, or change the value to the correct one using the arrow keys. If you press ENTER when it reads “??.??”, the display will switch to “Buffer Override” and allow you to manually enter the buffer value.

4. Rinse Electrode

- Remove the electrode from the first buffer solution and rinse it off with water. Press **ENTER** to continue.

5. Second Buffer

- Place the electrode in the second buffer solution. The controller automatically advances.

6**.** 2nd Buffer 4.00

- The top line will display the temperature and mV readings, which will blink until they become stable. The bottom line will say "2nd Buffer" on the left hand side, either display the pH of the buffer solution or "??.??" on the right hand side and will go to the next step or display "Unknown Buffer" as in 1st Buffer above.

7. Cal Successful/Cal Failed

- If the electrode response is good, then the display will read "Cal Successful". If the mV output of the electrode did not change enough between the two buffer solutions, it will read "Cal Failed". A failure usually means that the electrode needs to be cleaned, or replaced. It will also display the % difference from the theoretical slope. A failure occurs if the slope is more than 80% different than theoretical. See Troubleshooting Section for “Probe Error” if calibration failed.

8. Continue Y

- The controller will hold this display until you have replaced the electrode in the process, and press **ENTER**. Control will not begin until **ENTER** is pressed, or 10 minutes go by. If calibration failed, control will begin using old calibration setpoints.

9. Electrode Maintenance, refer to section 4.

3.4 INJECTION PUMP PRIMING PROCEDURE

FIGURE 4

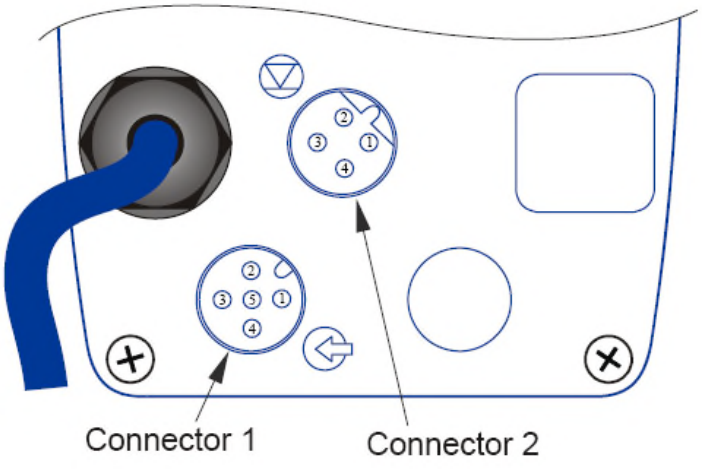


FIGURE 5

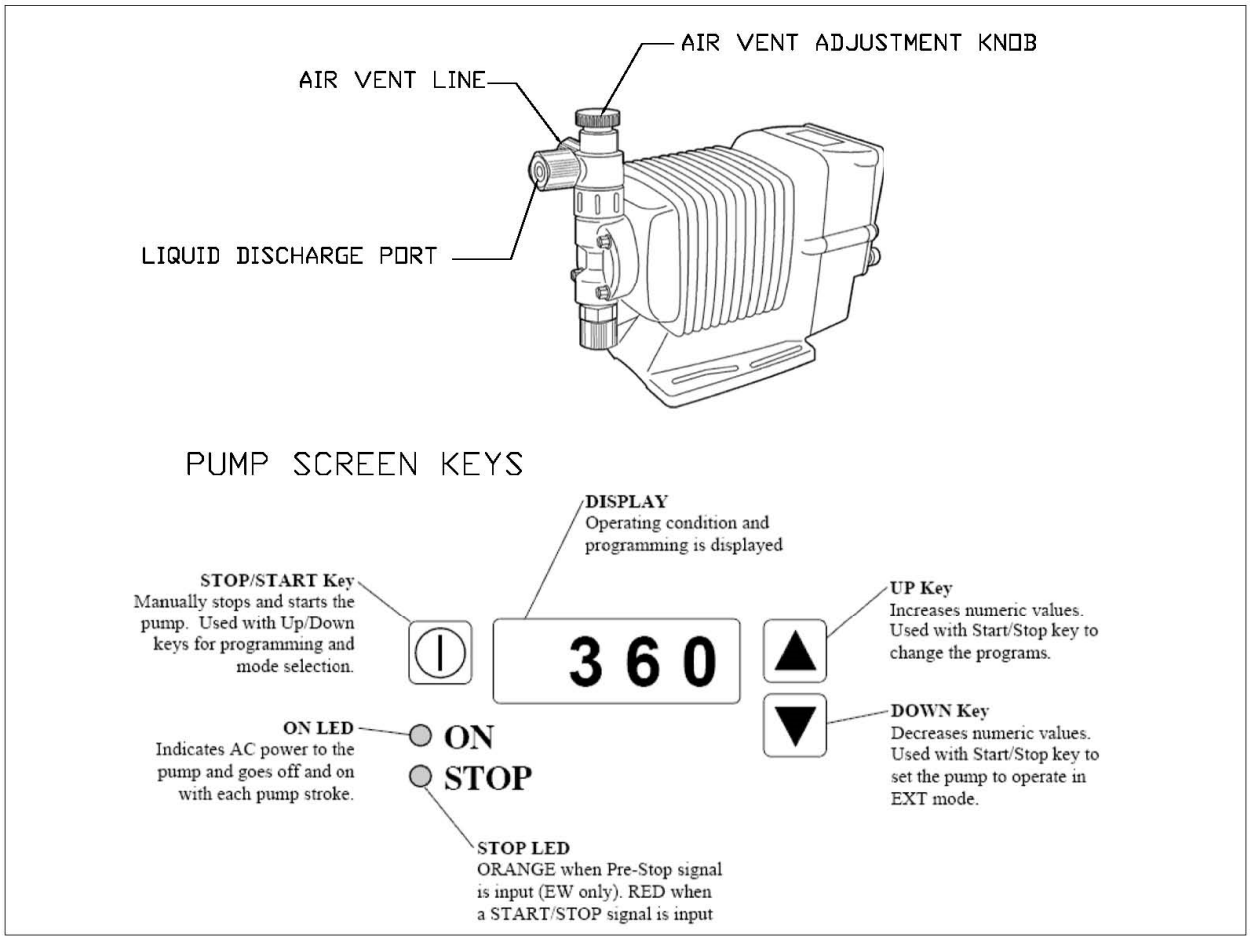


FIGURE 6

- Disconnect the controller connector from pump, pump connection #1 is first on left as shown in figure 5.

- Take pump out of external mode by holding the up and down keys simultaneously, the pump will manually run at 360 SPM as long as the two keys are held down. This feature is useful for priming or the elimination of air trapped in the pump or tubing. Pressing the stop/start key will disable external control and go back to the wait mode. Pressing the stop/start key and the down key simultaneously from the wait mode will set the pump to operate in external mode. In this mode, the pump will operate at a speed correlating to the frequency of digital inputs that it receives.

- With the pump turned on, set stroke length at 100% by rotating the knob on front of pump as shown in figure 4 and setting frequency to 360 SPM by using up arrow key.

- The pump is equipped with an air vent valve, open the knob 1/2 turn. Liquid should move up through the suction tubing and into the pump head.

- When liquid starts running through the vent side tubing, close the air vent knob and reconnect the control connector and return pump to external mode. Pressing the stop/start key and the down key simultaneously from the wait mode will set the pump to operate in external mode. In this mode, the pump will operate at a speed correlating to the frequency of digital inputs that it receives. External mode is indicated by “EXT” in display. Make sure pump and controller is set to your specified stroke length and frequency.

- If the pump does not self prime, remove the check valve housing on discharge & suction sides to make sure valve cartridges and gaskets are in correct positions

- For additional information and operation instructions, see supplement 2, pump manual.

3.5 OPERATION

The operation of the pH Adjust Acid Chemical Feed System is not complicated. You simply have to prime the injection pump and purge air out of chemical line. Then adjust it to the your specified parameters, based upon your incoming water flow(GPM) and your incoming pH. After the pump is primed the system will operate based on the flow of tap water through the flow sensor switch and pH level of the incoming water. The pH controller comes factory programmed by Ameriwater, based upon an incoming flow of 15gpm and 8.5pH so there is a need for additional programming required. Programming steps are listed below. Always remember to follow the guidelines for monitoring the system found in Section 4.

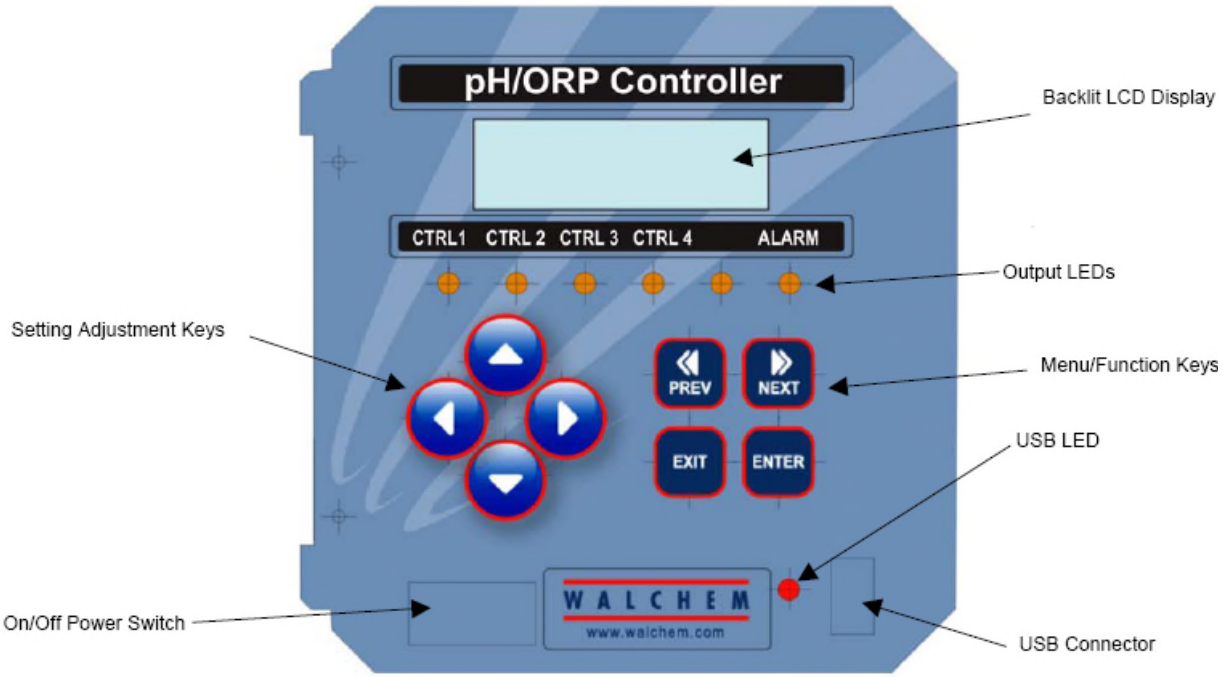


FIGURE 7

1. AMERIWATER FACTORY WPH CONTROLLER SETTINGS

CTRL2

1. **Hi/Low Set Point- H, 7.00**
2. **Prop Band- 1.00**
3. **Min SPM Rate- 0**
4. **Max SPM Rate- 225, Based on incoming of 8.5pH and 50% stroke length.**
5. **Time Limit- 0**
6. **Interlock- Y**
7. **HOA- AUTO**

CAUTION: **Setting number 1- HI/LOW POINT must always be set at HI 7.00. If setting is set for low, pump will begin to feed chemical into system at 7 pH, effectively bringing down pH to an unsafe level! CTRL 1 & CTRL 4 are not used!**

CTRL3

1. **Low Alarm Point- 6.50**
2. **Dead Band- 0.50**
3. **Time Limit- 0**
4. **Mode- Low Alarm**
5. **Interlock- N**
6. **HOA- AUTO**

2. CUSTOMER BASED WPH CONTROLLER SETTINGS

IMPORTANT: The only setting that can be manipulated on CTRL2 is Max SPM Rate (ITEM #4), all other settings MUST STAY FACTORY PROGRAMMED! CTRL3 settings must never be touched or manipulated.

1. **To enter programming menu, press the enter key.**
2. **Use menu/function keys to scroll to CTRL2, press enter**
3. **Using the menu/function key, scroll to Max SPM Rate, adjust based upon your incoming pH and water flow(gpm). Press enter button to accept you settings.**
4. **After adjusting Max SRM Rate in controller, adjust the the stroke length and frequency of the pump (matching the frequency setting of the pump to frequency setting of controller). Accept settings and set pump in "EXT" mode.**

5. **Run system for 30min to level out pH in incoming water, readjust settings on controller and pump, if necessary to lower pH closer to 7pH.**

6. **If settings are causing system to alarm, readjust stroke length percentage on pump. Continue adjusting until you have reach desired settings for you facility.**

7. **Ameriwater's recommended starting parameters for flow rate are as follows:**

   3GPM at 8.5ph- 72 strokes per minute(stroke frequency),40% stroke length.

   15GPM at 8.5ph- 225 strokes per minute(stroke frequency),50% stroke length.

   26GPM at 8.5ph- 345 strokes per minute(stroke frequency),50% stroke length.

SECTION 4, MONITORING & MAINTENANCE

4.1 MONITORING

pH Adjust Acid Chemical Feed System performance should be monitored at least daily. Log all results on the water system daily log sheet. Sample log sheet follows:

SAMPLE pH ADJUST CHEMICAL FEED SYSTEM DAILY LOG

Take all readings and tests with unit running **WEEK OF_____**

TESTS	AMOUNT / VALUE	Daily	Daily	Daily	Daily	Daily	Daily
Level of chemical in tank	35 gallons						
Is chemical pump running / system flowing	Y / N						
pH value	pH						
Date							
Workers Initials							

- Verify level of chemical in the solution tank (refill if necessary). Failure to refill acid will lead to pump failure, which is not covered by warranty.
- Verify that pH is within range, not alarming on control.
- Verify that chemical pump is running and system is flowing water.
- IBT pH Test Strips (P/N 97PH20901) may also be used for verification after nearest sample port in water treatment system.

4.2 MAINTENANCE

CHEMICAL FEED PUMP MAINTENANCE

CAUTION: **Before performing any maintenance or repairs on chemical metering pumps, be sure to disconnect all electrical connections, verify that all valves are closed, and relieve all pressure in the pump and lines. Failure to refill acid will lead to pump failure, which is not covered by warranty. Always wear protective clothing, gloves and safety glasses when performing any maintenance or repairs on chemical metering pumps.**

ROUTINE CHEMICAL FEED PUMP MAINTENANCE

Routinely check the physical operating condition of the pump. Inspect the pump for any abnormal noise, excessive vibration, low flow and pressure output or high temperatures [when running constantly at maximum stroke rate, the pump housing temperature can be up to 160°F (70°C).

Check for leaks around fitting or as a result of deteriorating tubing e.g. when standard white translucent discharge tubing is exposed to direct sunlight. Take appropriate action to correct leaks by tightening fittings or replacing components. Keep the pump free of dirt and debris as this provides insulation and can lead to excessive pump temperatures.

If the pump has been out of service for a month or longer, clear the pump head valve assemblies by pumping fresh water for approximately 30 minutes. If the pump does not operate normally after this “purging run,” replace the cartridge valve assemblies.

ROUTINE ELECTRODE MAINTENANCE

The pH electrodes require periodic cleaning and calibration. These electrodes are like batteries and their voltage outputs will change with time even if they are not being used. After installation, the rate of change increases, and factors such as temperature, extremes of pH, abrasion and chemical attack will increase the required frequency of calibration. If the process solution contains oils, scale or other solids, the electrode surfaces will tend to coat, its response time will slow down and cleaning will be required.

The frequency of cleaning and calibrating will vary greatly depending upon the application, the factors listed above, as well as the accuracy of control you require. The best way to determine the optimum number of days between calibrations is to remove the electrode from the process periodically and check its accuracy in a buffer solution. If using manual temperature compensation, remember to change the temperature from that of the process to that of the buffer. If the accuracy of the reading is within your required tolerances, and the speed of response is good, replace the electrode in the process flow. If not, clean the electrode and perform a two-point calibration.

The method of cleaning the electrode will depend upon the coating, as well as the materials of construction of the electrode. Do not use a solvent that will attack the electrode! Care must be taken to avoid scratching the pH electrode's glass, as this will shorten its life.

Oily coatings should be removed with a mild detergent or isopropyl alcohol. Hard scales such as calcium carbonate can usually be removed with a dilute hydrochloric acid solution. Soft coatings can be removed using a soft cloth or soft toothbrush.

A two point calibration should always be performed after cleaning the electrode.

Because the electrode signal is so sensitive, the condition of the cable and connectors between the electrode, preamplifier and controller is critical. Make sure that all electrical connections stay clean and dry. Never splice the cable prior to preamplification. Replace the cable if there is any sign of damage.

4.3 DIAPHRAGM REMOVAL AND REPLACEMENT: See supplement 2, pump manual for further info.

4.4 VALVE REPLACEMENT: See supplement 2, pump manual for further info.

SECTION 5, TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
FAILURE TO PUMP	1. Leak in suction side of pump.	1. Examine suction tubing. If worn at the end, cut approximately one inch (2.5 cm) off and reconnect.
	2. Valve seats not sealing.	2. Clean valve seats if dirty or replace with alternate material if deterioration is noted.
	3. Low setting on pump.	3. When pumping against pressure, the dial should be set above 20% capacity for a reliable feed rate.
	4. Low suction level.	4. Solution must be above foot valve strainer.
	5. Diaphragm ruptured.	5. Replace diaphragm as shown in Maintenance Section. Check for pressure above rated maximum at the injection point. NOTE: Chemical incompatibility with diaphragm material can cause diaphragm rupture and leakage around the pump head seal.
	6. Pump head cracked or broken.	6. Replace pump head as shown in Maintenance Section. Make sure fittings are hand tight only. Using pliers and wrench can crack pump head. Also, chemical incompatibility can cause cracking and subsequent leakage.
	7. Pump head contains air or chlorine gas.	7. Bleed pump head, see Start-up and Operation.
	8. Breakdown or disconnection of wiring.	8. Connect wiring properly. Check fuse or circuit breaker.
	9. Voltage drop.	9. Take measures after investigation of cause.
	10. Malfuntion of electronic control board.	10. Contact AmeriWater.

TROUBLESHOOTING (CONTINUED)

PROBLEM	PROBABLE CAUSE	REMEDY
LOSS OF CHEMICAL RESIDUAL	1. Pump setting too low.	1. Adjust to higher setting (pump must be operating to adjust stroke length knob).
	2. Scale at injection point.	2. Clean injection parts with 8% muriatic acid or undiluted vinegar (Also see Maintenance Section).
	3. Solution container allowed to run dry.	3. Refill the tank with solution and prime (See start-up and Operation Section).
TOO MUCH CHEMICAL	1. Pump settings too high.	1. Lower pump settings (pump must be operating to adjust stroke length knob).
	2. Chemicals in solution tank too rich.	2. Dilute chemical solution.
	3. Siphoning chemical into well or main line.	3. Test for suction or vacuum at the injection point. If suction exists, install an anti-siphon valve.
LEAKAGE AT TUBING CONNECTIONS	1. Worn tube ends.	1. Cut off end of tubing (about 1" / 2.5 cm) and then reconnect as before.
LEAKAGE AT FITTING	1. Loose fittings.	1. Tighten hand tight. Replace gasket if hand tightening does not stop leakage.
	2. Broken or twisted gasket.	2. Check gaskets and replace if broken or damaged.
PUMP LOSES PRIME	1. Dirty check valve.	1. Remove and replace or clean off any scale or sediment.
	2. Ball checks not seating or not sealing properly.	2. Check seat and ball checks for chips, clean gently. If deformity or deterioration is noted, replace part with proper material. Resulting crystals can hold check valve open, therefore, the valves must be disassembled and cleaned.
	3. Solution container allowed to run dry.	3. Refill the tank with solution and prime. See Start-up section.
	4. Chemical outgassing.	4. Bleed gas, use flooded suction and maintain chemical at room temperature to minimize outgassing.

TROUBLESHOOTING (CONTINUED)

PUMP WILL NOT PRIME	1. Too much pressure at discharge.	1. Turn off all pressure valves, relieve system pressure, then loosen outlet tubing connection at discharge point. Remove discharge valve cartridge. Dampen ball check and valve seats with a few drops of solution. Set pump dial to maximum rate. When pump is primed, reconnect all tubing connectors.
	2. Check valves not sealing.	2. Disassemble, clean & check for deterioration, damage or swelling. Reasseble and wet the valve assembly, then prime. See Start-up and Operation section.
	3. Output dials not set at maximum.	3. Always prime pump with output dial set at maximum rated capacity.
	4. Suction lift height too much. Maximum 5 ft (1.5 m)	4. Decrease suction lift or pull vacuum on pump discharge until pump is primed.
	5. Pump equipped with spring loaded high viscosity valves.	5. Loosen discharge valve to aid in priming, take necessary safety precautions for spills, or apply vacuum to pump discharge.
LOW pH ALARM	1. Too much chemical injected.	1. Verify injection pump settings are correct per AmeriWater recommendation. Adjust if necessary.

SECTION 6, WARRANTY

The buyer has a one year warranty effective at date of purchase on all equipment and parts; provided that the system is not subject to abuse, misuse, alteration, neglect, freezing, accident or negligence; and provided further that the system is not damaged as the result of any unusual force of nature such as, but not limited to, flood, hurricane, tornado, or earthquake. The warranty covers the replacement of equipment and/or parts only. The warranty does not cover labor charges or travel expenses resulting from the service of equipment. The manufacturer is excused if failure to perform its warranty obligations is the result of strikes, government regulation, materials shortages, or other circumstances beyond its control.

To obtain warranty service, notice must be given to the manufacturer within 30 days of the discovery of the defect.

There are no warranties on the Chemical Feed System beyond those specifically described above. All implied warranties, including any implied warranty of merchantability or of fitness for a particular purpose are disclaimed to the extent they might extend beyond the above periods. The sole obligation of the manufacturer under these warranties is to replace or repair the component or part which proves to be defective within the specified time period, and the manufacturer is not liable for consequential or incidental damages. No dealer, agent, representative, or other person is authorized to extend or expand the warranties expressly described above.

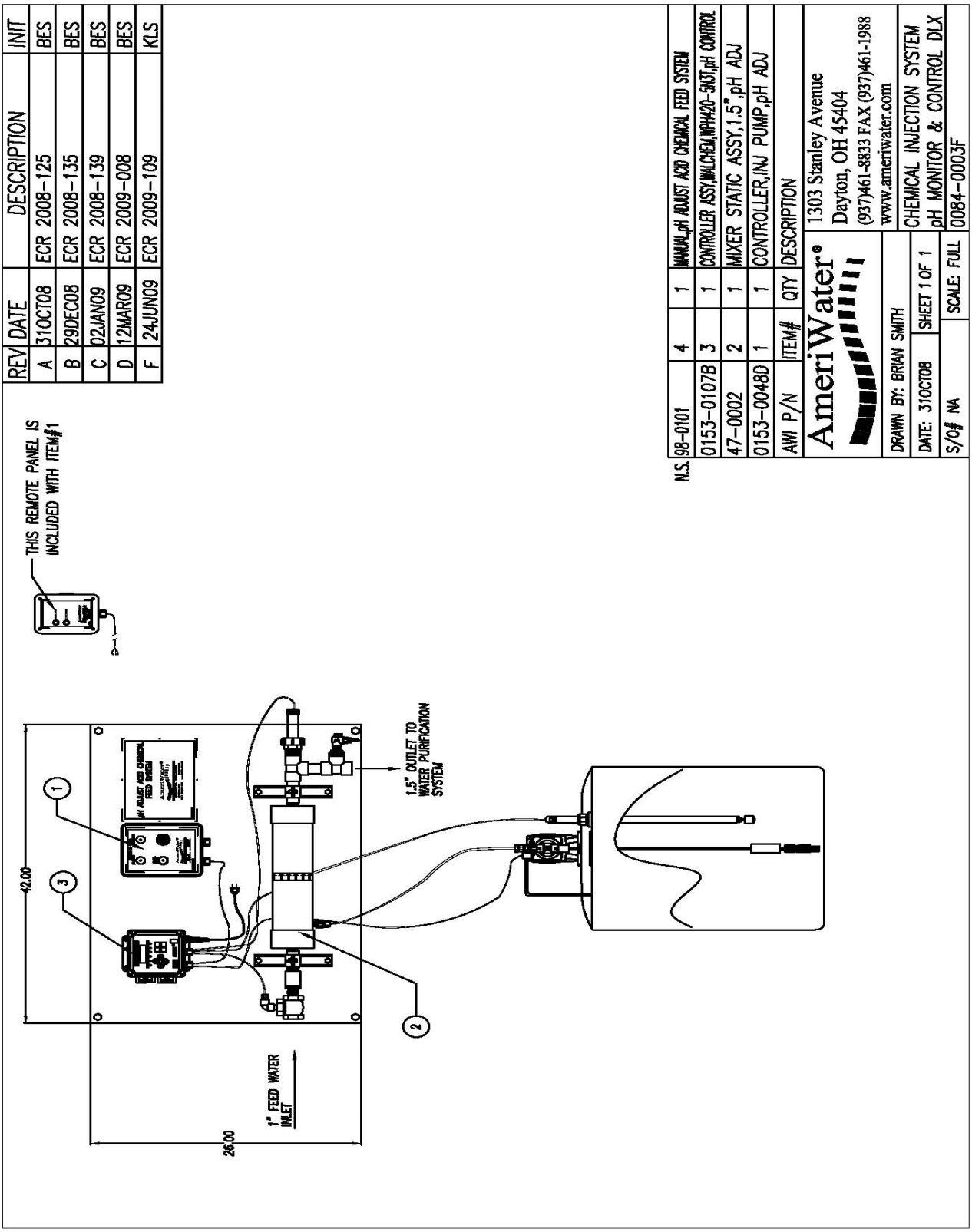
Some states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damage, so the limitations and exclusions in the warranty may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

SECTION 7, ROUTINE REPLACEMENT ITEMS

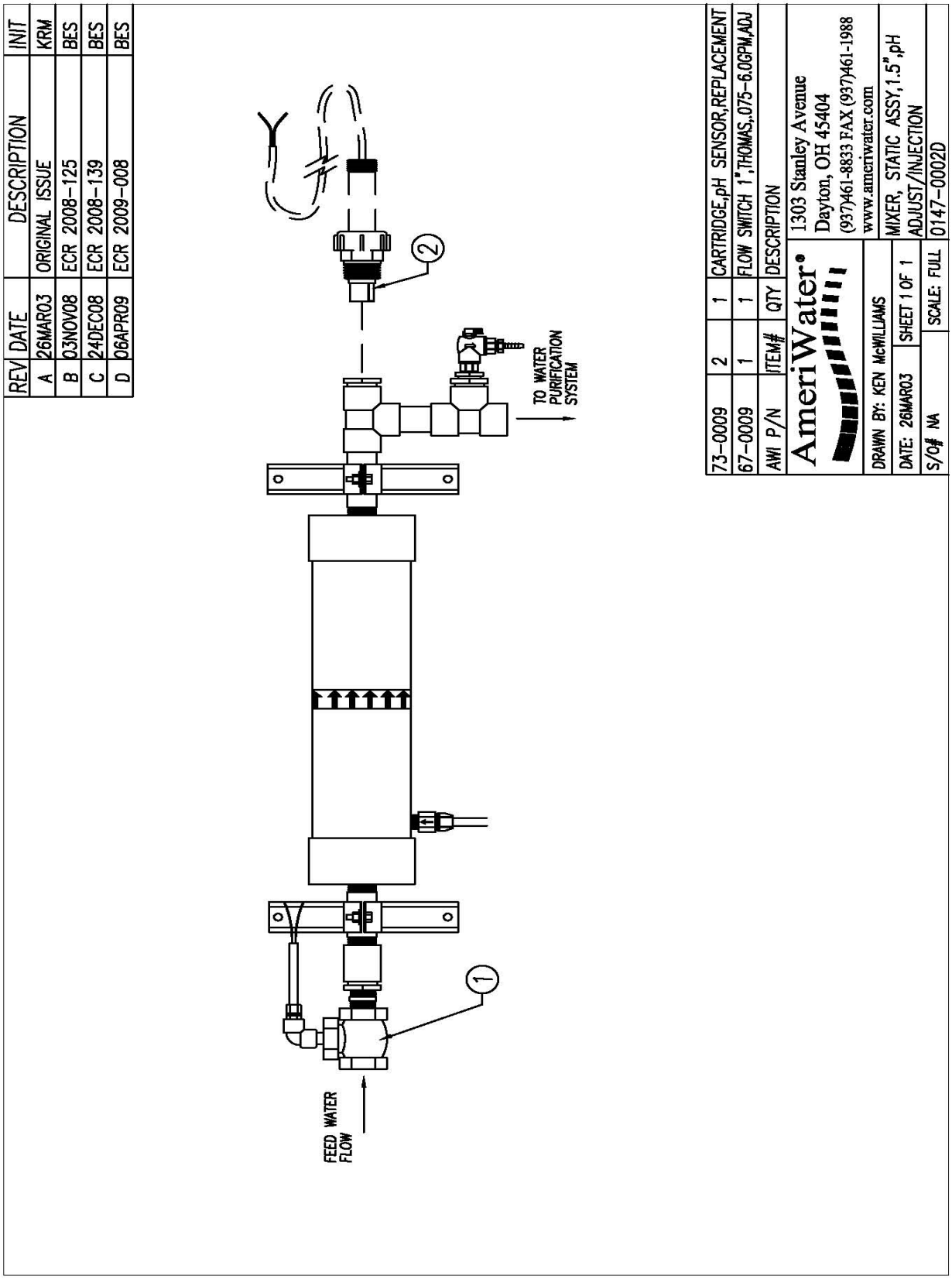
PART NUMBER	DESCRIPTION
67-0009	Flow Switch,1",Thomas,.75-6.0gpm,adjustable
0153-0048D	Controller, Injection Pump, pH Adjust and Alarm
47-0002	Mixer,Static,1.5"
0153-0107B	Control, pH Controller
0175-0014B	Remote Panel, Chemical Injection, pH light, remote horn (Optional)
85-0005	Tank, Chemical Feed, 35gallon,PE
67-0010	Float switch, 190964-3 point level switch
84-0007	Pump, Chemical Injection
84-0008	Rebuild kit, chemical injection, pump
97PH20901	Test Strips IBT pH (6 Bottles of 100 Strips each)
73-0009	Cartridge, pH sensor, replacement
65511224	Light, red pilot,ab,24v
65760206	Horn, piezo 24vac cont., 85db
65511230	Switch, contact, no, ab
65511220	Switch, pb, mom, no, ab, black
62760177	Transformer,120-24V,40VA
64760228	Relay,omron,24VAC,14pin,4pdt
64-0003	Timer,off-delay,.15-30min,ab

SECTION 8, SYSTEM DRAWINGS

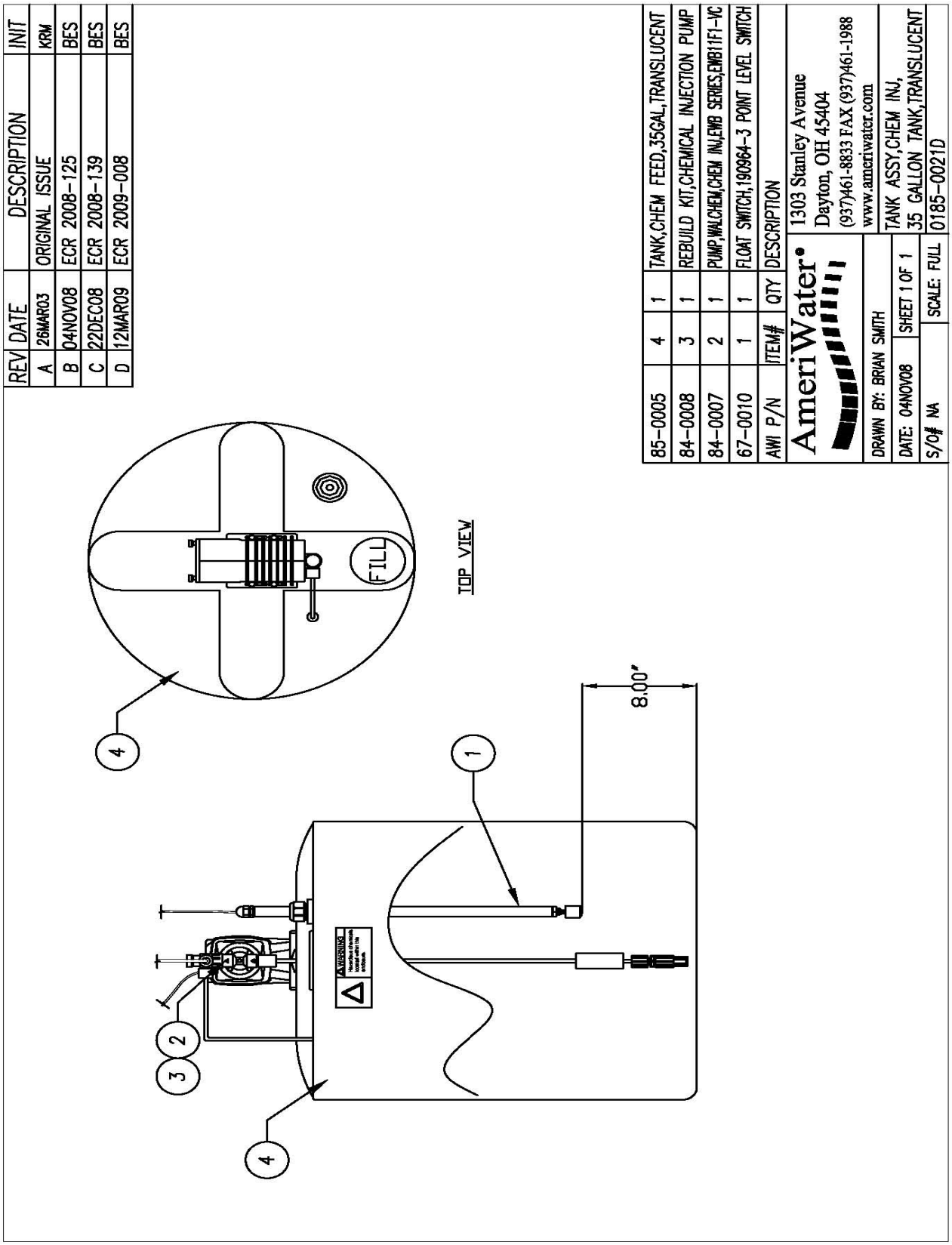
MAIN ASSEMBLY:



HEADER ASSEMBLY



TANK ASSEMBLY



WPH CONTROLLER ELECTRICAL INPUTS

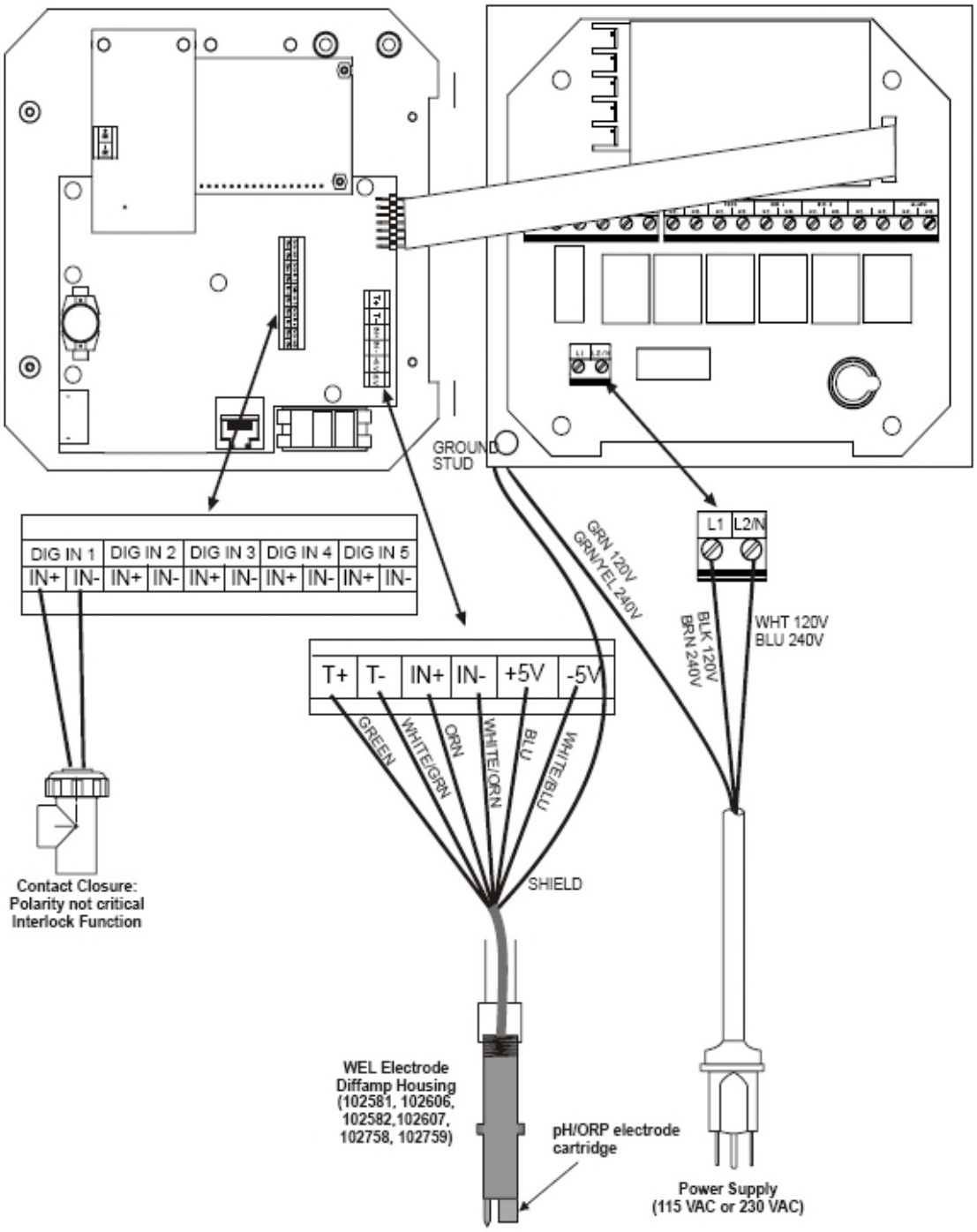
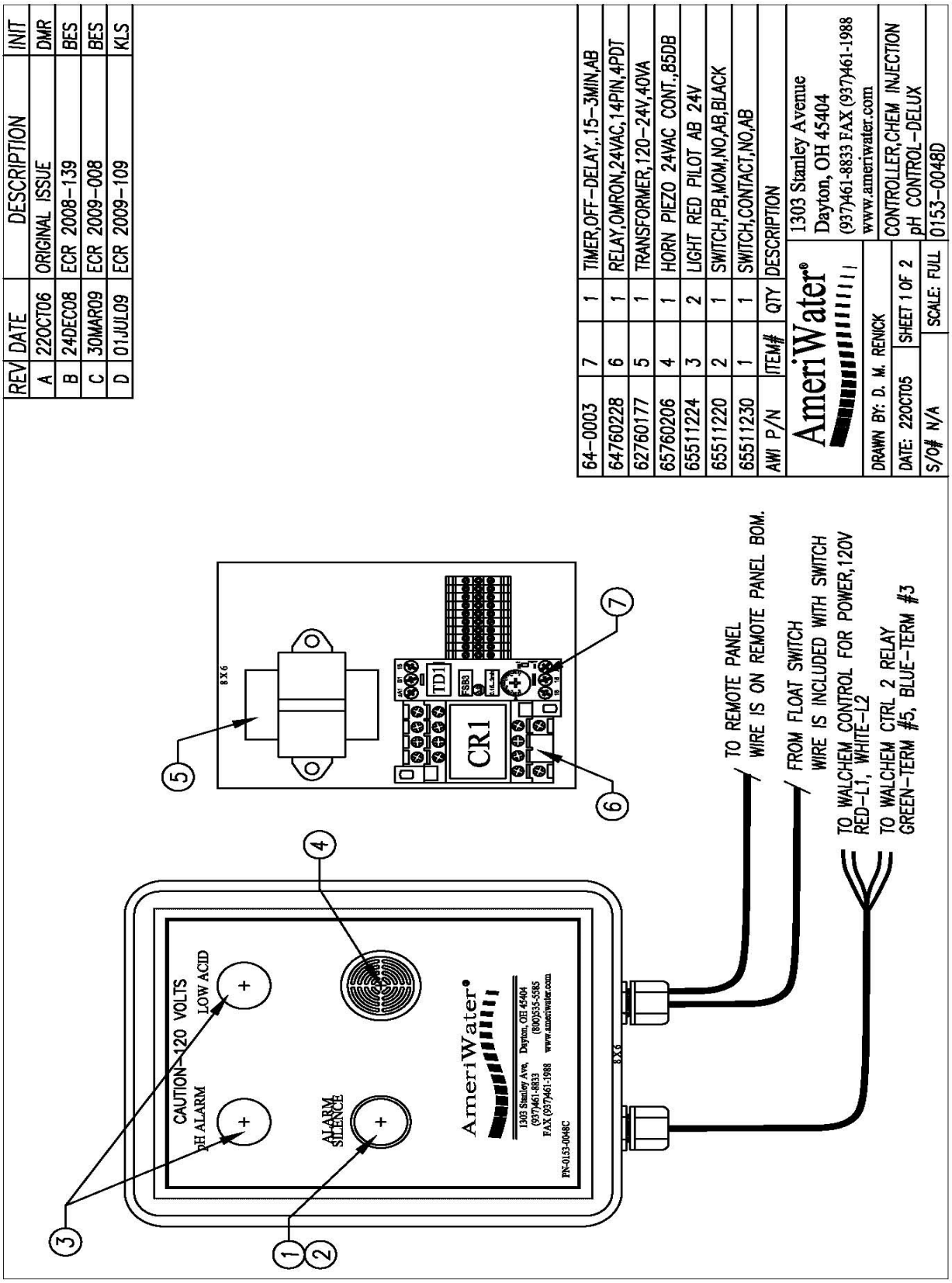


Figure 3a WPH Inputs using WEL pH/ORP Electrode Housings

ALARM PANEL-SHT1



REV	DATE	DESCRIPTION	INIT
A	22OCT06	ORIGINAL ISSUE	DMR
B	24DEC08	ECR 2008—139	BES
C	30MAR09	ECR 2009—008	BES
D	01JUL09	ECR 2009—109	KLS

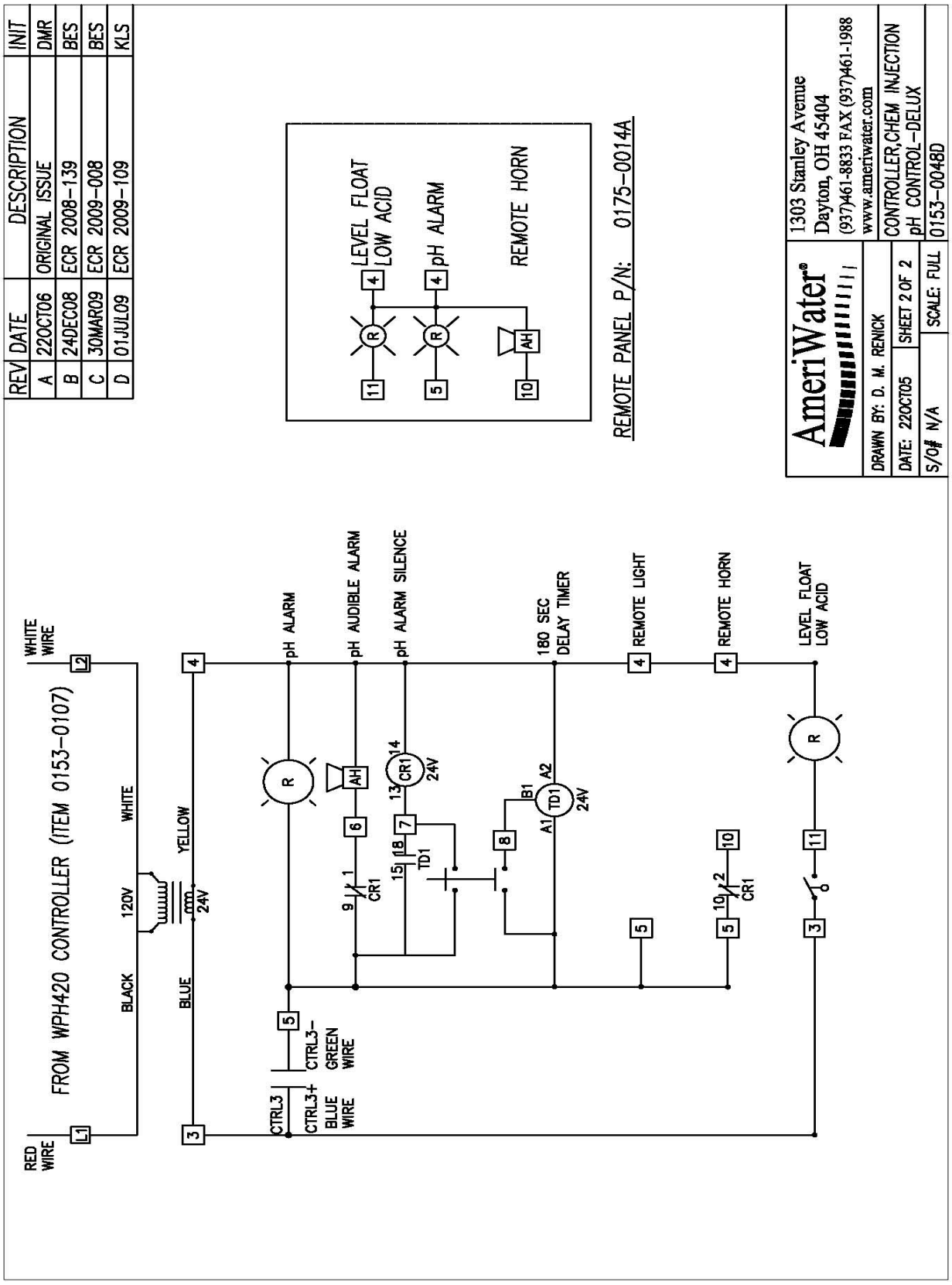
AWI P/N	ITEM#	QTY	DESCRIPTION
64—0003	7	1	TIMER,OFF—DELAY,.15—3MIN,AB
64760228	6	1	RELAY,OMRON,24VAC,14PIN,4PDT
62760177	5	1	TRANSFORMER,120—24V,40VA
65760206	4	1	HORN PIEZO 24VAC CONT.,85DB
65511224	3	2	LIGHT RED PILOT AB 24V
65511220	2	1	SWITCH,PB,MOM,NO,AB,BLACK
65511230	1	1	SWITCH,CONTACT,NO,AB

AmeriWater®
1303 Stanley Avenue
Dayton, OH 45404
(937)461-8833 FAX (937)461-1988
www.ameriwater.com

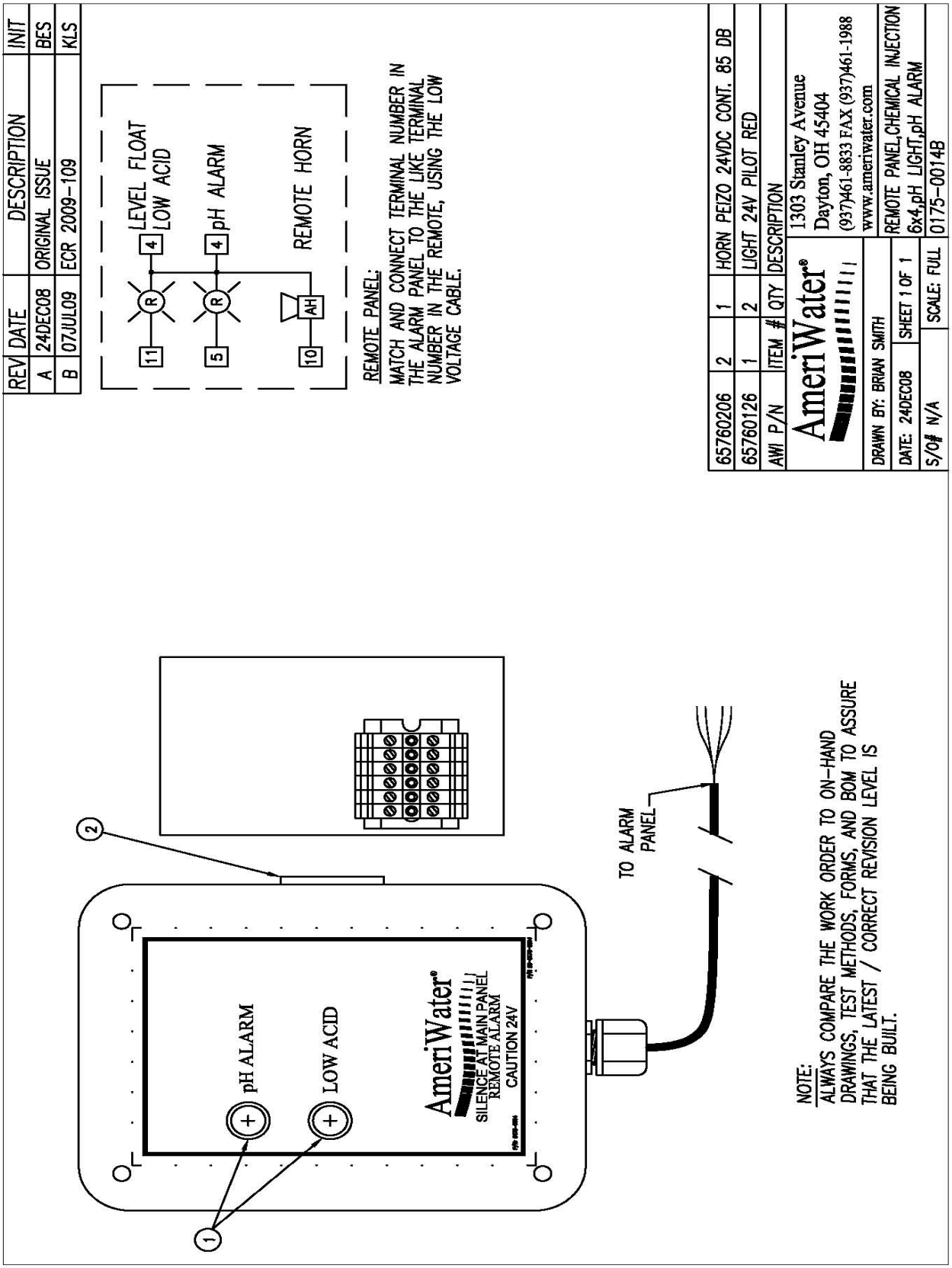
DRAWN BY: D. M. RENICK
DATE: 22OCT05 | SHEET 1 OF 2
S/O# N/A | SCALE: FULL

CONTROLLER,CHEM INJECTION
pH CONTROL—DELUX
0153—0048D

ALARM PANEL-SHT2



REMOTE PANEL-NURSE'S STATION



SECTION 9, SUPPLEMENTS

SUPPLEMENT 1- WPH CONTROLLER MANUAL

SECTION 9, SUPPLEMENTS

SUPPLEMENT 2- PUMP MANUAL

⚠ WARNING

This product can expose you to chemicals such as vinyl chloride (used in the production of PVC) or Nickel (used in the production of stainless steel), that are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Dear Valued Customer,

California Proposition 65 (Prop 65) is the Safe Water and Toxic Enforcement Act of 1986. The State of California began enforcing amendments to California Prop 65 at the end of August 2018. Prop 65 requires manufacturers to provide a clear and reasonable warning to residents of California about chemicals used in products that they purchase that are included on the Prop 65 Chemical List. The chemicals included on the list are chemicals that are known to the State of California to cause cancer, birth defects, or other reproductive harm. One such chemical is Vinyl Chloride, a compound used to produce Polyvinyl Chloride (PVC). The AmeriWater system you have purchased may contain PVC or stainless steel parts.

While warnings are only required in the State of California, AmeriWater has initiated the use of Prop 65 labeling for all products to ensure compliance with California regulations. Please note that the above warning does not necessarily mean that the product that you have purchased is unsafe. Products that have been cleared for market by FDA have been determined to be safe and effective by the United States Food and Drug Administration. The warning is simply a requirement by the State of California. If you wish to obtain additional information, please visit: p65warnings.ca.gov. You may also contact your AmeriWater representative if you have any questions.

Thank you for your understanding and we look forward to continuing to serve you.