



VWR Purity PU 15

INSTRUCTION MANUAL



Version: 1
Issued: 18.03.2013





Legal Address of manufacture

Belgium

VWR International bvba
Researchpark Haasrode 2020
Geldenaaksebaan 464
B - 3001 Leuven

Tel.: 016 385 011
Fax: 016 385 385
E-mail:
customerservice@be.vwr.com

Country of origin

Germany



Puranity PU 15



Preface

Dear Sir or Madam

In deciding to purchase an ultrapure water system from the Purity PU 15 series, you have selected a high-quality product.

Before you start to install and work with your Purity PU 15 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.

Thank you for the confidence you have placed in us.

Table of Contents

1. Symbols & conventions	1
2. Package contents	2
3. Safety information	3
3.1 Warning	4
4. Use	5
4.1 Intended use	5
4.2 Unintended use	5
5. Accessories & spares	6
5.1 Spares	7
5.2 Accessories	7
6. Specifications	8
7. Description of how the systems functions	10
7.1 Flow chart for Purity PU 15	10
7.2 Flow chart for Purity PU 15 UV/UF	11
7.3 Flow chart for Purity PU 15 UV	12
8. Installation	13
8.1 Installation area	13
8.2 Installation	14
8.3 Mounting the power pack (voltage supply)	16
8.4 Wall mounting (option)	17
9. Putting the system into operation	18
9.1 Venting the sterile filter	18
10. Instruction for use	19
11. The system control	20
11.1 Menu	21
11.1.1 Feedwater conductivity	21
11.1.2 Ultrapure water limiting value:	21
11.1.3 UV-Lamp operating time and intensity:	22
11.1.4 Filter cartridge operating time counter:	22
11.1.5 Rinsing	22
11.1.6 Disinfection	23
11.1.7 Display of fault storage:	24
11.1.8 Data print out	25
11.1.9 Unlocking the system	25

11.2 OEM Menu:.....	27
11.2.1 Setting the limiting temperature for the system:.....	27
11.2.2 Setting the rinsing time:.....	28
11.2.3 Changing the disinfection time:.....	28
11.2.4 Setting the interval time for the pump:.....	28
11.2.5 Setting the interval rinse time:.....	29
11.2.6 Setting the real-time clock:.....	29
11.2.7 Setting the sending interval:.....	29
11.2.8 Selecting the language:.....	30
11.2.9 Switching units:.....	30
11.2.10 Switching temperature compensation on/off:.....	30
12. General maintenance	31
12.1 Maintenance intervals.....	32
12.2 Change the filter cartridge	33
12.3 Disinfection procedure	34
12.4 Change the ultrafilter	36
12.5 Change the UV lamp	37
13. Equipment disposal	38
14. Trouble shooting.....	39
15. Technical service	41
16. Warranty.....	42
16.1 Compliance with local laws and regulations	42
17. Appendix	43
17.1 Terminal assignment	43
17.2 Maintenance record	44

1. Symbols & conventions



EU Mark of Conformity



This symbol indicates the presence of high voltage and warns the user to proceed with caution.



Important operating and/or maintenance instructions! Read the operating instructions with due care.

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



General information! Particularly important notes are marked with this information sign.



Protective conductor connection

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

The information provided in these operating instructions is only valid for the system which has the serial number which is to be entered on the front page.



Please enter the serial number* of your Purity PU 15 system in space provided on the front page.

* Read the serial number of your ultrapure water system from the type plate.

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

- The article number

2. Package contents

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

Examination on receipt

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



Does the packaging show signs of damage?

- Inspect the system for damage.

Complaints

Should damage have occurred to the goods during transport:

- Immediately contact the post, railway or forwarding agent *.
- Save the complete packaging, including the cardboard box, for a possible inspection of them and/or return shipment of the system.

Packing for return

If possible, use the original box and packaging material.

When these are no longer available, then:

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



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

3. Safety information



For your own safety, please observe the above safety precautions!

- Each system of the Puranility PU 15 series is a modern ultrapure through out water system, exclusively designed for the purification of tap water of drinking water quality.
- Please do not start to install and operate your system until you have read through the information given in these operating instructions.
- Please note that the manufacturer is freed from all liability when the system is used for other than the intended purpose and/or is improperly operated.
- Lifting and carrying the ultrapure water system, e.g. to the installation location, should be carried out by two people. To lift it, each takes hold of it under the base plate at two corners.
- The CE-mark is invalidated when constructional changes are made to the system or foreign products are installed in it.
- Protect the system from frost. The temperature at the installation area must be at least + 2°C.
- Observe all general rules and regulations that are valid at the installation location, including the current accident prevention regulations.
- The feedwater pressure must be min. 1 bar and max. 6 bar. An additional pressure reducer must be installed should it be higher.
- According to DIN EN 1717 (for German and Europe), water purification systems must be equipped with a device that safeguards the tap water against contamination.
- A suitable electric socket must be made available for the system (refer to Technical Specifications).
- The installation area must have a drain floor or a gravity floor with at least DN(nominal diameter) 50 pipe and which allows free run off. Should no such drain be available, we recommend the installation of a water watcher (article no. 171-1126), otherwise the manufacturer will not accept any liability for water damage.(specifically for Europe)
- When the system is to be wall-mounted, please previously check that the wall has a sufficient load-bearing capacity (refer to Technical Specifications for the weight). The ultrapure water system only be mounted on a concrete wall or a solid masonry.
- The maximum operating temperature of the system is 40°C.

- If neither a floor drain is not is available, then proceed as follows during longer system standstills (e.g. long holidays):
 - **Switch the system off (unplug the mains plug).**
 - **Shut off the supply of water to the ultrapure water system.**Do not re-start the system with the water supply still in the shut off condition, as the pump would then suffer damage. The manufacturer will not accept any liability should this occur. When restarting your system, please open the feedwater to the ultrapure system and follow our sanitization instructions to put your system into operation.
- When installing the ultrapure water system, ensure that there is sufficient working room around it for problem-free operation of it as well as for filter replacement, checking connections etc.
- The warranty is valid for a period of 2 years!
- Never look directly at a switched-on UV-lamp, because UV light endangers eyesight!
Never switch the UV-lamp on when is has been taken out of the metal cylinder!

3.1 Warning

- Installing the appliance incorrectly, making incorrect settings on it or modifying it can lead to damage, injury or even death.
- Do not put your fingers in socket of electrical connector because a electrical shock you can have.
- Do not swap any electrical parts of the unit when it is on and works, because there is a danger of electrical shock exist.

4. Use

4.1 Intended use

Puranity PU 15 ultrapure water systems are a reaction to actual user needs, the continually increasing requirements that water of ultrapure quality must fulfill, the increasingly strict demands resulting from technological advances and the need for user-friendly systems and complete solutions.

Puranity PU 15 systems have therefore been solely and specifically designed for the production of ultrapure water which is free of particles, salts and organic compounds and is sterile filtered.

Application areas

- Analytical methods:

- HPLC (**H**igh **P**erformance **L**iquid **C**hromatography)
- IC (**I**on **C**hromatography)
- ICP (**I**nductive **C**oupled Argon **P**lasma)
- AAS (**A**tomically **A**bsorption **S**pectrophotometry)
- TOC Analysis (**T**otal **O**rganic **C**arbon)
- etc.

- Reagent and solution preparation:

- Cell culture media
- Tissue culture media

Ultraclean washing and rinsing processes in laboratories

4.2 Unintended use

It must be stated according to standard din en iso 12100

5. Accessories & spares

Purality PU 15 ultrapure water system versions with performances of up to 1.5 l/min are available as follows:

Article no.: 171-1100	Purality PU 15 Standard	(Standard system)
Article no.: 171-1101	Purality PU 15 UV/UF	(Standard system + UV-Photooxidation + Ultrafiltrationmodule)
Article no.: 171-1102	Purality PU 15 UV	(Standard system + UV-Photooxidation)

(Please check that your system corresponds to the article number given on the delivery note.)

1x Purality PU 15 (according to version)	Article no. 171-xxxx
together with an assembly kit , consisting of:	
Filter cartridge	Article no. 171-1104
Sterile filter capsule, 0.2 µm	Article no. 171-1105
Feedwater connecting kit, R 3/4"	Article no. 171-1127
Rinse water hose, 8 mm o.d., 3 m	Article no. 171-1128
Tabletop power pack, 24 VDC	Article no. 171-1121
Universal adapter	Article no. 171-1129
Universal holder	Article no. 171-1130
Connecting cord (rubber connector to nema plug connector)	Article no. 171-1131
Connecting cord (rubber connector to british ST plug connector)	Article no. 171-1132
Connecting cord (rubber connector to euro plug connector)	Article no. 171-1133

5.1 Spares

Article designation	Article no.
Filter cartridge	171-1104
Sterile filter	171-1105
Ultrafiltration module	171-1106
Circulation pump	171-1107
Replacement UV-lamp	171-1108
UV-Booster	171-1153
Feedwater conductivity measuring cell	171-1109
Ultrapure water conductivity measuring cell	171-1177
Temperature sensor	171-1111
Pressure reducer	171-1112
Check valve	171-1113
Ultrapure water dispensing valve	171-1114
Rinsing solenoid valve	171-1115
Microprocessor control interface	171-1116
Microprocessor control CPU with LCD display	171-1117
Fuseholder for glas tube fuse, 5 x 20mm	171-1118
Glas tube fuse, 5 x 20mm, 3,15 A, slow	171-1119
Table power pack 24V DC	171-1121

5.2 Accessories

Designation	Article no.
Disinfection cartridge	171-1183
Disinfection agent, MICRO-Chlor (pack of 12 cans, Europe only)	171-1123
Cleaning Solution, 1 syringe (US-market only)	171-1124
Wall-bracket	171-1125

6. Specifications

Demands on the feedwater	
Source	Potable tap water pretreated by reverse osmosis, ion exchange or distillation.
Feedwater resistance	> 0.20 MΩxcm
Free chlorine	max. 0.05 ppm
TOC Value	max. 50 ppb
Turbidity	< 1.0 NTU
Carbon dioxide	max. 30 ppm
Silicate	max. 2 ppm
Pressure	0.1- 6 bar, A pressure reducer must be connected in series when the feedwater pressure is > 6 bar.
Temperature	+2 - +35 °C

Product water quality			
	Standard	UV/UF	UV
Conductivity μS/cm	0.055	0.055	0.055
Resistance MΩxcm at 25°C	18.2	18.2	18.2
RNase ng/ml	--	--	<0.003
DNase pg/ul	--	--	<0.4
TOC ppb	5 - 10	1 - 5	1 - 5
Bacteria CFU/ml	< 1	< 1	< 1
Bacterial endotoxines EU/ml	--	0.001*	--
Particles > 0.2 μm per ml	< 1	< 1	< 1
Flow rate L/min	1.5	1.0	1.5

* Contingent on the feedwater and disinfection!

Dimensions	
Height:	545 mm
Width:	305 mm
Depth:	300 mm
Weight:	
Purity PU 15 Standard	approx. 17 kg
Purity PU 15 UV/UF	approx. 17 kg
Purity PU 15 UV	approx. 17 kg

Water connectors	
Feedwater	Hose, 8 mm o.d./ R 3/4"
Rinse water	Hose, 8 mm o.d.

Cell constants of the measuring cells	
Feedwater conductivity	0.16 cm ⁻¹
Ultrapure water conductivity	0.01 cm ⁻¹

Electrical connections / external switched mode power supply	
Input voltage	AC 100 – 240 V, 50 – 60 Hz, 5 – 3.8 A
Output voltage	DC 24 V, 3.8 A
System connection	DC 24 V, 80 W
Potential-free contact	max. 30V, 2A
Protection Class	Class II (external SMPS certified as Class I)

Airborne sound emission	
Sound-pressure level	43 dB(A)

Ambient conditions (DIN EN 61010-1 (VDE 0411-1):2011-02)	
Usage	Indoor rooms
Height	Up to 2000 m
Temperature range	From 5° C to 40° C
Relative humidity	Maximum relative humidity 80 % at temperatures of up to 31° C, linearly decreasing to 50 % relative humidity at 40° C
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 60364-4-44). <u>Note:</u> The rated level of transient overvoltage is the withstand impulse voltage acc. to overvoltage category II of IEC 60364-4-44
Ventilation requirements	There are no special requirements with regard to ventilation.
Degree of pollution	2

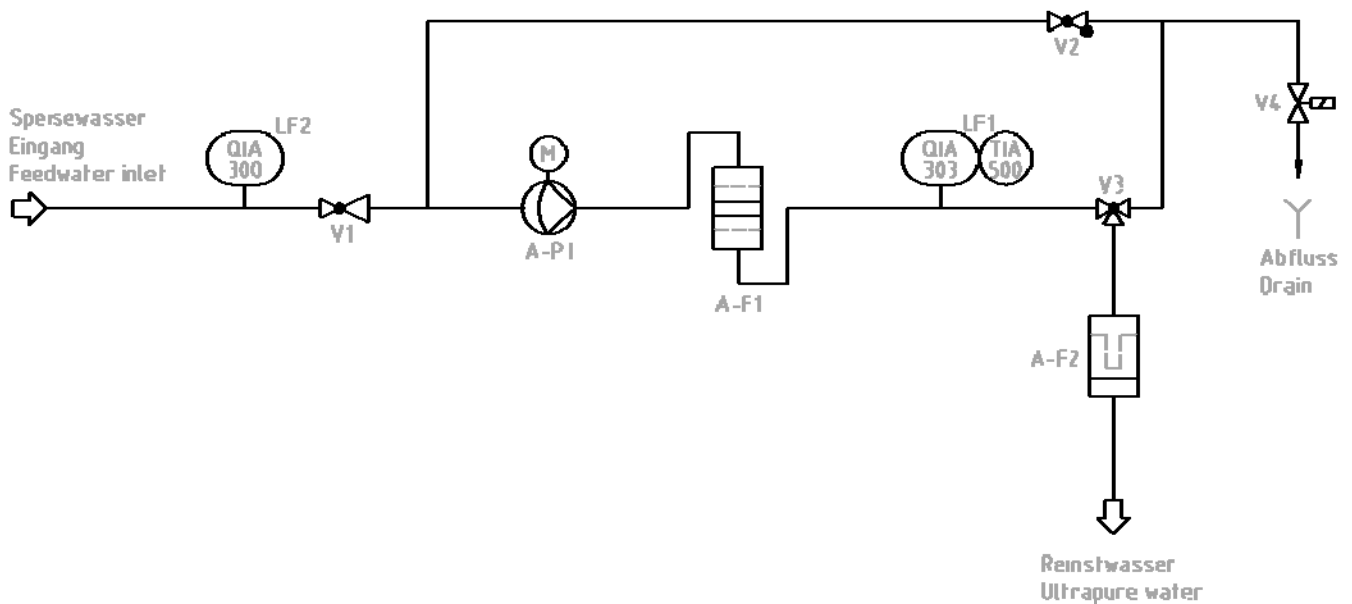
Parts which contact water	
Pump head	Nylon with glass fibre
UV-Lamp	High-purity synthetic quartz
UV Housing	Stainless steel
Filter cartridge	PP
UF Housing	Polycarbonate
Rinsing solenoid valve	PA
Pressure reducer	VA, EPDM
Dispensing valve	POM
Conductivity measuring cells	PVC, stainless steel
Connections	POM
Hoses	PE
O-Rings	EPDM
Sterile filter	PP, PE, PSU

7. Description of how the systems functions

Purity PU 15, UV/UF, UV

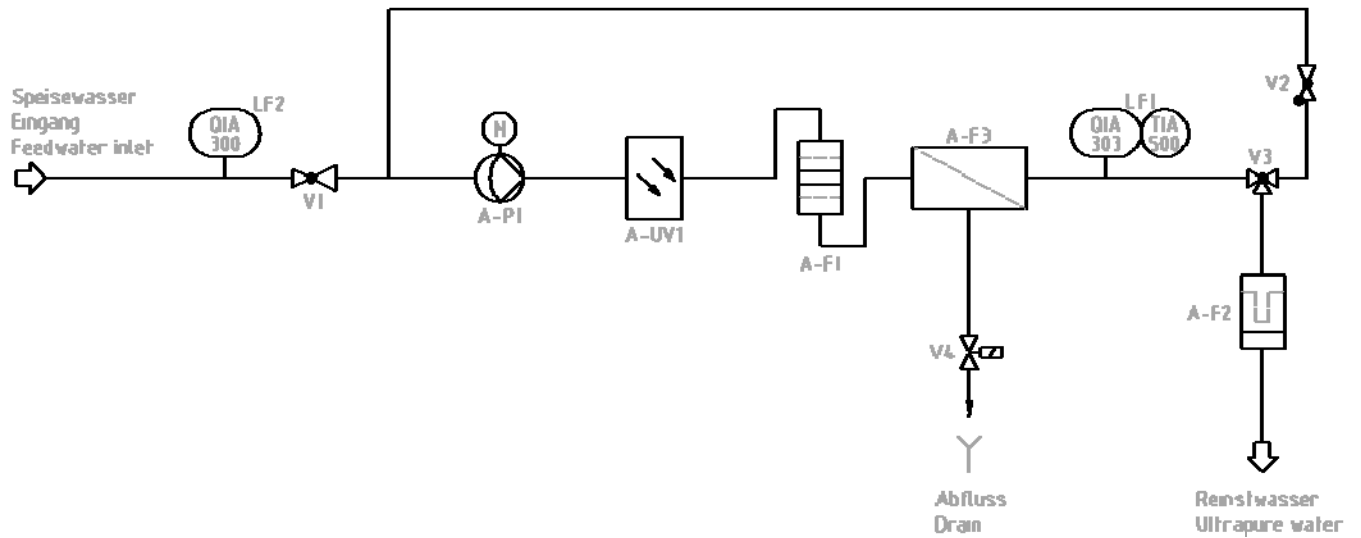
Tap water that has been pretreated by reverse osmosis, ion exchange or distillation flows through a pressure reducer and into the ultrapure water system, where the electric conductivity of it is monitored. A pump forces this feedwater through UV-photooxidation (only with Purity PU 15 UV and Purity PU 15 UV/UF) and a filter cartridge. Following this, the water is further pumped through an ultrafiltration module (only with Purity PU 15 UF and Purity PU 15 UV/UF) and on past a special conductivity measuring cell equipped with temperature compensation which continuously measures the conductivity. When treated water is dispensed, it flows through a sterile filter before exiting from the ultrapure water outlet. The water inside the system is recirculated at regular time intervals during the "Interval" mode.

7.1 Flow chart for Purity PU 15



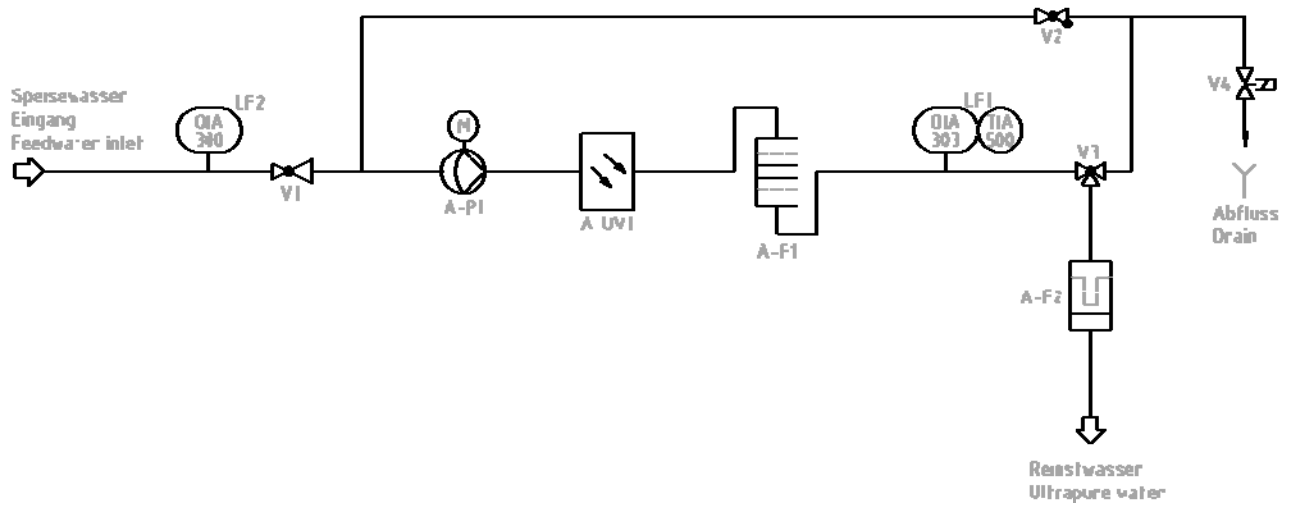
A-F1	Filter cartridge
A-F2	Sterile filter
A-P1	Circulation pump
QIA 300	Feedwater conductivity
QIA 303	Ultrapure water conductivity
TIA 500	Temperature sensor
V1	Pressure reducer
V2	Check valve
V3	Dispensing valve
V4	Solenoid rinsing valve

7.2 Flow chart for Purity PU 15 UV/UF



A-F1	Filter cartridge
A-F2	Sterile filter
A-F3	Ultrafiltration module
A-P1	Circulation pump
A-UV1	UV-photooxidation
QIA 300	Feedwater conductivity
QIA 303	Ultrapure water conductivity
TIA 500	Temperature sensor
V1	Pressure reducer
V2	Check valve
V3	Dispensing valve
V4	Solenoid rinsing valve

7.3 Flow chart for Purity PU 15 UV



A-F1	Filter cartridge
A-F2	Sterile filter
A-P1	Circulation pump
A-UV1	UV-photooxidation
QIA 300	Feedwater conductivity
QIA 303	Ultrapure water conductivity
TIA 500	Temperature sensor
V1	Pressure reducer
V2	Check valve
V3	Dispensing valve
V4	Solenoid rinsing valve

8. Installation

8.1 Installation area

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

- Feedwater pressure, not below 0.1 bar, not above 6 bar.



The feedwater pressure must not be allowed to go above 6 bar. Install an additional pressure reducer when the feedwater pressure is higher.

- Minimum temperature + 2°C.
- Level standing surface
- A smooth wall is required when the system is to be wall-mounted.
- The standing or wall surface must be strong enough to hold the system (for system weight, see "Technical Specifications")
- A gravity drain with a DN(nominal diameter) 50 size (id 38.5 mm) waste pipe is required.
When no such floor drain is available, install a water watcher (article no.: 171-1126) to guard against water damage! (specifically for Europe)



Free gravity flow to drain must be ensured!

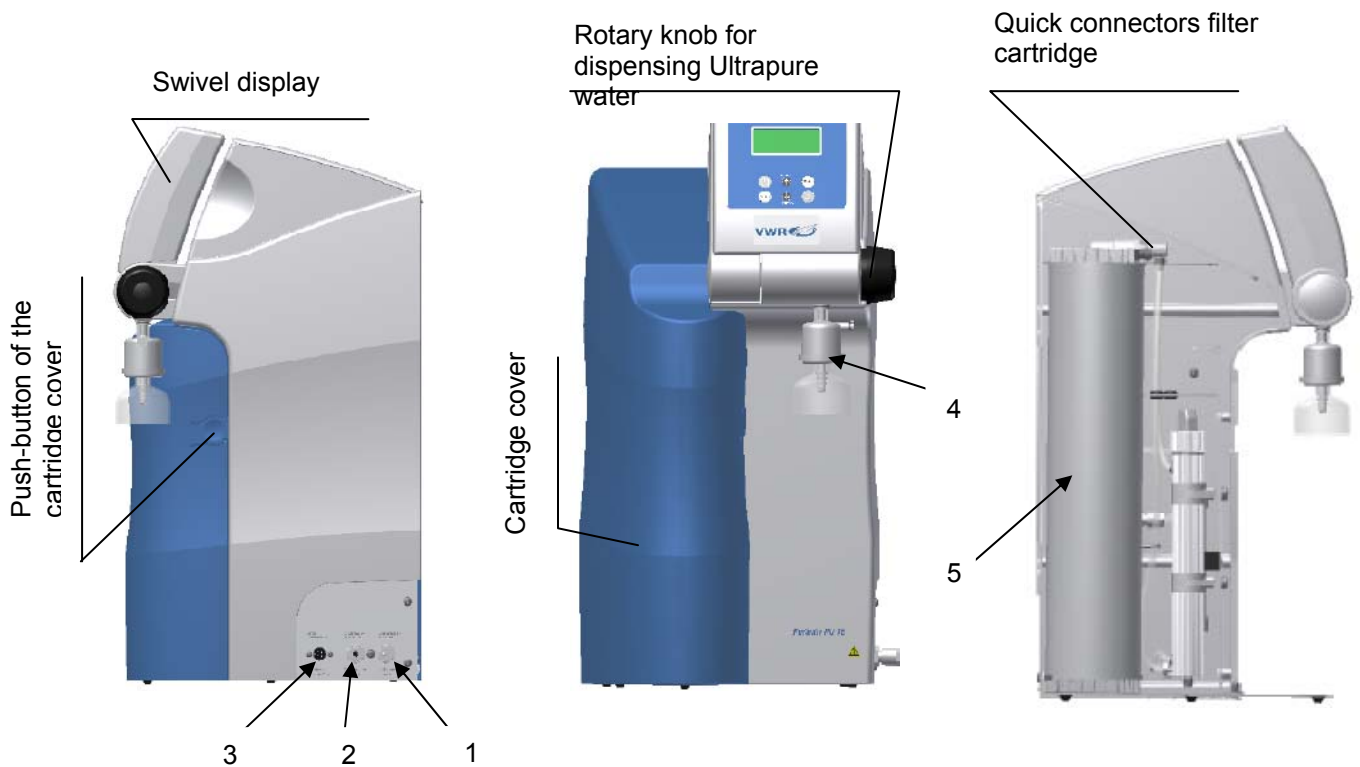
- An electric socket with protective conductor must be available for connection of the system to the voltage supply (see Technical specifications).



Position the system so that there is no difficulty in separating the device from the electric mains.

- There must be sufficient working space around the system (filter replacement etc.).
- The system must be easy to operate and check.
- R 3/4" pre-treated-water connection.

8.2 Installation



- 1) Feedwater connector Hose, 8 mm od
- 2) Rinse water connector Hose, 8 mm od.
- 3) Connection power supply 4-pin 24V DC
- 4) Sterile filter
- 5) Filter cartridge

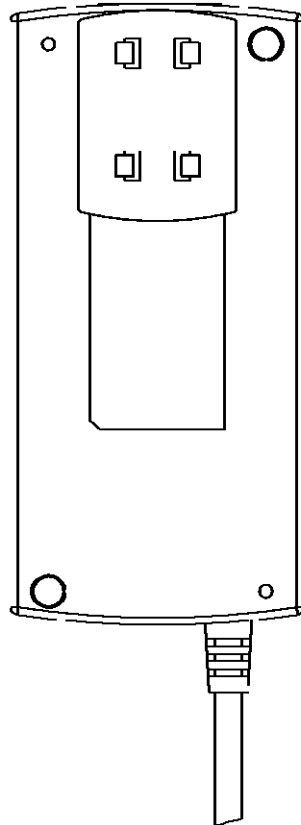
Proceed as follows to install and start your Puraniti PU 15 ultrapure water system:

- Either stand the system on the intended surface or hang it on a wall using the wall-mount which is available as an accessory.
- Press the push-button of the cartridge cover to unlock the cover. Remove the cover.
- Remove the stoppers from the filter cartridge (5) which is supplied with the system and save them for possible return of the spent filter cartridge (only when it is to carry out waste disposal).
- Fit filter cartridge (5) in the free space at the back of the compartment, then plug the 2 quick-connect couplings onto the filter cartridge connections so that they audibly snap into position.
- Use the R3/4" feedwater hose kit to make connection to the feedwater connector (1).
- Position the dirt-trap sieve (from the hose kit) in the 3/4" threaded connector of the feedwater hose and screw this connector to the water tap which can be turned off.

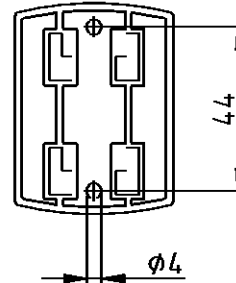
- Use the 8 mm o.d. rinse water hose supplied to make a pressureless connection from the system (2) to the waste drain.
- When the sterile filter which is standardly supplied is to be put to use, screw it to the outlet of the dispensing valve (R 1/4" female thread).
- Open the water tap so that feedwater is supplied and check that all connections are leak-free.
- Replace the cartridge housing cover and ensure that the catch at the right of the cover locks into position.

8.3 Mounting the power pack (voltage supply)

Back view power supply



Universal adapter



Wall mount
with screws

- Whenever possible, mount the power pack on the wall to the left or right of the ultrapure water system where it is freely accessible.
- Stick the universal holder which is supplied in the assembly kit to the back of the power pack as shown in the above Figure.
- 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.
- When the universal holder and universal adapter have been fitted, hang the power pack in.
- Plug the connecting cable (appliance cable) in the power pack socket.
- Connect the power pack to the ultrapure water system (4-pin power supply connector, pos. 3).
- The system is now ready for use.

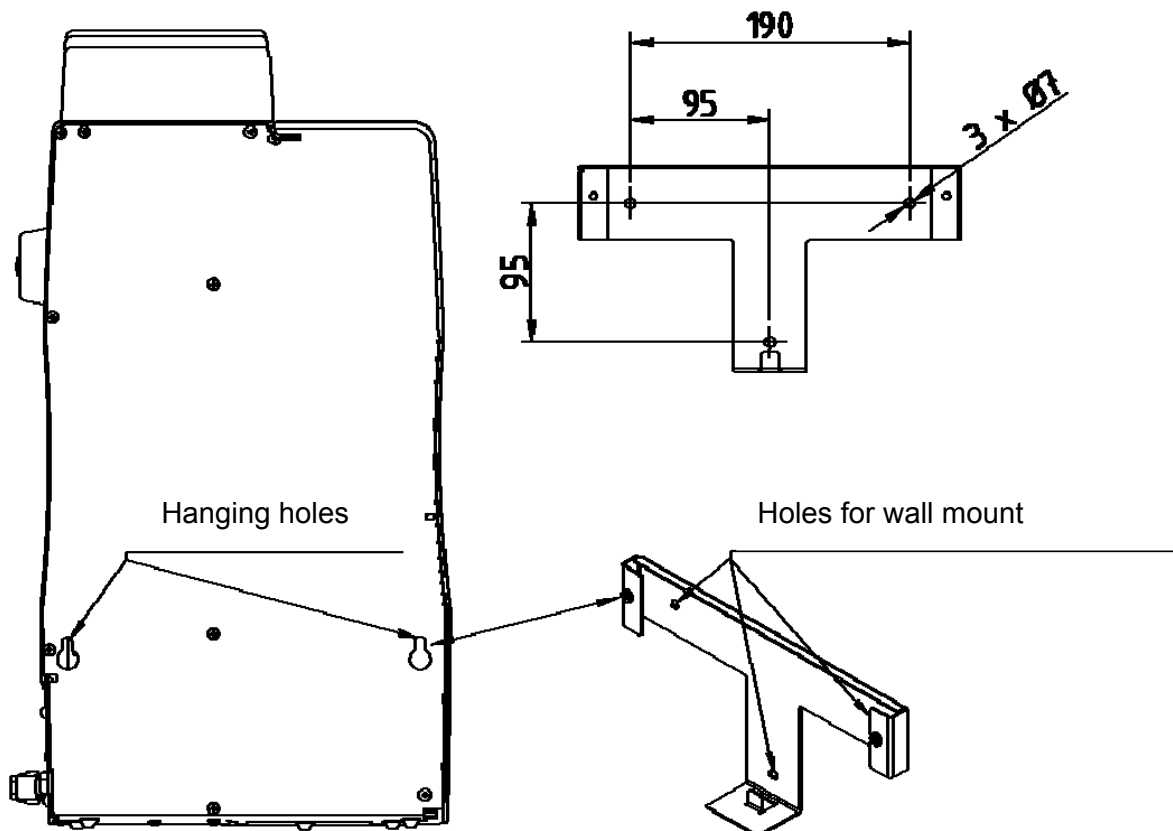
8.4 Wall mounting (option)

Please use the wall-mount (article number 171-1125) to mount the system on a wall. Fasten it to the wall by means of three screws.



The screws and dowels are supplied with the wall mount, are exclusively to fix the wall mount to a concrete wall or a solid masonry!

- Use the twist drill (8 mm or 5/16 inch) to make the three holes in the wall that required as shown in the diagram,
- Plug the nylon S8 dowels that are with supplied in the holes. Screw the 6 x 40 mm screws that are also with supplied in the dowels.
- Lift the Purity PU 15 system (2 people are required for this) and hang the back side of it on the wall bracket.



9. Putting the system into operation

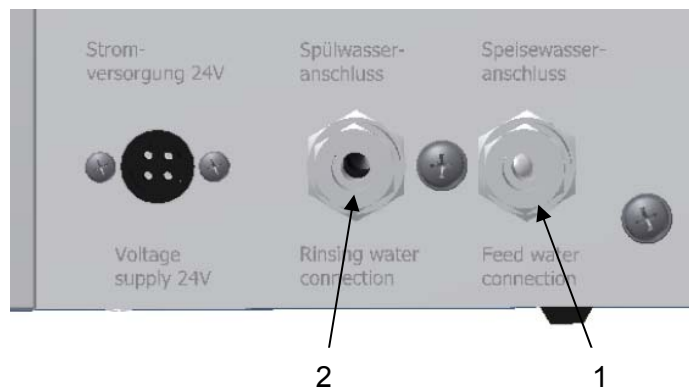


Allow the system to warm up to, or to cool down to, room temperature before starting it up for the first time.



Check that all hose connections have been made as specified in the "Setting up the system" section.

- 1) Feedwater connector hose, 8 mm od
- 2) Rinse water connector hose, 8 mm od.



Switch the system on by pressing this button. After a compulsory rinse the system switches to the last operating mode.



To vent air from the system, switch the system 3 times successively to "Rinsing" in the menu and collect and discard approx. 5 litres of water each time. The ultrapure water limiting value can be gone below during this procedure.

NONSTOP



Use this "NONSTOP"-key to switch the system to the "Nonstop" operating mode.



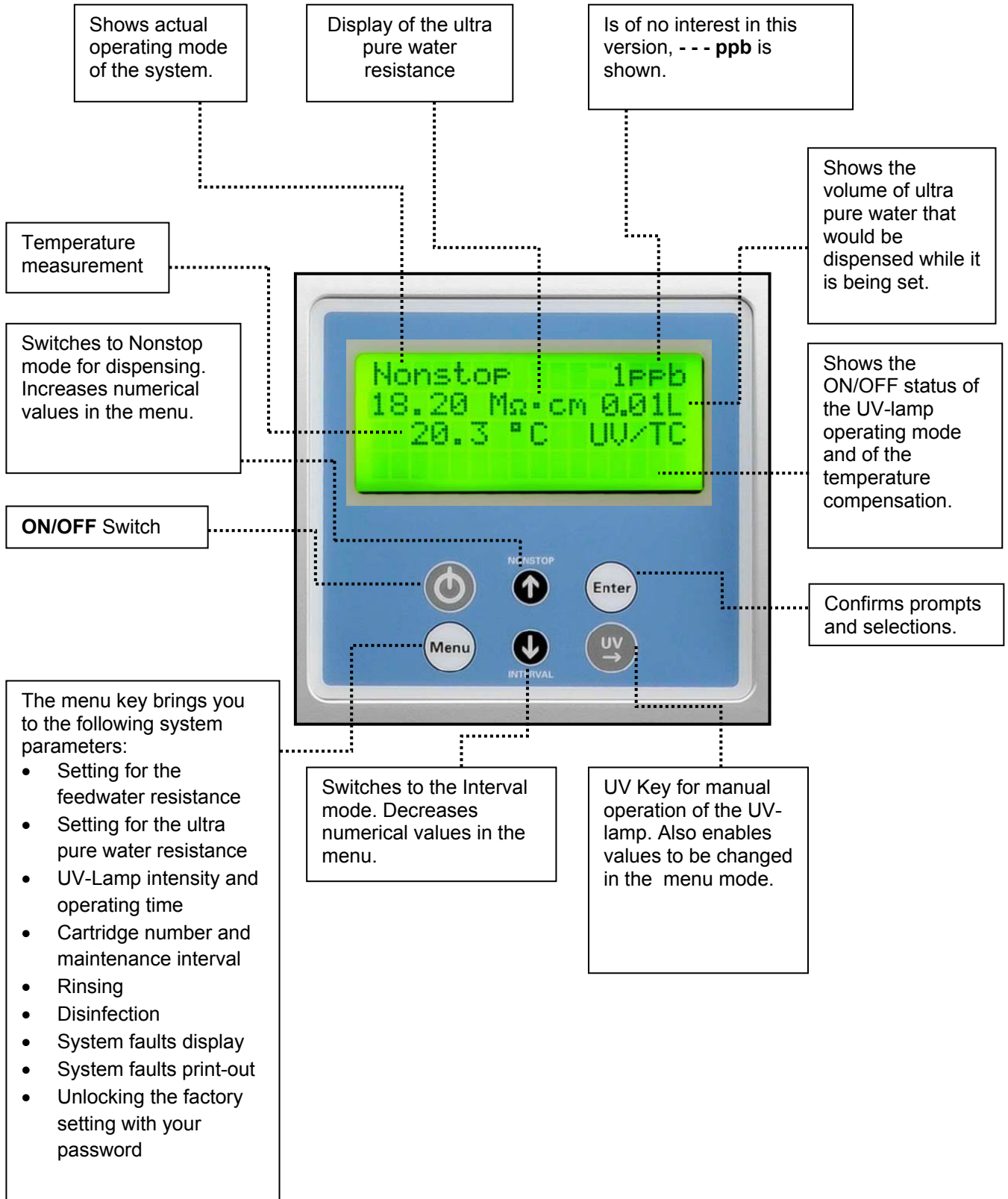
INTERVAL

You can set the system back to "Interval" operation when the system has brought the ultrapure water to the quality you require.

9.1 Venting the sterile filter

Vent the sterile filter by turning the milled screw anti-clockwise and closing it after all air has emerged, i.e. when no more ultrapure water flows out.

10. Instruction for use



11. The system control

General information

A press on the ON/OFF-key causes the system to run in the *Interval* operating mode (see Interval mode).

Interval operation then starts up automatically every 0.5 hours and runs for the set length of time to ensure the high ultrapure water quality.

The "UV" text message is displayed when the UV-lamp is on. The "TC" message is displayed when temperature compensation of measured values is active. In addition, the measured values of ultrapure water conductivity and temperature are displayed.

In the case of a fault, a fault message is given out across the potential-free output and the fault is shown in line 4 of the display. Should several faults occur simultaneously, then they are alternately displayed.

When the Nonstop-key is now pressed, the system switches to the *Nonstop* mode, the pump is started and the solenoid rinsing valve opens for the set rinsing time. *Nonstop* operation can be stopped by pressing the Interval-key. After a wait of 2 hours, the system switches itself back to the Interval mode.

A press on the UV-key brings "UV" to display, but the UV-lamp is only switched on when the system is in the Nonstop mode and switches itself off when Nonstop mode is ended (2 h). When Nonstop operation is manually stopped by a press on the Interval-key, however, the UV-lamp is not switched off until it has been burning for 0.5 hours.

User-menu

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

A press on the menu-key brings you to this menu. Each further press on the menu-key moves you further from one menu prompt to the next.

Settings can be changed with the arrow keys. When you confirm a value by pressing the Enter-key, you are taken to the next menu prompt. Settings can only be made when the system control has been previously unlocked.

To simplify changing settings, a press on the UV-key allows you to select a certain individual number in the numerical value that you wish to change. The arrow-keys can then be used to enter the wanted number from 0 to 9 at the selected position.

A minimum and a maximum measured value are fixed in the programme for all three measuring cells for conductivity and the temperature sensor. Should measured values be below or above these values respectively, then it must be assumed that there is a cable break. In such a case, the appropriate fault message "Measuring cell LF1", "Measuring cell LF2", "Measuring cell LF3" or "Measuring cell Temp." is displayed in line 4.

11.1 Menu

11.1.1 Feedwater conductivity

After a single press on the menu-key, the feedwater conductivity can be read and the limiting value of the feedwater conductivity can be set. The fault message that flashes in the fourth line of the display when the feedwater limiting value is exceeded is "Limit value feed" (Measuring point LF2).

Measuring range, feedwater: 10.0- 0.010 MΩxcm

Setting range, limiting value: 0.1- 50.0 μS/cm

Basic setting: 0.50 MΩxcm

With settings higher than 50 μS/cm, the limiting value is switched off and the word "Off" is shown in the display.

The display shows:

Feedwater 1.25 MΩxcm Limit value feed 2.0 μS/cm
--

11.1.2 Ultrapure water limiting value:

After a second press on the menu-key, the fault display for the ultrapure water limiting value and the ultrapure water limiting value can be set. As soon as the fault display is switched on, the fault is displayed both in Stand-by mode and Production mode. When the fault display is switched off, the fault is only displayed in Production mode. When the entered limiting value is exceeded, "Lim. val.pure w." is displayed.

Measuring range, ultrapure water: 0.1000 MΩxcm

Setting range, limiting value: 0.055- 5.000 μS/cm

Basic setting: 10.0 MΩxcm

Basic setting, fault suppression: On

With settings higher than 5.000 μS/cm, the limiting value is switched off and the word "Off" is shown in the display.

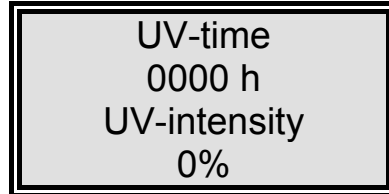
The display shows:

Fault message Stand-by On Lim. val. pure w. 0.100 μS/cm
--

11.1.3 UV-Lamp operating time and intensity:

Not active in this version.

The display shows:



UV-time
0000 h
UV-intensity
0%

11.1.4 Filter cartridge operating time counter:

The operating time counter for the filter cartridge can be set in this menu by a fourth press on the menu-key and the entry of a valid serial number for the filter cartridge.

The display shows:



Ser. no.:
cartridge
Press enter
----/--

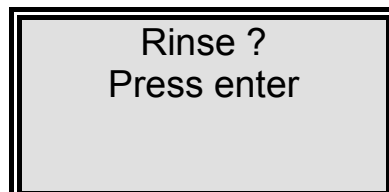
11.1.5 Rinsing

A fifth press on the menu key in this menu allows rinsing to be carried out if this is necessary. Triggering is made by confirming the requirement with a press on the Enter-key. The pump is started and the rinsing solenoid valve is opened for the rinsing time period set in the OEM-menu.

The count-down of the rinsing time is displayed during rinsing.

When rinsing has finished, the system returns to the last operating mode (Interval or Nonstop).

The display shows:



Rinse ?
Press enter

During rinsing, the display shows:

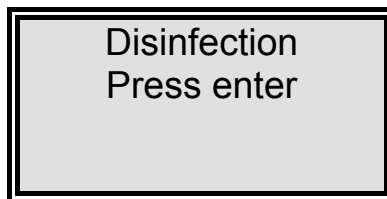


11.1.6 Disinfection

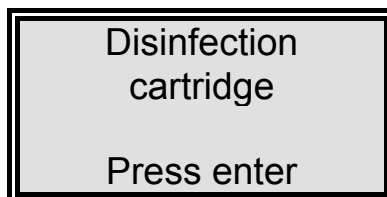
A sixth press on the menu-key gives you the possibility of carrying out disinfection. The command "*Disinfection cartridge. Install one*" is shown when this menu-prompt is confirmed with Enter. After confirming this with Enter, disinfection is carried out. The pump runs for the disinfection time that has been set in the OEM-menu. When half of the disinfection time has passed, the rinsing solenoid valve opens and stays open up to the end of the disinfection process. The "*New filter cartridge. Install one*" message is given when the disinfection process has finished

The system returns to the last operating mode when this is confirmed with Enter. A count-down of the disinfection time is shown in the display during disinfection.

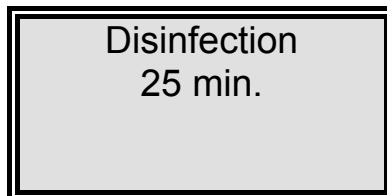
The display shows:



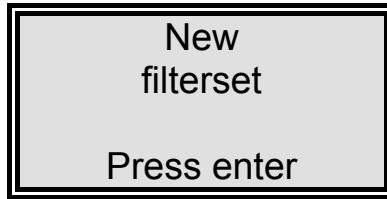
After confirmation with Enter, the display shows:



During disinfection, the display shows:



After disinfection, the display shows:



11.1.7 Display of fault storage:

A seventh press on the menu-key calls the fault storage. Confirmation with Enter allows you to look through the faults in the fault storage.

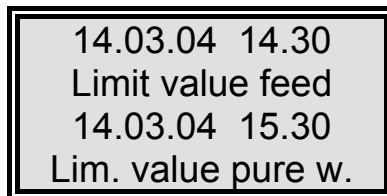
Should several faults have occurred, then two faults, each with date and time, are shown in the display. Appropriate pressing of the arrow-keys brings previous and subsequent faults to display.

A press on the menu-key or the Enter-key returns the display to the last operating mode.

The display shows:



The fault storage display shows:



11.1.8 Data print out

Not active in this version.

The display shows:



11.1.9 Unlocking the system

An nine press on the menu-key in this menu brings you to the “Code” menu. To prevent unauthorized access to the settings in the system control, changes to the settings can only be carried out when a correct code from the Assignment Table that follows is entered and confirmed with the Enter-key.

Unlocking remains active for 5 minutes.

Each access via the code is issued to the printer (RS 232) complete with date, time and abbreviated code number (“Code 0001” corresponds to code 150, “Code 0002” to code 250 etc.).

The display shows:



Code numbers can be assigned to individual persons in the Assignment Table on the following page.
Please remove this page from the Operating Instructions and store it where it is safe from unauthorized viewing.

**Table for assigning permissible code numbers
for unlocking the system**

Code no.	Printer output	Person
150	0001	
250	0002	
350	0003	
450	0004	
550	0005	
650	0006	
750	0007	
850	0008	
950	0009	

11.2 OEM Menu:

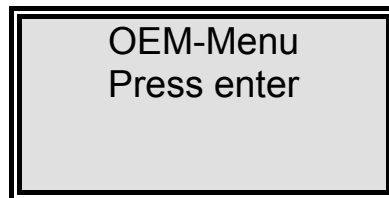
Basic settings and limiting values can be changed in this menu.
To make changes in the OEM menu, system control must previously be unlocked.

Calling the OEM menu:

Simultaneous pressing of the Interval-key and the Nonstop-key calls the OEM menu. Following this, the prompt "*OEM menu Press Enter*" appears. When this is confirmed with the Enter-key, the first menu prompt can be worked on. To simplify changing settings, press the UV-key to select the individual number in a numerical value which you want to change. Now use the arrow keys to enter the wanted number from 0 to 9 at that selected position.

A press on the menu-key takes you to the next menu prompt.

The OEM menu call display shows:



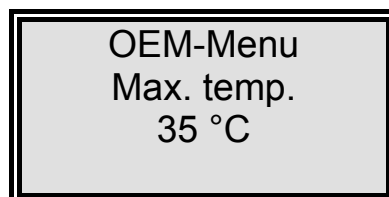
11.2.1 Setting the limiting temperature for the system:

The maximum temperature which the system is to be allowed to reach can be set in this menu. The "*max. Temperature*" fault message is triggered when this temperature is exceeded.

It is shown in the 4th line of the display.

Basic setting: 50 °C
Setting range: 1 - 50 °C

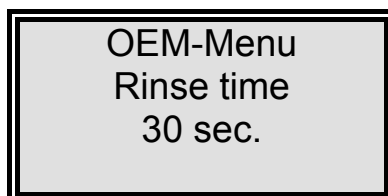
The display shows:



11.2.2 Setting the rinsing time:

Basic setting: 30 sec.
Setting range: 10 - 60 sec.

The display shows:

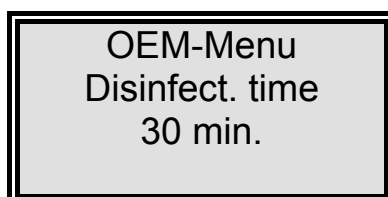


OEM-Menu
Rinse time
30 sec.

11.2.3 Changing the disinfection time:

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

The OEM menu prompt C display shows:

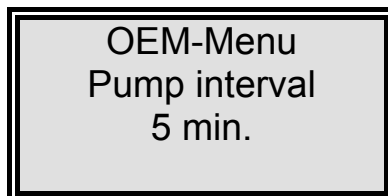


OEM-Menu
Disinfect. time
30 min.

11.2.4 Setting the interval time for the pump:

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

The display shows:

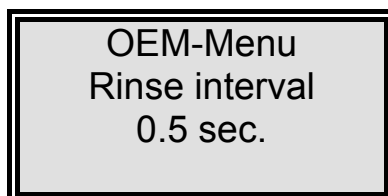


OEM-Menu
Pump interval
5 min.

11.2.5 Setting the interval rinse time:

Basic setting: 0.5 sec.
Setting range: 0.1 - 2 sec.

The display shows:

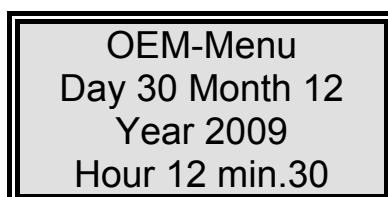


OEM-Menu
Rinse interval
0.5 sec.

11.2.6 Setting the real-time clock:

Basic setting: The actual date
Setting range: 1 - 12 Months, 1 - 31 Days, 0 - 24 h, 0 - 60 min.

The display shows:

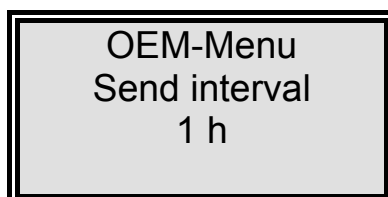


OEM-Menu
Day 30 Month 12
Year 2009
Hour 12 min.30

11.2.7 Setting the sending interval:

Not active in this version.

The display shows:



OEM-Menu
Send interval
1 h

11.2.8 Selecting the language:

Basic setting: English
Setting range: English, French, German

The display shows:



OEM-Menu
Language
English

11.2.9 Switching units:

Basic setting: Resistance $M\Omega\text{cm}$
Setting range: Resistance $M\Omega\text{cm}$,
Specific electrical resistance $M\Omega\text{cm}$

The display shows:

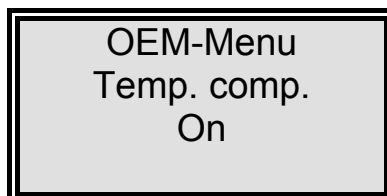


OEM-Menu
 $\mu\text{S/cm}$ / $M\Omega\text{cm}$
 $M\Omega\text{cm}$

11.2.10 Switching temperature compensation on/off:

Basic setting: on
Setting range: on, off

The display shows:



OEM-Menu
Temp. comp.
On

12. General maintenance

Regular maintenance of your system ensures that the value of it is maintained. We recommend that you select a service contract with a service company which has been expressly authorized. You then have the certainty of a high operational safety and reliability.

NOTE!

To ensure that system will work reliably for a long time, it 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!

Any maintenance work which should become necessary during the validity of the warranty is only to be carried out by an expressly authorized service company.

The operating-staff assigned is committed to carry out the weekly checks. During the agreed term of validity of the guarantee, the maintenance record sheet supplied in the operating instructions should be properly kept by entry of the results of weekly checks.

IMPORTANT

For perfect functioning to be ensured, the ultrafiltration membrane should be replaced every 2 years, or as soon as a drop in performance is determined.

Cleaning and disinfection of your system is performed for reasons of hygiene and has no effect on the technical condition of the system. The system need only be rinsed and disinfected when algae or bacteria is determined in it, when the cartridge is changed, otherwise at least once per year.



Control and maintenance work on electrical systems is only to be carried out when the system has been switched to a currentless condition at the mains and the switching off has been secured against inadvertent switching back on. Such work is only to be performed by appropriately trained, skilled electricians.

12.1 Maintenance intervals

Consumable materials are to be replaced at the intervals given in the following Table or when there is a drop in performance:

Material	Flow chart no.	Article no.	Interval*
Filter cartridge	A-F1	171-1104	12 Months ¹
0.2 µm sterile filter	A-F2	171-1105	12 Months ²
Ultrafiltration membrane	A-F3	171-1106	24 Months ¹
UV lamp	A-UV1	171-1108	24 Months ³

*Please keep in mind that the life of your consumables is directly dependent on the quality of the feed water and the amount of water used daily. The interval is contingent on the feedwater quality so that a shorter one may be necessary.

¹ Or when the ultrapure water limiting value is exceeded, whichever is shorter. Longer usage can result in bacterial growth on the resin.

² Or flow rate is noticeably slow.

³ Or unless system indicates the lamp needs to be replaced.

12.2 Change the filter cartridge

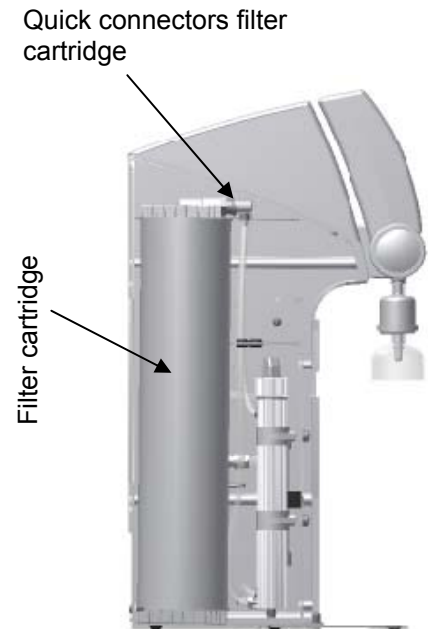


The filter cartridge must be replaced when the limiting value which you have set for the ultrapure water is exceeded. It must also be replaced after disinfection of the system.

Replace the filter cartridge with a new one as follows:

Please note that you sanitize the system each time when the filter is replaced.

1. Switch the system off.
2. Unplug the mains plug to separate the system from the mains.
3. Turn off the supply of feedwater to the system.
4. Open the dispensing valve, wait until water no longer flows out, then close it again.
5. Remove the cartridge cover.
6. Take the quick connects off of the feedwater inlet and purified water outlet of the filter cartridge. Close the connectors with the stoppers that you have kept for later use.
7. Draw the spent filter cartridge out of the guide and replace it with the new one.
8. Remove the stoppers from the new filter cartridge and save then for future use.
9. Fit the quick connects to the new cartridge inlet and outlet so that they audibly lock in position.
10. Re-open the supply of feedwater.
11. Reconnect the system to the mains.
12. Switch the system on. Check all connections for leaks.
13. Fit the cartridge cover back on.
14. Run off and discard at least 5 litres of water.



It may only be prescribed for this unit specifically tailored filter cartridge No. 171-1104 be used. Apart from that the guarantee goes out.

Switch the system to the Rinsing operating mode to vent the system.

12.3 Disinfection procedure



**Disinfection should be regularly carried out, at the latest when the filter cartridge is to be replaced.
Your system should be cleaned and disinfected at least once a year to eliminate any bacteria that are possibly in the system. We recommend that you carry out cleaning and disinfection shortly prior to the time that the filter cartridge is to be replaced.**

A disinfection cartridge, article no. 171-1183, is required for disinfection of your system.

Use cleaning solutions as follows:

MICRO-Chlor Granulate, 1 box, article no. 171-1123 (Europe only)

Cleaning Solution, 1 syringe, article no. 171-1124 (US-market only).



Please observe the information given in the safety data sheet supplied with Micro-Chlor disinfectant to avoid possible health hazards!

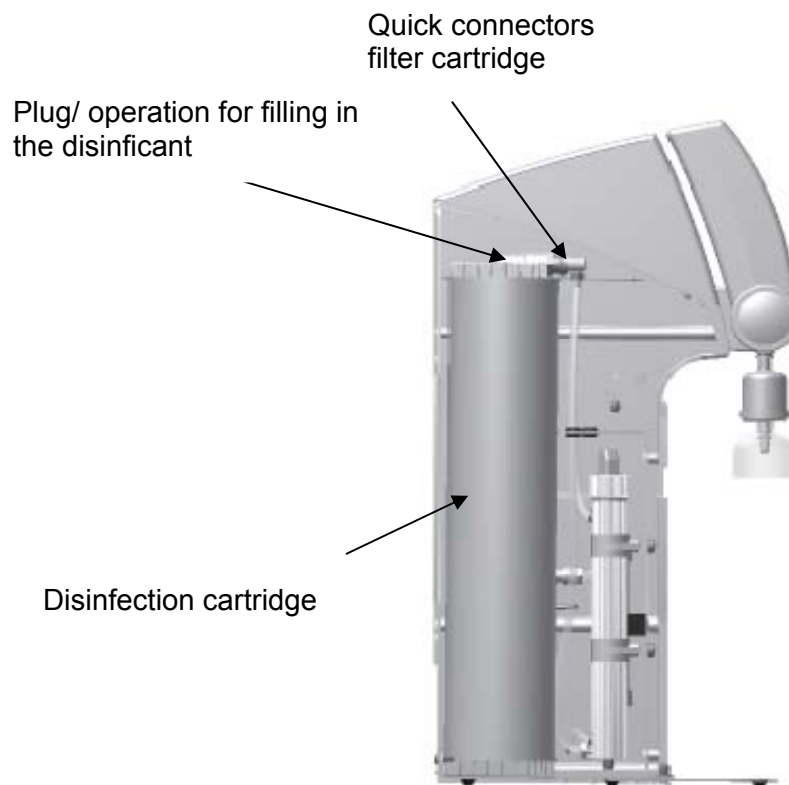
Proceed as follows to disinfect your system:

1. Switch the Micro-/ Purity PU 15 system off.
2. Shut off the supply of feedwater to the system and open the dispensing valve so that pressure in the system is completely released.
3. Remove the filter cartridge (as under "Changing the filter cartridge" in the Operating Instructions for the system).
4. Unscrew the stopper from the disinfectant cartridge, fill the cartridge with water then empty the contents of a box respectively a syringe of the cleaning solution into the water.
Important! For effective disinfection the cartridge must be completely filled with water.
5. Screw the stopper back on the disinfectant cartridge. Connect the cartridge in the system (as detailed under "Changing the filter cartridge" in the Operating Instructions for the system).
6. Re-open the feedwater supply.
7. Switch the system on and select the "Disinfection" prompt in the menu. The disinfection programme is finished after approx. 30 minutes.

8. Switch the system off.
9. Shut off the supply of feedwater to the system.
10. Remove the disinfectant cartridge (as under "Changing the filter cartridge" in the Operating Instructions for the system).
11. Connect the new filter cartridge in the system (as under "Changing the filter cartridge" in the Operating Instructions for the system).



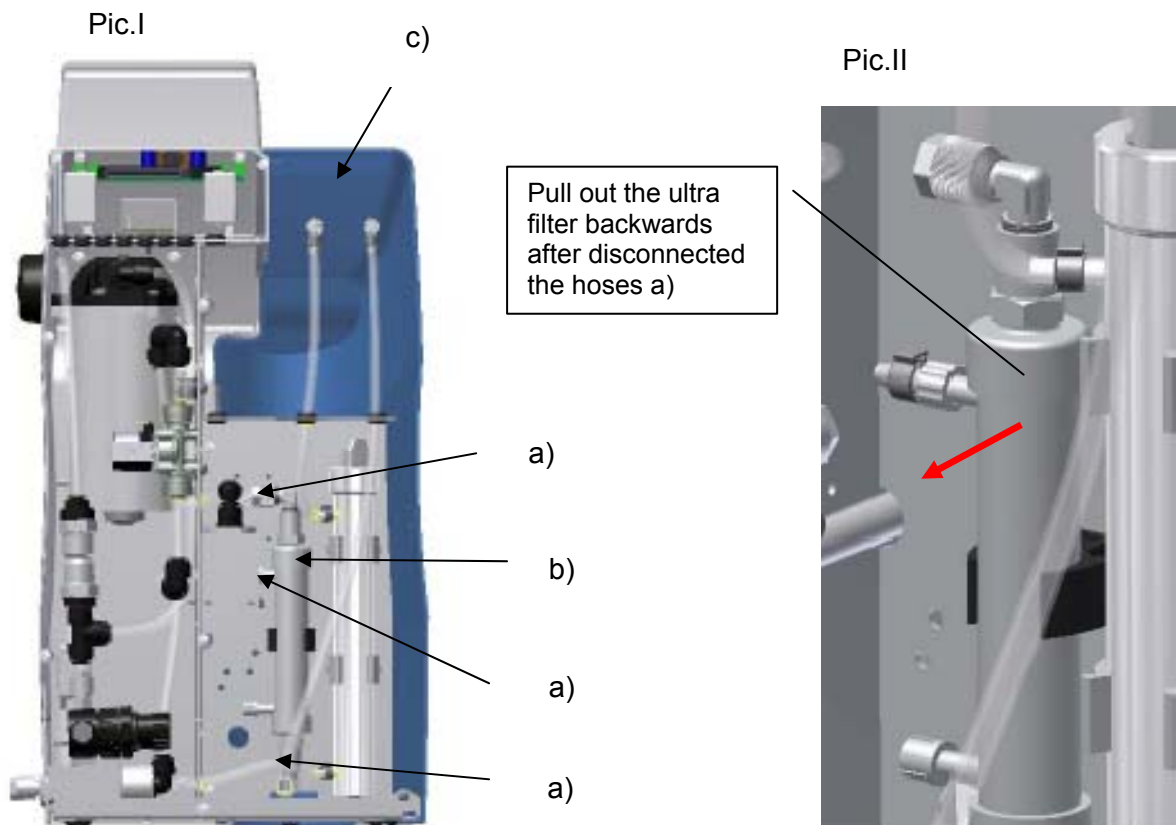
Before dispensing water from the system, let water run out for approx. 15 minutes. The system is then ready for use.



12.4 Change the ultrafilter

Proceed as follows to change the ultra filter

1. Switch the Purity PU 15 system off.
2. Shut off the supply of feedwater to the system and open the dispensing valve so that pressure in the system is completely released.
3. Remove the cartridge cover (c) and the filter cartridge (see under chapter 12.2 "Changing the filter cartridge") and draw out the hoses(a) from the ultra filter (b)(Pic.I). After this procedure draw out the ultrafilter (b) backwards and change it.(Pic.II)
4. Build the hoses (a), the filter cartridge and the cartridge cover (c) back and switches the system on again.

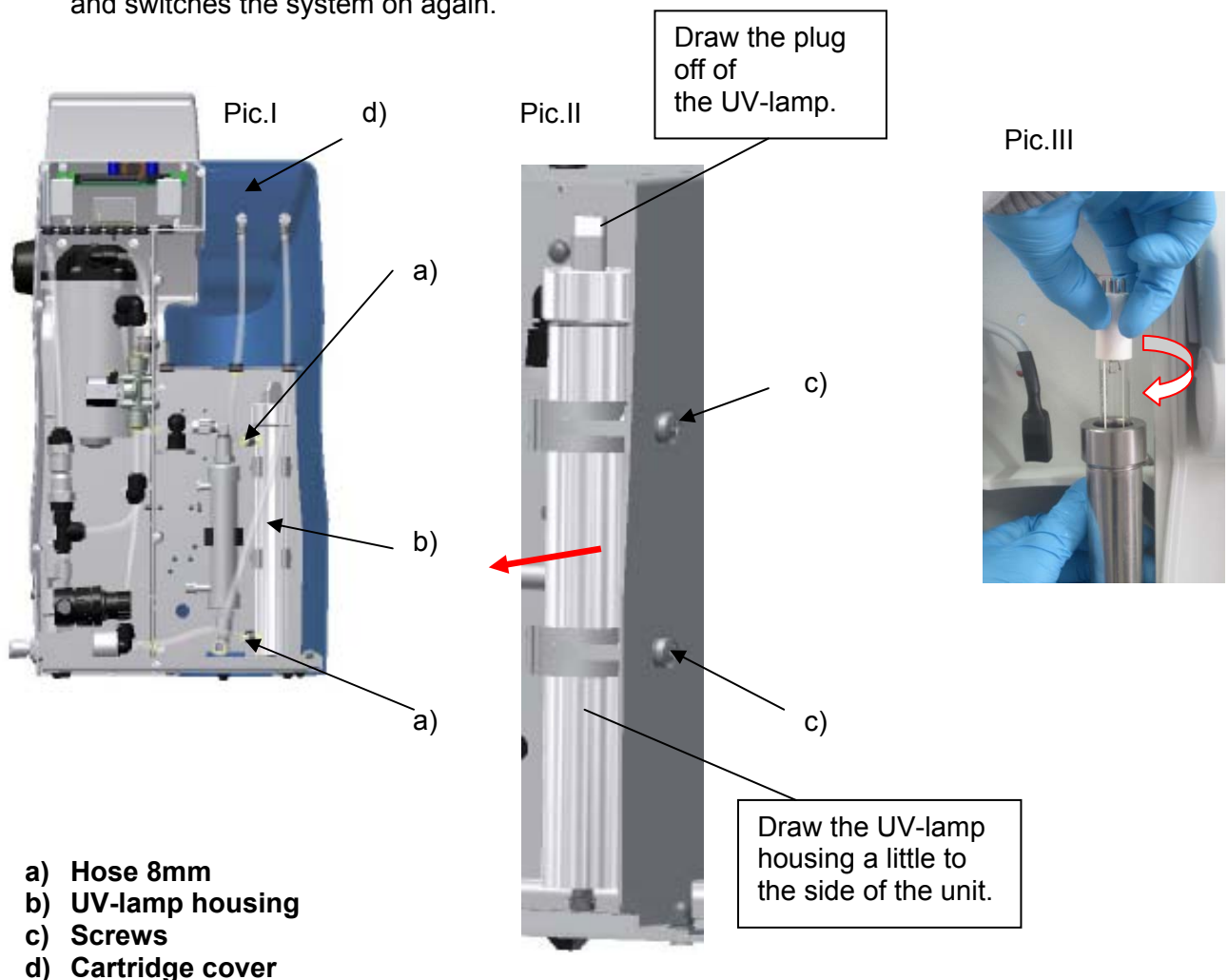


- a) Hose 8mm
- b) Ultra filter
- c) Cartridge cover

12.5 Change the UV lamp

Proceed as follows to change the UV-lamp

1. Switch the Purity PU 15 system off.
2. Shut off the supply of feedwater to the system and open the dispensing valve so that pressure in the system is completely released.
3. Remove the cartridge cover (d) and the filter cartridge (not shown, see under chapter 12.2 "Changing the filter cartridge) and pull out the hoses (a) (Pic.I). Then draw the plug off of the UV-lamp, unscrew the screws (c) and draw the UV-lamp housing (b) a little to the side of the unit (Pic.II).
4. Now carefully draw the UV-lamp upwards while lightly turning it clockwise (Pic.III). 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. We therefore recommend that clean gloves be worn.
5. Carefully introduce the new UV-lamp under a slight turning motion as before but in the anticlockwise direction. Plug the plug on the lamp and push it back in the unit.
6. Build the screws(c), the hoses (a), the filter cartridge and the cartridge cover (d) back and switches the system on again.



13. Equipment disposal



This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste.

Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate collection and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Thank you

14. Trouble shooting

Fault	Cause	Remedy
The system does not start	<ul style="list-style-type: none"> - No supply of power 	<ul style="list-style-type: none"> - Provide power
Dispensing not possible	<ul style="list-style-type: none"> - Feedwater tap is closed - Feedwater and rinse water connections are mixed up - Feedwater pressure < 0.1 bar 	<ul style="list-style-type: none"> - Open the feedwater tap - Correct the connections - Increase feedwater pressure
Resistance < 18.2 MΩxcm	<ul style="list-style-type: none"> - Ion exchange capacity is exhausted 	<ul style="list-style-type: none"> - Replace filter cartridge with a new one
System control no longer reacts	<ul style="list-style-type: none"> - Controll error 	<ul style="list-style-type: none"> - Unplug the mains plug for 5 seconds
Water flows out	<ul style="list-style-type: none"> - Leaky hose connection - Feedwater pressure > 6 bar 	<ul style="list-style-type: none"> - Check and seal the hose connection - Install a pressure reducer
Dispensed amount is too small	<ul style="list-style-type: none"> - UF-Module blocked - Pre-pressure too low - Internal pressure too low 	<ul style="list-style-type: none"> - Replace UF-module - Increase pre-pressure - Readjust pressure reducer
Wrong time or date	<ul style="list-style-type: none"> - Time zone - Summer/winter time 	<ul style="list-style-type: none"> - Reset time and date
Wrong language	<ul style="list-style-type: none"> - Wrong language set 	<ul style="list-style-type: none"> - Correct the language setting
Fault message: <i>"Limit value feed"</i>	<ul style="list-style-type: none"> - Feedwater conductivity too high - Limiting value set too low 	<ul style="list-style-type: none"> - Check the pretreatment - Check and suit the limiting value setting

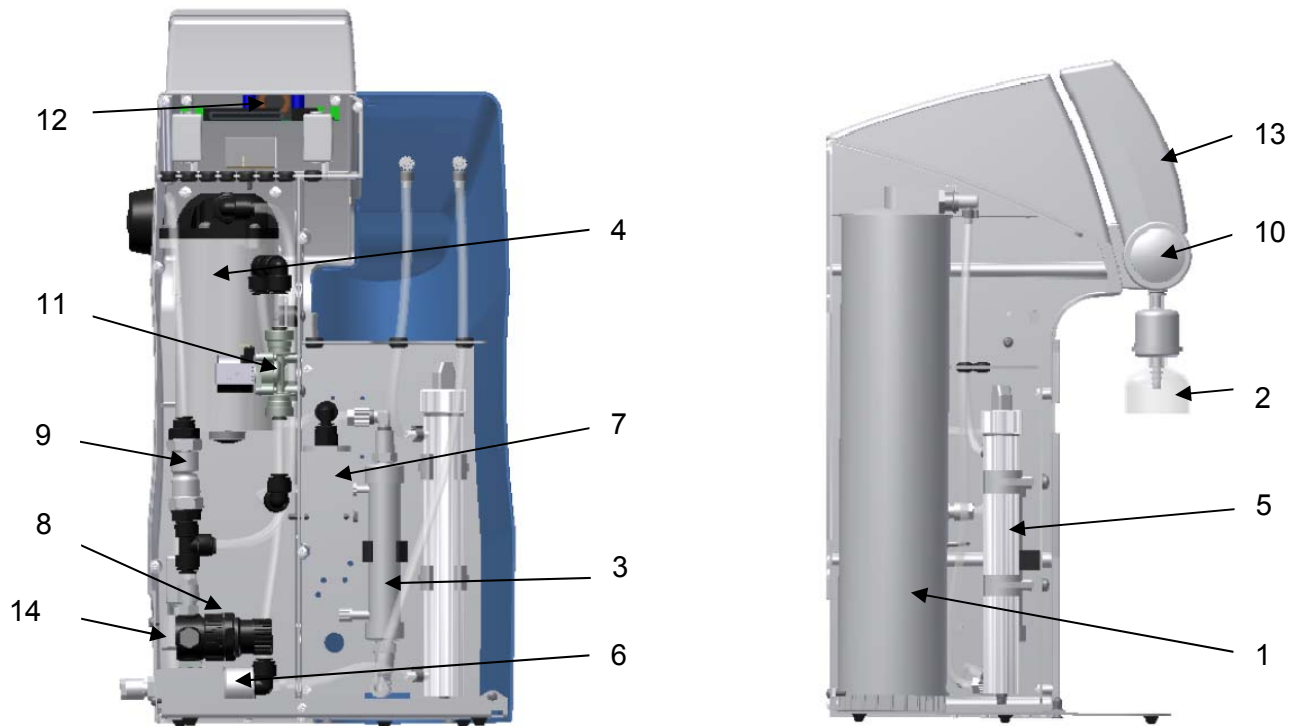
<p>Fault message: "Lim. va.pure w."</p>	<ul style="list-style-type: none"> - Filter cartridge exhausted - Limiting value set too low 	<ul style="list-style-type: none"> - Replace with new filter cartridge (art.-no.: 09.2005) - Check and suit the limiting value
<p>Fault message: "UV-time"</p>	<ul style="list-style-type: none"> - UV-Lamp operating time has been exceeded 	<ul style="list-style-type: none"> - Replace the UV-lamp (art.-no. 09.2002) and set the operating time counter back
<p>Fault message: "UV-intensity"</p>	<ul style="list-style-type: none"> - UV-Lamp intensity no longer sufficient - UV-Sensor is dirty - Limiting value set too low 	<ul style="list-style-type: none"> - Replace and measure in a new UV-lamp - Clean the UV-sensor - Check and suit the limiting value
<p>Fault message: "max.Temperature"</p>	<ul style="list-style-type: none"> - The temperature in the system is too high - Interval pump time too long - Limiting value set too low - Feedwater temperature is too high 	<ul style="list-style-type: none"> - Reduce the temperature by running water off - Reduce interval pump time - Check and suit the limiting value - Reduce the feedwater temperature
<p>Fault message: "Measuring cell LF1"</p>	<ul style="list-style-type: none"> - Measuring cell cable break - System control defect - Conductivity of ultrapure water outside of the measuring range 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace system control - see "Resistance < 18.2 μS/cm"
<p>Fault message: "Measuring cell LF2"</p>	<ul style="list-style-type: none"> - Measuring cell cable break - System control defect - Feedwater conductivity outside of measuring range 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace system control - see "Limit value.feed"
<p>Fault message: "Measuring cell LF3"</p>	<ul style="list-style-type: none"> - Measuring cell cable break - System control defect 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace system control
<p>Fault message: "Measuring cell Temp."</p>	<ul style="list-style-type: none"> - Measuring cell cable break - System control defect 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace system control
<p>Fault message: "New Filter cartridge"</p>	<ul style="list-style-type: none"> - Filter cartridge operating time has expired 	<ul style="list-style-type: none"> - Replace with new filter cartridge (art.-no.: 09.1006)

15. Technical service

Visit the VWR's website at www.vwr.com for:

- Complete technical service contact information
- Access to VWR's Online Catalogue, and information about accessories and related products
- Additional product information and special offers

Contact us For information or technical assistance contact your local VWR representative or visit. www.vwr.com.



Pos.	Article designation
1	Filter cartridge
2	Sterile filter
3	Ultrafiltration module
4	Circulation pump
5	Replacement UV-lamp UV-Booster
6	Feedwater conductivity measuring cell
7	Ultrapure water conductivity measuring cell Temperature sensor
8	Pressure reducer
9	Check valve
10	Ultrapure water dispensing valve
11	Rinsing solenoid valve
12	Microprocessor control interface
13	Microprocessor control CPU with LCD display
14	Fuseholder for glas tube fuse, 5 x 20mm Glas tube fuse, 5 x 20mm, 3,15 A, slow



16. Warranty

VWR International warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of delivery. If a defect is present, VWR will, at its option and cost, repair, replace, or refund the purchase price of this product to the customer, provided it is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear. If the required maintenance and inspection services are not performed according to the manuals and any local regulations, such warranty turns invalid, except to the extent, the defect of the product is not due to such non-performance.

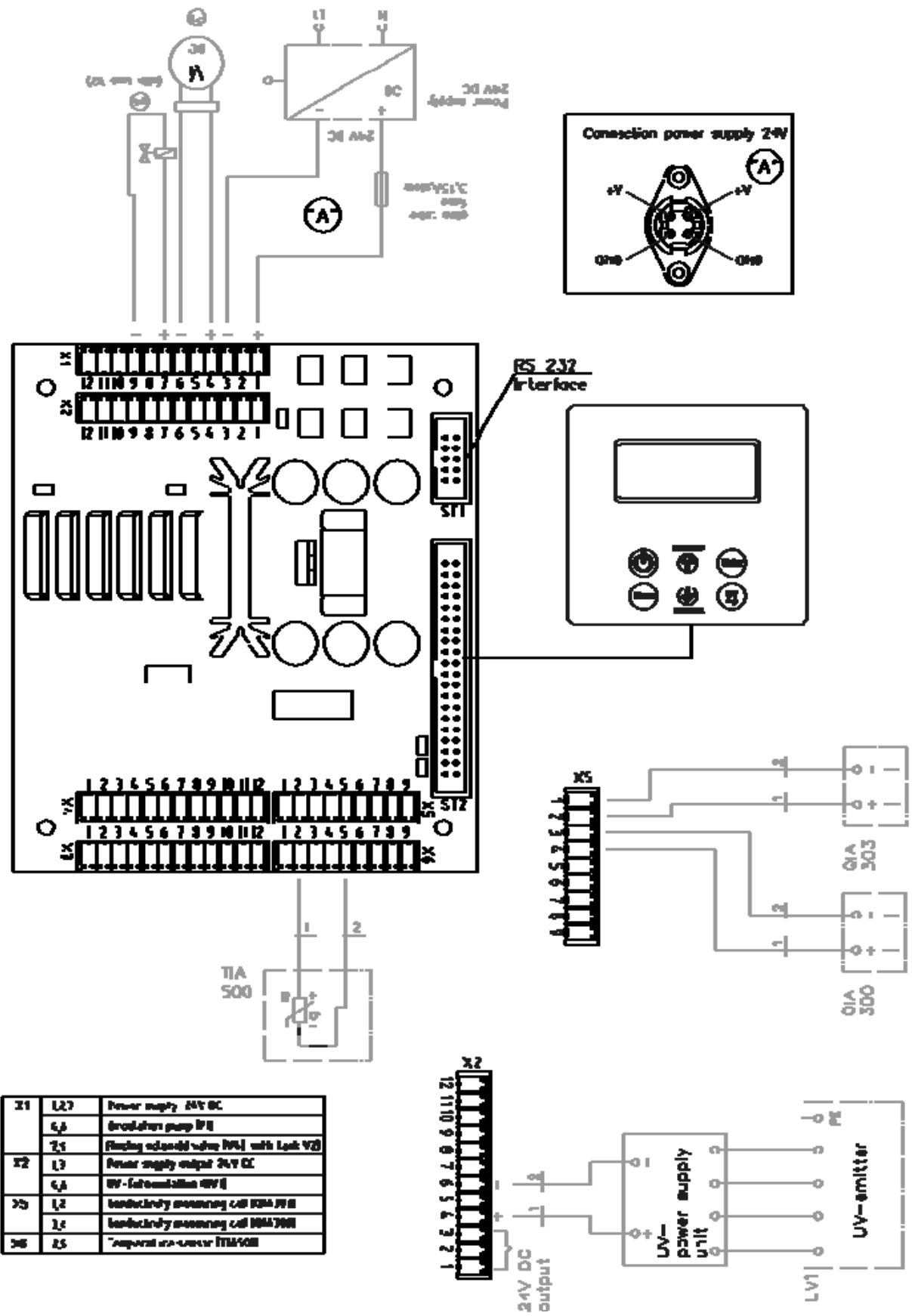
Items being returned must be insured by the customer against possible damage or loss. This warranty shall be limited to the aforementioned remedies. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

16.1 Compliance with local laws and regulations

The customer is responsible for applying for and obtaining the necessary regulatory approvals or other authorisations necessary to run or use the Product in its local environment. VWR will not be held liable for any related omission or for not obtaining the required approval or authorisation, unless any refusal is due to a defect of the product.

17. Appendix

17.1 Terminal assignment



X1	L27	Power supply 24V DC
	G6	UV-emitter pump IPI
	Z1	UV-illumination IPI with Lock V2
X2	L3	Power supply output 24V DC
	G6	UV-illumination IPI
X3	L2	UV-emitter power supply IPI
	Z1	UV-emitter power supply IPI
X6	Z5	Temperature sensor IPI

17.2 Maintenance record

(Please keep this maintenance record carefully updated, as correct keeping of it is a condition of the guarantee)

Address of customer: _____ **Location:** _____ **Type of system:** _____
 _____ **Serial number:** _____
 _____ **Year made:** _____

Date	Resistance of feedwater [MΩxcm]	Resistance of ultrapure water [MΩxcm]	Quantity of ultrapure water [l/h]	Temperature [°C]	UV-Lamp operating time [h]	Last filter cartridge replacement	Last cleaning and disinfection

Last replacement of pretreatment	Remarks	Signature

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

The following points are to be observed to assure the quality of the system:

- 1x / Weekly, acquire measured values.

Regular control and maintenance of the water pre-treatment is necessary to ensure an optimal ultrapure water quality.

Local VWR offices in Europe and Asia Pacific

Austria

VWR International GmbH
Graumanngasse 7
1150 Wien
Tel.: 01 97 002 0
Fax: 01 97 002 600
E-mail: info@at.vwr.com

Belgium

VWR International bvba
Researchpark Haasrode 2020
Geldenaaksebaan 464
3001 Leuven
Tel.: 016 385 011
Fax: 016 385 385
E-mail:
customerservice@be.vwr.com

China

VWR International China Co., Ltd
Suite 1802 - 1803,
Xing Ye Bank Mansion, No 168,
168 Jiangning Road
Shanghai 200041, China
Tel.: +86- 21 521 388 22
Fax: +86- 21 521 33 933
E-mail: sales_china@vwr.com

Czech Republic

VITRUM VWR s. r. o.
A VWR International Company
Pražská 442
CZ - 281 67 Strábrná Skalice
Tel.: +420 321 570 321
Fax: +420 321 570 320
E-mail: info@vitrum.cz

Denmark

VWR - Bie & Berntsen
Transformervej 8
2730 Herlev
Tel.: 43 86 87 88
Fax: 43 86 87 90
E-mail: info@dk.vwr.com

Finland

VWR International Oy
Valimotie 9
00380 Helsinki
Tel.: +358 9 80 45 51
Fax: +358 9 80 45 52 00
E-mail: info@fi.vwr.com

France

VWR International S.A.S.
Le Périgares – Bâtiment B
201, rue Carnot
94126 Fontenay-sous-Bois cedex
Tel.: 0 825 02 30 30 (0,15 EUR
TTC/min)
Fax: 0 825 02 30 35 (0,15 EUR
TTC/min)
E-mail: info@fr.vwr.com

Germany

VWR International GmbH
Hilpertstrasse 20a
D - 64295 Darmstadt
Tel.: 0180 570 20 00*
Fax: 0180 570 22 22*
E-mail: info@de.vwr.com
*0,14 €/Min. aus d. dt. Festnetz,
Mobilfunk max. 0,42 €/Min.

Hungary

VWR International Kft.
Simon László u. 4.
4034 Debrecen
Tel.: (52) 521-130
Fax: (52) 470-069
E-mail: info@hu.vwr.com

India

VWR Lab Products Pvt Ltd
2nd Floor, Front Wing, 135/12,
Brigade Towers
Brigade Road
Bangaluru 560025 India
Tel: +91-2522-647911/922 (Mumbai)
Tel: +91-80-41117125/26
(Bangalore)
Fax +91-80-41117120
E-mail: vwr_india@vwr.com

Ireland / Northern Ireland

VWR International Ltd / VWR
International (Northern Ireland) Ltd
Orion Business Campus
Northwest Business Park
Ballycoolin
Dublin 15
Tel.: 01 88 22 222
Fax: 01 88 22 333
E-mail sales@ie.vwr.com

Italy

VWR International PBI S.r.l.
Via San Giusto 85
20153 Milano (MI)
Tel.: 02-3320311/02-487791
Fax: 02-332031307/02-40090010
E-mail: info@it.vwr.com
info@internationalpbi.it

The Netherlands

VWR International B.V.
Postbus 8198
1005 AD Amsterdam
Tel.: 020 4808 400
Fax: 020 4808 480
E-mail: info@nl.vwr.com

Norway

VWR International AS
Haavard Martinsens vei 30
0978 Oslo
Tel.: 02290
Fax: 815 00 940
E-mail: info@no.vwr.com

Poland

Labart Sp. z o.o.
A VWR International Company
Limbowa 5
80-175 Gdansk
Tel.: 058 32 38 200 do 204
Fax. 058 32 38 205
E-mail: labart@pl.vwr.com

Portugal

VWR International - Material de
Laboratório, Lda
Edifício Neopark
Av. Tomás Ribeiro, 43- 3 D
2790-221 Carnaxide
Tel.: 21 3600 770
Fax: 21 3600 798/9
E-mail: info@pt.vwr.com

Singapore

VWR Singapore Pte Ltd
18 Gul Drive
Singapore 629468
Tel: +65 6505 0760
Fax: +65 6264 3780
E-mail: sales@sg.vwr.com

Spain

VWR International Eurolab S.L.
C/ Tecnología 5-17
A-7 Llinars Park
08450 - Llinars del Vallès
Barcelona
Tel.: 902 222 897
Fax: 902 430 657
E-mail: info@es.vwr.com

Sweden

VWR International AB
Fagerstagatan 18a
163 94 Stockholm
Tel.: 08 621 34 00
Fax: 08 621 34 66
E-mail: info@se.vwr.com

Switzerland

VWR International GmbH
Lerzenstrasse 16/18
8953 Dietikon
Tel.: 044 745 13 13
Fax: 044 745 13 10
E-mail: info@ch.vwr.com

UK

VWR International Ltd
Customer Service Centre
Hunter Boulevard
Magna Park
Lutterworth
Leicestershire
LE17 4XN
Tel.: 0800 22 33 44
Fax: 01455 55 85 86
E-mail: uksales@uk.vwr.com