

ELGA

CENTRA-MDS/LDS/RDS - US

Operator Manual

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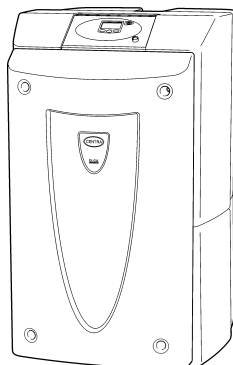
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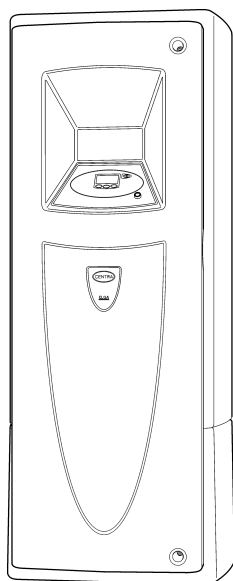
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1. INTRODUCTION



CENTRA – MDS US



CENTRA - LDS/RDS US

1.1 Product Range

This operator manual has been prepared for the product models:

CENTRA - MDS US	115V ac 60Hz
CENTRA - MDS US	230V ac 50Hz
CENTRA - MDS HF US	230V ac 50Hz
CENTRA - LDS US	115V ac 60Hz
CENTRA - LDS US	230V ac 50Hz
CENTRA - LDS HFV US	230V ac 50/60Hz
CENTRA - LDS HFR US	230V ac 50Hz
CENTRA - RDS US	115V ac 60Hz
CENTRA - RDS US	230V ac 50Hz
CENTRA - RDS HFV US	230V ac 50/60Hz
CENTRA - RDS HFR US	230V ac 50/60Hz

Unless stated otherwise the products will be referred to in the following terms:

CENTRA - MDS US
CENTRA - LDS US
CENTRA - RDS US

1.2 Use of this Manual

This manual contains full details on installation, commissioning and operation of the **CENTRA** unit. If the instructions in this handbook are not followed then the performance of this product and/or 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

CENTRA 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:



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 **CENTRA** is isolated before any items are changed or maintenance work performed.

The external isolator providing power to the unit should be positioned so that it is easily accessible by all users.



WARNING! THIS APPLIANCE MUST BE EARTHED.

2.2 Pressure

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

Switching off the electrical supply will isolate the source of pressure and residual pressure in the unit will automatically be relieved to drain within a few seconds.

2.3 Sanitization Chemicals

During the sanitization cycle Minncare Cold Sterilant is used and relevant safety guidance is included in this handbook. Please refer to the manufacturer for material safety data sheets.

Minncare Cold Sterilant is EPA registered as a sterilant, high level disinfectant, and sanitizer.

Spent Minncare Cold Sterilant is acidic and requires normal neutralization as specified by your local state and local regulations.

1% of Minncare Cold Sterilant has a pH of 3.5.

2.4 Control of Substances Hazardous to Health (COSHH)

Material safety data sheets covering the various replaceable components are available upon request. Contact your local ELGA LabWater distributor.

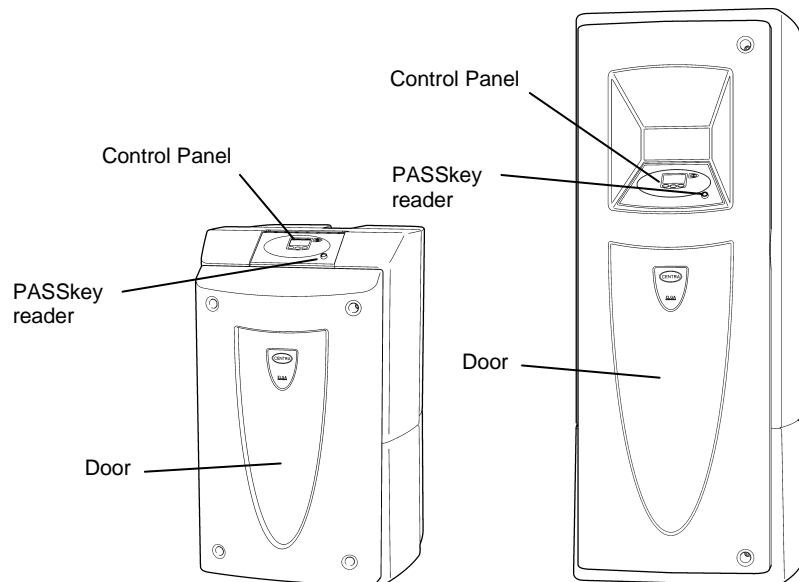
3. PRODUCT AND PROCESS DESCRIPTION

3.1 Product Description

The **CENTRA - MDS/LDS/RDS US** range of water purification units has been specifically designed to distribute and maintain purified water for laboratory, medical and industrial applications. The supply of purified water is obtained from either an external source or internal technologies.

Purified water may be distributed around the installation under pressure to single or multiple points of use.

A range of accessories is available to complement the unit (see *Section 12. - Consumables and Accessories, for detail*).



CENTRA - MDS US

CENTRA - LDS/RDS US
CENTRA – LDS/RDS US (HFV/HFR)

3.2 Process Description

CENTRA – LDS US

- Feed water enters through a control valve (V1), which in combination with the level sensor (LS1) controls the volume of water in the 350 liter (92USG) reservoir.
- ELGA systems providing the feed water will be controlled by the **CENTRA – LDS US** to maintain a sufficient level of water within the reservoir.
- The pump distributes the water around the installation at pressure (6 bar maximum) controlled manually via the pressure-regulating valve (PSV1) and monitored with a pressure gauge (PG1).
- Products fitted with a variable speed recirculation pump (P2) use feedback from a pressure transducer (PT1) to regulate the pump output to maintain a constant outlet pressure (typically 4 bar). This also reduces the outlet flow when water is not being taken from the recirculation loop.
- Flow around the system is monitored electronically using a flow sensor (FS1) and shown in selectable units of measurement on the display.
- Air is drawn into the reservoir when water is used. To maintain water purity it is necessary to filter the air. Air-borne particles and bacteria are removed by an air-filter. Alternatively an improved level of water purity can be maintained within the recirculation system using a composite vent filter, which removes air-borne contaminants such as volatile organic compounds and carbon dioxide.

CENTRA – RDS US

- Feed water enters through a control valve (V1), which in combination with the level sensor (LS1) controls the volume of water in the 350 liter (92USG) reservoir.
- The feed water passes through a:
 - Water quality sensor (QS1), which measures the conductivity of the water.
 - Temperature sensor (TS1).
- ELGA systems providing the purified water will be controlled and monitored by the **CENTRA – RDS US** to maintain a sufficient level of water within the reservoir.
- The pump (P1) distributes the pre-purified water around the installation at pressure (6 bar maximum) controlled via the pressure-regulating valve (PSV1) and monitored with a pressure sensor (PS1).
- Connections are available to incorporate a range of cylinders containing water purification media, which remove impurities and maintain water quality around the system. The media can be selected to meet specific requirements. Typically activated carbon and ion-exchange media are used.



WARNING: Any cylinders or additional equipment installed (filters etc.) including ring-main pipework, must be rated to the operating pressure of the CENTRA system (6 bar maximum).

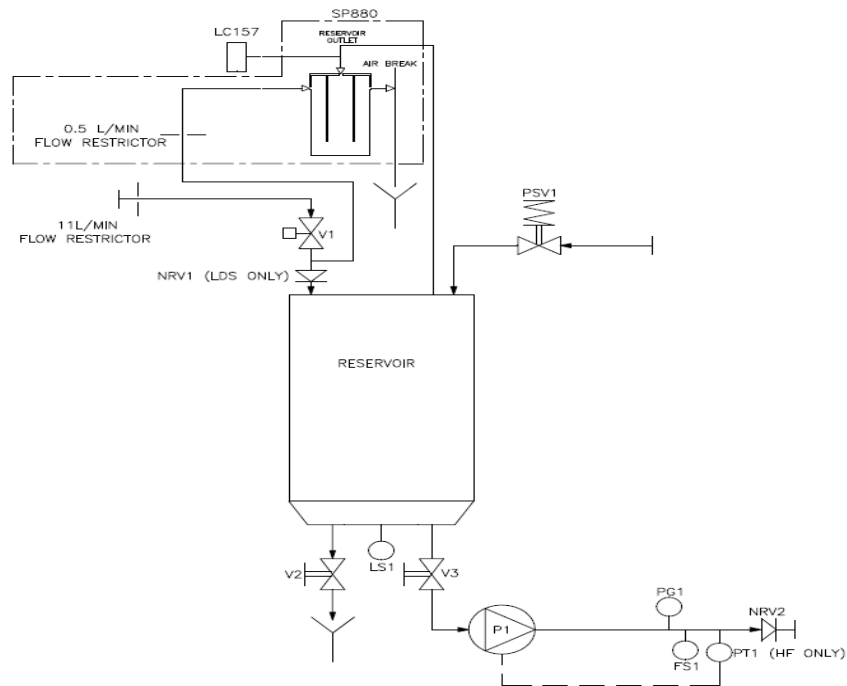
- The purified water is then passed through the UV (UV1) chamber where it is exposed to intense UV radiation to provide continuous bacterial control and to promote the cleavage of organic molecules before passing through an absolute 0.2µm bacterial and particulate filter. The pressure drop across the filter can be monitored to ensure optimum performance is maintained (PG1 and PG2).
- Finally the purified water passes through a:
 - Temperature sensor (TS2).
 - Water quality sensor (QS2), which measures the resistivity of the water.
 - Flow sensor (FS1) which electronically measures flow around the system.
- Air is drawn into the reservoir when water is used. To maintain water purity it is necessary to filter the air. Air-borne particles and bacteria are removed by an air-filter. Alternatively an improved level of water purity can be maintained within the recirculation system using a composite vent filter, which also removes air-borne contaminants such as volatile organic compounds and carbon dioxide.
- The **CENTRA – RDS US** includes the ability to drain the reservoir completely via V4 and sanitize the installation semi-automatically via V8 to ensure that bacterial levels within the installation are kept to a minimum.

CENTRA – RDS HFV/HFR US

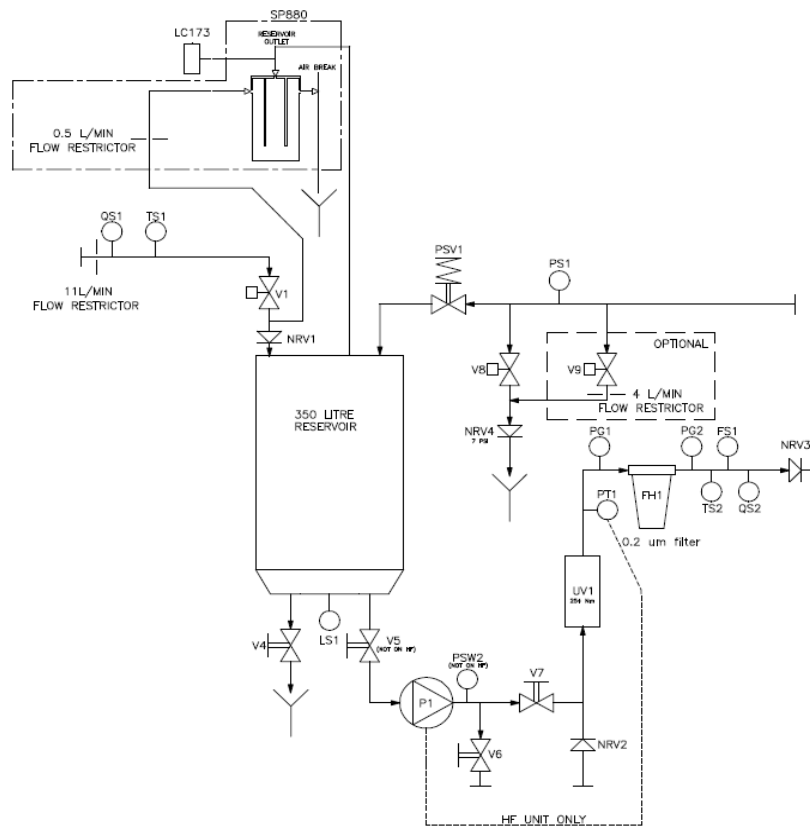
- Feed water enters through a control valve (V1), which in combination with the level sensor (LS1) controls the volume of water in the 350 liter (92USG) reservoir.
- The feed water passes through a:
 - Water quality sensor (QS1), which measures the conductivity of the water.
 - Temperature sensor (TS1).
- ELGA systems providing the purified water will be controlled and monitored by the **CENTRA – RDS HF/HFV/HFR US** to maintain a sufficient level of water within the reservoir.
- The pump (P1) distributes the pre-purified water around the installation at pressure, controlled via the pressure-regulating valve (PSV1) and monitored with a pressure sensor (PS1).
- Products fitted with a variable speed recirculation pump (P2) use feedback from a pressure transducer (PT1) to regulate the pump output to maintain a constant outlet pressure (typically 4 bar). This also reduces the outlet flow when water is not being taken from the recirculation loop.

- The purified water is then passed through the UV (UV1) chamber where it is exposed to intense UV radiation to provide continuous bacterial control and to promote the cleavage of organic molecules before passing through an absolute 0.2µm bacterial and particulate filter. The pressure drop across the filter can be monitored to ensure optimum performance is maintained (PG1 and PG2).
- Finally the purified water passes through a:
 - Temperature sensor (TS2).
 - Water quality sensor (QS2), which measures the resistivity of the water.
 - Flow sensor (FS1) which electronically measures flow around the system.
- Air is drawn into the reservoir when water is used. To maintain water purity it is necessary to filter the air. Air-borne particles and bacteria are removed by an air-filter. Alternatively an improved level of water purity can be maintained within the recirculation system using a composite vent filter, which also removes air-borne contaminants such as volatile organic compounds and carbon dioxide.
- The **CENTRA – RDS/HFV/HFR US** includes the ability to drain the reservoir completely via V4 and sanitize the installation semi-automatically via V8 to ensure that bacterial levels within the installation are kept to a minimum.
- The temperature within the distribution system will rise after long periods of recirculation. If the system is not receiving cooler water through V2, V9 will automatically open once a preset temperature limit is reached. This reduces the water level in the reservoir until V2 opens and cooler water enters the system.
 - V9 can be fitted as an optional extra.

3.3 Flow Diagrams



CENTRA - MDS/LDS US flow diagram



CENTRA – RDS US flow diagram

3.4 Technical Specification

Feedwater* and drain requirements						
Unit type	MDS	MDS(HF)	LDS	LDS HFV/HFR	RDS HFV/HFR	RDS
Source	Potable tap water, preferably reverse osmosis of de-ionised					
Fouling Index (maximum)	5					
Feedwater flow – l/min (maximum)	20	40	20	20	40	20
Feedwater pressure – bar (psi) - Maximum	10 (150)					
Feedwater pressure – bar (psi) - Minimum	0.1 (1.5)					
Drain requirements l/min (gravity fall with air gap)	20	50	20	20	70	20

* Contact Technical Support for advice on feedwaters outside the range listed.

Note: Different system configurations are available for different feedwater sources. See system set up.

Dimensions and weights						
Unit type	MDS	MDS(HF)	LDS	LDS HFV/HFR	RDS HFV/HFR	RDS
Height	1195mm (47")		1820mm (71.7")			
Width	730mm (28.75")					
Depth	890mm (35")					
Shipping weight	120kg (264lb)		160kg (352lb)		180kg (396lb)	
Operational weight	320kg (704lb)		510kg (1,124lb)		530kg (1,168lb)	
Installation	Floor					

Connections					
Unit type	MDS	LDS	LDS HFV/HFR	RDS HFV/HFR	RDS
Inlet	¾"bspp				
Reservoir drain	¾"bspp				
Ion-exchange cylinder inlet	n/a	n/a	n/a	¾"bspp	
Ion-exchange cylinder outlet	n/a	n/a	n/a	¾"bspp	
Ion Exchange Connection pressure rating – bar (psi) - Maximum	n/a	n/a	n/a	6 (90)	
Sanitization/temperature flush drain	n/a	n/a	n/a	¾"bspp	
Ringmain/loop outlet	¾"bspp				
Ringmain/loop return	¾"bspp				

Product water specification								
	Voltage/ Freq		MDS	MDS(HF)	LDS	LDS HFV/HFR	RDS HFV/HFR	RDS
Flowrate (exit from unit) - l/min (USG/min)	230/50		16 (4.2)	28 (7.4)	16 (4.2)	16 (4.2)	30 (8)	16 (4.2)
	230/50/60	50	n/a	n/a	n/a	30 (8)	30 (8)	n/a
		60				38 (10)	38 (10)	
		115/60		18 (4.8)	n/a	18 (4.8)	18 (4.8)	38 (10)
Distribution Loop Pressure (Typical) – bar (psi)			3 (45)	3 (45)	3 (45)	3 (45)	3 (45)	3 (45)
Distribution Loop Pressure (Maximuml) – bar (psi)			6 (90)	6 (90)	6 (90)	4 (60)	4 (60)	6 (90)
Inorganics – MΩ.cm			Dependent on feedwater and maintenance					>1**
Bacteria – CFU/ml			Dependent on feedwater and maintenance				<10CFU/ml***	
Particles			n/a				Filtration	

** Ion-exchange cylinder installed

*** Dependent on feedwater quality and system being correctly installed and regularly sanitised.

Electrical Requirements	
Mains input	230V ac, 50Hz 110V ac, 60 Hz
System control voltage (not including pumps and UV)	24V dc
Power consumption during recirculation (typical)	1200VA
Electrical protection rating	20 amps
Reservoir level connection for control of additional ELGA products	Jack Plug 3.5mm DIN plug 6 way
Noise level during recirculation	<65dBA

User Interface		
Display	Continuous graphical quality display Graphical flow schematic on screen with mimic display. Backlit display with Intuitive Icons	
Adjustable settings	Recirculation mode Display viewing Angle Feedwater quality units* Feedwater water quality alarm* Product water quality unit* Product water quality alarm* Date / time Auto restart after power failure Temperature alarm* Audible alarm Night/Weekend service	Continuous or night/weekend service Adjustable electronically Selectable (MΩ.cm or μS/cm) Selectable Alarm setpoints Selectable (MΩ.cm or μS/cm) Selectable Alarm setpoints Adjustable Selectable (On/Off) Selectable (On/Off) Selectable (On/Off)
Indicators	Pre-treated feedwater quality* Product water quality* Temperature* Recirculation Flow* System Pressure* UV lamp* Filter* Sanitization reminder*	Resistivity or conductivity Resistivity or conductivity Degrees Centigrade L/min or USG Bar or psi Replacement date Replacement date Sanitization date
Alarms-Audiovisual	Purified water purity* Temperature* UV lamp* Filter*	Outside set point alarm Outside set point alarm Change reminder Change reminder
Outputs	RS232 Printer connection RS485 Remote display connection Volt free contact**	

* RDS/RDS(HF) variants only

** Requires additional SSR suited to application

Safety Features
Power fail safe
Water temperature alarm (CENTRA - RDS only)
Water quality alarm (CENTRA - RDS only)
Leak detection alarm
Access restricted by PASSkey
Miniature circuit breaker protection of incoming electrical supply (MCB)
Pump thermal overload
Low voltage control circuit -24V dc
Visual alarms
Audible alarms
Optional remote display

Operational Features
Restart on power interrupt
Optional printer kit for record of operating parameters
Optional sanitization kit (MDS and LDS)
Optional remote display

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

4. INSTALLATION INSTRUCTIONS



WARNING! THIS UNIT IS HEAVY. NEVER ATTEMPT TO MOVE WITHOUT USING THE CORRECT LIFTING EQUIPMENT.

4.1 Unpacking the **CENTRA**

The following items should be supplied with your **CENTRA**:

1. **CENTRA**.
2. Operator Manual.
3. Composite Vent Filter (LC156 or LC173).
4. Allen key, to open front cover.
5. PASSkeys (SP772).
6. Sanitization tubes.
7. Filters.

4.2 Positioning the **CENTRA**

Before installation and operation of the **CENTRA** unit, please read and observe the following points.

Environment

The unit should be installed on a flat, level floor, in a clean, dry environment.



WARNING! ENSURE THAT THE UNIT IS POSITIONED ON A FLOOR CAPABLE OF SUPPORTING THE MAXIMUM WORKING LOAD OF THE UNIT. ADDITIONAL FLOOR LOADING CONSIDERATIONS MUST BE GIVEN WHEN OPERATING PRETREATMENT EQUIPMENT MOUNTED ON THE TOP OF THE **CENTRA - MDS.**



WARNING! THE CENTRA LDS/RDS SHOULD NEVER BE INSTALLED WITH ADDITIONAL EQUIPMENT MOUNTED ON TOP OF THE UNIT. FAILURE TO OBSERVE THIS INSTRUCTION COULD RESULT IN SERIOUS INJURY.

Note: Refer to Specifications for unit weights and footprint size. (Section 3.4 – Technical Specification)

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.

Service Access

It is recommended that sufficient allowance be made for accessing components on the rear of the product, which may require servicing or replacement during its life in the field.



WARNING! ONCE COMMISSIONED AND IN OPERATION THE CENTRA IS EXTREMELY HEAVY AND MUST NOT BE MOVED. FAILURE TO OBSERVE THIS INSTRUCTION COULD RESULT IN SERIOUS INJURY.

Electrical

CENTRA must be properly earthed and protected with the correctly rated fuse or MCB.

Where possible, components are operated at low DC voltage to reduce risk of electric shock.

Some components operate at mains supply voltage and are suitably protected within the unit.

Power should be switched off and isolated before commencing maintenance work.



WARNING! FAILURE TO ISOLATE THE INCOMING ELECTRICITY SUPPLY BEFORE REMOVING COVERS OR COMMENCING MAINTENANCE WORK COULD RESULT IN DEATH.

Pipework and Pipework Installation

The precise details of each installation will vary according to the individual customer requirements.

Note: Refer to Typical installation and layout diagram (Section 4.3 - fig. 1 and fig. 2).

If existing pipework installations are being utilized it is recommended that Technical Support are contacted to ensure correct installation and sanitization procedures are adopted during system commissioning.

All connections to the unit are $\frac{3}{4}$ "bspp female threads and should be sealed with either PTFE tape or 'O'ring fittings.



Caution! The use of pipe sealant is not recommended and may cause degradation and failure of plastic components.

All pipework should be suitable for the quality of water being distributed and installed to manufacturer guidelines.



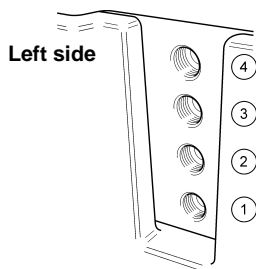
CAUTION! All pipework should have a pressure rating exceeding the maximum operating pressure of the installation and suitably de-rated for the maximum water temperature.

Remote Display RS485 Network

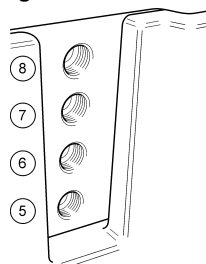
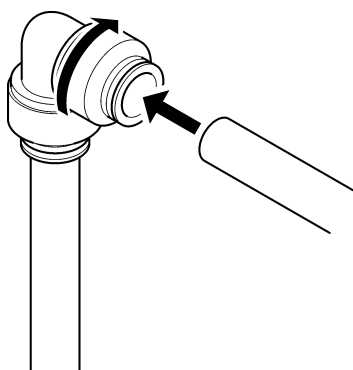
The **CENTRA** has the ability to communicate to a number of remote displays allowing operating and alarm parameters to be changed and monitored throughout the installation.

System constraints must be observed during installation to ensure satisfactory network performance.

Further details are available from Technical Support or your local ELGA LabWater representative.



Right side

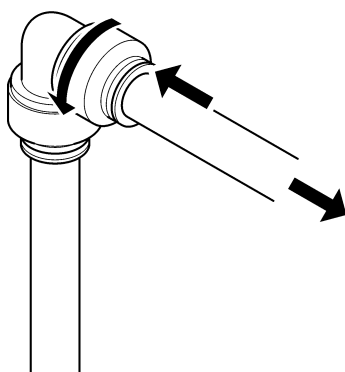
External hydraulic connections
port numbers

Push in tube and tighten connector to secure



CAUTION! The use of pipe sealant is not recommended and may cause degradation and failure of plastic components.

CAUTION! The drain should allow a gravity fall to drain with no restrictions.

Unscrew connector and depress collet
to detach tube

Fitting tubes

4.3 Connecting the CENTRA

Once the **CENTRA** has been positioned the following hydraulic connections should be made:

	PORT NUMBER REFERENCE					
	MDS	MDS(HF)	LDS	RDS	RDS HFV/HFR	LDS HFV/HFR
Feedwater inlet	④	④	④	④	④	④
Outlet to cylinder				②		
Return from cylinder				③		
Reservoir drain	①	①	①	①	①	①
Sanitization/temp flush				⑥	⑥	
Recirculation loop out	⑧	⑧	⑦	⑦	⑦	⑦
Recirculation loop return	⑦	⑦	⑧	⑧	⑧	⑧
Overflow. Connection at rear to suitable drain			*	*	*	*

Step 1 - Hydraulic connections

1. LOCATE all the hydraulic connections.
2. FOLLOW the manufacturer recommendations for the selected pipework systems and install suitable adapters into the connection manifolds of the **CENTRA**.
3. Refer to 'Ringmain/Loop Installation Guide' available from ELGA LabWater Technical Support for examples of preferred pipework construction and assembly.

Note: The connection size on the **CENTRA** is $\frac{3}{4}$ "bspp in all positions. The overflow connection ($\frac{3}{4}$ " flexible hose) is located at the rear of the **CENTRA** unit and should be connected to a suitable drain.

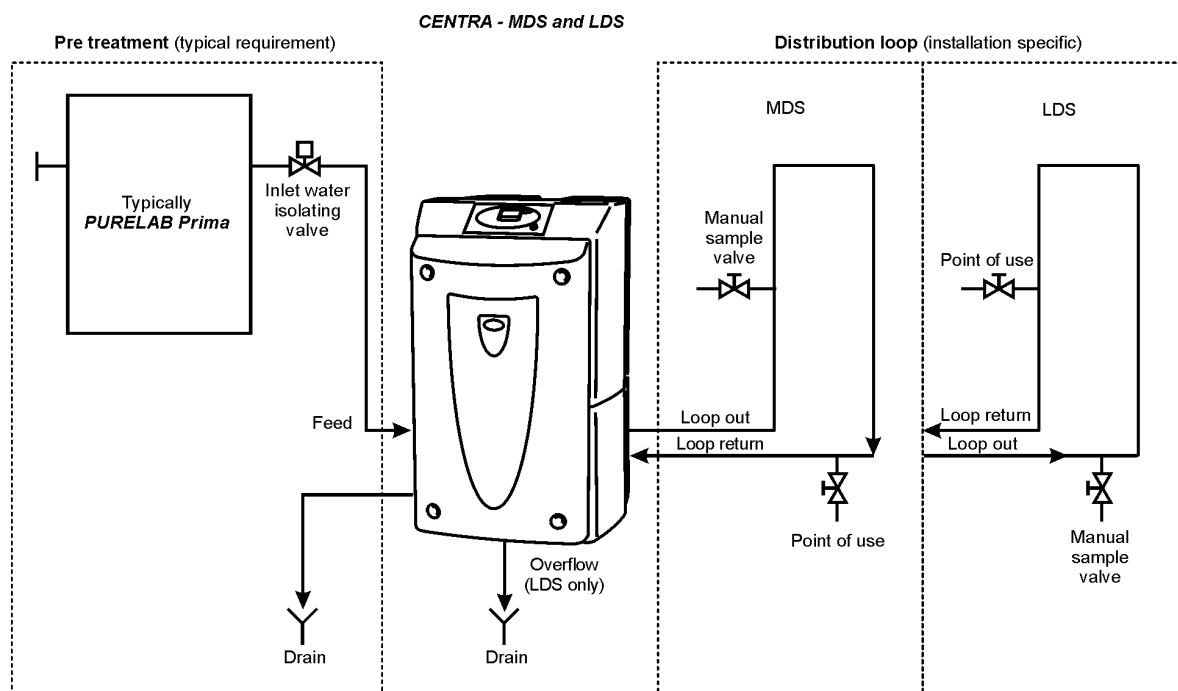


Fig 1 - Schematic of typical **CENTRA – MDS/LDS US** distribution loop

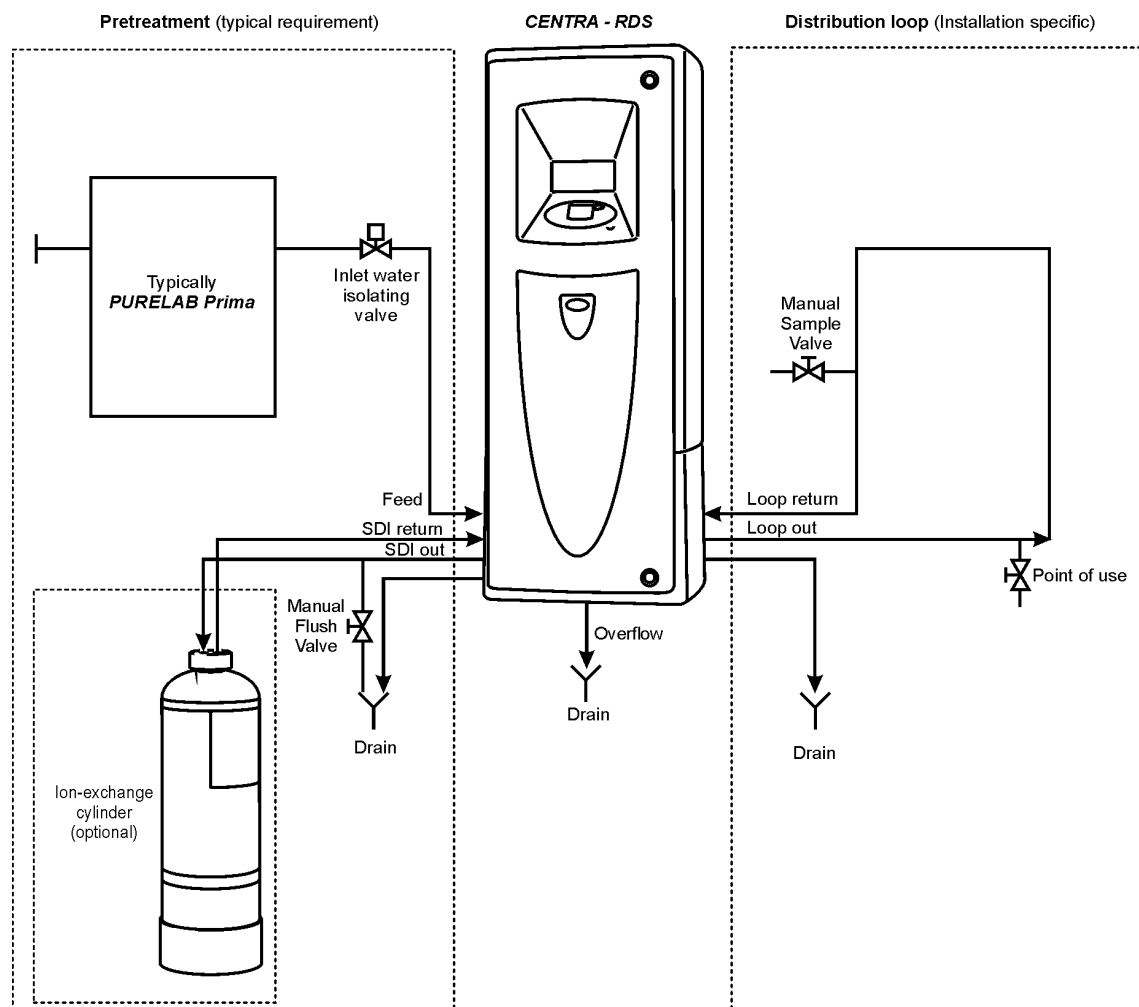
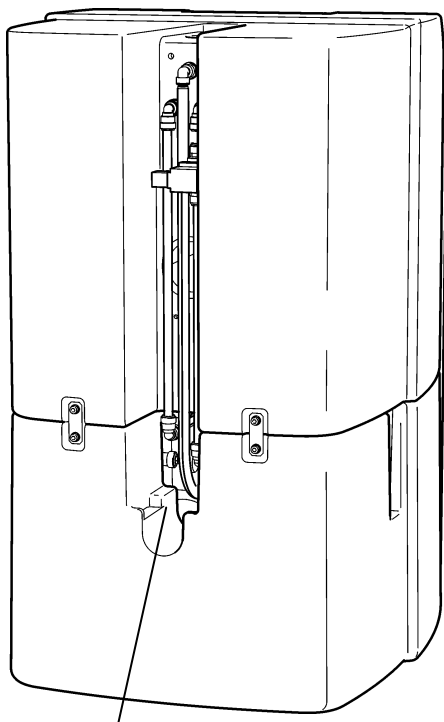


Fig. 2 - Schematic of typical **CENTRA – RDS US** distribution loop



Cable entry

CENTRA – MDS US rear view

Step 2a - Electrical supply connection (CENTRA – MDS)

WARNING! FAILURE TO CORRECTLY INSTALL THE ELECTRICAL SUPPLY COULD RESULT IN DEATH.

IF IN DOUBT CONTACT A QUALIFIED ELECTRICIAN.

1. ENSURE a suitable cable is available to connect the **CENTRA** to the electrical supply.



WARNING! FAILURE TO USE THE CORRECTLY RATED CABLE COULD RESULT IN FIRE AND DEATH.

IF IN DOUBT CONTACT A QUALIFIED ELECTRICIAN. CHECK LOCAL REGULATIONS, A LICENCED ELECTRICIAN MAY BE REQUIRED TO MAKE THIS CONNECTION.

2. REMOVE the four securing screws that hold the front panel onto the unit.
3. REMOVE the panel and store in a safe place.
4. LOCATE the electrical cover on the inside of the unit and REMOVE the four securing screws.
5. CAREFULLY remove the cover and locate the central earthing point on the electrical back plate.
6. REMOVE the nut and washers securing the earthing cable and store in a safe place.

Note: The electrical cover can now be completely removed and stored safely.

7. DIRECT the cable through the rear of the unit to the power socket.

Note: The power cable should be routed avoiding signal cables and sensitive circuitry.

8. LOCATE the cable restraint on the left of the electrical back plate.
9. UNSCREW the cable clamp and INSERT the supply cable ensuring sufficient cable to reach the MCB and earth point.
10. RETIGHTEN the screws.
11. PULL the cable firmly and ENSURE that the cable is properly retained.
12. CONNECT the supply cable to the MCB ensuring correct termination and polarization.



CAUTION! The termination of cables should comply with local wiring regulations. All earth connections should be made using ring tags that are connected to the cable using the correct crimping tool.

13. CONNECT the supply earth to the central earthing point on the electrical back plate along with the earth wire from the electrical cover.

14. REPLACE the earthing nut and washers and TIGHTEN.



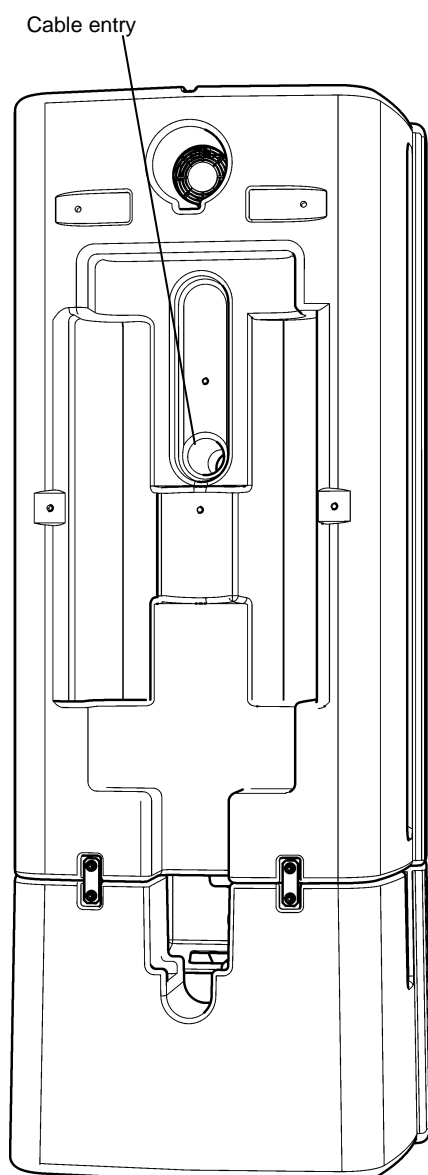
WARNING! THIS APPLIANCE MUST BE PROPERLY EARTHED.

15. REPLACE the electrical cover and screws and ensure an effective seal from water ingress

OR

INSTALL the level control cable as described in Section 4.3, Step 3 - Level control connections for external water treatment equipment.

Note: Until the unit has been fully commissioned it is recommended that the front panel remain unsecured.



CENTRA - LDS/RDS US
rear view



Step 2b - Electrical Supply Connection (CENTRA - LDS/RDS US)

WARNING! FAILURE TO CORRECTLY INSTALL THE ELECTRICAL SUPPLY COULD RESULT IN DEATH.

IF IN DOUBT CONTACT A QUALIFIED ELECTRICIAN.

1. ENSURE a suitable cable is available to connect the **CENTRA** to the electrical supply.



WARNING! FAILURE TO USE THE CORRECTLY RATED CABLE COULD RESULT IN FIRE AND DEATH.

IF IN DOUBT CONTACT A QUALIFIED ELECTRICIAN.

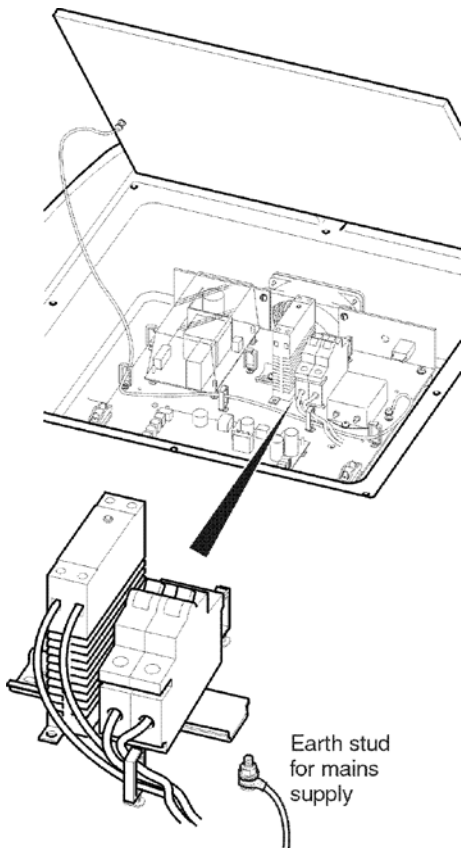
2. REMOVE the two screws that secure the right hand edge of the door.
3. OPEN the door fully.
4. DIRECT the cable through the rear of the unit to the power socket.

Note: The power cable should be routed avoiding signal cables and sensitive circuitry

5. LOCATE the electrical cover on the top of the unit and REMOVE the eight securing screws and store in a safe place.
6. CAREFULLY remove the cover and locate the earthing point on the electrical back plate.
7. REMOVE the nut and washers securing the earthing cable and store in a safe place.

Note: The electrical cover can now be completely removed and stored safely.

8. LOCATE the cable restraint on the right of the electrical back plate.
9. DIRECT the cable into the electrical section via the cable tunnels (on right hand side of unit).
10. UNSCREW the cable clamp and INSERT the supply cable ensuring sufficient cable to reach the MCB and earth point.



CENTRA - LDS/RDS US
electrical connection



11. RETIGHTEN the screws.
12. PULL the cable firmly and ENSURE that the cable is properly retained.
13. CONNECT the supply cable to the MCB ensuring correct termination and polarization.

CAUTION! The termination of cables should comply with local wiring regulations. All earth connections should be made using ring tags that are connected to the cable using the correct crimping tool.

14. CONNECT the supply earth to the central earthing point on the electrical back plate along with the earth wire from the electrical cover.
15. REPLACE the earthing nut and washers and TIGHTEN.

WARNING! THIS APPLIANCE MUST BE PROPERLY EARTHED. ENSURE THE EARTH STUD, LOCATED NEXT TO THE MCB, IS USED TO EARTH THE INCOMING MAINS SUPPLY.

16. REPLACE the electrical cover and screws and ensure an effective seal from water ingress

OR

INSTALL the level control cable as described in Section 4.3, Step 3 - Level control connections for external water treatment equipment.

Note: Until the unit has been fully commissioned it is recommended that the front door remain unsecured.

Step 3 - Level control connection for external water treatment equipment

The level control connection is required when the **CENTRA** is connected to the following supplies:

- PURELAB Prima 20.
- PURELAB Prima 30/60/90/120.
- Other products from the PURELAB range meeting specific system requirements.

If the water supply is direct and under pressure then level connections are not required. Ref. Section 4.3, Step 1 - Hydraulic connections.

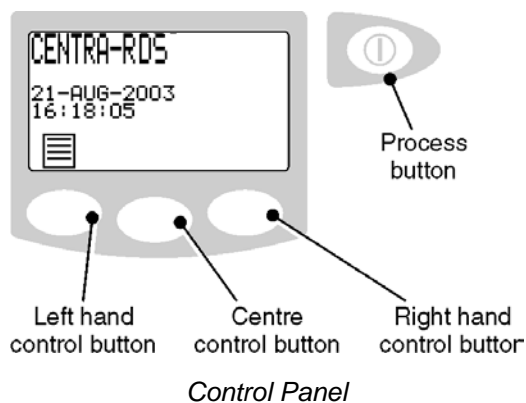
1. GAIN access to the electrical area as described in 'Electrical Supply Connection – Section 2a/2b'.
 2. LOCATE the level control connection on the micro-controller board.
- PURELAB Prima 20 use 3.5mm jack socket (PCB identifier J2)
 - PURELAB Prima 30/60/90/120 use 6 pin DIN socket (PCB identifier JR1)
 - Refer to Technical Support for specific system guidance.

Note: Only one level control socket must be used to make a level control connection.

3. DIRECT the level control cable into the electrical section via the cable tunnels.
4. PLUG the lead into the correct socket as described in step 2.
5. ENSURE the lead is properly supported using the local cable restraint.
6. CONNECT the other end of the LEVEL control cable to the supply equipment.



CAUTION! Failure to connect the **CENTRA** level control may result in damage to the supply equipment through over-pressurization.













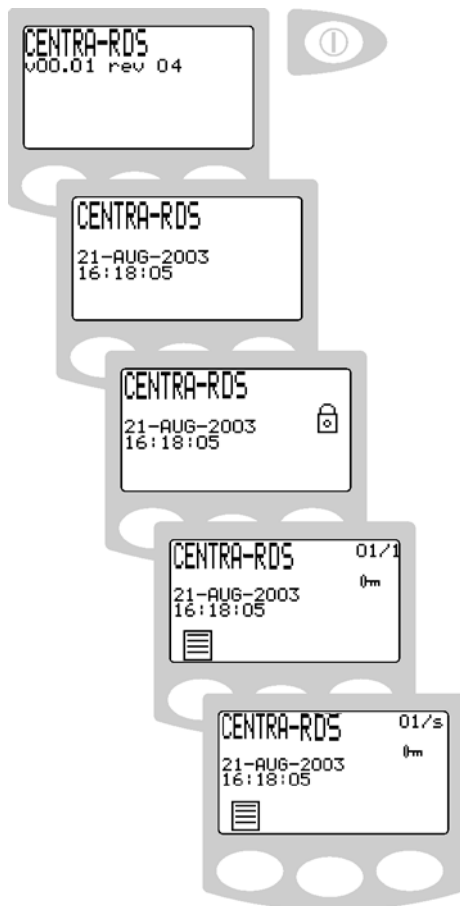
5. CONTROLS

The **CENTRA** operates with a tactile membrane control panel, which has a graphics display window and four-programmable function control buttons.

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

The **CENTRA** control panel has a range of control icons. General operational icons are as follows. Further icons are described in the appropriate sections and a complete listing is included in Section 13.

BUTTON	ICON	Function
PROCESS		Turns the process on/off
LEFT		Menu
		Scroll
		Shift
		Up
CENTRE		Accept
		Replacement dates for consumables and sanitization reminder
RIGHT		Mute Alarm
		Printer
		Down



Initialization screens

5.1 PASSKeys

Each unit is supplied with the following PASSKeys:

Master PASSKey	(Black)	1off
User PASSKey	(Blue)	4off
Sanitization PASSKey	(Green)	2off

The Master PASSKey should be stored in a safe place. The Master PASSKey controls the access level of the other PASSKeys and has access to all customer preferences.

User PASSKeys only have access to customer preference screens.

Sanitization PASSKeys instigate the sanitization process and inhibit the general user from accidentally entering sanitization.



CAUTION! If the Master PASSKey is lost a new PASSKey can only be programmed by trained ELGA Service Engineers.

5.2 System Preferences

The **CENTRA** control panel is fitted with four control buttons. These are:

1. The PROCESS button, which switches the process ON and OFF.

Three software controlled touch pad buttons that are used to control set-up and process control functions.

When the **CENTRA** unit is started for the first time after installation the following steps should be carried out to set up system preferences:

Note: System preferences can be changed and implemented during normal operation. It is not necessary to stop the process.

Step 1 - System Access (ELGA PASSkey)

The ELGA Passkey prevents unauthorized access to specific operator settings ensuring consistent system performance and operation.

Note: The ELGA PASSKey does not prevent access to the PROCESS function in case of emergency.

1. SWITCH on the main electrical supply to initialize the controller set-up sequence. This takes several seconds.

PRESENT the 'Master PASSKey' (black) or the 'User PASSKey' (blue) to the reader ensuring clean contact of both metallic components.

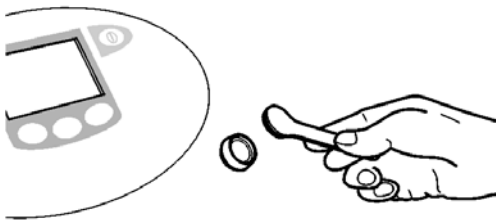
Note: The 'Master PASSKey' allows access to further settings (Section 5.2 - steps 21 and 22).

The display will present a padlock icon followed shortly by a key icon.

REMOVE the 'PASSKey' from the reader.


PRESS the menu button.

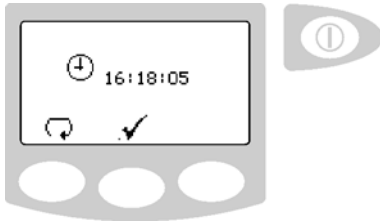
Note: The system remains unlocked providing button presses are made within a fixed time period (5 seconds).



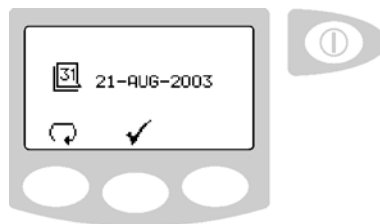
Present the PASSKey

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:

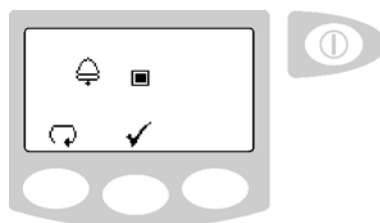
- A “scroll” icon indicated by an arrow .
- An “accept” button indicated by a tick ✓.
- A “selection” icon indicated by a ■.



Clock screen



Date screen



Audible alarm enable/disable screen

Step 2 - Clock

Set to display the current local time.

1. PRESS SCROLL  to edit time

OR

PRESS TICK ✓ to proceed to step 3.

2. PRESS and HOLD UP ▲ to increase or DOWN ▼ to decrease hour.
3. PRESS SHIFT ► to step cursor onto minute.
4. PRESS UP ▲ to increase or DOWN ▼ to decrease minute.
5. PRESS SHIFT ► to accept the minute setting and set the seconds to 00.
6. PRESS TICK ✓.

Step 3 - Date

Used to instigate change reminders, it will appear on printed records.

1. PRESS SCROLL  to edit date

OR

PRESS TICK ✓ to proceed to step 4.

2. PRESS and HOLD UP ▲ to increase or DOWN ▼ to decrease day.
3. PRESS SHIFT ► to step cursor onto month.
4. PRESS UP ▲ to increase or DOWN ▼ to decrease month.
5. PRESS SHIFT ► to step cursor onto year.
6. PRESS UP ▲ to increase or DOWN ▼ to decrease year.
7. PRESS TICK ✓.

Step 4 - Audible alarm enabled/disabled

This screen provides the option of either enabling the audible alarm, causing it to sound (whilst the alarm icon flashes) or disabling the audible alarm causing it to remain muted.

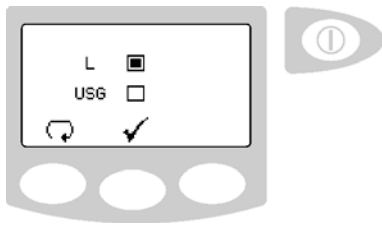
1. PRESS SCROLL  to change mode (■ = ON)

OR

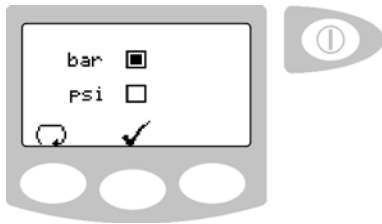
PRESS TICK ✓ to proceed to step 5.

2. PRESS TICK ✓.

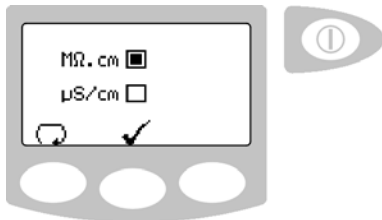
Note: The visual alarm cannot be disabled.



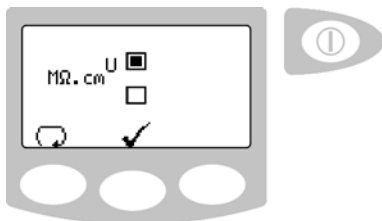
Volume/flow measurement screen



Pressure measurement screen



Water purity screen



Uncompensated water quality screen

Step 5 - Volume/flow - displayed unit of measurement

The reservoir volume and recirculation flow can be displayed in either liters (L) or US Gallons (USG).

1. PRESS SCROLL to change mode (L or USG)

OR

PRESS TICK to proceed to step 6.

2. PRESS TICK .

*Note: Proceed to step 13 for **MDS** and **LDS** variants.*

Step 6 - Pressure - displayed unit of measurement (RDS)

The loop pressure can be displayed in either bar (bar) or pounds per square inch (psi).

1. PRESS SCROLL to change mode (bar or psi)

OR

PRESS TICK to proceed to step 7.

2. PRESS TICK .

Step 7 - Water purity unit setting (RDS)

This screen allows preferred displayed units of water purity to be set, to either, **MΩ.cm** or **μS/cm**. This only affects the quality measurement in the recirculation loop.

1. PRESS SCROLL to change mode (MΩ.cm or μS/cm)

OR

PRESS TICK to proceed to step 8.

2. PRESS TICK .

Step 8 - Uncompensated water quality (RDS)

A U will indicate uncompensated readings (recirculation loop only) in the normal process screen.

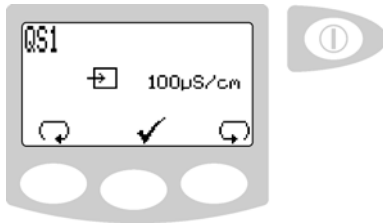
1. PRESS SCROLL to change mode
(= Uncompensated water quality ON)

OR

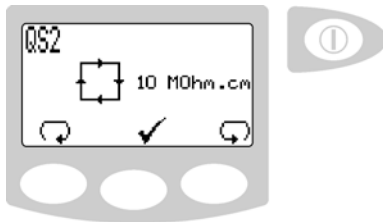
PRESS TICK to proceed to step 9.

2. PRESS TICK .

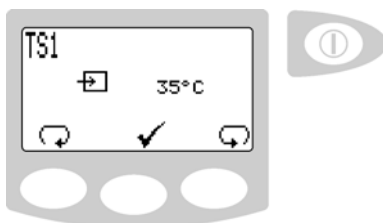
Note: The on-going display of uncompensated values is generally not recommended as it can lead to confusion among users and increase the possibilities of using water of inadequate purity.



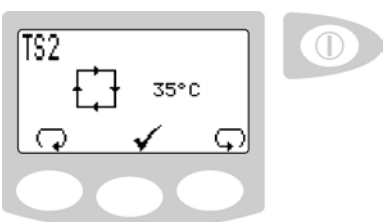
Alarm settings QS1 screen



Alarm settings QS2 screen




Alarm settings TS1 screen



Alarm settings TS2 screen

Step 9 - Quality alarm settings QS1 (RDS variants)

This screen is used for setting the value at which the quality alarm will activate.

1. PRESS SCROLL  to select alarm point. (Increments of 10, ranging from 20 to 100µS/cm). If '0' is selected the alarm will be tuned 'OFF'.


OR

PRESS TICK ✓ to proceed to step 10.

2. PRESS TICK ✓.

Step 10 - Product water purity alarm settings QS2 (RDS variants)

This screen is used for selecting the value at which the product water purity alarm will activate. The alarm does not stop the process and will automatically reset if the purity level recovers.

1. PRESS SCROLL  to select alarm point (increments of 1, ranging from 1 to 17MΩ

OR

increments of 10, ranging from 20 to 100µS/cm).

Note: The alarm points are only displayed in MΩ.cm and do not change to µS/cm regardless of the water purity unit displayed setting.


OR

TICK ✓ to proceed to step 11.

2. PRESS TICK ✓.

Step 11 - Temperature alarm settings TS1 (RDS variants)

This screen is used for selecting the value at which the RO permeate temperature alarm will activate. The alarm does not stop the process and will automatically reset if the temperature returns below the set point.

1. PRESS SCROLL  to select alarm point (increments of 1, ranging from 20 to 50°C)

OR


PRESS TICK ✓ to proceed to step 12.

2. PRESS TICK ✓.


Step 12 - Product water temperature alarm settings TS2 (RDS variants)

This screen is used for selecting the value at which the product water temperature alarm will activate. The alarm does not stop the process and will automatically reset if the temperature returns below the set point.

The system will automatically perform the temperature flush sequence when the temperature measured by TS2 is 2°C below the selected temperature alarm setting, and the feedwater valve (V2) is closed. The temperature dump stops once feedwater starts to fill the reservoir.

1. PRESS SCROLL  to select alarm point (increments of 1, ranging from 20 to 50°C)

OR

PRESS TICK  to proceed to step 13.

2. PRESS TICK .

Note: If the water temperature rises above 55°C in the system the unit will alarm, stop and await operator intervention - alarm will be reset once power is removed for 5 sec's and then reinstated.


Step 13 - Continuous operation

Continuous operation may be required in particular circumstances or when demand for water fluctuates.

CAUTION! During long periods of recirculation and low usage the water temperature will rise. It is therefore recommended that this function be only enabled when water usage is on average >50 liters/hr and water is used every day.

1. PRESS SCROLL  to change mode (■ = ON)

OR


PRESS TICK  to proceed to step 14.

Note: Proceed to step 16 if continuous operation is selected (■ = ON).


Step 14 - Periods of operation








To maximize efficiency and reduce the likelihood of heat build up the normal operational hours for the installation can be selected.

During 'OFF' periods the unit will automatically enter recirculation for a period of 10 minutes every two hours to maintain water purity within the distribution loop.

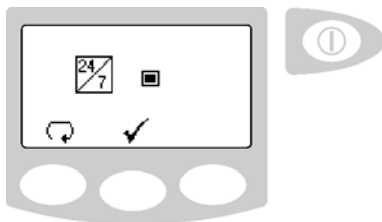
1. PRESS SCROLL  to edit night service start

OR

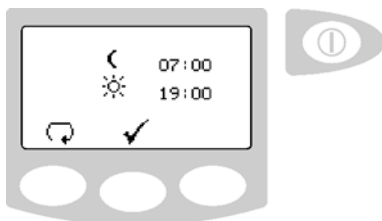
PRESS TICK  to proceed to step 15.

2. PRESS UP  to increase or DOWN  decrease time in increments of 30 minutes.
3. PRESS SCROLL  to step to night service end.
4. PRESS UP  to increase or DOWN  decrease time in increments of 30 minutes.
5. PRESS SCROLL  to enter times.
6. PRESS TICK .

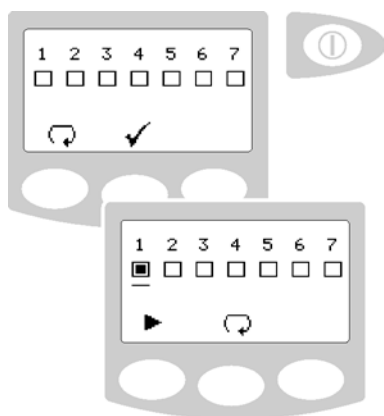
Note: Night service will only be operational if Continuous Operation is not enabled.



Continuous operation screen



Night service setting screen



Day selection screens

Step 15 - Operational day selection

Select days that the **CENTRA** is required to operate by highlighting the appropriate box.

Monday = 1 through to Sunday = 7

1. PRESS SCROLL to enter selection screen

OR

PRESS TICK to proceed to step 16.

2. PRESS SCROLL to highlight box 1
(■ = Monday enabled)

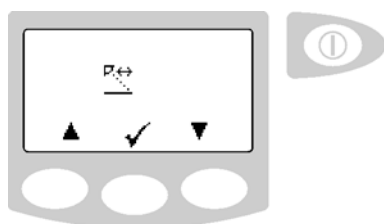
OR

PRESS SHIFT to step to box (2).

Note: A highlighted box indicates that the unit will be operational on that day between the times set in step 14.

3. REPEAT, step 15 - item 2, to select further operating days or PRESS SHIFT until the TICK appears.
4. PRESS TICK .

Note: During selected off periods the unit can be reactivated by pressing PROCESS button once. A few minutes operation should be allowed before use. The unit will automatically cycle as required (don't push PROCESS button again!).



Viewing angle adjustment screen

Step 16 - Display viewing angle adjustment

The angle of the display can be electronically adjusted up and down to optimize the display graphics visibility.

1. PRESS and HOLD UP or DOWN to adjust viewing angle

OR

PRESS TICK to proceed to step 17.

2. PRESS TICK .

Step 17 - Auto-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.

1. PRESS SCROLL to change mode (■ = ON)

OR

PRESS TICK to proceed to step 18.

2. PRESS TICK .

Step 18 - Data output (printer or PC)

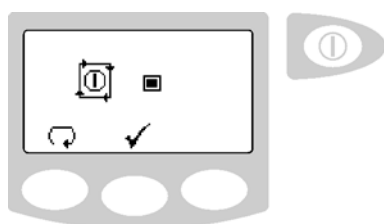
CENTRA can transmit operational data to a printer or PC via a RS232 lap-link communication cable when the print icon is pressed during operation.

1. PRESS SCROLL to change mode (■ = ON)

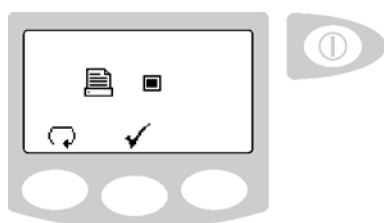
OR

PRESS TICK to proceed to step 19.

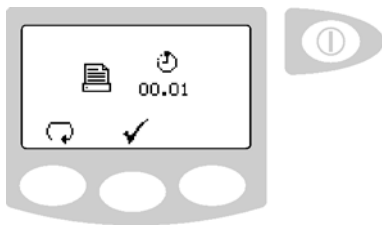
2. PRESS TICK .



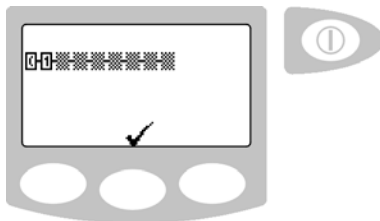
Auto-restart screen



Data output screen




Data transmit screen




Remote control station selection screen

Step 19 - Data transmit

The frequency of the data transmittal to the printer or PC is selectable.

1. PRESS SCROLL  to change transmit intervals (1,5,15,30min / 1,6 hour)

OR

PRESS TICK  to proceed to step 20.

2. PRESS TICK .

Note: PRESS PRINT during normal operation and data will be transmitted to the recording device.

Step 20 - Remote control station selection (node addressing)


Each remote control station connected to the **CENTRA** must be registered for its commands to be recognized.

Once registered the remote control station can be used to adjust functionality and monitor alarms locally.


The viewing angle of each remote control station is specific to its mounting position and should be adjusted as described in Section 5.2, Step 16.

1. PRESS RESET 

OR

PRESS TICK  to complete settings (User PASSkey)

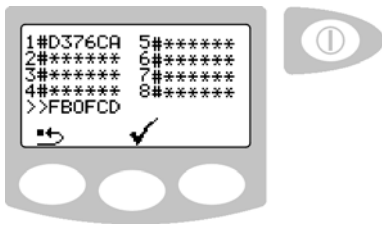
OR

PRESS TICK  to proceed to step 21 (Master PASSkey only).

*Note: At this stage the **CENTRA** screen may timeout before each remote display are registered. This does not affect registration of the remote display.*

2. ENSURE the RS485 network is correctly installed and terminated as described in 'ELGA LabWater Installation Guide - RS485 Local area Network design considerations and installation guide' (Available from ELGA LabWater Technical Support).
3. POWER ON remote control stations.
4. PRESENT user PASSkey (any colour) at each remote display in the order that you wish them to be registered.

Note: Re-enter the user menu and return to step 20 to check the registration of the remote displays.






Programming of
user PASSkeys screen



Step 21 - Programming of user PASSkeys

During the operational life of the **CENTRA** it may be necessary to delete or add User PASSKeys to prevent or allow access to user preferences. This feature is only available to the Master PASSKey holder (Black PASSKey).



CAUTION! Do not press reset unless all users PASSkeys are present for reprogramming.

1. PRESS RESET  to delete all User PASSKeys
- OR**
- PRESENT the new User PASSKey to the reader (proceed to instruction 3).
2. PRESENT the new User PASSKey to the reader.
3. PRESS SETPOINT  to load new User PASSKey identification.
4. REPEAT instruction 2 and 3 until all User PASSKeys are registered (maximum of 8 users).
5. PRESS TICK  to complete settings.


Step 22 - Programming of sanitization PASSkeys

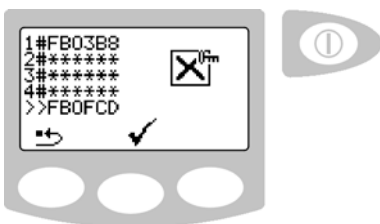
Sanitization PASSKeys are required to implement sanitization. These keys can be deleted or added.

Note: PASSKeys can only be registered for one use i.e. user of sanitization.

1. PRESENT master PASSKey.
2. PRESS TICK  until the sanitization PASSKey programming screen appears.
3. PRESS RESET  to delete all sanitization PASSkeys

OR

- PRESENT the new sanitization PASSKey to the reader (proceed to instruction 3).
4. PRESENT the new user sanitization PASSKey to the reader.
 5. REPEAT instruction 2 and 3 until all sanitization PASSkeys are registered (maximum of 4 users).
 6. PRESS TICK  to complete settings.



Programming of sanitization
PASSkeys screen

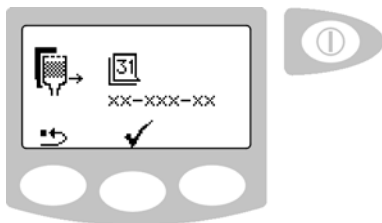
5.3 Setting Up Replacement Timers / Reminders

Step 1 - Enter consumable replacement timer set-up

1. TURN unit off at main electrical supply.

Note: Allow sufficient time for the display to go blank after power is removed.

2. SWITCH main electrical supply on.
3. PRESS left hand button within 10 seconds of returning power to enter the Consumable Timer set up display.



CVP replacement date screen

Step 2 - CVF replacement date (if fitted)

1. PRESS RESET button to reset CVF Filter Replacement Date

OR

PRESS TICK ✓ to accept Replacement Date and proceed to UV lamp Reminder.

2. PRESS TICK ✓ confirm that resetting is required

OR

PRESS CROSS ✕ to abort reset.

3. PRESS TICK ✓.

Step 3 - UV lamp replacement date (RDS)

1. PRESS RESET button to reset UV Replacement Date

OR

PRESS TICK ✓ to accept Replacement Date and proceed to RO Particle Filter Replacement.

2. PRESS TICK ✓ confirm that resetting is required

OR

PRESS CROSS ✕ to abort reset.

3. PRESS TICK ✓.

Step 4 - 0.2µm filter replacement date (RDS)

1. PRESS RESET button to reset 0.2µm Filter Replacement Date

OR

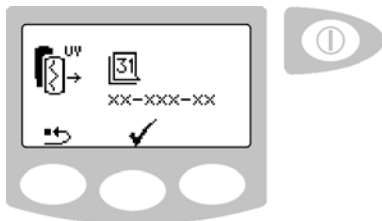
PRESS TICK ✓ to accept Replacement Date and proceed to Sanitization Reminder.

2. PRESS TICK ✓ confirm that resetting is required

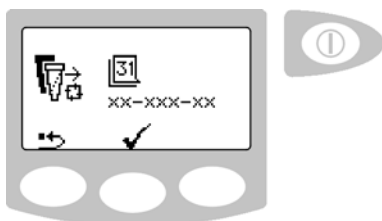
OR

PRESS CROSS ✕ to abort reset.

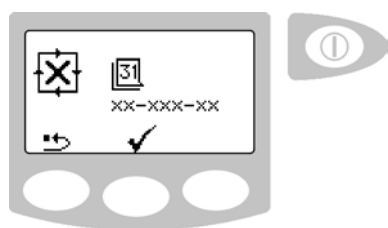
3. PRESS TICK ✓.



UV lamp replacement date screen



0.2µm filter replacement date screen



Sanitization reminder screen

Step 5 - Sanitization reminder (*RDS*)

1. PRESS RESET button to reset 0.2µm Filter Replacement Date

OR

PRESS TICK ✓ to accept Replacement Date and complete settings.

2. PRESS TICK ✓ confirm that resetting is required

OR

PRESS CROSS ✕ to abort reset.

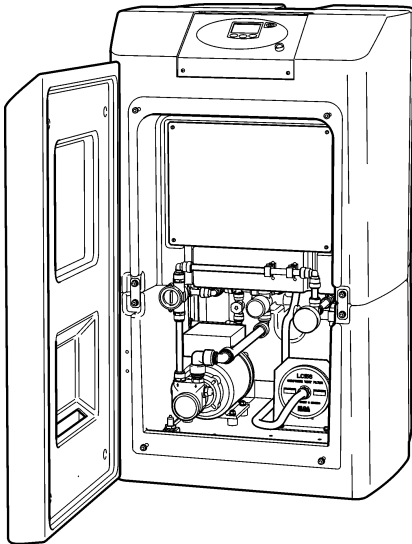
3. PRESS TICK ✓.

Note: Two dates are displayed in the sanitization screen:

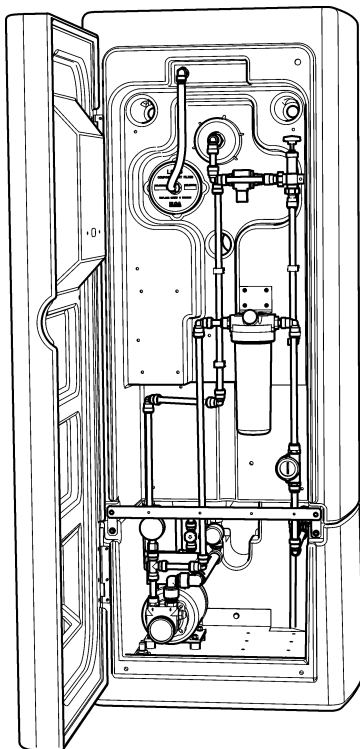
Last sanitization.

Next sanitization required.

4. EXIT.



General view
CENTRA – MDS US



General view
CENTRA - LDS/RDS US

6. COMMISSIONING

6.1 Initial Start Up

Step 1 - Ion-exchange cylinders

1. ENSURE that any **ion-exchange** cylinders are ISOLATED from the recirculation loop (if applicable).

Step 2 - Electrical supply

1. The electrical supply to the **CENTRA** should be installed correctly as described in Section 4.3, Step 2.
2. SWITCH on the power at the supply. The unit will perform a processor initiation and the display will illuminate. The initiation is complete when the display shows three lines of text.
3. CONFIRM that the display states the correct unit type. If incorrect contact your local ELGA LabWater representative.

Step 3 - Water supply

1. The water supply to the **CENTRA** should be installed correctly as described in Section 4.3, Step 1.
2. TURN on the feedwater supply to the unit.

WARNING! ENSURE THAT ALL PRE-TREATMENT EQUIPMENT IS INSTALLED AND FLUSHED TO DRAIN BEFORE COMMENCING CENTRA COMMISSIONING.

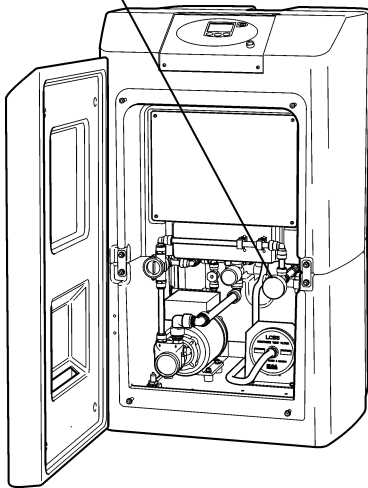
FAILURE TO INSTALL SUFFICIENT PRE-TREATMENT MAY RESULT IN POOR PERFORMANCE AND DAMAGE TO THE CENTRA.

3. Check all hydraulic connections are watertight and there are no leaks.

CAUTION! Failure to properly flush the installation may result in debris from pipework being deposited into the CENTRA that may ultimately cause damage to pumps and valves.

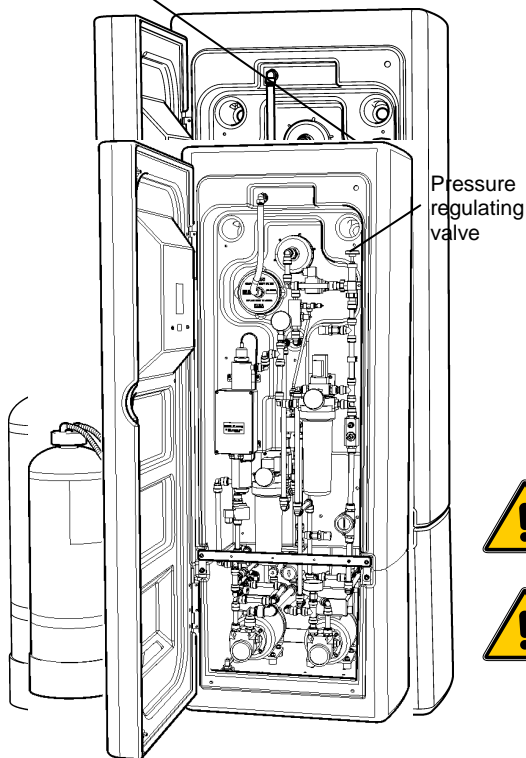


Pressure regulating valve



Location of parts
CENTRA – MDS US

Pressure regulating valve



Regulating valve location

Location of parts
CENTRA – LDS/RDS US

Step 4 - Installation of ion-exchange/purification media cylinders (optional with CENTRA – RDS US)

Note: It is highly recommended that ion-exchange/purification media cylinders be flushed to drain locally before being installed in the distribution loop.

1. ENSURE the ion-exchange/purification media cylinders are installed as described in section 9.4 - Installation / replacement of ion-exchange cylinders.
2. OPEN point of use in distribution loop and direct full flow to drain to flush cylinder (recommended flush is a minimum of three bed volume or as appropriate for the application).
3. OPEN isolating valve (V6) and close bypass valve (V7). See flow diagram 3.3 Section 3.
4. CLOSE point of use.

Note: If an ion-exchange cylinder is installed into the recirculation loop of a CENTRA – RDS US the quality monitoring will require resetting. Contact technical support or your local ELGA LabWater representative.

Step 5 - Distribution loop pressure adjustment

1. LOCATE the pressure adjustment valve.
2. ADJUST the pressure in the distribution loop by TURNING the knob ANTI-CLOCKWISE to decrease pressure and then use the lock nut to stop it moving.

Note: If the valve starts to make a high pitch noises at the required settings adjust the valve slightly and the noise will stop. The noise is caused by the matching of the natural harmonics of the spring within the valve and is not a malfunction of the CENTRA.

CAUTION! The CENTRA pressure regulator is factory set to maintain a pressure of 3 bar (typically) at the end of the distribution loop.

WARNING! Pressure in the distribution loop may increase, due to filters blocking etc. which may lead to increased distribution pressure (6 bar maximum). The CENTRA – RDS US unit is fitted with sensors to detect high pressure situations and will shut the unit off if >6 bar is detected. Any equipment installed within the distribution loop should be rated to 6 bar to ensure the equipment remains within safe operating limits.

To adjust the pressure in the distribution loop requires specialist equipment and it is recommended that changes are made by an ELGA LabWater Service Engineer.

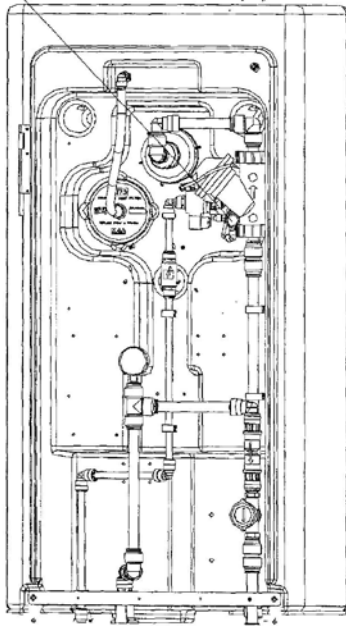
CENTRA LDS/RDS US HFR VERSION

The pressure within the distribution loop is automatically controlled by the unit and is set at a factory default of 3 bar (typically) at the end of the distribution loop.

To adjust the pressure in the distribution loop requires specialist equipment and it is recommended that changes are made by an ELGA LabWater Service Engineer.

The sustaining valve ensures that during periods of high demand all water is diverted to the point of use. During recirculation the valve should be adjusted to maintain a flow of between 5-10l/min.

PRESSURE REGULATING VALVE



Location of parts
CENTRA – LDS/HFR US



CAUTION! Adjustment of the sustaining valve in the **HFR/HFR** does not increase the pressure available in the loop and incorrect adjustment may result in reduced performance.

Step 6 - Sanitization

1. SANITIZE the system as described in Section 10 - Sanitization Procedures.

Note: It is good practice to sanitize new installations during commissioning.

Step 7 - Fit 0.2µm filter

1. Fit new or existing filter at the end of sanitization as described in Section 9.2 - Replacing bacterial and particulate filter.

7. OPERATION

CENTRA has the following modes of operation:

- Continuous Recirculation (24/7).
- Night service/Operational day.
- Sanitization Cycle (See Section 10 - Sanitization Procedures).

7.1 Night service/Operational day

Refer to Section 5.2 - Step14 and 15.

CENTRA can be programmed to operate on specific days between selected times. This feature is designed to optimize the efficiency of the product as well as minimizing rise in water temperature.

During the 'sleep' period the unit will display the STANDBY icon.

It is possible to override this mode by PRESSING the PROCESS button. **CENTRA** will continue to operate until the next 'sleep' period is reached.

During the 'sleep' period the unit will run in intermittent recirculation (10 minutes every two hours) to maintain water purity around the distribution loop.

7.2 Continuous Recirculation (24/7)

Refer to Section 5.2 - Step 13.

If the unit is set to continuous recirculation, it will constantly recirculate the water and fill the reservoir as required.

It is recommended that the system be run in continuous mode only when the demand for water is sporadic and overall usage is high, >50l/hr.

During the recirculation the water temperature will rise slowly. The rate of rise will depend on the length of the ringmain and local factors.

To control the rise in water temperature it is recommended that the system be operated in night service/operational day mode which will stop recirculation occurring during periods, such as overnight or at weekends when water may not be required.

CENTRA RDS/RDS US (HF) include a temperature flush sequence to assist with water temperature reduction.

8. MONITORING

Key operating parameters are displayed during operational modes.

8.1 Fill and recirculation

Displayed value	Auto scroll*	Manual scroll*
Product quality*	✓	✓
Product temperature*	✓	✓
Flowrate from outlet	✓	✓
Pressure at end of distribution loop*	✓	✓
Reservoir water volume	✓	✓
Feed quality*		✓
Feed temperature*		✓

8.2 Recirculation

Displayed value	Auto scroll*	Manual scroll*
Product quality*	✓	✓
Product temperature*	✓	✓
Flowrate from outlet	✓	✓
Pressure at end of distribution loop*	✓	✓
Reservoir volume	✓	✓


* **RDS**

Fixed display of measured values on **MDS**, **MDS(HF)** and **LDS**.

8.3 Consumable dates (RDS)

The consumable dates and periods of reminder are adjustable to meet specific applications by a trained ELGA Service Engineer.

Step 1 - View consumable dates

1. ENSURE unit is in normal operation.
2. PRESS (Calendar icon) to view consumable dates.
3. PRESS SCROLL  to view all reminder

OR

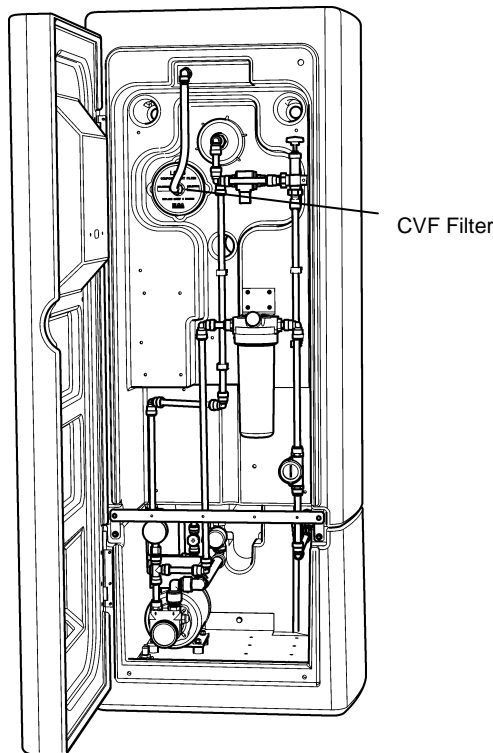
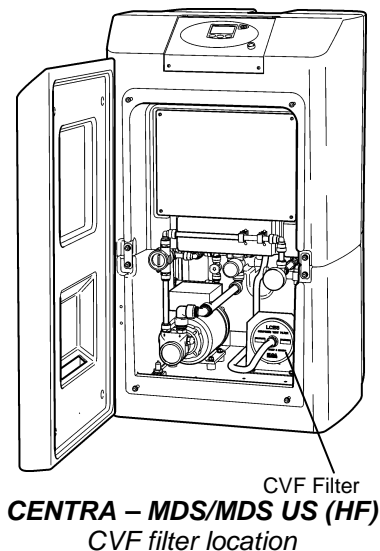
ALLOW auto scroll.

9. MAINTENANCE

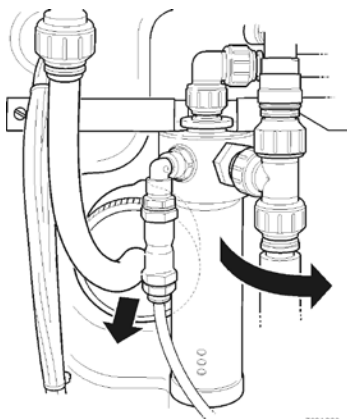
An approved supplier or distributor should carry out any maintenance work not detailed in this handbook. If further information is required on any aspect of maintenance please contact Customer Service.



WARNING! ALWAYS CHECK THAT THE MAINS ELECTRICAL POWER AND FEED WATER SUPPLIES ARE SWITCHED OFF BEFORE ATTEMPTING TO CHANGE A CONSUMABLE ITEM.



CENTRA - LDS/RDS/RDS US (HF)
CVF filter location



CENTRA CVF filter connection

9.1 Replacing the Composite Vent Filter / Air Filter

Air is drawn into the reservoir when water is used. To maintain water purity it is necessary to filter the air. Air-borne particles and bacteria are removed by an air-filter. Alternatively an improved level of water quality will be maintained within the recirculation system using a composite vent filter, which removes air-borne contaminants such as volatile organic compounds and carbon dioxide.

The Composite Vent Filter/Air Filter should be replaced in the following circumstances:

- Six months after initial installation.
- Reservoir overflow - indicated by incorrect reservoir volume.
- Quality tests indicate replacement is required.

Step 1 - Replacement of CVF filter LC156/LC173

1. ENSURE the process is OFF.
2. OPEN the front of the unit by removing securing screws.
3. (LDS & RDS only) LOCATE the overflow device.
4. SLIDE the overflow device off its location bracket enabling access to the Bacterial Vent Filter.
5. LOCATE the CVF.
6. REMOVE the hose connection to the filter by unscrewing the nut by hand and pulling the hose towards you.
7. REMOVE the filter from its location by PULLING towards you.
8. DISCARD the filter.
9. UNPACK the new filter.
10. INSTALL the filter into its location.
11. RECONNECT the hose.
12. WRITE the installation date on the label of the filter for future reference.
13. RETURN the overflow device to its bracket.

Note: During operation, small amounts of condensate may form in the filter.

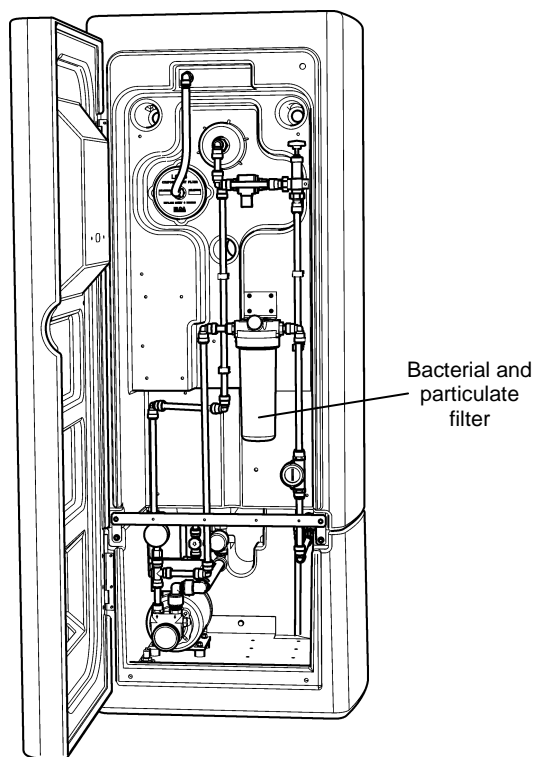
14. RESET the consumable reminder as described in section 5.3, Step 2.

9.2 Replacing the bacterial and particulate filter LC160 (RDS) FILT 50105 (RDS/HFV/HFR)

An absolute filter is essential on installations where a bacterial or particulate specifications are required.

The bacterial and particulate filter should be replaced in the following circumstances:

- When indicated by the consumable alarm or after a maximum of six months.
- Water purity in the installation starts to deteriorate.
- Changes in the ringmain performance (low flow, lower distribution loop pressure).
- After operating the system without a functioning UV.
- The replacement of this filter is recommended to coincide with a sanitization of the installation (see Sanitization Procedures – Section 10).



Location of bacterial and particulate filter

Step 1 - Replacement of bacterial and particulate filter

1. ENSURE the process is OFF and ISOLATE power.
2. DEPRESSURIZE the distribution loop by opening a convenient point of use

OR

by PRESSING the red knob on the top of the filter housing

Note: Some water may be spilt.

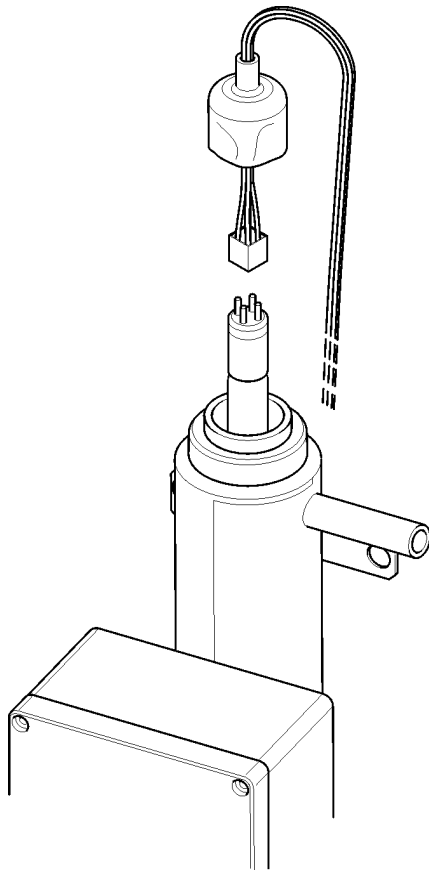
3. OPEN front of unit by removing securing screws.
4. RDS(HF) only – close valve on outlet of pump (V5).
5. LOCATE filter spanner found inside of front panel/door.
6. LOCATE the blue filter.
7. REMOVE the filter bowl using spanner, rotate in a clockwise direction towards left-hand side of unit.
8. Discard the old filter.
9. UNPACK the new filter and INSTALL into the filter bowl.



CAUTION! To prevent contamination it is recommended that gloves be worn during the replacement of filters.

10. ENSURE 'O' ring is located in the top of the filter housing, then refit bowl in an anti-clockwise direction until hand tight.
11. RDS(HF) only – open valve on outlet of pump (V5).
12. SWITCH on power.

13. PRESS PROCESS button and allow unit to enter recirculation.
14. CHECK filter housing for leaks.
15. REPLACE spanner in door and secure door closed.
16. RESET the consumable reminder as described in Section 5.3, Step 3.



UV lamp connection

9.3 Replacement of UV lamp LC158

The UV lamp should be replaced in the following circumstances:

- When indicated by the consumable alarm or after a maximum of one year.
 - Water purity in the installation starts to deteriorate.
1. ENSURE process is OFF and ISOLATE power.
 2. OPEN front of unit by removing securing screws.
 3. LOCATE UV assembly on left-hand side of unit.
 4. PULL the electrical flex entering top of UV assembly and withdraw lamp.

WARNING! IT IS RECOMMENDED THAT DURING THE HANDLING OF THE LAMP CUT-RESISTANT GLOVES BE WORN.

5. HOLD lamp in gloved hand and PULL firmly on electrical connector to remove.
6. DISCARD lamp.

CAUTION! Dispose of lamp in accordance with local authority regulations.

7. REMOVE new lamp from packaging and follow the instructions included for cleaning.
8. REFIT into UV assembly.
9. RECONNECT to electrical connector ENSURING correct orientation.

WARNING! LIGHT FROM THE UV LAMP IS EXTREMELY HARMFUL TO THE EYES AND SKIN! UV LAMPS SHOULD ONLY BE USED IN THE REACTION CHAMBER WITH SUITABLE PROTECTION CAPS FITTED. PERSONS SHOULD NEVER BE EXPOSED TO LIGHT FROM THE LAMP.

10. REFIT rubber boot to stop UV light from being radiated from top of the assembly.
11. RESET the consumable reminder as described in Section 5.3, Step 4.

9.4 Installation / replacement of ion-exchange / purification media cylinders (optional accessory) (RDS only)

The installation of ion-exchange cylinders is only required to improve or maintain water quality.

**CAUTION!**

The CENTRA system can produce pressures up to 6 bar within the DI distribution loop.

Ensure DI cylinders are rated for at least 6 bar pressure.

If in doubt contact Technical Support.

The **CENTRA-RDS US** is designed to allow the easy installation and commissioning of ion-exchange cylinders if required.

If ion-exchange cylinders are required for other systems it is recommended to contact ELGA Technical Support who will ensure that they are implemented correctly and the subsequent reduction in flow and pressure is acceptable.

The ion-exchange/purification media cylinder should be replaced in the following circumstances:

- Water purity in the installation starts to deteriorate, or after six months use.

1. ENSURE process is OFF and ISOLATE power.
2. DEPRESSURIZE the distribution loop by opening a convenient point of use

OR

by PRESSING the red knob on the top of the filter housing, some water may be spilt.

3. ISOLATE cylinder from loop by closing isolation valve (V6).
4. OPEN bypass valve (V7).
5. REMOVE connections to ion-exchange cylinder making a note of the connection orientation.
6. REMOVE cylinder and contact you local ELGA representative to arrange for replacement.
7. INSTALL new cylinder ensuring correct connection orientation.
8. Rinse cylinder ensuring all air is bled from the system.
9. OPEN isolating valve (V6).
10. CLOSE the bypass valve (V7).
11. OPEN point of use in distribution loop and direct full flow to drain to flush cylinder (recommended flush is a maximum of three bed volumes or as appropriate for the application).
12. PRESS process button.
13. CLOSE the point of use.

10. SANITIZATION PROCEDURES

The unit is sanitized to help reduce the bacteria within the pipework, and reservoir. Please read this entire section to become familiar with the procedure before you start. It is recommended that feed water supplies to the **CENTRA** are sanitized once a month to maintain low bacterial counts. Additionally, recirculation sanitization is recommended every 12 months. It should also be carried out:

- If the unit has not been used for a prolonged period of time.
- If the unit is to be operated under adverse conditions e.g. high temperature.
- After replacement of filters or major maintenance.



WARNING! ALWAYS WEAR RUBBER GLOVES, APRON AND FACEMASK. DO NOT BREATHE FUMES OR ALLOW TO COME IN CONTACT WITH SKIN OR EYES. ALWAYS FOLLOW RECOMMENDATIONS FOUND IN THE MANUFACTURERS MATERIAL SAFETY DATA SHEET AND ANY APPLICABLE OSHA STANDARDS FOR THE CHEMICAL BEING USED.



WARNING! LABEL THE MACHINE WITH APPROPRIATE WARNING SIGNS SUCH AS “DO NOT USE/ CONTAINS STERILANT” (NOT PROVIDED)

Minnicare Cold Sterilant is a Peracetic and Hydrogen Peroxide based solution.

Refer to the Minnicare label for additional information and follow all applicable directions for use on the manufacturer's label in conjunction with the following instructions.

Selection of:

10.1 Automatic recirculation sanitization (RDS)


1. ENSURE the process is OFF.
2. PRESENT sanitization PASSkey (green key).
3. PRESS TICK ✓.

10.2 Automatic recirculation sanitization procedure (RDS)


1. AUTOMATIC level adjustment in the reservoir will occur (start point between 60 - 90 liters)
2. The display will tell you if reservoir needs to be filled or drained, PRESS process.
3. When directed ENSURE that, if fitted, ion-exchange/ purification media cylinders are isolated by closing isolating valve (V6) and opening bypass valve (V7).

4. When directed REMOVE filter bowl (FH1) using the filter spanner.
5. REMOVE filter (LC160).
6. EMPTY remaining water from bowl.
7. ATTACH chemical tube (TUBE37548) to underside of the filter housing.
8. POUR 900ml of sanitant into filter bowl and refit.
9. TIGHTEN with filter spanner.
10. PRESENT sanitization PASSkey to confirm.
11. PRESS PROCESS button.

Note: The unit will now recirculate the sanitant and then start one of twenty rinse cycles. The progress can be monitored on the display e.g. 01/20.


12. On the twentieth cycle the unit will fill to 200L.
13. PRESS RECIRCULATE  to operate recirculation pump for 10 minutes to allow sampling

OR

PRESS FLUSH  to flush the system for a further five cycles.

14. REPEAT instructions 14 and 15 if necessary,
15. Take a water sample from the recirculation loop and confirm sanitant is rinsed to a satisfactory level using test strips (LC165).
16. PRESENT Sanitization PASSkey to acknowledge completion.
17. RECOMMISSION DI cylinders – See section 9.4 - Installation/replacement of ion-exchange/ purification media cylinder.
18. REFIT 0.2µm filter – See section 9.2 - Replacing bacterial and particulate filter.
19. STORE sanitization tube (TUBE37548) in safe place.
20. PRESS TICK ✓ to complete process.
21. PRESS TICK ✓ to accept next sanitization reminder

OR

PRESS SCROLL  and PRESS TICK ✓ to inhibit reminder.

Selection of:

10.3 Manual recirculation sanitization (MDS and LDS)

1. ENSURE the process is OFF.
2. PRESENT sanitization PASSkey.
3. PRESS TICK ✓.

Note: The display now shows that the unit is in sanitization mode. This will shown on all remote displays connected to the network.

10.4 Manual recirculation sanitization procedure (MDS and LDS)

1. PRESS the process button to commence recirculation.
2. ISOLATE the feed supply.
3. ISOLATE any water treatment installed in the loop that may be effected or react with Minncare (Ion-exchange cylinders, UV etc.).
4. DRAIN reservoir to between 60 to 90 liters by opening a convenient point-of-use.

Note: It is recommended to install a point-of-use, which is directed to drain as close to the unit as possible in the loop return line.

5. CLOSE the outlet once the level reaches between 60 to 90 liters.
6. PRESS the process button to switch the process OFF.
7. UNSCREW the access cap on the top of the tank (**MDS** and **MDS(HF)** only)

OR

UNSCREW the front door and REMOVE the large black cap (**LDS** only).

8. ADD Minncare into the tank (typical 900ml).
9. REPLACE the cap and hand-tighten.
10. PRESS the process button and allow to recirculate for a minimum of 45 minutes.
11. OPEN feed supply and allow tank to fill to >100 liters.
12. OPEN point-of-use and drain to 40 liters.
13. CLOSE point-of-use and fill to >100 liters.
14. REPEAT steps 10 to 12 until the residual level of chemical remaining in the system is sufficiently low (typically <0.1ppm H₂O₂).
15. PRESS process button to stop recirculation.
16. PRESENT sanitization PASSkey to exit sanitization.
17. PRESS **X** to exit sanitization.
18. RECOMMISSION distribution loop.

11. TROUBLE SHOOTING

This section highlights the problems that could occur with **CENTRA** and how to rectify them. If a problem occurs the unit will normally sound an alarm and the respective icons will flash. The audible alarm can be silenced by pressing the mute button. If the unit cannot be repaired using this manual, please call your local ELGA LabWater representative (See Section 15 - Useful Contact Details).



WARNING! ALWAYS ENSURE THAT THE MAINS POWER SUPPLY IS ISOLATED BEFORE TRYING TROUBLE SHOOTING.

Problems	Action
No display message.	<p>Check mains supply and lead.</p> <p>Check that the mains power is switched on.</p> <p>Check miniature circuit breaker in electrical enclosure has not tripped.</p> <p>Check illumination of LED on main processor board. If LED is lit, check display cable connections.</p> <p>If problem persists call Customer Services.</p>
Alarm and Flashing Quality value (RDS/RDS(HF))	<p>Mute alarm. Check alarm set value is correct. See Section 5.2 - step 9 and 10 - Alarm Settings.</p> <p>If fitted, check ion-exchange/purification media cylinder is in line and not isolated from the distribution loop.</p> <p>Replace ion-exchange cylinder if fitted.</p> <p>If problem persists call Customer Services.</p>
=== MΩ.cm (RDS/RDS(HF))	<p>Feature out of measurement range. Allow unit to recirculate.</p> <p>Purification technology in recirculation loop insufficient. Check design with Technical Support.</p> <p>Check quality sensor is connected.</p> <p>Replace ion-exchange/purification media cylinder if fitted.</p> <p>If problem persists call Customer Services.</p>
High Water Temperature alarm (RDS/RDS(HF))	<p>Check correct alarm point is set. See section 5.2 - step 9 and 10 - Alarm Settings.</p> <p>Check feedwater temperature has not risen suddenly. Dispense some water from the distribution loop to allow cold water to be drawn into the unit.</p> <p>Check feedwater temperature.</p> <p>If problem persists call Customer Services.</p>

Problems	Action
0.2µm filter change reminder alarm (RDS/RDS(HF))	Mute Alarm. Replace filter. See section 9.2 - Replacing the bacterial and particulate filter. If problem persists call Customer Services.
UV change reminder (RDS/RDS(HF))	Mute alarm. Replace UV lamp. See Section 9.3 - Replacing UV Lamp. If problem persists call Customer Services.
Sanitization reminder alarm (RDS/RDS(HF))	Mute alarm. Initiate Sanitization Procedure. See Section 10 - Sanitization Procedure. If problem persists call Customer Services.
Reservoir low level alarm.	Check feedwater supply is connected. Check demand matches water production. If problem persists call Customer Services.
Reservoir level disconnect fault alarm.	Mute alarm. Ensure control lead from reservoir is properly connected. If problem persists call Customer Services.
Reduced flow from distribution loop.	Check pressure drop across 0.2µm filter. Replace if higher than 0.5bar. (RDS only). Pump worn, call Customer Services.
Unit noise level greater than specified.	Open front door and secure pipework to stop vibration. Check air is not being drawn into the recirculation loop. If problem persists call Customer Services.
PASSkey not recognized.	PASSkey not valid. Request registration with Master PASSkey holder. If problem persists call Customer Services.
Master PASSkey not recognized.	Contact ELGA LabWater. If problem persists call Customer Services.
Pumps not running but power on.	Check thermal overloads in electrical enclosure. Reset by pressing. If problem persists call Customer Services.
UV lamp not lit (RDS/RDS(HF))	Check electrical connection to the lamp is correctly orientated and engaged. Check lamp filaments are intact, replace lamp if necessary - See section 9.3 - Replacement of UV lamp. Do not attempt to test lamp outside housing. If problem persists call Customer Services.
Unit will not operate.	Unit in sanitization mode and awaiting presence of PASSkey. Present sanitization PASSkey if appropriate. If problem persists call Customer Services.

12. CONSUMABLES AND ACCESSORIES







































Cat No	Unit Type	Consumable	Max. Service Life*	Max. Shelf Life
LC156	RDS variants	Composite vent filter (optional)	6 months	2 years
LC157	MDS/MDS(HF)/LDS	Bacterial vent filter	6 months	2 years
LC158	RDS variants	UV lamp 254Nm (42watt)	1 year	2 years
LC160	RDS variants	0.2µm filter (Not on HF)	6 months	2 years
LC173	RDS (Optional on all variants)	Composite vent filter (High Flow)	6 months	2 years
FILT 50105	RDS HFR/HFV variants	0.2µm filter 20"	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 in advance.

Cat No	Accessory
LA665	CENTRA remote display.
LA666	Dot matrix printer.
LA667	Customer PASSkey (Blue).
LA668	Sanitization PASSkey (Green).
LA676	Single SDI cylinder connection kit (RDS only).
LA677	Multiple SDI cylinder connection kit (RDS only).
LA678	Remote process button.

13. KEY TO CONTROL PANEL



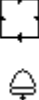
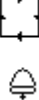


13.1 Icons

ICON	DESCRIPTION	ICON	DESCRIPTION
	Accept		Feed
	Auto restart		PASSKey
	Scroll back		Leak detection
	Step back		Locked
	Bell		Level sensor disconnect
	Standby		Menu
	Bypass DI		Mute alarm
	Calibration point		Night
	Cancel sample		Node
	Cancel		Option OFF
	Rinse		Option ON
	Clock		Output
	Connect DI		Pause
	Date		Print
	Day		Overfill
	Down		Recirculate
	Drain		Replace CVF
	Save data		Replace Recirc. filter
	Hazard		Replace UV lamp









ICON	DESCRIPTION	ICON	DESCRIPTION
	Fast timer		Reset
	Fill		Sanitization PASSKey
	Filter		Sanitization reminder
	Filter recirc. loop		Sanitization rinse
	Add chemical		Scroll
	High pressure		Transport mode
	Recirc		UP
	Right		Viewing angle
	Sample		

13.2 Alarm Conditions

Screen	Fault	Possible cause
CENTRA-RDS 	High pressure (icon flashing) (RDS only) Recirculation Pump Pressure >6 bar	Distribution loop pressure too high – adjust pressure sustaining valve to <6bar. Adjust distribution loop pressure and/or pump by-pass. WARNING! This operation should only be completed by an ELGA LabWater service engineer.
CENTRA-RDS 	Leak detection (icon flashing)	Reservoir overfill or internal leak within enclosure – find leak and drain water from base.
CENTRA-RDS 	Load	Factory default reset – contact ELGA LabWater.
CENTRA-RDS 	Level sensor disconnected (icon flashing)	Level sensor lead disconnected or cable cut – check connection and lead.

Screen	Fault	Possible cause
16:18:05 050 $\mu\text{S}/\text{cm}$ 25.0 $^{\circ}\text{C}$ 	Feed quality alarm (measurement flashing) (RDS/RDS(HF))	RO operating above quality alarm setting – allow time to rinse up, check quality alarm setting and feed quality.
16:18:05 050 $\mu\text{S}/\text{cm}$ 35.0 $^{\circ}\text{C}$ 	Feed temperature alarm (measurement flashing) (RDS)	Feed water temperature above alarm setting – check feed temperature and run water to drain.
16:18:05 10.0 $\text{M}\Omega\cdot\text{cm}$ 25.0 $^{\circ}\text{C}$ 	Outlet quality alarm (measurement flashing) (RDS)	Outlet quality above alarm setting – check quality setting / replace ion-exchange cylinder.
16:18:05 12.0 $\text{M}\Omega\cdot\text{cm}$ 35.0 $^{\circ}\text{C}$ 	Outlet temperature alarm (measurement flashing) (RDS)	Outlet temperature above alarm setting – check temperature setting / run water to drain.
16:18:05 --. $\text{M}\Omega\cdot\text{cm}$ 25.0 $^{\circ}\text{C}$ 	Output quality overrange (--. flashing) (RDS)	Quality sensor disconnected or broken – check connection / replace.
16:18:05 015 L 	Low level (icon flashing) (RDS)	Low level in reservoir – insufficient supply, check demand or water supply.

13.3 Replacement Timers

Screen	Replacement	Reference
  xx-xxx-xx	Vent filter replacement (RDS)	See section 5.3 – step 2.
  xx-xxx-xx	0.2µm filter replacement (RDS)	See section 5.3 – step 4.
  xx-xxx-xx	UV lamp replacement (RDS)	See section 5.3 – step 3.
  xx-xxx-xx	Sanitization reminder (RDS)	See section 5.3 – step 5

14. WARRANTY/CONDITIONS OF SALE

ELGA LabWater is a trading name of VWS (UK) Ltd.

General Limited Warranty

VWS (UK) Ltd warrants the products manufactured by it against defects in materials and workmanship when used in accordance with applicable instructions for a period of one year from the date of shipment for the products. VWS (UK) LTD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of the VWS (UK) Ltd products appearing in VWS (UK) Ltd's published catalogues and product literature may not be altered except by express written agreement signed by an officer of VWS (UK) Ltd. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and, if given, should not be relied upon.

In the event of a breach of the foregoing warranty, VWS (UK) Ltd sole obligation shall be to repair or replace, at its option, any product or part thereof that proves to be defective in materials or workmanship within the warranty period, provided the customer notifies VWS (UK) Ltd promptly of any such defect. The exclusive remedy provided herein shall not be deemed to have failed of its essential purpose so long as VWS (UK) Ltd is willing and able to repair or replace any nonconforming VWS (UK) Ltd product or part. VWS (UK) Ltd shall not be liable for consequential, incidental, special or any other indirect damages resulting from economic loss or property damage sustained by any customer from the use of its products.

Water System Limited Warranty

VWS (UK) Ltd warrants the water systems manufactured by it, BUT EXCLUDING MEMBRANES AND PURIFICATION PACKS, 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.

VWS (UK) LTD MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of the VWS (UK) Ltd systems appearing in VWS (UK) Ltd published catalogues and product literature may not be altered except by express written agreement signed by an officer of VWS (UK) Ltd. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorised and, if given, should not be relied upon.

In the event of a breach of the foregoing warranty, VWS (UK) Ltd sole obligation shall be to repair or replace, at its

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VWS (UK) Ltd warrants its products against defects in materials and workmanship as described in the Warranty statement on the preceding pages.

15. USEFUL CONTACT DETAILS

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<http://www.elgalabwater.com>

or contact ELGA at the number above.