

# MIGHTY★PURE®

## ULTRAVIOLET WATER PURIFIERS

**Models MP16A, MP22A, MP36C & MP49C**  
**Read and Follow All Safety Instructions. Save These Instructions.**



## Installation, Operation & Maintenance

 **ATLANTIC** **ULTRAVIOLET**  
CORPORATION®

SINCE 1963

*Manufacturers / Engineers / Sales / Service*  
Germicidal Ultraviolet - Equipment & Lamps

375 Marcus Boulevard • Hauppauge, NY 11788  
631.273.0500 • Fax: 631.273.0771  
e-mail: [info@ultraviolet.com](mailto:info@ultraviolet.com)

Extensive Product Information Available at:  
**[ultraviolet.com](http://ultraviolet.com)**

# Owner's Manual

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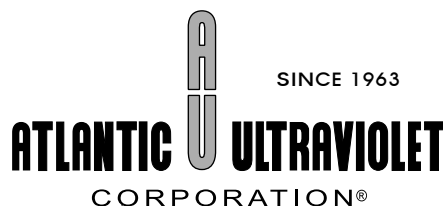
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These instructions generally describe the installation, operation and maintenance of the **Mighty★Pure**® line of water purifiers, Models MP16A, MP22A, MP36C and MP49C.

Atlantic Ultraviolet Corporation takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damages. Do not install damaged equipment.

Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.

The information and recommendations contained in this publication are based upon data collected by the Atlantic Ultraviolet Corporation® and are believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Specifications and information are subject to change without notice.



# SAFETY WARNINGS

- All personnel should be alerted to the potential hazards indicated by the product safety labeling on this unit.
- The following conventions are used to indicate and classify precautions in this manual and on product safety labeling. Failure to observe precautions could result in injury to people or damage to property.


**!** This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**! DANGER** Danger indicates an **IMMINENTLY** hazardous situation, which, if not avoided, **WILL** result in death or serious injury.


**! WARNING** Warning indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **COULD** result in death or serious injury.


**! CAUTION** Caution indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **MAY** result in minor or moderate injury.


**CAUTION** Caution used without the safety alert symbol indicates a potentially hazardous situation, which, if not avoided, may result in property damage.


 This symbol/pictorial is used to identify an **ELECTRICAL SHOCK** or **ELECTROCUTION** hazard.

 This symbol/pictorial is used to identify an **ULTRAVIOLET LIGHT** hazard.

 This symbol/pictorial is used to identify the need to wear approved ultraviolet blocking eyewear.


 This symbol/pictorial is used to identify the need to wear approved ultraviolet blocking face shield.

 This symbol/pictorial is used to identify the need to wear protective gloves.

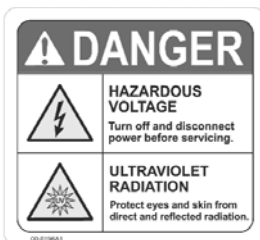
 This symbol/pictorial is used to identify components which must not be disposed of in trash

# SAFETY INSTRUCTIONS

**! WARNING: To guard against injury, basic safety precautions should be observed, including the following:**

1. Read and follow **ALL** safety instructions.
2. Do not use this water purifier for other than its intended purpose as described in this manual.
3. Do not alter design or construction.
4. Do not remove any labels or devices.
5. **! DANGER: To prevent the risk of severe or fatal electrical shock, special precautions must be taken since water is present near electrical equipment. Always disconnect power before performing any service or maintenance.**
6. **! WARNING: Avoid exposure to direct or reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.**
7. Intended for indoor use only. The water purifier should be protected from the elements and from temperatures below freezing.
8. Do not operate water purifier if lamp cable, lamp connection, power cord and/or plug are damaged, or if any other damage to the water purifier is visible or suspected
9. Electrical power supplied, to the water purifier, **MUST** match power requirements listed on the water purifier.
10.  Plug the water purifier only into an approved ground fault circuit interrupt (GFCI) receptacle.
11. **! WARNING: Do not operate without proper electrical ground.**
12. Do not exceed water purifier's maximum rated flow capacity.
13. Do not exceed maximum operating pressure of 100 PSI.
14. Read and follow all notices and warnings on the water purifier.
15. **SAVE THESE INSTRUCTIONS.**

# SAFETY LABELS



Danger Label: Hazardous Voltage and Ultraviolet Radiation (00-0196A1)



Location of Danger Label (00-0196A1)

# CAUTION

It is the user's responsibility to determine and validate the suitability of this equipment for use in the user's system or process.

No warranty or representation is made by the manufacturer with respect to suitability or performance of this equipment or to the results that may be expected from its use.

The user should periodically inspect, clean as necessary and confirm the presence and good legibility of the product safety labels. Contact the factory for replacement labels in the event that any of the labels are missing or illegible.

# PRODUCT APPLICATION

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## CONSTRUCTION

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- The water purifier is designed to mount horizontally.
- A drain port on the chamber aids in draining of the purifier.
- The water purifier's chamber and chamber head are passivated and electropolished type 316 Stainless Steel.
- The ballast housing is a combination of Stainless Steel Type 304 and Aluminum Alloy.
- **EASY-OFF™** end caps allow for quick and easy lamp change, without disconnecting from the water supply or draining the purifier. No tools are required.

## PRINCIPLE OF OPERATION

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The **Mighty★Pure®** design has been carefully conceived to provide adequate germicidal dosage throughout the disinfection chamber. The dosage, as it applies to ultraviolet disinfection, is a function of time and the intensity of ultraviolet radiation to which the water is exposed. The exposure time, in seconds, is the total time it takes the water to flow through the disinfection chamber exposing it to the germicidal lamp. Exposure time is related to the flow rate; the higher the flow rate, the lower the exposure time or the lower the flow rate, the higher the exposure time. The ultraviolet intensity is the amount of energy, per unit time, emitted by the germicidal lamp. The dosage is the product of ultraviolet intensity and the exposure time. The operation of the **Mighty★Pure®** is as follows:

- Water enters the purifier and flows into the annular space between the quartz sleeve and the chamber wall.
- Suspended microorganisms are exposed to the ultraviolet rays emitted by the germicidal lamp.
- The translucent sight port, or optional ultraviolet monitor, provides visual indication of germicidal lamp operation.
- Water leaving the purifier is instantly ready for use, no further contact time is required.

## LIMITATION OF USE

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The water purifier is intended for the use with visually clear water, not colored, cloudy or turbid. See “**Water Quality**” section below. The water purifier is **NOT** intended for the treatment of water that has an obvious contamination or intentional source, such as raw sewage; nor is the unit intended to convert wastewater to microbiologically safe drinking water.

## WATER QUALITY

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Water quality plays a major role in the transmission of germicidal ultraviolet rays. It is recommended that the water does not exceed the following maximum concentration levels:

**Table 1 - Maximum Concentration Levels**

Turbidity	< 1 NTU
Manganese	0.05 mg/l
Total Suspended Solids	10 mg /l
pH:	6.5 - 9.5
Color:	None
Hardness	6 GPG or 102.6 PPM
Iron	0.3 mg/l
Tannins:	< 0.1 ppm (0.1 mg/l)
UV Transmission	>85% per cm*

\* Contact Factory for recommendations on applications where UV transmission is < 85%

Effectively treating water with higher concentration levels than listed above can be accomplished, but may require added measures to improve water quality to treatable levels. If, for any reason, it is believed the ultraviolet transmission is not satisfactory, contact the factory.

# INSTALLATION

## LOCATION

1. The water purifier is intended for indoor use only. The water purifier is designed to mount horizontally. The water purifier should be protected from the elements and from temperatures below freezing. The ambient temperature, in the area surrounding the water purifier, should be between 35° F and 100° F.
2. Electrical power supplied to the water purifier **MUST** match power requirements listed on the water purifier. Use of a voltage surge protector is recommended.
3. ⚠️ **CAUTION:** Plug water purifier only into an approved ground fault circuit interrupt (GFCI) receptacle.
4. The water purifier should be located in a dry, well-lit area, which provides enough room to perform routine maintenance. This includes a minimum distance of one chamber length from the chamber end, to allow for cleaning and/or the changing of the lamp and quartz sleeve as well as a minimum of 6” on the opposite end of the water purifier. Minimum clearance to floor 18”.
5. The water purifier should always be located closest to the point of use. This reduces the chance of the purified water being re-contaminated by bacteria in the water distribution system after the water purifier.
6. **CAUTION:** As with any water handling device, the water purifier should be located in an area where any possible condensation or leakage from the water purifier, any purifier accessory and/or plumbing will not result in damage to the area surrounding the water purifier. For added protection, it is recommended that a suitable drain pan be installed under the purifier. The drain pan must be plumbed to an adequate, free flowing drain to prevent water damage in event of a leak. There are numerous leak detection/flood stop devices, available on the market today, designed to stop flow of water, reducing the chance of water damage due to leakage. For more details regarding leak prevention and/or limiting damages due to leaks please contact factory.
7. The water purifier should be located after all other water devices, such as De-ionizers, Water Softeners, Carbon Filters, Pre-Filters, Reverse Osmosis, Pressure Tanks, and Pumps. This reduces the chance of the purified water being re-contaminated by bacteria in any of these units.

## DIMENSIONAL DATA

Figure 1 -Mighty★Pure® Dimensional Drawing

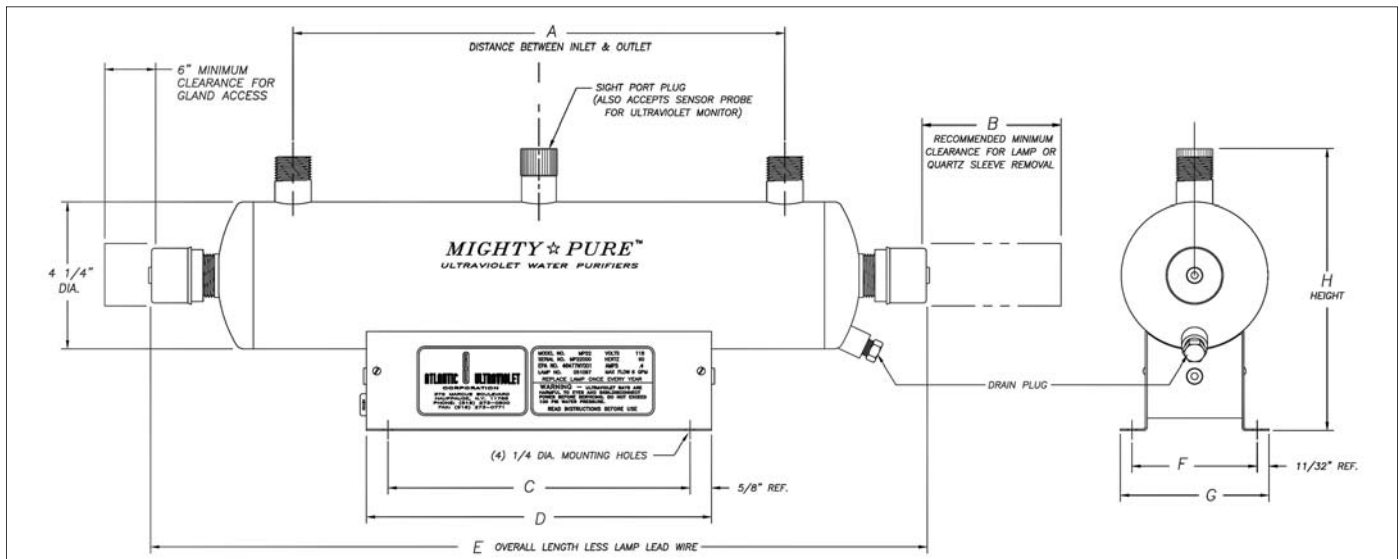


Table 2 - Mighty★Pure® Dimensional Data

Model	A	B	C	D	E	F	G	H	Inlet/Outlet
MP16A	8-3/4"	16"	8-3/4"	10"	16-1/2"	3-5/8"	4-5/16"	8-3/16"	3/4"m NPT
MP22A	14-3/4"	22"	13-1/4"	14-1/2"	22-1/2"	3-5/8"	4-5/16"	8-3/16"	3/4"m NPT
MP36C	28-1/2"	36"	16"	18"	36-1/2"	4-15/16"	5-11/16"	9-1/2"	1"m NPT
MP49C	40-7/8"	49"	26"	30"	49-1/2"	4-15/16"	5-11/16"	9-1/2"	1-1/2"m NPT

All specifications, dimensional data, etc are approximate and subject to change without notice.

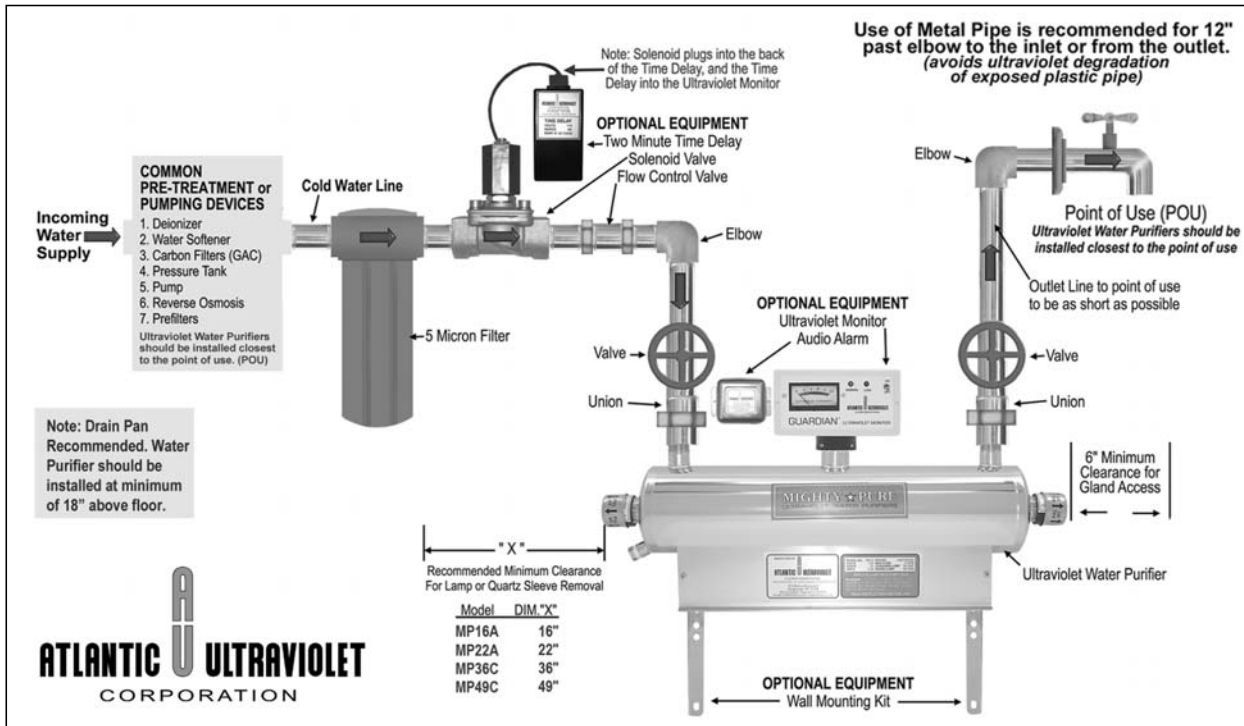
## INSTALLATION




### SAFETY EQUIPMENT REQUIRED TO PERFORM TASK

1. Remove water purifier from shipping carton. Inspect water purifier, power cord and plug for damage. Do not operate if there is any damage to the purifier, power cord or plug. Models MP16A through MP22A are shipped with the lamp already installed, while the lamp in the MP36C and MP49C is packed separately. Keep the lamp aside for installation once the purifier has been properly installed.
2. Units occasionally experience damage in shipment due to the fragility of the quartz sleeve. It is, therefore, recommended to inspect the water purifier for damage to the quartz sleeve after it has been removed from the shipping carton. Each end of the unit as well as the inlet and outlet should be viewed to see if the quartz sleeve has experienced damage. If the quartz sleeve shows signs of damage it should be replaced before the purifier is pressurized. See “**Quartz Sleeve Installation, Cleaning or Replacement**” in the “**Maintenance**” section for the proper method of replacing the quartz sleeve in your water purifier.

Figure 2 - Recommended Installation



3. The water purifier should be mounted horizontally on a flat dry surface. Secure the water purifier using the mounting holes in the ballast housing or with the optional wall mounting kit. The purifier should not be solely supported by its plumbing connections.
4. The water purifier must be connected to the cold water line only.
5. Installation requires that a 5-micron sediment filter or finer be installed, in line, prior to the water purifier. The sediment filter will stop or trap large particulates from entering the water purifier. Particulates may cause damage to the quartz sleeve, as well as interfere with the purifier's ability to disinfect the water. The sediment filter may also help to reduce the amount of routine cleanings of the quartz sleeve.
6. Shut off valves should be installed on both the inlet and outlet sides of the water purifier. **The use of bypass valves is not recommended.** The shut off valves allow the purifier to be isolated from the water supply, which is required when removing the quartz sleeve.
7. Unions should be installed on both the inlet and outlet of the water purifier; this will allow easy removal of the water purifier from the plumbing, if required. Apply Teflon® tape to threads of inlet and outlet ports to ensure a tight seal.
8. When all plumbing connections are complete, allow water to enter the water purifier at a low flow rate, until the purifier is full. **NOTE: Close the purifier outlet valve to pressurize the chamber.** With the purifier pressurized, it should be checked for leaks. Once it is determined that there are no leaks, the inlet valve can be fully opened.
9. For Models with lamps packed separately, install lamp following the steps in “Lamp Installation or Replacement” section.  
**⚠ CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when handling. (Continued on Page 7)**

10.  **CAUTION:** Plug water purifier into approved ground fault circuit interrupt (GFCI) receptacle. Confirm lamp operation indication at sight port.
11. Once the plumbing hook ups are made, it is a good practice to disinfect the “downstream” plumbing between the purifier and point of use. This is done by introducing chlorine or other disinfectant solution directly into the purifier chamber, a 100-ppm of chlorine is suggested. With the disinfectant solution in the purifier chamber, turn the ultraviolet purifier on. Open the “downstream” outlet until a chlorine or disinfectant solution odor is noticed. Close the outlet and allow the disinfectant to remain in the plumbing for at least three (3) hours. Flush the plumbing with ultraviolet purified water; allow the water to run for a minimum of 5 minutes before use (to ensure no chlorine or disinfectant solution smell can be detected), this will allow the chlorine or disinfectant solution to be flushed through the pipes.

**CAUTION: For added protection, a suitable drain pan must be installed under the purifier. The drain pan must be plumbed to an adequate, free flowing drain to prevent water damage in the event of a leak. There are numerous leak detection/flood stop devices, available on the market today, designed to stop the flow of water, reducing the chance of water damage due to leakage. For more details regarding leak prevention and/or limiting damages due to leaks, please contact the factory.**

## ***RECOMMENDED OPTIONS***

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1. **Guardian™ Ultraviolet Monitor:** Visually indicates the level of germicidal ultraviolet energy that penetrates the quartz sleeve and the water within the water purifier. The ultraviolet monitor is capable of operating an optional audio alarm and/or solenoid valve. The ultraviolet monitor will detect reduction of ultraviolet levels due to:
  - Fouling or deposits on the quartz sleeve.
  - Poor ultraviolet transmission through the water; color, turbidity, and organic or other impurities in the water can reduce or interfere with the transmission of ultraviolet rays.
  - Lamp outage or component failure. (Monitor will not function in power outage.)
  - Depreciation of the lamp output due to usage or other cause. Lamp output gradually depreciates with use. Lamp replacement is recommended once each year.
2. **Sentry™ Safety Sensor:** Indicators provide constant visual monitoring of normal operation. In the event of ballast or lamp failure the safety sensor indicates an alarm condition. The safety sensor is capable of operating an optional audio alarm and/or solenoid valve.
3. **Steralert™:** Lamp Status Alarm produces a high pitched, pulsed tone when the water purifier is no longer functioning due to lamp or power failure.
4. **Sure Flo™ Flow Control Valve:** Limits water flow to the rated capacity of the purifier. The flow control valve is located in line prior to the water purifier, and should be protected from ultraviolet exposure by the use of a 90-degree elbow fitting between the flow control valve and the water purifier.
5. **Audio Alarm:** Activated by the Ultraviolet Monitor or Safety Sensor, alerts the user to any malfunction detected.
6. **Solenoid Valve:** Operated in conjunction with the Ultraviolet Monitor, Safety Sensor or Time Delay Mechanism, this valve prevents water flow through the water purifier when an abnormal condition is detected or in the event of power failure.
7. **Elapsed Time Indicator:** A non-resettable display of the water purifier operating hours. Useful for scheduling and recording maintenance and lamp replacement.
8. **Time Delay Mechanism:** Provides a 2-minute warm up period during which the ultraviolet lamp achieves its full germicidal output before the water is allowed to flow through the water purifier. The time delay mechanism is used in conjunction with, and is electrically connected to the Solenoid Valve.
9. **Wall Mount Kit:** Stainless steel wall brackets provide quick and easy installation and professional finish. Pre-drilled and ready to install. Optimizes free air circulation to cool ballast housing.
10. **Quantum Thermal Optimizer:** Thermal relief valve used to help regulate the water temperature inside the water purifier’s disinfection chamber. Since the relative ultraviolet output, of a germicidal lamp, is affected by temperature it is important to keep the lamp’s temperature within the peak output temperature range.
11. **Safety Goggles:** Safety eyewear should be used as general-purpose safety protection and for additional shielding from Ultraviolet rays
12. **Gloves:** Gloves should be worn to offer hand protection from sharp threats like glass, wire, and metal.

**NOTE: The recommended options above are available from Atlantic Ultraviolet Corporation or a distributor of Atlantic Ultraviolet Corporation’s products. For the other devices that may be required for your application, please contact your local water treatment dealer, plumber or plumbing supplier.**

## MAINTENANCE

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The water purifier is designed to operate with a minimal amount of maintenance, providing the water quality does not exceed maximum concentration levels, see “Water Quality” in the “Product Application” section. Ordinary maintenance consists of;

- Lamp replacement is recommended every 10,000 hours of operation, approximately 12 months of continuous service.
- Cleaning of the quartz sleeve, when conditions warrant. It is recommended that the inspection of quartz sleeve be performed after one month of use. If quartz sleeve is found to be coated (not clear), then frequency of cleaning must be done more often. Deposits or discoloration on the surface of quartz sleeve are caused by excessive levels of the subject contaminant within the water that is in contact with the quartz sleeve. Most often false deposits on the quartz sleeve are caused by an excess of calcium (hardness), iron or manganese. Table 1 on Page 4 lists the maximum recommended concentration of these minerals in the water that passes through the ultraviolet purifier. If you encounter difficulty due to deposits on the quartz sleeve, your dealer will be able to recommend suitable pretreatment to reduce or eliminate the offending contaminant. If quartz sleeve is clean (clear) then frequency of cleaning may be extended. **NOTE: The use of optional Guardian™ Ultraviolet Monitor will detect loss of transmission due to coating on the quartz sleeve.**
- Always disconnect the water supply and completely drain the water purifier if it will be subjected to temperatures below freezing.
- Contact factory with questions.

## INSPECTION

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1. Regularly inspect the water purifier to ensure that the germicidal lamp is still in operation.
  - On purifiers not equipped with the Ultraviolet Monitor, lamp operation can be verified by a visible glow through the translucent sight port. This provides an indication of lamp operation and does not indicate the level of ultraviolet intensity or transmission through the water.
  - On purifiers so equipped, the **Guardian™** Ultraviolet Monitor provides visual indication of the ultraviolet intensity through the quartz sleeve and water in the purifier chamber.
2. To ensure proper operation of the water purifier, regular biological testing should be performed on a schedule recommended by local public health authorities, or at minimum; at installation, quarterly for the first year of service and annually, at lamp replacement, for the life of the water purifier.
3. Additional testing should be performed whenever modifications, change, or additions are made to plumbing system, pumps, well source water etc. to ensure adequate disinfection under new condition.
4. As with any water purifier installation, routine maintenance is necessary to ensure your equipment is operating correctly. Regular inspection must also include confirmation that approved ground fault circuit interrupt (GFCI) receptacle is still operational and that water purifier is plugged into this GFCI. Any components which are damaged or broken should be replaced.

## DISPOSAL OF MERCURY ADDED LAMPS

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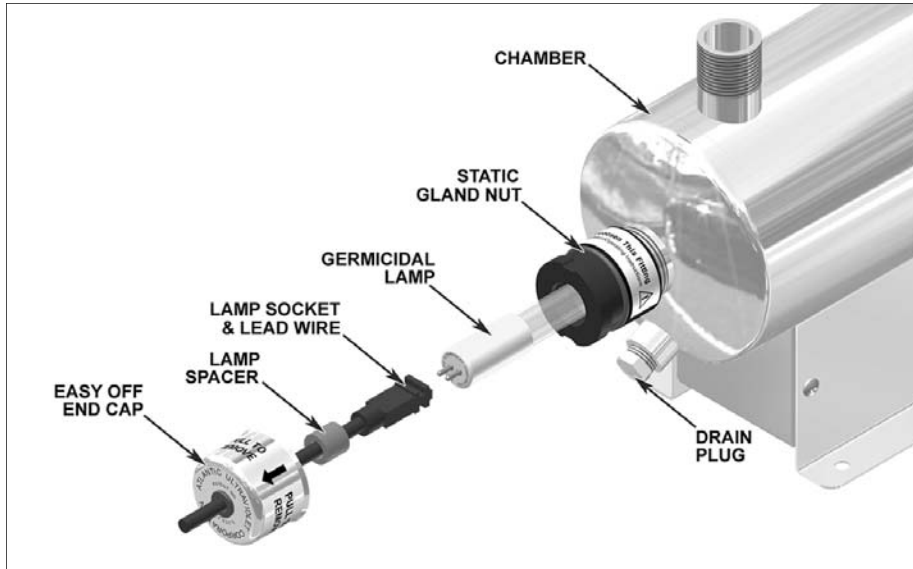


Germicidal ultraviolet lamps, like standard fluorescent lamps contain small amounts of mercury. Mercury added lamps should not be placed in the trash. Dispose of properly. For further information regarding the disposal and recycling of lamps containing mercury, along with Federal and State requirements visit <http://www.lamprecycle.org>. Product Data Sheets for germicidal ultraviolet lamps can be found in the “PDF Library for **Ster-L-Ray®** Germicidal Ultraviolet Lamps” section of <http://www.ultraviolet.com>.



## LAMP INSTALLATION OR REPLACEMENT

Figure 3 - Lamp Replacement



Step 2 - Remove End -Cap



Step 3 - Withdraw Lamp





Step 4 & 5 - Remove Sockets




Step 6 - Remove Lamp

### SAFETY EQUIPMENT REQUIRED TO PERFORM TASK

1.  **WARNING: Disconnect power to water purifier.**
2. Remove both **EASY-OFF™** end caps by pulling each cap off static gland nut. Slide each end cap along the wire away from the socket.
3. Carefully withdraw lamp approximately 2 inches from chamber while feeding lamp socket and lead wire on opposite end of chamber.
4. While holding lamp end, carefully remove lamp socket on end now exposed.
5. Next, carefully slide lamp back into chamber, until approximately 2 inches of the lamp is exposed on the opposite end. Hold lamp and remove lamp socket.
6. Lamp should now be disconnected on both ends. Carefully remove lamp from chamber. Be sure to withdraw lamp straight out without angling until completely clear of quartz sleeve.

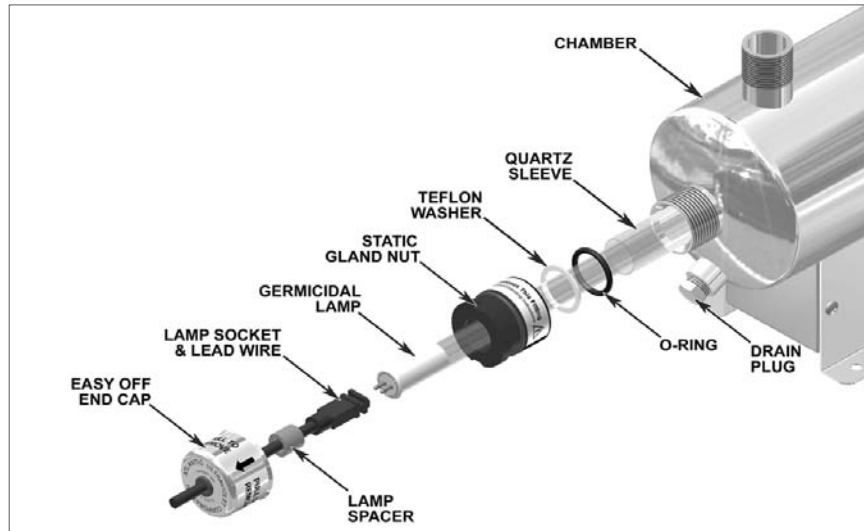
 **CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when handling.**

7. Reinstall lamp in reverse order.

 **WARNING: Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamp and both **EASY-OFF™** end caps have been properly reinstalled.**

## QUARTZ SLEEVE INSTALLATION, CLEANING OR REPLACEMENT

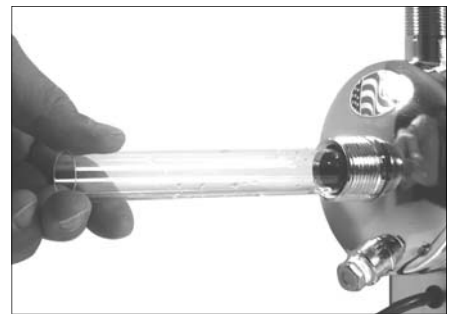
Figure 5 - Quartz Sleeve Installation, Cleaning or Replacement



Step 4 - Remove Gland Nuts





Step 5 - Remove Washer & O-Ring




Step 6 - Remove Quartz Sleeve

### SAFETY EQUIPMENT REQUIRED TO PERFORM TASK

1.  **WARNING: Disconnect power to water purifier.**
2. Shut off water supply to water purifier via inlet and outlet shut off valves. Drain chamber by removing drain plug. Once the chamber is completely drained, remove any old sealing tape from the threads of the drain plug, rewrap with 1/2" wide Teflon® thread sealing tape, reinstall and tighten the drain plug.
3. Follow the steps in “Lamp Installation or Replacement” to remove lamp.  
 **CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when handling.**
4. Unscrew static gland nuts from each end of the chamber. Avoid striking quartz sleeve with static gland nut.
5. Remove Teflon® washer and o-ring from both ends of quartz sleeve. Teflon® washer will sometimes remain within the static gland nut. If so, remove Teflon® washer from static gland nut before proceeding.
6. Carefully remove quartz sleeve from chamber. **NOTE: It is advisable to support the quartz sleeve on the opposite end with your finger so that it does not drop to the bottom of the chamber as it slides into the chamber.**
7. Once the quartz sleeve is removed, clean with alcohol or a mild, non-abrasive detergent. Stubborn stains usually can be removed with a dilute hydrochloric acid. **NOTE: Follow all manufacturer’s instructions and precautions when handling chemicals.**
8. Reassemble in reverse order. Make sure the quartz sleeve protrudes an equal distance past each threaded nipple. Be sure o-rings are placed on quartz sleeve before Teflon® washer.
9. Tighten static gland nuts firmly by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools is likely to cause quartz sleeve to break.
10. **Slowly** restore water supply to water purifier and check for leaks.

If no leaks occur, reinstall lamp, following the steps in “Lamp Installation or Replacement” section.

 **WARNING: Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamps and both EASY-OFF™ end caps have been properly reinstalled.**

## ***REPLACEMENT OF BROKEN QUARTZ SLEEVE***

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### **SAFETY EQUIPMENT REQUIRED TO PERFORM TASK**

**⚠ CAUTION: Broken Quartz is SHARP. It is recommended that protective goggles and gloves are worn when handling.**

**⚠ ⚡ WARNING: Disconnect power to water purifier. Shut off water supply to water purifier via inlet and outlet shut off valves. Drain chamber by removing drain plug.**

Follow the steps in “**Quartz Sleeve Installation, Cleaning or Replacement**” to remove lamp and quartz sleeve.

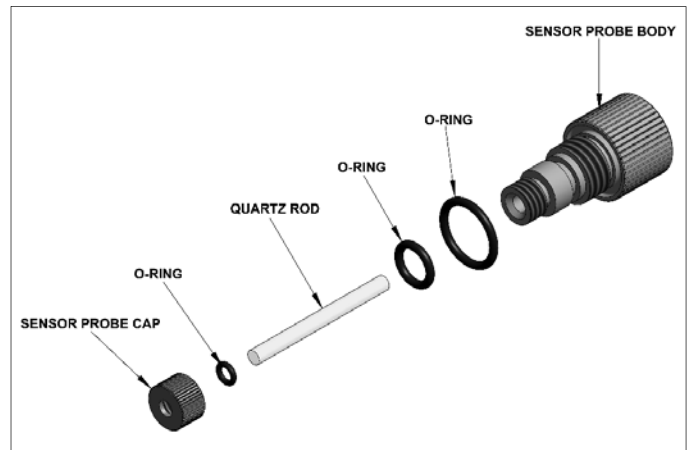
1. To prevent damage to the electrical components, it is necessary to separate the ballast housing from the purifier chamber.
  - On **Mighty★Pure**® Models MP16A, and MP22A, the ballast housing is mounted to the purifier chamber using four (4) No. 8 x 3/8” long screws. Using a Phillips cross point screwdriver, carefully remove the four (4) screws, from along the sides of the ballast housing, and set aside. Separate the housing from the chamber.
  - On **Mighty★Pure**® Models MP36C, and MP49C , the ballast housing is mounted to the purifier chamber using four (4) 1/4”-20 x 3/8” long hex head bolts. Using a 7/16” wrench or an adjustable wrench, carefully remove the four (4) bolts with the lock and flat washers, from along the top of the ballast housing, and set aside. Separate the housing from the chamber.
  - Keep ballast housing and mounting hardware in a clean, dry area.
2. Unscrew static gland nuts from each end of the chamber. Remove Teflon® washer and o-ring from both ends of quartz sleeve. Teflon® washer will sometimes remain within the static gland nut. If so, remove Teflon® washer from static gland nut before proceeding.
3. **⚠ CAUTION:** Carefully remove as much of the broken quartz sleeve as possible, from each end of the chamber.
4. To remove fragments of quartz sleeve, hold the purifier vertically and shake. The quartz fragments will break and drop out of the purifier through the gland fitting. Flush water through chamber being careful to remove all quartz fragments from the interior of the chamber.
5. **Carefully** discard all pieces of the broken quartz sleeve.
6. Align the end of the replacement quartz sleeve with the gland fitting of the chamber.
7. Carefully slide the quartz sleeve into the chamber guiding it through the gland fitting. **NOTE:** Use care to keep the quartz sleeve parallel to the chamber. Angling the quartz sleeve in any direction could result in the breakage of the quartz sleeve.
8. As the quartz sleeve nears the far end of the chamber, support the quartz sleeve by inserting your finger through the far end gland fitting and into the quartz sleeve. This will minimize the possibility of breaking the quartz sleeve as it passes through the gland fitting.
9. Center the quartz sleeve in the chamber, making sure the quartz sleeve protrudes an equal distance past each threaded gland fitting, of the chamber.
10. Re-install o-rings, Teflon® washers, and static gland nuts. Be sure o-rings are placed on quartz sleeve before Teflon® washer. Tighten static gland nuts firmly by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools is likely to cause quartz sleeve to break.
11. Re-assemble ballast housing to purifier chamber, using hardware removed in Step 1. **NOTE:** When re-assembling ballast housing to purifier chamber, electrical power cord should exit ballast housing from the end mounted opposite the drain plug.
12. When all connections are complete, allow water to enter the water purifier at a low flow rate until the purifier is full. With the purifier pressurized, it should be checked for leaks.
13. See “**Lamp Installation or Replacement**” section to properly re-install the lamp into the water purifier.

## OPTIONAL GUARDIAN™ ULTRAVIOLET MONITOR SENSOR PROBE CLEANING

Figure 5 - Ultraviolet Monitor and Sensor Probe



Figure 6 - Sensor Probe



If after cleaning the quartz sleeve, there is no significant improvement in the ultraviolet intensity, as shown on the intensity meter, it may be necessary to clean the Ultraviolet Monitor's sensor probe. The sensor probe body mounts in a fitting, located in the center of the disinfection chamber, and protrudes into the chamber.

1. **⚠️ ⚡ WARNING: Disconnect power to water purifier.**
2. Shut off water supply to the water purifier via the inlet and outlet shut off valves. Drain the chamber by removing the drain plug. Once the chamber is drained, remove any old sealing tape from the threads of the drain plug, rewrap with 1/2" wide Teflon® thread sealing tape, reinstall and tighten the drain plug.
3. Disconnect power to the Ultraviolet Monitor; remove from chamber by loosening the two set screws on the aluminum collar and lifting it free from probe body.
4. Unscrew the sensor probe and remove from the chamber.
5. Remove the quartz rod sensor probe cap, from the probe body. Take care not to damage the quartz rod, o-ring or the threads of the probe body. **NOTE:** It is recommended, when servicing the sensor probe, to work in a clean, dry area.
6. Once the quartz rod is removed, clean with alcohol or a mild detergent, and rinse with clean water. Stubborn stains usually can be removed with a dilute hydrochloric acid. **NOTE:** Follow all manufacturer's instructions and precautions when handling chemicals. Once the quartz rod has been cleaned, handle the rod by the sides, to avoid getting fingerprints on the quartz rod faces.
7. Clean the probe body, by removing any dirt or deposits on all surfaces. o-rings should be inspected and can be replaced if worn or damaged.
8. Reassemble, replacing the o-rings, quartz rod and securing in place with the quartz rod sensor probe cap. Tighten the quartz rod sensor probe cap by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools may damage the quartz rod or o-ring seal.
9. Reinstall sensor probe into the center fitting of the chamber and hand tighten.
10. **Slowly** restore water supply to the water purifier, pressurize, and check for leaks. Once it is determined that there are no leaks, inlet valve can be fully opened.
11. Reposition Ultraviolet Monitor on probe body and tighten set screws.
12. Restore power to the water purifier and ultraviolet monitor. If after the cleaning of the quartz rod, there is still no significant improvement in the ultraviolet intensity, as shown on the intensity meter, proceed to the "**Troubleshooting**" section.

# TROUBLESHOOTING

**⚠️ ⚠️ WARNING:** Always disconnect power to the water purifier before performing any service or maintenance.  
**IMPORTANT:** This unit is to be serviced **ONLY** by qualified, and appropriately licensed, personnel.

**Table 4 - Troubleshooting**

Problem	Possible Cause	Corrective Action
Purifier not operating	No electrical power...	Verify that the purifier is connected to a live power source.
Water leaking into/from purifier.	Cracked or broken quartz sleeve...	Shut down purifier, drain, and replace quartz sleeve. See <b>“Quartz Sleeve Installation, Cleaning or Replacement”</b> in the <b>“Maintenance”</b> section
	Quartz sleeve sealing o-ring (s) worn, damaged...	Shut down purifier, drain, and remove static gland nut, replace sealing o-ring. See <b>“Quartz Sleeve Installation, Cleaning or Replacement”</b> in the <b>“Maintenance”</b> section
	Poor, or loose, connections or fittings	Tighten suspect connection or fitting; or shut down purifier, drain, and remove fitting or connection. Clean threads; reapply thread sealing tape and reinstall.
Poor purifier performance AND/OR Low UV intensity (As indicated on optional Guardian™ Ultraviolet Monitor)	Quartz sleeve fouled...	Clean quartz sleeve, see <b>“Quartz Sleeve Installation, Cleaning or Replacement”</b> in the <b>“Maintenance”</b> Section.
	Sensor Probe, if equipped, lens or quartz rod fouled...	Clean lens or Quartz Rod, see <b>“Optional Ultraviolet Monitor Sensor Probe Cleaning”</b> in the <b>“Maintenance”</b> section
	Germicidal lamp output depreciating...	Replace lamp, as it nears its end of life (EOL). See <b>“Lamp Installation or Replacement”</b> in the <b>“Maintenance”</b> section.
	Germicidal lamp not functioning...	Replace lamp. See <b>“Lamp Installation or Replacement”</b> in the <b>“Maintenance”</b> section
	Low input voltage...	Verify input voltage to purifier.
	Change in water quality....	Have water tested to confirm that it does not exceed maximum recommended concentration levels for use with this purifier.

# TECHNICAL SPECIFICATIONS

Table 4 - Technical Specifications

Model:	MP16A	MP22A	MP36C	MP49C
Flow Rate (GPM):	3	6	12	20
Inlet/Outlet Size:	3/4"m NPT	3/4"m NPT	1"m NPT	1-1/2"m NPT
Number of Lamps:	1	1	1	1
Lamp Model No.:	05-1098-R	05-1097-R	05-1343-R	05-1334-R
Length:	16-1/2"	22-1/2"	36-1/2"	49-1/2"
Width:	4-5/16"	4-5/16"	5-11/16"	5-11/16"
Height:	8-3/8"	8-3/8"	9-1/2"	9-1/2"
Chamber Diameter:	4-1/4"	4-1/4"	4-1/4"	4-1/4"
Shipping Weight:	12 Lbs	14 Lbs	22 Lbs	36 Lbs
Voltage: ①	120V	120V	120V	120V
Amps:	.23A	.33A	.65A	.42A
Frequency:	60Hz	60Hz	60Hz	60Hz
Power Consumption: ②	18 Watts	24 Watts	44 Watts	54 Watts
Lamp Watts:	14 Watts	20 Watts	39 Watts	50 Watts
Max Operating Pressure:	100 PSI	100 PSI	100 PSI	100 PSI
Ambient Temperature:	35° F - 100° F	35° F - 100° F	35° F - 100° F	35° F - 100° F
Quartz Sleeve:	1	1	1	1
Drain Plug:	1/4" NPT	1/4" NPT	1/4" NPT	1/4" NPT
Lamp Out Indicator:	Translucent Sight Port	Translucent Sight Port	Translucent Sight Port	Translucent Sight Port
Ultraviolet Monitor:	Optional	Optional	Optional	Optional
Flow Control Valve:	Optional	Optional	Optional	Optional
Audio Alarm:	Optional	Optional	Optional	Optional
Solenoid Valve:	Optional	Optional	Optional	Optional
Time Delay Mechanism:	Optional	Optional	Optional	Optional
Elapsed Time Indicator:	Optional	Optional	Optional	Optional
Quantum Thermal Optimizer:	Optional	Optional	Optional	Optional

① 220V 50Hz, 220V 60Hz, 12V, or 24V DC units are also available. Consult Factory for specific voltage requirements.

② Total power consumption, including ballast loss (based on 120V unit).

All specifications, dimensional data, etc. are approximate and subject to change without notice.

# OPTIONAL ACCESSORIES

Table 5 - Optional Accessories

Optional Accessories	Available For:
Guardian™ Ultraviolet Monitor - Analog/Digital	MP16A through MP49C
Sentry™ Safety Sensor	MP16A through MP49C
Steralert™	MP16A through MP49C
Audio Alarm	MP16A through MP49C
Elapsed Time Indicator Universal Input	MP16A through MP49C
Wall Mounting Kit	MP16A through MP49C
Time Delay Mechanism	MP16A through MP49C
Quantum Thermal Optimizer:	MP16A through MP49C
Solenoid Valve	MP16A (1/2") through MP22A (3/4")
	MP36C (1")
	MP49C (1-1/2")
	MP49C (1-1/2")
Sure Flo™ Flow Control Valve ①	MP16A (3/4")
	MP22A (3/4")
	MP36C (1")
	MP49C (1-1/2")

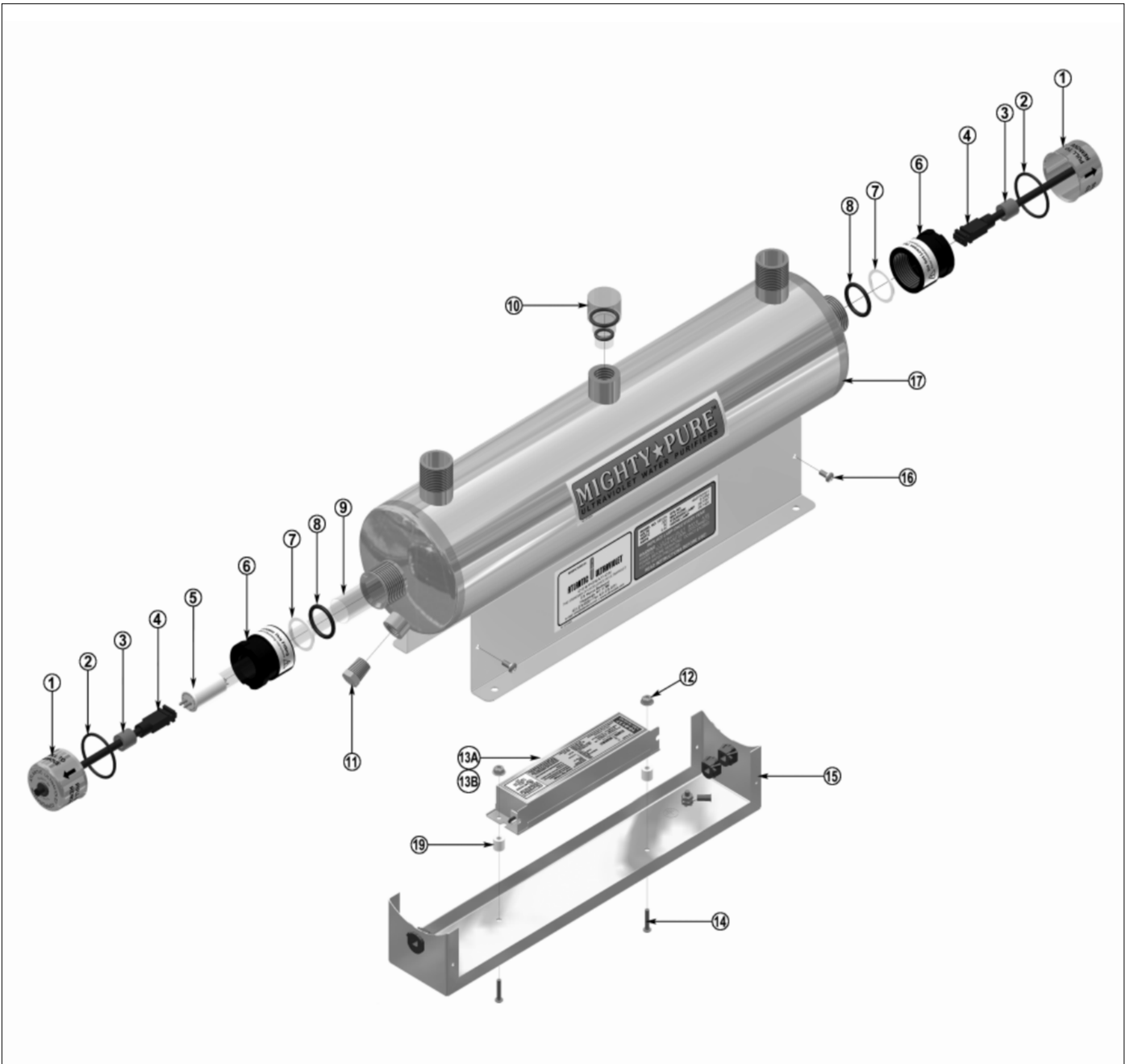
Most optional accessories are available for operation at 120v 60Hz or 220v 50Hz. Please specify. Consult Factory for 12v DC or other special input power requirements.

- ① Unless otherwise specified PVC flow control valves are supplied. All PVC and Stainless Steel flow control valves are male NPT. Consult Factory for other flow control valves

# REPLACEMENT PARTS

## Mighty★Pure® MODELS MP16A & MP22A

Figure 7 - Exploded View MP16A & MP22A





**Table 6 - Replacement Parts MP16A & MP22A**

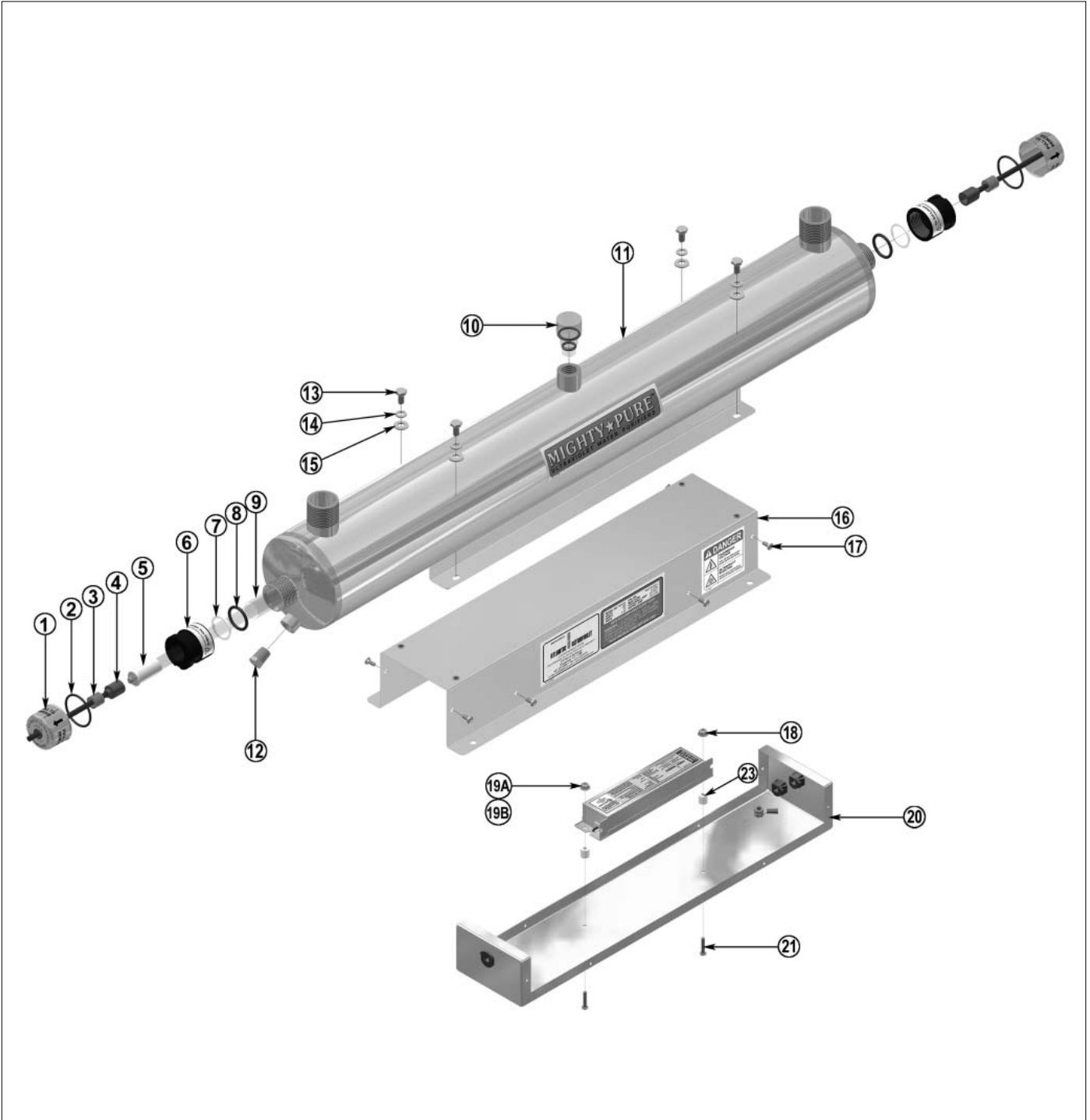
Item No.	Description	MP16A		MP22A	
		Quantity	Part Number	Quantity	Part Number
1	Easy-Off™ End Cap	2	25-1499A1	2	25-1499A1
2	O-Ring, Static Gland	2	00-1108B	2	00-1108B
3	Lamp Spacer	2	25-0210A	2	25-0210A
4	Lead Wire & Socket	2	05-1219B2	2	05-2223A
5	Lamp	1	05-1098-R	1	05-1097-R
6	Static Gland Nut	2	25-1492D	2	25-1492D
7	Teflon® Washer	2	25-1235A	2	25-1235A
8	O-Ring, Quartz Sleeve	2	00-1238A	2	00-1238A
9	Quartz Sleeve	1	15-1111A	1	15-1112A
10	Sight Port Plug	1	30-1075	1	30-1075
11	Drain Plug	1	27-1216	1	27-1216
12	Speed Nut, 6-32	2	50-1314	2	50-1314
13A	Ballast, 120v 60Hz	1	10-0137	1	10-0137
13B	Ballast, 220v 50Hz	1	10-0136	1	10-0136
14	Screw, Mounting	2	50-0376	2	50-0376
15	Ballast Housing	1	25-1105C	1	25-1544E
16	Screw, No. 8 x 3/8" long	4	50-1323	4	50-1323
17	Chamber	1	25-1465E2	1	25-1465E3
18A*	Line Cord, (120v 60Hz)	1	35-1100	1	35-1100
18B*	Power Cord 6' (220v 50Hz)	1	35-1452	1	35-1452
19	Standoff, Mounting	2	50-0375	2	50-0375

\* not depicted in drawing

All specifications, dimensional data, etc. are approximate and subject to change without notice.

**Mighty★Pure® MODELS MP36C & MP49C**

Figure 8 - Exploded View MP36C & MP49C



**Table 7 - Replacement Parts MP36C &MP49C**

Item No.	Description	MP36C		MP49C	
		Quantity	Part Number	Quantity	Part Number
1	Easy-Off™ End Cap	2	25-1499A1	2	25-1499A1
2	O-Ring, Static Gland	2	00-1108B	2	00-1108B
3	Lamp Spacer	-	-	2	25-0209A
4	Lead Wire & Socket	2	05-1218A2	2	05-1218A2
5	Lamp	1	05-1343-R	1	05-1334-R
6	Static Gland Nut	2	25-1492D	2	25-1492D
7	Teflon® Washer	2	25-1235A	2	25-1235A
8	O-Ring, Quartz Sleeve	2	00-1238A	2	00-1238A
9	Quartz Sleeve	1	15-1113A	1	15-1114A
10	Sight Port Plug	1	30-1075	1	30-1075
11	Chamber	1	25-1465G4	1	25-1465F5
12	Drain Plug	1	27-1216	1	27-1216
13	Screw, 1/4"-20 x 3/8" long	4	50-1034	4	50-1034
14	Lock Washer, 1/4"	4	50-1321	4	50-1321
15	Flat Washer 1/4"	4	50-1317	4	50-1317
16	Ballast Housing Cover	1	25-0394A	1	25-0350A
17	Screw, No. 8 x 3/8" long	8	50-1323	8	50-1323
18	Speed Nut, 6-32	2	50-1314	2	50-1314
19A	Ballast, 120v 60Hz	1	10-0137	1	10-0091
19B	Ballast, 220v 50Hz	1	10-0136	1	10-0127
21	Ballast Housing	1	25-0395D	1	25-0351B
22A*	Line Cord (120v 60Hz)	1	35-1100	1	35-1100
22B*	Power Cord 6' (220v 50Hz)	1	35-1452-R	1	35-1452-R
23	Standoff, Mounting	2	50-0375	2	50-0375

\* not depicted in drawing

All specifications, dimensional data, etc. are approximate and subject to change without notice.

## USER ASSISTANCE

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Atlantic Ultraviolet Corporation® makes every effort to ensure that the **Mighty★Pure®** Ultraviolet Water Purifiers are products of superior quality and workmanship. This manual describes the installation, operation and maintenance of the **Mighty★Pure®** Ultraviolet Water Purifiers

Please read and become familiar with the contents of this manual before installing or using this unit. If after reading the manual you still have questions, or concerns, regarding the installation or use of this unit, contact our offices, weekdays between 8:30 am and 5:00 pm Eastern Time, at:

Atlantic Ultraviolet Corporation®  
375 Marcus Boulevard  
Hauppauge, New York, 11788  
Tel: 631.273.0500  
Fax: 631.273.0771  
E-mail: [info@ultraviolet.com](mailto:info@ultraviolet.com)  
Website: [www.ultraviolet.com](http://www.ultraviolet.com)  
[www.buyultraviolet.com](http://www.buyultraviolet.com)

## PRODUCT REGISTRATION

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Please REGISTER your product immediately - you can do this in a number of ways. Go online to [Ultraviolet.com](http://Ultraviolet.com) and on the bottom left of each page either click on "Fill out Warranty Reg. Form on-line!" complete and hit submit or click on "Download a PDF of the Warranty Reg. card" which you can print, fill out and mail in. If you prefer to register over the telephone please call 631-273-0500.

Atlantic Ultraviolet Corporation® takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damage. Do not install damaged equipment. Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.

For your convenience, record the following information below. The model and serial number can be found on a label located on the **Mighty★Pure®** Ultraviolet Water Purifier. Keep this manual, along with proof of purchase, handy when contacting our offices.

Purchased From:	Date:
Model:	Serial No.:

## WARRANTY

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We warrant that this product will be free from defects in material and workmanship for a period of one year from the date of shipment thereof or the product's total rated life, whichever first occurs. Within the warranty period we shall repair or replace such products, which are returned to us with shipping charges prepaid, and which are determined by us to be defective. This warranty will not apply to any product, which has been subjected to misuse, negligence, or accident; or misapplied; or modified; or repaired by unauthorized persons; or improperly installed.

The Buyer shall inspect the product promptly after receipt and shall notify us at our main office in writing of claims, including claims of breach of warranty, within thirty (30) days after the Buyer discovers or should have discovered the facts upon which the claim is based. Failure of the Buyer to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person, for injury to person, damage to, or loss of property or value caused by any product which has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the Atlantic Ultraviolet Corporation® be liable for any incidental, consequential or special damages, losses or expenses arising from the contract for this product, or in connection with the use of, or inability to use, our product for any purpose whatsoever.

## PATENT NOTICE

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No attempt has been made to determine the patent status of applications illustrated or described in this publication. Inclusion in this publication of any design or method of use, which may be patented, is not to be construed as promoting or sanctioning unauthorized use.