Instruction **Manual**

- MICRO-PH1

pH MONITORING & DOSING CONTROLLER

Supplied by:

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Note: On-going product development at Convergent Water Controls may lead to changes in the specifications of this product.

Warranty: This product is guaranteed for a period of 12 months from installation date. The warranty applies to manufacturing or component defects which may cause the unit to malfunction under specified conditions. The guarantee does not cover damage due to abuse, tampering or improper installation.

Disclaimer: Convergent Water Controls will not be held liable for any consequential damage or loss arising resulting from product malfunction.

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1. INTRODUCTION

The MICRO-PH1 measures and controls the pH as read by a pH electrode and can be programmed to dose either an acid or a base.

When acid is dosed into a measured solution, it will cause a decrease in pH. Similarly, when base is dosed, it will cause an increase in pH.

When a dosing pump, injecting acid, is connected to the MICRO-PH1, the pump will dose when the pH rises above the setpoint and will continue to dose until the pH drops below the setpoint.

When a dosing pump, injecting base, is connected to the MICRO-PH1, the pump will dose when the pH drops below the pH setpoint and will continue to dose until the pH rises above the pH setpoint.

Components of a pH Control System are:

1. pH controller (eg. MICRO-PH1)
2. pH probe (eg. IH20) & probe holder (eg. PRM-H2-V)
3. Suitable Dosing pump (eg. LMI)

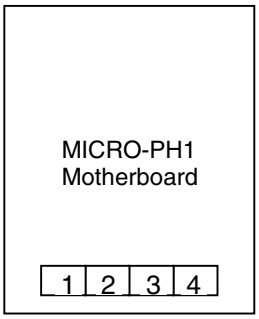
2. INSTALLATION

2.1 Mounting the Controller

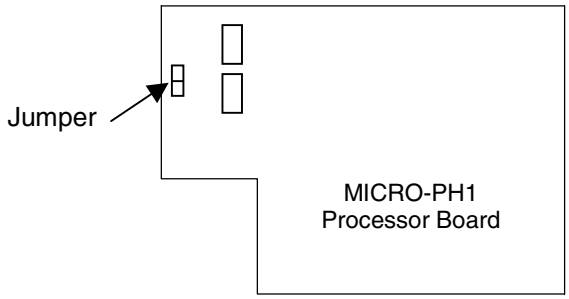
Mount the MICRO-PH1 on a flat vertical surface away from extreme heat, humidity or areas where temperature variations are extreme, ideally at eye-level to allow good visibility of the LCD display. Also ensure that a 240VAC mains power point is located nearby.

2.2 Electrical Wiring Information

The diagrams below show the Motherboard of the controller (in the base of the box) and the Processor Board of the controller (in the lid of the box).



1. Active 240VAC supply
2. Neutral 240VAC supply
3. Active for Pump
4. Neutral for Pump



NOTE: The jumper indicated above should be positioned to bridge the 2 adjacent pins.

2.3 Probe Installation

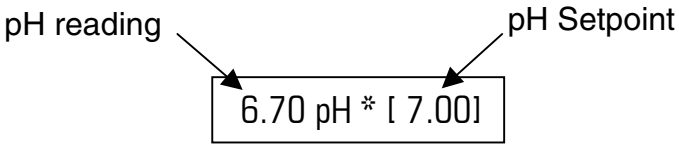
The pH electrode is the heart of the system. Please take extra care in determining the type and location of the probe. The pH electrode has a high output impedance and is susceptible to interference if not installed correctly.

Plan the installation such that the pH electrode is as close as possible to the controller. If the probe needs to be located further away from the pH controller, an extension cable must be obtained. The further the probe is away from the controller, the greater the effect of electrical interference will be. This may degrade the signal from the probe and causes incorrect readings. Never attempt to extend the probe cable by means of a terminal block or soldered connection. This will leave the connection open to interference or moisture, which will affect the accuracy of the system. Always have the connection (when using an extension cable) in a waterproof junction box.

3. COMMISSIONING

3.1 Start-Up

After power-up, the MICRO-PH1 controller is ready to perform pH indication and control. All the relevant information is displayed on the LCD display as explained below.



Display **during normal operation**: pH of solution as reported by pH probe as well as SETPOINT(shown between square brackets)

Display **during programming**: Programming information

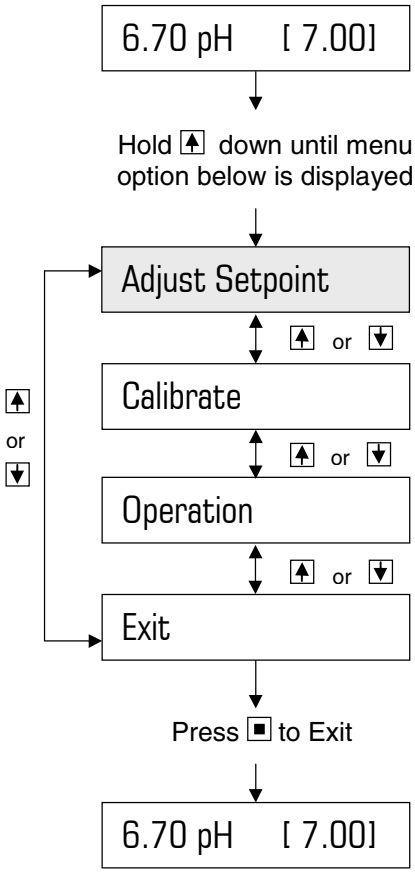
Note: Flashing * indicates that the pump is activated.

3.2 Calibration

If the pH reading appears to be incorrect, try cleaning the electrode tip first. Should calibration still be necessary, proceed to section 4.2.

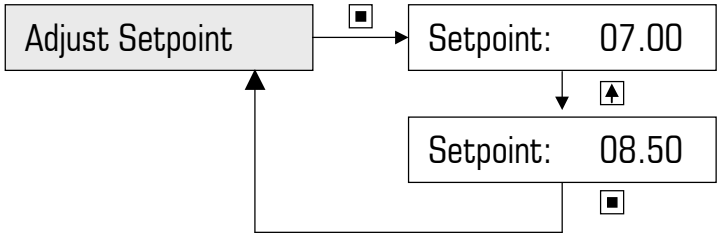
4. PROGRAMMING STEPS IN DETAIL

4.1 Adjust pH Setpoint



The pH setpoint is the desired pH value of the process.

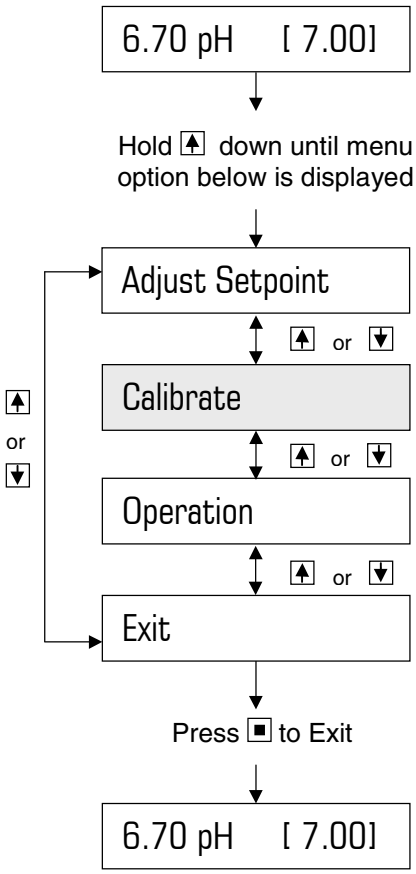
Example:
Increasing factory default setpoint of 7.00 pH to a new setting of 8.50 pH



pH on display:

- ▲ Press to Scroll Up in increments of 0.1
- ▼ Press to Scroll Down in decrements of 0.1
- ■ Press to Select/Enter

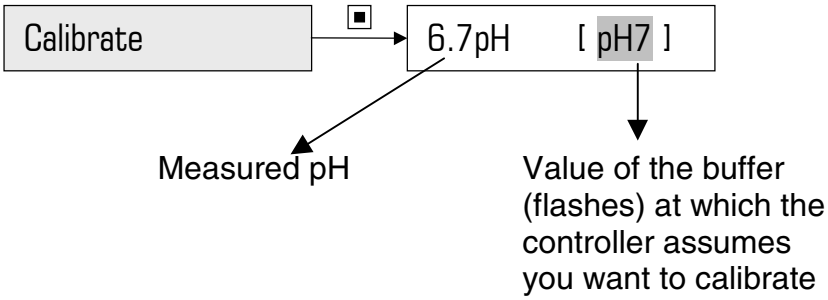
4.2 Calibrate



Buffer solutions of pH7 as well as pH4 (or pH10) are needed for calibration of this unit. **It is important to calibrate at pH7 first and then at either pH4 or pH10.**

Step 1

Place the probe into the buffer solution (pH7) and enter the calibration menu



Note: If the display shows [pH?] then the probe is not being inserted in buffer solution 4, 7 or 10.

Step 2

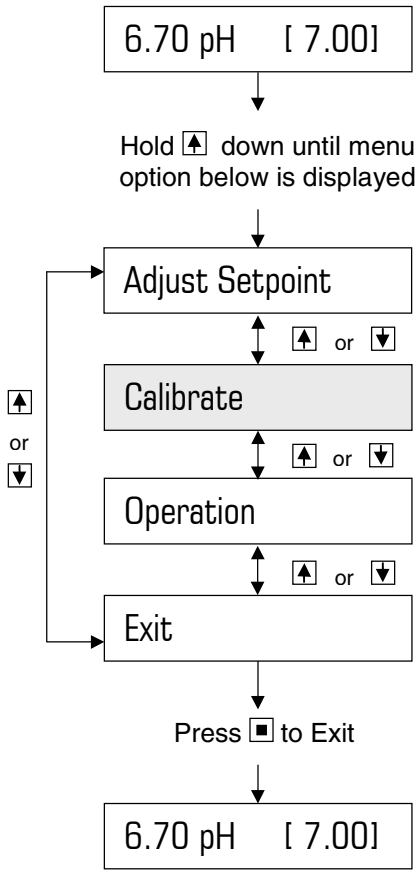
Wait for the measured pH reading to stabilise and check if the flashing value between the square brackets corresponds to the buffer solution. If this is true press the ■ button to calibrate the controller. The display should now read:

7.00pH [pH7]

Note: If the measured pH still deviates from that of the buffer, press the ■ button again and follow Step 2 again.

[Step 3 over page ..]

4.2 Calibrate (continued)



Step 3

Immerse the probe in buffer solution of pH4 or pH10. Wait for the measured pH reading to stabilise and check if the flashing value between the square brackets corresponds to the buffer solution. If this is true press the ■ button to calibrate the controller. The display should now read:

4.00pH [pH4]	or	10.00pH [pH10]

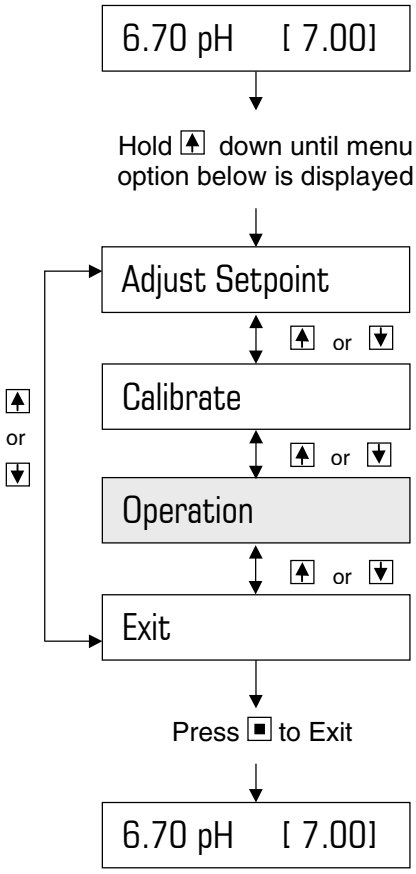
Note: If the measured pH still deviates from that of the buffer, press the ■ button again and repeat this step.

Step 4

Once calibration has been completed, press either ▲ or ▼ to revert back to normal mode, eg:

6.70pH [7.00]

4.3 Operation

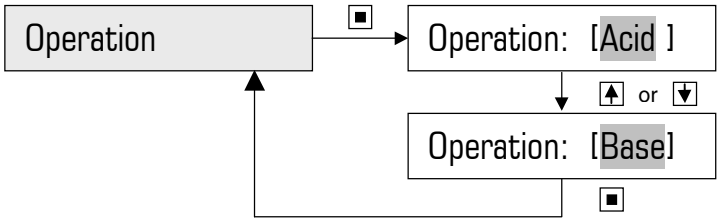


The controller can be programmed to respond to a rise or drop in pH. The controller is factory programmed to operate as a dosing controller, dosing acid via a dosing pump.

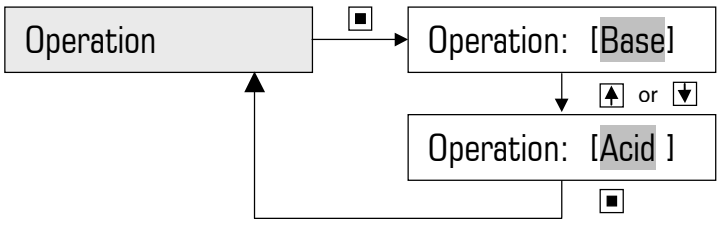
The two programmable options are:

Operation: [Acid] (factory default)
Operation: [Base]

Example 1 – dosing Base:
Changing factory default of Acid to Base



Example 2 – dosing Acid:
Changing Setting of Base to Acid.



5. FACTORY SETTINGS / PROGRAMMABLE OPTIONS

Item	Factory Setting	Option	Note
Setpoint	7.00 pH	0.10 to 13.99 pH	Desired system pH
Operation	Dose Acid	Dose Acid or Base	Either Acid or Base must be selected depending on what you are dosing.

6.SPECIFICATIONS

Power Supply:	220 – 240 VAC
Fuse:	2A/250VAC
Inputs:	pH Probe/Electrode (Optional) Earth Probe (Optional) Flow switch and low tank level options available on request
Standard Outputs:	240VAC applied to Pump Output – 5 Amp rated.
Measured pH Resolution:	0.1 pH
Controller Enclosure rating:	IP55 (ie. completely weatherproof)
Operating Temperature:	0 - 50°C
Memory backup:	EEPROM. Data retention of 10 years min.