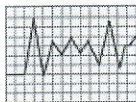
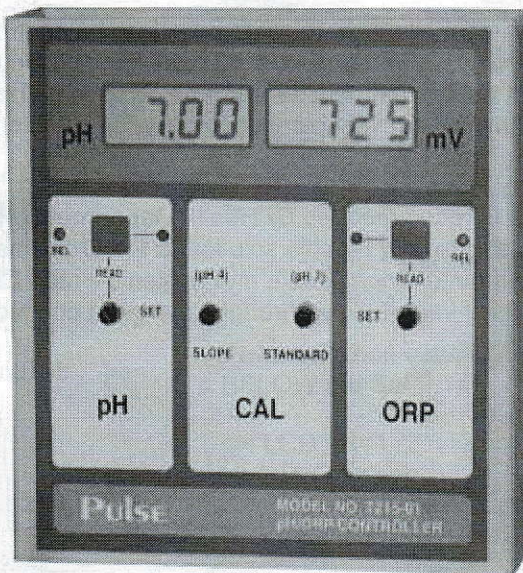


pH and ORP Monitor/Control Model 7215-01



PULSE INSTRUMENTS

16117, Covello Street, Van Nuys, CA 91406. Phone 818.909.0800 Fax 818.909.7057
Website: www.pulseinstruments.net

Introduction:

- Simultaneous display of pH and ORP
- Simultaneous control of two pumps/valves
- 115/220 VAC (Internally selectable)
- Heavy Duty 10 Amp at 115VAC Relays

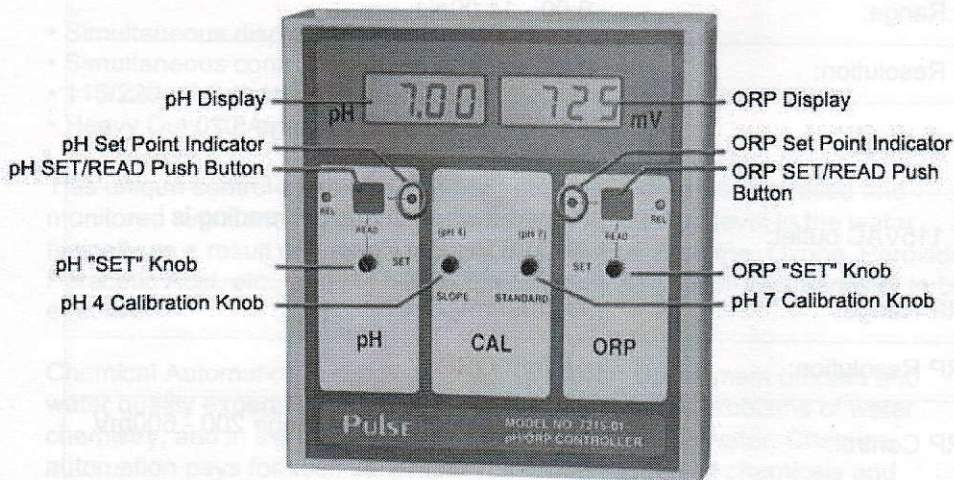
This unique control system allows both pH and ORP to be controlled and monitored simultaneously. ORP measures the oxidation level in the water typically as a result of water treatment by Chlorine, Bromine, Ozone, Peroxides, Peracetic Acid, etc., and pH allows optimum conditions for the chemistry to be effective.

Chemical Automation is recommended by Health Department officials and water quality experts as the only reliable solution to the problems of water chemistry, and in the maintenance of safe and hygienic water. Chemical automation pays for itself very rapidly, through savings in chemicals and maintenance.

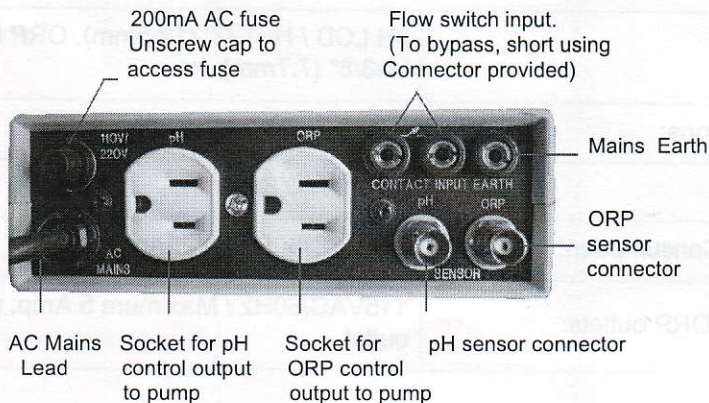
Features:

pH Range:	0.00 - 14.00pH
pH Resolution:	0.01pH
pH Control:	Adjustable set point in range 5.20 - 10.00pH
pH 115VAC outlet:	Powered when actual pH reading is ABOVE the Set Point
ORP Range:	+/- 1999mV ORP
ORP Resolution:	+/-1mV ORP
ORP Control:	Adjustable set point in range 200 - 600mV (can be modified)
ORP 115VAC outlet:	Powered when actual ORP reading is BELOW the Set Point
Display:	pH LCD / H=1 1/2" (12.5mm), ORP LCD / H=3/8" (7.7mm)
Dimensions:	6.2x 6.7x 2.2" (WxHxD)
Weight:	1.7Lbs. / 0.8kg
Power Consumption:	115VAC/60Hz / 0.25Amp
pH and ORP outlets:	115VAC/60Hz / Maximum 5 Amp. per outlet

Front Panel Description:



Terminal Panel Description



Installation of the Control Panel

Mounting and Location

Mount the control panel on a secure stand, bracket, or wall using the mounting feet provided. Location of the instrument panel should be determined according to process layout, keeping in mind that it is preferable to locate the instrument panel in a dry environment whenever possible.

The control panel should be accessible for routine maintenance, and easy viewing of the front digital display. It should also be located with enough space underneath of at least two feet for mounting the Injection Manifold, along with the switches and cables.

Electrical and Power

The control panel requirements are **115 VAC at 10 Amps**. The panel is supplied with a three prong grounded plug. Extra attached loads such as valves, mixers, and other such devices should be accounted in the total electrical requirements.

WARNING: To reduce the risk of electrical shock, the control panel must be plugged into a grounded outlet with ratings conforming to the requirements of the control panel, and any other electrical loads connected to it. The panel should be connected to a good ground. **DO NOT USE ADAPTERS!** All wiring must conform to local electrical codes.

Flow Switch

There is a flow switch drop cord at the bottom of control panel. If the drop cord is not connected to anything, then pH and ORP control will be interrupted. We have a shorted male power cord connected to the drop cord to simulate flow.

Configuration / Setup

To set up a new unit, first check that power supply connections are correct, the outlet is 110VAC, and that connection and power sources are free of any ground loops, inductive loads or magnetic fields. Shared loads on same circuit may cause interference, and therefore a clean power circuit is recommended. Also, when using AC supply, ensure that a 3-way grounded main lead is used to connect unit.

Calibration

pH Calibration

Before first use, and periodically thereafter, it is necessary to check and adjust match between pH electrode and instrument. pH electrodes deteriorate slowly with age and use. They must be periodically re-fitted to the instrument with which they are used.

- Rinse the pH electrode with distilled or tap water and immerse in buffer 7.00. Ensure that the pH set switch is in the read mode. Adjust the STANDARD knob until the display reads 7.00.
- Rinse the pH electrode with distilled or tap water and immerse in buffer 4.01. Adjust the SLOPE knob until the display reads 4.01.
- Repeat steps 1 and 2 as often as necessary until no further adjustment of the STANDARD and SLOPE knobs is required.

ORP Calibration

ORP electrodes age in a similar fashion as pH electrodes do, but there is no specific calibration procedure.

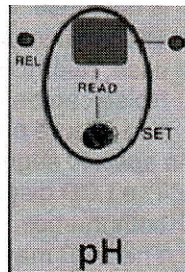
Note: ORP is a linear relationship to oxidizer concentration, and therefore does not go out of calibration. The solution is provided to diagnose any electrode contamination or failure.

Control Set Points

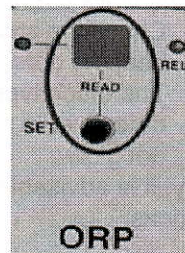
The logical action of pH control is to make the process more acidic (lower pH number). Therefore, when the measured process value is above the pH set point, the control will supply voltage to the pH socket and your acidifying mechanism. Power is removed when the pH value reaches or drops below the set point.

The logical action of the ORP control is to raise the mV value of the process. Therefore, AC power is supplied to the ORP socket as long as the mV value is below the set point and is disabled when the mV value is at or above the set point. The two sockets are powered in reverse sense from one another. The pH socket turns off below its' numerical set point. The ORP socket turns off above its' numerical set point.

1. Press the pH SET/READ push button and the set point indicator light will come on, which indicates and displays the set point value on the pH display.
2. While pressing the pH SET/READ button, adjust the SET knob to the desired pH set point.
3. Release the button after the set point is adjusted.



4. Press the ORP SET/READ push button and the set point indicator light will come on, which indicates and displays the set point value on the ORP display.
5. While pressing the ORP SET/READ button, adjust the SET knob to the desired ORP set point.
6. Release the button after the set point is adjusted.



Maintenance

Electrode Cleaning

pH and ORP electrodes are both cleaned the same way. Take a 1:10 diluted solution of acid to water in a cup, and place the electrode front tip in the solution at least two inches deep, for minimum five to fifteen minutes. Rinse the tip and re-check the calibration.

Fault finding in electrical/electronic hardware

1. *If display is totally off:*
 - a. Check the glass cartridge type mains fuse of 0.2Amps accessible externally near the mains lead inlet.
 - b. If the fuse is OK, check the transformer primary using a multi-meter. If open, then the transformer has to be changed.
2. *If the display is giving erratic/wrong reading:*
 - a. Check sensor. Also check the BNC coupling of the sensor lead. Ensure it is not loose.
 - b. The input interface of the instrument may have been affected. In such a case, refer to supplier.
 - c. Noise can be reduced using an external spike buster in the mains supply and ensure proper earthing.
3. *If a specific segment/digit of the LCD display is not working:*
 - a. The LCD display may be loose in socket. Press the LCD very lightly with both thumbs.
 - b. The LCD may be defective and can be changed in the socket.
4. *If the limits cannot be set:*
 - a. Check the smooth motion of the pots on the front panel. They may have become defective due to external contamination.
 - b. The touch type press switch for reading "Set" value may have become defective. In such a case, the Green LED adjacent to the switch will also not glow

Generally, it is advisable to consult the supplier before trying any hardware modifications.