DiaSys

Diagnostic Systems

Operator Manual

For

Water purifier

maxi+

Firmware version No.: X280623A

1 CONTENT

2 SAFETY INFORMATION

	***Read the safety information before installing the water purifier***

2.1 WARNING LABELS

Before reading the manual, please get familiarized with the following icons used in this manual.

	Electric Shock
	Warnings
	Specific Information non safety related

2.2 SAFETY INSTRUCTIONS

To ensure the product SAFETY and RELIABILITY, all repairing must be realized with spare parts available with our after-sales service. If the power cable is damaged, it must be replaced.

	Unplug the water purifier power plug. Don't pull on the wire. Before all maintenance on the water purifier, turn off the power supply switch and unplug the power plug.
	Use exclusively tap water to supply the water purifier. - MAXIMUM NETWORK PRESSURE = 6 BAR - Maximum supply water temperature = 38 °C.
	This water purifier needs a main tension 100-240V~ 1.2A 50/60 Hz Don't connect too many devices on the same plug in order to not risk fire or electrical shock. The low voltage electrical installation must comply with local standards.

3 INTRODUCTION TO THE SYSTEM

3.1 INTRODUCTION

The water purifier system «O maxi+» produces water of Class 2 as defined in ISO 3696 standard, which is intended to be used by clinical analyzers.

The principle of purification uses two technologies:

- the REVERSE OSMOSIS, which is currently the most effective membrane separation process,
- the demineralization by ion exchange resin.

These two associated technologies allow getting water with excellent quality regarding physical composition, chemical composition (mineral and organic) and micro-organic population.

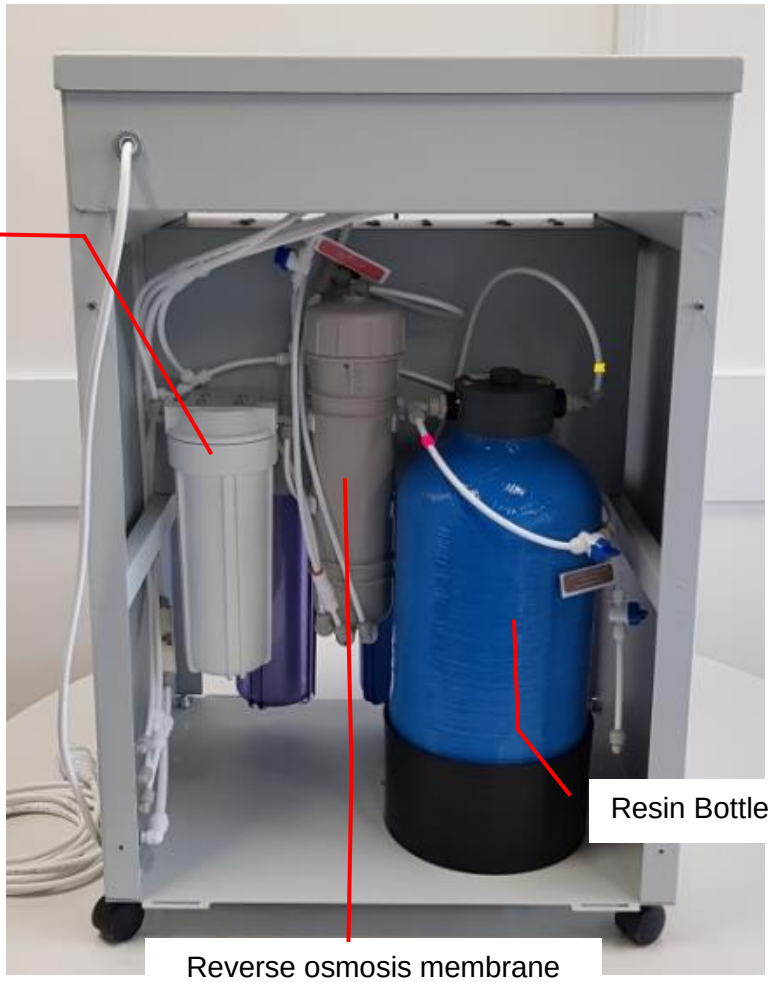
3.2 TECHNICAL SPECIFICATIONS maxi+

Power supply voltage	100-240V~ 1.2A 50/60 Hz
Production flow at 25 ° C	55 liters / hour
Production flow at 10 ° C	40 liters / hour
Resin type	Mixed-bed ions exchange resins
Resin volume	11 liters
Maximum supply water temperature	38 °C (100°F)
Maximum hardness without protection	4 mmol/L
Admissible pH	3 to 11
Mini / maxi supply pressure	2 / 6 bar (29 / 87 PSI)
Dimensions (l × h × w)	56 X 84 X 46 cm
Indicative weight	49 kg

This system is recommended for daily consumption over 50 liters.

3.3 OVERVIEW OF THE SYSTEM (FRONT VIEW)

3.4 OVERVIEW OF THE SYSTEM (BACK VIEW)



3.5 GENERAL DESCRIPTION

The "O maxi+" water purifier includes a set of prefiltration cartridges for filtering the inlet water: 5 µm sediment filter + carbon block filter + 1 µm sediment filter.

After this stage, the water is injected via a booster pump into a reverse osmosis membrane.

After the reverse osmosis membrane, 90% of the organic and inorganic compounds are already removed.

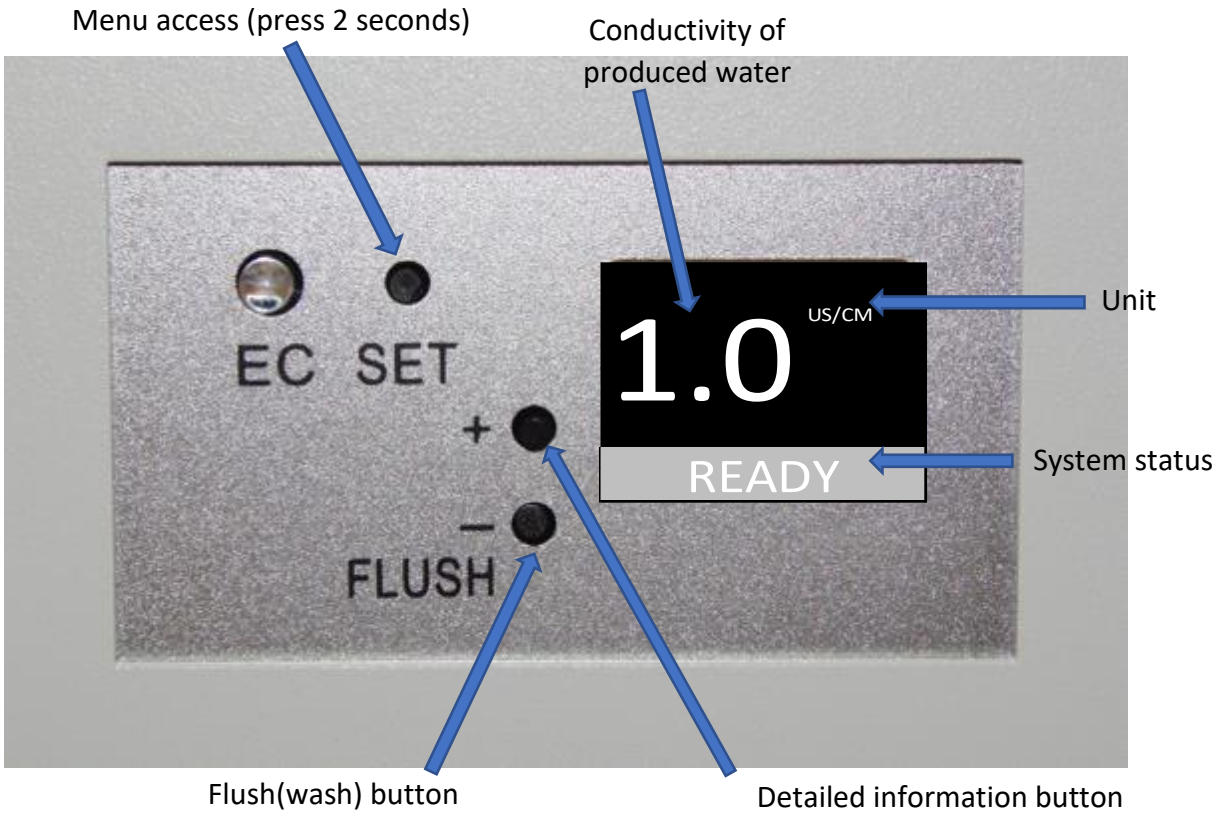
In order to remove most of all remaining minerals, the water goes through an ion exchange resin bottle and is then filtered by a 1 µm post-treatment filter.

The electromechanical assembly is managed by an electronic controller.

3.6 CONTROLLER DESCRIPTION

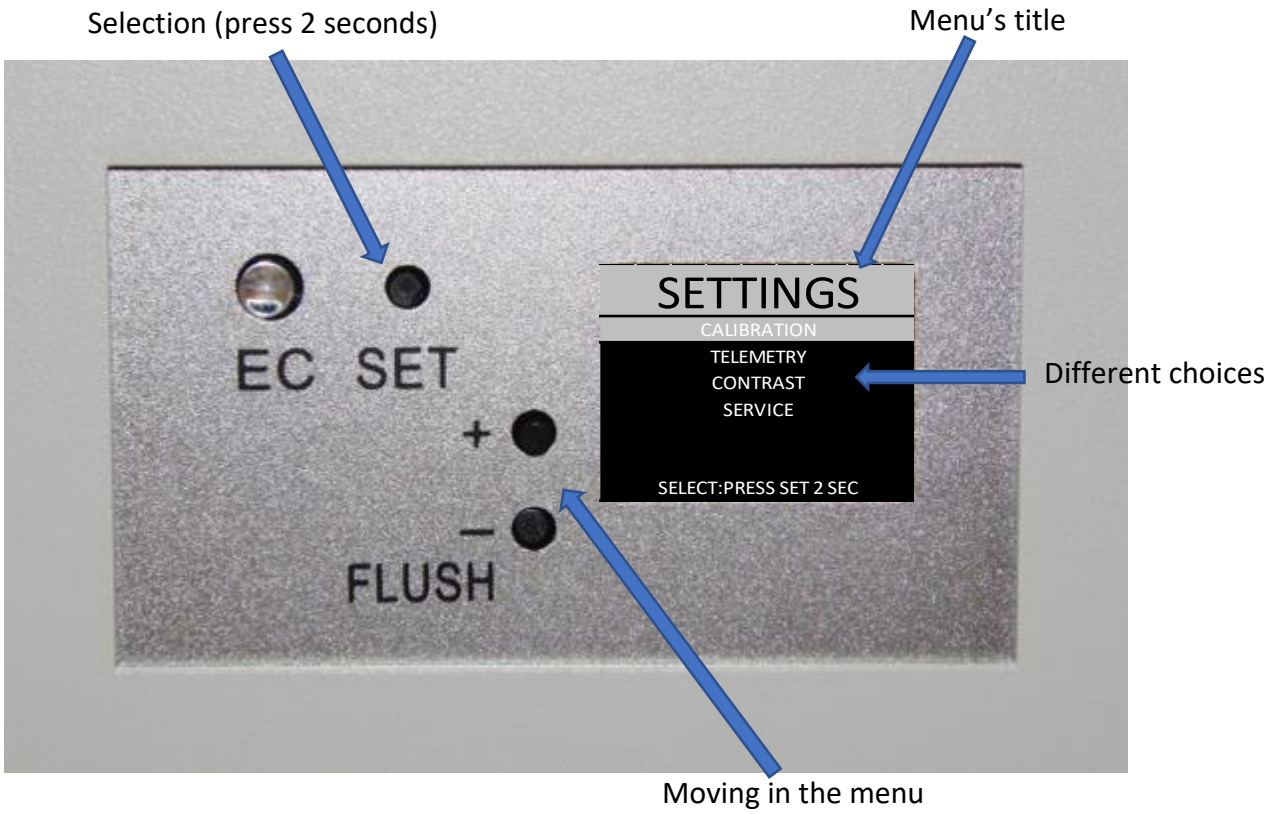
3.6.1 Main display

The conductivity of the produced water is displayed on the main screen. After an amount of time (default value: 5 minutes, settable from 1 to 15 minutes), the screen goes into standby mode. You can bring the display back ON by pressing one time any button.



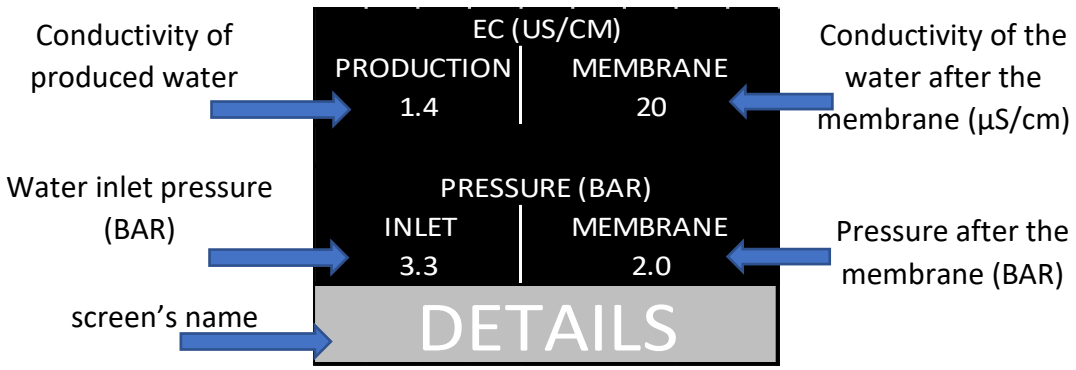
3.6.2 Menu display

The setting menu is displayed after pressing the SET button 2 seconds with a tool.



3.6.3 Detailed information display

From the main menu, when pressing shortly on the '+' button, the values from various sensors are displayed momentarily.



This screen is displayed for 10 seconds.

3.6.4 Functioning display

The conductivity of the produced water can be different from 1.0.

The remaining time to finish the purge process is displayed (seconds).

The water purifier is rinsing the membrane after start-up, periodically (by default each 6 hours), or when pressing shortly on the 'FLUSH' button.

The conductivity of the produced water can be different from 1.0.

The remaining time to finish the purge process is displayed (seconds).

The water purifier is rejecting momentarily the water which was stagnated in the membrane.

The conductivity of the produced water can be different from 1.0.

The water purifier is producing water and its pump is running.

The conductivity of the produced water can be different from 1.0.

The water purifier is ready to use.

3.6.5 Setting menu

The settings menu is accessible by pressing with a tool on the SET button for 2 seconds.

The available sub-menus are:

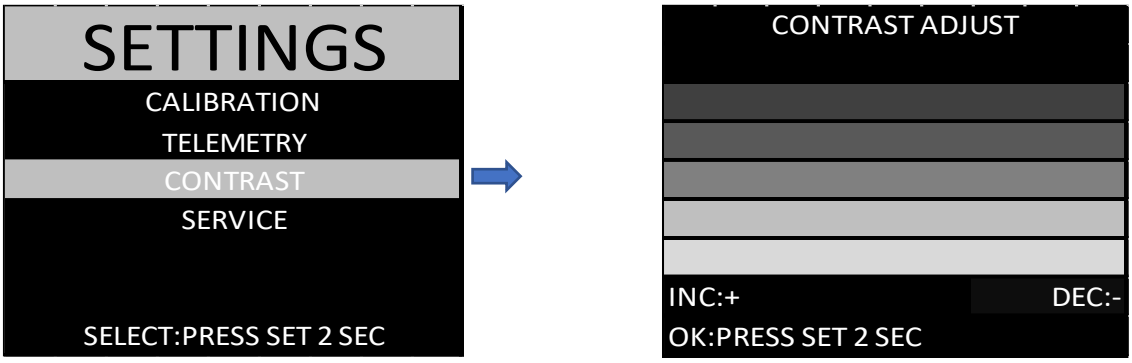
- Calibration of the conductivity electrodes
- Telemetry management
- Screen contrast adjustment
- Tools reserved for service technicians

3.6.6 Screen contrast adjustment

The intensity of display is adjustable.

Press shortly on '+' or '-' to adjust. The rendering is immediate.

When adjusted, validate by pressing the 'SET' button with a tool during 2 seconds.



3.6.7 General comments on the calibration of the conductivity electrodes

The calibration process is not forced by the system. It is possible to adjust the displayed value on the controller's screen if it is different from the value measured with an external calibrated conductivity meter.

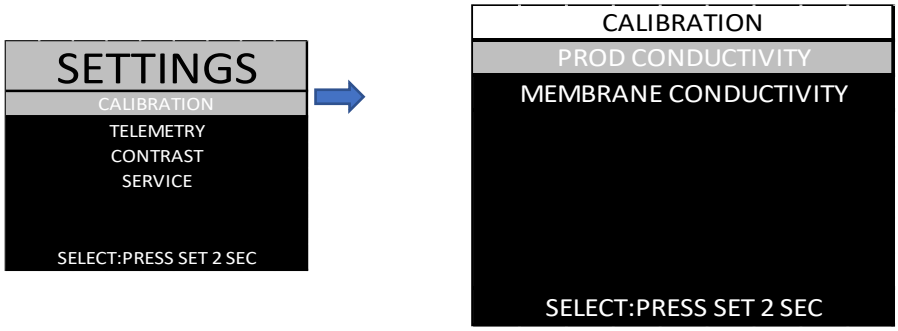
For the calibration of the electrodes, it is necessary to use a precise external conductivity meter which must be calibrated (in option, conductivity meter reference 950026).

There is no necessity to calibrate after each change of membrane, filter, or resin cartridge

3.6.7.1 How to use the external calibrated conductivity meter

1. Let flow the water to test 15 to 30 seconds.
2. Remove the conductivity meter protection cap.
3. Rinse the protection cap and the conductivity meter probe with the water to test.
4. Renew the operation 2 to 3 times.
5. Fill protection cap of the conductivity meter with the water to test. Plunge the conductivity meter. Read the measured value.
6. Renew the operation 2 to 3 times; the retained value will be the last one.
7. Switch off the conductivity meter and put the protection cap back.

3.6.7.2 Calibration menu access



3.6.7.3 Use of the adjustment screen

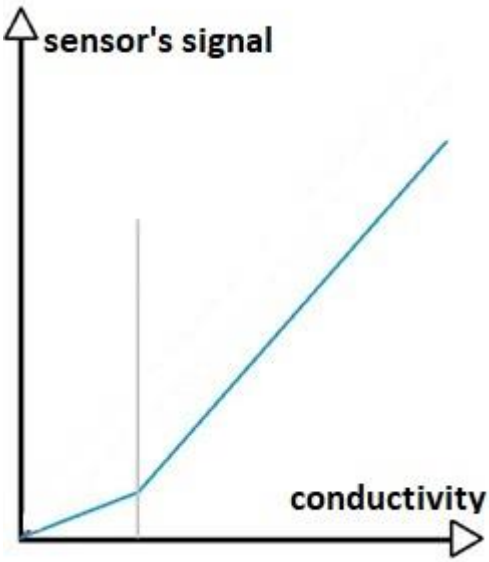
The calibration of the integrated conductivity electrodes is processed with the inner water. In parallel, the conductivity of this water has to be measured with an external conductivity meter which needs to be previously calibrated.

- Measure the conductivity with the external calibrated conductivity meter
- Press on '+' or '-' until displaying the same value on the controller's screen
- Save the calibration point by pressing with a tool on the 'SET' button for 2 seconds

The 2 points of calibrations can not be defined at the same time. The second point of calibration can be useful after a significant increase of the conductivity. The conductivity of the second point must above the conductivity of the first point.

3.6.7.4 Calibration curve with one point

As the electrodes are not accessible by the user, they are able to measure only the conductivity of the water crossing the system.



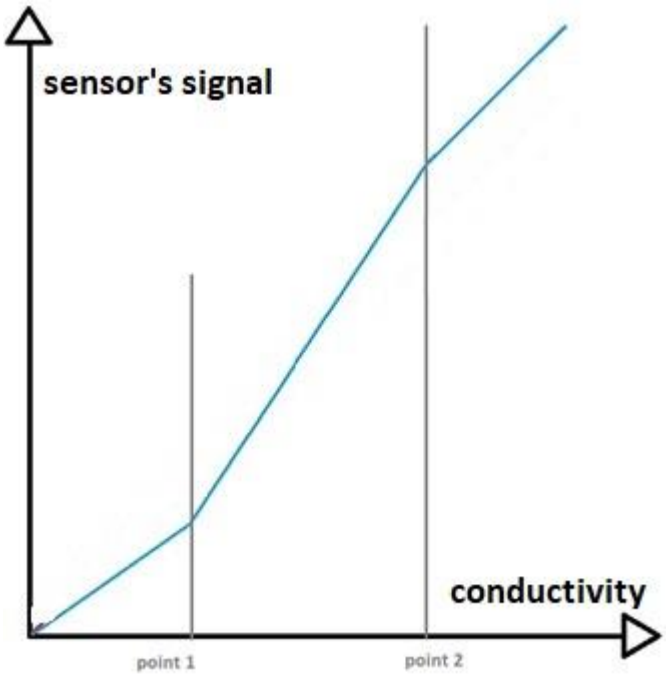
- Point of calibration: grey vertical line.
- The calibration curve goes from 0 to the point of calibration.
- Above the point of calibration, the values are adjusted by a shift from the values measured by the electrode.

The system uses by default its own calibration curve.

It is recommended to calibrate the 1st point of calibration when installing the system, or when replacing filters, the RO membrane, resin cartridge, électrodes, or the electronics controller (in all these cases, delete the 2nd point).

3.6.7.5 Calibration curve with 2 points

As the electrodes are not accessible by the user, they are able to measure only the conductivity of the water crossing the system.



- Points of calibration: where are the 2 grey vertical lines.
- The calibration curve goes from 0 to the 1st point of calibration. The slope is then adjusted.
- The calibration linear curve goes from the 1st point to the 2nd point of calibration. The slope is then adjusted.
- Above the 2nd point of calibration, the values are adjusted by a shift from the values measured by the electrode. The slope is the default one.

A 2nd point of calibration can not be used when the conductivity is too close to the conductivity of the 1st point, without a risk of miscalibration.

It is recommended to choose the 2nd point of calibration with a conductivity close to the maximum.

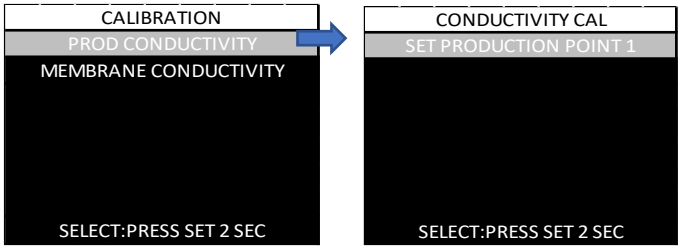
It is recommended to recalibrate the 2nd point of calibration when filters, the RO membrane or the resin is close to the saturation.

3.6.8 Calibration of the production conductivity electrode

The calibration of the production conductivity electrode is made by taking water directly from the output of the purified water. The points of calibration must have conductivity values strictly under 10 µS/cm.

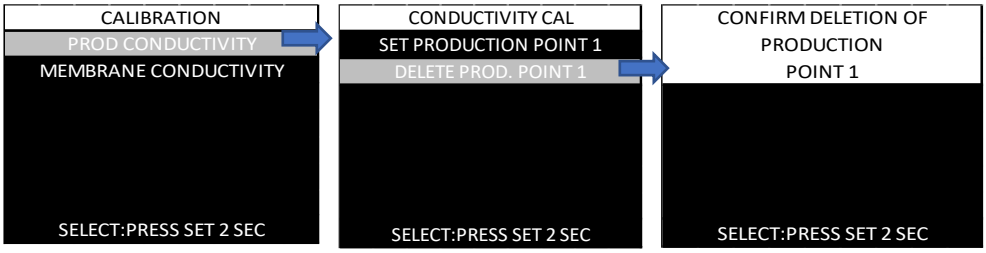
3.6.8.1 To define a 1st point of calibration

This is the initial case, before any saving of calibration point.



3.6.8.2 To delete the 1st point of calibration

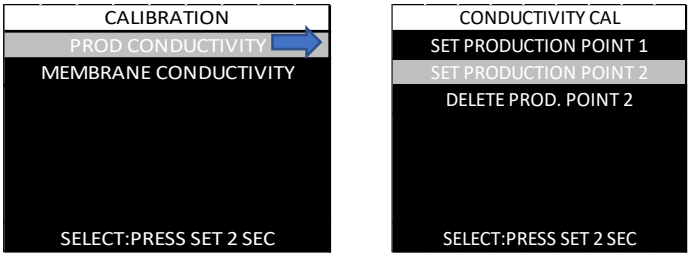
It is possible to come back to the default conductivity values by deleting the 1st point of calibration.



Delete the point of calibration by pressing with a tool 2 seconds on the 'SET' button

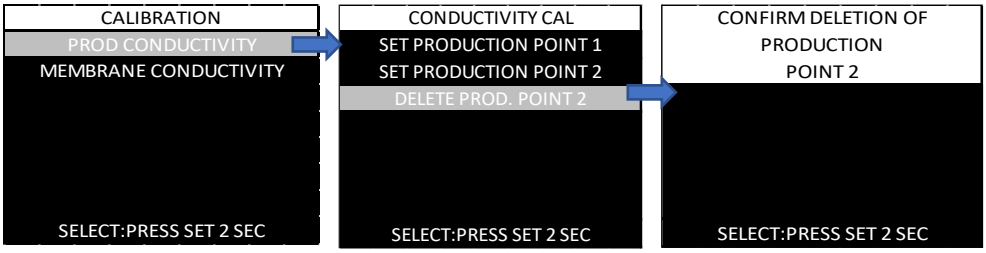
3.6.8.3 To define a 2nd point of calibration

When a 1st point of calibration is already defined, it is possible to define a 2nd point.



3.6.8.4 To delete the 2nd point of calibration

It is possible to come back to one only point of calibration by deleting the 2nd point of calibration.



Delete the point of calibration by pressing with a tool 2 seconds on the 'SET' button

3.6.9 Calibration of the membrane conductivity electrode

3.6.9.1 How to take water after the membrane

1. Remove the transparent covers.
2. Take out the resin bottle (Figure1).
3. Close the valve on top of the pressurized water tank.
4. Close the hand valve No. 1.
5. Remove the cap at the extremity of the T tubing. Open the hand valve No. 2 (Figure 2).
6. Plunge its extremity in a clean bowl
7. Switch ON the water purifier
8. Fill the bowl with enough water to enable conductivity measurement with an external calibrated conductivity meter.
9. Switch OFF the water purifier.
10. Refer to the paragraph explaining how to measure water conductivity in the bowl using the external calibrated conductivity meter (paragraph 3.6.7.1).
11. Put the cap back on, close the hand valve No. 2, open the hand valve No. 1.
12. Put the resin bottle back in the device.
13. Switch ON the water purifier

The points of calibration must have conductivity values strictly below 100 µS/cm.

Figure 1

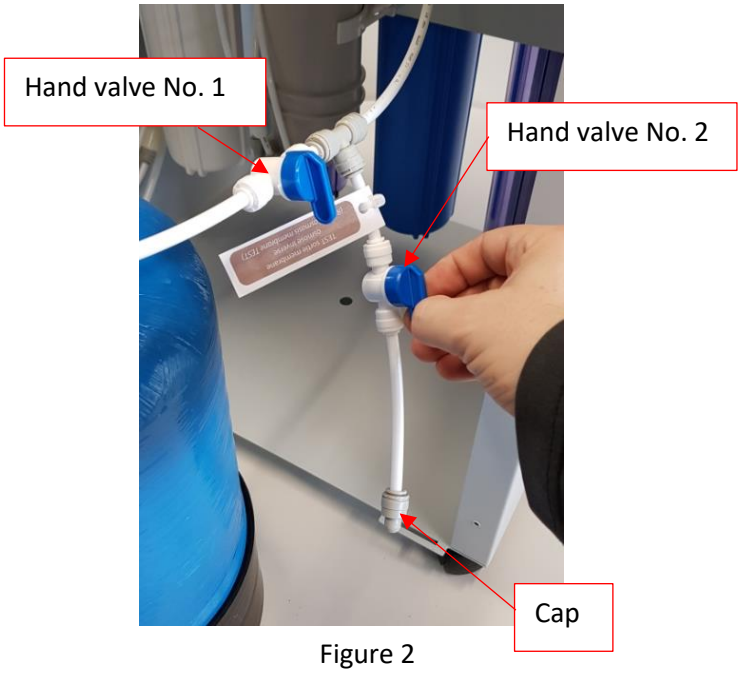
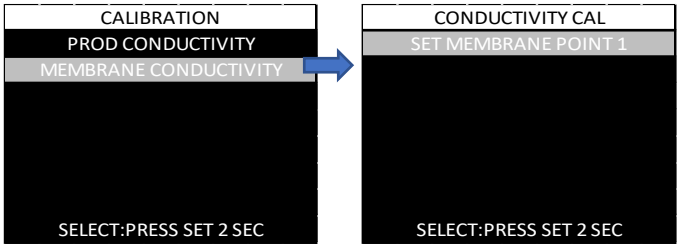


Figure 2

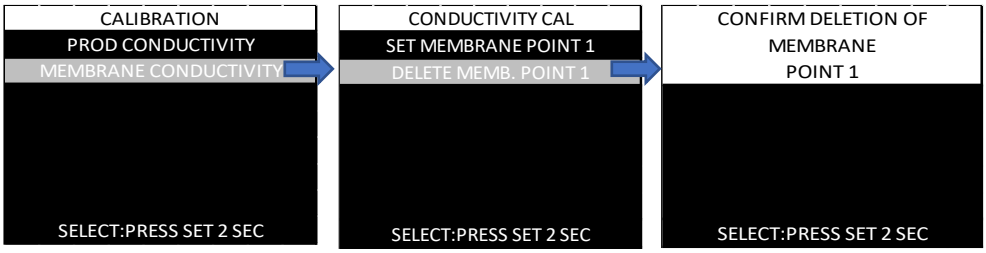
3.6.9.2 To define a 1st point of calibration

This is the default configuration, before any saving of calibration point.



3.6.9.3 To delete the 1st point of calibration

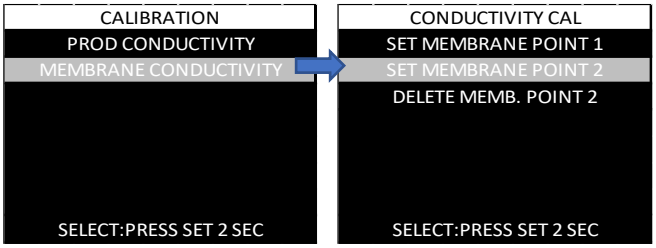
It is possible to come back to the default conductivity values by deleting the 1st calibration point.



Delete the point of calibration by pressing with a tool 2 seconds on the 'SET' button

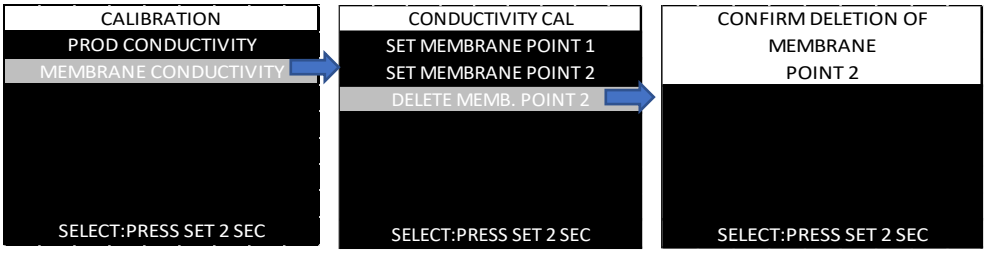
3.6.9.4 To define a 2nd point of calibration

This is the default configuration, before any saving of calibration point.



3.6.9.5 To delete the 2nd point of calibration

It is possible to come back to only one point of calibration by deleting the 2nd point of calibration.



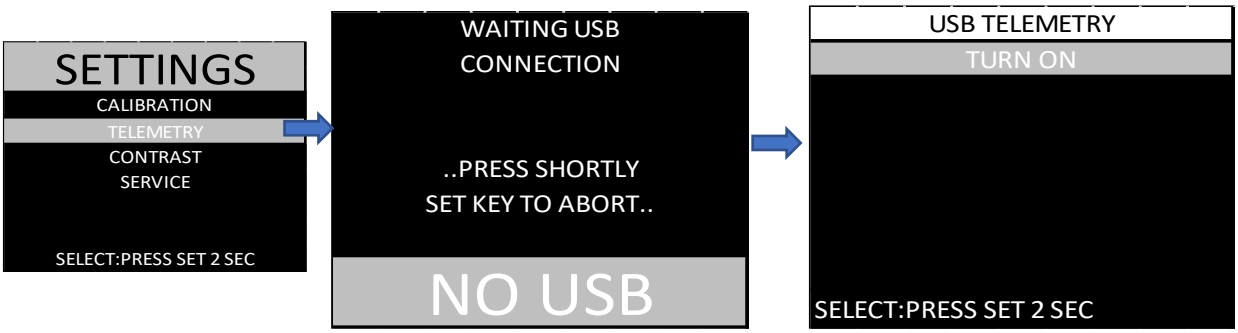
Delete the point of calibration by pressing with a tool 2 seconds on the 'SET' button

3.6.10 Telemetry management

The telemetry feature allows to monitor and to record the measurements of conductivity, pressure, temperature, and status of the water purifier on a PC connected by a USB cable.

On the activation screen, to active/unactivate the telemetry function, press with a tool for 2 seconds on the 'SET' BUTTON.

When activated, the telemetry remains active even after restart of the water purifier.



The delay between 2 successive sending is 10 seconds.

The data are transmitted in one text line of ASCII characters, followed by the carriage and line feed characters (CR+LF) using the following CSV format:

* A;B;C;D;E;F;G

with

- A =PRODUCTION CONDUCTIVITY
- B=PRODUCTION TEMPERATURE
- C= MEMBRANE CONDUCTIVITY
- D=MEMBRANE TEMPERATURE
- E=INLET PRESSURE
- F= MEMBRANE OUTPUT PRESSURE
- G=ERROR CODE

As the USB connection emulates a serial port, a terminal emulator software as the open-source software « TERMITE» can be used to receive the data on the PC.

The copy of the data in a file with the extension « .CSV » allows to open it later in a spreadsheet with the data organized in columns.

4 INSTALLING THE WATER PURIFIER

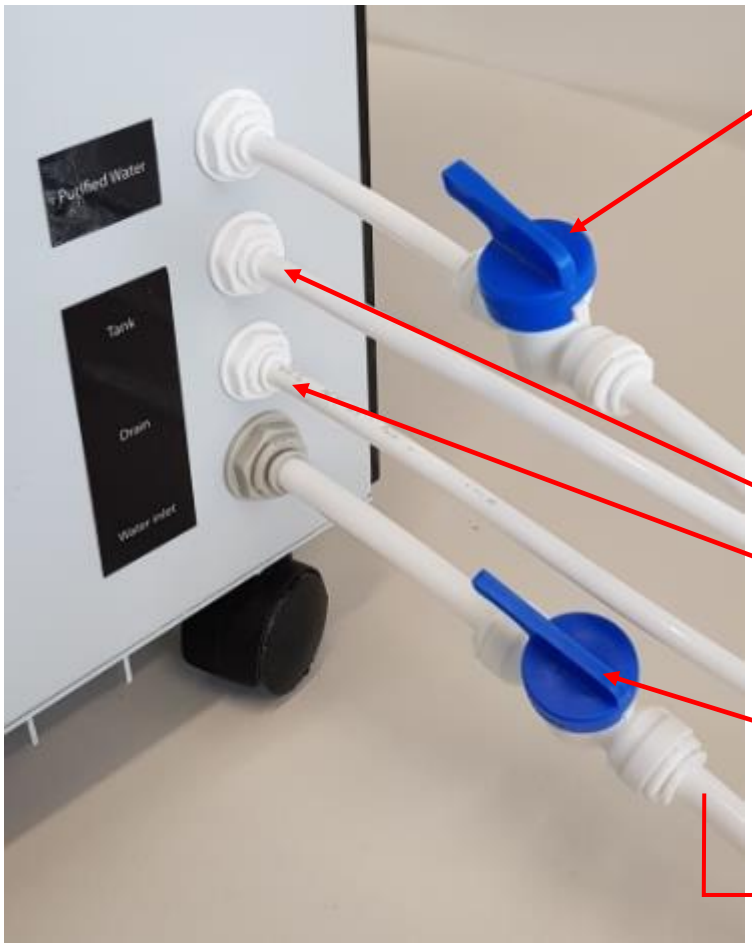
4.1 INSTALLATIONS CONDITIONS

↳ Water inlet (2 to 6 bars) equipped with a turn hand valve and a male exit tap of 1/2" delivered with the packing list (male connector 3/8" quick fit/1/2" NPTF or water inlet valve 1/2" male/female).

↳ Protected power supply (100-240 V ~ 50/60 Hz with GROUND). Connect the device to a power socket located in a dry area more than two meters away.

↳ Water drain with a siphon or the drain clamp supplied with the water purifier.

4.2 CONNECTIONS



Connect a hand valve on the purified water outlet

Connect to the storage tank

Connect to the drain

Must be always OPEN to not damage the system

Connect a hand valve 3/8" on the tap water inlet

Connect to tap water inlet by using « male simple union » – Integrate an « isolation hand valve »

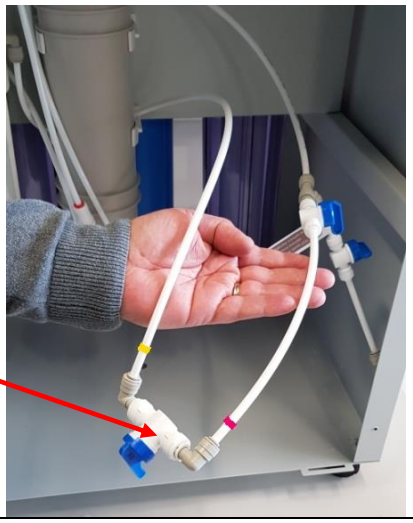
4.3 CONNECTIONS OF RESIN BOTTLE

STEP 1:

Remove completely the 3/8" hand valve connecting the two tubings.

This hand valve can be used for the inlet water connection of the **O Maxi+** (see chapter 4.2)

Hand valve 3/8"



STEP 2:

1- Connect the tubing with a orange ring on the connector of the resin bottle identified by the yellow label "**OUT**"

Orange ring

2- Connect the tubing with a red ring on the connector of the resin bottle identified by the red label "**IN**"

Red ring

STEP 3:

Open the hand valve 1/4" (**N°1**) and check that the hand valve 1/4" (**N°2**) is properly closed before replacing back the resin bottle in the device.

Valve N°1

Valve N°2

4.4 CONNECTION OF THE PRESSURIZED TANK

Avoid exposing the pressure tank near a heat source or near a window for proper operation.

4.5 INSTALLATION OF THE MEMBRANE

1. Disconnect the water inlet pipe from the membrane holder (Figure 1).
2. Remove the membrane holder out of its two plastic stirrups (Figure 2).
3. Unscrew (by turning to the right) the cap of the membrane holder using the two special keys provided with the accessories (Figure 3).
4. Once the membrane cap is removed, insert the new membrane by introducing first the side with 4 seals, press the membrane to completely insert it in the membrane holder (Figure 4).

figure1

figure 2

figure 3

figure 4

5. Check that the O-ring on the top of the membrane holder is properly placed.
6. Screw (by turning to the left) the cap of the membrane holder using the two special keys provided.
7. Place the membrane holder on its stirrups.
8. Reconnect the water inlet pipe to the membrane holder (Figure 1).

5 WATER PURIFIER START-UP

1. Connect all the tubings to the water purifier.
2. Check all hydraulic connections.
3. Close the storage tank valve.
4. Open the water purifier exit hand valve.
5. Open the tap water supply valve.
6. Connect the power supply cable and switch ON the water purifier.
7. The control unit goes through the following phases:

	The water purifier washes the membrane. *The conductivity may be different from 1.0*
	The water purifier rejects the stagnant water. *The conductivity may be different from 1.0*
	The pump is running and the water purifier is producing purified water. *The conductivity may be different from 1.0*

8. Wait until the system has produced 5 liters of water.
9. The displayed production conductivity shall be between **0 and 0.1 µS/cm**. close the outlet water valve.
10. Open the valve of the pressurized water tank and wait until it is full: the pump must stop and the controller must display again “READY”.
11. The water purifier is ready to use.

An error message may appear on the screen when switching on the device, as long as the produced water does not come out of the tap. After a few seconds the error message will disapped, and the conductivity value will appeared on the screnn.

6 USER MAINTENANCE

6.1 MAINTENANCE CALENDAR

In order to maintain an optimal functioning of the water purifier, it is necessary to check regularly the water purifier and to perform the first level maintenance.

These actions must be executed by the user. The following table lists the actions and their frequency.

6.1.1 Calendar

Frequency	Operation
EVERY DAY	Check that the status « READY » is displayed
EVERY DAY	Check the displayed value of the production conductivity (after running about 1 liter of production water). See paragraph 6.4.2 when the production conductivity exceeds 1.0 µS/cm
EVERY 3 MONTHES	Check the displayed conductivity value of the water after the membrane (after running about 1 liter of production water).
AT LEAST EVERY 6 MONTHES depending of conductivity values	Replace the pre- and post- treatment cartridges. See paragraphs 6.4.3, 6.4.4, 6.4.5, 6.4.6
OCCASIONALLY	Replace the membrane and the restrictor. See paragraph 6.4.7, 6.4.8

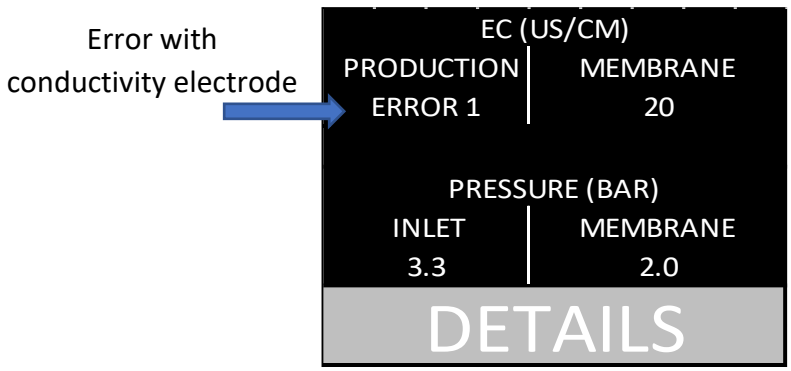
6.1.2 System errors

When there is a malfunction, the water purifier stops, the ‘EC’LED blinks in red color and the controller displays the potential causes of error with a code.

Call the service.

6.2 INTEGRATED CONDUCTIVITY ELECTRODE ERROR

When there is an issue with the integrated conductivity electrodes, the water purifier continues to operate, but does not report any more the conductivity measure by the faulty electrode. On the screen « DETAILS », accessible by pressing shortly on ‘+’ from the main screen, the error code is displayed.



Call the service.

6.3 CONSUMABLES

6.3.1 OP202+/OP302+/«O maxi+» FILTER KIT (ref. 950019)

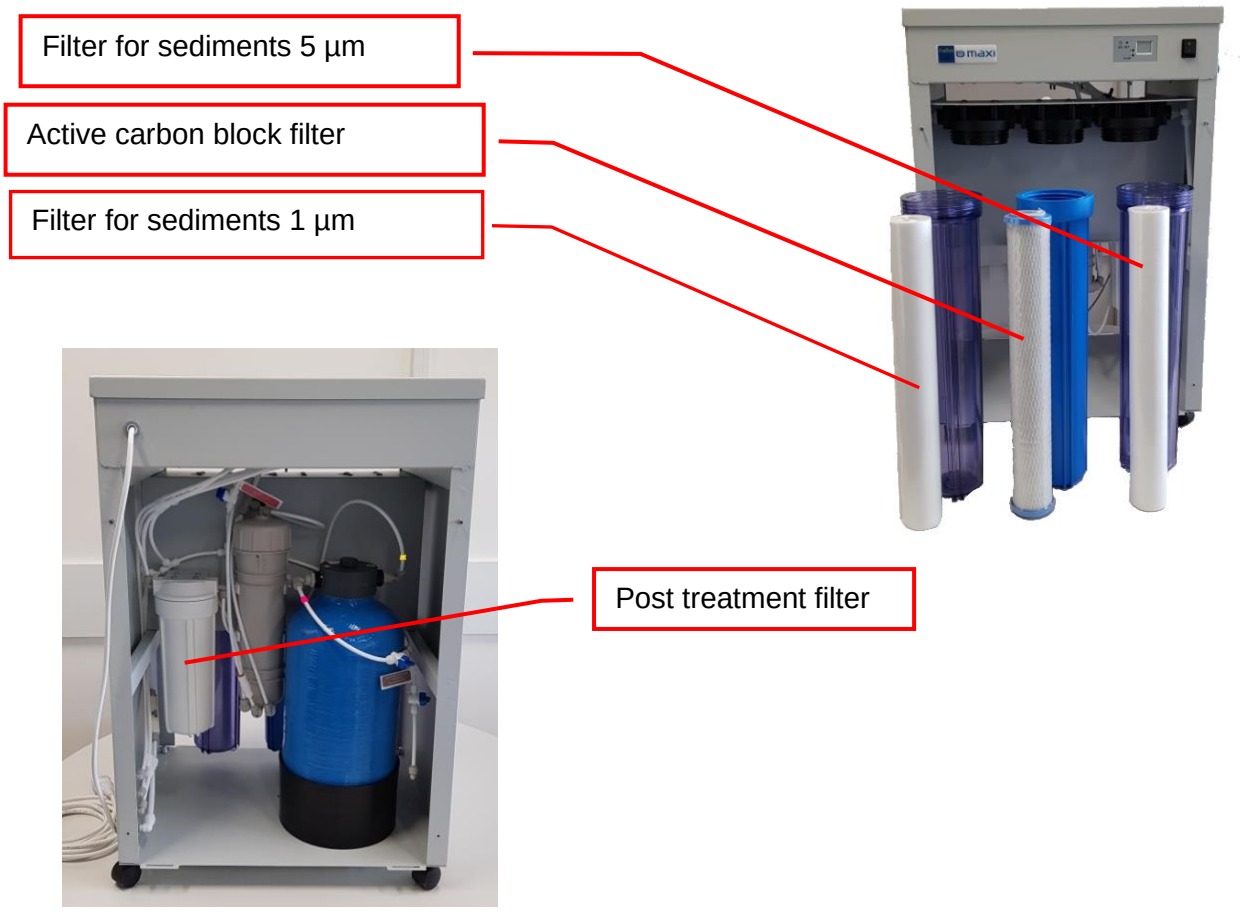
The kit contains the following consumables:

Pre-treatment	The 5 µm sediments cartridge (20")
	The active carbon block cartridge (20")
	The 1 µm sediments cartridge (20")
Post-treatment	The 1 µm post treatment cartridge (10")

The 3 **pre-treatment** filters must be replaced when a plugging, significant drop of the purified water production flow and/or sediments 5 µm filter seems dirty.

Note: the 3 pre-treatment cartridges average lifetime is from 2 to 6 months following the tap water quality (Material Suspended rate measurable by the turbidity) and the water purifier running time.

The **post treatment** cartridge must be replaced at the same time than the pre-treatment cartridges.



6.3.2 «O maxi+» MEMBRANE KIT (ref. 959070)

The kit contains the following consumables: 1 Membrane 300 GPD + 1 flow restrictor 300 CC

Flow Restrictor

Reverse osmosis membrane 300 GPD

⚠ The direction of the arrow inscribed on the restrictor is very important. The arrow must be down

The reverse osmosis membrane and the flow restrictor must be replaced when the flow of purified water outlet is significantly low despite of a recent replacement of pre-treatment filters or/and an important increase in the frequency of the ions exchangers resins bottle replacement.

Note: the average lifetime of a reverse osmosis membrane is from 1 to 3 years following the tap water quality, the water purifier running time and the preventive maintenance respect.

6.3.3 OP101+/OP202+/OP302+/«O maxi+» RESIN KIT (ref. 950243)

The **resin bottle** must be changed when the purified water conductivity increases.

Note: the average lifetime of a resin cartridge is from 2 to 6 months following the mineralization (hardness = limestone rate) of the tap water and the water purifier running time.

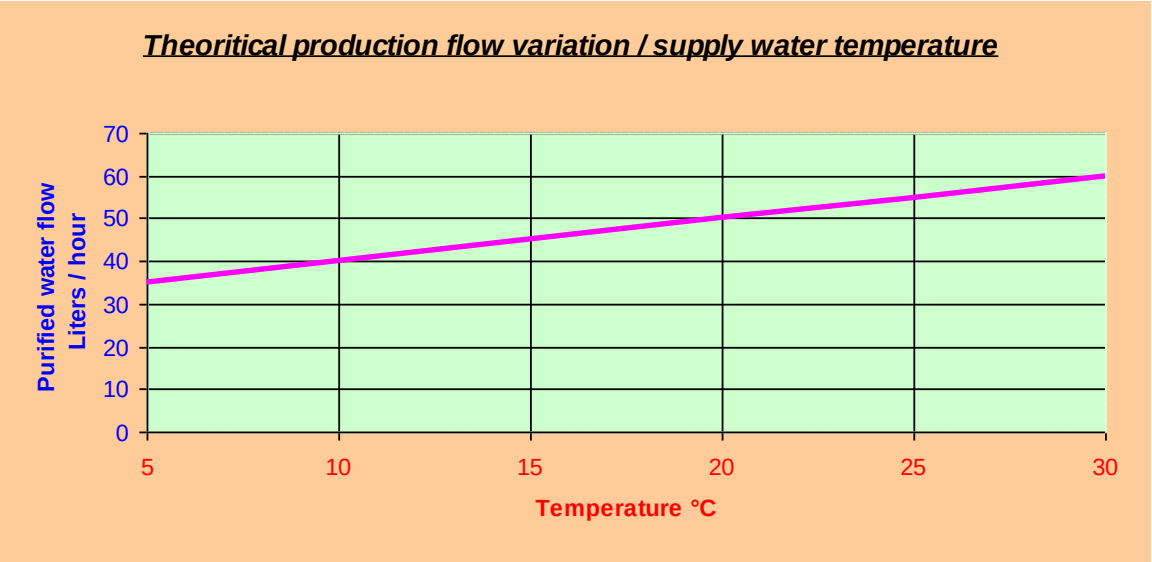
6.4 MAINTENANCE PROCEDURES

6.4.1 Flow measurement procedure

6.4.1.1 General points

The flow measurement is interesting to check the filters and reverse osmosis membrane plugging state.
The osmosis membrane flow is function of the supply water temperature.
We generally allow a flow drop of 3 % per Celsius degree in a range from 10 to 25 °C.
This flow measurement must be compared to the water purifier theoretical nominal value with a fixed temperature, which is 25 °C:

Note: this theoretical flow rate represents the production at a "tank outlet" pressure of zero bar; it decreases according to the increase in the pressure "Outlet tank".



6.4.1.2 Equipment

1. A graduated test tube of 500 mL.
2. A chronometer.

6.4.1.3 Operating method

1. Close the storage water hand valve.
2. Open the water purifier exit hand valve and let flowing 30 seconds to get a stabilized flow.
3. Trigger the chronometer as soon as the test tube is filling. Make a measurement on 1 or 2 minutes.
4. Convert the result into liters/hour. Compare this measurement to the theoretical value.

6.4.2 Understanding conductivity values

6.4.2.1 General information

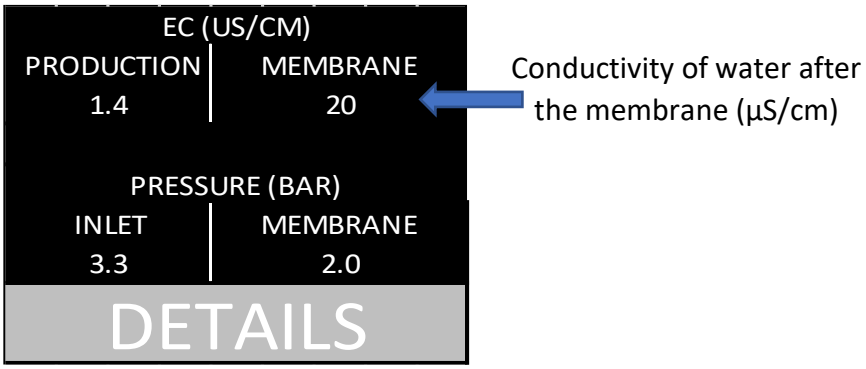
The global quantity of dissolved solids in water can be measured by the CONDUCTIVITY (expressed in microSiemens per centimeter (µS / cm).

6.4.2.2 Production conductivity « output of water purifier »

 Class 2 water (see ISO 3696 standard) Convenient for clinical analyzers.	The conductivity of the produced water is below 1µS/cm The conductivity indicator is switched OFF
 Class 3 water (see ISO 3696 standard) If the desired water class is 2: 1. Replace the resin (see paragraph 6.4.9) 2. Follow the instructions of paragraph 4.3	**HI** (too high) is displayed when the conductivity is between 1.1 µS/cm to 5µS/cm The conductivity indicator is ON with yellow colour
 1. Replace the resin (see paragraph 6.4.9) 2. Follow the instructions of paragraph 4.3	**SAT** (saturated) is displayed when the conductivity is above 5µS/cm The conductivity indicator is ON with red colour When the conductivity is above 9.9, **++** is displayed

6.4.2.3 Conductivity of « after membrane»

It is possible to check the conductivity after the membrane on the « DETAILS » screen.



Is the conductivity « after membrane » above 25 µS/cm ?

YES **, THEN change:**

- the membrane (see paragraph 4.5)
- the flow restrictor (see paragraph 6.4.8)
- check the production conductivity (see paragraph 3.6.9.1)

NO **, THEN check the production conductivity (see paragraph 3.6.9.1)**

6.4.3 Change of SEDIMENT FILTER 5 µm

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Using the big key (supplied with water purifier) carefully unscrew (turn to the left) the transparent filter holder (the right in front); *WARNING: the filter is filled with water, a mop is recommended!*
7. Remove the filter cartridge. Introduce the new cartridge SEDIMENT FILTERS 5 µm (*included in kit ref. 950019*
8. Check that the O-ring is properly positioned in the filter holder groove, then re-screw it. A « good tightening by hand » is enough.
9. Dry the floor at the bottom of the water purifier.
10. Open the tap water hand valve.
11. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
12. Open the storage tank hand valve.
13. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
14. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.4.4 Change of ACTIVE CARBON BLOCK FILTER

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Using the big key (supplied with water purifier) carefully unscrew (turn to the left) the blue filter holder (the middle one)
7. Remove the filter cartridge. Introduce the new cartridge ACTIVE CARBON BLOCK FILTER *included in kit ref. 950019*
8. Check that the O-ring is properly positioned in the filter holder groove, then re-screw this one. A « good tightening by hand » is enough.
9. Dry the floor at the bottom of the water purifier.
10. Open the tap water hand valve.
11. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
12. Open the storage tank hand valve.
13. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
14. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.4.5 Change of SEDIMENT FILTER 1 µm

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Using the big key (supplied with water purifier) carefully unscrew (turn to the left) the transparent filter holder
7. Remove the filter cartridge. Rinse the filter holder. Introduce the new cartridge SEDIMENT FILTERS 1 µm 20" *included in kit ref. 950019*
8. WARNING: the filter is filled with water, a mop at hand is recommended!
9. Check that the O-ring is properly positioned in the filter holder groove, then re-screw it. A « good tightening by hand » is enough.
10. Dry the floor at the bottom of the water purifier.
11. Open the tap water hand valve.
12. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
13. Open the storage tank hand valve.
14. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
15. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.4.6 Change of the POST TREATMENT CARTRIDGE: SEDIMENT 1 µm

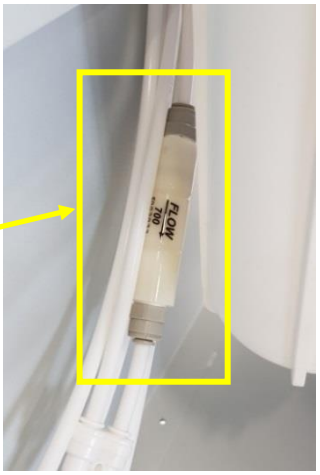
1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Using the small key (supplied with water purifier) carefully unscrew (turn to the left) the transparent filter
7. *WARNING: the filter is filled with water, a mop at hand is recommended!*
8. Remove the filter cartridge. Rinse the filter holder. Place the new cartridge « Sediment Filter 1 µm 10" *included in kit ref. 950019*
9. Check that the O-ring is properly positioned in the filter holder groove, then re-screw it. A « good tightening by hand » is enough.
10. Dry the floor at the bottom of the water purifier.
11. Open the tap water hand valve.
12. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
13. Open the storage tank hand valve.
14. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
15. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.4.7 Change of the REVERSE OSMOSIS MEMBRANE

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Disconnect the water inlet pipe from the membrane holder by disconnecting the fast connector.
7. Remove the membrane holder out of its two plastic stirrups (see paragraph 4.5).
8. Unscrew (by turning to the right) the high streaked part ("big cap") of the membrane holder.
9. Once the holder membrane open, remove with nippers, the worn reverse osmosis membrane. Introduce the new membrane, the peripheral seal at the top, up to complete block stop: the extremity of the collector tube must outcrop the membrane holder one.
10. Dry the floor at the bottom of the water purifier.
11. Open the tap water hand valve.
12. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
13. Open the storage tank hand valve.
14. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
15. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.4.8 Change of FLOW RESTRICTOR

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Disconnect the flow restrictor.



Pay attention to the direction of flow restrictor. The arrow must point towards the outlet of the device

7. Replace it by the new.
8. Dry the floor at the bottom of the water purifier.
9. Open the tap water hand valve.
10. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
11. Open the storage tank hand valve.
12. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
13. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.4.9 Change of the IONS EXCHANGERS RESINS BOTTLE

1  Hand valve N°1	2 	3 

1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Take the resin bottle out of the device (picture 1).
7. Close the hand valve N°1.
8. Disconnect the two elbow connector's (picture2).
9. Connect the two elbow connector's on the new resin bottle (see chapter: 4.3 step2).
10. To open the hand valve N°1.
11. Dry the floor at the bottom of the water purifier.
12. Open the tap water hand valve.
13. Re-plug the power plug then start up the water purifier. On the controller screen is displayed «PURGE»: the water purifier starts a rinsing cycle of the osmosis membrane. The rinsing is ended when the controller screen displays «PROD»; the water purifier is on production.
14. Open the storage tank hand valve.
15. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 5 litres of water.
16. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

7 PACKING LIST

Picture	Item	Picture	Item
	WATER PURIFIER «O MAXI+» Reference 400951300		75 LITERS PRESSURIZED TANK Reference 400950240
	RO MEMBRANE 300GPD Reference 400950250		OP101+/OP202/OMAXI/OMAXI+ RESIN KIT Reference 400950243
	TUBE ELBOW UNION 3/8” Reference 400950088		HAND VALVE 1/4" Reference 400950330 Quantity: 2
	TEE UNION 1/4" Reference 400950091 Quantity: 2		TUBE ELBOW UNION 1/4" Reference 400950089 Quantity: 3
	MALE CONNECTOR 3/8" QUICK FIT / 1/2" NPTF Reference 400950442		HOUSING 10" FILTER KEY Reference 400950098
	HOUSING 20" FILTER KEY Reference 400950097		HOUSING MEMBRANE KEY2 Reference 400950291
	HOUSING MEMBRANE KEY1 Reference 400950292		WATER INLET VALVE Reference 400950513
	DRAIN CLAMP Reference 400951013		POLYETHYLENE TUBE 1/4" 15 METERS Reference 400950030
	POLYETHYLENE TUBE 3/8" 5 METERS Reference 400950179		FEMALE CONNECTOR 3/8" QUICK FIT / 1/2" NPTF Reference 400140009
	ELECTRIC ADAPTATOR Reference 400951110		

Non contractual images

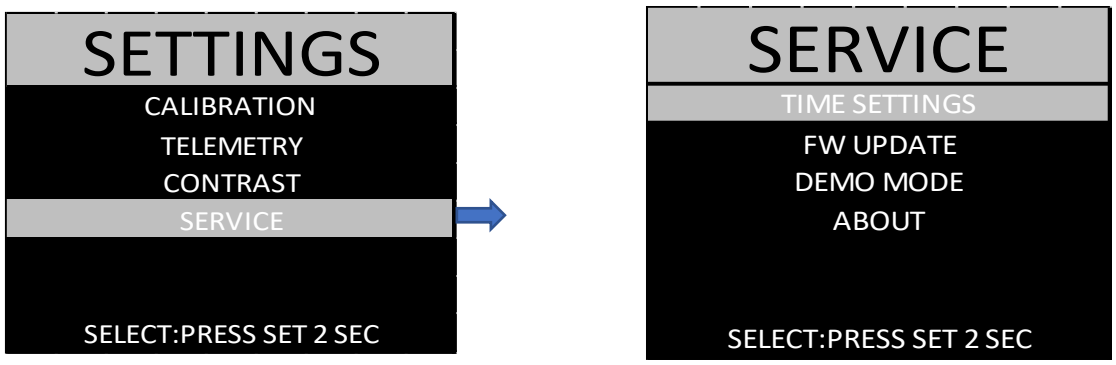
8 SERVICE

The information in this chapter are reserved exclusively to service technicians.

8.1 'SERVICE' MENU

The 'SERVICE' menu, reserved to the service technicians, allows operations with risks of degradation and malfunction of the water purifier:

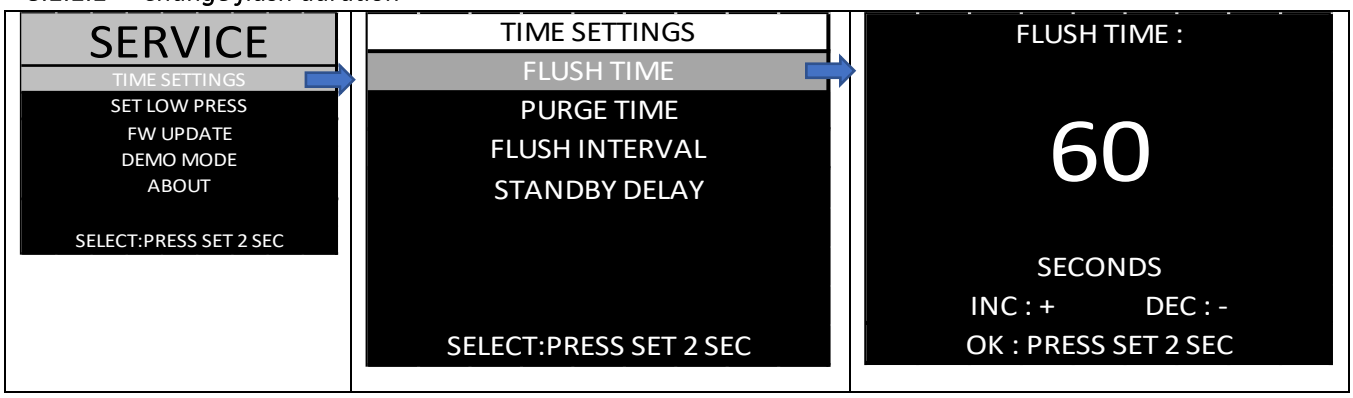
- Change of delays: flush duration; purge duration; time between 2 automatic flushes
- Firmware update
- Switch ON demonstration mode (screens displayed without checking sensors)
- Display firmware serial number



8.1.1 Timings change

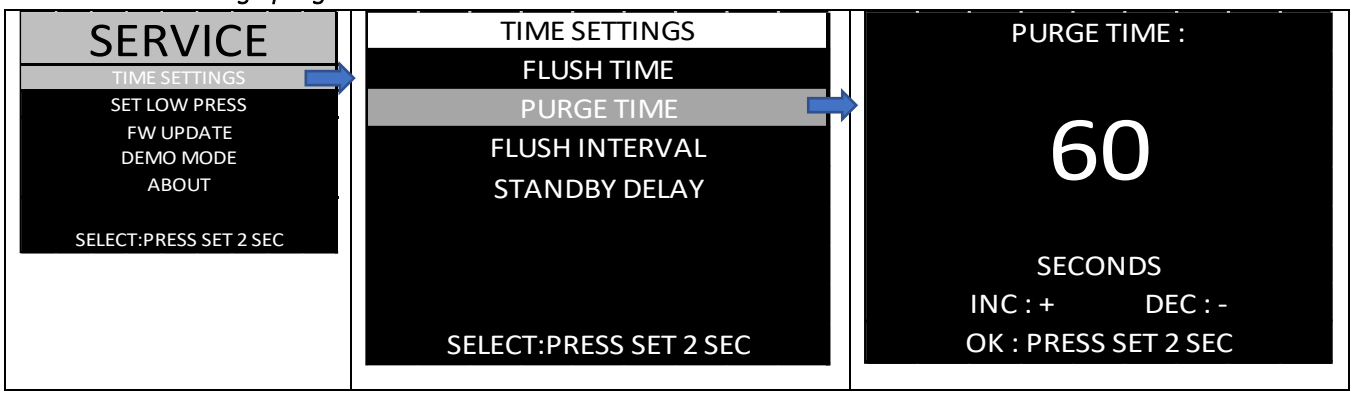
These operations are reserved to service technicians.

8.1.1.1 Change flush duration



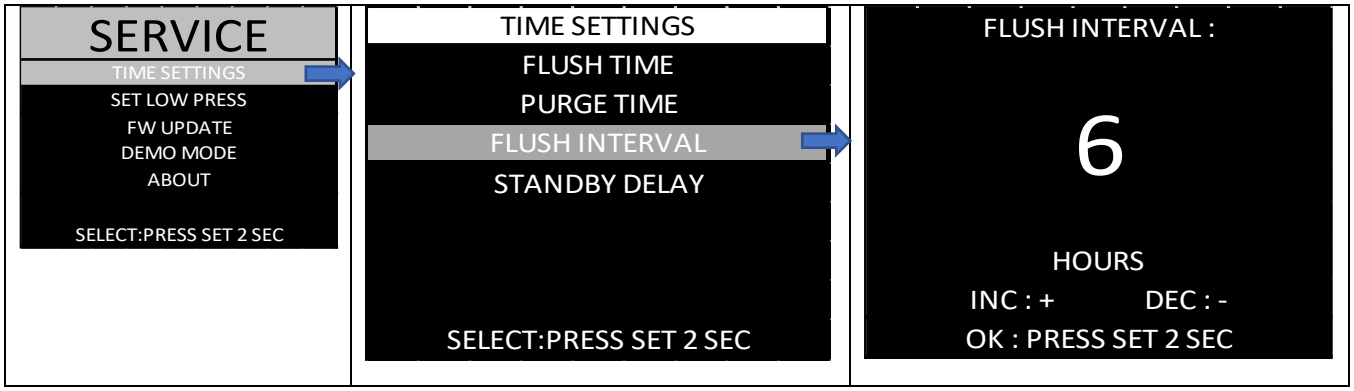
Press '+' or '-' to adjust the value. Validate by pressing with a tool for 2 seconds the 'SET' button.

8.1.1.2 Change purge duration



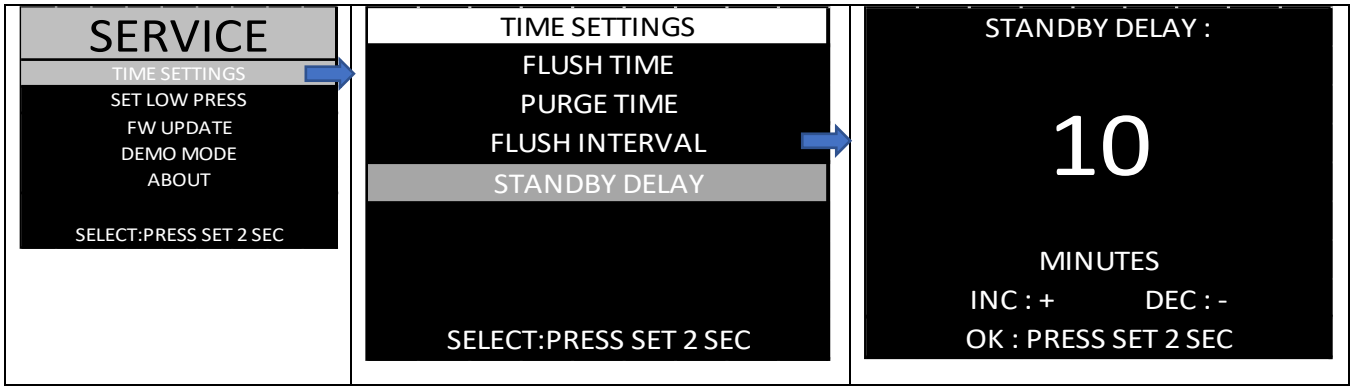
Press '+' or '-' to adjust the value. Validate by pressing with a tool for 2 seconds the 'SET' button.

8.1.1.3 Change delay between automatic flushes



Press '+' or '-' to adjust the value. Validate by pressing with a tool for 2 seconds the 'SET' button.

8.1.1.4 Change delay before standby screen

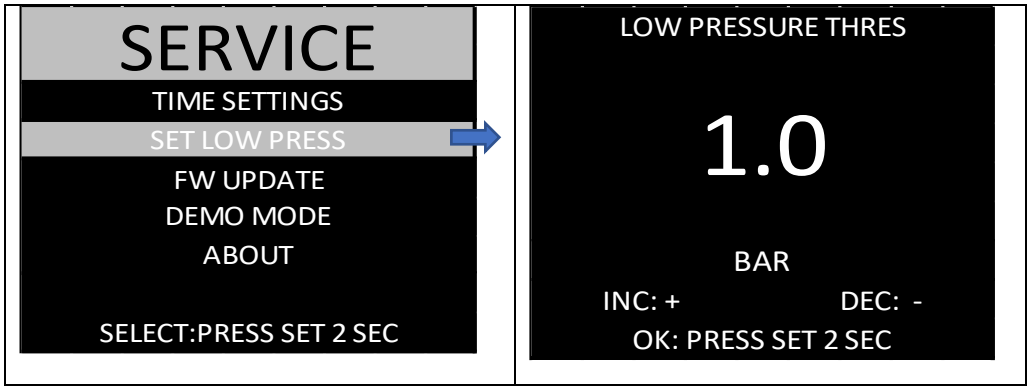


Press '+' or '-' to adjust the value. Validate by pressing with a tool for 2 seconds the 'SET' button.

8.1.2 Low-pressure threshold setting

(threshold to re-launch production after a stop due to a high pressure value on prod valve)

These operations are reserved to service technicians.



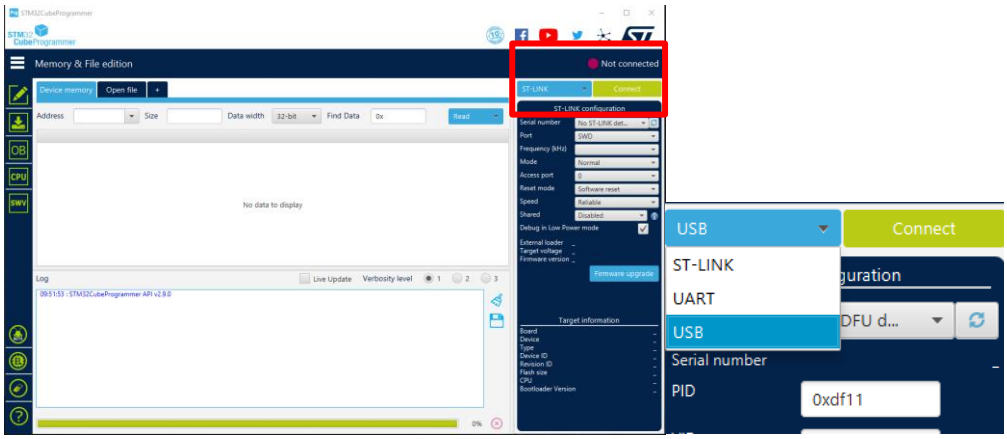
Press on '+' or '-' to adjust the value. Validate by pressing with a tool for 2 seconds on the 'SET' button.

8.1.3 Firmware update

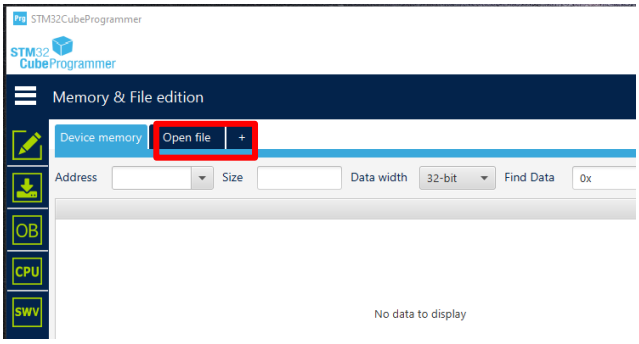
The update of the firmware needs the connection by a USB cable to a PC equipped with the software STM32CubeProgrammer or an ANDROID smartphone equipped with the software ZFLASHERSTM32. Both software are downloadable from the internet.

How to program the OMAXI+ in DFU with STM32CubeProgrammer:

1) Open STM32CUBEPROGRAMMER and change the protocol from ST-LINK to USB on the right of the screen:

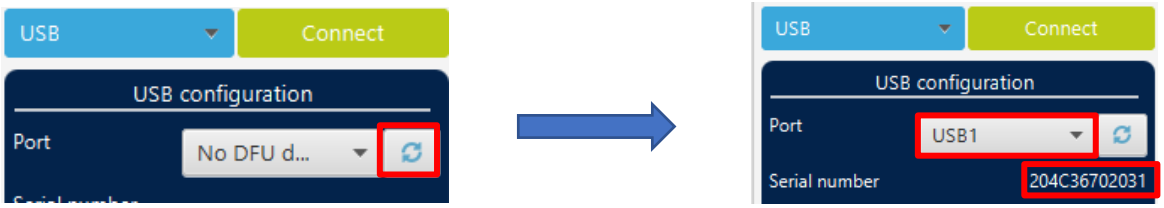


2) load the bin file into cube programmer (file name could be OMINI.bin even if using an OMAXI):

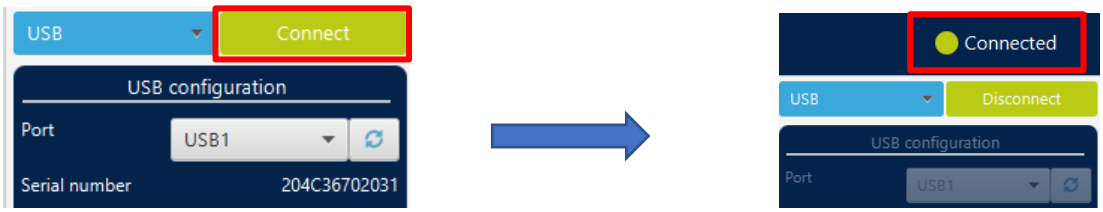


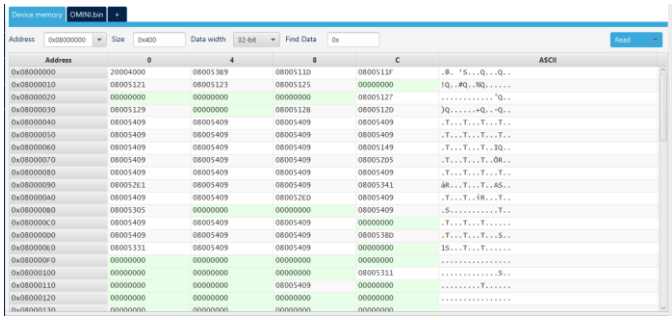
3) Connect the OMAXI+ to the PC via USB and put it into “Firmware Update Mode” (See previous user manual section)

4) Refresh the target list until the target appears in the port list and its serial number is readable

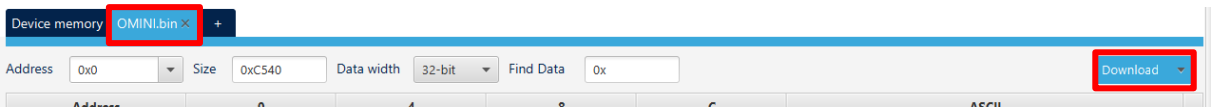


5) Click on connect. The light indicator should now be green, and the device memory is read and shown on the screen

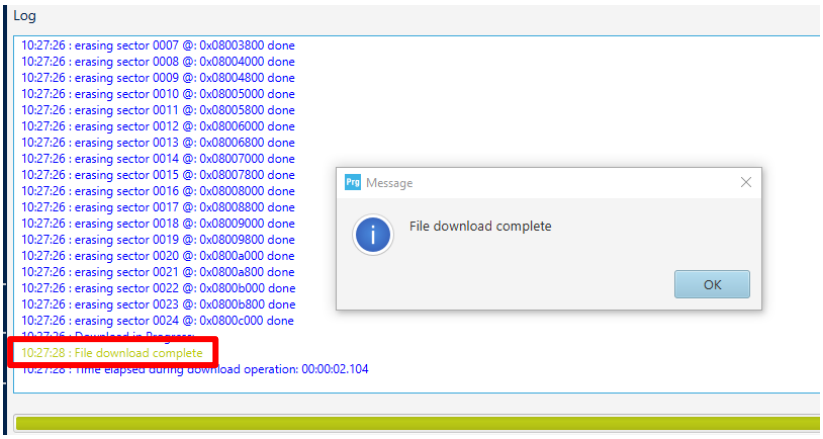




6) Click on the “OMINI.bin” tab on the up of the screen, then on “Download”



7) You should see a pop-up window confirming the file download completion, and a green message in the log screen.

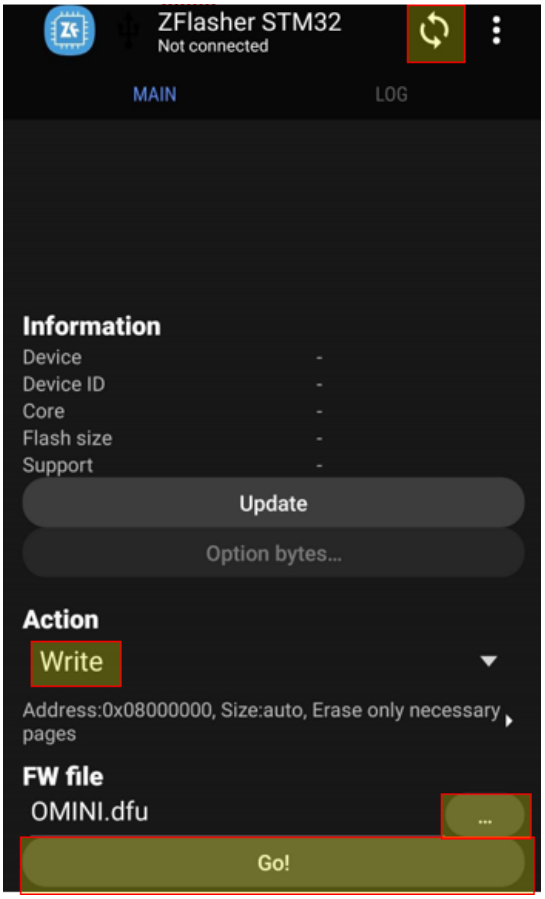


8) The OMAXI+ has now been updated. You can exit CubeProgrammer, disconnect the OMAXI from USB and restart the unit.

<u>How to program the OMAXI in DFU on ANDROID:</u>

1. Install ZFlasherSTM32 and launch it

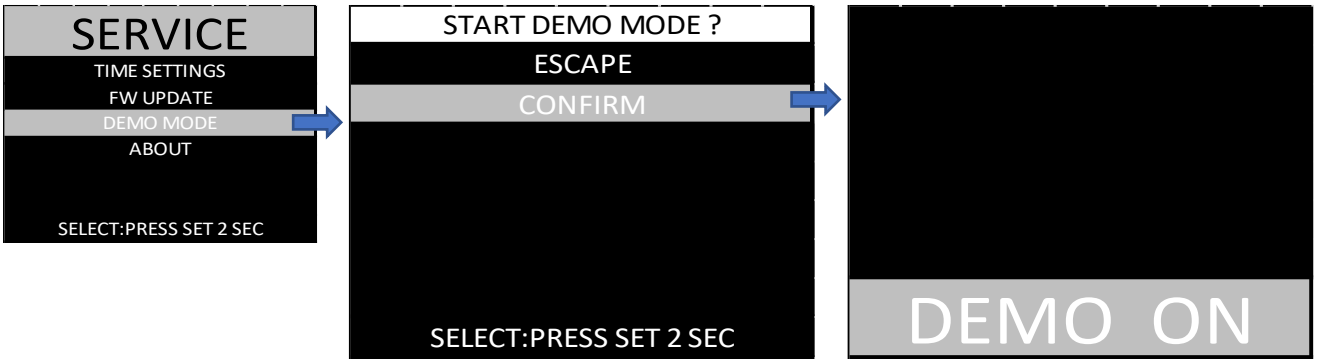
2. Connect the osmoser via USB (you might need an OTG adaptor) and switch it to firmware update mode. If the board doesn't appear on the information section, hit the refresh button  at the top right of the screen.
3. Hit the three dots button  and select the firmware file to load (it should be OMINI.dfu)
4. Check that the action mode is set to "Write"
5. Click on "Go !" at the bottom of the screen and wait for the transfer to be complete
6. You can now restart the osmoser and unplug the USB cable



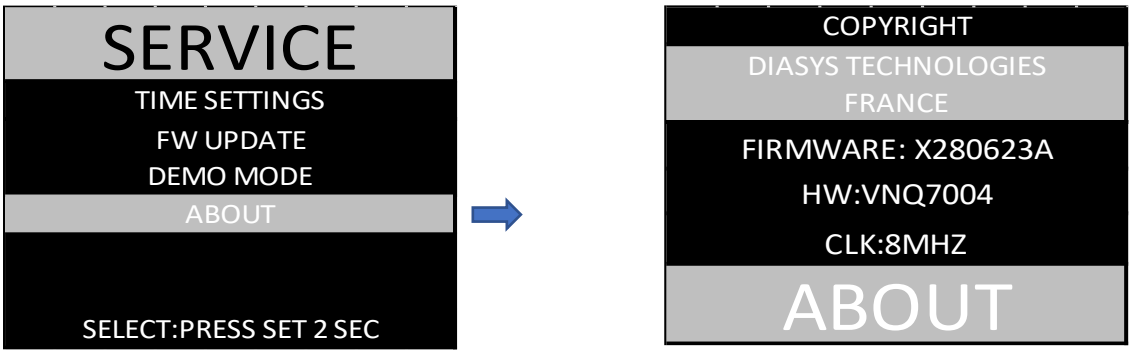
8.1.4 Demonstration mode

The demonstration mode allows to enter all the screens without being blocked due to the sensors.

The demonstration mode stops when restarting the water purifier.



8.1.5 Firmware version display

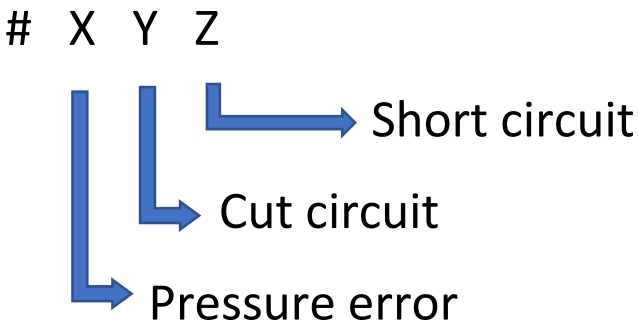


8.2 MANAGEMENT OF THE ERRORS REPORTED BY THE CONTROLLER

8.2.1 Functional errors

In case of malfunction, the Led will turn red and blink. In this case, you can touch any button to awake the screen then the controller will display causes of error, with details and with an error code.

The error code after # contains 3 characters:



Each character is coded in hexadecimal format: it must be converted in binary format to decode the meaning of each bit.

Hexa	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Binary	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111

8.2.1.1 Short circuit detection

Binary code	CAUSE	SUGGESTED ACTION
XXX1	Purge valve in short circuit	Change the purge valve
XX1X	Production valve in short circuit	Change the production valve
X1XX	Pump and inlet valves in short circuit	Change the pump and the inlet valves
1XXX	Flush valve in short circuit	Change the flush valve

8.2.1.2 Cut circuit detection

Binary code	CAUSE	SUGGESTED ACTION
XXX1	Purge valve disconnected or damaged	Check the purge valve
XX1X	Production valve disconnected or damaged	Check the production valve
X1XX	Pump and inlet valves disconnected or damaged	Check the pump and the inlet valves
1XXX	Flush valve disconnected or damaged	Check the flush valve

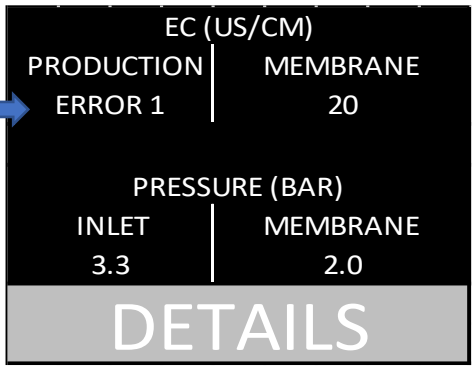
8.2.1.3 Pressure error

Binary code	CAUSE	SUGGESTED ACTION
XXX1	“After membrane” pressure sensor reports too low values	Check the pressure sensor after the membrane
XX1X	“After membrane” pressure sensor reports too high values	Check the pressure sensor after the membrane
X1XX	Inlet pressure sensor reports too low values	- Check the inlet water - Check the inlet pressure sensor
1XXX	Inlet pressure sensor reports too high values	Check the inlet pressure sensor

8.2.2 Errors with integrated conductivty electrodes

In case of problem with one integrated conductivity electrode, the Led will turn red and blink, but the controller continues to run, without displaying the corresponding conductivity, but instead one error code on the « DETAILS » screen (if screen is in standby-mode, press any button to awake the screen).

Problem with the conductivity electrode



Error code	CAUSE	SUGGESTED ACTION
1	The temperature sensor is out of order	Change the conductivity electrode (951107)
2	The conductivity sensor is out of order	Change the conductivity electrode (951107)
3	The 2 preceeding errors occur	Change the conductivity electrode (951107)

8.3 OTHER PROBLEMS

PROBLEMS	POTENTIAL CAUSES	SUGGESTED ACTION
- Screen ON - Impossible to produce water - Pump stopped - « NO FEED » is displayed	- The water inlet is blocked or its pressure is too low	- Check the water supply
	- The water inlet tubing is bent of obstructed	- Check the water inlet tubing
- Screen ON - Low flow of production water - The pump is functional	- Clogging of pre-treatment cartridge	- Replace the post and pre-treatment filters
	- Low flow of water supply	- Increase the flow of water supply
	- Colmatage de la membrane d'osmose inverse	- Change the membrane
- Screen ON - Lack of pressure - Low flow of production water	- Pressurized water tank valve closed	- Open the valve of the water tank
	- Quantity of purified water requested above the capacity the system	- Wait until the pressurized water tank is full
	- Lack of air pressure in the pressurized water tank	- Readjust the air pressure in the pressurized water tank to 0,7 Bar

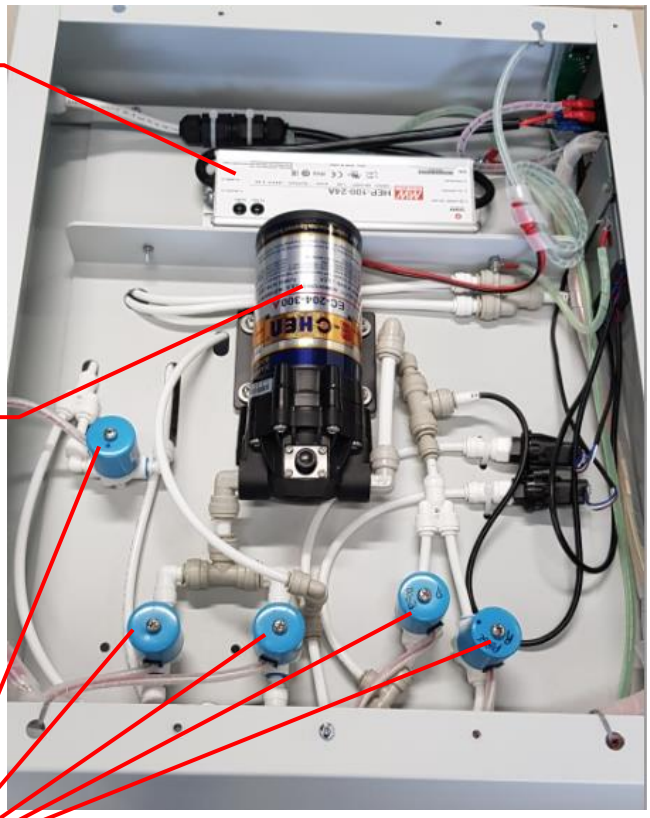
8.4 SPARE PARTS

Controller Ref.***950547***

Filter holder 10” white body Ref.***950238***

Pressurised storage tank 76 Liters Ref.***950240***

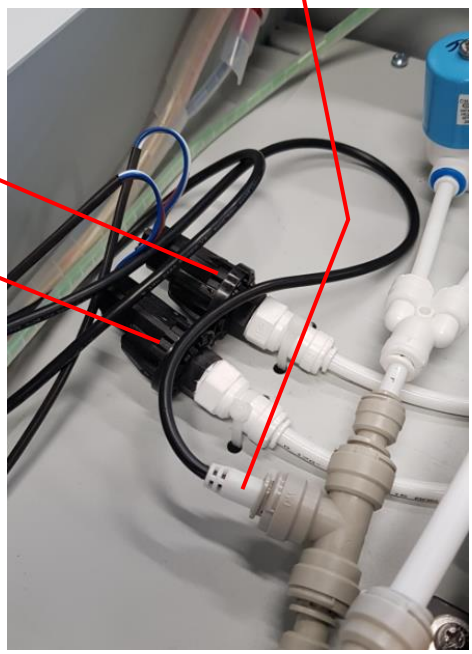
Power supply Ref.***950577***



Booster Pump 300GPD Ref.***951301***

Solenoid valve Ref.***950576***

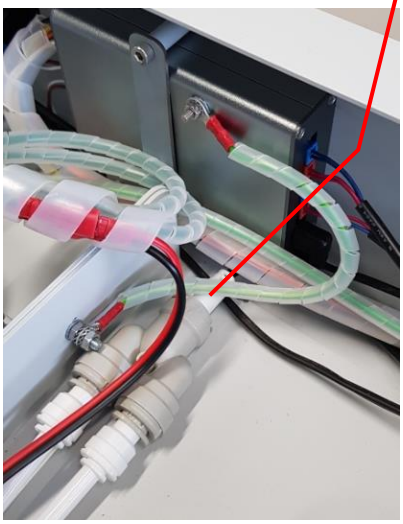
Membrane Conductivity sensor Ref.***951107***

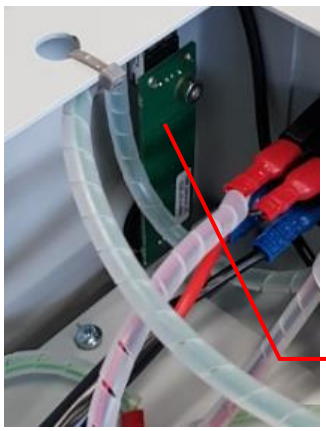


Membrane pressure sensor 10 Bar Ref.***951204***

Inlet pressure sensor 10 Bar Ref.***951204***

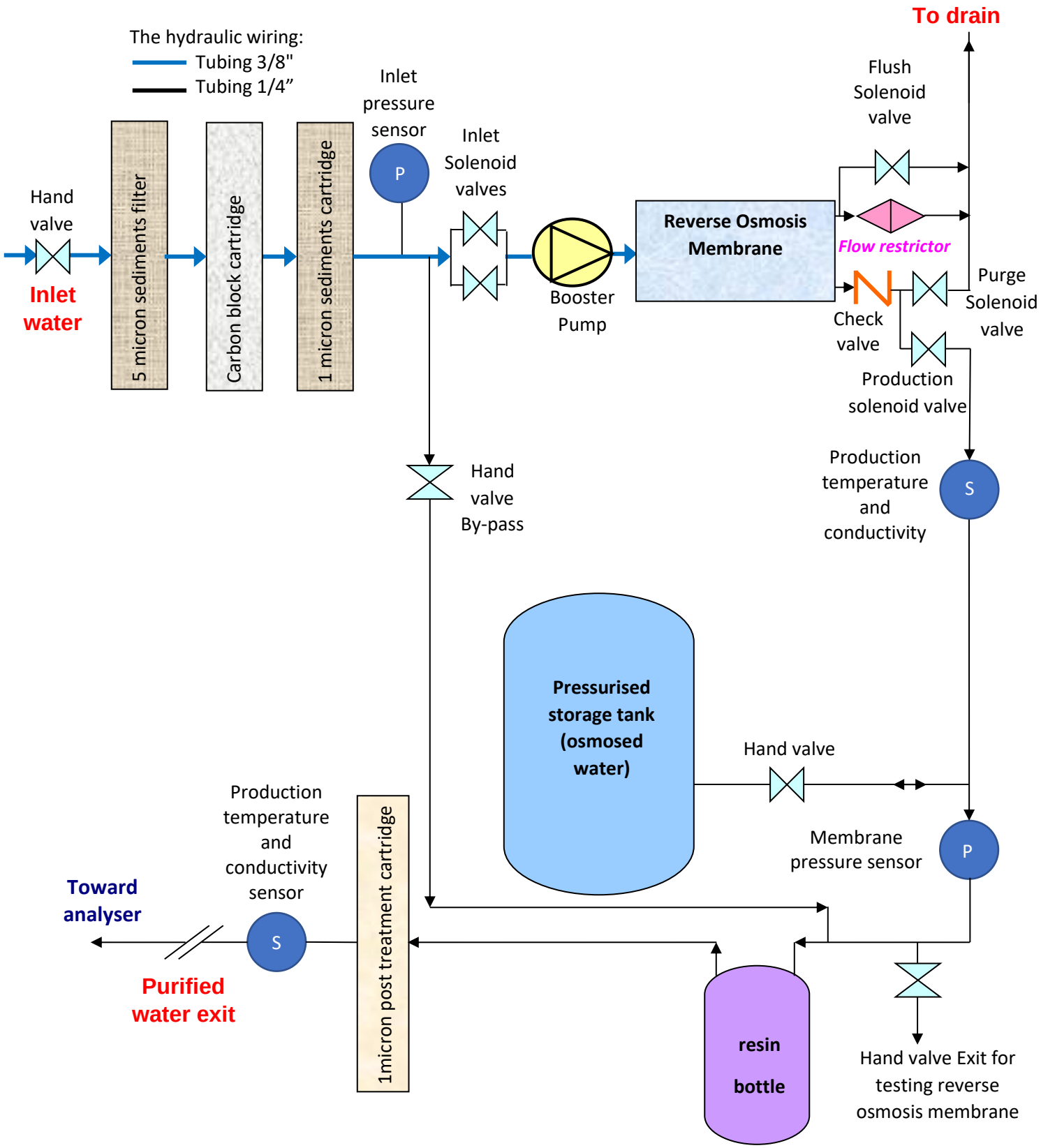
Production conductivity sensor Ref.***951107***





USB communication board Ref.***950558***

8.5 FLOW PATH DIAGRAM maxi+



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