

## Operation Manual

# **AQUA MEDIC** pH - Computer

**With the purchase of this digital measuring and control equipment you have selected a top quality product. It has been specifically designed for aquaristic purposes.**


**With this unit, you can continuously measure and control the pH value of the water in your aquarium.**

## 1. Basics

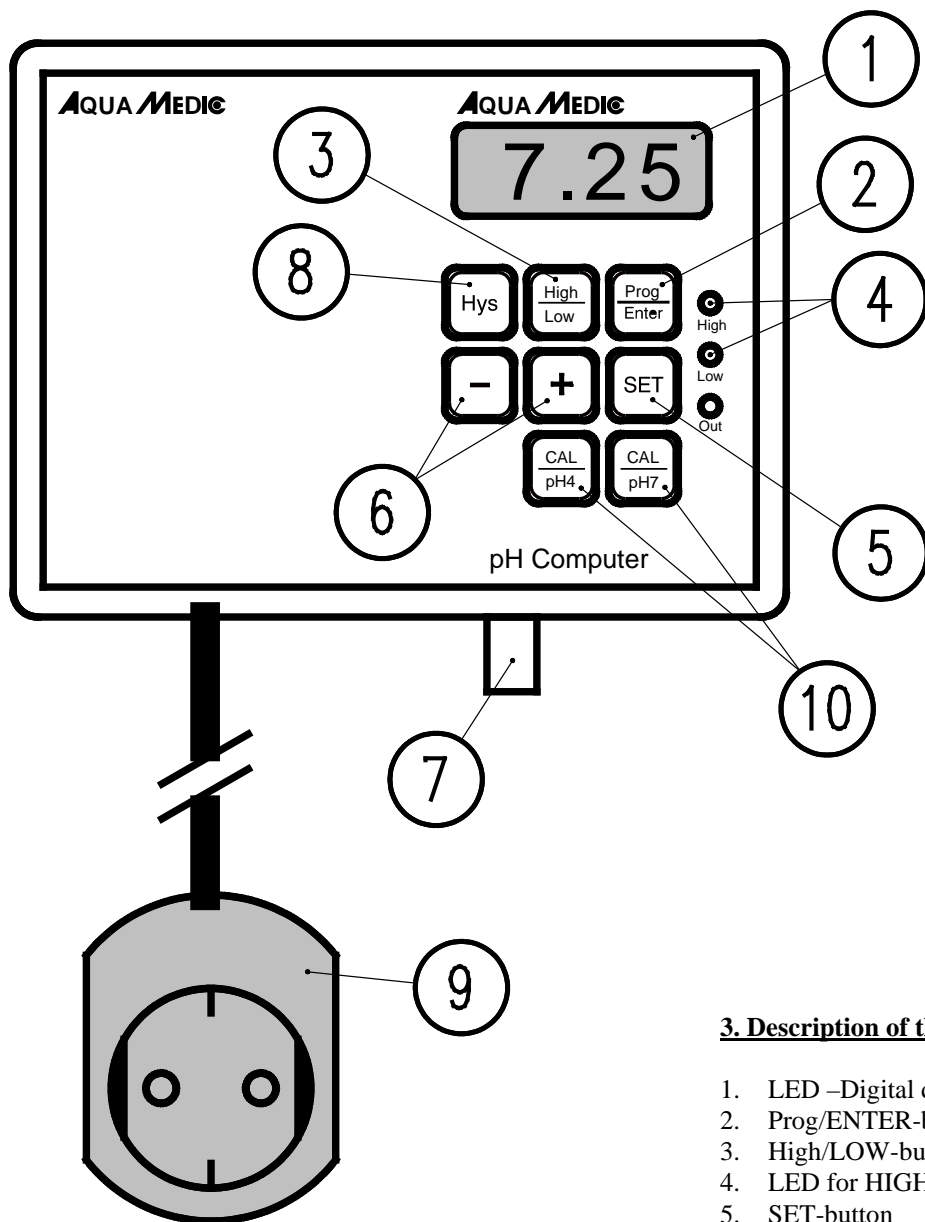
In fresh water aquariums, the pH value decides on the percentage of free carbonic acid. The carbonic acid fertilisation is the basis for a well thriving plant population. The pH-Computer maintains the set pH value automatically by the addition of carbon dioxide.

The pH value and the regulating of carbonic acid is of special interest in sea water aquariums when used in conjunction with a calcium reactor. The pH-Computer can be used to regulate the input of carbonic acid.

## 2. Features

 **AQUA MEDIC** Computers are microprocessor controlled units. They are safe, reliable and meet all the requirements of professional measuring and regulating devices.

<b>Technical Data</b>	
<b>Micro-processor controlled</b>	
<b>Power requirements</b>	230 V/50 Hz
<b>Output relay-controlled</b>	230 V, 5 A, 1000 W
<b>pH range:</b> <b>Measurement, display</b> <b>control range</b>	pH 0-14, resolution pH 0.01 pH 3-11
<b>control mode</b>	on/off
<b>Hysteresis</b>	adjustable
<b>Adjustment direction</b> <b>adjustable</b>	downwards. The pH value is brought down by acid injection. upwards. The pH is raised by the additon of Hydroxide
<b>Sensor</b>	Plastic probe with Polysulfon shaft, refillable. Option: glass probe
<b>Data memory</b>	(power loss protection)



### 3. Description of the front plate

1. LED –Digital display
2. Prog/ENTER-button
3. High/LOW-button
4. LED for HIGH/LOW Status display
5. SET-button
6. + and - button
7. BNC-connection for electrode
8. HYS-button for adjustment of the hysteresis
9. Connection plug
10. calibration buttons

### 3. Installation

1. Connect to 230 V power source.
2. Connect the mV-probe.

The unit is now ready for programming

### 4. Adjustment of the control direction.

The status of the control direction is shown by the LEDs at the side(4):

**Low** – an adjusted minimum set point is controlled by the addition of an oxidising agent ( e.g. ozone). The direction of control is upwards. **This is the standard mode for controlling the pH in freshwater aquariums or in Calciumreactors in reef aquariums by the addition of CO<sub>2</sub>.**

**High** – an adjusted maximum set point is controlled by the addition of an reducing agent. The direction of control is downwards.

To change the control mode between **High** and **Low**, press the **Prog/Enter** and the **High/Low** button simultaneously. The actual mode is shown by the LEDs (4).

## **5. Adjusting the set point**

To adjust the set point, press the **Prog/Enter** and the SET buttons simultaneously. The adjusted set point is now shown on the display – flashing. It can be changed with the + and – buttons. By pressing the **Prog/Enter** button again, the set-point is saved and the display switches back to the actual value.

## **6. Adjusting the hysteresis**

The hysteresis is the range between switching on and off. If the set point is adjusted to pH 7.00 and the hysteresis is set to 0.05 pH, the unit switches on if the set point of pH 7.00 is reached and after reaching 6.95, it switches off again. We do not recommend to adjust the hysteresis to very low values, e.g. 0.01 pH, because this will result in too frequent switching. A good value for the hysteresis is 0.05 pH.

To adjust the hysteresis, press the **Prog/Enter** and the Hys buttons simultaneously. The adjusted hysteresis is now shown on the display – flashing. It can be changed with the + and – buttons. By pressing the **Prog/Enter** button again, the value is saved. and the display switches back to the actual value.

## **7. Sensor calibration**

### Calibration

The standard pH 7 and pH 4 calibrating fluids are used to calibrate the pH probe.

### **pH 7.00**

1. Clean the pH probe in distilled water.
2. Place the probe in the pH 7 calibrating fluid.
3. Press the **Prog/Enter** button and the **Cal 7** button simultaneously – the display is flashing and is set to pH 7.00.
4. After 30 seconds, the calibration is completed and the indicator stops flashing. The pH value of the calibration fluid is shown.

NOTE: Pay attention to the temperature. If necessary, measure the temperature of the calibration fluid.

### **pH 4.00**

1. Clean the pH probe in distilled water.
2. Place the probe in the pH 4 calibrating fluid.
3. Press the **Prog/Enter** button and the **Cal 4** button simultaneously – the display is flashing and is set to pH 4.00.
4. After 30 seconds, the calibration is completed and the indicator stops flashing. The pH value of the calibration fluid is shown.

NOTE: Pay attention to the temperature. If necessary, measure the temperature of the calibration fluid.

For continuous measurement the pH probe must be securely placed 5 cm below the surface of the water and the shaft has to be kept dry (we recommend the AQUA MEDIC electrode holder).

The unit is now ready for use. As soon as the pH value exceeds the desired adjusted value, the unit activates the power plug.

## 8. Probe

The **AQUA MEDIC** probe is specifically designed to determine the pH value in fluid based solubles. It can be used in the chemical industry, medical areas and in research laboratories.

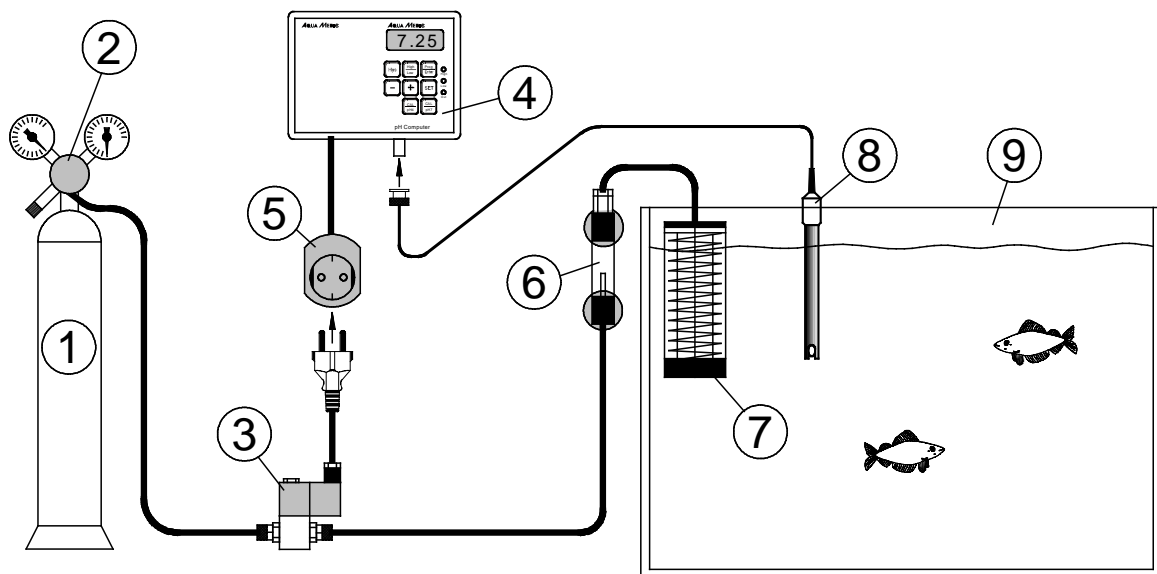
### 8.1. Technical Data

Measurement range: pH 0 - 14  
Sample temperature: 5 - 60°C, short-term

Connection: BNC-plug  
Material: Plastic shaft, Polysulfon


### 8.2. Measurement/Maintenance

- A. The tip of the probe must continuously be submerged in the solution while measuring.
- B. A new probe or one which has been dry for a longer period must lay in water for at least 24 hours.



- 1. CO<sub>2</sub> -bottle
- 2. pressure regulator
- 3. Solenoid valve
- 4. pH Computer
- 5. Connection plug
- 6. bubble counter
- 7.CO<sub>2</sub>-reactor
- 8. pH electrode
- 9. Aquarium

## **9. Set up of a complete pH control system at the aquarium**

With the pH computer, a complete pH control can be realised at the aquarium. For this, you need in addition to the pH computer, an  **AQUA MEDIC** solenoid valve, and an **ab CO<sub>2</sub> complet** set. This contains the steel bottle for CO<sub>2</sub>, the pressure regulator **regular**, the bubble **counter** and the CO<sub>2</sub> **reactor** to introduce the CO<sub>2</sub> into the aquarium.

The CO<sub>2</sub> unit is mounted following the instructions. Between the CO<sub>2</sub> bottle and the bubble counter, the solenoid valve is mounted close to the pressure regulator. The solenoid valve is inserted into the connection plug of the pH computer. The computer is programmed and calibrated, following the instructions. The pH probe is fixed in the aquarium at a dark and good circulated place. As soon as the pH in the aquarium raises above the adjusted set point, the computer opens the solenoid valve and CO<sub>2</sub> is injected into the aquarium via the CO<sub>2</sub> reactor.

If the adjusted set point is reached, the solenoid valve closes and the CO<sub>2</sub> addition stops. The adjustment of the needle valve at the pressure regulator should not be at a too high bubble count. It should be adjusted in a way, that, even if the solenoid valve fails ( e.g. due to clogging by dirt) the pH value in the aquarium does not decrease to critical values.

## **10. Malfunctions**

- The unit indicates incorrect values --> calibrate the probe.
- The probe cannot be calibrated:
  - > check glass probe for damage,
  - > check the content of electrolytes on the refillable probe,
  - > replace the probe (average probe lifespan is 1-3 years).

## **11. Warranty**

Measuring unit:

We guarantee 12 months on material defects.

Probe:

We guarantee 6 months on material defects after the first installation but a maximum of 12 months from factory.

Warranty only by proof of purchase by the original invoice.

- Technical changes reserved -