

## Operating Instructions Pacific-UP/UPW Pure Water System

[ ] Art. No.: 08.4103  
[ ] Art. No.: 08.4106  
[ ] Art. No.: 08.4112  
[ ] Art. No.: 08.4120  
[ ] Art. No.: 08.4140

[ ] Art. No.: 08.4104  
[ ] Art. No.: 08.4107  
[ ] Art. No.: 08.4113  
[ ] Art. No.: 08.4121  
[ ] Art. No.: 08.4141



Serial no.: .....

**These Operating Instructions must be read prior to installing and starting the system!**

29.0191; 06.09 Information given is not binding. Rights reserved for technical changes.

Company

TKA Water Purifications Systems GmbH  
Stockland 3  
D-56412 Niederelbert

## **EC Declaration of Conformity**

Acc. to EC Directive 98/37/EC  
- Machines Directive -

We herewith declare that the design and construction of the machine type named below, and the versions of it that we have introduced into the market, conform to the fundamental safety and health requirements of EEC Directive 98/37/EEC.

This declaration loses its validity when changes which were not agreed to by us are made to the machine.

Machine designation: **Pure Water System**

Machine type: **Pacific-UP/UPW**

Article number: **08.4103 – 08.4141**

Applicable EC Directives: **EC Machines Directive (98/37/EC)  
EC Low Voltage Directive (2006/95/EC)  
EC Electromagnetic  
Compatibility Directive (2004/108/EC)**

Standards applied: **DIN EN ISO 12100-1  
DIN EN ISO 12100-1  
DIN EN 60204-1  
DIN EN 55011  
DIN EN 50082-2**

Niederelbert, 14. March 2007

  
Authorized representative of the manufacturer

## Preface

Dear Sir or Madam,

In deciding to purchase a **Pacific-UP/UPW** water purification system, you have selected a high-quality TKA product.

Thank you for the trust you have placed in us.

Please read carefully through the information given in these Operating Instructions before you begin to install and commission the system.

This is of particular importance as we, the manufacturer, cannot be held liable for any damage that results from use other than for the intended purpose, or from improper operation of the system.

Niederelbert, 07. March 2007

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## 2. Notes on the Operating Instructions



**Safety precautions are marked with a warning triangle.**



**Particularly important notes are marked with an information sign.**

The information given in these operating instructions is only valid for the system whose serial number is entered on the front page.



**Please enter the serial number\* of your Pacific-UP/UPW System on the front page of these Operating Instructions.**

\* The serial number is printed on the type plate of your Pacific-UP/UPW system.

It is important that you correctly give the following information with all queries or orders for replacement parts:

- **The serial number of your system.**
- **The article number of your system.**

### 3. Transport and Packaging

TKA Water purification systems are carefully controlled and packed prior to dispatch, but damage could possibly occur during transport.

#### 3.1 Examination on receipt

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



**Is the packaging damaged?**

- Inspect the system for damage.

#### 3.2 Complaints

Should damage to the goods have occurred during transport:

- Contact the post, railway or forwarding agent immediately\*.
- Save the complete packaging (for a possible inspection or return delivery).

#### 3.3 Packing for return delivery

Use the original boxes and other packaging material if possible.

Should these no longer be available:

- Pack the goods in a suitable bag or sheet and a sturdy cardboard box so that they are protected against impact.



**\* The time limit for claims is 6 days from the receipt of the goods.  
The right to claim for damages ceases after this period.**

## 4. Extent of delivery

The Pacific-UP/UPW system that you have ordered consists of:

1	Pacific UP/UPW basic system	Article-No. 08.41..
1	Filterset	Article-No. 09.4011
2	PVC-connecting hose, 1,5 m	Article-No. 18.0042
1	PE-hose 8/6 x 1, 2m	Article-No. 18.0036
2	Screw hook	Article-No. 21.0057
2	Nylon Dowel	Article-No. 21.0035
1	Operating instructions	Article-No. 29.0191



Please compare the articles delivered with the list above.  
Contact the manufacturer should a part be missing.

## 5. Safety precautions

- Systems of type Pacific-UP/UPW are advanced, modularly constructed reverse osmosis systems and serve exclusively for the purification of tap water.
- Do not start the system until you have observed all of the corresponding notes in these Operating Instructions.
- Please note that the manufacturer is freed from all liability should the system be used for other than the intended purpose, or be improperly operated.
- The CE-mark ceases to be valid when constructional changes are made to the system, or products from other manufacturers incorporated.
- Protect the system from frost. The temperature in the room in which the system is installed must not go below + 2°C or above +35°C.
- Observe all general regulations and directions that are in force at the installation area, as well as the current accident prevention regulations.
- The feedwater pressure must be at least 2 bar and at most 6 bar. If the feedwater pressure is higher, install an additional reducing valve.
- DIN EN 1717 requires that water purification systems be equipped with a safety device that protects the drinking water system from contamination.
- An earthed 230 V / 50 Hz socket is required.
- The installation area must have a floor drain with at least DN 50 pipe (40 mm OD). The manufacturer will otherwise accept no liability for damage caused by water. Should no such floor drain be available, then a water watcher (article no. 16.0129) must be installed.
- Free gravity flow to the wastewater canal must be ensured.
- When the system is to be wall mounted, first check the statics of the wall to ensure that it has sufficient load-bearing capacity (weight: see Technical specifications).
- After longer standstill periods (e.g. the company's annual close down), the system must be subjected to rinsing and, if appropriate to disinfection. Refer to the details given in the "Rinsing and disinfecting" section.
- When choosing the installation location for the system, ensure that there is sufficient working room around it for convenient usage.
- The guarantee is valid for a period of 12 months!
- Never look directly at a switched-on UV-lamp, as ultraviolet light can impair eyesight! The UV-lamp is only to be changed by **TKA** or by **TKA** authorized personnel.



**Observe these safety precautions for your own safety!**

## 6. Technical specifications

The feedwater quality required	
Source and pre-treatment	Tap water, softened or hardness stabilized.
Blocking index (SDI)	Max. 3 for all types. With higher values, a pre-treatment system (Art. No. 09.4000 or 09.4001) must be installed upstream
Conductivity	< 1500 µS/cm
Prefiltration	5 µm + Activated carbon
Free chlorine concentration	< 0.1 mg/Litre
Manganese content	< 0.05 mg/Litre
Iron content	< 0.05 mg/Litre
Colloid index	< 3
pH-Range	4 - 11
Temperature	2 - 35 °C
Pressure	2 - 6 bar

Product water quality					
	UP/UPW 3	UP/UPW 7	UP/UPW 12	UP/UPW 20	UP/UPW 40
Salt retention quota	Ø 98 %	Ø 98 %	Ø 98 %	Ø 98 %	Ø 98 %
Retention quota, bacteria and particles	99 %	99 %	99 %	99 %	99 %
Performance	3 L/h	7 L/h	12 L/h	20 L/h	40 L/h

Dimensions	
Height	603 mm
Width	372 mm
Depth	330 mm
Weight:	
Pacific-UP/UPW 3	24 kg
Pacific-UP/UPW 7	24 kg
Pacific-UP/UPW 12	25 kg
Pacific-UP/UPW 20	25 kg
Pacific-UP/UPW 40	25 kg

Cell constants of the measuring cells	
Permeate conductivity	0.16 cm <sup>-1</sup>
High purity water conductivity	0.01 cm <sup>-1</sup>

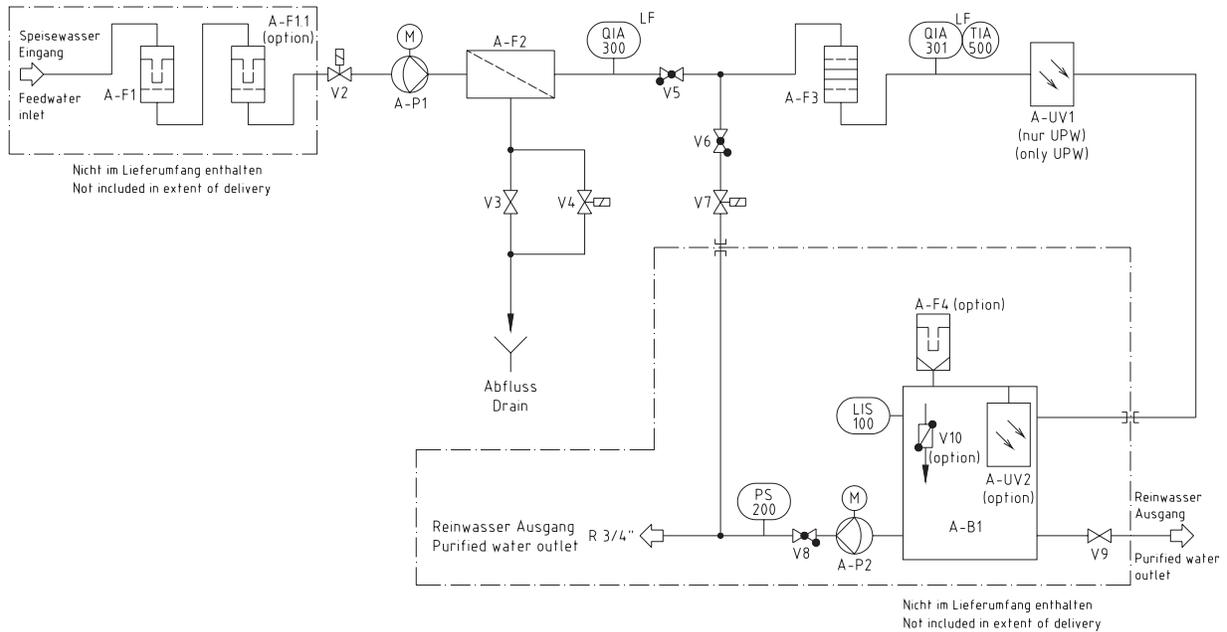
Water connections	
Raw water inlet	R 3/4"
Concentrate outlet	R 3/4"
High purity water outlet	Hose, 8 mm OD
Recirculation	Hose, 6 mm OD

Electrical connections	
Voltage	230 V
Frequency	50/60 Hz
Power consumption	approx. 100 W
Serial interface	RS 232

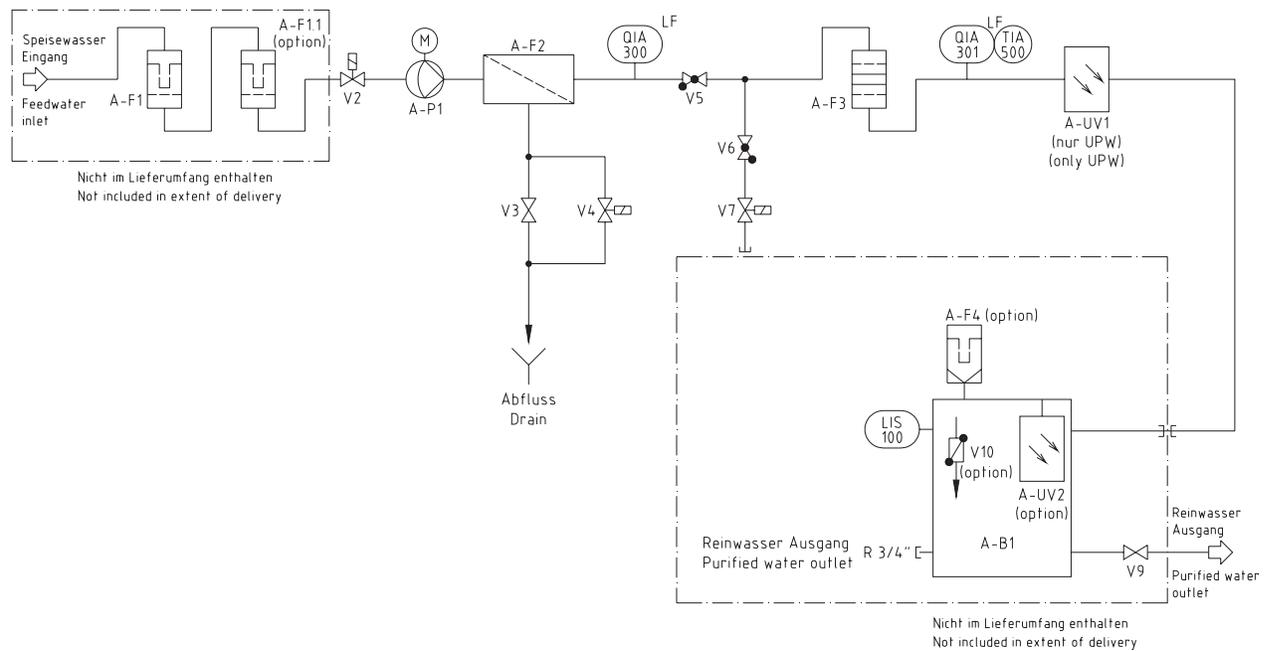
Materials of parts that contact water	
Pump head	Nylon with glass fibre
Filter cartridge	PP
Rinsing solenoid valve	PA
Conductivity measuring cell	POM, stainless steel
Distribution block	POM
Connectors	POM
Hoses	PE
Gaskets	EPDM

## 7. Flow chart

### 7.1 Flow chart, tank with pressure pump



### 7.2 Flow chart, tank without pressure pump



### 7.3 System description

A-F1	Prefilter 5 µm + activated carbon and hardness stabilizer	Prevents particles > 5µm from entering the system and too high chlorine concentrations.  Serves to stabilize water hardness.
A-F1.1	Prefilter 1 µm (option, only if necessary)	Prevents particles > 1µm from entering the system.
V2	Feedwater solenoid valve:	Is closed when the system is at stand-by or at a standstill. It prevents water from flowing in when the system is not in use.
A-P1	Pressure boosting pump:	Raises the inlet pressure up to the required operating pressure.
A-F2	Reverse osmosis module:	Contains a semi-permeable, thin film composite spiral-wound membrane.
V3	Pressure hold valve:	Serves for adjustment of the operating pressure and the water conversion factor (see section 8).
V4	Rinsing solenoid valve:	Opens when the membrane is to be cleaned, prior to and after production of high purity water and at least every 12 hours.
QIA 300	Permeate conductivity cell:	Measurement device for determining the conductivity of the water subsequent to reverse osmosis, as parameter for permeating water quality.
V5	Check valve:	Prevents water backflow into the reverse osmosis module when the system is operated in emergency supply mode.
V6	Check valve:	Enables the required outlet pressure to be attained during recirculation.
V7	Recirculating solenoid valve:	Opens for recirculation.
A-F3	Special Ion exchanger /Adsorber filter cartridge:	Removes inorganic ions and traces of dissolved organic compounds.
QIA 301	High purity water conductivity cell:	Device for measuring the conductivity of the water subsequent to the filter cartridge, as a parameter that indicates the quality of the water.
TIA 500	Temperature sensor	Measures the temperature for temperature compensation.
A-UV1	UV-Disinfection (only UPW)	Destroys bacteria.
A-B1	Tank for high purity water	For storage of the high purity water produced.

A-F4 Sterile venting filter:	Prevents bacteria and particles > 0.2 µm from being drawn into the tank.
LIS 100 Level switch	Indicates the level in the tank.
A-UV2 UV-Disinfection tank: (option)	Reduces the content of bacteria in the water and so serves to prevent bacterial growth and the formation of a biofilm on the inside surfaces of the storage tank.
V9 Dispensing valve:	For withdrawal of high purity water from the tank.
V10 Sterile tank overflow: (option)	Prevents the penetration of bacteria and other micro-organisms.
A-P2 Pressure pump:	Pumps water through the pressure switch to the user.
V8 Check valve:	Prevents water backflow into the tank.
PS 200 Pressure switch::	Switches the pressure pump off when no water is being drawn from the tank.

## 8. How Pacific-UP/UPW functions

Tap water of max. 6 bar pressure flows into the system.

In stand-by mode and during standstill, feedwater solenoid valve V2 is closed. This prevents feedwater from flowing into the system when it is not in operation, and so protects the tank against overflowing.

Semi-permeable membrane A-F2 retains dissolved salts in the feedwater within the specified retention quota. Further to this, the molecular size of the pores of the membrane ensures Ø 99% retention of bacteria, pyrogens and particles.

Following reverse osmosis, the permeate flows past conductivity probe QIA 300 and through the downstream purification stages such as deionization, adsorption and UV-disinfection (only UPW) into the tank.

The retained feedwater constituents are flushed away with the concentrate flow. The special conductivity probe QIA 301 (with temperature compensation) determines the conductivity of the high purity water (subsequent to the filter cartridge), that can be called to display in the microprocessor control menu.

Pure water is pumped to the user by a downstream tank with pressure pump A-P2. Float switch LIS 100 senses the filling level in the tank.

Pump A-P2 simultaneously serves to recirculate the water stored in the storage tank. It so prevents bacterial growth during standstills and ensures a uniform water quality.



**Pressure hold valve V3 has been pre-adjusted at the factory. Changes to the adjustment could result in damage to the reverse osmosis module! Because of possible fluctuations in feedwater temperature and pressure, the adjustment of the valve and the concentrate flow that it governs must be checked on starting up and re-adjusted as necessary by TKA-Service at regular intervals.**

<b>Concentrate flow for Pacific UP/UPW</b>				
Check and readjust all 6 months				
Version	Permeate flow [L/h]	Concentrate flow		adjustable up to WCF-rate [%]
		[L/h]	△ WCF-rate [%]	
Pacific UP/UPW 3	3	min. 40		33
Pacific UP/UPW 7	7	min. 40	13	33
Pacific UP/UPW 12	12	min. 60	17	33
Pacific UP/UPW 20	20	min. 60	25	40
Pacific UP/UPW 40	40	min. 100	28	40

Your purified water system is equipped with automatic flushing. Flushing is carried out when the system is switched on, when production is stopped, and every 12 hours. Solenoid valve V4 is opened and the strong inflow of water across the reverse osmosis module flushes coarse particles and other contaminants away from the surface of the membranes and carries them with it to drain.

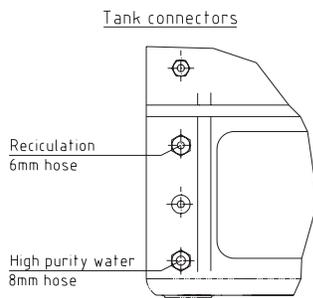
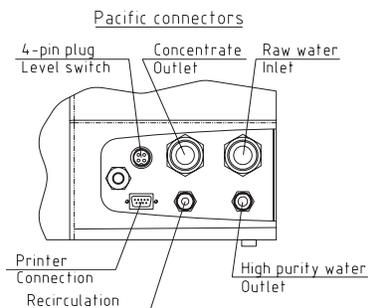
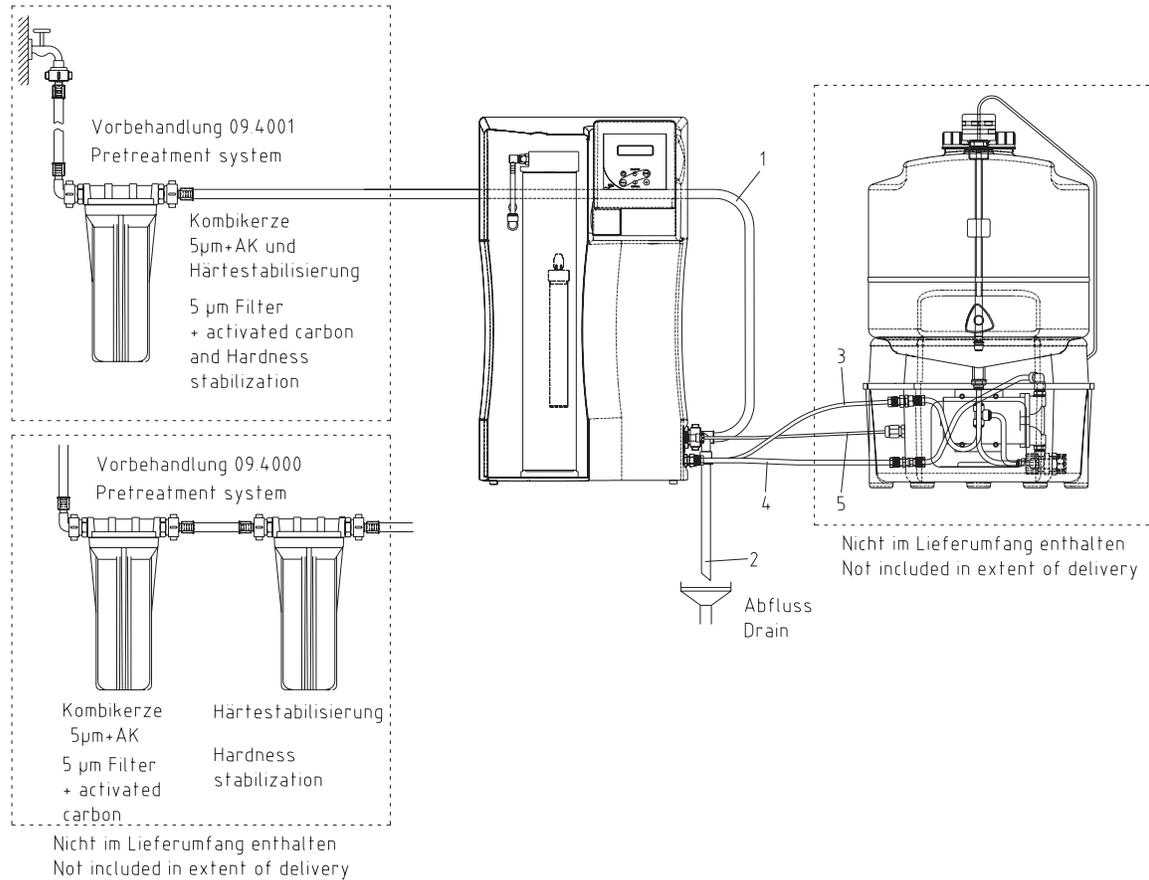
Automatic flushing has a positive effect on the service life of the reverse osmosis module. An additional advantage of automatic flushing is that it prevents bacterial growth from occurring in the reverse osmosis module when the system is at a standstill for a length of time. For this reason, we highly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

## 9. Installation location

The following criteria must be considered when choosing the installation area:

- Minimum temperature at the installation area, +2°C to +35°C.
- The standing surface or the wall where the system is to be stood or mounted must have sufficient weight-bearing capacity (see Technical specifications for weight)
- A floor drain with a DN 50 (38,5 mm ID) waste pipe is required. Should this not be available, then a water watcher (article no.: 16.0129) must be installed to guard against water damage!
- An unrestricted gravity fall of concentrate to the floor drain must be ensured.
- An electrical socket appropriate to the voltage given on the type plate of the system must be available near to the system. The safety fuse must be appropriate to the power required (see Technical specifications).
- There must be sufficient working room around the system.
- A male R ¾" feedwater connection that can be turned off must be installed in the direct vicinity of the system.
- A wastewater connection must be available in the direct vicinity of the system
- There must be sufficient working room around the system.

## 10. Bringing the system into service



1. Use the R  $\frac{3}{4}$ " hose supplied to connect the feedwater inlet connector of the system (labelled „raw water“) to the prefilter outlet. Use a further hose (R  $\frac{3}{4}$ " hose, accessory for the pre-treatment system) to connect the prefilter inlet to the closed water tap.
2. Use the second R  $\frac{3}{4}$ " hose supplied to connect the „Concentrate“ outlet of the system to the on-site drain. **Important!** The concentrate must be able to flow to drain by free gravity fall.
- 3.+4. Pacific-UP/UPW with external tank (optional): Connect the Pacific high purity water outlet to the tank high purity water inlet with the 8 mm diameter hose supplied, and the Pacific recirculation inlet to the tank recirculation outlet with the 6 mm diameter hose supplied with the tank.
5. Connect the tank supply cable to the 4-pin plug of the system.



In order to ensure a perfect function of the sterile overflow, the gas cap must be firmly locked.

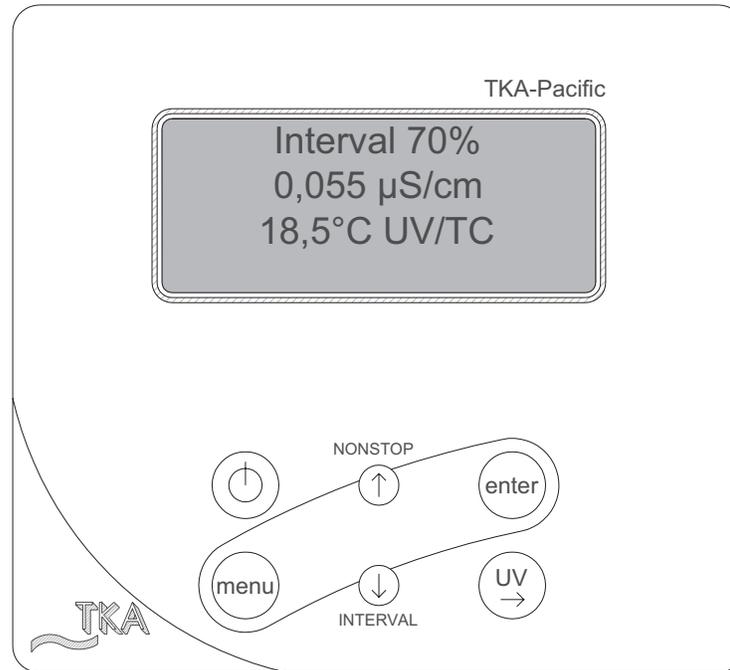
6. Put now the hose of the sterile overflow Ø 8 mm into the over-flow on the tank back and connect these with the drain
7. Open the feedwater tap.
8. Check that all connections are secure and do not leak.
9. Check the feedwater pressure. It must be maintained within the specified pressure range (see Technical specifications).



**Before you switch the system on, read the procedure for rinsing reverse osmosis membranes supplied in preservative solution in the „Rinsing and disinfection“ section!**

10. Switch the system on at the on/off switch.
11. After a brief flush, your system produces purified water which flows into the tank.

## 11. Operating elements



Switches the system on or off

NONSTOP



Switches "Nonstop" operation on or, in the menu, increases a value on display



Confirms the value shown in a menu point



Switches the menu to the next menu point



INTERVAL

Switches "Interval" operation on or, in the menu, decreases a value on display



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

## 12. System Control

### 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.

### 12.1 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.

#### 12.1.1 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 4<sup>th</sup> line of the display (measuring point LF2)

**Limiting value setting range:** 0.1 – 150.0  $\mu\text{S/cm}$

**Basic setting:** 50  $\mu\text{S/cm}$

With settings above 150.0  $\mu\text{S/cm}$ , the limiting value is switched off and the word „Off“ appears in the display.

The display shows:

Permeate 12,0 $\mu\text{S/cm}$ Lim.val.permeate 50,0 $\mu\text{S/cm}$
--

### 12.1.2 Pure water limiting value:

A second press on the menu-key allows the high purity 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  $\mu\text{S}/\text{cm}$   
**Basic setting:** 2  $\mu\text{S}/\text{cm}$

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

The display shows:



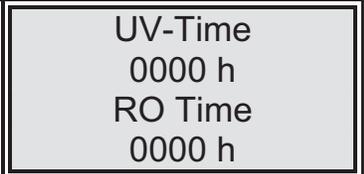
Lim.val.pure w.  
2,0  $\mu\text{S}/\text{cm}$

### 12.1.3 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 OEM menu.

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

The display shows:



UV-Time  
0000 h  
RO Time  
0000 h

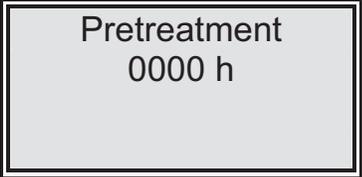
#### 12.1.4 Pretreatment operating hours:

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 pre-treatment are counted when the reverse osmosis pump is running.

The display shows:



Pretreatment  
0000 h

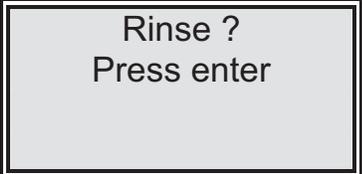
#### 12.1.5 Cleaning:

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:



Rinse ?  
Press enter

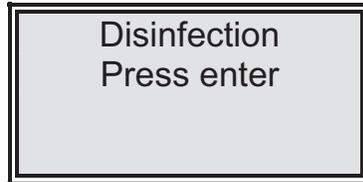
During cleaning, the display shows



Rinse  
30 sec.

**12.1.6 Disinfection:**  
(This function is not active in this system)

The display shows:



Disinfection  
Press enter

**12.1.7 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:



Error history  
Press enter

The display of the fault storage shows:



14.03.04 14.30  
Lim.val.permeate  
14.03.04 15.30  
Pretreatment

### 12.1.8 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. ("Code 150" = Code 0001, "Code 250" = Code 0002 etc.)

The display shows:



Code  
Press enter  
0000



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**

Code-No.	printed out	Person
150	0001	
250	0002	
350	0003	
450	0004	
550	0005	
650	0006	
750	0007	
850	0008	
950	0009	



## 12.2 OEM-menu

Basic settings and limiting values can be changed in this menu.

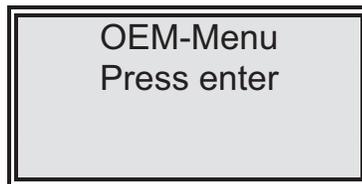
To make changes in the OEM-menu, the system control must previously be unlocked (see 12.1.8)

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:



### 12.2.1 Maximum temperature:

**A single press on the menu-key:**

The maximum temperature the system can be exposed to can be set in this menu.

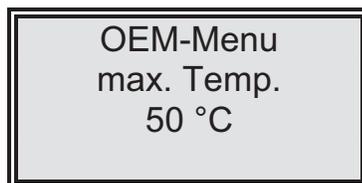
When this temperature is exceeded, the "Max. temp." fault message is triggered.

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

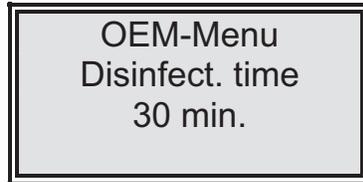
**Setting range:**        1 - 50 °C

The display shows:



**12.2.2 Disinfection time:****A second press on the menu-key:****(This function is not active in this system)**

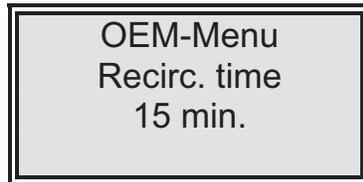
The display shows:

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

The recirculation time is set in this menu.

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

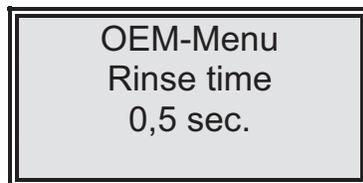
The display shows:

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

The rinsing time is set in this menu.

**Basic setting:** 0,5 sec.**Setting range:** 0.1 - 30 sec.

The display shows:



### 12.2.5 Rinse interval time

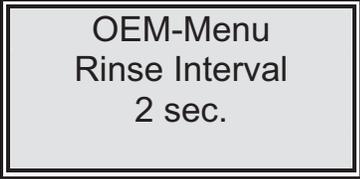
**A fifth press on the menu-key:**

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:



OEM-Menu  
Rinse Interval  
2 sec.

### 12.2.6 Real time clock:

**A sixth press on the menu-key:**

The real time clock is set in this menu.

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

The display shows:



OEM-Menu  
Day 30 Month 12  
Year 2004  
Hours 12 min.30

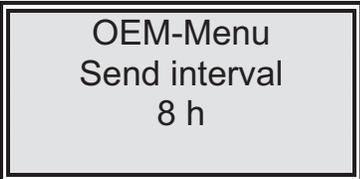
### 12.2.7 Sending interval:

**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:



OEM-Menu  
Send interval  
8 h

**12.2.8 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 (Deutsch)**

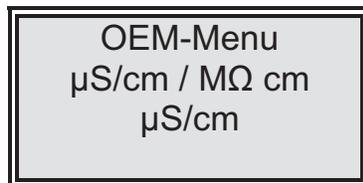
The display shows:

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

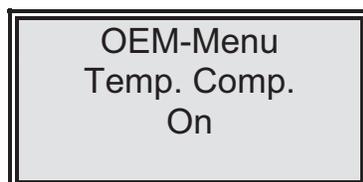
In this menu, a choice can be made as to whether the specific electric resistance or the conductivity is to be displayed.

**Basic setting: Conductivity  $\mu\text{S/cm}$** **Setting range: Conductivity  $\mu\text{S/cm}$ ,  
Specific electrical resistance  $\text{M}\Omega \text{ cm}$** 

The display shows:

**12.2.10 Switch off temperature compensation:****A tenth press on the menu-key:****Basic setting: On****Setting range: On, Off**

The display shows:



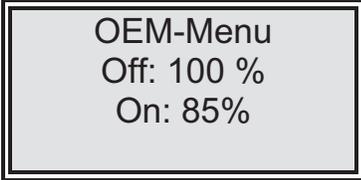
### 12.2.11 Adjusting the circuit hysteresis of the float switch: An eleventh press on the menu-key:

**Basic setting:**      Off: 100 %  
                                 On: 85 %

**Setting range:**      Off: 25 - 100 %  
                                 On: 0 - 85 %

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:



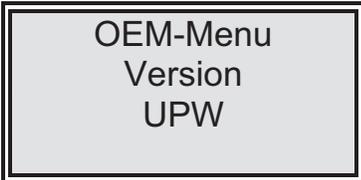
OEM-Menu  
Off: 100 %  
On: 85%

### 12.2.12 Programme choice, UPW/PW: A twelfth press on the menu-key:

In this menu, the equipping grade of the system can be set, to differentiate between UPW and PW.

**Basic setting: UPW**

The display shows:

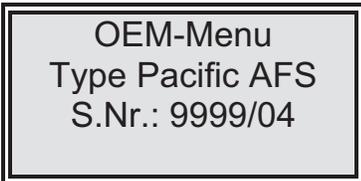


OEM-Menu  
Version  
UPW

### 12.2.13 Entering the type and serial number of the system:

In this menu, the type and serial number of the system can be entered, both of which are then given as headline on every print-out. The following types of systems can be given: Pacific-PW, Pacific-UP, Pacific-UPW, Pacific-AFS.

The display shows:



OEM-Menu  
Type Pacific AFS  
S.Nr.: 9999/04

## 13. Maintenance

Regular maintenance of your system safeguards the value of it. We recommend that you close a service contract with the *TKA*-Service company responsible for your area. You then have the certainty of a high operational safety and reliability.

### NOTE!

When your system is to work reliably for a long time, it **must** be checked, serviced and cared for at regular intervals as detailed in 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!

Please observe that, in accordance with the general terms and conditions of business of the **TKA** company, which are the basis for both parties, the guarantee loses its validity when the customer or a third party improperly installs, maintains, repairs, operates, or alters the system, or operates it in an environment which does not fulfil the installation conditions specified by **TKA**.

Any maintenance work which should become necessary during the validity of the guarantee is only to be carried out by **TKA**, or by a customer service which is expressly authorized by **TKA** to do this.

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

In so far as the maintenance protocol is not kept up-to-date, or is improperly kept, i.e. without the necessary establishment of data, then the system is deemed to be improperly maintained and the guarantee becomes invalid.

Calibration of the conductivity measurement is **only** to be carried out and recorded by **TKA** service.

The cleaning of supply tanks, piping, filter housings etc. is performed for reasons of hygiene and has no effect on the technical condition. These components need only be cleaned when algae or slime are detected inside them.

When the pre-treatment system that is available as an accessory is used, then the 5 µm + activated carbon combination cartridge (article no. 06.5201 or 06.5203) and the hardness stabilizing cartridge (article no. 06.5452 or 06.5452) must be replaced after 1 year at the latest.



**Checks or maintenance work are only to be carried out on electrical equipment (switchbox, level switch) after having ensured that the equipment is not live.**

## 13.1 Cleaning the membrane

### Rinsing out preserving liquid:

According to the mode of delivery of the system, it may be supplied filled with a solution containing a preservative.

Should this be the case, when the system is first put into operation, the permeate obtained after switching to production must be discarded for at least 3 - 4 hours.

To do this, each time the tank is full, open the valve at your drawing-off point and lead the purified water to drain.

### Cleaning the membrane:

The automatic flushing lengthens the service life of your reverse osmosis module by sweeping coarse particles and other contaminants away from the surface of the reverse osmosis membrane. The flushing phases so ensure maximum service life and optimal purified water quality.



Keep your high purity water system switched on over the weekend and during holiday times. Only then can the 12 hour rinse take place and avoid the bacterial growth on the reverse osmosis membrane that could occur during standstill.

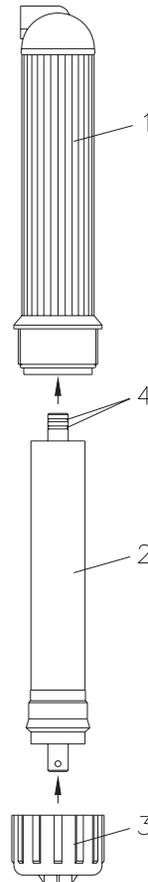
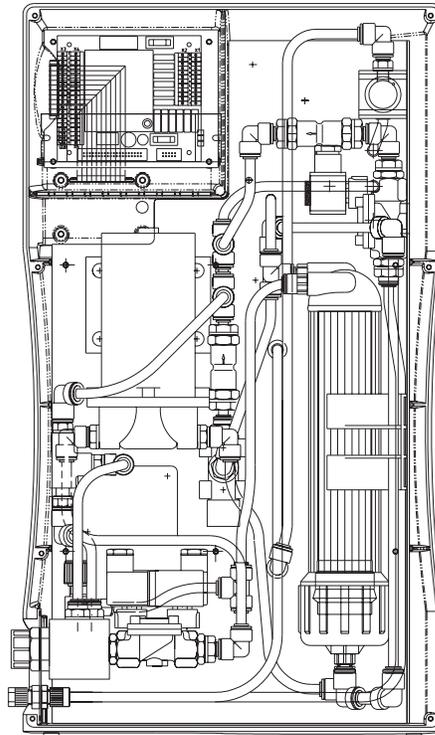
Should there be a reduction in the flow rate because inappropriate pre-treatment has caused blockage of the reverse osmosis module, it is often possible to recondition the module. Such reconditioning of the module is only to be carried out by authorized service personnel responsible for your area, or is to be returned to TKA, the manufacturer of the reverse osmosis module. The module must not be subjected to frost during transport.

## 13.2 Changing the reverse osmosis membrane

Pacific 3, 7, 12 UP/UPW: 1 RO-Membrane

Pacific 20 + 40 UP/UPW: 2 RO-Membranes

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



- Disconnect the line plug
- Undo all hose connections to the pressure tube (1) of the reverse osmosis module.
- Remove the pressure tube from the holding clamps.
- Open cap nut (3) on the pressure tube and draw out the reverse osmosis membrane (2).
- Insert the new reverse osmosis membrane in the pressure tube, with the two O-rings on the permeate tube (4) foremost as indicated by the arrow.
- Install the reverse osmosis module in the reverse succession.



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

## 14. Trouble shooting

Fault	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 filter cartridge
Controls no longer react	- Incorrect operation	- Unplug line plug for 5 sec., then plug back in
Water leaks out	- Hose connection leaks - Feedwater pressure > 6 bar	- Check hose connection and stop leak - Install pressure reducer
Permeate flow is too low (-15%)	- RO-Membrane blocked - Initial pressure too low - Internal pressure too low - Fluctuating feedwater temperature	- Clean 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
Fault message: "Lim. val. permeate"	- Permeate conductivity too high - Limiting value set too low	- Check the pre-treatment - Check and adjust the limiting value setting
Fault message: "Lim. val. pure w."	- Filter cartridge exhausted - Limiting value set too low	- Replace the filter cartridge (Art.-no.: 09.4011) - Check/adjust limiting value

Fault message: <i>"UV time"</i>	- The max. operating hours of the UV-lamp have been exceeded	- Replace the UV-lamp (Art.-no. 09.4002) and reset the operating hours counter
Fault message: <i>"Pretreatment"</i>	- The max. operating hours of the pre-treatment have been exceeded	- Replace the pre-treatment and reset the operating hours counter
Fault message: <i>"Meas. Cell LF1"</i>	- Break in the measuring cell cable - System control defect  - Conductivity of high purity water outside the measuring range	- Replace the measuring cell - Replace the system control - see "Conductivity > 0.055 µS/cm"
Fault message: <i>"Meas. Cell LF2"</i>	- Break in the measuring cell cable - System control defect  - Conductivity of the feedwater outside the measuring range	- Replace the measuring cell - Replace the system control - see "Feedwater limiting value"
Fault message: <i>"Temp. Meas. cell"</i>	- Break in the measuring cell cable - System control defect	- Replace the measuring cell - Replace the system control

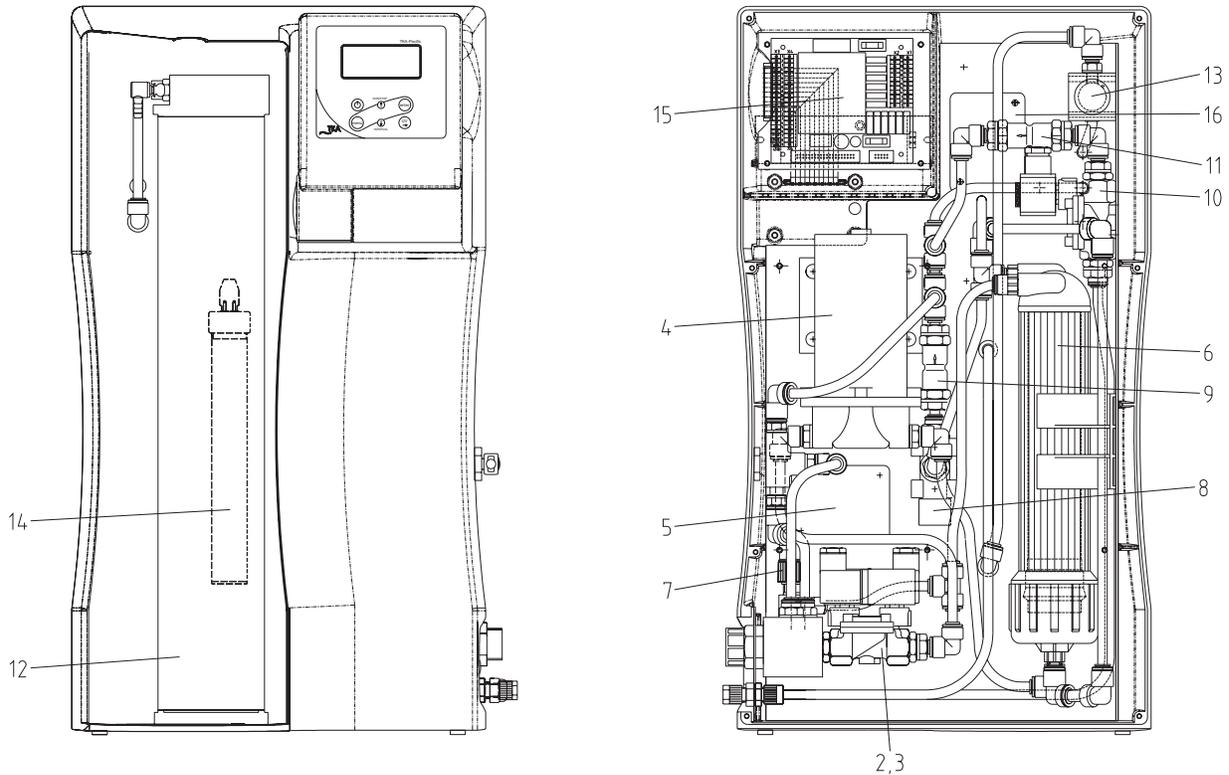
**The address to contact should you need service:**

**TKA Wasseraufbereitungssysteme GmbH**  
Stockland 3  
D-56412 Niederelbert

Tel. No.: +49 (26 02) 1 06 99-0  
Fax. No.: +49 (26 02) 1 06 99-50

Internet: [www.tka.de](http://www.tka.de)  
E-Mail: [info@tka.de](mailto:info@tka.de)

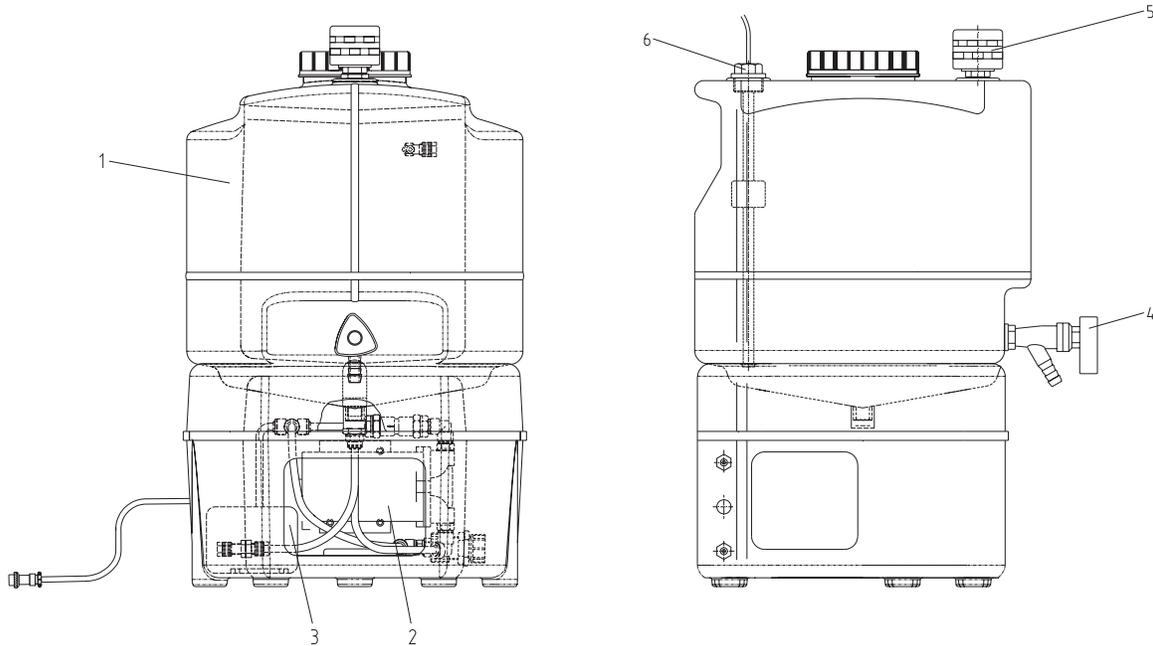
## 15. Replacement parts for Pacific-UP/UPW



Pos.	R+I No.	Designation	Article no.
2	V2	Inlet solenoid valve	15.0103*
3	V4	Rinsing solenoid valve	15.0103*
4	A-P1	Pressure boosting pump ( by 3-20 UP/UPW) Pressure boosting pump ( by 40 UP/UPW)	19.0046* 19.0050*
5	A-P1	Transformer for the pressure boosting pump	16.0195
6	A-F2	Reverse osmosis membrane (by 3-12 UP/UPW 1x, by 20 UP/UPW 2x) Reverse osmosis membrane (by 40 UP/UPW 2x Reverse osmosis pressure tube (by 20+40 UP/UPW 2x)	22.0046* 22.0087* 22.0047
7	V3	Pressure hold valve	15.0060
8	QIA300	Permeate conductivity measuring cell	16.0126
9	V5	Check valve	15.0009
10	V7	Recirculation solenoid valve	15.0014*
11	V6	Check valve	15.0019
12	A-F3	Filter cartridge	09.4011
13	QIA301+TIA500	High purity water conductivity measuring cell	26.0014
14	A-UV1	UV-lamp	09.4002
15		Electronic system control, complete	26.0023
16		Transformer for the pressure pump	16.0195

\* Wearing part

## 16. Replacement parts for the optional tank



Pos.	R+I No.	Description	Article no.
1	A-B1	Tank, 30 L Tank, 60 L	18.0114 18.0115
2	A-P2	Pressure pump	19.0046*
3	PS200	Pressure switch	15.0058*
4	V9	Dispensing valve	14.0250
5	A-F4	Sterile venting filter	06.5003
6	LIS100	Float switch for 30 L tank Float switch for 60 L tank	16.0303 16.0304

\* Wearing part

**We ask for your understanding that we must declare the guarantee for this system to be invalidated should replacement parts, accessories or consumables from other manufacturers be used, as we have no influence on their quality or appropriateness.**

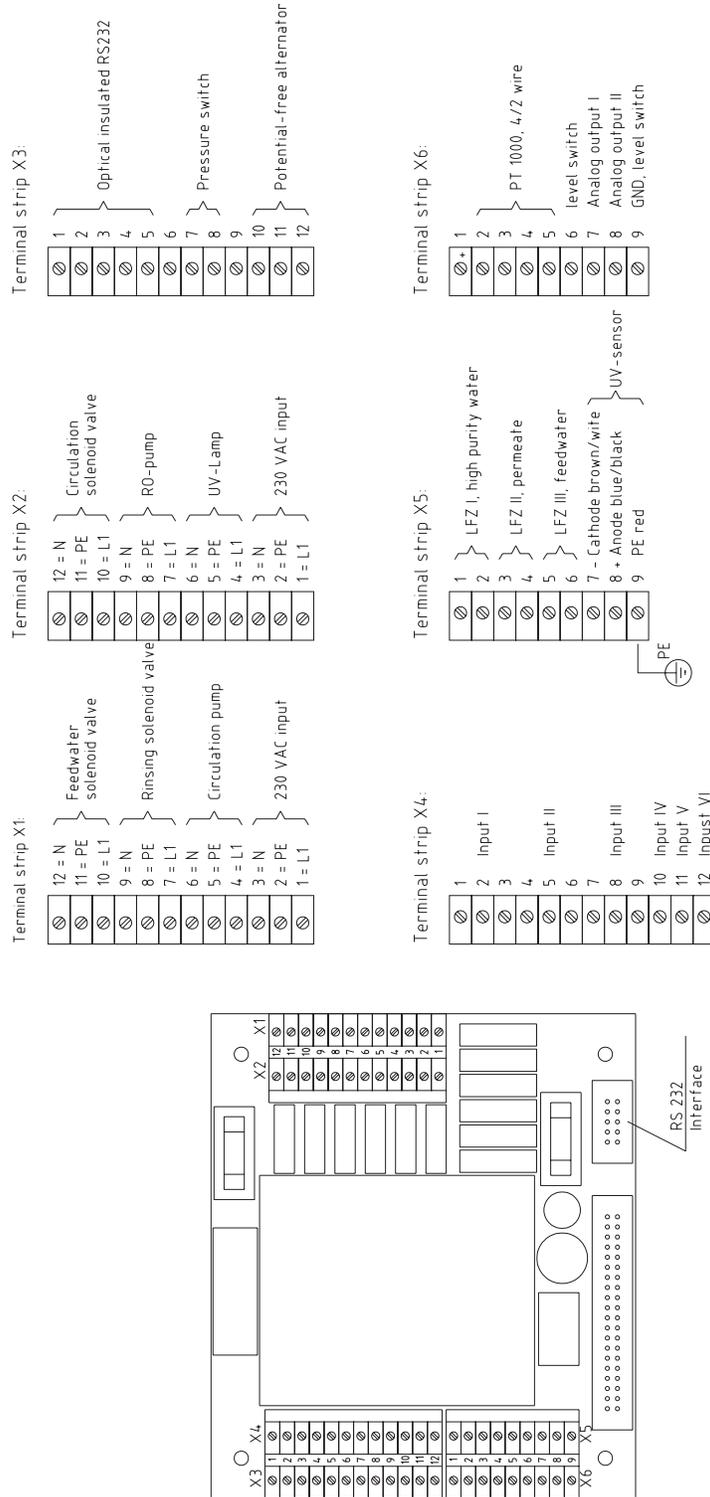
## 17. Consumables

Designation	Parts supplied	Article no.
Filter cartridge set	2 x Filter cartridges with Nuclear-grade resins	09.4012
Reverse osmosis membrane	1x at Pacific 3, 7, 12 UP/UPW, 2x at 20 UP/UPW 2x at Pacific 40 UP/UPW	22.0046 22.0087
Sterile venting filter	1 x Sterile venting filter, 0.2 µm	06.5003
Prefilter 1 µm (option)	1 x Filter cartridge 1 µm	06.5101
<b>For pretreatment 09.4001:</b> Combination cartridge with: activated carbon, 5" Hardness stabilizer, 5"	1 x Activated carbon cartridge, 5 µm, 5" 1 x Hardness stabilizing cartridge, 5"	06.5203 06.5453
<b>For pretreatment 09.4000:</b> Combination cartridge with: activated carbon, 10" Hardness stabilizer, 10"	1 x Activated carbon cartridge, 5 µm, 10" 1 x Hardness stabilizing cartridge, 10"	06.5201 06.5452

## 18. Accessories

Designation	Parts supplied	Article no.
Pretreatment system	1x activated carbon combi cartridge 5µm, 5" 1x hardness stabilizing cartridge 5"	09.4001
Pretreatment system	1x activated carbon combi cartridge 5µm, 10" 1x hardness stabilizing cartridge 10"	09.4000
Storage tank 30 L	1x Storage tank 30 litre incl. pressure pump and level switch	05.5036
Storage tank 60 L	1x Storage tank 60 litre incl. pressure pump and level switch	05.5066
CO <sub>2</sub> -Adsorber + Sterile venting filter	1 x Carbon dioxide trap for 30/60 L tank	06.5002
UV-Immersion lamp for tank	1 x UV-Immersion lamp incl. time switch	06.5006
Compact cabinet for tank	1x Compact cabinet for tank, on rolls	25.0046
Water watcher	1x Water watcher with solenoid valve	16.0129

## 19. Terminal assignment



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**Contact Us:**

Irl Ph: 01 4523432

UK Ph: 08452 30 40 30

Web: [www.carlstuart.com](http://www.carlstuart.com)

Email: [info@carlstuart.com](mailto:info@carlstuart.com)

## 20. Maintenance record

(Please keep this record carefully. This is one of the conditions for maintaining the validity of the guarantee)

**Address of customer:** \_\_\_\_\_ **Location:** \_\_\_\_\_ **System type:** \_\_\_\_\_  
 \_\_\_\_\_ **Serial no.:** \_\_\_\_\_  
 \_\_\_\_\_ **Year made:** \_\_\_\_\_

Date	Hardness of raw/softened water [°dH]	IES-Conductivity [µS/cm]	Permeate flow [l/h]	Temperature [°C]	RO-Conductivity [µS/cm]	Concentrate flow [l/h]	Last change of prefilter

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

Any false entry is considered to be falsification of documents.

**The following points are to be considered to the safety device of the quality of the plant:**

- 1x weekly entered the measured value
- The hardness stabilizer must be replaced after **1 year\*** at the latest.
- The prefilter must be replaced after **1 year\*** at the latest.

\* Depending upon feedwater quality