DiaSys

Diagnostic Systems

Operator Manual

For the

Water purifier

Firmware version No.: X060522A

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 without security link

2.2 SAFETY INSTRUCTIONS

To ensure the product SECURITY 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~ 1.2 A 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 mini+» produces water of Class 2 as defined in ISO 3696 standard, which is indented to be used by clinical analyzers.

The principle of purification uses two technologies:

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

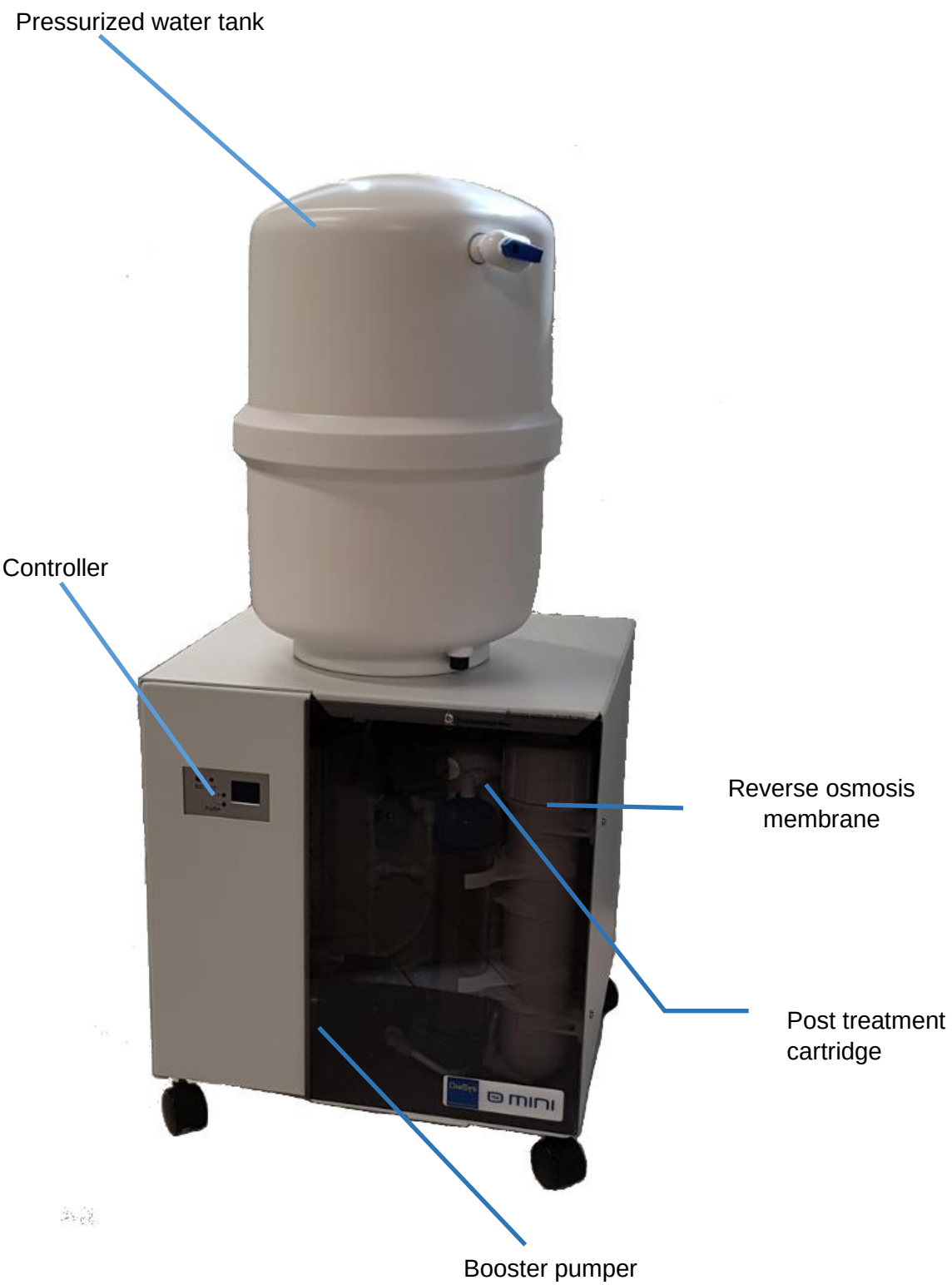
These two associated technologies allow getting water with excellent quality regarding physical composition, chemical composition (mineral and organic) and micro-organic population.

3.2 TECHNICAL SPECIFICATIONS mini+

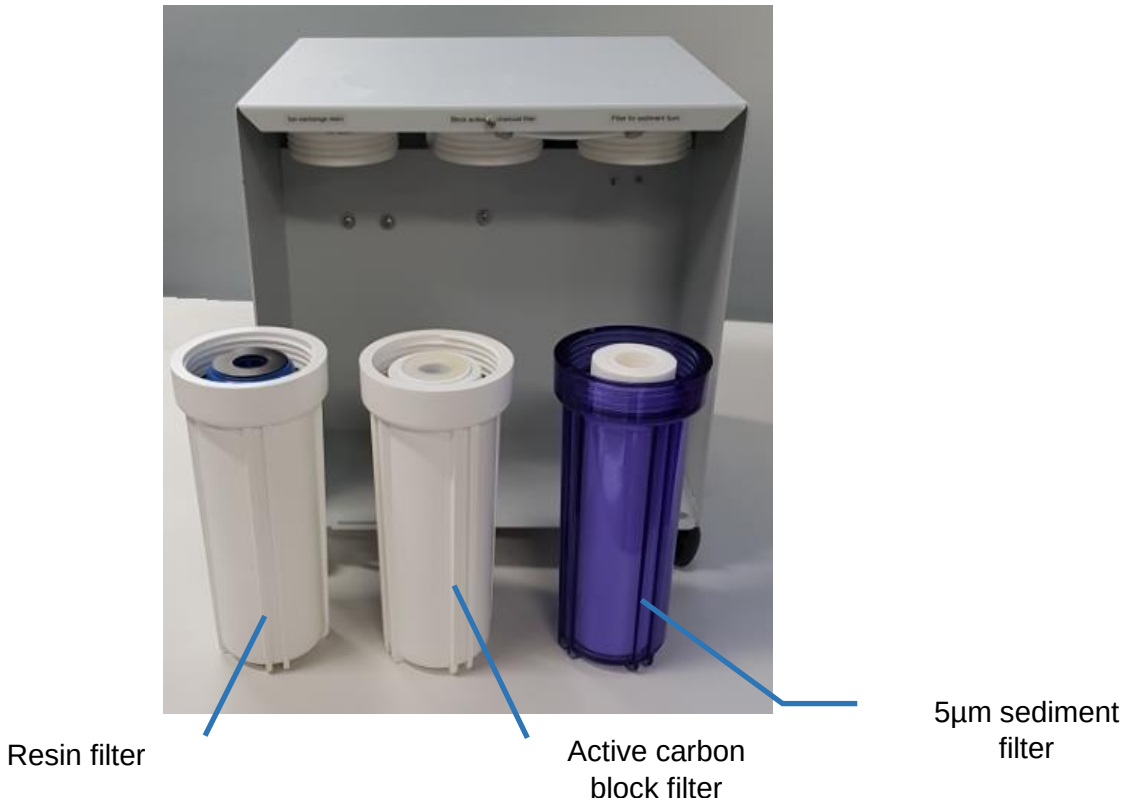
Power supply voltage	100-240V~ 1.2A 50/60 Hz
Production flow at 25 ° C	15 liters / hour
Production flow at 10 ° C	9 liters / hour
Resin type	Mixbed ions exchange resins
Resin volume	1 liter (0.75 + 0.25)
Maximum supply water temperature	38 °C (100°F)
Maximum hardness without protection	4 mmol/L $CaCO_3$
Admissible pH	3 to 11
Mini / maxi supply pressure	2 / 6 BAR
Dimensions (l × h × w)	42 X 39 X 43 cm
Indicative weight	13.5 kg

This system is recommended for daily consumption lower than 30 liters.

3.3 OVERVIEW OF THE SYSTEM (FRONT VIEW)



3.4 OVERVIEW OF THE SYSTEM (BACK VIEW)



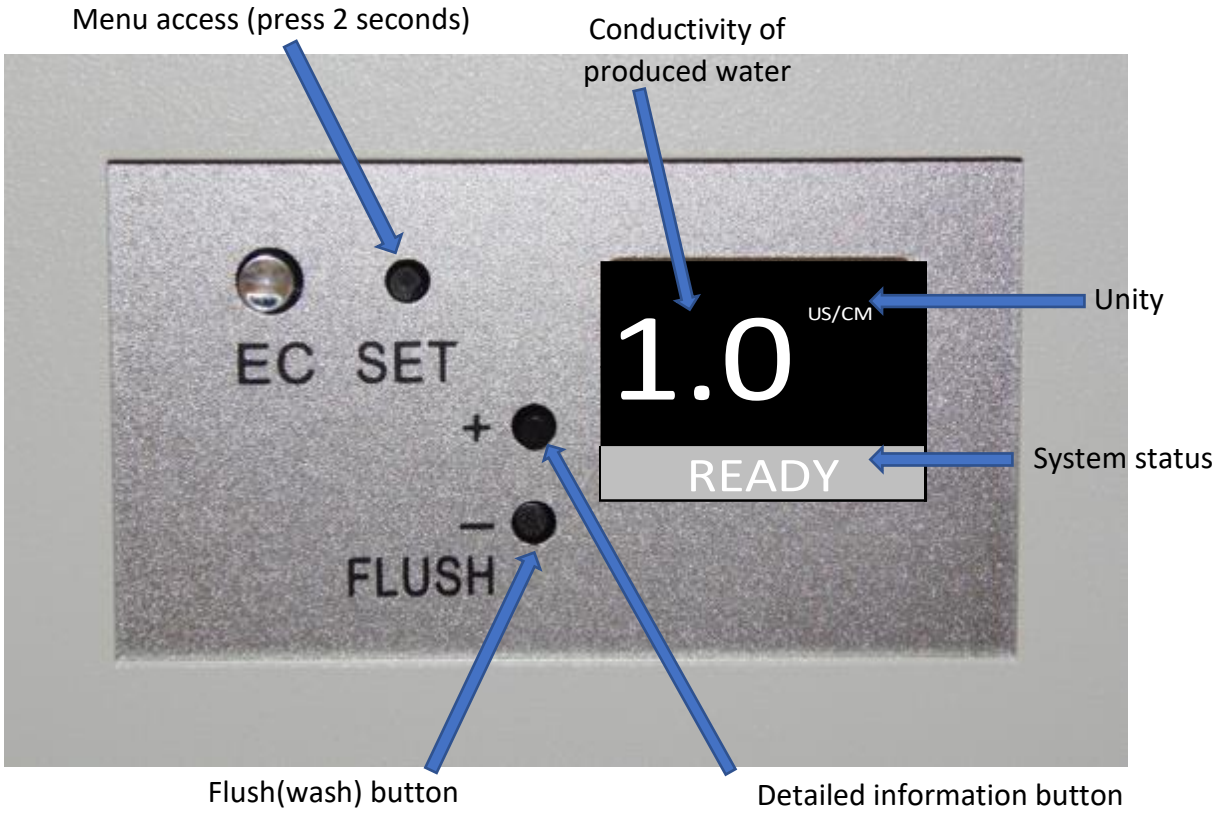
3.5 GENERAL DESCRIPTION

The "O mini+" water purifier includes a set of prefiltration cartridges for filtering the inlet water: 5µm sediment filter + carbon block filter.
After this stage, the water is injected via a booster pump into one 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 2 successive ion exchange resin cartridges and then is filtered by a 1 µm post-treatment filter.
The electromechanical assembly is managed by an electronic controller.

3.6 CONTROLLER DESCRIPTION

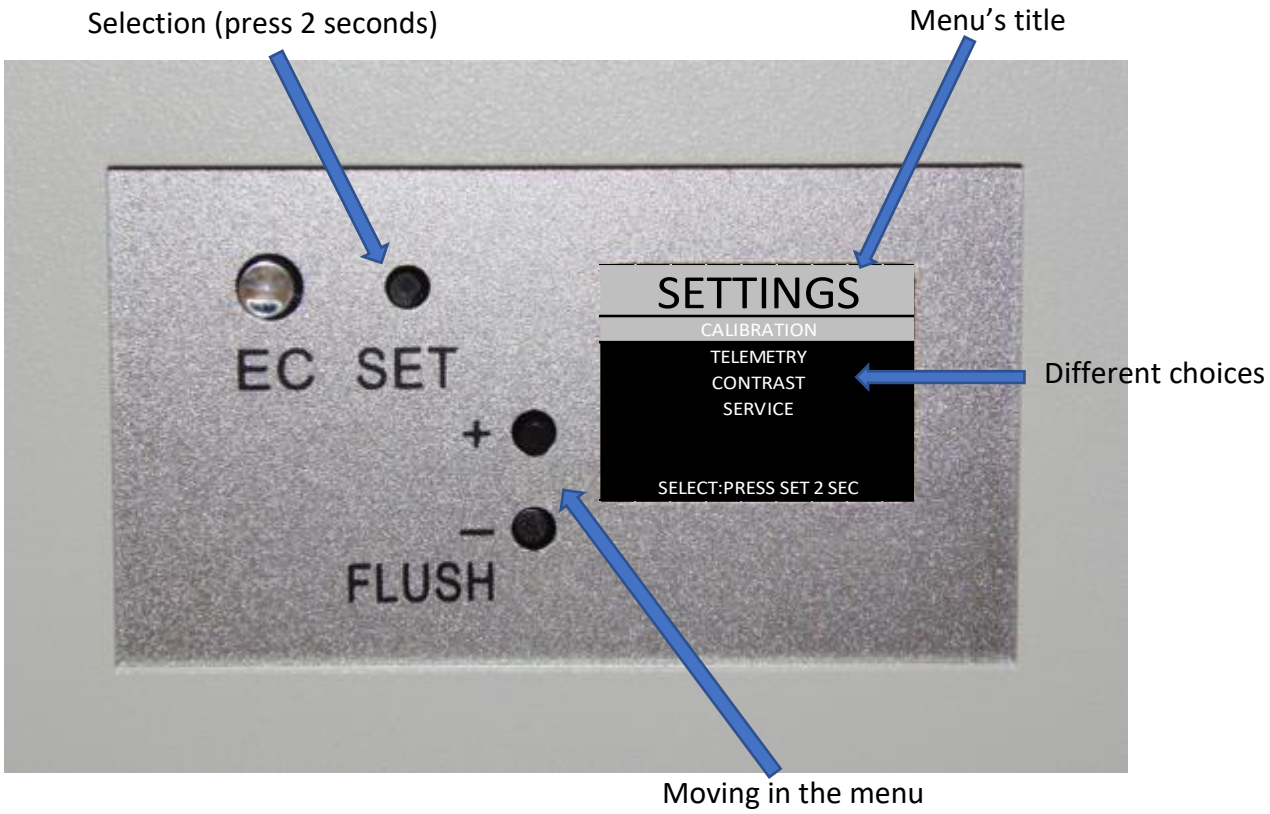
3.6.1 Main display

The conductivity of the produced water is displayed continuously on the main screen.



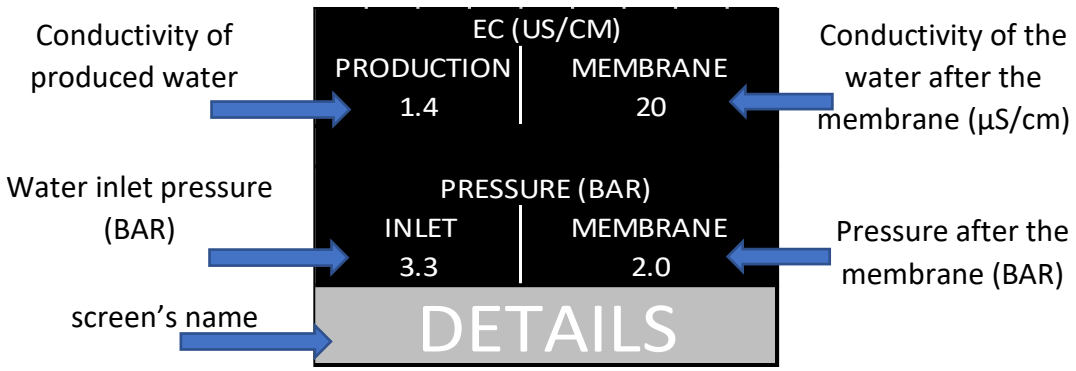
3.6.2 Menu display

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



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 Working phases

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 has stagnated in the membrane.

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

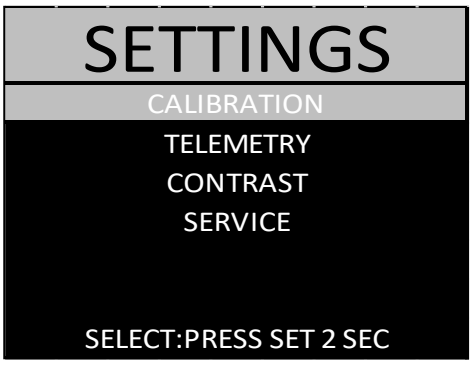
The water purifier is producing water and its pump is turning.

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

The water purifier is ready to use.

3.6.5 Settings menu

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



The available sub-menus are:

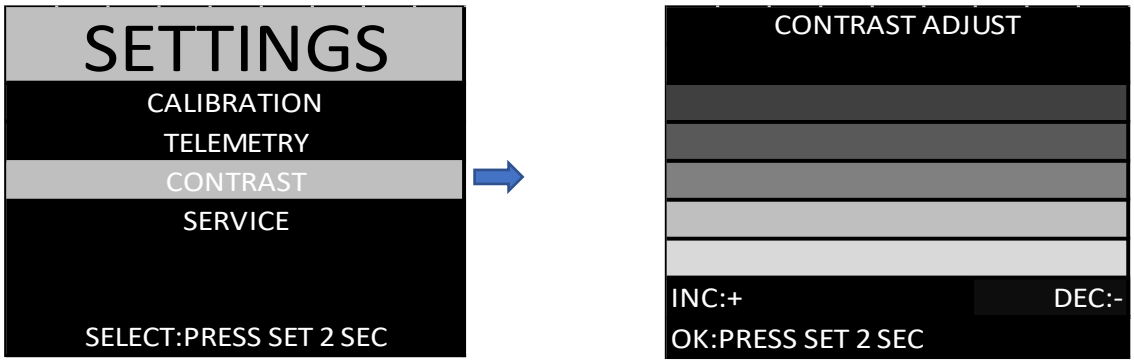
- Calibration of the conductivity electrodes
- Telemetry management
- Screen contrast adjustment
- Tools reserved for service technicians

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 with a tool 2 seconds on the 'SET' button.



3.6.7 General comments on the calibration of the conductivity electrodes

The calibration process is not forced by the system. However 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.

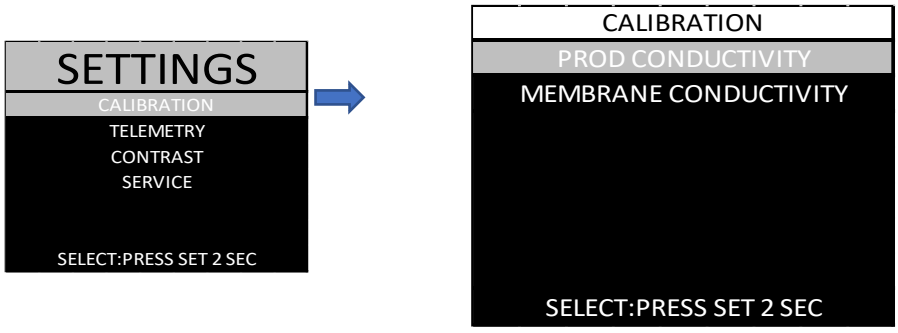
For the calibration of the electrodes, it is necessary to use a precise external conductivity meter which must be calibrated (in option, conductivity meter reference 950026).

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 flowing 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 then plunge the conductivity meter: read the measured value.
6. Renew the operation 2 to 3 times; the retained value will be the last measurement one.
7. Switch off the conductivity meter then place the protection cap.

3.6.7.2 Calibration menu access



3.6.7.3 Use of the adjustment screen

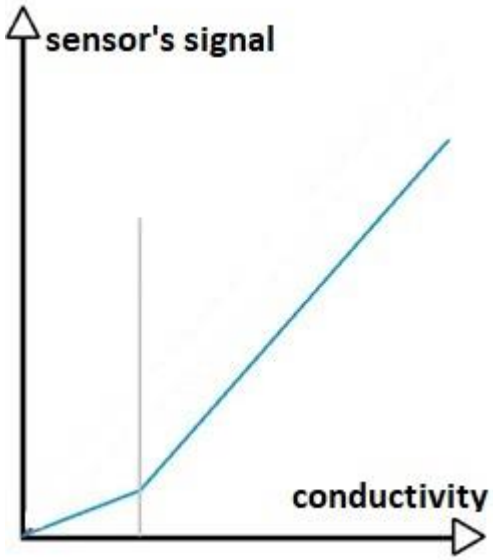
The calibration of the integrated conductivity electrodes is processed with the inner water. In parallel, the conductivity of this water has to be measured with an external conductivity meter which needs to be previously calibrated.

- 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.



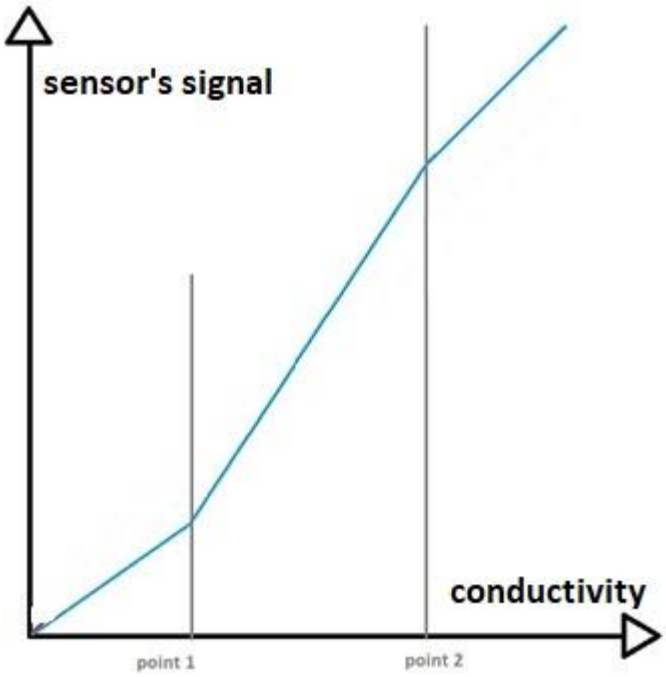
- Point of calibration: grey vertical line.
- The calibration curve goes from 0 to the point of calibration.
- Above the point of calibration, the values are adjusted by a shift from the values measured by the electrode.

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.

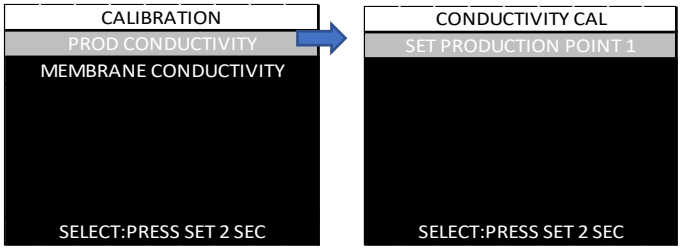
It is recommended to recalibrate the 2nd point of calibration when filters, the RO membrane or the resin is close to the saturation.

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 10µS/cm.

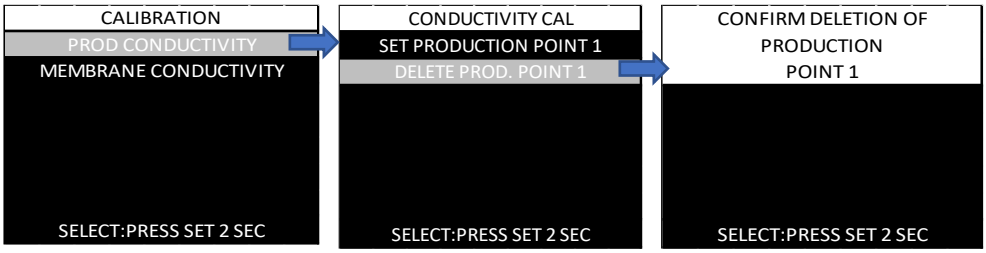
3.6.8.1 To define a 1st point of calibration

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



3.6.8.2 To delete the 1st point of calibration

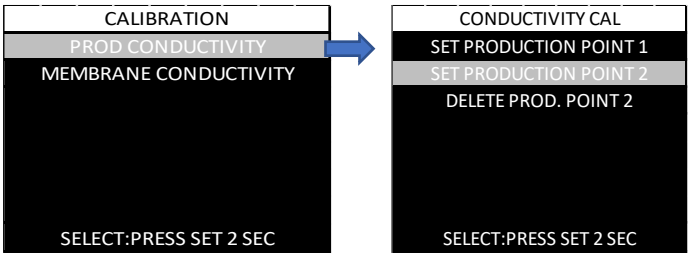
It is possible to come back to the default conductivity values by deleting the 1st point of calibration.



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

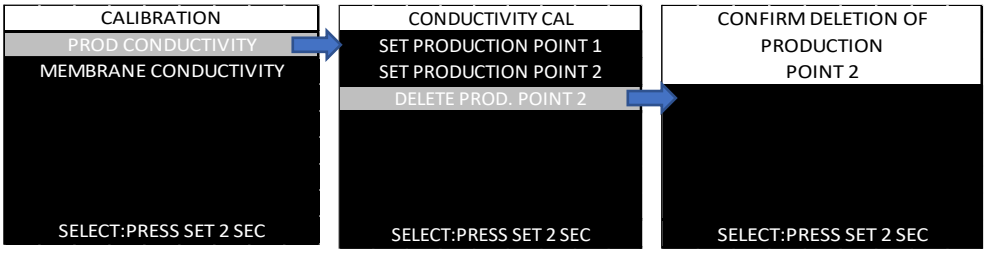
3.6.8.3 To define a 2nd point of calibration

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

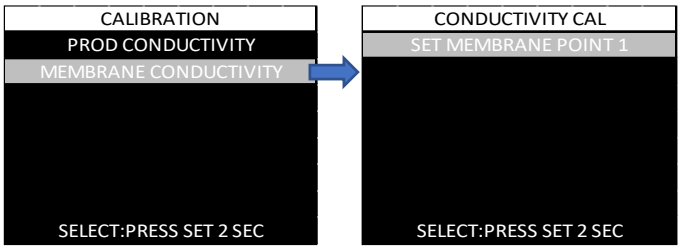
3.6.9.1 How to take water after the membrane

1. Switch off the water purifier
2. Close the valve on top of the pressurized water tank
3. Open the valve « purified water output » during 30 seconds then close it again
4. Disconnect the pressurized water tank and plunge its extremity in clean bowl
5. Switch ON the water purifier
6. Refer to the paragraph explaining how to use the external calibrated conductivity meter (paragraph 3.6.7.1) , using the water from the disconnected tubing
7. Reconnect the tubing to the pressurized water tank
8. Switch ON the water purifier

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

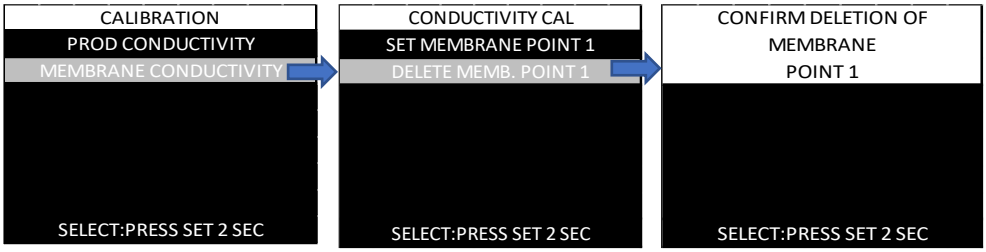
3.6.9.2 To define a 1st point of calibration

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



3.6.9.3 To delete the 1st point of calibration

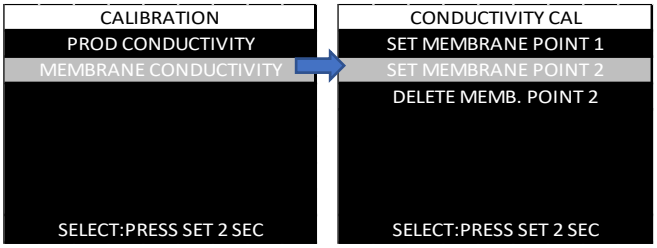
It is possible to come back to the default conductivity values by deleting the 1st point of calibration.



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

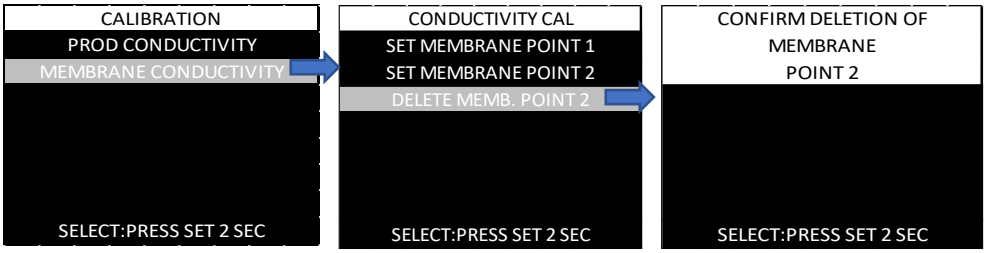
3.6.9.4 To define a 2nd point of calibration

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



3.6.9.5 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.



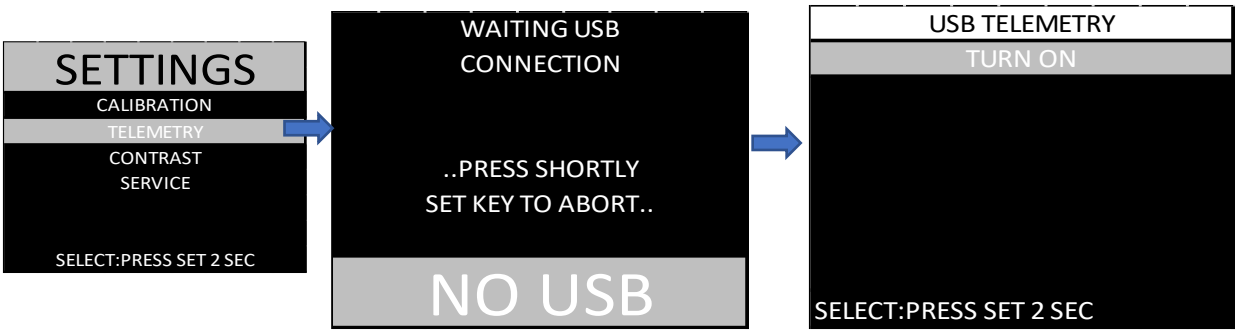
Delete the point of calibration by pressing with a tool 2 seconds on the 'SET' button

3.6.10 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.

When in 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 with a spreadsheet with the data organized in columns.

4 INSTALLING THE WATER PURIFIER

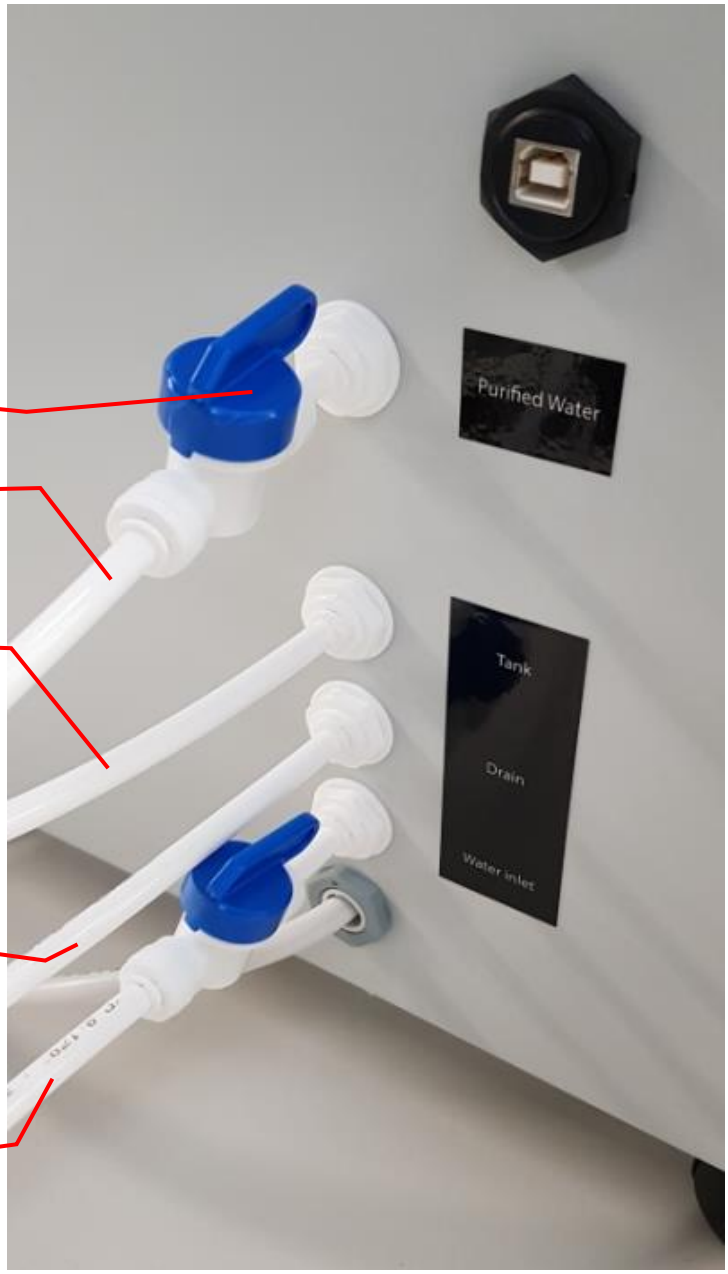
4.1 INSTALLATIONS CONDITIONS

↳ 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 1/4" 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



Hand valve

Purified water outlet

Pressurized water tank connection tubing

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

Waste water to connect to the drain

(DO NOT CONNECT ANY HAND VALVE !)

Water inlet

4.3 INSTALLATION OF THE WATER PURIFIER MEMBRANE

1. Remove the membrane holder out of its two plastic stirrups. (Figure 1)
2. Disconnect the water inlet pipe from the membrane holder by disconnecting the quick fit coupling. (Figure 2)
3. Unscrew (by turning to the right) the high streaked part ("big cap") of the membrane holder.
4. Once the membrane door is opened. Insert the new membrane (Figure 3), peripheral seal at the top, to the complete stop: the end of the collecting tube must be closed to the top of the membrane holder. (Figure 4)

Figure 1

Figure 2

Figure 3

Figure 4

5. Check that the O-ring is well-positioned at the bottom of the retaining wall of the membrane holder. (Figure4)
6. Unscrew (by turning to the right) the high streaked part ("big cap") of the membrane holder.
7. Reconnect the water inlet hose.
8. Clip the membrane on its stirrups.

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 turning, and the water purifier is producing purified water. *The conductivity may be different from 1.0*

8. Leave producing 5 liters of water.
9. The displayed production conductivity shall be between **0 and 0.1 µS/cm**. close the outlet purified 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.

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 6.5.5 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 6.5.3, 6.5.4, 6.5.6
OCCASIONALLY	Replace the membrane and the restrictor. See paragraphs 6.5.7, 6.5.8

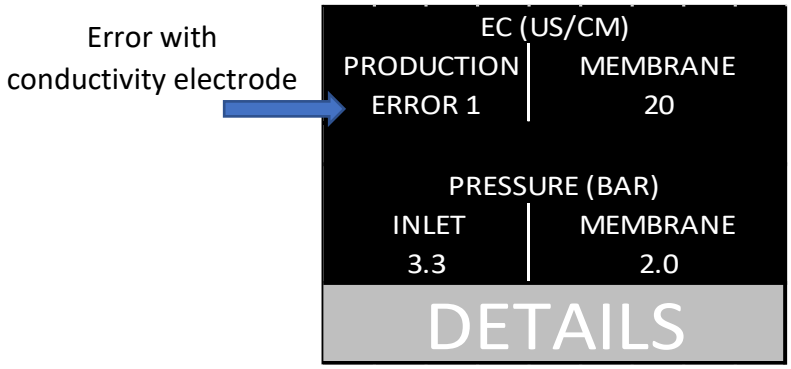
6.2 SYSTEM ERRORS

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.

6.3 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.

6.4 CONSUMABLES

6.4.1 Filter kit « O mini+ » (ref. 950039)

The O mini+ Filters kit contains the following consumables:

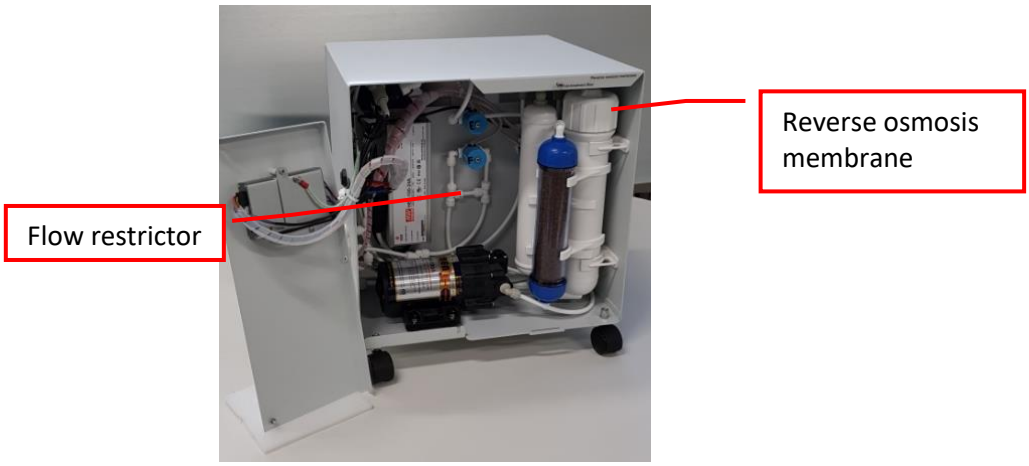
Pre-treatment	The 5 µm sediments cartridge (10") +1 seal
	The active carbon block cartridge (10") + 1 seal
Post-treatment	The 1 µm post-treatment cartridge (10")

The 2 **pre-treatment** filters must be replaced when a plugging (significant drop of the purified water production flow) and/or the 5µm sediment filter seems dirty.

The 2 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.

6.4.2 «O mini+» MEMBRANE KIT (ref. 950023)

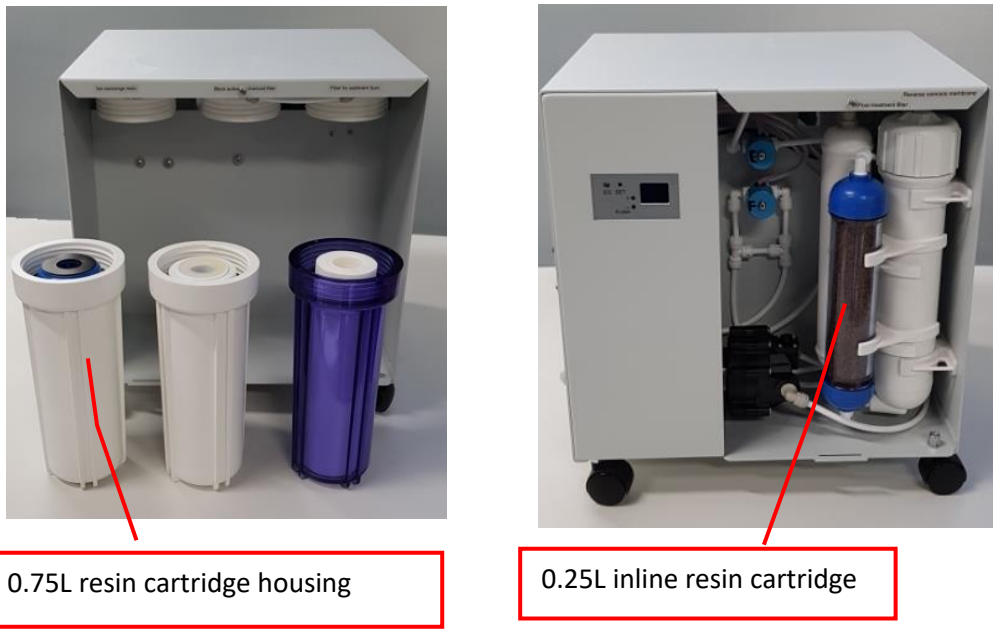


The reverse osmosis membrane and the flow restrictor must be replaced when the flow of purified water outlet is significantly low despite of a recent replacement of pre-treatment filters or/and an important increase in the frequency of the ions exchangers resins bottle replacement.

The average lifetime of a reverse osmosis membrane is from 1 to 3 years, depending on the tap water quality, the water purifier running time and the preventive maintenance

6.4.3 « O classic/O mini+ RESIN KIT » (réf. 959030)

The 2 **resin cartridges** must be changed when the purified water conductivity increases.



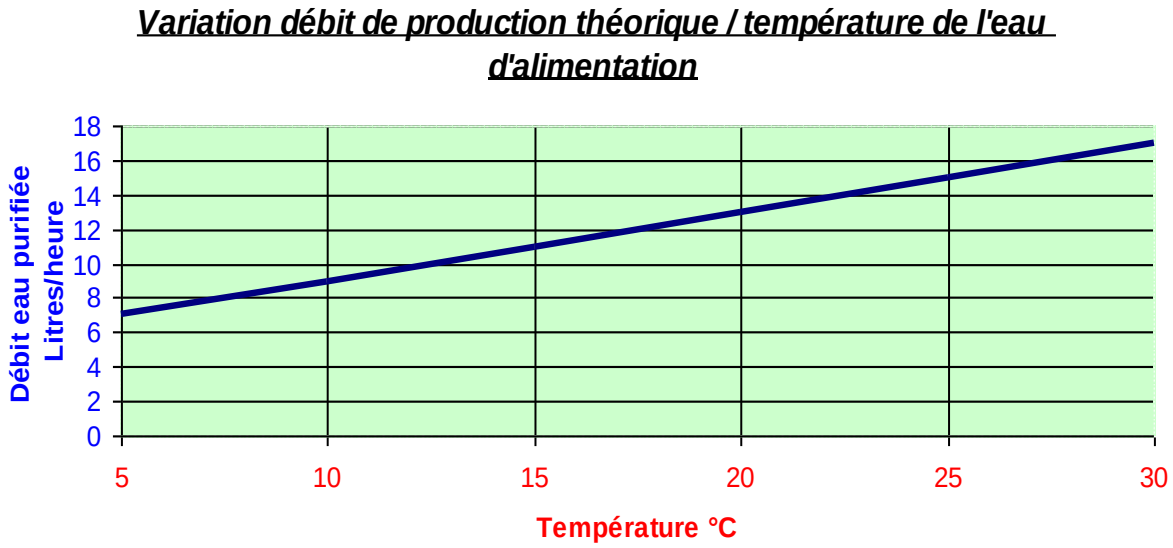
6.5 MAINTENANCE PROCEDURES

6.5.1 Flow measurement procedure

6.5.1.1 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".



6.5.1.2 Equipment

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

6.5.1.3 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.

6.5.2 Understanding conductivity values

6.5.2.1 General information

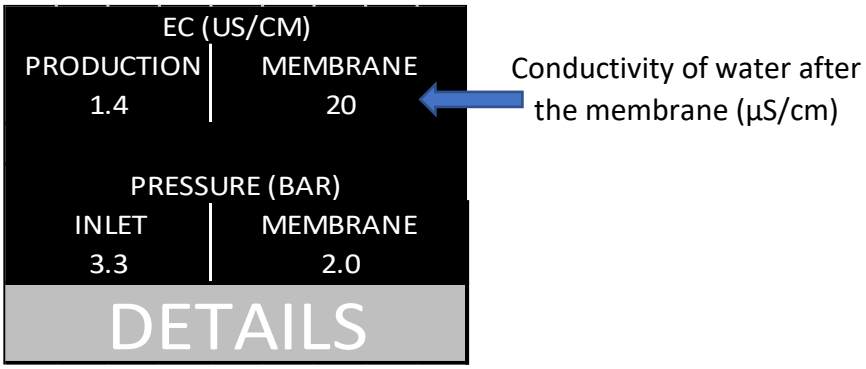
The global quantity of dissolved solids in water can be measured by the CONDUCTIVITY (expressed in microSiemens per centimeter (µS / cm).

6.5.2.2 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 6.4.3) 2. Follow the instructions of paragraph 6.5.5	**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 6.4.3) 2. Follow the instructions of paragraph 6.5.5	**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

6.5.2.3 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 after running about 1 liter of production water?

YES **, THEN change:**

- the membrane (see paragraph 6.5.7)
- the flow restrictor (see paragraph 6.5.8)
- check the production conductivity (see paragraph 3.6.9.1)

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

6.5.3 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 one on the right); *WARNING: the filter is filled with water, a mop is recommended!*
7. Remove the filter cartridge. Introduce the new 5µm sediment filter cartridge **(***included in kit ref. 950039)*
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 3 to 4 litres of water.
14. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.5.4 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 white filter holder (the middle one)
7. Remove the filter cartridge. Introduce the new active carbon block filter cartridge (*included in kit ref. 950039)*
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 3 to 4 litres of water.
14. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.5.5 Change of the 2 RESIN CARTRIDGES

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 white filter holder (the left in front); *WARNING: the filter is filled with water, a mop is recommended!*

0.75L resin cartridge housing

TAKE CARE TO THE DIRECTION !

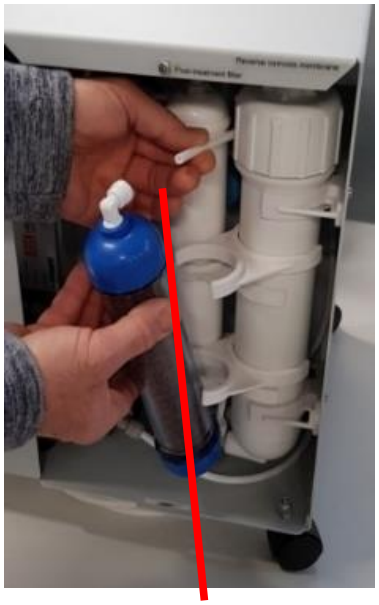
Up

Remove the 0.75L resin cartridge from its holder

Bottom

7. Remove the filter cartridge. Notice the orientation of the used cartridge. Introduce the new 0.75L resin cartridge **(***included in kit ref. 959030)*
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. For changing the 0.25L in-line resin cartridge, move out the cartridge from the 2 stirrups and disconnect the 2 connectors.



Move out the 0.25L resin cartridge from its 2 stirrups and then disconnect the 2 connectors

10. Connect the new cartridge (*included in kit ref. 959030)* and fix it to two plastic stirrups.
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 3 to 4 litres of water.
16. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.5.6 Change of POST TREATMENT CARTRIDGE

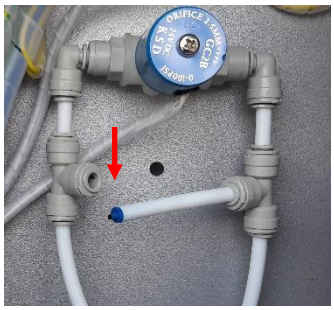
1. Close the tap water hand valve.
2. Close the storage tank hand valve.
3. Open the water purifier exit hand valve to reduce the water pressure inside the water purifier; on the controller screen is displayed «NO FEED». Keep the water purifier exit hand valve open.
4. Turn off the water purifier power supply (power switch on position « 0 »), then unplug the power plug.
5. Remove the two transparent covers.
6. Remove the post-treatment filter (in-line white filter) out of its two plastic stirrups.
7. Disconnect the 2 connectors.
8. Remember the sense of flow of the old filter. Remove it. Connect the new one (*included in kit ref. 950039)* and fix it to two plastic stirrups.
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 3 to 4 litres of water.
14. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.5.7 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. See paragraph 4.3 above
7. Dry the floor at the bottom of the water purifier.
8. Open the tap water hand valve.
9. 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.
10. Open the storage tank hand valve.
11. Let filling all filters holder. After some time, the water must flow at the water purifier outlet: let flowing 3 to 4 litres of water.
12. Close the water purifier outlet hand valve. Reinstall the transparent covers. The water purifier is ready to use.

6.5.8 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 pipe carrying the flow restrictive.
7. Remove the flow restrictive out of the pipe and replace it by the new.
8. Re-connect the restrictive out.
9. Replace it by the new.
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 3 to 4 litres of water.
15. 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 mini+” Reference 400951200		12 LITERS PRESSURIZED TANK Reference 400950228
	RO MEMBRANE 75 GPD Reference 400950023		SPANER FOR 10" FILTER HOLDER Reference 400950098
	POLYETHYLENE TUBE 1/4" – 10 Meters Reference 400950030		DRAIN CLAMP Reference 400951013
	WATER INLET VALVE 1/2" (male/female) Reference 400951014		WRENCH FOR MEMBRANE Reference 400951113
	ELECTRIC ADAPTATOR Reference 400951110		HAND VALVE 1/4" Reference 400950330 Quantity: 2
	TEE UNION 1/4" Reference 400950091		Female adapter BSPP1/2 tube OD1/4 Reference: 400140008
	MALE CONNECTOR 1/4" quick fit / 1/2" NPTF Reference 400950084 Quantity: 2		TUBE ELBOW UNION 1/4" Reference 400950089 Quantity: 4

Non contractual images

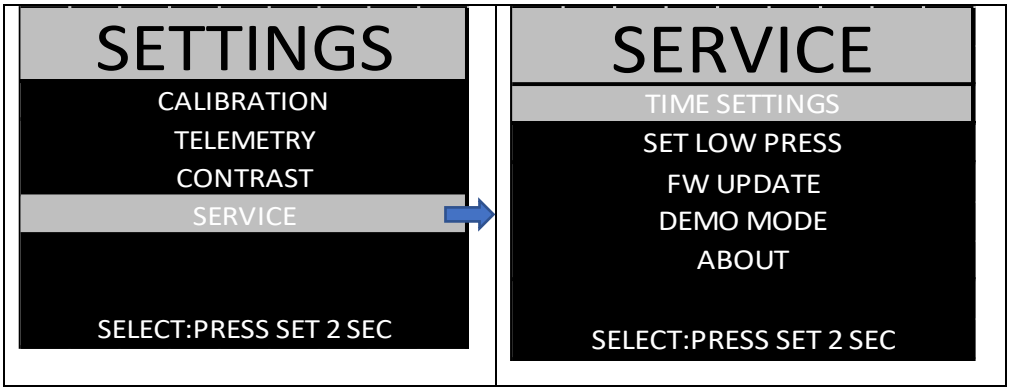
8 SERVICE

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:

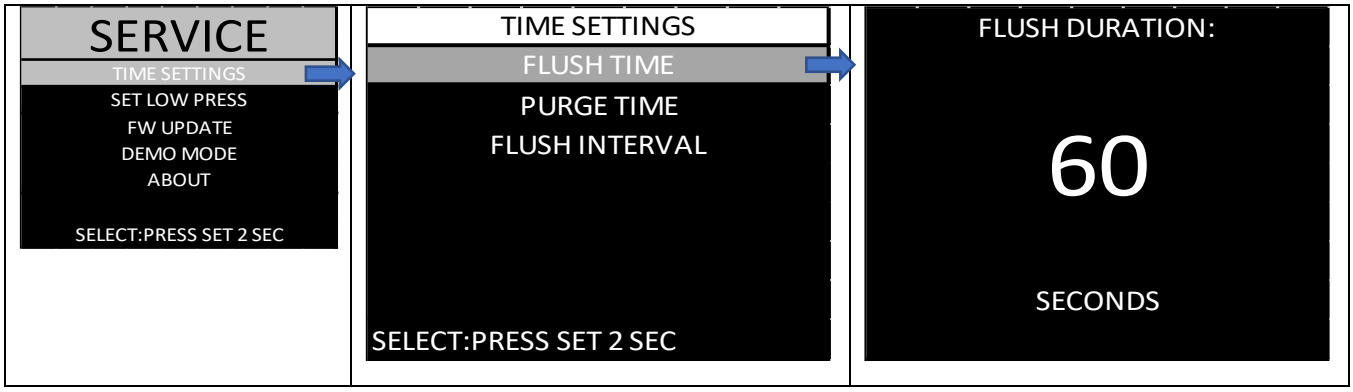
- Change of delays: flush duration; purge duration; time between 2 automatic flushes
- Firmware update
- Option to set the low-pressure threshold to launch the "prod" mode
- Switch ON demonstration mode (screens displayed without checking sensors)
- Display firmware serial number



8.1.1 Timings change

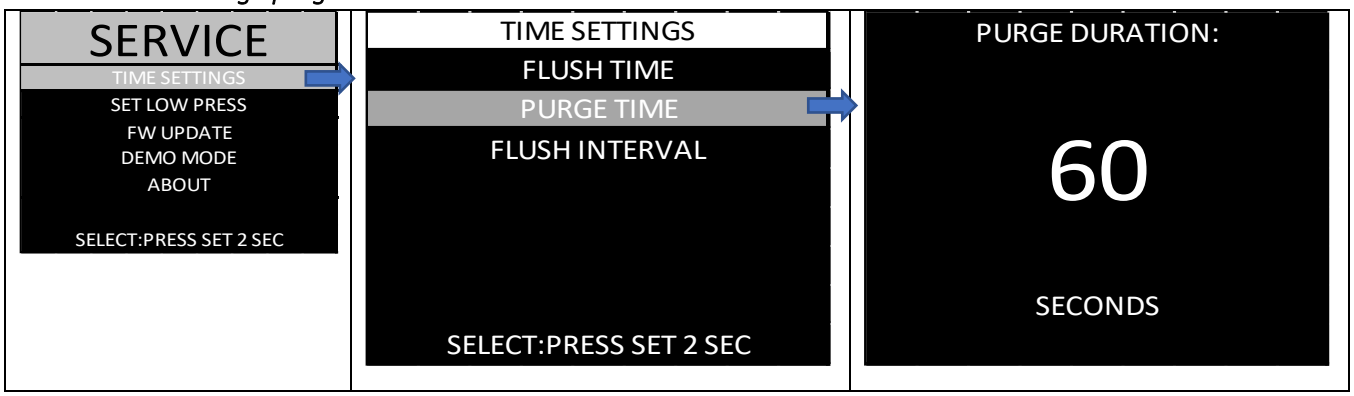
These operations are reserved to service technicians.

8.1.1.1 Change flush duration



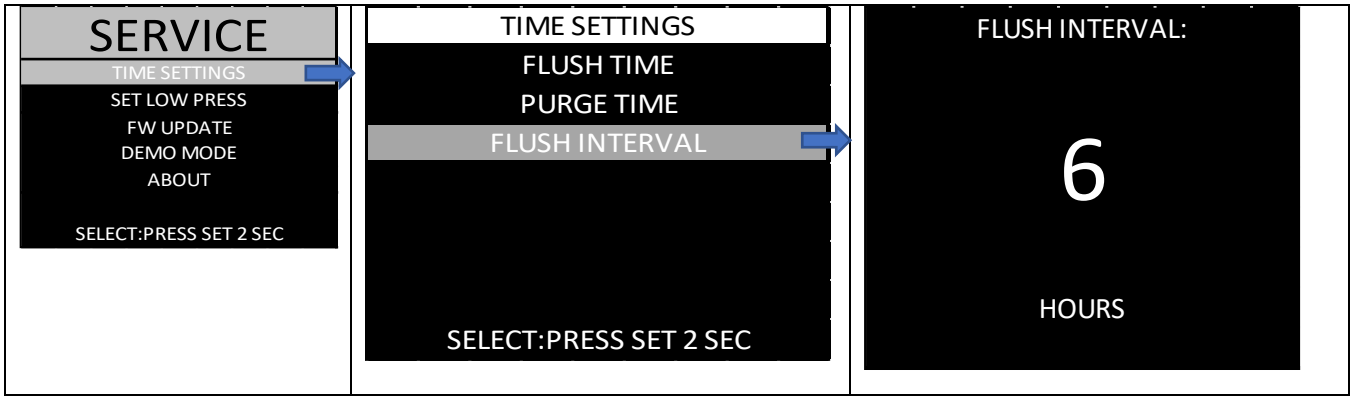
Press on '+' or '-' to adjust the value. Validate by pressing with a tool for 2 seconds on the 'SET' button.

8.1.1.2 Change purge duration



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

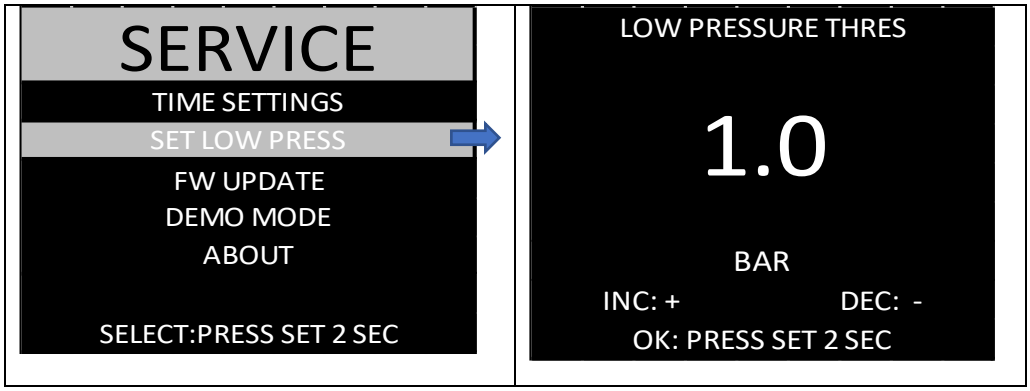
8.1.1.3 Change delay between automatic flushes



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

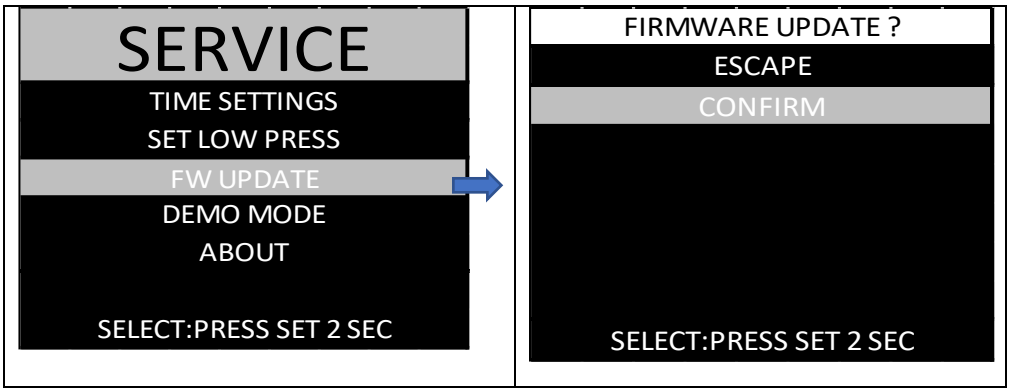
8.1.1.4 Low-pressure threshold setting (threshold to re-launch production after a stop due to a high pressure value on prod valve)

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.

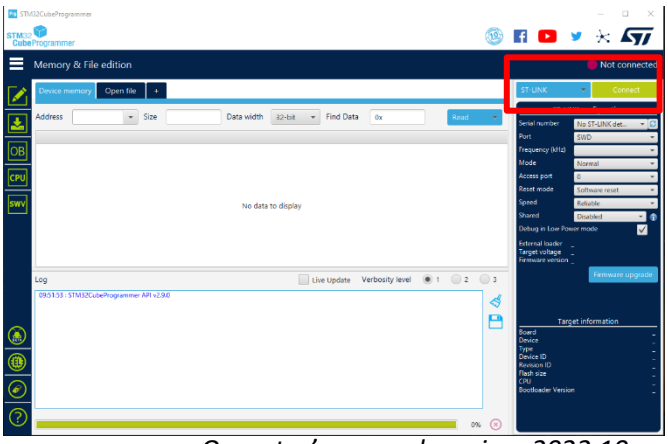
8.1.2 Firmware update

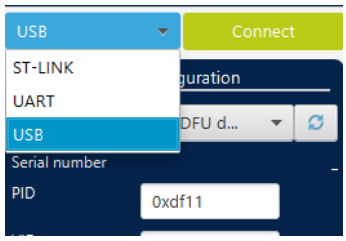


The update of the firmware needs the connection by a USB cable to a PC equipped with the software STM32CubeProgrammer or an ANDROID smartphone equipped with the software ZFLASHERSTM32. Both software are downloadable from the internet.

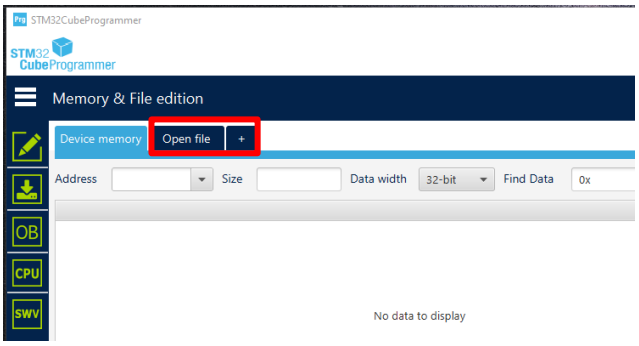
<u>How to program the OMINI in DFU with STM32CubeProgrammer:</u>

1) Open STM32CubeProgrammer and change the protocol from ST-LINK to USB on the right of the screen:



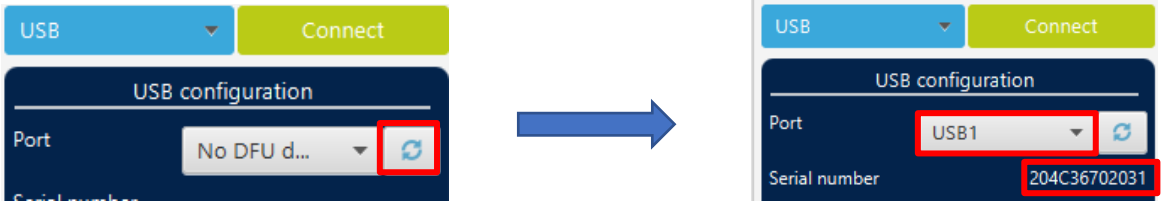


2) load the Omini.bin file into cube programmer:

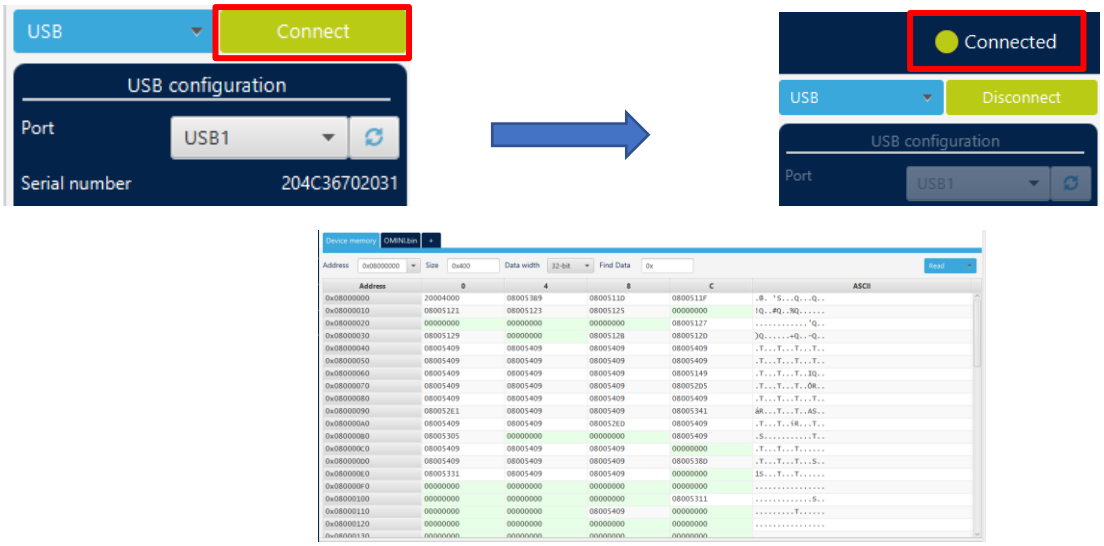


3) Connect the OMINI+ to the PC via USB and put it into “Firmware Update Mode” (See previous user manual section)

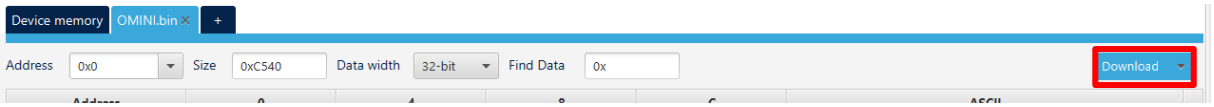
4) Refresh the target list until the target appears in the port list and its serial number is readable



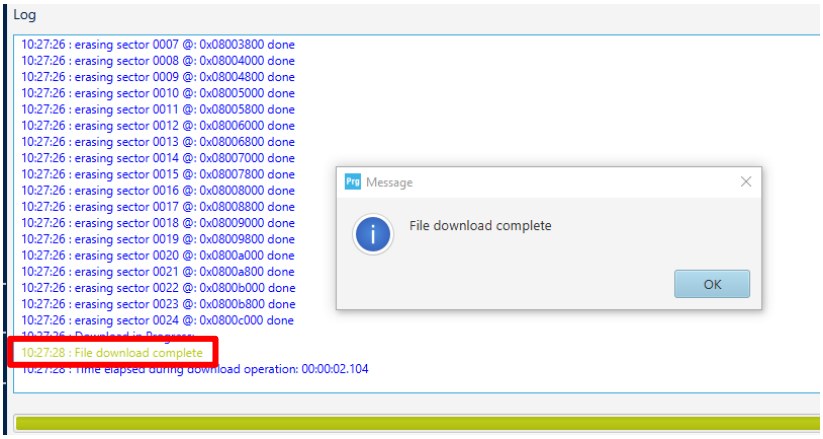
5) Click on Connect. The light indicator should now be green, and the device memory is read and shown on the screen



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.

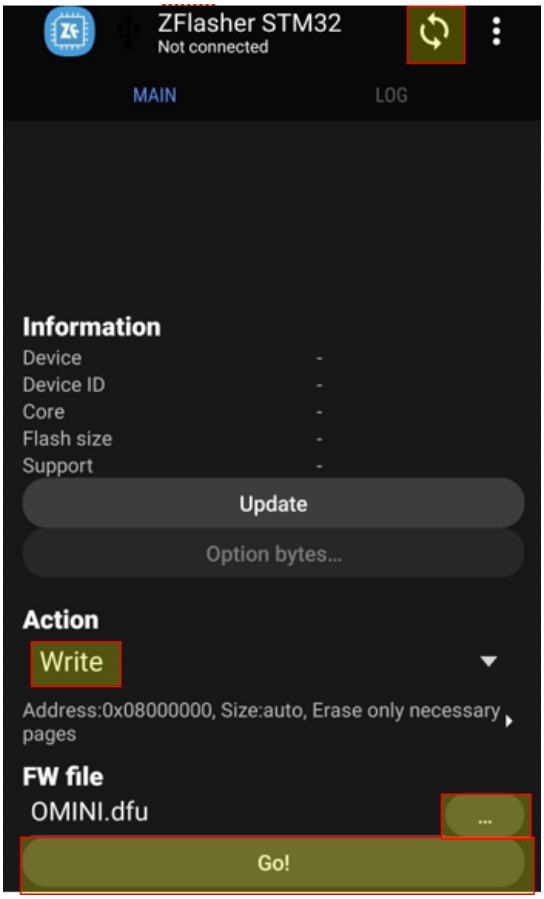


8) The OMINI+ has now been updated. You can exit CubeProgrammer, disconnect the OMINI+ from USB and restart the unit.

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

1. Install ZFlasherSTM32 and launch it

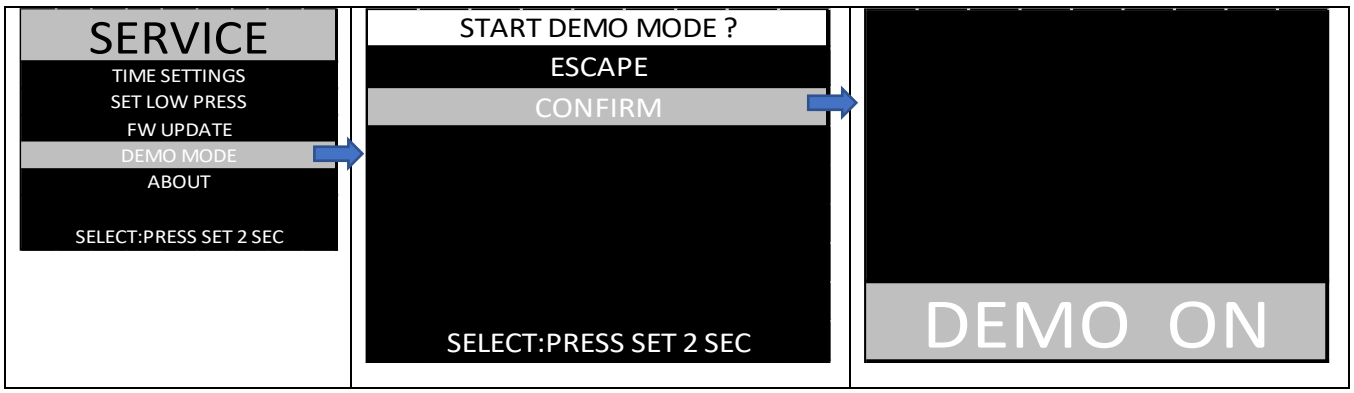
2. Connect the osmoser via USB (you might need an OTG adaptor) and switch it to firmware update mode. If the board doesn't appear on the information section, hit the refresh button  at the top right of the screen.
3. Hit the three dots button  and select the firmware file to load (it should be OMINI.dfu)
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


ZFlasher STM32
Not connected
MAIN
LOG
Information
Device -
Device ID -
Core -
Flash size -
Support -
Update
Option bytes...
Action
Write
Address:0x08000000, Size:auto, Erase only necessary pages
FW file
OMINI.dfu
...
Go!

8.1.3 Demonstration mode

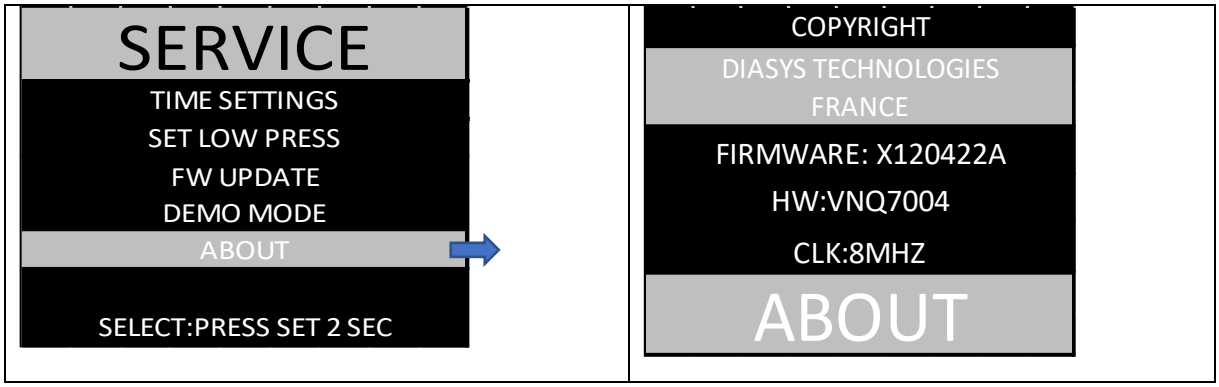
The demonstration mode allows to enter all the screens without being blocked due to the sensors.

The demonstration mode stops when restarting the water purifier.



8.1.4 Firmware version display

In « About » section, we can find the firmware version, the hardware reference(VNQ7004 ou BV2HD), and the clock frequency value of the embedded quartz on the board.

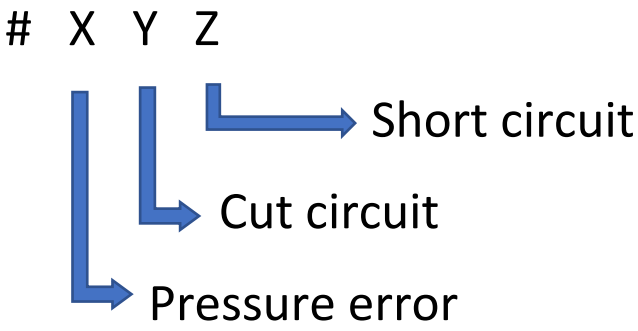


8.2 MANAGEMENT OF THE ERRORS REPORTED BY THE CONTROLLER

8.2.1 Functional errors

In case of malfunction, the controller displays certain causes of error, and one 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 valve in short circuit	Change the pump and the inlet valve
1XXX	Flush valve in short circuit	Change the flush valve

8.2.1.2 Cut 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 valve disconnected or damaged	Check the pump and the inlet valve
1XXX	Flush valve disconnected or damaged	Check the flush valve

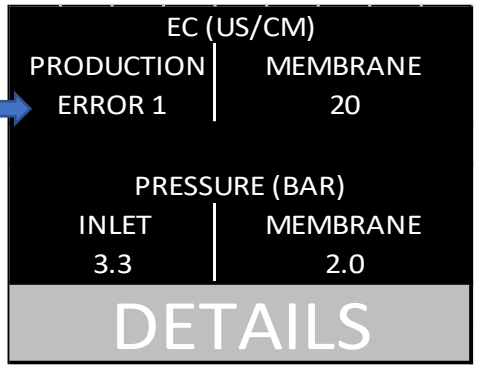
8.2.1.3 Pressure error

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 controller continues to run, does not display the corresponding conductivity, but instead one error code on the « DETAILS » 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)

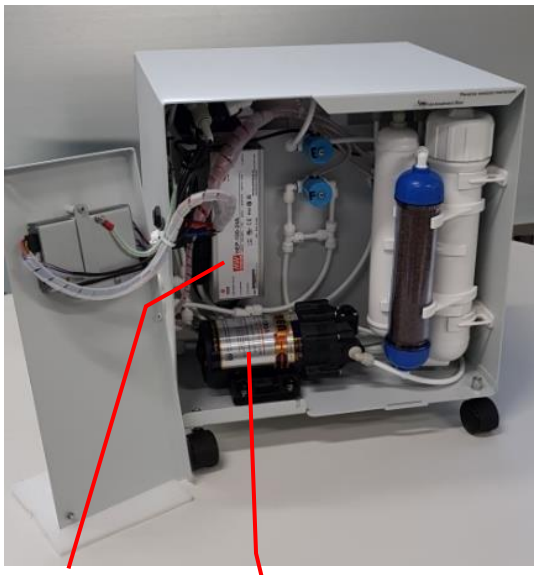
8.3 OTHER PROBLEMS

PROBLEMS	POTENTIAL CAUSES	SUGGESTED ACTION
- The screen is totally black	- Power supply is defective	- Connect and switch ON the water purifier
		- Power load is too high (pump, valves or power supply unit in short circuit)
- 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. ***400950547***

Membrane housing ref. ***400950207***

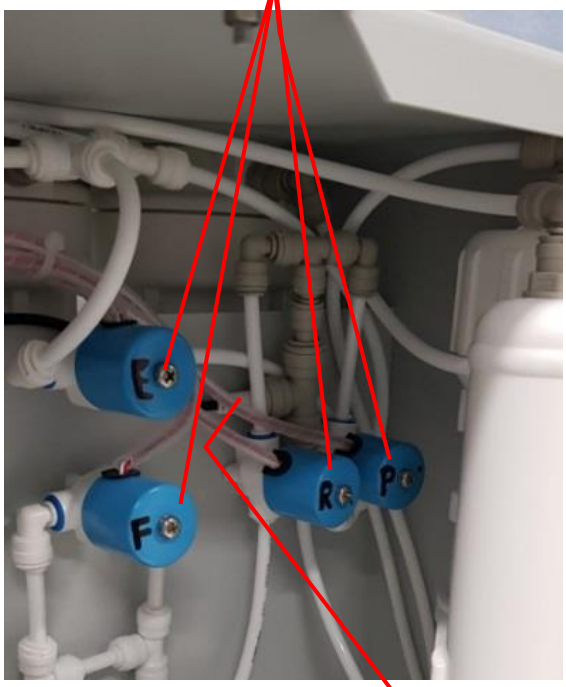


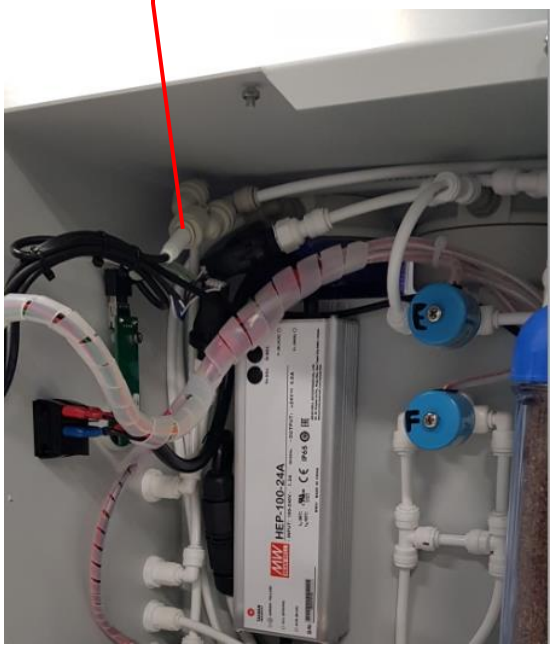
Power supply ref. ***400950577***

Booster Pump ref. ***400950519***

Electromagnetic valves ref. ***400950576***

Production conductivity sensor ref. ***400951107***





Membrane conductivity sensor ref. ***400951107***

Inlet pressure sensor ref. ***400951204***

USB Communication board ref. ***400950558***

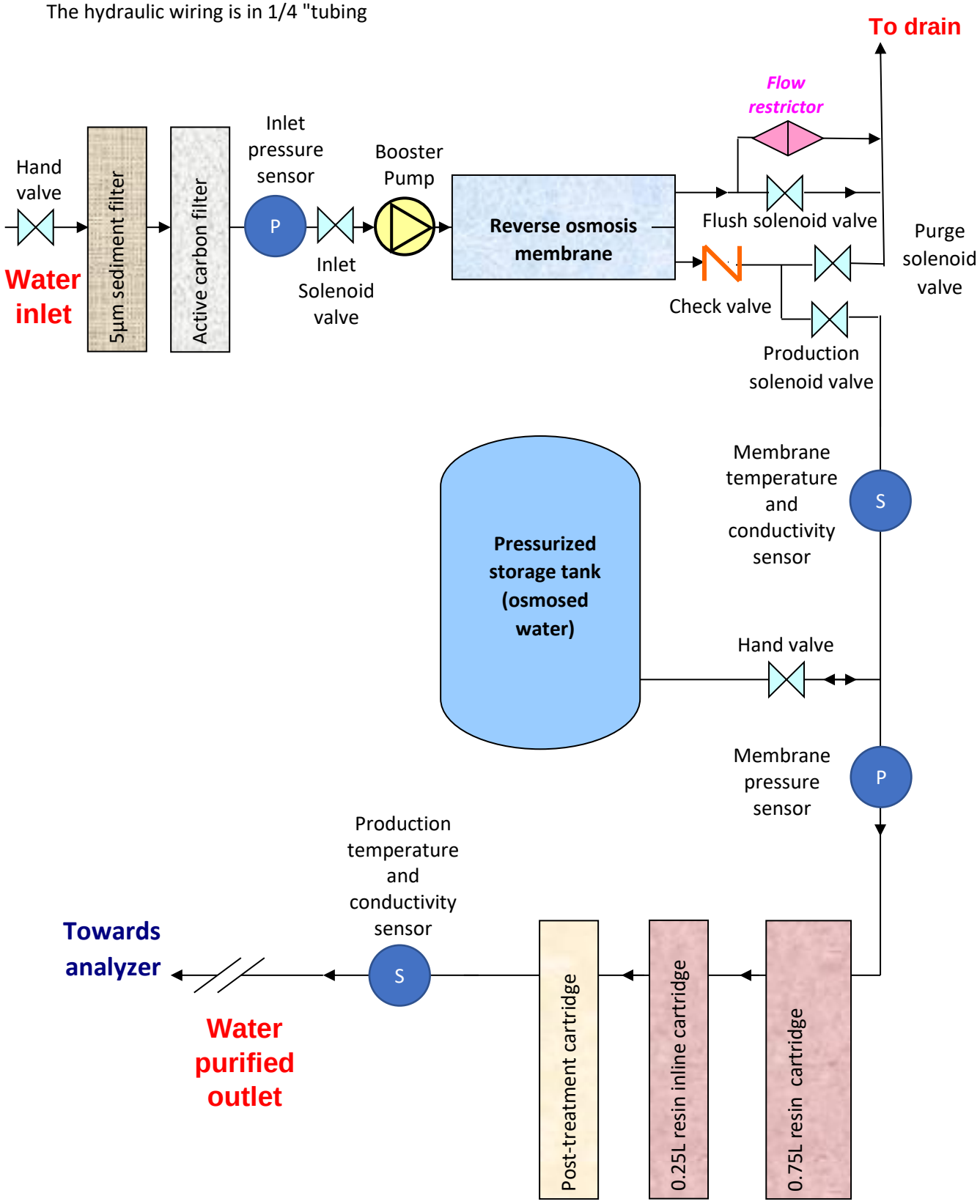
Membrane pressure sensor ref. ***400951204***

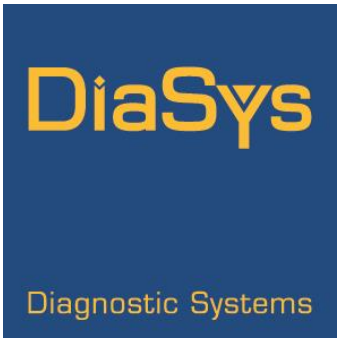
10" white filter holder ref. ***400950238***

10 " clear filter holder ref. ***400950209***

8.5 FLOW PATH DIAGRAM

The hydraulic wiring is in 1/4 "tubing





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