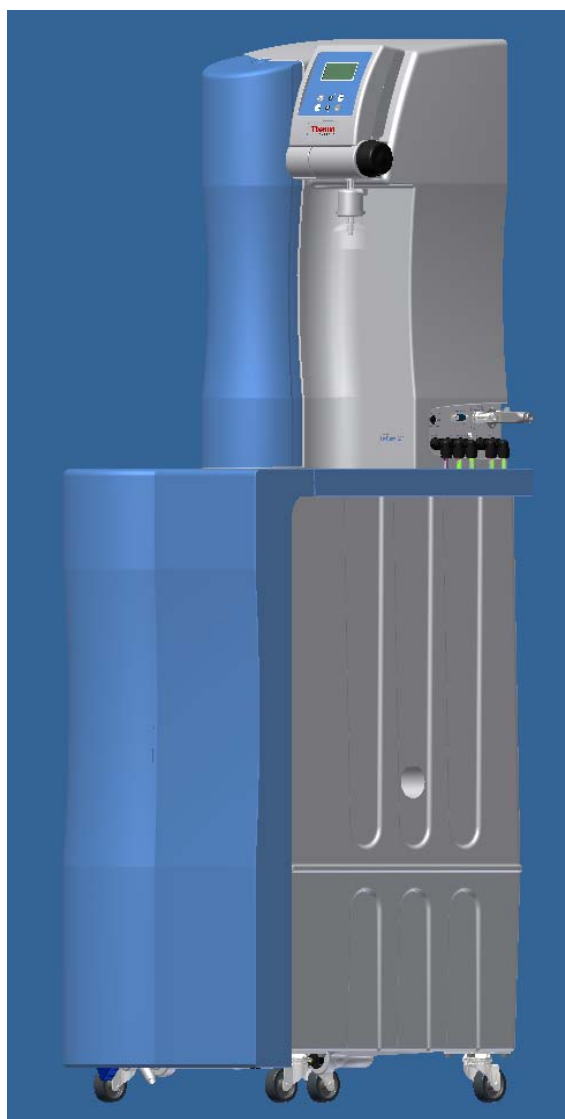


Operating Instructions
Thermo Scientific Barnstead LabTower EDI
Water Purification System

[] Art. no.: 50132395 EDI 15

[] Art. no.: 50132397 EDI 45

[] Art. no.: 50132396 EDI 30



Serial no.:

Read these Operating Instructions prior to starting to install and operate the system!

50133106, Stand: 11.12 Rights to technical changes reserved!

EC-Declaration of Conformity

in accordance with the EEC machine directive 2006/42/EC, appendix II A

We hereby certify that the following described machine in its conception and form put by us into circulation is in accordance with all the relevant essential health and safety requirements of the EC machinery directive 2006/42/EC as amended and the national laws and regulations adopting this directive.

This declaration is no longer valid if the machine is modified without our consent.

Manufacturer: Thermo Electron LED GmbH
Robert-Bosch-Straße 1
D-63505 Langenselbold
Germany

Description of the machine:

function: Ultrapure water system
type: LabTower EDI
article number: 50132395, 50132396, 50132397

The agreement with further valid guidelines/regulations following for the product is explained:

EMC Directive (2004/108/EC)

Reference to the harmonised standards:

DIN EN ISO 12100-1 Safety of machinery, Part 1: Basic terminology
DIN EN ISO 12100-2 Safety of machinery, Part 2: Technical principles
DIN EN ISO 14121-1 Safety of machinery, Part 1: Risk assessment
DIN EN 61326-1

Authorized person for the technical documentation:

Detlef Opp
Stockland3
D-56412 Niederelbert

Niederelbert, 1. April 2010

Detlef Opp, Head of Technical documentation


Signature

Preface

Dear Sir or Madam,

in deciding to purchase a Ultrapure water system of type **LabTower EDI** you have selected a high-quality product.

Thank you for the confidence you have placed in us.

Before you start to install and operate your Ultrapure water system, please carefully read the information on how it is to be properly installed and operated that is given in these Operating Instructions.

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

Niederelbert, 01.04.2010

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2. Explanatory notes on the operating instructions



EU Mark of Conformity



CSA - admission



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 LabTower EDI system in the space provided on the front page.

* Read the serial number of your pure 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

3. Transport and packaging

Ultrapure water systems are carefully checked and packed prior to shipment, but there is nevertheless always a possibility that damage to them could occur during shipment.

3.1 Examination on receipt

- Check the completeness of the delivery against the shipping papers.



Is the packaging damaged?

- Check the system for damage.

3.2 Complaints

Should the system have been damaged during transport:

- Immediately contact the post office, railway or forwarding agent*.
- Keep the packaging, including the outer cardboard box, for a possible inspection and/or return shipment.

3.3 Packaging and return shipment

Whenever possible, use the original packaging and packaging materials.

Should this no longer be available:

- Pack the system in packing film and in a strong cardboard box so that it is held shock-proof.



*** Complaints are only valid for 6 days (after receipt of the goods).
After this time, the right to claim for damages expires.**

4. Safety precautions



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

- Your LabTower EDI system is a modularly constructed, pure water system that serves exclusively for the purification of tap water.
- Do not put the system into operation until you have taken notice of all of the appropriate information that is given in these Operating Instructions.
- To positioning the LabTower at the installation side, roll down to the storage tank to the designated place.
Lifting and carrying the pure water system, e.g. to the storage tank, should be carried out by two people. To lift it, each takes hold of it under the base plate at two corners and put this on the storage tank.
- Note that the manufacturer is freed of all liability for damages that result from improper operation of the system, or from use of it for other than the intended purpose.
- The CE-Mark becomes invalidated should constructional changes be made to the system or products of other manufacturers be installed in it.
- Protect the system from frost. The temperature in the area in which the system is installed must be at least +2°C and must not exceed + 40°C.
- Observe all regulations and requirements, including current accident regulations, that are applicable and appropriate at the installation area, including those for the statics of the flooring (see weight under „Technical specifications“).
- The raw water pressure must be at least 2 bar and at most 6 bar, should it be higher, then an additional pressure reducer must be installed.
- DIN EN 1717 requires that water purification systems be equipped with a safety device that protects against contamination of the drinking water piping.
- A grounded 100-250V, 50/60Hz socket must be available..
- The installation area must have a drain at floor level with at least DN 50 pipe, otherwise the manufacturer will not accept any liability for water damage. Should no such drain be available, then a water watcher (240V only) (article no. 16.0129) must be installed.
- Gravity fall to the waste drain must be ensured.
- For safety, be absolutely screwed ultrapure water system with the wall to prevent tipping one of the ultrapure water system.
- Positioning the system so that operation of the power separation unit is not made difficult.
- After long standstill periods (e.g. holidays), the system must be subjected to rinsing and, if appropriate, disinfection. Refer to the section on "Cleaning and disinfection" for details.

- When selecting the installation area and installing the system, make sure that there is sufficient working area around the system for convenient operation of it.
- Never look directly into a switched-on UV-lamp, as UV-light is dangerous to eyesight. The UV-lamp is only to be replaced by authorized person to do this.
- The guarantee is valid for a period of 12 months

5. Intended use

The LabTower EDI pure water system is a reaction to the continually increasing requirements that water of ultrapure quality must fulfil, the increasingly strict demands resulting from technological advances and the need for user-friendly systems and complete solutions.

LabTower EDI systems have been solely and specifically designed to excel in the intended use, which is to produce sterile filtered pure water free of particles, salts and organic compounds.

To benefit from the long possible service lives of the high-quality purification media, feed the pure water system with water which has been subjected to an upstream pre-treatment step (reverse osmosis, ion exchange or distillation),

- Analytical techniques in laboratories:

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

- Reagent and solution preparation:

- Cell culture media
- Tissue culture media
- Make-up water for reagents for on-line analytical systems

- Water for high-purity rinse processes on a laboratory scale

6. Extent of delivery

The LabTower EDI Ultrapure water system consists of:

1 x	LabTower EDI	Article no.: 5013xxxx
1 x	Assembly kit (EDI 15) or Assembly kit (EDI 30/45) consisting of:	Article no.: 50133118 Article no.: 50134371
1 x	Ultrapure water module	Article no.: 09.2005
1 x	Prefilter cartridge 5µm + hardness stabilization, 10"	Article no.: 06.5204
1 x	Fine filter 1 µm, 10"	Article no.: 06.5101
1 x	Sterile filter capsule 0.2 µm	Article no.: 09.1003
	Connecting kit consisting of:	Article no.: 25.0085
3 x	Connecting hoses, PE, Ø8/Ø6 x 3m	Article no.: 18.0036
2 x	POM Insert	Article no.: 14.0189
2 x	Gasket 3/4"	Article no.: 21.5008
2 x	Union nut, R 3/4"	Article no.: 14.0003
2 x	Screw connector, d8-1/4"	Article no.: 14.0075
1 x	Operating Instructions	Article no.: 50133106
1 x	Connecting cord (rubber connector to nema plug connector)	Article no.: 50132200
1 x	Connecting cord (rubber connector to british ST plug connector)	Article no.: 50132203
1 x	Connecting cord (rubber connector to euro plug connector)	Article no.: 50132215
1 x	Table power unit 24V DC	Article no.: 50134196
1 x	Table power unit 48V DC (only EDI 30/45)	Article no.: 50134184
1 x	Universal adapter	Article no.: 21.1006
1 x	Universal holder	Article no.: 21.1002
2 x	Screw 4 x 40 mm	Article no.: 21.0001
2 x	Dowel 6 mm	Article no.: 21.0002
1 x	Wall bracket for LabTower	Article no.: 50133726



Please check the parts delivered against this list. Contact the manufacturer should a part be missing.

7. Technical specifications

Demands made on the raw water	
Source	Potable tap water softened or hardness stabilized.
Blocking index (SDI)	< 3, with higher values, an upstream pretreatment (article no. 09.4000) is to be installed.
Resistance	> 0.001 MΩxcm
Prefiltration	5µm + hardness stabilization
Free chlorine	< 0.1 mg/Litre
Manganese content	< 0.05 mg/Litre
Iron content	< 0.05 mg/Litre
Colloid index	< 3
ph-Range	4 - 11
Temperature	2 - 35 °C
Pressure	2 - 6 bar

Product water quality ASTM I (dispensing valve)			
		Standard	UV (option)
Conductivity	µS/cm	0.055	0.055
Resistance	MΩxcm bei 25°C	18.2	18.2
TOC	ppb	5 - 10	1 - 5
Bacteria	KBE/ml	< 1	< 1
Particles	> 0,2 µm	< 1/ml	< 1/ml
Flow rate	L/min	1.5	1.5
Typical volume taken	10 L/day		

Product water quality ASTM II (tank quality)			
	LabTower EDI 15	LabTower EDI 30	LabTower EDI 45
Retention quota, salts	Ø 98 %	Ø 98 %	Ø 98 %
Retention quota, bacteria and particles	99 %	99 %	99 %
Conductivity	0.067 – 0.1 µS/cm	0.067 – 0.1 µS/cm	0.067 – 0.1 µS/cm
Resistance MΩxcm bei 25°C	15 – 10	15 - 10	15 - 10
Performance	15 L/h	30 L/h	45 L/h

Dimensions	
Height	1500 mm
Width	450 mm
Depth	580 mm
Weight, empty	58 kg
Operational weight (with full tank)	158 kg

Cell constants of the measuring cells	
Conductivity, permeate	0.16 cm ⁻¹
Conductivity, product water	0.01 cm ⁻¹
Conductivity, ultrapure water	0.01 cm ⁻¹

Water connections	
Raw water inlet	Hose, 8 mm od / R3/4"
Concentrate outlet	Hose, 8 mm od
Ultrapure water outlet	Hose, 8 mm od

Electrical connections / external switched mode power supply EDI 15	
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
Serial interface	RS 232
Protection Class	Class II (external SMPS certified as Class I)

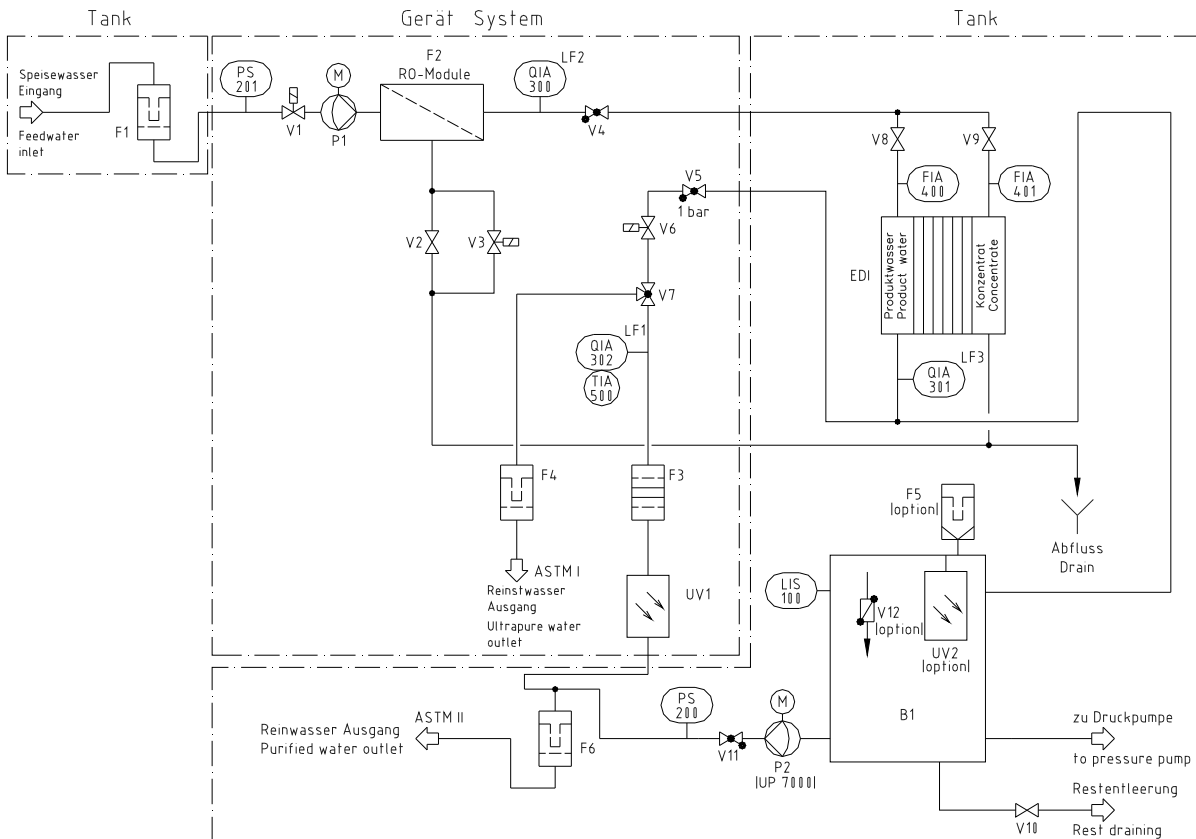
Electrical connections / external switched mode power supply EDI 30/45	
Input voltage	AC 100 – 250 V, 50 – 60 Hz, 4 – 2.5 A
Output voltage	DC 48 V, 2.5 A
System connection	DC 48 V, 120 W
Serial interface	RS 232
Protection Class	Class II (external SMPS certified as Class I)

Airborne sound emission	
Sound-pressure level	49 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 60364-4-443). <u>Note:</u> 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 that contact water	
Pump head	Nylon with glass fibre
Filter cartridge	PP
Rinsing solenoid valve	PA
Conductivity measuring cell	POM, stainless steel
Distribution block	POM
Connectors	POM
Hoses	PE
Gaskets	EPDM

8. Flow chart LabTower EDI 15 - 45



- | | |
|---|---|
| B1 Storage tank: | Stores the product water produced. |
| F1 Prefilter, 5µm + and hardness stabilisation (not with upstream softener) | Prevents the penetration of particles > 5µm.
Stabilizes calcium and magnesium. |
| F2 RO-Module: | Semipermeable, thin-film, composite, spiral wound membrane. |
| F3 Ion exchanger: | Removes inorganic ions and traces of dissolved organic substances. |
| F4 Sterile filter capsule: Filter with pyrogen retention (option) | Retains particles > 0,2µm. |
| F5 Sterile vent filter or Sterile vent filter + CO ₂ Adsorber (option) | Prevents the penetration of airborne bacteria and particles > 0,2 µm. |
| F6 Fine filter
Sterile filter (option) | Retains particles > 1µm.
Retains particles > 0,2µm. |

FIA400 Product flow meter, EDI cell:	Permanently shows the amount of pure water that is fed into the EDI cell (product inlet)
FIA401 Concentrate flow meter, EDI cell:	Permanently shows the amount of pure water that is fed into the EDI cell (concentrate inlet)
LIS100 Float switch:	Determines the filling level in the tank.
P1 Pressure booster pump:	Raises the input pressure to the required operating pressure.
P2 Recirculation pump::	On withdrawal, pumps ultrapure water through dispensing valve (V7) and sterile filter (F4) to the ultrapure water outlet, as well as through filter (F6) to a user. During interval switching, pumps ultrapure water back through the system via UV-lamp (UV1) and ion exchanger (F3).
PS200 Pressure switch:	Switches pump (P2) on when ultrapure water is withdrawn from tank (B1), and switches the pump off when dispensing valve (V7) is closed.
PS201 Pressure switch rawwater:	Switches the system off when the feedwater inlet pressure is too low.
QIA300 Permeate conductivity measuring cell:	Measuring device for the determination of the conductivity (after RO) as parameter for the permeate quality.
QIA301 Product water conductivity measuring cell:	Measuring device for the determination of the conductivity (after EDI) as parameter for the product water quality.
QIA302 Ultrapure water conductivity measuring cell:	Measuring device for the determination of the conductivity (after ultrapure water module) as parameter for the ultrapure water quality.
UV1 UV-photooxidation:	Reduces the content of bacteria and other microorganisms.
UV2 UV-Disinfection: (option)	Reduces the content of bacteria in the water and so serves to prevent bacterial growth and the formation of a biofilm on the inside surfaces of the storage tank.
V1 Feedwater solenoid valve:	Is closed during stand-by and standstills. It prevents water from flowing into the system when it is not in operation.
V2 Pressure hold valve:	Serves to adjust the operating pressure and the WCF-rate (see section 7.1).
V3 Rinsing solenoid valve:	Opens for cleaning of the membrane prior to ultrapure water-production, after pure water production and at least every 12 hours.
V4 Check valve:	Prevents pure water from being pressured back in the RO-module.
V5 Check valve:	Prevents ultrapure water from flowing back into the system.

V6 Recirculation solenoid valve:	Opens for recirculation.
V7 Dispensing valve:	Allows ultrapure water to be withdrawn.
V8 Regulating valve, product, EDI cell:	Valve for adjustment of the amount of pure water that is fed into the EDI cell (product inlet).
V9 Regulating valve concentrate, EDI cell:	Valve for adjustment of the amount of pure water that is fed into the EDI cell (concentrate inlet).
V10 Residual drainage:	Allows complete emptying of the tank.
V11 Check valve::	Prevents ultrapure water from flowing back into the tank.
V12 Sterile tank overflow (option):	Prevents the penetration of bacteria and other micro-organisms.

8.1 How the system functions

When the ON/OFF key is pressed, the system starts running either in the operating mode or in the stand-by mode, according to the float switch.

The feed water flows with a maximum pressure of 6 bar into the system.

Pressure switch PS 201 checks the available inlet feedwater pressure and switches the system off should this be below the minimum pressure.

Feedwater solenoid valve (V1) is closed when the system is at stand-by or at a standstill. This prevents feedwater from flowing into the system when it is not in operation and so protects storage tank (B1) from overflowing.

Semi-permeable membrane (F2) retains all salts dissolved in the water up to the specified retention quota. The molecular size of the membrane pores is so small, that 99% of bacteria, pyrogens and particles are also removed from the feedwater.

The pure water flows now over the pure water measuring cell (QIA300) by the electrode ionization into the storage tank. The conductivity measuring cell (QIA301) measures the conductivity of the product water.

Recirculation pump (P2) pumps the ultrapure water from storage tank (B1) through the special conductivity measuring cell (QIA301) with temperature compensation (TIA500) to dispensing valve (V7) as well as through filter (F6) to a user. The conductivity measuring probe determines the conductivity and the temperature of the ultrapure water subsequent to UV-photooxidation* (UV1) and ion exchanger (F3). The measured values can be called in the microprocessor system control.

Recirculation pump (P2) runs every 15 minutes to recirculate the water that is in storage tank (B1) through the system. The time interval begins 10 minutes after switch-on to avoid dry-running of recirculation pump (P2).

* Option



Valve (V2) has been pre-adjusted at the factory. A change in the adjustment of this valve could result in damage to the reverse osmosis module! Because of fluctuations in the feedwater temperature and pressure, the adjustment of the pressure hold valve and the concentrate flow that it governs must be checked and re-adjusted if necessary, on putting the system into operation and at regular intervals thereafter. The measured values must be recorded in the maintenance record.

Concentrate flow for LabTower EDI			
Check and adjust at least 1x monthly			
System	Permeate-flow [l/h]	Concentrate-flow RO [l/h]	△ WCF-rate [%]
LabTower EDI 15	20	60	25
LabTower EDI 30	40	110	26
LabTower EDI 45	50	110	26

The flow rate through the EDI is unchangeably set to approx. 3 – 5 l/h by a dosing orifice

Your Ultrapure water system is equipped with automatic flushing. Flushing is carried out when the system is switched on, at the end of each production, and also every 12 hours. For this, rinsing solenoid valve (V3) is opened and the strong flow of water across reverse osmosis module (F2) then flushes coarse particles and other contaminants away from the surface of the membranes and carries them with it to drain.

This automatic flushing has a positive effect on the service life of the reverse osmosis module.

An additional advantage of automatic flushing is that it prevents bacterial growth from occurring in the reverse osmosis module when the system is at a standstill for a long time. For this reason, we highly recommend that you leave the system switched on over the weekend and during holiday times, so that the 12 hour flush can effectively guard against bacterial growth.

9. The installation area

The following criteria must be taken into consideration when choosing the installation area.

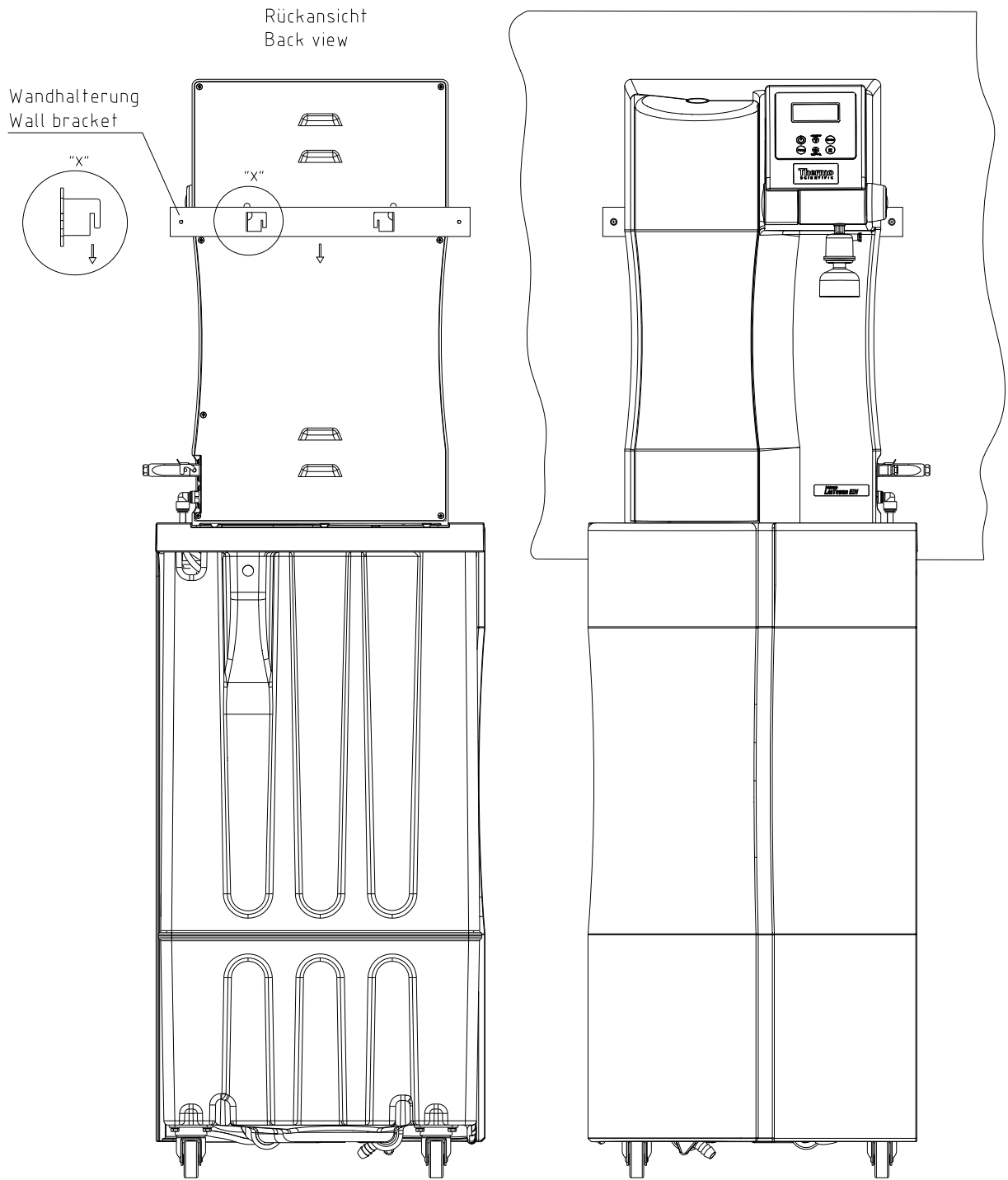
- ⇒ Minimum temperature in the installation area: +2°C - +40°C.
- ⇒ The surface that your pure water system is to be stood on must be strong enough to support it (for weight, see "Technical Specifications").
- ⇒ A floor drain with waste pipe of DN 50 size (38.5 mm id) is required. Should this not be available, then a water watcher(240V only) (article no.: 16.0129) must be installed to protect against damage from water flooding!
- ⇒ An unrestricted gravity flow of concentrate to the floor drain is obligatory.
- ⇒ An electrical socket appropriate to the voltage given on the type plate of the system must be positioned directly alongside the system. The safety fuse must be appropriate for the power required (see "Technical Specifications").
- ⇒ Ensure that there is sufficient working room around the system.
- ⇒ An R ¾"R male thread tap water connection which can be shut off must be installed in the direct vicinity of the system.
- ⇒ Easy access to this must be ensured.

10. Installation

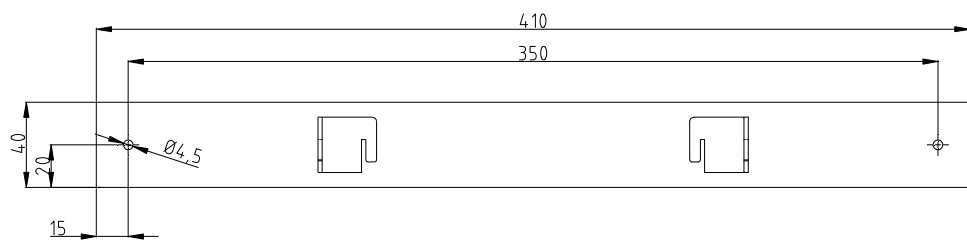
- Before the ultrapure water system can be put into operation, it must be moved to the back of designated wall with screws.

Note: The distance from the ultrapure water system to the wall is 20 mm.

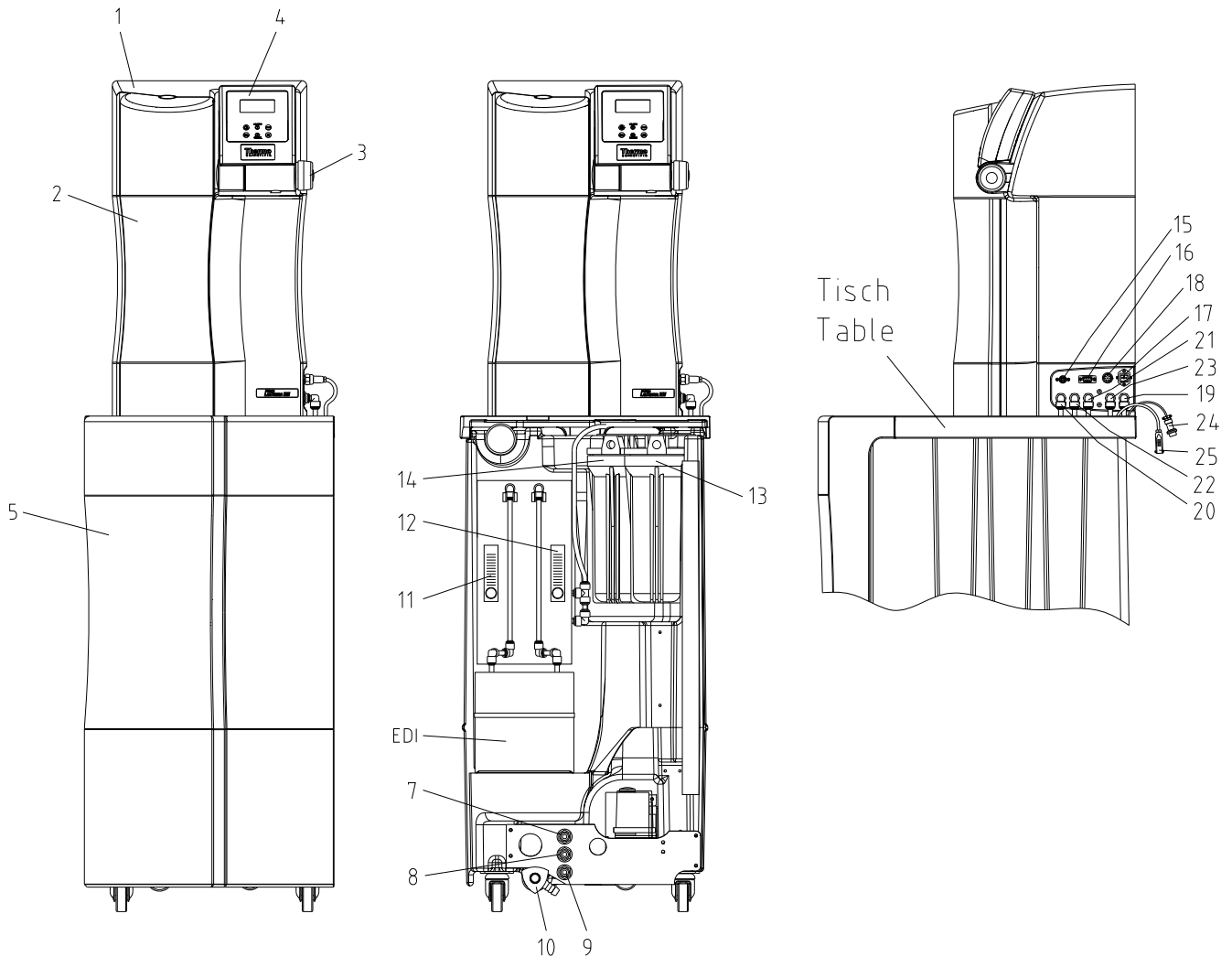
- Use the assembling kit available in wall bracket, the 2 screws 4x40 mm and the 2 dowels (Ø 6 mm)
- Plug the wall bracket into the backside of the ultrapure water attachment, as shown graphically on the following page.
The wall bracket must be shown with the notches (see position "X") down.
- Now position the ultrapure water system at the proposed wall and attach it with the dowels and screws.



Wandhalterung / Maße
Wall bracket / dimensions



11. Putting the system into operation



- | | | | |
|-----|--|-----|--|
| 1) | LabTower EDI Ultrapure water system | 16) | Printer connector |
| 2) | Front hood, removable | 17) | Power supply connector 24V DC, EDI cell (LabTower EDI 15) |
| 3) | Rotary knob for pure water dispensing/dispensing valve | 18) | Power supply connector 48V DC, EDI cell (LabTower EDI 30-45) |
| 4) | Ultra filtration capsule (option) | 19) | Power supply for the pressure pump/tank Level control connector |
| 5) | Operating unit | 20) | Feedwater connector Ø8 mm |
| 6) | Front cover, storage tank | 21) | Pure water connector Ø8 mm |
| 7) | Feedwater inlet | 22) | Pure water connector Ø8 mm |
| 8) | Concentrate outlet | 23) | Pure water connector Ø8 mm |
| 9) | Residual water drainage | 24) | Permeate connector Ø8 mm |
| 10) | Product flow rate meter | 25) | Power supply connector for the pressure pump/tank, Level control connector |
| 11) | Concentrate flow rate meter | | |
| 12) | Pre treatment | | |
| 13) | Sterile or fine filter | | |
| 14) | Power supply 24V DC (LabTower EDI 15) | | |
| 15) | Power supply 48V DC (LabTower EDI 30-45) | | |

1. Place the Ultrapure water system on the table of the storage tank. Connect the hoses positioned at the table by putting the connectors in with the appropriate connections (19-23) at the equipment.
2. Remove the covering hood (6) of the storage tank.
3. Turn the filter housing of the pre-treatment (13) loosely. Insert the pre-treatment unit contained when assembling (pre-filter + hardness stabilization) into the filterhousing and screw this again firmly (see chapter „Change of the pre-treatment“).
4. In the case of use of the optional sterile or fine filter you turn the filter housing (14) loosely. Insert the filter into the filter housing and bolt this on again.
5. Connect the Ø8 – ¾“ female thread feedwater hose supplied to the feedwater inlet (7) of the storage tank and to a water tap that can be turned off. The connecting hose is marked “Feedwater“.
6. Connect the Ø8 concentrate hose supplied to the concentrate outlet (8) of the storage tank and to the drain provided on-site. The concentrate hose is marked „Concentrate“. The drain to the sewer must be max. Are 1 m above the rinsing water connector of the unit.
Caution! The concentrate must be able to flow under free gravity fall to the drain!
7. Plug the 8-pin plug of the level control system (storage tank), marked „Niveau“, in the 8-pin socket (18) of the Ultrapure water system and screw the milled nut of the plug tight. Connect the plug (power supply EDI, 24/48V), marked “EDI 24/48V”, to coupling (17) of the Ultrapure water system. Fix the plug by firmly pressing the clamp.
8. Screw the optional ultra filtration capsule (4) into the withdrawal tap G1/4 “.
9. Now fit the hose of the Ø8 mm sterile overflow to the overflow on the back of the tank and connect it to the drain.
10. Ensure that residual water drainage (10) is turned closed.
11. Check the feedwater pressure; it must be within the permissible pressure range (see Technical specifications).



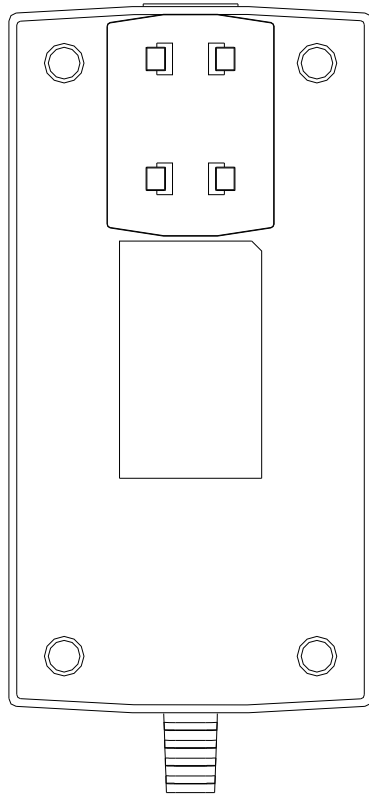
Before you now switch the system on, read through the rinsing out procedure for reverse osmosis membranes packed with preserving agent in the „Rinsing the membrane“!

12. Plug the line plug in and switch the Ultrapure water system on with the on/off key on the operating unit (5).
13. Check that all connections are leak-tight.
14. Replace the covering hood on the storage tank.

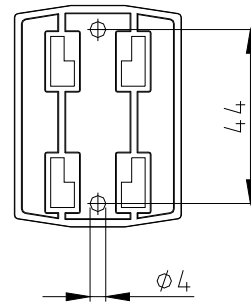
After a short rinsing phase, your system begins to produce pure water into the storage tank.

11.1 Mounting the power pack (voltage supply)

Rückseite / Netzteil
Back side / power supply



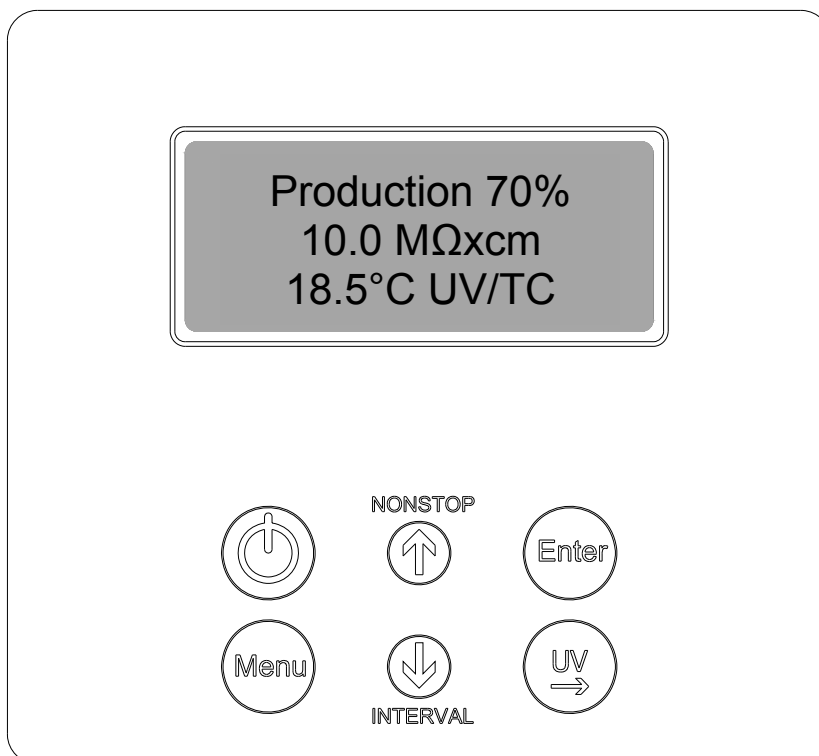
Universaladapter
Universal adapter



Befestigung
mit Schrauben
Fixing with screws

- 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.
- 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 ultra pure water system (24/48V DC 4-pin power supply connector, pos. 17).
- The system is now ready for use.

12. Operating elements



Switches the system on or off

NONSTOP



Increases a value on display



Confirms the value shown in a menu point



Switches the menu to the next menu point



Decreases a value on display

INTERVAL



Switches the UV-lamp on or, in the menu, allows you to select the position in a number that you wish to change

13. System control

General information

When the ON/OFF key is pressed, the system starts running either in the operating mode or in the stand-by mode, according to the float switch.

The operating mode and the volume contained in the tank are shown in line 1 of the display and the measured value of the permeate is shown in line 2.

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

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

Settings can be changed with the arrow keys and, when the appropriate value has been set, be confirmed by pressing the Enter-key, which also takes you to the next menu prompt.

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

13.1.1 Permeate conductivity:

A single press on the menu-key allows the permeate conductivity to be read and the limiting value for the permeate conductivity to be set. Should this limiting value be exceeded, then the "*Lim.val.permeate*" fault message is displayed flashing in the 4th line of the display.
(Measuring point LF 2)

Limiting value setting range: 0.1 – 150.0 $\mu\text{S/cm}$
Basic setting: 0.020 $\text{M}\Omega\text{cm}$

Settings above 150.0 $\mu\text{S/cm}$ result in the limiting value being switched off. The word "*Off*".appears in the display.

The display shows:

Permeate 0.083 $\text{M}\Omega\text{cm}$ Lim.val.permeate 50.0 $\mu\text{S/cm}$
--

13.1.2 Product water conductivity:

A second press on the menu-key allows the product water conductivity to be read and the limiting value for the product water conductivity to be set. Should this limiting value be exceeded, then the "*Lim.val. EDI*" fault message is displayed flashing in the 4th line of the display.

(Measuring point LF 3)

Limiting value setting range: 0.1 – 150.0 $\mu\text{S/cm}$
Basic setting: 0.20 $\text{M}\Omega\text{cm}$

Settings above 150.0 $\mu\text{S/cm}$ result in the limiting value being switched off. The word "*Off*" appears in the display.

The display shows:

<p>EDI 10.0 $\text{M}\Omega\text{cm}$ Lim.val. EDI 5.0 $\mu\text{S/cm}$</p>

13.1.3 Ultrapure water limiting value:

A third press on the menu-key in this menu allows the ultrapure water limiting value to be set. Should this limiting value be exceeded, then the "*Lim.val.ultrapure*" fault message is shown (Measuring point LF 1).

Limiting value setting range: 0.055 – 9.999 $\mu\text{S/cm}$
Basic setting: 10.0 $\text{M}\Omega\text{cm}$

Settings above 9.999 $\mu\text{S/cm}$ result in the limiting value being switched off. The word "*Off*" appears in the display.

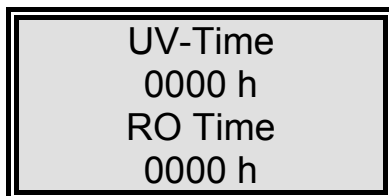
The display shows:

<p>Lim.val.pure w 0.1 $\mu\text{S/cm}$</p>

13.1.4 Operating hours:

A fourth press on the menu-key in this menu allows the operating hours of the UV-lamp and the reverse osmosis pump to be displayed. The operating hours counter for the UV-lamp registers the total length of time for which the lamp was switched on. When the maximum operating time is reached, the "*UV-time*" fault message is triggered. The limiting value is set in the OEM menu. There is no limiting value for the reverse osmosis pump.

The display shows:



UV-Time
0000 h
RO Time
0000 h

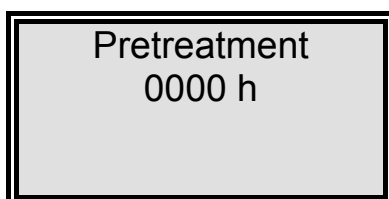
13.1.5 Pretreatment operating hours:

A fifth press on the menu-key in this menu brings the operating hours of the pre-treatment cartridge to display.

The limiting value for this operating time is set in the UV menu. The fault message that is displayed when the limiting value is exceeded is "*Pretreatment*".

The operating hours of the pretreatment are counted whenever the reverse osmosis pump is running.

The display shows:



Pretreatment
0000 h

13.1.6 Cleaning:

A sixth press on the menu-key in this menu allows cleaning to be carried out should there is a need for it. The cleaning process is triggered by pressing the Enter-key. The pump then starts and the inlet solenoid valve and the rinsing solenoid valve open for a period of 60 seconds.

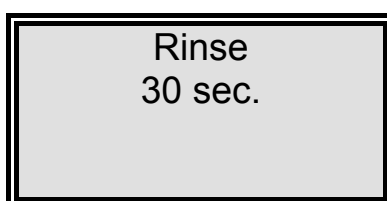
During cleaning, no faults or measured values are displayed. When the cleaning process has finished, the system is in the last operating mode (operating or stand-by).

The remaining cleaning time is displayed during cleaning.

The display shows:

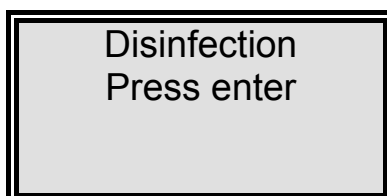


During cleaning, the display shows:



13.1.7 Disinfection: (not active in this version)

The display shows:



13.1.8 Fault storage:

A eighth press on the menu-key in this menu calls the fault storage prompt. Confirmation of this with the Enter-key allows the fault storage to be looked through. The display can show two faults at once, each with time and date. Pressing an arrow key allows previous or following faults to be displayed.

Pressing the menu-key or the Enter-key returns the system to the last operating mode.

The display shows:



The fault storage display shows:

14.03.04 14.30
Lim.val.permeate
14.03.04 15.30
Pretreatment

13.1.9 Unlocking the system:

An ninth 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 the correct code from the Assignment Table that follows is entered and confirmed with the Enter-key. The unlocking remains active for 5 minutes. Each access via the code is typed out by 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 Menu-point F:

Code
Press enter
0000



Code numbers can be assigned to individual persons according to the Assignment Table that follows on the next page.
Remove this page from the Operating Instructions and store it where it is safe from unauthorized viewing.

Assignment Table

for code numbers allowing the system to be unlocked

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

13.2 OEM menu

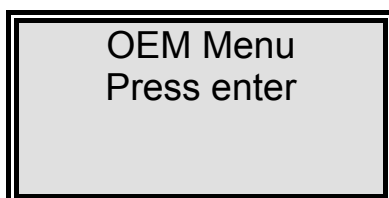
Basic settings and limiting values can be changed in this menu. To make changes in the OEM menu, the system control must previously be unlocked (see "Unlocking the system").

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 number in a value which you want to change. Using the arrow keys now allows a number from 0 to 9 to be entered at that position.

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

The OEM menu prompt display shows:



13.2.1 Maximum temperature:

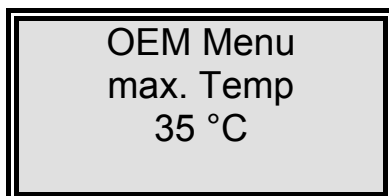
A single press on the menu-key:

The maximum temperature to which the system can be exposed can be set in this menu. When this temperature is exceeded, the "max. Temperature" fault message is triggered. Settings above 50 °C cause the limiting value to be suppressed and the word „off“ appears in the display. It is shown in the 4th line of the display.

Basic setting: 50 °C

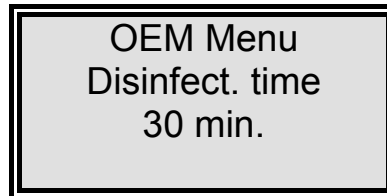
Setting range: 1 - 50 °C

The display shows:



13.2.2 Disinfectionszeit:
A second press on the menu-key:
(not active in this version)

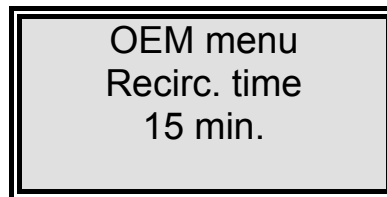
The display shows:

**13.2.3 Recirculation time:**
A third press on the menu-key:

The recirculation time is shown in this menu.

Basic setting: 15 min.
Setting range: 1 - 30 min.

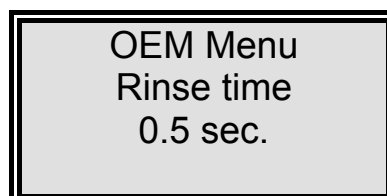
The display shows:

**13.2.4 Rinsing time:**
A fourth press on the menu-key:

The rinsing time is set in this menu.

Basic setting: 0.5 sec.
Setting range: 0.1 - 30 sec.

The display shows:

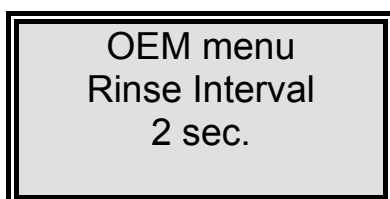


13.2.5 Interval rinse time:**A fifth press on the menu-key:**

The interval rinse time is set in this menu. Rinsing is carried out for this time period when the operating mode is changed, between stand-by and operation and every 12 hours.

Basic setting: 2 sec.**Setting range: 1 - 30 sec.**

The display shows:



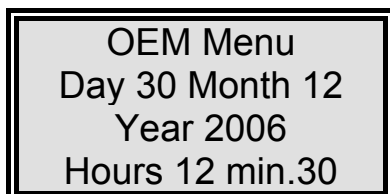
OEM menu
Rinse Interval
2 sec.

13.2.6 Real-time clock:**A sixth press on the menu-key:**

The real-time clock is set in this menu.

Basic setting: The actual date**Setting range: 1 - 12 months, 1 - 31 days, 0 - 24 h, 0 - 60 min.**

The display shows:



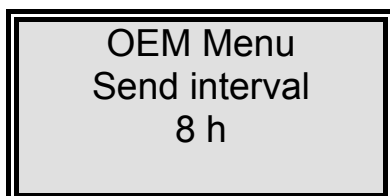
OEM Menu
Day 30 Month 12
Year 2006
Hours 12 min.30

13.2.7 Sending interval:**A seventh press on the menu-key:**

In this menu, the sending interval for transmissions of measured values and fault messages to the RS 232 interface is set.

Basic setting: 8 hours**Setting range: 0.5 - 12 hours**

The display shows:



OEM Menu
Send interval
8 h

13.2.8 Language:**An eighth press on the menu-key:**

The language in which texts are displayed is set in this menu. Choice of English, German or French.

Basic setting: English

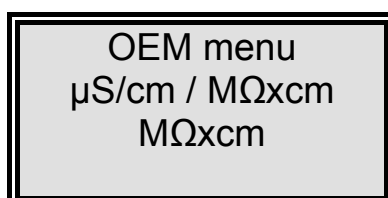
The display shows:

**13.2.9 Switching units:****A ninth press on the menu-key:**

In this menu, a choice can be made as to whether the specific electric resistance or the conductivity is to be displayed.

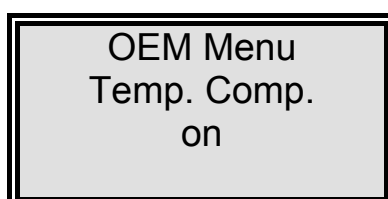
Basic setting: Resistance $M\Omega\text{cm}$
Setting range: Resistance $M\Omega\text{cm}$,
Specific electric resistance $M\Omega\text{cm}$

The display shows:

**13.2.10 Switch off of temperature compensation:****A tenth press on the menu-key:**

Basic setting: on
Setting range: on, off

The display shows:



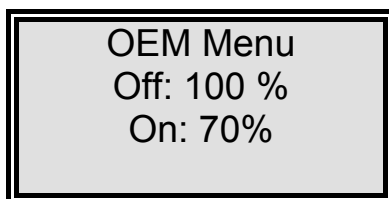
13.2.11 Adjusting the circuit hysteresis of the float switch: An eleventh press on the menu-key:

Basic setting: Off: 100 %
 On: 70 %

Setting range: Off: 25 - 100 %
 On: 0 - 70 %

With a setting over 100 % for the upper switching point, the display of the tank level is switched off, so that this setting therefore shows whether an analogue or a digital float switch is installed.

The display shows:



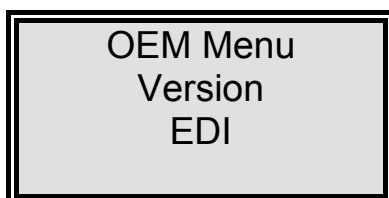
OEM Menu
Off: 100 %
On: 70%

13.2.12 Programme choice TII UV/ RO/ EDI: A twelfth press on the menu-key:

The grade of the equipping of the system can be set in this menu to differentiate between TII UV, RO and versions.

Basic setting: EDI

The display shows:

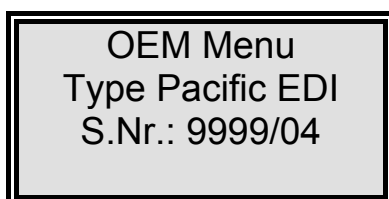


OEM Menu
Version
EDI

13.2.13 Entering the type and serial number of the system:

In this menu, the type and serial number of the system can be entered. They are then printed as headline on every print-out. The following types of system can be entered:
Pacific RO / Pacific TII / Pacific TII UV / Pacific AFT / Pacific EDI

The display shows:



OEM Menu
Type Pacific EDI
S.Nr.: 9999/04

13.3 Printer output

The printer allows various parameters to be recorded. There are 3 different kinds of message:

- **Standard message**
- **Code message**
- **Fault message**

13.3.1 Standard message:

Here a record of all measured values is printed out in dependence on the sending interval. Such a complete data set is also printed out during NONSTOP operation.

Print out:

```
e.g.:          01.06.07 09:39
                Pacific EDI
                S.No. 9999/04
                TC on UV off
                LF1= 16.130 MΩxcm
                LF2= 0.109 MΩxcm
                Temp.= 11.5 °C
```

13.3.2 Code message:

Whenever a code number is entered in the controls and confirmed with the Enter-key, then the code input is immediately printed out. For code identification, see the „Assignment Table for code numbers allowing the system to be unlocked“.

Print-out:

```
e.g.:          01.06.07 10:17
                Pacific EDI
                S.No. 9999/04
                Code 0001
```

13.3.3 Fault message:

Should a fault message be shown in the display, e.g. the ultrapure water limiting value, then the fault message is printed out at the end of the sending interval.

Print-out:

```
e.g.:          01.06.07 16:15
                Pacific EDI
                S.No. 9999/04
                Lim.value.ultrapure
```

14. Maintenance

Your system requires regular, proper and professional maintenance.

We recommend that you secure a service contract to ensure that the necessary maintenance work is carried out.

You then have the certainty of a high operational safety and reliability.

The service protocol appended to the service contract serves for certification that maintenance work specified in the contract has been carried out by authorized service company.



To ensure your 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 guarantee is only to be carried out by a service professional which is expressly authorized to do this.

The operating staff assigned is committed to carry out daily/weekly checks. During the agreed term of validity of the guarantee, maintenance is to be carried out weekly according to the maintenance record sheet supplied with the operating instructions.

The calibration of the conductivity display is **only** to be carried out and recorded by customer service.

Cleaning and disinfection of supply tanks, piping, filter housings etc. is performed for reasons of hygiene and has no effect on the technical condition of the system. These components must be cleaned and disinfected whenever algae/slime are detected inside them or at least once yearly.



When inspection or maintenance work is to be carried out on electrical equipment, then the system is to be separated from the mains by unplugging the line plug and securing it against inadvertent plugging in again. Such work is only to be carried out by trained, skilled electricians.

14.1 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*
Pretreatment 09.4001 Prefilter/Hardness stabilization	F1	06.5204	6 Months
Pretreatment 09.4000 Prefilter	F1	06.5201	6 Months
Hardness stabilization		06.5452	6 Months
Filter cartridge	F3	09.4011/09.4012	12 Months

*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. The interval is contingent on the feedwater quality so that a shorter one may be necessary.

14.2 Rinsing the membrane

Rinsing out preservative solution:

According to the mode of delivery, the system may be supplied filled with a solution containing a preservative. When putting the system into operation, the permeate must be run to drain for at least 3 – 4 hours after switching to production.



For rinsing and disinfecting, the permeate hose must be drawn off of the outlet of the Ultrapure water system so that the EDI cell does not suffer damage. Connect a hose from the assembly kit to lead off the contaminated permeate from the permeate outlet of the Ultrapure water system to drain.

Unplug the pure system „Power supply EDI“ plug.

Now carry out the rinsing procedure.

When the rinsing and disinfecting process has finished, fit the permeate hose (storage tank) back to the permeate outlet of the Ultrapure water system and re-connect the EDI power supply.

Cleaning the membrane:

Automatic rinsing lengthens the service life of your reverse osmosis module. Coarse particles and other contaminants are swept away from the membrane surface during this rinsing process. The rinsing phases so ensure the longest service and optimal ultrapure water quality.

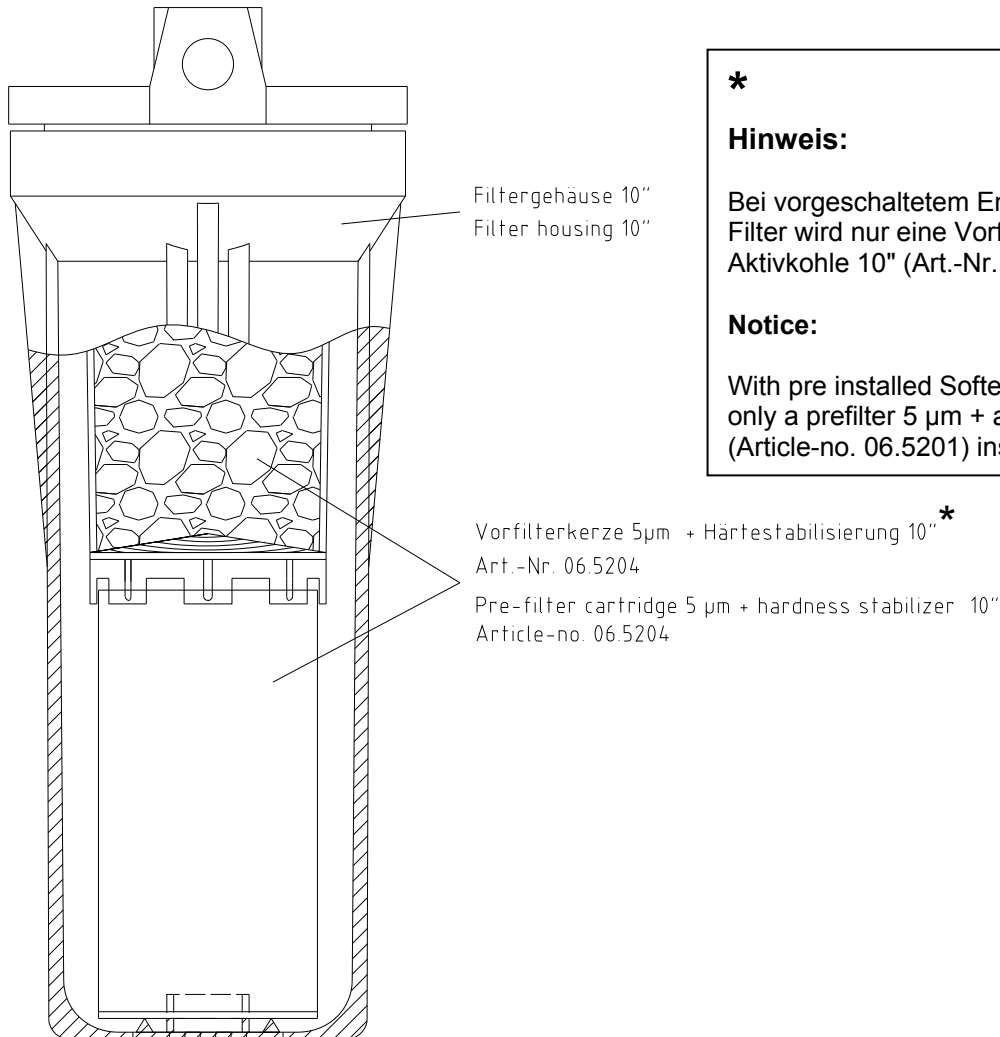


Leave your ultrapure water system on over the weekend and during holiday times. Only then can the 12-hourly rinse operate and ensure that your reverse osmosis module is not subject to bacterial growth during standstill periods.

Should the performance of your module drop because operation of the system without appropriate pretreatment has resulted in blockage of the membrane, it may well be that your module can be reconditioned.

Reconditioning and disinfection of the module is only to be carried out by authorized service personnel on-site or by sending the module to the manufacturer of your system, whereby exposure to frost must be avoided.

14.3 Replacing the pre treatment



Hinweis:

Bei vorgeschaltetem Enthärter oder Mix Multi Filter wird nur eine Vorfilterkerze 5 µm + Aktivkohle 10" (Art.-Nr. 06.5201) eingesetzt.

Notice:

With pre installed Softeners or Mix Multi filter is only a prefilter 5 µm + active carbon 10" (Article-no. 06.5201) inserted.

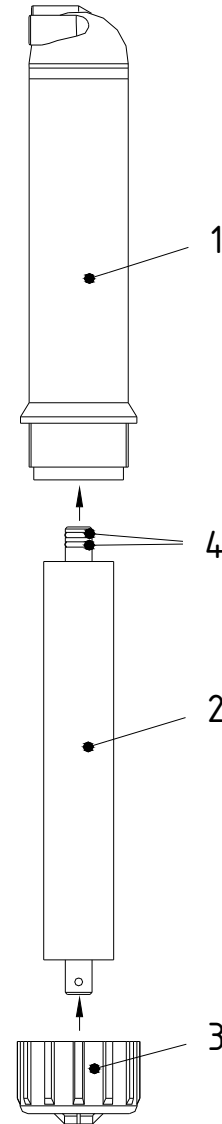
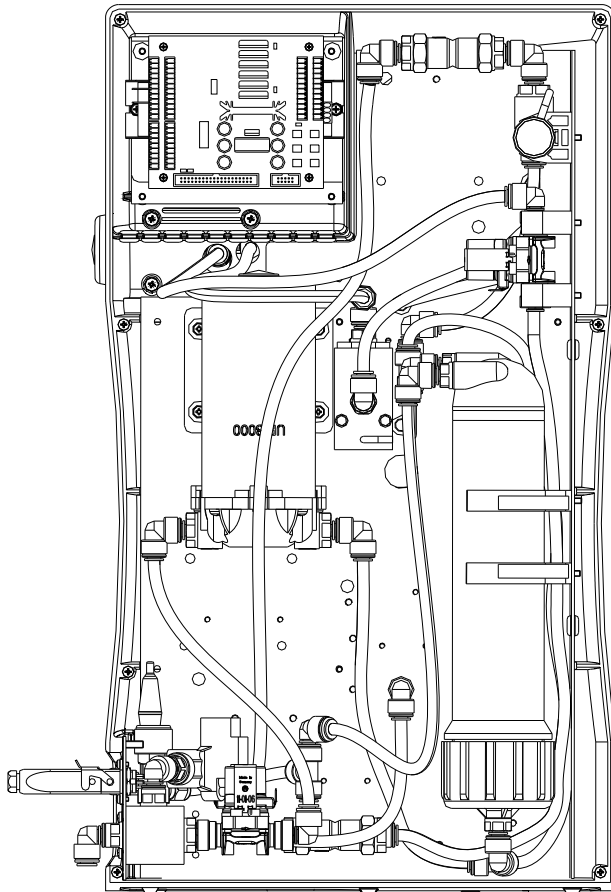
1. Remove the covering hood from the storage tank.
2. Open the residual drainage of the storage tank, see section "Views and connections", until the Ultrapure water system starts to operate.
3. Stop the supply of feedwater to the Ultrapure water system.
4. Switch the system off.
5. Turn the residual drainage to close it.
6. Screw off the pre-treatment filter housing, see the „Views and connections“ section.
7. Change the spent pre-treatment unit.
8. Screw the filter housing back on.
9. Open the supply of feedwater to the system.
10. Check that the filter housing does not leak.
11. Switch the Ultrapure water system on.
12. Replace the covering hood on the storage tank.

Caution! The filter housing is still filled with water.

Your Ultrapure water system is now again ready for use.

14.4 Replacing the RO membrane

Ansicht von hinten - ohne Rückwand
Back view, with back panel removed



- Remove the line plug from the mains socket.
- Remove the back panel.
- Undo all hose connections to the RO-module pressure tube (1).
- Remove the pressure tube from the holding sleeves.
- Open the cap nut (3) on the pressure tube and remove the RO-membrane (2).
- Insert the new RO-membrane in the pressure tube (1) with the two O-rings (4) on the permeate tube of the RO-module in the direction shown by the arrows.



Inserting the RO-membrane the wrong way round would result in certain destruction of the membrane!

14.5 Changing the Ultrapure water module

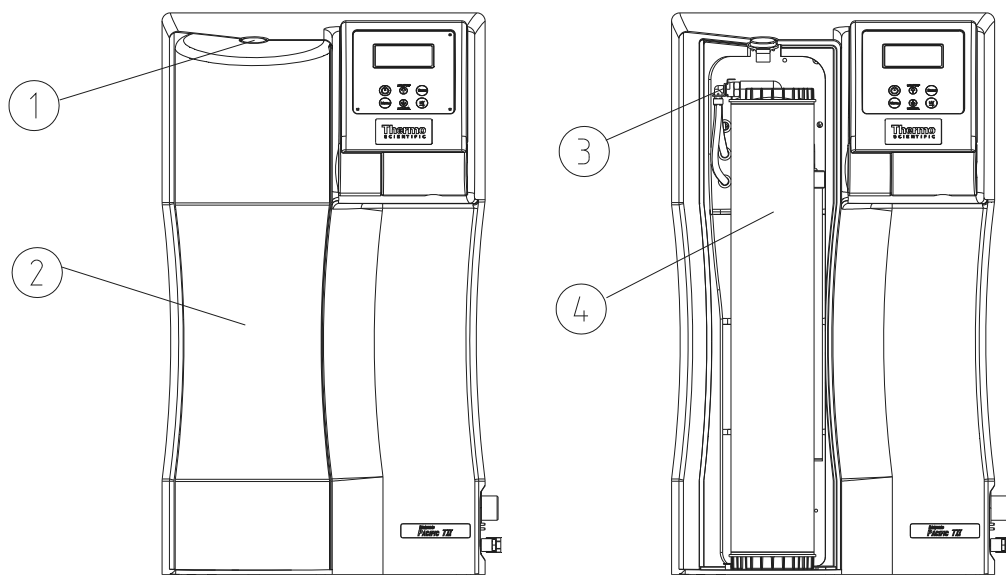


The Ultrapure water module must be replaced as soon as the maximum limiting value set for the ultrapure water is exceeded or when the “Change cartridge” message is shown in the display.

Proceed as follows to replace the Ultrapure water module:

1. Switch the system off.
2. Shut off the supply of feedwater.
3. Open the dispensing valve until the flow of water stops, then re-close it.
4. Remove the cartridge cover.
5. Disconnect the quick-connects on the feedwater inlet and purified water outlet of the Ultrapure water module, then close the inlet and outlet with the stoppers which you have kept for later usage.
6. Draw the used Ultrapure water module out from the guide and insert the new module.
7. Remove the stoppers from the new Ultrapure water module and store them for later use.
8. Plug the quick-connects correctly onto the new Ultrapure water module so that they audibly engage.
9. Replace the cartridge cover.
10. Open the supply of feedwater.
11. Switch the system on again.
12. The Ultrapure water system is now again at your availability to produce ultrapure water.

14.6 Changing the filter cartridge



For changing the filter cartridge, proceed as follows:

1. Switch off your device and turn off the feedwater supply.
2. Press pressure knob (1) to unlock and remove cover (2).
3. Release filter cartridge (4) quick connect coupling (3).
4. Remove exhausted filter cartridge (4) and replace it with a new one.
5. Fit the quick connect coupling (3) back onto the new filter cartridge (4).
6. Replace the cover (2) and listen to ensure it clicks on pressure knob (1).
7. Turn on the feedwater supply and switch your device on again.
8. Your device is now ready to operate.

14.7 Disinfection



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 before the time that the filter cartridge must to be replaced.

A disinfection cartridge (article no.: 09.2201) is required for disinfection of the system.

Use cleaning solutions as follows:

MICRO-Chlor Granulate, 1 box, article no. 09.2202 (Europe only)

Cleaning Solution, 1 syringe, article no. CMX 25 (US-market only).



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

1. The ultra pure water system must be in the “Stand by” operating mode.
2. Switch the system off.
3. Turn off the feedwater supply to the system.
4. Open the dispensing valve until water no longer runs out and then close it.
5. Remove the cartridge cover from the system (refer to the “Changing the ultra pure water module” section in the LabTower EDI operating instructions”).
Take off the quick connects from the feedwater and ultra pure water side of the ultra pure water module and close the connectors with the stoppers that you have saved.
6. Remove the ultra pure water module.
7. Take hold of the disinfection cartridge and screw out the stopper from the lid of it. Fill water in through the opening until the cartridge is full and then pour the contents of a box respectively a syringe of the cleaning solution into it.
Important: The cartridge must be completely filled with water for successful disinfection.
8. Screw the stopper back in the lid of the disinfection cartridge and connect up the cartridge in the system (as described in the “Changing the ultra pure water module” section in the operating instructions for the system).
9. Turn the feedwater supply on.
10. Switch the ultra pure water system on and allow it to run for 2 hours in operating mode.
11. Now open the residual drainage (dispensing valve) of the storage tank and discard all of the water that runs out. Close the residual drainage.

12. Fill the storage tank until the “Stand by” operating mode has been reached and empty the tank as in 12. Repeat this process a second time.



Do not take any water from the dispensing valve or the storage tank during disinfection.

13. Switch the system off.
14. Remove the disinfection cartridge and fit in the new ultra pure water module. Switch the system off.
15. Finally replace the covering hood on the storage tank.
16. The ultra pure water system is now again at your availability to produce ultra pure water.



Always install a new filter element in the pretreatment and a new ultra pure water module following disinfection of the system.

The 0,2 µm sterile vent filter can be autoclaved if required.

Replacement parts:

Ultra pure water module

Article no: 09.2005

Sterile vent filter, 0,2 µm

Article no: 50135142

or

Sterile vent filter, 0,2 µm + CO₂ (option)

Article no: 06.5002

15. Waste disposal

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

Systems are in conformity with EEC Guideline 2002/95/EC

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 2002/96/EC. We therefore request our customers in Germany and other member States in the European Economic Area to contact our local service centre or our headquarters:

Thermo Electron LED GmbH
Stockland 3
D-56412 Niederelbert, Germany

WEEE-Reg.-no.: DE 12471402

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

16. Trouble shooting

Fault	Cause	Remedy
The system does not start	- No supply of power	- Connect to power supply
No dispensing possible	- Feedwater tap is closed - Feedwater and rinse water connections the wrong way round - Feedwater pressure < 1.5 - bar	- Open feedwater tap - Reverse the connections - Increase feedwater pressure
Conductivity too high	- Ion exchanger capacity is - exhausted	- Replace ion exchanger with a new one
System control no longer reacts	- Improper operation	- Remove line plug for 5 seconds
Water flows out	- Leaky hose connection - Feedwater pressure > 6 bar	- Check and hose connection - and stop the leak - Install a pressure reducer, - possibly operate via the - emergency supply
Permeate flow too low (-15%)	- Blocked membrane - Precompression too low - Feedwater temperature - fluctuates	- Clean the membrane - Increase precompression
Wrong time or date	- Time zone Summer/Winter time	- Reset time and date
Wrong language	- Wrong language set	- Set wanted language

<p>Fault message: <i>Lim.val.permeate"</i></p>	<ul style="list-style-type: none"> - The conductivity of the - permeate is too high - The limiting value is set too low - The membrane is blocked 	<ul style="list-style-type: none"> - Check the pre-treatment - Check and re-adjust the limiting value setting - Replace the membrane
<p>Fault message: <i>Lim.val.EDI"</i></p>	<ul style="list-style-type: none"> - The conductivity of the - product water is too high - The limiting value is set too low - The EDI cell is damaged 	<ul style="list-style-type: none"> - Check the permeate conductivity - Check and re-adjust the limiting value setting - Replace the EDI cell
<p>Fault message: <i>"Lim.val.pure w"</i></p>	<ul style="list-style-type: none"> - The limiting value is set too low 	<ul style="list-style-type: none"> - Check and re-adjust the limiting value setting
<p>Fault message: <i>"UV-time"</i></p>	<ul style="list-style-type: none"> - The operating hours of the - UV-lamp have been exceeded 	<ul style="list-style-type: none"> - Replace the UV-Lamp (art.- - no. 09.2002) and set back - the operating hours counter
<p>Fault message: <i>"Measuring cell LF1"</i></p>	<ul style="list-style-type: none"> - Cable break at the measuring cell - System control defect - Ultrapure water conductivity outside of measuring range 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace the system control - see "Lim.val.pure w"
<p>Fault message: <i>"Measuring cell LF2"</i></p>	<ul style="list-style-type: none"> - Cable break at the measuring cell - System control defect - Feedwater conductivity - outside of measuring range 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace the system control - see "Lim.val.permeate"

Fault message: <i>"Measuring cell LF3"</i>	<ul style="list-style-type: none"> - Cable break at the measuring cell - System control defect - EDI conductivity outside of measuring range 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace the system control - see "Lim.val.EDI"
Fault message: <i>"Measuring cell Temp."</i>	<ul style="list-style-type: none"> - Cable break at the measuring cell - System control defect 	<ul style="list-style-type: none"> - Replace the measuring cell - Replace the system control
Fault message: <i>"feedwa.pressure"</i>	<ul style="list-style-type: none"> - Feedwater pressure too low - Pressure switch defect - Feedwater inlet closed 	<ul style="list-style-type: none"> - Increase Feedwater pressure - Check pressure switch - Open the feedwater inlet

The address to contact should you need service:

Overview of Thermo Scientific International Sales Organization

Postal address USA:

Thermo Scientific
275 Aiken Road
Asheville, NC 28804
USA

Enquiries from USA/Canada

Sales: +1 866 984 3766

Service: +1 800 438 4851

Enquiries from Latin America

Sales: +1 866 984 3766

Service: +1 866 984 3766

Enquiries from Asia

China

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Service: Toll free 8008105118 Support Mobile 4006505118 or +86 10 8419 3588

India

Sales: +91 22 6716 2200

Service: Toll free 1 800 22 8374 or +91 22 6716 2200

Japan

Sales: +81 45 453 9220

Service: +81 45 453 9224

Enquiries from the Rest of Asia/Australia/New Zealand

Sales: +852 2885 4613

Service: +65 6872 9720

Enquiries from Countries not listed / Rest of EMEA**Sales:** +49 6184 90 6940 or +33 2 2803 2000**Service:** +49 6184 90 6940**Enquiries from Europe****Austria****Sales:** +43 1 801 40 0**Service:** +43 1 801 40 0**Belgium****Sales:** +32 53 73 4241**Service:** +32 53 73 4241**Finland/Nordic/Baltic countries****Sales:** +358 9 329 100**Service:** +358 9 329 100**France****Sales:** +33 2 2803 2180**Service:** +33 825 800 119**Germany:****Postal Address Germany:**

Thermo Electron LED GmbH

Robert-Bosch-Straße 1

D - 63505 Langenselbold

Phone**Sales:** Toll free 0800 1 536 376

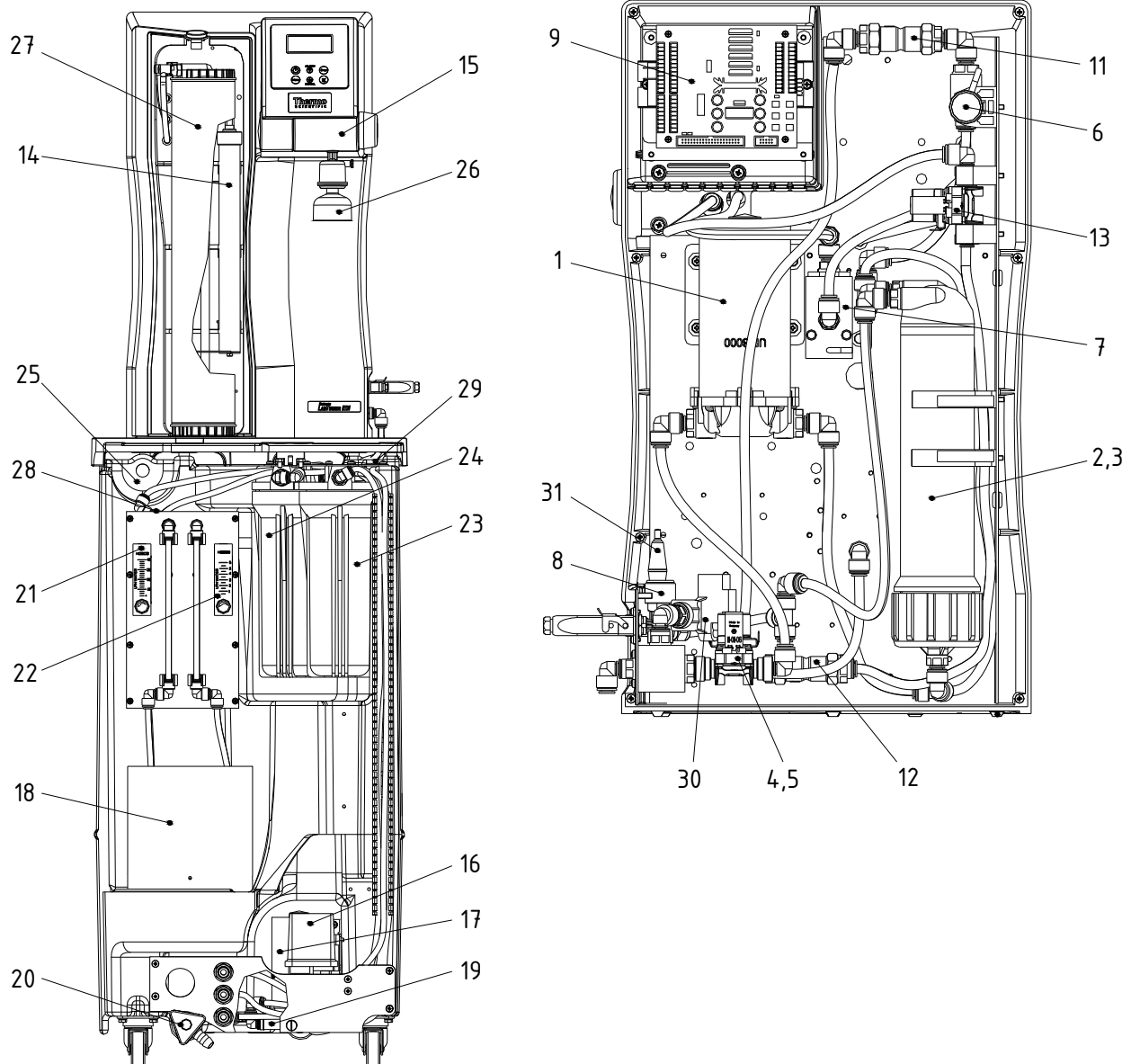
or +49 6184 90 6940

Service: Toll free 0800 1 112110

or +49 6184 90 6940

E-Mail: info.labequipment.de@thermoftsher.com**Italy****Sales:** +39 02 95059 341**Service:** +39 02 95059 250**Netherlands****Sales:** +31 76 579 5555**Service:** +31 76 579 5639**Russia/CIS****Sales:** +7 812 703 4215**Service:** +7 812 703 4215**Spain/Portugal****Sales:** +34 93 223 0918**Service:** +34 93 223 0918**Switzerland****Sales:** +41 44 454 1212**Service:** +41 44 454 1212**UK/Ireland****Service:** +44 870 609 9203**Sales:** +44 870 609 9203

17. List of replacement parts



No.	R+I No.	Article designation	Art.-no.
1	P1	Booster pump RO	19.0050*
2,3	F2	Reverse osmosis membrane, for system 15, L/h 2x Reverse osmosis membrane, for system 30+45, L/h 2x Module pressure tube, for system 15 – 45 L/h 2x	22.0046* 22.0087* 50133990
4	V1	Inlet solenoid valve	50131190*
5	V3	Rinsing solenoid valve	50131190*
6	QIA300	Measuring cell permeate	16.0126

7	QIA302 TIA500	Measuring cell ultrapure water	50133992
8	V2	Pressure hold valve	15.0060
9		Microprocessor system control, complete	50132019
11	V4	Check valve	15.0009
12	V5	Check valve	15.0019
13	V6	Recirculation solenoid valve	15.0014*
14	UV1	UV-Lamp in system	50131205
15	V7	Dispensing valve	25.0068
16	PS200	Pressure switch	15.0058*
17	P2	Pressure booster pump	19.0046*
18	EDI	EDI-Cell	50133989
19	V11	Check valve	14.0441
20	V10	Dispensing tap	14.0250
21	FI400 + V8	Flowmeter, product (EDI) incl. regulation valve	15.0123
22	FI401 + V9	Flowmeter, concentrate (EDI) incl. regulation valve	15.0124
23	F1	Pre-treatment consisting of: Prefilter cartridge 5µm + hardness stabilization, 10"	06.5204
		With pre installed Softener or Mix Multi filter Prefilter cartridge 5µm + Activated carbon, 10	06.5201
24	F6	Fine filter 1µm-10"	06.5101
		or Sterile filter 0.2µm-10" (option)	06.5555
25	F5	Sterile vent filter 0.2µm or	50135142
		Sterile vent filter 0.2µm + CO ₂ Adsorber (option)	06.5002
26	F4	Sterile filter capsule 0.2µm	09.1003
27	F3	Ultrapure water module	09.2005
28	QIA301	Measuring cell product water	50134005
29	LIS100	Float switch	16.0355
30	PS201	Pressure switch rawwater	50133982*
31		Fuseholder for glas tube fuse, 5 x 20mm	50131759
		Glas tube fuse, 5 x 20mm, 3,15 A, slow	50131758
		Glas tube fuse, 5 x 20mm, 2 A, nimble (only EDI 30/45)	50134191
	V12	Sterile overflow/storage tank (option)	50132714
		Table power unit 24V DC (not shown)	50134196
		Table power unit 48V DC (not shown, only EDI 30/45)	50134184

* Wearing part

We ask for your understanding that the guarantee we give becomes invalid when replacement parts, accessories or consumables from other manufacturers are used, as we have no influence on their appropriateness or quality.

18. Accessories

Pre-treatment:

➤ UV-Lamp (in system)	Article no.:	50131205
➤ UV-Lamp (in tank)	Article no.:	06.5006
➤ Sterile filter cartridge 10"	Article no.:	06.5555
➤ Sterile vent filter	Article no.:	50135142
➤ Sterile vent filter + CO ₂ Adsorber	Article no.:	06.5002
➤ Sterile overflow	Article no.:	50132714
➤ Filter with pyrogen retention	Article no.:	09.1021
➤ Disinfection agent MICRO-Chlor (pack of 12 cans, Europe only)	Article no.:	09.2202
➤ Cleaning Solution, 1 syringe (only for US-market)	Article no.:	CMX25
➤ Pressure pump MQ3 – 35, 110V	Article no.:	50135134
➤ Pressure pump MQ3 – 45, 110V	Article no.:	50135135
➤ Qualification Manuel IQ, OQ	Article no.:	IOQDOCE50133916

19. Consumable materials:

Pre-treatment:

➤ Prefilter cartridge 5µm + harness stabilizer, 10"	Article no.:	06.5204
➤ Prefilter cartridge 5µm + Activated carbon, 10" (only with upstream softener)	Article no.:	06.5201
➤ Ultrapure water module	Article no.:	09.2005
➤ Sterile filter capsule	Article no.:	09.1003
➤ Sterile vent filter	Article no.:	50135142
➤ Sterile vent filter + CO ₂ Adsorber	Article no.:	06.5002
➤ Sterile filter cartridge 0.2µm-10"	Article no.:	06.5555
➤ Fine filter 1µm-10"	Article no.:	06.5101

UV-Lamp - System:

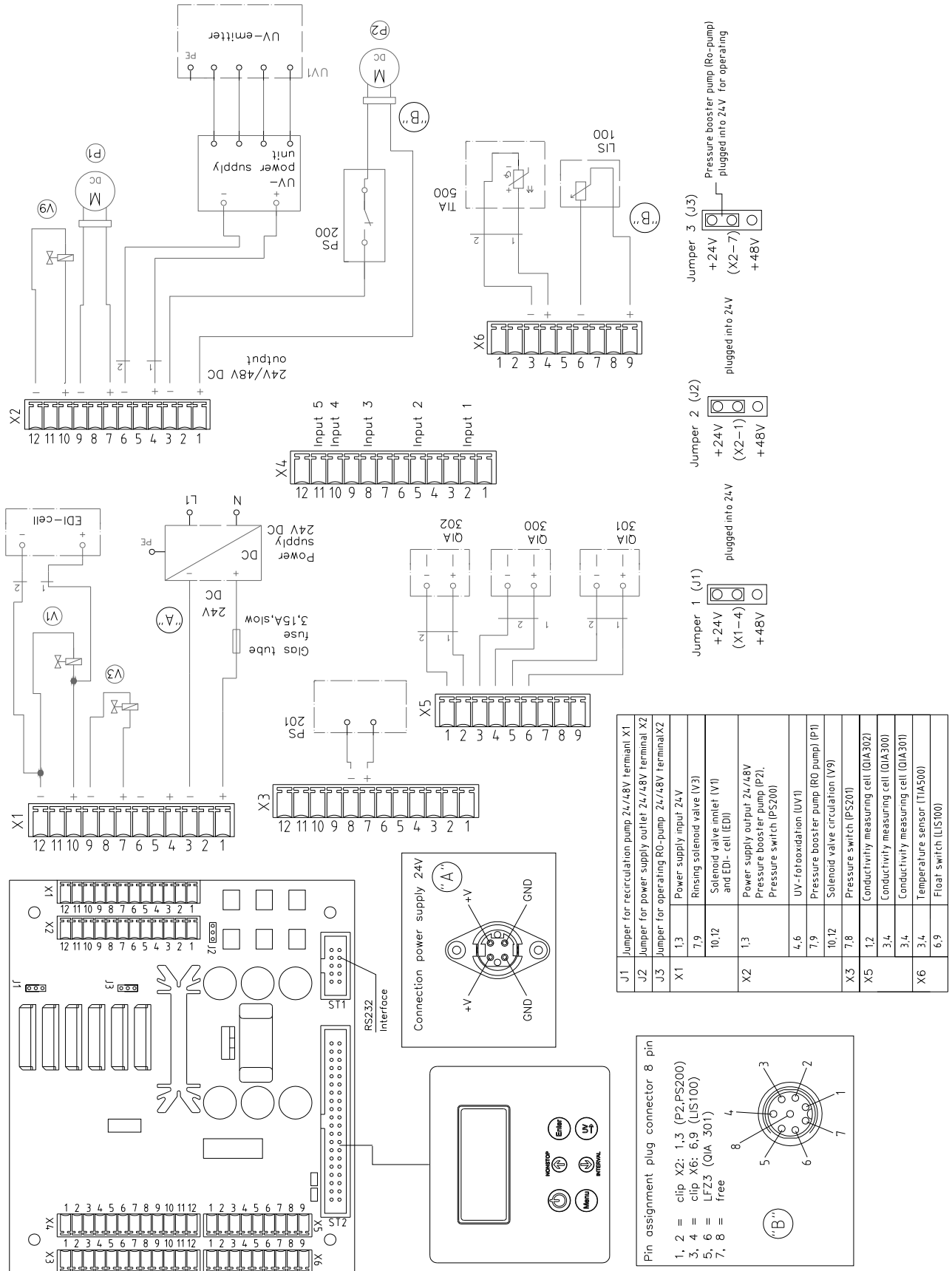
➤ Replacement UV-lamp	Article no.:	09.2002
➤ Immersion tube	Article no.:	22.0063

UV-Lamp – Storage tank:

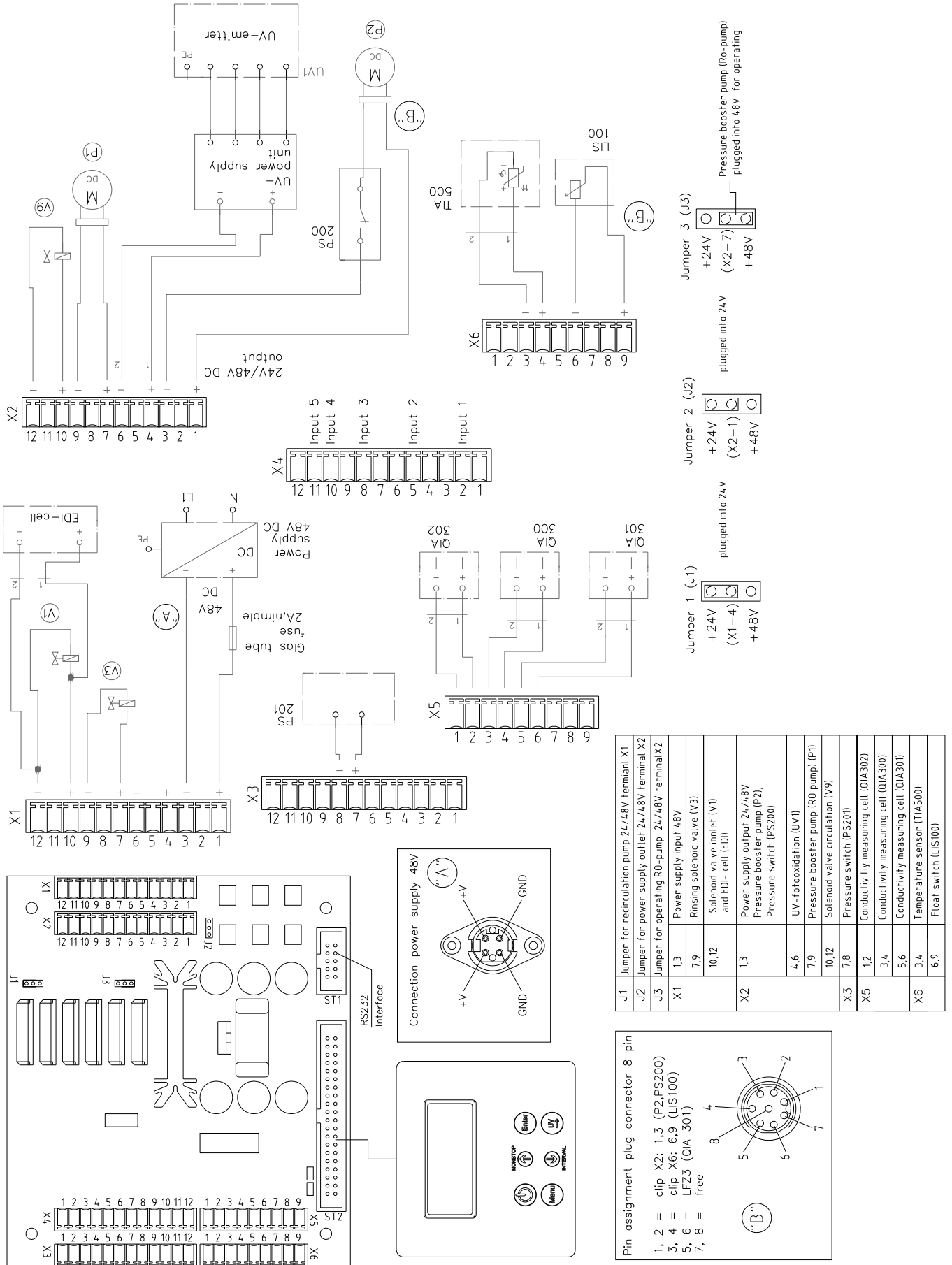
➤ Replacement UV-lamp	Article no.:	09.5002
➤ Immersion tube	Article no.:	22.0096

20. Terminal assignment

20.1 LabTower EDI 15 (24V DC)



20.2 LabTower EDI 30/45 (48V DC)



21. Maintenance record

(Please note that correct keeping of this record is a condition for the validity of the guarantee)

Customer address:

Location:

System type:

Serial no.:

Year made:

Date	Resistance Permeate [MΩxcm]	Resistance EDI [MΩxcm]	Resistance Ultrapure water [MΩxcm]	Product EDI [L/h]	Concentrate EDI [L/h]	Operating hours RO [h]

Change of prefilter yes/no	Change of hardness stabilizer yes/no	Change of sterile filter or fine filter yes/no	Change of ultrapure water module yes/no	Remarks	Signature

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

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

- 1 each week, record measured values

Contact Information Thermo Scientific

North America:

USA/Canada +1 866 984 3766 (866-9-THERMO)

Europe:

Austria +43 1 801 40 0, Belgium +32 53 73 42 41, France +33 2 2803 2180,

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Germany international +49 6184 90 6940, Italy +39 02 95059 448,

Netherlands +31 76 579 55 55, Nordic/Baltic/CIS countries +358 9 329 10200,

Russia +7 812 703 42 15, Spain/Portugal +34 93 223 09 18,

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