



innowater pH Redox Option Basic Controller Instruction Manual

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WARNINGS

The Redox Function of the SMC chlorinates allows you to continuously read the value of the redox potential (ORP) of the pool water thanks to a probe installed in the filtration circuit and to control, based on this reading, the production of chlorine. However, redox potential is a very indirect value of the pool chlorine that requires very stable conditions (pH) to be reliable and is affected by many factors. Furthermore, both pH and ORP probes are subject to wear, their answer deteriorates over time, and they are a delicate component that can be easily damaged. Likewise, like any device, the electronic measurement system can suffer a failure or breakdown that causes an incorrect reading. For all these reasons, you must periodically carry out a **MANUAL CHECK** of the pH and redox potential using approved means to ensure that the values are within the accepted limits.

INNOWATER TRANSIENTS INTERMINGLES DEL AGUE S.L. declines all responsibility for possible material and/or personal damage caused by excessive or insufficient injection of acid, chlorine or other chemical substances or due to their handling or storage.



ATTENTION! Acid is corrosive and can seriously damage eyes and skin. Oxidants (hypocrite) are harmful and can seriously damage the eyes, skin and respiratory tract. When reacting with other compounds they can produce very dangerous poisonous gases. Wear appropriate personal protective equipment when handling chemical containers or dosing equipment.

The device must be connected to a suitable earth conductor and protected by a 30 mA max. differential switch.

Never open the device under voltage. Danger due to 230 VAC voltage.

All manipulation inside the equipment must be carried out by a qualified professional staff.

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Operating

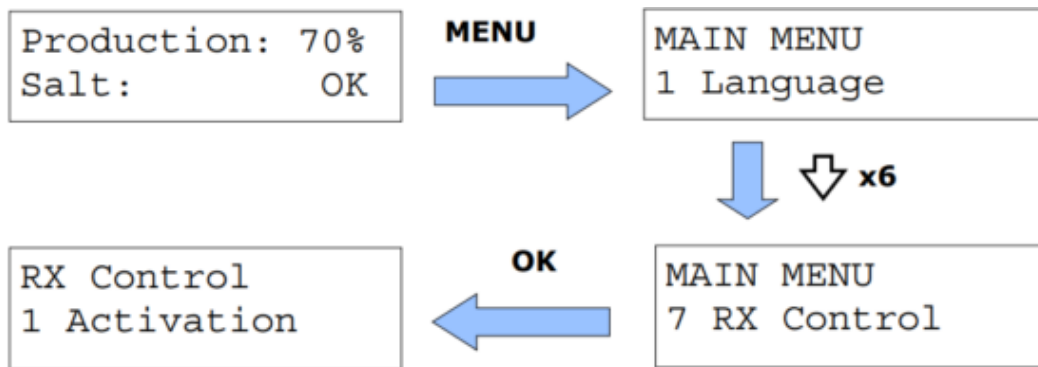
The redox option provides continuous readings of the redox potential of the pool water thanks to a probe connected to the chlorination and installed in the filtration circuit. When the Control RX function is activated, the production of the chlorination is automatically regulated based on these readings. In case the redox potential of the water decreases below a certain established value, the chlorine production will be activated at a certain percentage. If the redox potential exceeds a second set value, chlorine production will stop. Between both values, the chlorination will regulate its production linearly.

Installation of the Redox probe.

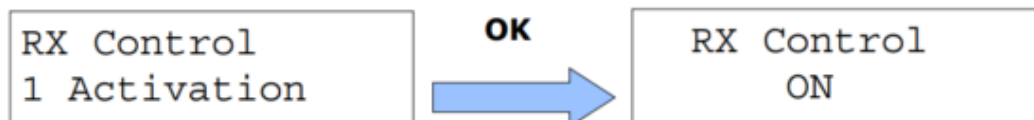
Install the saddle supplied in the filtration circuit BEFORE the chlorination cell and as far away from it as possible. Choose a section of the circuit that not get empty when the filter pump stops because the probes deteriorate if they are not plunged in water. Screw the probe holder into the saddle, insert the probe into it and tighten its locking screw. Connect the probe cable to the BNC connector on the bottom of the chlorination marked with a yellow washer. Before using the Control RX function, proceed with the calibration of the probe (see section 3.3). The pH and redox probes require calibration before their first use and, subsequently, be calibrated from time to time. This is necessary because the sensitivity of each probe is different and also inevitably varies with time.

RX control functions

All the functions and settings related to the redox measurement are found within the MAIN MENU – 7 RX Control and its different sub menus.

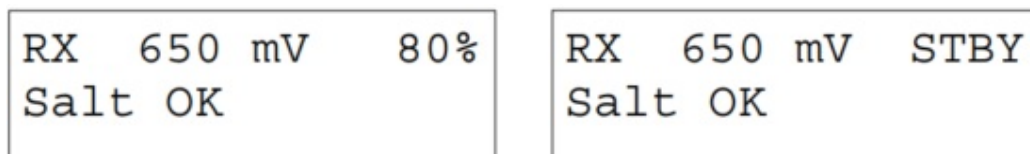


Function activation



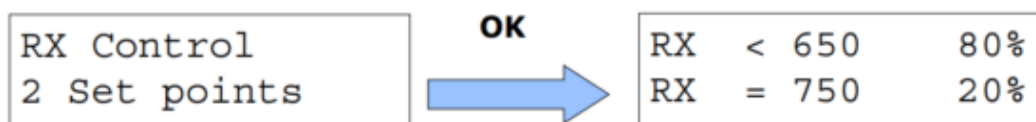
Choose ON or OFF with the arrows < > and press **OK**.

When the Control RX function is activated, the top line of the main screen permanently indicates the value of the redox potential and the chlorine production calculated based on the redox potential and the established set points. When the Control RX function is activated the keys < and > to manually change the production have NO effect since it is the RX function that controls the production:

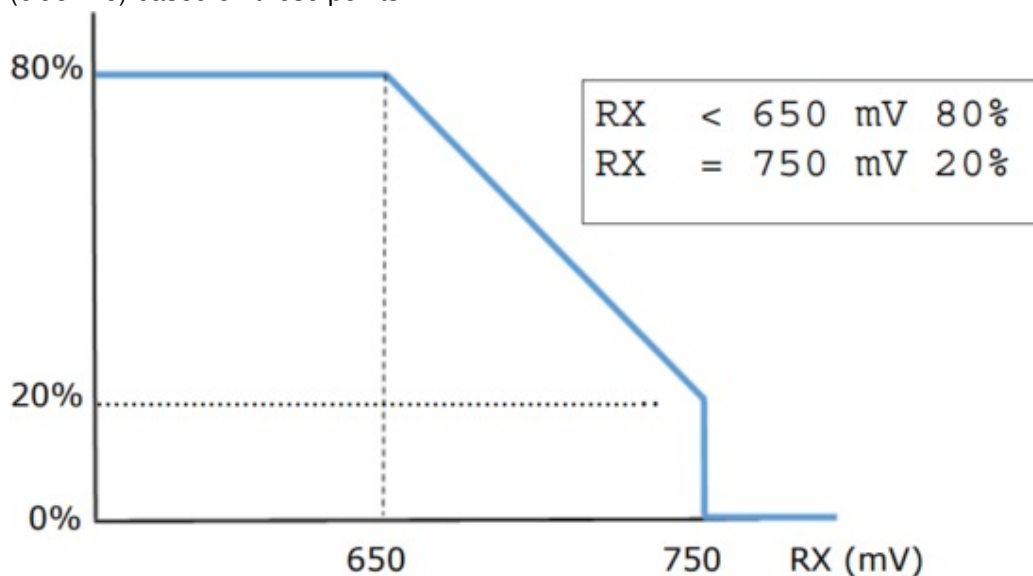


If OK is pressed after an error message due to water level or flow, the chlorination will go into STAND BY and display the screen on the right. To restart production press the keys < or >.

Set points



When the Control RX function is activated, the percentage of chlorine production at each instant is determined by the two established set points (screen on the right). The following example shows the calculation of production (blue line) based on these points.



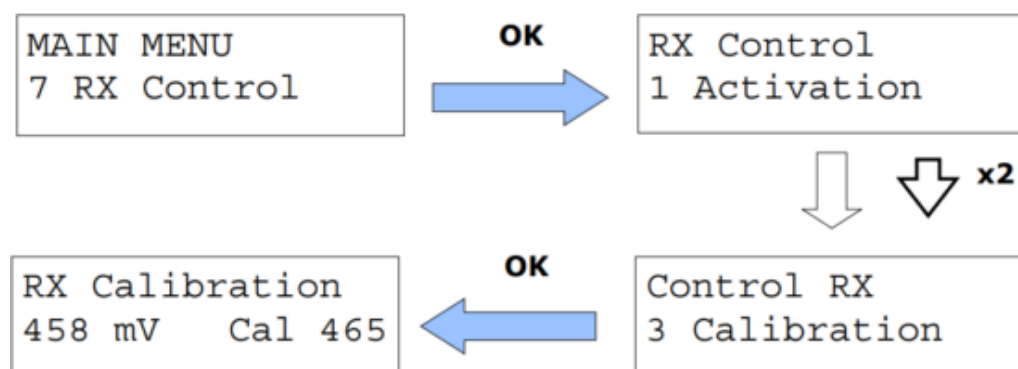
- When the RX reading is below the lower set point, the production percentage remains constant and equal to the percentage defined for that point, which in the example is 80%.
- When the RX reading is between both points, the production percentage follows the linear function defined by both points. In the example, if the RX is at 675 mV, the production percentage will be 50%.
- When the RX reading is above the upper set point, production will stop (0%).

You can set both points and choose the production percentage for each of them. To do this, use the MENU key to place the cursor on the parameter to be modified and press the arrows < or > to change its value. Press OK to save the data and exit the sub menu.

The total amount of chlorine produced is determined by the value of the established production percentages. The larger your pool (or smaller your chlorinator) the higher these percentages should be. To compensate for the delay in the redox measurement due to the filtration circuit, you can set a slightly lower upper set point so that the chlorine production stops before reaching the desired redox value. For example, to get RX = 750 mV and avoid over-production, set the dosing cutoff slightly lower.:

RX = 730 20%

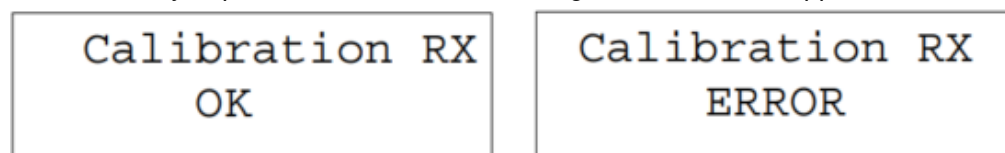
Calibration



Entering sub menu 3 Calibration by pressing OK, you will find the screen on the bottom left. The value on the left of the screen shows the redox potential value measured by the probe. The value to the right of Cal indicates the actual redox value of the sample. You can change this value with the arrows to adjust it to the calibration solution you are using. Note that the redox potential of the solution depends on the temperature as shown on its label.

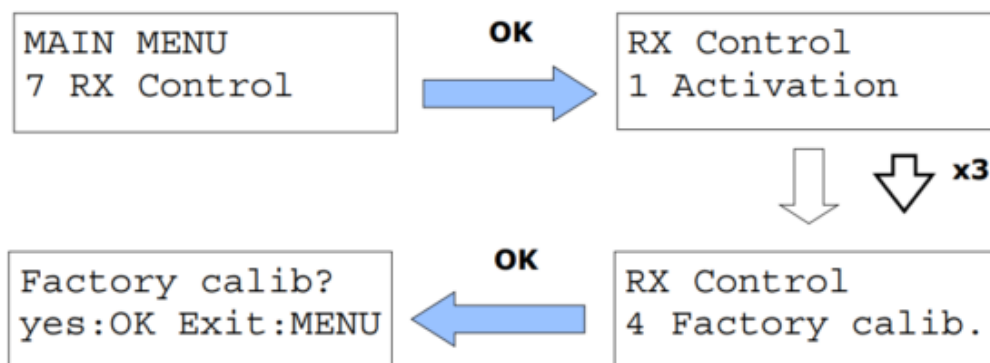
Insert the probe into the buffer solution, move it slightly and wait for a stable reading value to be reached.

Once the reading value has stabilised press the **OK** key to save the calibration or **MENU** to exit without saving the calibration. If you press **OK**, one of the following two screens will appear momentarily:



The screen on the left indicates that the entered calibration values are consistent and the calibration has been saved. The screen on the right indicates that the probe measurement is too far from the actual buffer solution value entered and that the calibration has not been saved.

Factory calibration



Using this function you can restore the factory calibration that corresponds approximately to the theoretical measurement of a new probe. This function can be useful in some situations to correct or diagnose faults or if you do not have buffer solutions.

Press OK to restore factory calibration or **MENU** to exit.

Technical features

Redox scale: 0 — 1.000 mV

Redox scale precision: 1 mV

Redox Calibration: 1 point


Probe connector: BNC

Regulation: Linear

Modbus communication (optional): Modbus RTU RS485



Documents / Resources

	<p>innowater pH Redox Option Basic Controller [pdf] Instruction Manual pH Redox Option Basic Controller, Option Basic Controller, Basic Controller, Controller</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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