MANUAL

Innowater RX

English version

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⚠️

WARNINGS

Before carrying out any installation or maintenance of the INNOWATER RX, disconnect it from the mains power supply.

This appliance is not intended for use by persons (including children) that lack experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a responsible person.

The installation of this device should be carried out by a qualified person.

The device should be located in the correct pool zone and connected to supply via a power outlet that is protected by a residual current device (RCD) having a rated residual operating current not exceeding 30mA.

The power outlet should have a degree of protection suitable for the pool zone Ensure that equipotential bonding of all parts of the pool installation is carried out.

During the installation phase, check that the voltage of the power supply corresponds with the voltage indicated on the side of the appliance

Innowater Tratamientos Integrales del Agua S.L. will not be held liable for the use of this device with inappropriate products.

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1. DESCRIPTION

The Innowater RX allows you to correct the ORP level of your pool. The device monitors the ORP continuously by means of its ORP sensor and then, when needed, sends a signal (dry contact) to activate an oxidant doser/producer device.
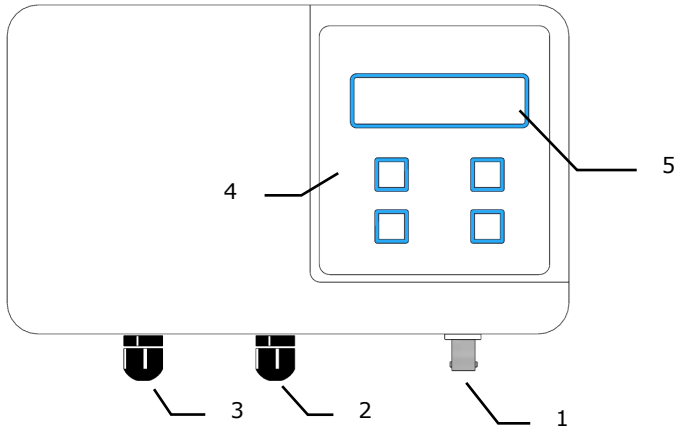
1. BNC socket for ORP probe

2. ORP control cable

3. 230 VAC power suply

4. Keypad

5. LCD display

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2. INSTALLATION

Controller

Install the device on the wall in easy to access location using the braquet provided. Before attaching the bracket to the equipment, use the bracket to mark in the wall the location of the holes you will need to make for the screws. Choose a location close to the injection point.

ORP probe

Install the probe after the filter and BEFORE the chlorinator cell and as far as posible from it. Try to choose a point in the circuit that never get empty of water, because the probe deteriorates quickly when dry.

ORP control cable output

Control cable provides a dry contact to control the device. Depending on the setpoint configured it can generate a proportional PWM duty cycle or an ON/OFF signal.

If the device controls a saltwater chlorinator, setpoint must be configured as an ON/OFF signal.
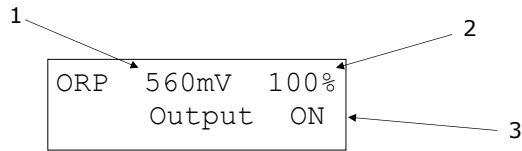
Connect the cable to the external control input of the chlorinator or use it to activate a relay or other device.
If you use the cable to switch a voltage, do not exceed the following values :

Maximum voltage	230 VAC
Maximum current	1 A

3. START UP

3.1 Main screen

```
      1                            2
            ┌─────────────────────┐
            │ ORP   560mV   100%  │
            │       Output   ON   │ ←──────  3
            └─────────────────────┘
```

Main screen shows the following info:

(1) ORP measure

(2) ORP dosage percentage, calculated from the setpoints

(3) ORP output status

3.2 Start up— ON/OFF

To turn on the equipment press **ON/OFF (MENU)** for two seconds. Main screen will appear.
To turn OFF, from the main screen, press **ON/OFF (MENU)** for two seconds.
Press Menu to access to the main menu. Use the arrows to scroll the different functions. Press OK to enter in each sub-menu.

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4. ORP CONFIGURATION AND CALIBRATION

ORP control cable output

The control cable provides a voltage-free contact between its two wires. Depending on the configuration of the setpoints this contact can generate a signal with a variable work cycle (PWM) proportional to the measurement, or an ON/OFF signal. To use this cable to control a Chlorinator, configure the output in ON/OFF mode.

Connect the cable to the external control input of the Chlorinator or connect it to operate with a relay or other device.
If you use the cable to switch a voltage, do not exceed the following values:

Maximum admissible voltage 230 VAC
Maximum admissible current 1 A

If percentage, when calculated, is different of 0% or 100%, contact will open and close according to a variable work cycle (PWM) in cycles of 100 seconds. For example, if the calculated dosaje is 40%, contact will remain closed (ON) during first 40 seconds and open (OFF) for the rest 60 seconds.

Current status of this contact is shown permanently on display. When turning on the device, it will wait for the ORP value to stabilize so, although dosage is at 100%, ORP output will remain OFF for a period of time. Also, the device has an hysteresis to avoid fast changes and rebounds.
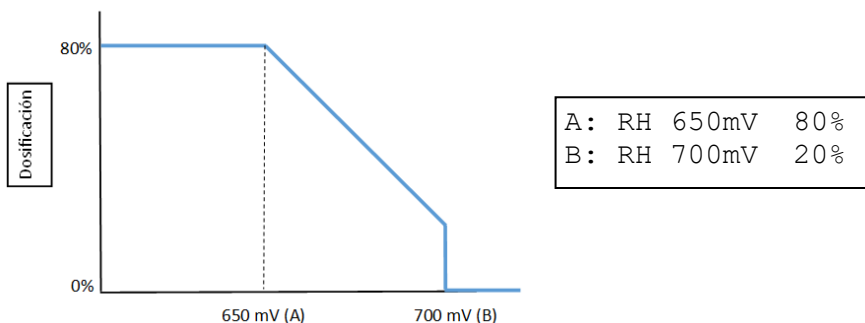
4.1 Setpoint

```
ORP Config.
1 Setpoints
```

To enter press OK, it will show the following screen:

```
A: RH 650mV  80%
B: RH 700mV  20%
```

The calculation of the production is made by setting of two setpoints, A and B, and the % of production that is desired for each of those points.

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```
A: RH 650mV   80%
B: RH 700mV   20%
```

- When the ORP is below the lower set point, the signal will work at its maximum frequency.

- When the ORP is between both points, the chlorinator will send a proportional signal defined by both points. For example, in the case of the figure, if the ORP is at 675 mV the pump will dose at 50%.

- When the ORP is above the upper set point, the equipment will keep the output OFF, at 0%.

You can set both points and choose the percentage of dosage for each of them. To make this, press cursor with the **MENU** key in the parameter you want to modify and scroll with the arrows to change the value.
Press **OK** key to save the data and Exit the sub-menu.

By setting the set points you will be defining at the same time the % of production desired in each of those points, both dependent on the size of your pool. For example, if your pool has a high volume you should establish high production percentages. The response time in the measurement of the ORP of your pool can be considered when establishing the set point B by cutting the signal before reaching the desired ORP value. For example, to obtain an ORP = 750mV and avoid overproduction, set the dosage cut to a somewhat lower value:

B: ORP 730mV   0%

We recommend to make periodic recalibrations of the ORP electrode.

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4.2 "ON/OFF" mode <u>TO WORK WITH A SALT WATER CHLORINATOR</u>
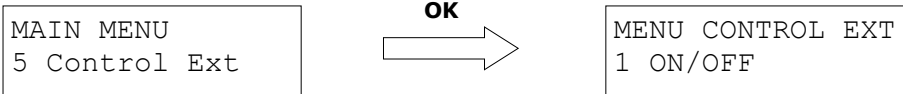


```
A: ORP 650   100%
B: ORP 650     0%
```
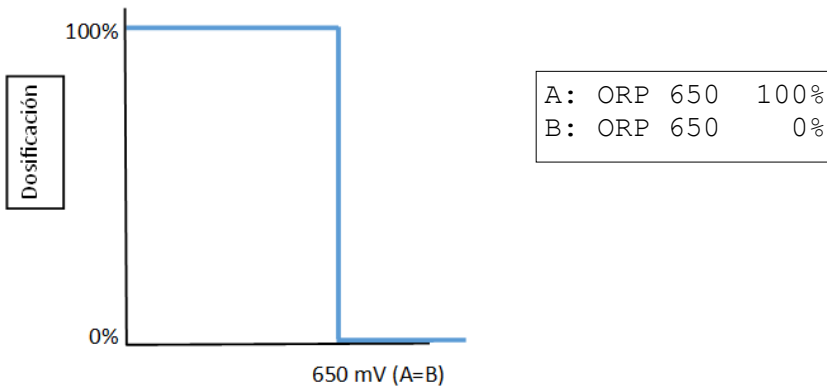
If you set the same ORP value in both points and dosage in A is 100%, output will behave as a "ON/OFF" signal:
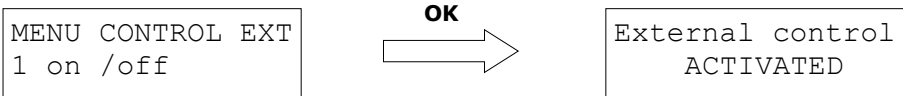
- When ORP is below the value, output will remain ON (closed contact)

- If ORP is above the value, output will remain OFF (open contact)

4.2.1 To work with a domestic INNOWATER salt water chlorinator, you have to set the following parameters in the chlorinator:
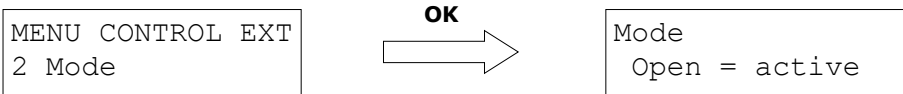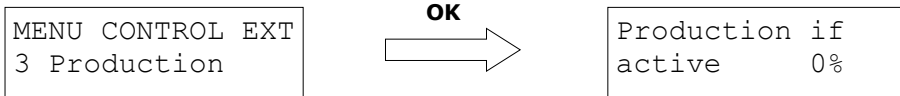
Enter "Control Ext" in the main menu:

```
MAIN MENU
5 Control Ext
```
OK ⟹
```
MENU CONTROL EXT
1 ON/OFF
```

Activate external control:

```
MENU CONTROL EXT
1 on /off
```
OK ⟹
```
External control
    ACTIVATED
```

In "2 Mode", choose the option "Open = active":

```
MENU CONTROL EXT
2 Mode
```
OK ⟹
```
Mode
 Open = active
```

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In "3 Production", set 0%:
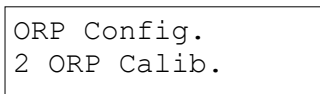
```
MENU CONTROL EXT
3 Production
```

OK
⟹

```
Production if
active      0%
```

This way, when chlorinator receives the order to produce chlorine, it will do it at the percentage chosen from the main screen. If the order is not to produce, it will remain at 0%.

4.3 Probe calibration

```
ORP Config.
2 ORP Calib.
```

The ORP probes require a calibration before their first use and then they need to be calibrated periodically. It is because different probes can have different answers and because the response of the same probe inevitably varies with time.

The calibration consists of measuring the response of the probe introducing it in two buffer solution and recording this response in order to deduct the ORP (RH) of any other solution, in our case, the ORP (RH) of the water in the pool.
The calibration of the probe is carried out using a buffer solution supplied (220mV) and entering the sub-menu **"3 ORP Calib."**.

Enter the sub-menu **3 ORP Calib.** by pressing **OK** key, it will show the following screen:

```
ORP Calibration
Lec: 400mV  220
```
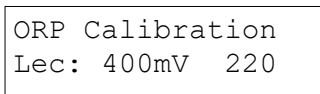
The value on the left (**Lec:)**: indicates the current ORP (RH) value measured by the probe. The value on the right, indicates the value of the buffer solution (220mV). You can adjust this value using the arrows to adapt it to the temperature and the sample used.
Insert the probe in the buffer solution 220mV, remove it slightly with the probe and wait for a stable reading value to be reached.
Once the reading value has stabilized press **OK** key to save the calibration and exit the sub-menu.
Next, remove the probe from the buffer solution 220mV, rinse its bottom with clean water and shake gently to remove excess water.

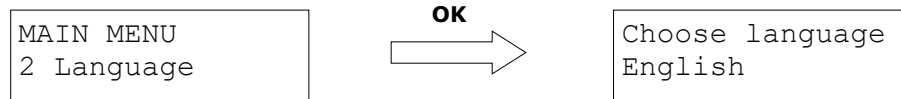innowater

4.4 Factory calibration

The submenu **Factory calib**, gives you the possibility to reset general calibration parameters that correspond, approximately, with those of a new probe and which are the ones programmed by the chlorinator from factory values. This can be useful if you have saved successive calibrations and do not have the buffer solutions for a correct calibration.

Press **OK** key to enter the sub-menu **5 Factory calib**, it will show the following screen:

```
ORP Config.
3 Factory Calib.
```
OK ⟹
```
Factory Calib.?
SI:OK  EXIT:MENU
```
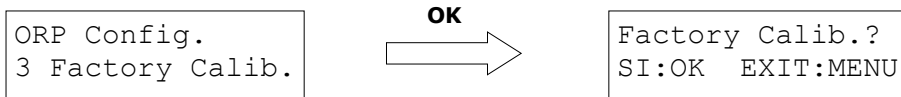
Press **OK** key to set Factory values or **MENU** to Exit.

5. Language

```
MAIN MENU
2 Language
```
OK ⟹
```
Choose language
English
```
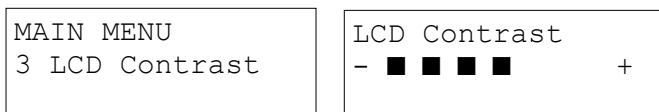
Press **OK** key to enter and scroll with the help of the arrows to choose the desired language.
Press **OK** key to confirm and Exit.

6. Contrast LCD

```
MAIN MENU
3 LCD Contrast
```
```
LCD Contrast
- ■ ■ ■ ■      +
```

Press **OK** key to enter and scroll with the help of the arrows to choose the desired LCD contrast.
Press **OK** key to confirm and Exit.