Thermo Scientific Barnstead Pacific Water Purification System

Operating Instructions

50152835 Revision B July 2023

Thermo SCIENTIFIC

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Release history:

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

Preface

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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 Pacific 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 Pacific 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 SA® 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 Pacific 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

Additionally, the Pacific 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.

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 nummerique de la classe A est conforme a la norme NMB-003 du Canada.

Additionally, the Pacific 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.

Contents

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Transport and Packaging

Contents

Pacific 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 Pacific 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 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 operated device, empty the water and dry the system and take out the cartridges.
- Pack the water purification systems cartridges into a bubble wrap and/or packaging foam and take it with in into the package of the Pacific water purification systems.

Safety Precautions

NOTICE

Observe these safety precautions for your own safety!

⚠CAUTION

The Thermo Scientific Barnstead Pacific water purification systems are modern water purification system intended solely for the treatment of potable water. The water it produces is not fit 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 Pacific 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 +35 °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 feed water pressure must be at least 2 - 6 (29 - 87) Pressure bar (PSI). When the feed water pressure is higher, install an external pressure reducer.
- A low pressure check valve is recommended to prevent back flow of feed water 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.
- 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 disinfected or rinsed after an extended down time. The disinfection procedure is described under section “Disinfection” on page 79.
- 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 Pacific Systems” on page 15 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 evenness 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 usedonly for packaging the system and there components.

- Wear safety gloves when working with chlorine granulate or with cleaning solutions.
- If your skin should come into contact with a chlorine 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 chlorine granulate or with cleaning solutions.
- If your eyes come into contact with a chlorine 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 83' 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.

Extend of Delivery

NOTICE

Not all components are necessary for the different Pacific systems.

Each water system ships standard with the following items:

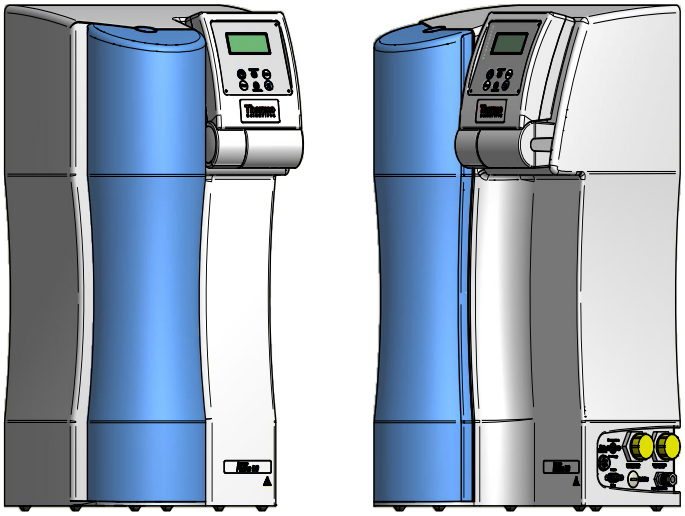
- Pacific system that you have selected
- Associated connection components (see contents of box table)
- DI cartridge, TII and AFT units only
- Storage tank that you have selected (purchase separately).

Contents of box table

Pos.	Designation	Article no.:	Pacific system
1	2x PVC connection tube 3/4“, 1,5m/ 59 inch length	18.0042	All TII/ TII UV, AFT, RO
2	1x D8 mm/ 0.31 inch tube, 2m/ 79 inch length	18.0036	All TII/ TII UV, AFT, RO
3	1x D6 mm/ 0.24 inch tube, 2m/ 79 inch length	18.0047	All TII/ TII UV, AFT
4	1x D8 mm/ 0.31 inch tube with quick connector, 2m/ 79 inch length	18.0036, 14.0009	All AFT
5	1x Clinical Analyzer connecting kit	09.4023	All AFT
6	1x Retrofit kit pressure reducer	50146244	AFT 40
7	2x Hooks	21.0057	All TII/ TII UV, AFT, RO
8	2x Nylon plugs	21.0035	All TII/ TII UV, AFT, RO
9	1x Table top power pack 24 VDC 120W	50149597	TII 7-12/ TII 7-12 UV, AFT 3-12, RO 7-12
	1x Table top power pack 24 VDC 180W	50151559	TII 20/TII 20UV, AFT 20-40, RO 20
10	1x Connecting cord (rubber connector to British ST plug connector)	50132203	All TII/ TII UV, AFT, RO
11	1x Connecting cord (rubber connector to Nema plug connector)	50132200	All TII/ TII UV, AFT, RO
12	1x Connecting cord (rubber connector to Euro plug connector)	50132215	All TII/ TII UV, AFT, RO
13	1x Universal adapter	21.1006	All TII/ TII UV, AFT, RO
14	1x Universal holder	21.1007	All TII/ TII UV, AFT, RO
15	1x DI cartridge	09.4001	All TII/ TII UV, AFT
16	1x Wall Mount Bracket Kit	50157885	All TII/TII UV, AFT, RO

NOTICE

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



Available Pacific-TII Systems

Item No	System
50132123	Pacific TII 7
50132124	Pacific TII 12
50132125	Pacific TII 20
50132131	Pacific TII 7 UV
50132132	Pacific TII 12 UV
50131982	Pacific TII 20 UV

Available Pacific-AFT Systems

Item No	System
50135178	Pacific AFT 3
50135249	Pacific AFT 7
50135250	Pacific AFT 12
50135264	Pacific AFT 20
50135267	Pacific AFT 40

Available Pacific-RO Systems

Item No	System
50132386	Pacific RO 7
50132387	Pacific RO 12
50132388	Pacific RO 20

Intended Use of the Device

Intended Use

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

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

Unintended Use

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

Technical Specifications

NOTICE

Check at regular intervals the quality of your feedwater.

Feedwater requirements for Pacific TII/TII UV, AFT, RO	
Degree of purity	Potable 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 Pacific 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 - +35°C
Pressure bar (PSI)	2 - 6 (29 - 87)

Product water quality ASTM Type II Pacific TII/ TII UV, AFT (Tank Quality)					
	3 L/Hr System (only AFT)	**7 L/Hr System** (TII/TIIUV/RO AFT)	**12 L/Hr System** (TII/TIIUV/RO AFT)	**20 L/Hr System** (TII/TIIUV/RO AFT)	**40 L/Hr System** (only AFT)
Pure water production at 15°C, L/Hr	3	7	12	20	40
Resistance at 25°C, MΩ·cm	1-10	1-10	1-10	1-10	1-10
Conductivity, µS/cm	0.1- 1.0	0.1- 1.0	0.1- 1.0	0.1- 1.0	0.1- 1.0
TOC, ppb	<30	<30	<30	<30	<30
Retention rate for bacteria and particles, %	up to 99	up to 99	up to 99	up to 99	up to 99
Silicate retention, %	up to 99.9	up to 99.9	up to 99.9	up to 99.9	up to 99.9
Salt retention, %	up to 98	up to 98	up to 98	up to 98	up to 98

Product water quality (Permeate) Pacific RO	7 L/Hr System	12 L/Hr System	20 L/Hr System
Permeate production at 15 °C, L/Hr	7	12	20
pH range	2-11	2-11	2-11
Salt retention, %	up to 98	up to 98	up to 98
Retention rate for bacteria and particles, %	up to 99	up to 99	up to 99

⚠CAUTION

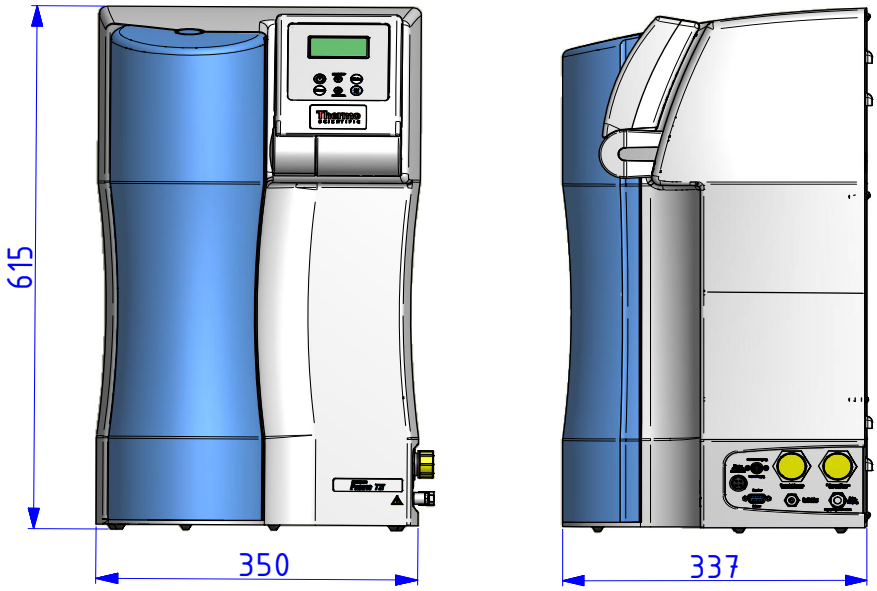
The pressure hold valve for concentrate is factory adjusted. Changing of this adjustment causes damage to the reverse osmosis membrane in the RO-Module. Only specially trained personnel may adjust this pressure. The position of the pressure hold valve for concentrate see chapter Replacement Parts.

Concentrate flow for Pacific systems (check and readjust all 6 months through a specially trained personnel)			
System	**Permeate Flow L/Hr**	**Concentrate Flow L/Hr**	**Max. adjustable WCF-rate (%)**
Pacific AFT 3	3	9	25
Pacific TII/ TII UV, AFT 7	7	21	25
Pacific TII/ TII UV, AFT 12	12	36	25
Pacific TII/ TII UV, AFT 20	20	60	25
Pacific AFT 40	40	120	25
Pacific RO 7	7	21	25
Pacific RO 12	12	36	25
Pacific RO 20	20	60	25

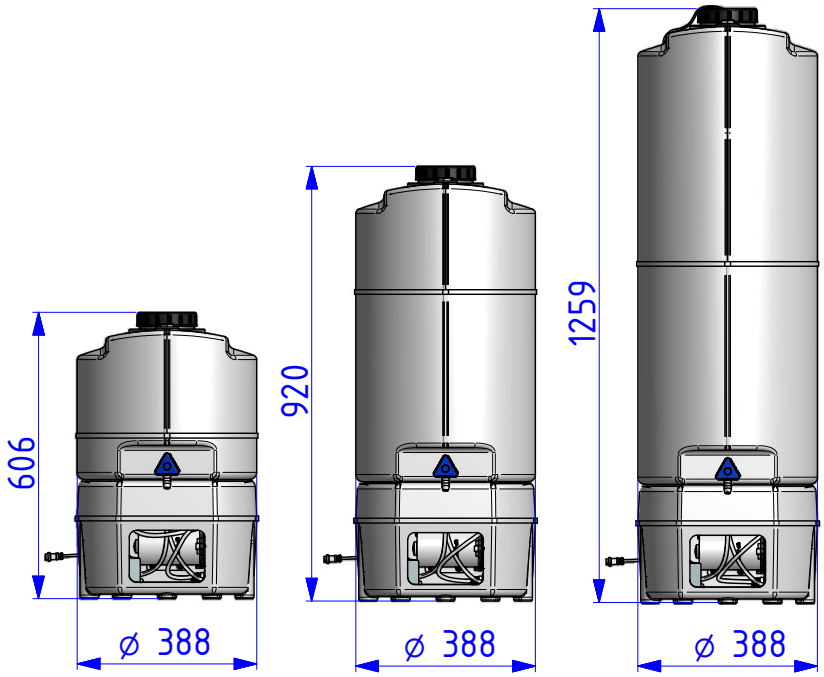
Water Connections of Pacific System	
Feedwater/ Raw water inlet	R3/4"
Concentrate	R3/4"
Recirculation	Ø6 mm/ 0.24 inch tube
Pure water	Ø8 mm/ 0.31 inch tube

Water Connections of storage tank	
Pure water	Ø8 mm/ 0.31 inch tube
Recirculation	Ø6 mm/ 0.24 inch tube

Electrical connections	Pacific TII 7-12/ TII 7-12 UV, AFT 3-12, RO 7-12	Pacific TII 20/ TII 20 UV, AFT20-40, RO 40
Input Voltage ext. SMPS	AC 100-240 V, 50-60 Hz, 2.0 A max.	AC 100-240 V, 50-60 Hz, 2.2 A max.
Output Voltage	DC 24 V, 5.0 A	DC 24 V, 7.5 A
System Connection	DC 24 V, 120 W	DC 24 V, 180 W
Serial Interface	RS 232	RS 232
Protection Class	Class II (external SMPS certified as Class I)	Class II (external SMPS certified as Class I)



Dimensions and weight of Pacific Systems	Pacific TII/ TII UV	Pacific AFT	Pacific RO
Height for all	615 mm (24.21 inch)		
Width for all	350 mm (13.78 inch)		
Depth for all	337 mm (13.27 inch)		
Base area for all	337 x 350 mm (13.21 x 13.78 inch)		
Weight empty	25 kg	25 kg	21 kg (46 lbs)
Weight including DI cartridge and RO cartridge	27 kg (60 lbs)	27 kg (60 lbs)	23 kg (51 lbs)



Dimensions and weight of pure water tank			
System	**30 L**	**60 L**	**100 L**
Height	606 mm (23.86 inch)	920 mm (36.22 inch)	1259 mm (50 inch)
Width		Ø 388 mm (15.28 inch)	
Depth		Ø 388 mm (15.28 inch)	
Weight empty	10 kg (22 lbs)	12 kg (26 lbs)	15 kg (33 lbs)
Weight with full capacity	40 kg (88 lbs)	70 kg (154 lbs)	115 kg (254 lbs)

Accessibility to Pacific systems and pure water tanks	
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

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

Ambient conditions	During Operation	Storage
Operation Area	Indoor rooms	Indoor rooms
AlMaximum altitude above sea leveltitude	Up to 2000 m	Up to 2000 m
Temperature range	min. +2°C, max. +40°C, 80% rel. rH, non-condensing	Fmin. +2°C, max. +60°C, 90% rel. rH, non-condensing room 5 °C to 40 °C.
Line-voltage variation	Not more than ± 10% of the line voltage	-- (not applicable)
Transient overvoltages	As usually occur in the supply network (overvoltage category II acc. to IEC 60364-4-443). **NOTICE** The rated level of transient overvoltage is the withstand impulse voltage acc. to overvoltage category II of IEC 60364-4-443	
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 (29 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 evenness 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.

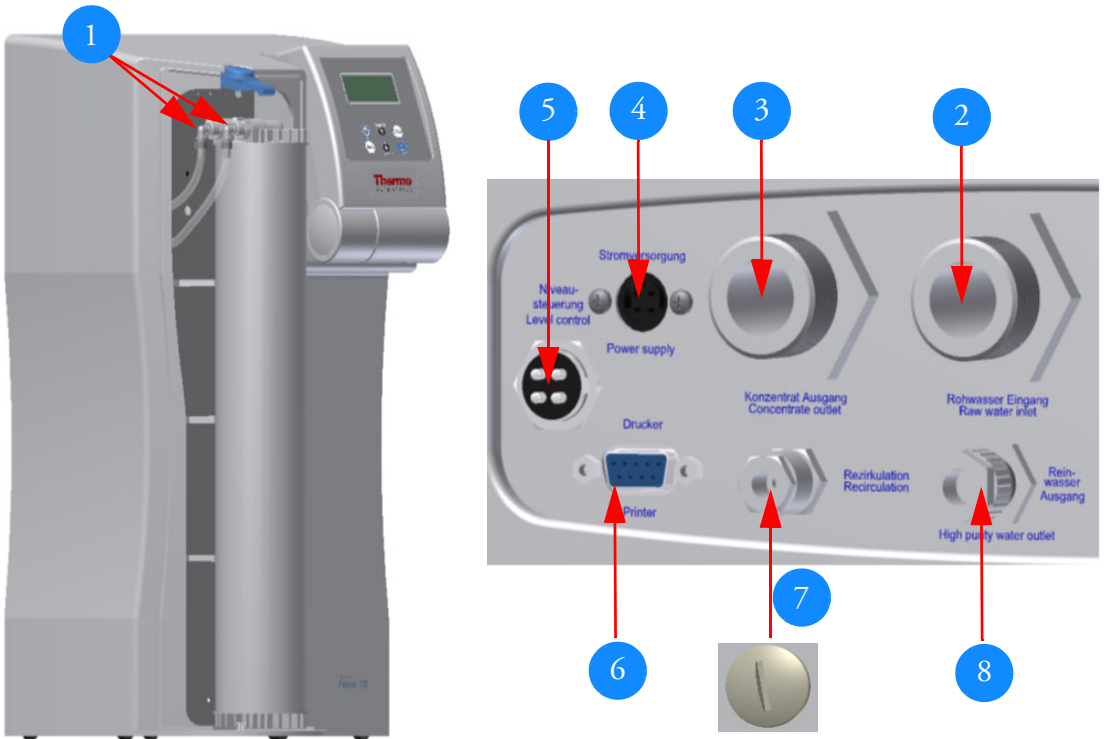
- A check valve is recommended in the feedwater line to prevent back flow of feedwater from the water system.
- An electric socket with protective connection must be available for connection of the system to the voltage supply.
- Ample working space must be provided around the system for easy and pleasant replacement of wear and replacement parts and for ease of operation.
- Easy access for operation and control of the system.

7

Installation

Contents

Connections of the Pacific Systems TII/TII UV, AFT, RO



Dummy Plug in Pacific RO Panel

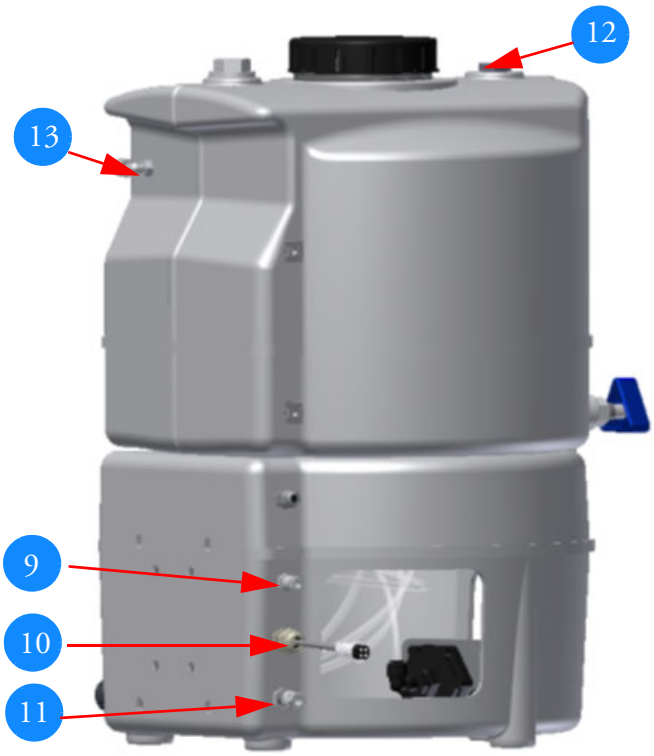
1. Quick connectors for DI cartridge (only TII/ TII UV and AFT)
2. ¾" Raw water inlet connector
3. ¾" Concentrate outlet connection
4. Power supply connection 24/ 48 V DC
5. 4 pin Level control connection
6. Printer connection
7. D6 mm/ 0.24 inch mm tube connector for recirculation
8. D8 mm/ 0.31 inch mm tube connector for pure water outlet

NOTICE

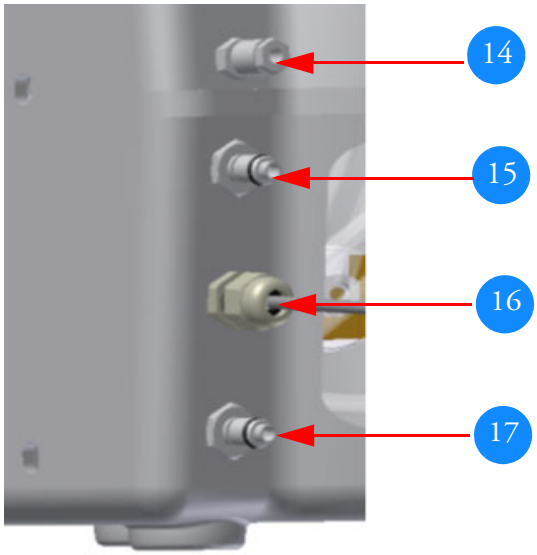
The external terminals of the equipment are only required to be connected with external circuits with the voltages below the limits of 6.3.1 of 61010-1 or 30 V r.m.s. and 42.4 V peak or 60 VDC and are electrically separated from hazardous live voltages by reinforced or double insulation.

Connections of Storage Tanks

30L pure water storage tank version with recirculation



Connector storage tank Pacific AFT



9. D6 mm/ 0.24 inch tube connector recirculation (only tanks with recirculation)
10. Wire for level control
11. D8 mm/ 0.31 inch tube connector pure water inlet
12. Connector for optional sterile vent filter
13. Connector for optional tank overflow

Pacific AFT pure water storage tank:

14. D6 mm/ 0.24 inch tube connector recirculation
15. D8 mm/ 0.31 inch quick connector emergency supply (only Pacific AFT)
16. Wire for level control
17. D8 mm/ 0.31 inch tube quick connector pure water inlet (only Pacific AFT)

NOTICE

Pacific TII and AFT have a recirculation connection on the systems panel. Recirculation is not applicable for RO.

Installation of Pacific system

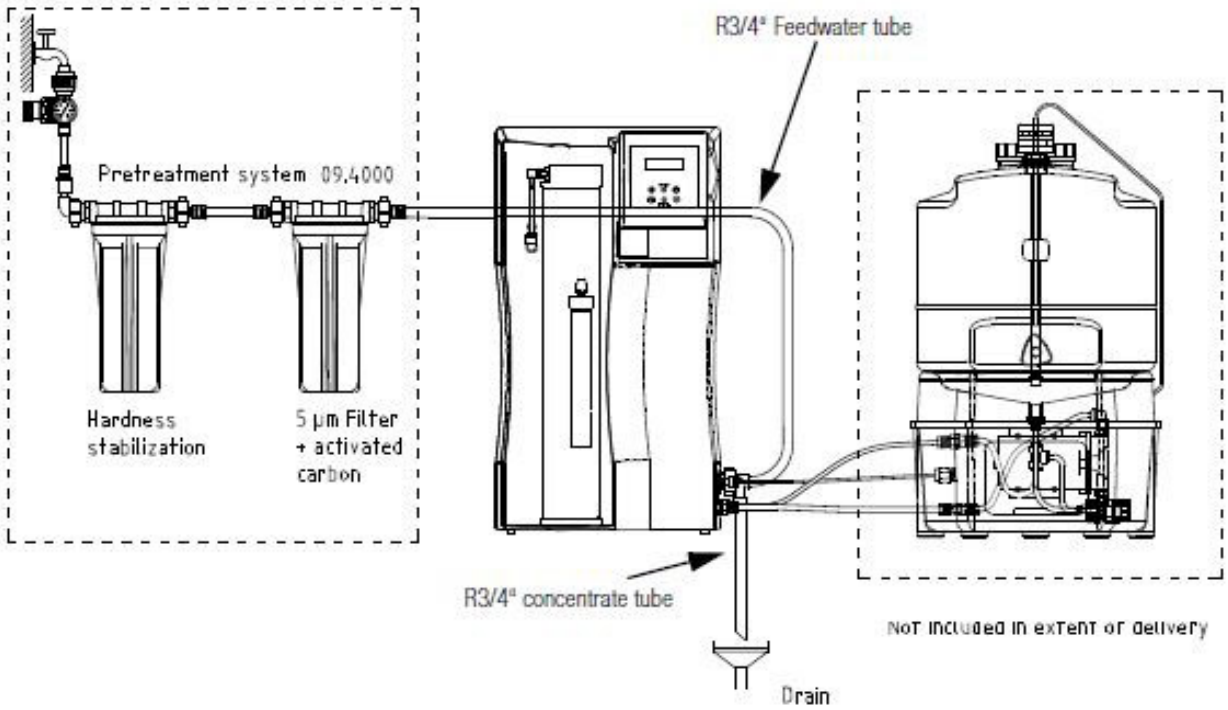
NOTICE

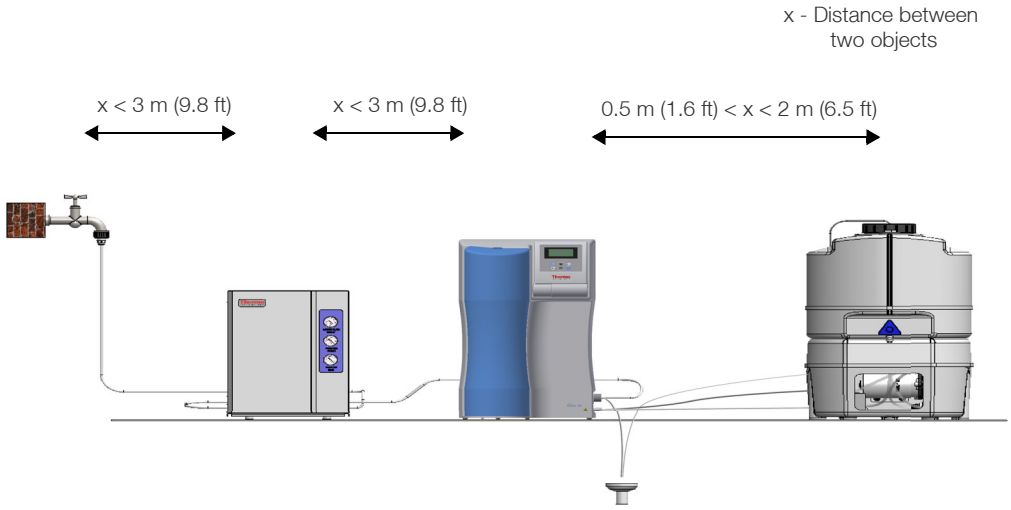
Make sure that you have installed upstream the Pacific system the required pretreatment accessory either 50157886 or 09.4000 (double cartridge pretreatment system). If the SDI value after the 09.4000 pretreatment > 3 install additional the pretreatment 09.4003.

After installing all tubing, check to ensure they are in the correct position on the systems panel and tank. Ensure there are no leaks and blockages after opening the feedwater supply.

Rinse the pretreatment with several liters of water while installing new pretreatment cartridges to remove any fines that were created during shipping.

The maximum tube distance between system and storage tank should be 2m/ 78.7 inch. The minimum tube distance between system and storage tank should be 0.5m/ 20 inch.





Bench Setup Pacific Systems

Pacific TII, AFT, RO systems		
Step	**Action**	**Figure**
1	Use one R¾" tube from the assembly kit to connect the feedwater connector of the system (labeled „raw water") to the pretreatment outlet.	
2	Use the second R¾" tube from the assembly kit to connect the „Concentrate" outlet of the system to the drain. Route the R3/4" tube with a free gravity fall to the drain. See "Mounting the Power Pack (Voltage Supply)" on page 44	

Attaching the Wall mounting bracket for 30 or 60L Pure Water Tank

NOTICE

- Wall mounting hardware is available as an option for the 30L or 60L pure water tanks (purchased separately).
- 30L pure water tank wall mounting bracket, Item No.: 06.5015
- 60L pure water tank wall mounting bracket, Item No.: 06.5016
- The wall on which the pure water tank is to be installed or mounted must have an adequate load-carrying capacity (check the capacity and stability of the wall. Weight and dimensions for pure water tanks see section 'Dimensions and Weight').

DANGER

- Lifting and carried out only the 30L or 60L tank by two person.
- Do not lift up the 30L or 60L tank with full water capacity. Risk of ergonomic postural deformities.

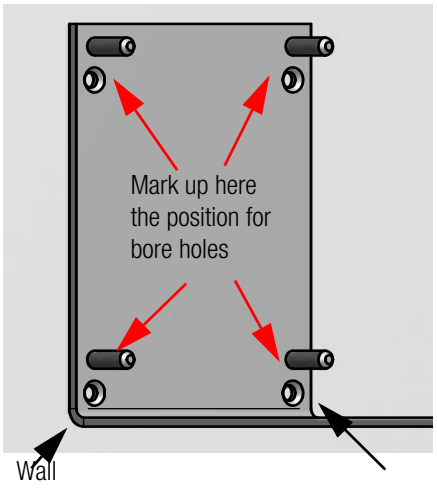
Attaching Wall mounting bracket for 30L Pure Water Tank

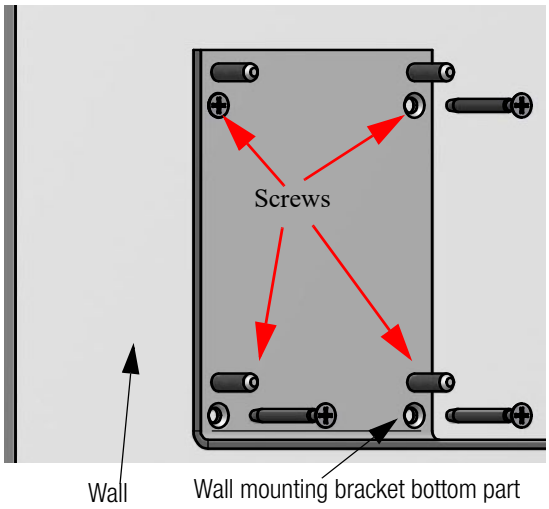
NOTICE

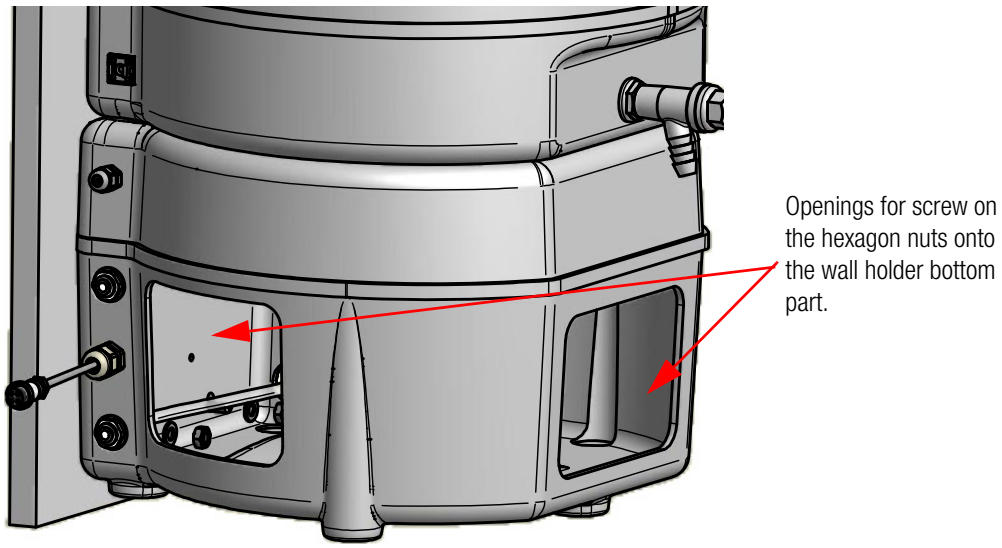
The wall holder for 30L pure water tanks includes two holder parts:

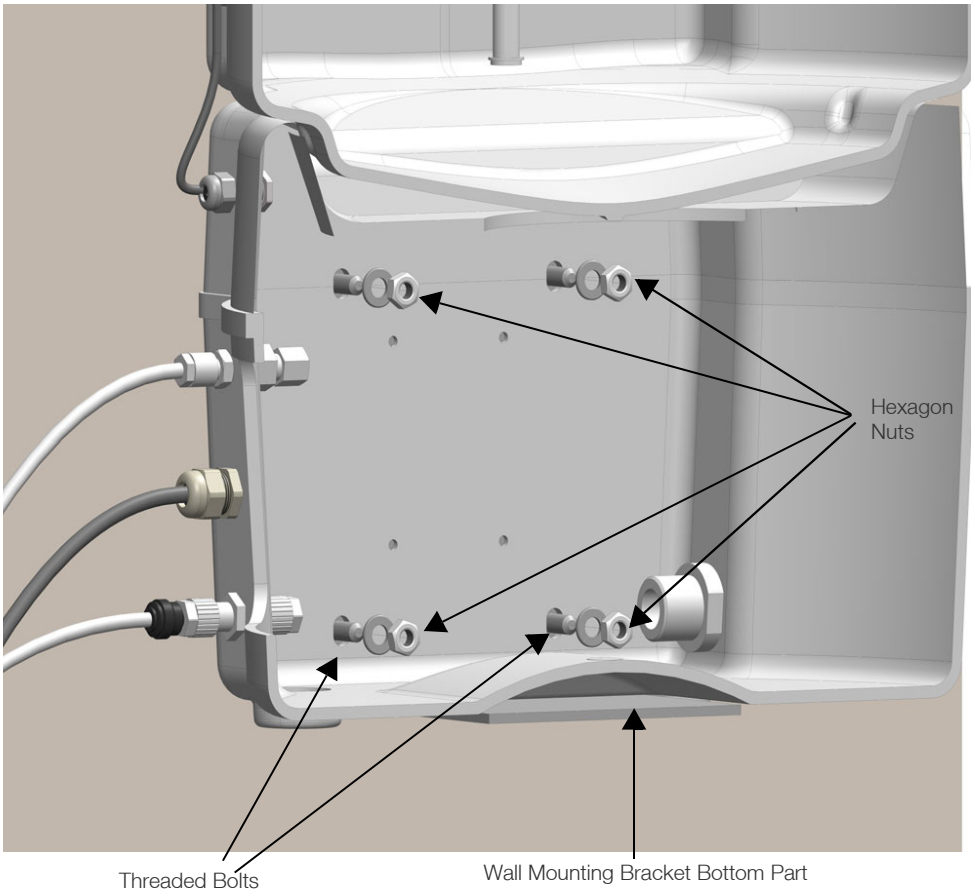
- One bottom part wall mounting bracket with mounting screws

One upper part wall mounting bracket with mounting screws.

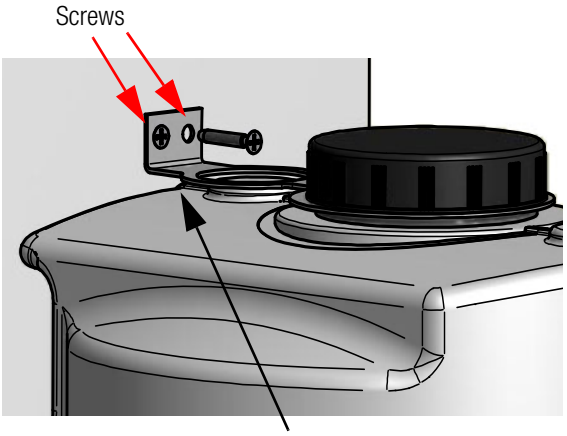
Step	Action	Figure
1	Hold the wall holder bottom part at the desired position on the wall and mark the four boreholes for fixing the wall holder. Then use a 8 mm or 0.31 inch twist drill to make the holes and put in the four S8 plugs which are supplied with the wall mounting bracket.	 Wall mounting bracket bottom part

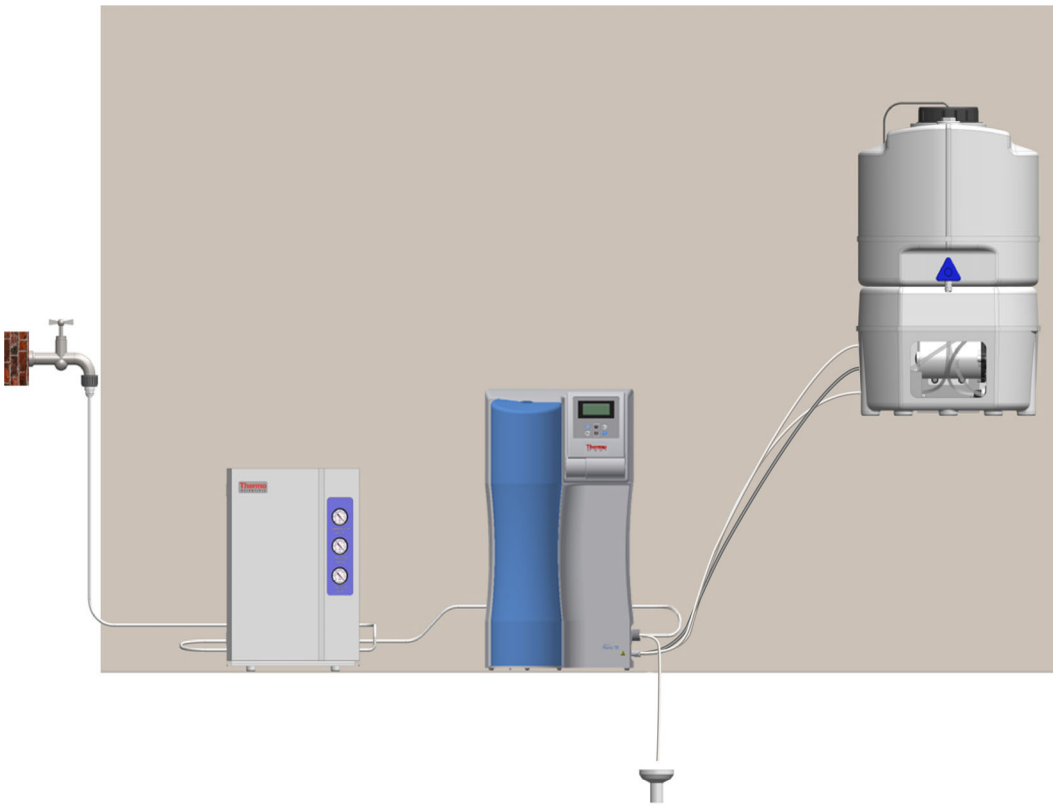
Step	Action	Figure
2	Attach the wall mounting bracket bottom part to the wall by screwing in the four supplied screws with a Philips screw driver into the wall where you put in the plugs before.	
3	Place the 30L pure water tank onto the mounted wall mounting bracket bottom part with two people and then screw in the four supplied M8 hexagon nuts onto the threaded bolts from the wall holder bottom part.	





Step	Action	Figure
4	a.) Unscrew the lid off the 30L pure water tank. b.) Hold the wall mounting bracket upper part at the desired position on the wall and mark the two boreholes for fixing the wall mounting bracket upper part. Then use a 8 mm or 0.31 inch twist drill to make the holes and put in the four S8 plugs which are supplied with the wall mounting bracket. **NOTICE** To prevent contamination of the 30L pure water tank when the lid is unscrew and mounting works, screw on the lid after you have placed the wall mounting bracket upper part on the pure water tank as described above.	b.) Mark up here the position for boreholes Wall mounting bracket upper

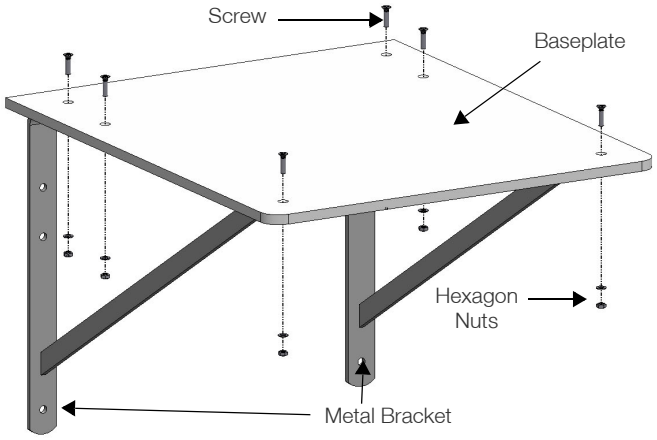
Step	Action	Figure
5	Screw in the two screws with a Phillips screw driver into the wall where you have put in the plugs before.	
6	After mounting the complete wall mounting bracket , connect the tubing and level control cable as described in the chapter “Connect a Pure Water Tank to the Pacific system” on page 40	



Wall Mounted 30 L Tank

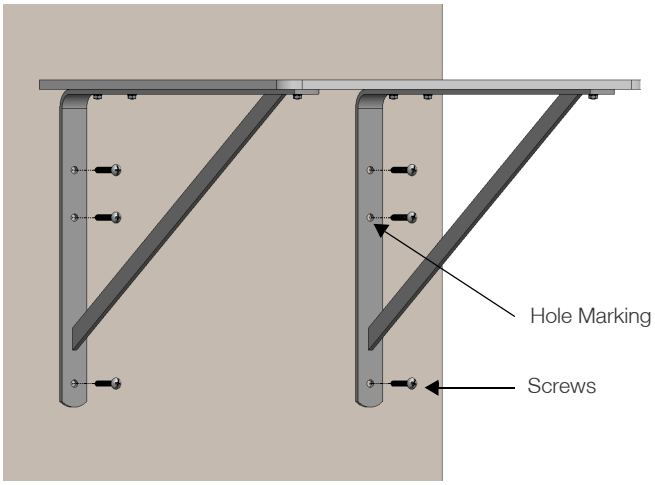
Attaching Wall Mounting Bracket for 60 L Pure Water Tank

Locate the two metal brackets and the baseplate. Screw in the six screws and hexagon nuts supplied with the brackets as shown in the diagram.



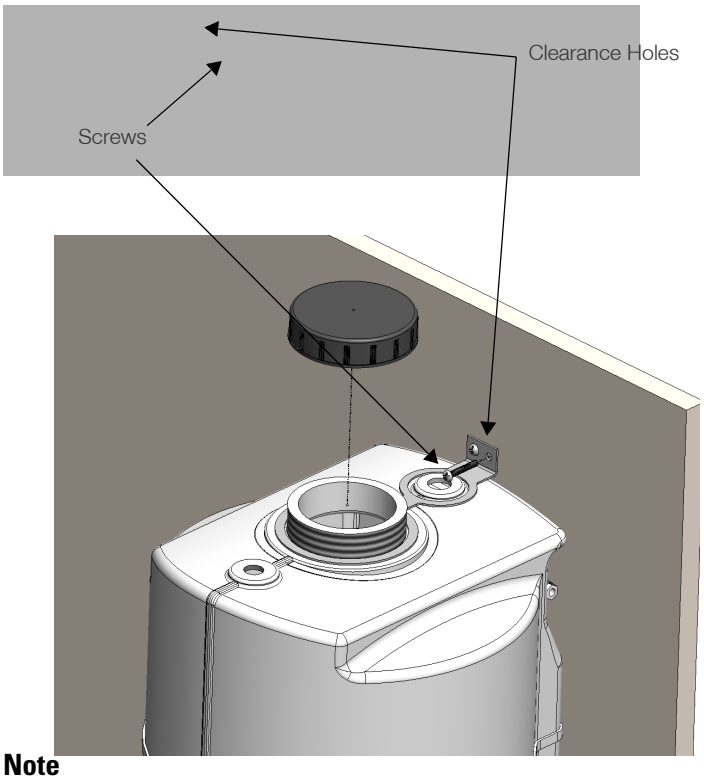
Hold the wall mounting bracket at the desired position on the wall and mark the six boreholes for fixing the wall mounting bracket. Use an 8 mm or 0.31 inch twist drill to make the holes and put in the six S8 plugs which are supplied with the wall mounting bracket (refer to Figure 11).

Attach the wall mounting bracket to the wall by screwing in the six supplied screws with a Phillips screw driver.



Place the 60 L pure water tank with two people on the wall mounting bracket.

Hold the wall mounting bracket upper part at the desired position on the wall and mark the two boreholes for fixing the wall mounting bracket upper part. Use an 8 mm or 0.31 inch twist drill to make the holes and put in the two S8 plugs.

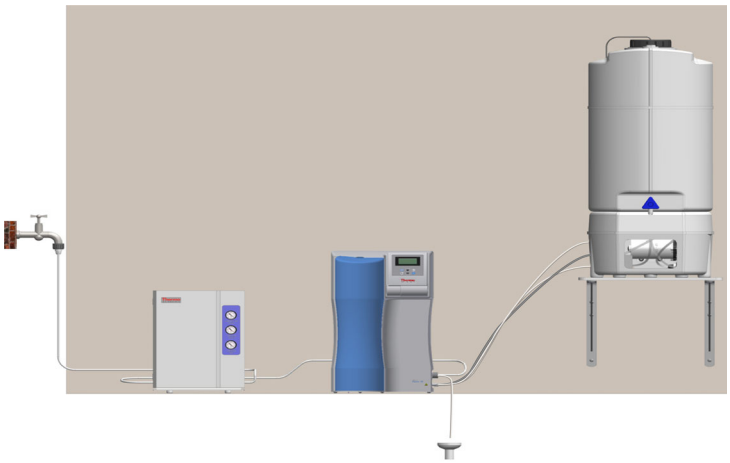


Note

The 2 screws and S8 plugs are not included in the kit.

Screw the lid on top of the tank.

Connect all tubing and wires as described in the section Connections of Storage Tanks



Wall Mounted 60 L Tank

If you are not wall mounting, skip to the section, Water Connections of Pacific System.

Wall mounting

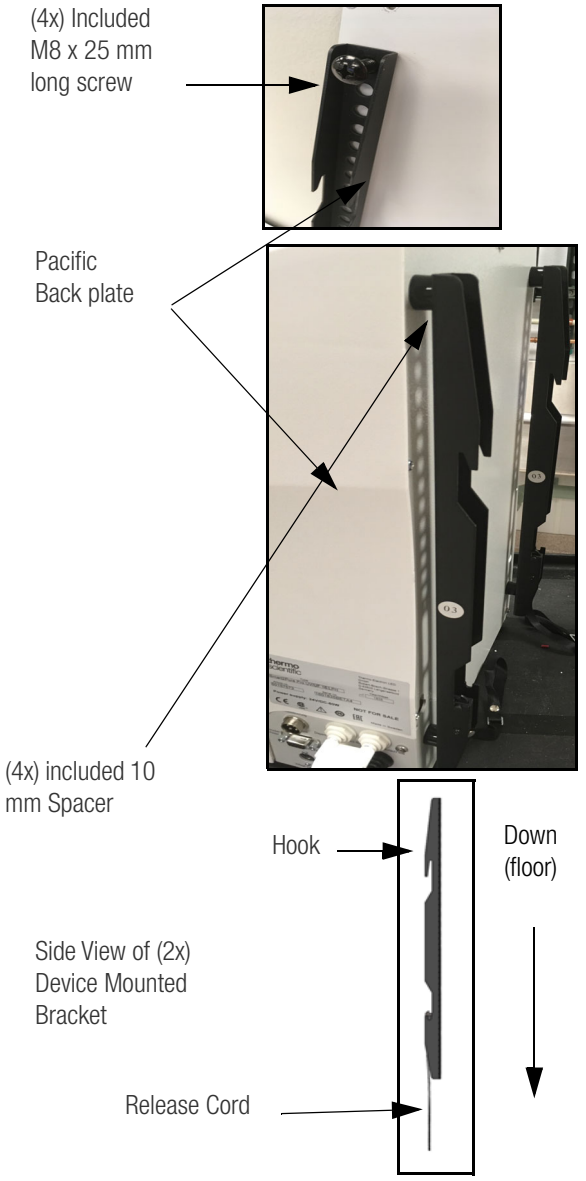
CAUTION

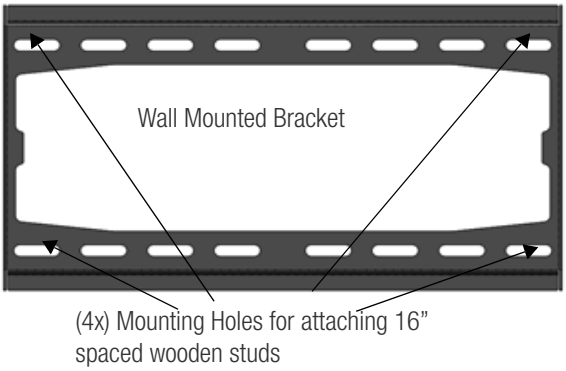
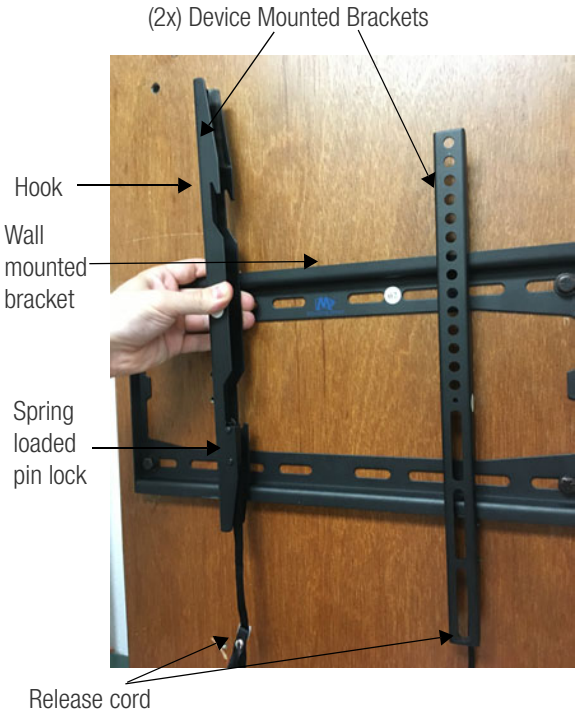
The wall mounting fixture (Item No. 50157885) supplied with the complete system or purchased separately as an accessory.Before mounting the system on the wall, verify the strength of the wall to ensure that it is suitable for supporting the system (refer to the section Technical Specifications).

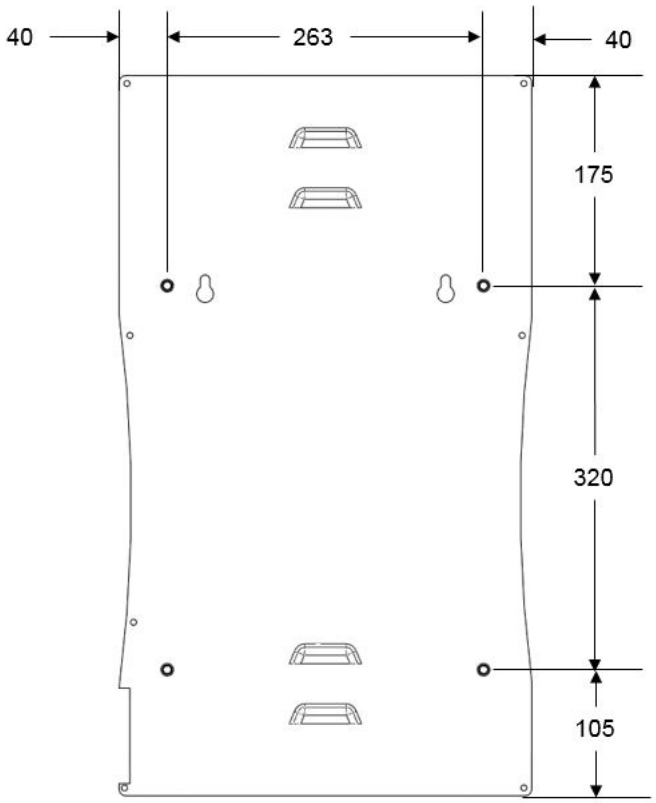
CAUTION

The screws and anchors supplied with the wall mounting brackets are only suitable for attaching the wall mounted bracket to a 16 inch wooden stud construction, concrete, or solid masonry wall.

Detailed instructions and needed hardware for mounting the bracket on the wall are provided with the Wall Mounting Kit. The kit adapts to the typical stud spacing of 16 inch.

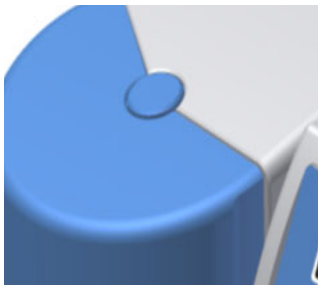
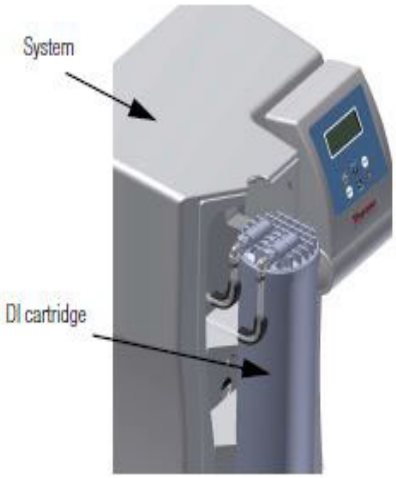
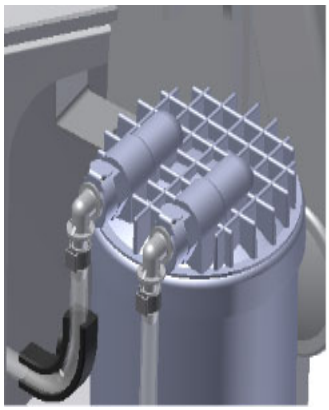
Step	Action	Figure
1	Attach the 2 mounting BRACKETS to the back plate of the Pacific system, using the (4x) M8 x 25 mm long screws and 10 mm tall spacers (included in the kit). Attach as shown in the figure.	

Step	Action	Figure
2	Using (4x) included 5/16” lag bolts and washers, attach the wall mount bracket on the wall where you want to mount your Pacific system. Lift the system (2 people recommended) and hang it on the wall mounting bracket. The spring loaded pin locks itself on the bottom lip of mounting bracket to prevent tipping.	
3	To remove the unit from the wall, pull on both cords at the bottom of the mounting brackets (refer to Figure), and lift (2 people recommended) the unit slightly and pull away from wall bracket. **⚠CAUTION** Always lift and carry the system in tandem (two people), never alone, to avoid any risk of injury. Lift the system at the two bottom corners	


40
263
40
175
320
105

Installing the DI cartridge into the system (only Pacific TII/TII UV and AFT)

Pacific TII, TT UV, AFT systems

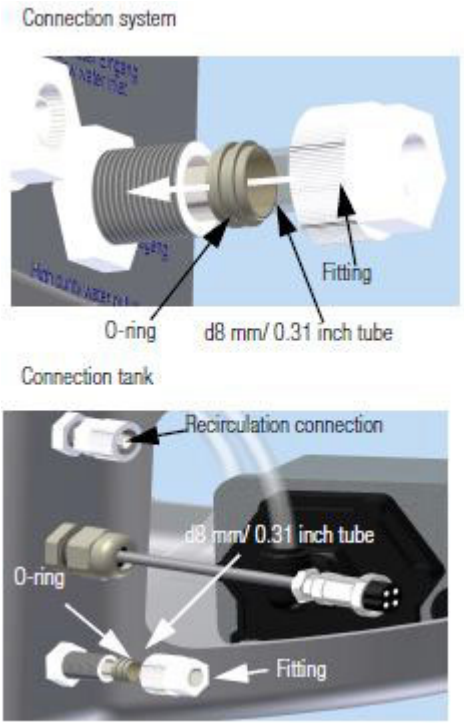
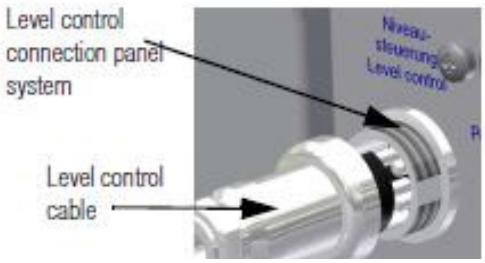
Step	Action	Figure
1	Remove the DI cartridge cover from the system by pressing the tap and pull the cover towards you.	
2	c. Locate the DI cartridge. d. Place the DI cartridge into the system and insert the two quick connectors into the DI cartridge. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. **NOTICE** The quick connectors are attached to the system in such a manner so as to prevent installing the DI cartridge incorrectly.	 

Connect a Pure Water Tank to the Pacific system

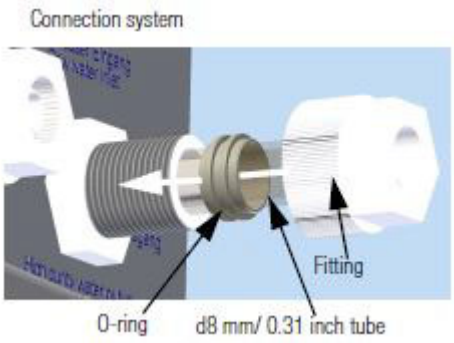
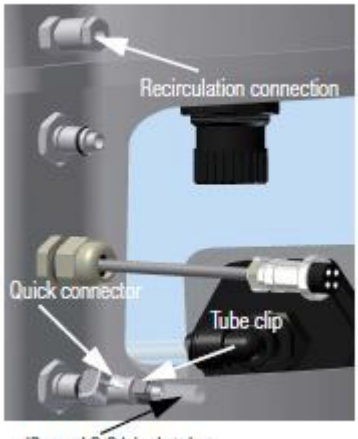
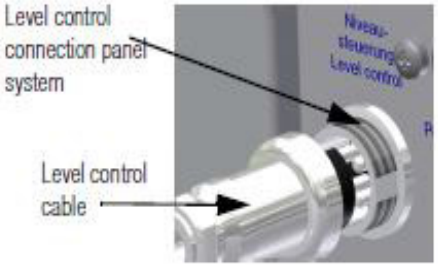
NOTICE

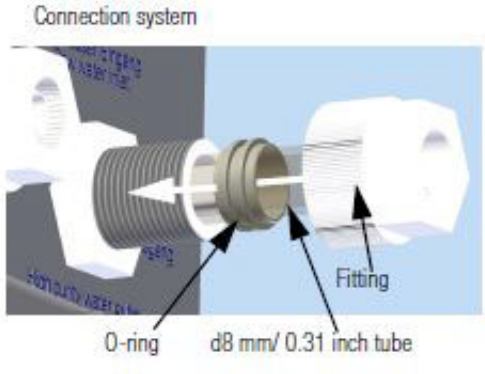
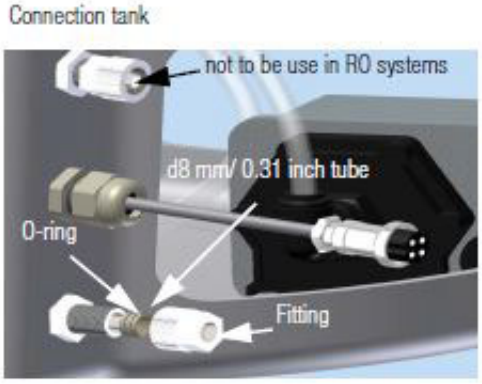
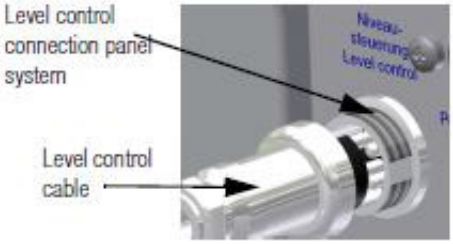
If you have order additional the sterile tank overflow, mount the tank overflow as described in its installation provided with it.

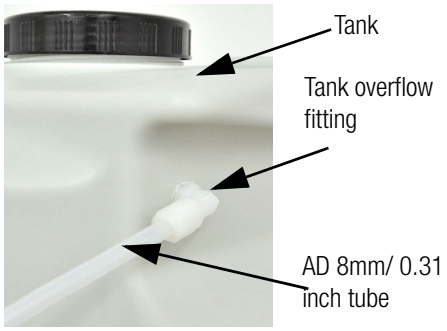
Pacific TII, TII UV systems

Step	Action	Figure
1	a.) Connect the pure water outlet of the system to the pure water connection of the tank with the d8 mm/ 0.31 inch tube. b.) Connect the recirculation outlet of the system to the recirculation connection on the tank with the d6 mm/ 0.24 inch tube. **NOTICE** Take care that the O-ring does not get lost when you unscrew the fitting. Refer to section "Connections of the Pacific Systems TII/TII UV, AFT, RO" on page 22 and "Connections of Storage Tanks" on page 23 for positions of the connections of the system and storage tank.	
2	Connect the control cable, coming from the tank, into the 4 pin plug of the connection panel on the system.	
3	Open the feedwater tap.	

Pacific AFT systems

Step	Action	Figure
1	a.) Mount the quick connector into one end of the d8 mm/ 0.31 inch tube and fix it with the one ear clamp. Connect the pure water outlet of the system to the pure water connection of the tank with the d8 mm/ 0.31 inch tube and quick connector. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. b.) Connect the recirculation outlet of the system to the recirculation connection on the tank with the d6 mm/ 0.24 inch tube. **NOTICE** Take care that the O-ring does not get lost when you unscrew the fitting. Refer to section "Connections of the Pacific Systems TII/TII UV, AFT, RO" on page 22 and "Connections of Storage Tanks" on page 23 for positions of the connections of the system and storage tank.	 
2	Connect the control cable, coming from the tank, into the 4 pin plug of the connection panel on the system.	
3.	Open the feedwater tap.	

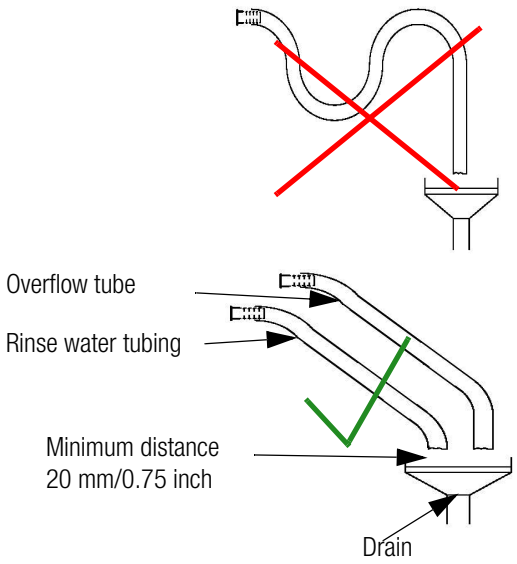
Pacific RO Systems		
Step	**Action**	**Figure**
1	Connect the pure water outlet of the system to the pure water connection of the tank with the d8 mm/ 0.31 inch tube.	 
2	Connect the control cable, coming from the tank, into the 4 pin plug of the connection panel on the system.	
3	Open the feedwater tap.	

All Pacific systems		
Step	**Action**	**Figure**
1	Cut the d8 mm/ 0.31 inch tube to the required length and use it to connect the tank overflow of the tank with the drain. Route the d8 mm/ 0.31 inch tube with a gravity fall to the drain. See "Mounting the Power Pack (Voltage Supply)" on page 44 **NOTICE** If you have ordered the sterile tank overflow, skip this step and mount the tank overflow as described in the installation instructions provided with it.	

Routing tubes to Drain

NOTICE

Shorten the rinsing water and concentrate outlet tube to the required length and route it to an atmospherically vented drain. The tubes that run from the Pacific Water Purification system and the external 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.



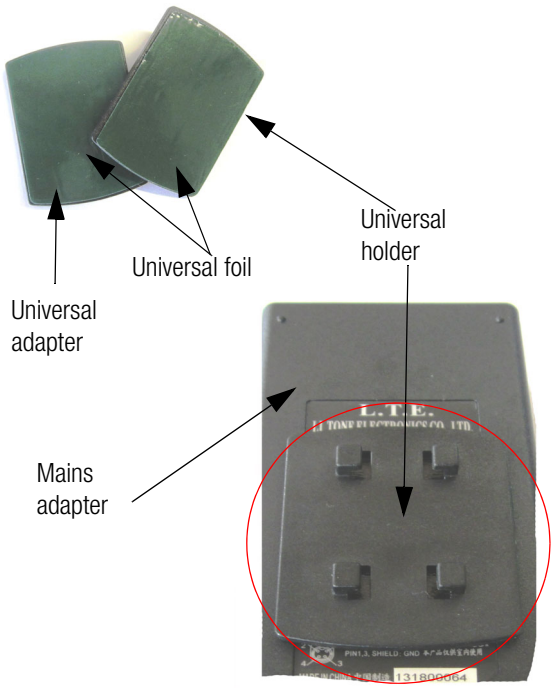
Mounting the Power Pack (Voltage Supply)

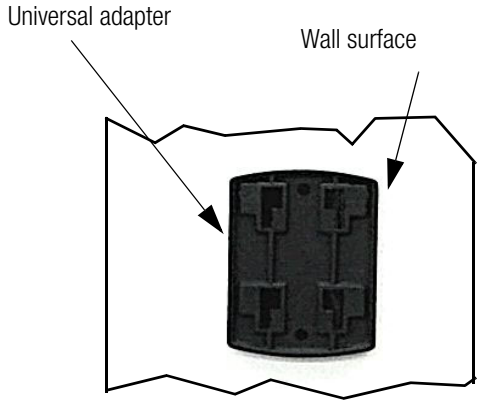
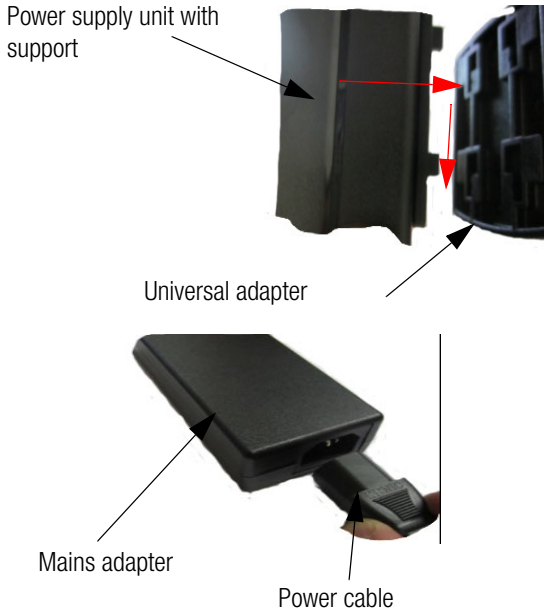
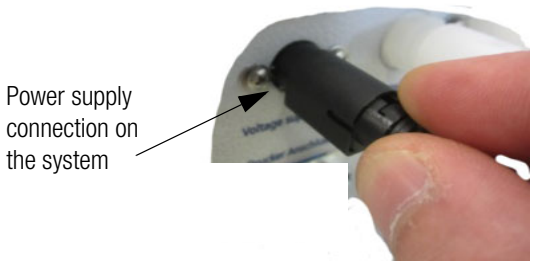
NOTICE

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

⚠ DANGER

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

Step	Action	Figure
1	Remove the protective foil on the back of the universal holder and from the universal adapter and attach the universal holder to the center of the back of the main adapter.	

Step	Action	Figure
2	Attach universal adapter to a smooth wall surface with supplied screws or with glue (not provided).	
3	a.) Take the power supply unit and press it with the attached universal holder onto the wall and then slide it down (see red arrows). b.) Plug the power cable into the power supply unit. **DANGER** Do not bring the power pack in contact with water. Risk of an electrical shock.. **NOTICE** The removable power cable must always face downward when the power supply unit has been mounted.	
5	Now, connect the power supply unit to the 'Power supply' connection on the right side of the Pacific Water Purification. Next plug the power supply to a grounded 100 - 240V, 50/60 Hz power outlet. **NOTICE** Make sure that the power supply connector is always free accessible. (see Chapter 5 "Accessibility to Pacific systems and pure water tanks" on page 16	

8

Initial Start Up

Contents

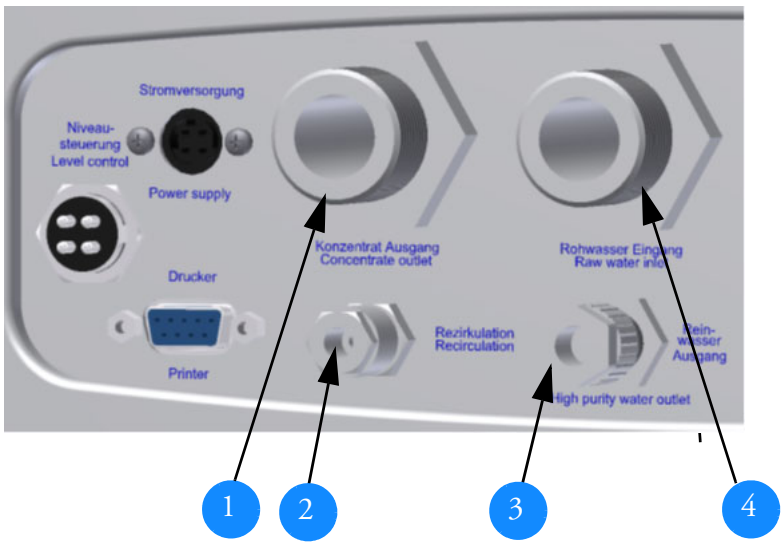
Putting the System into Operation

NOTICE

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

⚠CAUTION

Check that all connections have been made as described in Chapter 7 or shown in the bottom diagram.



1. Concentrate connector R3/4"
2. Recirculation connector d6 mm tube/ 0.24 inch (Left open if installing a tank without a recirculation pump)
3. Pure water connector d8 mm/0.31 inch tube
4. Feedwater connector R3/4"

- Put in the voltage supply from the power pack into the power supply from the system on the connection panel.

NOTICE

- After connecting the power supply into the system, and switching on, the system starts with the production of pure water into the storage tank and shows in the Display "Production". If the storage tank reached the full capacitiy, the Display shows then "Stand by".
- Drain the first content of the storage tank to rinse out the preservation of the RO-membrane.

- Depending on the Pacific system design and external storage tank, it could take between 2.5 and 10 hours to fill the storage tank.

How the Pacific Water Purification System Functions

Pacific TII/ TII UV, AFT

When the system is in operation, tap water flows with a maximum pressure of 6 bar through the double cartridge pretreatment into the system. A pressure pump in the system pumps the feedwater through a RO- membrane which splits the feedwater into „permeate and concentrate“ water flow. The concentrate water flows to the drain. The permeate water flows through a deionization cartridge and UV- lamp (only systems with UV) before it reach the external storage tank. Two special conductivity measuring cells measured permanentlly the quality of the permeate and ASTM Type TII water. The water who reached the external storage tank has then a water quality of ASTM Type II.

The water in the external storage tank is recirculated at regular intervals through the pressure booster pump 2 (only systems with storage tanks and included pump) to ensure the constant quality of pure water ASTM Type II. A level switch monitors the water level inside the tank.

ASTM Type TII water can be dispensed from the pressurized external tank outlet (only systems with storage tanks and included pump) or from the front valve of the external tank.

Pacific RO

When the system is in operation, tap water flows with a maximum pressure of 6 bar through the double cartridge pretreatment into the system. A pressure pump in the system pumps the feedwater through a RO-membrane which splits the feddwater into „permate and concentrate“ water flow. The concentrate water flows to the drain. The permeate water flows into a external storage tank. Two special conductivity measuring cells measured permanentlly the quality of the feedwater and permeate. A level switch monitors the water level inside the tank.

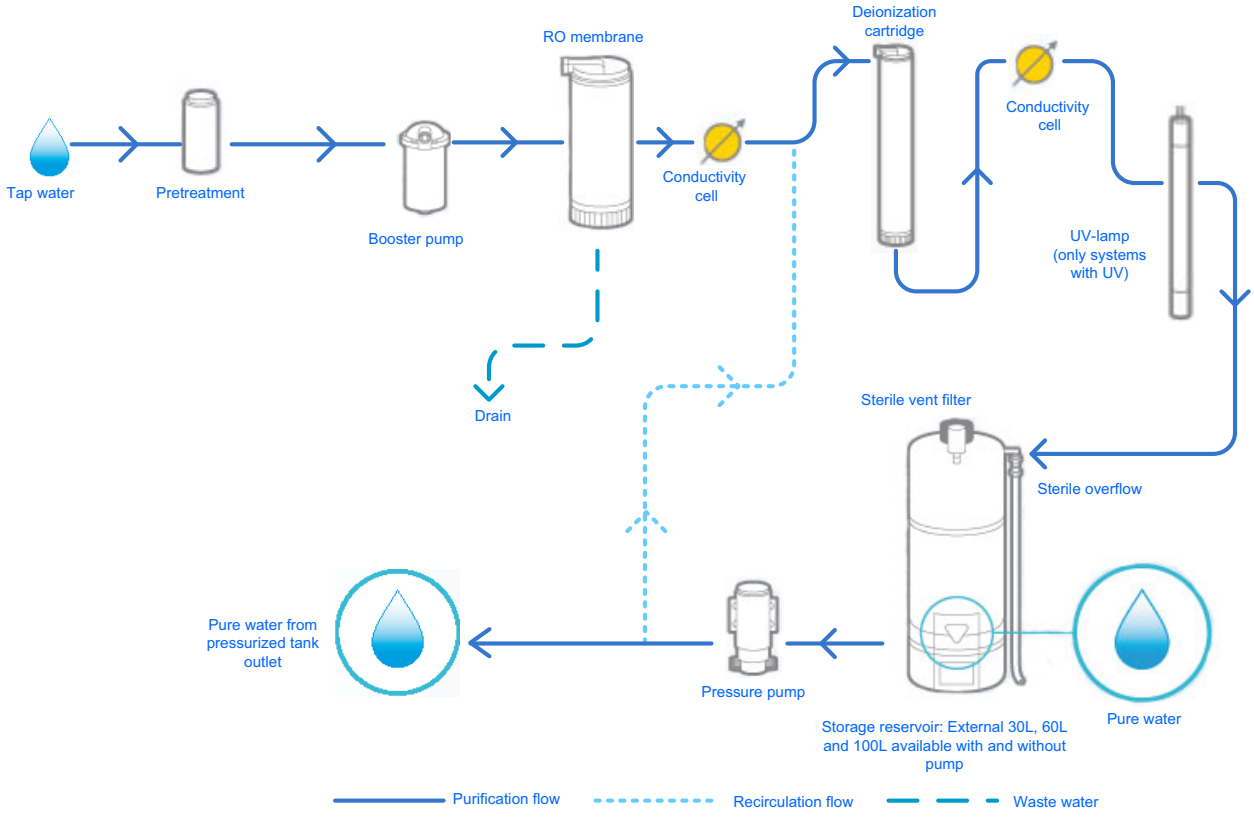
Permeate water can be dispensed from the pressurized external tank outlet (only systems with storage tanks and included pump) or from the front valve of the external tank.

Flow Chart

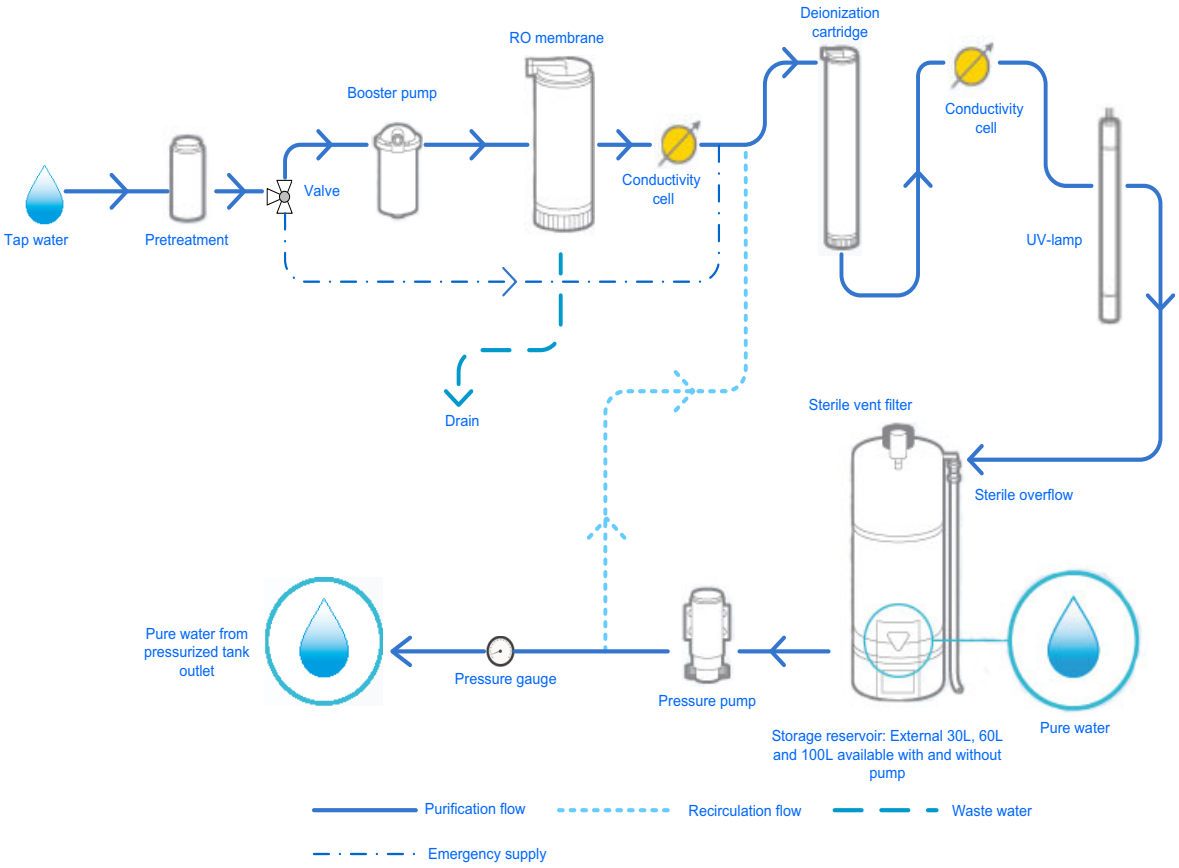
NOTICE

The following flow chart describes the Pacific Water Purification Systems with full equipment (UV-lamp, DI cartridge). Depending on your Pacific Water Purification system configuration the UV-lamp or DI-cartridge are inapplicable. The flow chart direction remains as described in the flow diagram.

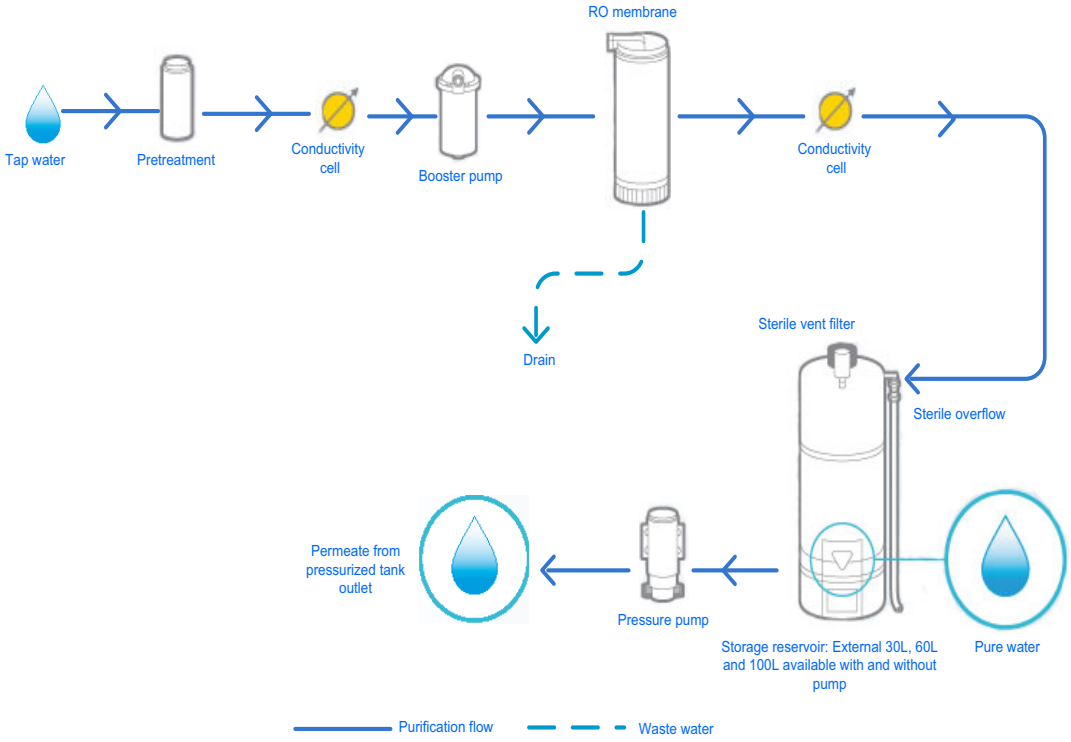
Pacific TII/ TII UV



Pacific AFT


Deionization cartridge
RO membrane
Booster pump
Conductivity cell
Conductivity cell
Valve
Tap water
Pretreatment
UV-lamp
Drain
Sterile vent filter
Sterile overflow
Pure water from pressurized tank outlet
Pressure gauge
Pressure pump
Pure water
Storage reservoir: External 30L, 60L and 100L available with and without pump
Purification flow
Recirculation flow
Waste water
Emergency supply

Pacific RO

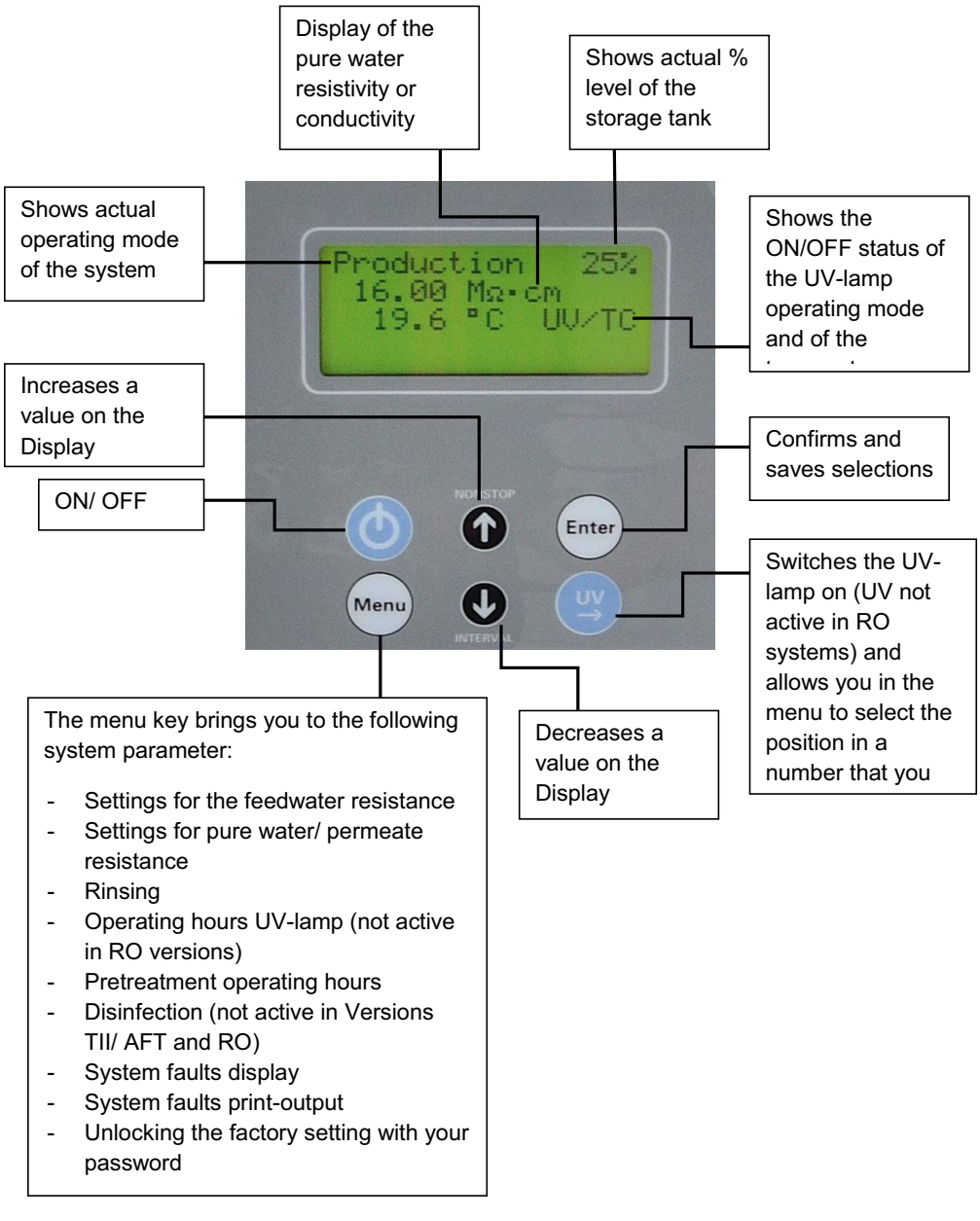

RO membrane
Tap water
Pretreatment
Conductivity cell
Booster pump
Conductivity cell
Drain
Sterile vent filter
Sterile overflow
Permeate from pressurized tank outlet
Pressure pump
Storage reservoir: External 30L, 60L and 100L available with and without pump
Pure water
Purification flow
Waste water

11

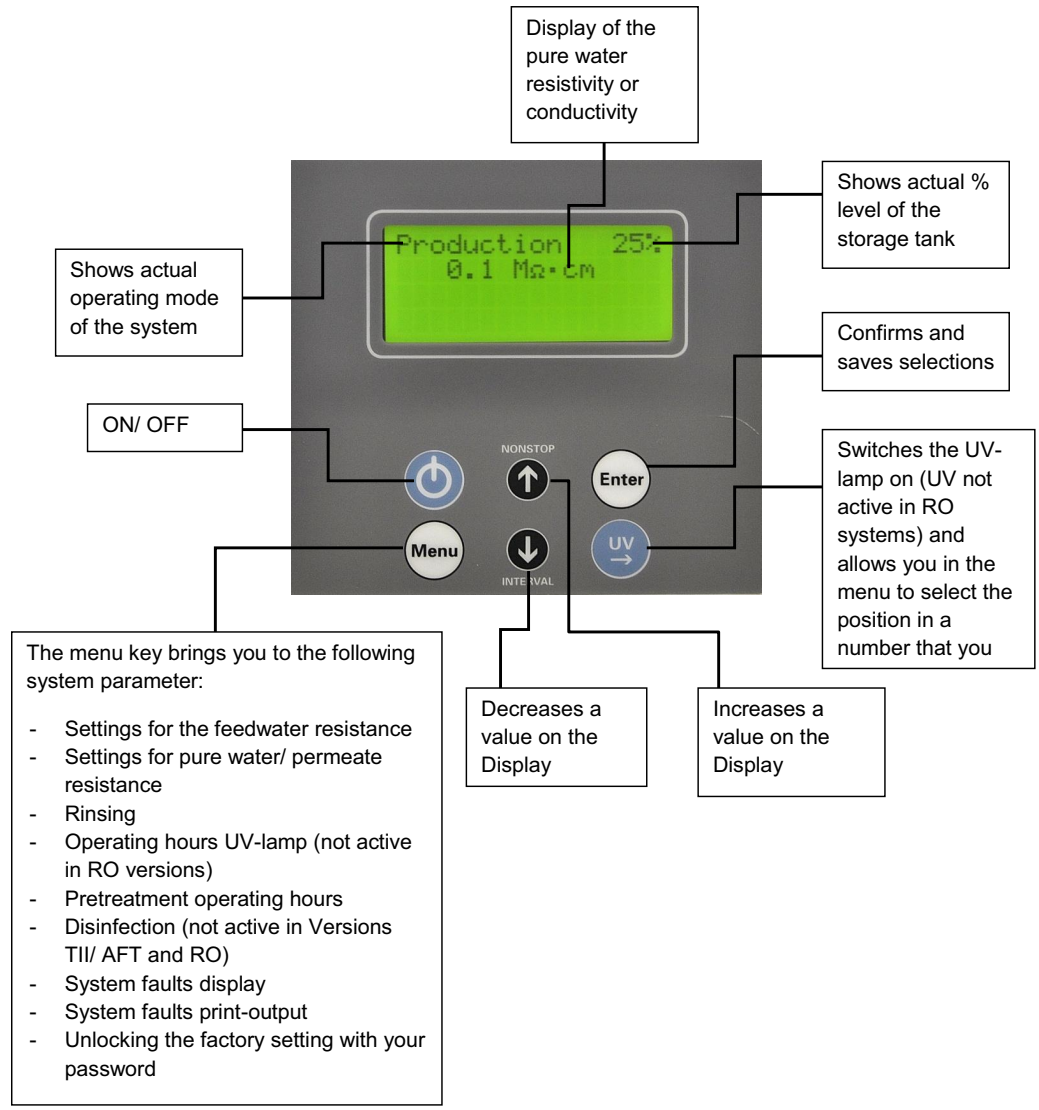
Operating Elements

Contents

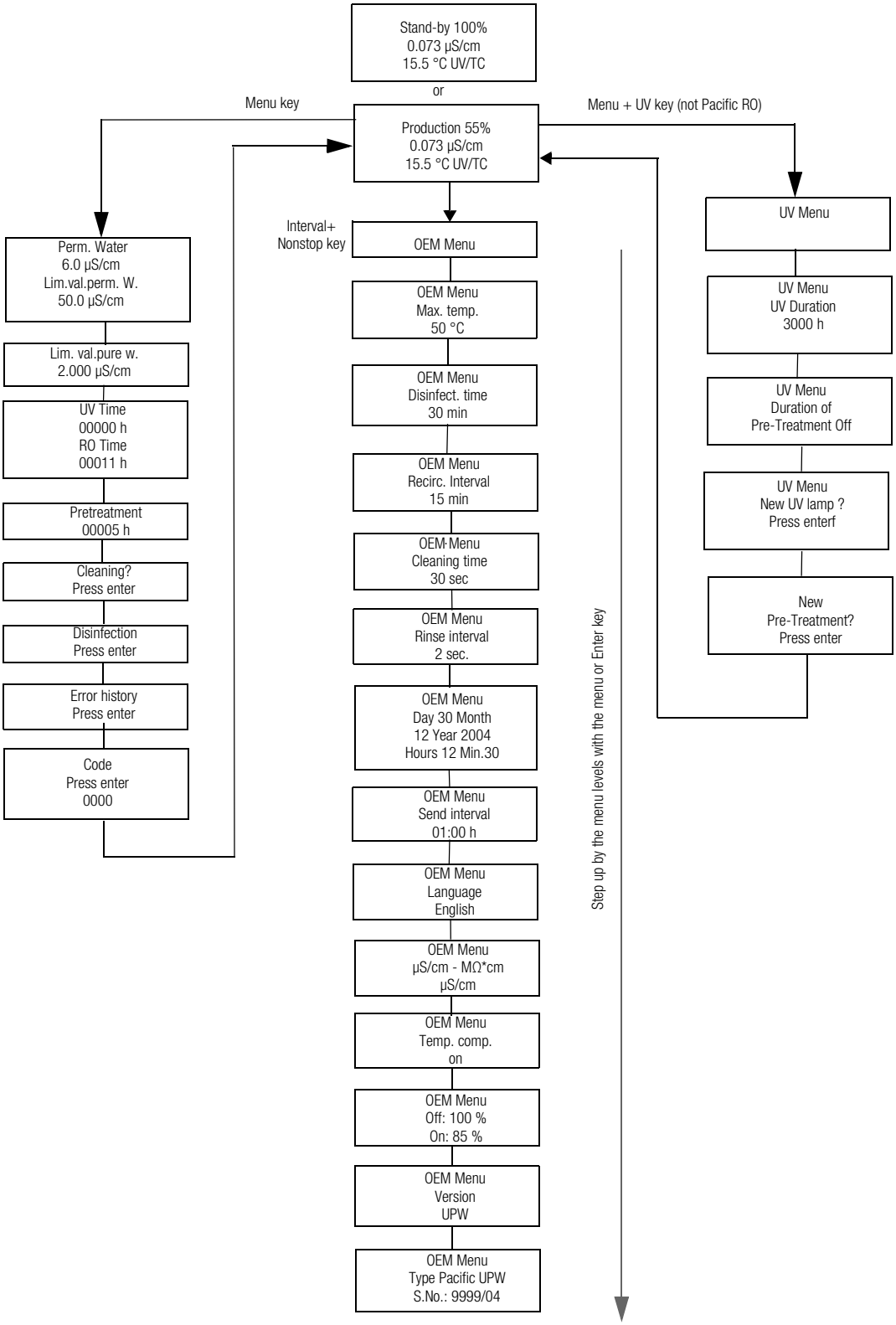
Description of Display Pacific TII, AFT



Description of Display Pacific RO



Flow Chart of Menu System Control



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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 float switch.

The operating state and the volume contained in the tank is shown in line1 of the display. Further to this, the volume contained 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 given out across the potential-free output and 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.

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.

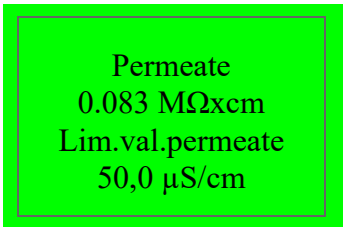
Permeate Conductivity

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 MΩxcm

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

The display shows:



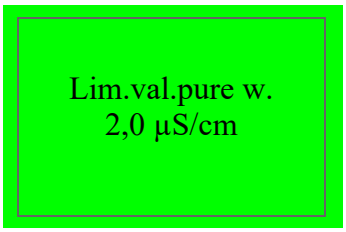
Pure Water Limiting Value

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 MΩxcm

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

The display shows:

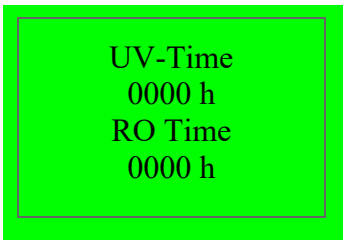


Operating Hours

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 time" fault message is triggered. The limiting value can be set in the UV menu.

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

The display shows:



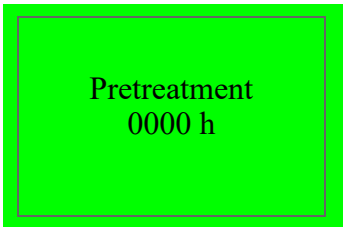
Pretreatment Operating Hours

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.

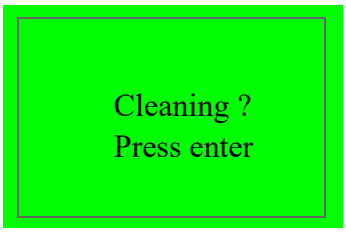
The display shows:



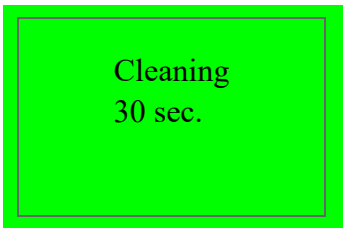
Cleaning

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:

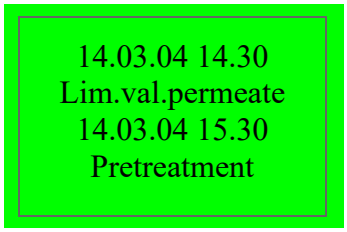
Fault Storage

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

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

The display shows:

The display of the fault storage 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

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

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	0650
350	0650	0750

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:

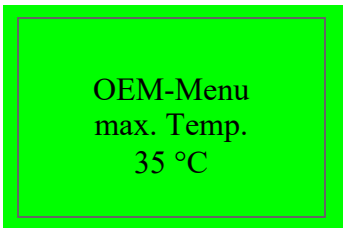
Maximum Temperature

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:

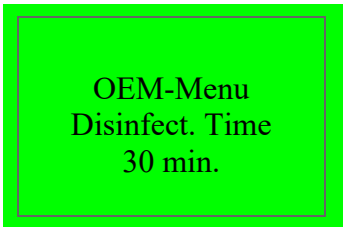


Disinfection Time

A second press on the menu-key:

(This function is not active in this system)

The display shows:



Recirculation Time

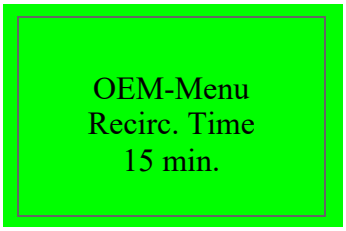
This function applys to TII systems only.

A third press on the menu-key:

The recirculation time is set in this menu.

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

The display shows:



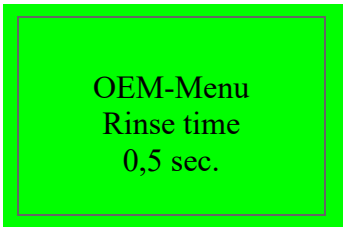
Rinsing Time

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:



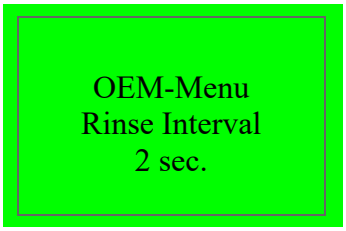
Rinse Interval Time

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:

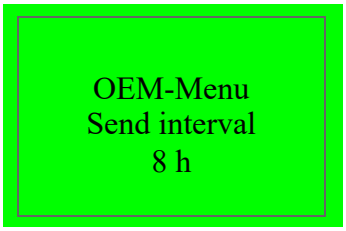
Sending Interval

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:

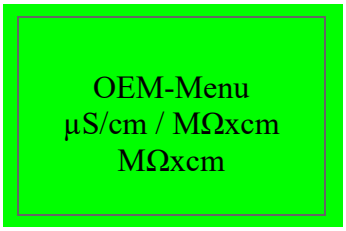
Switching Units

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

The display shows:

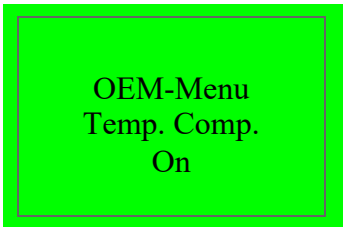


Switch off Temperature Compensation

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 setting here is so according to whether an analogue or a digital float switch is installed.

The display shows:

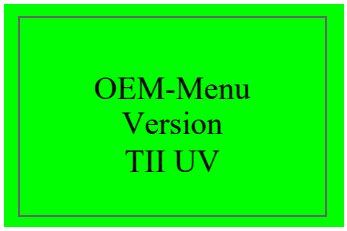
Programme Choice, TII/TII UV, RO

A twelth press on the menu-key:

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

- **Basic setting: TII UV**

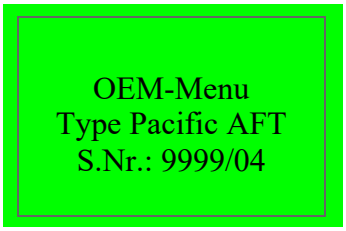
The display show



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: Pacific-RO, Pacific-TII, Pacific-TII UV, Pacific-AFT.

The display shows:



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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
De-ionization cartridge (Only applicable for Pacific TII and AFT systems)	09.4011	up to 12 months	Or when the Pacific system water limiting value is exceeded, whichever is shorter. Longer usage can result in bacterial growth on the resin.
Pretreatemnt 09.4000 activated carbon Hardness stabilization	06.5201 06.5452(not to be used if system supplied with soft water)	For 06.5201 Carbon- see max hours of pretreatment below. For 06.5452: up to 6 months	
Revers osmosis membrane Pacific TII/ TII UV/RO7-20, AFT 3-20 Pacific AFT 40	22.0046 22.0087	up to 24 months	Or when permeate conductivity limit is reached or "lim.val.permeate" is displayed.
UV-lamp (only applicable for systems with a UV lamp)	50139226	up to 24 months	Or unless system indicates the lamp needs to be replaced.

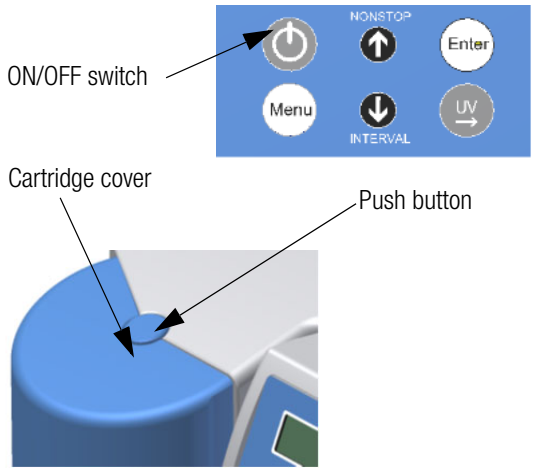
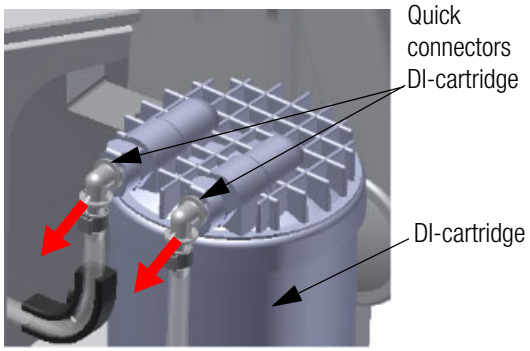
*Please keep in mind that the life of your consumable is directly dependent on the quality of the feed water and the amount of water used daily.

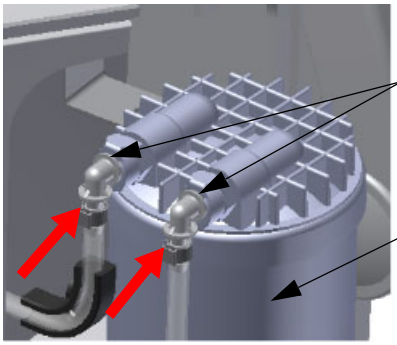
Maximum Hours of Pretreatment Use: Pacific Water Purification Systems	Approximate Hours of Use for 1 ppm Chlorine
Pacific AFT 3	1000
Pacific TII/ TII UV/ AFT/ RO 7	900
Pacific TII/ TII UV/ AFT/ RO 12	600
Pacific TII/ TII UV/ AFT/ RO 20	500
Pacific AFT 40	300

NOTICE

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

Replacing the DI-cartridge (only Pacific TII/ TII UV, AFT)

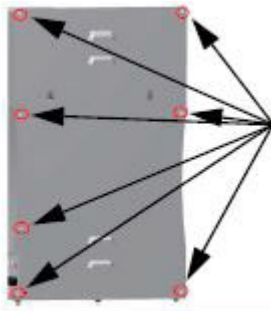
Step	Action	Figure
1	Switch the system off and remove the cartridge cover on the upper part of the Paciifc system by pushing the push button.	
2	Press on the two quick connectors at the inlet and outlet of the DI- cartridge and remove the used DI-cartridge. **NOTICE** We recommend performing a disinfection when an existing DI-cartridge is replaced.	

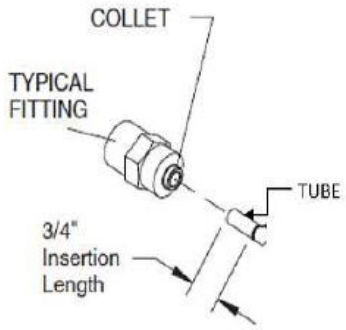
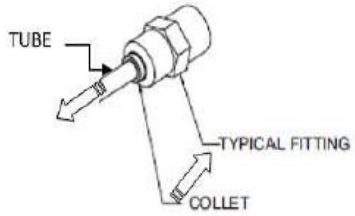
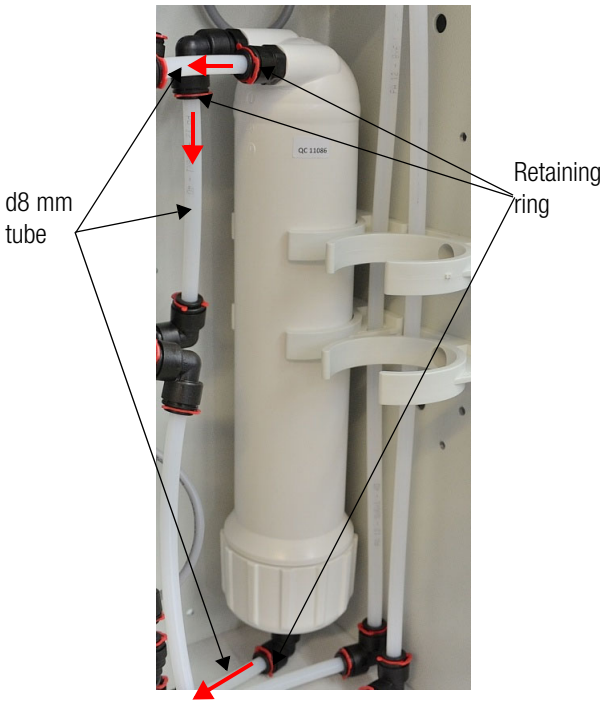
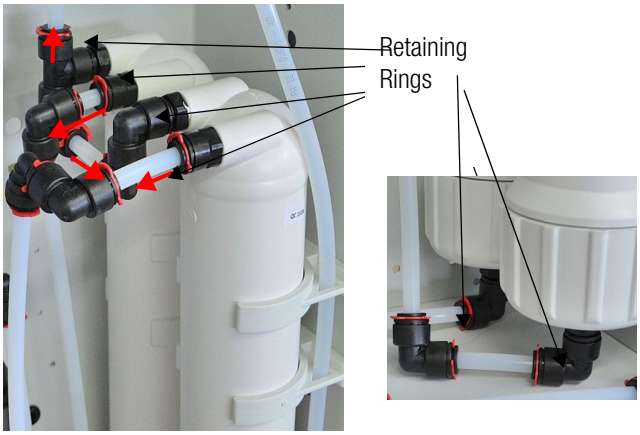
Step	Action	Figure
3	Locate the new DI-cartridge, place it into the system and insert the two quick connectors into the DI-cartridge. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. **NOTICE** The quick connectors are attached to the unit in such a manner so as to prevent installing the DI-cartridge incorrectly.	
4	Put the cover from the DI- cartridge back in place and switch the system on. **NOTICE** After switching on the system again, control that water is flows into the storage tank.	

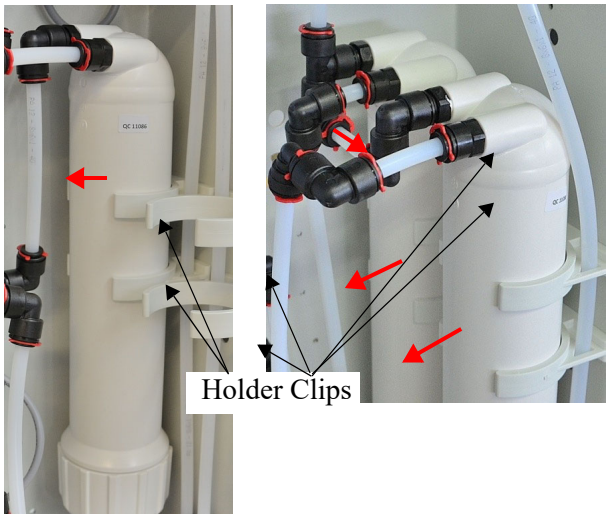
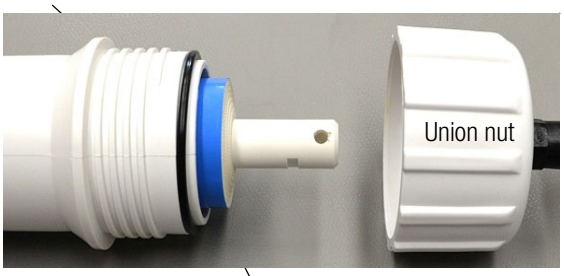
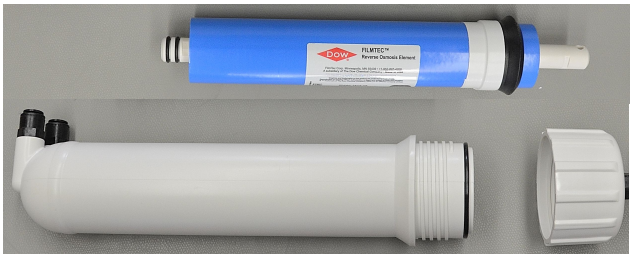
Changing the RO Membrane

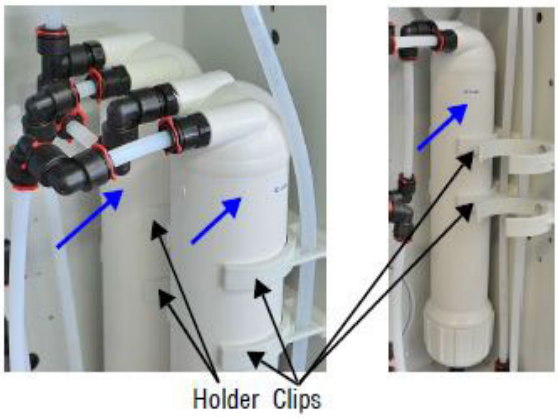
NOTICE Before start working on this, shut off the feedwater supply and switch the system off.

⚠CAUTION Incorrect insertion of the reverse osmosis membrane would result in immediate damage to it.

Step	Action	Figure
1	Remove the back panel.	 Screws
2	Locate the RO-module/ modules.	

Step	Action	Figure
3	Remove the red retaining rings and pull out all d8 mm tubes on the RO-modul. **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.  	System with one RO-modul  System with two RO-moduls 

Step	Action	Figure
4	Pull the modul/ moduls from the holder clips.	 Holder clips
5	Unscrew the union nut from the pressure tube of the RO-modul, by turn it in anti clockwise direction and drag out the reverse osmose membrane. **NOTICE** Ensure that the sealing ring do not get lost when unscrewing the union nut.	 RO-membrane
6	Take the new reverse osmose membrane and push it with the sealings facing up into the pressure tube. After this turn tight the union nut onto the pressure tube, by turn it in clockwise direction. **NOTICE** All Pacific models 3 -12L, RO membrane 1x 22.0046 All Pacific models 20L, RO membrane 2x 22.0046 All Pacific models 40L, RO membrane 2x 22.0087 **⚠CAUTION** Wrong position of the RO-membrane into the pressure tube leads to immediate destruction of it.	

Step	Action	Figure
7	Push the RO- modul back into the holder clips.	
8	Attach all d8 mm tubes with retaining rings back into the fittings on the RO- modul.	
9	Open the feedwater supply and switch the system on. **NOTICE** Control that water flows into the external storage tank and drain the first content of the storage tank to rinse the preservation from the RO-membrane.	

Disinfection

NOTICE

Your system should be cleaned and disinfected at least once a year to eliminate any bacteria that are possibly in the system. We recommend that you carry out cleaning and disinfection before replacing the DI-cartridge.

Use bleach disinfection solutions as follows:

Required for disinfection:

- 50133431 (Pacific TII and AFT systems using the tank with recirculation pump only)
- Bleach solution (obtained locally, concentrations and amounts listed below)
- Optional, chlorine test strips (obtained locally)

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

Bleach Concentrations (%)	30L Tank	60L Tank	100L Tank
5.25	120 mL	240 mL	400 mL
6	105 mL	215 mL	355 mL
8.25	80 mL	155 mL	255 mL

NOTICE

After the Disinfection process, install new pretreatment filters and DI cartridges.

Rinse the pretreatment with several liters of water while installing new pretreatment cartridges to remove any fines that were created during shipping.

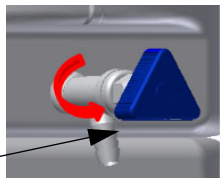
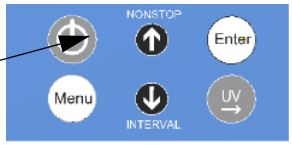
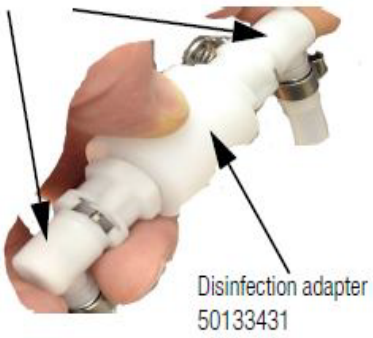
Wear protective gloves for handling syringe of cleaning solution.

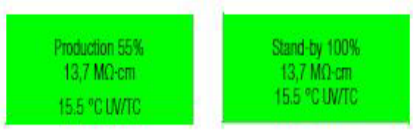
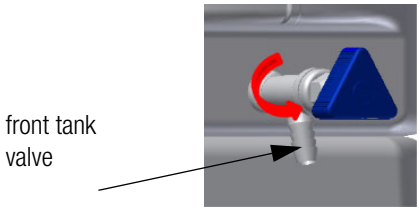
Wear safety goggles when working with cleaning solution.

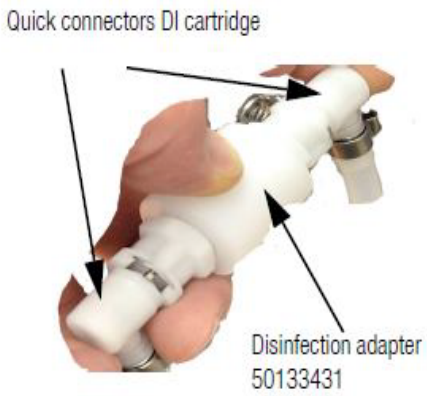
NOTICE

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

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

Step	Action	Figure
1	For all systems: Drain tank from front spigot until system says Production. Turn system off.	front tank spigot  ON/OFF switch 
2	For Pacific TII and AFT systems using the tank with recirculation pump only, install disinfection adapter, 50133431 in place of DI cartridge. When you hear an audible click you can be sure that the quick connectors have been inserted correctly. Discard used DI cartridge. **NOTICE** Pacific TII and AFT systems using tank with recirculation pump: Do not allow system to recirculate with DI cartridge in place. If disinfection adapter is not available, keep system off during disinfection process. **NOTICE** Pacific TII systems using tank without pump, Pacific RO, skip to step 3.	Quick connectors DI cartridge 

Step	Action	Figure
3	Turn on the system. Program the Pacific to fill the tank completely by adjusting the float switch to turn off at 100%. See “Adjusting the settings of the Float Switch” on page 66 Pacific TII using the tank with recirculation pump only: Adjust recirculation time in OEM menu to 30 minutes. See “Recirculation Time” on page 62	
4	Pour bleach into top of tank. **NOTICE** Bleach concentration volume see “Table of Volume (mL) of bleach concentrate to use for disinfection based on storage tank volume” on page 76	
5	a.) Let system run in production mode until display shows that the storage tank is 100% and remain on for 1 additional hour. **NOTICE** The TII systems may give a “Pure.w.lim“ alert b.) Drain the tank by opening valve on front of tank	
6	Turn Pacific system off.	
7	If necessary, replace RO membrane (“Changing the RO Membrane” on page 72) **NOTICE** If replacing RO membrane, keep disinfection adapterin place until RO rinsing is completed.	
8	Replace the pretreatment filter elements if necessary. **NOTICE** Rinse the pretreatment with several liters of water while installing new pretreatment cartridges to remove any fines that were created during shipping.	

Step	Action	Figure
9	Remove disinfection adapter if added in step 1. For Pacific TII and AFT systems: replace DI cartridge ("Replacing the DI-cartridge (only Pacific TII/ TII UV, AFT)" on page 67	
10	a. Change float switch back to original setting if necessary. "Adjusting the settings of the Float Switch" on page 68 b. Pacific TII and AFT using tank with recirculation pump only: Change tank recirculation time back to original setting. "Recirculation Time" on page 64	
11	Turn system on and empty and refill the tank 2x to rinse storage tank	

NOTICE

Chlorine test strips can be uses to test water for presence of residual chlorine. Repaet tank rinsing if necessary.

NOTICE

After disinfecting the tank/recirculation always install new DI cartridges.
Pacific TII and AFT systems, install a new DI cartridge after disinfection.

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!

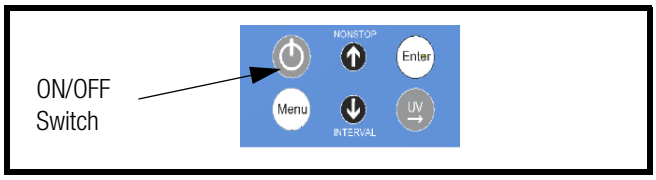
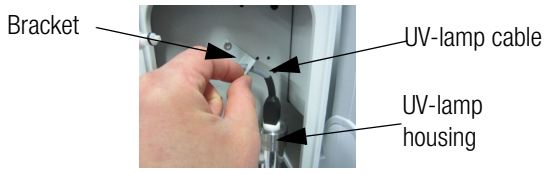
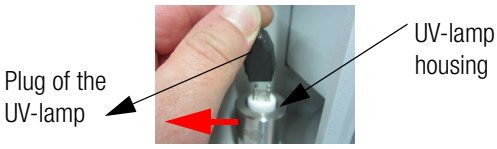
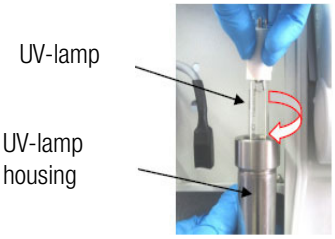
Always wear safety gloves when changing the UV-lamp, in order to prevent that your skin comes in contact with the UV-lamp glass.

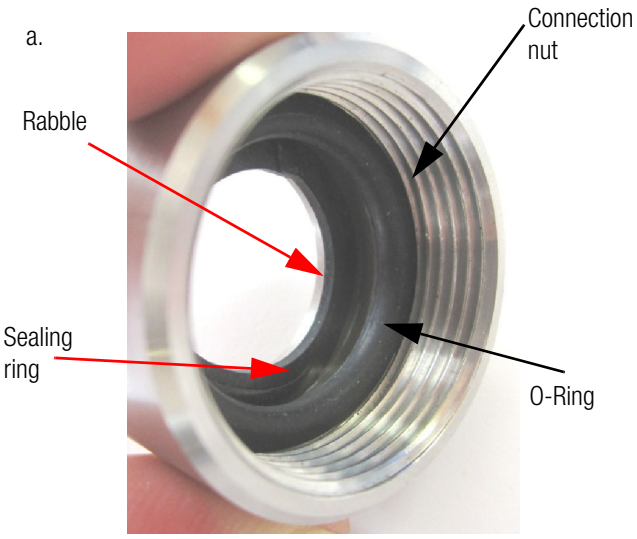
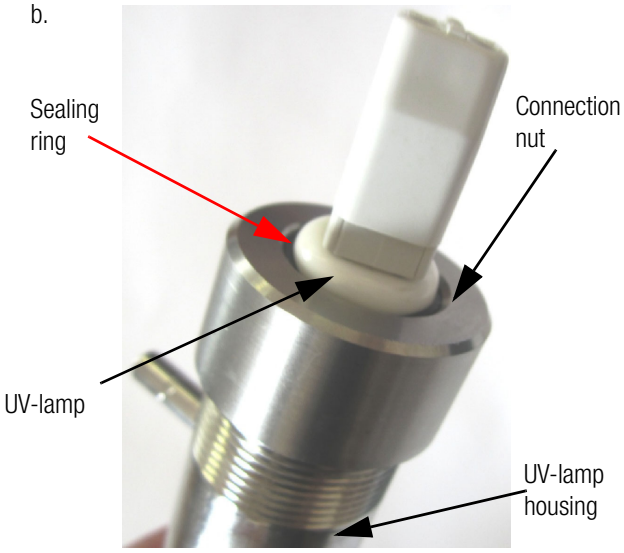
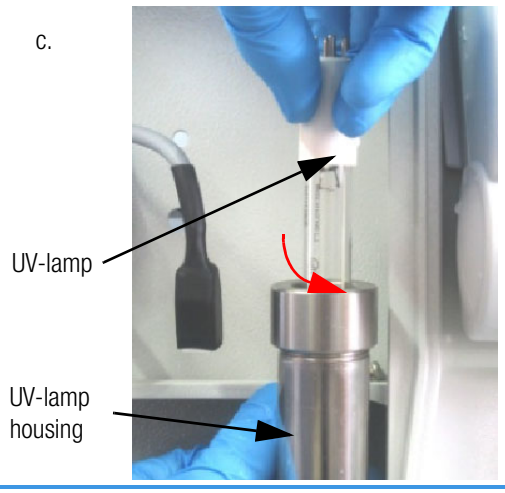
Wear directly a breathing protector when you are seeing that the glass of the UV-lamp is broken and ventilate the room well.

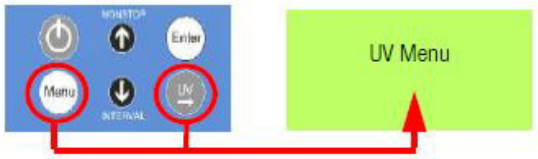
NOTICE

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 Paciic System off and shut off the supply of feedwater.	
2	Remove the cartridge cover and take off the DI-cartridge.	See chapter "Replacing the DI-cartridge (only Pacific TII/ TII UV, AFT)" on page 67
3	Unscrew the bracket from the mounting plate and take it up over the UV-lamp cable.	
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 recommend that clean gloves to be worn	

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 DI-cartridge (only Pacific TII/ TII UV, AFT)” on page 67), 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 62. 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. 

Switch your system into emergency supply (only Pacific AFT)

NOTICE

If your Pacific AFT system shows an error, e.g

- Low feedwater pressure to water system <2bar (29psi)
- Little or no water flow into the storage tank (plugged prefilter or RO membrane or concentrate flow)
- 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 permeate purity or bad RO membrane,

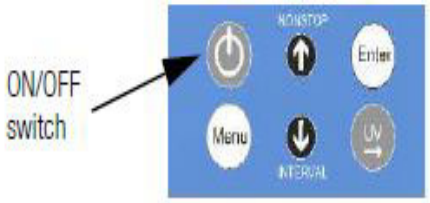
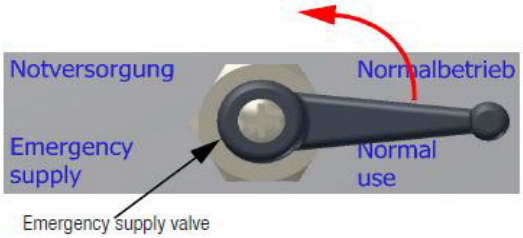
you have the possibility to switch your Pacific AFT system into the emergency supply mode.The system can then use for a limited time (up to 48 hours) in the emergency supply mode until the capacity of the DI- cartridge is exhausted.

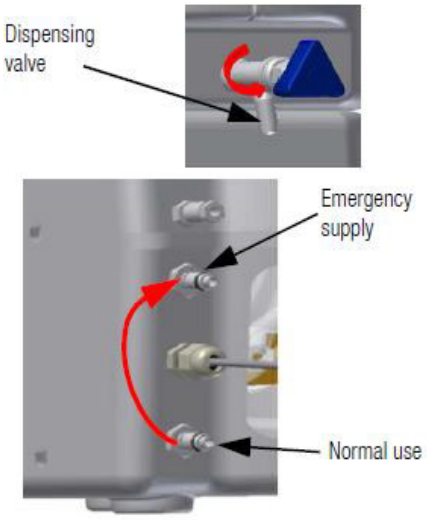
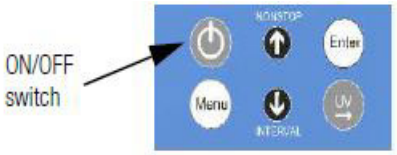
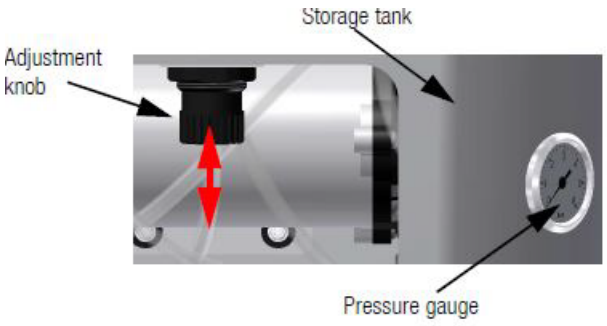
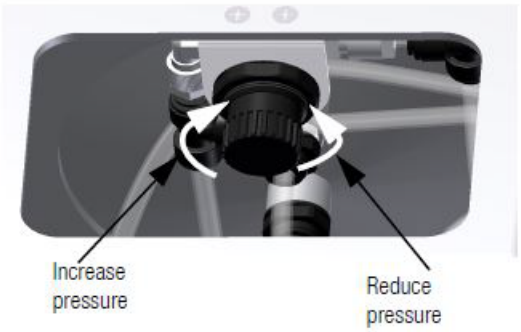
- We recommend therefore to store two DI cartridges in your department that you have enough capacity in case of an emergency supply.

- Contact your local Service organization if you switch your Pacific AFT system into the emergency supply.

⚠CAUTION

Do not forget to re-adjust the pressure when you are returning the Pacific AFT system to the normal use.

Step	Action	Figure
1	Turn off system and water supply.	
2	Activate the emergency supply valve by turning it counter clockwise to the emergency supply position.	

Step	Action	Figure
3	Remove the tubing on the left side of storage tank from “Normal Use“ and reconnect into “Emergency supply. When you hear an audible click you can be sure that the quick connector have been inserted correctly.	
4	Turn on system and water supply	
5	Check the water pressure on the pressure gauge on the right side of storage tank. Adjust the pressure to 2 bar/ 29 psi if necessary, by locating the pressure reducer, inside of back panel and pull out the adjusting knob.. **NOTICE** Turning the knob clockwise to increase the pressure and counter clockwise to reduce the pressure. After adjusting the pressure, press in the adjusting knob to lock it. Do not forget to re-adjust the pressure when you are returning the Pacific AFT system to the normal use	 

Waste Disposal

NOTICE

Before returning your Thermo Scientific Pacific 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
Cannot be started	• No supply of power	• Connect to the power supply
Water cannot be drawn off	• Feedwater tap is closed • Feedwater and rinse water connections mixed up • Feedwater pressure < 1.5 bar	• Turn the water tap on • Reverse the connections • Increase feedwater pressure
Conductivity value too high	• Exchange capacity is exhausted	• Replace the DI-cartridge
Controls no longer react	• Incorrect operation • CPU suspended	• Unplug line plug for 5 sec., then plug back in
Water leaks out	• Tube connection leaks • Feedwater pressure > 6 bar • Tube or fitting leaks	• Check tube connection and stop leak • Install pressure reducer
Permeate flow is too low	• RO-membrane blocked • Initial pressure too low • Internal pressure too low • Fluctuating feedwater temperature	• Replace the RO-membrane • Increase initial pressure • Re-adjust the pressure reducer
Wrong time or date	• Time difference • Time change	• Reset time and date
Wrong language	• Wrong language set	• Correct the language setting
Error message: “Lim. Val. Permeate“	• Permeate conductivity too high • Limiting value set too low	• Check the pre-treatment • Check and adjust the limiting valuesetting • Change the RO membrane

Error	Cause	Remedy
Error message: “Lim. Val. pure w.”	• Filter cartridge exhausted	• Replace the DI-cartridge (Art.-no.: 09.4012)
	• Limiting value set too low	• Check/adjust limiting value
Error message: “UV time”	• The max. Operating hours of the UV-lamp have been exceeded	• Replace the UV-lamp and reset the operating hours counter
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: “Meas. Cell LF1”	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
	• Conductivity of pure water outside the measuring range	• See “Resistance < 18.2 MΩ.cm
Error message: “Meas. 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 “Feedwater limiting value”
Error message: “Temp. Meas. Cell”	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control
Error message: Meas. Cell LF3“,	• Break in the measuring cell cable	• Replace the measuring cell
	• System control defect	• Replace the system control

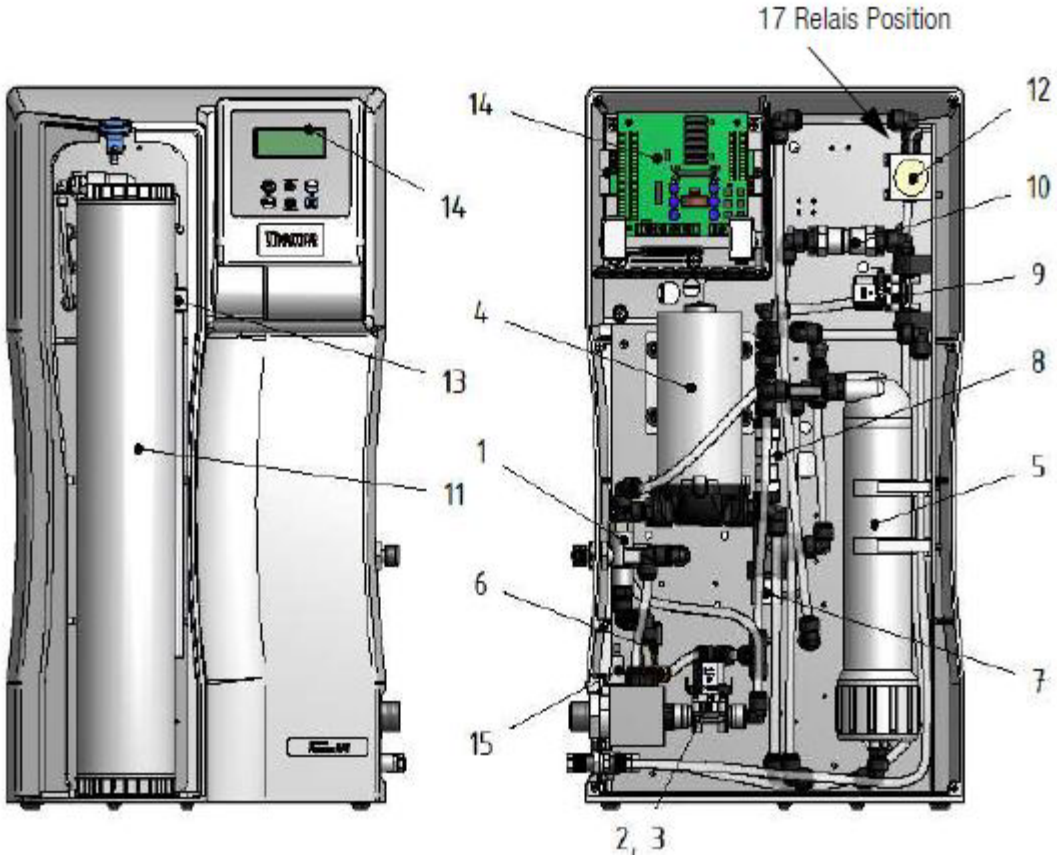
Replacement Parts

NOTICE

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

Contents

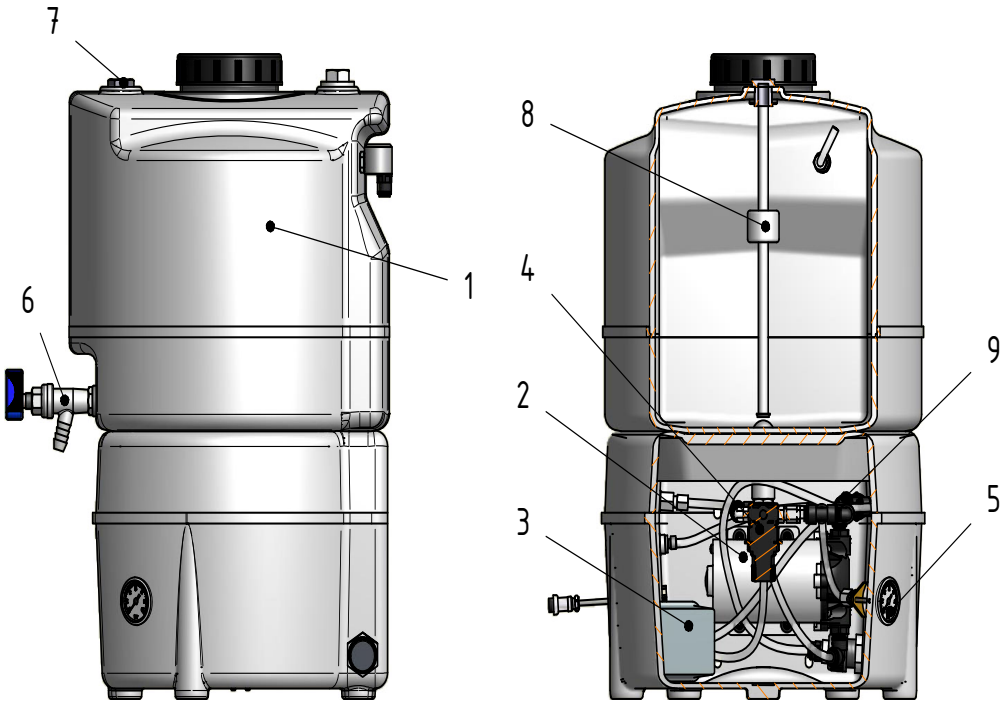
Replacement Parts for Pacific systems



Pos.	Designation	Article Number	Pacific System
1	3- Way ball tap	15.0005	All AFT
2	Inlet solenoid valve	50131190	All TII/ TII UV, AFT, RO
3	Rinsing solenoid valve	50131190	All TII/ TII UV, AFT, RO
4	Pressure booster pump	50149264 50149262 50149263	All TII/ TII UV, AFT, RO
5	Pressure tube	50133990	All TII/ TII UV, AFT, RO
6	Pressure hold valve	15.0060	All TII/ TII UV, AFT, RO
7	Permeate conductivity measuring cell Feed water measuring cell	50134006 50134006	All TII/ TII UV, AFT All RO
8	Check valve	15.0009	All TII/ TII UV, AFT
9	Recirculation solenoid valve	50131190	All TII/ TII UV, AFT

Pos.	Designation	Article Number	Pacific System
10	Check valve Check valve	15.0019 15.0009	All TII/ TII UV, AFT All RO
11	De ionization cartridge	09.4011	All TII/ TII UV, AFT
12	Pure water conductivity measuring cell Permeate measuring cell	50133992 50134006	All TII/ TII UV, AFT All RO
13	UV- replacement lamp	50139226	All TII/ TII UV, AFT
14	Electronic system control consisting of: CPU Board Interface	 26.0022 50131346	All TII/ TII UV, AFT, RO
15	2 x Fuse holder for glass tube fuse 5 x 20 mm 2 x Glass tube fuse 5x 20 mm 4.0 A max.	50143154 50150714	All TII/ TII UV, AFT, RO All TII/ TII UV, AFT, RO
16	Tabletop power pack 24V DC (not shown) Tabletop power pack 24V DC (not shown)	50149597 50151559	All TII/ TII UV/ RO 7-12, AFT 3-12 All TII/ TII UV, AFT, RO 20 AFT 20-40
17	Relay 24V 30A 6.3	50151551	All TII/ TII UV, AFT, RO

Replacement Parts for Optional Storage Tank



Pos.	Designation	Article number	Pacific System
1	Storage tank 30 L Storage tank 60 L Storage tank 100L	18.0114 18.0115 15.0159	All TII/ TII UV, AFT, RO All TII/ TII UV, AFT, RO All TII/ TII UV, AFT
2	Pressure pump (only storage tanks with included pump)	50149264	All TII/ TII UV, AFT, RO
3	Pressure switch	15.0058	All TII/ TII UV, AFT, RO
4	Pressure reducer	15.0109	Only AFT
5	Pressure gauge	15.0077	Only AFT
6	Dispensing valve	14.0250	All TII/ TII UV, AFT, RO
7	Sterile venting filter	06.5003	All TII/ TII UV, AFT, RO
8	Float switch for 30 L storage tank Float switch for 60 L storage tank Float switch for 100 L storage tank	16.0303 16.0304 16.0402	All TII/ TII UV, AFT, RO All TII/ TII UV, AFT, RO All TII/ TII UV, AFT
9	Female quick connect coupling	14.0009	All AFT
10	Male quick connect coupling	16.0006	All AFT
11	Check valve	15.0009	All TII/ TII UV, AFT

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Consumables and Accessories

Contents

Consumables

Designation	Article no.	Pacific System
Deionization cartridge	09.4011	All TII/ TII UV/ AFT
UV- Replacement lamp	50139226	All TII/ TII UV/ AFT
Reverse osmosis membrane Reverse osmosis membrane	22.0046 22.0087	All TII/ TII UV/RO 7-20, AFT 3-20 AFT 40
For pretreatment 50157886 -5 micron prefilter -Hardness Stabilizer -Carbon Cartridge	 D502113 D502114 D502115	All TII/ TII UV/ AFT/ RO
For pretreatment 09.4000: - Activated carbon - Hardness stabilization	 06.5201 06.5452	All TII/ TII UV/ AFT/ RO
For pretreatment 09.4003: - Prefilter 1µm	 06.5101	All TII/ TII UV/ AFT/ RO

Accessories

Designation	Article no.	Pacific System
Double cartridge pretreatment includes 5µm, carbon and hardness stabilizer, 10”	09.4000	All TII/ TII UV/ AFT/ RO
Barnstead Pretreatment includes 5 um prefilter, hardness stabilizer, carbon cartridge and pressure gages	50157886	All TII/ TII UV/ AFT/ RO
Pretreatment 1µm, 10”	09.4003	All TII/ TII UV/ AFT/ RO
Storage tank with pump 30 L Storage tank with pump 60 L Storage tank with pump 100 L Storage tank with pump 30 L Storage tank with pump 60 L Storage tank with pump 100 L Storage tank without pump 30 L Storage tank without pump 60 L Storage tank without pump 100 L	50155493 50155498 06.5081 50155494 50155499 50155502 50155495 50155500 50155503	All AFT All AFT All AFT All TII/ TII UV All TII/ TII UV All TII/ TII UV All TII/ TII UV/ RO All TII/ TII UV/ RO All TII/ TII UV
CO_2 Absorber + sterile venting filter	06.5002	All TII/ TII UV/ AFT
Sterile venting filter	50135142	All RO
Sterile tank overflow	06.5001	All TII/ TII UV/ AFT/ RO
UV- Immersion lamp complete	06.5006	All TII/ TII UV/ AFT/ RO

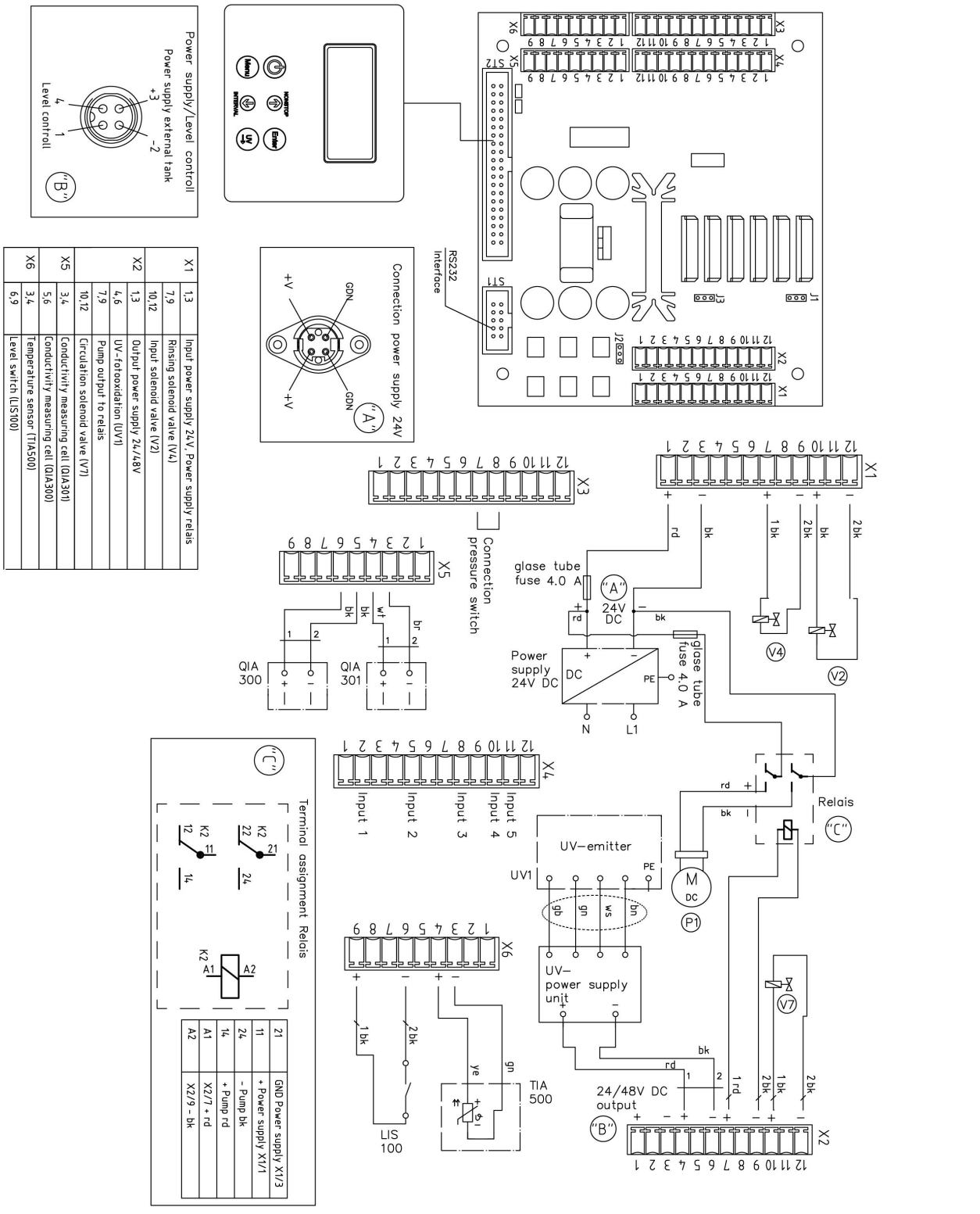
Designation	Article no.	Pacific System
Disinfection adapter	50133431	All TII/ TII UV/ AFT/ RO
Accessory Hand Dispenser	50138221	All TII/ TII UV/ AFT/ RO

Terminal Assignment

Contents

Terminal Assignment Pacific TII/ TII UV, AFT

TII/ TII UV 7-20, AFT 3-40

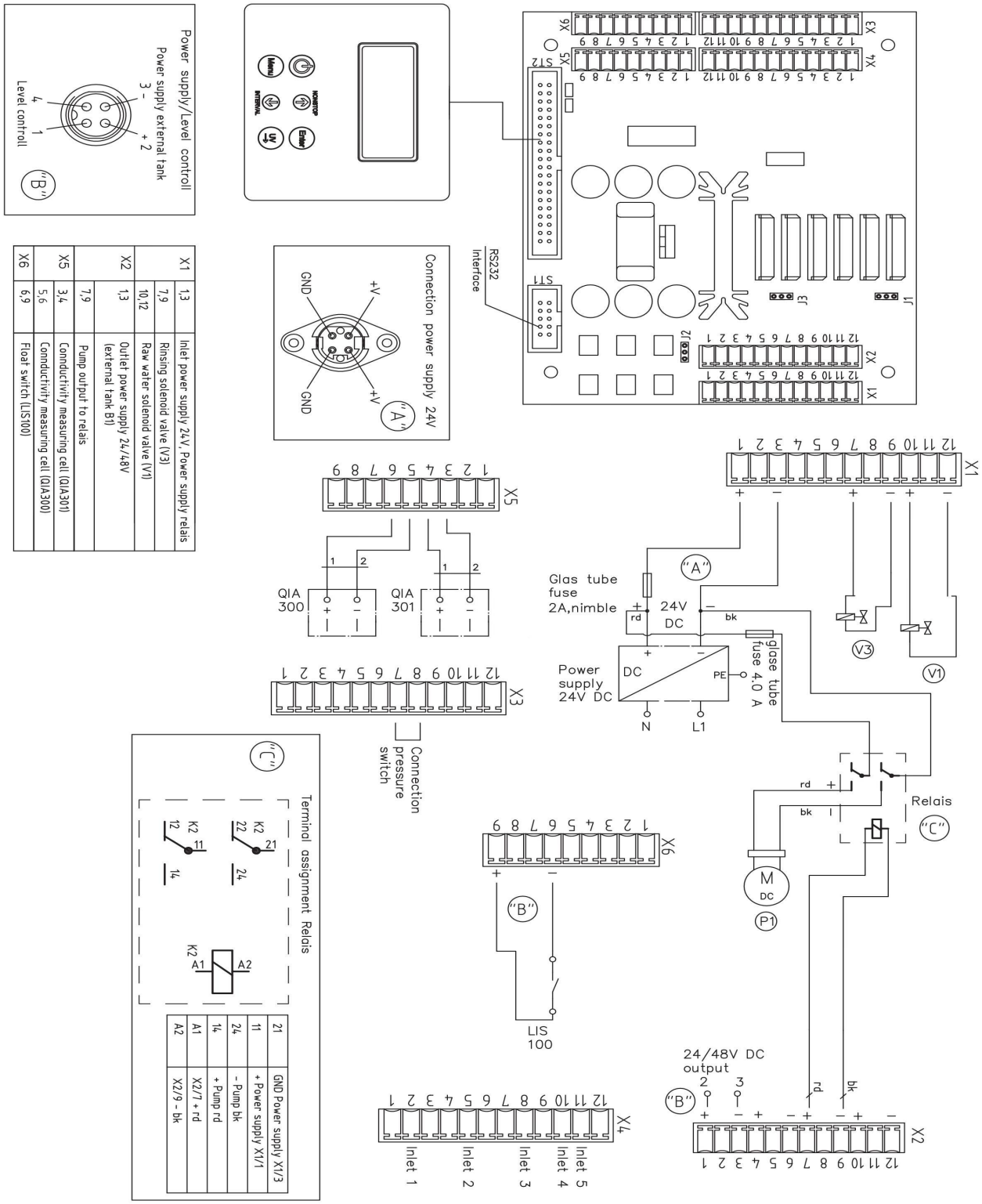


X1	1,3	Input power supply 24V, Power supply relais
	7,9	Rinsing solenoid valve (V4)
	10,12	Input solenoid valve (V2)
X2	1,3	Output power supply 24/48V
	4,6	UV-fotooxidation (UV1)
	7,9	Pump output to relais
	10,12	Circulation solenoid valve (V7)
X5	3,4	Conductivity measuring cell (QIA301)
	5,6	Conductivity measuring cell (QIA300)
X6	3,4	Temperature sensor (TIA500)
	6,9	Level switch (LIS100)

21	GND Power supply X1/3
11	+ Power supply X1/1
24	- Pump bk
14	+ Pump rd
A1	X2/7 + rd
A2	X2/9 - bk

Terminal Assignment Pacific RO

RO 7-20



Maintenance Record

Customer address: Location:

System type:

Serial no.:

Year made:

Date	Permeate conductivity [MΩ.cm]	Temperature [°C]	RO conductivity [MΩ.cm]	Concentrate flow [l/h]	Last change of carbon prefilter

Last change of hardness stabilizer	Last cleaning	Operating hours [h]	Notes	Signature

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

- 1x / Weekly, acquire measured values.

Contact Information Thermo Fisher Scientific

Contact address for service:

Overview of Thermo Scientific international sales organization
Postal address in USA:
Thermo Scientific
275 Aiken Road
Asheville, NC 28804
USA

Inquiries from USA/Canada
Sales: +1 866 984 3766
Service: +1 800 438 4851

Enquiries from Latin America
Sales: +1 866 984 3766
Service: +1 866 984 3766

Enquiries from Asia:
China
Sales: +86 10 8419 3588
Service: toll-free 1-8008105118
Support Mobile 4006505118 or +86 10 8419 3588

India
Sales: +91 22 6716 2200
Service: toll-free 1-800 22 8374 or +91 22 6716 2200

Japan
Sales: +81 45 453 9220
Service: +81 45 453 9224

Inquiries from other countries Asia/ Australia/ New Zealand
Sales: +852 2885 4613
Service: +65 6872 9720

Inquiries from countries not listed here/ other EMEA countries
Sales: +49 6184 90 6940 or +33 2 2803 2000
Service: +49 6184 90 6940

Enquiries from Europe:
Austria
Sales: +43 1 801 40 0
Service: +43 1 801 40 0

Belgium
Sales: +32 53 73 4241
Service: +32 53 73 4241

Finland/Nordic/Baltic Countries
Sales: +358 9 329 100
Service: +358 9 329 100

France
Sales: +33 2 2803 2180
Service: +33 825 800 119

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

Phone
Sales: toll-free 0800 1 536 376
or +49 6184 90 6940
Service: toll-free 0800 1 112110
or +49 6184 90 6940
E-mail: info.labequipment.de@thermofisher.com

Italy
Sales: +39 02 95059 341
Service: +39 02 95059 250

Netherlands
Sales: +31 76 579 5555
Service: +31 76 579 5639

Russia/CIS
Sales: +7 812 703 4215
Service: +7 812 703 4215

Spain / Portugal
Sales: +34 93 223 0918
Service: +34 93 223 0918

Switzerland
Sales: +41 44 454 1212
Service: +41 44 454 1212

UK/Ireland
Sales: +44 870 609 9203
Service: +44 870 609 9203

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Thermo Fisher Scientific
81 Wyman Street
Waltham, MA 02451

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