

# Aquatronica

Instruction Manual 

## Redox Interface (ORP) ACQ210N-RX



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**NEW INSTRUCTION VERSIONS CAN BE FOUND ON OUR WEBSITE.**

Redox, known to many as ORP (Oxidation Reduction Potential) provides a general indication of the biochemical conditions of the water in aquariums. This value is measured in mV and indicates whether the aquarium is in a state of oxidation (Value > 0) or reduction (Value < 0).

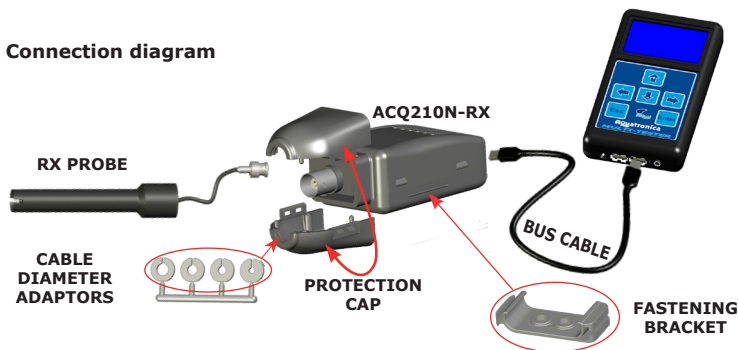
**Aquatronica's** Redox Interface connects a Redox electrode (ORP) to the "Multitester" system to measure and control the oxidation reduction potential in aquariums.

## Pack contents

You will find:

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

## Connection diagram



## Connection to "Multitester" system

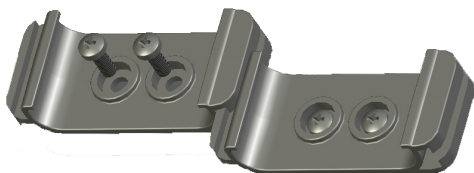
1. Connect the Redox probe's connector to the interface (ACQ210N-RX).
2. Connect the Redox interface to the Multitester (or HUB) using the provided BUS cable.

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

**ATTENTION:** For proper Redox 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.

## English

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 Sensor  
**S01**

Redox

(Fig. 1)

After connection, the control unit will display a Plug-In screen (Fig. 1), where a name can be assigned to the connected sensor.

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

Redox 450mV

A B

(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.

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

Redox

Change Name  
Programs  
Data Record  
Alarm  
Calibrate Sensor

(Fig. 3)

### Redox Menu

Once the electrode and interface are connected, the "Redox" menu will appear in the "Main Menu", where all of its settings can be programmed.

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

Redox

(Fig. 4)

### Change Name

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

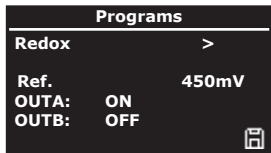
To use this option, proceed as follows:

Main screen  $\Rightarrow$  Main Menu  $\Rightarrow$  Redox  $\Rightarrow$  Change Name.

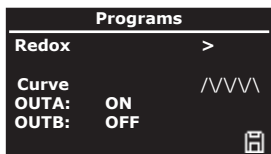
- Select the letter to insert using the  $\leftarrow \rightarrow$  keys and move within the word using the [figura] keys. When finished, press "Enter".



(Fig. 5)



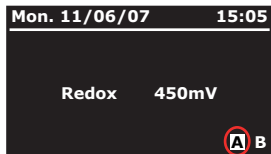
(Fig. 6)



(Fig. 7)



(Fig. 8)



(Fig. 9)

## Programs

According to the Redox value, activation/deactivation of the sockets of an Easy Plug (ACQ005), if any, connected to the multitester can be controlled.

To insert a program, proceed as follows:

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

- Set the condition necessary for implementing the program with the  $\uparrow\downarrow$  keys.

Possible conditions:


- > Greater than the reference value.
- < Less than the reference value.
- >= Greater than or equal to the reference value.
- <= Less than or equal to the reference value.

- Set the reference value to use, selectable using the  $\uparrow\downarrow$  keys, from two possible options:
  - Ref.: Reference expressed by a numeric value that can be modified using the  $\uparrow\downarrow$  keys (Fig. 6).
  - Curve: Reference expressed as a modifiable curve (Fig. 7).



In this case press **"Enter"** on the  $\wedge\vee\vee\wedge$  symbol to access the curve and change it as needed, as described hereunder:

Using the  $\leftarrow\rightarrow$  keys, select the time of day (in 2-hour intervals, lower left corner). Using the  $\uparrow\downarrow$  keys, modify the Redox value (lower right corner) for the selected time. When finished, press the **"Enter"** key (Fig. 8).

- Using the  $\leftarrow\rightarrow$  keys, select the output you want to control, while with the  $\uparrow\downarrow$  keys you can activate (ON) or deactivate (OFF) the selected outlet (Fig. 6 or 7).

- Using the  $\leftarrow\rightarrow$  keys, go to the  symbol in the bottom right corner and press **"Enter"** to save the program made.

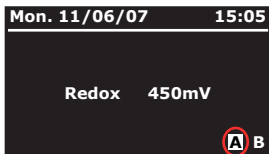
## Outlet status display

Icons	Description
	OUTA outlet activated (ON)
A	OUTA outlet deactivated (OFF)
	OUTB outlet activated (ON)
B	OUTB outlet deactivated (OFF)
(No Icon)	Outlet "Undefined"

The icons regarding the Easy Plug OUTA and OUTB outlets are displayed only after their activation/deactivation (ON/OFF) statuses have been defined according to a program pertaining to a connected sensor, and can be seen even with EASY PLUG disconnected.

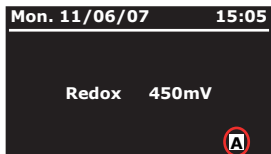
In the example shown in figure 1, both outputs have been defined (OUTA activated and OUTB deactivated), so they are visible on the main screen (Fig. 1).

If you should want to set the activated/deactivated status of only one of the two outputs, leaving the other one with the default setting (Undefined), the icon of only the defined outlet will appear on the main screen (Fig. 2).



(Fig. 1)

Active outlet



(Fig. 2)

Active outlet

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:

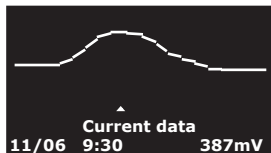
- Access the program to be modified or deleted by pressing **"Enter"** on the **"View/Mod/Del"** field.
- Use the  $\leftarrow \rightarrow$  keys to view the desired program (Ex. Fig. 8).
- Press the **"Enter"** key. The specific screen appears on the display (Fig. 10).
- Select **"Modify"** using the  $\uparrow \downarrow$  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 Redox 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** ⇒ **Redox** ⇒ **Data Record**.

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

### Alarm

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

If the Redox value exceeds these limits, the Redox value on the main screen will blink if the alarm is set to "**Without 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** ⇒ **Redox** ⇒ **Alarm**.

- Select the desired option using the  $\uparrow\downarrow$  keys:

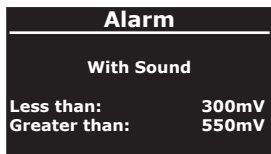
**OFF** = alarm disabled

**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 Redox 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 477mV

Calib. value 470mV

1/1

(Fig. 17)

Calibration OK

Press any key to continue

(Fig. 18)

Aquatronica

FW Version: x.y

Press any key  
to continue

(Fig. 19)

## Calibrate Sensor

This menu allows you to calibrate the Redox 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 Redox readings.

**Note:** Before performing the calibration, the probe must be rinsed using tap water, dried carefully and inserted in the Redox solution. Allow the probe to stabilize for roughly 15 minutes.

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

**Main screen**  $\Rightarrow$  **Main menu**  $\Rightarrow$  **Redox**  $\Rightarrow$  **Calibrate Sensor**  $\Rightarrow$  **New**.

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

2) Using the keys  $\uparrow\downarrow$  set the value of the standard solution next to "Calib. Value" (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 5 minutes have elapsed, press "Enter".

5) The controller will display the calibration result (Fig. 18); 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.

## About

Provides information on the control unit's firmware version.

To use this function, proceed as follows:

**Main screen**  $\Rightarrow$  **Main Menu**  $\Rightarrow$  **Redox**  $\Rightarrow$  **About**.

## Device Disconnected

S01: Redox

(Fig. 20)

Mon 11/06/07 15:05

?

(Fig. 21)

## Redox

Change Name  
Programs  
Alarm  
**Disconnect**

(Fig. 22)

## Disconnect

Redox

Enter: Confirm  
Esc: Cancel

(Fig. 23)

### Disconnect

If the Redox interface is disconnected, a message will appear on the display (Fig. 20). Press **"Enter"** to indicate that the message has been read.

On the main screen the **"?"** icon will appear next to the name of the **"Redox"** sensor and in the lower left corner (Fig. 21).

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

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

**Main screen** ⇒ **Main Menu** ⇒ **Redox** ⇒ **Disconnect**.

The **"Data Record"** and **"Calibrate Sensor"** functions disappear from the **"Redox"** menu (Fig. 22) and the **"Disconnect"** function appears.

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

- The disconnection screen will appear (Fig. 23). Press **"Enter"** to disconnect or **"Esc"** to cancel.

**Suggestions for an accurate oxidation reduction potential reading**

Precise Redox 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 ORP 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 page 10) to correct any reading imperfections due to probe wear.**

- Never use calibration solutions that have been left open or have expired.
- 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 Redox 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

The logo for Aquatronica features the word "Aquatronica" in a bold, white, sans-serif font. The letter 'A' is stylized with a blue water droplet shape on its left side. Below the letters 'a' and 't' are three wavy lines representing water, colored in shades of blue and green. The entire logo is set against a background of light blue, wavy, water-like patterns.

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