



PURELAB Option-R 7/15

Operator Manual

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1. INTRODUCTION

1.1 Product Range

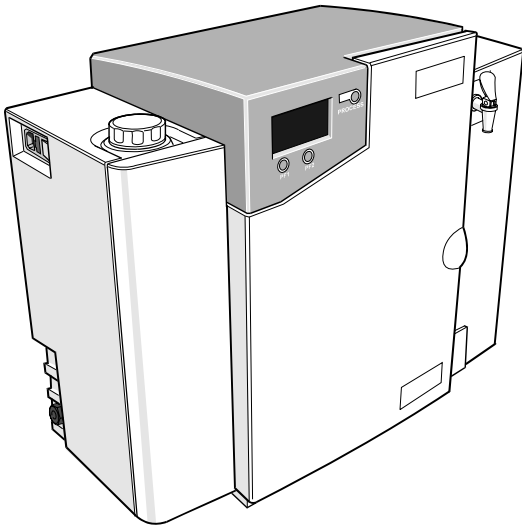
This Operator Manual has been prepared for the **PURELAB Option-R** product models.

PURELAB Option-R7

PURELAB Option-R7 BP (with boost pump)

PURELAB Option-R15

PURELAB Option-R15 BP (with boost pump)



PURELAB Option-R

1.2 Use of this Manual

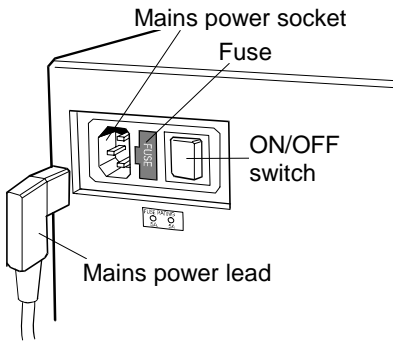
This manual contains full details on installation, commissioning and operation of the **PURELAB Option-R** unit. If this unit is used contrary to the instructions in this handbook, then the safety of the user may be compromised.

1.3 Customer Support

Service support and consumable items are available from your local supplier or distributor. Refer to customer service contact details shown at the end of this publication.

2. HEALTH AND SAFETY NOTES

PURELAB Option-R products have been designed to be safe, however, it is important that personnel working on these units understand any potential dangers. All safety information detailed in this handbook is highlighted as WARNING and CAUTION instructions. These are used as follows:



Mains Power Supply



WARNING!

WARNINGS ARE GIVEN WHERE FAILING TO OBSERVE THE INSTRUCTION COULD RESULT IN INJURY OR DEATH TO PERSONS.



CAUTION!

Cautions are given where failure to observe the instruction could result in damage to the equipment, associated equipment and processes.

2.1 Electricity

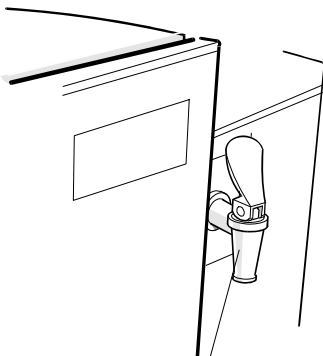
It is essential that the electrical supply to the **PURELAB Option-R** is isolated before any items are changed or maintenance work performed.

The ON/OFF switch is located at the left-hand side of the unit. The mains power lead is located just behind the ON /OFF switch.



WARNING!

THIS APPLIANCE MUST BE EARTHED.



Dispense tap

Dispense Tap

2.2 Pressure

The main water supply pressure should be isolated and residual pressure released prior to removal of any cartridges or carrying out work on the unit.

Switching off the electrical supply will isolate the source of pressure, but pressure trapped within the unit should be released by opening the dispense tap until water flow stops.

2.3 Ultra-Violet Light

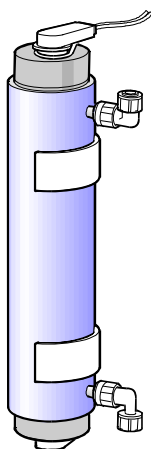
The **PURELAB Option-R** unit is fitted with an ultra-violet lamp. The UV lamp is enclosed in a stainless steel chamber ensuring the operator will not be exposed to UV light.

2.4 Sanitization Chemicals

During the sanitization cycle a CT1 sanitization tablet is used and relevant safety information is included in this handbook. A safety data sheet conforming to COSHH regulations is also provided with the tablets and should be read before the tablet is used.

2.5 Control of Substances Hazardous to Health (COSHH)

Material safety data sheets covering the various replaceable cartridges are available upon request. Contact your local supplier or distributor.



UV Lamp

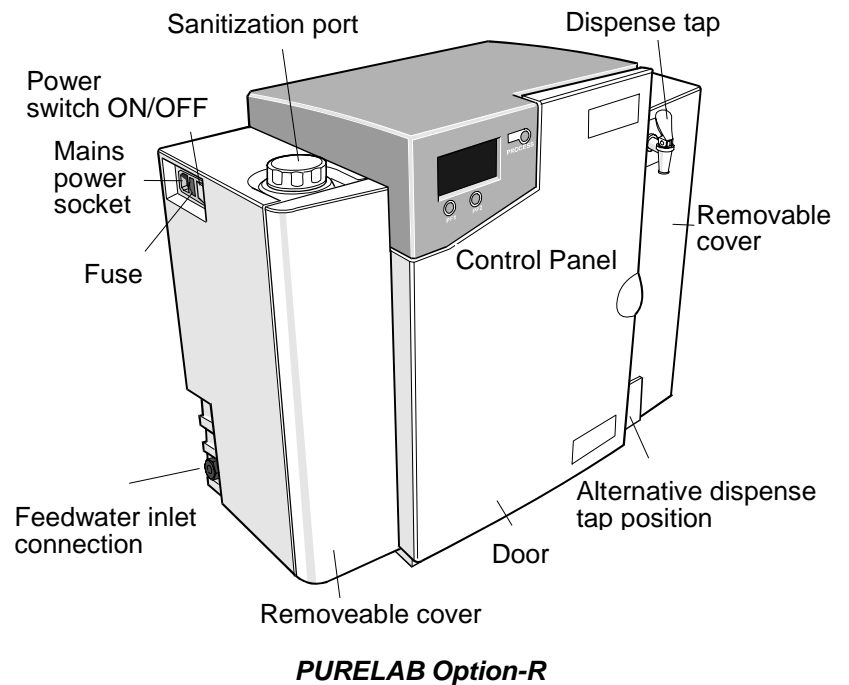
3. PRODUCT AND PROCESS DESCRIPTION

3.1 Product Description

This handbook covers the operator instructions for the **PURELAB Option-R** unit.

The **PURELAB Option-R** water purification unit has been specifically designed to provide a supply of highly **purified water**.

The **PURELAB Option-R** can be bench or wall mounted with an optional wall mounting kit available. A range of accessories are available to complement the unit. (See Section 10 - Consumables and Accessories, for detail).



3.2 Process Description

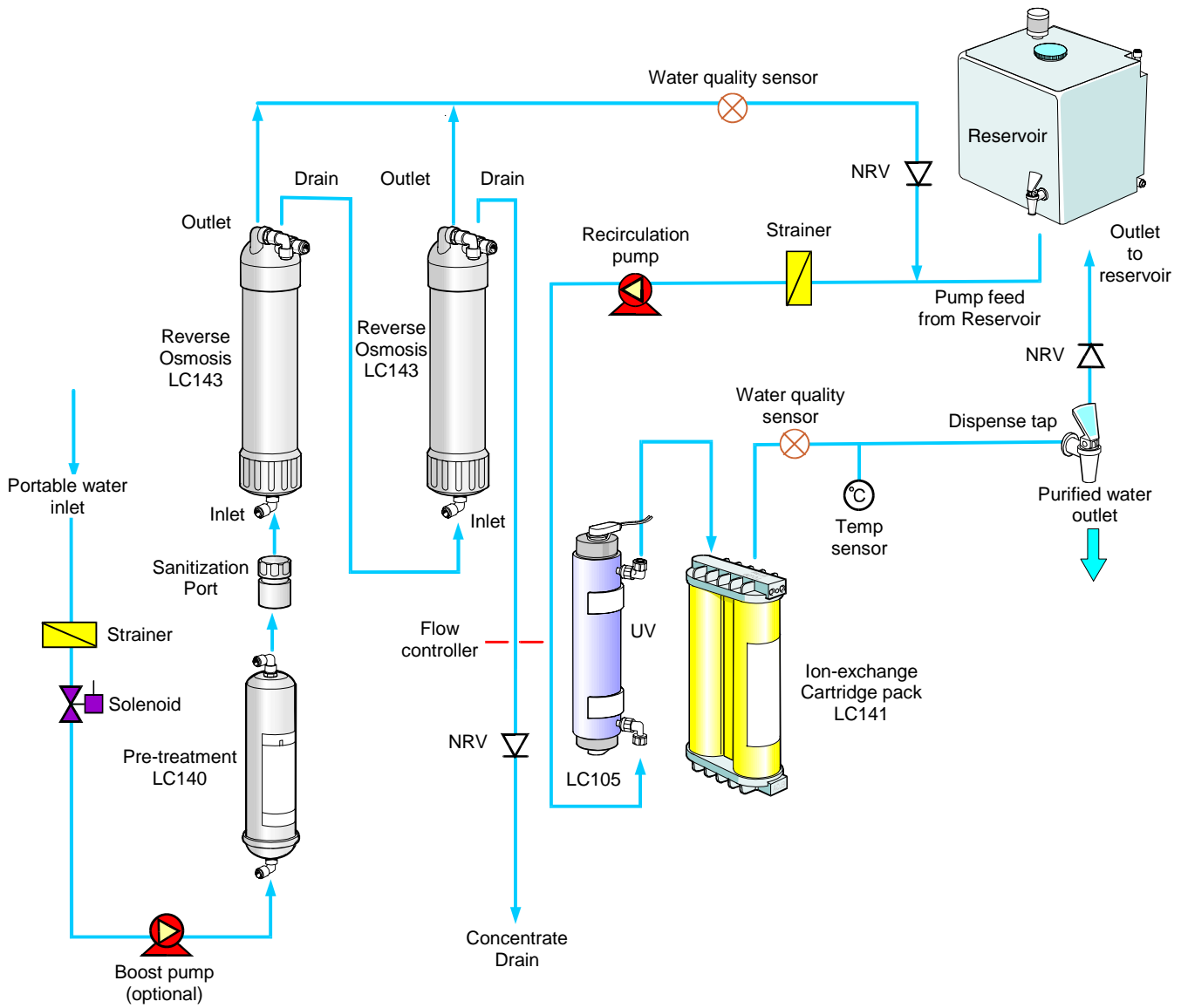
The **PURELAB Option-R** process links four purification technologies, Reverse Osmosis, adsorption, ion-exchange and photo oxidation and also incorporates a re-circulation pump and an optional RO feed water boost pump.

The unit is designed to operate from a good quality potable water supply, and produces either 7 or 15 liters per hour of purified water which is further purified and circulated through a treated water reservoir.

A graphics screen displays the system status and provides control by means of three function buttons.

The water is processed and treated by the **PURELAB Option-R** unit as follows:

- Potable water enters through a strainer and inlet solenoid valve at either regulated mains water pressure, or is pumped by means of a feed water pump (optional), and passes through the pre-treatment cartridge. The pre-treatment cartridge has been designed to protect the reverse osmosis cartridges from particulate/colloidal matter and excessive free chlorine, which may be present in the incoming feedwater.
- The permeate water then passes the sanitization port and through one or two reverse osmosis cartridges, set up in series, which split the flow into permeate and concentrate streams. The permeate water is further purified whilst the waste concentrate stream is passed to drain.
- The permeate water passes through a water quality sensor which measures the conductivity of the water.
- The permeate water is drawn into the main re-circulation stream by the re-circulation pump together with water from the reservoir and passes through the re-circulation purification loop.
- This water is pumped directly through the UV chamber where it is exposed to intense UV radiation to provide continuous bacterial control by photo oxidation and to promote the cleavage of organic molecules.
- The partially purified water then passes through the ion-exchange cartridge which removes dissolved ionic impurities from the permeate water.
- Finally, the water is passed through a:
 - Water quality sensor, which measures the resistivity of the water.
 - Temperature sensor which provides accurate temperature measurement.
- The deionised water is either dispensed through a dispense tap, or returns to the reservoir. An optional point of use 0.2µm bacterial filter can be fitted to the dispense tap for added protection.
- During periods of non-use the unit will automatically operate in intermittent re-circulation mode to maintain water purity with maximum efficiency.



Process Flow - PURELAB Option-R

3.3 Technical Specifications

The Technical Specifications for the **PURELAB Option-R** are as follows:

Feedwater		
	PURELAB Option-R 7	PURELAB Option-R 15
Feedwater		
Source Quality	Potable mains water supply	Potable mains water supply
Fouling Index-maximum	10	10
Total Dissolved Solids-maximum	1400µS/cm	1400µS/cm
Free Chlorine - maximum	0.5ppm	0.5ppm
Heavy Metals - maximum	0.05ppm	0.05ppm
Silica- maximum	30ppm	30ppm
Temperature	1 - 35°C	1 - 35°C
Flowrate (Maximum requirement)	78 l/hr	85 l/hr
Drain Requirements (gravity fall with air gap). Maximum during Service	70 l/hr	70 l/hr
Feedwater Pressure		
Maximum - without internal boost pump	6.0 bar (90 psi)	6.0 bar (90 psi)
Minimum - without internal boost pump	4.0 bar (60 psi)	4.0 bar (60 psi)
Maximum - with internal boost pump	2.0 bar (30 psi)	2.0 bar (30 psi)
Minimum - with internal boost pump	Flooded Suction	Flooded Suction

Dimensions		
Height	460mm (18.1")	460mm (18.1")
Width	550mm (21.7")	550mm (21.7")
Depth	270mm (10.6")	270mm (10.6")
Weight		
With internal boost pump	20kg (44lb)	21kg (46lb)
Without internal boost pump	18kg (40lb)	19kg (42lb)

Connections		
Inlet-quick connect	8mm (5/16") OD	8mm (5/16") OD
Outlet-quick connect	8mm (5/16") OD	8mm (5/16") OD
Drain RO-quick connect	8mm (5/16") OD	8mm (5/16") OD
Reservoir feed/return-quick connect	8mm (5/16") OD	8mm (5/16") OD
Positioning	Wall, bench or under bench mounted.	Wall, bench or under bench mounted.
Environment	Clean dry indoor. Temp 5 - 40°C. Humidity max 80% non-condensing.	Clean dry indoor. Temp 5 - 40°C. Humidity max 80% non-condensing.

Electrical Requirements	
Mains Input	100-240V ac, 50-60Hz all models
System Voltage	24V dc
Power Consumption with boost pump	80VA
Power Consumption without boost pump	50VA
Fuses	2 x T6.3 Amp
Reservoir level connection	Jack Plug 3.5mm
Noise Level	<45dBA

User Interface		
Display	Continuous graphical and numerical reservoir level display Graphical flow schematic on screen with mimic display Intuitive icons (Multilingual)	
Adjustable settings	Auto restart after power failure Audible alarm Water purity units Water purity	Selectable Selectable MicroSiemen/cm or MegaOhms.cm Alarm setpoints
Indicators	Reverse osmosis permeate water De-ionized water Temperature Reservoir Pre-treatment cartridge UV lamp Ion-exchange cartridge	Conductivity Temp compensated resistivity/ conductivity Degrees centigrade % Full Maximum remaining life indicator Maximum remaining life indicator Maximum remaining life Indicator
Alarms-Audiovisual	Purified water purity Reservoir Reservoir UV failure alarm Pre-treatment cartridge UV lamp Ion-exchange cartridge	Outside set point alarm Low level Level control disconnect alarm Non start or current outside limits Change reminder Change reminder Change reminder
Outputs	RS232 Printer connection RS232 Remote display connection Volt free contact-internal	

Safety Features
Power fail safe
Boost pump protection from particulates
Re-circulation pump protection from particulates
Low operating voltage 24V
Audio visual alarms
Adjustable alarm settings

Special Features	
Low noise levels – minimum intrusion	
Flow rate upgradable	
Optional internal boost pump for low pressure feed waters	
Optional printer kit for record of operating parameters	
Optional remote display	
Intermittent re-circulation “sleep” mode	
Optional point of use filter	
Dual position dispense tap	

Technologies	
Purification Methods	Adsorption Reverse Osmosis Ultra Violet radiation-short wavelength Ion-exchange Point of use filtration

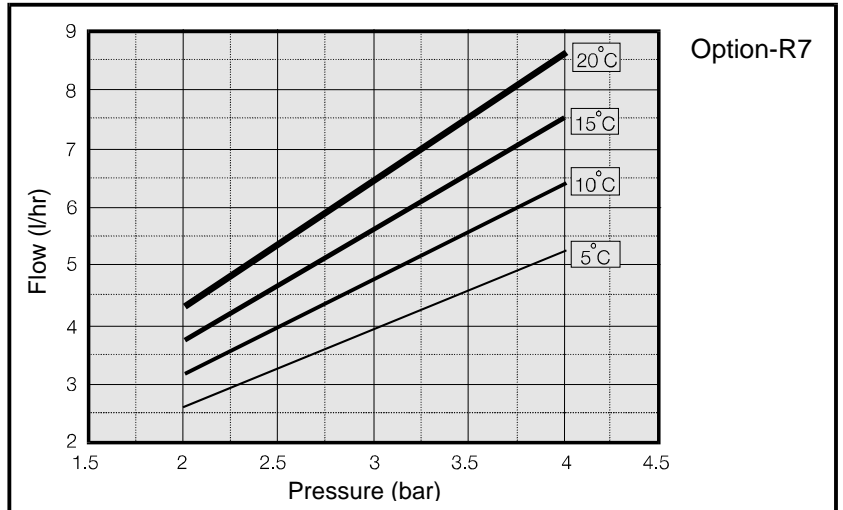
Purified Water Specification		
	<i>PURELAB Option-R7</i>	<i>PURELAB Option-R15</i>
*Make Up Rate	7.5 l/hr	15 l/hr
*Daily Output(nominal max)	180 l/24 hour day	360 l/24 hour day
Dispense Rate from Tap	1.0 l/min-nominal (less with POU filter)	1.0 l/min-nominal (less with POU filter)
Output reverse pressure (max)	0.1 bar (1psi)	0.1 bar (1psi)
Purity: (from dispense tap)		
Inorganic-Typical	10 to >15MΩ.cm @25°C	
Total Organic Carbon(TOC)	<20ppb	
**Bacteria	<1CFU/ml	
pH	Effectively neutral	
Particles	Optional 0.2µm POU filter	

* Standard conditions are 4 bar inlet pressure, 0 bar back pressure at 15 degrees centigrade, fed with potable water and a clean pre-treatment cartridge. Refer to flow tables outside these conditions.

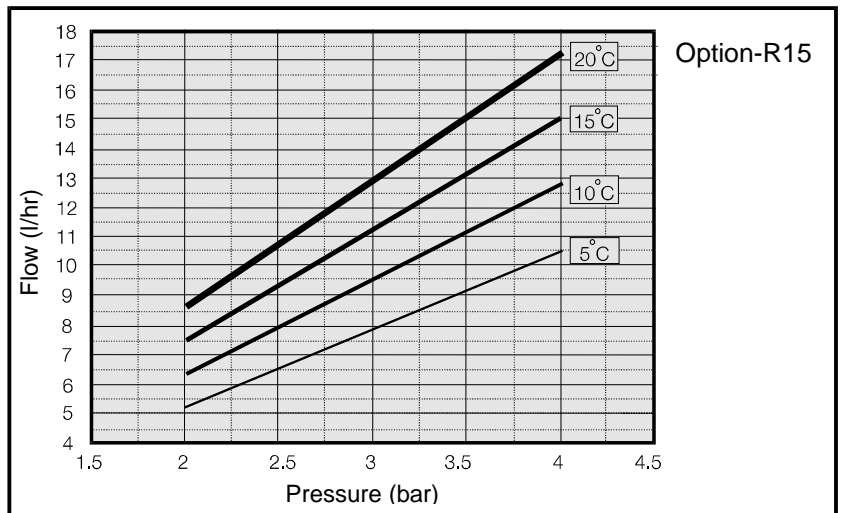
** Subject to correct operating and maintenance procedures.

As part of our policy of continual improvement we reserve the right to alter the specifications given in this document.

PURELAB Option-R Reverse Osmosis Capacity Charts



Graph 1 - Nominal Flowrate vs Inlet Pressure for PURELAB Option-R7

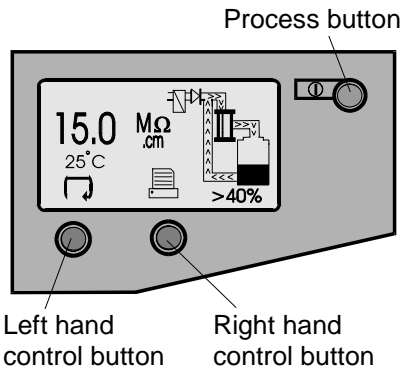


Graph 2 - Nominal Flowrate vs Inlet Pressure for PURELAB Option-R15

4. CONTROLS

The **PURELAB Option-R** operates with a tactile membrane touch pad control panel which has a graphics display window and three program function control buttons.

Details of how to use the controls will be given in the appropriate sections.



Control Panel

Control Button	Function
PROCESS	Turns the process ON/OFF.

The **PURELAB Option-R** control panel has a range of control icons as follows:

Button	Icon	Description
LEFT		Menu
		Scroll
RIGHT		Reset
		Mute Alarm
		Accept
		Printer

5. INSTALLATION INSTRUCTIONS

5.1 Unpacking the *PURELAB Option-R*

The following items should be supplied with your *PURELAB Option-R*:

1. *PURELAB Option-R* unit
2. Cartridge Pack LC141
3. Sanitization by-pass block fitted in the unit
4. Installation kit (LA513 or LA506)
5. Operator manual
6. Mains Lead

5.2 Positioning the *PURELAB Option-R*

Before commencing with installation and operation of the *PURELAB Option-R* unit, please read and observe the following points.

Environment

The unit should be installed on a flat, level surface, in a clean, dry environment. The unit can also be wall mounted against a vertical wall capable of supporting the weight (for this we recommend the use of the wall mounting kit Part No LA610).

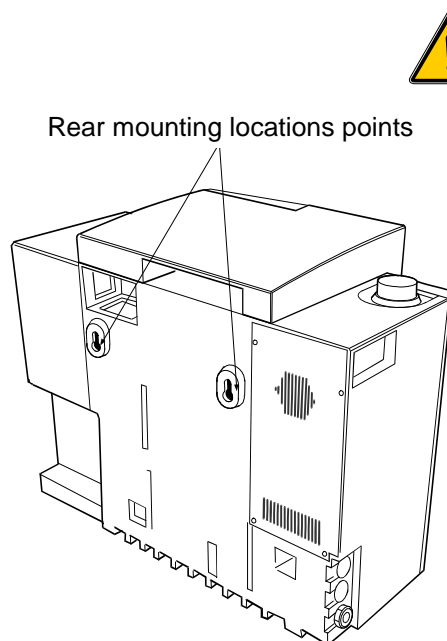
CAUTION! If unit is to be wall mounted, ensure it is mounted on a substantial brick or concrete solid wall capable of supporting the operating weight of the system. If mounting the unit on the wall, use the wall mounting kit and follow the instructions included in the kit.

Note: Refer to specifications for unit weights.

The unit is designed to operate safely under the following conditions:

- Indoor Use
- Altitude up to 2000m
- Temperature Range 5 - 40°C
- Maximum Relative Humidity 80% @ 31°C decreasing linearly to 50% @ 40°C, non-condensating

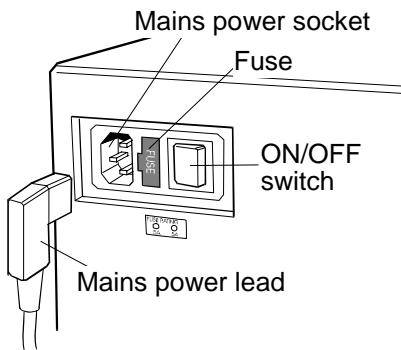
The unit is in Installation Category II, Pollution Degree 2, as per IEC1010-1.



Unit Rear Mounting Points

Electrical

The unit can be connected universally to any electrical supply in the range of 100 - 240V and 50 - 60Hz. The mains lead is supplied with a molded plug on one end and a molded connector to the unit on the other. The unit should be connected to an earth.



Electrical Connections

Drain

A semi rigid flexible connection to a sink or suitable drain capable of handling at least 1.5 l/min is required. The drain point should have a gravity fall below the level of the unit and any connections direct to drain should have an air-break device fitted.

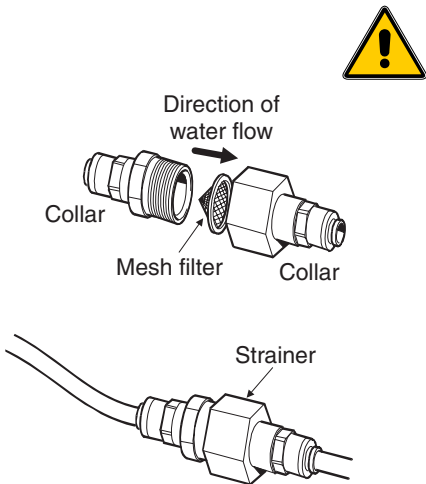
Feed Water

The feed water should be of good quality and comply with specifications provided. This should enter the unit via an 8mm (5/16") O/D semi rigid tube, and should be in the temperature range 1 to 35°C.

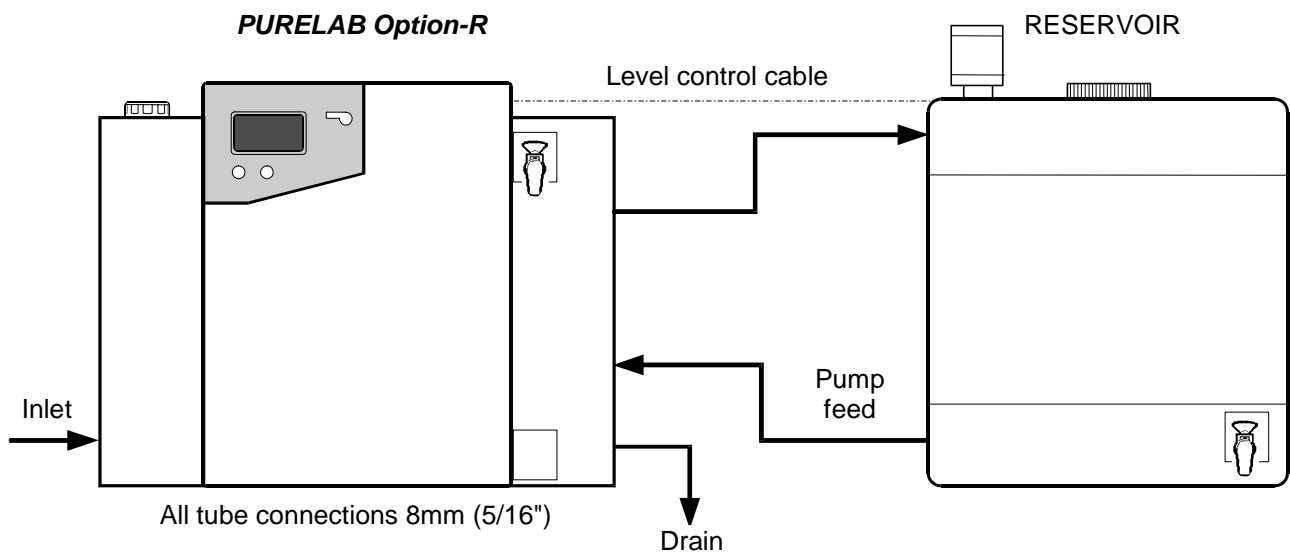
CAUTION! Operating temperatures outside the range 1 to 35°C will cause damage to the PURELAB Option-R unit.

For pressurized feeds, the minimum direct inlet pressure is 4.0 bar (60 psi) and maximum inlet pressure is 6 bar (90 psi). Higher feed water pressures must be reduced using a pressure regulator valve (Part No. LA512).

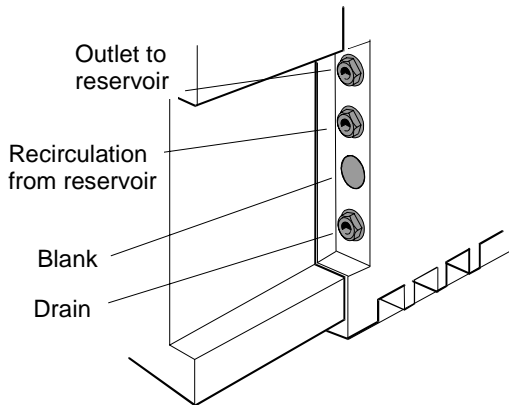
Reservoir feeds to the PURELAB Option-R unit should be positioned at the same height, or above the unit, to provide a positive flooded inlet pressure.



Feed Water Strainer



PURELAB Option-R Unit Installed with Storage Reservoir



Recirculation and Drain Connections

5.3 Connecting up the PURELAB Option-R

Once the **PURELAB Option-R** unit has been positioned either on a wall or on a bench, it should be connected as follows:

- Mains water inlet tube
- Drain
- Re-circulation from reservoir
- Outlet to reservoir

Step 1 - Fitting Tubes

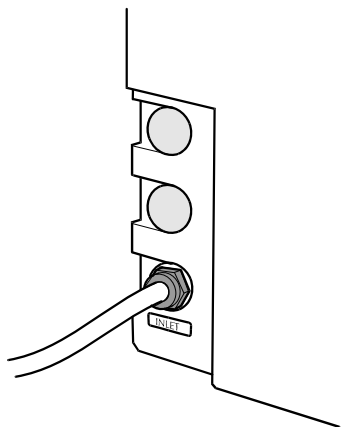
1. PUSH in collet on connector.
2. PULL out transit plug.
3. CUT a clean square end on a 8mm (5/16") OD semi rigid drain tube.
4. PUSH tube into connector.



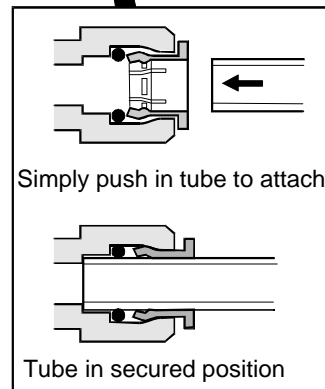
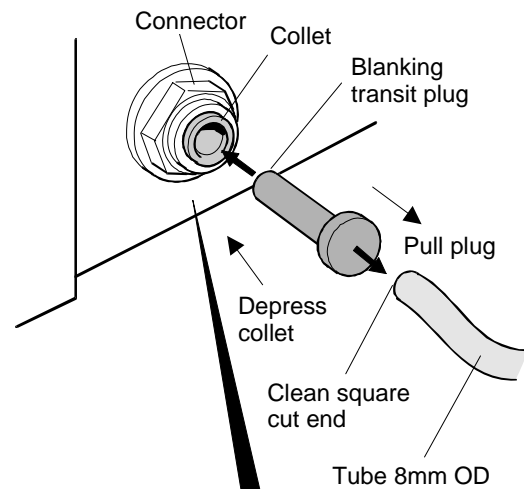
CAUTION! Do not restrict drain line.



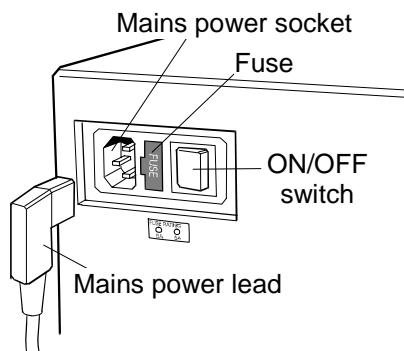
CAUTION! If the water supply is at a pressure greater than 6 bar (90 psi) fit a pressure regulator (LA512).



Feedwater Inlet Connections



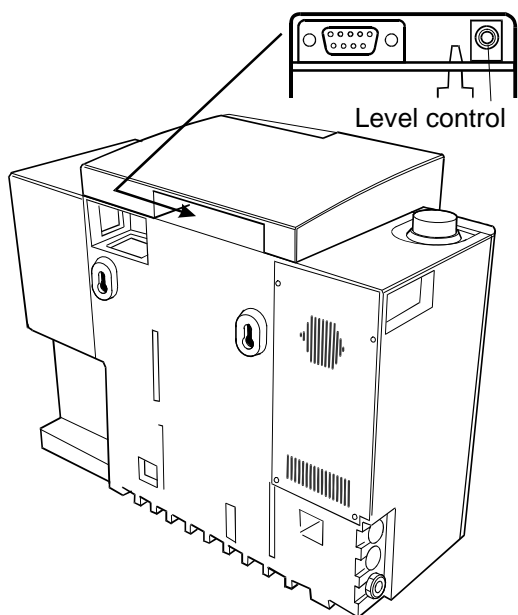
Fitting Tubes



Electrical Connections

Step 2 - Connect Electrical Supply

1. PLUG mains lead into the socket on the left hand side of the **PURELAB Option-R** unit.
2. PLUG mains lead into mains socket.



Reservoir Level Connections

Step 3 - Connect High/Low Level Switch to Reservoir

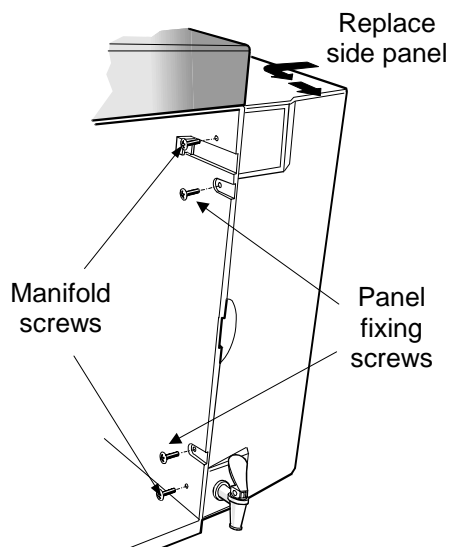
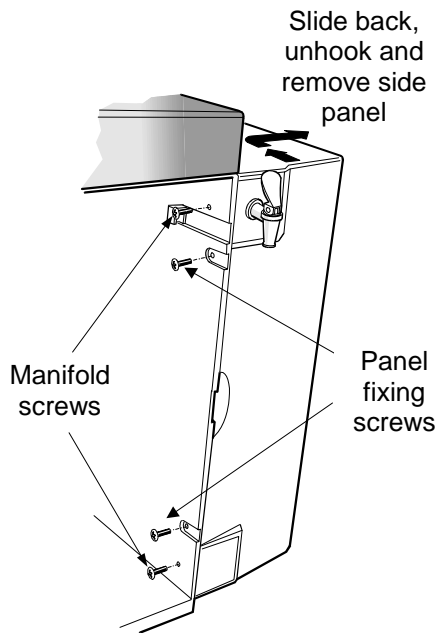
1. INSERT jack plug into the level control socket located at rear of unit and reservoir.

Step 4 - Positioning Dispense Tap

The Dispense Tap may be fitted at a high level or a low level on the **PURELAB Option-R** unit, to allow for easier access when wall mounted.

To alter the location of the Dispense Tap:

1. Switch the **PURELAB Option-R** off at the power switch at the top left hand side of the unit.
2. Ensure the water supply is turned off.
3. Dissipate pressure by opening the dispense tap.
4. Open the front door.
5. Remove the LC141 cartridge. (See section 7.2).
6. Unscrew the two panel fixing screws located on the right hand side of the door opening.
7. Remove side panel by sliding the panel to the rear. Once unhooked, remove.
8. Remove screws holding dispense tap manifold.
9. Locate manifold in alternative position.
10. Replace panel.
11. Replace LC141 cartridge. (See section 7.2).
12. Switch electrical power on.
13. Switch water supply on.
14. Press the process button.
15. Ensure correct operation of dispense tap.



Replacing side panel

Positioning the Dispense Tap

5.4 Initial Controller Set-Up

The **PURELAB Option-R** control panel is fitted with three control buttons. These are:

1. The PROCESS button, which switches the purification process ON and OFF.
2. Two software controlled touch pad buttons which are used to control set-up and process control functions.

When the **PURELAB Option-R** unit is started for the first time after installation the following steps should be followed to set-up system preferences:

Step 1 - Setting Up Menu Options

SWITCH the mains power on to initialize the controller hardware set-up sequence.

Note: Always allow the initialization process to complete. This is indicated by the appearance of the MENU icon on the control screen.

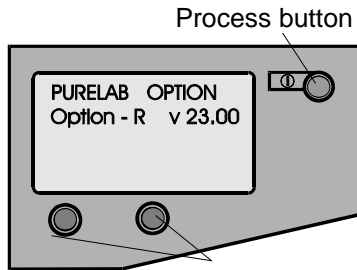
PRESS the MENU button to go to the next screen to activate the set-up menu sequence.

A series of set-up screens will now be displayed. Various control icons are used to allow you to step through the set-up instruction process. These icons include:

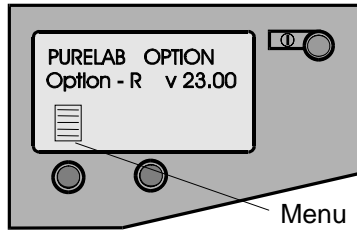
- A “scroll” icon indicated by an arrow ↩
- An “accept” button indicated by a tick ✓
- A “selection” icon indicated by a ◀

Step 2 - Auto / Manual Restart

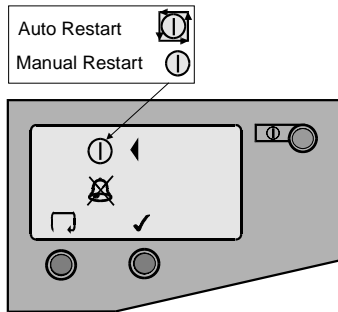
This allows the selection of the AUTO/MANUAL restart option. If auto restart is selected the unit will automatically restart after a power failure. In manual mode the unit will remain in standby. Select the option required using the ↩ button and accept with the ✓ button.



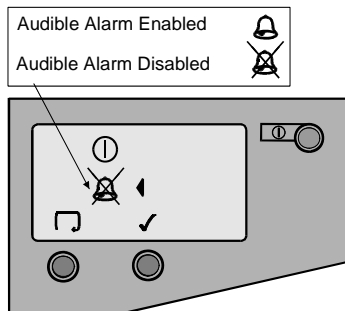
Touch pad buttons



Start Up Screens



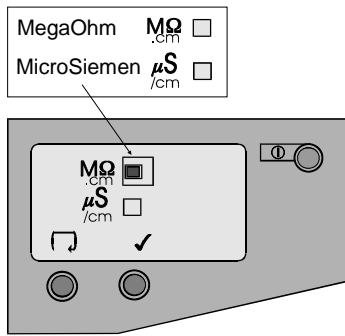
Auto/Manual Restart



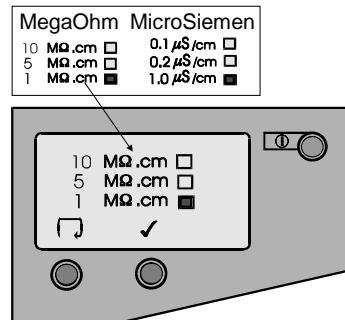
Audible Alarm Enable/Disable

Step 3 - Audible Alarm Enabled / Disabled

This display provides the option of either enabling the audible alarm causing it to sound or disabling the audible alarm causing it to remain muted whilst it flashes the alarm icon. Select the option required using the ↩ button and accept with the ✓ button.



Water Purity Settings



Purity Alarm Setting

Step 4 - Water Purity Unit Setting

This screen will allow the setting of the preferred water purity unit of measure to either, **MΩ.cm** or **μS/cm**. Once selected, all future water purity measurements will be displayed with your unit of choice. Select the option required using the button and accept with the .

Step 5 - Purity Alarm Setting

This screen is used for setting the value at which the water purity alarm activates.

If the **MΩ.cm** water purity alarm unit setting was chosen, then the following water purity alarm choices will be displayed.

- 10 MΩ.cm
- 5 MΩ.cm
- 1 MΩ.cm

If the **μS/cm** water purity alarm unit setting was chosen, then the following water purity alarm choices will be displayed.

- 0.1 μS/cm
- 0.2 μS/cm
- 1.0 μS/cm

Select the alarm setting required using the button and accept with the .

Note: To reset any of the set-up parameters, restart from the set up menu and follow instructions from Step 1.

Setting Up Display and Replacement Timer

Turn the unit off at the power inlet module. To enter the replacement timer set-up, press the left hand touch pad button and at the same time turn the power on.

A graphic of the ion-exchange cartridge, UV lamp, pre-treatment cartridge and clock graphics are displayed with hourly timer status.

CAUTION! Before re-setting any of the cartridge timers, ensure that the appropriate new cartridges have been installed and securely located correctly in the **PURELAB Option-R**.

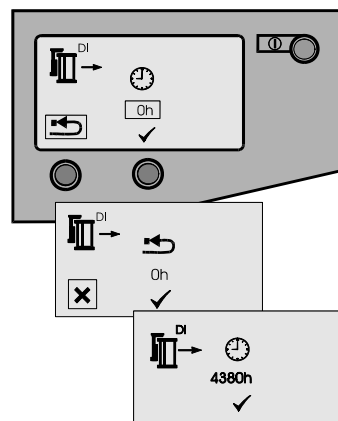
Step 1 - Ion-exchange Cartridge Timer

Setting this screen will cause the ion-exchange cartridge timer to reset to the preset value of 4380 hours (6 months).

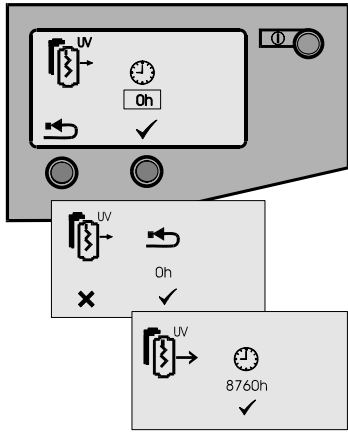
Press to jump to the next consumable or to initiate reset.

Press to reset timer or press to abort reset.

Press to jump to the next consumable.



Ion-exchange Cartridge Timer



UV Lamp Replacement Timer

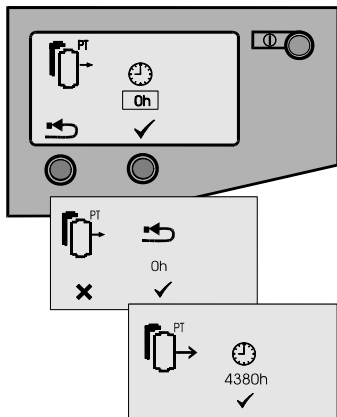
Step 2 - UV Lamp Replacement Timer

Setting this screen will cause the UV Lamp timer to reset to the preset value of 8760 hours (1 year).

Press ✓ to jump to the next consumable or ↺ to initiate reset.

Press ✓ to reset timer or press ✗ to abort reset.

Press ✓ to jump to the next consumable.



Pre-treatment Cartridge Timer

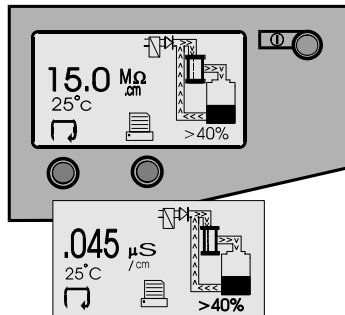
Step 3 - Pre-treatment Cartridge Replacement Timer

Setting this screen will cause the pre-treatment cartridge timer to reset to the preset value of 4380 hours (6 months).

Press ✓ to jump to the next consumable or ↺ to initiate reset.

Press ✓ to reset timer or press ✗ to abort reset.

Press ✓ to jump to the next consumable.



Process On and Alternate Screen

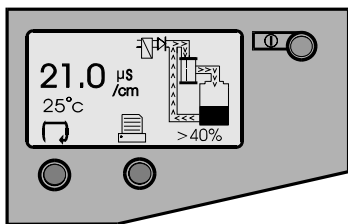
Step 4 - Accessing the Process On Display Screens

The normal process screen will display newly installed SETUP preferences showing the following process information:

- Output water purity
- Water temperature
- Process mimic
- Reservoir level
- Scroll ◀ and Print 🖨 icons

The following display screens can be scrolled through:

- RO water conductivity.
- Ion-exchange cartridge replacement timer (hours remaining).
- UV tube replacement timer (hours remaining).
- Pre-treatment cartridge replacement (hours remaining).



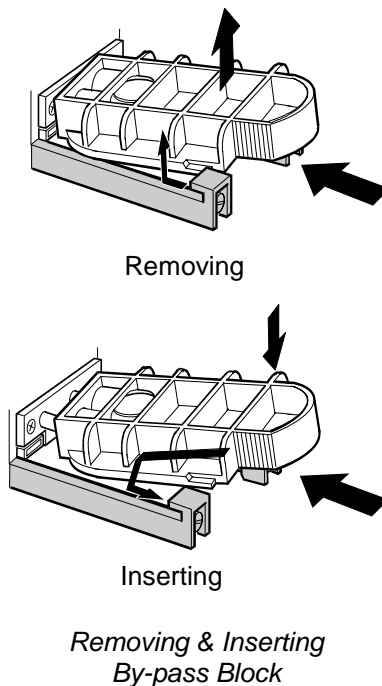
Water Conductivity

Step 5 - Report Printing (Only if connected to LA618)

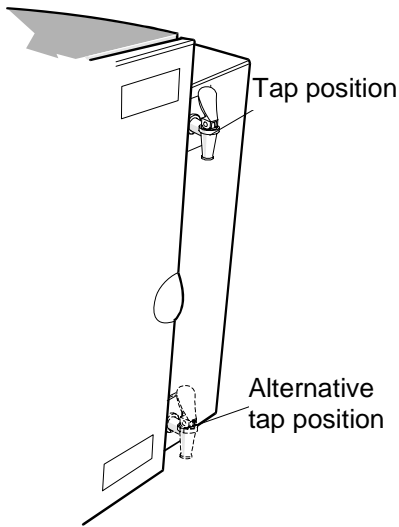
To print a report press the 🖨 icon.

5.5 Initial Start Up

1. The **PURELAB Option-R** should be installed correctly as described in Section 5.
2. TURN ON the feedwater supply to the unit and adjust the inlet pressure. The **PURELAB Option-R** will operate on a feedwater pressure between 4.0 bar (60 psi) and 6.0 bar (90 psi). Where feedwater pressures are inadequate an internal optional boost pump should be fitted.
3. CHECK all hose connections are water-tight and that there are no leaks.
4. The **PURELAB Option-R** units are supplied containing traces of bacteriostatic solution which have to be rinsed out from the pipework and fittings. The solution is rinsed through both the 'DRAIN' and 'OUTLET' tubes, which initially both need to be directed to a drain or sink.
5. DISCONNECT the pump feed tube at the reservoir outlet and direct to a drain or sink.
6. The unit is supplied without the LC141 ion-exchange cartridge pack fitted but has the by-pass block in place as shown in Section 8.
7. ENSURE the cartridge by-pass block is left in place until the unit has been rinsed free of bacteriostatic solution.
8. TURN ON the electrical supply to the unit and switch the mains switch at the power inlet module on the left-hand side of the unit to the ON position.
9. CHECK that the water supply has been turned on, PRESS the PROCESS button and the unit will start.
10. LEAVE the unit running for 2 hours to drain. During this period, the bacteriostatic solution will be rinsed from the unit. For critical applications the unit should be left to rinse overnight.
11. After 2 hours, PRESS the PROCESS button to stop the unit. The pump feed tube can now be reconnected to the reservoir.
12. The unit has now been rinsed.
13. REMOVE the by-pass block. (Store in the front door).
14. INSERT Ion-exchange cartridge LC141. (See Section 7.2).
15. PRESS the PROCESS button to begin the water purification process.



6. OPERATION



Dispense Tap Position

The **PURELAB Option-R** will run automatically and will signal alarm conditions to ensure prompt efficient system management and corrective action.

Note: To ensure that water purity remains at a high level it is important to leave the unit in process mode.

Dispensing

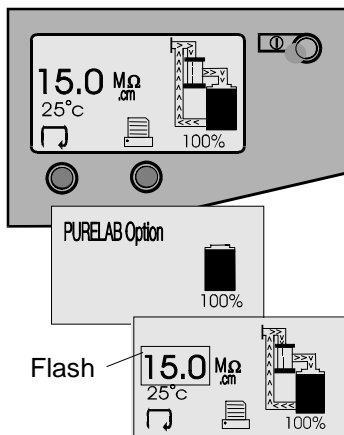
The unit should now be processing the specified standard of purified water and there should be no alarms activated.

If the unit is not processing, press PROCESS to start it. Wait until the water purity reaches the preferred purity level before use. Dispense water from the dispense tap by pulling the tap handle forward.

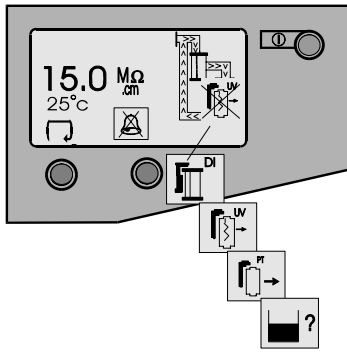
6.1 Intermittent Mode

During periods of non-use the unit will automatically operate in intermittent mode to maintain water quality. This mode will function after the reservoir has been filled and the level maintained for 1 hour. The unit will re-circulate the reservoir contents for 10 minutes every hour.

Pressing the PROCESS button at any time during this mode will initiate re-circulation.



Normal Process Screens



Alarm Conditions

6.2 Alarm Conditions

Alarms will signal at the following conditions:

Replace Ion-exchange Cartridge

The ion-exchange cartridge replacement alarm is signalled by an audible alarm and flashing icon at the default setting of 4380 hrs (6 months) of use. Press the button to mute the audible alarm. Follow the instructions to replace the ion-exchange cartridge. (See Section 7.2).

Replace UV Lamp

The UV lamp replacement alarm is signalled by an audible alarm and flashing icon at the default setting of 8760 hrs (1 year) of use. Press the button to mute the audible alarm. Follow the instructions to replace the UV lamp. (See Section 7.3).

Replace Pre-treatment Cartridge

The pre-treatment cartridge replacement alarm is signalled by an audible alarm and flashing icon at the default setting of 4380 hrs (6 months) of use. Press the button to mute the audible alarm. Follow the instructions to replace the pre-treatment cartridge. (See Section 7.1).

UV failure

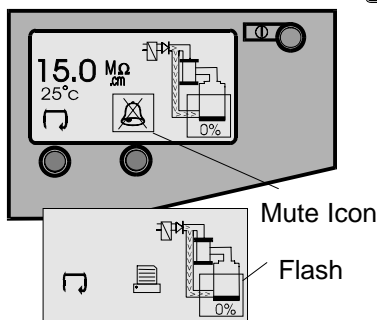
The UV failure alarm is signalled by an audible alarm and flashing cross over the replace UV icon. Press the button to mute the audible alarm. Follow the instructions to replace the UV lamp. (See Section 7.3).

The **PURELAB Option-R** will continue to run without the UV lamp operating.

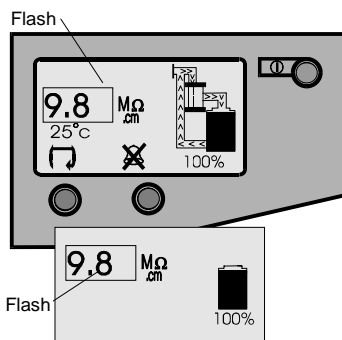


CAUTION!

Long term operation without the UV lamp in operation will compromise performance and is not recommended.



Low Level Alarms / muted



Water Purity Alarm / Standby

Low Level Alarm

When the low level alarm sounds, the mimic reservoir on the display will flash and a crossed bell icon mute symbol will appear. To mute the low level alarm sound PRESS the button. The **PURELAB Option-R** will automatically refill the reservoir.


Water Purity Alarm

This alarm will signal if the water purity deviates from the preset parameters and will cause the water purity to flash and an alarm to sound, until water purity improves to within acceptable purity limits. Press the button to mute the alarm. If water purity stays outside acceptable limits replace the ion-exchange pack following the instructions in section 7.2.

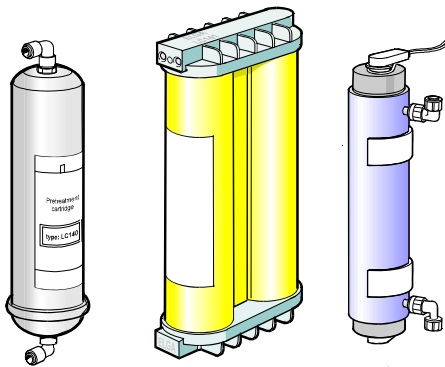


*Reservoir Level
Disconnect Alarm*

Reservoir Level Disconnect Fault Alarm

The reservoir level disconnect fault alarm condition will signal with an audible alarm and flashing icon. Press the  button to mute the alarm. This alarm condition will cause the process to turn off. Connect the reservoir level and press the process key to clear the alarm.

7. MAINTENANCE



LC140 Pre-treatment cartridge
 LC141 Ion-exchange cartridge
 LC105 UV lamp

PURELAB Option-R Replacement Consumables

Any maintenance work not detailed in this handbook should be carried out by an approved supplier or distributor. If further information is required on any aspect of maintenance please contact Customer Service.

Identification of Consumables

There are three types of unique replacement consumables designed for use in the **PURELAB Option-R** units and these are illustrated with the following part numbers:

- LC140 Pre-treatment cartridge
- LC141 Ion-exchange cartridge
- LC105 UV lamp

All consumables are accessible after opening the front door cover.

To protect the inlet solenoid valve, RO boost pump (when fitted) and re-circulation pump from possible debris in the water, the unit incorporates two strainers.



WARNING! ALWAYS CHECK THAT THE MAINS ELECTRICAL POWER AND FEED WATER SUPPLIES ARE SWITCHED OFF BEFORE ATTEMPTING TO CHANGE THE **PURELAB OPTION-R** CONSUMABLES.

Frequency of Consumable Replacement

The following frequency of consumable replacement is recommended as a guide assuming typical usage*:

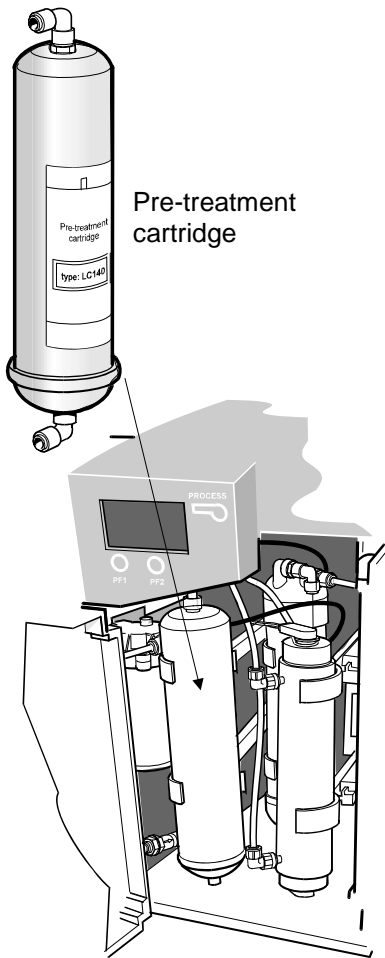
Pre-treatment	-	LC140	max 6 months
Ion-exchange	-	LC141	max 6 months**
UV lamp	-	LC105	max 12 months
Reverse Osmosis	-	LC143	every 2 - 3 years (not an operator replacement item)

* These frequencies are only estimates and replacement will depend on the application and feed water quality.

** Standard conditions are 4 bar (60 psi) inlet pressure at 15°C, potable water with clean pre-filter.



CAUTION! Ensure that the display and replacement timer settings are reset after replacing consumables. (Refer to section 5.4).



Location of Pre-treatment Cartridge

7.1 Replacing the LC140 Pre-treatment Cartridge

The pre-treatment cartridge should be replaced when indicated by the change reminder.

Step 1 - Switch Unit Off

1. SWITCH the **PURELAB Option-R** off at the power switch at the top left hand side of the unit.
2. ENSURE pressure has dissipated from the unit by opening the dispense tap.

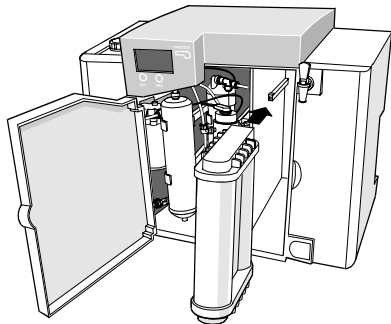
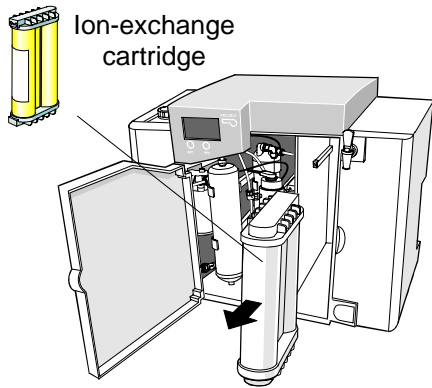
Step 2 - Remove Pre-treatment Cartridge

1. OPEN front door.
2. IDENTIFY the pre-treatment cartridge (LC140).
3. REMOVE the reducing fitting from the elbow at the bottom of the cartridge, by pushing back the retaining collet on the push fit connector and withdrawing the reducer.
4. REMOVE the reducing fitting from the elbow at the top of the cartridge.
5. REMOVE exhausted cartridge from retaining clips and discard.

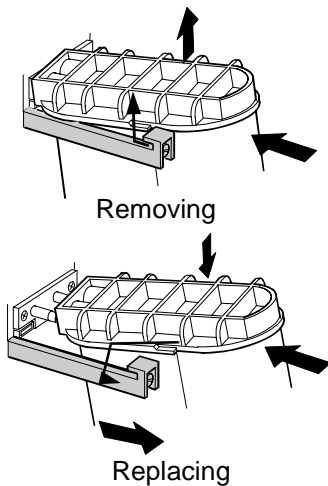
Note: The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.

Step 3 - Replacing the Pre-treatment Cartridge

1. UNPACK new cartridge and remove the two protective transit plugs sealing the inlet and outlet connection.
2. SECURE the new cartridge into its retaining clips ensuring the cartridge is the correct way up.
3. REFIT the inlet tubing into the bottom of the cartridge by pushing the reducer into the elbow connector until locked and held by the retaining collet.
4. REFIT the outlet tubing at the top of the cartridge.
5. RESET pre-treatment cartridge timer. (See Section 5.4 - Setting Up Display and Replacement Timer).
6. PRESS the PROCESS button to start the unit.
7. CHECK the unit for leaks and close front door.



Removal and Fitting of Ion-exchange Cartridge



Replacing Ion-exchange Cartridge

7.2 Replacing the LC141 Ion-exchange Cartridge Pack

The ion-exchange cartridge pack should be replaced in the following circumstances:

- The water purity alarm monitor indicates that the pack requires changing.
- If the system is being re-commissioned or sanitized after an extended period in which it was not used.
- When indicated by the change reminder.

Step 1 - Switch Unit Off

1. SWITCH the **PURELAB Option-R** off at the power switch at the top left hand side of the unit.
2. OPEN the dispense tap to relieve any residual pressure from the system.



WARNING! ENSURE THE UNIT IS ISOLATED BEFORE REMOVING THE ION-EXCHANGE CARTRIDGE.

Step 2 - Remove Ion-exchange Cartridge

1. OPEN the front door.
2. PUSH on cartridge top cap.
3. LIFT up cartridge.
4. SLIDE out cartridge.
5. DISCARD used ion-exchange cartridge.

Note: The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.

Step 3 - Replace Ion-exchange Cartridge

1. REMOVE a new cartridge pack from its packaging.
2. REMOVE the sealing plugs from the inlet and outlet ports.
3. WET 'O' rings and SLIDE new cartridge into position.
4. POSITION cartridge onto spigots, PUSH into unit.
5. ENSURE guide has dropped down past retainer.
6. CLOSE front door.
7. RESET ion-exchange pack timer. (See section 5.4 - Setting up Display and Replacement Timer).
8. PRESS the process button to start the unit.
9. CHECK the unit for leaks.

7.3 Replacing the Ultraviolet Lamp (LC105)

The UV lamp should be changed under the following circumstances:

- When indicated by the change reminder, due to the decline in the short wave radiation used to destroy the micro-organisms and to oxidize organics.
- If Lamp Fail alarm occurs several times.

Step 1 - Switch Unit Off

1. SWITCH off the electrical supply at the mains.
2. DISCONNECT the mains plug from the unit.
3. RELIEVE pressure by pressing the dispense tap.

Step 2 - Remove UV from PURELAB Option-R

1. OPEN the front door panel.
2. PULL UV unit out of the top and bottom retaining clips.
3. REMOVE top and bottom spring clip.
4. UNPLUG the white lamp plug fitted to the top of the UV unit.
5. UNPLUG the white lamp plug fitted to the bottom of the UV unit.

CAUTION! Hold on to the pins on the lamp in case the lamp falls out and breaks.

Step 3 - Remove UV Lamp (LC105)

1. REMOVE old UV lamp from the center bore of the housing and discard.

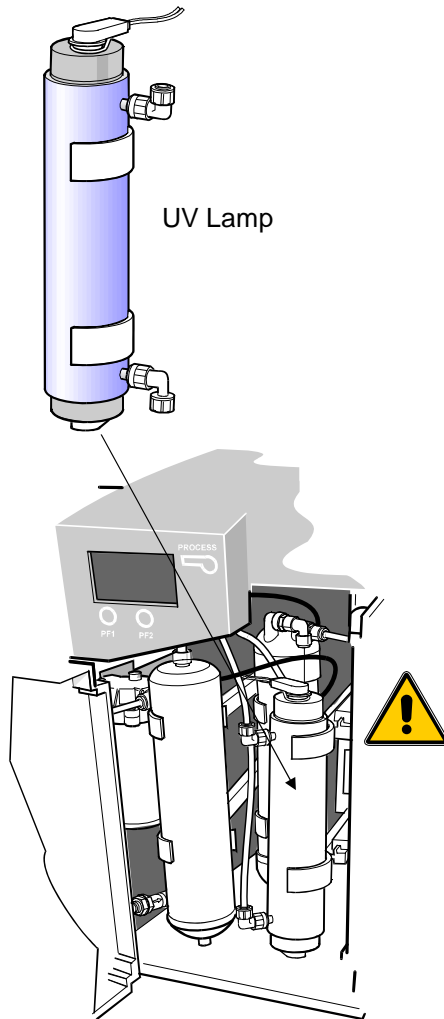
Note: The consumable is non-hazardous. Dispose of as ordinary waste, observing all local and national regulations.

Step 4 - Replace UV Lamp (LC105)

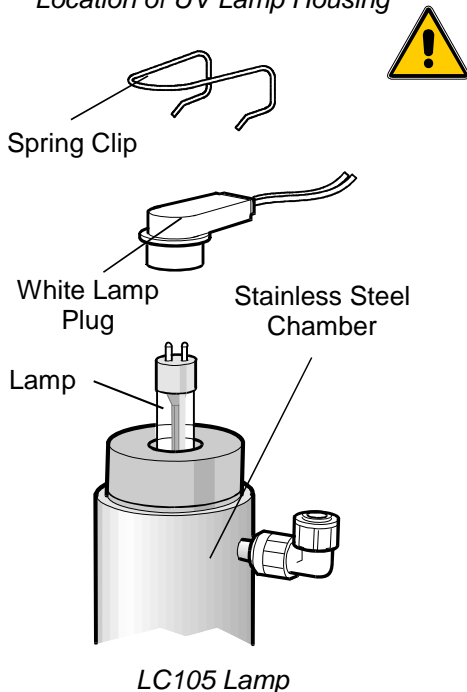
1. UNPACK new UV lamp.

CAUTION! Take care not to touch the surface of the glass. Ideally handle with soft cloth and wipe the surface with alcohol before fitting into the housing.

2. SLIDE the new UV lamp into the center bore of the UV housing.
3. PLUG the white lamp plug to the bottom of the UV unit.
4. REFIT spring clip.
5. PLUG in the white lamp plug to the top of the UV unit.
6. REFIT spring clip.
7. PUSH UV unit into the retaining clips.
8. CLOSE the front door.
9. RESET UV alarm settings. (See Section 5.4 - Setting Up Display and Replacement Timer).
10. PRESS the PROCESS button to start the unit.



Location of UV Lamp Housing



7.4 Cleaning the Inlet Strainer

The feed water inlet strainer should be checked and cleaned every six months to ensure that the strainer does not become clogged.

Step 1 - Remove the Inlet Strainer

1. SWITCH OFF electrical supply.
2. OPEN front door.
3. ISOLATE inlet water supply.
4. REMOVE the pre-treatment cartridge from its clips and set aside to gain access to the inlet strainer.
5. DEPRESS collars on both sides of strainer and disconnect tubing.
6. REMOVE the inlet strainer from its position.

Step 2 - Dismantle the Inlet Strainer

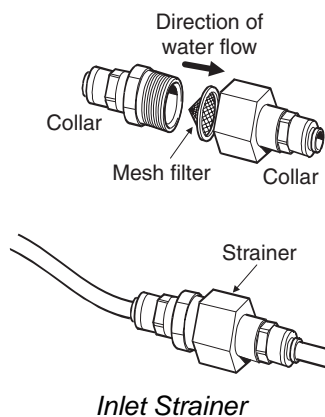
1. HOLD inlet strainer over a sink or receptacle.
2. UNSCREW inlet strainer.
3. REMOVE mesh filter.
4. CHECK mesh filter for signs of wear or damage, replace or clean as necessary.

Step 3 - Reassemble the Inlet Strainer

1. INSERT mesh filter into strainer, ENSURE it is facing the correct direction.
2. SCREW up the inlet strainer.

Step 4 - Replace the Inlet Strainer

1. REPOSITION the inlet strainer.
2. REFIT tubes to inlet strainer, ENSURE it is facing the correct direction.
3. REPOSITION the pre-treatment cartridge into its support clips.
4. RE-ESTABLISH inlet water supply.
5. TURN on power.



7.5 Cleaning the Re-Circulation Strainer

The re-circulation strainer should be checked and cleaned periodically to ensure that the strainer does not become clogged or broken.

Step 1 - Remove Re-circulation Strainer

1. OPEN front door.
2. ISOLATE inlet water to the re-circulation strainer
3. REMOVE the ion-exchange cartridge to gain access to the re-circulation strainer.
4. REMOVE the re-circulation strainer by depressing the collars on either side of the strainer and disconnect tubing.

Step 2 - Dismantle the Re-circulation Strainer

1. HOLD re-circulation strainer over a sink or receptacle.
2. UNSCREW re-circulation strainer.
3. REMOVE mesh filter.
4. CHECK mesh filter for signs of wear or damage, replace or clean as necessary.

Step 3 - Reassemble the Re-circulation Strainer

1. INSERT mesh filter into strainer, ENSURE it is facing the correct direction.
2. SCREW up the re-circulation strainer.

Step 4 - Replace the Re-circulation Strainer

1. REPOSITION the re-circulation strainer.
2. REFIT tubes to re-circulation strainer, ENSURE it is facing the correct direction.
3. REPOSITION the ion-exchange cartridge into its support clips.
4. RE-ESTABLISH inlet water supply.
5. TURN on power.

7.6 Replacement of LC143 Reverse Osmosis Cartridge(s)

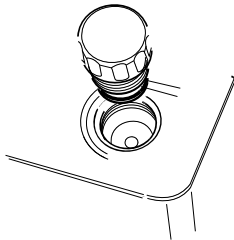
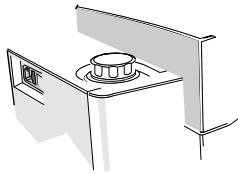
The reverse osmosis cartridge should be replaced if the permeate water purity or flow rate is not adequate and does not meet predicted or previous performance.

For information regarding the replacement of the LC143 reverse osmosis cartridge contact Customer Service.

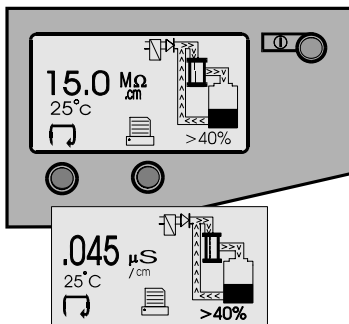


WARNING!

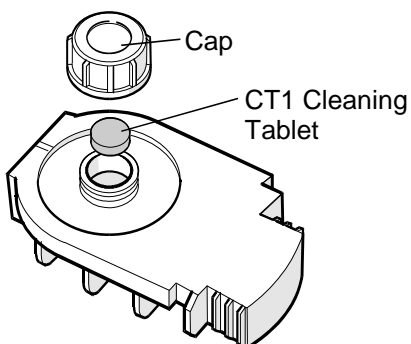
ALL NEW RO CARTRIDGES ARE FILLED WITH A BACTERIOSTATIC SOLUTION TO PREVENT BACTERIAL CONTAMINATION DURING STORAGE. THE RO CARTRIDGES WILL THEREFORE REQUIRE RINSING PRIOR TO USE.



Sanitization Port



Process On



By-pass Block

8. SANITIZATION PROCEDURES

The **PURELAB Option-R** unit has a sanitization port and by-pass block, which allows the sanitization agent to be introduced into the system in the form of a tablet. Recommended maximum frequency of cleaning once per month.

The unit is sanitized to destroy the bacteria within the pipework, and the filters of the unit. It is also possible to sanitize the reservoir at the same time as the unit. (See *Section 8.1*). Please read this entire section to become familiar with the procedure before you start. Sanitization is required in the following circumstances:

- Once a month to maintain low bacterial counts.
- If the unit has not been used for a prolonged period of time.

Step 1 - Start Sanitization Cycle

1. ENSURE that the reservoir level indication on the graphics display is showing >40%. If display shows >70% or 100%, dispense water until display changes to >40%.
2. PRESS the PROCESS button to stop the process.
3. TURN OFF the electrical power supply.
4. RELIEVE residual pressure by opening the dispense tap and directing water to drain.
5. CLOSE the dispense tap.

Step 2 - Insert Tablet into Sanitization Port

1. UNSCREW cap on sanitization port.
2. INSERT CT1 tablet.
3. REFIT cap on sanitization port, hand tight.

Step 3 - Insert Tablet into Sanitization By-pass Block

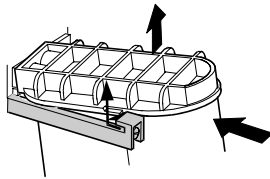
1. REMOVE the sanitization by-pass block from its storage position located on the inside of the front door.
2. UNSCREW cap on sanitization by-pass block.
3. INSERT CT1 tablet.
4. REFIT cap on by-pass block, hand tight.

Step 4 - Remove Ion-exchange Cartridge Pack

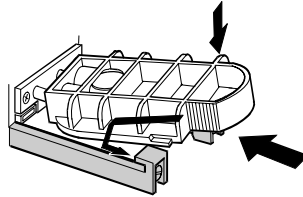
1. REMOVE Ion-exchange cartridge.
2. PLACE cartridge safely to one side.

Step 5 - Fit Sanitization By-pass Block

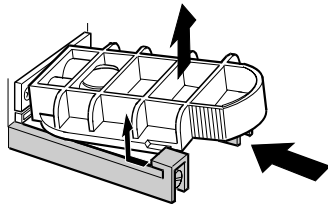
1. WET 'O' rings on by-pass block.
2. SLIDE Sanitization by-pass block into unit.
3. ENSURE Sanitization by-pass block is locked in place.



Removing



Inserting

Fit Sanitization By-pass Block*Removing Sanitization By-Pass Block***Step 6 - Start the Sanitization Process**

1. DISCONNECT outlet tube at reservoir inlet and re-direct to drain.
2. RESTORE the power.
3. PRESS the PROCESS button to start the re-circulation process.
4. ALLOW the sanitization cycle to continue for 30 minutes.
5. PRESS the PROCESS button to stop the re-circulation process.
6. TURN electrical supply off.

Step 7 - Remove By-pass Block

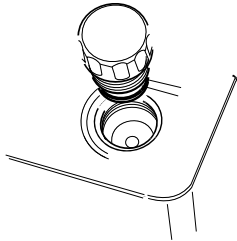
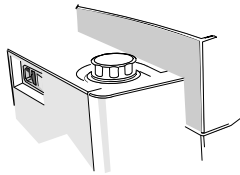
1. PUSH and TILT by-pass block.
2. SLIDE out of unit.
3. PLACE in storage area.

Step 8 - Replace Ion-exchange Cartridge Pack

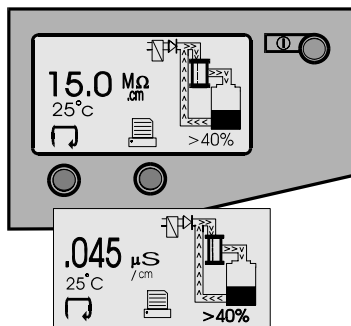
1. INSERT ion-exchange cartridge into the compartment.
2. ENSURE the cartridge is locked in position.
3. CLOSE front door.

Step 9 - Return to Normal Operation

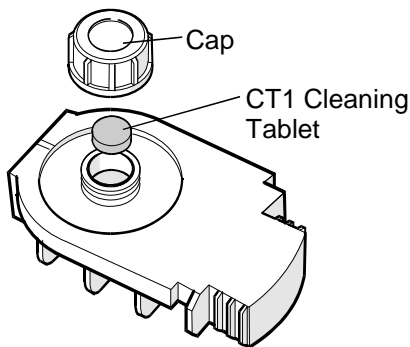
1. TURN on power.
2. RECONNECT the outlet tube to the reservoir.
3. PRESS PROCESS button to return to normal operation.
4. CHECK the system for leaks.



Sanitization Port



Process On



By-pass Block

8.1 Sanitization of Unit and Reservoir

Note: It is recommended that the flushing process is performed outside of working hours.

Step 1 - Start Sanitization Cycle

1. ENSURE that the reservoir level indication on the graphics display is showing >40%. If display shows >70% or 100%, dispense water until display changes to >40%.
2. PRESS the PROCESS button to stop the process.
3. TURN OFF the electrical power supply.
4. RELIEVE residual pressure by opening the dispense tap and directing water to drain.
5. CLOSE the dispense tap.

Step 2 - Insert Tablet into Sanitization Port

1. UNSCREW cap on sanitization port.
2. INSERT CT1 cleaning tablet.
3. REFIT cap on sanitization port, hand tight.

Step 3 - Insert Tablet into Sanitization By-pass Block

1. UNSCREW cap on sanitization by-pass block.
2. INSERT CT1 cleaning tablet.

Note: If the system requires, two CT1 cleaning tablets can be installed at the same time into the by-pass block.

Step 4 - Remove Ion-exchange cartridge pack

1. OPEN front door.
2. REMOVE ion-exchange cartridge.
3. PLACE cartridge to one side.

Step 5 - Fit by-pass block

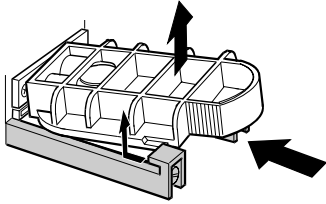
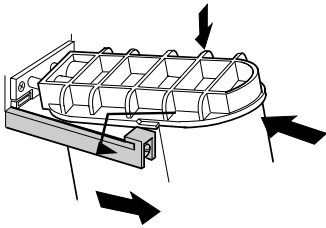
1. WET 'O' rings on by-pass block.
2. SLIDE by-pass block into unit.
3. ENSURE by-pass block is locked in place.

Step 6 - Start Sanitization Process

1. RESTORE power.
2. PRESS the PROCESS button to start the sanitization process.
3. ALLOW the sanitization PROCESS to continue for 60 minutes.
4. PRESS the PROCESS button to stop the sanitization process.

Step 7 - System Flushing

1. ENSURE the electrical supply is switched off.
2. DISCARD the majority of the reservoir contents to drain, via the reservoir tap.
3. DISCONNECT outlet tube at the reservoir inlet and direct to drain.
4. RESTORE the power supply.
5. PRESS the process button to start system flushing. The system will operate automatically during flushing and it is recommended that the system is flushed overnight.
6. PRESS the process button to stop the system flushing.
7. ENSURE the electrical power supply is switched off.

*Removing By-Pass Block**Replace Ion Exchange Cartridge***Step 8 - Remove By-pass Block**

1. PUSH and TILT by-pass block.
2. SLIDE out of unit.
3. PLACE in storage area.

Step 9 - Replace Ion-exchange Cartridge Pack

1. INSERT ion-exchange cartridge into the compartment.
2. ENSURE the cartridge is locked in position.
3. CLOSE front door.

Step 10 - Return to Normal Operation

1. TURN on power.
2. RECONNECT the outlet tube to the reservoir.
3. PRESS PROCESS button to return to normal operation.
4. CHECK the system for leaks.

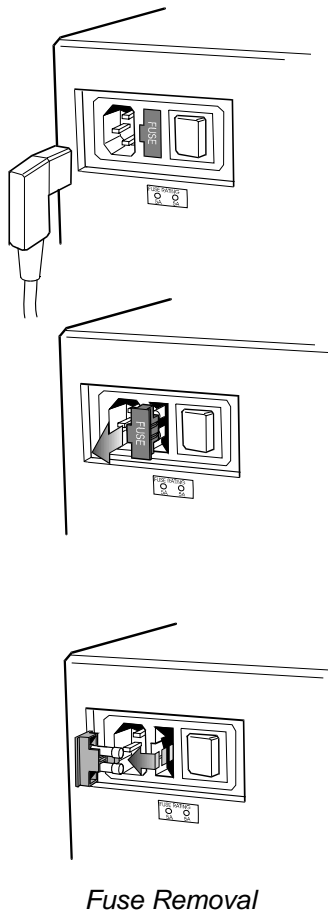
8.2 CT1 Sanitization Tablet - Safety Information

General Description:	White solid tablet, which rapidly dissolves in water, used for sanitization applications.
Hazard Assessment:	Contains sodium dichloroisocyanurate dehydrate, and is therefore toxic by inhalation, ingestion and skin contact.
Properties:	Soluble in water, pH 6, Non-combustible.
Handling Precautions:	Keep container tightly closed in a dry place. Wear protective clothing when handling.
Spillages:	If tablets are dry and uncontaminated collect up and place in heavy duty plastic bag. Do not return to original container. Wash away any residues with copious amounts of water.
Toxicity:	Serious risk of poisoning by inhalation or ingestion. Irritating to skin, eyes and respiratory system.
First Aid:	<p>Eyes - thoroughly wash out with clean water for at least 15 minutes. Seek medical advice.</p> <p>Inhalation - remove from exposure, rest and expose to fresh air. In severe cases, obtain medical attention and treat for acute chlorine poisoning.</p> <p>Skin - drench the skin with plenty of water. Remove contaminated clothing and wash before reuse. In severe cases, obtain medical advice.</p> <p>Mouth - wash out the mouth thoroughly with water and give large quantity of milk to drink. Obtain medical advice.</p>

Note: A comprehensive Data Sheet is available on request and is supplied with each packet of tablets.

9. TROUBLE SHOOTING

This section highlights the problems that could occur with the **PURELAB Option-R** unit and how to rectify them. The unit will normally sound an alarm and the respective icons will flash. The alarm sound can be silenced by pressing the mute button. If the unit cannot be repaired using this manual please call either your supplier or local distributor. (See Section 13 - Useful Contact Details).



Problems	Action
No display message	<p>Check mains supply and lead.</p> <p>Check that the mains power is switched on.</p> <p>Check fuse in power inlet module and replace if blown.</p>
Reservoir low level audible alarm sounds	<p>Press the crossed bell button to mute alarm.</p> <p>The reservoir will automatically refill.</p> <p>Check that process mimic is showing reservoir filling.</p> <p>Check feedwater supply. Check connections to Reservoir.</p>
UV lamp failure audible alarm sounds	<p>Press the crossed bell button to mute alarm.</p> <p>Check that all electrical connections have been secured.</p> <p>Follow UV lamp replacement procedure when applicable.</p> <p>Optionally you can temporarily continue without the UV lamp.</p>
Ion-exchange cartridge replacement alarm	<p>Replace ion-exchange cartridge pack. (See Section 7.2 Replacing the LC141 Ion-exchange cartridge).</p>
Pre-treatment cartridge replacement alarm	<p>Replace pre-treatment cartridge. (See Section 7.1 Replacing the LC140 pre-treatment cartridge).</p>
Water purity alarm	<p>Check alarm set value is correct. (See Section 5.4, Step 5 - Purity Alarm Setting).</p> <p>Allow unit to recirculate. If alarm persists replace Ion-exchange cartridge. (See Section 7.2 Replacing the LC141 Ion-exchange cartridge).</p> <p>If problem persists beyond that expected from normal operating conditions, contact your local distributor.</p>
Reservoir level disconnect fault alarm	<p>Check that the level controls are correct. (See Section 5.3, Step 3 - Connect High/Low Level Switch to Reservoir).</p> <p>If problem persists contact your local distributor.</p>
Output flow outside specification.	<p>Check supply pressure. (See Section 5.2 - Positioning the PURELAB Option-R).</p> <p>Check RO flow-rate for the unit against the graphs shown in Section 3.3, which details treated water output vs temperature and feedwater pressure.</p> <p>Check the inlet strainer / receiver strainer are clean. (See Section 7.4/7.5 - Cleaning Inlet Strainer/Cleaning Recirculation Strainer).</p> <p>Contact service technician to fit or replace optional booster pump.</p>
UV replacement alarm	<p>Replace UV Lamp. (See Section 7.3 - Replacing the Ultraviolet Lamp).</p>
Unit noisy	<p>Open front door and secure pipework to stop vibration.</p>
No flow from dispense tap	<p>Push PROCESS button.</p> <p>Check reservoir level is >40%.</p>

10. CONSUMABLES AND ACCESSORIES

Consumables	Max. Service Life*	Max. Shelf Life
LC140 (Pre-treatment cartridge)	6 months	2 years
LC143 (Reverse Osmosis cartridge module)	Typical life 2-3 years	2 years
LC141 (ion-exchange cartridge Pack)	6 months maximum	2 years
LC105 (UV lamp)	12 months	5 years
LC145 (POU Filter)	6 months	2 years
CT1 (Sanitization tablets)	Typical usage 1 per month	2 years
LC136** (Composite Vent Filter)	6 months	2 years
LC123*** (Pre-treatment Filter)	6 months	2 years

* *Service Life is an estimate only, and will depend on the application and feed water quality. Care should be taken to order the correct consumable items.*












** *Required for reservoirs (LA611, LA612, LA613).*

*** *Required for optional pre-treatment filter housing (LA518).*






Accessory	Cat No
Installation kit	LA513
Installation kit (with saddle valve)	LA506
Pressure regulator valve (inlet)	LA512
Pre-treatment filter housing	LA518
Wall mounting kit (PURELAB Option)	LA610
25 liter reservoir	LA611
40 liter reservoir	LA612
75 liter reservoir	LA613
Wall mounting kit (25 & 40 liter reservoir)	LA591
Wall mounting kit (75 liter reservoir)	LA592
Flow upgrade kit (7-15 l/hr)	LA605
RS232 Printer kit	LA618
RS 232 Remote display kit	LA625
Remote dispense valve	LA521
Chlorine test kit	TEST30679
Docking Vessel – DV25	LA621
Pre-filter if boost pump fitted	LA582

11. KEY TO CONTROL PANEL




11.1 Icons

Icon	Description
	Mute Alarm
	Accept
	Scroll
	Auto Restart
	Manual Restart
	Set Up Menu
	Cursor Option Choice
	Cursor Selection Choice
	Cancel
	Reset
	Printer

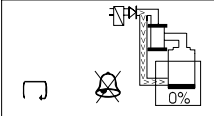
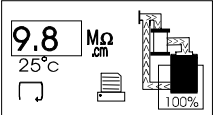
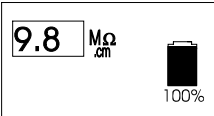
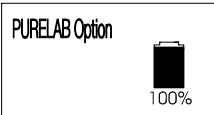
11.2 Alarm Conditions

Icon	Alarm Conditions
	Replace Ion-exchange Cartridge
	Replace UV Lamp
	Replace Pre-treatment Cartridge
	UV Fail (Cross Flashes)
	Reservoir Level – Disconnect Fault

11.3 Replacement Timers

Replacement Timer	Icon	Preset
Ion-exchange Cartridge		4380 hours (= 6 months)
UV Lamp		8760 hours (= 12 months)
Pre-treatment Cartridge		4380 hours (= 6 months)

11.4 Low Level, Quality and Standby Alarms

Screen	Description
	<p>Low level alarm</p>
	<p>Process on and water purity alarm</p>
	<p>Standby and purity alarm</p>
	<p>Standby position</p>

12. WARRANTY/CONDITIONS OF SALE

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General Limited Warranty

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VWS (UK) Ltd. warrants the water Systems manufactured by it, BUT EXCLUDING MEMBRANES AND CARTRIDGES, against defects in materials and workmanship when used in accordance with the applicable instructions and within the operating conditions specified for the Systems for a period of one year from the earlier of:

- a) the date of installation, or
- b) the 120th day following the date of shipment.

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13. USEFUL CONTACT DETAILS

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