Milli-Q®

SigmaAldrich.com

User Manual Milli-Q® CLX 7000 Series

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

MERCK

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Legal Information

Notice

It has always been Millipore S.A.S. policy to continuously improve its products.

The information in this document is subject to change without notice and should not be construed as a commitment by Millipore S.A.S. Millipore S.A.S. assumes no responsibility for any errors that might appear in this document. This manual is believed to be complete and accurate at the time of publication. In no event shall Millipore S.A.S. be liable for incidental or consequential damages in connection with or arising from the use of this manual.

We manufacture and sell water purification systems designed to produce pure or ultrapure water with specific characteristics (µS/cm, °C, TOC, CFU/ml, EU/ml) when it leaves the water purification system provided that the systems are fed with water quality within specifications, and properly maintained as recommended by the supplier.

We ensure our performances when the system operates within the tap feed water specifications and at least 5 hours per day.

We do not warrant these systems for any specific application. It is up to the end user to determine if the quality of the water produced by our systems matches his expectations, fits with norms/legal requirements and to bear responsibility resulting from the usage of the water.

Product Warranty and limitation of liability

The applicable warranty and limitation of liability for the products listed in this publication may be found at http://www.sigmaaldrich.com within the "Conditions of Sale" applicable to your purchase transaction.

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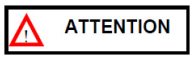
Safety Information

Symbol	What it means
	This UV RADIATION sticker is used to refer to a position on the system cabinet or inside of it where exposure to UV light is possible.
	This HAZARD sticker is used to refer to a position on the system cabinet or inside of it that could be hazardous.
	This ELECTRICAL GROUND sticker is used to refer to a position on the system cabinet or inside where an electrical ground connection is made.
	This ELECTRICAL HAZARD sticker is used to refer to a position on the system cabinet or inside where an electrical danger could exist.
	This HOT SURFACE sticker is used to refer to a position on the system cabinet or inside where a hot surface could exist.



- The System must be connected to a source of electrical power that is earth grounded.
- Only an authorized person following the local safety regulations can work on this equipment.
- Unplug the electrical power cord before plugging in or removing any components on the electronic board(s).

Recycling

Directive 2012/19/EC: For European users only.

The symbol "crossed bin" on a product or its packaging indicates that the product should not be treated like household waste when discarded. Instead, the product should be disposed of at a location that handles discarded electric or electronic equipment.

Proper disposal of equipment containing electric or electronic components will help to reduce pollution effects to the environment or to human health. Proper recycling of these products helps in environmental preservation and helps to protect natural resources. For more information about recycling of products containing electric or electronic components, please contact your local recycling representative or organization.

Preface

Thank you for purchasing our water purification system.

For correct operation, read and fully understand the contents of this user manual before attempting to use the system. It is recommended to store this user manual in a safe and convenient place where it can be easily referred to when required.

This user manual is intended for use with Analyzer Feed System's, Milli-Q® CLX 7000 Series.

The word "system" is used to refer to Milli-Q® CLX 7000 Series unless specified otherwise in the text.

The abbreviations LC and HC used after Milli-Q®CLX 7040 or 7080 refer to systems for Low Chlorine and High Chlorine feed water.

The word "display" is used to refer to the user interface in this document.

Depending on system type and options that are purchased, some of the features described may not apply to the system you are using.

For any questions or requests, please contact your Application Specialist or Qualified Service Representative.

Specifications

Feed Water Specifications

The system has been designed to operate within feed water specifications:

Parameter	**Value or range**
Pressure	2 – 6 bar
Flow rate	> 10 L/min @ 2 bar
Feed water type	Potable water
Temperature	5 – 35° C
Conductivity	10 – 2000 µS/cm @ 25° C
pH	4 - 10
Hardness (as $CaCO_3$)	< 300 ppm
Silica concentration	< 30 ppm
Carbon Dioxide concentration (CO_2)	< 30 ppm
Langelier Saturation Index (LSI)	< 0.3
Fouling Index (FI_5) or Silt Density Index (SDI)	≤ 7 (*)
Total Organic Carbon (TOC)	≤ 1 ppm
Free chlorine for LC systems	< 1.5 ppm
Free chlorine for HC systems	1.5 ppm - 3 ppm

* < 12 when the optional UF pretreatment unit is installed.

Electrical Specifications

The systems can be supplied by Mains electricity 90-253 VAC with a frequency range from 48 to 62Hz.

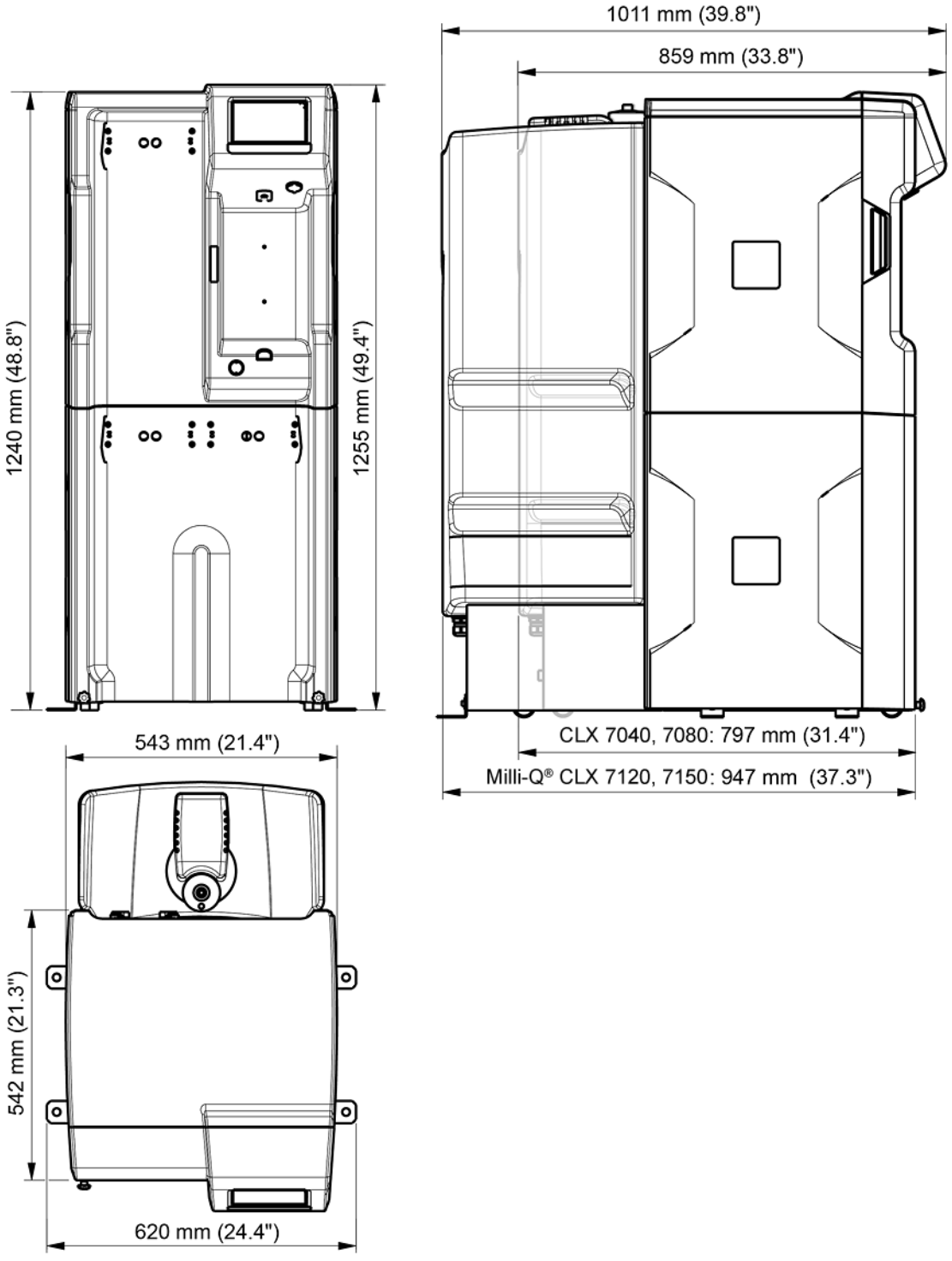
Table 1: Electrical specifications

System type	Voltage	Power Consumption (VA)
Milli-Q® CLX 7040 and 7080	220-240 VAC @50/60 Hz	900
Milli-Q® CLX 7120 and 7150	220-240 VAC @50/60 Hz	1100
Milli-Q® CLX 7040 and 7080	120 VAC @ 60 Hz	900
Milli-Q® CLX 7120 and 7150	120 VAC @ 60 Hz	1100
Milli-Q® CLX 7040 and 7080	100 VAC @50/60 Hz	900
Milli-Q® CLX 7120 and 7150	100 VAC @50/60 Hz	1100

The source of electrical power must be earth grounded.

System Dimensions

Milli-Q® CLX 7000 Seriesdimensions:



Weight Specifications

The location where the system is installed needs to fully support its operating weight:

System type	Dry weight Kg (Lb)	Shipping weight Kg (Lb)	Operating weight Kg (Lb)
Milli-Q® CLX 7040	106 (233.7)	134 (295.4)	216 (476.2)
Milli-Q® CLX 7040 HC*	106 (233.7)	134 (295.4)	222 (489.4)
Milli-Q® CLX 7080	115 (253.5)	143 (315.3)	229 (504.9)
Milli-Q® CLX 7080 HC*	115 (253.5)	143 (315.3)	234 (515.9)
Milli-Q® CLX 7120	127 (280)	155 (341.7)	303 (668)
Milli-Q® CLX 7150	139 (306.4)	167 (368.2)	318 (701.1)

Shipping weight: Dry system in its shipping container. It does not include consumables or any accessories.

Dry weight: System without its shipping container. It does not include consumables or any accessories.

Operating weight : System having wetted consumables, all tubings, RO Cartridges, Elix® Module and a tank full of water. If an accessory has been added to the system, then its weight must be added to the operating weight.

(*): HC stands for High Chlorine systems with 2 Progard® packs. For Low Chlorine (LC) systems with 1 Progard® pack.

Environmental Specifications

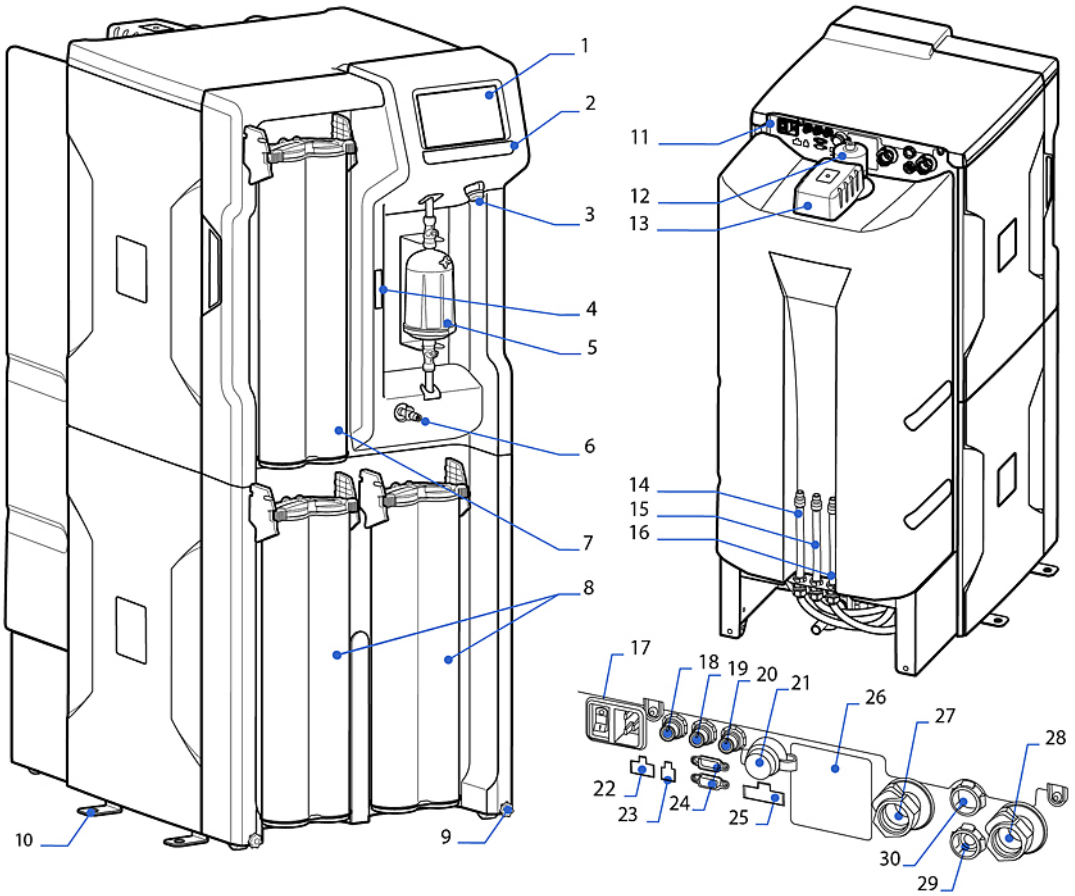
Environmental specifications have been defined for normal system operation.

Altitude	≤ 2000 m
Ambient operating temperature	10 – 40 °C
Relative humidity	80% up to 31°C (decreasing linearly to 50 % relative humidity at 40 °C)
Ambient storage temperature	0 – 40 °C
Ambient storage humidity	10 – 95 %
Installation category	I
Pollution degree	2
Noise level	< 50 db at 1 meter

For indoor use only

System Overview

System, components and connections are shown in the illustration below.



1. Display	16. Tank waste
2. System name	17. Power entry (Mains) & switch
3. USB port	18. Data output port
4. Matrix code (containing system serial number and type)	19. *not used*
5. Final filter	20. External solenoid valve port
6. Sampling valve	21. Ethernet port
7. Q-Gard® pack	22. External pretreatment port
8. Progard® pack(s)	23. Leak detector port
9. Wheel locking nut	24. Tank monitoring port (Tank level, overflow)
10. Securing bracket	25. Device control port (ASM, UV lamp)
11. Water system backpanel	26. System type identification label
12. Tank Vent filter	27. Emergency bypass connector
13. Automatic Sanitization Module (ASM)	28. Inlet connector
14. RO (Reverse Osmosis) waste	29. Distribution loop IN connector
15. Elix® waste	30. Distribution loop OUT connector

Note: The system covers can be cleaned or disinfected by using alcohol (Ethanol and Isopropanol).

Using the System

Operating Principle

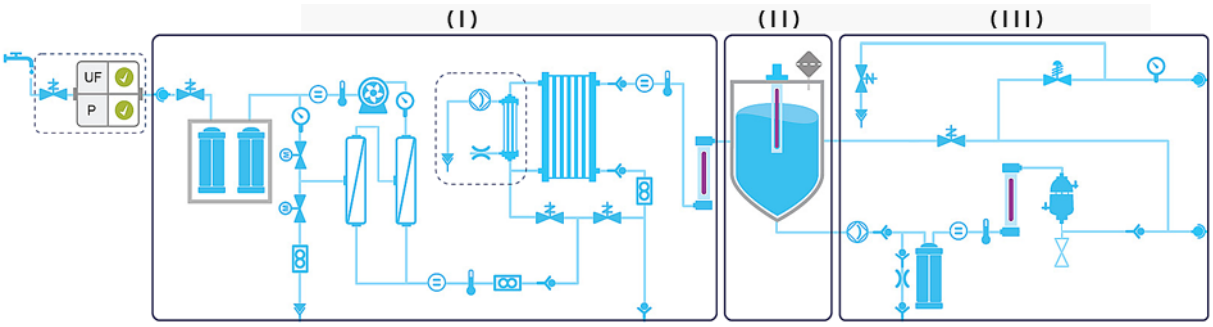
A water system is intended to purify mains water and to automatically supply purified water to a clinical analyser.

- The water system purifies tap water using a Progard®Pack(s) and Reverse Osmosis followed by Elix® Technology. This process is called **Makeup** (I).
- The purified water is then stored in an integrated tank. This is referred to as **Storage** (II).
- The Makeup water is further purified using ion exchange (Q-Gard®), UV and a final filter (Opticap®) before being dispensed to an Analyzer. This process is called **Distribution** (III).

The Makeup and Distribution are two independent processes. When one of the processes is in standby, alarm stop or maintenance it will not stop the other process from working.

Note: The storage part of the system is passive. The volume of water in the Tank is a function of both the Makeup and Distribution processes.

Figure 1: Milli-Q® CLX 7080 Flow Schematic



Use the **Flow Schematic** application 

at 

(**Glance Workspace > Flow Schematic**) to learn more about components.

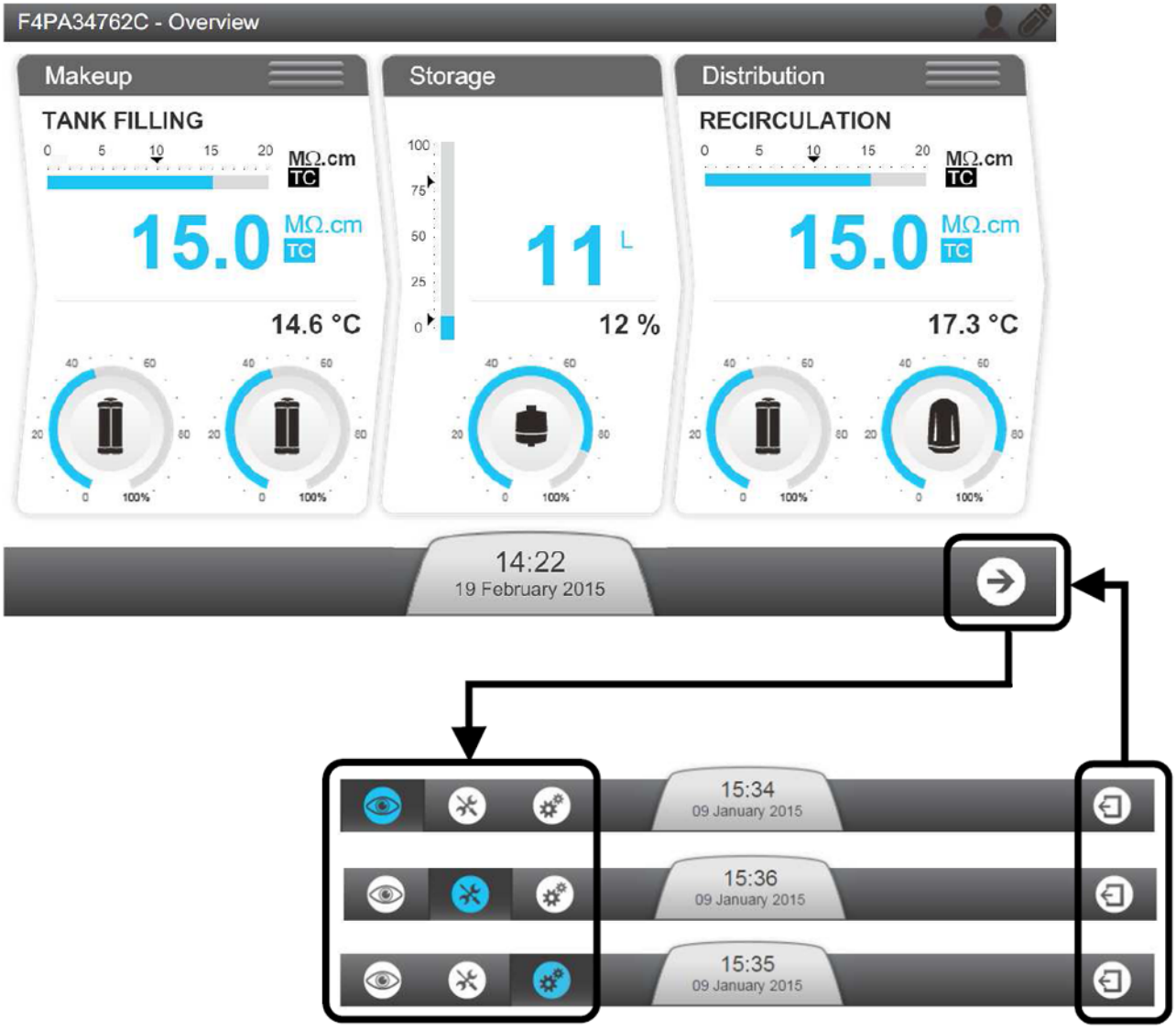
Pressing on a component or a consumable item will bring up a **tool tip**.

The tool tip gives the item name and related information.

System Display

Tapping display button icons moves the display between screens and launches applications.

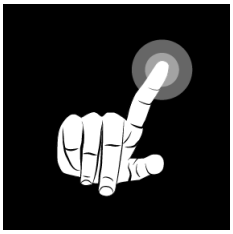
The **Overview** screen is the main screen and navigation to and from the **Workspace** screens containing the system applications is done using the display icon buttons on the bottom right of the screens.



From **Overview** when tapping the arrow icon **Glance Workspace** is always the first screen opened.

However the return to **Overview** can be made from any of the three Workspace screens.

When the display is not being used a **screensaver** puts the display to sleep; the system continues to operate and the screensaver will show a screensaver picture:

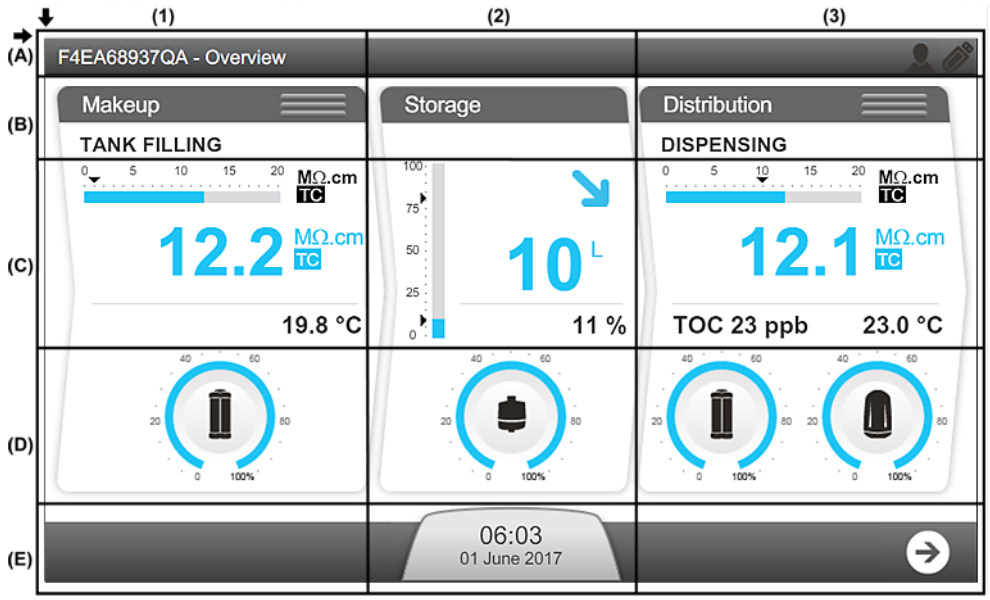


Tapping on the screen when the screensaver is active will wake the system and open the **Overview** screen.

Overview Screen

The **Overview** screen is the default view on the system display. It is divided into 3 sections and each section represents one of the 3 parts of the water system.

Figure 2: Explanation of the Overview Screen



(A): Top banner - System Information

A1: Screen Identifier - Overview

A3: 3G signal strength meter (visible if activated)

A3: WiFi signal strength meter (visible if activated)

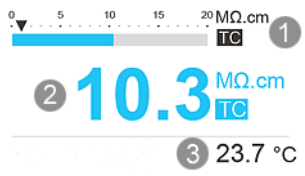
(B): Water System Process Identifier and Operating Mode

B1: Makeup process is in **TANK FILLING** mode

B3: Distribution process is in **DISPENSING** mode

(C): Measure Widgets (measure widgets are blue when the process is active or grey if it is not active)

C1: Measures from the Makeup process



1	Bar graph showing water quality in MΩ.cm @ 25°C and the alarm setpoint (black triangle).
2	Displays Makeup water quality in a user defined unit. TC is displayed when Temperature Compensation (TC) mode is on. If the water quality measured is under the setpoint, this value blinks between blue and red.
3	Displays Makeup water temperature in a user defined unit.

C2: Measures from the Storage process

1	Bar graph showing tank level in %. • Top arrow indicates Tank Filling Restart setpoint • Bottom arrow indicates **TANK EMPTY** alarm setpoint
2	Displays volume of water in the Tank in a user defined unit.
3	Displays tank level in %.
4	Tank level status and trend information.

No Alarms or Alert		Tank Empty Alarm		Tank Low Level Alert	
Tank is Filling	Tank is Emptying	Tank is Filling	Tank is Emptying	Tank is Filling	Tank is Emptying
↗	↘	↗	↘	↗	↘

C3: Measures from the Distribution process

1	Bar graph showing water quality in MΩ.cm @ 25°C and the alarm setpoint (black triangle).
2	Displays Distribution water quality in a user defined unit. TC is displayed when Temperature Compensation (TC) mode is on. If the water quality measured is under the setpoint, this value blinks between blue and red.
3	Displays TOC measurement (if TOC upgrade is installed).
4	Displays Distribution water temperature in a user defined unit.

(D): Consumable Status

Capacity remaining (%)	Consumable due for replacement (Blinking)
	

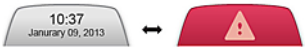
D1: Progard® status and gauge (Depending on system type, one or two Progard® can be displayed)

D2: Vent filter status and gauge

D3: Q-Gard® and Opticap® status and gauge

(E): Notification and Navigation bar

E2: Notification button showing date and time. Colour changes depending on system status.

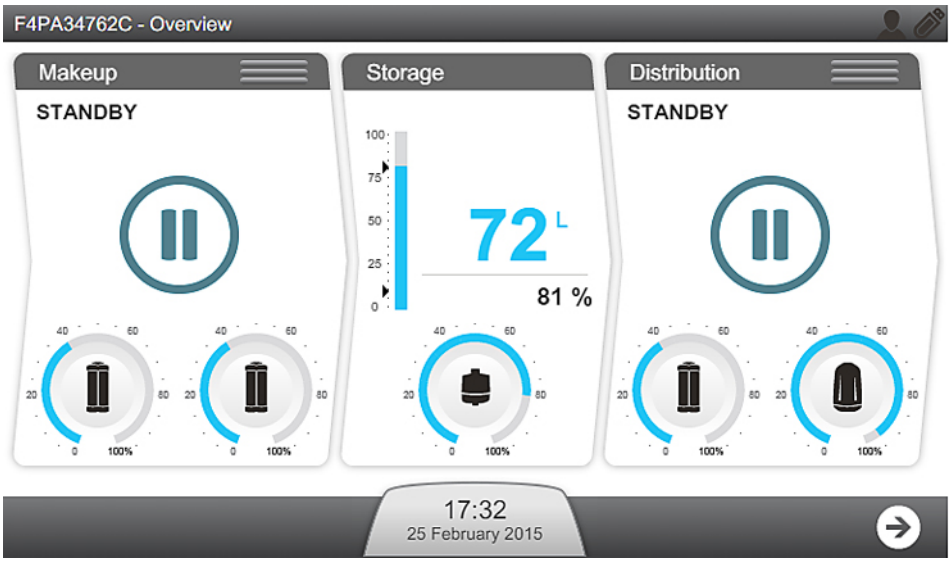
No Alert(s) or Alarm(s) Present	Alert(s) Present (Blinking)	Alarm(s) Present (Blinking)
		

E3: Navigation to Workspace screen button.

Ready

Keeping the Makeup and Distribution processes in Ready means the system automatically changes software modes to refill the Tank and to supply the analyser when required.

The Makeup and Distribution Processes should always be left in Ready. If a process is not in a Ready mode the operating mode will display **STANDBY**.



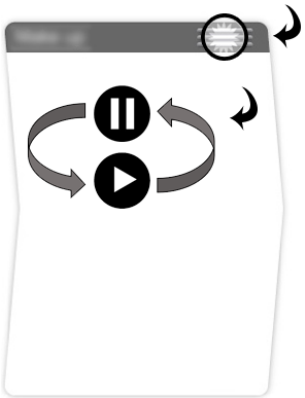
Important: Standby should only be used to stop the corresponding process in the event of a leak.

1. The Makeup and Distribution processes can be changed between **STANDBY** and the Ready modes using the three horizontal bars at the top of their respective window.

   (I): Makeup; (II): Distribution

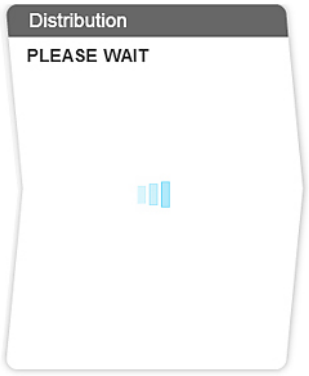
2. Press on the icon on the horizontal bar of the process that you wish to change.

   By clicking on the bar => Process mode switches:



3. Confirm this action.

Once confirmed, the corresponding process enters "**PLEASE WAIT**"



When both Makeup and Distribution processes are in Ready modes the filling of the tank and distribution of water to the analyser is automatic.

During "Ready" the system is typically in the following modes.

Makeup Process:	
BACKWASH FILTER REGENERATION	The Makeup process is paused whilst the pretreatment regenerates.
FLUSH	The Makeup process is flushing the RO.
RINSE	The Makeup process is rinsing the RO before sending water to the Tank.
TANK FILLING	The Makeup process is filling the Tank.
READY	The Makeup process is paused as the Tank is full.
Distribution Process:	
DISPENSING	The Distribution process has detected that the analyzer needs water and is dispensing it to the analyzer.
RECIRCULATION	The Distribution process is recirculating water but in some installations, the system can deliver water to the analyser.
READY	The Distribution process is paused as the analyzer does not need water.

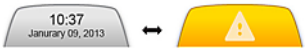
Note: When the system is powered on it returns to the modes it was previously in. For example if the system was in Makeup **TANK FILLING** then it returns in Makeup **TANK FILLING**; and in Distribution **RECIRCULATION** then it restarts in Distribution **RECIRCULATION**.

Alarms and Alerts

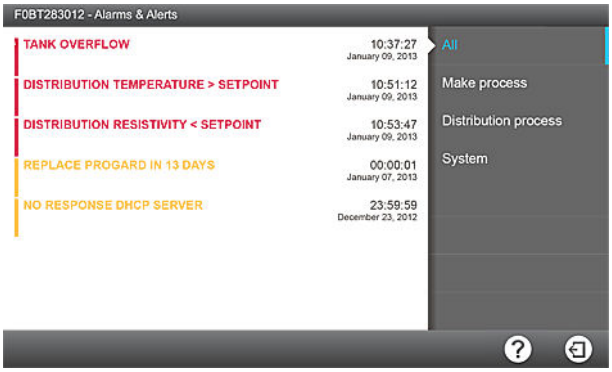
Some Alarms stop the corresponding process in order to protect the system, acknowledgment of these Alarms resume the process if the cause of the alarm has been corrected. Alerts are triggered when a consumable maintenance is required or a non-critical event occurs, acknowledging these Alerts clear the message for 24 hours.

To acknowledge an alarm or alert.

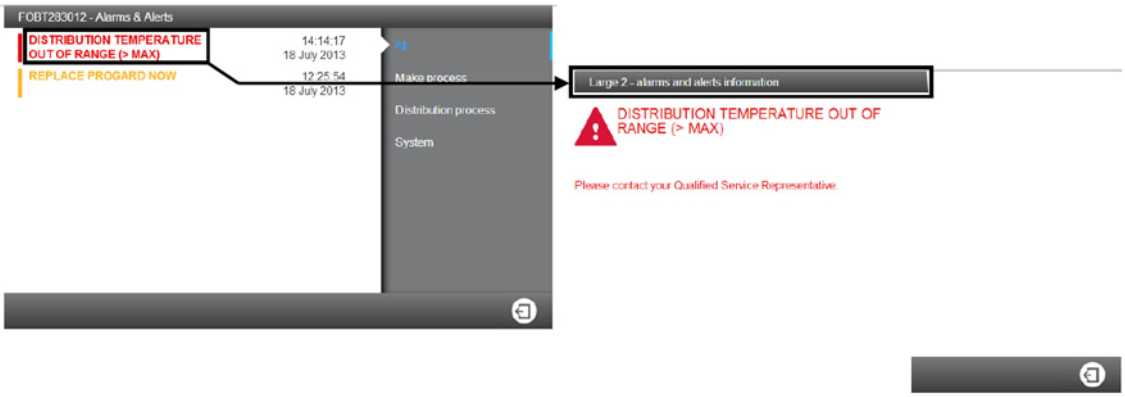
1. Alarms and alerts are notified using the Notification button on the **Overview** screen.

Alarm Present (Blinking)	Alert Present (Blinking)
	

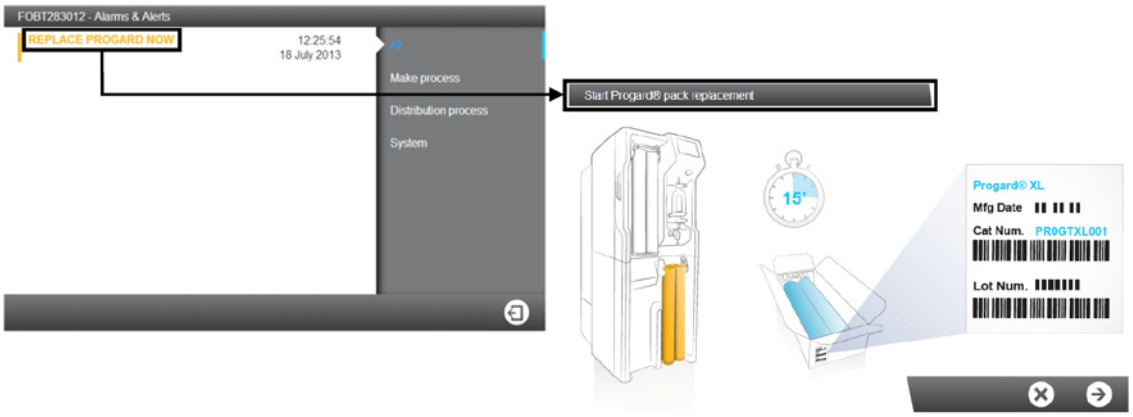
2. By pressing the Notification Button the **Alarms and Alerts** screen is opened.



3. By clicking on a single event message a screen opens describing the alarm or alert and if required information on fixing it.



4. If the alarm requires acknowledgement a software wizard opens and guides you through the process.



- Once alarms are acknowledged and the cause of the alarm has been fixed the process will return to Ready.
- If the Alert is triggered by a maintenance request, acknowledgement of the message clears it for 24 hours. The alert raises every day until the maintenance action is completed.

Note: A full list of Alarm and Alert messages can be found in the Appendix.

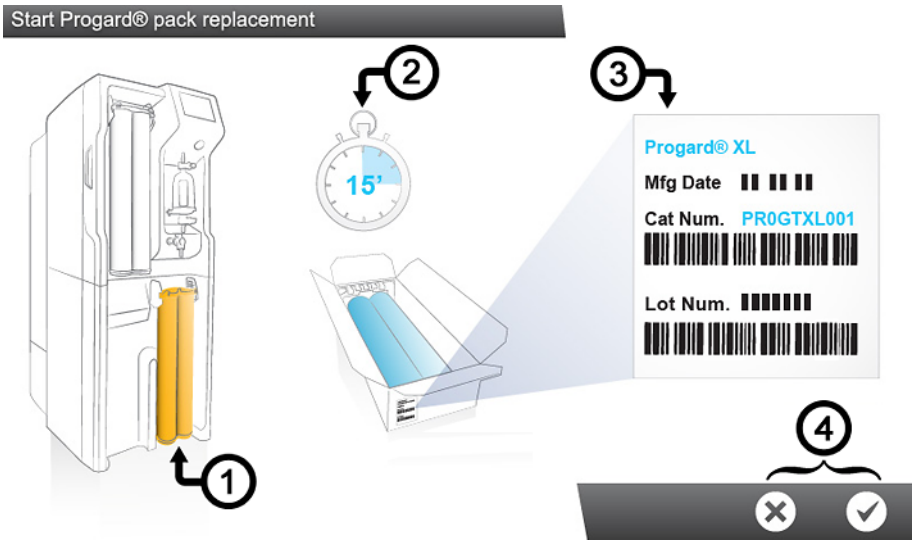
Maintenance

Alerts are triggered when a Consumable Replacement, Cleaning or Sanitization is required.

Consumable Replacements, Cleanings and Sanitizations are undertaken using software wizards. The wizard for the action can be launched directly from the alert..

1. Alerts are notified using the Notification button on the **Overview** screen.

2. By pressing the Notification button the **Alarms and Alerts** screen is opened.
3. By clicking on a Consumable Replacement, Cleaning or Sanitization message a software wizard is opened to guide you through the procedure.



The software wizard shows:

1. The location
2. The duration (Estimated time)
3. The references needed

4. You can decide to launch or cancel the software wizard (4).

Once the last step is completed the software wizard closes and the corresponding alert related to the maintenance action will disappear from the list of Alarms and Alerts.

Note: The maintenance wizards can be launched in a different way

The maintenance wizards can be launched using the **Consumables**application:

or the **Sanitization & Cleaning**application:

Applications at the **Maintenance Workspace**

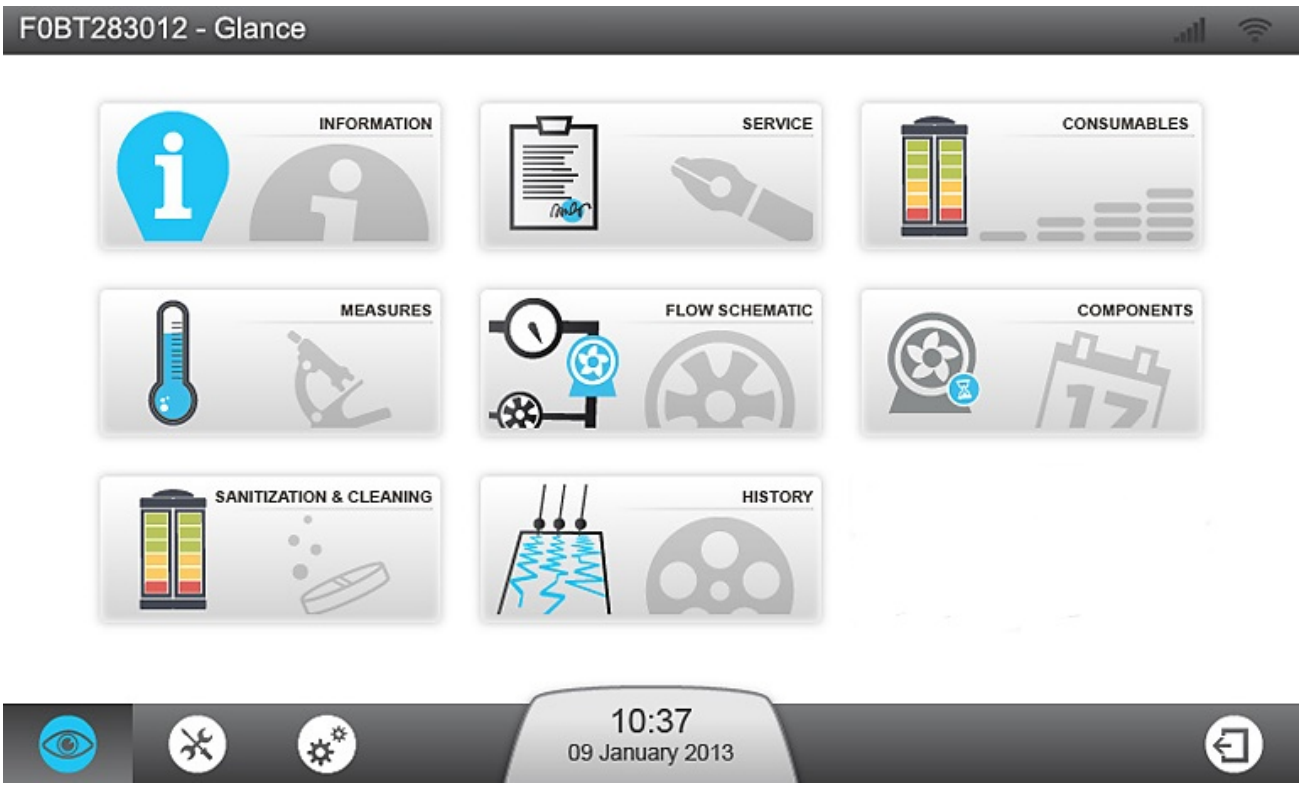
Workspace Screens

There are three Workspace screens which list all available applications.

Glance Workspace

The **Glance Workspace** contains applications providing system information.

Glance Workspace



Note: When switching from an application back to the workspace screen, the last workspace screen selected will be opened.

Information Application gives information about your system.

Product Information: Unique manufacturing identifier of your system. You may need to provide some or all of this information when contacting your Sales or Service representative.
Software versions: Your water system is made of several electronic boards using different software. You may need to provide some or all of this information to your Service representative in case of troubleshooting. Software and firmware board versions are listed there.
Customer information: Details such as your location and address information can be seen here.

Service Application gives information related to Service.

Key contacts: Information about Millipore S.A.S key contacts is seen here (technical service representative or sales support contact information).

Service information: Information about your system's service agreements. It contains the installation details, and if applicable the contract name and the operational or preventive visit dates.

Consumables Application provides information related to your system's consumables.

Progard® pack: Lists the Progard® pack(s) details. The catalog number, installation date, processed volume and replacement date.

RO cartridge: Identifies your RO cartridge using type, lot and catalog number. The installation date can also be checked here.

Vent filter: Lists the tank vent filter type, lot and catalog numbers with the installation and replacement dates.

Q-Gard® pack: Lists the Q-Gard® pack details. The catalog number, installation date, processed volume and replacement date.

Opticap® filter: Lists your Opticap® filter details. The catalog number, installation date, processed volume and replacement date.

Measures Application gives information on the measurements from your system.

Water quality measurements: provides information about each stage of the water purification process in the system.

- **Tap water:** Conductivity and temperature are monitored.
- **RO stage:** Conductivity, temperature and the permeate and rejection outputs are monitored.
- **ELIX ® stage:** The Elix® product conductivity and temperature are monitored.
- **Distribution stage:** The distributed conductivity and temperature are monitored, and if applicable the TOC value is shown.

Hydraulic measurements & actuator statuses: shows all hydraulic measurements and gives the status of each actuator.

- **Tap water:** The tap feed pressure and if applicable, the external solenoid valve status is displayed.
- **RO stage:** All parameters related to the RO stage are displayed. For example, the RO pressure, flowrate and recirculation and the different solenoid valve statuses.
- **Elix ® stage:** The parameters related to the Elix® stage are displayed. The Elix® status, product flowrate and recovery. In this application the UV lamp and, if applicable the degasser vacuum pump statuses are monitored.
- **Distribution stage:** The tank level, ASM UV lamp, distribution pump status and the distribution pump pressure are displayed.

Electrical measurements: shows electrical measurements.

Electrical values related to the different system stages are monitored within the application.

Flow Schematic Application shows an overview of your system with a realtime updated flow schematic.

All system actuators are shown on the flow schematic. All of the different measurements are displayed, the values displayed can be sorted by water quality , hydraulic or electrical measurement .

Components Application provides information about the major components of the system.

Pumps: Reverse Osmosis, Distribution and if applicable, Degasser pump details. The catalog number, installation and replacement date are displayed.

UV lamps: Makeup, Automatic Sanitization Module and Distribution UV Lamp details. the catalog number, installation and replacement date are displayed.

Sanitization and Cleaning Application shows information about the sanitization and cleaning that is typically performed on the system. When the <Due date> of a cleaning or sanitization nears, the system will display an alert.

RO membrane CL_2 cleaning: The last and next CL_2 cleaning to be performed are displayed.

RO membrane pH cleaning: The last and next pH cleaning to be performed are displayed.

History Application provides historical information relating to your system. The System data can be filtered by date and the selected data can be exported in xml files.

Daily measurements: Historical daily system measurements and internal parameters can be viewed and retreived. These parameters represent an indicator of the system performance.

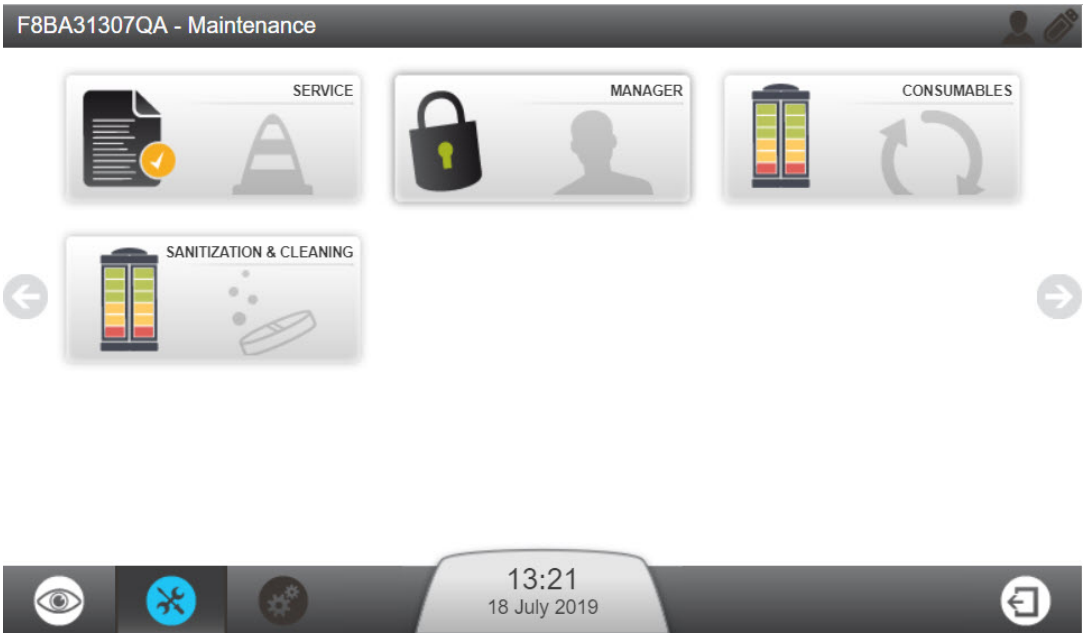
Daily operations: The system creates a daily journal that contains information about all operations performed on it. Typical values registered include the water volume processed and the number of working hours.

Event record: Event records like power on, power off, operating modes or the operations that trigger alarms or alerts can be viewed and retreived.

Maintenance Workspace

The **Maintenance Workspace** contains applications enabling maintenance and cleanings to be performed.

Maintenance Workspace 



Service Application allows your qualified service representative to adjust and optimize system parameters dependent on usage and final application.

Manager Application allows access to the system Configuration Workspace.

Note: to use this feature, it needs to be activated by your qualified service representative. It is then accessed at any time via a password (provided by the service representative). Typically, the password is kept by a user nominated Manager. The password can be changed at any time.

Consumables Application shows consumable status and allows consumable software wizards to be launched.

Note: You can visualize the same consumable status information in the **Glance Workspace** > **Consumables Application** but you cannot perform consumable replacement from there.

Consumables found in this application: Progard® pack(s), Vent filter, Q-Gard® pack, Opticap® final filter.

Sanitization and Cleaning Application allows cleaning software wizards to be launched.

The RO membrane cleaning wizard will guide you through the differents steps, indicate the cleaning time and what is required in order to perform RO membrane cleaning. During the first steps, until reagents are introduced into the system, you will be prompted by the wizard, to validate or cancel the RO membrane cleaning.

When opening this application, two dates related to cleanings are shown:

- The "Performed" date indicates the last time a cleaning was done,
- The "Due date" indicates when the next cleaning is due.

What do you need to perform an RO membrane CL2 cleaning ?

- For a system with one Progard® Pack: One RO Regeneration Tool
- For a system with two Progard® Packs: One RO Regeneration Tool and one RO Regeneration Plug/Tool
- 2 Chlorine tablets

Note: The RO membrane CL2 cleaning takes around 30 min.

What do you need to perform an RO membrane pH cleaning ?

- For a system with one Progard® Pack: One Regeneration Tool
- For a system with two Progard® Packs: One Regeneration Tool and one Regeneration Plug/Tool
- 1 to 3 Acid or Base pH reagent pouches depending on system type (1 for CLX 7040, 2 for CLX 7080, 3 for CLX 7120 & 7150)

Note: The RO membrane pH cleaning takes around 75 min.

Your Qualified Service representative has selected, based on your tapfeed water quality, the pH cleaning type that you will need to perform on your RO membranes and the pH cleaning frequency.

Note: These cleaning timers can be adjusted in collaboration with your qualified service representative.

Configuration Workspace

The **Configuration Workspace** contains applications allowing modification of some system parameters

Configuration Workspace 

Note: The information shown in the configuration applications can be observed, changed and saved. Configuration applications can be accessed when manager access has been activated by a qualified service representative. It is accessed by the manager using a password. In the **Workspace Glance** applications similar information can be seen, but not changed.

Information Application allows modification of system information.

Product information: Parameters from the manufacturer that uniquely identify the system cannot be changed but personalization of your system is possible by giving it a name, and a location for example.
Company name: Your Company name, address and contact information can be found and changed in this application.
Key contact (Add/Del/Mod)**:** You can add, delete or modify your contacts phone number and email from this application. These key contacts can be viewed in the **Glance Workspace > Information Application** by any system user.

Processes Application

Makeup process: The Tank refill setpoint can be modified, the RO recovery setpoint can be decreased. The Tap feed pressure max. is given as information only.

ASM scheduling: If the option has been activated, ON time and cycle period can be adjusted based on the system daily usage. It is not recommended to disable the ASM UV lamp cycle.

Distribution process: Auto lab closed can be activated here. The auto lab closed must be activated to refresh the tank water if the system was not in tank filling for more than 3 days and the tank level is above the tank refill setpoint.

The "Auto recirculation duration" can be adjusted from 15 to 60 min per hour, and the Post recirculation from 30 to 60min per hour.

The "Tank flush setpoint" can be adjusted to the following range of value: 0-75%. The "Tank flush setpoint" must be below the "Tank refill setpoint". If not, the tank will be emptied but it will never be refilled.

Options: The water sensor (or leak detector) can be activated here.

Measure outputs: Two measures can be selected from the list of parameters, these parameters can be monitored by external devices.

Units: Set your desired units here.

Alarm and Alert Application

Alarm thresholds: Thresholds corresponding to the main system parameters can be adjusted here. If a threshold has been crossed, the system will raise the corresponding alert or alarm.

Example: RO Low TDS setting can be activated in some particular tap feed water cases. If the tap feed water quality is too good, the RO membrane rejection performance maybe poor and based on the system RO recovery, the system could raise alarms related to the RO rejection, or tap feed conductivity. This parameter can be selected to suppress these alarms.

External signals: This option must be installed and activated by your service representative. Unlimited alerts or alarms can be selected from the list, these alarms can be reported to an external device.

System Settings Application

LCD: Adjust the brightness of the display.

Language: Your system language has been set by your Qualified Service representative. However, the language can be changed using this application.

Note: Pay attention to the fact that with an unfamiliar language you may encounter some difficulties to return to your original language.

Sound: Sounds can be configured here.

Alarm and Alert sounds can be selected independently. You can also decide to activate Keyboard clicks.

Date & Time: The system date and time can be changed here.

Note: Seasonal changes to the time (i.e. Daylight Savings) are automatic.

Network configuration: The LAN communication can be configured here (fixed ip address or DHCP can be selected)

Export/Import Application

The system configuration file can be exported from this application. It is highly recommended to export the system configuration file and keep it as a backup in order to keep your complete settings.

The configuration file can be imported into the system if it corresponds to the same system from which it has been exported previously.

Distribution Schedule Application allows scheduling of recirculation of the distribution process.

Behaviours: 3 distribution modes - Auto-recirculation, Recirculation and Tank Flush - can be programmed for each day of the week.

Auto-recirculation is set by default. Start and end times of the distribution modes can be defined and added to the distribution schedule .

Copy schedule: the schedule defined for one day can be applied to other selected days of the week.

Emergency Bypass

Emergency Bypass Introduction

An emergency bypass is available on your Milli-Q® CLX 7000 Series in order to allow production of purified water from your system when it is not operational.

This emergency bypass procedure can be used when your system has stopped due to an external power failure or cannot produce purified water due to an internal technical problem.

Use of the emergency bypass is temporary. It should only be used until the system can be made functional again.

When using the emergency bypass, it is required to:

- Move the Feedwater tubing on the system, and
- Install a new Q-Gard® pack.

By using the emergency bypass and with a new Q-Gard® pack, the system, can deliver 100 liters with a feedwater conductivity of 750 µS/cm at a maximum flow rate of 2 lpm.

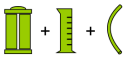
Note: During the time the Emergency Bypass is used, it is not possible to view the resistivity or temperature of the product water

Emergency Bypass Procedure

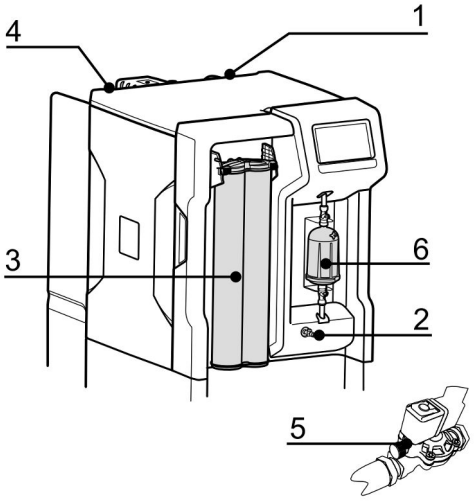
The objective of the emergency procedure is to divert the tap feedwater from your system inlet port to the emergency bypass port. This will divert the feedwater flow directly through the newly installed Q-Gard® pack so the Analyzer can still request purified water from the system.

In normal operation the feedwater tubing is connected on the back of the system at the inlet port. You will have to divert it to the emergency bypass port.

Items needed

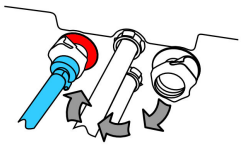
 (tubing)

Procedure Overview

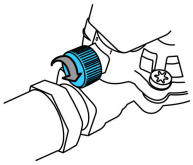


1. Power off the system.

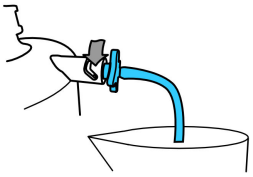
2. Release the pressure inside the system by opening the front valve. Close it once the pressure is released.
3. Replace Q-Gard® pack with a new one.
4. Connect the feed water tubing to the bypass connection on the left



5. If an external solenoid valve is installed, open the feed water valve knob.



6. Open vent on Opticap to air purge the final filter. Close vent once water flows and no air remains in the filter.



RO Cleaning

Table 2: RO Cleaners

RO Cleaners	Conditioning	Recommended usage	Action
Chlorine (Cl2 tablets)	Delivered as a tablet	Use periodically when prompt by the system* every 84 days or as recommended by our service representative.	The regular use of a chlorine tablet helps to reduce biofilm formation on the surface of the RO membrane.
RO Acid Cleaner	Delivered in a pouch. The empty pouch is removed after use.	Use periodically when prompt by the system* or when the RO % rejection drops more than 5% and/or when the RO permeate flowrate drops more than 10%, if due to mineral scaling.	The use of RO Acid Cleaner removes some or most mineral scale buildup on the surface of the RO membranes.
RO Base Cleaner	Delivered in a pouch. The empty pouch is removed after use.	Use periodically when prompt by the system* or when the RO % rejection drops more than 5% and/or when the RO permeate flowrate drops more than 10%, if due to organic fouling.	The use of RO Base Cleaner removes some or most organic material buildup on the surface of the RO membranes.

(*): RO cleaning alerts can be activated and timers adjusted based on feed water quality.

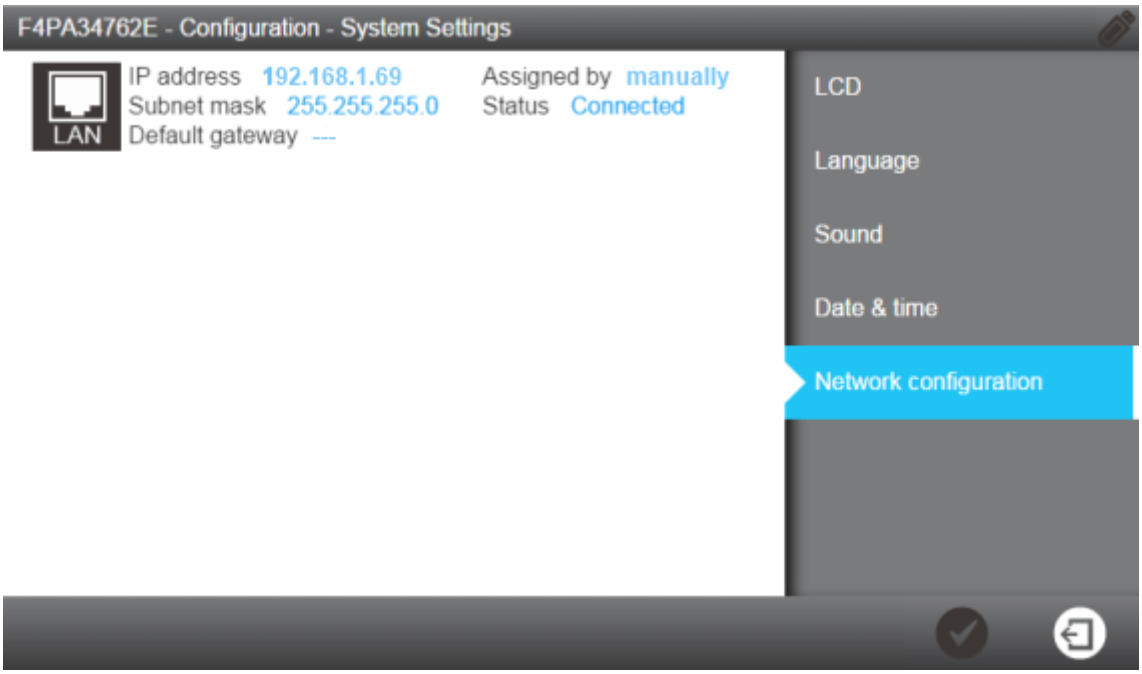
Note: Do not replace RO cleaners with other chemicals. The chemical concentration and form are not designed to fit with our cleaning program, and it may damage the RO membranes & water system.

How to Change the Network Configuration

To change your Internet or Network configuration use the System Settings Application.

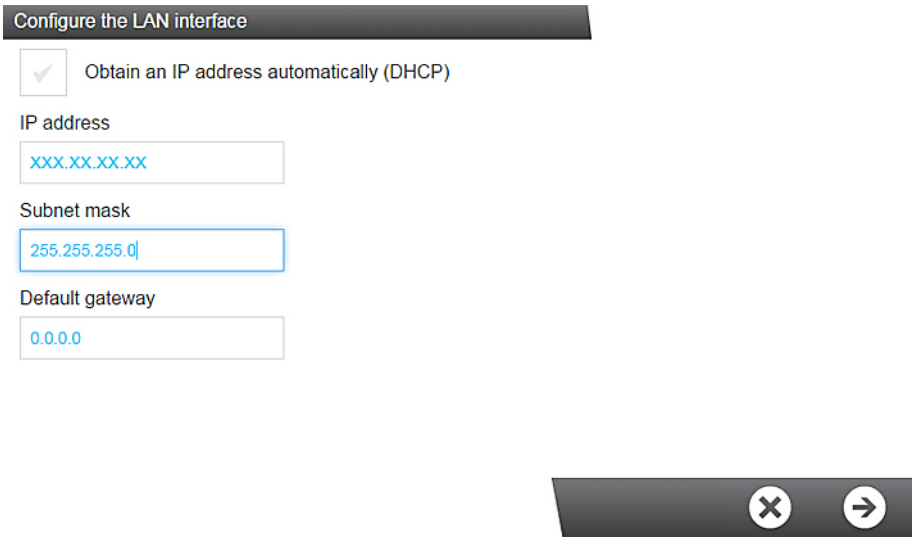
Important: The network configuration should only be changed from the system MMI. Do not attempt to change the settings remotely using the network.

1. Select the System Settings Application from the Configuration Workspace  .
2. Select **Network configuration**.



Note: This screen shows the default factory settings from the system LAN configuration.

3. Click on the LAN area of the screen to open the complete LAN configuration settings.



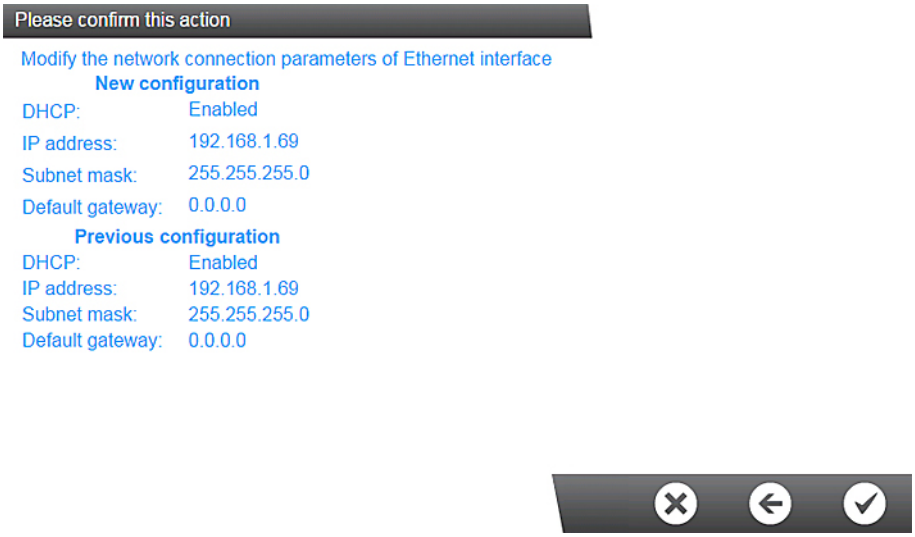
4. Enter the parameters corresponding to your configuration.

If you use DHCP mode, check the DHCP box. If using static mode you must complete the three fields:

- IP address
- Subnet mask, and
- Default gateway

using ip V4 format.

5. Validate your configuration by pressing the tick  icon.



6. The Network configuration is changed and the display returns to the System Settings Application.

How to Power and Power Off the water system

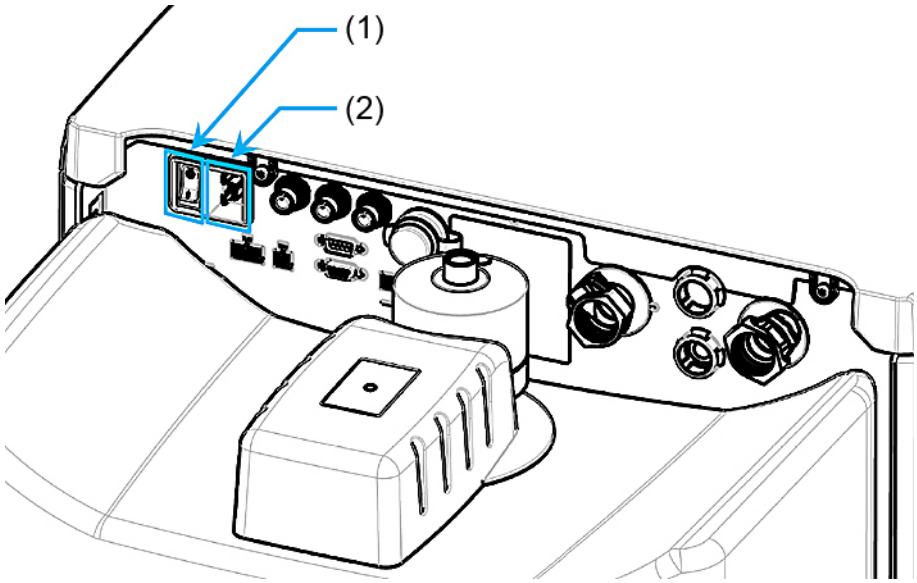
It is not recommended to shut down a running water system when operating (producing or dispensing water).

The water system has been designed to remain powered, this ensures the water quality in the system is maintained.

If you need to power off the water system for any reason, put the makeup and distribution processes into standby first and use the **Power Switch** to power off the water system.

Do not power off the system by removing the power cord from the **Power Outlet**.

Water system backpanel view: (1): Power switch; (2): Power Outlet



Ordering Information

Consumable Catalog Numbers

Packs and Filters

Label	Catalog Number	Description
Progard® XL-S-C	PR0GTXLCS1	Autoclean Qty 1
Progard® XL-S-C	PR0GTXLCS2	Autoclean Qty 2
Progard® XL	PR0GTXL001	Qty 1 (US, Canada and Mexico only)
Progard® XL	PR0GTXL002	Qty 2 (US, Canada and Mexico only)
Progard® XL-S	PR0GTXL0S1	Silver Impregnated Carbon - Qty 1
Progard® XL-S	PR0GTXL0S2	Silver Impregnated Carbon - Qty 2
Q-Gard® XL-4	QGARDTXL04	Qty 1
Tank Vent Filter	TANKMPKXC	CO_2 trap, 0.45µm

Cleaners

Label	Catalog Number	Description
Chlorine	ZWCL01F50	CL_2 tablets - Qty. 50
Chlorine – USA only	5874316024	CL_2 tablets - Qty. 24
Chlorine – Canada only	5874316024C	CL_2 tablets - Qty. 24
RO Acid Cleaner	ZWACID012	Qty. 12
RO Base Cleaner	ZWBASE012	Qty. 12

Qty 1 refers to 1 unit per box.

Saniclean paks (Required tools for cleanings)

Label	Catalog Number	Description
RO Regeneration Tool	ZLXLCLPAK	One RO cleaning pack is required for all of the RO cleaning
RO Regeneration plug/tool	ZLXLPLUGP	Required also for systems with two Progard packs: Milli-Q® CLX 7040HC, 7080HC, 7120, 7150

Accessory Catalog Numbers

Designation	Catalog Number	Description
Water Sensor (Main)	TANKLKXL1	Water sensor to be connected on system
Water Sensor	TANKLK002	Water sensor to be connected to other water sensors (Up to 3 water sensors including the main one can be chained)
External Valve	ZLXL00ESV	External solenoid valve
TOC Monitor	ZAFSL0T0C	For Milli-Q® CLX 7000 systems
Degasser Kit	ZLXDEGK2	For Milli-Q® CLX 7000 systems
Plastic Sampling Valve	ZF000PLSV	1/8" NPTM (Luer)
Plastic Luer with Septum	ZF000LCSV	Quantity 5
Sanitary Sampling Valve	MXPESP18N	1/8" NPTM (316 Stainless Steel)
External Pretreatment Cable	ZLXLPTCAB	Communication cable
Air Gap 2 inlets	AIRGAPXL2	For tubing internal diameter 10mm
Flow switch for pretreatment unit	ZLXLPTFSW	Flow drain switch for external pretreatment unit
Alarm Report Cable	ZLXLALCAB	Reports x2 alarms and x2 4-20 mA measures
External Pressure Regulator	ZLXL000PR	Feed water pressure regulator (0-25 bars)
UF Pretreatment Unit	ZUFPREUN0	Ultrafiltration filter Unit 3/4"
UF Installation kit	ZUFPREUN8	Installation kit for the UF Pretreatment Unit 3/4"
20m loop kit	ZLXL00P20	Complete distribution kit 20m loop
Loop point of delivery	ZLXLP0D01	Loop point of delivery - Inter T Valve

System Catalog Numbers

Z	**A**	**F**	**S**	*	*	*	*	*
Milli-Q® CLX 7000 Series Identifier				Voltage	LC/HC	System Product Flowrate		

Voltage	**LC/HC**	**System Product Flowrate (L/H)**
5 = 230V 50/60 Hz	1 = Low Chlorine (LC)	040 = Milli-Q® CLX 7040
6 = 120 VAC - 60 Hz	2 = High Chlorine (HC)	080 = Milli-Q® CLX 7080
7 = 100 VAC - 50/60 Hz		120 = Milli-Q® CLX 7120
		150 = Milli-Q® CLX 7150

For example ZAFS**51040** is a 230V 50/60 Hz Milli-Q® CLX 7040 Low Chlorine System and ZAFS**72150** is a 100 V 50/60 Hz Milli-Q® CLX 7150 High Chlorine System.

Appendix

Display Icon Description

Icon	Function
	Exits the current application or wizard.
	Navigates back to the previous screen.
	Navigates forward to the next screen.
	Cancels an action.
	Confirms an action.
	Adds a new item to a list.
	Removes the selected item(s) from a list.
	Modifies the selected item(s) of a list.
	Opens the Glance Workspace.
	Opens the Maintenance Workspace.
	Opens the Configuration Workspace.
	Shows water quality measurements.
	Shows hydraulic parameters.
	Shows electrical parameters.
	Starts a software wizard.
	Opens a consumable override wizard.
	Filters the data.
	Exports the data.
	Automatically fills a field with the system date.

The system buttons used are virtual icons on the display and their **status** is determined by colour.

	Disabled.
	Enabled.
	Pressed or selected.

Peripherals and communication indicators:

On each of the MMI screens, on the top right, there are two icons to indicate the connection status, via Ethernet or the front side USB port.

As an example for the Overview screen:

USB port (front side):

	No USB device detected on the system.
	A USB device has been inserted and detected by the system.

Ethernet connection status:

	No effective network connection has been established.
	An Ethernet connection is active on the system. At this time, up to 3 different IP address can be connected to **view** the general operation of the System.
	Via the Ethernet connection, someone is remotely using the **Maintenance** and/or **Configuration** applications on the System. The IP address is shown. At this time, no one else can access the **Maintenance** and/or **Configuration** applications. To gain access at this time via the Ethernet connection, ask the user having the remote IP address to leave the **Maintenance** and/or **Configuration** applications.
	A user is using the MMI directly and is in the **Maintenance** and/or **Configuration** applications. At this time, no one else can access the **Maintenance** and/or **Configuration** applications. To gain access at this time, via the Ethernet connection, ask the user (in front of the system) to leave the **Maintenance** and/or **Configuration** applications.

System Modes in Ready

When the system is in Ready it automatically changes software mode when required. The different modes possible within the Makeup and Distribution processes are described below.

Table 3: Makeup Ready Modes

Makeup Mode	Use
INITIALIZATION	To check and reset components.
READY	Pauses the Makeup process when the tank is full.
FLUSH	To periodically sweep away contaminants on the feedwater surface of the RO Membrane.
RINSE	To prevent poor quality water reaching the Elix® Module before TANK FILLING.
TANK FILLING	To fill the Tank.
AUTOTEST	Checks internal components.
PROGARD FLUSH	To flush new Progard® Pack(s).
RO RINSE	To rinse new RO Membrane(s).
CL_2 CLEANING	To clean RO Membrane(s).
pH CLEANING	To clean RO Membrane(s)
REAGENT REMOVAL	To remove cleaning agents after CL_2 CLEANING or pH CLEANING.
SANITIZATION	To sanitize the system.
ALARM STOP	Stops the Makeup process in the event of an Alarm Stop signal.
BACKWASH FILTER REGENERATION	Pauses the system whilst a backwash filter regenerates.

Table 4: Distribution Ready Modes

Distribution Mode	Use
READY	To pause the Distribution process when the anlyzer does not require water.
DISPENSING	To dispense water to the analyzer.
RECIRCULATION	To maintain water quality after DISPENSING and periodically in READY.
TANK FLUSH	To maintain water quality when tank is full.
ALARM STOP	To stop the Distribution process in the event of an alarm stop signal.
Q-GARD FLUSH	To flush a new Q-Gard® pack.
OPTICAP FLUSH	To flush a new Opticap® pack.
SANITIZATION	To sanitize the system.
TANK EMPTYING	To empty the tank.

Communication Ports & Software

USB

The water system has a built-in USB port that offers the possibility to export the system data and/or history.

USB port is located just under the main display. This is a hot pluggable port that automatically detects a USB key when a compliant device is connected:

- USB 2.0 compliant,
- Type A,
- FAT16 / FAT32 under Windows® Operating System, and
- ext3 / ext4 under Linux Operating System.

Ethernet

The water system has a built-in Ethernet port that offers the possibility to connect to a TCP/IP network.

Up to three users can connect to the system at the same time but only one single user can access applications that modify system parameters (applications found in **Configuration Workspace** as an example).

You can access to the same applications and screen views on the remote display interface and the system's main display.

Note: When three users are connected, the system informs any new connection that the maximum number of opened sessions has been reached.

Supported browsers

When connected through Ethernet protocol, the display interface can be accessed remotely using the following internet web browser versions.

The remote display of the main display is compatible with the following browser versions:

Table 5: Internet Browser Compatibility

Browser type	Recommended version
Chrome® Software	39.0.2171.71

System software

System software included in this product contains copyrighted software that is licensed under the GNU GPL.

Details of the legal notices relating the system software licence, claim, open source and components references can be found from the system MMI at **Glance / User Manual / Legal notices**.

You may obtain the complete Corresponding Source code from us for a period of three years after our last shipment of this product, by submitting a written request to your service representative.