Thermo Scientific Barnstead GenPure xCAD Plus Ultrapure water system

Operating Instruction

50137064 Revision E June 2016

Thermo SCIENTIFIC

Release history:

For Research Use Only. Not for use in diagnostic procedures.

Preface

Before you start to install and work with your ultrapure water system, please carefully read the information that is given in these operating instructions on how it is to be installed and operated.

This is particularly important as we, the manufacturer, cannot accept liability for any damage occurring as a result of incorrect operation of the system or from use of it for other than the specified purpose.

The contents of this document are subject to change without notice.

All technical information in this document is for reference purposes only. System configurations and specifications in this document supersede all previous information received by the purchaser.

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This document is not part of any sales contract between Thermo Fisher Scientific Inc. and a purchaser. This document shall in no way govern or modify any Terms and Conditions of Sale, which Terms and Conditions of Sale shall govern all conflicting information between the two documents.

Legal Information

NOTICE

Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details.

Warranty

Thermo Electron LED GmbH warrants the operational safety and functions of the Thermo Scientific Barnstead Ultrapure Water Systems only under the condition that:

- the system is operated and serviced exclusively in accordance with its intended purpose and as described in these operating instructions,
- the system is not modified,
- only original spare parts, consumables and accessories that have been approved by Thermo Electron LED GmbH are used (third-party spares, consumables or accessories without Thermo Electron LED GmbH approval void the limited warranty),
- inspections and maintenance are performed at the specified intervals,
- an installation verification test is performed on commissioning the system for the first time and repeated after each inspection and repair activity.
  The warranty is valid from the date of delivery of the system to the customer.
- The above mentioned warranty conditions are subject to the general terms and conditions of sale, in effect at the time of purchase, which apply as well.

Explanatory notes on the operating instructions

EU Mark of Conformity

CSA - admission

CAUTION	Indicates a situation which, if not avoided, could result in damage to equipment or property.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injuries.
DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injuries.
NOTICE	General information! Particularly important notes are marked with this information sign.

Risk of electric shock! Electrical work on the system is only to be carried out by qualified personnel.

Protective conductor connection.
Connect the power supply to an electrical socket with a protective connection.

Indicates a situation where protected gloves or clothing is needed.

Indicates a situation in which protective goggles must be worn.

Indicates a situation in which breathing protection must be worn.

This information is valid for the system that is received.

For quick and correct service, please include the following information on all inquiries and replacement parts orders which relate to your system:

- The serial number (located on the right side of the system on the nameplate)
- The catalog number

Standards and Directives

The ultrapure water system complies with the following standards and directives:

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU
- ASTM D1193-6
- RoHs 2011/65/EU

Additionally, the ultrapure water system is in compliance with many other international standards, regulations and directives not listed here. Should you have any questions regarding compliance with national standards, regulations and directives applicable for your country, please contact your Thermo Fisher Scientific sales organization.

C

Contents

Transport and packaging

Contents

Do not pull the plastic foil over your head. Risk of suffocation.
Use the plastic foil only for packaging.

Ultrapure water systems are carefully controlled and packed prior to dispatch, but damage could still possibly occur during transport. When the system is to be carried by hand, two people must always do this. Do not throw or tip the system.

Examination on receipt

- Check the completeness of the goods received against the delivery note.

NOTICE

Does the packaging show signs of damage? Inspect the system for damage.

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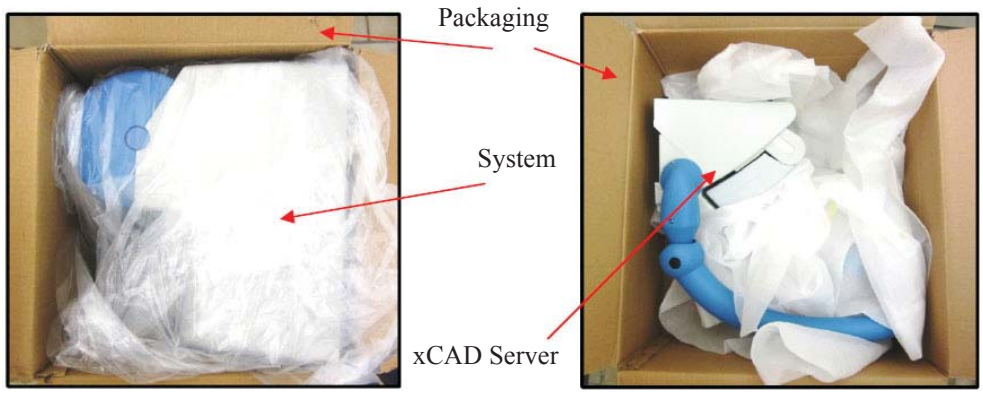

Complaints

Should damage have occurred to the goods during transport:

- Immediately contact your delivery transport agency.
- Save the complete packaging, including the cardboard box, for a possible inspection of them and/or return shipment of the system.

Packing for return shipment

If possible, use the original box and packaging material.
When these are no longer available:

- Protect the system from shock by packing it in a suitable bag or sheet in a strong cardboard box.

NOTICE

The time limit for claims is 6 days from the time of receipt of the goods. The right to claim for damages ceases when this time has elapsed.

NOTICE

- Only a trained person is to be taken out the system out of operation.
- Prior to send back a operated system, empty the water and dry the system and take out the cartridges.
- Pack the filter cartridges into a bubble wrap and/ or packaging foam include it with the package of the ultrapure water system.

Safety precautions

NOTICE

Observe these safety precautions for your own safety.

⚠CAUTION

Thermo Scientific Barnstead Ultrapure Water Systems are modern water purification systems intended solely for the treatment of potable water or water of ASTM Type II quality. The water it produces is not fit for drinking.

⚠DANGER

Work may only be performed on the unit electronics when the unit has been switched off and when ESD protection is in place. Only specially trained personnel may work on the unit's electronics.

- Do not start to install and operate the system until you have read through the corresponding information given in these operating instructions.
- Lifting and carrying the ultrapure water system, e.g. to the installation location, should be carried out by two people. To lift it, each person takes hold of it under the base plate at two corners.
- The CE-mark is invalidated if constructional changes are made to the system, or if products of other manufacturers are installed in it.
- Protect the system from frost. The temperature in the area in which the system is installed is not to go below +2°C or above +40°C.
- Observe all appropriate rules and regulations, including the valid accident prevention regulations, which are applicable at the location where the system is installed.
- The feedwater pressure must be at least 0.1 bar and at max. 6 bar or 1.45 to 87 PSI. When the feedwater pressure is higher, install an external pressure reducer.
- A low pressure check valve is recommended to prevent back flow of feedwater from water system.
- A grounded 100-250V, 50/60Hz socket must be available (see "Technical specifications" on page 19).
- Access to the power supply cord and plug may never be restricted or obstructed.
- The installation area must have a drain at floor level with at least a nominal out diameter of 63mm or 2.481 inch (DN 50 pipe). Should no such drain be available it is recommend to install a water watcher (only for European specification). Otherwise the manufacturer will not accept liability for any possible water damage.

- If the system is to be at a rest for a longer time (e.g. long, holidays) switch the system off (unplug the mains plug) and shut off the feedwater line.
  Allowing the system to run with the water feed line closed would result in damage to the pump. The manufacturer does not accept liability for such damage.
- Unplug the system from the power outlet for all Maintenance works on the system.
- The system must be subjected to rinsing and possibly also disinfection after longer rest periods. Follow the directions given in the section "Rinsing the ultrafilter" on page 71.
- The surface or wall where the system is to be installed must have adequate load-bearing capacity (check the capacity and stability of the wall). The weight of the ultrapure water system is given under "Dimension and weight GenPure System" on page 20.
- The surface on which the unit is installed must be level and stable - not to exceed a maximum of 2% deviation from evenness is recommended.
- When installing the ultrapure water system, always ensure that there is adequate space all around the unit (approx 30cm / 11.81 inch) to ensure that ease of use or replacement of materials (e.g. filter change, connection) is possible at all times.

⚠WARNING

Never look directly into a switched-on UV-lamp, as UV-light endangers eyesight!

⚠CAUTION

To avoid the risk of pinching, crushing cutting or electrical shock, never perform maintenance on the unit without its protective housing, or while it is in operation. Maintenance work on the system may only be performed by trained, authorized specialists.

- Visually inspect the system at regular intervals. Clean up any water or spills found around the system immediately

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- Wear safety gloves when working with cleaning solution.
- If your skin should come into contact with a chlorine product, rinse it immediately with ample, fresh water.
- The unit or system components, may heat up as a result of a defect. It is recommended to always wear appropriate safety gloves to prevent skin damage or burns.
- Wear safety gloves when changing the UV-lamp, in order to prevent that your skin comes in contact with the UV-lamp glass.

- Wear safety goggles when working with cleaning solution.
- If your eyes come into contact with a chlorine product, rinse them immediately with ample, fresh water and immediately contact a physician.

- Check the UV-lamp before initial start.
  - If the UV-lamp is broken
    - wear directly a breathing protector (filter category FFP3) and replace the UV-Lamp
    - ventilate the room well.

NOTICE The Hg content in the UV-lamp is so low so that no damage to the environment can arise.

- To avoid tripping ensure that the tubings do not lay over the floor.
- Apply the general rules of hygiene for laboratories when working with the system.
- Do not use oxidative cleaning agents when cleaning the system. They would cause damage to it.
- Proceed as follows when the system has a defect:
  - Switch the system off and unplug the system from outlet.
  - Shut off the feedwater supply.
  - Contact your local service organization.

Extent of delivery

Contents

Extent of assembly kit

Ultrapure cartridge
Catalog no.: 09.2005

Final filter 0.2 µm
Catalog no.: 09.1003

NOTICE

To increase the lifetime of the filter a sterilization at 120 °C for 30min is recommended. The procedure for the filter can be repeated up to 5 times.

Transformer-table power pack
Catalog no.:50149597

Universal Holder and Universal adapter
Catalog no.: 21.0007
Catalog no.: 21.0006

Feedwater connecting kit
Catalog no.: 25.0075

Connecting Cord (US) Catalog no.: 50132200
Connecting Cord (british) Catalog no.: 50132203
Connecting Cord (euro) Catalog no.: 50132215

Mounting parts for wall mounting GenPure system and xCAD wall version:

-Plug 4 x S6

Catalog no.: 21.0002 (for xCAD)

-Screw 4x40 mm or 4 x 1.57 inch

Catalog no.: 21.0001 (for xCAD)

-Plug 2 x S8

Catalog no.: 21.0035 (for GenPure system)

-Screw hook 2 x 5.2 x 50 mm or 5.2 x 1.97 inch

Catalog No.: 21.0057 (for GenPure system)

Sub-D extension cable, 25 pin, 5 m or 5.47 yards
Catalog no.: 16.0375

PE hose, Ø8mm x 20 m or 0.31 inch x 21.87 yards
Catalog no.: 18.0036

Sub-D-extension cable, 9pin, 3m or 3.28 yards
Catalog no.: 16.0397

Available GenPure xCAD Plus versions

GenPure xCAD Plus bench version:

50136149 standard	Basic system
50136150 UF	Basic system + ultrafiltration module
50136151 UV	Basic system + UV photooxidation
50136152 UV/UF	Basic system + UV photooxidation + ultrafiltration module
50136153 UV-TOC	Basic system + UV-photooxidation and TOC Measurement
50136146 UV-TOC/UF	Basic system + UV-photooxidation and TOC Measurement + ultrafiltration module

GenPure xCAD Plus wall version:

50136165 standard	Basic system
50136167 UF	Basic system + ultrafiltration module
50136169 UV	Basic system + UV-photooxidation
50136170 UV/UF	Basic system + UV-photooxidation and ultrafiltration module
50136171 UV-TOC	Basic system + UV-photooxidation + TOC Measurement
50136172 UV-TOC/UF	Basic system + UV-photooxidation and TOC Measurement + ultrafiltration module

Intended Use

The Thermo Scientific Barnstead Ultrapure Water System is a laboratory system and is used for treatment of water. The system allows the purification of water into the water categories mentioned in the standards of ASTM 11.01 and ASTM 11.02.

The Thermo Scientific Barnstead Ultrapure Water System is designed to be installed and use in the following application areas:

- Laboratories for cell biological and biotechnological work with the safety levels L1, L2 and L3.
- Medical and microbiological laboratories according to DIN EN 12128.
- Laboratories in the central area of clinics and hospitals.

Unintended Use

The system must not be operated outside of the specifications as described in the operating manual. In particular, the system may not be used for production of drinking water and drugs manufacturing. The system must not be used as a medical device and outside of laboratories.

Technical specifications

NOTICE Check at regular intervals the quality of your feedwater.

Demands the feedwater must fulfill	
Source	Pretreated by reverse osmosis, ion exchange or distillation.
Clogging rate (SDI)	max. 1 for all versions. A 1 µm membrane prefilter is recommended for water not pretreated by reverse osmosis.
Feedwater resistance	> 0.5 MΩxcm
Free chlorine	max. 0.05 ppm
TOC	max. 50 ppb
Bacteria count	< 100 CFU/ml
Turbidity	< 1.0 NTU
Carbon dioxide (CO_2)	max. 30 ppm
Silicate	max. 2 ppm
Particles	Filtration to 0.2 µm is recommended for protection of the internal filter / final filter.
Temperature	2 - 35°C
Pressure	0.1 - 6 bar or 1.45 to 87 PSI

Product water quality

		Standard	UV	UF	UV/UF	UV-TOC	UV-TOC/UF
Resistance (Reference temp. 25 °C)	**MΩxcm**	18.2	18.2	18.2	18.2	18.2	18.2
TOC	**ppb**	5 - 10	1 - 5	5 - 10	1 - 5	1 - 5	1 - 5
RNase **DNase**	**ng/ml** **pg/ul**	-- 	-- 	-- 	< 0.003 < 0.4	-- 	< 0.003 < 0.4
Bacteria	**CFU/ml**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bacterial endotoxins	**EU/ml**	--	--	< 0.001*	< 0.001*	--	< 0.001*
Particles	**µm/ml**	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Performance	**l/min****	up to 2	up to 2	up to 2	up to 2	up to 2	up to 2

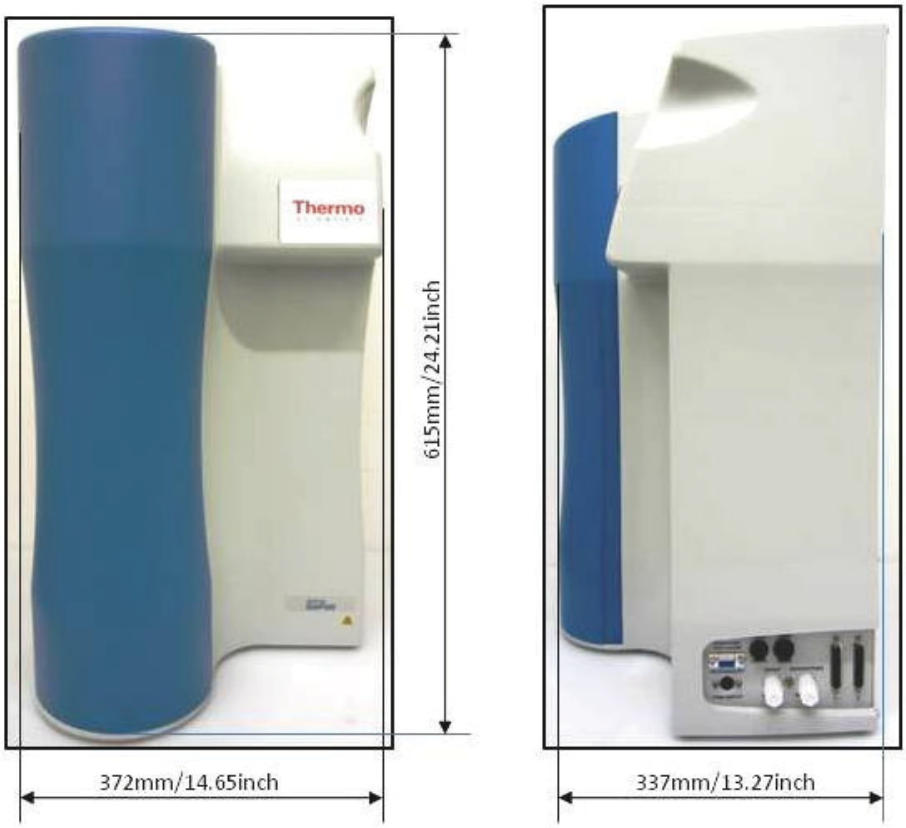
* Depends on the feedwater and disinfection

** Depends on the feedwater pressure

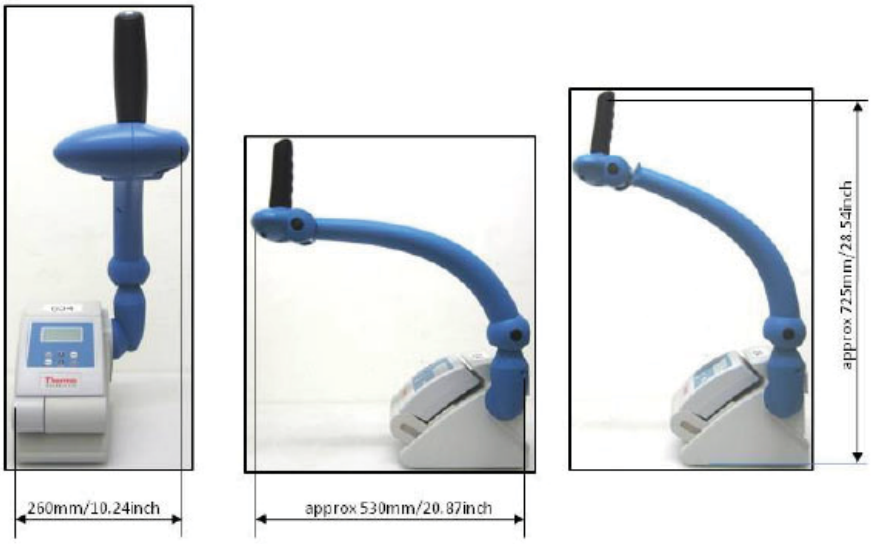
Dimension and weight GenPure System		
Height	615 mm	24.21 inch
Width	372 mm	14.65 inch
Depth	337 mm	13.27 inch
Weight:		
GenPure Standard	22 kg	48.50 lbs (dry weight)
GenPure UF	23 kg	50.71 lbs (dry weight)
GenPure UV	24 kg	52.91 lbs (dry weight)
GenPure UV/UF	24 kg	52.91 lbs (dry weight)
GenPure UV-TOC	24 kg	52.91 lbs (dry weight)
GenPure UV-TOC/UF	25 kg	55.12 lbs (dry weight)

NOTICE

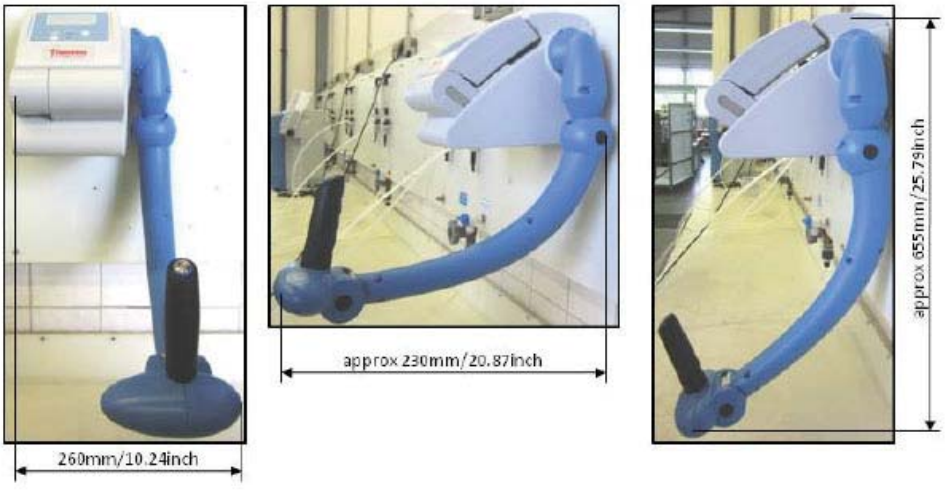
When the system is operating the system is by the amount of water about 3kg / 6.61 lbs heavier.



Dimensions and weight xCAD/Server, xCAD Client (bench version)		
Height	approx. 725 mm	28.54 inch
Width	260 mm	12.24 inch
Depth	approx. 530 mm	20.87 inch
Weight	12 kg	26.46 lbs (dry weight)



Dimensions and weight xCAD Server, xCAD Client (wall version)		
Height	approx. 655 mm	25.79 inch
Width	260 mm	10.24 inch
Depth	approx. 530 mm	20.87 inch
Weight	5 kg	11.02 lbs (dry weight)



Cell constants of the measuring cells	
Feedwater conductivity	0.16 cm^{-1}
Conductivity after UV oxidation	0.01 cm^{-1}
Ultrapure water conductivity	0.01 cm^{-1}

Connectors for water GenPure	
Feedwater	Hose, 0.31“ (8 mm) o.d.
Rinse water	Hose, 0.31“ (8 mm) o.d.
xCAD inflow	Hose, 0.31” (8 mm) o.d.
xCAD return flow	Hose, 0.31” (8 mm) o.d.

Connectors for water xCAD/Server	
xCAD inflow	Hose, 0.31“ (8 mm) o.d.
xCAD return flow	Hose, 0.31“ (8 mm) o.d.
Ultra pure water / outlet	R 1/4"
Sterile filter outlet	Hose, 0.31“ - 0.39“ (8 - 10 mm) o.d.

Connectors for water xCAD/Client	
xCAD inflow	Hose, 0.31“ (8 mm) o.d.
xCAD return flow	Hose, 0.31“ (8 mm) o.d.
Ultra pure water / outlet	R 1/4"
Sterile filter outlet	Hose, 0.31“ - 0.39“ (8 - 10 mm) o.d.

Electrical connections / external switched mode power supply	
Input voltage	AC 100 – 250 VAC, 50 – 60 Hz, 2.0 A max
Output voltage	DC 24 V, 5.0 A max
System connection	DC 24 V, 80 W
Serial interface	RS 232
Protection Class	Class II (external SMPS certified as Class I)

Electrical connections xCAD/Server	
1x SUB-D socket	25 pin
2x SUB-D socket	9 pin

Electrical connections xCAD/Client	
2x SUB-D socket	9 pin
Airborne sound emission	
Sound-pressure level	49 db(A)
Ambient conditions	
Operation area	Indoor rooms
Maximum altitude above sea level	Up to 2000 m
Temperature range during operation	min. +2°C, max +40°C, 80% rel. rH, non condensing
Temperature range storage	min. +2°C, max +60°C, 90% rel. rH, non condensing
Line-voltage variation	Not more than ± 10 % of the line voltage
Transient overvoltages	As usually occur in the supply network (overvoltage category II acc. to IEC 60364-4-443).  The rated level of transient overvoltage is the withstand impulse voltage acc. to overvoltage category II of IEC 60364-4-443.
Ventilation requirements	There are no special requirements with regard to ventilation.
Degree of pollution	2
Materials of parts which contact water	
Pressure reducer	NBR = Acrylnitril Butadien Rubber
Pump head	Nylon with glass fiber
UV-Lamp	High-purity synthetic quartz
UV Housing	Stainless steel
Ultrapure cartridge	PP = Polyethylene
UF Housing	PC = Polycarbonate
Rinsing solenoid valve	PA = Polyamide
Dispensing valve	PET = Polyethyleneterephthalate
Conductivity measuring cells	POM = Polyoxymethylen, stainless steel
Distributor block	POM = Polyoxymethylen
Distributor block	POM = polyoxymethylen
Connectors	POM = Polyoxymethylen
Hoses	PE = Polyethylene
O-Rings	EPDM = Ethylene Propylene Diene Rubber

The installation area

NOTICE

The operator is obliged to ensure, that the installation of the water purification unit and its operation are carried out in compliance with all national and international guidelines, applicable and valid for the place of installation. If necessary, measures to protect the drinking water have to be taken by installing appropriate components.

Take the following criteria into consideration when selecting the installation area:

Feedwater pressure, not below 0.1 bar (1.45 PSI) and not above 6 bar (87 PSI).

⚠CAUTION

The feedwater pressure must never exceed 6 bar. If it is higher than this, install an additional external pressure reducer.

- Minimum air temperature + 2 °C.
- The surface on which the system is installed must be level and stable - not to exceed a maximum of 2% deviation from evenness is recommended.
- A smooth wall is required when the system is to be wall-mounted. Check the statics of the wall. It must have sufficient load-bearing capacity (for system weight, see “Technical specifications” on page 19).
- An atmospherically floor drain with a outer diameter of 63mm or 2.48 inch (DN 50 tube) shall be provided. When no floor drain is available, install a water watcher to protect against water damage (only available for EU).Otherwise the manufacturer will not accept liability for any possible water damage.
- Free run off to drain.

⚠CAUTION

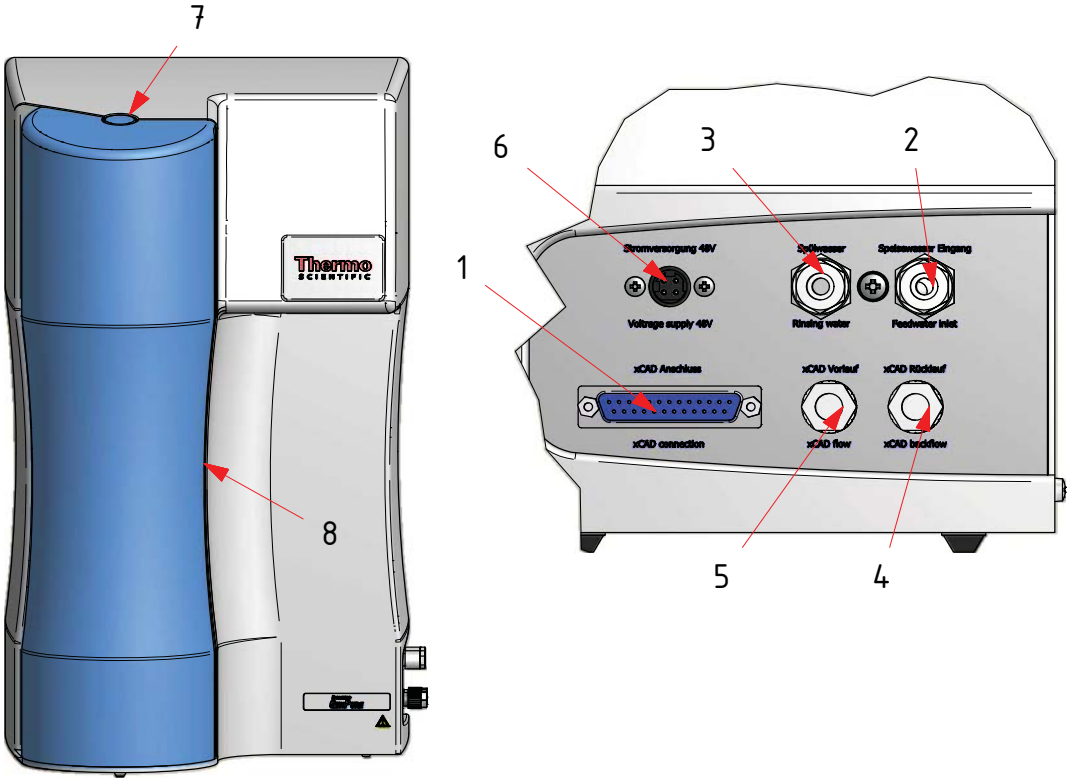
Unrestricted gravity flow to drain must be ensured!

- An electrical socket appropriate for the system (see “Technical specifications” on page 19).
- When installing the ultrapure water system, always ensure that there is adequate space all around the unit (approx 30cm / 11.81 inch) to ensure that ease of use or replacement of materials (e.g. filter change, connection) is possible at all times
- Easy access for operation and control of the system.
- Water pre treated such as DI, RO or distillation water connection with 3/4 NPT male thread and customer supplied shutoff valve.

Installation

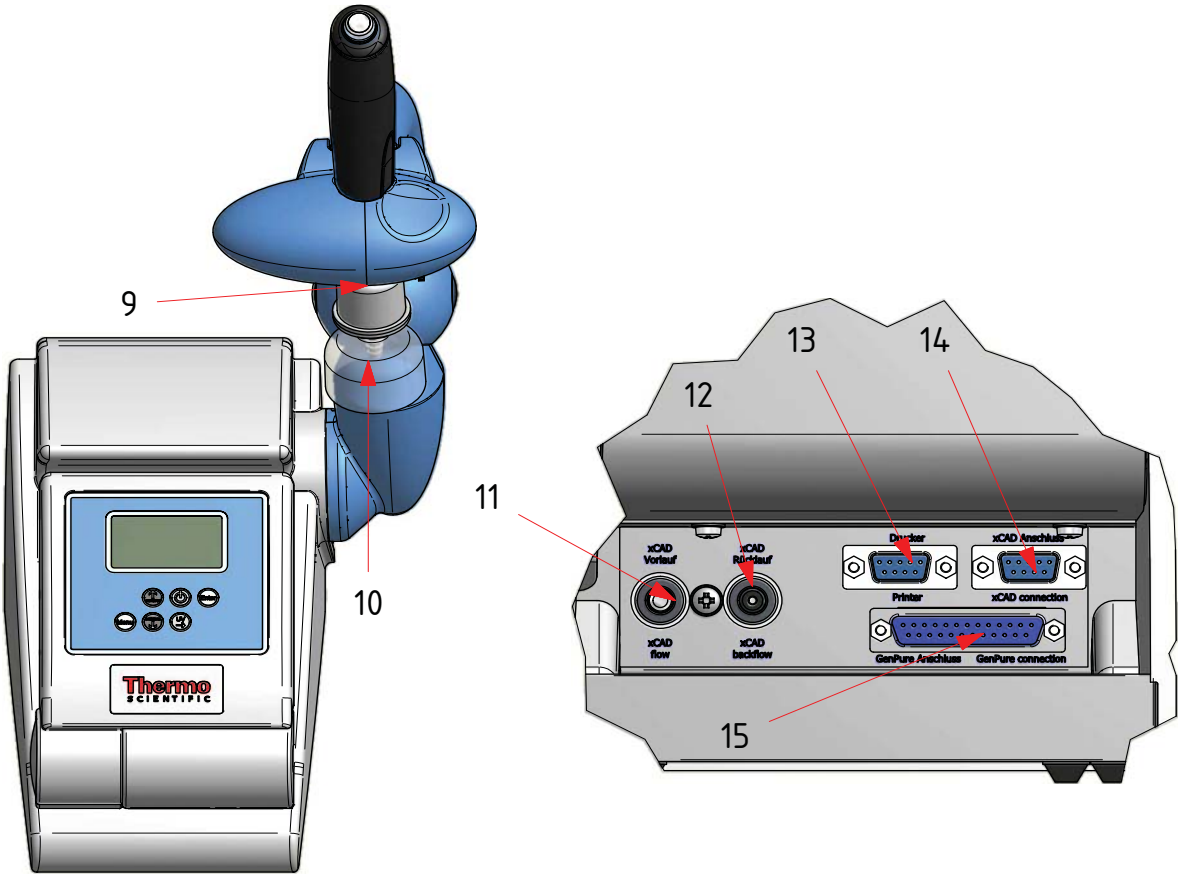
Contents

Connectors GenPure system



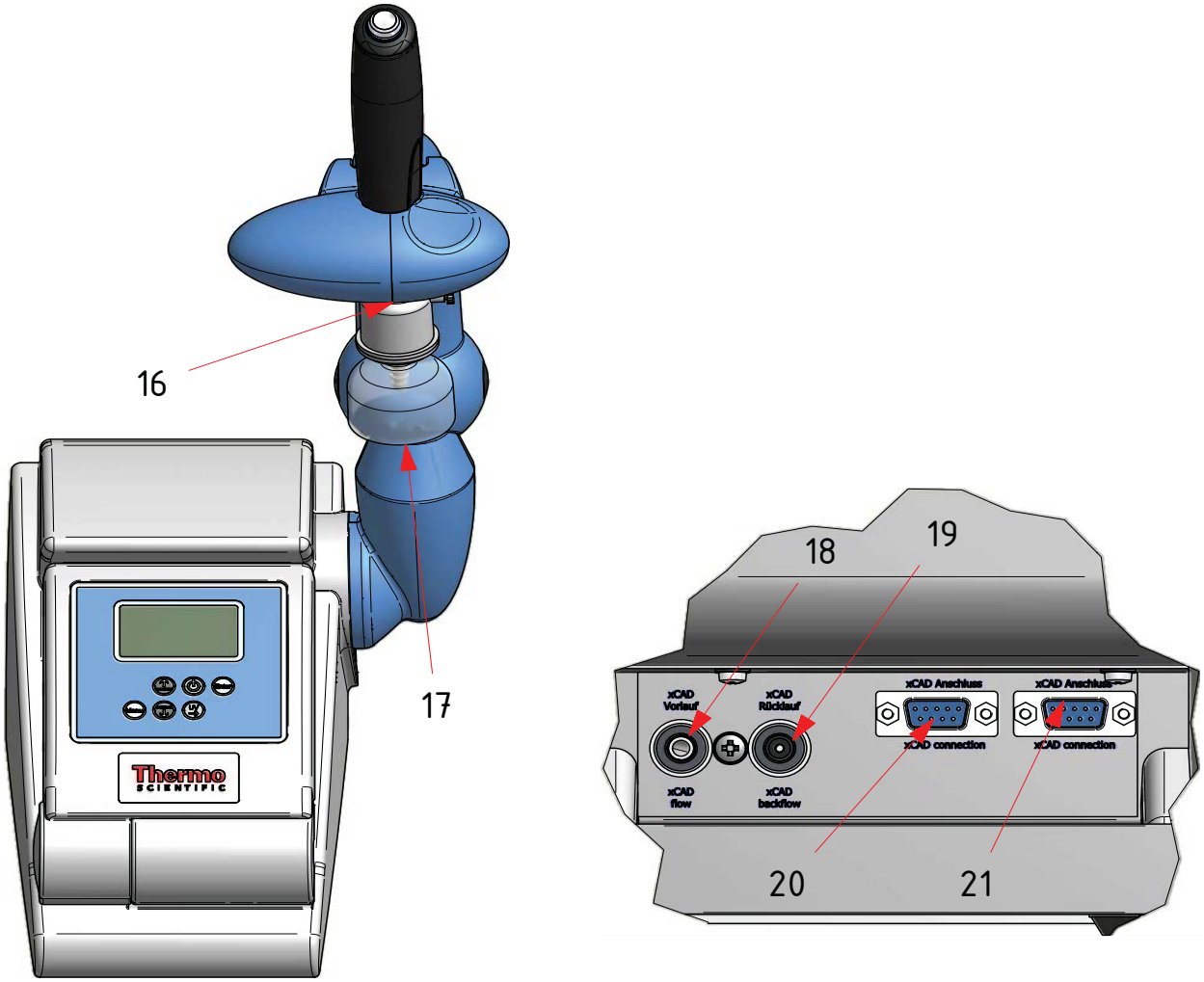
1. Connector for 25 pin socket to xCAD Server (system control)
2. Feedwater connector, hose 0.31” (8 mm) o.d
3. Rinse water connector, hose 0.31” (8 mm) o.d
4. Ultrapure water connector, hose 0.31” (8 mm) o.d (to xCAD Server backflow)
5. Ultrapure water connector, hose 0.31” (8 mm) o.d (to xCAD Server Flow)
6. Power supply connector 24 V DC
7. Push button for releasing the cartridge
8. Cartridge cover

Connectors xCAD Server



9. Dispensing valve outlet, R 1/4" female thread
10. Final filter 0.2 µm
11. Ultrapure water connector, 0.31” (8 mm) o.d xCAD flow (to GenPure)
12. Ultrapure water connector, 0.31” (8 mm) o.d xCAD backflow (to GenPure)
13. Printer connection
14. xCAD connector (to xCAD Client)
15. Connector for 25 pin sockets to GenPure (system control)

Connectors xCAD Client

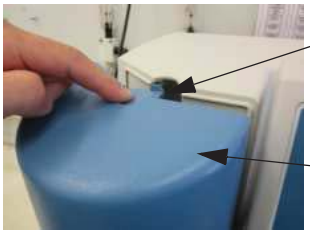
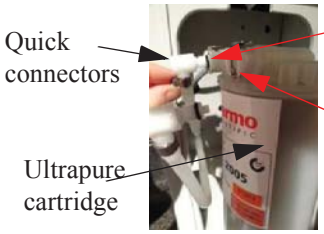
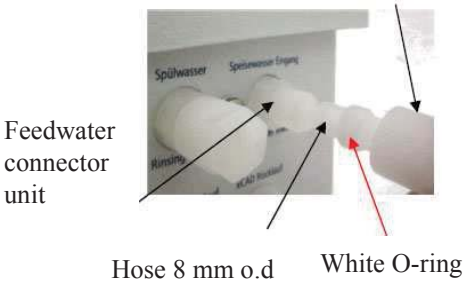


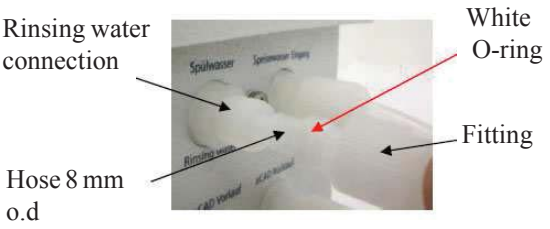
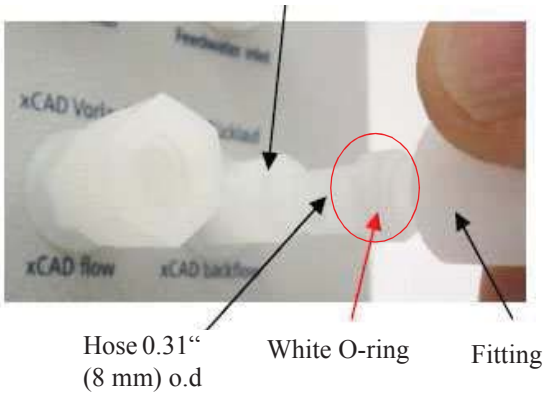
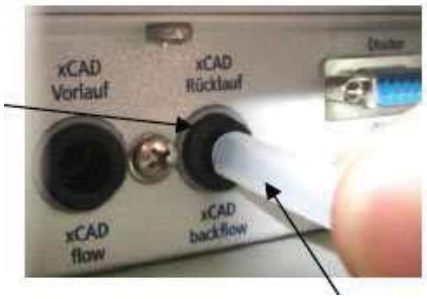
16. Dispensing valve outlet, R 1/4" female thread
17. Final filter 0.2 µm
18. Ultrapure water connector, 0.31” (8 mm) o.d xCAD flow (to xCAD Server backflow)
19. Ultrapure water connector, 0.31” (8 mm) o.d xCAD backflow (to GenPure)
20. Connector for 9 pin sockets to xCAD Server (system control)
21. Connector for 9 pin sockets to an additional xCAD Client

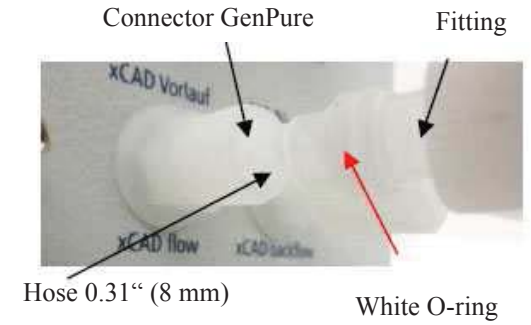
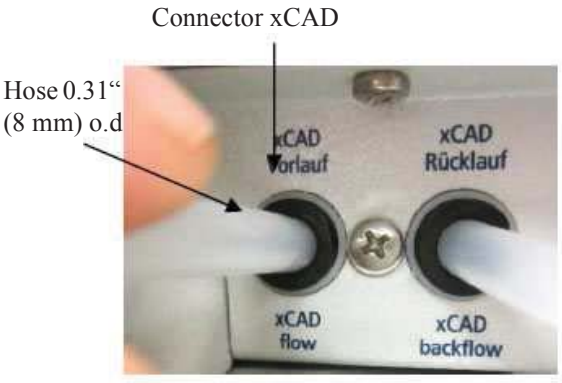
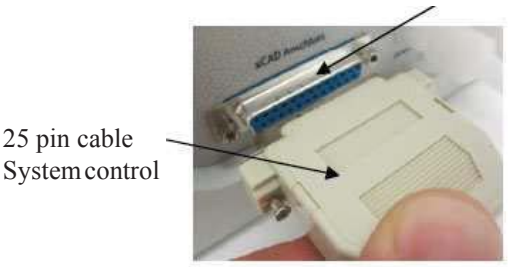
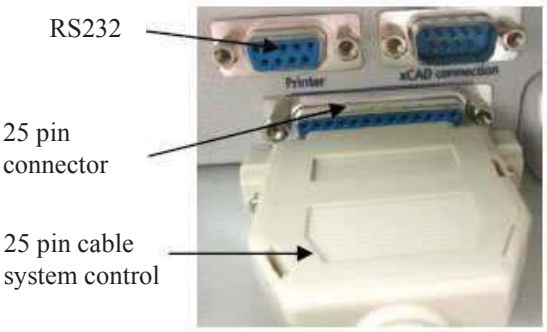
Installation of GenPure xCAD Plus system, bench version

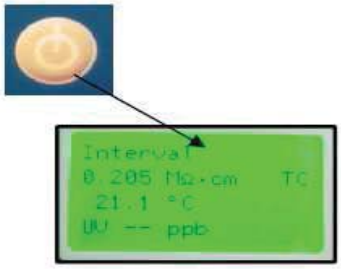
NOTICE

- Control after installation all tubings that the tubing have the right positions on the systems panel and there is no any leakage after open the feedwater supply tap.
- To avoid a book trip over the tubings, observe that the tubings are not lay over the floor.

Step	Action	Figure
1	Either place the system on the intended surface or hang it on a wall. For wall mounting using the included wall mounting hardware.	**NOTICE** See under chapter "Wall mounting GenPure xCAD Plus system" on page 46".
2	Release the cartridge cover by pressing the push button.	
3	Locate the ultrapure cartridge and fit the cartridge into the system.	
4	Push each of the quick connectors onto the cartridge. You will know they are attached when an audible "click" is heard. Fit the cartridge cover on again.	
5	Mount the feedwater connecting kit together and connect it to the feedwater inlet line. Connect the other end of the hose to the feedwater connector of the system by unscrew the fitting. After this put the hose through the fitting and mount the white O-ring on it. Screw the fitting back to the system. **CAUTION** Only feedwater that has been pretreated by reverse osmosis, ion exchange or distillation is to be used.	 

Step	Action	Figure
6	Connect the 8mm o.d hose to the rinse water connection of the system (see step 5) and make a gravity fall (pressureless) connection from the system (connector 7) to the floor drain. The drain to the sewer must be max. 1m (1.09 yards) above the rinsing water connector of the Unit	
7	a. Connect the one end of the 0.31" (8 mm) od hose to the xCAD backflow connector on the system by unscrewing the fitting. After this put the hose through the fitting and mount the white O-ring on it. Screw the fitting back to the system. b. The other end of the 0.31" (8 mm) o.d hose you should connect to the xCAD backflow connector of the xCAD Server.	a)  b) 

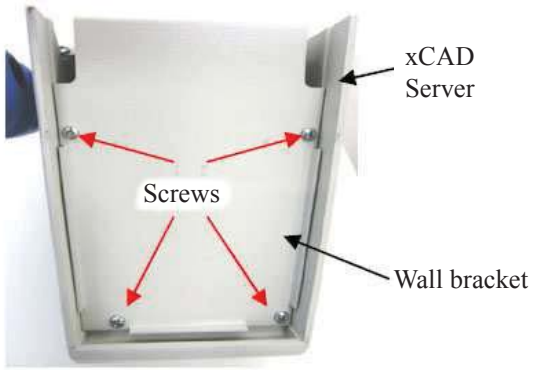
Step	Action	Figure
8	a. Connect the one end of the 0.31” (8 mm) od hose to the xCAD flow connector on the system by unscrewing the fitting. After this put the hose through the fitting and mount the white O-ring on it. Screw the fitting back to the system. b. The other end of the 0.31” (8 mm) o.d hose you should connect to the xCAD flow connector of the xCAD Server.	a)  b) 
9	a. Plug the cable with 25 pin socket into the socket of the GenPure system and screw it tight. b. Plug the other end of the 25 pin cable for system control into the xCAD Server connector. **NOTICE** If applicable use the RS232 connector (13) to connect the optional data printer.	a)  b) 

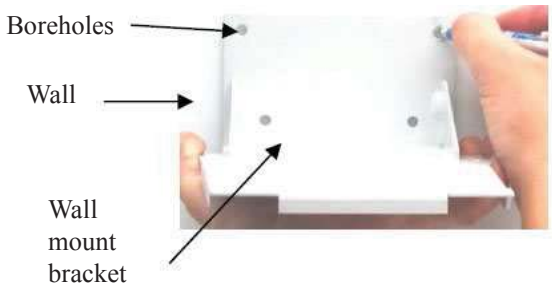
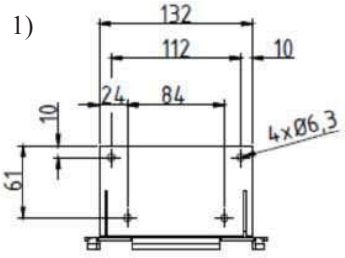
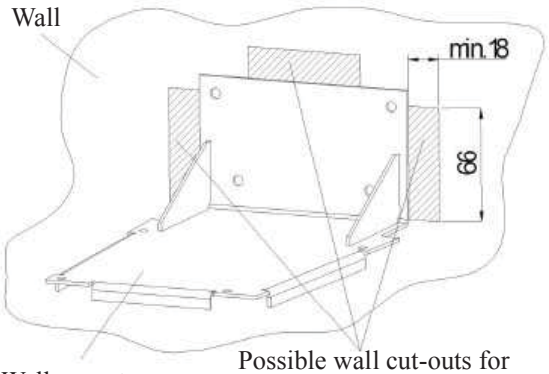
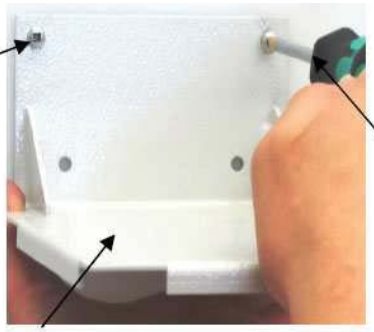
Step	Action	Figure
7	Screw the final filter in counter clockwise direction (see red arrow in the picture) into the 1/4" female thread of the xCAD dispensing valve.	 1/4" female thread connection Final filter 0.2 µm
8	Assemble the power pack and make the voltage connection to the GenPure system.	**NOTICE** See under "Mounting the power pack (voltage supply)" on page 48.
9	Open the feedwater supply and switch the system on. Rinse about 3 liters through the final filter before use. The system is now ready for use. **⚠CAUTION** Only feedwater that has been pretreated by reverse osmosis, ion exchange or distillation is to be used.	 Feedwater supply 

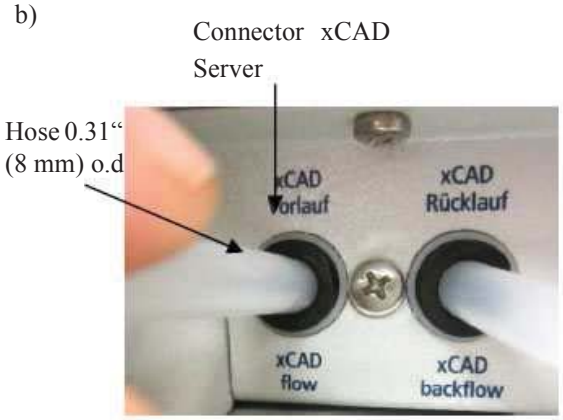
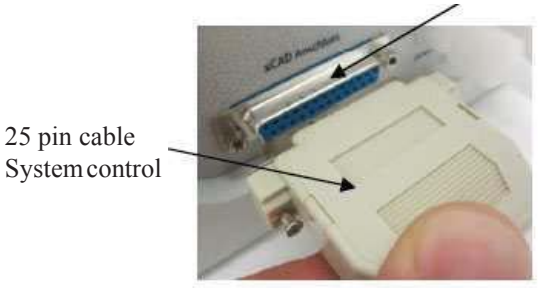
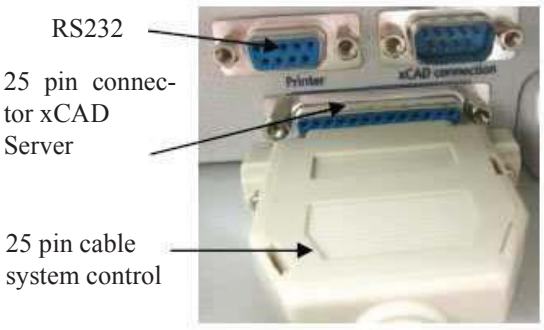
Installation of GenPure xCAD Plus system, wall version

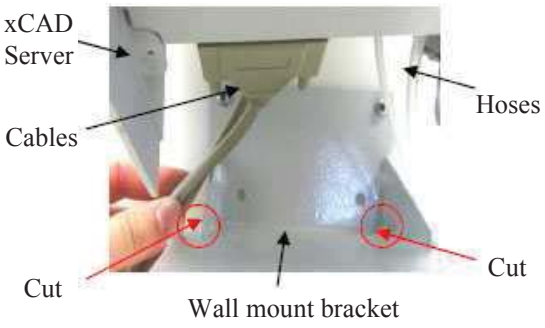
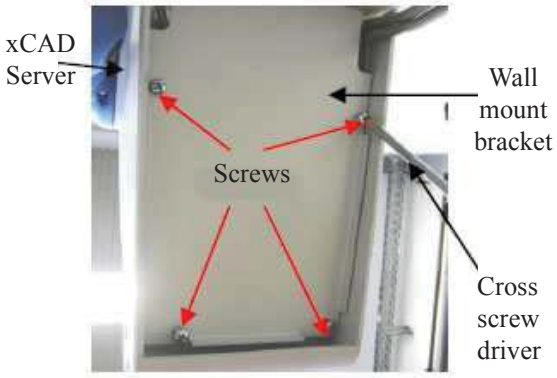
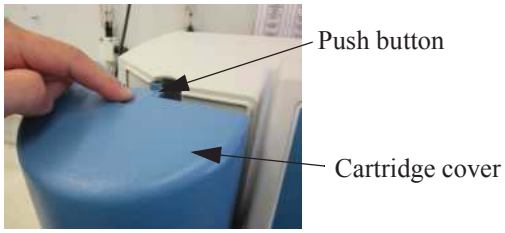
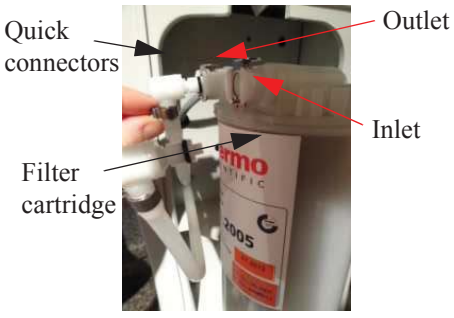
CAUTION

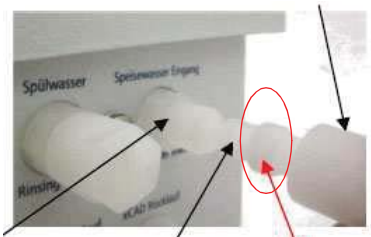
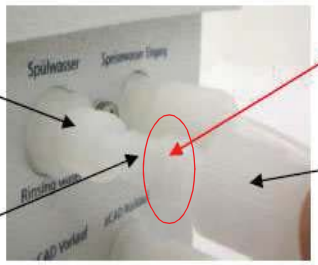
Before hanging the xCAD onto a wall make sure that the wall can support the weight of the system once it's full of water.

Step	Action	Figure
1	Either place the GenPure system on the intended surface or hang it on a wall. For wall mounting the GenPure system use the included wall mounting hardware.	**NOTICE** Lift and carry out the xCAD Server and xCAD Client wall version by two people. It is easier to work and mount it onto a wall.
2	To wall mount the xCAD Server wall version unscrew the 4 screws (see red arrows in the picture) of the underside from the xCAD Server and remove the wall mount bracket.	

Step	Action	Figure
3	a. Hold the wall mount bracket at the desired position on the wall and mark the four boreholes for fixing the wall mount bracket. Then use a 6 mm or 1/4" twist drill to make the holes and put in the four S6 dowels which are supplied in the assembly kit. **NOTICE** If you are want to take the hoses and cables out of back the wall look at the pictures 1) and 2) and step b). When it is not wish going to step 4. b. Refer to dimensions on picture 1) and 2) to make the necessary wall cuts needed if you want to push the 0.31“(8mm) o.d hoses and cable out through the wall behind the xCAD.	a)  b) 1)  Dimensions boreholes of wall mount bracket 2) 
4	Connect the wall mount bracket to the wall by screwing in the 4 supplied screws with a cross screw driver into the wall where you installed the plugs before.	

Step	Action	Figure
5	a. Connect the one end of the 0.31” (8 mm) od hose to the xCAD flow connector on the system by unscrew the fitting. After this put the hose through the fitting and mount the white O-ring on it. Screw the fitting back to the system. b. The other end of the 0.31” (8 mm) o.d hose you should connect to the xCAD flow connector of the xCAD Server. c. Connect the second 0.31” (8mm) o.d hose for the xCAD backflow in the same way where you have connected in action a) and b).	a)  b) 
6	a. Plug the cable with 25 pin socket into the socket of the GenPure system and screw it tight. b. Plug the other end of the 25 pin cable for the system control into the xCAD Server connector. **NOTICE** If applicable use the RS232 connector (13) to connect the optional data printer.	a)  b) 

Step	Action	Figure
7	Place the xCAD wall version onto the mounted wall mount bracket. There are two cuts on the bracket (see red arrows) where you can lay down the cables and hoses. **NOTICE** When you have made the possible wall cuts (see step 3) plug the cables and hoses throughout the wall.	
8	Screw in the 4 screws (see red arrows) which you have unscrewed in step 2 to attach the xCAD on the wall mount bracket.	
9	Release the cartridge cover by pressing the push button.	
10	Locate the ultrapure cartridge and fit the cartridge into the system.	
11	Push each of the quick connectors onto the cartridge. You will know they are attached when an audible “click” is heard. Fit the cartridge cover on again.	

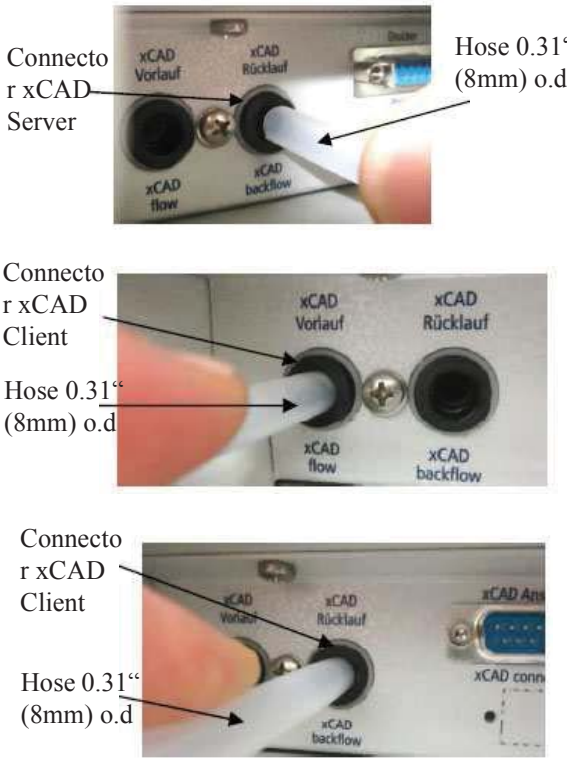
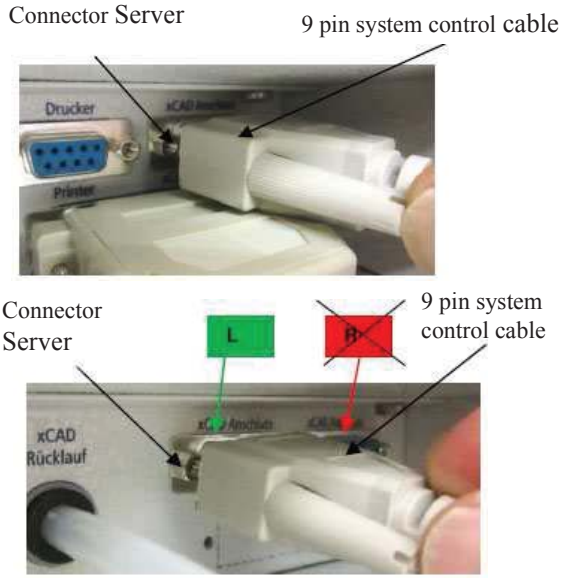
Step	Action	Figure
12	Mount the feedwater connecting kit together and connect it to the feedwater inlet line. Connect the other end of the hose to the feedwater connector of the system by unscrewing the fitting. After this put the hose through the fitting and mount the white O-ring on it. Screw the fitting back to the system. **⚠CAUTION** Only feedwater that has been pretreated by reverse osmosis, ion exchange or distillation is to be used.	 Feedwater connecting kit Fitting  Feedwater connector unit Hose 0.31” 8 mm o.d White O-ring
13	Connect the 0.31” (8 mm) o.d hose to the rinse water connection of the system (see step 11) and make a gravity fall (pressureless) connection from the system to the floor drain. The drain to the sewer must be max. are 1m (1.09 yards) above the rinsing water connector of the unit.	Rinse water connection  White O-ring Fitting Hose 0.31” 8 mm o.d
14	Screw the final filter in counter clockwise direction (see red arrow in the picture) into the 1/4" female thread of the xCAD dispensing valve.	 1/4" female thread connection Final filter 0.2 µm

Step	Action	Figure
15	Assemble the power pack and make the voltage connection to the GenPure system.	**NOTICE** See under "Mounting the power pack (voltage supply)" on page 48.
16	Open the feedwater supply and switch the system on. The system is now ready for use. **⚠CAUTION** Only feedwater that has been pretreated by reverse osmosis, ion exchange or distillation is to be used.	 Feedwater supply

Installation of an additional xCAD Client, bench version (optional)

NOTICE

You can connect a maximum of two additional xCAD Clients to the xCAD Server.

Step	Action	Figure
1	Installation the system (see "Installation of GenPure xCAD Plus system, bench version" on page 31). a. Connect the one end of the 0.31" (8 mm) o.d hose to the xCAD backflow connector of the xCAD Server. The other end of the hose you should connect it into the xCAD flow connector of the xCAD Client. Connect the hose 0.31" (8 mm) o.d into the xCAD backflow connector of the xCAD Client. The other end of the hose you should connect it into the xCAD backflow connector of the GenPure system. b. When you are finished action a) connect the 9 pin control system cable onto the 9 pin connector of the xCAD Server and screw it tight. The other end of the 9 pin system control cable should be put it onto the 9 pin connector of the xCAD Client and also screw it tight.	a)  b) 

NOTICE

In order to recognise the correct connectors of the cable on the xCAD Server connect the 9 pin control cable onto the right port of the xCAD Server and connecting the other end of the 9 pin control cable to the left port of the xCAD Client (see green rectangular).

NOTICE

When the xCAD Client is finish connected to the xCAD Server the xCAD Server must be in operating mode (nonstop mode) in order to use the xCAD Client.

You cannot use the xCAD Client only.

Installation of an additional xCAD Client, wall version (optional)

NOTICE

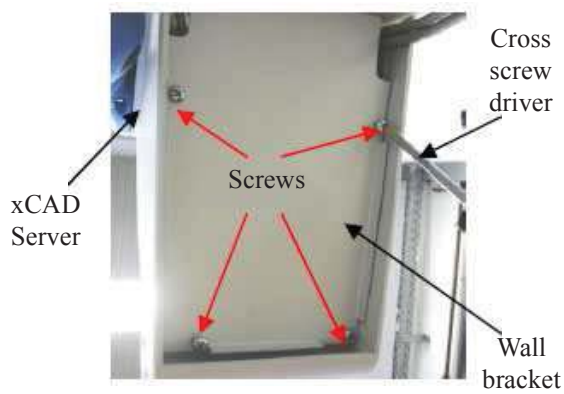
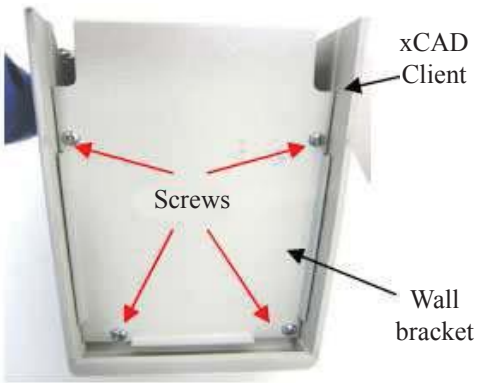
You can connect a maximum of two additional xCAD Clients to the xCAD Server.

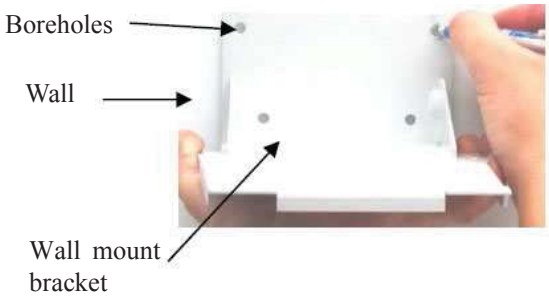
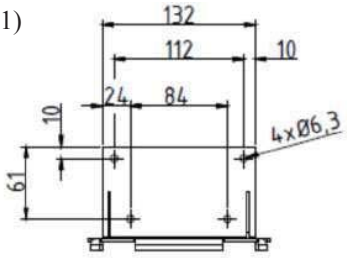
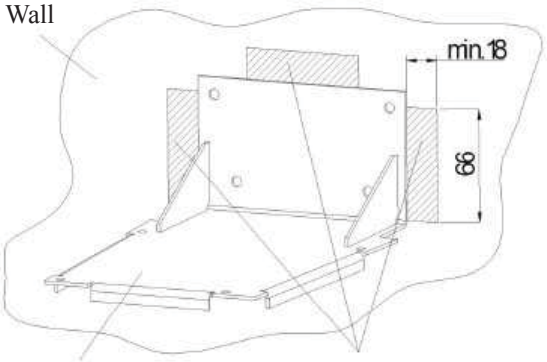
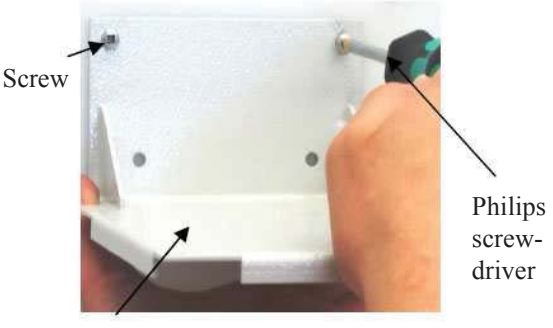
NOTICE

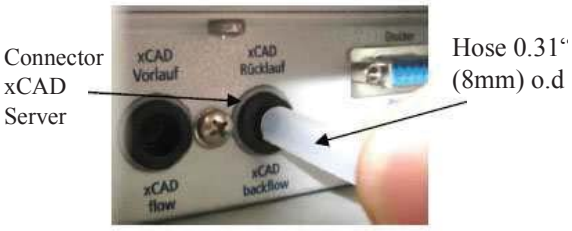
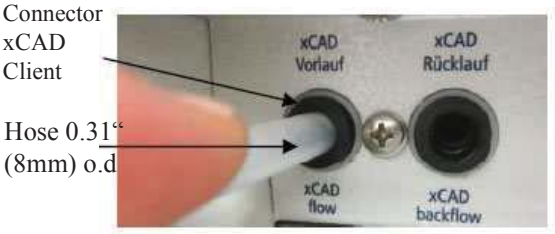
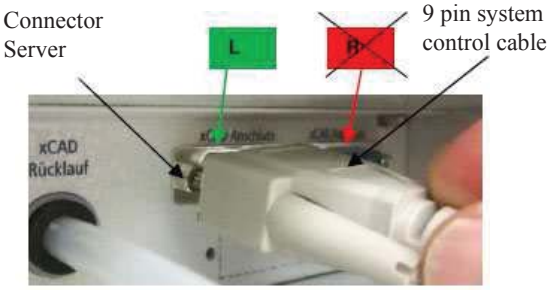
Lift and carry out the xCAD Server and xCAD Client wall version by two people. It is easier to work and mount it onto a wall.

⚠CAUTION

Before hanging the xCAD onto a wall make sure that the wall can support the weight of the system once it's full of water.

Step	Action	Figure
1	Installation the system (see "Installation of GenPure xCAD Plus system, wall version" on page 35). **NOTICE** For connection of the hoses and control cable between xCAD Server and xCAD Client you must be remove the xCAD Server from the wall by unscrewing the four screws with a philips screw driver.	
2	To wall mount the xCAD Client wall version unscrew the 4 screws (see red arrows in the picture) on the bottom of the xCAD Client and remove the wall mount bracket.	

Step	Action	Figure
3	a. Hold the wall mount bracket at the desired position on the wall and mark the four boreholes for fixing the wall mount bracket. Then use a 6 mm or 1/4" twist drill to make the holes and put in the four S6 dowels which are supplied in the assembly kit.	a) 
	NOTICE If you want to take the hoses and cables out of back the wall look at the pictures 1) and 2) and step b). When it is not wish going to step 4.	b) 1) 
	b. Refer to dimensions on picture 1) and 2) to make the necessary wall cuts needed if you want to push the 0.31“(8mm) o.d hoses and cable out through the wall behind the xCAD.	2)  Wall mount bracket Possible wall cut-outs for cable and hose taken out at back
4	Attach the wall mount bracket to the wall by screwing in the 4 supplied screws with a philips screw driver into the wall where you have put in the plugs before.	

Step	Action	Figure
5	a. Connect the one end of the 0.31" (8 mm) o.d hose to the xCAD backflow connector of the xCAD Server. The other end of the hose you should connect it into the xCAD flow connector of the xCAD Client. Connect the hose 0.31" (8 mm) o.d into the xCAD backflow connector of the xCAD Client. The other end of the hose you should connect it into the xCAD backflow connector of the GenPure system. b. When you are finished action a) connect the 9 pin control system cable onto the 9 pin connector of the xCAD Server and screw it tight. Connect the other end of the 9 pin system control cable to the 9 pin connector on the xCAD Client and also screw it tight.	a)    b)  

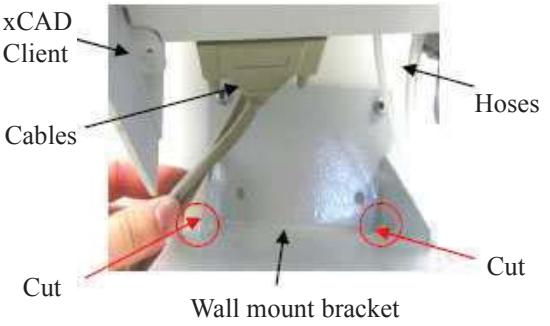
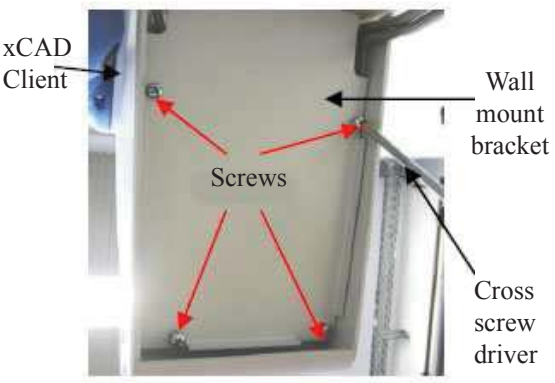
NOTICE

In order to recognise the correct connectors of the cable on the xCAD Server connect the 9 pin control cable onto the right port of the xCAD Server and connecting the other end of the 9 pin control cable to the left port of the xCAD Client (see green rectangular).

NOTICE

When the xCAD Client is finish connected to the xCAD Server the xCAD Server must be in operating mode (nonstop mode) in order to use the xCAD Client.

You cannot use the xCAD Client only.

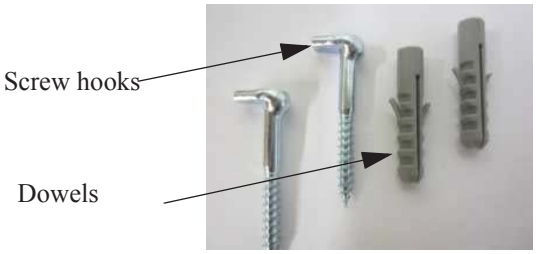
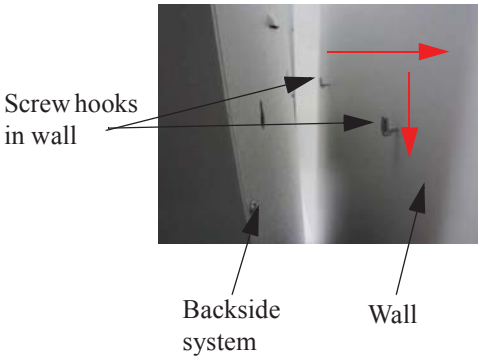
Step	Action	Figure
6	Place the xCAD Client wall version onto the mounted wall mount bracket. There are two cuts on the bracket (see red arrows) where you can lay down the cables and hoses. **NOTICE** When you have made the possible wall cuts (see step 3) plug the cables and hoses throughout the wall.	
7	Screw in the 4 screws (see red arrows) which you unscrewed in step 2 to attach the xCAD Client on the wall mount bracket.	

Wall mounting GenPure xCAD Plus system

NOTICE

You have the possibility to place your system onto a smooth surface or hang it on a wall. Before hanging the system onto a wall make sure that the wall can support the weight of the system once it's full of water.

Proceed as follows to hang your system onto a wall:

Step	Action	Figure
1	Draw with a pencil the distance from the holes to make the holes in the wall and then use a twist drill (8 mm or 5/16 inch) to make the two holes in the wall that are required as shown in the diagram.	See figure 1 holes for wall mounting
2	Plug the nylon S8 dowels (supplied in the assembly kit) in the holes. Screw the 5.2 x 50mm screw hooks into the dowels.	
3	Lift the System and hang the back side of it onto the screw hooks. **⚠CAUTION** Lifting and carrying the system should be completed by 2 people.	

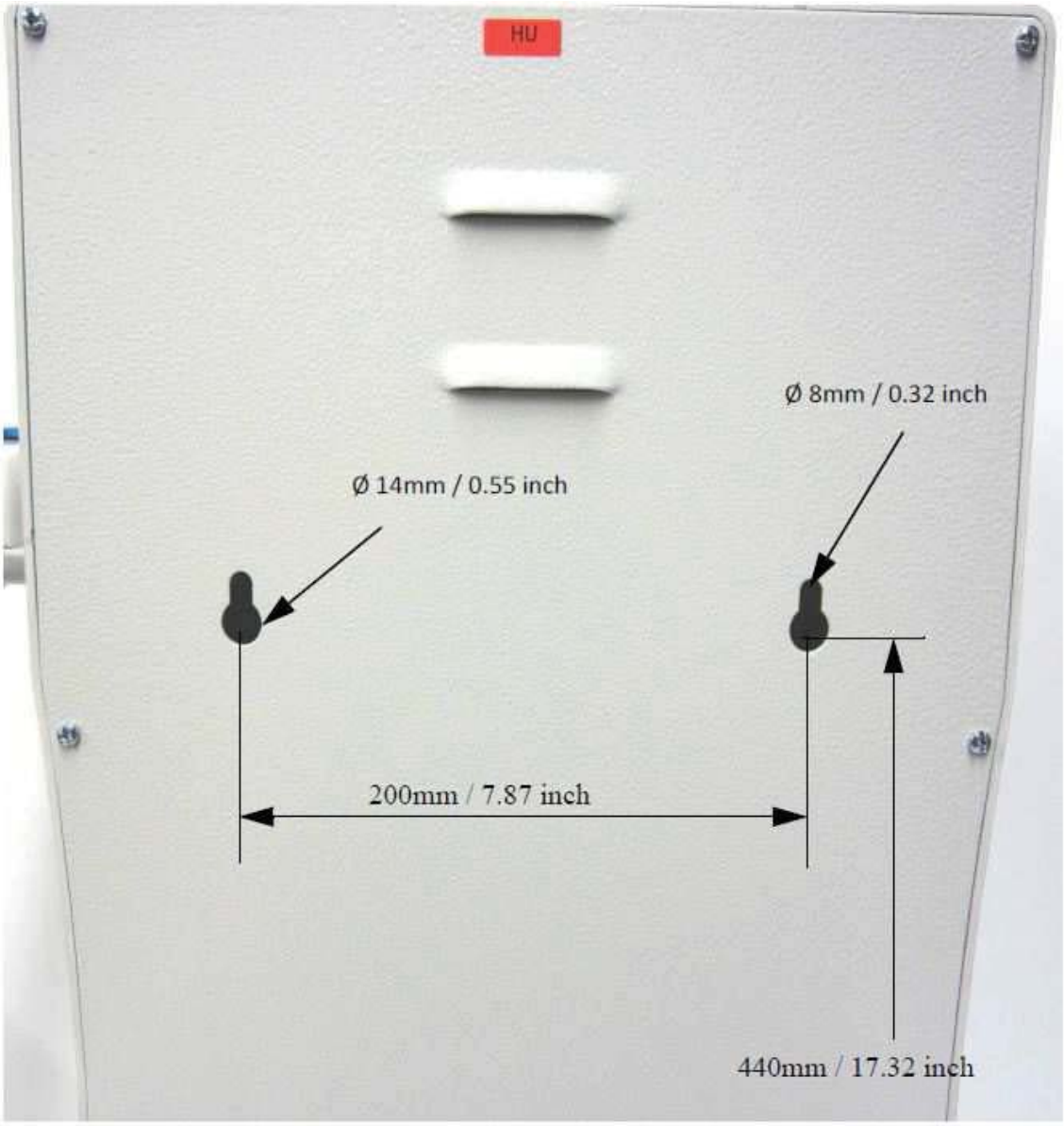


Figure 1. Holes for wall mounting

Mounting the power pack (voltage supply)

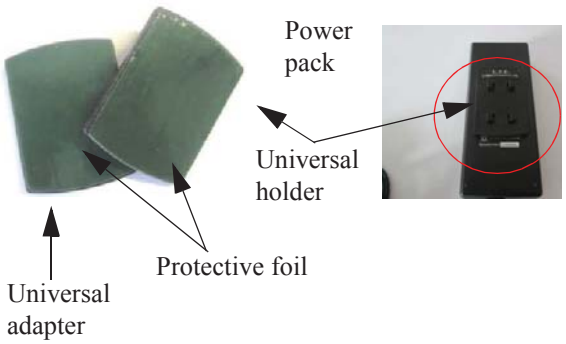
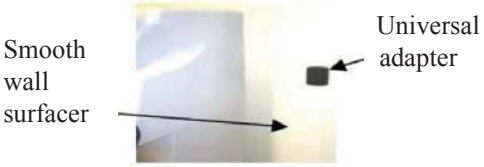
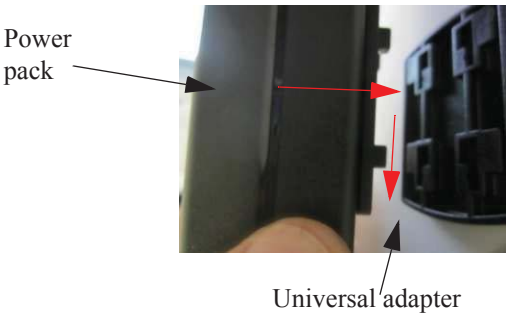
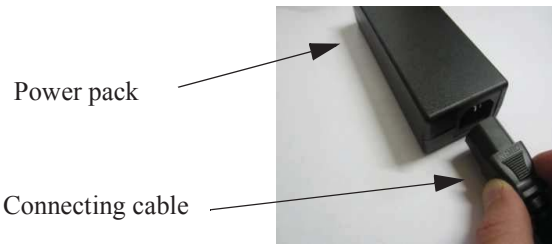
NOTICE

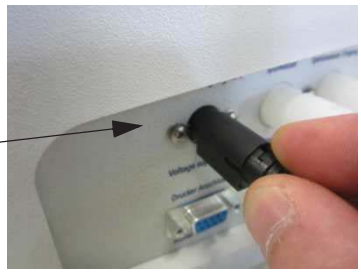
Whenever possible, mount the power pack on the wall to the left or right of the ultra pure water system where it is freely accessible and not come in contact with water for get wet.

DANGER

Take caution to ensure that the suitable outlet and the power cable do not get wet and mount the power pack with dry hands.

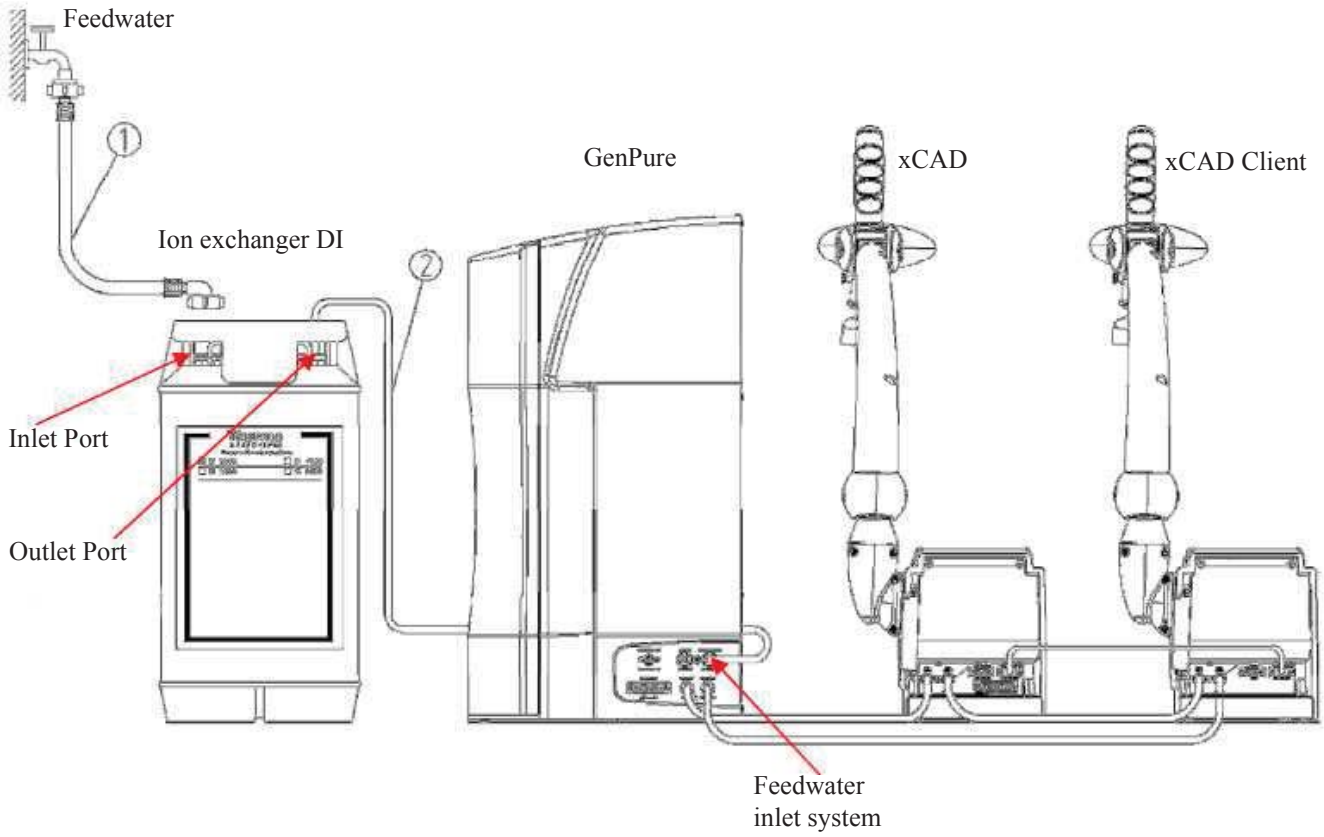
Risk of an electrical shock.

Step	Action	Figure
1	**NOTICE** Before beginning to work with the universal adapter and holder remove the protective foil from the backside of them. Stick the universal holder which is supplied in the assembly kit to the back of the power pack as shown in the figure next to this text.	
2	Stick the universal adapter to a smooth wall surface or screw it to the wall using the dowels and screws supplied in the assembly kit.	
3	When the universal holder and universal adapter have been fitted, hang the power pack in by pressing the power pack to the holder and then pull down (see red arrows). **NOTICE** The removable line cord must be shown to the bottom.	
4	Plug the connecting cable (appliance cable) in the power pack socket. **DANGER** Do not bring the power pack in contact with water. Risk of an electrical shock.	

Step	Action	Figure
5	Connect the power pack to the ultrapure water system (48V 4-pin power supply connector, connector 8) and to an earthed 100 - 250V, 50/60Hz socket.	Power supply connector 
6	Switch the system on. The system is now ready for use.	

Installation examples

Connection to an Ion exchanger DI 1500 (option)



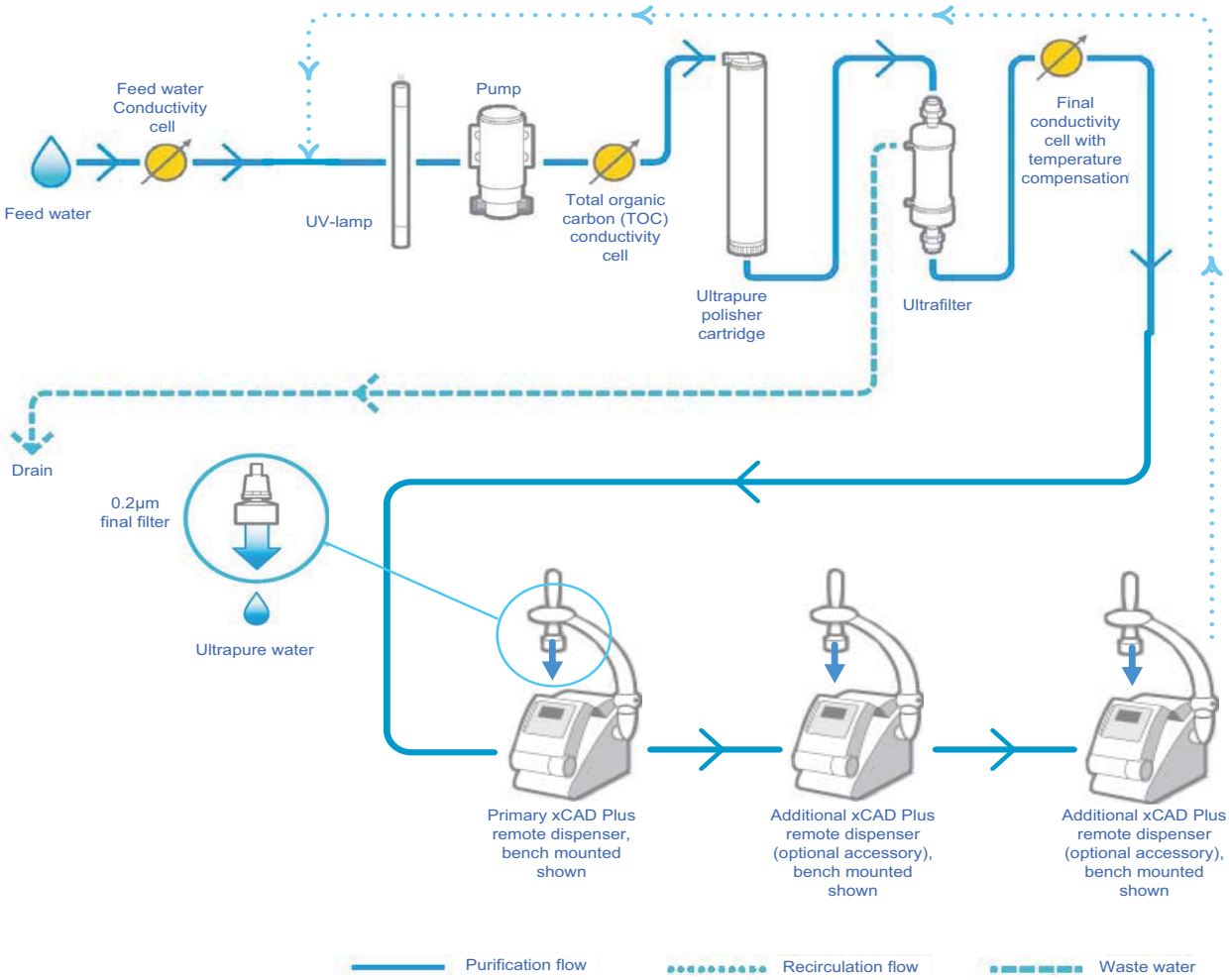
Proceed as follows to connect an ion exchanger to the upstream side of the GenPure xCAD Plus system:

Step	Action
1	Connect the hose which has a R3/4 female nut (1) from the raw water tap to the R3/4" input of the ion exchanger.
2	Make connection from the R3/4 output of the ion exchanger to the feedwater connector of the GenPure system by using the hose (2) that is contained in the assembly kit.

Flow chart

NOTICE

The following flow chart describes the GenPure system with full equipment (ultrafilter, UV-lamp, TOC measuring cell included). Depending on your GenPure system configuration the ultrafilter, UV-lamp or TOC measuring cell are inapplicable. The flow direction remains as described in the flow diagram.



How the system functions

NOTICE

System Function as applied in all GenPure systems

Tap water that has been pretreated upstream by reverse osmosis, ion exchange or distillation flows through a pressure reducer and into the ultrapure water system, where the conductivity is monitored. A pump directs this feedwater through UV-photooxidation (only possible in UV lamp equipped systems) and then through the ultrapure cartridge. From there the water flows through an ultrafiltration module (only possible in UF equipped systems). Then follows a permanent definition of conductivity measured by a special conductivity measuring cell equipped with temperature compensation. When ultrapure water is dispensed from the system, it flows through a a end filter before reaching the point of use. During Interval operation, the water in the system is circulated in an internal circuit at regular intervals.

Systems with UV-TOC, UV-TOC/UF

Tap water that has been pretreated upstream by reverse osmosis, ion exchange or distillation passes through a pressure reducer and into the ultrapure water system, where the conductivity is monitored. A pump directs this feedwater through UV-photooxidation, which follows a conductivity measurement to determine the TOC value. Then follows an ultrapure cartridge and an ultrafiltration module (only with UV-TOC/UF), and the conductivity is then permanently measured by a special measuring cell (with temperature compensation). When ultrapure water is taken from the system, it flows through a final filter before reaching the dispensing outlet. During Interval operation, the water in the system is recirculated in an internal circuit at regular intervals.

The TOC value is calculated by taking the difference between the values measured by the measuring cells QIA300 and QI302. The measurement range is 0 - 30 ppb. When this range is exceeded, the number 99 is shown in the display instead of the measured value.
In Stand-by operation, "___" is shown.

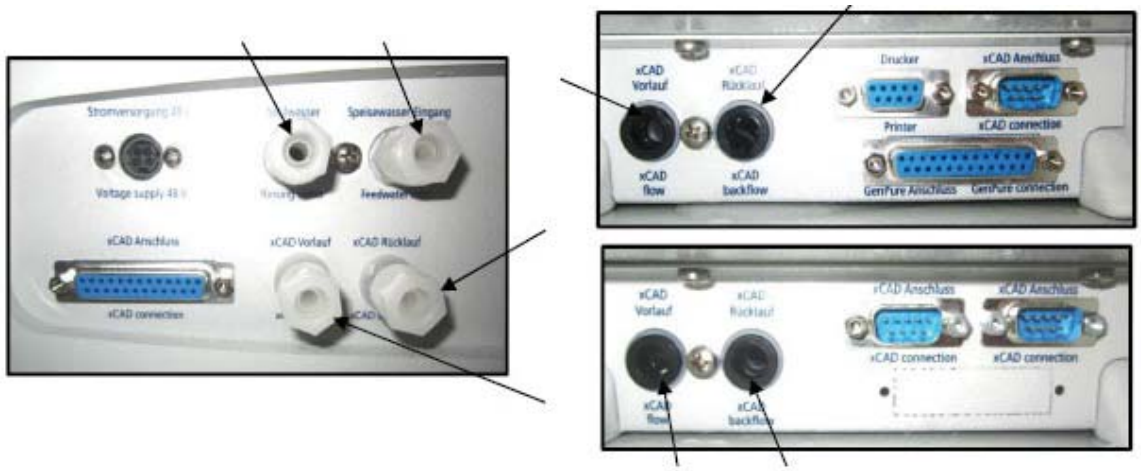
Putting system into operation

NOTICE

The system must have cooled down, or warmed up, to room temperature before being put into operation.

⚠CAUTION

Check that all connections have been made as described above.



1. Feedwater connection system 0.31” (8 mm) o.d
2. Rinse water connection system 0.31” (8 mm) o.d
3. Connection 0.31“ (8 mm) o.d xCAD flow (to Server)
4. Connection 0.31“ (8 mm) o.d xCAD back flow (from server or Client)
5. Connection 0.31“ (8 mm) o.d xCAD flow (Server)
6. Connection 0.31“ (8 mm) o.d xCAD back flow (Server)
7. Connection 0.31“ (8 mm) o.d xCAD flow (Client)
8. Connection 0.31“ (8 mm) o.d xCAD back flow (Client)

Press this button to switch the system on. After a compulsory rinse, the system switches into the "Interval" mode.

NOTICE

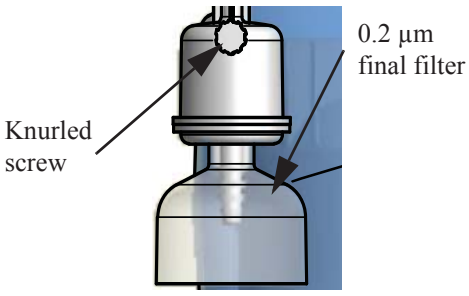
Vent the system by switching it to "Rinsing" three times in succession and, during this procedure, withdraw approximately 5 liters of water and discard it. The ultrapure water limiting value may be exceeded during this procedure.

Use the "NONSTOP" button to switch the system to the "Nonstop" operating mode. The system switches automatically into "Interval" mode after a predetermined time (factory setting 10 min.). Factory setting can be changed through the OEM-Menu by a service technician.

Dispensing water from the dispensing valve

Step	Action	Figure
1	To dispense water from the dispensing valve push the dispense button on the handle once time. To stop dispense water from the dispensing valve push the dispensing button on the handle twice time.	

Venting the 0.2 µm final filter

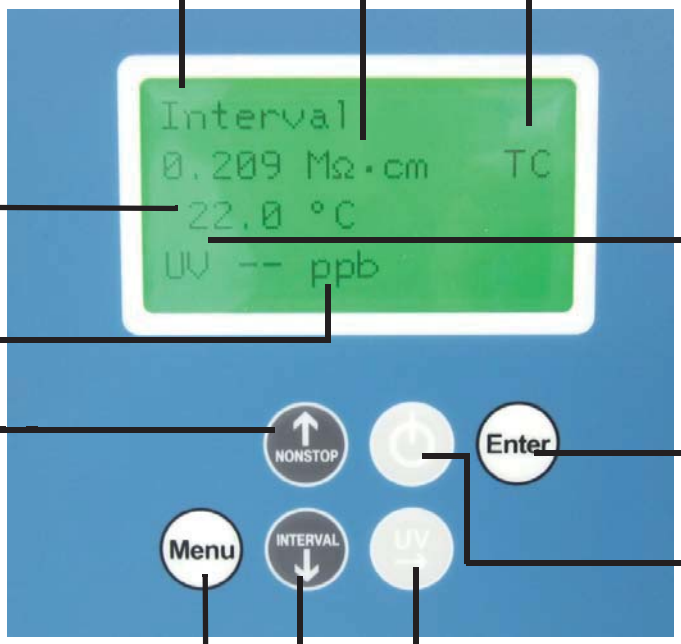
Step	Action	Figure
1	The first time you dispense pure water at the main dispenser through the 0.2 µm final filter, open the white knurled screw. NOTICE Do not close the knurled screw until pure water runs out of the opening at the knurled screw continuously. Rinse about 500 ml of water through the final filter.	

11

Operating elements xCAD Server and xCAD Client

Contents

Description of Display xCAD Server



Shows actual operating mode of the system.

Display of the ultra pure water resistance or conductivity.

Shows that the temperature compensation is switched on.

Temperature measurement

Shows the ON/OFF status of the UV lamp operating mode and of the temperature compensation.

Shows the TOC content in systems equipped with TOC monitoring. If TOC feature is not equipped it will read " - - ".

Confirms prompts and selections.

Switches to Nonstop mode for dispensing. Increases numerical values in the menu.

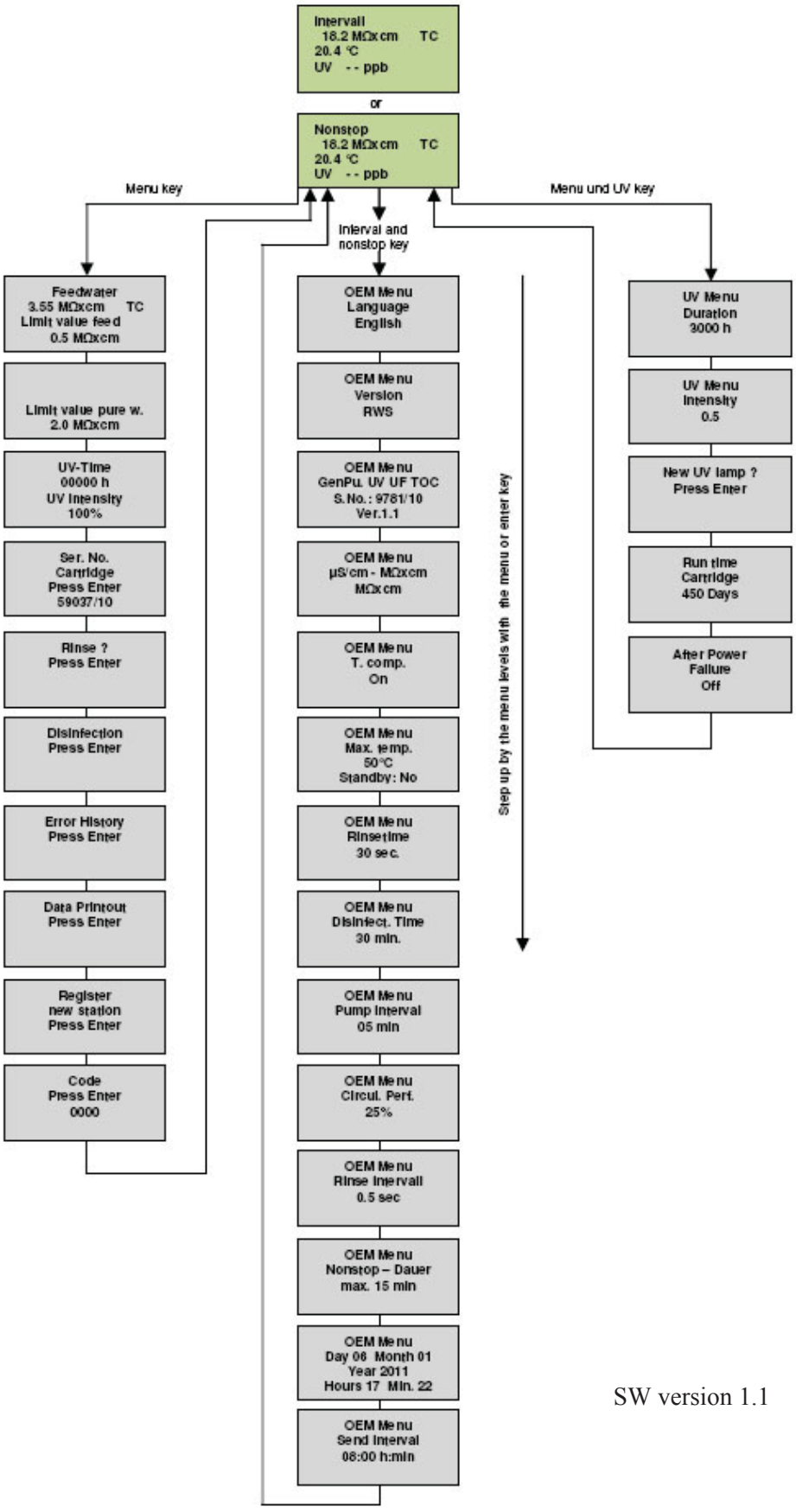
ON/OFF switch

The menu key brings you to the following system parameters:
- Setting for the feedwater resistance
- Setting for the ultrapure water resistance
- UV lamp intensity and operating time
- Cartridge number and maintenance interval
- Rinsing
- Disinfection
- System errors display
- System errors print-out
- Unlocking the factory setting with your password.

Decreases numerical values in the menu.

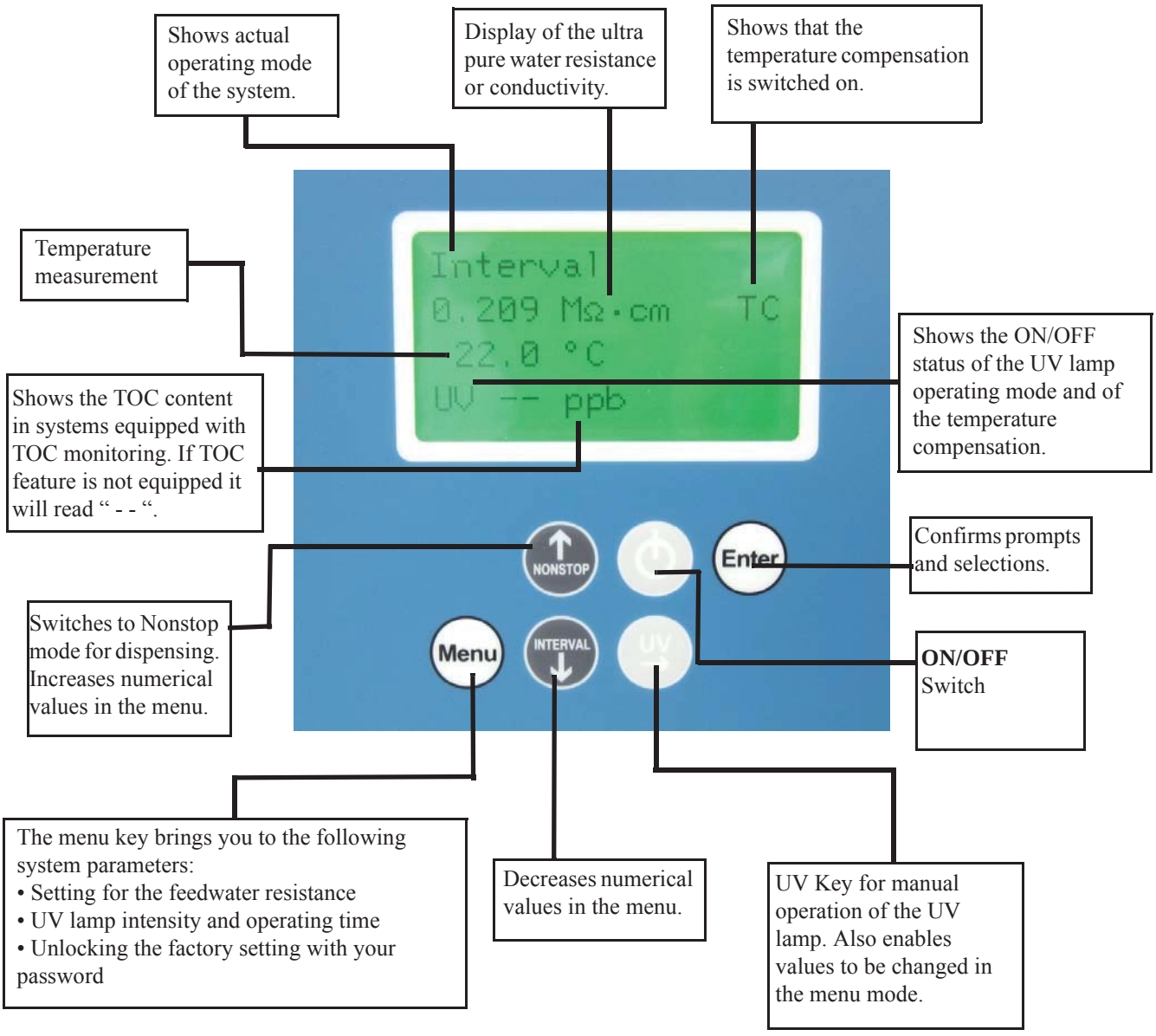
UV Key for manual operation of the UV lamp. Also enables values to be changed in the menu mode.

Flow chart of menu system control xCAD Server

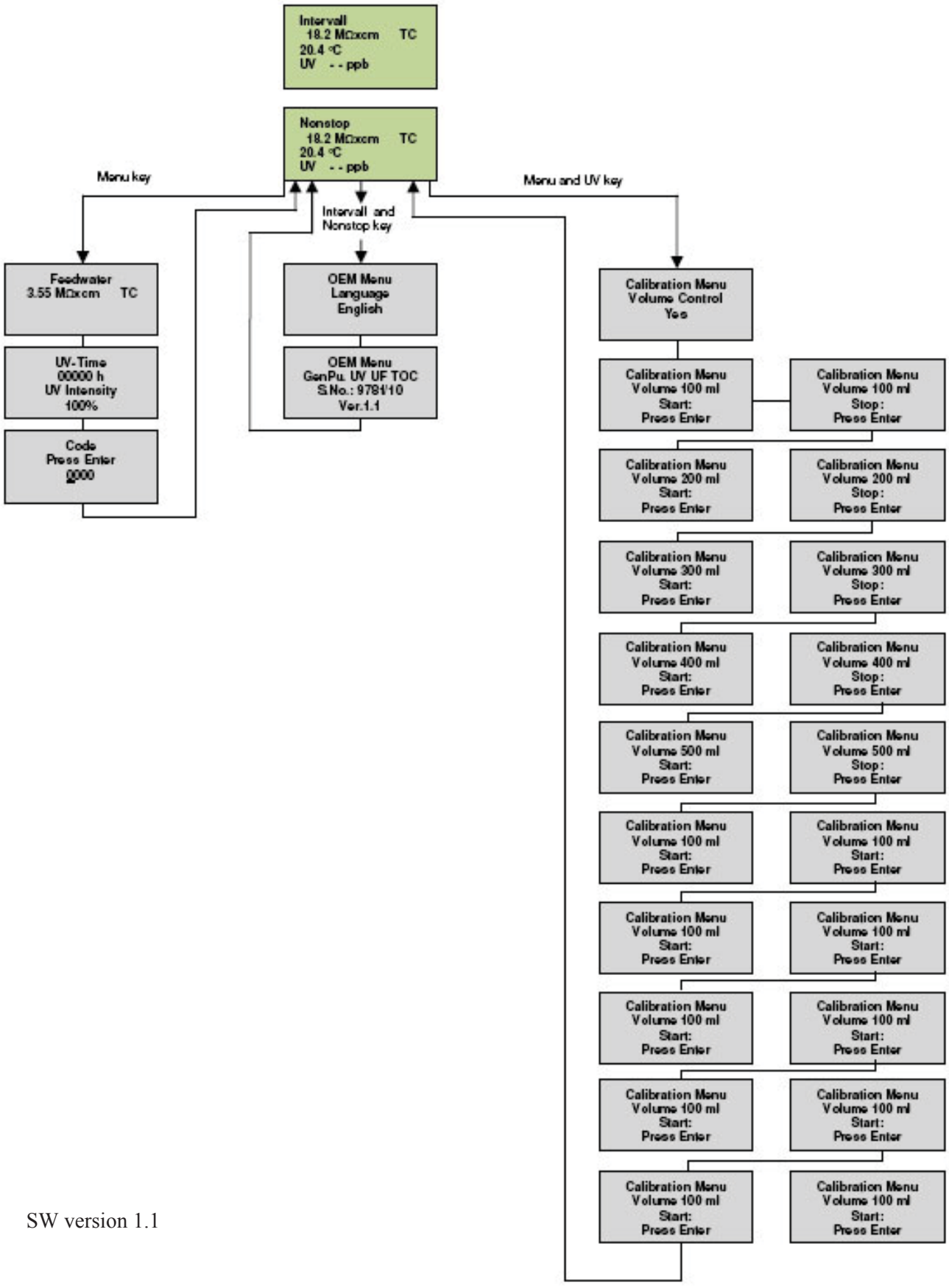


SW version 1.1

Description display xCAD Client



Flow chart control unit xCAD Client



SW version 1.1

System control

Contents

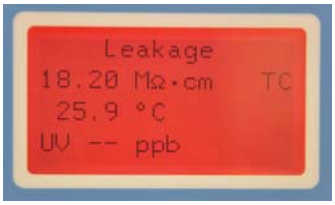
General information

The software structure consists of five operating modes and four menus, which will be described in more detail in the following sections. Measured values are continually shown in the display and/or in the menus. The displayed TOC value is calculated from the difference in the ultrapure water measuring cell and TOC-measurement measuring cell values.

When an error occurs, the display backlighting changes from green to red and the error message is shown in clear text in the first line of the display in alternation with the operating mode message.

Green display: operation of the system is okay.

Red display: There is a error in the system.



Operating modes

Interval operating mode after switching on

Initially press the ON/OFF button. Then the display will show at first the system version, the system serial number and the software version number to display for 3 seconds. The system then automatically switches to the Interval operating mode (see “Interval operation” on page 65), whereby the green backlighting of the display is switched on and remains on until system control is switched off via the ON/OFF-button. The “UV” text message is displayed when the UV-lamp is switched on. The “TC” message is displayed when measured values are subject to temperature compensation. Further to these, the measured values for ultrapure water (measuring cell LF1) and temperature are also displayed. The displays of messages and measured values are independent of the operating mode.

The TOC value is not shown in Interval mode.
The display shows:

Non-stop mode

A press on the “nonstop” button switches the system to the non-stop mode.The non stop mode is the only mode in which water can be dispensed from the system. It is also the mode in which the system will continuously recirculate water with the system to keep the water ready for use. The circulation pump starts to run, the (UF) rinsing solenoid valve (V4) opens for the set “Intv.rinse time”. Non-stop operation is stopped automatically after 10 minutes. Then the system operates in the “Interval”-Mode. The message *UV* is shown in the display when the UV-lamp is switched on. The UV lamp can only be switched on and off in this non-stop mode (see UV lamp). The TOC value is additionally shown in the display (TOC or *UV* only when applicable) whenever the UV-lamp is switched on for systems that have the TOC option.
The display shows:

Interval operation

The system is in the Interval mode when the system is switched on with the ON/OFF button. The Interval mode is used when the water system isn‘t needing to be in non-stop mode. This mode helps protects the system against bacteria growth as it will periodically recirculate water. Water can not be dispensed in this mode. The pump runs for the set interval pump time and the rinsing solenoid valve (V4) opens for the set “Interval rinse time”. When the interval pump time has expired, the pump is switched off until the end of the standstill time. The standstill time is given by the difference between half an hour and the interval pump time, so that the pump and the solenoid valve are actuated in a half-hourly rhythm. The TOC value is not shown in this operating mode.
The display shows:

UV-Lamp

A press on the UV-button results in showing the letters “UV”. However the UV-lamp is only switched on, however, when the system is in Nonstop operation. The UV-lamp is switched off at the end of Nonstop operation (settable). When Nonstop operation is manually ended by a press on the “Non stop” button, the UV-lamp is switched off after glowing for 0.5 hours. During the time that the UV-lamp is glowing. Furthermore the UV light intensity is monitored and is displayed in Menu (only applicable to systems with TOC monitoring). Should the limiting value for the UV-intensity (OEM menu / Menu) fall below a set value, the potential free output is set and the “UV Intensity” error message is displayed.

The operating time of the UV-lamp is recorded and the “*UV duration*” error message is brought to display when the limiting value set for this time is exceeded. TOC measurement is also carried out during the time that the UV-lamp is glowing only.
The display shows:

Water dispensing via volumetric control

Ultrapure water systems which are equipped with the volumetric dispense option can dispense a preset volume of water.

As soon as the Nonstop-mode is selected, a liter volume is shown in line 3 of the display. This is the volume of ultrapure water that was last dispensed.
A single press on the Enter-button enables this volume value to be changed within the range from 0.01 to 65.5 liters by means of the arrow-buttons. The UV-button can be used to position the cursor at the particular digit that you wish to change.

A second press on the Enter-button causes the volume of water that has been set to be dispensed. The liter volume shown in the display is the actual volume dispensed. Dispensing stops as soon as the set volume is reached.

Dispensing can be stopped at any time by a further press on the Enter-button. This enables small volumes to be dispensed by two successive presses on the Enter-button. One press starts dispensing and, when the wanted amount has been dispensed, a second press stops dispensing. The button on the dispenser has the same function as the Enter-button.

Volumetric dispense is supported in all versions.
The display shows:

OFF mode

A second press on the ON/Off-button causes the display to go dark and all text output on the display to be extinguished. No outputs are now switched.

User menu

All measured values, operating times and limiting values which are relevant for the user can be set and read in this menu.

A press on the menu-button brings you to this menu. Each further press on the menu-button moves you further from one menu prompt to the next.
Settings can be changed with the arrow buttons. When you confirm a value by pressing on the Enter-button, you are taken to the next menu prompt. Settings can only be made when system control has been previously unlocked by entering a valid code number. (see "Code lock" on page 82)

To simplify changing settings, a press on the UV-button allows you to select a certain individual digit in the numerical value that you want to change. The arrow buttons can now be used to enter the new number from 0 to 9 at that position.

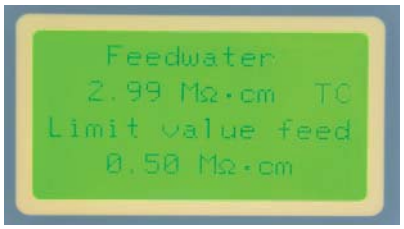
Feedwater measured value and limiting value

Under this menu prompt, the feedwater conductivity can be read and the limiting value for it can be set (LF2). The fault message "*Limit value feed*" is shown flashing in line 1 of the display when the feedwater limiting value is exceeded. Should several fault messages occur simultaneously, then they are alternately shown.

Feedwater measuring range: **10.0- 0.010 MΩ·cm**
Limiting value setting range: **0.1- 50.0 µS/cm**
Basic setting: **0.2 µS/cm**

Set the limiting value using the arrow buttons (see Settings with the arrow buttons).
With settings above 50 µS/cm, the limiting value is switched off and the word off appears in the display.

Press the Menu-button once then the display shows:



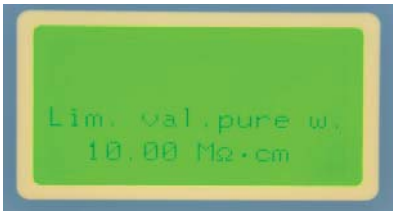
Ultrapure water limiting value

The limiting value for the ultrapure water conductivity can be set here. When the entered limiting value is exceeded, *"Lim. val.pure w."* is displayed (LF1).

Setting range for the limiting value: 0.055- 5.000 µS/cm.
Set the limiting value using the arrow buttons (see Settings with the arrow buttons).

Ultrapure water measuring range:	**0.1 MΩ·cm**
Limiting value setting range:	**0.055 - 5.000 µS/cm**
Basic setting:	**0.200 µS/cm**

With settings above 5.000 µS/cm, the limiting value is switched off and "*Off*" is shown in the display.Press the menu-button twice then the display shows:

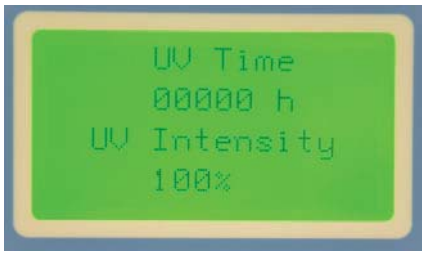


UV-Lamp operating time and intensity

In this menu, the UV-lamp operating time is displayed and the UV-sensor input is evaluated. The UV-lamp operating time counter counts the hours that the UV-lamp has been burning.

The "*UV duration*" error message is triggered when the maximum operating time is reached. The UV-sensor measures the actual intensity of the UV-lamp. The display shows the % of this compared to the maximum value. The UV Intensity error message is issued when the limiting value is gone below. The limiting value is set in the OEM-menu. The error message for the UV intensity is first displayed after a settable error time to avoid error message display during the start-up phase.

Press the menu-button 3 times then the display shows:



NOTICE

For more details see under section"Change the UV-lamp" on page 93.

Ultrapure cartridge serial number

The operating time counter for the filter cartridge is set back on entry of a valid serial number.Press the menu-button 4 times then the display shows:

NOTICE

For more details see under section "Change the ultrapure cartridge" on page 85.

Rinsing the ultrafilter

In this menu, a press on the Enter-button allows rinsing to be carried out whenever it is necessary or the ultrafilter has been replaced. The pump is started and the rinsing solenoid valve (V4) is opened for the rinsing time set in the OEM-menu.
Neither error messages nor measured values are displayed during rinsing.
When rinsing has finished, the system returns to the last operating mode (Interval or Nonstop).
The remaining rinsing time is counted down and displayed during rinsing.

Step	Action	Figure
1	Press the menu-button 5 times then the display shows:	
2	Confirm rinse by putting the enter button. The rinsing is started for 30 sec.	

Disinfection

In this menu prompt, the query asks if there is a need of disinfection. Confirmation with Enter brings the *Disinfection cartridge. Install one* prompt to display. When this is also confirmed with Enter, disinfection begins and the pump runs for the whole of the disinfection time. When half of the disinfection time has expired, the rinsing solenoid valve (V4) is additionally opened until the end of disinfection. When disinfection has been completed, the *New filter cartridge. Install one* message is shown. Confirmation with Enter returns system control to the last used operating mode. The disinfection time can be set in the OEM-menu.

The remaining disinfection time is counted down and displayed during disinfection.

Step	Action	Figure
1	Press the menu-button 6 times then the display shows:	
2	Confirm disinfection by pushing the enter button. Change the filter cartridge with the disinfection cartridge (see under chapter “Disinfection” on page 87).	
3	Confirm with enter. The Disinfection is started for 30 min, indicating the remaining time.	

NOTICE

The completely process is described under section “Disinfection” on page 87.

Error history

Confirmation of this prompt with Enter allows the error storage to be looked through.
Two errors, each with date and time, are shown in the display. Pressing the arrow buttons takes you successively through preceding or following errors.
Press the menu-button to end the error display. This takes you to the next menu prompt.

Step	Action	Figure
1	Press the menu-button 7 times then the display shows:	
2	Confirm error history by putting the enter button. Now you can see two last saved errors with date and time.	

Print out of Data

In this menu, the current system data can be printed via a connected printer.

Press the menu-button 8 times then the display shows:

Registering the xCAD Client to the xCAD Server

In this menu, the xCAD Client units can be registered at the server.

NOTICE

Maximum two xCAD Clients you can registered to the xCAD Server.

Step	Action	Figure
1	Press the menu key 9 times on the xCAD Server then the display shows:	
2	Confirm with enter. After you confirm this you have time to 90 sec to register the xCAD Client.	
3	Switch the xCAD Client on. The display shows station not registered. Confirm with enter. After this the display shows “Station is registered”.	 **NOTICE** After registered the xCAD Client the color of the Client display changes to the same color of the xCAD Server display.
4	When the xCAD Client is registered the both display on the xCAD Server and xCAD Client jumps automatically to the display message “Interval or Nonstop mode”.	

Entering a code number

To prevent unauthorized access to system control, settings can only be changed when a valid code number is entered and confirmed with Enter in this menu. Each code access is issued to the printer (RS 232) with date, time and code number. Valid codes are found in this manual in section “Code lock” on page 82.

Press the menu-button 10 times then the display shows:

OEM Menu

Basic settings and limiting values can be changed in this menu. To make such changes in the OEM-menu, the system must be unlocked first (see “Code lock” on page 82).

NOTICE

You need the right code to do this transaction. You can find the code under section “Code lock” on page 82.

Accessing the OEM menu.

After system control has been unlocked, simultaneous presses on the Interval-button and the Nonstop-button call the OEM menu. Following this, the "OEM menu Press Enter" prompt is displayed. When this is confirmed with Enter, the first menu prompt can be worked on. To simplify changing settings, press the UV-button to select the individual number in the numerical value which you want to change. Now use the arrow buttons to enter the wanted number from 0 to 9 at that selected position. Press Enter to save changes only.

A press on the menu-button takes you to the next menu prompt.
The setting can be changed with the arrow buttons.

Language selection

The language can be changed in this menu.

The choice is between English, French and German.

The setting can be changed with the arrow buttons.

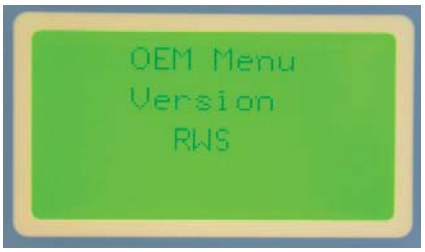
Basic setting: English
After entering the OEM menu press the menu-button once then the display shows:

Program selection

The program according to which system control operates is set in this menu.
The following possibilities are given:

Basic setting: RWS (Ultrapure water system)

After entering the OEM menu press the menu-button twice then the display shows:



Entering system version and serial number

The system version and system serial number can be entered in this menu. The two are then printed out as header on each print-out. Use the arrow buttons to enter the settings. The number of the software version is given in the bottom line of the display.

The following system versions can be set here:

GenPure Standard, GenPure UV, GenPure UF, GenPure UV/UF, GenPure UV/TOC, GenPure UV/TOC/UF, LabTower EDI, LabTower TII.

The serial number consists of six numerals and a slash. Use the arrow buttons to enter the settings, as for other settings.

After entering the OEM menu press the menu-button 3 times then the display shows:

Switching units

In this menu, a choice is given as to whether measured values are to be displayed in the conductivity unit or the specific electric resistance unit.
Basic setting: Conductivity

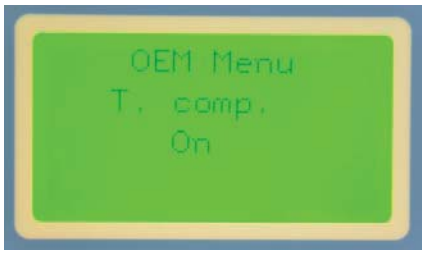
After entering the OEM menu press the menu-button 4 times then the display shows:

Switch temperature compensation off

Temperature compensation can be switched off or on in this menu. TC is shown in the display when it is switched on, NTC is shown when it is switched off.

Basic setting: Temperature compensation on

After entering the OEM menu press the menu-button 5 times then the display shows:



Set the limiting value for temperature

The maximum temperature which the system is to be allowed to reach is set in this menu. The *max. Temp.* error message is triggered when this limiting value is exceeded. A setting can also be made here to have the system automatically switched over to the Stand-by operating mode to avoid further heating up.

Setting range: 1- 50 °C

Basic setting: 35 °C
Basic setting: Standby: No

After entering the OEM menu press the menu-button 6 times then the display shows:

Rinsing time

The rinsing time can be set in this menu. The system is rinsed automatically every 20 min. when it works in the "Interval" mode. Additionally in section "Rinsing the ultrafilter" on page 71 you can read how to rinse the system manually.

Step width: 1
Setting range: 10 - 60 sec.
Basic setting: 30 sec.

After entering the OEM menu press the menu-button 7 times then the display shows:

Change the disinfection time

The disinfection time can be set in this menu.

Basic setting: 30 min.
Setting range: 15- 90 min.

After entering the OEM menu press the menu-button 8 times then the display shows:

Set the interval pump time

The interval pump time is the amount of time the pump is working to recirculate water in the system. The standard setting is 5 minutes of pump recirculation for every 30 minutes that the system stands still during Interval mode. The majority of systems do not need this setting to be changed.

Basic setting: 5 min.
Setting range: 1- 30 min.

After entering the OEM menu press the menu-button 9 times then the display shows:

Circulating pump performance

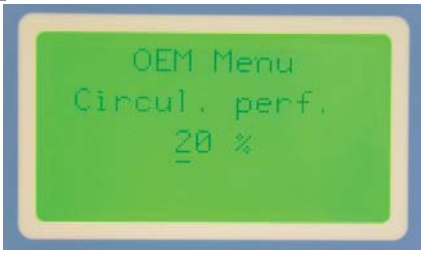
NOTICE

GenPure xCAD Plus systems do not have the option of changing this basic setting.

This setting is to determine the performance of the pump during Interval mode and the duration of the ramp-up for volumetric dispense in Nonstop mode. Only a authorized person should change these values. Specification of the voltage in % of the maximum supply voltage value.

Basic setting for Interval mode: **20 % (for recirculation)**
Basic Setting for Nonstop mode: **45 % (for dispensing ultrapure water)**

After entering the OEM menu press the menu-button 10 times then the display shows:



Set the interval rinse time

In this menu, setting can be made of the time for which the rinsing solenoid valve is opened for ultrafilter rinsing at each start of the Interval cycle or on changing from Interval to Nonstop.

Setting range: 0.1- 2 sec.

Basic setting: 0.5 sec.

After entering the OEM menu press the menu-button 11 times then the display shows:

Nonstop duration

The system will automatically switch from Nonstop mode to Interval mode to ensure the system has adequate recirculation during periods of down time. This protects the system against bacterial growth. The standard setting is after 10 minutes of inactivity when the system is in Nonstop mode, it will automatically switch to Interval mode. You can update to set the time from 10 to 120 minutes.

Setting range: 10- 120 min.

Basic setting: 10 min.

After entering the OEM menu press the menu-button 12 times then the display shows:

Set the real-time clock

The real time clock can be set in this menu.
Basic setting: The actual date
Setting range: 1-12 Month, 1-31 Day, 0-24 h, 0-60 min.

After entering the OEM menu press the menu-button 13 times then the display shows:

Set the sending interval

In this menu the sending interval between transmissions of measured values and error messages to the RS 232 is set. This is only important when a printer is attached to the system.

Basic setting: 1 hours
Setting range: 0.5-12 hours

After entering the OEM menu press the menu-button 14 times then the display shows:

Data transmission via the RS 232 interface

All measured values are issued to the interface complete with date and time in the rhythm of the set sending interval. Should a error occur, this is issued to the interface as text with date and time. Each unlocking of system control is also registered by issue to the printer with date, time and the abbreviated code number.
In Nonstop operation, a set of data is issued to the printer once only.
The interface has a transmission rate of 9600 bits/sec., 8 data bits, 1 stop bit and no parity.

The SUB-D socket assignment is: PIN 2: TXD
PIN 3: RXD
PIN 5: GND

Printer output

Various parameters are documented by the printer. It differentiates between three types of message:

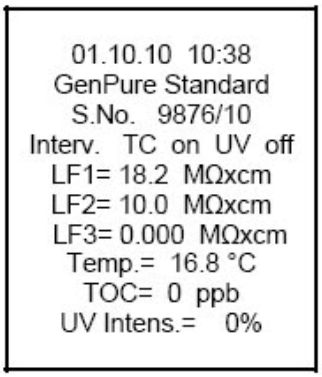
- Standard message
- Code message
- error message

Standard message:

A record of all measured values is printed out according to the sending interval.
A print out is also made of a complete set of data in Nonstop operation.

Print-out:

e.g.:



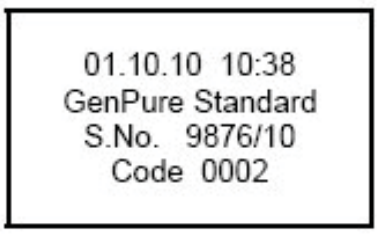
The standard record documents all measured values. With systems without TOC measurement and UV-intensity, 0 is entered in place of measured values for these functions!

Code message:

Whenever a code number is entered in system control and confirmed with Enter, the code input is immediately printed out.

Code identification (see “Code lock” on page 82).

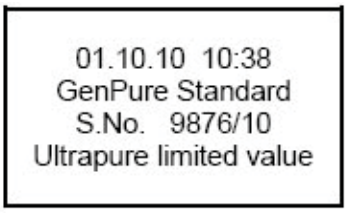
Print-out:



Error message:

When a error message is shown in the display, e.g. for the ultrapure water limiting value, then the error message is printed out on expiry of the sending interval.

Print-out:



Measuring cell error recognition

Minimum and maximum limiting values for each of the conductivity measuring cells and the temperature sensor are fixed. Should measured values go below or above these respectively, then it must be assumed that a cable break has occurred. The appropriate error message *"Measuring cell LF1"*, *"Measuring cell LF2"*, *"Measuring cell LF3"* or *"Measuring cell Temp"* is then issued in line 1.
When resistances are in a region below 50Ω or above 20MW, then a cable break or a short-circuit can be assumed.
These basic settings cannot be changed in any menu.

Code lock

To prevent unauthorized access to system control settings, changes to these settings can only be carried out when a correct code number has been entered and confirmed with Enter.
In deviation to existing programs, control release can be given at three levels. Only the menu is released for changes at the first level (Code number 1, 2, 3). Both the menu and the OEM menu are released at the second level (Code number 4, 5, 6). All menus are released at the third level (Code numbers 7, 8, 9).
Code numbers:

No.	Menu	No.	Menu + OEM menu	No.	All levels
1	0150	4	0450	7	0750
2	0250	5	0550	8	0850
3	0350	6	0650	9	0950

Each access via the code is printed out by the printer (RS 232) complete with date, time and the code number used.

The display shows:

Maintenance

Contents

Regular servicing of your system ensures that the quality of water is maintained. We recommend a service contract with a factory authorized service company to ensure that the system is properly maintained. You then have the certainty of a high operational, safe, and reliable water purification system.

To ensure error-free operation, your system must be checked, serviced and cared for at regular time intervals in accordance with these operating instructions. For this reason, the operating instructions must be readily available to operating and maintenance staff at all times, and be carefully followed.

Calibration of the conductivity is only to be carried out and recorded by a factory-authorized service technician.

Cleaning and disinfection should be performed at least once yearly, or when the ultrapure cartridge is replaced, or when bacteria is present in the product water.

⚠CAUTION Control and maintenance work on electrical systems are only to be carried out by an appropriately trained, skilled electrician.

NOTICE Unplug the system from the power outlet for all Maintenance work on the system.

Maintenance intervals

Consumable materials are to be replaced according to the directions below. The intervals were determined for the average user and are completely dependent on the actual feed water quality and volume of water used daily.

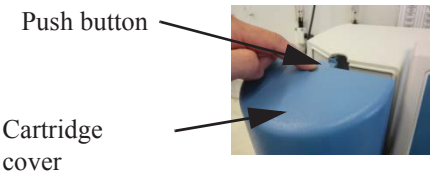
Material	Flow chart no.	Catalog no.	Interval	Other problems
Ultrapure cartridge	F1	09.2005	up to 12 Months	Or when the ultrapure water limiting value is exceeded, whichever is shorter. Longer usage can result in bacterial growth on the resin.
Sterile 0.2 micron filter	F2	09.1003	up to 12 Months	Or flow rate is noticeably slower.
Ultrafiltration membrane (only applicable for systems with a UF filter)	F3	50133980	up to 24 Months	Or if there is endotoxin breakthrough in product water or when the water flow rate is markedly slower.
UV-lamp (only applicable for systems with a UV lamp)	UV1	09.2002	up to 24 Months	Or unless system indicates the lamp needs to be replaced.

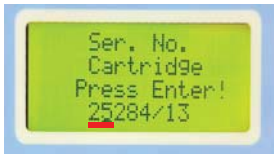
*Please keep in mind that the life of your consumable is directly dependent on the quality of the feed water and the amount of water used daily.

Change the ultrapure cartridge

CAUTION

Replace the ultrapure cartridge when the maximum limiting value that you have set for the ultrapure water is exceeded or when the “change cartridge” message is shown in the display.

Step	Action	Figure
1	Switch the system off and shut off the supply of feedwater.	
2	Remove the cartridge cover by pressing the push button.	
3	Disconnect the quick connectors on the feedwater inlet and purified water outlet of the cartridge and remove the cartridge from the system.	
4	If you change an existing ultrapure cartridge please sanitize your system.	**NOTICE** For sanitize your system see under chapter “Disinfection” on page 87.
5	Locate the new ultrapure cartridge and insert it into the system.	
6	Plug the quick connects correctly onto the new ultrapure cartridge. You will know they are attached when an audible “click” is heard. Replace the cartridge cover.	

Step	Action	Figure
7	Open the supply of feedwater and switch the system on again.	   Feedwater supply
8	**NOTICE** The Code to do this transaction please refer from the Code table „code lock" found in chapter "Code lock" on page 82. You need a level one code. a. Go in the Menu to the point "change filter cartridge" and press enter. b. Enter new serial number of the ultrapure cartridge in by pushing the button nonstop or Interval to change the digits and the UV button to go to the next value. c. When you are finished, press enter and the new serial number is saved. You can only use a serial number one time.	a.  b.  c. 
9	**NOTICE** Discard at least 5 liters of water.	

Disinfection

⚠CAUTION

Disinfection must be regularly carried out, at the latest when the filter cartridge is replaced, or when bacteria is present in the product water.

Do not stop a disinfection process that is in progress. After faulty disinfection, carry out a new disinfection.

If the system was longer time not in operation, it must be going to be a disinfection process.

A Disinfection cartridge (Catalog no. 09.2201) is required for disinfection of the system.

Use cleaning solutions as follows:

Cleaning Solution, 1 syringe, Catalog no. CMX 25.

NOTICE

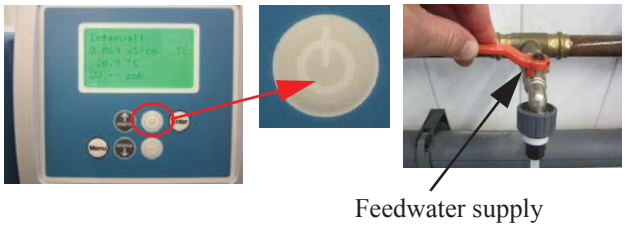
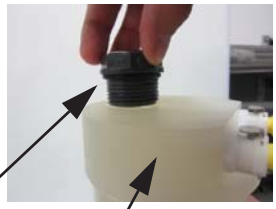
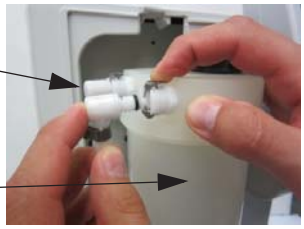
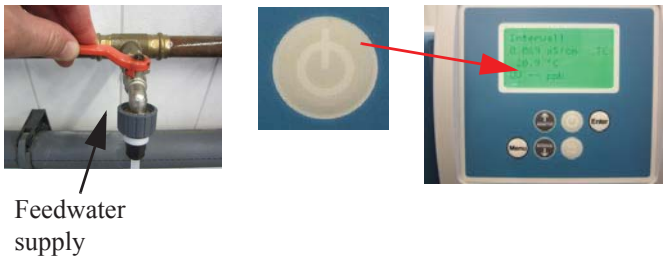
For effective disinfection the cartridge must be completely filled with distilled or deionized water.

Wear protective gloves for handling syringe of cleaning solution.

Wear safety goggles when working with cleaning solution.

⚠WARNING

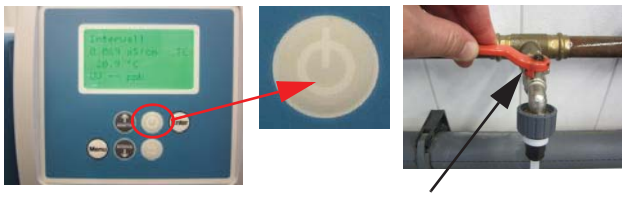
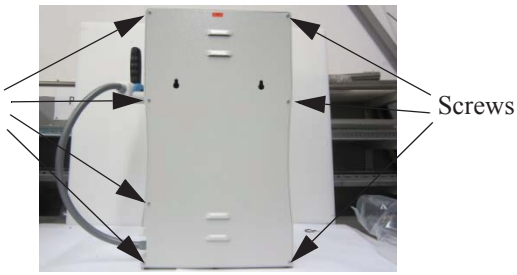
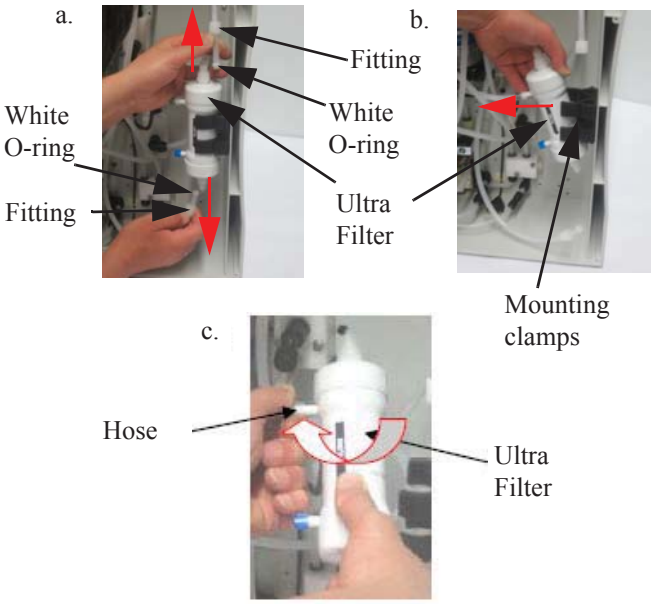
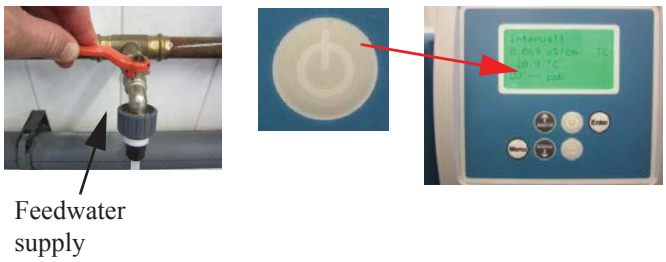
Please observe the information given in the safety data sheet supplied with disinfectant to avoid possible health hazards.

Step	Action	Figure
1	Switch the System off and shut off the supply of feedwater. After this remove the filter cartridge. **NOTICE** See under chapter "Change the ultrapure cartridge" on page 85.	
2	a. Remove the yellow stoppers. b. Unscrew the stopper from the disinfectant cartridge. c. Fill the cartridge with distilled water then empty the contents of a box respectively a syringe of Cleaning solution into the water.	a.  b. 
3	Screw the stopper back on the disinfectant cartridge and connect the cartridge into the system. **NOTICE** See under chapter "Change the ultrapure cartridge" on page 85 to put in the filter cartridge in to the system.	
4	Re-open the feedwater supply, switch the system on again.	

Step	Action	Figure
5	Push the menu button until “Enter code” is displayed **NOTICE** The Code to do this transaction please refer from the Code table under chapter “Code lock” on page 82. You need a level 1 code. a. Select “Disinfection” from the system menu and press “Enter”. b. Confirm the Disinfection Cartridge has been loaded by pushing “Enter” again c. The disinfection process will begin. **NOTICE** The disinfection program is finished after approx 30 min and is adjustable in the OEM Menu.	a.  b.  c. 
6	Switch the system off and shut off the water supply.	**NOTICE** See step 1.
7	Remove the disinfectant cartridge, empty and dry it and put in the yellow stoppers that you have saved for later use. Save the disinfection cartridge for later use.	**NOTICE** See step 5 under chapter “Change the ultrapure cartridge” on page 85.
8	**CAUTION** Before dispensing water from the system, let water run out for approx 15 minutes. The system is then ready for use.	

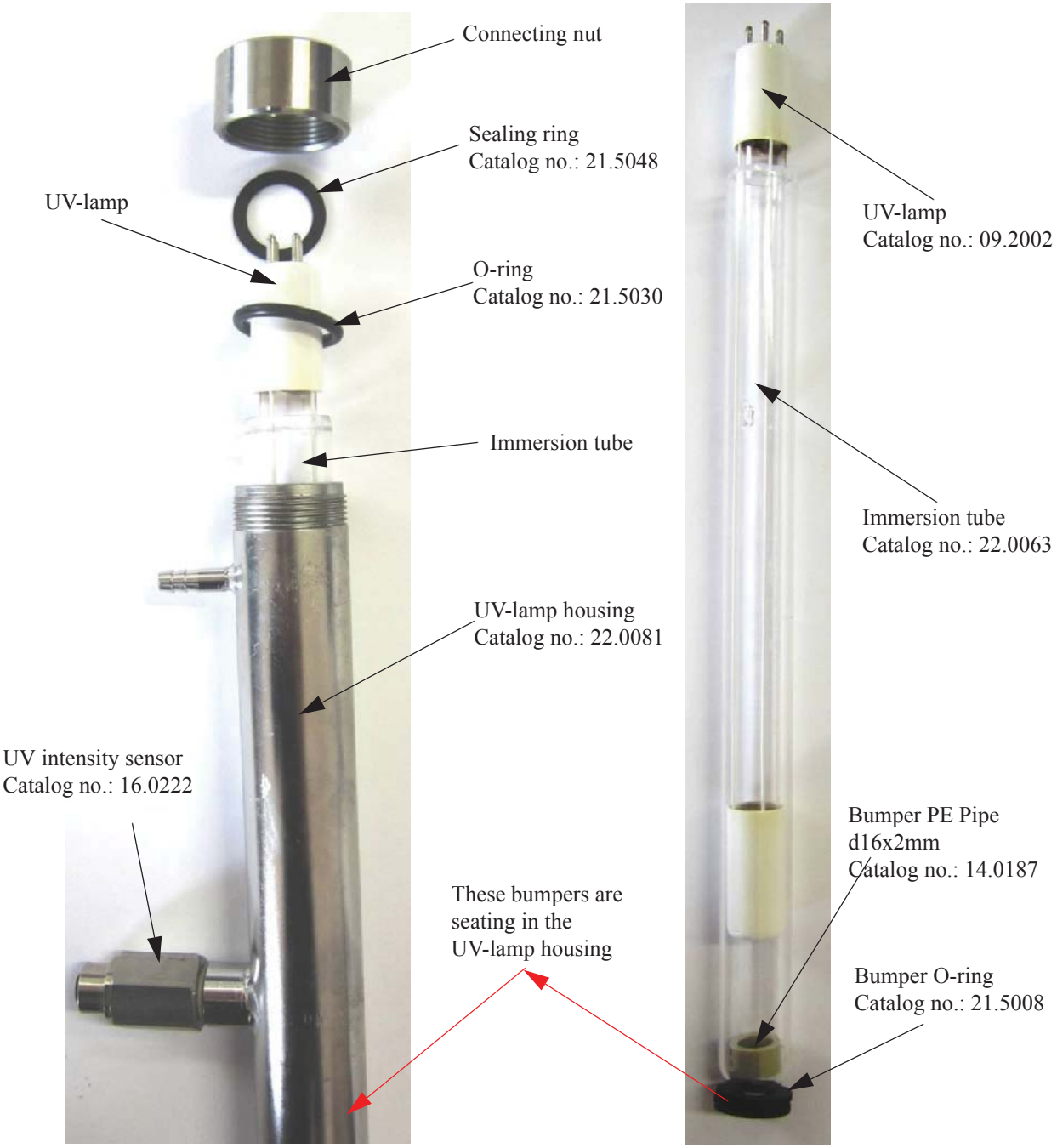
Change the ultrafilter

(applicable only for systems with UF)

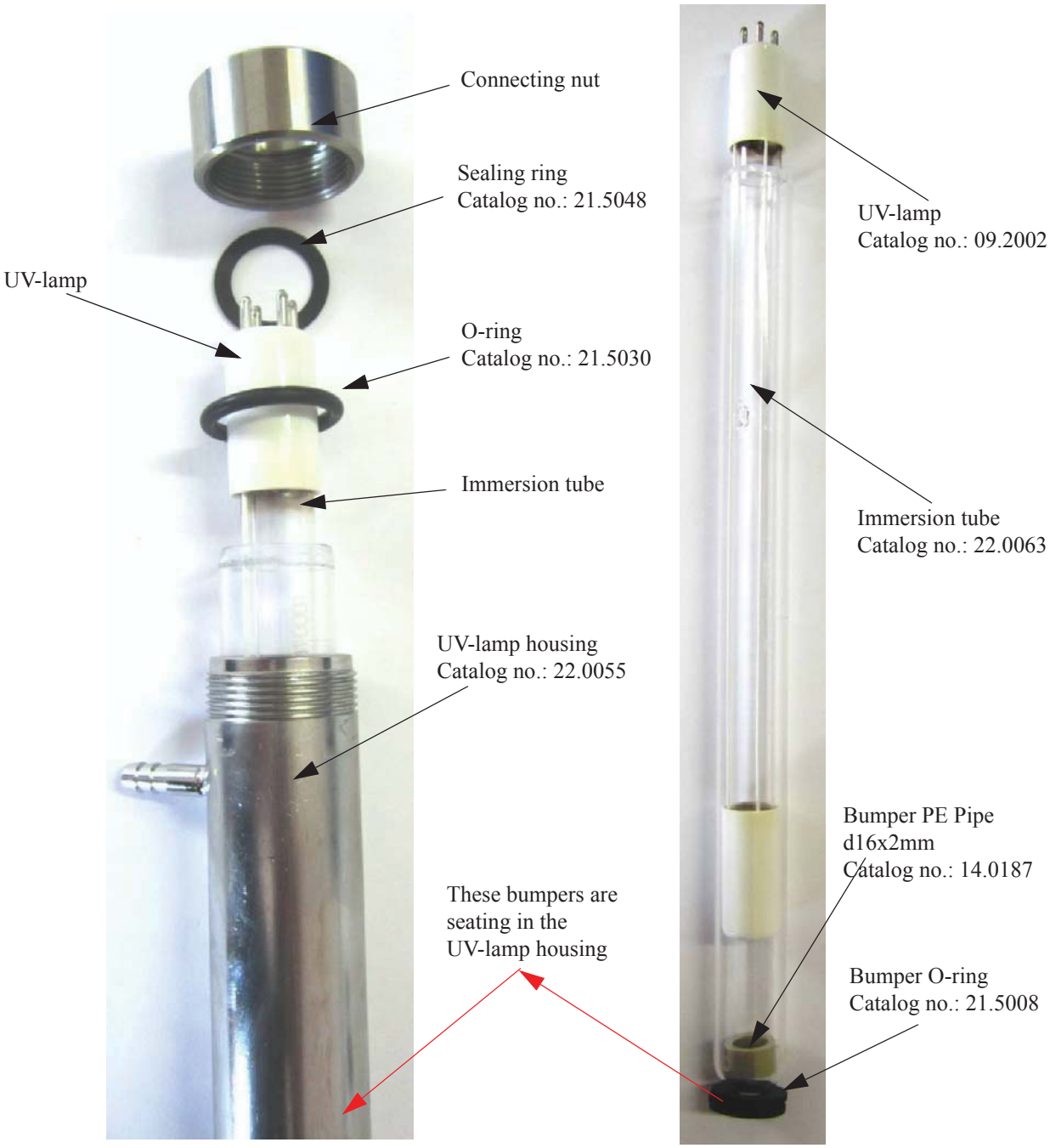
Step	Action	Figure
1	Switch the GenPure xCAD Plus System off and shut off the supply of feedwater.	
2	Remove the four screws of the back panel. **CAUTION** Remove carefully the back panel from the system and unscrew the yellow ground wire from the back panel.	
3	a. Pull out the hoses 8 mm by unscrew the two fittings (see red arrows). b. After this procedure draw out the ultrafilter from the mounting clamp (see red arrow). c. Hold with one hand the hose and with the other hand turn in clockwise direction the ultrafilter to unscrew the hose connection. d. When you are finished with step c install the new ultrafilter by attaching hoses and mounting it in the clamp. **NOTICE** e. When you are installing the new UF filter the flow arrow of the filter must be pointing to the bottom of the system.	
4	Reinstall the back panel, reopen the feedwater supply and switch on the system again.	

Structure of the UV-lamp

UV unit with UV intensity sensor



UV unit without UV intensity sensor



Change the UV-lamp

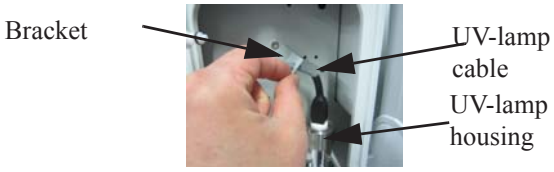
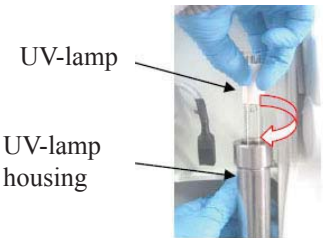
WARNING Never look directly into a switched-on UV-lamp, as UV-light endangers eyesight!

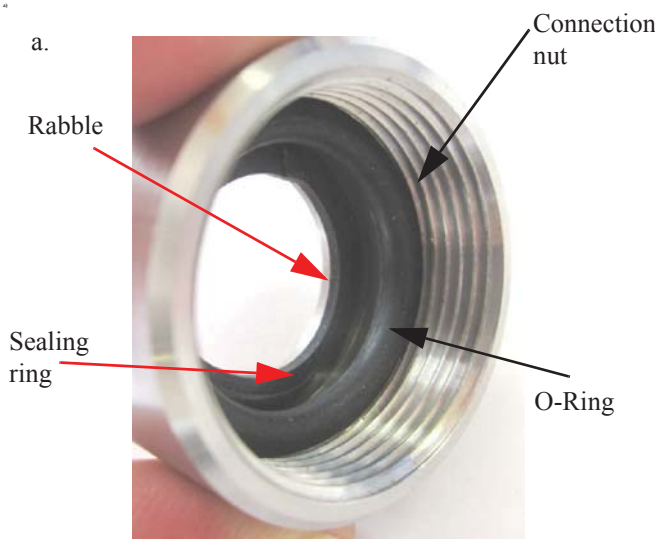
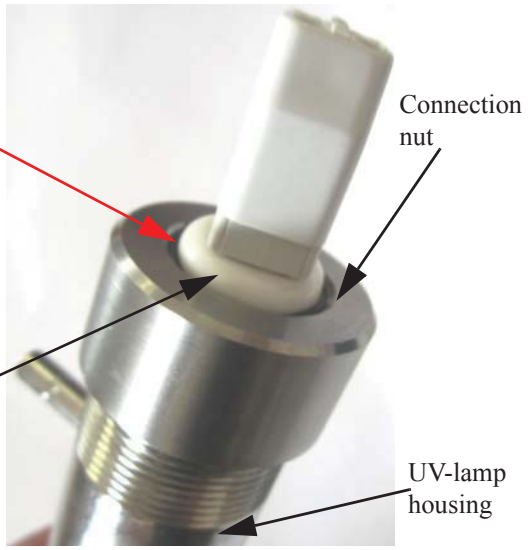
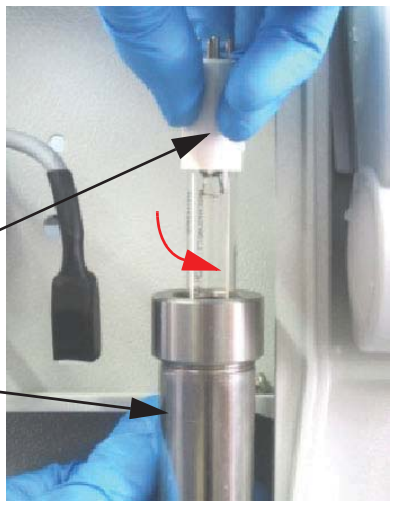
Always wear safety gloves when changing the UV-lamp, in order to prevent that your skin comes in contact with the UV-lamp glass.

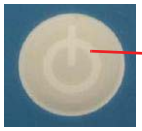
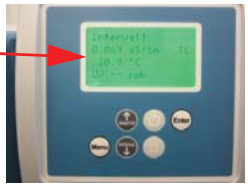
Wear directly a breathing protector when you are seeing that the glass of the UV-lamp is broken and ventilate the room well.

NOTICE Contact your local Service organization to proceed as the proper disposal of the used UV-lamp. The Hg content in the UV-lamp is so low so that no damage to the environment can arise.

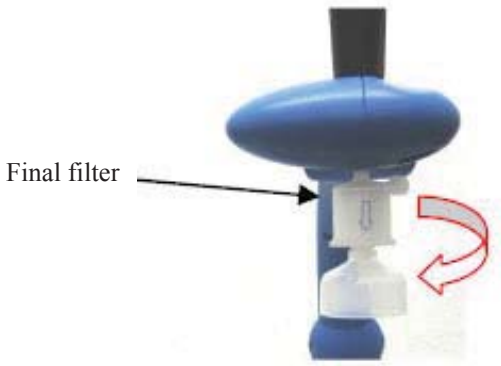
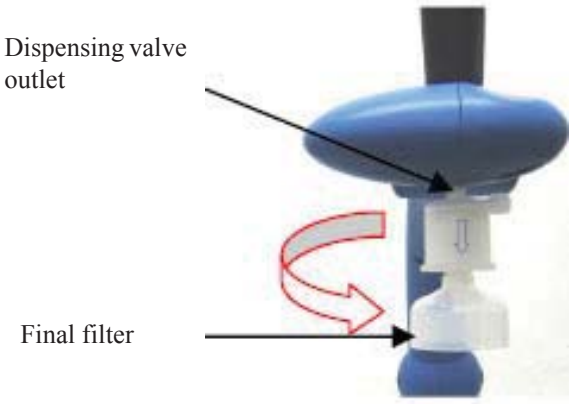
(applicable only for systems with UV lamp)

Step	Action	Figure
1	Switch the System off and shut off the supply of feedwater.	 Feedwater supply
2	Remove the cartridge cover and take off the filter cartridge.	See under chapter "Change the ultrapure cartridge" on page 85.
3	Unscrew the bracket from the mounting plate and take it up over the UV-lamp cable.	 Bracket; UV-lamp cable; UV-lamp housing
4	Draw the UV-lamp housing slightly to the front (see red arrow) to the front and take the plug off of the UV-lamp.	 Plug of the UV-lamp; UV-lamp housing
5	Now carefully draw the UV-lamp upwards while lightly turning it clockwise. During the replacement of a UV-lamp, great care must be taken to avoid touching the glass of the UV-lamp with fingers, to avoid dirtying of the lamp which would impair the functioning of it. **NOTICE** We therefore recommend that clean gloves be worn.	 UV-lamp; UV-lamp housing **NOTICE** See chapter "Structure of the UV-lamp" on page 91 where is seating the sealing ring to not damage it.

Step	Action	Figure
6	**⚠CAUTION** Ensure that the position of the sealing ring (flat o-ring at the top of the connection nut) is correct as you put in the new UV-lamp, otherwise you will have a leak. The sealing ring must be seat in the rabbet of the connecting nut (see picture a and b). Carefully introduce the new UV-lamp under a slight turning motion like before but in the anti-clockwise direction (see picture c). Attach the plug into the lamp and push the housing back to the system. Once it is in place, re-mount the bracket holding the UV housing onto the system's the mounting plate.	a.  b.  c. 

Step	Action	Figure
7	Put the cartridge cover back on (see under section "Change the ultrapure cartridge" on page 85), re-open the feed water supply and switch the system on again.	 Feedwater supply  
8	Push the menu button until "Enter code" is displayed. **NOTICE** The Code to do this transaction please refer from the Code table under section "Code lock" on page 82. You need a level 3 code. a. After entering the code push the Menu and UV button simultaneously. The display shows UV Menu. b. Push the Menu button repeatedly until new UV-lamp appears and press enter to confirm. c. The system sets the operating hours counter of the UV-lamp back and save the new values by an automatically calibration. **NOTICE** The UV-lamp must be switched on (Nonstop mode). The calibration process of the UV intensity can be take between 5 min. and 2 hours.	a.  b. 

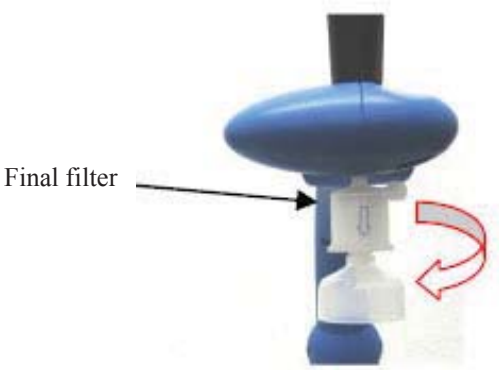
Change and autoclave the Final filter

Step	Action	Figure
1	Screw out the blocked or used final filter by turn it in clockwise direction.	
2	Unpacking the new Final filter and screw in the filter counter clockwise (See arrow in the picture) in the dispensing valve outlet (R 1/4” female thread)	
3	Rinse about 3 liters through final filter before use.	

Autoclave the Final filter

NOTICE

To increase the lifetime of the filter you can autoclave it. To autoclave the final filter proceed as follows.

Step	Action	Figure
1	Unscrew the used final filter by turn it in clockwise direction.	
2	Use a autoclave to sterilize the filter. The temperature of the autoclaving process must be 121°C and should take 30 min. You can repeat the procedure for the filter up to 5 times. When the sterilization is finished screw in the final filter back to the dispensing valve outlet (see chapter "Change and autoclave the Final filter" on page 96). **NOTICE** If you are trying to dispense water and nothing is coming out from the outlet, the final filter is blocked. Please look then in chapter "Trouble shooting" on page 101 or change with a new one.	

Change and autoclave the Final filter

Waste disposal

NOTICE

Before you are shipping your Thermo Scientific Barnstead Ultrapure Water System to the waste disposal, only a specially trained personal is to be taken out the system of operation.

When the packaging is no longer needed it can be disposed of as household waste.

Systems are in conformity with EEC Guideline 2011/65/EU.

The system is not to be thrown away as household waste but must be properly disposed of. It can be returned to the manufacturer for safe disposal according to EEC Guideline 2011/65/EU. We therefore request our customers in Germany and other member States in the European Economic Area to contact our local service center or our headquarters or per E-Mail to:

weee.recycle@thermofisher.com

WEEE-Reg.-no.: DE 12471402

In countries outside of the European Economic Area, please contact your local authorities or waste disposal company.

Trouble shooting

NOTICE

If the error can not be solved by the customer, the service is should be to refrain.

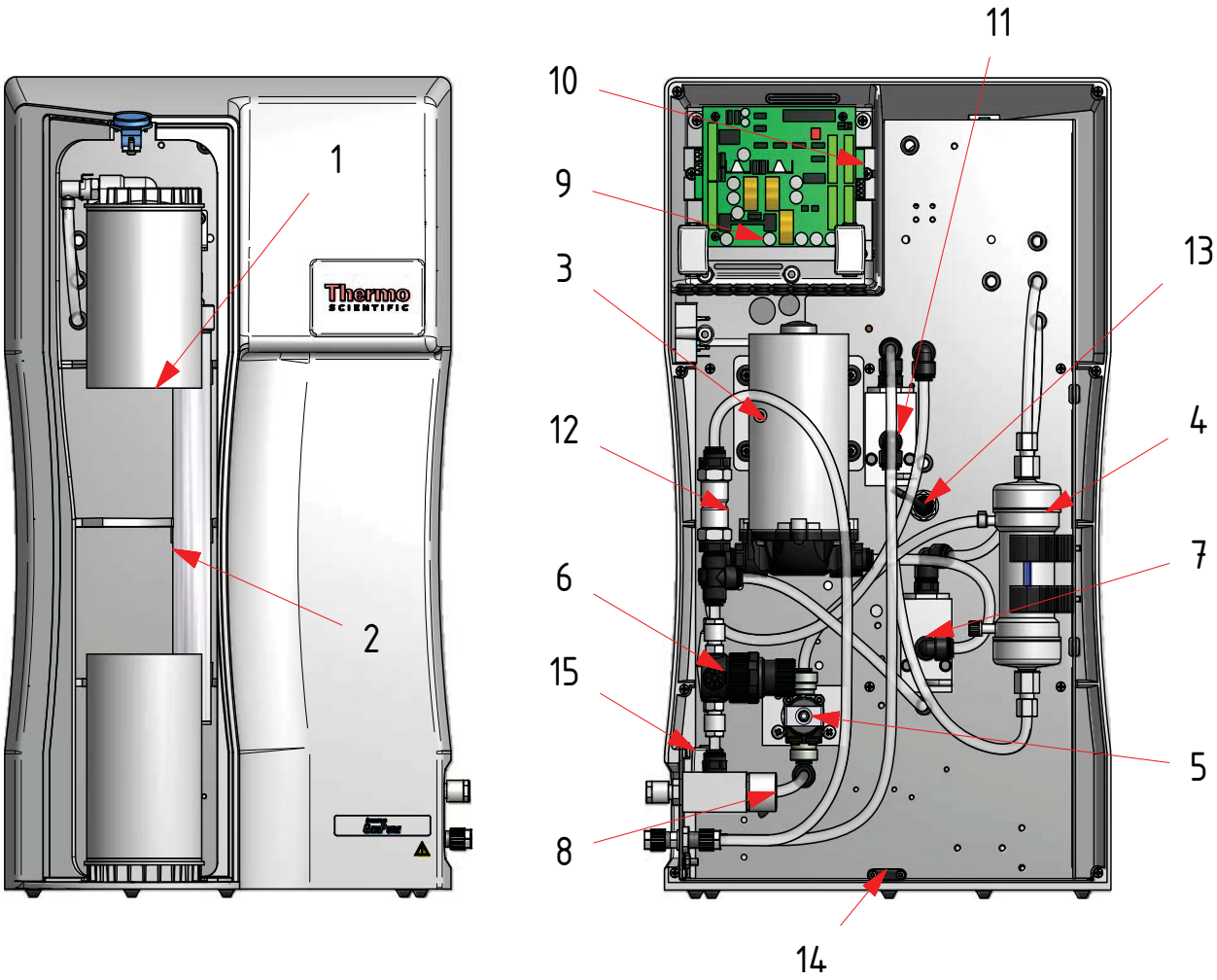
Error	Cause	Remedy
The system does not start	• No supply of power	• Provide power
Dispensing not possible	• Feedwater tap is closed	• Open the feedwater tap
	• Feedwater and rinse water connections are mixed up	• Correct the connections
	• Feedwater pressure < 0.1 bar	• Increase the feedwater pressure
	• Final Filter is blocked	• Change with a new one
Resistance < 18.2 MΩ·cm	• Ion exchange capacity is exhausted	• Replace ultrapure cartridge with a new one
	• Poor feedwater	• Correct feedwater
	• Temperature compensation turned off calibration needed	• Turn temperature compensation on (Display should show “TC” in bottom right)
		• Contact Service for calibration
System control no longer reacts	• Improper operation	• Unplug the mains plug for 5 seconds. Contact the Service.
	• error PCB	• Contact Thermo for service
	• Faulty Dispense button	
Water flows out	• Leaky hose connection	• Check and seal the hose connection
	• Feedwater pressure > 6 bar	• Install a pressure reducer
		• Contact Thermo for service

Error	Cause	Remedy
Dispensed amount is too small	• UF-Module blocked	• Replace UF-module
	• Feed water pressure too low	• Increase the feed water pressure
	• Internal pressure too low	• Readjust pressure reducer
	• Volumetric Dispense out of Tolerance	• Contact Thermo for volume calibration
Wrong time or date	• Time zone	• Reset time and date
	• Summer/winter time	
Wrong language	• Wrong language set	• Correct the language setting
Error message: *"Limit value feed"*	• Feedwater conductivity too high	• Check the pretreatment
	• Limiting value set too low	• Check and suit the limiting value setting
	• TOC selected on non-TOC units	• Turn LF3 to off
Display reads +IN	• Measuring cell cable break	• Replace measuring cell
Error message: *"Lim. va.pure w."*	• Ultrapure cartridge exhausted	• Replace with new ultrapure cartridge
	• Limiting value set too low	• Check and set the limiting value
Error message: *"UV-duration"*	• UV-Lamp operating time has been exceeded	• Replace the UV-lamp
		• Re-set the operating time counter
Error message: *"UV-intensity"*	• UV-Lamp intensity no longer sufficient	• Replace and measure in a new UV-lamp
	• UV-Sensor is dirty	• Clean the UV-sensor
	• Limiting value set too low	• Check and set the limiting value
Error message: *"max. Temperature"*	• The temperature in the system is too high	• Reduce the temperature by running water off
	• Interval pump time too long	• Reduce interval pump time
	• Limiting value set too low	• Check and suit the limiting value
	• Feedwater temperature is too high	• Reduce the feedwater temperature
Error message: *"Measuring cell LF1"*	• Measuring cell cable break	• Replace the measuring cell
	• System control defect	• Replace system control
	• Conductivity of ultrapure water outside of the measuring range	• see "Resistance < 18.2 MΩ·cm" on page 101

Error	Cause	Remedy
Error message: *"Measuring cell LF2"*	• Measuring cell cable break	• Replace the measuring cell
	• System control defect	• Replace system control
	• Feedwater conductivity outside of measuring range	• see *"Error message: "Limit value feed""* on page 102
Error message: *"Measuring cell LF3"*	• Measuring cell cable break	• Replace the measuring cell
	• System control defect	• Replace system control
Error message: *"Temp. meas. cell."*	• A break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
Error message: *"change cartridge"*	• Operating hours of the filter cartridge has expired	• Replace it with a new one

Replacement parts

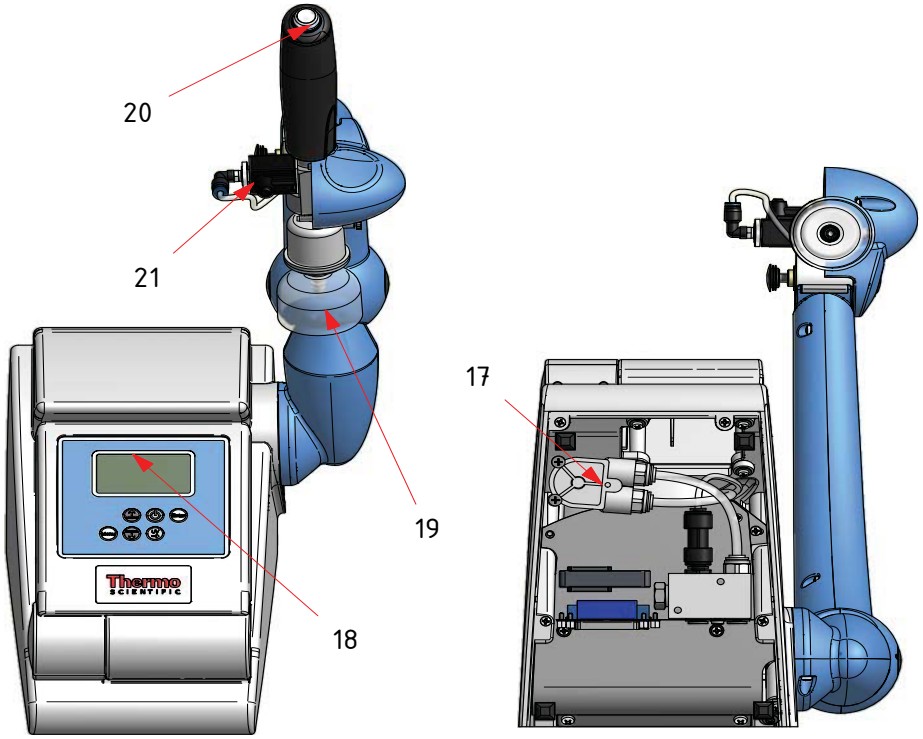
GenPure



Parts marked with an „“x“ must be changed by a qualified service professional

Pos.	Designation	Catalog no.	
1	Ultrapure cartridge	09.2005	
2	UV lamp complete Replacement UV lamp	26.0063 09.2002	
3	Circulation pump	50149262	x
4	Ultrafiltration module (only UF)	50133980	
5	Rinsing solenoid valve	50131190	x
6	Pressure reducer	15.0109	
7	TOC conductivity measuring cell (only UV - TOC)	50133992	
8	Feedwater conductivity measuring cell	16.0126	
9	Interface board	16.0408	
10	UV Ballast unit	22.0088	
11	Ultrapure water measuring cell with temperature sensor	50133992	
12	Check valve	50150598	
13	UV-Intensity sensor (only UV - TOC)	16.0222	
14	Leakage sensor	16.0389	
15	G fuse holder 5 x 20 mm G fuse, 5 x 20 mm, 4.0 A	50143154 50150714	
16	Table top power pack (not shown)	50149597	

xCAD Server/ xCAD Client



Pos.	Designation	Catalog no.	
17	Flow meter	15.0100	
18	Server: CPU Board with display	16.0409	
	Client: CPU Board with display	16.0410	
19	Final filter 0.2 µm	09.1003	
20	Press button	16.0370	x
21	Dispensing solenoid valve	15.0101	x
22	Extension cable SUB-D, 25-pin, GenPure / xCAD (not shown)	16.0375	
23	Extension cable SUB-D, 9-pin, xCAD/ Printer (not shown)	16.0378	

NOTICE

We ask for your understanding that our guarantee for this system is invalid when replacement parts, accessories or consumables materials from other manufactures are used in or for the system, as we have no influence on their composition or quality.

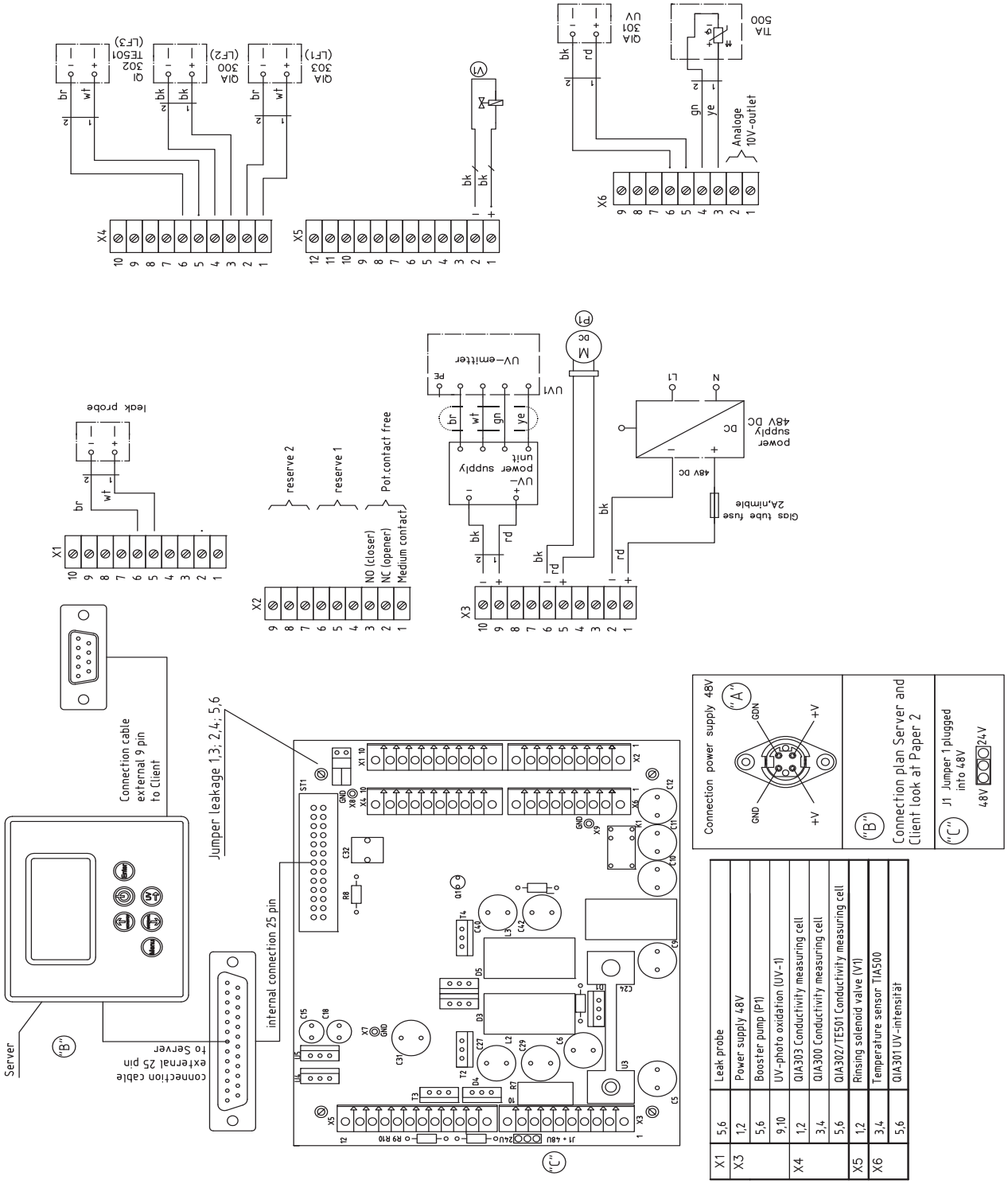
Consumable materials

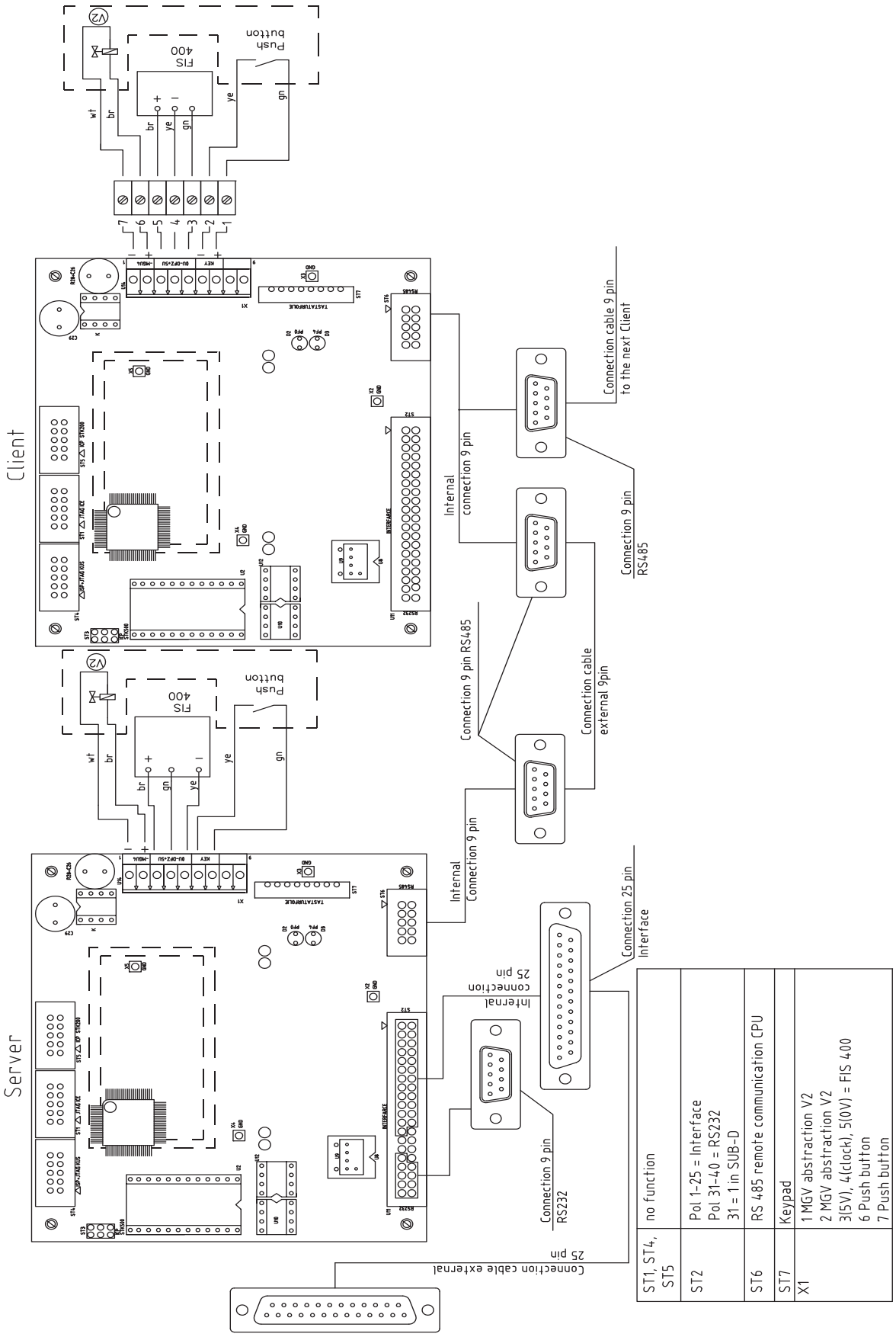
Designation	Catalog no.
Ultrapure cartridge	09.2005
UV-Lamp	09.2002
Ultrafiltration module	50133980
Final filter 0.2 µm	09.1003

Accessories

Designation	Catalog no.
Disinfection cartridge	09.2201
Cleaning Solution, 1 syringe	CMX25
Printer	09.2207
Ion exchanger DI 1500	02.1500
DI 1500 hose kit for new installations	04.1690

Terminal assignments




Client
Server
Push button
FIS 400
Internal connection 9 pin
Connection cable 9 pin to the next Client
Connection 9 pin RS485
Connection cable external 9pin
Connection 25 pin Interface
Internal connection 25 pin
Connection 9 pin RS232
Connection cable external 25 pin
ST1, ST4, ST5 no function
ST2 Pol 1-25 = Interface
Pol 31-40 = RS232
31 = 1 in SUB-D
ST6 RS 485 remote communication CPU
ST7 Keypad
X1 1 MGV abstraction V2
2 MGV abstraction V2
3(5V), 4(clock), 5(0V) = FIS 400
6 Push button
7 Push button

Maintenance records

Customer address:	Location:	
		System type:
		Serial no.:
		Year made:

Date	Feedwater resistance [MΩxcm]	Ultrapure water resistance [MΩxcm]	Temperature [°C]	TOC value [ppb]	UV intensity [%]	UV-lamp operating time [h]

Ultrapure water flow rate [l/h]	Last filter cartridge replacement	Last cleaning, disinfection	Remarks	Signature

Any false entry is considered to be a falsification of documents.

The following point should be observed for maintenance of the quality of the system:

- 1x / Weekly, acquire measured values.

Contact Information Thermo Scientific

The address to contact when your system requires service:

Overview of Thermo Scientific International Sales Organization

Postal address USA:

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275 Aiken Road
Asheville, NC 28804
USA

Enquiries from USA/Canada

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Service +1 800 438 4851

Enquiries from Latin America

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Enquiries from Asia:

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Support Mobile 4006505118 or +86 10 8419 3588

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Service: +81 45 453 9224

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Service: +65 6872 9720

Enquiries from Countries not listed / Rest of EMEA

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