Thermo Scientific Barnstead Lab Tower Water Purification System Family

Operating Instructions

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Thermo SCIENTIFIC

Release history:

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

Preface

The contents of this operating instructions manual may change at any time and without any prior notice. Concerning translations into foreign languages, the English version of these operating instructions is binding.

Before you start to install and work with your LabTower water purification systems, 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.

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Legal Information

NOTICE

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

Warranty

Thermo Electron LED GmbH warrants the operational safety and functions of the Thermo Scientific Barnstead LabTower water purification systems only under the condition that:

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

Explanatory Notes on the Operating Instructions

CE EU Mark of Conformity

C SP US CSA - admission

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

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

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

Indicates a situation where protected gloves or clothing must be worn.

Indicates a situation in which protective goggles must be worn.

Indicates a situation in which breathing protection must be used.

This information is valid for the system that is received. For quick and correct service, please include the following information on all inquiries and replacement parts orders which relate to your system:

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

Standards and Directives

The LabTower water purification system complies with the following standards and directives:

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

NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ICES-003 Class A Notice (Avis NMB-003, Class A):

- This Class A digital apparatus complies with Canadian ICES-003. CET appareil nummérique de la classe A est conforme à la norme NMB-003 du Canada.

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

C

Contents

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Transport and Packaging

Contents

LabTower water purification systems are carefully inspected and packed prior to shipping, but damage could still possibly occur during transport. Lifting and carrying the Thermo Scientific Barnstead LabTower water purification systems, e.g. to the installation location, should be carried out by two people.

Examination on Receipt

Check the completeness of the goods received against the packing list.

NOTICE

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

Complaints

Should damage have occurred to the goods during transport:

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

Packaging for Return Shipment

⚠ DANGER

Do not pull the plastic foil over the head. Risk of suffocation. The Plastic foil must to be used only for packaging the system and there components.

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 bubble wrap and/or packaging foam and a strong cardboard box.

NOTICE

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

NOTICE

- Only a trained person should take the system out of operation.
- Prior to send back a system that was previously operated, drain all the water from the system, remove cartridges and dry the system as completely as possible.
- Pack the water purification systems cartridges in bubble wrap and/or packaging foam and return in the box with the water system..

Safety Precautions

NOTICE

Observe these safety precautions for your own safety!

CAUTION

The Thermo Scientific Barnstead LabTower water purification systems are modern water purification systems intended solely for the treatment of potable water. The water it produces is not safe for drinking.

DANGER

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

- Do not install or operate the system until you have carefully read through these operating instructions and the notes and notices contained therein.
- Lifting and carrying the LabTower water purification systems, e.g. to the installation location, should be carried out by two people. To do this, lift the system in tandem at the two corner points beneath the bottom plate.
- The CE mark is nullified if you make any structural changes to the system or install products from other manufacturers in/on the system.
- Protect the system from frost. The temperature at the installation area must be between +2 °C and +40 °C.
- Always observe the applicable, pertinent codes and regulations valid at the installation location of the system and follow all applicable accident prevention regulations.
- The feedwater pressure must be at least 2 bar and at max. 6 bar or 29 to 87 PSI. When the feedwater pressure is higher, install an external pressure reducer.
- A low pressure check valve is recommended to prevent back flow of feedwater from water system.
- A grounded 100-240V, 50-60Hz electrical outlet must be available, refer section “Electrical Connections” on page 15.

- Access to the power supply cord and plug may never be restricted or obstructed.
- Unplug the system from the power outlet for all maintenance work on the system.
- An atmospherically vented floor drain with a nominal diameter of at least 63 mm (2.48 inch) (DN50 tube) must be present at the installation location. If no drain is provided it is recommended that a water detector be installed for safety reasons (for European specification only). Failure to provide this will release the manufacturer from liability for any water-induced damage that may result.
- Proceed as follows if the system is not to be operated for an extended period, e.g., over extended weekend, or during a vacation period:
  - Switch the system off (unplug the mains plug).
  - Close the feedwater inlet (close the feedwater tap).
    The pump would be damaged if the system were to run without any supply of feedwater. The manufacturer will not accept any liability should this occur.
- The system must be cleaned or rinsed after an extended down time. The disinfection procedure is described under section "Disinfection of LabTower system" on page 85.
- The surface or wall on which the system is to be installed or mounted must have an adequate load-carrying capacity (check the capacity and stability of the wall). The dry weight of the system is given under section "Dimensions and weight of LabTower Systems TII/ TII UV/ AFT" on page 16. When the internal tank is filled, the system has a weight during operation of approx. 32 kg / 70.55 lbs.
- The surface on which the system is installed must be level and stable not to exceed a maximum of 2% deviation from vertical is recommended.
- When installing the water purification system, always ensure that there is adequate space all around the system refer section 'Accessibility' to ensure that ease of use or easy replacement of materials (e.g., filter change, connection) is possible at all times.
- Visually inspect the system at regular intervals. Clean up any water or spills found around the system immediately.

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

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

⚠DANGER Do not pull the plastic foil over the head. Risk of suffocation. The Plastic foil must to be used only for packaging the system and there components.

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

- Wear safety glasses when working with bleach disinfection solutions.
- If your eyes come into contact with a bleach product, rinse them immediately with ample, fresh water and contact a physician at once.

- Check the UV lamp before initial start.
  - If the UV lamp is broken wear a breathing protector, filter category FFP3 and replace the UV lamp. For disposal the UV lamp refer to "Waste Disposal" on page 91 and ventilate the room well.

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

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Extend of Delivery

Contents

Extent of Delivery LabTower systems

The following items are included with the LabTower TII water purification system:

NOTICE

Not all components are necessary for the different LabTower systems.

Each water system ships standard with the following items:

- LabTower system that you have selected
- Associated connection components (see contents of box table)
- Ultrapure cartridge or Ion exchanger/ DI canister

Contents of box table

Pos.	Designation	Article No.:	LabTower system
1	1 x Pre-filter 1 µm - 10“	06.5101	All TII UV, AFT, RO, EDI
2	1 x Pre-filter 5 µm - 10“ with hardness stabilization	06.5204	All TII UV, AFT, EDI
3	1 x Final filter 0.2 µm	09.1003	All TII UV, EDI
4	1 x PE- tube d8 mm/ 0.31 inch	18.0036	All TII UV, AFT, RO, EDI
5	1 x Connecting kit	22.0085	All TII UV, AFT, RO, EDI
6	1 x Wall bracket	50133726	All TII UV, AFT, RO, EDI
7	2 x Nylon plug	21.0002	All TII UV, AFT, RO, EDI
8	2 x Screw	21.0001	All TII UV, AFT, RO, EDI
9	1 x Universal adapter	21.1006	All TII UV, AFT, RO, EDI
10	1 x Universal holder	21.1007	All TII UV, AFT, RO, EDI
11	1 x PP Reduction LuerLock 1/4“	14.0391	All TII UV, AFT, EDI
12	1 x screw in Fitting	14.0075	All TII UV
13	1 x Table top power pack 24V DC 180W	50151559	All TII UV, AFT, EDI
14	1 x Connecting cord (rubber connector to Euro plug connector)	50132215	All TII UV, AFT, RO, EDI
15	1 x Connecting cord (rubber connector to British ST plug connector)	50132203	All TII UV, AFT, RO, EDI
16	1 x Connecting cord (rubber connector to Nema plug connector)	50132200	All TII UV, AFT, RO, EDI
17	1 x Retrofit kit pressure reducer	50146244	All TII UV, AFT, EDI, RO
18	1 Ultrapure cartridge (not shown)	09.2005	All EDI
19	Ion exchanger/ DI canister (not shown)	02.2850-LAB	All TII UV, AFT

NOTICE

Compare the parts delivered as per the list above. Contact the manufacturer, if any part is missing.

Available LabTower-TII systems

Item No	System
50132141	LabTower TII 40 UV

Available LabTower-AFT systems

Item No	System
50135466	LabTower AFT 20
50135467	LabTower AFT 40

Available LabTower-EDI systems

Item No	System
50132395	LabTower EDI 15
50132396	LabTower EDI 30

Available LabTower-RO systems

Item No	System
50132391	LabTower RO 40

Intended Use of the Device

Intended Use

The Thermo Scientific Barnstead LabTower water purification systems are laboratory systems and are used for treatment of water. The system allows the purification of water into the water categories mentioned in the standards of ASTM 11.01 and ASTM 11.02.

The Thermo Scientific Barnstead LabTower water purification systems are designed to be installed and used in the following application areas:

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

Unintended Use

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

Technical Specifications

NOTICE Check at regular intervals the quality of your feedwater.

Feedwater requirements for LabTower TII UV, AFT, EDI, RO	
Degree of purity	Tap water, softened or hardness stabilized
Conductivity µS/cm	<1500
Blocking Index SDI	<3 for all types. With higher values, the pretreatment system (Article- no: 09.4003) should be installed upstream the LabTower system.
Free chlorine mg/L	<0.1
Manganese content mg/L	<0.05
Iron content mg/L	<0.05
Colloid Index	<3
pH range	4 - 11
Temperature °C	+2°C to +35°C
Pressure bar (PSI)	2 to 6 (29 to 87)

Product water quality LabTower TII UV, AFT (Tank Quality)			
	TII UV 40	**AFT 20**	**AFT 40**
Pure water production at 15°C, L/Hr	40	20	40
Resistance at 25°C, MΩ·cm	1-10	1-10	1-10
Conductivity, µS/cm	0.1-1	0.1-1	0.1-1
TOC, ppb	<30	<30	<30
Bacteria content with final filter (CFU/mL)	<1	<1	<1
Salt retention,%	up to 98	up to 98	up to 98

Product water quality ASTM Type I LabTower EDI	EDI 15	EDI 30
Pure water production at 15°C, L/Hr	15	30
Resistance at 25°C, MΩ·cm	18.2	18.2
Conductivity, µS/cm	0.055	0.055
TOC, ppb	1 – 5	1 – 5
Bacterial content (CFU/mL)	<0.1	<0.1
Particles, 0.22 (µm/mL)	<1	<1
Flow rate at dispenser (L/min)	up to 1.5	up to 1.5

Product water quality ASTM Type II LabTower EDI (tank quality)	EDI 15	EDI 30
Resistance at 25°C, MΩ·cm	1-10	1-10
Conductivity, µS/cm	0.1-1.0	0.1-1.0
Bacteria content with final filter (CFU/mL)	<1	<1
Salt retention, (%)	up to 98	up to 98

Product water quality (Permeate) LabTower RO	RO 40
Permeate production at 15°C, (L/hr)	40
pH range	2-11
Salt retention, (%)	up to 98
Retention, bacteria and particles, (%)	up to 99
Withdrawal performance from reservoir at 1.5 bar (l/hr)	180

⚠CAUTION

The pressure hold valve for concentrate is factory adjusted. Changing of this adjustment causes damage to the reverse osmosis membrane in the RO-Module. Only specially trained personnel may adjust this pressure. The position of the pressure hold valve for concentrate see chapter Replacement Parts.

Concentrate flow for LabTower systems (check and readjust all 6 months)			
System	**Permeate Flow L/Hr**	**Concentrate Flow L/Hr**	**Up to adjustable WCF – rate (%)**
LabTower AFT 20	20	60	25
LabTower TII 40 UV, AFT 40	40	120	25
LabTower EDI 15	15	45	25
LabTower EDI 30	30	90	25
LabTower RO 40	40	120	25

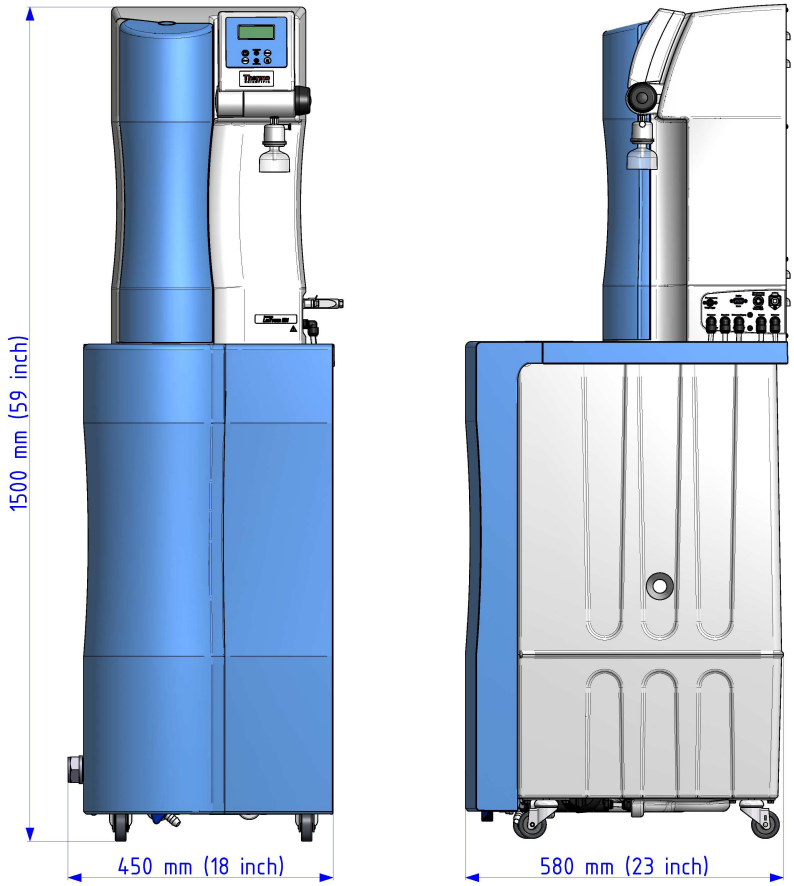
Water Connections of LabTower Systems	
Feedwater/ Raw water inlet	d8 mm/ 0.31 inch tube
Concentrate	d8 mm/ 0.31 inch tube
Pure water inlet system	d8 mm/ 0.31 inch tube
Pure water outlet tank	d8 mm/ 0.31 inch tube
Permeate system	d8 mm/ 0.31 inch tube
Drain	d8 mm/ 0.31 inch tube

Electrical Connections	
Input Voltage ext. SMPS	AC 100-240 V, 50-60 Hz, 2.2 A
Output Voltage ext. SMPS	DC 24 V, 7.5 A
System Connection	DC 24 V, 180W
Serial Interface	RS 232
Protection Class	Class II (external SMPS certified as Class I)

Accessibility to LabTower systems	
Space on left and right from the side of the system	at least 300 mm / 11.81 inch
Space to the back of the system	at least 200 mm / 7.87 inch
Top space	at least 400 mm /15.75 inch
Space to front of system	Free accessibility

Dimensions and weight of LabTower Systems TII UV/ AFT			
	TII 40 UV	**AFT 20**	**AFT 40**
Height for all		1500 mm (59 inch)	
Width for all		450 mm (18 inch)	
Depth for all		580 mm (23 inch)	
Base area for all		450 x 580 mm (18 x 23 inch)	
Weight empty	66 kg (145 lbs)	64 kg (141 lbs)	66 kg (145 lbs)
Weight including with full RO module and storage tank	151 kg (332 lbs)	149 kg (328 lbs)	151 kg (332 lbs)

Dimensions and weight of LabTower RO/ EDI	RO 40	EDI 15 - 30
Height for all	1500 mm (59 inch)	
Width for all	450 mm (18 inch)	
Depth for all	580 mm (23 inch)	
Base area for all	450 x 580 mm (18 x 23 inch)	
Weight empty	53 kg (117 lbs)	66 kg (145 lbs)
Weight including with full RO module and storage tank	138 kg (304 lbs)	151 kg (332 lbs)



Airborne sound emission	
Sound-pressure level	49 db (A)

Ambient conditions	During operation	Storage
Operation area	Indoor rooms	Indoor rooms
Maximum altitude above sea level	Up to 2000 m	Up to 2000 m
Temperature range	min. +2°C, max. +40°C, 80% rel. rH, non-condensing	min. +2°C, max. +60°C, 90% rel. rH, non-condensing
Line-voltage variation	Not more than ± 10% of the line voltage	NA (not applicable)
Transient over-voltages	As usually occur in the supply network (over-voltage category II acc. to IEC 60364-4-443). **NOTICE** The rated level of transient over-voltage is the withstand impulse voltage acc. to over-voltage category II of IEC 60364-4-443	NA (not applicable)
Ventilation requirements	No special requirements	No special requirements
Degree of pollution	2	2

Materials of parts which contact water	
Pressure reducer	NBR = acrylnitril-butadien-rubber
Pump head	Nylon with glass fibre
UV lamp	High purity quartz
UV housing	Stainless steel
DI-cartridge	PP = polyethylene
UF housing	Polycarbonate
Rinsing solenoid valve	PA = polyamid
Dispensing valve	PVDF = polivinylidenfluorid
Conductivity measuring cell	POM = polyoxymethylen, stainless steel
Distributor block	POM = polyoxymethylen
Connectors	POM = polyoxymethylen
Hoses	PE = polyethylene
O-rings	EPDM = ethylen-propylen-diene-rubber

The Installation Area

NOTICE

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

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

Feedwater pressure (potable tap water) not less than 2 bar (21 PSI) and not greater than 6 bar (87 PSI).

⚠CAUTION

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

- Minimum air temperature +2 °C.
- The surface on which the system is installed must be level and stable not to exceed a maximum of 2% deviation from vertical is recommended.
- A smooth wall is required when the system is to be wall-mounted. Check the statics of the wall or standing surface. The standing or wall surface must be strong enough to hold the system.

⚠CAUTION

Free gravity flow to drain must be ensured.

- An atmospherically floor drain with an outside diameter of 63 mm or 2.48 inch (DN 50 tube) shall be provided.
- Unobstructed draining of the rinsing water to the drain must be ensured.
- A check valve is recommended in the feedwater line to prevent back flow of feedwater from the water system.

- An electric socket with protective connection must be available for connection of the system to the voltage supply.
- Ample working space must be provided around the system for easy and pleasant replacement of wear and replacement parts and for ease of operation.
- Easy access for operation and control of the system.

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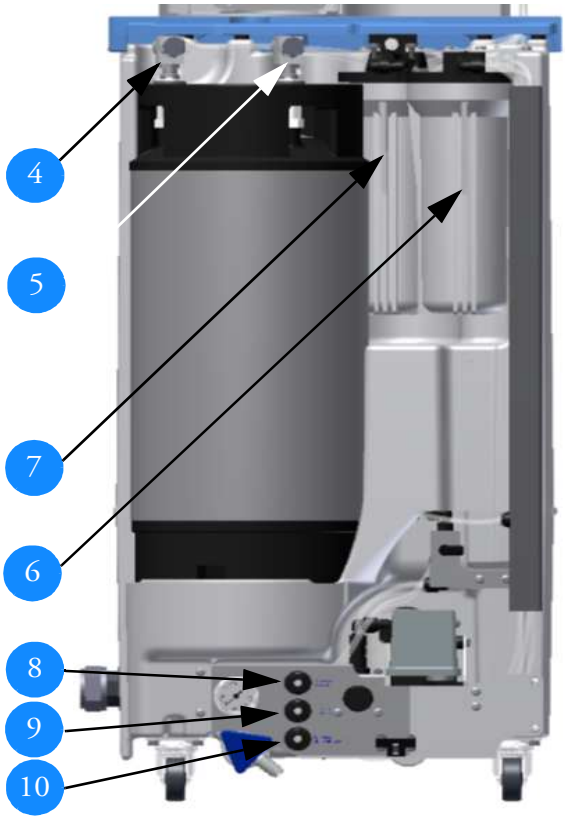
Installation

Contents

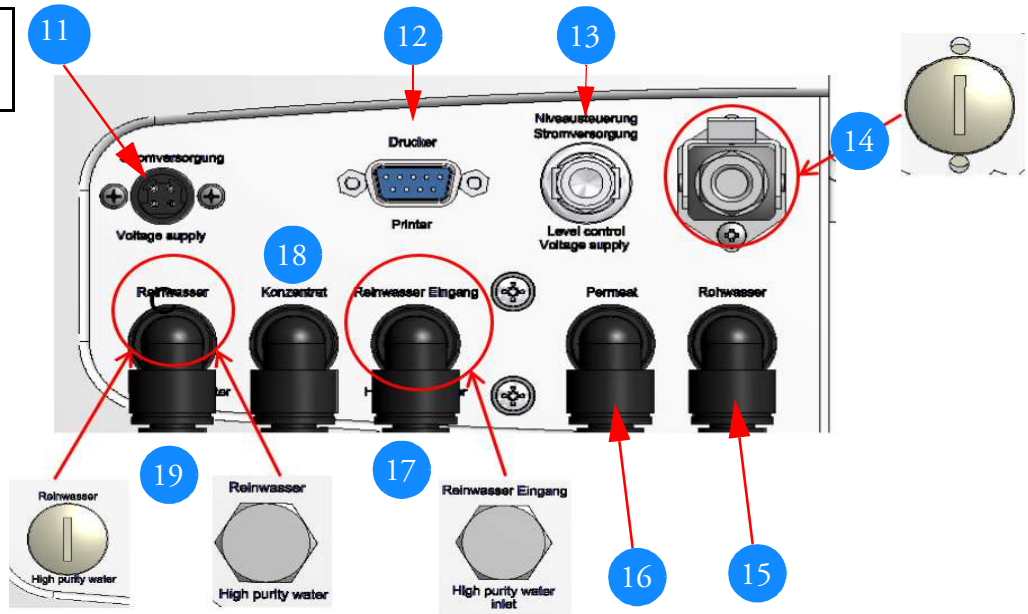
Connections of the LabTower systems

System without cartridge cover

Tank without tank cover



Connections on right side of LabTower



Dummy plug in LabTower TII UV

Dummy screw in LabTower RO

Dummy screw in LabTower RO

1. Snapper for cartridge housing
2. Quick connectors for DI-cartridge (only LabTower EDI)
3. ¼“ threaded opening for final filter
4. Feedwater connection ion exchanger (only LabTower TII UV/ AFT)
5. Pure water connection ion exchanger (only LabTower TII UV/ AFT)
6. Pretreatment
7. Optional fine filter/ sterile filter (not LabTower RO)
8. Feedwater inlet tank d8 / 0.31 inch mm tube
9. Concentrate outlet tank d8 / 0.31 inch mm tube
10. Pure water outlet tank d8 / 0.31 inch mm tube
11. Voltage supply connector, max.: 24 V/ 7,5 A
12. Printer connection, max.: 24 V/ 1 A
13. Level control connection, max.: 24 V/ 1 A
14. Voltage supply connection EDI, max.: 24 V/ 1 A (only LabTower EDI)
15. Feedwater inlet system d8 / 0.31 inch mm tube
16. Permeate outlet d8 / 0.31 inch mm tube
17. Pure water inlet d8 / 0.31 inch mm tube (only LabTower TII UV/ AFT/ EDI)
18. Concentrate outlet system d8 / 0.31 inch mm tube
19. Pure water outlet system d8 / 0.31 inch mm tube

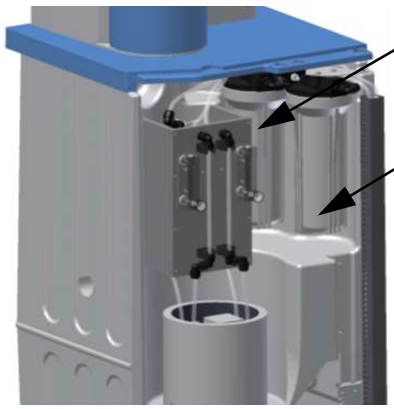
NOTICE

The external terminals of the equipment are only required to be connected with external circuits with the voltages below the limits of 6.3.1 of 61010-1 or 30 V r.m.s. and 42.4 V peak or 60 VDC and are electrically separated from hazardous live voltages by reinforced or double insulation.

Bring your LabTower system into Operation

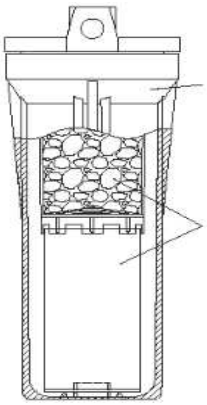
Installing the Pretreatment cartridge and fine filter

LabTower EDI



Fine filter 10” 1 µm (not LabTower RO)

Pretreatment with pre-filter 5µm and hardness stabilization. If water is softened, replace 06.5204 with carbon pre-filter, 06.5201.



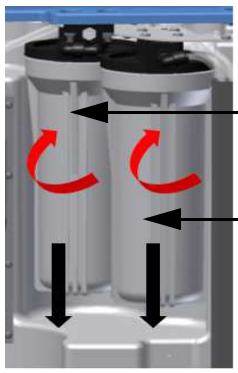
Filter housing 10”

Pre-filter cartridge 5 µm and hardness stabilizer 10”
Article No. 06.5204 or 5 µm and activate carbon 10“ cartridge, Artcle No. 06.5201

NOTICE

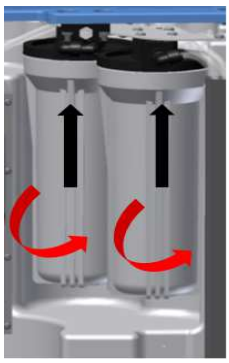
The LabTower RO systems have only a pretreatment housing. All other LabTower systems have two filter housings, one for pretreatment and one for the fine filter.

Step	Action	Figure
1	Remove the front cover from the storage tank.	
2	Unscrew (clockwise) both filter cartridge housing.	



Fine filter housing (not LabTower RO)

Pretreatment housing

Step	Action	Figure
3	Insert the pretreatment cartridge. **NOTICE** The pretreatment cartridge must be shown with the blue side up in the cartridge housing (see "Installing the Pretreatment cartridge and fine filter" on page 24).	
4	Screw (counter clockwise) the filter housings in place with the pretreatment cartridge filter. **NOTICE** Attach the cover from the tank back again until all installation process are complete and there is no leakage on the tubes and connectors. See "Initial Start Up" on page 37.	

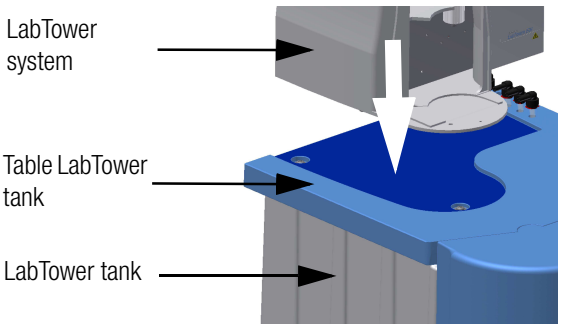
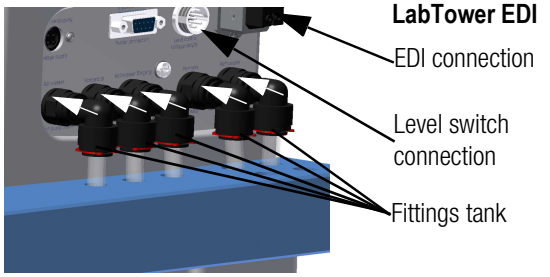
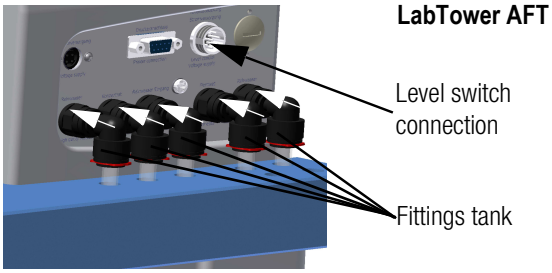
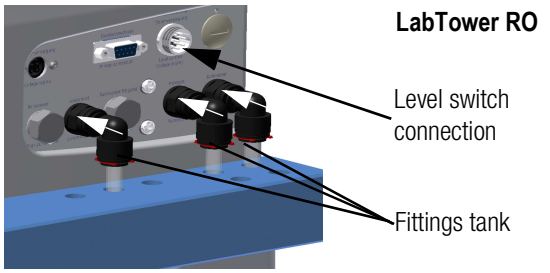
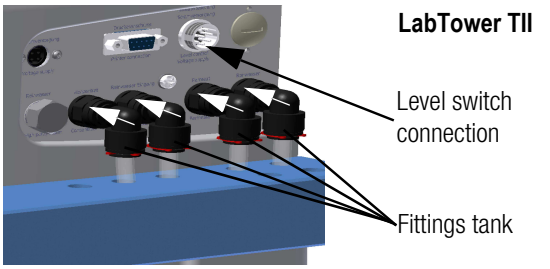
Installing the Ion exchanger/ DI canister (only LabTower TII UV and AFT)

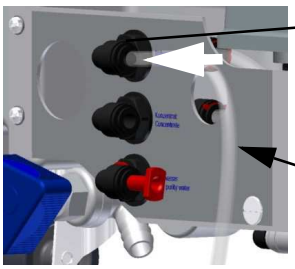
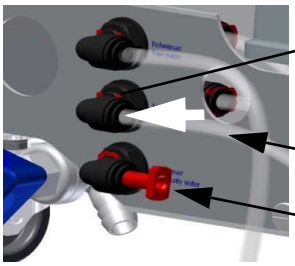
Step	Action	Figure
1	Place the supplied ion exchanger/ DI canister onto the LabTower tank.	
2	Attached the water quick connectors. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. **NOTICE** Do not mix up the quick connectors. **NOTICE** Attach the cover from the tank back again until all installation process are complete and there is no leakage on the tubes and connectors after switching on the system. See "Initial Start Up" on page 37.	

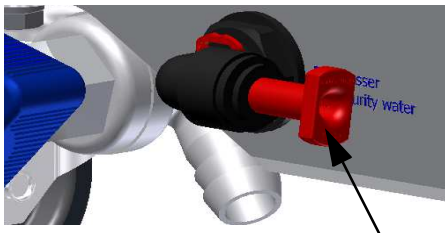
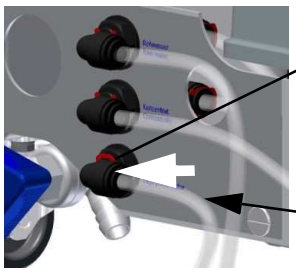
Place the LabTower upper part system onto the tank

CAUTION

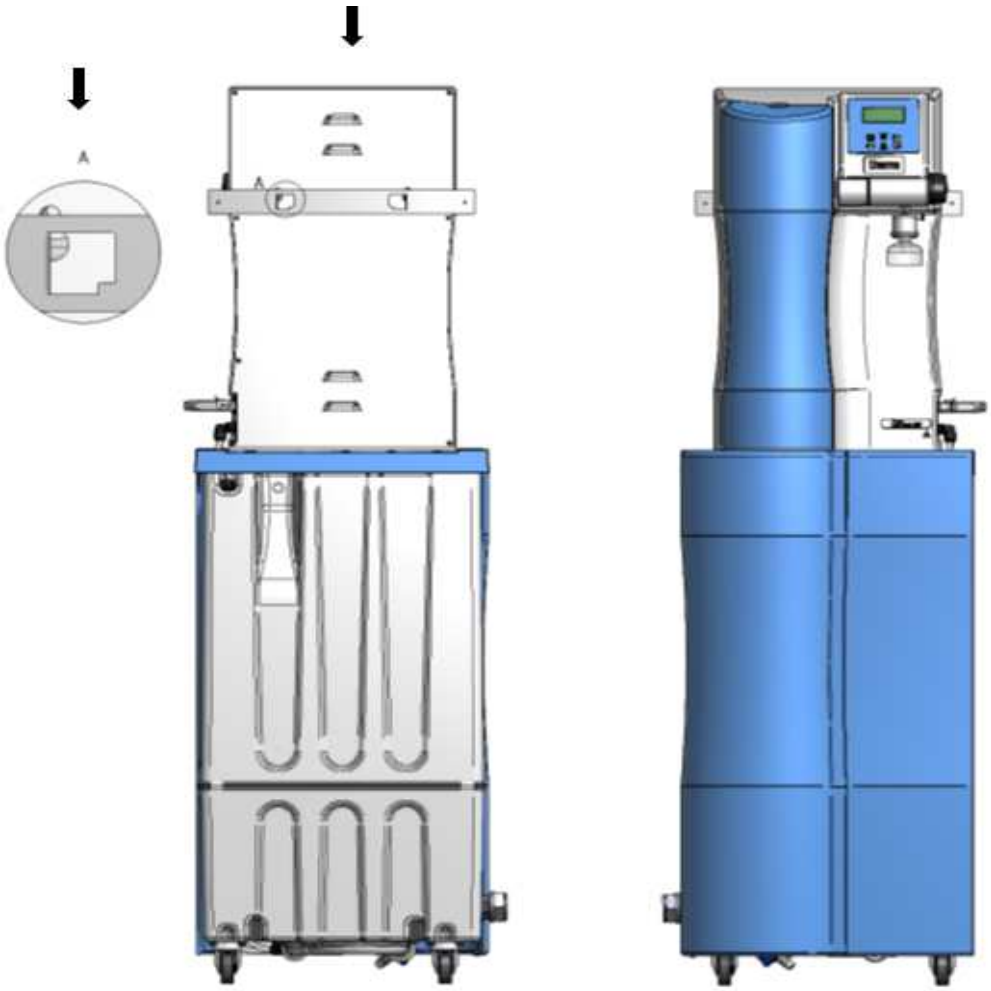
Lifting and carrying out the upper part of the LabTower system onto the tank should be done by 2 Persons. There is a risk of ergonomic injury.

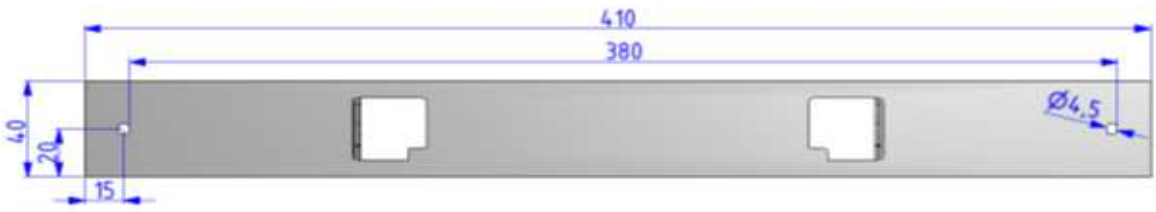
Step	Action	Figure
1	Place the upper part of the LabTower pure water system onto the table of the storage tank.	
2	Connect all fittings, out coming from the table of the tank, into the LabTower system. Additionally connect all connection wires for Level control and EDI, coming from the tank, into the connections on Systems connection panel.	   

Step	Action	Figure
3	Place the system to the desired location and fix it with the wall mounting bracket. **NOTICE** See "Mounting the LabTower system onto the wall" on page 30.	
4	If it is necessary mount the pressure reducer with the d8 / 0.31 inch mm tube onto the feedwater tap and adjust the pressure after opening the feedwater tap to a value of 2 bar. **NOTICE** An assembly instruction for the pressure reducer is included in the retrofit kit for pressure reducing.	
5	Connect the d8 / 0.31 inch mm tube, coming from the feedwater tap, into the Feedwater (Raw water) connection from the tank. **NOTICE** The feedwater inlet on the LabTower systems is located on the front lower side.	 Feedwater (Raw water) connection tank d8 / 0.31 inch mm tube
6	Cut the d8 / 0.31 inch mm tube to the required length for draining the concentrate from the LabTower system, connect it into to the concentrate connection and route the d8 / 0.31 inch mm tube to the drain.See "Routing tubes to drain" on page 35 **NOTICE**	 Concentrate connection tank d8 / 0.31 inch mm tube Blind plug

Step	Action	Figure
7	If necessary disconnect the blind plug (see figure step 6) from the pure water connection of the LabTower tank and route a d8 / 0.31 inch mm tube from the pure water connection to connect other consumers. **⚠CAUTION** Do not mix up the Feedwater tube with the pure water tube. **NOTICE** Keep blind plug for use during disinfection.  Blind plug	 Pure water connection tank d8 / 0.31 inch mm tube
8	Connect the power supply to the LabTower system. **NOTICE** See “Mounting the Power Pack (Voltage Supply)” on page 32.	
9	Now start with “Putting the System into Operation” on page 38.	

Mounting the LabTower system onto the wall





NOTICE

You must mounting your LabTower system on the wall. Before you begin mounting the system on the wall, you must be check the strength of the wall to ensure that it is suitable for supporting the system.

⚠CAUTION

The screws and anchors supplied with the wall mounting bracket are only suitable for attaching the wall mounting brackets to a concrete wall or a solid (masonry) wall.

Step	Action	Figure
1	**NOTICE** The distance from the LabTower water system to the wall is 20 mm. Use the assembling kit available in wall mounting bracket, the 2 screws 4x40 mm and the 2 dowels (Ø 6 mm).	
2	Plug the wall mounting bracket into the backside of the LabTower water attachment, as shown graphically on the following page. The wall mounting bracket must shown with the notches (see position “X”) down.	
3	Now position the LabTower water system at the proposed wall and attach it with the dowels and screws.	

Mounting the Power Pack (Voltage Supply)

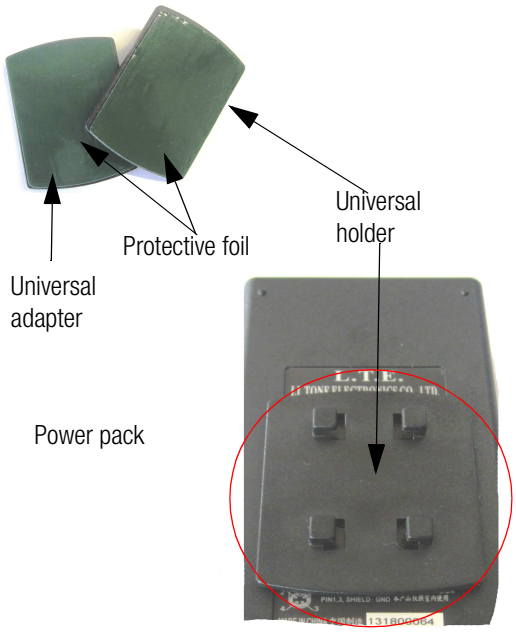
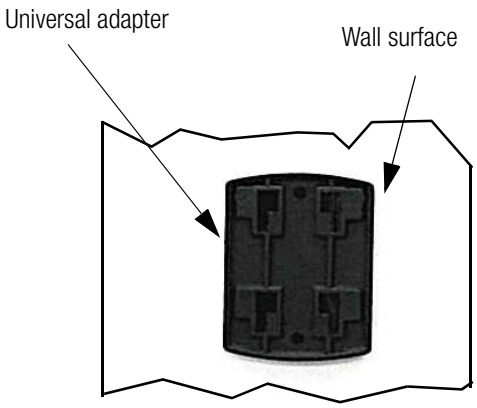
NOTICE

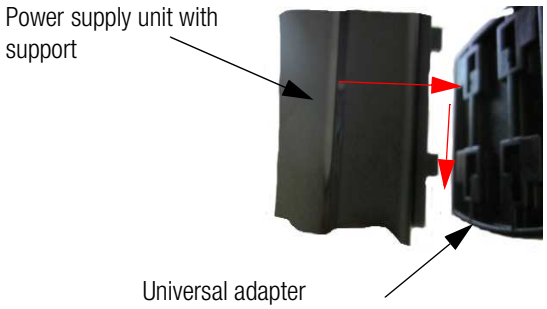
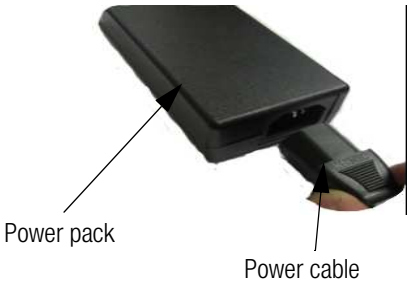
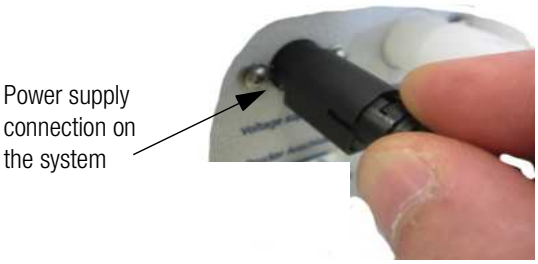
Whenever possible, mount the power pack on the wall to the left or right of the LabTower water system where it is freely accessible and not come in contact with water for get wet.

DANGER

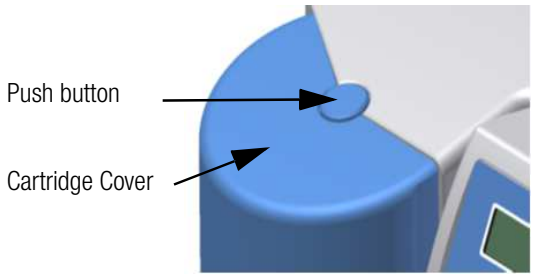
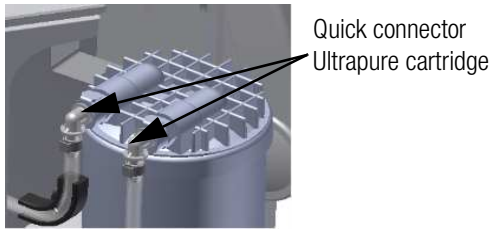
Take caution to ensure that the suitable outlet and the power cable do not get wet and mount the power pack with dry hands. Risk of an electrical shock.

Take caution to ensure that only the original equipment from the power supply pack with sufficient capability is being used.

Step	Action	Figure
1	**NOTICE** Before beginning to work with the universal adapter and holder remove the protective foil from the backside of them. Attach the universal holder, which is supplied in the assembly kit to the back of the power pack as shown in the figure.	
2	Stick the universal adapter to a smooth wall surface or screw it to the wall (screws are not provided).	

Step	Action	Figure
3	When the universal holder and universal adapter have been fitted, hang the power pack in by pressing the power pack to the holder and then pull down (see red arrows). **NOTICE** The removable line cord must be shown to the bottom.	
4	Plug the connecting cable (appliance cable) in the power pack socket. **DANGER** Do not bring the power pack in contact with water. Risk of an electrical shock.	
5	Connect the power pack to the LabTower water system (24V 4-pin power supply connector, connector) and to an earthed 100 - 240V, 50-60Hz socket. **NOTICE** Take caution that the power supply connector is always free accessible. (see Chapter 5 "Accessibility to LabTower systems" on page 15)	

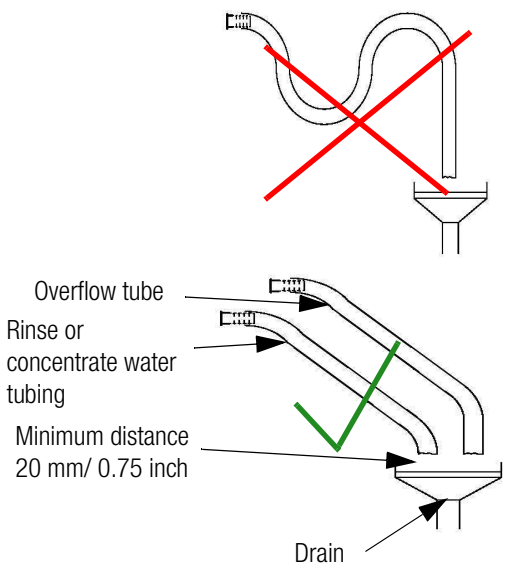
Installing the Ultrapure Cartridge into the LabTower EDI system

Step	Action	Figure
1	After fixing the LabTower system on the wall, remove the cartridge cover on the upper part of the LabTower system by pushing the push button.	
2	a). Locate the Ultrapure cartridge and fit the cartridge into the system. b). Insert the two quick connectors into the Ultrapure cartridge. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. **NOTICE** The quick connectors are attached to the unit in such a manner so as to prevent installing the Ultrapure cartridge incorrectly. Drain the first 10L through the final filter (See "Dispensing water from the dispensing valve" on page 40).	a).  b). 

Routing tubes to drain

NOTICE

Shorten the rinse water or concentrate outlet tube to the required length and route it to an atmospherically vented drain. The tubes that run from the LabTower Water Purification system and the tank to the drain must be routed with a downward slope and without any kinks or restrictions, as this would result in backing up of the draining water.
If a standard drain siphon is in place, the ends of the tubes must be located at least 20 mm/0.75 inch above the drain. Attach the tubes in such a manner that they remain in their position.



8

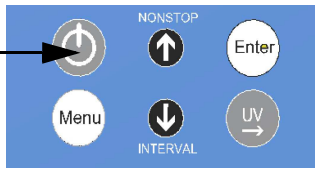
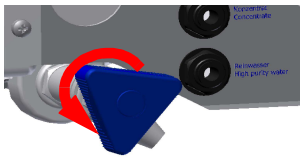
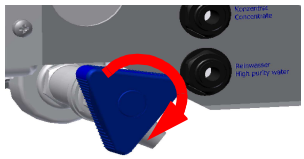
Initial Start Up

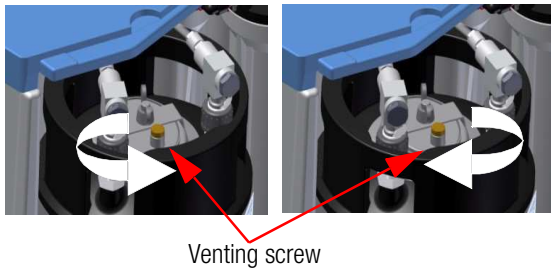
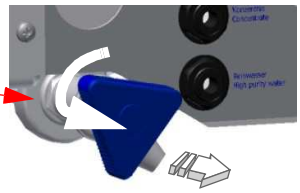
Contents

Putting the System into Operation

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

⚠CAUTION Check that all tubings and components have been made as specified in the “Connections of the LabTower systems” on page 22.

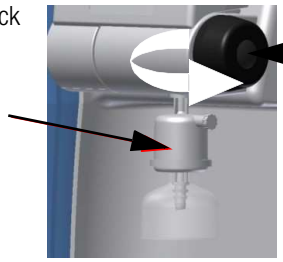
Step	Action	Figure
1	Open the feedwater tap and switch the system on.	ON/OFF switch 
2	a). Check that the system produces water into the storage tank and drain the first tankful of water by opening the dispensing valve on the tank. b). Close the dispensing valve on the tank after draining. The system shows in the display “Production”. **NOTICE** If the system reaches the full tank setpoint, the display switches automatically into the Stand by mode.	a).  b).  Display showing: Production 55% 10.0 MΩ·cm

Step	Action	Figure
3	**NOTICE** Step 3 a. is only necessary for LabTower TII UV and AFT systems. a). Vent the ion exchanger/ DI canister by opening the venting screw (anti clockwise) on the upper side of it. Close the venting screw (clockwise) if you can see that water comes out from the opening of venting screw. Drain the first content of produced water through the Dispensing valve on the storage tank, when using the LabTower TII UV systems. **NOTICE** Step 3 b. is only necessary for LabTower EDI systems and if purchased as an accessory in LabTower TII UV and AFT systems. b). Screw in the final filter into the upper part of system and open the dispensing valve (see "Dispensing water from the dispensing valve" on page 40). If needed, vent the final filter (see "Venting the final filter" on page 40). **NOTICE** Step 3 c. is only necessary for LabTower EDI system. c). Drain the first 10L through the final filter to remove the air bubbles in the DI-cartridge.	a).  Venting screw Dispensing valve tank  b). Dispensing valve system  Final filter c). Final filter 
4	Attach the Cartridge cover for the upper system of LabTower and the tank cover for the tank back again. **NOTICE** The system produces now pure water for operation.	

Dispensing water from the dispensing valve

NOTICE

Dispensing water from the upper part of LabTower system is only possible by LabTower TII UV, AFT and EDI systems.

Step	Action	Figure
1	Turn knob counter wise to dispense water. Water flow out of the unit and can be adjusted with turning the knob. Turn the knob clockwise to slow down or stop water flow. **⚠CAUTION** Do not over tighten knob once flow stops, doing so could damage dispensing valve.	Counter clock wise to dispense water  Knob

Venting the final filter

Step	Action	Figure
1	The first time you dispense pure water at the main dispenser through the final filter, open the white knurled screw.	 Knurled screw Final filter
2	Do not close the knurled screw until pure water runs out of the opening at the knurled screw continuously.	

9

How the LabTower Water Purification System Functions

Contents

All LabTower systems

Pretreated water flows with a maximum pressure of 6 bar into the system through the internal pretreatment. A Pressure pump in the system pumps the feedwater through a RO-membrane which splits the water into „permeate and concentrate“.The concentrate water flows to the drain constantly when system is in production mode. The water in the internal storage tank is recirculated by the second pressure pump in the tank through the system. The recirculation function is not possible for the LabTower RO and AFT systems.

LabTower TII UV

The permeate water flows through a conductivity measuring cell and an ion exchanger before it reaches the internal storage tank. A second pump in the internal storage tank pumps the pure water from the tank through a second conductivity measuring cell and an UV lamp, placed in the upper system. Pure water can be dispensed from the pressurized internal tank outlet or from the final filter on the dispensing valve.

LabTower AFT

The permeate water flows through a conductivity measuring cell into the internal storage tank. A second pump in the internal storage tank pumps the permeate through an ion exchanger before it reaches the UV lamp and second conductivity measuring cell placed in the upper system. Pure water can be dispensed from the pressurized internal tank outlet or from the final filter if it is mounted.

LabTower EDI

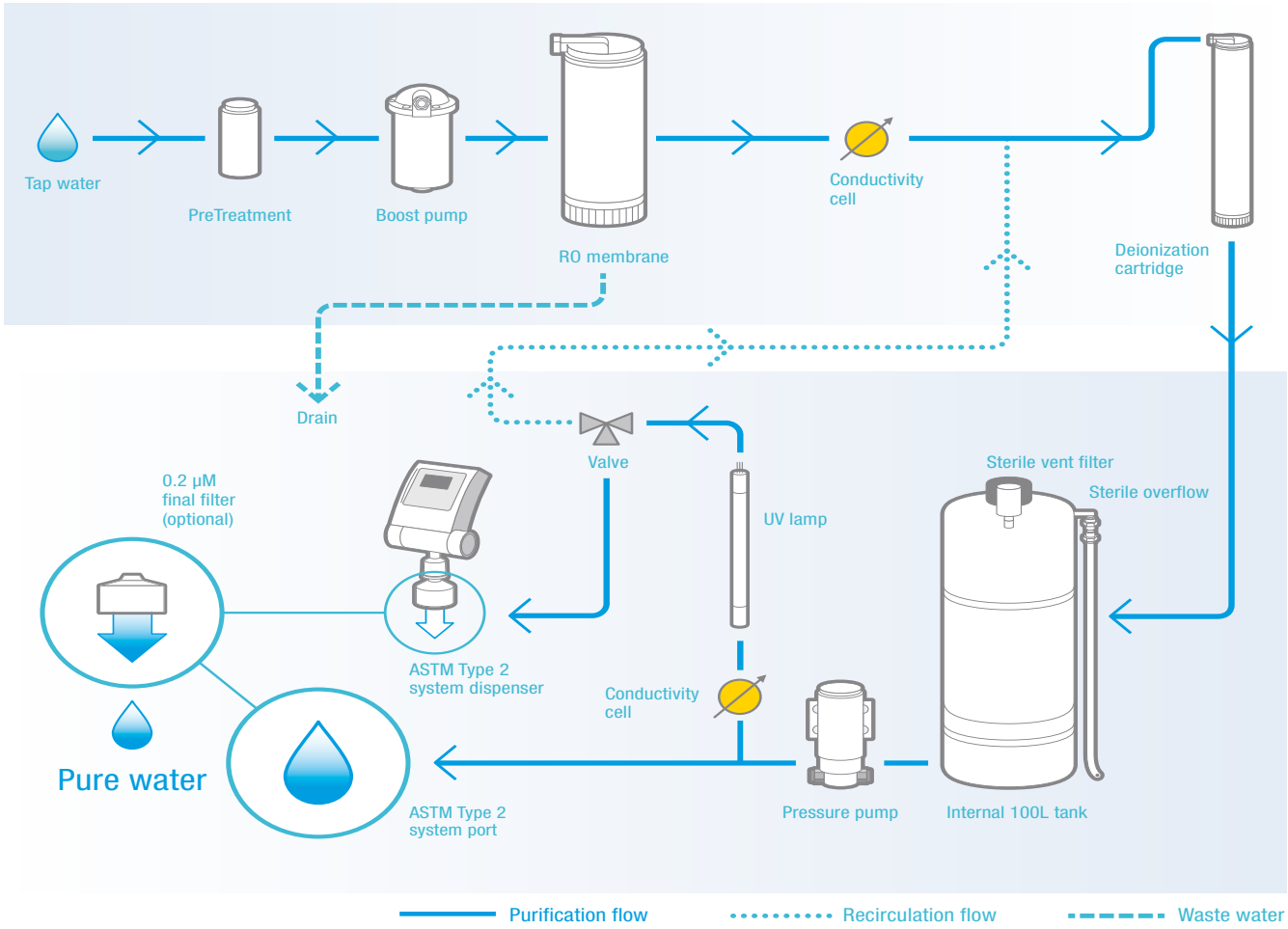
The permeate water flows through a conductivity measuring cell and an EDI Cell with after placed measuring cell into the internal storage tank. A second pump in the internal storage tank pumps the pure water through an UV- lamp, DI cartridge and third conductivity measuring cell, placed in the upper system. Pure water can be dispensed from the pressurized internal tank outlet. Ultrapure water can be dispensed through the final filter onto the upper system.

LabTower RO

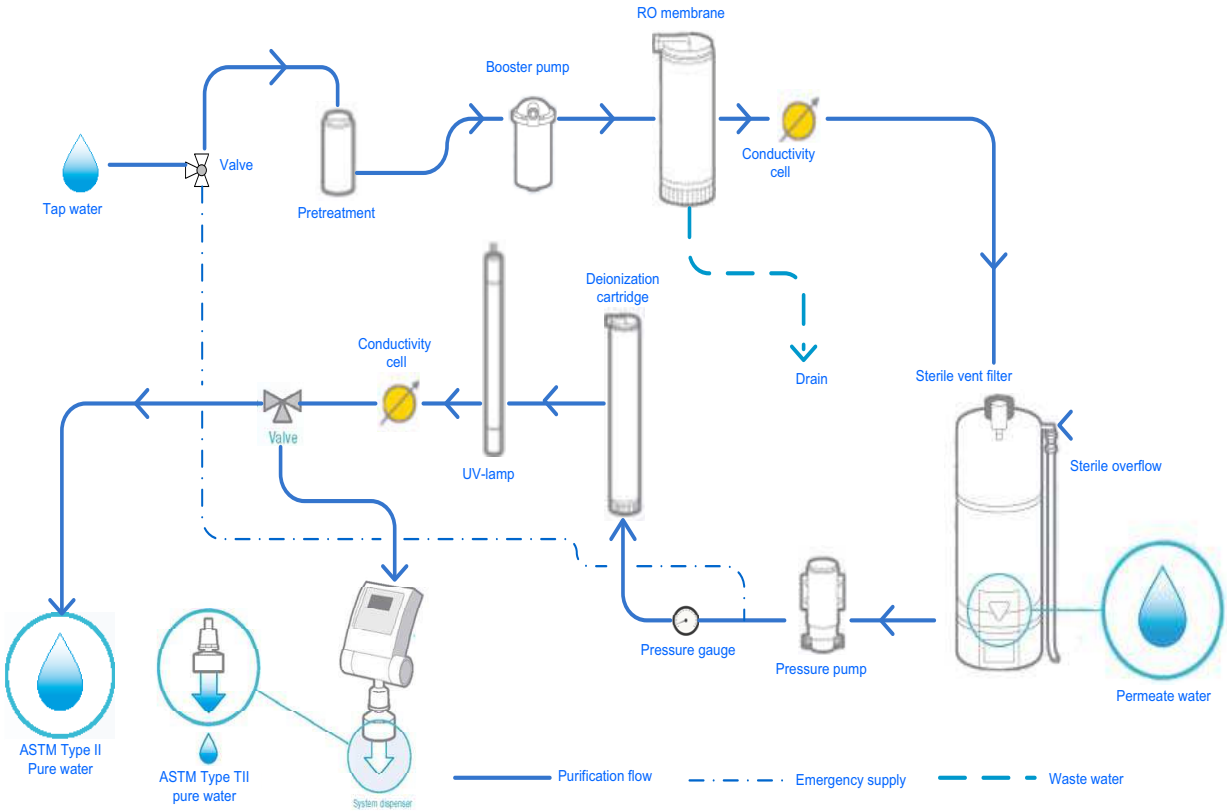
The permeate water flows through a conductivity measuring cell into the internal storage tank. Permeate water can be dispensed from the pressurized internal tank outlet.

Flow Chart

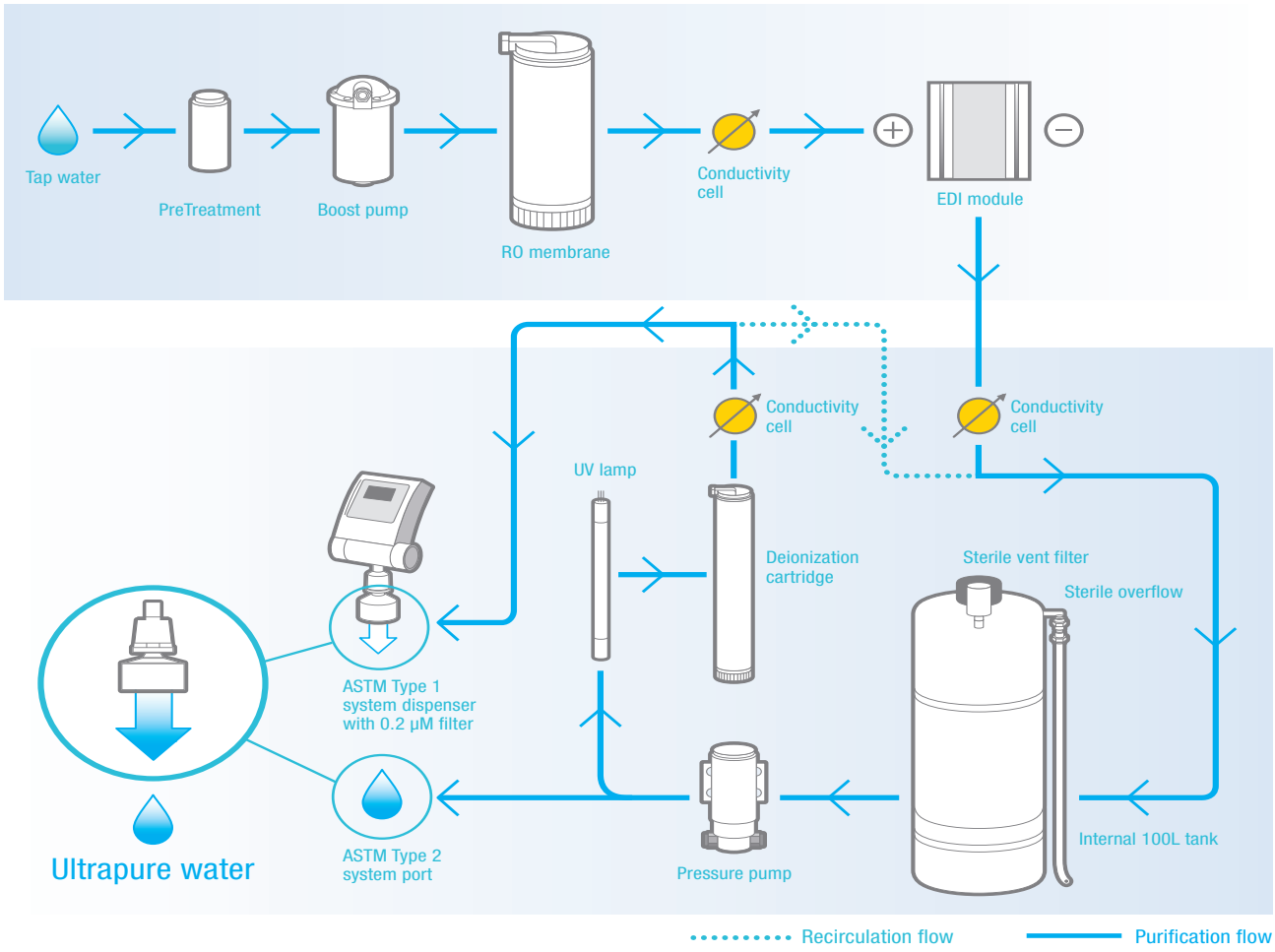
Flow chart LabTower TII UV



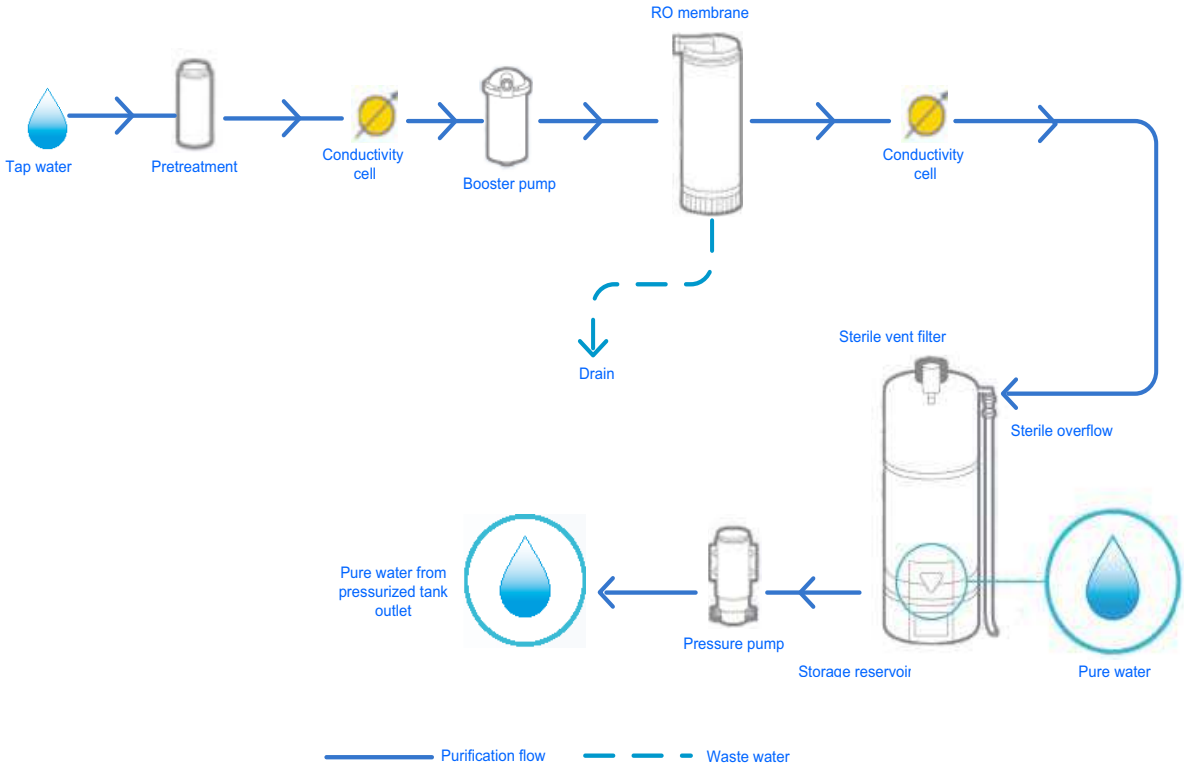
Flow chart LabTower AFT



Flow chart LabTower EDI



Flow chart LabTower RO



11

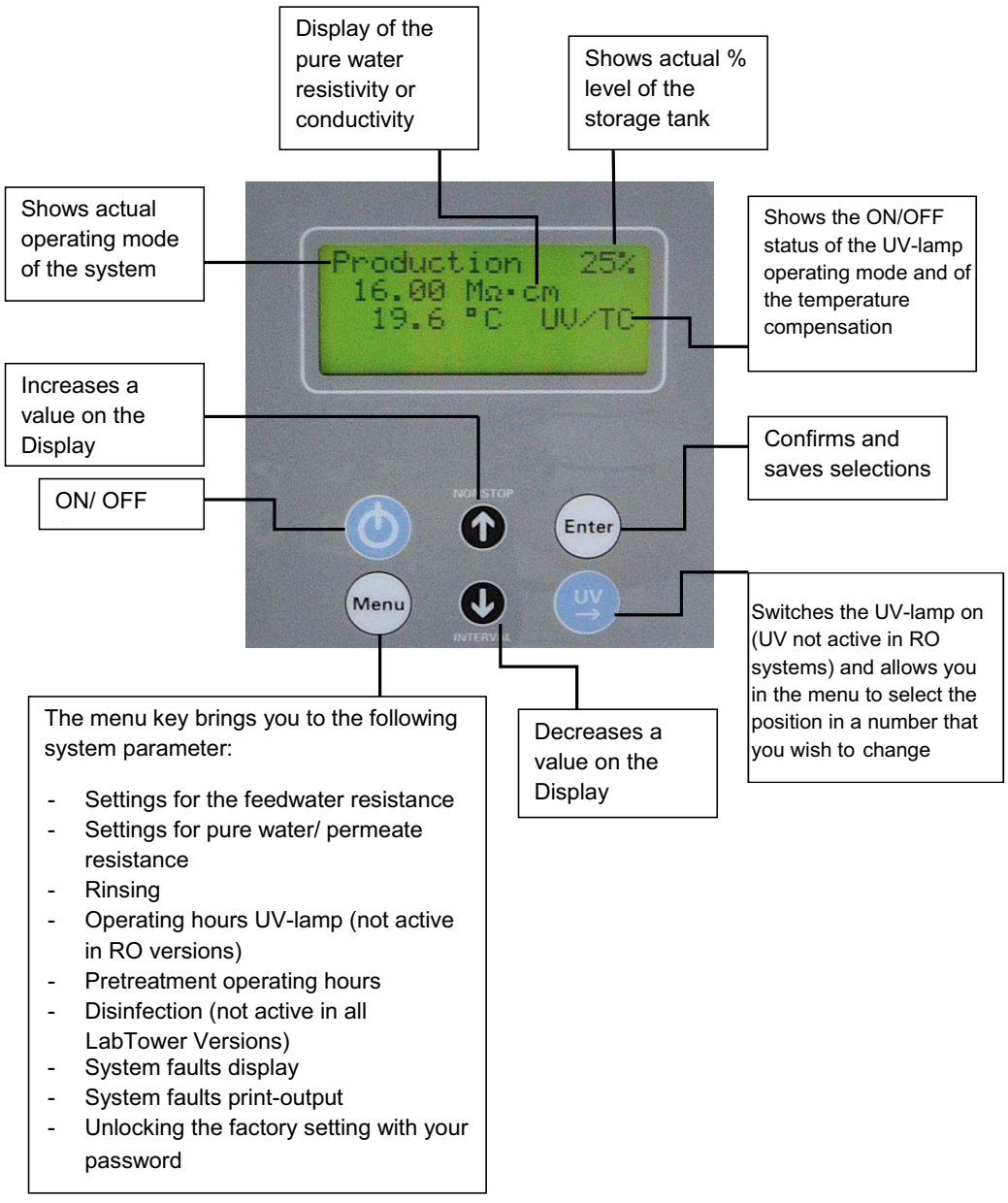
Operating Elements

Contents

Description of Display LabTower TII UV, AFT, EDI

NOTICE

The Display foil of LabTower EDI systems is colored blue.



Description of Display LabTower RO

Display of the pure water resistivity or conductivity

Shows actual % level of the storage tank

Shows actual operating mode of the system

Confirms and saves selections

ON/ OFF

Switches the UV-lamp on (UV not active in RO systems) and allows you in the menu to select the position in a number that you wish to change

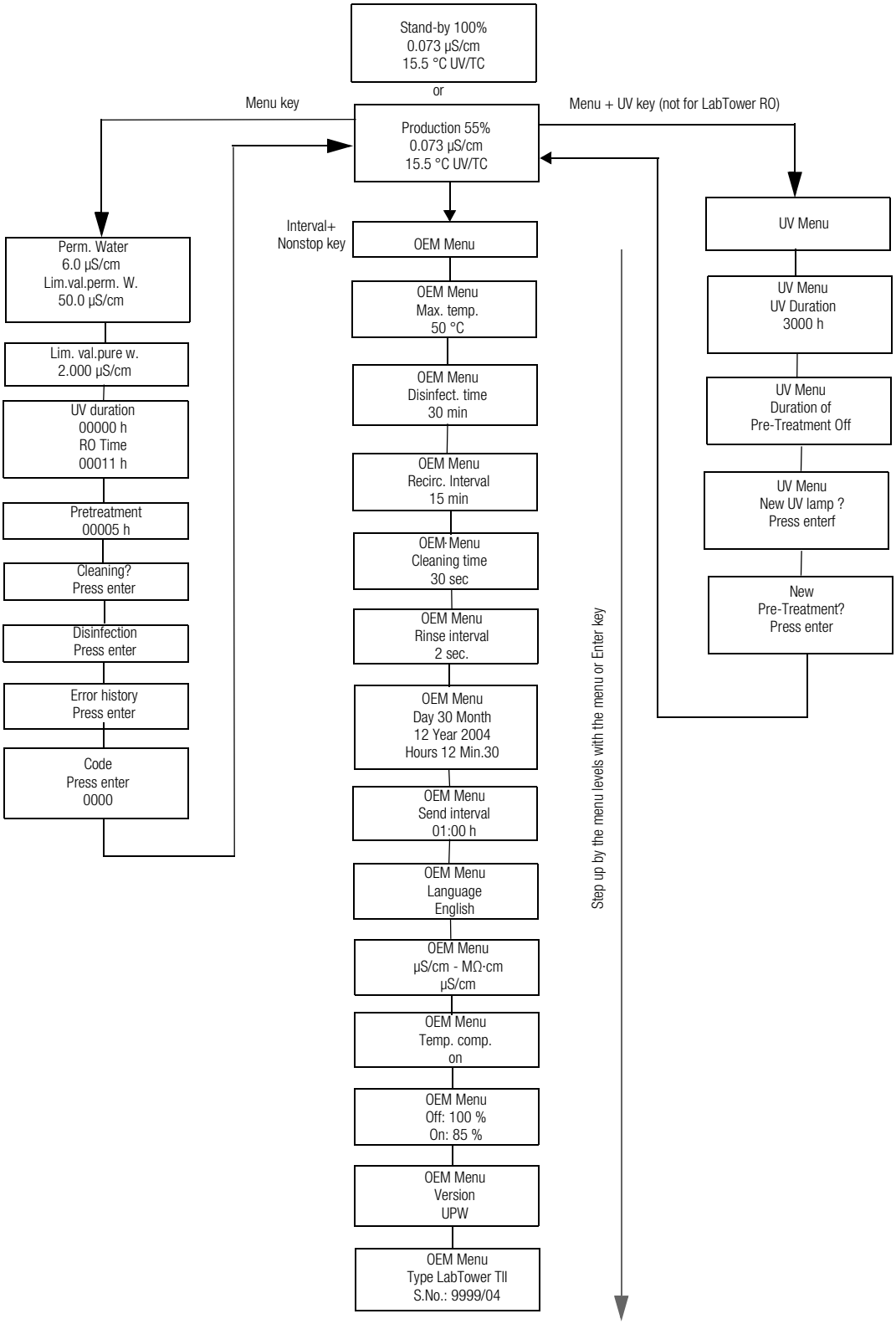
The menu key brings you to the following system parameter:

- Settings for the feedwater resistance
- Settings for pure water/ permeate resistance
- Rinsing
- Operating hours UV-lamp (not active in RO versions)
- Pretreatment operating hours
- Disinfection (not active in all LabTower Versions)
- System faults display
- System faults print-output
- Unlocking the factory setting with your password

Decreases a value on the Display

Increases a value on the Display

Flow Chart System Control



12

System Control

Contents

General Information

When the ON/OFF key is pressed, the system starts running either in the operating state or the stand-by state, depending on the position of float switch.

The operating state and the volume contained in the tank is shown in line1 of the display. Also the volume in the tank is indicated in line 1 and the value of the permeate conductivity measured is shown in line 2.

Should a fault occur, a fault message is displayed in line 4. Should several faults occur at once, they are alternately displayed.

User Menu

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

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

Settings can be changed with the arrow keys. When the correctness of a value is confirmed by pressing Enter, this also takes you to the next menu point. The Enter button is additional to use to save selection and the Menu button to scroll through parameters.

To simplify changing settings, a press on the UV-key allows you to select the position at which you wish to change a number, and the arrow keys can be used to set a number from 0-9 at each individual position.

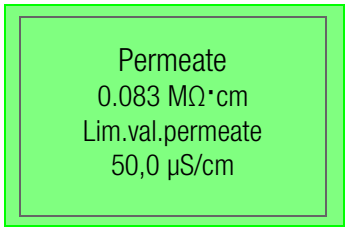
Permeate Conductivity

A single press on the menu-key allows the feedwater conductivity to be read and the limiting value of the permeate conductivity to be changed. Should the limiting value be exceeded, then the *"Lim. Val. Permeate"* message flashes in the 4th line of the display (measuring point LF2)

Limiting value setting range: 0.1 – 150.0 µS/cm
Basic setting: 0.02 MΩ·cm

With settings above 150.0 µS/cm, the limiting value is switched off and the word „Off" appears in the display.

The display shows:



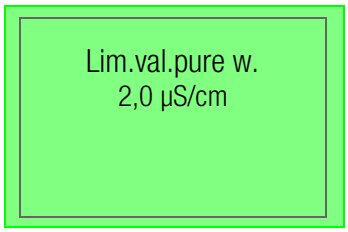
Pure Water Limiting Value

A second press on the menu-key allows the pure water limiting conductivity value to be set in this menu. Should the limiting value be exceeded, then the *"Lim. Val. Pure w."* Message is displayed (measuring point LF1)

Limiting value setting range: 0.055 – 9.999 µS/cm
Basic setting: 0.50 MΩ·cm

Settings above 9.999 µS/cm result in the limiting value being switched off. The word "Off" appears in the display.

The display shows:

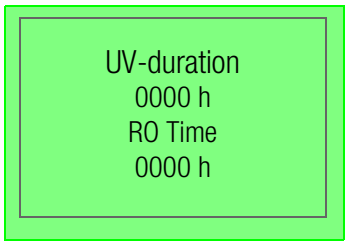


Operating Hours

A third press on the menu-key allows the operating hours of the UV lamp and the reverse osmosis pump to be displayed in this menu. The UV lamp operating hours counter registers the total length of time for which the lamp was switched on. When the maximum operating time is reached, the "UV duration" fault message is triggered. The limiting value can be set in the OEM menu.

The operating hours of the reverse osmosis pump does not have a limiting value.

The display shows:



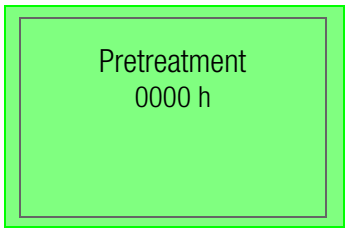
Pretreatment Operating Hours

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

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 when the reverse osmosis pump is running.

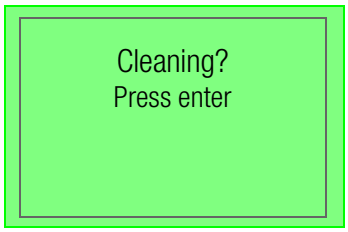
The display shows:



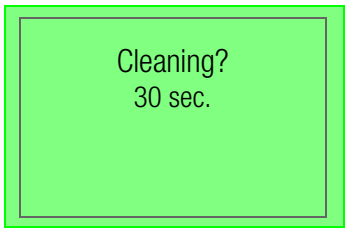
Cleaning

A fifth press on the menu-key allows cleaning to be carried out whenever 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 returns to the last operating state (operation or stand-by) The remaining cleaning time is displayed while cleaning takes place.

The display shows:



During cleaning, the display shows



Disinfection

(This function is not active in this system)

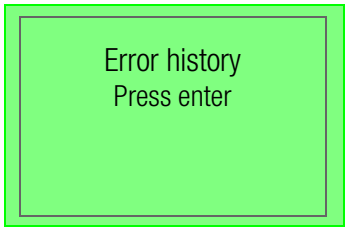
The display shows:

Error History

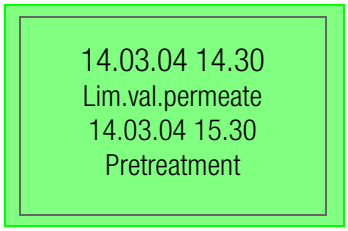
A seventh press on the menu-key calls the error history inquiry. Confirmation of this with Enter allows the error history to be examined. The display shows two errors at once, each with time and date. Pressing an arrow key allows previous or following errors to be displayed.

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

The display shows:



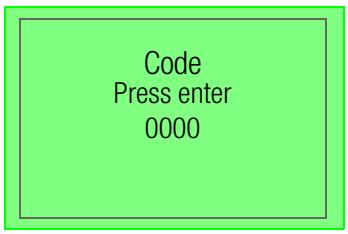
The display of the error history shows:



Unlocking the System

An eighth press on the menu-key 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 Enter. 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 shortened code number. (Display « Code 150 » = printed Code 0001, Display « Code 250 » = printed Code 0002 etc.)

The display shows:



NOTICE

To prevent unauthorized access to system control settings, changes to these settings can only be carried out when a correct code number has been entered and confirmed with Enter. In deviation to existing programs, control release can be given at three levels. Only the menu is released for changes at the first level. Both the menu and the OEM menu are released at the second level. All menus are released at the third level.

Assignment table for persons authorized to unlock the system control

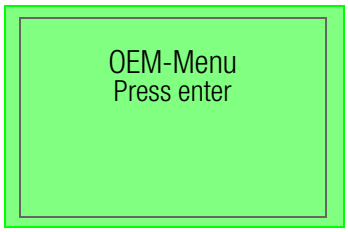
Level 1 Menu	Level 2 Menu + OEM Menu	Level 3 all locked areas
150	0450	0750
250	0550	0850
350	0650	0950

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. Calling the OEM-menu:

Simultaneously pressing the INT-key and the Nonstop-Key calls the OEM-menu. Following this, the prompt *"OEM-menu Press enter!"* appears. When this is confirmed with Enter, the first menu point can be worked on. To simplify changing settings, press the UV-key to select the position at which you want to change a number. 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 point.

The OEM-menu prompt display shows:



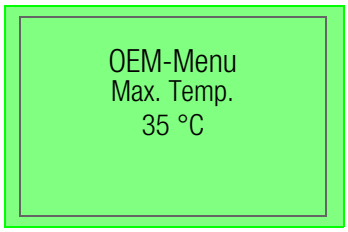
Maximum Temperature

A single press on the menu-key:

The maximum temperature the system can be exposed to can be set in this menu. When this temperature is exceeded, the "Max. Temp." Fault message is triggered. Settings above 50°C cause the limit evaluation to be suppressed, and the word "Off" appears in the display. This is shown in the fourth line of the display.

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

The display shows:

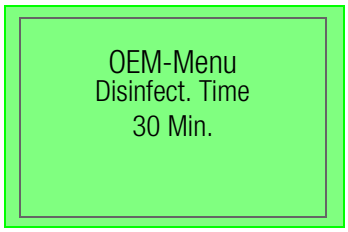


Disinfection Time

A second press on the menu-key:

(This function is not active in this system)

The display shows:



Recirculation Time

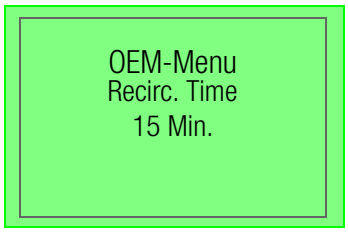
A third press on the menu-key:

This function applicable to LabTower EDI and TII systems only.

The recirculation time is set in this menu.

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

The display shows:



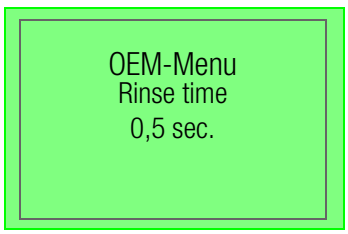
Rinsing Time

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:



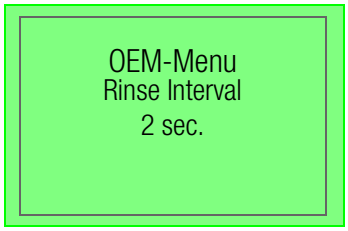
Rinse Interval Time

A fifth press on the menu-key:

The rinse interval time is set in this menu. A rinse is carried out for this length of time when the operating state is changed, between stand-by and operation and every 12 hours.

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

The display shows:



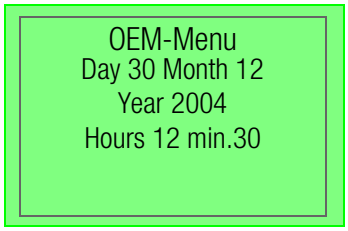
Real Time clock

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 month, 1 – 31 day, 0 – 24 h, 0 – 60 min.**

The display shows:



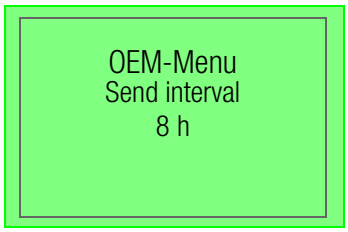
Sending Interval

A seventh press on the menu-key:

The sending interval for transmission of measured values and fault messages to the RS 232 interface is set in this menu.

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

The display shows:



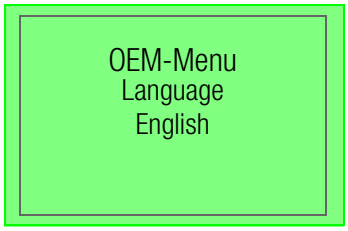
Language

An eighth press on the menu-key:

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

- **Basic setting: English or German**

The display shows:



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 MΩ·cm**
- **Setting range: Resistance MΩ·cm,**
- **Specific electrical resistance MΩ·cm**

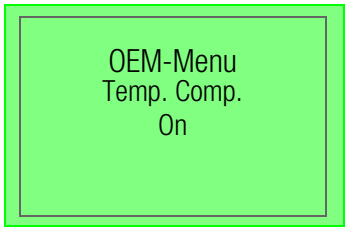
The display shows:

Switch off Temperature Compensation

A tenth press on the menu-key:

- **Basic setting: On**
- **Setting range: On, Off**

The display shows:



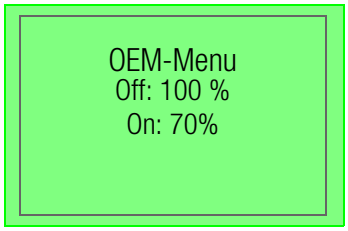
Adjusting the settings of the Float Switch

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.

The display shows:



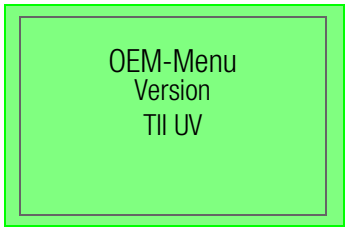
Programme Choice, TII UV, RO

A twelfth press on the menu-key:

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

- **Basic setting: TII UV**

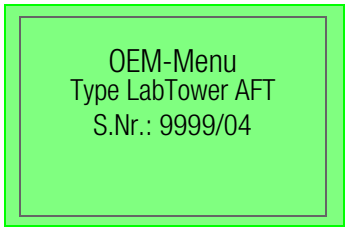
The display shows:



Entering the type and serial number of the system

In this menu, the type and serial number of the system can be entered, both of which are then given as headline on every print-out. The following types of systems can be given: LabTower-RO, LabTower-TII, LabTower-TII UV, LabTower-AFT.

The display shows:



Printer output

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

- Standard message

- Code message

- Error message

Standard message

Here a record of all measured values is printed out in dependence on the sending interval.

Print out:

e.g.: 03.12.15 09:39
LabTower TII UV
S.No. 9999/07
TC on UV off
LF1= 16.130 MΩ·cm
LF2= 0.109 MΩ·cm
Temp.= 11.5 °C

Code messages

Whenever a code number is entered in the system control and confirmed with the Enter-key, then the code input is immediately printed out. For code identification, see the “Assignment table for persons authorized to unlock the system control” on page 56 for code numbers that allow the system to be unlocked”.

Print-out:

e.g.: 03.12.15 10:17

LabTower TII UV

S.No. 9999/07

Code 0001

Error messages

Should a error message be shown in the display, e.g. for the pure water limiting value, then this error message is printed out after the sending interval.

Print-out:

e.g.: 03.12.07 16:15

LabTower TII UV

S.No. 9999/07

Lim.value.ultrapure

13

Maintenance

Contents

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

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

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

Disinfection should be performed at least once yearly, or when the DI-cartridge is replaced, or when bacteria is present in the product water.

DANGER

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

Unplug the system from the power outlet for all maintenance work on the system.

Maintenance intervals

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

Material	Catalog no.	Interval*	Other problems
Ultrapure cartridge (only LabTower EDI)	09.2005	up to 12 months	Or when the system water limiting value is exceeded, whichever is shorter. Longer usage can result in bacterial growth on the resin.
Ion Exchanger/ DI cartridge	02.2580- LAB	up to 12 months	Or when the system water limiting value is exceeded, whichever is shorter. Longer usage can result in bacterial growth on the resin.
5 µm 10“ filter with hardness stabilizer cartridge (included in 09.4001)	06.5204	up to 6 months	Or when crystals are half dissolved
5 µm filter with activated carbon	06.5201	see maximum hours of carbon pretreatment use table below	Replace based on chlorine level
Hardness stabilization	06.5452	up to 6 months	Or when crystals are half dissolved
1 µm filter	06.5101	up to 4 months	• Low flow • When changing DI cartridge • Bacteria are present in product water
0.2 µm final filter (used on system or remote hand dispenser) (only LabTower TII UV, AFT and EDI	09.1003	up to 12 months	• Low flow • When changing DI cartridge • Bacteria are present in product water
CO_2 vent filter (only LabTower EDI)	06.5002	up to 12 months	• Replace every 12 months • Indicator changes to blue
0.2 µm 10“ filter (rear canister on system) (only LabTower EDI)	06.5555	up to 12 months	• Replace when DI cartridge is replaced • Bacteria is present in product water • Once a year minimum
0.1 µm 10“ filter, optional (Optional filter installed in system‘s back canister)	06.5557	up to 12 months	• Replace when DI cartridge is replaced • Bacteria is present in product water • Once a year minimum
Vent filter (TII UV, AFT and RO units only)	50135142	up to 12 months	Replace every 12 months
RO membrane	22.0046 22.0087	up to 2 years up to 2 years	Or when permeate conductivity limit is reached or „lim.val.permeate“ is displayed

*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.

Maximum hours of carbon pretreatment use:	
LabTower Water Purification Systems	**Approximate Hours of Use for 1 ppm Chlorine**
LabTower AFT 20	500
LabTower AFT 40	300
LabTower EDI 15	500
LabTower EDI 30	300
LabTower TII UV 40	300
LabTower RO 40	300

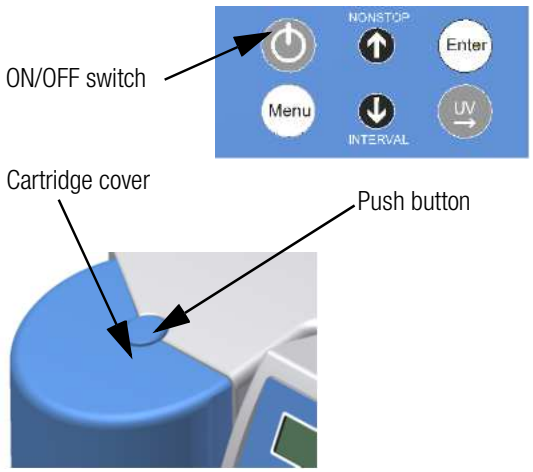
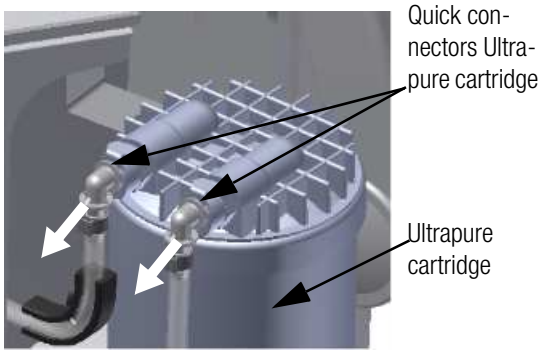
NOTICE

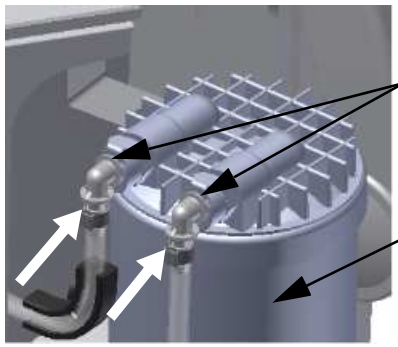
If Chlorine level is 2 ppm, reduce hours of operation by half.

Replacing the Ultrapure cartridge (only LabTower EDI)

⚠CAUTION

When storage tank is filling, check system by dispensing water from upper part of LabTower system. If the water does not reach the storage tank or does not flow through the dispensing valve, check that all tubings and components are inserted correctly once again.

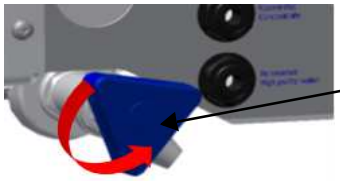
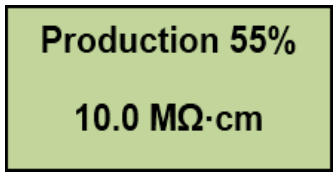
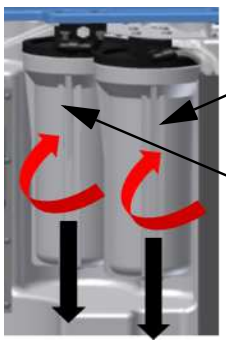
Step	Action	Figure
1	Switch the system off and remove the cartridge cover on the upper part of the LabTower system by pushing the push button.	
2	Press on the two quick connectors at the inlet and outlet of the Ultrapure cartridge and remove the used DI-cartridge.	

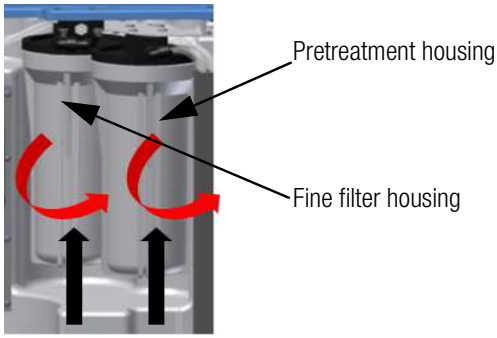
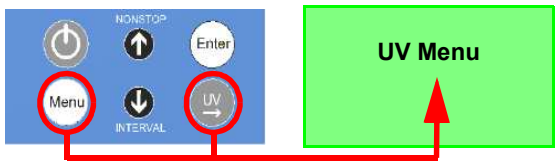
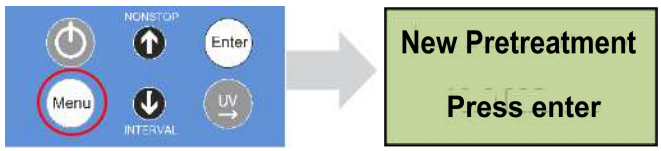
Step	Action	Figure
3	Locate the new Ultrapure cartridge, place it into the system and insert the two quick connectors into the Ultrapure cartridge. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. **NOTICE** The quick connectors are attached to the unit in such a manner so as to prevent installing the Ultrapure cartridge incorrectly.	
4	Put the cover from the Ultrapure cartridge back in place and switch the system on. **NOTICE** Discard the first 10 liters through the final filter (see Chapter "Dispensing water from the dispensing valve" on page 40.	

Changing the pretreatment and fine filter

NOTICE

The position of the filter cartridge housing is on each LabTower system is the same. The LabTower RO systems has only a pretreatment housing. All other Labtower systems have two filter housings, one for pretreatment and one for the fine filter. You need the pretreatment 06.5204 or carbon 06.5201 and the fine filter 06.5101.

Step	Action	Figure
1	Remove the front cover from the storage tank and open the dispensing valve on the tank until the LabTower system switches into the Production mode.	 Dispensing valve tank 
2	Switch the system off and locate the pretreatment housings (position of pretreatment see “Installing the Pretreatment cartridge and fine filter” on page 24.	ON/OFF switch 
3	Unscrewing (clockwise) both filter cartridge housings. **CAUTION** The filter cartridge housings are still full with water. If water has run out of the housing on the floor, wipe it immediately. Otherwise there is a risk of slipping.	 Pretreatment housing Fine filter housing

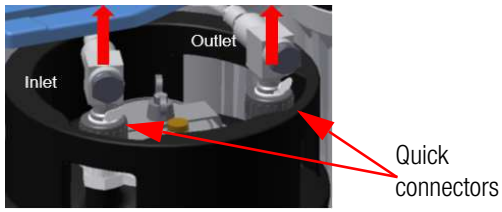
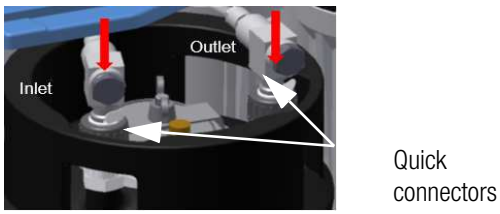
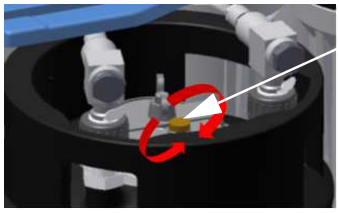
Step	Action	Figure
4	Change the pretreatment and fine filter. **NOTICE** The pretreatment cartridge must be shown with the thick side up from the cartridge housing see “Installing the Pretreatment cartridge and fine filter” on page 24.	
5	Screw back (counter clockwise) the filter housings with pretreatment and fine filter.	
6	Open the feedwater tap and make sure that the filter cartridge housings does not leak.	
7	Switch the system on and fit the front cover from the tank back again.	
8	**NOTICE** For this action you must have a level 3 Code. Refer to section „“Code messages” on page 63 to find where to find this code and how to enter it. a) After entering the code push the „Menu and UV“ button simultaneously. The Display shows „UV menu“. b) Push the „Menu“ button repeatedly until new pretreatment appears and press enter to confirm. **NOTICE** The system resets the operating hours counter of the pretreatment.	a).  b). 

Replacing the Ion exchanger/ DI canister (only LabTower TII UV, AFT)

⚠CAUTION

Before disconnect the quick connectors on the ion exchanger the pressure in the ion exchanger/ DI canister must be first released by switching of the system.

Check the system after switching on, produces water into the storage tank by dispensing water from the dispensing valve on the upper part of the LabTower system. If the water does not reach the storage tank or does not flow through the dispensing valve, check that all tubings and components are inserted correctly once again.

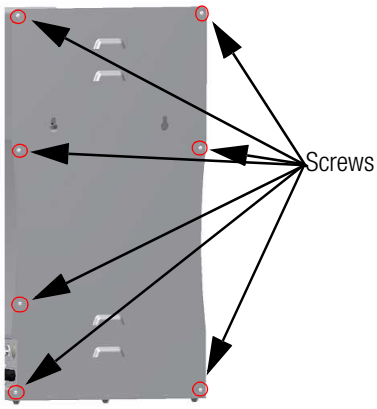
Step	Action	Figure
1	Switch the system off and remove the front cover from the tank.	
2	Locate the ion exchanger and disconnect the quick connectors on the inlet and outlet of the ion exchanger/ DI canister.	
3	Change the used ion exchanger/ DI canister with a new one and connect the quick connectors back. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. **NOTICE** Do not mix up the quick connectors.	
4	a). Switch the system on. b). Vent the ion exchanger/DI canister by opening the venting screw (counter clockwise) on the upper side of it. Close the venting screw (clockwise) if you can see that water comes out from the opening of venting screw.	a).  b). 

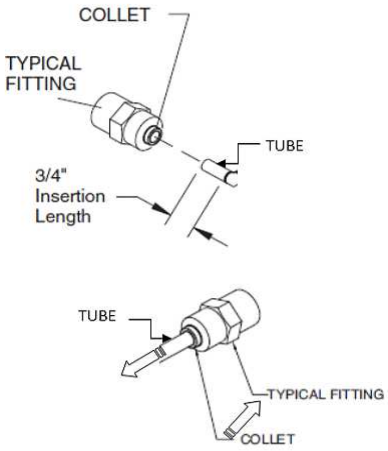
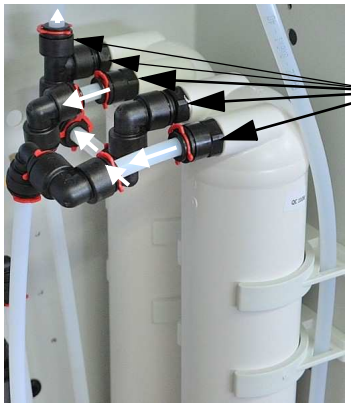
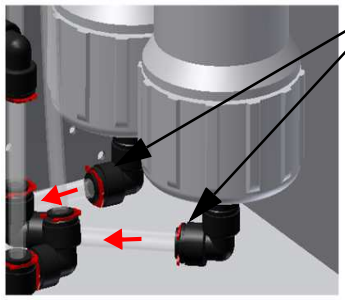
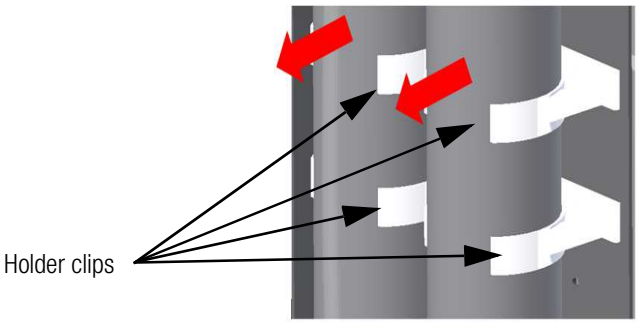
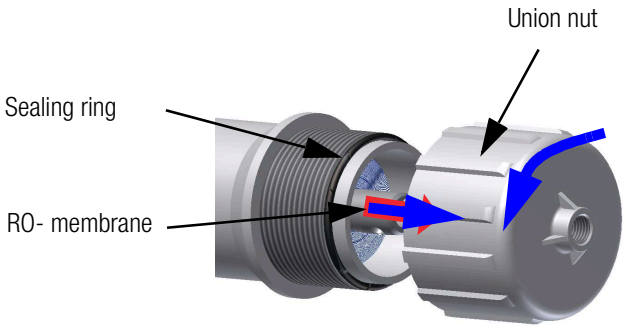
Changing the RO Membrane

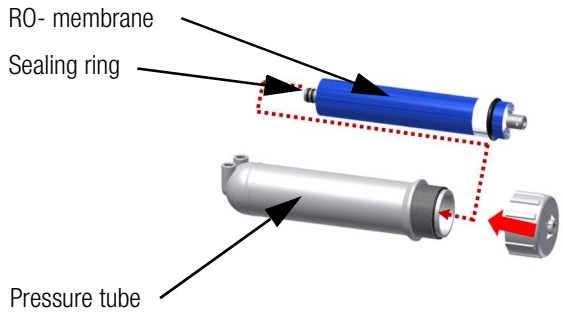
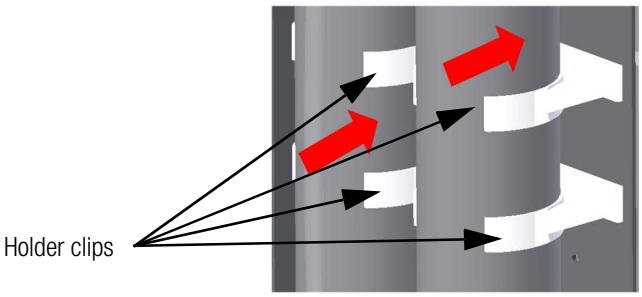
LabTower Water Purification Systems	Article no. RO- membrane	Quantity
LabTower AFT 20	22.0046	2x
LabTower EDI 15	22.0046	2x
LabTower TII UV/ AFT/ RO 40	22.0087	2x
LabTower EDI 30	22.0087	2x

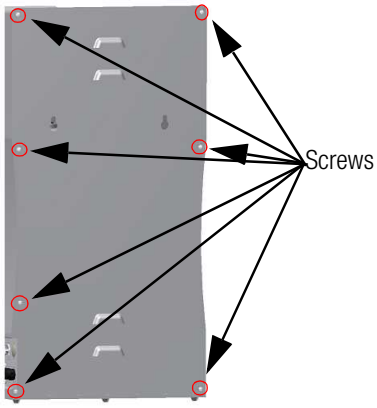
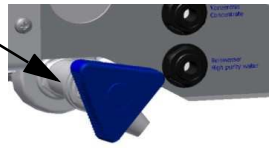
NOTICE

Before start working on this, shut off the feedwater supply and switch the system off.

Step	Action	Figure
1	Remove the back panel by unscrewing the 7 screws. **NOTICE** Take out the back panel carefully and remove the yellow grounding wire on the back panel. Ensure that the screws get not lost. The screws are to be re-used when back assembly the back panel.	
2	Locate the RO modules	

Step	Action	Figure
3	Remove the red retaining rings and pull out all d8 mm tubes on the RO modules. **NOTICE** For removing the tube from the fitting, push the collet toward the body while pulling on the tubing to release the tube. Do not reverse tubing connections or it could harm the RO membrane. 	 
4	Pull the RO modules from the holder clips.	
5	Unscrew counter clockwise the union nut from the pressure tube of the RO module, by turn it in anti clockwise direction and drag out the reverse osmosis membrane. **NOTICE** Ensure that the sealing ring get not lost when unscrewing the union nut.	

Step	Action	Figure
6	Take the new reverse osmosis membrane and push it with the sealing facing up into the pressure tube. After this turn tight the union nut (clockwise) onto the pressure tube. **NOTICE** Wrong position of the RO- membrane into the pressure tube leads to immediate destruction of it.	
7	Push the RO modules back into the holder clips.	
8	Attach all d8 mm tubes with retaining rings back into the fittings on the RO modules.	

Step	Action	Figure
9	Open the feedwater supply and switch the system on. **NOTICE** Check that all tubings and components attached correctly and no leakage is there.	ON/OFF switch 
10	a. Switch of the system and mount the back panel and the yellow grounding wire back. b. Switch the system on and drain the first full content of the storage tank through the dispensing valve on the tank.	a.)  b.) Dispensing valve 

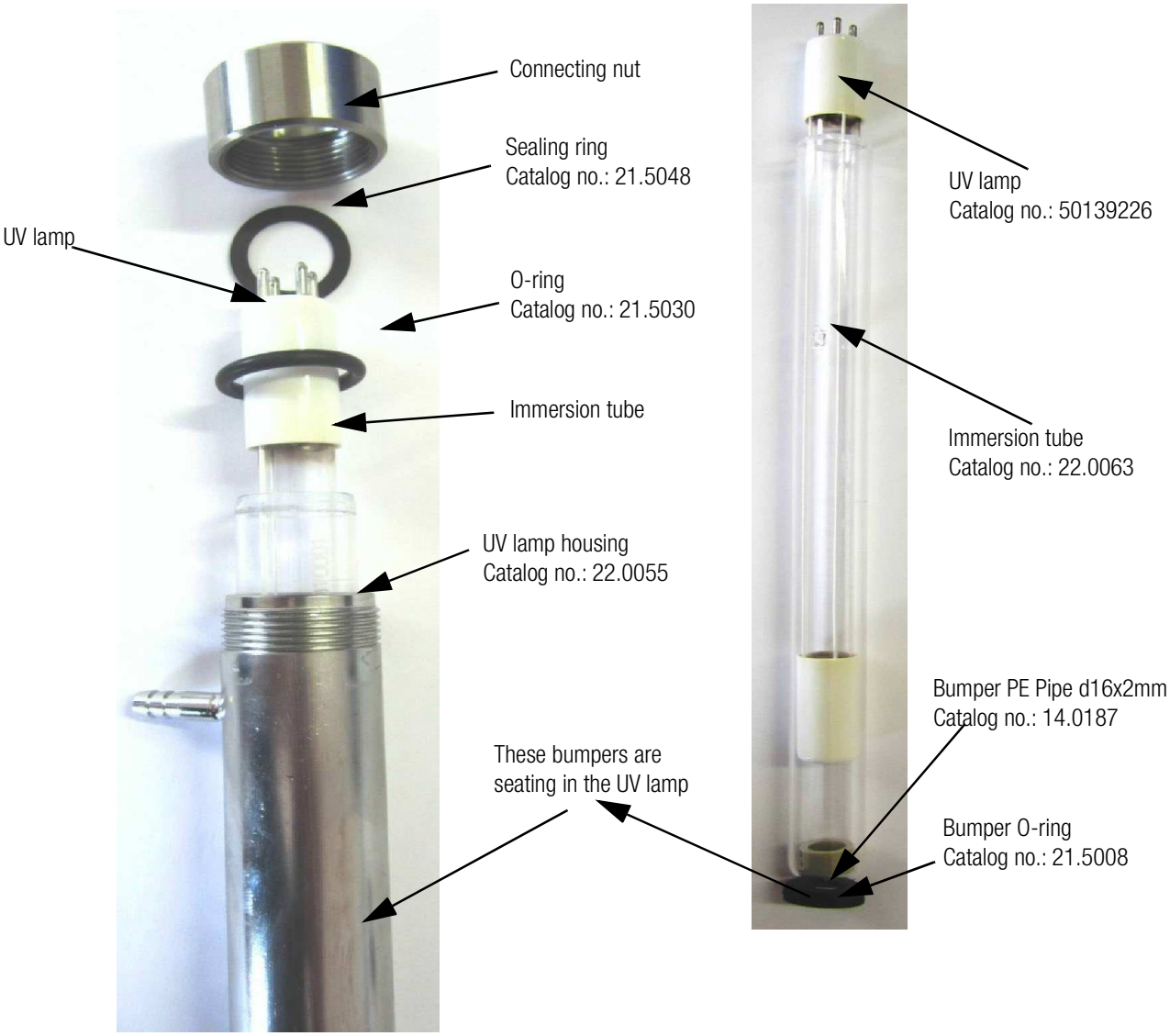
Changing the UV lamp (only systems with UV lamp)

NOTICE

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

Structure of the UV lamp

(Only systems with UV)



Change the UV lamp

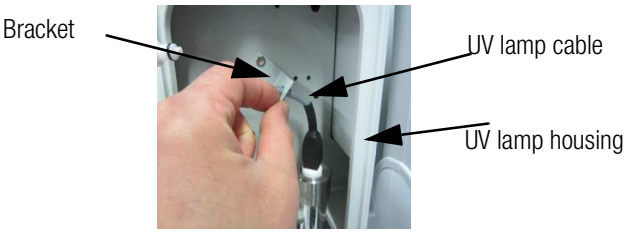
WARNING Never look directly into a switched-on UV lamp, as UV-light endangers eyesight!

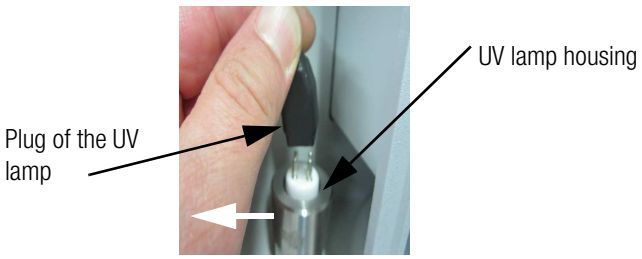
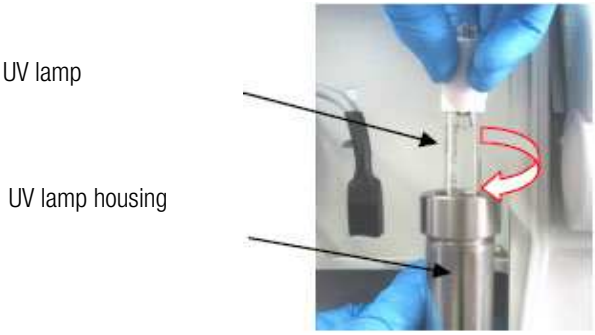
Always wear safety gloves when changing the UV lamp, in order to prevent that your skin comes in contact with the UV lamp glass.

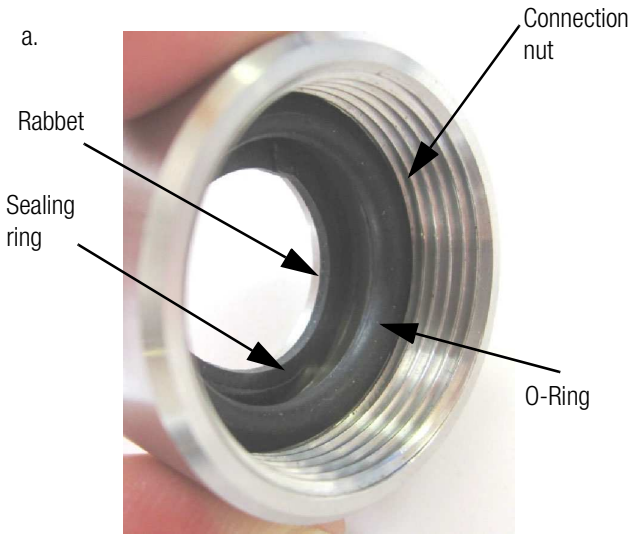
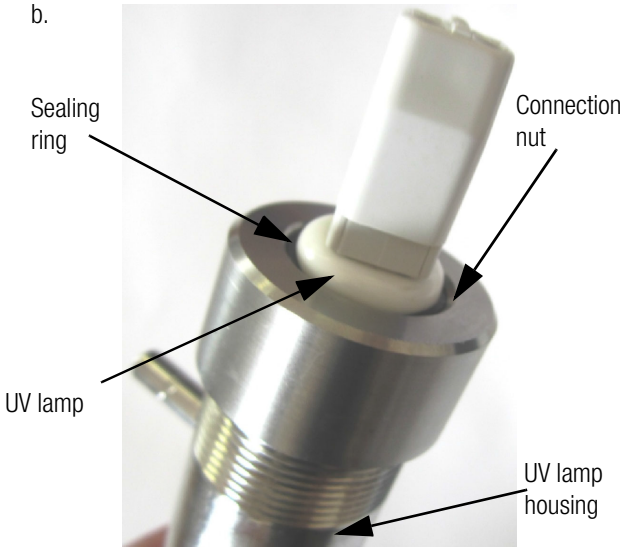
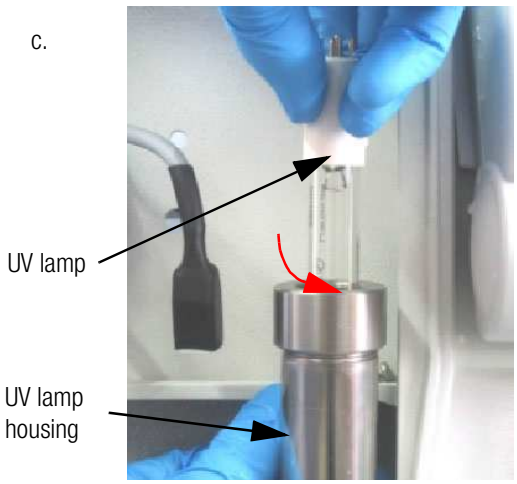
Wear directly a breathing protector when you are seeing that the glass of the UV lamp is broken and ventilate the room well.

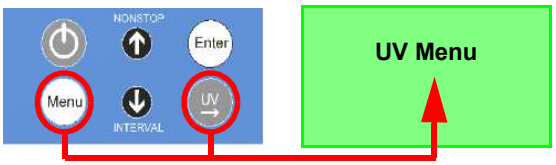
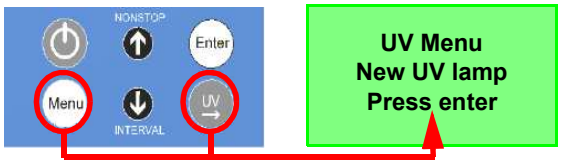
NOTICE Contact your local Service organization to proceed as the proper disposal of the used UV lamp. The Hg content in the UV lamp is so low so that no damage to the environment can arise.

(applicable only for systems with UV lamp)

Step	Action	Figure
1	Switch the LabTower System off and shut off the supply of feedwater.	
2	Remove the cartridge cover and take off the DI-filter cartridge.	See chapter"Replacing the Ultrapure cartridge (only LabTower EDI)" on page 69
3	Unscrew the bracket from the mounting plate and take it up over the UV lamp cable.	

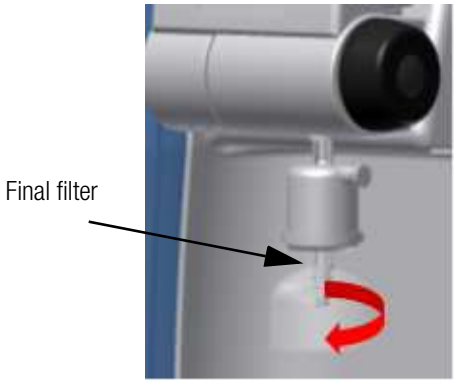
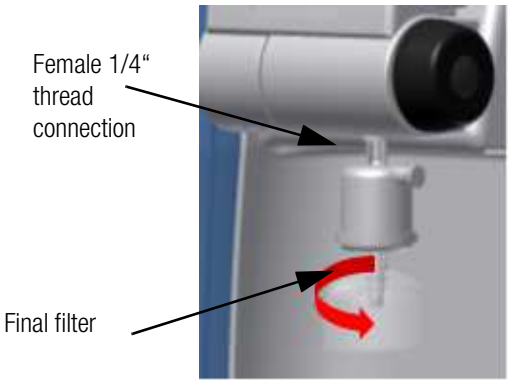
Step	Action	Figure
4	Draw the UV lamp housing slightly to the front (see red arrow) to the front and take the plug off of the UV lamp.	
5	Now carefully draw the UV lamp upwards while lightly turning it clockwise. During the replacement of a UV lamp, great care must be taken to avoid touching the glass of the UV lamp with fingers, to avoid dirtying of the lamp which would impair the functioning of it. **NOTICE** We therefore recommend that clean gloves to be worn.	 **NOTICE** See chapter "Structure of the UV lamp" on page 78 where is seating the sealing ring to not damage it.

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

Step	Action	Figure
7	Put the cartridge cover back on (see under section "Replacing the Ultrapure cartridge (only LabTower EDI)" on page 69, re-open the feed water supply and switch the system on again.	
8	Push the menu button until "Enter code" is displayed. **NOTICE** The Code to do this transaction please refer from the Code table under section."Unlocking the System" on page 56. You need a level 3 code. a.) After entering the code push the Menu and UV button simultaneously. The display shows UV Menu. b.) Push the Menu button repeatedly until new UV lamp appears and press enter to confirm. The system sets the operating hours counter of the UV lamp back and save the new values by an automatically calibration. **NOTICE** The UV lamp must be switched on (production mode).	a.  b. 

Change the final filter

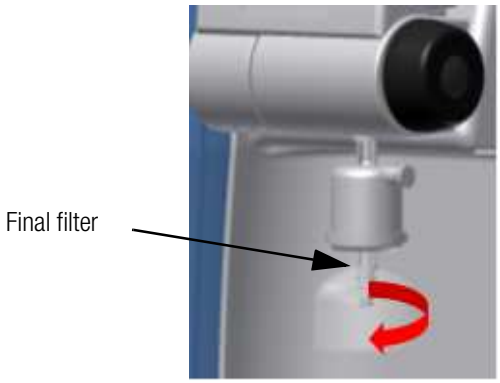
(only LabTower systems with final filter)

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

Autoclave the final filter

NOTICE

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

Step	Action	Figure
1	Unscrew the used final filter by turn it in clockwise direction.	
2	Use a autoclave to sterilize the filter. The temperature of the autoclaving process must be 121°C and should take 30 min. You can repeat the procedure for the filter up to 5 times. When the sterilization is finished screw in the final filter back to the dispensing valve outlet (see chapter "Change the final filter" on page 83). **NOTICE** If you are trying to dispense water and nothing is coming out from the outlet, the final filter is blocked. Please look then in chapter "Trouble Shooting" on page 93 or change with a new one.	

Disinfection of LabTower system

NOTICE

- If the system was not in operation for an extended time, a disinfection must be performed prior to continuing with routine laboratory work.
- Disinfection should be performed at regular intervals, such as when the Ultrapure cartridge or Ion exchanger/ DI canister is exhausted and must be changed, or when there is bacteria contamination in the pure water.

NOTICE

- It may be necessary to change RO membrane(s) and pretreatment filters after disinfection process.(see chapter "Changing the RO Membrane" on page 74 and "Changing the pretreatment and fine filter" on page 71).
- After disinfect the tank install new pretreatment filters and DI cartridges.

Required for disinfection:

- Disinfection accessory kit (item no: 50153643) purchased separately
- Bleach solution (obtained locally, concentrations and amounts listed below)
- Optional, chlorine test strips (optained locally)

Use the following disinfection agents for disinfect the system:

Table of Volume (mL) of bleach concentrate to use for disinfection based on 100 L storage tank

Bleach Concentrations (%)	100L Tank
5,25	400 mL
6	355 mL
8,25	255 mL

During the disinfection process, the room should be well ventilated to prevent concentrations of chlorine vapors.

NOTICE

Wear protective gloves for handling of bleach disinfection solution.

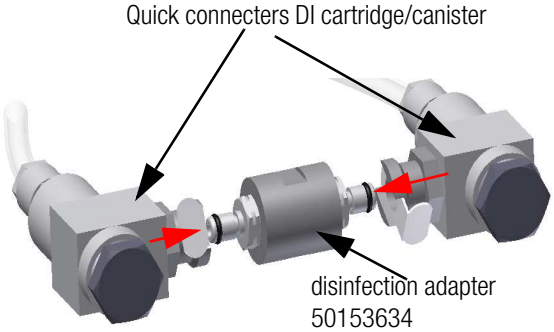
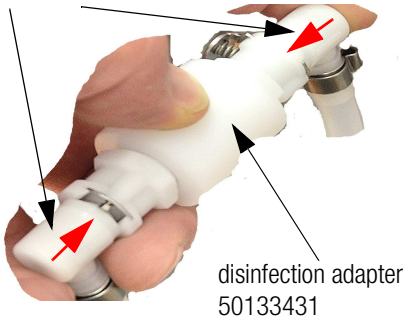
Wear safety goggles when working with bleach disinfection solution.

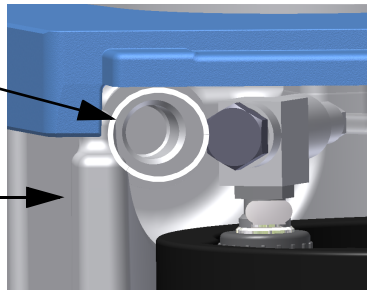
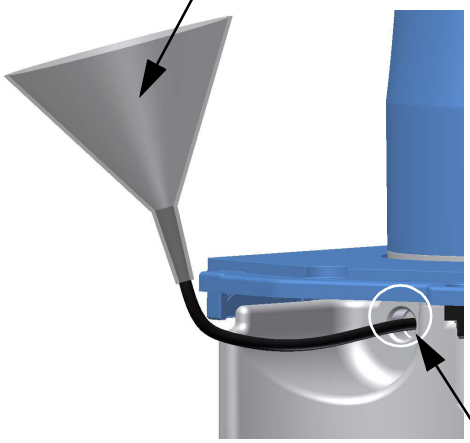
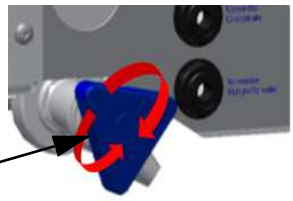
⚠CAUTION

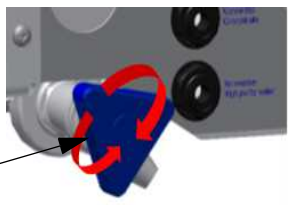
If your skin should come into contact with a chlorine product, rinse it immediately with ample, fresh water. If your eyes come into contact with the disinfection agent, rinse them immediately with ample, fresh water and contact immediately a physician.

NOTICE

The following steps are for disinfection of all LabTower systems.

Step	Action	Figure
1	a. Drain water from unit until system says "Production". b. Turn off unit. **⚠WARNING** If LabTower is feeding Type I system or other lab equipment, avoid having disinfection solution enter pure water outlet. **A:** Turn off LabTower and disconnect power. **B:** Remove pure water outlet tubing and add red blind plug 14.0298 (removed in step 7 "Start your LabTower system into operation" on page 27)	a). Production 55% 10.0 MΩ·cm b). ON/OFF switch 
2	a. Remove the front cover from the storage tank. **b. TII UV/ AFT systems only:** • Locate the ion exchanger and disconnect the quick connectors on the inlet and outlet of the ion exchanger/ Di canister.(see "Replacing the Ion exchanger/ DI canister (only LabTower TII UV, AFT)" on page 73) • Remove ion exchanger/ DI canister. • Insert disinfection adapter, PN 50153634, found in disinfection kit. **c. EDI systems only:** • Disconnect the quick connectors on the inlet and outlet of the Ultrapure cartridge.(see "Replacing the Ultrapure cartridge (only LabTower EDI)" on page 69) • Remove and discard cartridge. • Insert disinfection adapter, PN 50133431, found in disinfection kit. **NOTICE** Do not allow system to recirculate with DI cartridge in place. If disinfection adapter is not available, keep system off during disinfection process. **d. RO systems skip to next step.**	b.) Quick connecters DI cartridge/canister  c.) Quick connectors Ultrapure 

Step	Action	Figure
3	a. Locate the vent filter port on the front, top left corner of the LabTower tank. If you are using a vent filter unscrew it out from the port. b. Using funnel and tubing in disinfection kit, insert tubing into vent port of storage tank. Pour in bleach into top of tank per volume from "Table of Volume (mL) of bleach concentrate to use for disinfection based on 100 L storage tank" on page 85. **NOTICE** Ensure the tubing of the funnel is fully inserted into the opening. c. **TII UV and EDI systems only:** Adjust recirculation time in the OEM menu to 30 minutes. (see "Recirculation Time" on page 58) d. **All systems:** Let system run in production mode until unit is in "Stand by" and remain on for 1 additional hour. **NOTICE** The EDI/ TII UV/ and AFT systems may give a "Pure.w.lim" alert	a). Vent filter port opening Tank  b.) Funnel with tube  Vent filter port opening
4	a. Drain the contents of storage tank. **TII UV/ AFT/ EDI systems only:** Dispense at least 15 L of bleach solution from front dispenser. b. Turn off LabTower and disconnect power. Remove red blind plug if added in **step 1** and reconnect pure water line.	 Dispensing valve tank
5	**TII UV and EDI systems:** Change recirculation time back to original settings. (see "Recirculation Time" on page 58)	

Step	Action	Figure
6	Turn the system off and if necessary, replace RO membrane. (see"Changing the RO Membrane" on page 74) **NOTICE** TII UV and EDI systems, replacing RO membrane, keep disinfection adapter in place until RO rinsing is completed.	ON/OFF switch 
7	Replace the pretreatment filter elements if necessary. (see "Changing the pretreatment and fine filter" on page 71)	
8	Remove disinfection adapter if added in **step 2**. **LabTower EDI/ TII UV and AFT systems:** insert new DI cartridge or Ion exchanger/ Di canister. (see "Replacing the Ultrapure cartridge (only LabTower EDI)" on page 69 and "Replacing the Ion exchanger/ DI canister (only LabTower TII UV, AFT)" on page 73)	
9	Replace the front cover from the tank.	
10	Turn system on and empty and refill the tank 2x to rinse storage tank. **NOTICE** Chlorine test strips can be used to test tank water for presence of residual chlorine. Repeat tank rinsing as necessary.	ON/OFF switch   Dispensing valve tank

NOTICE

After disinfecting the tank/ recirculation always install new DI cartridges.

Emergency supply (only LabTower AFT)

If your LabTower AFT system shows an error, example:

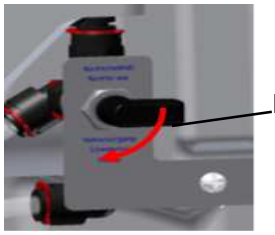
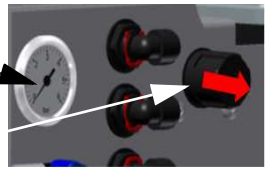
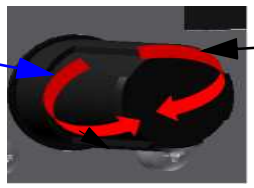
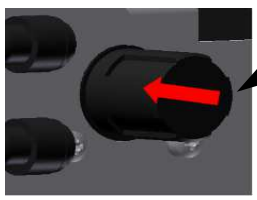
- Low feed water pressure to water system <2bar (29psi)
- Little or no water flow into the storage tank
- Internal leak in system (Ex. solenoid valve, pump, RO membrane)
- Electro/ mechanical failure (Ex. loss of power, inlet solenoid valve or pump failure)
- System alert for low RO permeate purity

You have the possibility to switch your LabTower AFT system into the emergency supply mode. The system can then use for a limited time (up to 48 hours) in the emergency supply mode until the capacity of the Ion exchanger/ DI canister is exhausted.

- WE recommend therefore to store one Ion exchanger/ DI canister in your department that you have enough capacity in case of an emergency supply.
- Contact your local Service organization if you switch your LabTower AFT system into the emergency supply.

⚠CAUTION

Do not forget to re-adjust the pressure if you returning the LabTower AFT system to the normal use.

Step	Action	Figure
1	Switch the system off, remove the tank front cover and turn the emergency supply valve to the position „Emergency supply“ **NOTICE** The position of the emergency supply valve is on the front of the LabTower tank.	ON/OFF switch   Emergency supply valve
2	**NOTICE** If necessary adjust the pressure reducer to the permissible pure water pressure of 2 bar. a. Switch the system on, pull out the adjusting knob of the pressure reducer and adjust the pressure. b. If the pressure for pure water adjust, press in the adjusting knob from the pressure reducer to lock it. **NOTICE** If you switch your system back into the „Normal use“ the pressure reducer is to be adjust likewise again. Do not forget to re-adjust the pressure when you are returning the LabTower AFT system to the normal use.	a). ON/OFF switch  Pressure gauge Adjustment knob  **NOTICE** To reduce the pressure turn the knob counter clockwise, to increase the pressure turn the knob clockwise. Reduce pressure  Increase pressure b).  Adjustment knob

Waste Disposal

NOTICE

Before returning your Thermo Scientific LabTower water purification systems for waste disposal, contact your local service organization or waste disposal company for proper disposal of the system and its components. Only specially trained personal can take the system out of operation and dispose it properly.

If you have a used or broken UV lamp, contact your local Thermo Scientific service organization or waste disposal company.

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

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

weee.recycle@thermofisher.com

WEEE-Reg.-no.: DE 12471402

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

Trouble Shooting

NOTICE Contact the service department if you cannot rectify this error.

Error	Cause	Remedy
The system does not start	• No supply of power	• Connect to the power supply
No dispensing possible	• Feedwater tap is closed	• Open feedwater tap
	• Feedwater and rinse water connections mixed up	• Reverse the connections
	• Feedwater pressure < 1.5 bar	• 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	• Unplug line plug for 5 sec., then plug back in
Water leaks out	• Tube connection leaks	• Check tube connection and stop leak
	• Feedwater pressure > 6 bar	• Install pressure reducer, possibly operate via the emergency supply
Permeate flow is too low (-15%)	• Membrane blocked	• Clean the membrane
	• Pre-compression too low	• Increase pre-compression
	• Feedwater temperature -fluctuates	• Change the RO membrane with a new one
Wrong time or date	• Time difference	• Reset time and date
	• Time change	
Wrong language	• Wrong language set	• Correct the language setting
Error message: *"Lim. Val. Permeate"*	• Permeate conductivity too high	• Check the pre-treatment
	• Limiting value set too low	• Check and adjust the limiting value setting
	• The membrane is blocked	• Replace the membrane with a new one

Error	Cause	Remedy
Error message: *"Lim. Val. EDI"*	• The conductivity of the product water is too high	• Check the permeate conductivity
	• Limiting value set too low	• Check and re-adjust the limiting value setting
	• The EDI cell is damaged	• Replace the EDI cell
Error message: *"Pretreatment"*	• The max. operating hours of the pre-treatment have been exceeded	• Replace the pre-treatment and reset the operating hours counter
Error message: *"Lim. Val. pure w."*	• Limiting value set too low	• Check and re-adjust the limiting value setting
	• DI canister purity is below set level	• Replace DI canister
Error message: *"UV duration"*	• The max. Operating hours of the UV lamp have been exceeded	• Replace the UV lamp (art.-no. 50139226) and set back -the operating hours counter
Error message: *"Measuring cell LF1"*	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
	• Ultrapure water conductivity outside of measuring range	• See "Lim. Val. pure w."
Error message: *"Measuring cell LF2"*	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
	• Conductivity of the feedwater outside the measuring range	• See "Lim. Val. Permeate"
Error message: *"Measuring cell LF3"*	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
	• EDI conductivity outside of measuring range	• See "Lim. Val. EDI"
Error message: *"Measuring cell Temp"*	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
Error message: *"feedwa.pressure"*	• Feedwater pressure too low	• Increase feedwater pressure
	• Pressure switch defect	• Check pressure switch
	• Feedwater inlet closed	• Open the feedwater inlet
	• Prefilters plugged	• Replace prefilter

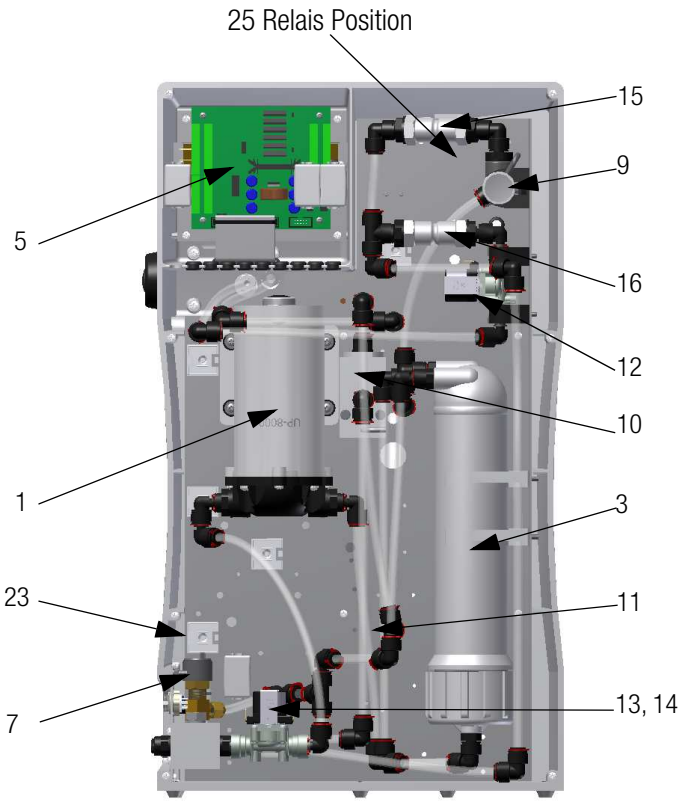
Replacement Parts

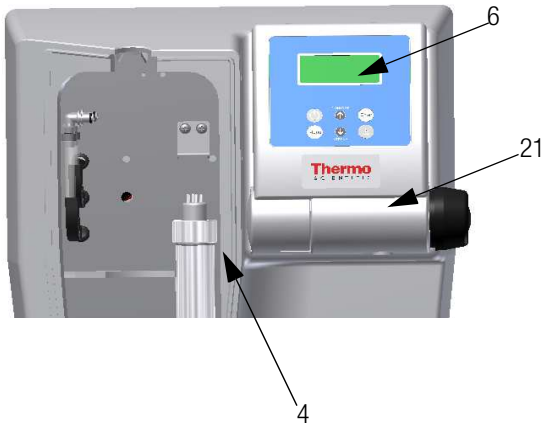
NOTICE

Please note that the use of spare parts, accessories or wear parts from other manufacturers will nullify the warranty for this unit.

Contents

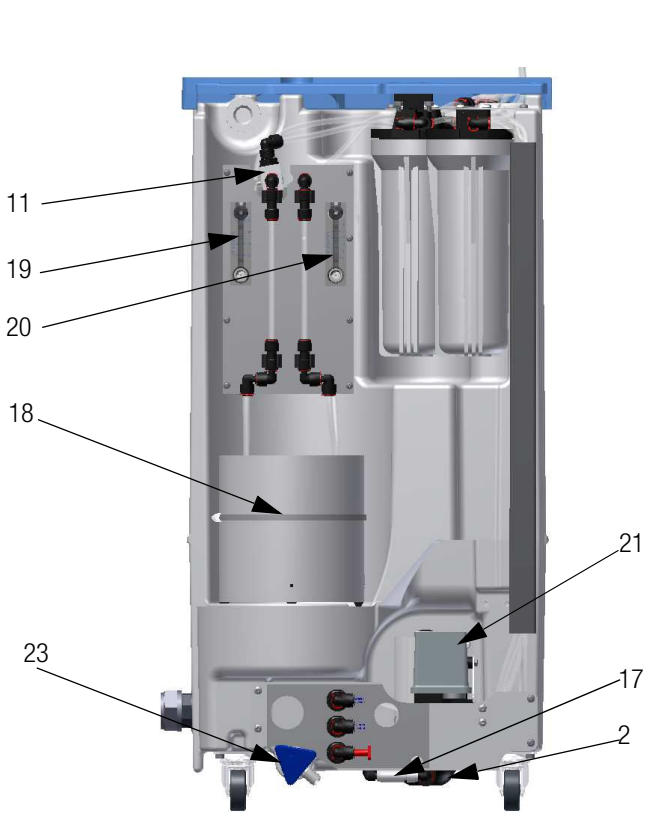
Replacement parts LabTower TII UV, AFT and RO Systems

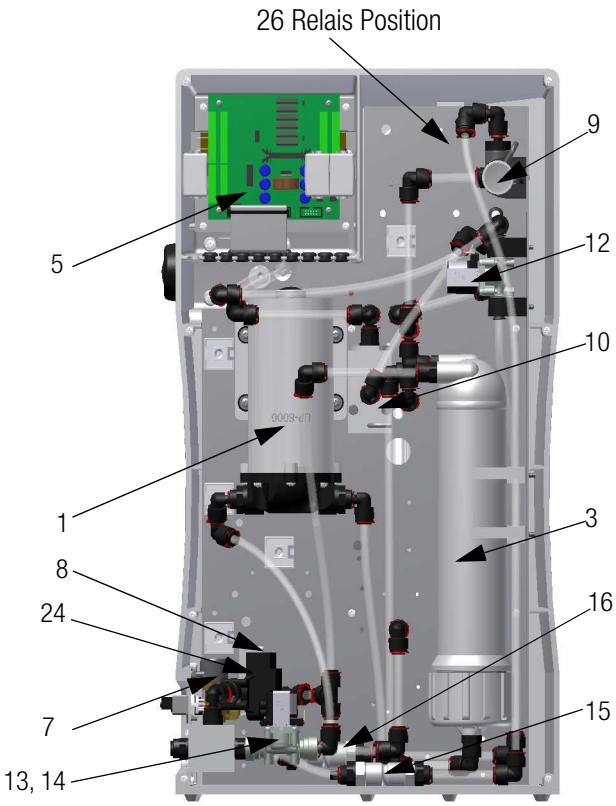


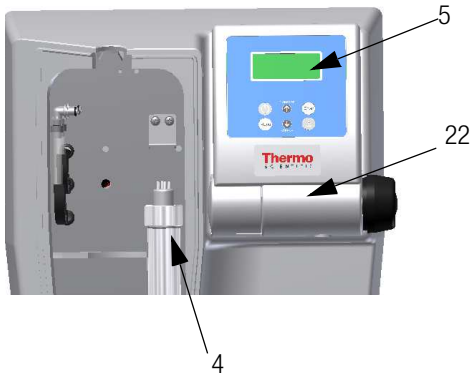


Pos.	Designation	Article Number	LabTower system
1	Pressure booster pump	50149262 50149263	AFT 20 TII/ TII UV 40, AFT 40, RO 40
2	Pressure pump	50149264	All TII/ TII UV, AFT, RO
3	Pressure tube RO membrane	50133990	All TII/ TII UV, AFT, RO
4	UV- replacement lamp	50139226	All TII UV, AFT
5	Interface	50131346	All TII/ TII UV, AFT, RO
6	CPU board	26.0022	All TII/ TII UV, AFT, RO
7	Pressure hold valve	15.0060	All TII/ TII UV, AFT
8	Pressure reducer	15.0072	All AFT
9	Permeate measuring cell	50134006	All TII/ TII UV, AFT, RO
10	Pure water measuring cell	50133992	All TII/ TII UV, AFT
11	Feedwater measuring cell	16.0126	All RO
12	Recirculation solenoid vale	50131190	All TII/ TII UV
13	Inlet solenoid valve	50131190	All TII/ TII UV, AFT, RO
14	Rinsing solenoid valve	50131190	All TII/ TII UV, AFT, RO
15	Check valve	15.0009	All TII/ TII UV, AFT, RO
16	Check valve	15.0019	All TII/ TII UV,
17	Check valve	14.0441	All AFT
18	3 ball valve tap	15.0122	All AFT
19	Pressure switch	15.0058	All TII/ TII UV, AFT, RO
20	Pressure gauge	15.0077	All AFT
21	Dispensing valve	50133988	All TII/ TII UV, AFT
22	Dispensing valve tank	14.0250	All TII/ TII UV, AFT, RO
23	Fuse holder for glass tube fuse 5 x 20 mm Glass tube fuse 5x 20 mm 4A	50143154 50150714	All TII/ TII UV, AFT, RO All TII/ TII UV, AFT, RO
24	Tabletop power pack 24V DC 180W (not shown)	50151559	All TII/ TII UV, AFT, RO
25	Relias 24V DC 30A	50151551	All TII/ TII UV, AFT, RO

Replacement Parts for LabTower EDI







Pos.	Designation	Article Number
1	Pressure booster pump (LabTower EDI 15) Pressure booster pump (LabTower EDI 30)	50149262 50149263
2	Pressure pump	50149264
3	Pressure tube RO membrane	50133990
4	UV- replacement lamp	50139226
5	Interface	50131346
6	CPU board	26.0022
7	Pressure hold valve	15.0060
8	Pressure switch feedwater	50133982
9	Permeate measuring cell	50134006
10	Pure water measuring cell	50133992
11	Product water measuring cell EDI	50134005
12	Recirculation solenoid vale	50131190
13	Inlet solenoid valve	50131190
14	Rinsing solenoid valve	50131190
15	Check valve	15.0009
16	Check valve	15.0019
17	Check valve	14.0441
18	EDI cell	50133989
19	Flow-meter product EDI incl. regulation valve	15.0123
20	Flow-meter concentrate EDI incl. regulation valve	15.0124
21	Pressure switch	15.0058
22	Dispensing valve	50133988
23	Dispensing valve tank	14.0250
24	Fuse holder for glass tube fuse 5 x 20 mm Glass tube fuse 5x 20 mm 4A	50143154 50150714
25	Tabletop power pack 24V DC 180W (not shown)	50151559
26	Relais 24V DC 30 A	50151551

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Consumables and Accessories

Contents

Consumables

Designation	Article no.	LabTower System
Ultrapure cartridge	09.2005	All EDI
UV- Replacement lamp	50139226	All TII/ TII UV/ AFT/EDI/
Reverse osmosis membrane Reverse osmosis membrane	22.0046 2x 22.0087 2x	AFT 20, EDI 15 TII/ TII UV/ AFT/ RO 40, EDI 30
For pretreatment system: - Prefilter cartridge with hardness stabilization 5µm 10“ - Fine filter 1 µm 10“	 06.5204 06.5101	 All TII/ TII UV, AFT, EDI
Ion exchanger	02.2850-LAB	All TII/TII UV, AFT
Final filter	09.1003	All TII/TII UV, AFT, EDI
UV lamp storage tank (option)	09.5002	All TII/ TII UV, AFT, EDI , RO

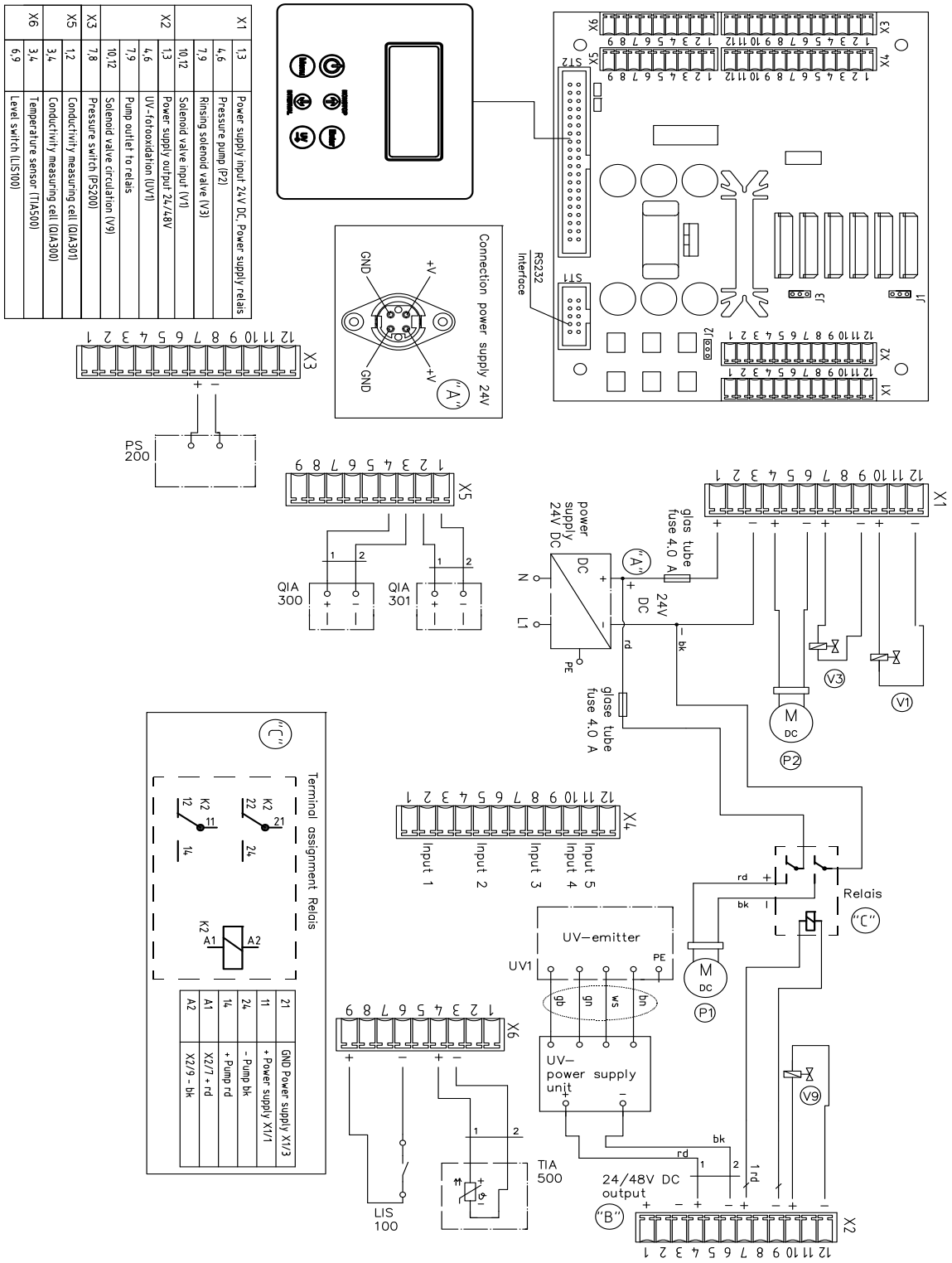
Accessories

Designation	Article no.	LabTower System
External Pretreatment with activated carbon and hardness stabilization	09.4000	All TII/ TII UV, AFT, RO, EDI
Sterile vent filter (for tank)	50135142	All TII/ TII UV, AFT, RO, EDI
Sterile vent filter + CO2 Adsorbing (for tank)	06.5002	All TII/ TII UV, AFT, RO, EDI
Sterile filter 0.2µm 10“ for internal pretreatment	06.5555	All EDI
Sterile filter 0.1µm 10“ for internal pretreatment	06.5557	All AFT
Tank overflow	50151829	All TII/ TII UV, AFT, RO, EDI
Disinfection accessory kit	50153643	All TII/ TII UV, AFT, RO, EDI
Pressure pump MQ3 – 35, 110V	50135134	All TII/ TII UV, AFT, RO, EDI
Pressure pump MQ3 – 45, 110V	50135135	All TII/ TII UV, AFT, RO, EDI
Accessory Hand Dispenser	50138221	All TII/ TII UV, AFT, RO, EDI

Terminal Assignment

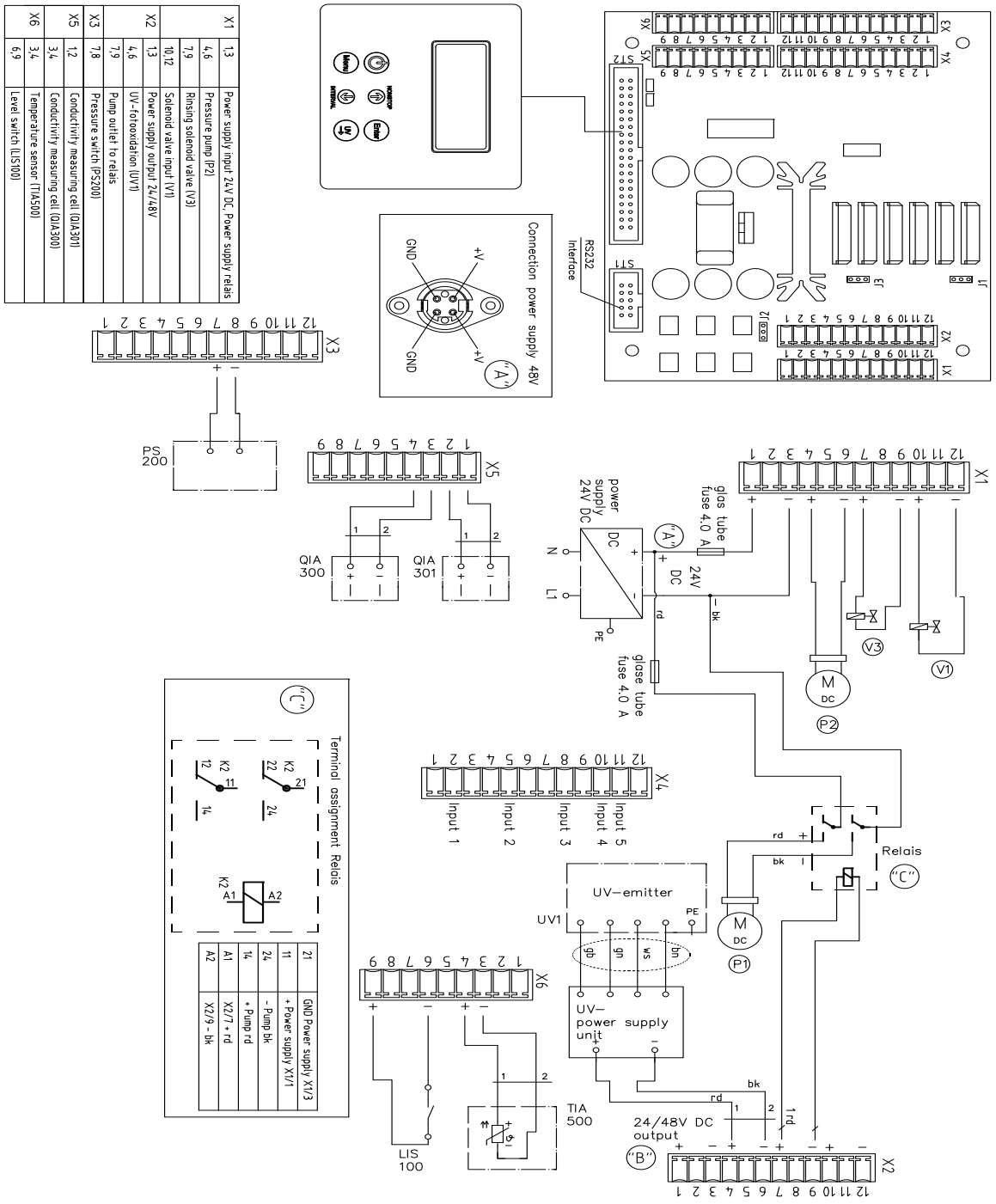
Contents

Terminal Assignment LabTower TII 40 UV

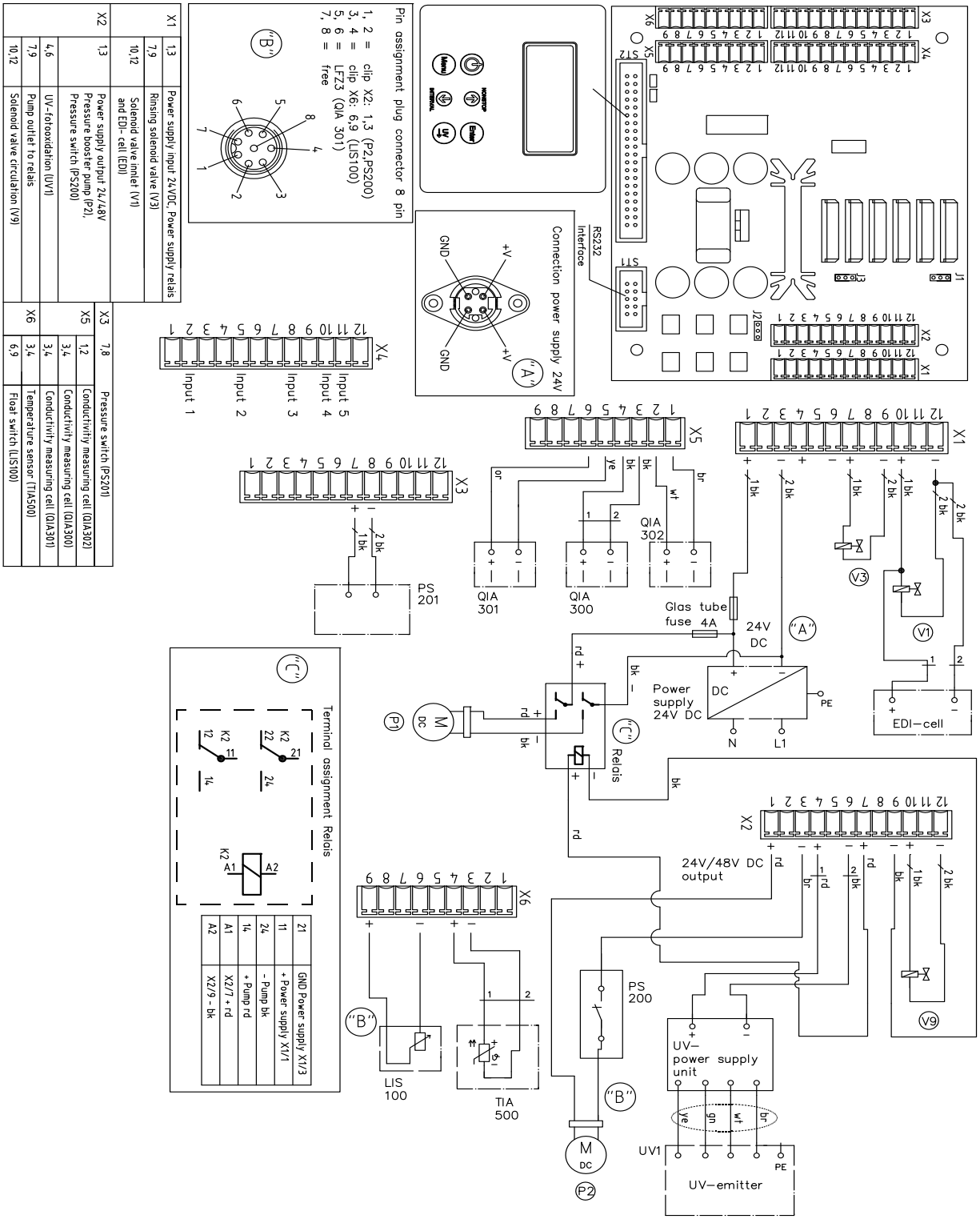


Terminal Assignment LabTower AFT 20- 40

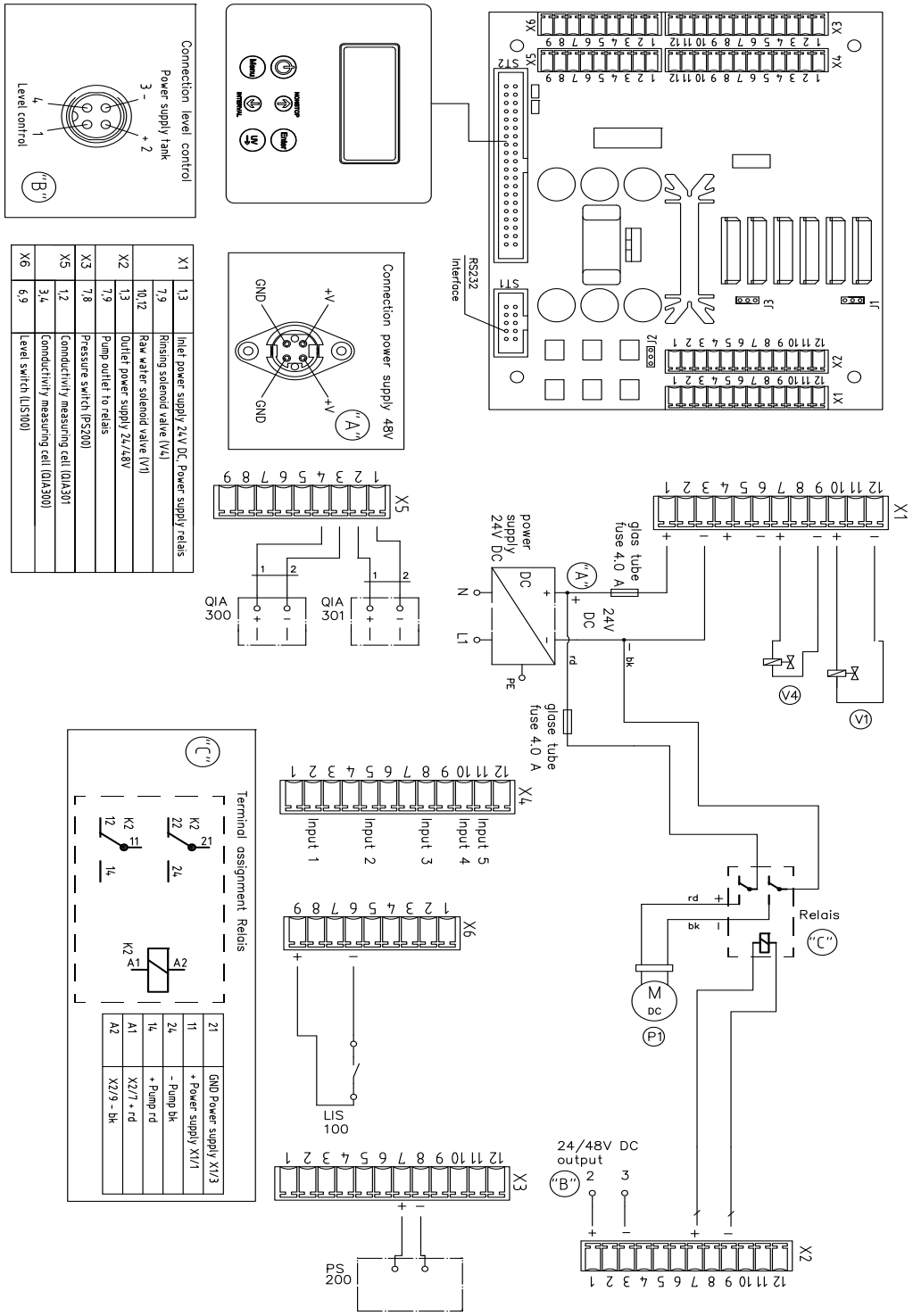
X1	1,3	Power supply input 24V DC, Power supply relais
	4,6	Pressure pump (P2)
	7,9	Rinsing solenoid valve (V3)
	10,12	Solenoid valve input (V1)
X2	1,3	Power supply output 24/48V
	4,6	UV-fotooxidation (UV1)
	7,9	Pump outlet to relais
X3	7,8	Pressure switch (PS200)
X5	1,2	Conductivity measuring cell (QIA301)
	3,4	Conductivity measuring cell (QIA300)
X6	3,4	Temperature sensor (TIA500)
	6,9	Level switch (LIS100)



Terminal Assignment LabTower EDI 15-30



Terminal Assignment LabTower RO 40



Maintenance Record

Date	Resistance Permeate [MΩ·cm]	Resistance EDI [MΩ·cm]	Resistance Ultrapure water [MΩ·cm]	Resistance Pure water [MΩ·cm]	Product EDI [L/h]	Concentrate EDI [L/h]	Operating hours RO [h]

Change of ion exchanger Yes/No	Change of hardness stabilizer Yes/No	Change of fine filter Yes/No	Change of DI- cartridge Yes/No	Notes	Signature

The following points must be observed in order to ensure the quality of the system:

- 1x / Weekly, enter measured values.

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