Operating Instruction Manual

Thermo Scientific Dionex IC Pure Water Purification System

50133369 Revision C June 2016

Thermo SCIENTIFIC

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Release history:

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

Preface

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Please read through the information given in these operating instructions on installing and operating the unit before you begin installation and use of your water purification unit. This is of particular importance, as we, the manufacturer, do not assume any liability for damage due to incorrect operation or use of the unit other than the intended use.

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Legal Information

Note 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™ Dionex™ IC Pure™ Water Purification System only under the condition that:

- The unit is installed and operated as per the operation manual. Do not use this product for anything other than its intended use.
- The system is not modified.
- Only original spare parts and accessories that have been approved by Thermo Electron LED GmbH are used (third-party spares 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 preventative maintenance 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

EU Mark of Conformity

CSA - admission

CAUTION Indicates a situation which, if not avoided, could result in damage to equipment or property.

CAUTION Indicates a hazardous situation which, if not avoided, could result in death or serious injuries.

Note Is used for applicational hints and useful information.

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 in which protective 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 back of the unit on the nameplate)
- The catalog number

Standards and directives

The Dionex IC Pure 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 ultrapure water 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.

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Transport and packaging

Content

Ultrapure water systems are carefully inspected and packed prior to shipping, but damage could still possibly occur during transport. Lifting and carrying the Dionex IC Pure system, e.g. to the installation location, should be carried out by two people.

CAUTION Do not pull the plastic foil over your head. Risk of suffocation.Use the plastic foil only for packaging.

Examination on receipt

Check the completeness of the goods received against the packing list

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

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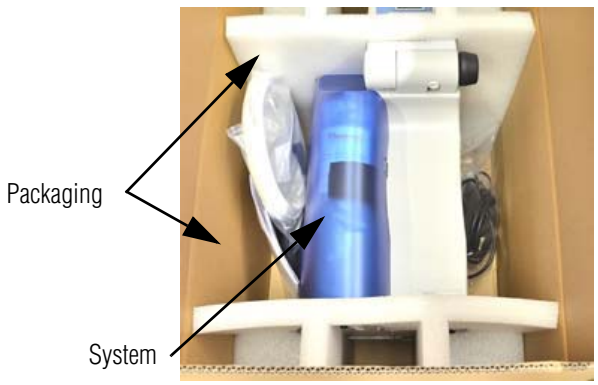

Complaints

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.

Packing for return shipment

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.

Note 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.

Note

- Only a trained person should take the system out of operation.
- Prior to sending back an operated device, empty the water, dry the system and take out the ultrapure cartridges.
- Plug and wrap the emptied ultrapure cartridges with a bubble wrap. Return the cartridges together with the Dionex IC Pure system.

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Safety precautions

Note Observe these safety precautions for your own safety!

CAUTION The Dionex IC Pure system is a modern water purification system intended solely for the treatment of potable water or water of ASTM Type II quality. The water it produces is not fit for drinking.

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

- Do not install or operate the unit until you have carefully read through the operating instructions, notes and notices contained therein.
- Lifting and carrying the ultrapure water system, e.g. to the installation location, should be carried out by two people. To do this, lift the unit in tandem at the two corner points beneath the bottom plate.
- The CE mark is nullified if any structural changes are made to the unit or products from other manufacturers are installed in/on the unit.
- Protect the system from frost. The temperature at the installation area must be between +2 °C and +40 °C.
- Always observe the applicable, pertinent codes and regulations valid at the installation location of the unit and follow all applicable accident prevention regulations.
- When an external tank with level control is used, the feedwater pressure must be at least 10 kPa (1.45 psi) and a maximum of 400 kPa (58 psi). An additional pressure reducer must be installed should it be higher.
- A low pressure check valve is recommended to prevent back flow of feedwater from the water system.
- A grounded 100-240 VAC, 50/60 Hz socket must be available (see “Electrical connections for Dionex IC Pure system and external 20 L tank” on page 16).
- Access to the power supply cord and plug should never be restricted or obstructed.

- Unplug the system from the power outlet for all maintenance work on the system.
- The installation area must have a drain at floor level with at least a nominal outer diameter of 63 mm or 2.48 in (DN 50 pipe). Should no such drain be available, it is recommended to install a water watcher (only for European specification). Otherwise, the manufacturer will not accept liability for any possible water damage.
- Proceed as follows if the unit is inactive for an extended period, e.g., over extended weekend, or during a vacation period:
  - Switch the system off (unplug the main power plug).
  - Close the feedwater inlet (close the feedwater tap).

  The pump would be damaged if the unit were to run without any supply of feedwater. The manufacturer will not accept any liability should this occur.
- The unit must be disinfected or rinsed after an extended down time. The rinsing procedure is explained under “Rinsing procedure” on page 69, and the disinfection procedure under “Disinfection procedure” on page 66.
- The surface or wall on which the unit 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 unit is given under “Dimensions and weight of Dionex IC Pure system (50132810) with ultrapure cartridge (09.1006)” on page 14. When the internal tank is filled, the unit has a weight during operation of approx. 32 kg (70.55 lb).
- The surface on which the unit is installed must be level and stable - not to exceed a maximum of 2% deviation from evenness is recommended.
- When installing the water purification unit, always ensure that there is adequate space all around the unit (see “Accessibility to Dionex IC Pure system and external 20 L tank” on page 16) to ensure that ease of use or easy replacement of materials (e.g., filter change, connection) is possible at all times.
- Visually inspect the unit at regular intervals. Clean up any water or spills found around the unit immediately.

CAUTION 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 unit without its protective housing, or while it is in operation. Maintenance work on the unit may only be performed by trained, authorized specialists.

- Wear safety gloves when working with chlorine granulate or with disinfectant solutions.
- If your skin should come into contact with a chlorine product, immediately rinse it with ample, fresh water.
- The unit, 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, to prevent that your skin comes in contact with the UV-lamp glass.

- Wear safety goggles when working with chlorine granulate or with disinfectant solutions.
- If your eyes come into contact with a chlorine product, immediately rinse them with ample, fresh water and immediately contact a physician.

- 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 of the UV-lamp, refer to “Waste disposal” on page 97.
    - Ventilate the room well.

Note The Hg content in the UV-lamp is so low so that no damage to the environment can arise.!

- 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 unit. These can damage the unit.
- Proceed as follows when the unit has a defect:
  - Switch the system off and unplug the unit from power outlet.
  - Shut off the supply of feedwater.
  - Contact your local service organization.

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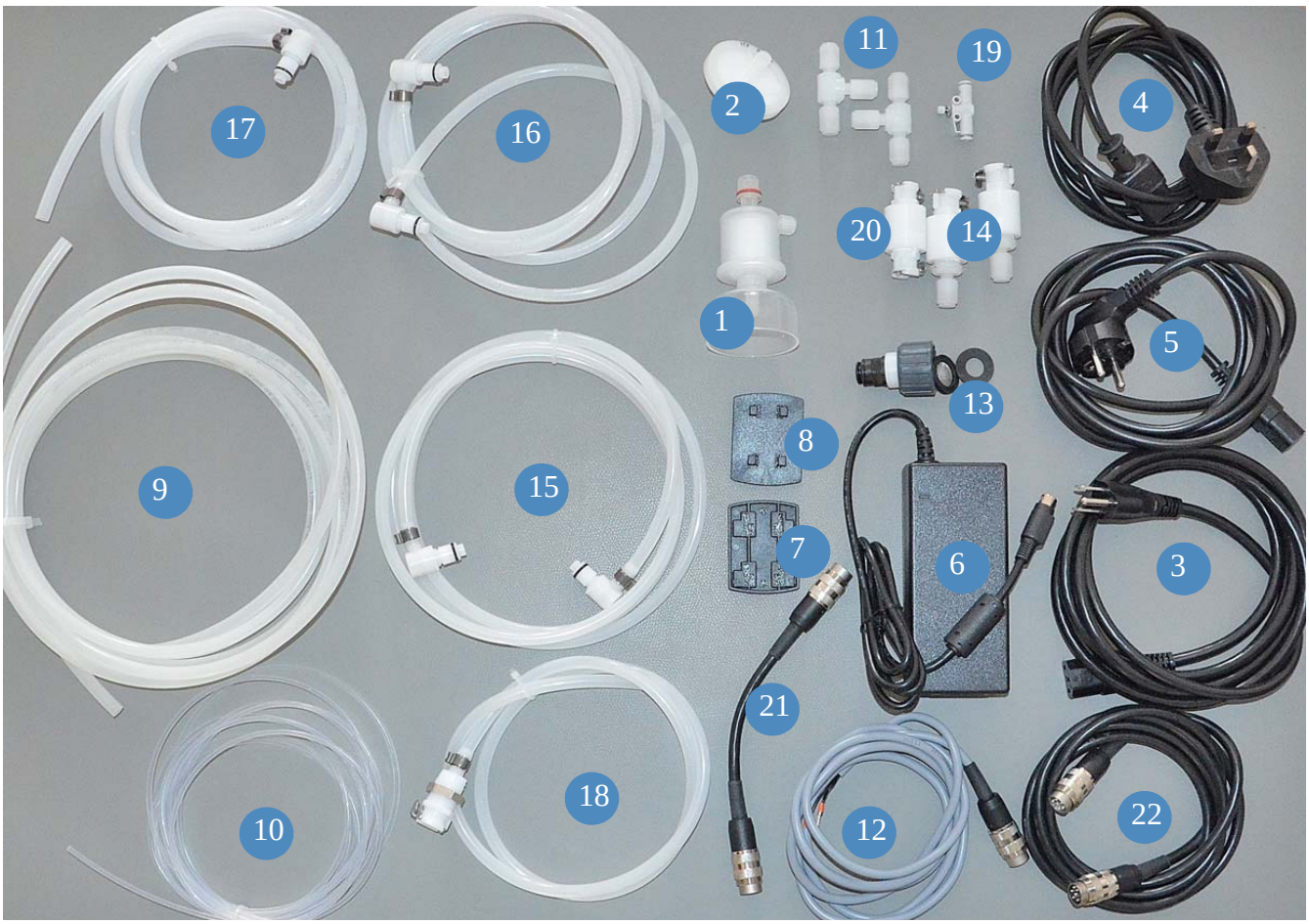
Scope of delivery

The following items are included with the Dionex IC Pure system:

1 x Dionex IC Pure system	Item No.: 50132810
1 x Filter set for Dionex IC Pure system	Item No.: 09.1006
including 1 x Assembly kit	Item No.: 50133371
consisting of:	



Position	Description	Item No.:
1	Sterile filter capsule	09.1003
2	Sterile tank 5 L venting filter	22.0091
3	Nema power cord	50132200
4	British power cord	50132203
5	Euro power cord	50132215
6	tabletop power supply 120W/ 24V	50149597
7	universal adapter	21.1006
8	universal holder	21.1007
9	1 x 3 m PE tube o.d. 8 mm (0.31 in)	18.0036
10	1 x 4 m PFA tube 1/8“	50136347
11	PVDF-T fitting d1/8“to connect to Dionex IC Pure system	50136330
12	Analyzer cable Dionex IC Pure system	50139329
13	Feedwater connecting kit 3/4“ tubing thread o.d. 8 mm (0.31 in) tubing	25.0075
14	plumbing reducer o.d. 8mm (0.31 in) to 1/8“ to Dionex IC Pure system	50143822
15	Connecting tubing o.d. 8 mm (0.31 in) Dionex IC Pure system to 20 L tank	50146269
16	Connecting tubing concentrate o.d. 8 mm (0.31 in) Dionex IC Pure system	50146270
17	Connecting tubing Drain o.d. 8 mm (0.31 in) Dionex IC Pure system	50146271
18	Drain piece with tubing o.d. 8 mm (0.31 in) Dionex IC Pure system	50146268
19	PVDF- precision metering valve 1/8“ tube	50147490
20	Disinfection Adapter	50133431
21	Jumper cable	50145876
22	Control cable for 20 L tank with and without level control	50143964

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Intended use of the device

Intended use

The Dionex IC Pure system is a laboratory system and is 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 Dionex IC Pure system is designed to be installed and used in the following application areas:

- Laboratories for cell biological and biotechnological work with the safety levels L1, L2 and L3.
- Medical and microbiological laboratories according to DIN EN 12128.
- Laboratories in the central area of clinics and hospitals.
- To allow working with a gradient pump system in aforementioned areas if the gradient pump is connected on the Dionex IC Pure system.

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 drug manufacturing. The system must not be used as a medical device and outside of laboratories.

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Technical specifications

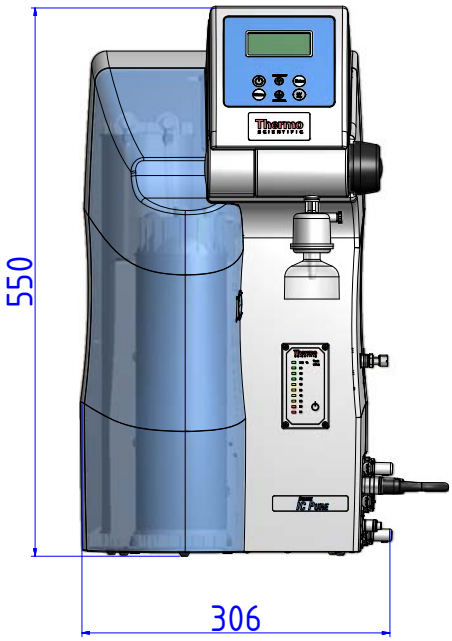
Note Check at regular intervals the quality of your feedwater.

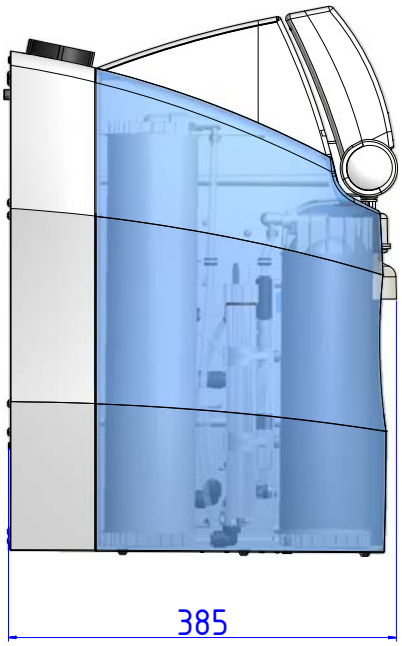
Feedwater requirements		
Model	**Dionex IC Pure System with pretreatment cartridge**	**Dionex IC Pure System without pretreatment cartridge**
Source	potable tap water	pretreated water (ASTM Type II)
Silt density index (SDI)	< 3	-- (not applicable)
Conductivity (reference temperature +25 °C)	1200 µS/cm (0.0008 MΩ·cm)	< 1 µS/cm or > 1 MΩ·cm
Free chlorine	max. 0.1 ppb (µg/L)	Max. 0.05 ppb (µg/L)
Manganese content	max. 0.05 ppm (mg/L)	-- (not applicable)
Iron content	max. 0.05 ppm (mg/L)	-- (not applicable)
pH range	4 - 11	4 - 11
TOC value	< 2000 ppb (µg/L)	max. 50 ppb (µg/L)
Bacteria count	< 100 CFU/mL	< 100 CFU/mL
Turbidity	< 1.0 NTU	< 1.0 NTU
Carbon dioxide (CO_2)	max. 30 ppm (mg/L)	max. 30 ppm (mg/L)
Silicate	max. 30 ppm (mg/L)	max. 3 ppm (mg/L)
Temperature	+2 - +35 °C (35.6 to 95 °F)	+2 - +35 °C (35.6 to 95 °F)
Pressure for automatic filling	1.45 - 58 psi (at a pressure > 58 psi a pressure reducer must be installed upstream of the unit.	-- (not applicable)

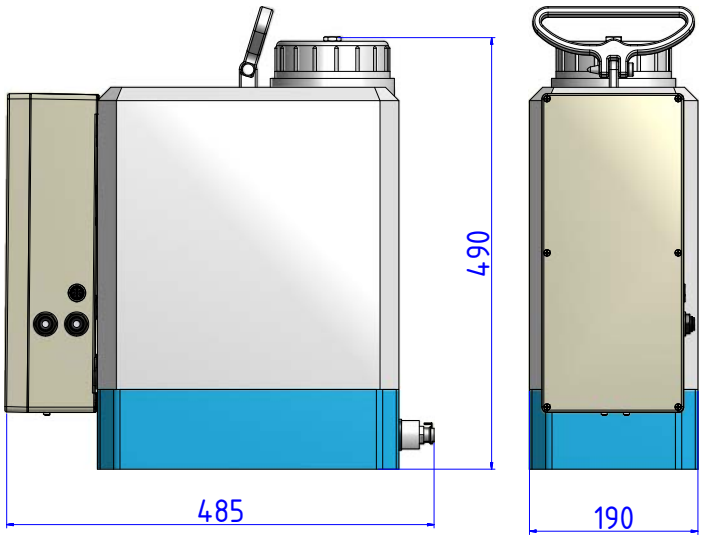
Product water quality	
Conductivity (reference temperature +25 °C)	0.055 µS/cm
Resistance	up to18.2 MΩ·cm
TOC value	max. 5 ppb (µg/L)
RNase DNase	< 0.003 ng/mL < 0.4 pg/uL
Bacteria	< 0.1 CFU/mL
Bacterial endotoxines	0.001 EU/mL
Particles > 0.2 µm per mL	< 1 µm/mL
Flow rate without pretreatment cartridge at manually operated point of use (POU)	0.6 L/min ± 0.2 L/min
Flow rate with pretreatment cartridge at manually operated POU	0.2 L/min + 0.2 L/min

Dimensions and weight of Dionex IC Pure system (50132810) with ultrapure cartridge (09.1006)	
Height	550 mm (21.65 in)
Width	306 mm (12.05 in)
Depth	385 mm (15.16 in)
Base area	277 x 372 mm (10.91 x 14.65 in)
Weight including ultrapure cartridge	26 kg (57.2 lb)
Weight with full tank	32 kg (70.55 lb)

Dimensions and weight of external 20 L tank with level control (50146378)	
Height	490 mm (19.29 in)
Width	190 mm (7.48 in)
Depth	485 mm (19.09 in)
Base area (height x width)	340 x 483 mm (13.39 x 7.48 in)
Weight of tank and filling station	7 kg (18.07 lb)
Weight with full tank	27 kg (60 lb)







Cell constants of the measuring cells	
Feedwater conductivity	0.16 cm^{-1}
Conductivity TOC	0.01 cm^{-1}
Ultra pure water conductivity	0.01 cm^{-1}

Water connections Dionex IC Pure system	
Feedwater tubing	8 mm (0.31 in) o.d.
Rinse water tubing	8 mm (0.31 in) o.d.
Connection to pump IC 30 psi	8 mm (0.31 in) o.d. on 1/8“coupling
Connection to pump IC 3 psi	8 mm (0.31 in) o.d. on 1/8“coupling

Water connections for external 20 L tank (50146376)	
Feedwater tubing	8 mm (0.31 in) o.d.
Return tubing	8 mm (0.31 in) o.d.

Water connections for external 20 L tank with level control (50146378)	
Feedwater tubing	8 mm (0.31 in) o.d.
Tank overflow tubing	8 mm (0.31 in) o.d.

Electrical connections for Dionex IC Pure system and external 20 L tank	
Input voltage	100 – 240 VAC, 50 – 60 Hz, 2.0 A max
Output voltage	DC 24 V, 5.0 A max
System connection	DC 24 V, 80 W
Protection class	Class II (external SMPS certified as Class I)

Materials parts which contact water	
Adjustable pressure retaining valve	NBR = Acrylnitril Butadien Rubber
Pump head	Nylon with glass fibre
UV lamp	High-purity synthetic quartz
UV Housing	Stainless steel
Ultrapure cartridge	PP = Polypropylene
UF Housing	PC = Polycarbonate
Rinsing solenoid valve	PA = Polyamide
Dispensing valve	PET = Polyethyleneterephthalate
Conductivity measuring cell	POM = Polyoxymethylen, Stainless steel
Distributor block	POM = Polyoxymethylen
Connections	POM = Polyoxymethylen
tubings	PE = Polyethylene
O-Rings	EPDM = Ethylene propylene diene rubber

Accessibility to Dionex IC Pure system and external 20 L tank	
Space on left and right from the side of the unit	at least 300 mm (11.81 in)
Space to the back of the unit	at least 200 mm (7.87 in)
Top space	at least 400 mm (15.75 in)
Space to front of unit	Free accessibility

Ambient conditions for Dionex IC Pure system and external 20 L tank		
	During operation	**Storage**
Operation area	Indoor rooms	Indoor rooms
Maximum altitude above sea level	up to 2000 m	up to 2000 m
Temperature range	min. +2 °C, max +40 °C, 80% relative humidity, non-condensing	min. +2 °C, max. +60 °C, 90% relative humidity, non-condensing
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) Note: The rated level of transient overvoltage is the withstand impulse voltage acc. to overvoltage category II of IEC 60364-4-443.	-- (not applicable)
Ventilation requirements	no special requirements	no special requirements
Degree of pollution	2	2

Airborne sound emission	
Sound pressure level	49 db(A)

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The Installation area

Note 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 (drinking or pretreated water) not less than 10 kPa (1.45 psi) and not greater than 400 kPa (58 psi) (only when using an optional tank filling station).

CAUTION When using the external 20 L tank with automatically refill the feedwater pressure must not be higher than 600 kPa. Else, an additional pressure reducer is required.

- The temperature of the area in which the system is installed should be between +2 °C and +40 °C.
- The surface on which the unit 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. The standing or wall surface must be strong enough to hold the system. (for system weight, see “Dimensions and weight of Dionex IC Pure system (50132810) with ultrapure cartridge (09.1006)” on page 14).

CAUTION Free gravity flow to drain must be ensured.

- An atmospherically floor drain with an outer diameter of 63 mm or 2.48 inch (DN 50 tube) shall be provided.
- The installation area must have a drain at floor level with at least a nominal outer diameter of 63 mm or 2.48 inch (DN 50 pipe). Should no such drain be available it is recommended to install a water watcher (only for European specification). Otherwise the manufacturer will not accept liability for any possible water damage.

- When using the external tank filling assembly, a check valve is recommended in the feedwater line to prevent back flow of feedwater from the water system.
- A grounded 100-240 VAC, 50/60 Hz socket must be available.(see “Electrical connections for Dionex IC Pure system and external 20 L tank” on page 16).
- Ample working space must be provided around the unit for easy replacement of parts and for ease of operation (see “Accessibility to Dionex IC Pure system and external 20 L tank” on page 16).
- Easy access for operation and control of the system.

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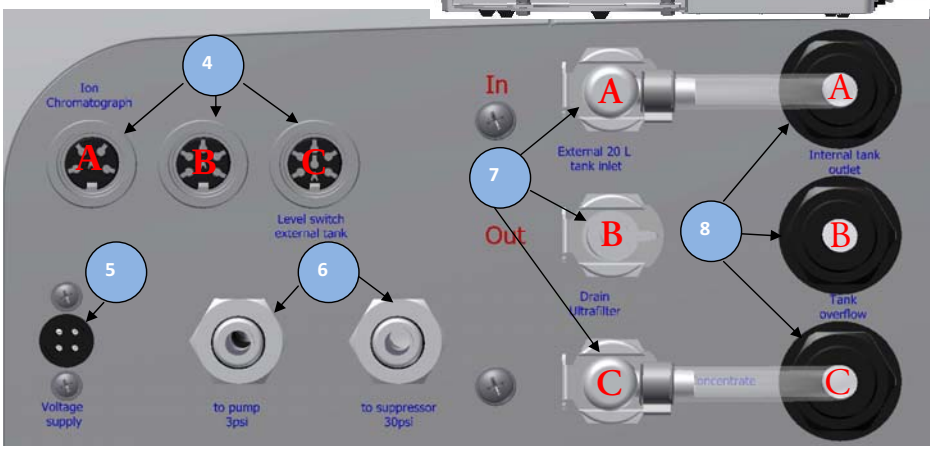
Installation

Contents

Connections of the Dionex IC Pure system

IC Pure System without front cover, front side view

Electrical and Water connections: IC Pure right side view



1. Quick connector for ultrapure cartridge
2. Quick connector for pretreatment cartridge
3. 1/4“ threaded fitting connector for sterile filter
4. Electrical connectors
   - A = 4 pin for ion chromatogram, B= 5 pin for tube jumper, C= 6 pin for level switch for external tank.
5. Voltage supply connector for 24V DC
6. Quick coupling connector for “to pump“ and “to suppressor“ o.d. 8 mm (0.31 in) tube

7. Quick coupling connector for
   - A = “External tank“, B = “Drain“ and C = “Concentrate“ o.d. 8 mm (0.31 in) tube
8. Fitting for o.d. 8 mm (0.31 in) tube for
   - A = “Internal tank outlet“, B = “Tank overflow“ and C = “Concentrate“

Connections external 20 L tank

9. Electrical connector 6 pin for level switch for external tank
10. Fitting for o.d. 8 mm (0.31 in) tube for
    - A = “Inlet feedwater“ and B = “Tank overflow“.

Note

If you are using a external 20 L tank without level switch, the connections A and B are for:

- A = “Concentrate back flow“ (only when using a pretreatment cartridge in the IC Pure system) and
- B = “Tank overflow“

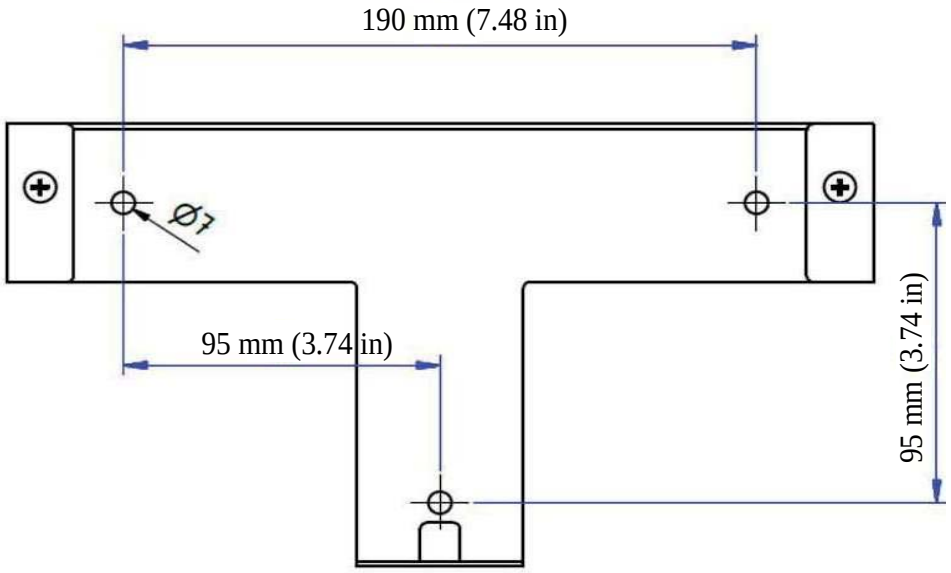
11. Quick coupling connector for outlet o.d. 8 mm (0.31 in) tube - water supply from 20 L external tank to IC Pure system
12. 1/4“ thread connection for sterile vent filter

Wall Mounting IC Pure system (optional)

Note You can also mount your Dionex IC Pure system on the wall. To do this, use the wall-mounting fixture included in the accessories (purchased separately Item No.: 09.2212). Before you begin mounting the unit on the wall you must check the strength of the wall to ensure that it is suitable for supporting the unit (see “Dimensions and weight of Dionex IC Pure system (50132810) with ultrapure cartridge (09.1006)” for the unit).

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

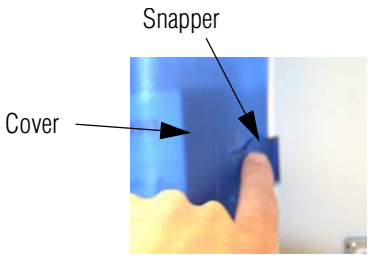
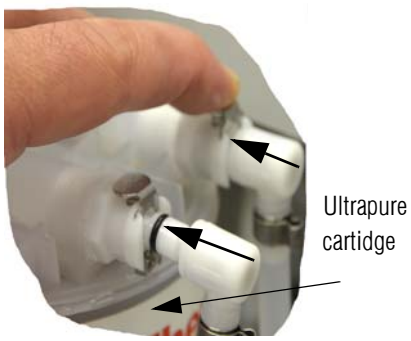
Step	Action	Figure
1	Use the wall-mounting brackets to mark the anchoring points with a pen on the wall at the location where the holes are to be drilled for the wall-mounting bracket. Use an 8 mm (0.31 in) drill bit to drill the holes.	See figure below.
2	Insert the three S8 Nylon anchors into the holes and then use the three wood screws to firmly screw the wall-mounting brackets into place.	
3	Lift the unit and hang the back of it on the wall-mounting brackets. **CAUTION** Always lift and carry the unit in tandem (two people), never alone. Lift the unit at the two bottom corners.	

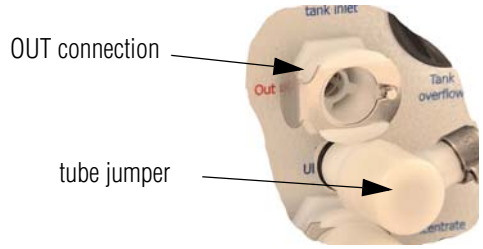
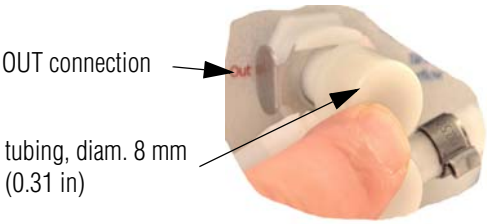
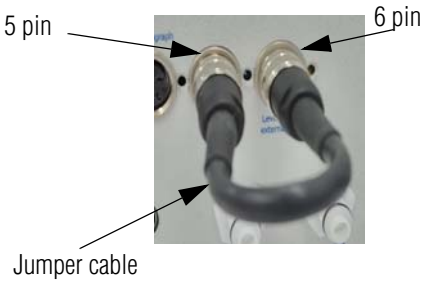
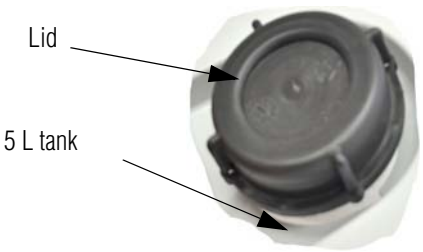


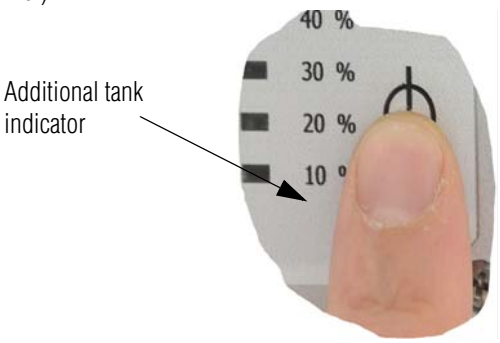
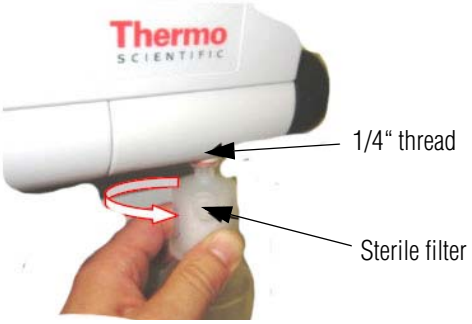
Setting up IC Pure system

Note

- Inspect the IC Pure system for any leaks after tubing has been connected and water is introduced into the system.
- To avoid tripping, ensure that the tubings and wires do not lay over the floor.

Step	Action	Figure
1	Place the Dionex IC Pure system at the desired location (on the workbench, under the workbench, or wall-mount). A wall attachment kit is available for wall-mounting.	See Section “Wall Mounting IC Pure system (optional)” .
2	Remove the cover from the ultrapure cartridge by pressing the snapper and pull the cover off toward the front.	
3	a. Locate the ultrapure cartridge. b. Place the ultrapure cartridge in the rear section of the unit insert the two quick-connectors into the ultrapure cartridge. When you hear an audible click you can be sure that the quick-action fasteners have been inserted correctly. **Note** The quick-connectors are attached to the unit in such a manner so as to prevent installing the ultrapure cartridge incorrectly. **Note** Cartridge serial number will need to be entered in the system after power is applied. (see“Changing the ultrapure cartridge”)	b.) 

Step	Action	Figure
4	a. At the "OUT" connection on right side of the IC Pure unit insert the d8 mm (0.31 in) tube with quick disconnect supplied with the unit into this connection. When you hear an audible click you can be sure that the quick-connectors have been inserted correctly. Route the tube with a downward slope to the drain (see "Illustration of drain"). b. Attach the d8 mm (0.31 in) with quick disconnect tube to the overflow nozzle on the tank on the unit and route the tube with a downward slope to the drain . **Note** If using IC Pure system with internal 5 L tank, follow steps 5 - 7. If using IC pure system with external 20 L tank skip steps 5 and 6.	a.)   b.)  put in here the tubing, diam. 8 mm (0.31 in)
5	Connect short jumper cable into 5 pin "tube jumper" and 6 pin "level switch external tank" on right side of IC Pure system.	
6	Unscrew the cover for the internal 5 L feedwater tank and fill the tank with pretreated water, or with potable water when you are using a pretreatment cartridge.  **CAUTION** When using the unit without a pretreatment cartridge, only feedwater that has been pretreated by reverse osmosis, ion exchange or distillation is to be used.	

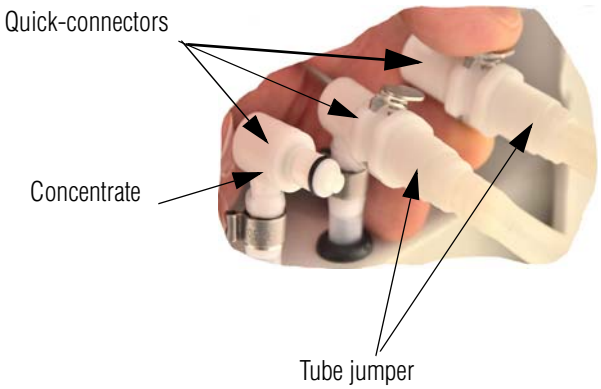
Step	Action	Figure
7	c. Connect the power to the unit (see “Mounting of the Power pack (voltage supply)”). d. Turn on the additional tank indicator located on the front of the Dionex IC Pure system by pressing the on/off switch. The indicator will illuminate for 5 minutes, then turn off. If the additional tank indicator not showing the correct value from the content of 5 L tank, calibrate the additional tank indicator new. **Note** This additional tank indicator has already been calibrated at the factory. If recalibration is required, refer to “Recalibration of the tank sensor for an additional tank indicator” **Note** The additional tank indicator on the unit will switch off automatically after about 5 minutes. You can switch the indicator back on by pressing the On/Off button for the additional tank indicator.	d.) 
8	Screw the sterile filter supplied with the unit into the 1/4“ thread of the sampling tap.	

Connecting of a pretreatment cartridge (optional)

CAUTION When using a pretreatment cartridge, the initial pressure at the connections for the IC unit must be reset. Contact the Service department at Thermo Scientific for this.

Always ensure that the internal 5 L or external 20 L tank does not drain completely, as this may damage or render the optional pretreatment cartridge unusable.

When using a pretreatment cartridge, drain the internal 5 L or external 20 L tank to a level of 30% and then fill up the tank manually (see “Draining the internal 5 L and external 20 L tank”).

Step	Action	Figure
1	a. Pull the tube jumper out of its connections by pressing on the quick-connectors. **Note** Keep the tube jumper in a safe place for later use, e.g., in the disinfection procedure. b. Proceed as described in Step 3a on page 25 and install the pretreatment cartridge in the front section of the unit. When you hear an audible click, the quick-connectors have been inserted correctly. The arrangement of the connections prevents any incorrect/switched installation.	a.) 

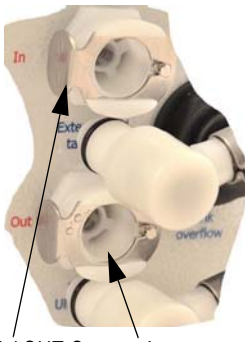
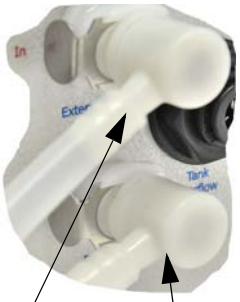
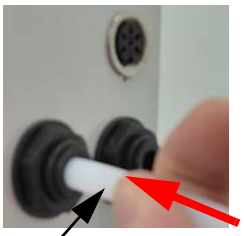
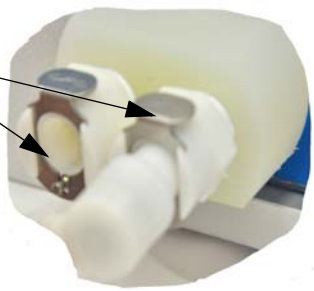
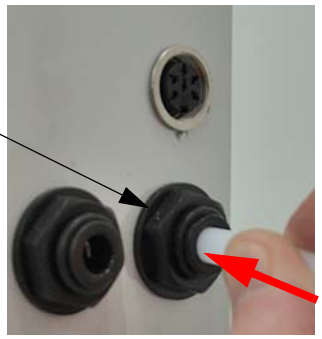
Connecting an external 20 L tank (optional)

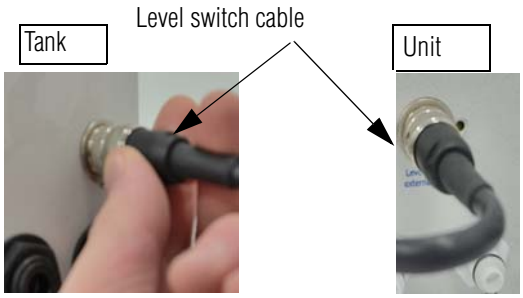
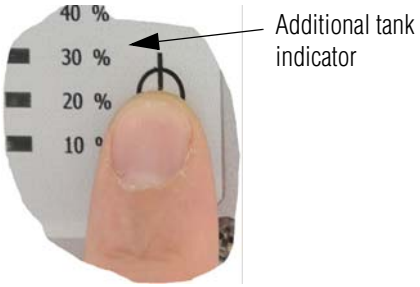
Note The external 20 L tank (50146376) will not be use the additional tank indicator on the IC Pure system directly. After filling the tank manually and connecting the control cable to the IC Pure system, the additional tank indicator is ready for control the level in the external 20L tank after switching on.

Note When operating the unit without a pretreatment cartridge, manually fill the 20 L tank with pretreated ASTM Type II water. The tank should only be filled with potable tap water if the pretreatment cartridge is used in the Dionex IC Pure system.

CAUTION Always ensure that the external 20 L tank does not drain completely, otherwise an air lock between the external 20 L tank and Dionex IC Pure system can be formed and this can affect the lifetime of the pretreatment cartridge.

Note Ensure that the Dionex IC Pure system has been switched off and the internal 5 L tank is empty (see draining 5 L tank section). In addition, the 20 L tank should be located directly next to the Dionex IC Pure system.

Step	Action	Figure
1	a. Remove the tube jumper from the "IN" connections on the right side of the Dionex IC Pure system. b. Attach the "connecting hose 20 L tank to IC Pure" supplied with the unit to the "IN" connection. Attach the „"Drain hose IC Pure (d8 mm (31 in) with quick disconnect)" to "OUT" connection on the unit. Route the tube from the "OUT" nozzle with a downward slope to the drain . **Note** If you are not using a pretreatment cartridge, skip to step d. c. If you are using a pretreatment cartridge in the unit, remove the tube jumper from the left concentrate connection on the Dionex IC Pure system and route a o.d. 8 mm (0.31 in) tube to the left connection of the 20 L tank. d. Attach the tube from the 'IN' nozzle on the unit to one of the two connections on the external 20 L tank. **Note** Either of the two connections on the external 20 L tank may be used to attach the tube to the unit. e. Attach the o.d. 8 mm (0.31 in) tube into the right connection of the external 20 L tank for tank overflow and route the tube with a downward slope to the drain.	a.)  IN / OUT Connections b.)  o.d. 8 mm (0.31 in) tubes c.)  o.d. 8 mm (0.31 in) tube Concentrate connection  o.d 8 mm (0.31 in) tube coming from concentrate connection of Dionex IC Pure system. Connected only if pretreatment cartridge is used with IC Pure system. d.) 20 L tank connections  e.) 20 L tank connection for tank overflow 

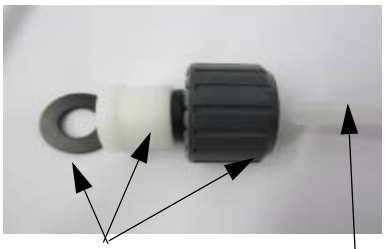
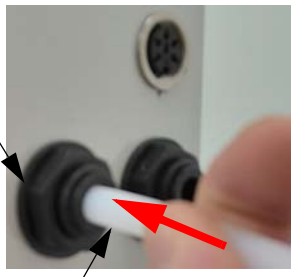
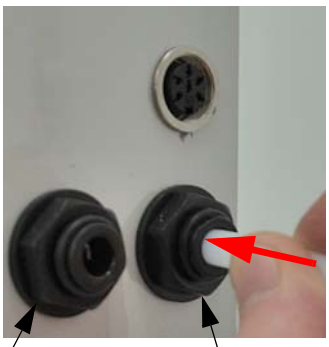
Step	Action	Figure
2	a. Use the level switch cable to connect the unit with the external 20 L tank. b. Switch on the power to the unit (see “Mounting of the Power pack (voltage supply)”). c. After this, switch on the additional tank indicator on the unit and check the filling level. **Note** This additional tank indicator has already been calibrated at the factory. If recalibration is required refer to “Recalibration of the tank sensor for an additional tank indicator” .	a.) 
	Note Fill the external 20 L tank with ASTM Type II water. When using the pretreatment cartridge option and the content of the external 20 L tank has reached a level of 30%, drain the remaining tank water and fill the external 20 L tank manually again with ASTM type II water. It is necessary to reduce the ionic content of the feedwater in the external 20 L tank. The concentrate back flow from the Dionex IC Pure system into the external 20 L tank, multiplies the ion content of water in the external 20 L tank.	c.) 

Connecting the external 20 L tank with level control (optional)

Note The external 20 L tank with level control allows the automatic filling of the external tank. The external 20 L tank with level control must be connected to a pressurized source. The feedwater pressure may not exceed 400 kPa (58 psi). If the pressure is higher, an additional pressure regulator must be installed.

Note To hook up the external 20 L tank with level control, ensure the Dionex IC Pure system is turned off, unplugged from power supply and the 5 L internal tank should also be drained.

CAUTION When operating the Dionex IC Pure system without a pretreatment cartridge, connect the external 20 L tank with level switch control to a central system that supplies ASTM Type II pretreated water. If you are using a pretreatment cartridge in the Dionex IC Pure system, connect the external 20 L tank with level control to a potable water supply. Additionally, route the concentrate line directly to an atmospherically vented drain.

Step	Action	Figure
1	Place the external 20 L tank with level control in the direct vicinity of the central supply system and the Dionex IC Pure system.	
2	a. Wet end of the tube with water and insert the o.d. 8 mm (0.31 in) X 4 m tube into the feedwater connection kit. b. Screw the R3/4“ feedwater connection onto the feedwater tap. c. Attach the other end of the o.d. 8 mm (0.31in) tubing to the left feedwater connection on the side of the external 20 L tank with level control. Wet the end of the tubing with water before inserting.	a.)  Feedwater connection kit o.d. 8 mm (0.31 in) tube c.) Feedwater/ concentrate connection, external 20 L tank with level control  o.d. 8 mm (0.31 in) tube
3	a. Wet end of the tube with water and insert the o.d. 8 mm (0.31 in) tube into the right connection of the external 20 L tank with level control for tank overflow.	a.)  Feedwater inlet/ Concentrate Tank overflow

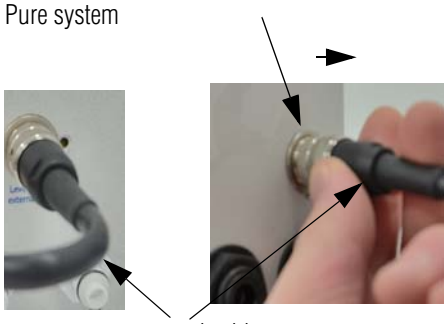
Step	Action	Figure
4	If you are using a pretreatment cartridge in the Dionex IC Pure system, remove the tube jumper at the left concentrate connection on the unit and route a o.d. 8 mm (0.31 in) tube to the drain. **Note** An illustration of the drain is given under "Illustration of drain" .	Concentrate connection on the unit  o.d. 8 mm (0.31 in) tube
5	a. Connect the control cable from the Dionex IC Pure system to the electrical connector of the external 20 L tank. **Note** The power supply for the external 20 L tank with level control is delivered from the control wire of the Dionex IC Pure system. b. Switch on the power to the unit (see "Mounting of the Power pack (voltage supply)") c. After this, switch on the additional tank indicator on the unit and check the filling level. **Note** This additional tank indicator has already been calibrated at the factory. If recalibration is required refer to "Recalibration of the tank sensor for an additional tank indicator" .	a.) Electrical connection port IC Pure system Electrical connection port 20 L tank  control cable c.)  Additional tank indicator

Illustration of drain

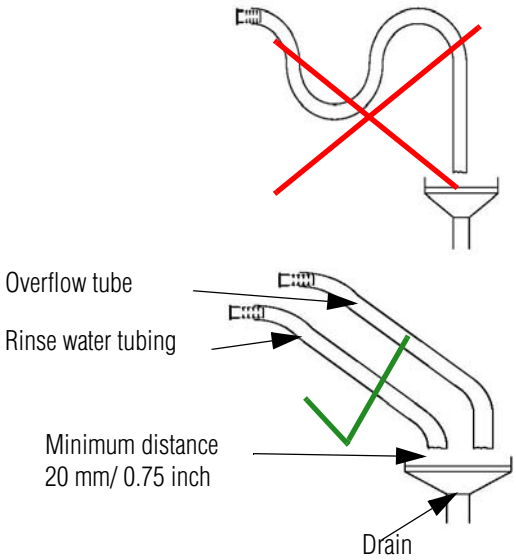
Illustration of drain siphon for inserting the rinsing water and concentrate outlet tube.

Note

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 Dionex IC Pure system to the drain must be routed with a downward slope and without any kinks or restrictions to ensure proper drainage.

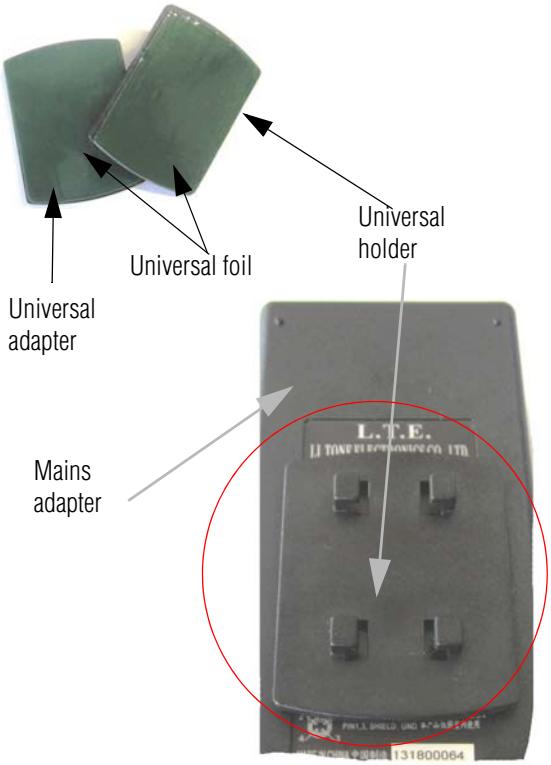
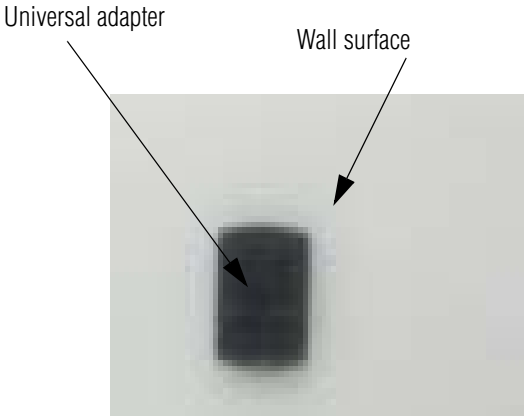
If a standard drain siphon is in place, the ends of the tubes must be located at least 20 mm (0.75 in) above the drain. Attach the tubes in such a manner that they remain in their position.

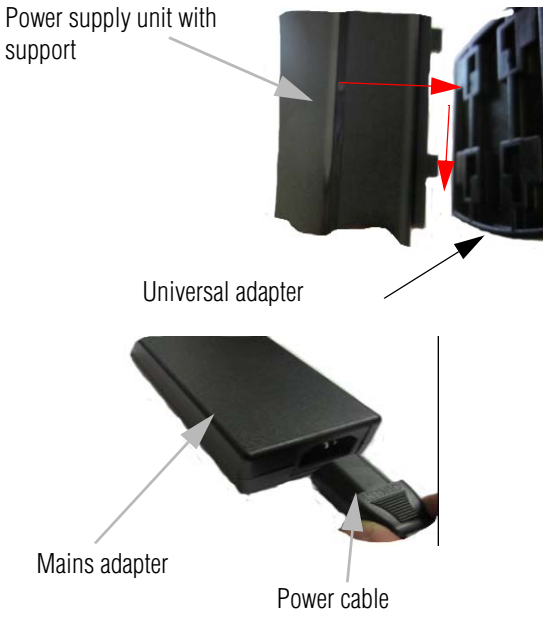


Mounting of the Power pack (voltage supply)

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

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

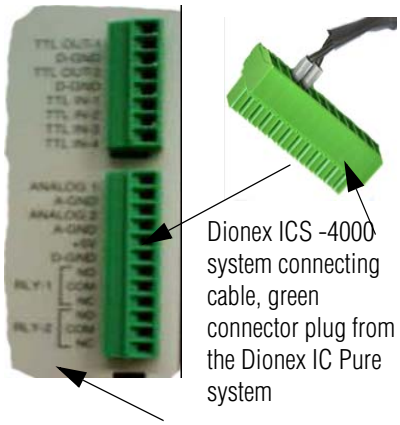
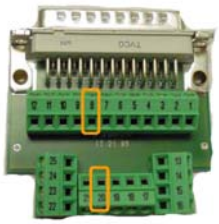
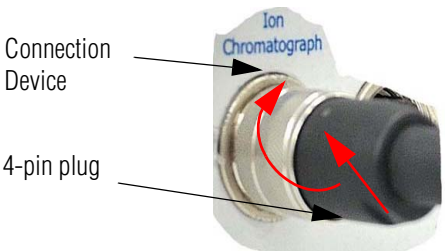
Step	Action	Figure
1	Remove the protective foil on the back of the universal holder and from the universal adapter and attach the universal holder to the center of the back of the main adapter.	
2	Attach universal adapter to a smooth wall surface with supplied screws or with glue (not provided).	

Step	Action	Figure
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. **CAUTION** Do not bring the power pack in contact with water. Risk of an electrical shock. **Note** The removable power cable must always face downward when the power supply unit has been mounted.	
4	Now, connect the power supply unit to the "Power supply" connection on the right side of the Dionex IC Pure system. Next plug the power supply to a grounded 100 - 240 VAC, 50/60 Hz power outlet.	
5	Switch the unit on and enter the serial number of the ultrapure cartridge in the control menu ("Changing the ultrapure cartridge").The unit is ready for use now.	

Connecting the control cable from the IC Pure system to a Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS- 5000+, Dionex ICS-5000 or Dionex ICS-3000 system

CAUTION Ensure that the Dionex IC Pure system and the ion chromatograph (IC) system are switched off.

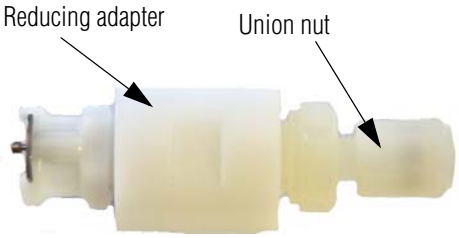
Section	Action	Steps
1	“Connecting the control cable from the IC Pure system to a Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS- 5000+, Dionex ICS-5000 or Dionex ICS-3000 system”	1,2 and 8 - 15
2	Set up of IC Pure system to single Dionex ion chromatograph	3 - 7
3	Set up an additional ion chromatograph to the IC Pure system as shown on page 42 - 43	1 - 5
4	Set up of Suppressor to IC Pure system as shown on page 4	1 - 8

Step	Action	Figure
1	Plug the connecting cable for the Dionex Integrion and Dionex ICS-2100 or Dionex ICS-4000 with the green connector into the connection on the back of the Dionex Integrion Dionex ICS-2100 or Dionex ICS-4000 system. When using the Dionex ICS-5000 or Dionex ICS-3000 system, unscrew the two conductors from the green plug connector and when using: a. The top dual pump (DP-Pump2) that you have selected for the Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system, screw the two conductors of the connecting cable to Pins 8 and 20 of the 25-pin connector and connect this to the back of the Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system. In this case you must then make the settings for the Thermo Scientific™ Dionex™ Chromeleon™ Chromatography Data System (CDS) Software, 'Relay_2'.(refer to step 8, page 39) b. The bottom dual pump (DP-Pump1) that you have selected for the Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system, screw the two conductors of the connecting cable into Pins 14 and 15 of the connector and connect this to the back of the Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system. In this case you must then make the settings for the Chromeleon CDS Software 'Relay_4'. (refer to step 8, page 39) **Note** It does not matter which of the two conductors is inserted into Pins 8/20 or 14/15.	 Dionex ICS -4000 system connecting cable, green connector plug from the Dionex IC Pure system Back side Dionex Integrion and Dionex ICS-2100/ Dionex ICS-4000 system a)  b) 
2	Insert the round 4-pin connector into the 4-pin connection on the Dionex IC Pure system.	

Step	Action	Figure

Connecting water tubings from IC Pure system to an ion chromatograph Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system

Note If hooking up more than one ion chromatograph, skip steps 3-6 below. Following tubing installation “” on page 42.

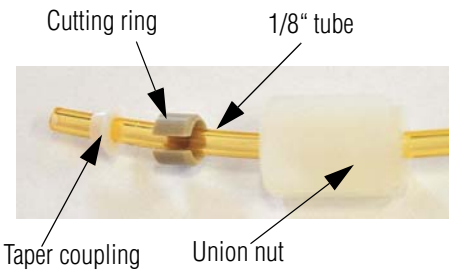


Note If connection the suppressor to the IC Pure unit, skip steps 3-6 below. Following tubing installation on “Connecting the Suppressor to the Dionex IC Pure system” on page 43.

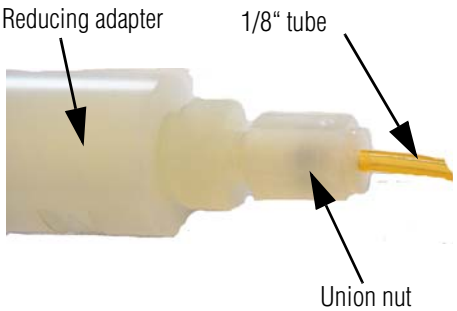
3 Take the reducing adapter supplied with the Dionex IC Pure system and carefully unscrew the union nut from the fitting.

Note Ensure that the cutting ring and taper coupling that fit inside the union nut are not lost when you unscrew the union nut.

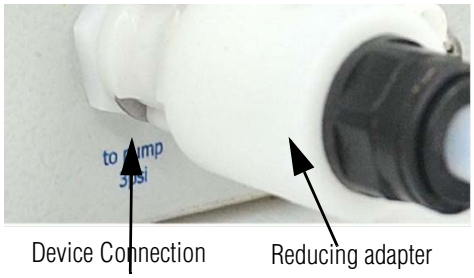
4 As illustrated in the diagram, slide the union nut with the cutting ring and taper coupling over the 1/8“ tube for the pump from the Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system.



5
a. Insert the 1/8“ tube with the cutting ring and taper coupling into the reducing adapter and tighten the union nut on the fitting.
b. The other end of the 1/8“ tube is connecting to the “Degas in“ connection from the Degas module on the Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system. (see “Schematic illustration with connected suppressor”)



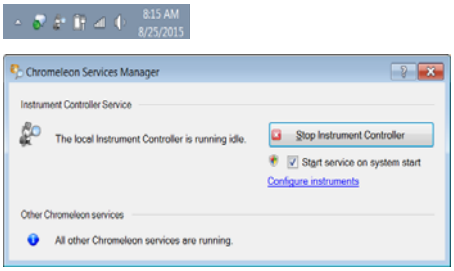
6 Press the reducing adapter into the "to pump" connection on the Dionex IC Pure system. When you hear an audible click you can be sure that the quick-action fasteners have been inserted correctly.



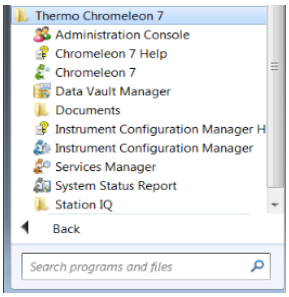
7 Switch on the Dionex IC Pure system and the ion chromatogram. As soon as the IC is switched on, "Analyser" appears on the control display of the Dionex IC Pure system.

Note In the Analyser mode, the Nonstop and Interval modes are not functional.

8 The Service Manager appears minimized as the Chromeleon Tray Icon next to the clock in the Notification Area (also called System Tray) of the Windows Taskbar. To open the Service Manager window, click (or right-click) the Chromeleon Tray Icon.



9 If the Chromeleon Tray Icon is not present, you can start the Service Manager by selecting Start> All Programs> Thermo Chromeleon 7> Services Manager. Closing the Service Manager window minimizes it to the Chromeleon Tray Icon.

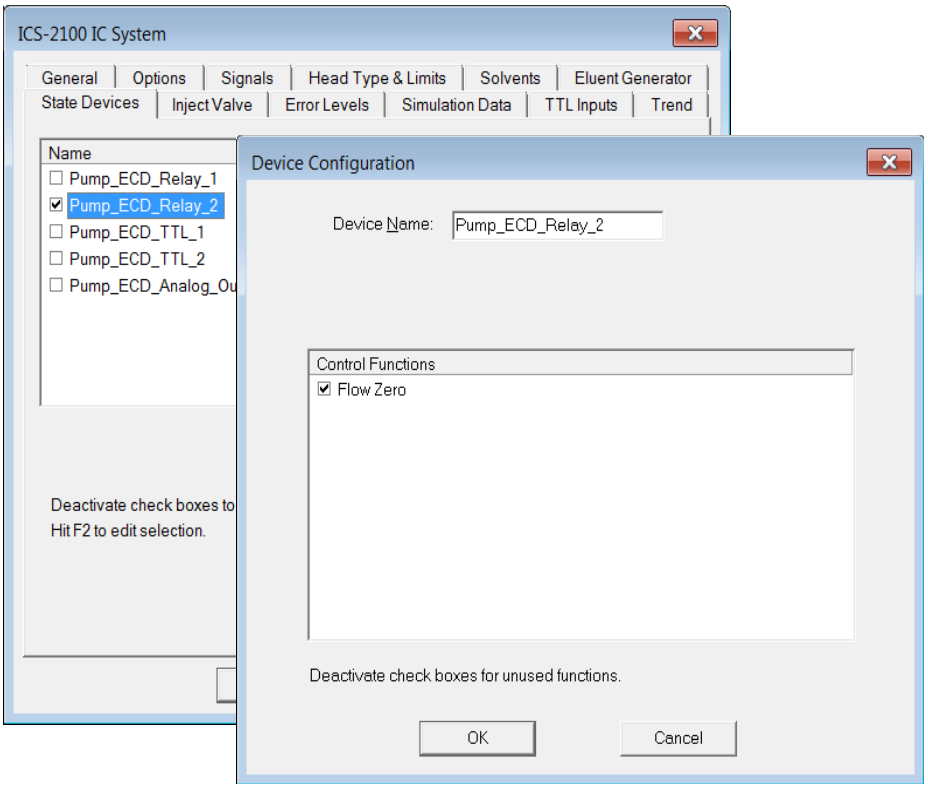


10 In the Chromeleon CDS Server Configuration, open the corresponding configuration settings and search for the entry "Dionex Integrion and Dionex ICS-2100" or "Dionex ICS-4000 system" and right-click on the entry you need.

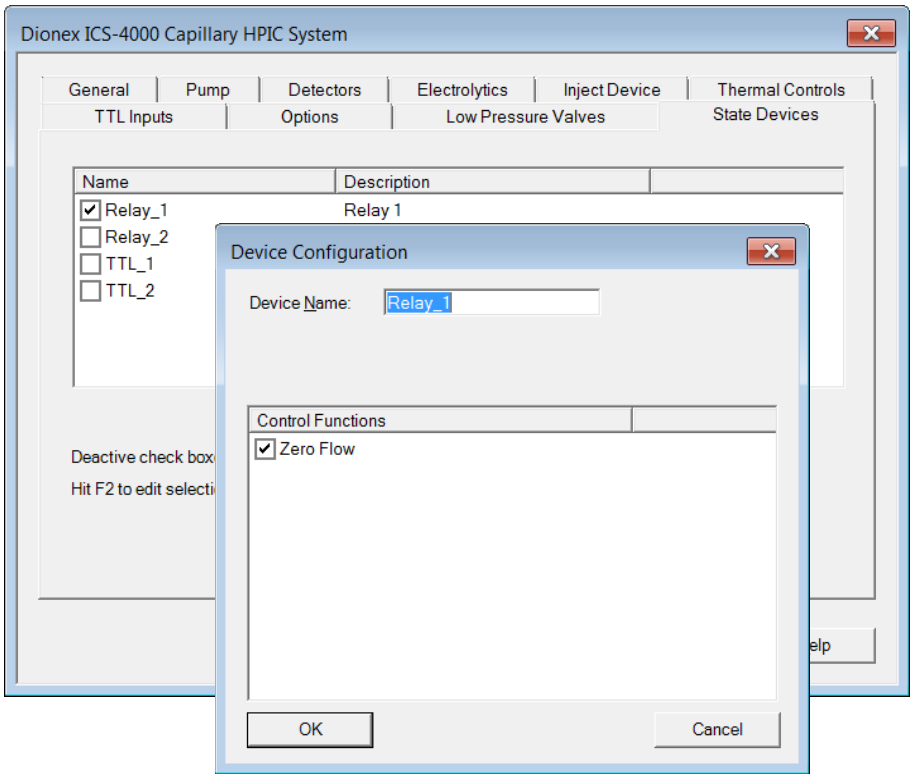
Note If you are using an Dionex ICS-5000^{+}, Dionex ICS-5000 or Dionex ICS-3000 system you must go to the tab 'Relays' under the pump settings.

11	Under “Properties“, scroll down and open the tab “State Devices“.	
12	Check the box for “Pump_ECD_Relay_2“. For “State Device tab“ for the Dionex ICS-4000 system check the box for “Pump_Relay_1“ **Note** If you are in the “Relays“ menu of the Chromeleon software for the Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system, check the box for: a. “Pump_Relay_4“, if you are using the bottom Dual Pump and b. “Pump_Relay_2“, if you are using the top Dual Pump.	See “Sample Chromeleon CDS Software settings for Dionex ICS-2100, Dionex ICS-4000 system” . See “Sample Chromeleon CDS Software settings for Dionex ICS-5000+, Dionex ICS-5000 and Dionex ICS-3000 system” .
13	Either double-click or press the F2 button on the unit names to go to the 'Device Configuration Panel'.	
14	Place a check mark in the box for “Flow Zero“. See “Sample Chromeleon CDS Software settings for Dionex ICS-2100, Dionex ICS-4000 system” .	See “Sample Chromeleon CDS Software settings for Dionex ICS-5000+, Dionex ICS-5000 and Dionex ICS-3000 system” .
15	Save your settings and exit the configuration settings. The Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system will then pump pure water from the Dionex IC Pure system.	

Sample Chromeleon CDS Software settings for Dionex ICS-2100, Dionex ICS-4000 system

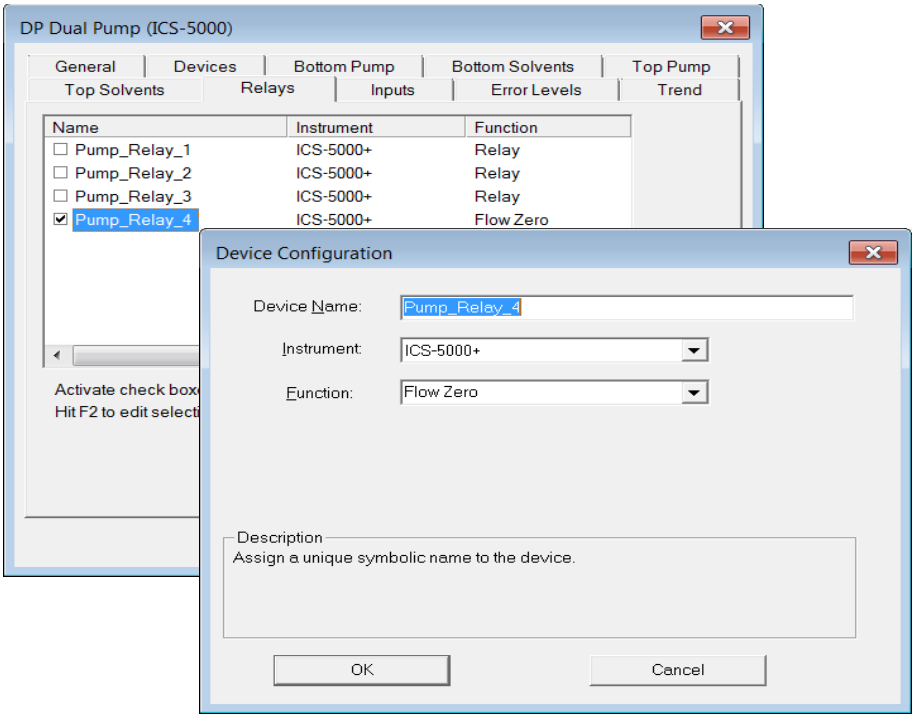


Dionex ICS-4000 system



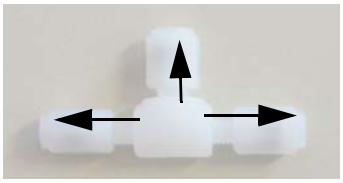
Sample Chromeleon CDS Software settings for Dionex ICS-5000+, Dionex ICS-5000 and Dionex ICS-3000 system

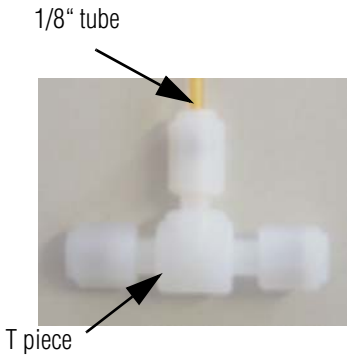
d.



Connecting an additional ion chromatograph Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system

Note If you install a T piece you can also connect a second Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system in the feed line to the first IC system. Both IC systems will then continue to be controlled using the Chromeleon CDS software. The IC system that is connected to the control line at the unit serves as the master. The second IC system does not have to be connected to the Dionex IC Pure system. If the IC system connected to the Dionex IC Pure system is switched off, neither of the IC systems will pump pure water from the Dionex IC Pure system.

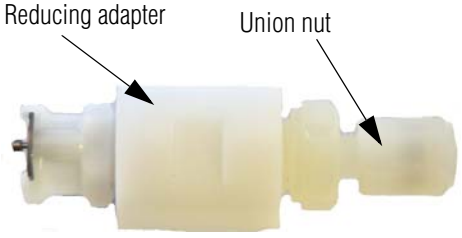
Step	Action	Figure
1	Switch off the Dionex IC Pure system and stop pumping of pure water for the IC system using the Chromeleon CDS software.	
2	Take the T piece and unscrew all three union nuts.	

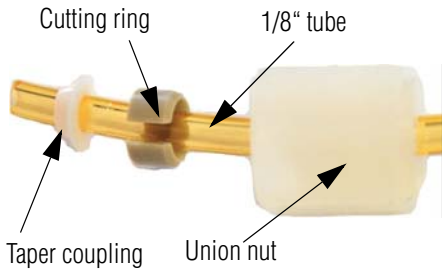
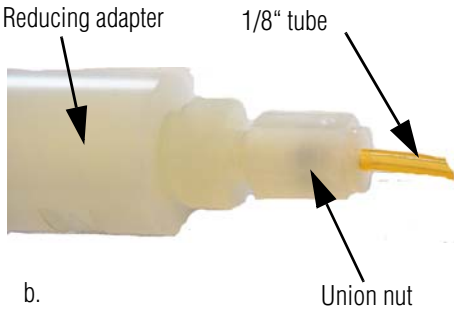
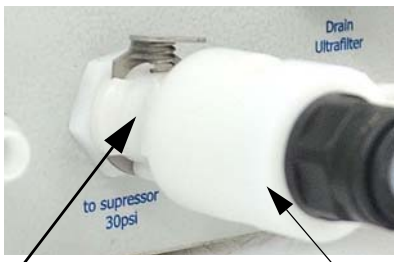
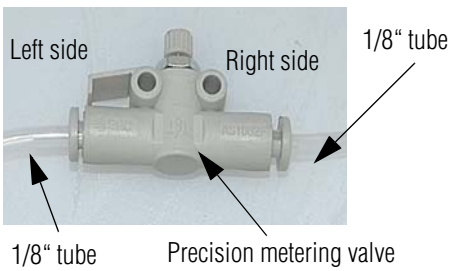
Step	Action	Figure
3	Cut the 1/8“ feed tube from the IC system at the reducing adapter on the Dionex IC Pure system and connect both ends of the 1/8“ tube as described in “Connection of a Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000system on page 35, Step 4 and 5.	
4	Take the 1/8“ feed tube for the second Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system and connect it to the top connection on the T piece. **Note** Again, ensure that the cutting ring and the taper coupling are installed correctly (see “Connecting the control cable from the IC Pure system to a Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS- 5000+, Dionex ICS-5000 or Dionex ICS-3000 system” , Step 4).	
5	Switch the Dionex IC Pure system back on and activate pure water pumping for both Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system using the Chromeleon CDS software.	

Connecting the Suppressor to the Dionex IC Pure system

Note

- The system must be switched off.
- The feedwater supply must be closed.
- Check that the IC System is not in operating mode.

Step	Action	Figure
1	Switch off the Dionex IC Pure system and stop pumping of pure water for the Dionex Integrion Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000+, Dionex ICS-5000 or Dionex ICS-3000 system using the Chromeleon CDS software.	
2	Take the reducing adapter supplied with the Dionex IC Pure system and carefully unscrew the union nut from the fitting. **Note** Ensure that the cutting ring and taper coupling that fit inside the union nut are not lost when you unscrew the union nut.	

Step	Action	Figure
3	Take the PFA tube 1/8“ supplied with the Dionex IC Pure system and cut off the required length what you need. As illustrated in the diagram, slide the union nut with the cutting ring and taper coupling over the 1/8“ tube.	
4	a. Insert the 1/8“ tube with the cutting ring and taper coupling into the reducing adapter and tighten the union nut on the fitting. b. Press the reducing adapter into the “to suppressor“ connection on the Dionex IC Pure system. When you hear an audible click you can be sure that the quick-action-fasteners have been inserted correctly.	 
5	Take the precision metering valve and plug in the 1/8“ tube coming from the Dionex IC Pure system into the left side from the precision metering valve.	
6	Proceed the same way as describe in step 5 with the 1/8“ tube into the right connection side of the precision metering valve. This tube is connecting to the „“Regen In“ connection of the suppressor from the Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000^{+}, Dionex ICS-5000 or Dionex ICS-3000 system.	see “Schematic illustration with connected suppressor”

Step	Action	Figure
7	Switch on the Dionex IC Pure system and start pumping of pure water for the Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000$^+$, Dionex ICS-5000 or Dionex ICS-3000 system using the Chromeleon CDS software.	
8	Calibrate the suppressor regenerant water flow rate.	

Calibrate suppressor regenerant water flow rate

Note

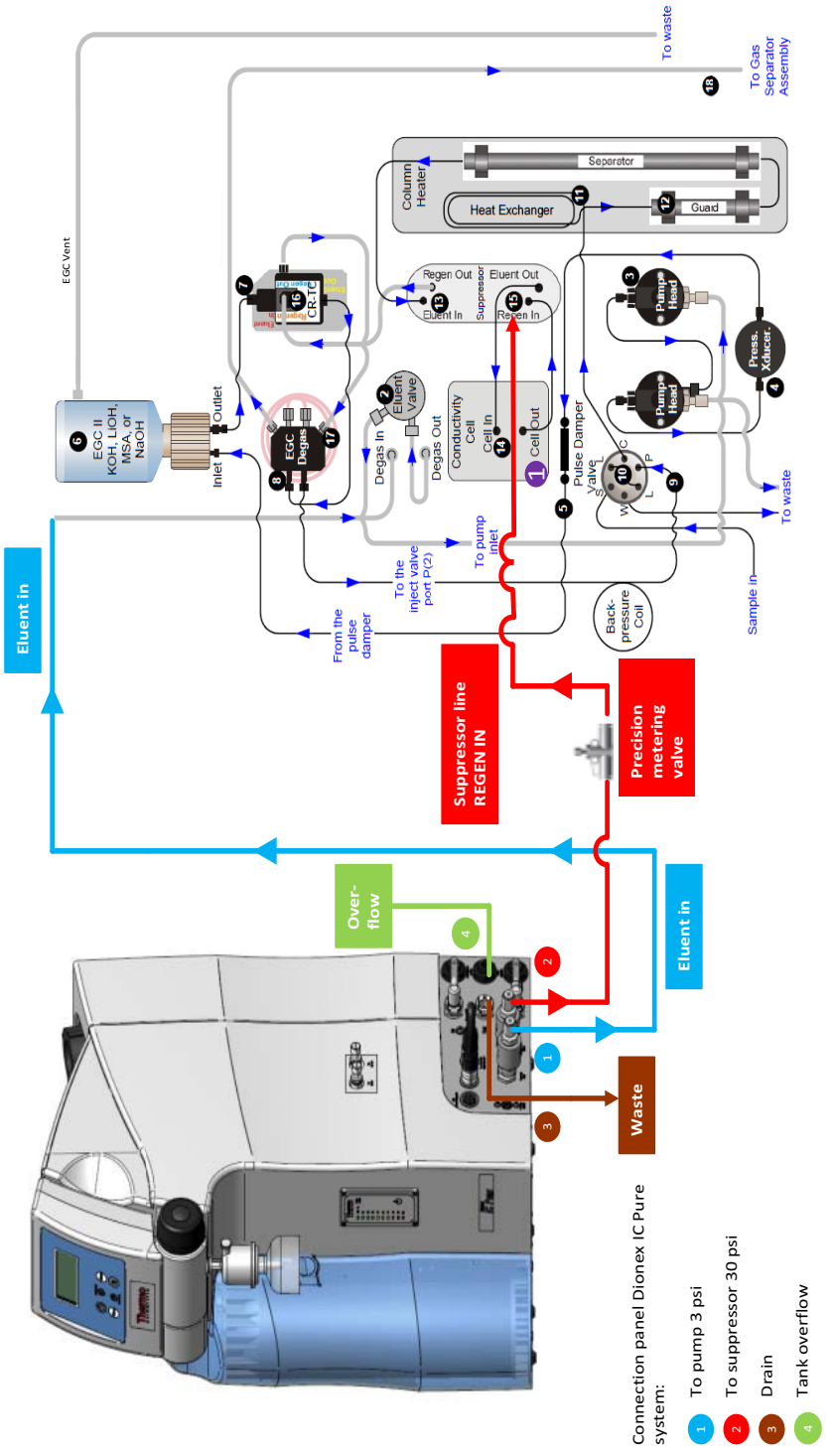
- Suppressor regenerant water flow rate must be adjusted using the flow control valve. The flow rate should be approximately 3 to 5 mL/min for standard suppressors.
- The flow rate should be determined with the suppressor connected to the suppressor supply line of the Dionex IC Pure system and with the suppressor turned off.
- The flow will be lower once the suppressor is switched on and should be checked again.

1	Record the weight of an empty container.
2	Insert the waste line from the suppressor into the container and weigh the contents after a known time interval. **Note** A few minutes is sufficient.
3	Divide the weight of the contents of the vial (in grams) by the time to accumulate the sample. This will be the flow rate in mL/min.

Note If external water regeneration mode will not be used, the suppressor supply connection must be closed off. Therefore, disconnect the reducing adapter from the 'to Suppressor' connection on the Dionex IC Pure system.

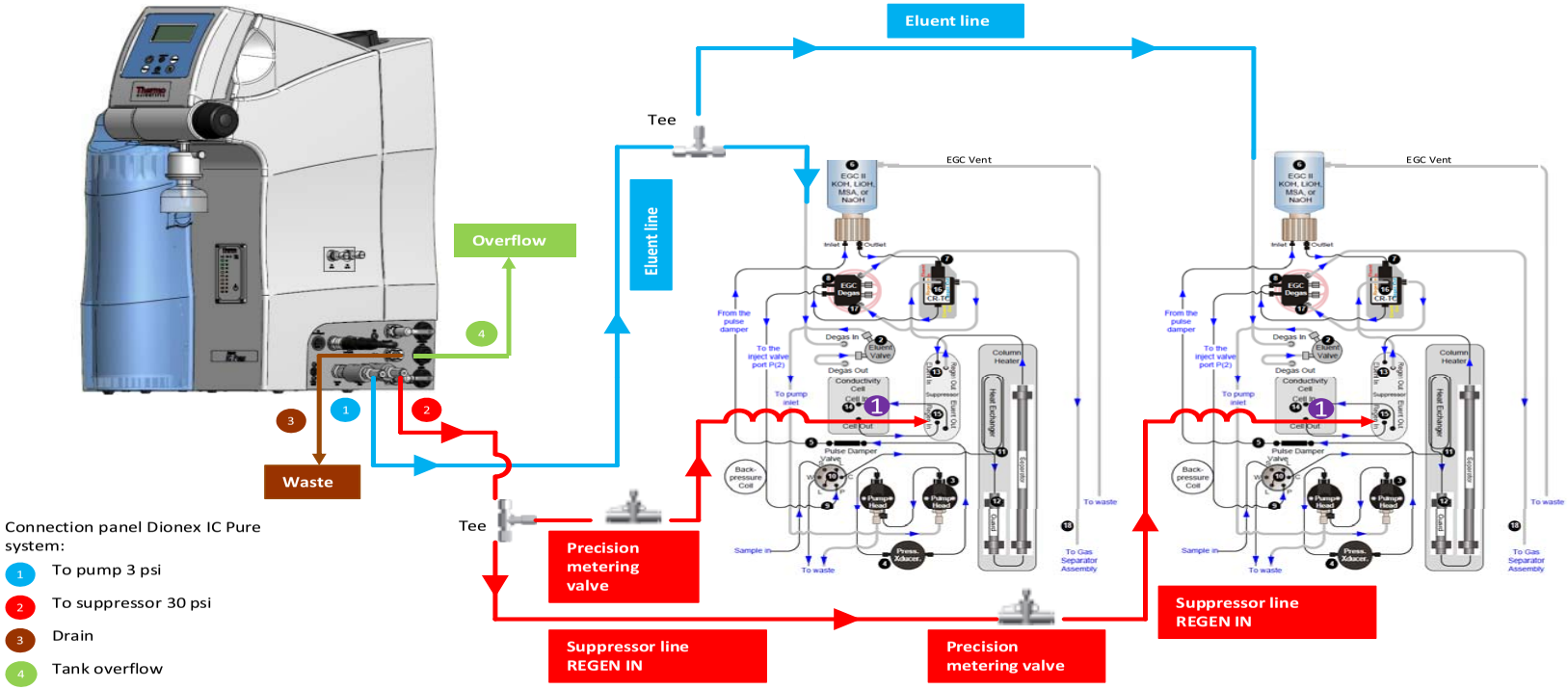
Schematic illustration with connected suppressor

Dionex Integrion and Dionex ICS-2100 system



Note:

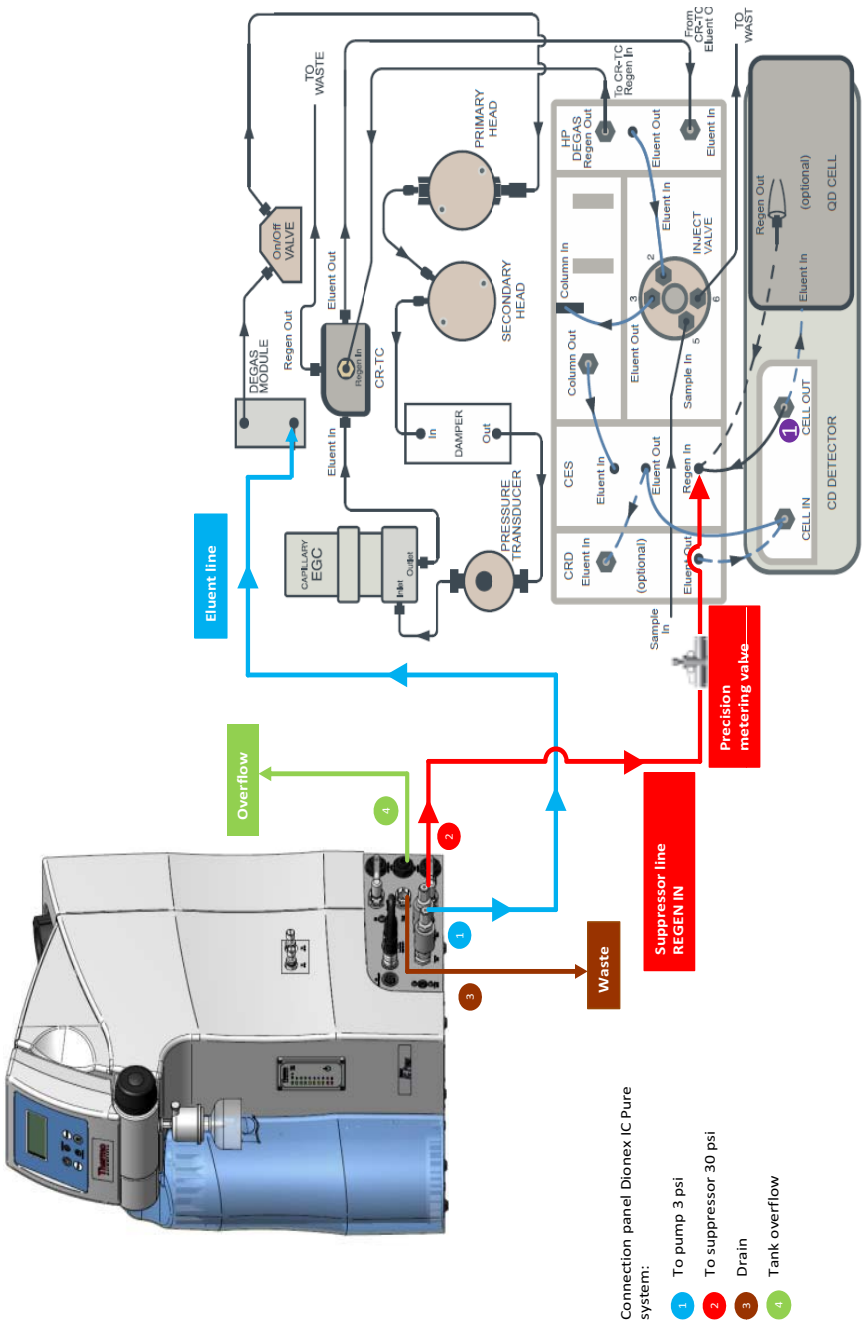
1. Tubing from CD cell out should be routed to waste
   - Pressure restrictor coils are required to be install at the CD cell outlet.

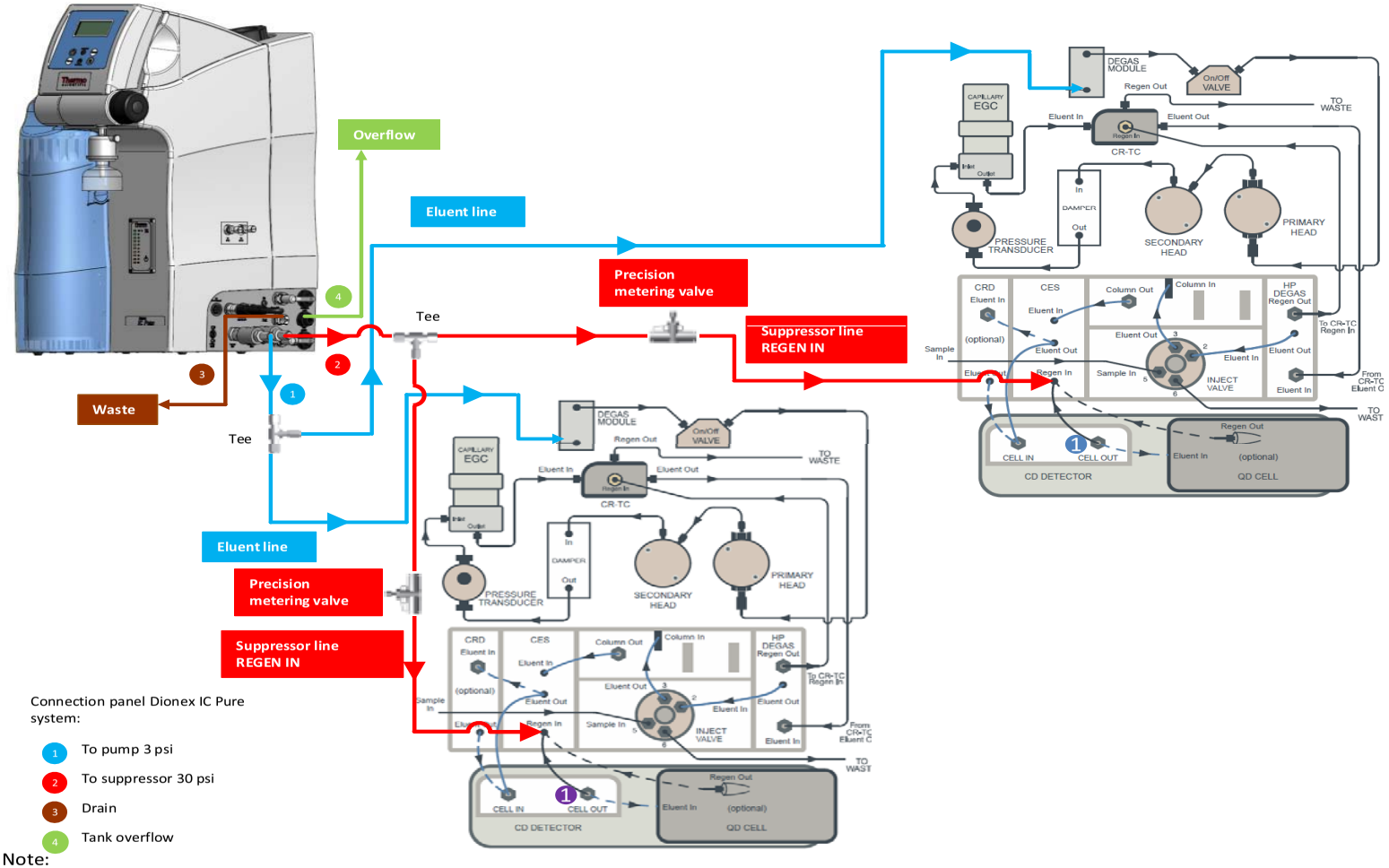


Note:

1. Tubing from CD cell out should be routed to waste
- Pressure restrictor coils are required to be install at the CD cell outlet.

Dionex ICS-4000 system





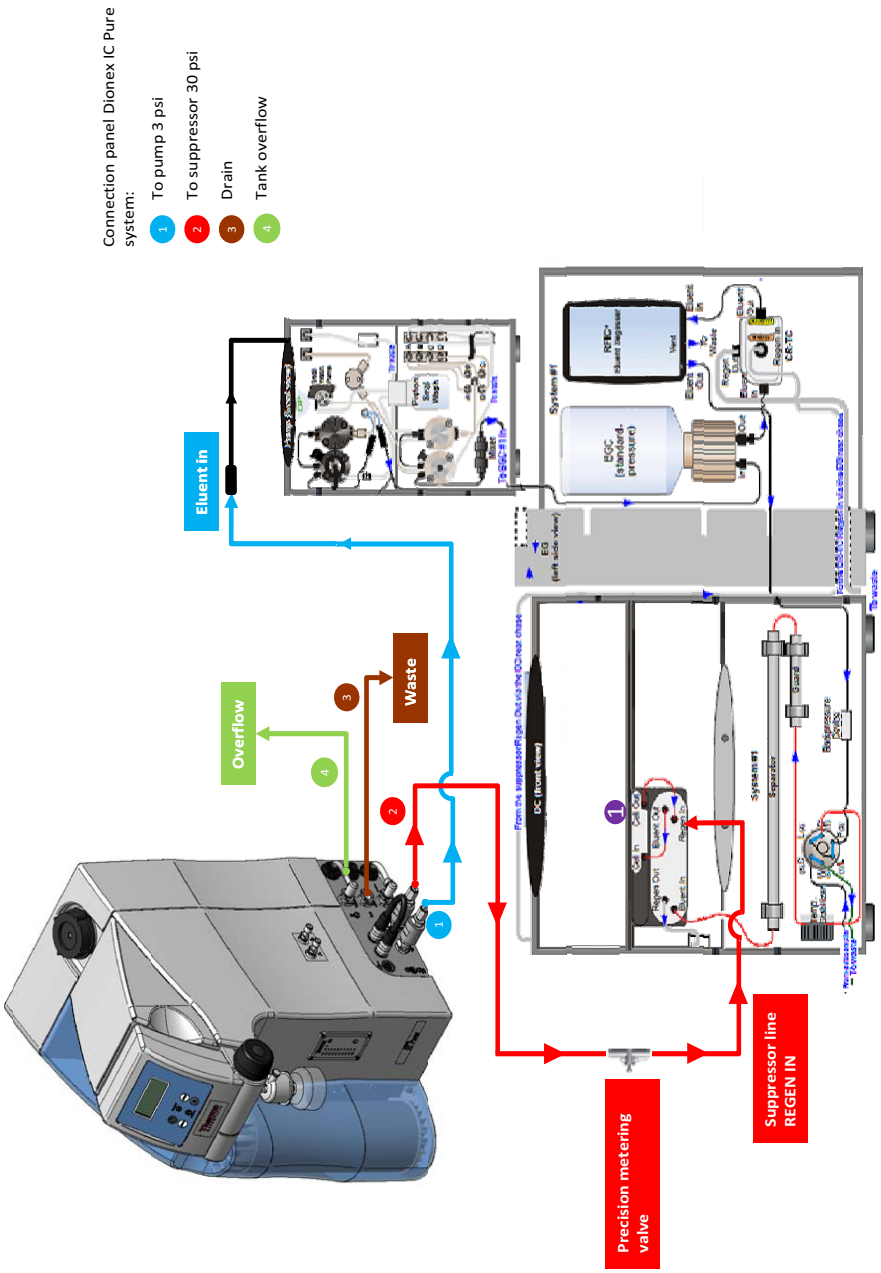
Connection panel Dionex IC Pure system:

1. To pump 3 psi
2. To suppressor 30 psi
3. Drain
4. Tank overflow

Note:

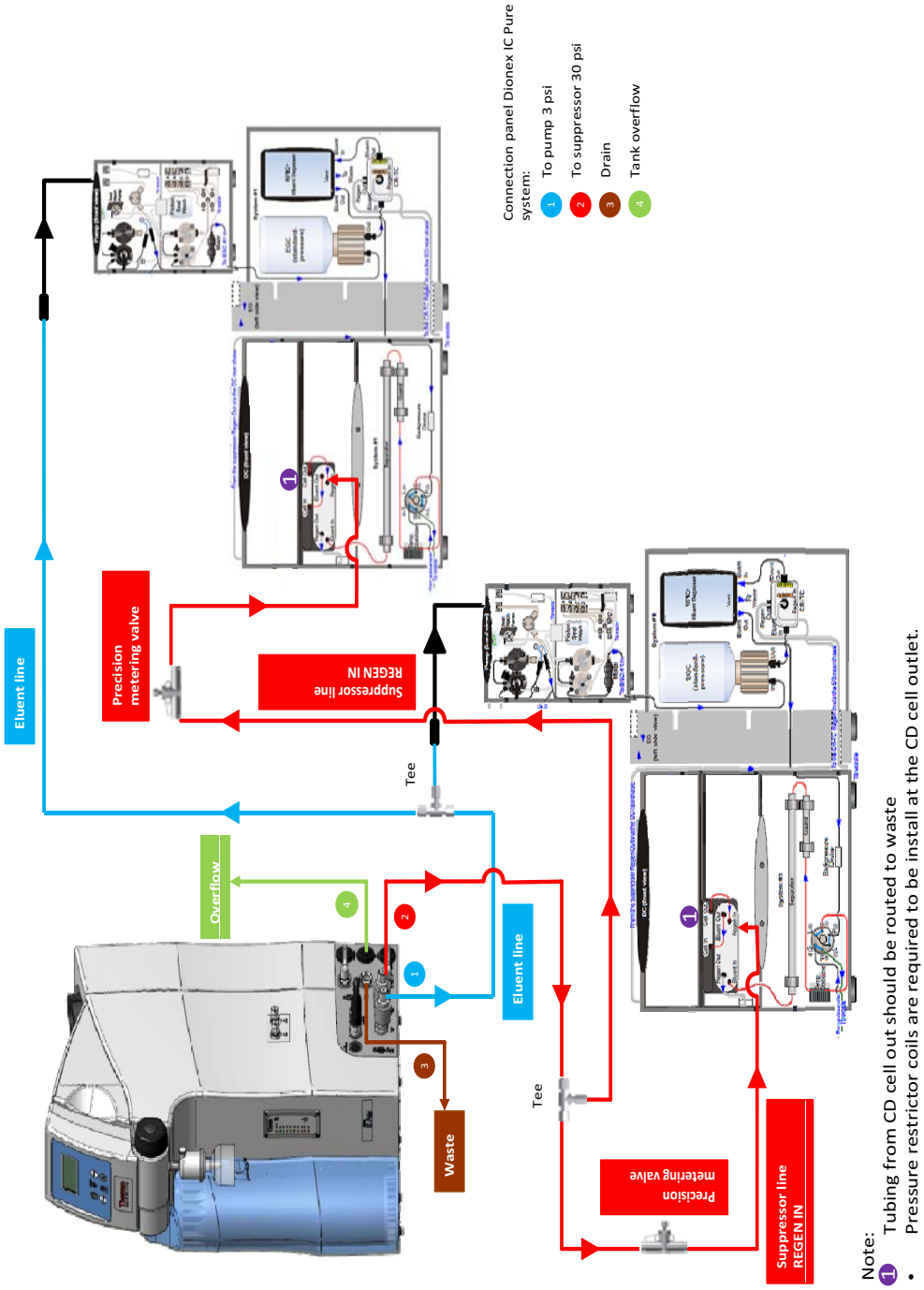
1. Tubing from CD cell out should be routed to waste

Dionex ICS-5000+ system



Note:

1. Tubing from CD cell out should be routed to waste
   - Pressure restrictor coils are required to be install at the CD cell outlet.



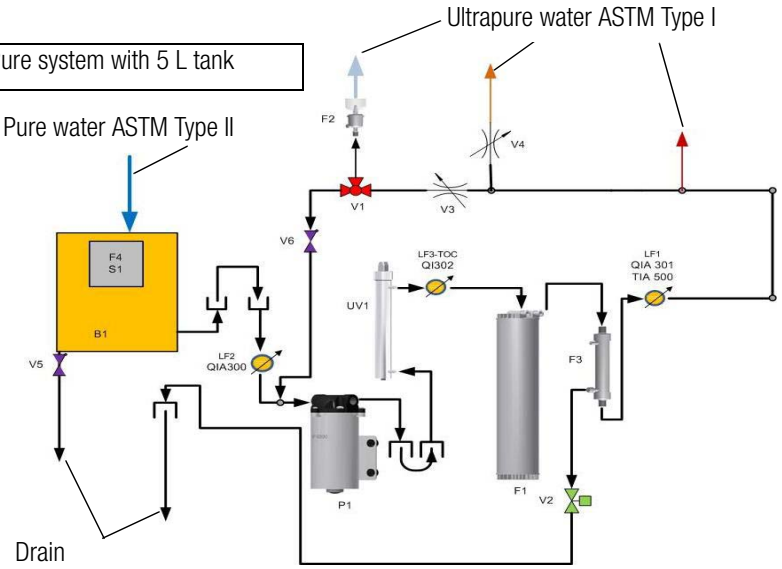
Note:

1. Tubing from CD cell out should be routed to waste
   - Pressure restrictor coils are required to be install at the CD cell outlet.

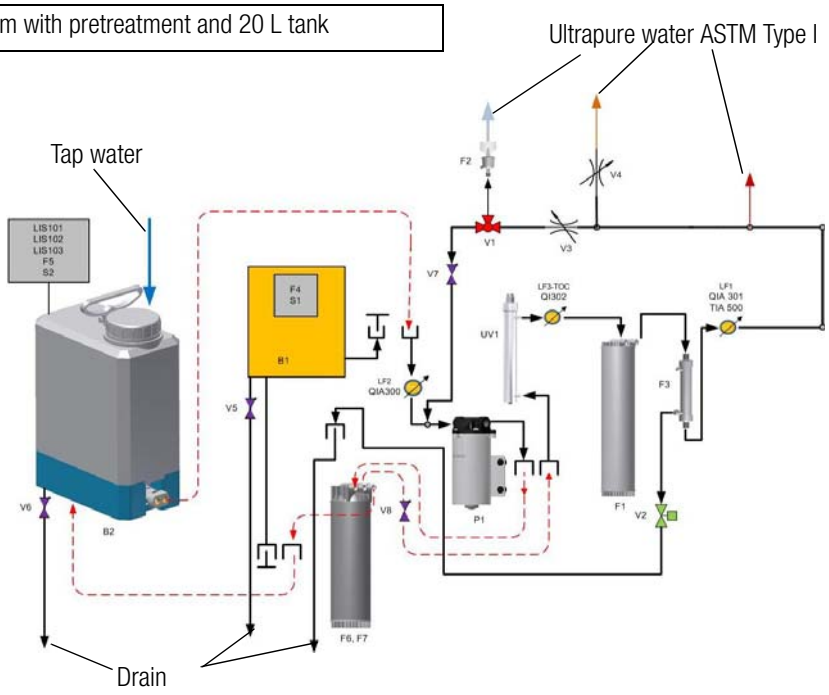
8

Flow chart

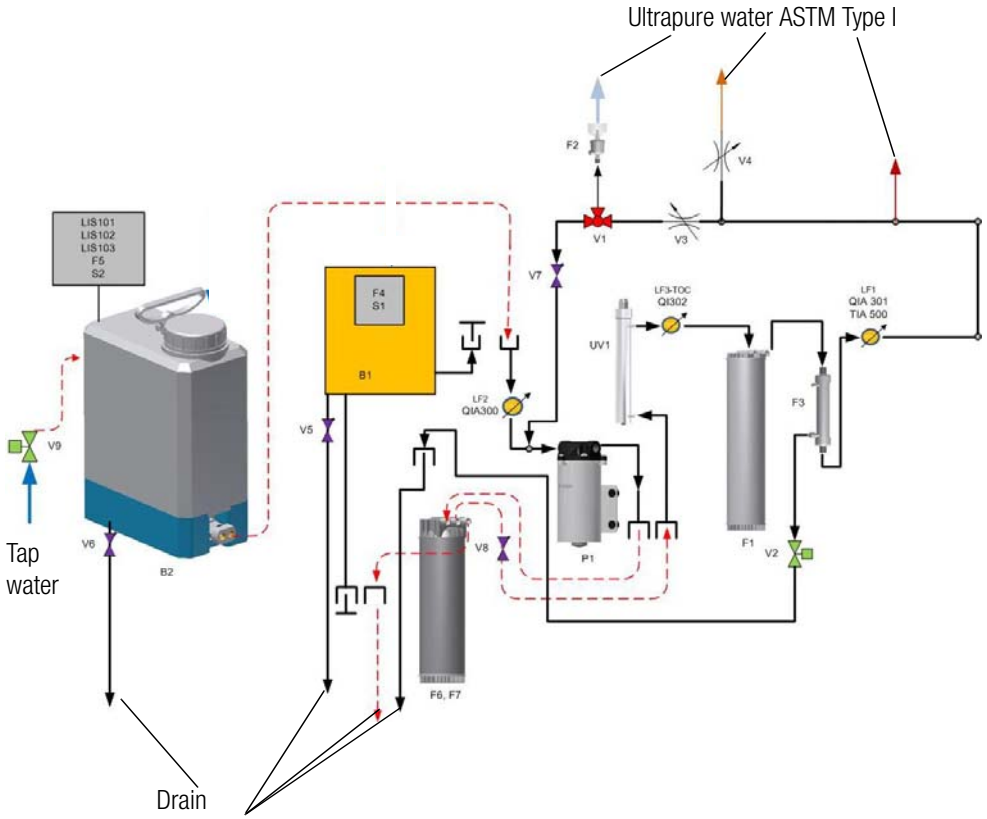
Dionex IC Pure system with 5 L tank



Dionex IC Pure system with pretreatment and 20 L tank



Dionex IC Pure system with pretreatment and external 20 L tank with level control



B1 5 L build in tank
B2 External tank (optional)
F1 ultrapure cartridge
F2 0.2 micron filter
F3 Ultra-filter
F4 Sterile vent filter
F5 Sterile vent filter (optional)
F6 Pretreatment cartridge with activated carbon (optional)
LIS100 Float switch
LIS 101 Float switch (optional)
LIS 102 Float switch (optional)
LIS 103 Float switch (optional)
P1 Pressure pump
UV1 UV lamp
QIA 300 Feedwater conductivity measuring cell
QIA 301/TIA500 Ultrapure water conductivity measuring cell + Temperature sensor
QI 302 TOC conductivity measuring cell

V1 Dispensing valve
V2 Rinsing solenoid valve
V3 Pressure hold valve
V4 Pressure hold valve
V5 Check valve 0 bar
V6 Check valve 0 bar
V7 Check valve 1bar
V8 Check valve 1bar
V9 Raw water solenoid valve
S2 Sterile overflow
S1 Sterile overflow (optional)

9

Functional Description

Dionex IC Pure system without pretreatment cartridge

ASTM Type II water is recirculated throughout the unit with a pump to the UV bulb, ultrapure cartridge and an ultrafilter. The purity of the water's conductivity/resistivity and TOC is monitored with sensors in the unit. ASTM Type I water can be sampled two ways from the unit: 1. manually through main dispenser and 0.2 µm final filter and 2. automatic dispensing from two points on Dionex IC Pure system to an external IC system. The unit is designed such that water can be taken from both sampling points simultaneously.

Dionex IC Pure system with pretreatment cartridge (Optional)

Using the pretreatment cartridge (activated carbon/reverse osmosis membrane) allows the system to be fed with potable tap water. The concentrate (waste) water must be routed to drain. Potable water must first be filled manually into the internal 5 L or external 20 L tank for operation of the unit. After the water is pumped through the pretreatment cartridge, it is then recirculated throughout the unit to the UV bulb, ultrapure cartridge and an ultrafilter. The purity of the water's conductivity/resistivity and TOC is monitored with sensors in the unit. As the concentrate discharge from reverse osmosis is routed into the tank, the ion concentration in the tank increases. This is the reason that the tank must be drained when at a level of 30% and when new potable water filled into the tank. ASTM Type I water can be sampled two ways from the unit: 1. manually through main dispenser and 0.2 µm final filter and 2. automatic dispensing from two points on Dionex IC Pure system to an external IC system. The unit is designed such that water can be taken from both sampling points simultaneously.

Dionex IC Pure system with external 20 L tank (Optional)

Requires manually filling 20 L external tank with ASTM Type 2 water or potable tap water, if using the pretreatment cartridge.The water from the storage tank is recirculated throughout the IC pure unit to the UV bulb, ultrapure cartridge and an ultrafilter. The purity of the water's conductivity/resistivity and TOC is monitored with sensors in the unit. ASTM Type I water can be sampled two ways from the unit: 1. manually through main dispenser and 0.2 µm final filter and 2. automatic dispensing from two points on Dionex IC Pure system to an external IC system. The unit is designed such that water can be taken from both sampling points simultaneously.

Dionex IC Pure system with external 20 L tank and level control (Optional)

The external 20 L tank with level control allows potable tap water to feed directly. If the level in the 20 L tank should fall to the minimum level, the tank is refilled automatically. After the water is pumped through the pretreatment cartridge, it is then recirculated throughout the unit to the UV bulb, ultrapure cartridge and an ultrafilter. The purity of the water's conductivity/resistivity and TOC is monitored with sensors in the unit. After the water is pumped through the pretreatment cartridge, it is recirculated throughout the unit to the UV bulb, ultrapure cartridge and an ultrafilter. ASTM Type I water can be sampled two ways from the unit: 1. manually through main dispenser and 0.2 µm final filter and 2. automatic dispensing from two points on Dionex IC Pure system to an external IC system. The unit is designed such that water can be taken from both sampling points simultaneously.

10

Initial start up

Content

Putting the system into operation

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

CAUTION Check that all tubing connections have been made as specified in the “Connections of the Dionex IC Pure system” on page 22 section.

Switch the system on by pressing the “On/Off“ button. After a compulsory rinse, the system returns to the last operating mode (Interval or Nonstop mode with IC system in Analyzer mode).

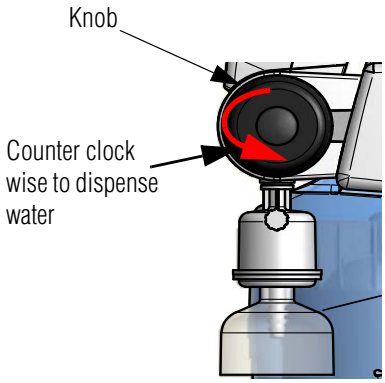
Note If an IC System is connected to the unit and switched on, “Analyser“ will appear on the control display of the Dionex IC Pure system. The Nonstop and Interval mode are then no longer available. The user menu can continue to be used, however.

Note To vent air from the system, switch the system 3 times successively to “Rinsing“ in the menu and discard approx. 5 L of water each time with the manual dispenser. The ultra pure water limiting value may come on during this process.

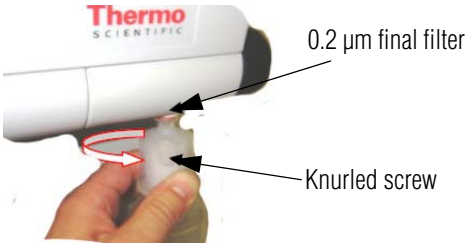
Use this 'NONSTOP'-key to switch the system to the “Nonstop“ operating mode.

When the unit has successfully reached the pure water value specified, return the unit to the “Interval“ mode automatically or by pressing the “INTERVAL“ button while it is in the “Nonstop“ mode.

Dispensing water from the Dispensing valve

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

Venting the 0.2 µm final filter

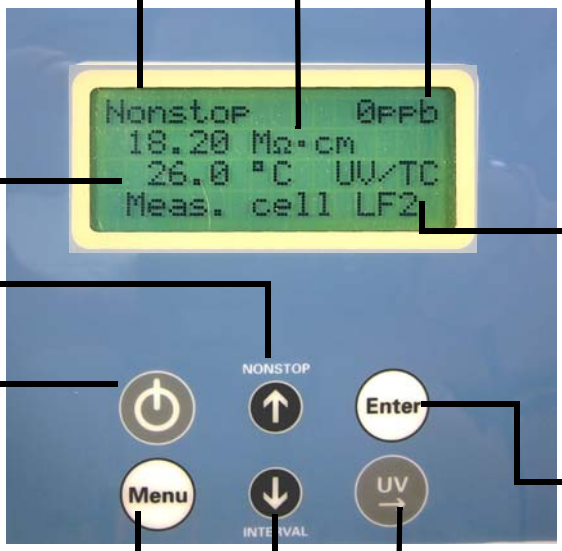
Step	Action	Figure
1	The first time you dispense pure water at the main dispenser through the 0.2 µm final filter, open the white knurled screw.	
2	Do not close the knurled screw until pure water runs out of the opening at the knurled screw continuously.	

11

Operating elements

Contents

Description of control display



Indicates the current operating status of the unit

Resistance value of the pure water

Indicates the TOC value.

Temperature measurement

Display for ON/OFF status, temperature, resistance indicator and operating status of the TC (temperature compensation is turned on).

For activating the Nonstop mode for sampling, for increasing the numeric values in the menu.

On/Off switch

Confirm the program and selection.

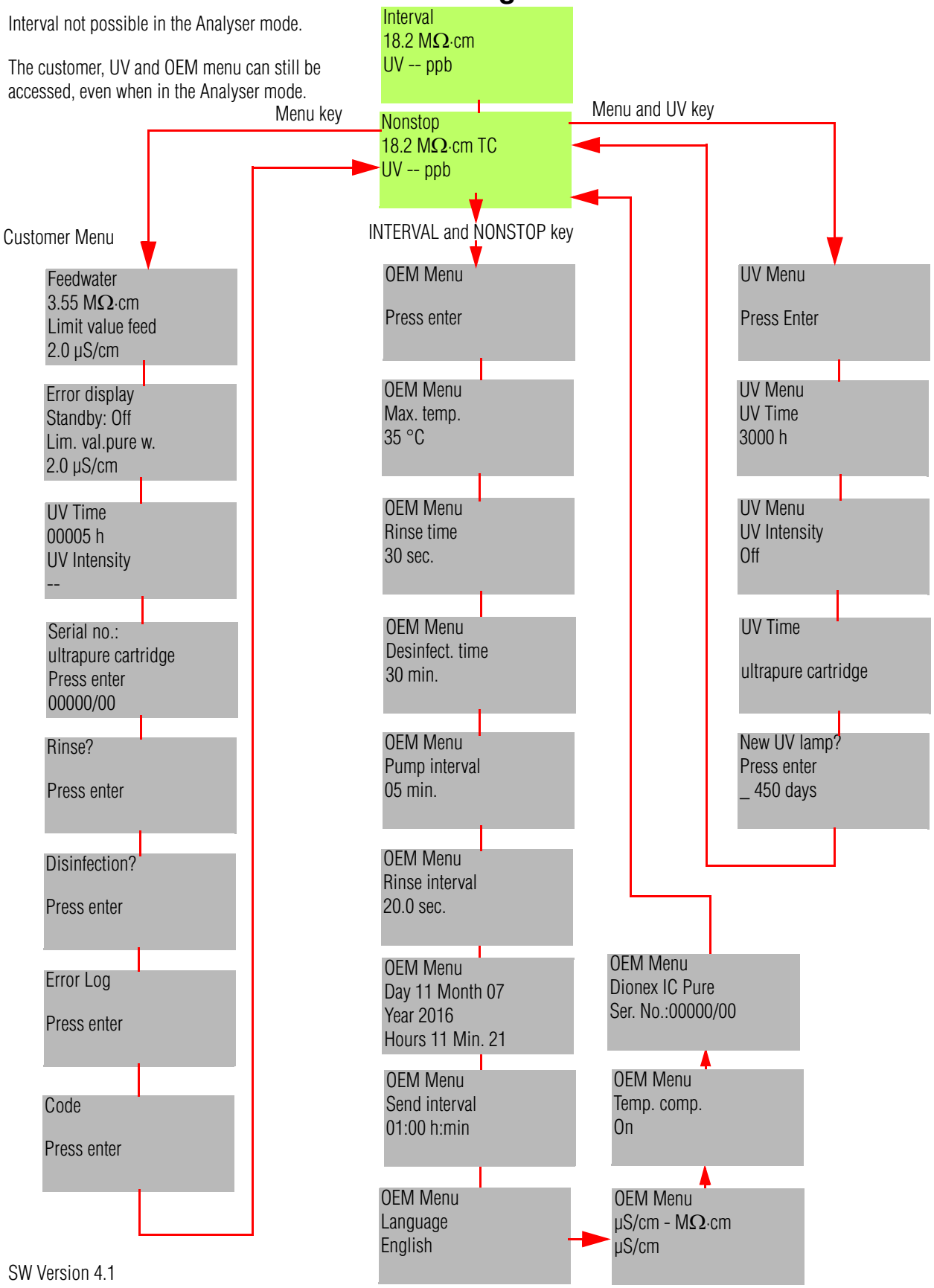
The Menu button provides access to the following system parameters:

- Feedwater limiting value
- Ultra pure water limiting value
- UV-Lamp operating time
- Cartridge number and maintenance interval
- Rinsing
- Disinfection
- Display of error storage
- Unlocking of the factory deerror settings using a password

For activation of the Interval mode, for decreasing of numeric values in the menu

UV button enables manual operation of the UV lamp. The desired value can be changed in the Mode menu.

Control menu flow diagram



12

System control

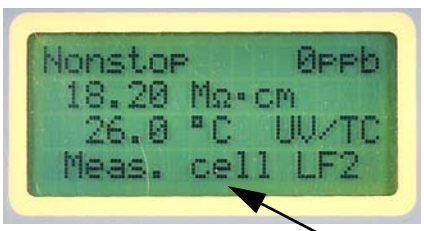
Contents

General

The unit is able to run in three modes: "Nonstop" with continuous recirculation with real time Conductivity/Resistivity and TOC readings, "Interval" mode with activated pump and UV at regular intervals to maintain purity during non use, "Analyser" mode when in use with an Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000^{+}, Dionex ICS-5000 or Dionex ICS-3000 system. TOC is only displayed when the unit is in “Nonstop“ and “Analyser“ mode.

Conductivity/Resistivity is displayed in every mode.

UV is shown on the display when the UV light in on. TC is showed if temperature compensation is on. In the event of an error, the fourth line of display will display most current error.



Failure message

Operating Modes

Interval mode

Press the “ON/OFF“ button. The control display initially displays the system version, the serial number of the unit and the software version number for 3 seconds. Upon start up, the control system switches automatically to the “Interval“ mode (see “Interval mode” on page 66). In the “Interval“ mode, the water is recirculated at regular intervals to maintain a constant quality of the pure water and prevent any growth of bacteria. Ultrapure water cannot be dispensed from the unit and TOC readings are not available during this time. The “UV“ text in the display indicates that the UV lamp is on. If the measured values are temperature-compensated, this is indicated by “TC“ in the display. The pure water measured values and temperature are also indicated. Messages and measured values are displayed regardless of the active operating mode.

Note When the IC system is switched off, then the Dionex IC Pure system is automatically switches into the “Interval“ mode. After 35 sec. the system is going to be rinses the ultra filter.

The display shows:

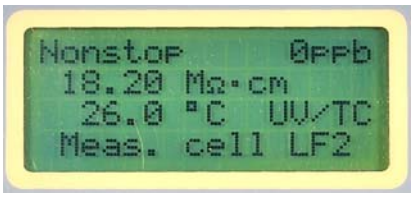
Normal mode

Analyser mode (Interval mode not possible)

NONSTOP mode

The control system switches the unit to the “Nonstop“ mode when the “NONSTOP“ button is pressed. The “Nonstop“ mode is the only mode in which pure water can be taken from the tap. The “Nonstop“ mode ends automatically at programmed intervals e.g. after 2 hours, or when you press the “INTERVAL“ button. The unit then continues to operate in the “Interval“ mode. The message “UV“ is displayed when the UV lamp is switched on. The UV lamp can only be switched on/off in the “Nonstop“ mode (see “UV lamp” on page 67). The TOC value is also only displayed in the “Nonstop“ mode, with the UV lamp switched on.

The display shows:

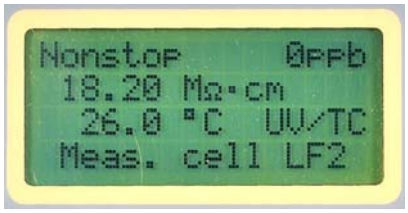


Picture shows Nonstop mode with error in the fourth line. Normally 3 lines are displayed

Picture shows Analyser mode when IC system cable is connected on the Dionex IC Pure system.

UV lamp

A press on the “UV“ button results in showing the letters “UV”. However the UV-lamp is only switched on, when the system is in “Nonstop“ operation. The UV-lamp is switched off at the end of “Nonstop“ operation. If the nonstop operation is ended manually (by pressing the nonstop button), the UV-lamp is switched off after glowing for 0.5 hours. The operating time of the UV-lamp is recorded and the “UV time” error message is displayed when the limiting value set for this time is exceeded. TOC measurement is also carried out during the time that the UV-lamp is glowing only. The display shows:



Picture shows Nonstop mode with error in the fourth line. Normally 3 lines are displayed

Note If an IC system is connected to the Dionex IC Pure system the UV lamp is operated permanently.

OFF mode

The unit is switched off by pressing the “ON/OFF“ button a second time. The display, along with all messages, then goes off.

User menu

All measured values, operating times and limiting values which are relevant for the user can be set and read in this menu. Press the “Menu“ button to scroll to the next menu item. Each further press on the “Menu“ button moves you further from one menu prompt to the next. Settings can be changed with the arrow keys. To change numbers use the “Arrow“ buttons to go from 0-9, and the “UV“ button to move to next digit. When you confirm a value by pressing on the “Enter“ button, you are taken to the next menu prompt. Settings can only be made when system control has been previously unlocked by entering a valid code number. (see “Entering a Code number” on page 71).

Feedwater limiting value

The feed water resistivity can be displayed by pressing the “Menu“ button once. The feed water limit value setting will display an error message "Feed.limit" in the fourth line of the display if the purity has dropped below acceptable limits. Note: the setting range is in conductivity.

Measuring range, feedwater: 10 – 0.01 MΩ·cm
Setting range, limiting value:0.1- 50.0 µS/cm
Basic setting: 0.2 µS/cm (5.0 MΩ·cm)

Set the limiting value using the “Arrow“ buttons (Nonstop button to increase the number, Interval button to decrease and UV button to move to the right). With settings above 50 µS/cm (0.02 MΩ·cm), the limiting value is switched off and the word off appears in the display.

Press the “Menu“ key once. The display shows:

Ultra pure water limiting value

Press the “Menu“ key twice to set the ultrapure water limit value. This sets an error message to occur when the system reaches the lowest acceptable level of purity. As soon as the error display is switched on, the error will be displayed in both “Interval“ and “Nonstop“ modes. When the error display is switched off, the error is only displayed in “Nonstop“ mode. The 'Lim. val.pure w.' message is displayed when the limiting value is exceeded.

Ultrapure water measuring range: 0.1 MΩ·cm
Limiting value setting range:0.055- 5.0 µS/cm
Basic setting: 0.2 µS/cm (10 MΩ·cm)
Basic setting, error suppression: On

With settings above 5.0 µS/cm, the limiting value is switched off and the word 'Off' is shown in the display.

Press the “Menu“ key two times. The display shows:

UV-Lamp operating time

In this menu, the operating hours of the UV-lamp are displayed. When the maximum operating time is reached, the “UV-time“ error message is triggered. The determination of UV-intensity is not possible for the Dionex IC Pure system. Therefore the display remains permanently as “UV-intensity - - -“.

Press the “Menu“ key three times. The display shows:

Note You can find more information in chapter “Replacing the UV lamp” on page 89

Ultrapure cartridge serial number

Press the “Menu“ key four times to enter the serial cartridge number. The display shows:

Note You can find more information in chapter “Changing the ultrapure cartridge” on page 79.

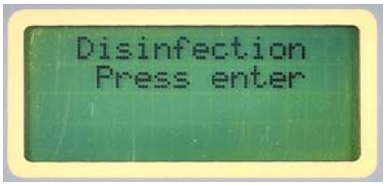
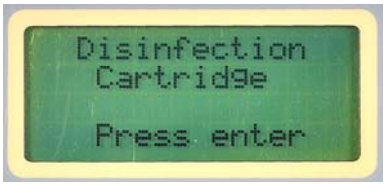
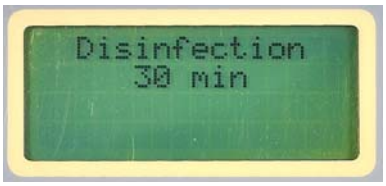
Rinsing procedure

The fifth press of the "Menu" button enters the Rinse mode. This rinses or flushes the unit to drain. During the rinse, the pump and solenoid valve (V4) are activated for a programmed period of time as set in the OEM menu. (see “Set the interval rinse time” on page 74).

Step	Action	Figure
1	Press the “Menu“ key five times. The display shows:	
2	Confirm rinse by pressing the “Enter“ button. The rinsing is started for 30 sec.	

Disinfection procedure

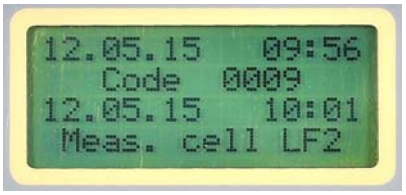
A sixth press on the “Menu“ button is used when disinfecting the system. This requires the disinfection adapter. Pressing the “Enter“ button confirms this, followed by the message “Disinfection cartridge must be fitted”. After the disinfection adapter has been fitted, a confirmation press on the “Enter“ button triggers the disinfection procedure. The pump starts for the full time set in the OEM-menu and, when the half of this time has elapsed, the rinsing solenoid valve opens until the disinfection procedure has finished. The message "New Filterset must be fitted" is then displayed. When this is fitted, a confirmation press on the “Enter“ button returns the system to the last operating mode. The remaining disinfection time is counted down and displayed during the disinfection procedure.

Step	Action	Figure
1	Press the “Menu“ key six times. The display shows:	
2	Confirm disinfection by pressing “Enter“. Exchange the ultrapure cartridge with the adapter for disinfection (see “Disinfection” on page 82).	
3	Confirm with “Enter“. The Disinfection is started for 30 min, indicating the remaining time.	

Note The completely process is described in the section “Disinfection” on page 82.

Error history

Confirmation of this prompt with “Enter“ allows the error storage to be looked through. Two errors, each with date and time, are shown in the display at any time. Pressing the “Arrow“ buttons takes you successively through the error messages. Press the “Menu“ button to end the error display. This takes you to the next menu prompt.

Step	Action	Figure
1	Press the “Menu“ key seven times. The display shows:	
2	Confirm error history by putting the “Enter“ button. Now you can see two last saved errors with date and time. The error code can be requested at the local service organization.	

Entering a Code number

To prevent unauthorized access to the system settings and factory settings, changes can only be made when a correct code number from the following Table is entered and confirmed with “Enter“. The unlocking is only active for a 5 minute period.

Press the “Menu“ key nine times. The display shows:

Note You can assign the permissible code numbers listed in the Table on the following page to appropriate members of the staff etc. When names have been entered, tear the page out and file it where it is safe from unauthorized viewing.

Note When you press the “Menu“ button you will exit the user menu and the unit automatically resumes its last operating mode (“Nonstop/ Interval“ or “Analyser“ mode)

Unlocking code

To prevent unauthorized access to the settings and factory settings, changes can only be made when a correct code number from the following Table is entered and confirmed with “Enter“. Existing programs are given on three levels. The first level provides access only to the Menu level (Code number 1, 2, 3). A second level provides access only to the Menu and OEM menu levels (Code number 4, 5, 6) (see chapter on OEM Menu for more information) and a third level provides access to the UV-Menu level (Code number 7).

Note Codes for access to all levels are not shown in the following table. The all levels Codes are intended for the Service specialist from Thermo Fisher Scientific only.

Code no.:

No.	Menu	No.	Menu + OEM menu	No.	UV-Menu
1	0150	4	0450	7	0750
2	0250	5	0550		
3	0350	6	0650		

OEM menu

Basic settings and limiting values can be changed in this menu. To make changes in the OEM menu, the system control must be unlocked (see “Entering a Code number” on page 71).

Accessing the OEM menu

Simultaneous presses on the “INTERVAL“ button and the “NONSTOP“ button bring you to the OEM-menu. The display shows “OEM-Menu Press enter!”. On confirming this by pressing the “Enter“ button, the first menu point is called to be worked on. To simplify making changes, a press on the “UV“ button allows the position that is to be changed in a number to be selected, so that the “Arrow“ buttons can be used to replace it with any digit from 0 – 9. A press on the “Menu“ button takes you to the next menu prompt. After system control has been unlocked, simultaneous presses on the “INTERVAL“ button and the “NONSTOP“ button call the OEM menu. Following this, the “OEM menu Press Enter” prompt is displayed. When this is confirmed with “Enter“, the first menu prompt can be worked on. To simplify changing settings, press the “UV“ button to select the individual number in the numerical value which you want to change. Now use the “Arrow“ buttons to enter the wanted number from 0 to 9 at that selected position.

The display shows:

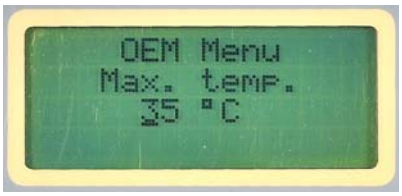
Note Use Menu button to scroll through menu items. Use enter only to save changed values.

Set the limiting value for temperature

The maximum operating temperature limit for the system is set here. Should this temperature be exceeded, the error message “Max. temperature” is triggered. This is shown in the 3rd line of the display.

Basic setting: 35 °C
Setting range: 1 - 50 °C

After entering the OEM menu, press the “Menu“ button one time. The display shows:



Set the rinsing time

In this Menu point you can set the manually rinsing time. Rinse time is the amount of time the V4 Solenoid valve is opened to flush water to drain. This is helpful to purge air or impurities from the system.

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

After entering the OEM menu, press the “Menu“ button two times. The display shows:

Change the disinfection time

The disinfection time can be set in this menu. Disinfection time is the length of time required by the instrument to circulate the cleaning solution in the system.

Basic setting: 30 minutes
Setting range: 15 - 90 minutes

After entering the OEM menu, press the “Menu“ button three times. The display shows:

Set the interval pump time

The interval pump time is the amount of time the pump is working to recirculate water in the system. The standard setting is 5 minutes of pump recirculation for every 30 minutes that the system stands still during “Interval mode“. The majority of systems do not need this setting to be changed.

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

After entering the OEM menu, press the “Menu“ button four times. The display shows:

Note The system is factory adjusted in the system control. In this section it is not necessary to be carried out changes of value for operating with an IC system.

Set the interval rinse time

In this menu the rinse interval time can be set. When the system operates in the Interval mode, the system will rinse water to drain for 0.5 seconds every 30 minutes.

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

After entering the OEM menu, press the “Menu“ button five times. The display shows:

Set the real-time clock

The real-time clock can be set in this menu.

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

After entering the OEM menu, press the “Menu“ button six times. The display shows:

Set the sending interval

In this menu the sending interval between transmissions of measured values and error messages to the RS 232 is set.

Basic setting: 1 hour
Setting range: 0.5 - 12 hours

After entering the OEM menu, press the “Menu“ button seven times. The display shows:

Language selection

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

After entering the OEM menu, press the “Menu“ button eight times. The display shows:

Select units, conductivity/resistance

Basic setting: Resistance MΩ·cm
Setting range: Resistance MΩ·cm, Conductivity µS/cm

After entering the OEM menu, press the “Menu“ button nine times. The display shows:

Switch temperature compensation on/off

Note Turning the temperature compensation off will cause the displayed purity readings to change according to the water temperature.

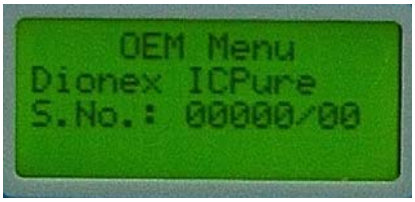
Basic setting: on
Setting range: on, off

After entering the OEM menu, press the “Menu“ button ten times. The display shows:

Entering the serial number

Under this menu, the serial number of the unit can be viewed. However, the serial number of the system is an unalterable factory setting.

After accessing the OEM menu, press the “Menu“ button eleven times. The display shows:



Note The system is factory adjusted in the system control. In this section it is not necessary to be carried out changes of value for operating with an IC system.

13

Maintenance

Content

Regular servicing of the unit ensures that the quality of the treated water will remain constant. To ensure that your unit is serviced properly we recommend that you obtain a maintenance contract with a service company authorized by the manufacturer. You can then be certain that your unit will have a high degree of operational reliability and dependability.

To ensure that your unit functions without any errors, it must be checked, maintained and serviced at regular intervals as described in these operating instructions. The operating instructions must be kept in an easily accessible location for anyone who is using or servicing the unit.

Calibration of the conductivity sensor may only be performed by a service technician authorized by the manufacturer.

Cleaning and disinfection of the unit should be performed annually. Disinfection must also be performed in the event of a high bacteria content or impurities in the product water and when changing the ultrapure cartridge.

CAUTION Checks or maintenance work on electrical equipment are only to be carried out by qualified electricians.

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

Maintenance Intervals

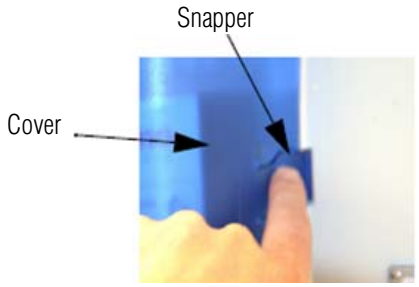
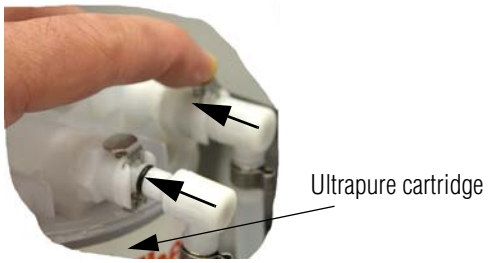
Wear parts must be replaced in accordance with the following table. The intervals have been established for the user and depend on the actual, exact water quality and the volume of water that is used daily.

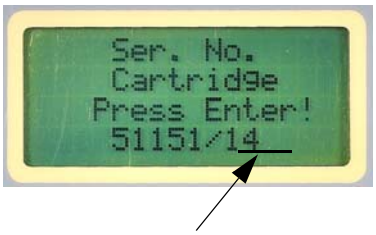
Material	Flow chart no.	Item No..	Interval	Other problems
Ultrapure cartridge	F1	09.1006	up to 12 months	Or when the pure water limit value is exceeded, whichever occurs first. Bacteria growth may occur in the resin when the unit has been in use over an extended period.
Sterile filter 0.2 µm	F2	09.1003	up to 12 months	Or the flow rate is markedly slower
Ultrafiltration membrane (UF)	F3	50133980	up to 24 months	Or if there is endotoxin breakthrough in product water or when the water flow rate is markedly slowler.
UV lamp	UV1	09.1002	up to 24 months	Or the unit indicates that the UV lamp must be replaced.
Pretreatment cartridge (optional)	F6	09.2012	up to 6 months	Or when the ultrapure cartridge has shorter life time than excepted.

Please note that the lifetime of the wear parts is a direct function of the quality of the feedwater and the daily volume of water that is used.

Changing the ultrapure cartridge

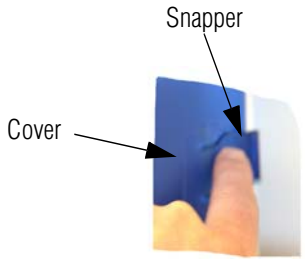
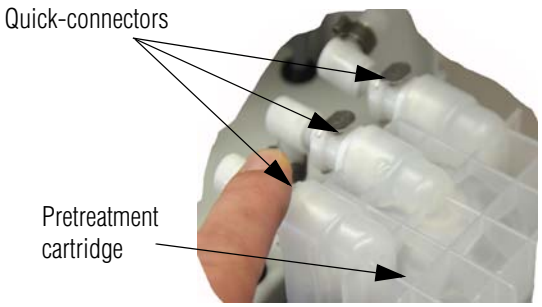
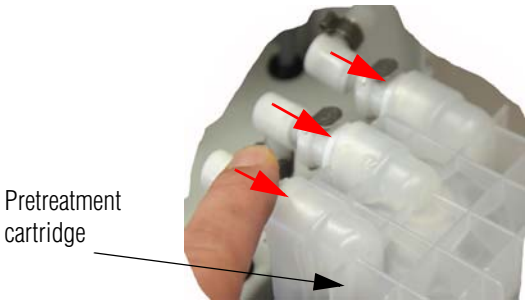
Note Replace the ultrapure cartridge when the “Lim. val.pure w.“ message is displayed indicating the purity dropped below acceptable levels or when the “New filter set” message is shown in the display.

Step	Action	Figure
1	Switch the system off.	
2	Remove the cover in front of the ultrapure cartridge and press the snapper and pull the cover towards the front to remove it.	
3	Press on the two quick-connectors at the inlet and outlet of the ultrapure cartridge and remove the used cartridge.	
4	We recommend performing a disinfection when an existing ultrapure cartridge is replaced.	**Note** Refer to section “Disinfection” on page 82 for an explanation of how to perform disinfection
5	Place the ultrapure cartridge in the rear section of the unit and insert the two quick-connectors into the ultrapure cartridge. When you hear an audible click you can be sure that the quick-action fasteners have been inserted correctly. **Note** The quick-connectors are attached to the unit in such a manner so as to prevent any confusion (switching).	
6	Put the cover for the ultrapure cartridge back in place and switch the unit on.	

Step	Action	Figure
7	**Note** For this action you must have a Level 1 code. Refer to section “Entering a Code number” on page 71 to read where to find this code and how to enter it. a. Keep pressing the “Menu“ button until you see “Ser. No.: Cartridge“ in the display. b. Enter the new serial number. Use the “NONSTOP and INTERVAL“ button to change the numeric values and the “UV“ button to move to the next value. c. After you have entered the serial number, confirm your entry by pressing “Enter“. The new serial number for the ultrapure cartridge is then stored. You can only use a ultrapure cartridge serial number one time.	a.)  b.)  c.) 
8	**Note** Discharge the first 5 L.	

Replacing the pretreament cartridge (optional)

Note The pretreatment cartridge should only be replaced when the maximum limit for the feedwater has been exceeded, when you cannot extract any water from the sampling tap, or when the replacement interval is due.

Step	Action	Figure
1	Switch the system off.	
2	Remove the cover over the pretreatment cartridge by pressing the snapper and pull the cover forward.	
3	Press on the three quick-connectors on the cover of the pretreatment cartridge, remove the used cartridge from the unit and plug the inlets using the yellow plugs that you removed when the cartridge was first installed or with the yellow plugs that came with replacement cartridge in step 4 below.	
4	Locate the new pretreatment cartridge and insert the cartridge into the unit.	
5	Insert the quick-connectors into the connecting points on the new pretreatment cartridge. When you hear an audible click you can be sure that the quick-connectors have been inserted correctly. **Note** The quick-connectors are attached to the unit in such a manner so as to prevent any confusion (switching)	
6	Put the cover back in place and switch the unit on.	

Disinfection

The Dionex IC Pure system can only be disinfected as a 'stand-alone' process and cannot be performed while in operation with an IC system.

Perform the following steps if an ion chromatograph system is connected to the Dionex IC Pure system:

- Switch off the IC system and remove the level switch cable for the Dionex Integrion and Dionex ICS-2100, Dionex ICS-4000, Dionex ICS-5000^{+}, Dionex ICS-5000 or Dionex ICS-3000 system from the Dionex IC Pure system.
- Disconnect the tubes for the IC system from the connections at the Dionex IC Pure system.

Required for disinfection is the disinfection adapter (item no: 50133431) purchase separately.

Use the following disinfecting agent:

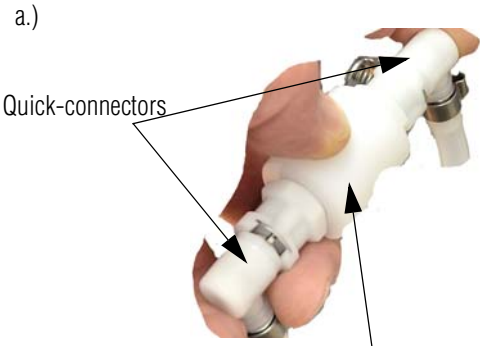
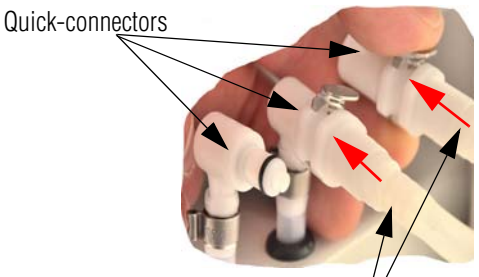
Cleaning Solution, 1 syringe, item no.: CMX 25.

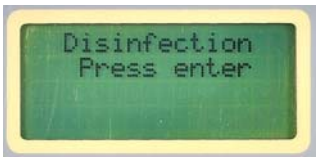
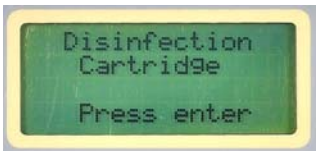
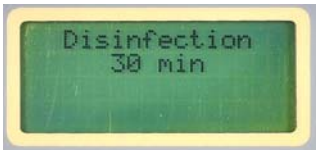
Note To ensure effective disinfection of your unit fill the internal 5 L or external 20 L tank 80% with water. You can read off the level of both tanks using the additional tank indicator on the unit.

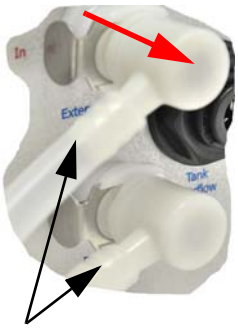
Always wear protective gloves when handling the cleaning solution.

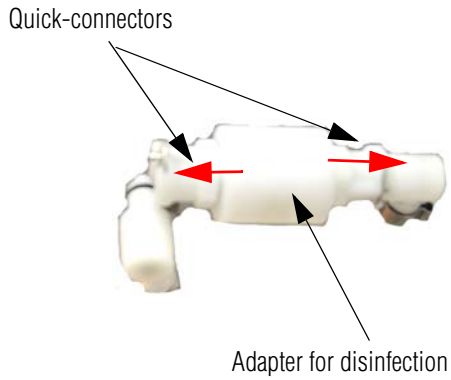
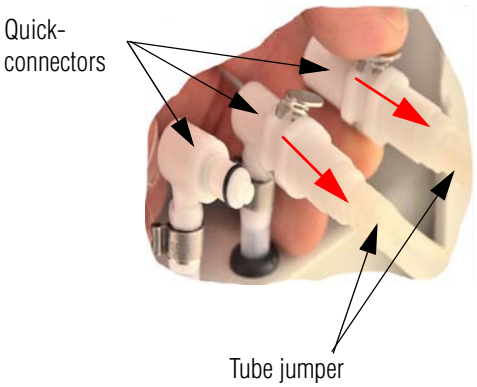
Always wear safety goggles when handling the cleaning solution.

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

Step	Action	Figure
1	a. Switch the system off. If the external 20 L tank with level control is connected to a feedwater supply source, close off the feedwater supply. b. Remove the ultrapure cartridge. (see “Changing the ultrapure cartridge” on page 79). If an optional pretreatment cartridge is installed, remove this too (see “Replacing the pretreament cartridge (optional)” on page 80).	
2	a. Click in the adapter for disinfection into the both quick-connectors for the ultrapure cartridge.When you hear an audible click you can be sure that the quick-connectors have been inserted correctly. **Note** If you are using an optional pretreatment cartridge, the tube jumper will be required for the pretreatment cartridge. This jumper was removed in the section ‘Connection of a Pretreatment cartridge‘ for later use.(see “ Installation” on page 21). b. Of the three pretreatment connections on the unit, fit the right and center on in the tube jumper. When you hear an audible click here you can be sure that the quick-action fasteners have been inserted correctly.	a.)  b.) 

Step	Action	Figure
3	  Always wear protective gloves and goggles when handling the disinfecting agent cleaning solution. a. Fill the internal 5 L tank or the external 20 L tank 80% with water and pour the content of one syringe cleaning solution into the tank. You can view the level of both tanks at the additional tank indicator on the unit. b. Switch on the unit, open the sampling tap, extract 1 L of water and then close the sampling tap. **Note** There is no cause of worry should you notice a chlorine smell during the entire disinfection process, as there is no risk of exceeding the limit for chlorine gas in closed rooms.	
4	Keep pressing the “Menu“ button until “Code“ appears in the display and then press “Enter“. **Note** For this action you must have a Level 1 code. Refer to section “Entering a Code number” on page 66 for the code to be used for this and how to enter the code. a. In the user menu, press the “Menu“ button to scroll to “Disinfection“. Press “Enter“. b. The display shows “Disinfection cartridge“. Press “Enter“ to confirm that Disinfection cartridge or Disinfection adapter has been installed. c. The disinfection process is then started. **Note** Disinfection is completed after 30 minutes. The remaining time is displayed.	a.)  b.)  c.) 

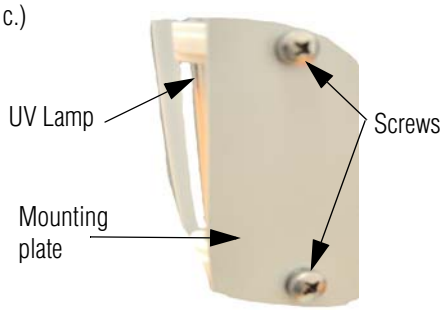
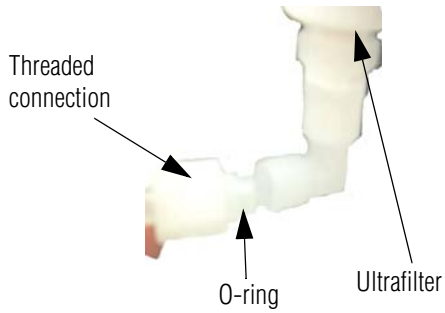
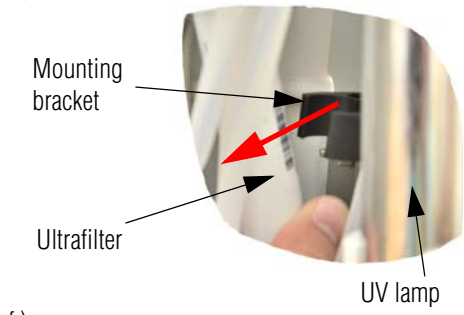
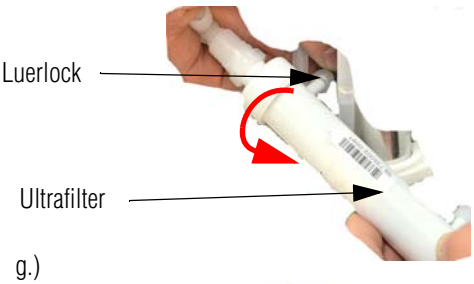
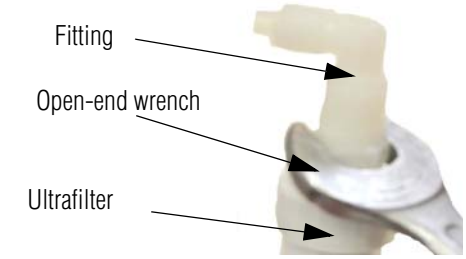
Step	Action	Figure
5	a. After 30 minutes, disinfection cycle completely drains the tank content through the sampling tap. To completely rinse out the disinfection solution and contaminated water, the tank is filled up and drained twice. **Note** To drain the content of the 5 L tank, the Dionex IC Pure system must be in “Nonstop“ mode. b. If the external 20 L tank is also connected, switch the unit off and remove the supply line from the connection on the Dionex IC Pure system for the 20 L tank. c. Attach a drain fitting to the supply tube and drain the complete tank. d. After this, run one complete tank filling of feedwater through the 20 L tank and then reattach the supply line for the 20 L tank to the connection on the Dionex IC Pure system. e. Switch the Dionex IC Pure system off and refill the tank completely with feedwater. **Note** If the external 20 L tank with level control is connected it will be filled automatically. If the instrument is not attached to a feedwater supply, fill the tank manually. f. Switch the unit back on and dispense around 10 L of water from the external tank at the sampling tap. **Note** To dispense the amount of 10 L of water, the Dionex IC Pure system must be in the Nonstop mode.	b.)  o.d. 8 mm (0.31 in) tubes c.) Supply tube from external 20 L tank to the unit  Drain fitting

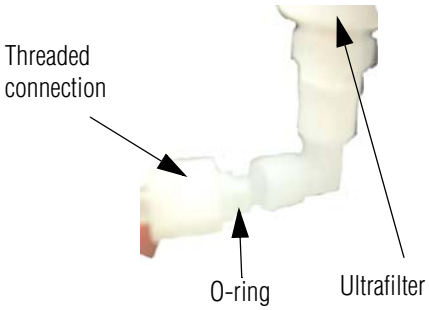
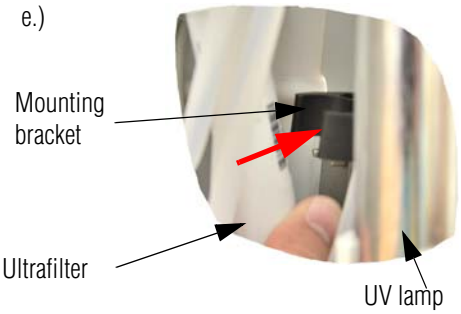
Step	Action	Figure
6	a. Switch off the unit, remove the disinfection adapter by pressing on the quick-connectors and install the new ultrapure cartridge (see “Changing the ultrapure cartridge” on page 79). b. If an optional pretreatment cartridge is installed, remove the cartridge tube jumper by pressing on the quick-connectors at the connections for the pretreatment cartridge and then install a new pretreatment cartridge (see “Replacing the pretreament cartridge (optional)” on page 80).	a.)  b.) 
7	Switch the system on.	

Changing the ultrafilter

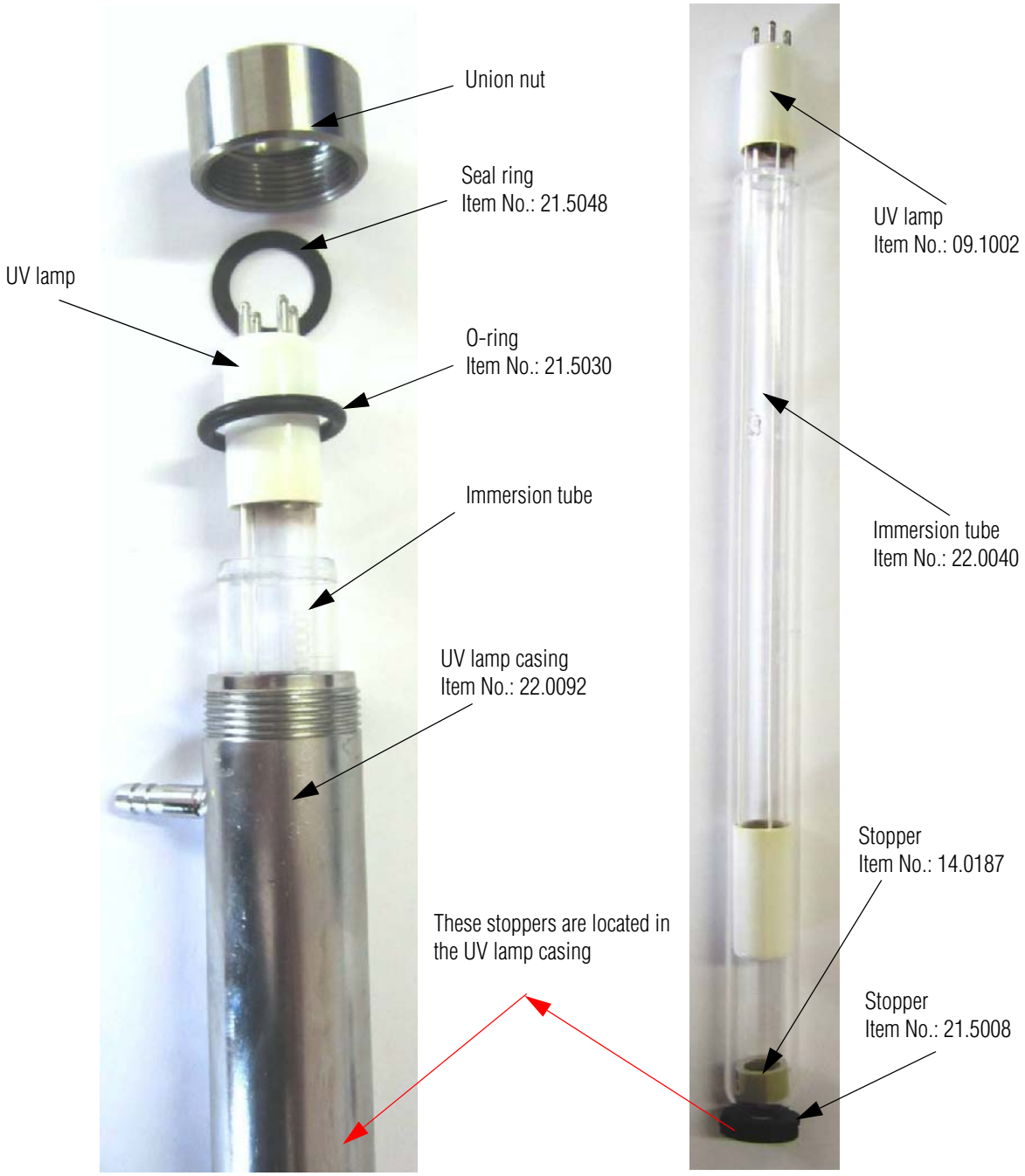
Note You will need the following tools for replacing the ultra-filter: Open-end wrench, size 17, Phillips screwdriver and Teflon strip

Step	Action	Figure
1	Switch the system off and unplug from power supply	

Step	Action	Figure
2	a. Remove the cover from the unit. b. Take out the ultrapure cartridge and the (optional) pretreatment cartridge (see “Changing the ultrapure cartridge” on page 79 and “Replacing the pretreament cartridge (optional)” on page 80). c. Use the Phillips screwdriver to unscrew the screws from the bracket for the UV lamp and pull the UV assembly out toward the front. d. Unscrew the threaded connection screws by hand on the o.d. 8 mm (0.31in) fittings of the ultra-filter and pull the tubes out. **Note** Ensure that the white O-rings on the o.d. 8 mm (0.31 in) tubes are not lost in the process. You will need these again for re-attaching the tubes later. e. Pull the ultra-filter out of the mounting bracket. f. Hold the tube still attached to it with one hand while rotating the ultra-filter in a counter-clockwise direction with the other hand until the Luerlock is loosened and you can pull the ultra-filter out of the unit. g. Mark the position of the fittings before removing them. Use the open-end wrench size 17 mm (0.67 in) to unscrew the top and bottom fittings on the ultrafilter.	c.)  d.)  e.)  f.)  g.) 

Step	Action	Figure
3	**Note** When you install a new ultrafilter ensure that the arrow on the filter corresponds to the direction of flow through the filter (it must point upward). a. Take the new ultrafilter and wrap the top and bottom threads with Teflon strip (roughly 3 times around). b. Take the fittings that you unscrewed in step 2g and screw them into the same position that they were in the old ultrafilter. Use the 17 mm (0.67 in) open-end wrench for this. c. After this, rotate the Luerlock into the ultrafilter in the reverse order that you removed it (see Step 2f). d. Insert the tubes into the top and bottom connection for the ultrafilter and screw the fittings securely into place. e. Insert the ultrafilter back into the mounting bracket. f. Screw the UV assembly back into place (see Step 2c).	a.)  d.)  e.) 
4	Replace the cover on the unit, open the supply of the feedwater once the unit has been connected to the 20 L tank filling station and switch the unit on. Dispense 5 L of water and activate three rinses for the UF.	

UV-reactor assembly



Replacing the UV lamp

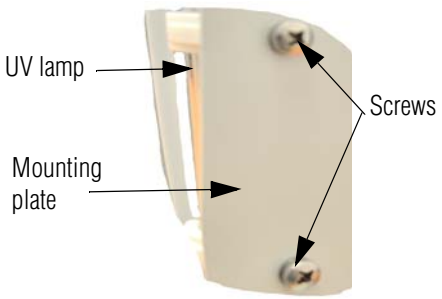
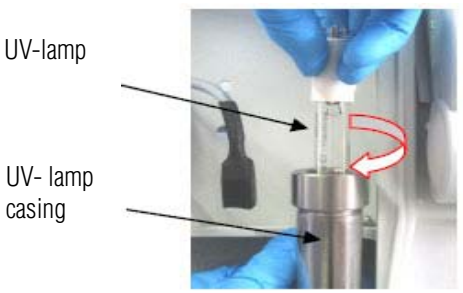
CAUTION Never look directly into a UV lamp when it is on. It could damage your sight.

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, filter category FFP3, when you are seeing that the glass of the UV-lamp is broken and ventilate the room well.

Note Contact your local service organization for proper disposal of the broken UV-lamp.

Note The Hg content in the UV-lamp is so low so that no damage to the environment can arise.

Step	Action	Figure
1	Switch the Dionex IC Pure system off.	
2	Remove the cover for the ultrapure cartridge.	
3	a. Take the ultrapure cartridge out of the unit (see “Changing the ultrapure cartridge” on page 79). If an optional pretreatment cartridge is installed, remove it too (see “Replacing the pretreament cartridge (optional)” on page 80). b. Use the Phillips screwdriver to unscrew the two screws from the bracket for the UV assembly.	b.) 
4	**Note** To easily remove the UV lamp in the next step, pull the UV lamp out by about 1 cm while still plugged in.	
5	a. Carefully unplug the plug for the UV lamp. b. Now, carefully pull the UV lamp up while turning it slightly in a clockwise direction at the same time.	

Step	Action	Figure
6		

CAUTION When you are removing the UV lamp you must ensure that the glass of the UV lamp is not soiled or that you do not touch it with your fingers. This could impair proper functioning of the lamp. We therefore recommend that you wear clean, disposable gloves when performing this work.

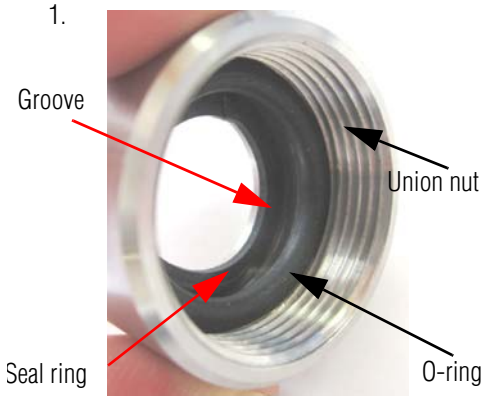
CAUTION When installing a new UV lamp ensure that the flat seal ring and the O-ring are on the correct position. The flat seal ring must fit exactly in the groove provided for it on the top of the union nut (figure 1 and 2). The O-ring fits in the bottom groove in the union nut (figure 1). If these items do not fit exactly in the grooves and you restart the unit, the UV assembly will not be leak-tight at these locations.

.

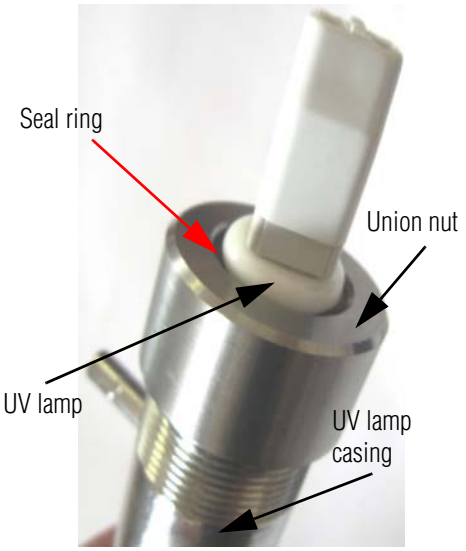
a. Now, carefully rotate a new UV lamp into place by turning it in a counter-clockwise direction into the UV assembly.

b. You can then reattach the plug to the UV lamp and retighten the UV assembly on the mounting plate using the two retaining brackets and the two screws that you removed previously.

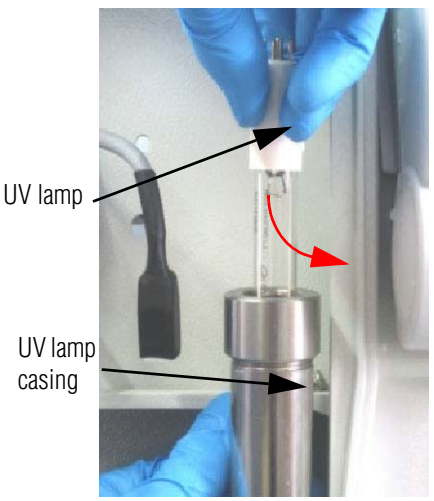
1.



2.

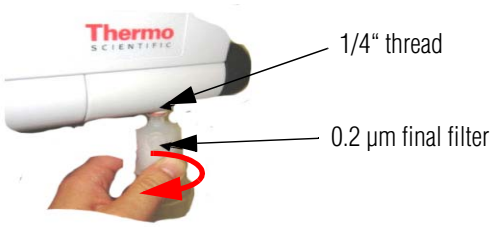


a)



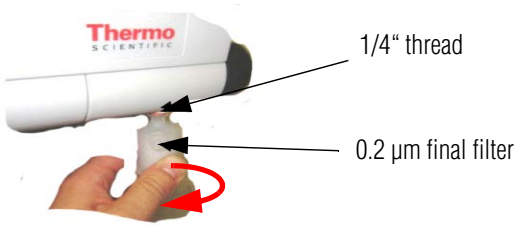
Step	Action	Figure
7	Insert the ultrapure cartridge back into the unit (see “Changing the ultrapure cartridge” on page 79). If an optional pretreatment cartridge is used, install it also in the unit (see “Replacing the pretreament cartridge (optional)” on page 80).	
8	Switch the system on. If the unit is connected to an external 20 L tank with level control, open the supply of feedwater.	
9	**Note** For this action you must have a Level 3 code. Refer to section “Entering a Code number” on page 71 to read where to find this code and how to enter it. c. After entering the code push the “Menu and UV“ button simultaneously. The display shows “UV Menu“. d. Push the “Menu“ button repeatedly until new UV-lamp appears and press enter to confirm. The Display shows then “Please wait“. **Note** The system sets the operating hours counter of the UV-lamp back and saves the new values by an automatically calibration.	a.)  b.) 

Replacing the 0.2 µm final filter

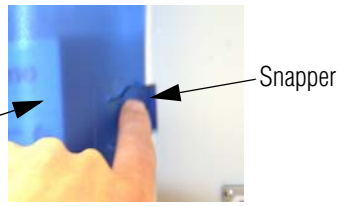
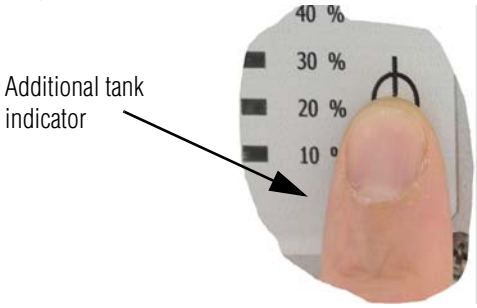
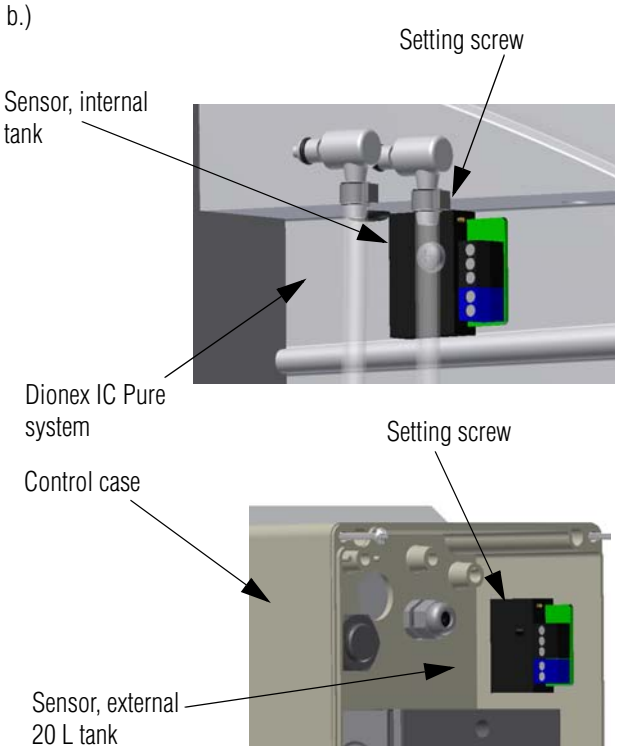
Step	Action	Figure
1	Rotate the exhausted or clogged sterile filter in a clockwise position to remove it.	
2	Unpack the new sterile filter and screw it into the bottom 1/4“ thread on the sampling tap.	

Autoclaving the 0.2 µm final filter

Note The lifetime of the sterile filter can be prolonged by sterilizing it. Proceed as follows to autoclave the sterile filter.

Step	Action	Figure
1	Rotate the used sterile filter in a clockwise direction to remove it.	
2	Use an autoclave to sterilize the sterile filter in a steam autoclave at 121 °C for 30 minutes. You can repeat the sterilization process for the sterile filter up to 5 times. When sterilization is completed, screw the sterile filter back into the 1/4“ thread on the sampling tap (see “Replacing the 0.2 µm final filter” on page 92).	**Note** If you wish to remove purified water and the flow rate is too low, this is an indication that the sterile filter is clogged. In this case, read the description in section “Troubleshooting” on page 99, or replace the sterile filter with a new one.

Recalibration of the tank sensor for an additional tank indicator

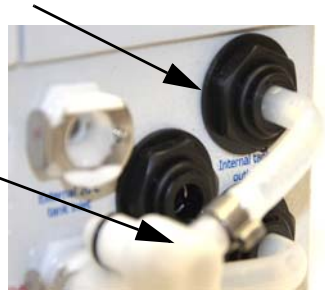
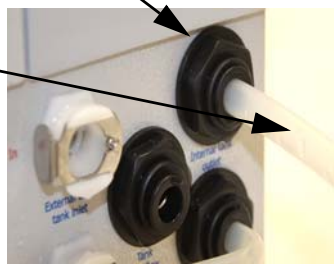
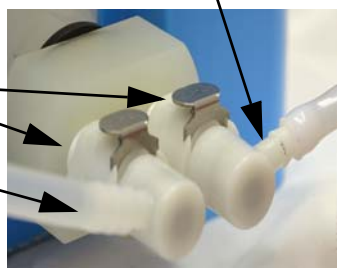
Step	Action	Figure
1	a. Switch the system off. Turn off the feedwater if using the external 20 L tank with level control. b. Remove the cover from the ultrapure cartridge by pressing the snapper and pull the cover off towards the front.	b.) 
2	**Note** A small setting screw is also located on the sensor module. You can use this screw for adjustment the additional tank indicator. On the internal tank the sensor module is located above the ultra pure water measuring cell; on the external 20 L tank it is located under the top of the control case. For getting access to the sensor on the external 20 L tank you must be remove the 6 screws from the cover of the control case. a. Switch on the additional tank indicator, fill the internal or external tank with water until the additional indicator shows a level of 20% in both tanks. b. Continue the filling of internal or external tank with water until the additional tank indicator shows a level of 100% c. Locate the setting screw of the sensor for additional tank indicator and rotate the setting screw until the indicator shows 90%. d. Stop the rotating of the setting screw as soon as it reaches 100% on the tank indicator display.	a.)  b.) 

Step	Action	Figure
3	Put the cartridge cover and/ or the control case back in place.	
4	Switch on the Dionex IC Pure system and open the supply of feedwater when an external 20 L tank with level control is connected to the system.	

Draining the internal 5 L and external 20 L tank

Note This process is required only when you operate your Dionex IC Pure system with a pretreatment cartridge and without any external 20 L tank with level control.

CAUTION Without the external 20 L tank with level control, the concentrate of the pretreatment cartridge is redirected into the tank, which degrades the feedwater purity and increases the conductivity. Therefore, at a filling level of 30% the tank water needs to be changed to prevent the shortening of the ultrapure cartridge lifetime.

Step	Action	Figure
1	Switch off the unit and close the supply of feedwater if your unit is connected with an external tank filling station.	
2	a. When using a standard unit with an internal 5 L tank, disconnect the tube jumper at the 'Internal tank inlet' connection. Take the “drain piece for tank IC Pure“ (o.d. 8 mm (0.31 in) tube with female quick disconnect) tube supplied with the unit and attach it to the 'Internal tank outlet' connection for the tube jumper and route the tube with a slight downward slope to the drain (see “ Installation” on page 21). When you hear an audible click, the quick-connectors have been inserted correctly. b. When using an external 20 L tank, take the Take the “drain piece for tank IC Pure“ (o.d. 8 mm (0.31 in) tube with female quick disconnect) supplied with it and attach it to the bottom connection on the front of the 20 L tank and route the tube with a slight downward slope to the drain (see “Illustration of drain” on page 33). When you hear an audible click, the quick-connectors have been inserted correctly. **Note** Let the remaining contents of both tanks drain completely .	a.) Internal tank outlet unit Tube jumper  Internal tank outlet unit o.d. 8 mm (0.31 in) tube  b.) Tube for draining 20 L tank connection Tube to unit 
3	a. Once the remaining contents of both tanks have been drained completely, remove the draining tubes from the unit or from the external 20 L tank, reattach the tube jumper to the Dionex IC Pure system and manually refill the internal 5 L or external 20 L tank completely. b. Switch the system on.	

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Waste disposal

Note

Before returning your Dionex IC Pure system 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. 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.

15

Troubleshooting

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

Error	Cause	Remedy
The system does not start	• No supply of power	• Provide power
Dispensing not possible	• Feedwater supply line for external tank filling station closed	• Open the feedwater supply line
	• Feedwater and rinse water connections are mixed up	• Replace connections
	• Feedwater pressure < 100 kPa (14.5 psi)	• Increase feedwater pressure
	• Sterile filter blocked	• Replace the sterile filter (see “Replacing the 0.2 µm final filter” on page 92
	• Pretreatment cartridge blocked	• Install new pretreatment cartridge
Resistance < 18.2 MΩ·cm	• Cartridge is exhausted	• Check feedwater quality
	• Temperature compensation deactivated, recalibration required	• Activating temperature compensation ('TC' should appear in the display) Contact the service organization for calibration
Control panel non responsive	• Microprocessor locked up	• Unplug the mains plug for 5 seconds.
	• PCB error	• Contact the Thermo Fisher Scientific service department
Water leak	• Leaky tubing connection	• Check and seal the tubing connection
	• Feedwater pressure > 600 kPa (87 psi) (external tank filling station only)	• Install a pressure reducer
		• Contact the Thermo Fisher Scientific service department

Error	Cause	Remedy
Dispensed water flow rate is too low	• UF-Module blocked • Initial pressure too low (external 20 L tank with level control) • Internal pressure too low • Dispensed water flow rate out of the tolerance range • 0.2 µm final filter is clogged • Air look in unit	• Replace UF-module (see “Changing the ultrafilter” on page 86) • Set the pressure regulator • Readjust pressure reducer • Contact Thermo Scientific for calibration • Replace the 0.2 µm final filter • Dispense water at POU or rinse to purge air from the system
Display of TOC content permanently at 99 ppb	• UV lamp not burned in / counter reset • TOC measuring cell defective	• Replace the UV lamp and reset the operating hours counter (see “Replacing the UV lamp” on page 89) • Replace the TOC measuring cell
No analyzer is indicated at the Dionex IC Pure system for operation with an analyzer.	• Settings in OEM menu are incorrect • IC system not activated • Cable to IC system not connected • Cable break	• Correct the settings in the OEM menu (see “OEM menu” on page 72) • Activate IC system • Connect the cable to the IC system • Replace the cable
Wrong time or date	• Time zone • Summer/winter time	• Reset time and date
Wrong language	• Wrong language set	• Correct language setting
Error message: “Limit value feed“	• Feedwater conductivity too high • Limiting value set too low	• Check the feedwater measuring cell and deactivate in the menu • Check and reset the limiting value
Display indicates +IN	• Measuring cell cable break	• Replace measuring cell
Error message:“Pur.limit“	• Ultrapure cartridge exhausted • Limiting value set too low	• Replace ultrapure cartridge (see “Changing the ultrapure cartridge” on page 75 • Check and reset the limiting value
Error message:“UV-time“	• UV lamp operating time has been exceeded	• Replace the UV lamp (see “Replacing the UV lamp” on page 89) • Reset the operating time counter

Error	Cause	Remedy
Error message: “max.Temperature“	• The temperature in the system is too high	• Switch the unit off and let it cool down
	• Interval pump time too long	• Reduce interval pump time
	• Limiting value set too low	• Check and suit the limiting value
	• Feedwater temperature too high	• Reduce feedwater temperature
Error message: '“Measuring cell LF1“	• Measuring cell cable break	• Replace measuring cell
	• System control defect	• Replace system control
	• Conductivity of ultra pure water outside measuring range	• see “Ultra pure water limiting value” on page 68
Error message: “Measuring cell LF2“	• Measuring cell cable break	• Replace measuring cell
	• System control defect	• Replace system control
	• Feedwater conductivity outside measuring range	• see “Feedwater limiting value” on page 67
Error message: “Measuring cell LF3“	• Measuring cell cable break	• Replace measuring cell
	• System control defect	• Replace system control
Error message: “Measuring cell Temp.“	• Measuring cell cable break	• Replace measuring cell
	• System control defect	• Replace system control
Error message: “New ultrapure cartridge“	• Ultrapure cartridge operating time has expired	• Replace with new ultrapure cartridge

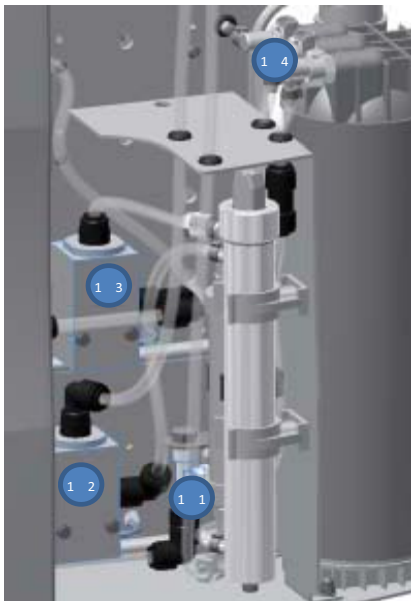
16

Dionex IC Pure system spare parts

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

Figure	Part number	Description
	1. 50132730	Keyboard foil
	2. 50132289	Display front part
	3. 50134036	Display holder
	4. 50142984	Tank indicator
	5. 17.0147	Display back part
	6. 50134032	Rotary knob
	7. 26.0025	Control display part
	8. 50133988	Dispensing valve
		

Figure	Part number	Description
	9. 50142245	Connector
	10. 16.0006	Connector
	11. 14.0365	Concentrate adjust valve
	12. 50133992	TOC measuring cell
	13. 50133992	Ultrapure water measuring cell
	14. 50133996	Connector
	15. 50149264	Pressure pump
	16. 50142981	Sensor for tank indicator
	17. 50131190	Solenoid valve
	18. 50142246	Pressure hold valve
	19. 16.0126	Feedwater measuring cell
	20. 50133979	Fuseholder with fuse
	21. 50150598	Check valve



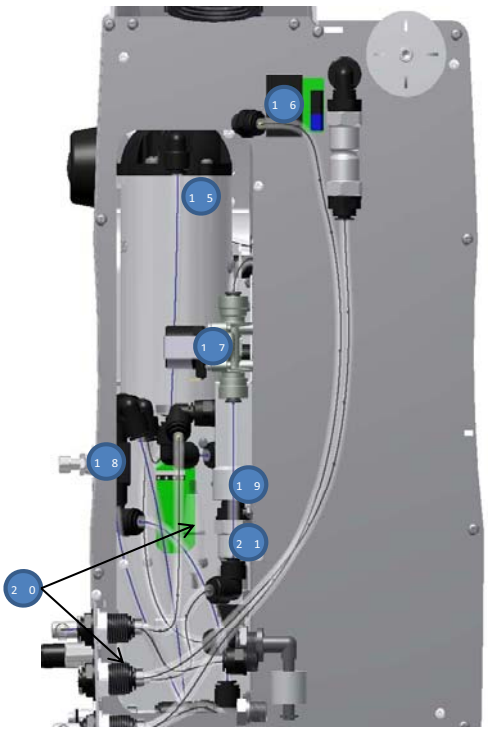


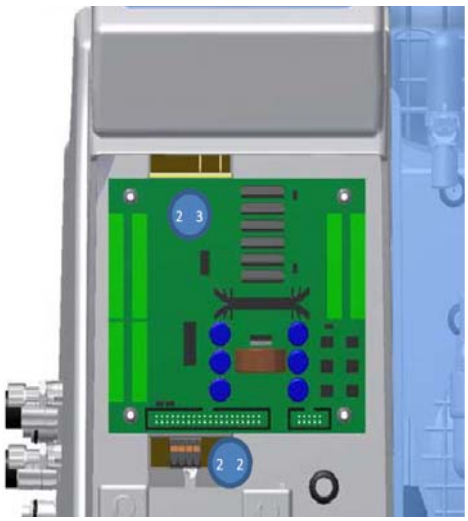
Figure	Part number	Description
	22. 50143195	UV booster unit
	23. 50131346	Control interface part

Figure	Part number	Description
	24. 50143195	Level control unit
	25. 50131190	Solenoid valve
	26. 50142891	Sensor for tank indicator
	27. 50148086	Float switch
	28. 50148086	Float switch
	29. 50145876	Wire jumper (not shown)
	30. 50143964	Connecting wire 20 L tank (not shown)
	31. 50149597	Taple top power supply (not shown)

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Consumables

Designation	Item No.
Ultrapure cartridge	09.1006
UV lamp	09.1002
Ultrafiltration module	50133981
Sterile filter 0.2 µm	09.1003
Pretreatment cartridge	09.2012
Sterile vent filter	22.0091

Accessories

Designation	Item No.
Hardness Stabilizer (to pretreat potable water for hard water) (Recommended for water hardness exceeding 10° dH or 178 ppm)	09.4001
Carbon filter to treat chlorinated tap water (if using pretreatment cartridge only - if experiencing short pre-treatment life)	50134022
Pretreatment cartridge	09.2012
Wall-mounting bracket	09.2212
External 20 L tank	50146376
External 20 L tank with level control	50146378
Cleaning Solution, 1 syringe	CMX25

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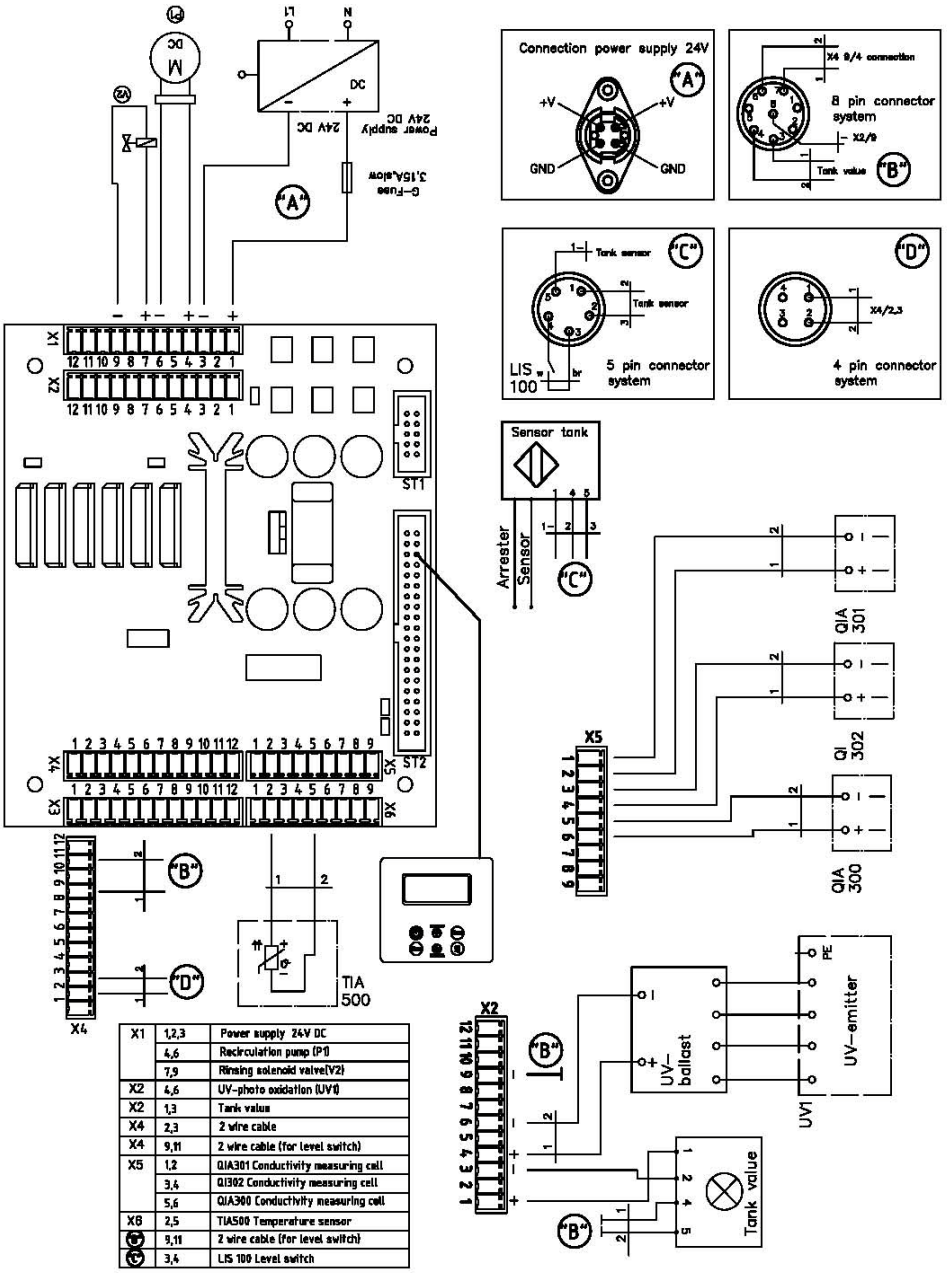
Terminal assignment



X1	1,2,3	Power supply 24V DC
	4,6	Recirculation pump (P1)
	7,9	Rinsing solenoid valve(V2)
X2	4,6	UV-photo oxidation (UV1)
X2	1,3	Tank value
X4	2,3	2 wire cable
X4	9,11	2 wire cable (for level switch)
X5	1,2	QIA301 Conductivity measuring cell
	3,4	QI302 Conductivity measuring cell
	5,6	QIA300 Conductivity measuring cell
X6	2,5	TIA500 Temperature sensor
	9,11	2 wire cable (for level switch)
	3,4	LIS 100 Level switch

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Maintenance record

Customer address:	Location:	
		System type:
		Serial no.:
		Year made:

Date	Feedwater resistance [MΩ·cm]	Ultrapure water resistance [MΩ·cm]	Temperature [°C]	UV-lamp operating time [h]

Ultra pure water volume flow [l/h]	Last change of ultrapure cartridge	Last cleaning / disinfection	Notes	Signature

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

1x / Weekly, enter measured values.

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