

# NANOpure<sup>®</sup> Infinity UV/UF

## OPERATING MANUAL

## AND PARTS LIST

*Series 899*

<b>Model #</b>	<b>Voltage</b>
D8991	120
D8992-33	230

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# Safety Information

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## Alert Signals



### Warning

Warnings alert you to a possibility of personal injury.



### Caution

Cautions alert you to a possibility of damage to the equipment.



### Note

Notes alert you to pertinent facts and conditions.

Your Barnstead|Thermolyne NANOpure Infinity UV/UF has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. This manual contains important safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment. For safe operation, please pay attention to the alert indicators throughout the manual.

Water purification technology employs one or more of the following: chemicals, electrical devices, mercury vapor lamps, steam and heated vessels. Care should be taken when installing, operating or servicing Barnstead products. The specific safety notes pertinent to this Barnstead product are listed below.

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## Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Do not locate the NANOpure Infinity UV/UF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.
3. Replace fuses with those of the same type and rating.
4. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.
2. This device is to be used with water feeds only. Sanitizing/cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.
3. Avoid splashing disinfecting solutions on clothing or skin.
4. Ensure all piping connections are tight to avoid chemical leakage.
5. Ensure adequate ventilation.
6. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.
7. Depressurize system prior to disengaging the cartridge hold-down bracket.

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## SAFETY INFORMATION

8. This unit is equipped with an ultraviolet lamp. Ultraviolet radiation is harmful to the eyes and skin. Do not attempt to observe the lamp directly.
  
9. A small amount of 2.0% hydrogen peroxide is used to preserve the ultrafilter during storage. When removing the ultrafilter from the bag, ensure adequate ventilation and wear protective gloves and glasses.
  
10. Refer servicing to qualified personnel.
  
11. Avoid contact of strong oxidizing agents, such as nitric acid, with ion exchange cartridges. An explosion may result.

# Introduction

Congratulations on your purchase of a Barnstead|Thermolyne NANOpure Infinity UV/UF. The unit is a water purification system designed to provide Nuclease (RNase and DNase), DNA free, pyrogen-free, low TOC, high resistivity, reagent grade water that exceeds ASTM Type I, CAP and NCCLS Type I standards. It uses a four-stage deionization process combined with a UV oxidation, a 10,000 molecular weight cutoff ultrafilter and a 0.2 micron filter to polish suitable feed water (potable tap, distilled, deionized, or reverse osmosis) to produce pyrogen-free (<0.001 Eu/ml), low TOC (<3.0 ppb) water with a resistivity of up to 18.3 megohm-cm. Water resistivity is continuously monitored by a resistivity cell and displayed on a digital display. The NANOpure Infinity UV/UF is designed to automatically clean the ultrafilter by flushing water through the filter for one minute every 24 hours. The water is sent to drain.

The electronics can be verified and calibrated utilizing a N.I.S.T. Traceable Calibration Module. See accessory ordering information (page 61)

Please read the instructions carefully to ensure that you receive maximum benefit from the NANOpure Infinity UV/UF. Also, be sure to fill out and return the enclosed warranty registration card. We would like to receive the information requested, and it will help us assure you of proper warranty coverage.

## General Usage

Do not use this product for anything other than its intended usage.

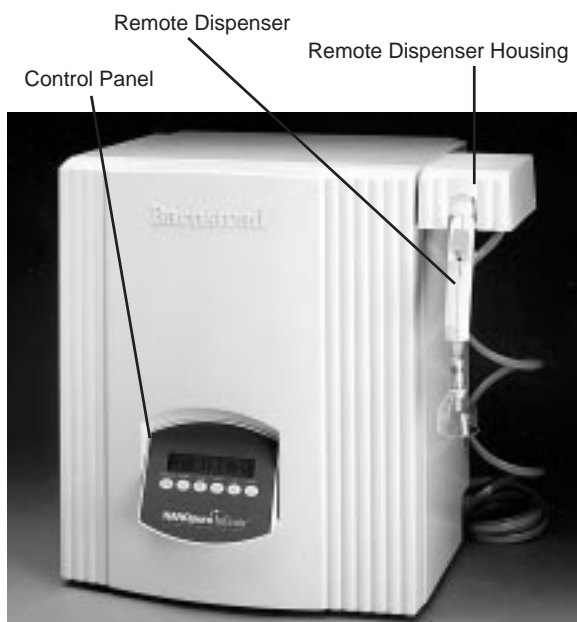


Figure 1 NANOpure Infinity UV/UF Front

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# Specifications

## Dimensions and Clearance Requirements

### Dimensions (include remote dispenser housing mounted to unit )

#### Wall mounted models

Width	20"	(50.8 cm)
Depth	17-1/2"	(44.5 cm)
Height	34-7/8"	(88.6 cm)

#### Bench mounted models

Width	25"	(63.5 cm)
Depth	17-1/2"	(44.5 cm)
Height	22-5/8"	(57.5 cm)

### Dimensions (remote dispenser housing mounted away from unit)

#### Wall and Bench mounted models

Width	20"	(50.8 cm)
Depth	17-1/2"	(44.5 cm)
Height	22-5/8"	(57.5 cm)

### Clearances

Sides - 6" (15 cm) minimum for servicing.

Above - 3" (7.6 cm) minimum for removal of the outer case.

Front - 20" (50.8 cm) minimum for opening the front door.

Cartridge replacement is easily accomplished by opening the front door.

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## Feed Water Requirements

Types <sup>1</sup>	Tap (Potable), RO, DI, distilled.
TOC	Less than 1.0 ppm.
Turbidity	1.0 N.T.U. maximum.
Pressure Range	Gravity feed to 100 psig (7kg/cm <sup>2</sup> ) maximum.
Temperature Range	4.4°C - 48.8°C (40-120°F)

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## Product Water

### Water Quality

Resistivity	ASTM, CAP and NCCLS Type I
TOC	Less than 3.0 ppb
Endotoxin	Less than 0.001 Eu/ml

### Flow Rate

1.5 lpm maximum at minimum inlet feed water pressure of 30 PSIG at 60 HZ and with a new final filter.

<sup>1</sup>Suitability as qualified by laboratory analysis.



## Electrical Requirements

The NANOpure Infinity UV/UF is equipped with a power cord to be plugged into an electrical outlet of the appropriate voltage.

Voltage and Frequency (Nominal)

Model D8991	120 VAC, 50-60 Hz	98-127 VAC, 47-63 Hz, 1 phase
Model D8992-33	230 VAC, 50-60 Hz	220-253 VAC, 47-63 Hz, 1 phase

## Environmental Conditions

**Operating:** 4°C - 49°C; 20% to 80% relative humidity, non-condensing. Installation Category II (overvoltage) in accordance with IEC 664. Pollution Degree 2 in accordance with IEC 664. Altitude limit: 3,500 meters.

**Storage:** -25°C to 65°C; 10% to 85% relative humidity.

## Declaration of Conformity (-33 models only)

Barnstead|Thermolyne hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards:

EMC: EN 50081-1 Generic Emission Standard; EN 50082-1 Generic Immunity Standard;

Safety: IEC 1010-1-92 Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

European Manager  
 Barnstead|Thermolyne  
 Saarbrückener Str. 248  
 D-38116 Braunschweig  
 Germany

Copies of the Declaration of Conformity are available upon request.

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# Unpacking and Installation



## Caution

Wall composition, condition and construction, as well as fastener type, must be considered when mounting this unit. The mounting surface and fasteners selected must be capable of supporting a minimum of 275 lbs. Inadequate support and/or fasteners may result in damage to mounting surface and/or equipment. If you are unsure of mounting surface composition, condition and construction or correct fasteners, consult your building maintenance group or contractor.



## Warning

Do not locate the NANOpure Infinity UV/UF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

Do not use in the presence of flammable or combustible materials; fire or explosion may result. The device contains components which may ignite such materials.



## Note

The outlet of a gravity feed storage reservoir must be above or at the same level as the inlet of the NANOpure Infinity UV/UF.

## Unpacking

1. Remove the unit from its shipping container. Remove all contents carefully. Ensure that the ultrafilter, UV lamp, feed and reject tubing, sanitization cartridge, remote dispenser housing and its two brackets, wall bracket, accessory parts bag and power cord are removed from the packaging materials before discarding. Put the NANOpure Infinity UV/UF on a bench.

## Choosing a Site

The NANOpure Infinity UV/UF system features a pivoting control panel display and a dispenser which allow the system to be mounted almost anywhere within the laboratory. Use the wall bracket for wall mounted systems as a template to drill mounting holes. (The NANOpure Infinity UV/UF does not include screws and fasteners for mounting.) Allow a minimum of 6 inches (15 cm) clearance on all sides of the unit for servicing, 3 inches (7.6 cm) on top for outer case removal and 20 inches (50.8 cm) in front for opening the door.

## Tubing Adapter Installation

The following instructions will apply when you need to attach a piece of tubing to your NANOpure Infinity UV/UF during installation, unless otherwise noted in the installation instructions. To make tubing connections:

1. Completely disassemble the fitting. Refer to Figure 2 to familiarize yourself with the names of the component parts.
2. Make sure the tubing is cut off reasonably square and that no plastic burrs or ridges are present.
3. Place the grab ring and backup ring in the hex nut in the order and orientation shown in Figure 2. Thread the nut into the adapter. **DO NOT** use the o-ring at this time.
4. Push the tubing through the nut until it bottoms out in the adapter.
5. Remove the adapter nut and tubing. Place the o-ring over the tubing. Be careful not to push the backup ring or grab ring further back on the tubing when installing the o-ring.
6. Install the hex nut on the adapter and hand tighten.

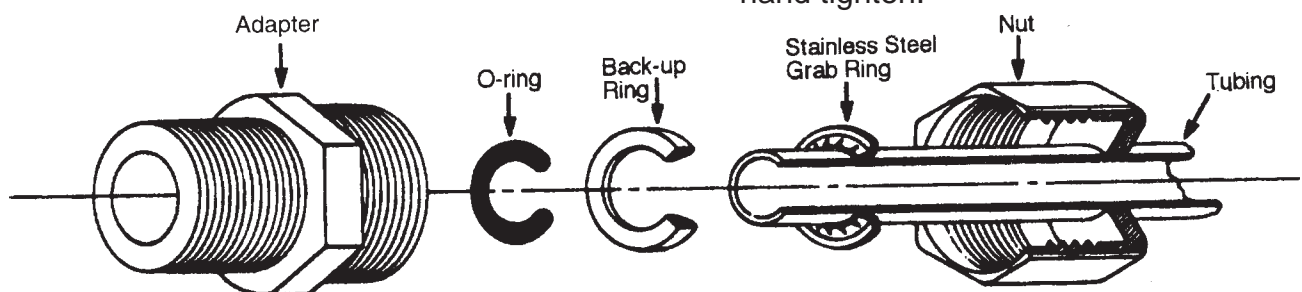


Figure 2 Typical Polypropylene Tubing Adapter Installation



**Warning**

A small amount of 2.0% hydrogen peroxide is used to preserve the ultrafilter during storage. When removing the ultrafilter from the bag, ensure adequate ventilation and wear protective gloves and glasses.



**Note**

Do not install the Ultrafilter until the NANOpure Infinity UV/UF is ready for use. If the NANOpure Infinity UV/UF sits for longer than 72 hours without use, it will become contaminated and may affect product water quality.

## Ultrafilter Installation

Locate and remove the ultrafilter from its box and protective bag.

Install the ultrafilter as follows:

1. The ultrafilter comes complete with tubing adapters installed. Remove the nut, stainless steel grab ring and the o-rings from the ultrafilter tubing adapters and discard.
2. Locate the small piece of tubing shipped separately from the filter.
3. Attach the small piece of tubing to the feed connection on the ultrafilter. The feed connection is the single connection on the bottom of the ultrafilter. (See Figure 3).
4. Open the front door.
5. Locate the large hole in the right side of the bottom of the NANOpure cartridge shelf, near the back wall. Thread the ultrafilter feed connector and attached tubing through the hole. (See Figure 4).

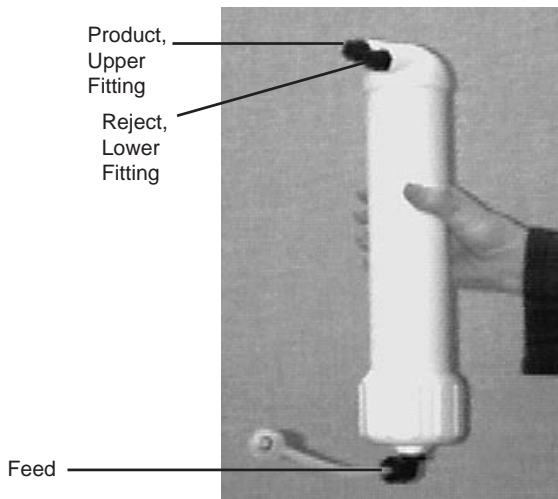


Figure 3 Ultrafilter Connections

6. Snap the ultrafilter into the clamp located on the back wall of the unit. The connections for product and reject water should face outward.
7. Attach the remaining end of the tubing to the bottom connection of the fourth (far right) cartridge socket.
8. The product tubing and reject tubing are located inside the cabinet and are attached to each other with a coupling. Remove the coupling, ensuring that the nut, stainless steel grab ring, backup ring and o-ring from each connection remain on each piece of tubing. Discard the coupling body.
9. Attach the appropriate tubing to the proper connection on the ultrafilter. The tubing adapter nut is labeled product and reject. The product and reject connections are located at the top of the ultrafilter; the product connection is the highest and on the left, the reject connection is on the right. (See Figure 4). Tighten the connectors by hand; do not use a wrench.

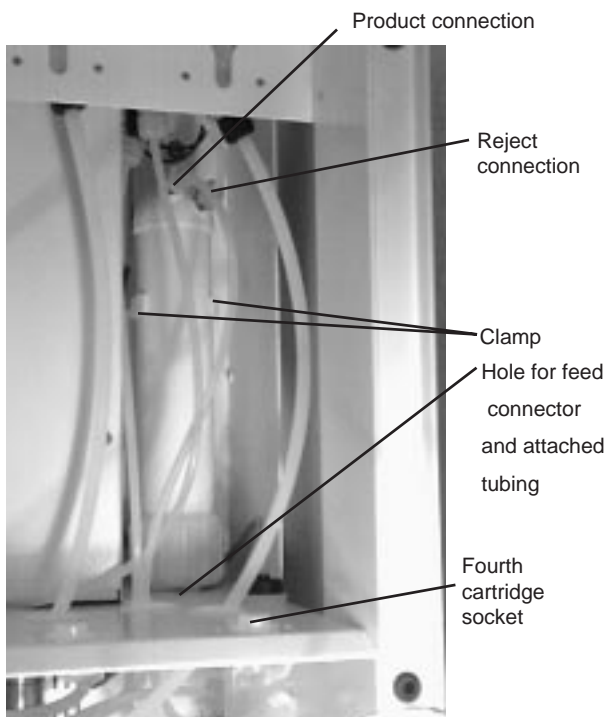


Figure 4 Ultrafilter Orientation and Installation

## INSTALLATION



### Caution

Do not unscrew the black plastic collar, as this will loosen the water tight seal and thus damage the UV lamp. Simply pull the boot forward.



### Caution

Do not touch the glass portion of the UV lamp. We recommend that you wear lint-free gloves when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a single fingerprint will reduce the effectiveness of the lamp. If you accidentally touch the glass portion of the lamp, clean the lamp with a lint-free cloth; use isopropyl alcohol if required.



### Note

The UV lamp and plug fit together one way. If they do not readily match holes to prongs, rotate the lamp 90° and try again.

## UV Lamp Installation

Locate the UV chamber at the bottom of the inside of the NANOpure Infinity UV/UF.

### Install the UV Lamp as follows:

1. Remove the two screws securing the UV Protection Bracket and slide the bracket down the cord.
2. Remove the black plastic boot that has a cord coming through it. Inside the boot is a plug that will be connected to the UV lamp.
3. Remove the UV lamp from its packaging. **DO NOT TOUCH THE GLASS PORTION OF THE LAMP!** It is recommended that lint-free gloves be worn when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a light coating of perspiration will reduce the effectiveness of the lamp. If the glass portion of the lamp is touched, clean it with a damp, lint-free cloth: use isopropyl alcohol as required.
4. Insert the lamp halfway into the chamber and connect the cord to the lamp. Fully insert the lamp and secure the black plastic boot over the top of the black plastic collar.
5. Re-secure the UV Protection Bracket with the two screws removed in step 1.

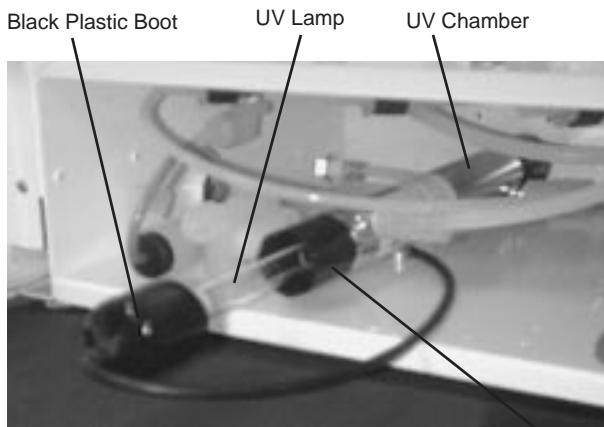


Figure 5 UV Chamber Location and UV Installation

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## **Remote Dispenser Housing**

The Infinity unit comes complete with a remote dispenser allowing you to deliver water up to eight feet (2.4 meters) away from the unit. Install the remote dispenser housing on the bottom right of the unit if wall mounting or top right side of the unit if bench mounting. The dispenser can also be remotely installed up to six feet (1.8 meters) from the right hand side of the unit. An accessory parts bag shipped with the unit contains seven hole plugs, six screws (three flat head, three pan head) and one nut. You will also need to find two small brackets packed separately in the Infinity box.

---

### **Installing the Remote Dispenser Housing on Bench Mounted Units**

1. Remove the locking screw located on the right hand side of the Infinity unit between the rails.
2. Line up the two slots on the left side of the remote dispenser housing with the top of the two rails on the Infinity unit. Slide the remote dispenser housing down onto the rails.
3. Replace the locking screw to secure the remote dispenser housing.

## Installing the Remote Dispenser Housing on Wall Mounted Units

If you are installing the remote dispenser housing on a wall mounted unit, remove the two rails and locking screw on the right side of the Infinity unit. Replace the screws with hole plugs provided. Retain the two rails for possible future use.

Prior to installing the NANOpure Infinity UV/UF on a wall, lay the unit on its back to attach the remote dispenser housing.

1. Remove two screws from the back of the remote dispenser housing. Keep them. You will use them later.
2. Place the L-shaped bracket to the left and back sides of the remote dispenser housing. Replace the two screws (1/2" x 8/32" pan head) removed in step 1 into the back of the housing to attach the bracket (See Figure 6, A).
3. Place one flat head screw (1/2" x 8/ 32") into the left side bottom of the L-shaped bracket. Secure it with the nut supplied. (See Figure 6, B).
4. Attach the short leg bracket with the two pan head screws (1/2" x 8/32") to the bottom right side of the Infinity unit with the short legs pointing to the right. (See Figure 6, C).

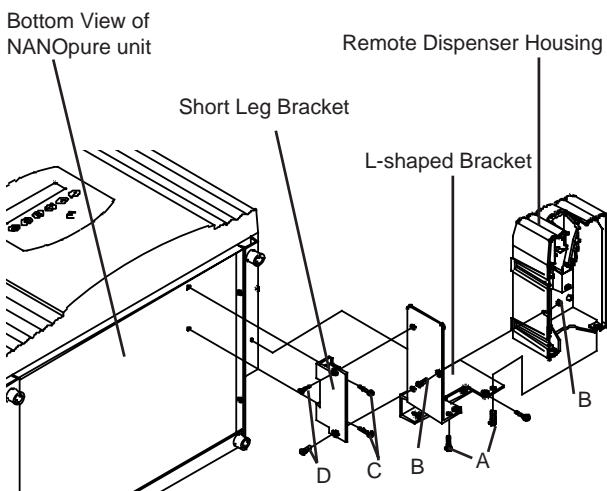


Figure 6 Remote Dispenser Housing Installation



5. Locate the remote dispenser housing/ L-shaped bracket assembled in step 2 and the two remaining flat head screws. Line up the two holes in the bracket mounted on the bottom of the Infinity unit with the two holes in the remote dispenser housing/L-shaped bracket. Secure with the two flat head screws. (See Figure 6, D).
  
6. Screw in the remaining pan head screw through the remote dispenser housing with the bracket in the hole on the far right of the unit, where they line up.

### Installing the Remote Dispenser Housing in Remote Locations

If you are installing the remote dispenser housing in a remote location away from the Infinity unit, remove the two rails and locking screw on the right side of the unit. Replace the screws with hole plugs provided. Retain the two rails for possible future use.

The remote dispenser housing can be installed up to six feet (1.8 meters) away from the unit.

1. Remove the two screws from the back of the remote dispenser housing. Keep them. You will use them later.

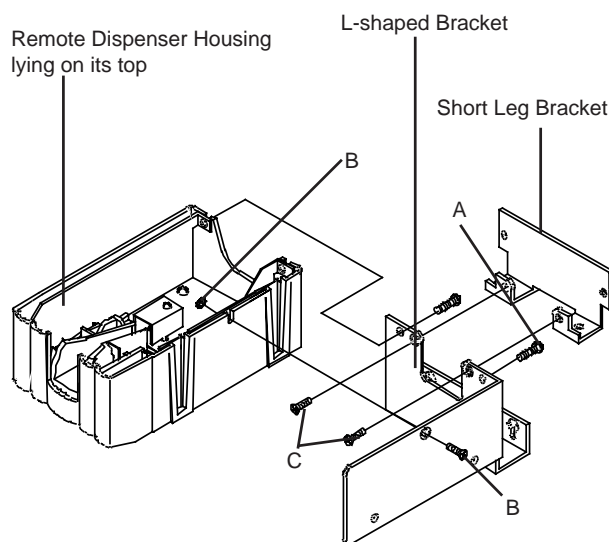


Figure 7 Remote Dispenser Housing Installation in Remote Locations

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## INSTALLATION

2. Lay the remote dispenser housing on its top. Place the L-shaped bracket to the left and back sides of the remote dispenser housing. Replace the two screws (1/2" x 8/32" pan head) removed in step 1 into the back of the housing to attach the bracket (See Figure 7, A).
3. Place one flat head screw (1/2" x 8/32") into the left side bottom of the L-shaped bracket. Secure it with the nut supplied. (See Figure 7, B).
4. Locate the short leg bracket and two flat head screws (1/2" x 8/32"). Line up the two holes on the short legs with the two holes on the remote dispenser housing. The long leg should point up. Screw in the two flat head screws to attach the bracket. (See Figure 7, C).
5. Put two screws (customer supplied) in the wall 3-1/2 inches apart on a straight horizontal line. Do not put the screws all of the way into the wall. The space between the bottom of the head on the screw and the wall should be 1/8-inch.

6. Line up the key hole slots on the remote dispenser housing with the two screws in the wall. Slide the remote dispenser housing down onto the screws.
  
7. Put two more screws (customer supplied) into the two remaining holes in the remote dispenser housing to secure the remote dispenser housing bracket to the wall.
  
8. Install two hole plugs into the two holes in the side of the bracket.

Lock the dispenser into its housing by placing the tubing end of the dispenser into the U-shaped groove in the housing and pushing it toward the back of the unit. You know it is locked when you hear a click. After the remote dispenser is fully inserted into the pivoting holder you must rotate down.

To remove the dispenser from its housing, lift/rotate up and pull the dispenser straight out.

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## Other accessories

Optional accessories for this unit include an inlet cell, float switch, low pressure switch and N.I.S.T. Calibration Module. Installation procedures for these accessories are explained in later sections of this manual. It is best to install these accessories prior to mounting the NANOpure Infinity UV/UF.

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## INSTALLATION



### Warning

Do not locate the NANOpure Infinity UV/UF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

Do not use in the presence of flammable or combustible materials; fire or explosion may result. The device contains components which may ignite such materials.



### Note

The outlet of a gravity feed storage reservoir must be above or at the same level as the inlet of the NANOpure Infinity UV/UF.



### Caution

Wall composition, condition and construction, as well as fastener type, must be considered when mounting this unit. The mounting surface and fasteners selected must be capable of supporting a minimum of 275 lbs. Inadequate support and/or fasteners may result in damage to mounting surface and/or equipment. If you are unsure of mounting surface composition, condition and construction or correct fasteners, consult your building maintenance group or contractor.

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## Bench Mounting

1. Place NANOpure Infinity UV/UF on a bench top that is accessible to water, electricity and an atmospherically vented drain, and that is convenient to your work area, noting clearance requirements.

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## Wall Mounting

Install the NANOpure Infinity on a wall in a convenient location that is accessible to water, electricity and an atmospherically vented drain.

1. Locate the wall bracket packed separately from the unit.
2. Using the wall bracket as a template, locate and drill the mounting holes in the wall. A minimum of four (customer-supplied) fasteners will be required — two on the top and two on the bottom.
3. Attach the wall bracket to the wall using the customer-supplied fasteners.
4. Remove the locking screws on each side of the wall bracket.



**Note**

Prior to installing the NANOpure Infinity UV/UF on the wall, ensure that the remote dispenser housing and/or other accessories such as the Inlet Cell are installed. See the appropriate section of this manual for installation of accessories.

5. Pull the two locking slides on each side of the wall bracket out as far as they will go.
6. Hang the Infinity unit on the wall bracket by sliding the mounting pins into the wall bracket slots.
7. Push the locking slides on each side of the wall bracket in as far as they will go.
8. Replace the locking screws.

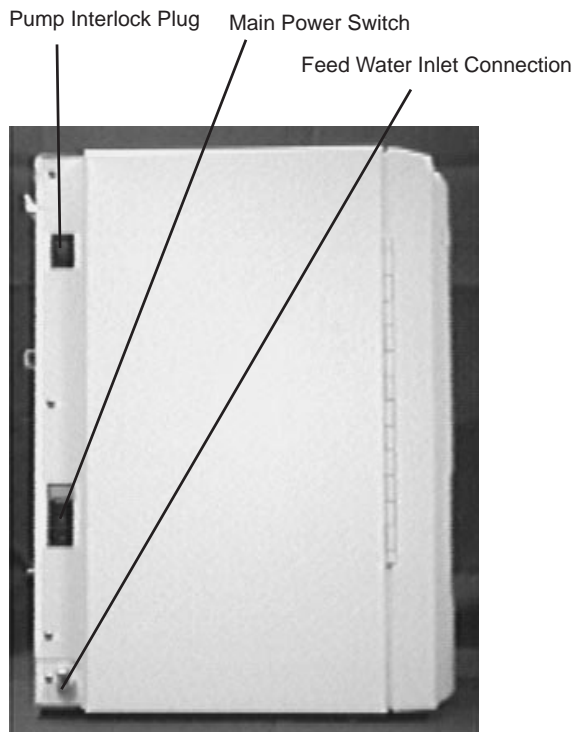


Figure 8 Feed Water Connection (Left Side with Front of Unit Facing You)

## Water Connections

### Feed Water Connection

1. Locate the length of 3/8" O.D. tubing provided with a quick disconnect insert on one end and a 3/8" O.D. X 1/4" NPT tubing adapter on the other.
2. Install the tubing adapter onto your incoming water line. We recommend a customer supplied shut off valve be installed in your feed water line. Do not connect the feed water to your NANOpure Infinity UV/UF. You will connect this during the initial sanitization procedure.

## Reject Water Connection

When the NANOpure Infinity UV/UF flushes its membrane, the water used is sent to drain through this connection. **To install:**

1. Locate the reject water tubing. This is the 1/4" O.D. tubing that has an adapter on one end and no connector on the other end. Remove the nut, grab ring, backup ring and o-ring from the reject water fitting located at the lower right of the NANOpure Infinity UV/UF. See page 10 Figure 2 for part identification.
2. Remove the adapter from the reject tubing. Ensure that the nut, grab ring, backup ring and o-ring remain on the reject tubing. Attach this tubing to the connector on the NANOpure Infinity UV/UF.
3. Route the other end of the reject water tubing to an atmospherically vented drain and make a connection. Ensure there are no kinks in the tubing and that it proceeds in a downward plane. Proceed to Initial Operation.

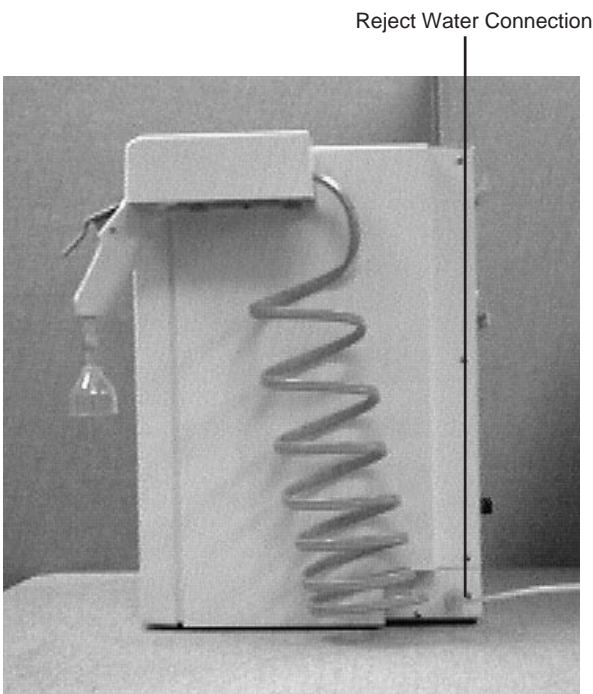


Figure 8 Reject Water Connection (Right Side with Front of Unit Facing You)

# Controls

Familiarize yourself with the controls prior to proceeding. More detailed information is available on pages 32-36.

## Main Power Switch

The main power switch on the NANOpure Infinity UV/UF is located on the lower left side of the unit (as you face the front of the unit), directly above the power cord receptacle.

## Control Panel

The NANOpure Infinity UV/UF is controlled through a panel which incorporates six switches to control its functions: START/STOP, STANDBY, MODE, DOWN, UP and ENTER. This control panel utilizes a digital display to show system information and the purity of the product water. It will also show purity of feed water when an optional inlet cell is utilized.

Two hidden LEDs illuminate to inform you it is time to sanitize the unit (SAN) or replace the UV lamp (UV). The SAN light illuminates after approximately six months of use. The UV light illuminates after approximately three months.

The control panel can be adjusted to the angle you need for viewing the digital display. To adjust the angle of the control panel:

1. Open the front door. Inside the door are two rectangular openings which show two screws held in place by two wing nuts, one in each opening.

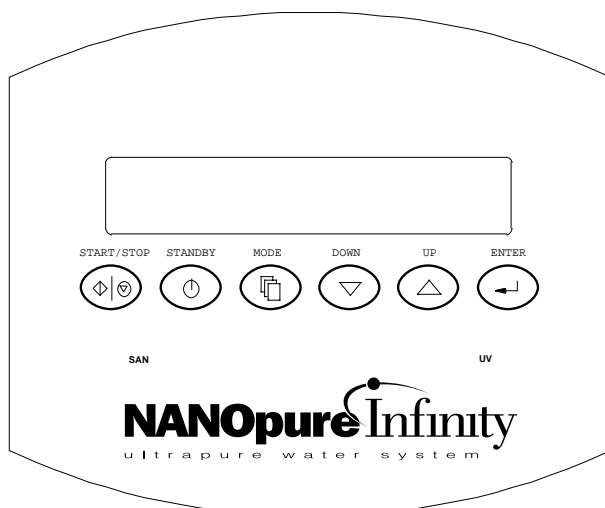


Figure 10 NANOpure Infinity UV/UF Controls

2. Turn the wing nuts to the left to unlock and loosen them. The control panel will now pivot top to bottom in its opening. Reposition the control panel to your desired viewing position.
3. Lock the control panel in place by turning the wing nuts to the right until they are hand-tightened.

## **Switches**

When the main power switch (on the lower left side of the unit) is on, the six switches on the control panel function as follows:

START/STOP allows you to turn unit on or off.

STANDBY allows you to put the unit into standby, recirculating water for 10 minutes every hour. When in standby, the display shows “Standby Mode” during periods of inactivity. During the 10-minute recirculation, the display reads “Recirculation.”



# Initial Operation



## Warning

Avoid splashing disinfecting solutions on clothing or skin.

Ensure all piping connections are tight to avoid leakage.

Ensure adequate ventilation.

Carefully follow manufacturer's safety instructions and material safety data sheets.

This device is to be used with water feeds only.

Sanitizing/cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.

Use a properly grounded electrical outlet of correct voltage and current handling capacity.



## Note

The top cartridge nipple is the one with the rightangle turn and one flange. The bottom cartridge nipple extends straight out from the cartridge.

The flange on the top cartridge nipple should be able to slide down the keyway wall behind the sheet metal.



## Caution

Make sure the cartridge hold-down bracket is in place.

MODE allows you to change from purity reading to maintenance prompts and activities.

DOWN and UP allow you to scroll between different commands and values.

ENTER allows you to activate a certain mode.

## Initial sanitization

Your NANOpure Infinity UV/UF has been shipped with a sanitization cartridge (Catalog No. D50258) that you will install. Three empty cartridges installed in the unit allow you to sanitize your NANOpure Infinity UV/UF prior to using it for the first time. To sanitize your NANOpure Infinity UV/UF:

1. Open the front door. Disengage the cartridge hold-down bracket by pulling it out and up. Remove the D50258 sanitization cartridge from its bag. Wet the cartridge o-rings with water. Install the D50258 sanitization cartridge in the empty cartridge position (#4). Press the top cartridge nipple into the upper socket until it bottoms out. Then, lower the cartridge inserting the bottom cartridge nipple into the lower socket until it is firmly seated. Replace the cartridge hold-down bracket. Close the front door.
2. Attach the feed water line (from step 2 Feed Water Connection) to the unit by snapping the quick disconnect coupling into the quick disconnect body in the lower left side of the unit.



**Note**

To disrupt the flow of water to the NANOpure Infinity UV press the stainless steel thumb pad on the quick disconnect fitting. The insert with the valve is easily removed. To resupply the Infinity unit with water, Attach the feed water line (from step 2 Feed Water Connection) to the unit by snapping the quick disconnect coupling into the quick disconnect body in the lower left back of the unit.



**Note**

The cartridges will still contain water when removed. Place the cartridges upside down in a sink, bucket or other waterproof container to drain them after removal.



**Note**

Product purity during sanitization will be very low. Do not pay close attention to these readings or below set point indication during the sanitization procedure.



**Warning**

Depressurize system prior to disengaging the cartridge hold-down bracket.

3. Plug the power cord into the unit's power entry module and plug into a live outlet. Place the main power switch to the "1" (on) position. Place a suitable container under the remote dispenser. Depress the trigger to open the remote dispenser. The remote dispenser can be locked by depressing the button on its right side while depressing the trigger.
4. Push the START/STOP switch to start.
5. When the unit begins to read product resistivity, press the MODE switch. Then press the DOWN switch until the display reads "Ext. UF Flush".
6. Press ENTER and the display will read "Ext. UF Flush 5" and will begin flushing the unit for five minutes. The display will count down from 5 to 1.
7. Allow the solution to exit the dispenser for 30 seconds, then close the dispenser.
8. After the 5 minute extended UF flush, the unit will display product water purity. Recirculate the water for 30 minutes.

9. After 30 minutes, press START/STOP switch to turn the unit off. Remove the feed water line. Turn the main power switch to “O” position.
  
10. Open the remote dispenser, lock it open and point it down a drain or into a suitable container. **Depressurize the unit until you are no longer getting water out of the remote dispenser.**
  
11. Open the front door. Disengage the cartridge hold-down bracket. Remove all of the cartridges by pulling first up and then out. Drain the water from the three empty cartridges and keep them for future use. Throw away the sanitization cartridge.
  
12. Proceed to Cartridge Installation and Rinse Up.



**Note**

The NANOpure Infinity UV/UF cartridges must be installed in the proper order.

If you have just sanitized your NANOpure Infinity UV/UF, retain the empty cartridges shipped with your unit for use during future sanitization procedures. Discard the used D50258 sanitization cartridge.

The top cartridge nipple is the one with the rightangle turn and one flange. The bottom cartridge nipple extends straight out from the cartridge.

The flange on the top cartridge nipple should be able to slide down the keyway wall behind the sheet metal.

Cartridge position by number

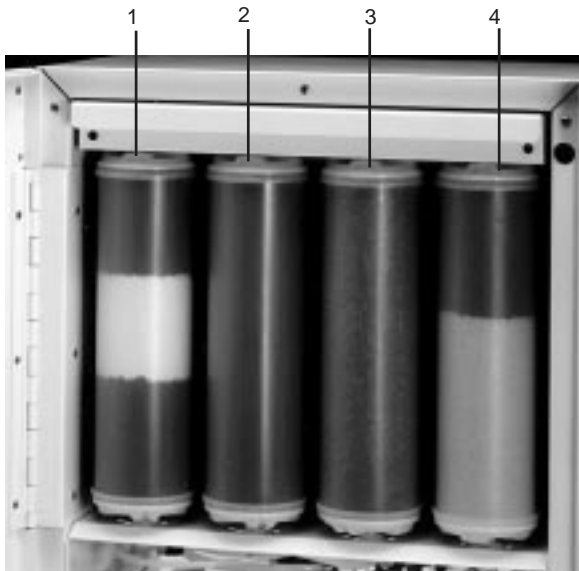


Figure 11 Proper Cartridge Order

## Cartridge Installation and Rinse Up

1. Open the front door.
2. The cartridges will be installed according to the charts below. Position 1 is the farthest left, position 2 the next one to the right, position 3 the next one to the right and position 4 farthest right. (See Figure 11). Proceed to step 3.

### Type 1 Cartridge Kit Tap/DI Feed #D50256

Position	Type	Catalog#
1	Pretreatment	D50251
2	Ultrapure	D50253
3	Ultrapure	D50253
4	Ultrapure	D50253

### ORGANICfree Cartridge Kit Tap/DI Feed #D50254

Position	Type	Catalog#
1	Pretreatment	D50251
2	Ultrapure	D50253
3	Ultrapure	D50253
4	ORGANICfree	D50252

### Type 1 Cartridge Kit R/O or Distilled Feed #D50257

Position	Type	Catalog#
1	Pretreatment	D50250
2	Ultrapure	D50253
3	Ultrapure	D50253
4	Ultrapure	D50253

### ORGANICfree Cartridge Kit R/O or Distilled Feed #D50255

Position	Type	Catalog#
1	Pretreatment	D50250
2	Ultrapure	D50253
3	Ultrapure	D50253
4	ORGANICfree	D50252

3. Remove the protective bag and wet the o-rings with water on both cartridge nipples.
4. Install the appropriate cartridge in cartridge position #1 by pressing the top cartridge nipple into the upper socket until it bottoms out.
5. Lower the cartridge and insert the bottom cartridge nipple into the lower socket until it is firmly seated.
6. Repeat steps 3 - 5 with the remaining cartridges in your kit, placing them in the next three positions from left to right according to the Cartridge Kits charts on page 19. *Do not install the 0.2 micron filter and bell assembly at this time.*
7. Replace the cartridge hold-down bracket.
8. Close the front door.
9. Reattach the feed water line to the unit by snapping the quick disconnect coupling into the quick disconnect body in the lower left back of the unit.



**Caution**

Make sure the cartridge hold-down bracket is in place.



**Caution**

Do not allow the NANOpure Infinity UV/UF to operate unless water is available to the unit.



**Note**

For more demanding applications where low TOC water is required, a rinse of 15-20 liters through the cartridges and filter may be necessary.



**Caution**

Do not overtighten the 0.2 micron filter assembly onto the Luer fitting or use excessive force in seating it. The filter and/or Luer fitting can be damaged by overtightening or excessive force.

10. Turn the unit on by turning the main power switch to the "I" (on) position.
11. Point the outlet of the remote dispenser down a drain or into a suitable container. Depress the draw-off trigger and lock it open.
12. Press the START/STOP switch to start.
13. When the unit begins to read product resistivity, press the MODE switch. Then press the DOWN switch until the display reads "Ext. UF Flush."
14. Press ENTER and the display will read "Ext. UF Flush 5" and will begin flushing the unit for five minutes. The display will count down from 5 to 1.
15. After the flush is complete, the display will revert to resistivity of the product water.
16. Complete another five-minute extended UF flush by repeating steps 13-15.

17. Run product water to drain for 10 minutes through the remote dispenser. Close the remote dispenser and let the water recirculate until the resistivity reaches your desired purity level.
  
18. Remove a new 0.2 micron filter and bell assembly from its bag and insert it into the Luer fitting on the remote dispenser. Gently turn it clockwise until it is fully seated in the Luer fitting.
  
19. Remove the protective cap from the filter bell. Open the remote dispenser and flush 1-2 liters of water through the 0.2 micron filter. The product water is now ready for use.

---

# Normal Operation



## Note

On initial start-up, the purity meter may display "Prod. .... MΩ-cm". This is caused by air in the cell and should be replaced by a resistivity reading almost immediately. If the dots aren't replaced by a value after one minute, refer to the **Problem Solving** section for this manual.

1. Turn the system power on by depressing the main power switch to the I position.
2. Press the START/STOP switch on the control panel. The unit's pump will begin to run.
3. The system greeting lights indicate which module, if any, is installed on your unit. This greeting is one of the following: "NANOPURE", "NANOPURE UV", "NANOPURE UF", or "NANOPURE UV/UF".

While the system greeting is displayed for approximately five seconds, the unit checks for the presence of an inlet cell.

4. The system electronics will check its calibration. (All units have been factory calibrated.) If calibration is OK the display will show "Calibration OK." After this it will show "Prod. .... MΩ-cm". Then the display will read "Prod. 10 (±0.2) MΩ-cm." This is a reading of the calibration reference value.
5. The display will then begin reading resistivity of the product water. Initially it will read "Prod. .... MΩ-cm" until the air is bled from the system.



6. Allow the water's resistivity to rise to the desired purity before drawing off water.
  
7. The system should be left on or in standby during the work day. (See Use of Standby mode.)

## **Remote Dispenser Operation**

Lock the dispenser into its housing by placing the tubing end of the dispenser into the U-shaped groove in the housing and pushing it toward the back of the unit until it stops and then pull down. You know it is locked when you hear a click.

To operate:

1. Remove the protective cap from the filter bell.
  
2. Depress the draw-off trigger.
  
3. When draw off is complete, release the draw-off trigger and replace the protective cap on the filter bell.
  
4. For unattended operation, depress the button on right side of the dispenser at the same time as the trigger is depressed.

5. To unlock the draw-off trigger and stop dispensing water, press the draw-off trigger.



**Note**

Do not turn off the NANOpure Infinity UV/UF during non-work hours. Doing so will allow bacterial growth and other contamination of the water in the system. As a result, the system will require a lengthy rinse-up period at the beginning of the work day to achieve high quality product water. We recommend using the Standby Mode.

To remove the dispenser from its housing, pull it up and out. See page 19 for additional information.

---

## Use of Standby Mode

At the end of the work day, press the Standby switch on the front of the NANOpure Infinity UV/UF to place the unit in Standby mode for the night. Press the STANDBY switch and the display will read “Standby Mode” for 50 minutes and then go into a recirculation mode. While the pump is energized, the display will read “Recirculation.” Every fourth time the pump goes on in the standby mode the UV light will go on. The lamp is on 10 minutes out of every four hours.

---

## Selecting the Set Point

The NANOpure Infinity UV/UF electronics include a user programmable set point which alerts you when water quality falls below the programmed set point. The set point is user selectable from 0-18 MΩ-cm. The display will alternate actual resistivity measurements with a “Below Setpoint” message when the measurement is below the set point.

The set point indication is set at the factory at 10 MΩ-cm.

You must start this procedure from the off (stop) position.

1. Press and hold the ENTER switch.
2. Press the START/STOP switch.
3. Release switches.
4. The display will read "Setpt. 10 MΩ-cm".
5. To adjust the value, press the UP or DOWN arrow until your desired value is displayed and press ENTER.

If the resistivity of the product water falls below the set point value, the display will read the resistivity value for approximately seven seconds and a "Below Setpoint" display for approximately three seconds. Once the resistivity value rises above the set point, the unit will only read resistivity.

## Resetting the Sanitization Timer

1. While the NANOpure Infinity is operating, press the MODE switch.
2. The display will read "Reset SAN Timer"

3. Press the ENTER switch to reset the Sanitization Timer.
4. The display will read "Enter to Reset"
5. Press the ENTER again and the timer will be reset. This will reset the sanitization timer for six months.

---

## Resetting the UV Timer

1. Press the MODE switch.
2. Press DOWN and display will read "Reset UV Timer?"
3. Press ENTER and display will read "Enter to Reset"
4. Press ENTER again and the timer will be reset.

**Note**

Press the ENTER button at any step and the unit will go to resistivity of the product water. Pressing the UP and DOWN switches allows you to scroll through the displays.

## Reading Purity of Product Water and Feed Water With Optional Inlet Cell Accessory

1. Turn the system power on by depressing the main power switch to the I position.
2. Press the START/STOP switch on the control panel.
3. The display will show the type of system for approximately five seconds.
4. The system electronics will check its calibration. All units have been factory calibrated. If calibration is OK the display will show "Calibration OK." After this it will show "Prod. .... MΩ-cm". Then the display will read "PROD. 10 (±0.2) MΩ-cm." This is a reading of the calibration reference value.
5. The display will then begin reading resistivity of the product water. Initially it will read "Prod. .... MΩ-cm" until the air is bled from the system.

---

## NORMAL OPERATION

6. Press the DOWN switch to: Display conductivity of product water Display Total Dissolved Solids of product water Display temperature of product water

7. If no inlet cell is used, the reading will return to the resistivity of the product water. If an inlet cell is attached, it will read the following:

Display resistivity of inlet water

Display conductivity of inlet water

Display Total Dissolved Solids of inlet water

Display temperature of inlet water

Display resistivity of product water

---

# Installing Float or Pressure Switch



## **Warning**

Disconnect from the power supply prior to maintenance and servicing.

Accessories D8964 (float switch) and D2706 (pressure switch) are designed to protect the NANOpure Infinity UV/UF pump by alerting the NANOpure Infinity UV/UF of an inadequate feed water condition so that the pump can be shut down. If an inadequate feed water condition exists and the NANOpure Infinity UV/UF pump is shut down due to this condition, the display will read “Check Inlet.” Use the following instructions for installation.

1. Disconnect the unit from the electrical power.
2. If using D8964 float switch, follow the installation instructions included with the float switch for installation into a tank.
3. If using D2706 low pressure switch, install the PVC tee (supplied with D2706) in incoming water line. Screw the switch into the top of the tee, then connect the inlet tubing to the NANOpure Infinity UV/UF with the remaining opening.
4. Route the cable from the float or low pressure switch to the top left of the NANOpure Infinity UV/UF.

---

## INSTALLING FLOAT OR PRESSURE SWITCH

5. Remove the jumper plug from the back, left, upper portion of the unit and save for future use.
6. Plug the cable into the jumper plug outlet.
7. Reconnect the electrical power.



# Installing the Inlet Cell

The NANOpure Infinity UV/UF system offers, as an optional feature, the ability to monitor the resistivity of the NANOpure Infinity UV/UF inlet water.

To install the inlet cell:

1. Disconnect inlet water and electrical service to unit. Open Remote Dispenser to depressurize unit.
2. Open the front door.
3. Remove the screws holding the Infinity unit's outer case in place. As the unit faces you, there are three screws in the left side near the back, three in the right side near the back and five in front, two on each side and one above the cartridge hold-down bracket. Remove the jumper plug, Float Switch or Pressure Switch Cable from the back, left, upper portion of the unit.
4. Remove the remote dispenser from its housing by pulling it up and out.
5. Lift up to remove the outer case.
6. Remove the electric section cover directly behind the cartridges.
7. The inlet cell well is located in the lower front left of the unit.



Figure 12 Inlet Cell Installation and Location

## MAINTENANCE AND SERVICING

8. Remove the 1/2-inch plug located in the front of the cell well.
9. Install the inlet cell by turning the clear plastic plug clockwise. Do not turn the black snap cap. Hand-tighten the plug. Do not use a wrench. Overtightening may damage the seal.
10. Thread the inlet cell cable through the large hole in the lower left of the unit and back into the unit through another large hole in the upper left of the same side of the unit.
11. Connect the white plastic cell connector to position P3 on the resistivity circuit board (PC896X2) located on the inside back wall of the unit. The flat part of the connector should face upward.
12. Replace the electrical section cover. Replace the remote dispenser in its housing by placing the tubing end of the dispenser into the U-shaped groove in the housing and pushing it toward the back of the unit. You know it is locked when you hear a click.
13. Replace the outer case. Replace the screws you removed to take off the case. Reattach the jumper plug, Float Switch or Pressure Switch you removed earlier.
14. Reconnect the feed water.

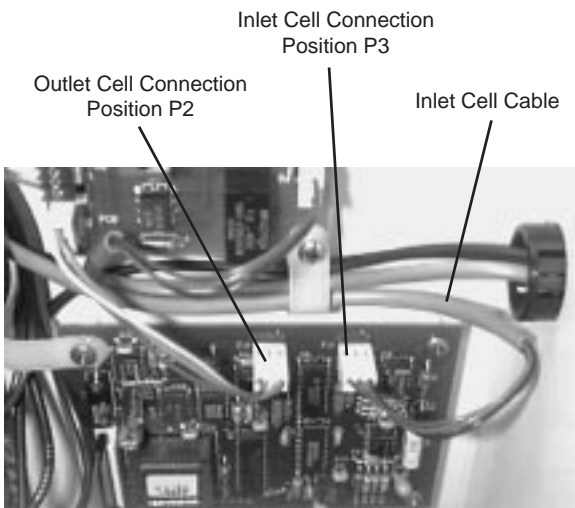


Figure 13 Inlet Cell Cable Connection to Circuit Board

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# N.I.S.T Calibration Module

## Performing an Electronic Calibration Using the Optional N.I.S.T. Calibration Module

If you purchased the optional N.I.S.T. calibration module (Catalog No. E896X5) you can perform a calibration of the NANOpure Infinity purity sensing electronics traceable to N.I.S.T. standards.

1. Disconnect electrical service to the unit. Open the remote dispenser to depressurize the unit.
2. Open the front door.
3. Remove the screws that hold the Infinity unit's outer case in place. As you face the unit, there are three screws in the left side near the back, three in the right side near the back and five in the front, two on each side and one above the cartridge hold-down bracket. Remove the jumper plug or float/pressure switch from the back, left, upper portion of the unit.
4. Remove the remote dispenser from its housing.
5. Lift and remove the outer case.

6. Remove the electric section cover directly behind the cartridges.
7. Locate the outlet cell connection on the circuit board (see figure 13) and remove the outlet cell connection at P2.
8. Connect the N.I.S.T. calibration module to the connection point (J2), "To Outlet Cell" on the calibration board (PC896X3A).
9. Replace the electric section cover removed in step 6.
10. Plug the unit into a live outlet and turn the unit on by depressing the main power switch.
11. Press and hold the DOWN switch on the controls.
12. Press the START/STOP switch.
13. Release switches.

14. The display will show “Calibrate?”, press ENTER.
15. Display will read “Calibrating”. When the calibration is complete the display will read “Calibration Done”.
16. Press the START/STOP switch.
17. Turn the main power switch to the “O” (off) position. Unplug the unit.
18. Remove the calibration module and reconnect the cell.
19. Replace the remote dispenser in its housing by placing the tubing end of the dispenser into the U-shaped groove in the housing and pushing it toward the back of the unit. You know it is locked when you hear a click.
20. Replace the outer case. Replace the screws you removed earlier. Reattach the jumper plug or float/pressure switch you removed earlier.



**Note**

The calibration module can be returned to Barnstead|Thermolyne for recertification. Please contact Barnstead|Thermolyne for instructions.

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# Maintenance and Servicing



## Note

The Sanitization Timer will illuminate after six months, reminding you to sanitize the unit. Complete the system sanitization procedure and reset the sanitization lamp/indicator by going through the Reset Sanitization Timer procedure on page 35.



## Warning

Disconnect from the power supply prior to maintenance and servicing.



## Note

The cartridges will still contain a cartridge bed of water when removed. Therefore, you will want to have a sink, bucket or other waterproof container available to place them in after removal.

---

## System Sanitization and Cartridge Replacement

The frequency with which you will need to clean your unit and replace your cartridges is dependent on your feed water's characteristics, your purity requirements and your usage. Sanitize your NANOpure Infinity UV/UF and replace the cartridges when the product water purity drops below acceptable levels of resistivity, when organic levels become too high, or if a new 0.2 micron filter clogs rapidly after installation even though the cartridges were thoroughly rinsed before the 0.2 micron filter was installed. To sanitize the NANOpure Infinity UV/UF, the purification cartridges must be replaced with a sanitization cartridge and the three empty cartridges supplied with your unit. The simple-to-use sanitization cartridge is available from BarnsteadThermolyne (Catalog Number D50258). This is used in addition to the empty cartridges included with this unit to effect a complete sanitization.

1. Disconnect the electrical service to the unit.
2. Remove the feed water line by depressing stainless steel thumb pad.
3. Depressurize system by opening the remote dispenser.
4. Open the front door.

5. Be aware that the exhausted cartridge will contain a cartridge bed of excess water, you will want to have a container available to place it in after removal.
6. Disengage the cartridge hold-down bracket.
7. Remove the exhausted cartridge in the right-hand (#4) position by pulling it first up and then out.
8. Remove a D50258 sanitization cartridge from its packaging. Press the top cartridge nipple of the D50258 sanitization cartridge into the upper socket until it bottoms out.
9. Lower the cartridge and insert the bottom cartridge nipple into the lower socket until it is firmly seated.
10. Install the three empty cartridges supplied with your NANOpure Infinity unit in positions 1, 2, & 3.
11. Reposition the cartridge hold-down bracket.



**Note**

The flange on the top cartridge nipple should be able to slide down the keyway wall behind the sheet metal.

12. Close the front door. Remove the 0.2 micron filter and bell assembly.
  
13. Sanitize, install new cartridges and rinse according to the instructions for **Initial Sanitization and Cartridge Installation** in the **Initial Operation** section.

---

## **General Cleaning Instructions**

Disconnect electrical service to the unit.

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.





**Caution**

Do not overtighten the 0.2 micron filter assembly onto the Luer fitting or use excessive force in seating it. The filter and/or Luer fitting can be damaged by overtightening or excessive force.



**Note**

If a newly installed 0.2 micron filter clogs rapidly after installation, the NANOpure Infinity UV/UF may need to be sanitized to remove bacterial contaminants. See **System Sanitization**.



**Note**

Some water will drain from the ultrafilter when you disconnect it. Have a container ready to hold the ultrafilter and catch the water while it drains. Water will also drain from the tubing of the NANOpure Infinity UV/UF onto your bench or floor. To avoid slipping and falling, clean up all spills.

## 0.2 Micron Filter Replacement

Replace the 0.2 micron final filter whenever any of the following conditions occur: every 30 days, the product water flow rate is reduced or bacteria break through. The 0.2 micron filter is shipped assembled with a bell. To replace the 0.2 micron filter assembly:

1. Remove the old 0.2 micron filter assembly by turning it counterclockwise until it is free from the Luer fitting.
  
2. Remove the new 0.2 micron filter assembly from its bag and insert it into the Luer fitting. Gently turn it clockwise until it is fully seated in the Luer fitting.
  
3. Rinse 1-2 liters of water through the filter to drain prior to using the product water.

## Ultrafilter Replacement

The length of your ultrafilter's life will depend to some extent on conditions and use in your lab. When you are unable to completely sanitize your system (i.e. you can no longer get pyrogen-free water even after sanitizing the system), replace the ultrafilter as follows:



**Warning**

A small amount of 2.0% hydrogen peroxide is used to preserve the ultrafilter during storage. When removing the ultrafilter from the bag, ensure adequate ventilation and wear protective gloves and glasses.



**Note**

Do not install the Ultrafilter until the NANOpure Infinity UV/UF is ready for use. If the NANOpure Infinity UV/UF sits for longer than 72 hours without use, it will become contaminated and may affect product water quality.

1. Turn off the NANOpure Infinity UV/UF and disconnect it from the power supply.
2. **Depressurize the system by opening the remote dispenser, allowing water to drain until no more water flows from the dispenser.**
3. Open the front door.
4. Remove the cartridge in the right-hand (#4) position by pulling it first up and then out.
5. Remove the product and reject water connections from the old ultrafilter, ensuring that the nut, stainless steel grab ring, backup ring and o-ring from each connection remain on each piece of tubing. Disconnect the small piece of feed tubing from its connection to the fourth (far right) cartridge socket. Remove the old ultrafilter and small piece of tubing attached at the feed connection.
6. Remove the small piece of tubing attached to the old ultrafilter. Keep the tubing. You will use it again. Discard the old ultrafilter.

7. Locate and remove the ultrafilter from its box and protective bag. Install the ultrafilter as follows:
8. The ultrafilter comes complete with tubing adapters installed. Remove the nut, stainless steel grab ring and the o-rings from the ultrafilter tubing adapters and discard.
9. Locate the small piece of tubing you removed from the old ultrafilter.
10. Attach the small piece of tubing to the feed connection on the ultrafilter. The feed connection is the single connection on the bottom of the ultrafilter. (See Figure 3).
11. Locate the large hole in the right side of the bottom of the NANOpure cartridge shelf, near the back wall. Thread the ultrafilter feed connector and attached tubing through the hole. (See Figure 4).
12. Snap the ultrafilter into the clamp located on the back wall of the unit. The connections for product and reject water should face outward.

13. Attach the remaining end of the feed tubing to the bottom connection of the fourth (far right) cartridge socket.
  
14. The product tubing and reject tubing previously attached to the old ultrafilter are located inside the cabinet and should now be reattached to the same connections on the new ultrafilter. The product and reject connections are located at the top of the ultrafilter; the product connection is the highest and on the left, the reject connection is on the right. (See Figure 4). Tighten the connectors by hand; do not use a wrench.
  
15. Replace the cartridge in the right-hand position by pressing the top cartridge nipple into the upper socket until it bottoms out. Lower the cartridge and insert the bottom cartridge nipple into the lower socket until it is firmly seated.
  
16. Sanitize the NANOpure Infinity UV/UF according to the instructions on page 25.



**Warning**

This unit is equipped with an ultraviolet lamp. Ultraviolet radiation is harmful to the eyes and skin. Do not attempt to observe the lamp directly.



**Note**

The UV Solid State Ballast in the NANOpure Infinity UV/UF cabinet has a green light that will be lit if the lamp is illuminated. Also, an audible sound will alert you if the lamp is not lit or is disconnected.



**Note**

The UV Timer will illuminate every 90 days of operation, providing you a reminder to change the UV lamp.



**Warning**

Depressurize system prior to lifting the cartridge hold-down bracket.

## UV Lamp Replacement

The ultraviolet lamp requires changing every 90-120 days. Lamp life will vary according to the number of times the NANOpure Infinity UV unit is turned on and off (the START/STOP mode). This estimated lamp life is based on the NANOpure Infinity UV/UF being operated in the RUN mode during normal working hours (assumed to be 9 hours/day, 5 days/week) and then placed in the STANDBY mode during off hours (15 hours/day), weekends and holidays. Every fourth time the pump goes on in the STANDBY mode, the UV light will go on. The lamp is on ten minutes out of every four hours. This amounts to 2 START/STOP cycles per 9-hour working day. If the NANOpure Infinity UV/UF is cycled between the RUN and STANDBY modes during the work day, this will result in a shorter lamp life. Therefore, it is recommended that the NANOpure Infinity UV/UF be left in the RUN position during normal working hours.

Leaving the unit in the STOP mode at night and on weekends will lengthen UV bulb life but will compromise water quality. Higher rates of bacterial growth, as well as ionic and organic purity degradation, will occur, necessitating the NANOpure Infinity UV/UF be placed in a recirculating mode for up to one hour to achieve organic purity of <1 ppb TOC.

1. Turn off the NANOpure Infinity UV/UF and disconnect it from the power supply by removing the power cord and the jumper plug or the float/pressure switch from left side of the unit.



**Caution**

Do not unscrew the black plastic collar, as this will loosen the water tight seal and may damage the replacement lamp. Pull the black plastic boot straight out.



**Note**

Pay close attention to the orientation of the plug as it is attached to the UV lamp. It will be necessary to ensure that the plug is installed in the same manner as removed.

2. **Depressurize the system by opening the remote dispenser, allowing water to drain until no more flows from the dispenser.**
3. Open the front door.
4. Remove the two screws securing the UV Protection Bracket and slide the bracket down the cord.
5. Remove the black plastic boot that has a cord coming through it. Inside the boot is a plug that will be connected to the UV lamp. Disconnect and discard the used UV lamp.
6. Remove the new UV lamp from its packaging. **DO NOT TOUCH THE GLASS PORTION OF THE LAMP!** It is recommended that lint-free gloves be worn when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a light coating of perspiration will reduce the effectiveness of the lamp. If the glass portion of the lamp is touched, clean it with a damp, lint-free cloth: use isopropyl alcohol as required.

7. Insert the lamp halfway into the chamber and connect the cord to the lamp. Fully insert the lamp and secure the black plastic boot over the top of the black plastic collar.
8. Re-secure the UV Protection Bracket with the two screws removed in step 4.
9. Close the front door.
10. Reattach the power cord and the jumper plug or float/pressure switch and reconnect the unit to the power supply.
11. Reset UV Timer according to the instructions on page 30.
12. Operate normally.



**Warning**

Replace fuses with those of the same type and rating.

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## Fuse Replacement

1. Turn off the NANOpure Infinity UV/UF and disconnect it from the power supply. Remove the power cord directly below the main power switch. Locate the fuse drawer above the power cord receptacle.
2. Pull out the fuse drawer located in the power entry module.
3. Remove old fuses and replace with fuses of the same type and rating. (See Parts Listing.)
4. Replace fuse drawer.
5. Reattach the power cord and reconnect the unit to the power supply.
6. Operate normally.

---

## UV Solid State Ballast Fuse Replacement

1. Turn off the NANOpure Infinity UV/UF and disconnect it from the power supply. Remove the power cord and the jumper plug or float/pressure switch from the rear of the unit.



2. **Depressurize the system by opening the remote dispenser, allowing water to drain until no more flows from the dispenser.**
3. Remove the 11 screws that hold the Infinity unit's outer case in place. As you face the unit, there are three screws in the left side near the back, three in the right side near the back and five in the front, two on each side and one above the cartridge hold-down bracket. Remove the jumper plug or float/pressure switch from the back, left, upper portion of the unit.
4. Remove the remote dispenser from its housing.
5. Lift and remove the outer case.
6. Remove the electric section cover directly behind the two farthest left cartridges as the Infinity unit faces you.
7. Locate the UV Solid State Ballast fuse, found on the Solid State Ballast. The solid state ballast is mounted on the upper left hand side wall of the electrical section.

8. Remove the old fuse and replace with a fuse of the same type and rating. (See Parts Listing.)
9. Replace electrical section cover.
10. Reinstall the NANOpure Infinity UV/UF outer case. Close the front door.
11. Replace the remote dispenser in its housing by placing the tubing end of the dispenser into the U-shaped groove in the housing and pushing it toward the back of the unit. You know it is locked when you hear a click.
12. Replace the outer case. Replace the 11 screws you removed earlier.
13. Reattach the power cord and jumper plug or float/pressure switch and reconnect the unit to the power supply.
14. Operate normally.

## **Shutdown**

If the NANOpure Infinity UV/UF is to be shut down for an extended period of time, the unit should be completely drained and the cartridges removed to prevent the growth of bacteria.

If the system has remained inactive and full of water for more than 96 hours, the unit should be drained, sanitized and new cartridges installed prior to use.

# Problem Solving

Problem	Possible Causes	Solutions
NANOpure Infinity completely inactive (pump not operating, control panel not active).	No electrical power to NANOpure Infinity.  Main fuse blown.	Ensure NANOpure Infinity power cord is connected to a live power source and completely plugged into electrical outlet as well as power entry module on the unit. Power on/off switch in the I (on) position.  Replace the main fuse as indicated in the "Fuse Replacement" section (page 44).
Reduced or no product flow from the Remote Dispenser.	0.2 micron filter clogged.	Replace final filter as indicated in the "0.2 Micron Filter Replacement" section of the manual (page 39).
Display reads "Check Inlet" and pump does not run.	Pump protector (in reservoir), feed water line pressure switch or jumper plug not connected to pump interlock.  Insufficient feed water pressure or volume to satisfy the NANOpure Infinity.	Connect the pump protector, jumper plug or pressure switch cord to the receptacle located on the upper left hand section of the NANOpure Infinity.  Open feed water line shut off, connect feed water line to NANOpure Infinity and ensure sufficient pressure (line pressure must exceed 5 psig (0.35 kg/cm <sup>2</sup> ), or sufficient water level in the feed water reservoir).
Display reads "Error 1".	PC board communication error.  System electronics failure.	Power down NANOpure Infinity (turn off) and restart the unit.  Replace the resistivity meter printed circuit board.
Display reads "Error 2".	Air in system.  Bad cell connection.	Run more water through the NANOpure Infinity to purge the air from the unit.  Check the connection of the cell as it attaches to the circuit board.
Display reads "Error 3".	Meter microprocessor has reset during operation.  System electronics failure.	Power down NANOpure Infinity (turn off) and restart the unit.  Replace the resistivity meter printed circuit board.
Display reads "Error 4".	Meter out of calibration.	Perform calibration procedure utilizing the optional N.I.S.T. calibration module.

## PROBLEM SOLVING

Problem	Possible Cause	Solutions
<p>Display reads "Prod. .... M - cm" for more than 10 seconds.</p>	<p>Air in cell.</p> <p>Bad cell connection.</p>	<p>If you just started your NANOpure Infinity, wait one minute to see if it corrects itself.</p> <p>Check the connection of the cell as it attaches to the circuit board.</p>
<p>Recirculated water will not rinse up to desired purity level.</p>	<p>Exhausted cartridges.</p> <p>Cartridges out of order.</p>	<p>Replace all cartridges as indicated in the "Cartridge Replacement" section (page 35) of this manual.</p> <p>Install the cartridges in the proper order as indicated in the chart located in the manual.</p>
<p>Short cartridge life.</p>	<p>Cartridges being used are beyond expiration date.</p> <p>Poor quality feed water.</p>	<p>Check the expiration date. Cartridges begin to lose capacity after being stored two years from the date of manufacture. Replace the cartridges with unexpired ones.</p> <p>If a Barnstead ROpure is the feed water source, check that the membrane is functioning properly.</p> <p>If a Barnstead Still is the feed water source, ensure that the distillate temperature to the NANOpure Infinity does not exceed 49°C (120°F).</p> <p>If tap water is the feed water source, check the quality of the water. In some cases the quality of the water will change with the seasons. Changing the source (city water to well water, or well water to city water) will result in a water quality change.</p> <p>If feed water is from a central water purification system, verify water quality and proper functioning of the system.</p>

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# Replacement Parts

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## Recommended Spares

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### Consumables

Consumable parts are those required to support the day-to-day operation of this equipment. **Barnstead|Thermolyne** establishes two types of consumables; those items that must periodically be replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited life (indicator lights, fuses, etc.) that you can expect to replace on a more or less random basis. Where practical, **Barnstead|Thermolyne** recommends the frequency of replacement, or provides information on life expectancy from which you may calculate a replacement interval compatible with your usage pattern.

The replacement of consumable parts is discussed in the Maintenance and Servicing section to assist you in accomplishing your own service.

Consumables may be ordered separately and in some cases, as an expendables kit. Check with your **Barnstead|Thermolyne** representative for additional information on the expendables kit.

Description	Catalog No.	Recommended Quantity
Type 1 Cartridge Kit Tap/DI Feed	D50256	1
ORGANICfree Cartridge Kit Tap/DI Feed	D50254	1
Type 1 Cartridge Kit R/O or Distilled Feed	D50257	1
ORGANICfree Cartridge Kit R/O or Distilled Feed	D50255	1
Ultrafilter	FL550X1	1
Remote Dispenser Final Filter	FL703X2	2
Mains Fuse, 120 Volt - Type T Time-Lag, 3.0 Amp, 250 Volt	04455	2
Mains Fuse, 230 Volt - Type T Time-Lag, 2.0 Amp, 250 Volt	5120-0025	2
Teflon® Tape, Roll	06078	1
UV Lamp	LMX13	2
Main Transformer Fuse, 120 Volt - Type T Time-Lag, 1.0 Amp, 250 Volt	5120-0016	1
Main Transformer Fuse, 230 Volt - Type T Time-Lag, 0.5 Amp, 250 Volt	FZX35	1
Sanitization Cartridge	D50258	1
UV Ballast Fuse - Type T Time-Lag 1.6 Amp, 250 Volt	FZX47	1
UV Transformer Fuse, 230V - Type T Time-Lag, 0.16 Amp, 250 Volt	FZX60	1
UV Transformer Fuse, 120V - Type T Time-Lag, 0.315 Amp, 250 Volt	FZX51	1
Fuse Holder	FZX38	1

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## REPLACEMENT PARTS

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### General Maintenance Parts

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or special tools for installation. **Barnstead|Thermolyne** recommends that you stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

Description	Catalog No.	Recommended Quantity
Quick Disconnect Inlet Valve		
Body 1/4" NPT	CUX11	1
Insert 3/8" tube	CUX9	1
Check Valve, from Outlet Cell Wall	PMX136	1
Wire Harness, UV Bulb	WH733X1	1
Check Valve, from Ultrafilter	PMX137	1

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### Safety Stock

For critical applications where performance with minimum downtime is required, **Barnstead|Thermolyne** recommends that you maintain a local stock of those parts listed in the General Maintenance Parts and Safety Stock sections.

Description	Catalog No.	Recommended Quantity
Display	ME896X2	1
Main PC Board	PC899X1	1
Recirculation Pump & Motor, 100 & 120 Volt	PU896X1	1
Recirculation Pump & Motor, 240 Volt	PU896X2	1
Pressure Regulator	02280	1
Resistivity Cell	E896X4	1
Solid State Ballast UV	PC733X2	1
Quartz Sleeve, UV Lamp	TU733X1	1
Power Supply UV Ballast, 120 Volt	PC733X1B	1
Power Supply UV Ballast, 240 Volt	PC733X3A	1
Power Supply PC Board	PC759X4A	1
Calibration PC Board	PC896X3A	1
Resistivity Meter PC Board	PC896X2	1

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### Optional Accessory Ordering Information

Description	Catalog No.
N.I.S.T. Calibration Module	E896X5
Inlet Cell	E896X3
Low-Pressure Switch	D2706
Float Switch	D8964
Cell Bushing	BR550X3
Cell O-Ring	GSX29

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# Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Barnstead Thermolyne** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.

Prior to returning any materials to **Barnstead Thermolyne Corp.**, please contact our Customer Service Department for a "Return Goods Authorization" number (RGA). Material Returned without an RGA number will be returned.

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# Two Year Limited Warranty

**Barnstead|Thermolyne Corporation** warrants that if a product manufactured by **Barnstead|Thermolyne** and sold by it within the continental United States or Canada proves to be defective in material or construction, it will provide you, without charge, for a period of ninety (90) days, the labor, and a period of two (2) years, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for two (2) years, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by **Barnstead|Thermolyne** or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized **Barnstead|Thermolyne** dealer or **Barnstead|Thermolyne** (at its own discretion). Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by **Barnstead|Thermolyne**. The name of the authorized **Barnstead|Thermolyne** dealer nearest you may be obtained by calling 1-800-446-6060 or writing to:

**Barnstead|Thermolyne**  
P.O. Box 797  
2555 Kerper Boulevard  
Dubuque, IA 52004-0797  
USA  
FAX: (319) 589-0516

E-MAIL ADDRESS: [mkt@barnsteadthermolyne.com](mailto:mkt@barnsteadthermolyne.com)

**Barnstead|Thermolyne's** sole obligation with respect to its product shall be to repair or (at its own discretion) replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO **Barnstead|Thermolyne** PRODUCTS. **Barnstead|Thermolyne** EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

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