

# Aquatronica

Instruction Manual



## pH Interface ACQ210N-PH



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The pH value in aquariums is one of the most important chemical values. In fact, it supplies an important indication on the concentration of acid or base elements in the aquarium's water.

The pH level is neutral when it has a value of 7, which increases if base components predominate (base  $\text{pH} > 7$ ) and decreases if acid components predominate (acid  $\text{pH} < 7$ ).

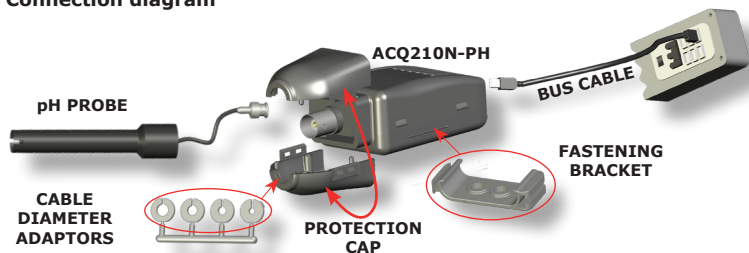
**Aquatronica's** pH Interface connects a pH electrode to the "Aquarium Controller" system to measure and control the pH in aquariums.

### Pack contents

You will find:

- One pH probe connection interface.
- One BUS cable for connecting the interface to the power unit.
- One bag of accessories containing: 1 fixing bracket – 1 kit of cable diameter adaptor  
1 guard – 2 fixing screws

### Connection diagram



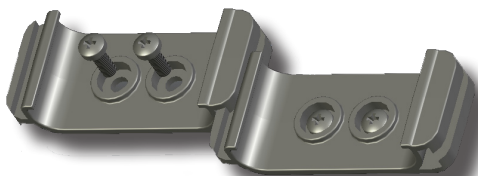
### Connection to "Aquarium Controller" system

1. Connect the pH probe's connector (BNC) to the interface (ACQ210N-PH).
2. Connect the pH interface to the power unit (or HUB) using the provided BUS cable.

**NOTE:** Insert the correct end of the connector into the power unit; inserting it in the other direction can seriously damage the equipment.

**ATTENTION:** For proper pH parameter reading, immerse the sensor in the aquarium 4-5 days before carrying out any programming. If the electrode was not protected in its preservation liquid when it was purchased, leave it in the aquarium for 6-7 days.

Thanks to the special shape of the box and fixing bracket, the interface can be fitted with others simply and very quickly, as seen below.



New device connected  
sensors

S01

pH \_\_\_\_\_

(Fig. 1)

After connection, the control unit will display a Plug-In screen (Fig. 1).

It may take several seconds for the control unit to recognize the connected interface.

**NOTE: The sensor's name can be changed using the control unit's keypad.**

If more than one of these sensors is connected, the user may assign different names for each one to facilitate menu navigation.

Mon 11/06/07 15:05

PU01 A B C D E F G H

pH 8.20

(Fig. 2)

## Displaying the read value

After the electrode has been connected through the appropriate interface, the values read by the electrode will be displayed on the main screen (Fig. 2).

If several sensors were connected, their values can be checked in order by pressing the  $\uparrow$  and  $\downarrow$  keys.

pH

Change Name  
Programs  
Data Record  
Alarm  
Calibrate Sensor

(Fig. 3)

## pH Menu

After the pH electrode and interface have been connected, the "pH" menu will appear in the "Main Menu" (Fig. 3), where all of its settings can be programmed.

All sensor menus have the same structure in order to make them more intuitive and simple.

pH \_\_\_\_\_

(Fig. 4)

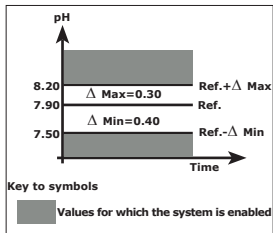
## Change name

This option modifies the name given to the sensor (Fig. 4).

To use this option, proceed as follows:

**Main screen**  $\Rightarrow$  **Main Menu**  $\Rightarrow$  **pH**  $\Rightarrow$  **Change Name**.

- Select the letter to insert using the  $\uparrow$ / $\downarrow$  keys and move within the word using the  $\leftarrow$ / $\rightarrow$  keys. When finished, press "Enter".



## Programs

This option is used to create programs based on the pH value.

To set up a program, the following must be established:

- A **reference value**, defined as the pH for the tank, which the system will aim to maintain.
- A **Δ Max value**, defined as the tolerance that must be observed with respect to values higher than the reference value.

For example: If the reference is set to 7.90 and the Δ Max is 0.30, the system will be enabled at values higher than 8.20 (see chart).

- A **Δ Min value**, defined as the tolerance that must be observed with respect to values lower than the reference value.

For example: If the reference is set to 7.90 and the Δ Min is 0.40, the system will be enabled at values lower than 7.50 (see chart).

To insert a program, proceed as follows:

**Main screen** ⇨ **Main Menu** ⇨ **pH** ⇨ **Programs**.

- Select "Insert" using the  $\uparrow\downarrow$  keys and press "Enter" (Fig. 5).

pH

Insert

(Fig. 5)

## Insert

To set this program, proceed as follows:

**Main screen** ⇨ **Main Menu** ⇨ **pH** ⇨ **Programs** ⇨ **Insert**.

- Select the reference pH value using the  $\leftarrow\rightarrow$  keys and set the desired value using the  $\uparrow\downarrow$  keys.

- Set the "ΔMIN" and "ΔMAX" tolerances; select the desired parameter using the  $\leftarrow\rightarrow$  keys and modify the value using the  $\uparrow\downarrow$  keys (Fig. 6).

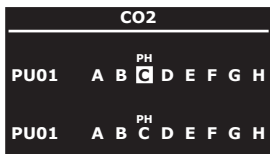
Now the devices that the system must enable/disable to maintain the reference value through the sockets must be defined. Proceed as follows:

- Select "Sockets" using the  $\leftarrow\rightarrow$  keys to choose how the outputs will function when the pH level goes above or below the set values. Then press "Enter".

- Select the output to be controlled using the  $\leftarrow\rightarrow$  keys. The selected output will blink on both lines.

Programs	
Ref.	7.90
ΔMIN:	ΔMAX:
0.40	0.30
Sockets	Confirm

(Fig. 6)



(Fig. 7)

The outputs on the upper line determine which devices must be enabled/disabled when the pH goes above the set maximum value (Ref. +  $\Delta$ MAX); the outputs on the upper line are set using the  $\uparrow$  key.

The example in (Fig. 7) shows enabling of the CO<sub>2</sub> solenoid valve on socket "C": pressing the  $\uparrow$  key once, the socket is highlighted and the pH symbol appears above it.

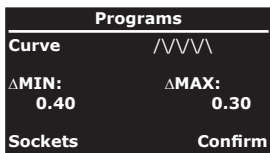
To disable a socket, press the  $\uparrow$  key a second time; in this case, only the pH symbol will appear above the selected socket.

The outputs on the lower line determine which devices will be enabled/disabled when the pH goes below the set minimum value (Ref. -  $\Delta$ MIN); the outputs on the lower line are set using the  $\downarrow$  key.

The example in (Fig. 7) shows disabling of the CO<sub>2</sub> solenoid valve on socket "C": only the pH symbol appears.

After the desired sockets have been set, press "**Enter**" to return to the previous menu (Ex. Fig. 6).

The "**Confirm**" field is automatically selected: by pressing "**Enter**" the inserted program is saved.



(Fig. 8)

If different pH values are desired based on the time of day, these can be set graphically.

To set this function, proceed as follows:

**Main screen**  $\Rightarrow$  **Main menu**  $\Rightarrow$  **pH**  $\Rightarrow$  **Programs**  $\Rightarrow$  **Insert**.

- Using the  $\leftarrow \rightarrow$  keys, select the pH reference parameter (**Ref.**). Using the  $\uparrow \downarrow$  keys, select "**Curve**" (Ex. Fig. 8).

Afterwards move to the /VVV\ symbol and press "**Enter**".



(Fig. 9)

A screen opens where the desired pH value can be graphically modeled over 24 hours (Ex. Fig. 9).

- Using the  $\leftarrow \rightarrow$  keys, select the time of day (in 2-hour intervals, lower left corner). Using the  $\uparrow \downarrow$  keys, modify the desired pH value (lower right corner) for the selected time. When finished, press the "**Enter**" key.

Do you want to  
modify or delete?

**Modify**  
Delete Program

(Fig. 10)

Do you want to  
delete this  
program?

Enter: Confirm  
Esc: Cancel

(Fig. 11)

Do you want to  
delete all of the  
programs?

Enter: Confirm  
Esc: Cancel

(Fig. 12)

### View/Mod/Del

In this menu the inserted programs can be viewed (View), modified (Mod) or deleted (Del).

To use this function, proceed as follows:

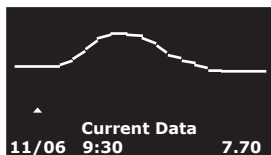
- Access the program to be modified or deleted by pressing "Enter" on the "View/Mod/Del" field.
- Use the  $\leftarrow \rightarrow$  keys to view the desired program (Ex. Fig. 8).
- Press the "Enter" key. The specific screen appears on the display (Fig. 10).
- Select "Modify" using the  $\uparrow \downarrow$  keys to modify the program or change the desired parameters. Then press "Enter" to confirm the changes.
- Select "Delete Program" using the  $\uparrow \downarrow$  keys to delete the program. The delete screen will appear (Fig. 11). Press "Enter" to delete or "Esc" to cancel.

### Delete All (Fig. 12)

In this menu all of the programs inserted in the menu can be deleted at one time.

To use this function, proceed as follows:

- Select "Delete All" using the  $\uparrow \downarrow$  keys and press "Enter". The delete screen will appear. Press "Enter" to delete or "Esc" to cancel.



(Fig. 13)

## Data Record

The Data Record graphically displays variations in the pH during the previous 24 hours with a minimum interval of 30 minutes (Ex. Fig. 13).

To display the data, proceed as follows:

**Main screen** ⇨ **Main Menu** ⇨ **pH** ⇨ **Data Record**.

- Using the  $\uparrow\downarrow$  keys, select the maximum (MAX), minimum (MIN) or current pH. Using the  $\leftarrow\rightarrow$  keys, move within the chart to view the pH of a given time. Press "**Enter**" when finished.

## Alarm

A visual or acoustic alarm can be set to notify the user if the pH level goes below or above the "**Less than**" or "**Greater than**" values (Ex. Fig. 14).

If the pH value exceeds these limits, the pH value on the main screen will blink if the alarm is set to "**No Sound**".

If the alarm is set to "**With Sound**", the value will blink, an acoustic signal will sound and the  $\square$  icon will appear on the main screen.

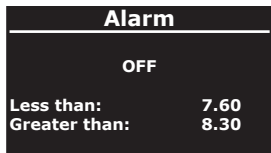
To program this function, proceed as follows:

**Main screen** ⇨ **Main Menu** ⇨ **pH** ⇨ **Alarm**.

- Select the desired option using the  $\uparrow\downarrow$  keys:  
**OFF** = alarm disabled  
**With Sound** = alarm and acoustic signal enabled  
**Without Sound** = alarm enabled and acoustic signal disabled

- Select "**Less than**" using the  $\leftarrow\rightarrow$  keys and then "**Greater than**" and with the  $\uparrow\downarrow$  keys program the desired pH to set the limits beyond which the alarm will be enabled.

After programming the various settings, press "**Enter**".



(Fig. 14)

## Calibrate Sensor

New  
Cancel

(Fig. 15)

Do you want to return to  
default calibration values?

Enter: Confirm  
Esc: Cancel

(Fig. 16)

Set reference and  
wait for adjustment

Read value 7.23

Calib. value 7.00

1/2

(Fig. 17)

Set reference and  
wait for adjustment

Read value 9.90

Calib. value 10.00

2/2

(Fig. 18)

Calibration OK

Press and key to  
continue

(Fig. 19)

## Calibrate Sensor

This menu allows you to calibrate the pH probe through the interface. By using the keys  $\uparrow\downarrow$ , you may choose whether to perform a new calibration by selecting "New", or to delete a previous one and reset the interface to the default settings by selecting "Cancel" (Fig. 16). The probe should be calibrated periodically in order to maintain precise readings.

**Note:** Before performing the calibration, the probe must be rinsed using tap water, dried carefully and inserted in the pH7 solution allowing it to stabilize for roughly 30 minutes.

In order to correctly calibrate the sensor, proceed as follows:

Main screen  $\Rightarrow$  Main menu  $\Rightarrow$  pH  $\Rightarrow$  Calibrate Sensor  $\Rightarrow$  New.

1) Select the function "New" by using the keys  $\uparrow\downarrow$  then press "Enter" (Fig 15).

2) Using the keys Set Ref.=7.00  $\uparrow\downarrow$  (if otherwise set) (Fig. 17).

3) Wait 5 minutes in order to allow the probe's read value to stabilize. The read value may stabilize on a value that is slightly different than the reference.

4) Once the 5 minutes have elapsed, press "Enter".

5) Remove the probe from the pH7 solution, rinse it using tap water, dry it carefully and insert in solution pH10 or pH4 depending on the type of application (I would change this freshwater/saltwater).

6) Using the keys Set Ref.=10.00 or 4.00  $\uparrow\downarrow$  (if otherwise set) (Fig. 18).

7) Wait 15 minutes in order to allow the probe's read value to stabilize. The read value may stabilize on a value that is slightly different than the reference.

8) Once the 15 minutes have elapsed, press "Enter".

9) The controller will display the calibration result (Fig.19); rinse the probe and insert in aquarium.

**Note:** the calibration may be cancelled at any time by pressing "Esc". This will return the calibration parameters to those of the last completed calibration.

## Aquatronica

FW version: x.y

Press any key to  
continue

(Fig. 20)

## Device Disconnected

S01: pH

(Fig. 21)

Mon 11/06/07 15:05

PU01 A B C D E F G H

pH ?

?

(Fig. 22)

## pH

Change Name  
Programs  
Alarm

**Disconnect**

(Fig. 23)

## Disconnect

pH

Enter: Confirm  
Esc: Cancel

(Fig. 24)

### About

Provides information on the control unit's firmware version.

To use this function, proceed as follows:

**Main screen** ⇨ **Main Menu** ⇨ **pH** ⇨ **About**.

### Disconnect

If the pH interface is disconnected, a message will appear on the display (Fig. 21). Press "**Enter**" to indicate that the message has been read.

On the main screen the "?" icon will appear next to the name of the "pH" sensor and in the lower left corner (Fig. 22).

If the pH interface is reconnected, the control unit will automatically begin displaying the read value again.

To definitively eliminate the pH sensor from the system, proceed as follows:

**Main screen** ⇨ **Main Menu** ⇨ **pH** ⇨ **Disconnect**.

The "**Data Record**" and "**Calibrate Sensor**" functions disappear from the "pH" menu (Fig. 23) and the "**Disconnect**" function appears.

- Select this function using the  $\uparrow\downarrow$  keys and press "**Enter**".

- The disconnection screen will appear (Fig. 24). Press "**Enter**" to disconnect or "**Esc**" to cancel.

## Suggestions for an accurate pH reading

Precise pH readings depend greatly on proper maintenance of the connected probe. Beyond its intrinsic qualities, how the probe is cared for is particularly important. This will, in fact, provide reliable readings. Below is a list of some simple suggestions for optimum pH readings in aquariums:

- Handle the electrode with care.
- Leave the probe in the aquarium for 4-7 days before calibrating it or carrying out any programs.
- Never leave the probe out of the water; if not used, store it in a pH7 buffer solution (never store the probe in distilled or reverse osmosis water).
- Periodically wash the probe with tap water to eliminate any deposits.
- To keep the electrode working properly, clean it using the special Aquatronica solution.
- Periodically calibrate the instrument (approximately every month as indicated to previous pages) to correct any reading imperfections due to probe wear.
- Aquatronica offers three different calibration solutions: pH4, pH7, pH10. Use the pH4 and pH7 solution for soft water aquariums and the pH7 and pH10 solution for salt water aquariums.
- Never use calibration solutions that have been left open or have expired.
- Before and during the calibration phases, rinse the electrode with tap water and let it drip dry.
- Replace the probe at least once a year.
- Do not install the interface in contact with wet or damp parts.
- Do not immerse the electrode completely in water. The cable's seam must always be approximately 2 cm above the water.

### IMPORTANT

**For reliable pH readings, use only AQUATRONICA electrodes.  
The use of other brands of electrodes could cause incorrect  
readings of the instrument.**

**NOTE: in case of malfunctions or any doubts about the use of this interface, please contact AQUATRONICA'S free Technical Assistance.**

## DISPOSAL OF ELECTRIC AND ELECTRONIC PARTS

Pursuant to Article 13 of Legislative Decree No. 151 of 25 July 2005, "Implementation **of Directives 2002/95/CE, 2002/96/CE and 2003/108/CE, regarding the reduction in use of dangerous substances in electrical and electronic equipment, as well as waste disposal**":



Products bearing the barred dustbin symbol must be disposed of separately from other waste. The user must therefore dispose of the product in question at suitable recycling centers for electronic and electro-technical waste, or he/she must turn over the used product to the retailer when buying a new equivalent product, on a one-to-one basis.

Separate waste collection allows used equipment to be recycled, treated and disposed of without negative consequences for the environment and health, and it allows the materials in the equipment to be recycled. Illegal dumping of the product by the user entails the administrative sanctions stated in Legislative Decree No. 22/1997 (Article 50 et seq of Legislative Decree No. 22/1997).



Separate collection of used products and packaging allows materials to be recycled and used again. Reuse of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.

Local regulations may provide for the separate collection of household appliances at municipal waste sites or retailers when a new product is purchased.



# Declaration of Conformity

## DECLARATION OF CONFORMITY



Standard of reference ISO/IEC Guide 22 and EN 45014

**Number of conformity: 005-2007/E**

Name of the manufacturer: **Aquatronica division of A.E.B. srl**  
Address: via dell'Industria, 20  
Corte Tegge  
42025 Cavriago (RE) Italy

### DECLARES THAT THE ELECTRONIC UNITS

Code: **ACQ210N-RX** (REDOX sonde interface)  
**ACQ210N-PH** (PH sonde interface)  
**ACQ210N-TL** (temperature and level sonde interface)  
**ACQ210N-MS** (conductibility sonde interface)  
**ACQ210N-D** (density sonde interface)  
**ACQ210N-WL** (water-leakage sonde interface)

### ARE IN COMPLIANCE WITH THE FOLLOWING PRODUCT SPECIFICATIONS:

FIELD	Directive	Description	References	Test Result
EMC	2004/108/EC	EMC directive	Official Journal of the European Union L390 December 31 2004	applied

**THEREFORE THEY ARE IN COMPLIANCE WITH THE REQUISITES OF THE CE MARK**  
*The equipment was checked in a typical working configuration*

Place of issue: **Cavriago (RE) Italy**

Date of issue: **12/04/07**

**The A.E.B. srl legal representative**  
Paterlini Ivan

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