

**INSTALLATION  
OPERATION  
AND  
MAINTENANCE  
MANUAL**

**MODELS  
DLR-ES**

**SERIES NO'S**

**2  
4  
7**

Sold by:

**Manufactured by:**

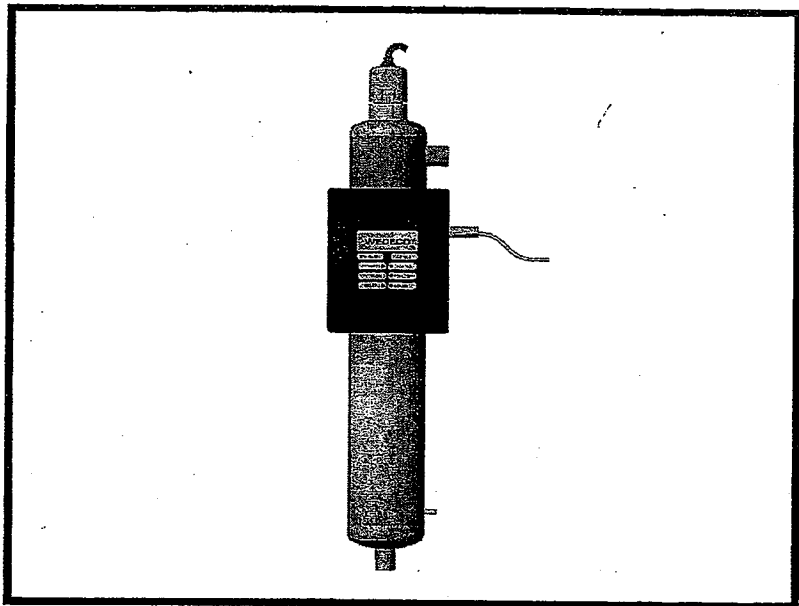
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**WEDECO**



**ITT**  
Advanced Water Treatment

**DLR SERIES  
ULTRAVIOLET  
WATER  
DISINFECTION UNIT**



**CAUTION**

**IT IS VERY IMPORTANT THAT THOSE RESPONSIBLE FOR THE INSTALLATION OF THIS EQUIPMENT, AS WELL AS THE OWNER/OPERATOR READ THIS MANUAL AND CAREFULLY FOLLOW THE INSTRUCTIONS AND GUIDELINES.**

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# Important Safety Instructions

**WARNING!** To guard against injury, basic safety precautions must be observed.

## READ AND FOLLOW ALL SAFETY INSTRUCTIONS AND SAFE THESE INSTRUCTIONS

	<b>CAUTION!</b> Denotes a potentially dangerous situation. Failure to observe this warning may lead to minor or serious personal injury and material damage.
	<b>ELECTRIC SHOCK!</b> Warning — Dangerous electric voltage. Failure to observe this warning may lead to serious injury or death.
	<b>EYE PROTECTION MUST BE WORN!</b>
	<b>IMPORTANT!</b> Denotes a useful tip and other information.



**CAUTION!** Ultraviolet light (UV-C) is harmful to eyes and skin. Use UV lamps only inside the disinfection chamber with the appropriate protective covering. Avoid exposure to UV-C radiation.



**CAUTION!** Use disinfection unit only for its intended purpose as described in the Owner's Manual. The use of attachments not recommended or sold by WEDECO may cause an unsafe condition.



**CAUTION!** Disinfection unit must be properly installed in accordance with the Owner's Manual and in compliance with all applicable local and state regulations before use. Read and observe all important notices on the disinfection unit.



**CAUTION!** The WEDECO DLR Series UV disinfection unit is intended for indoor use only.



**ELECTRIC SHOCK!** To avoid possible electrical shock, take special care when using water with this equipment. Always shut off and disconnect power to the unit before:

- Making repairs (We strongly recommend that a qualified individual who fully understands the Owner's Manual perform service and/or repairs.)
- Cleaning
- Replacing a UV lamp



**ELECTRIC SHOCK!** Do not operate any disinfection unit if it has a damaged cord or plug, if it is malfunctioning, or if it is dropped or damaged in any way.



**ELECTRIC SHOCK!** The power cord of disinfection unit is equipped with a 3-prong grounding plug that mates with a standard 3-prong grounded wall outlet to minimize the possibility of electric shock. Be sure the outlet for the disinfection unit is wired and grounded properly. **Do Not** under any circumstances cut or remove the third prong from the power cord.



**ELECTRIC SHOCK!** Always unplug disinfection unit from outlet when not in use, before putting on or taking off parts, and before cleaning. Never unplug by pulling on the power cord. Always grip plug firmly and pull straight out of the outlet.



**CAUTION!** Shut down system before servicing:

- Turn off water supply to the UV disinfection unit.
- Disconnect all power to the UV disinfection unit.
- Drain water from the system.



**EYE PROTECTION MUST BE WORN!** *Never* look at an operating UV light with the naked eye. The light will burn and irritate unprotected eyes and skin.



**EYE PROTECTION MUST BE WORN!** *Never* operate the UV lamp outside of the UV disinfection unit.

# Pre-Installation Instructions

Before you begin

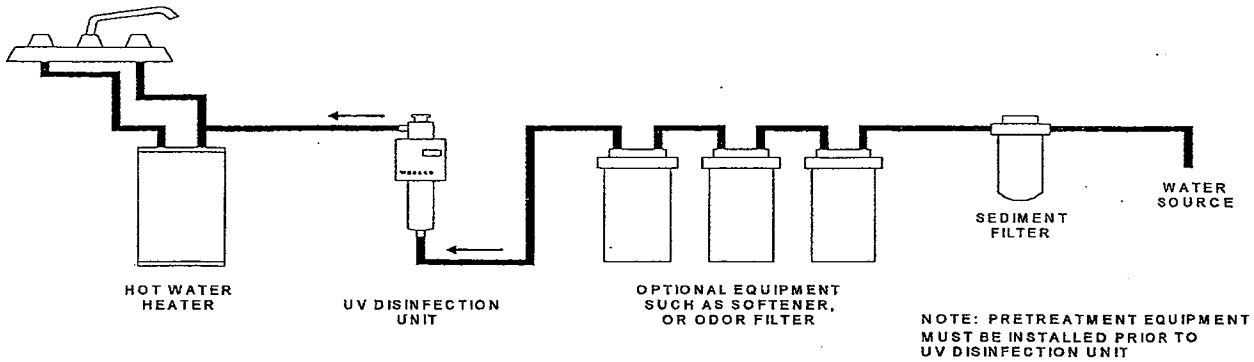
Perform the following pre-installation steps:

Step	Action																					
1	Ensure that your DLR-ES system is correct for your flow capacity (see Flow Rate Tables in Technical Specifications.)																					
2	<p>Ensure that your water supply meets water quality standards as shown in the table below. If any of the elements exceed the recommended maximum, we strongly suggest, at a minimum, that you install a 5-micron sediment filter as particles in the water can reduce UV light intensity and affect performance. Contact the distributor for additional information about testing and pretreatment equipment.</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Recommended maximum levels (1mg/l = 1ppm)</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>Suspended solids</td> <td>&lt;5 mg/l</td> <td></td> </tr> <tr> <td>Color</td> <td>None</td> <td></td> </tr> <tr> <td>Iron</td> <td>0.3 mg/l</td> <td></td> </tr> <tr> <td>Manganese</td> <td>0.05 mg/l</td> <td></td> </tr> <tr> <td>pH</td> <td>6.5 to 9.5</td> <td></td> </tr> <tr> <td>Hardness</td> <td>&lt;120 ppm</td> <td></td> </tr> </tbody> </table> <p><b>Note:</b> All models are rated for a minimum UV transmission of 90%. If your transmission is lower, consult the distributor.</p>	Element	Recommended maximum levels (1mg/l = 1ppm)	Actual	Suspended solids	<5 mg/l		Color	None		Iron	0.3 mg/l		Manganese	0.05 mg/l		pH	6.5 to 9.5		Hardness	<120 ppm	
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Hardness	<120 ppm																					
3	<p>Check the pressure of the water supply. The WEDECO UV system is designed to operate at pressures up to 125 psi.</p> <table border="1"> <thead> <tr> <th>If the pressure is...</th> <th>Then...</th> </tr> </thead> <tbody> <tr> <td>Less than 125 psi</td> <td>Proceed to step 4</td> </tr> <tr> <td>Greater than 125 psi</td> <td>Install a suitable pressure-reducing valve in the water inlet pipe to the disinfection unit.</td> </tr> </tbody> </table>	If the pressure is...	Then...	Less than 125 psi	Proceed to step 4	Greater than 125 psi	Install a suitable pressure-reducing valve in the water inlet pipe to the disinfection unit.															
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4	<p>Fill in the following information and retain for future reference.</p> <p>Unit Model No. _____ Serial No. _____</p> <p>Date Purchased: _____ Date Installed: _____</p> <p>Water pressure (psi): _____ Water flow rate (gpm): _____</p>																					
5	<p>Select a location that meets the following guidelines.</p> <ul style="list-style-type: none"> <li>• The unit must be installed between the cold water source and the water heater as inlet temperature must not exceed 100°F. (See Figure 1 for proper installation sequence.)</li> <li>• The disinfection unit can be installed either horizontally or vertically. (See Figure 3 for water flow direction.)</li> <li>• There must be enough clearance to remove the UV lamp and the quartz sleeve for replacement and regular maintenance. Recommended clearance is length of unit plus four inches. (See Figure 4 for additional clearance requirements.)</li> <li>• The unit must be within 7 feet of an 110V electrical outlet. A 7'5" cord is included with the unit.</li> <li>• The unit must be protected from freezing. Freezing damage will void the warranty.</li> <li>• The unit should be placed where a potential leak will not cause water damage. WEDECO is not responsible for water damage.</li> </ul>																					

# Pre-Installation Instructions, Continued

**Figure 1:  
Installation  
Sequence**

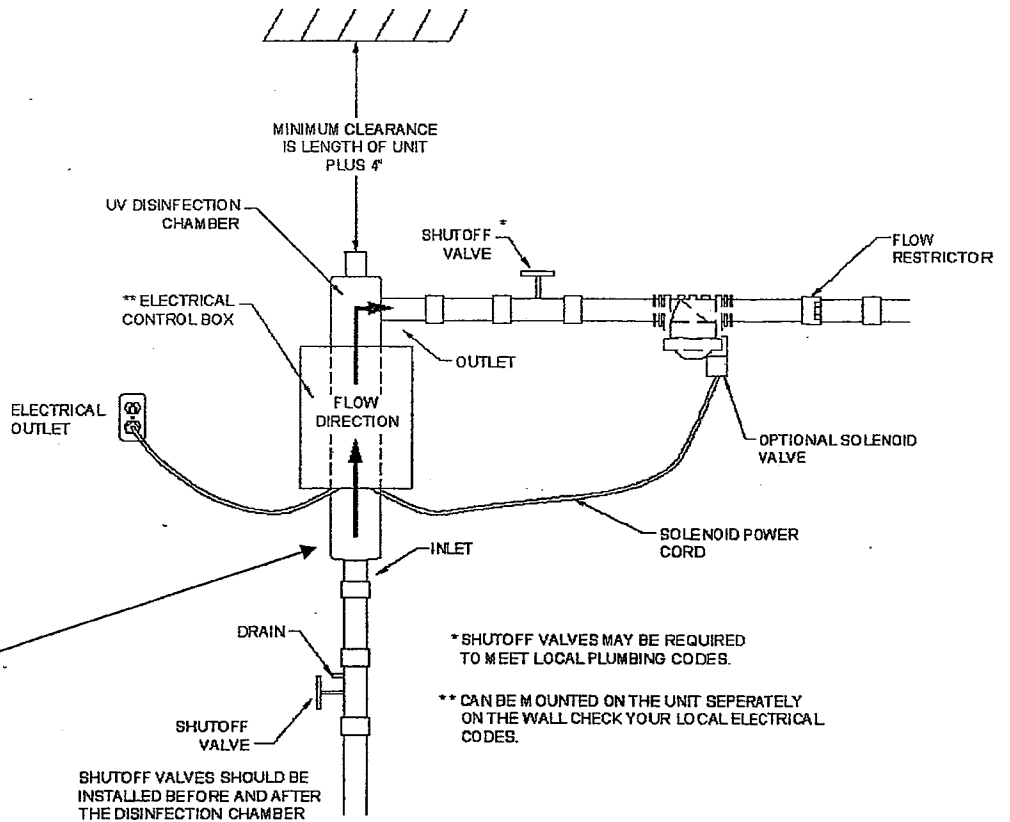
Figure 1 shows a typical installation sequence. Note that all items may not be necessary for water treatment.



**Figure 2:  
Installation  
Planning**

You must determine how to run pipes in and out of your disinfection unit. Figure 2 shows one method of installation (with chamber mounted control box). Use this diagram to determine the materials needed for your installation.

- ! IMPORTANT!**  
Check local plumbing codes for sizes and types of pipes to be used.
- ELECTRIC SHOCK!**  
Check for hidden electrical wiring before drilling holes.



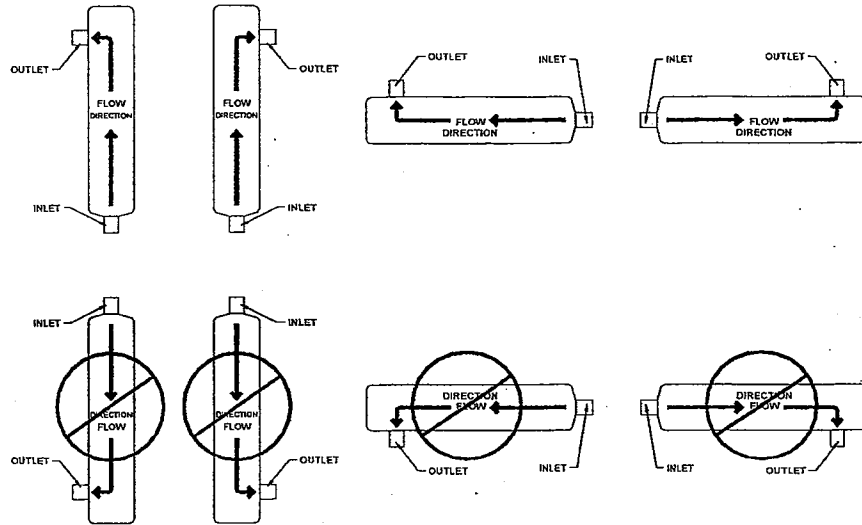
The disinfection chamber must be properly grounded to a suitable electrical ground. Check local electrical codes for proper location. Attach ground wire (not included) to stud and nut located on lower area of disinfection chamber.

# Pre-Installation Instructions, Continued

**Figure 3: Unit Positioning**

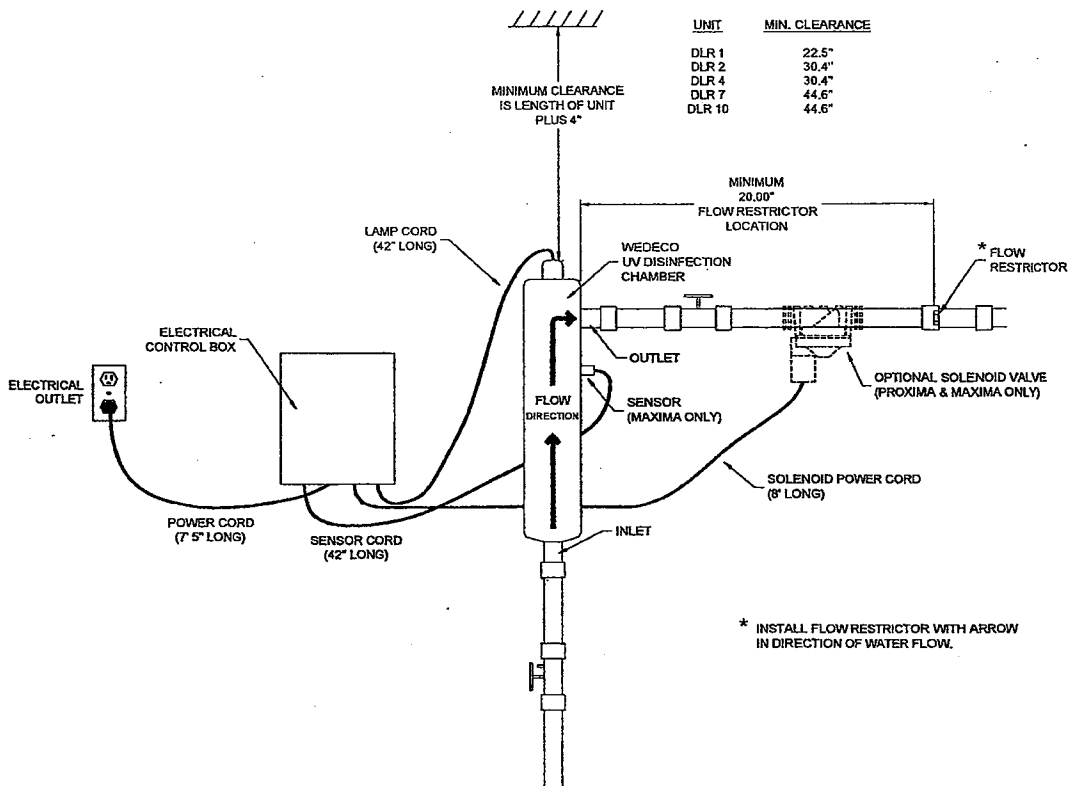
Figure 3 shows proper water flow for horizontal or vertical installation. Make certain that your unit and the inlet and outlet pipes are in the right position for either horizontal or vertical installation.

**! IMPORTANT!**  
For vertical installation, the inlet is at the bottom and the outlet is near the top of the disinfection chamber. For horizontal installation pay careful attention to the diagram for flow direction.



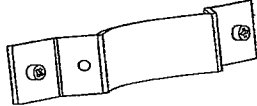
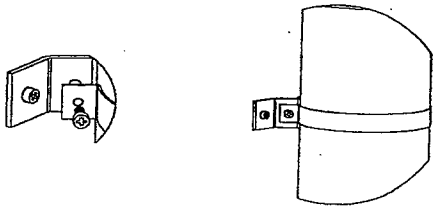
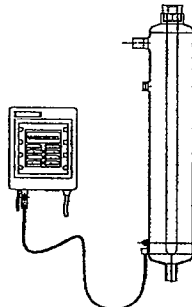
**Figure 4: Clearance Requirements**

Figure 4 provides the clearance requirements needed for proper installation of the disinfection chamber.



# Installing the Disinfection Unit

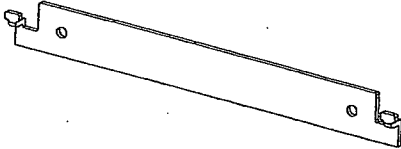
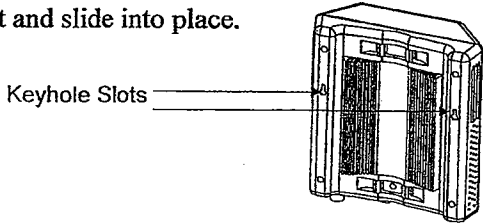
**Attaching unit to wall** Follow these steps to attach WEDECO UV disinfection chamber to the wall.

Step	Action	Diagram
1	Install the two wall mount brackets on the wall using the proper screws for your wall type (screws not included).	
2	Place disinfection chamber in the brackets and secure with the wall mount bracket straps. Use the wall mount bracket strap screws provided to tighten the wall mount bracket straps to the wall mount brackets.	
3	Ground disinfection chamber, as shown, to a suitable electrical ground. Check local electrical codes for proper location. (Grounding wire not included.) The disinfection chamber must be properly grounded prior to powering up the system. Attach the ground wire to the stud and nut located on the lower area of the disinfection chamber and connect it to the earth strap that is located at the bottom left of the electrical box. (Grounding wire included.)	

# Mounting Electrical Control Box

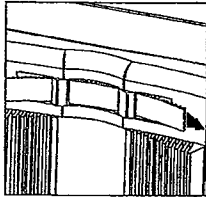
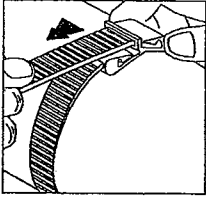
The electrical control box can be mounted on the wall (Option A) or on the disinfection chamber (Option B), according to the following instructions.

**Option A: Wall mount** Follow these steps to mount the electrical control box on the wall.

Step	Action
1	Attach the optional wall mount bracket to the wall using suitable hardware for your wall surface. 
2	Position the keyhole slots on the back of the electrical control box over the tabs on the wall mount bracket and slide into place. 

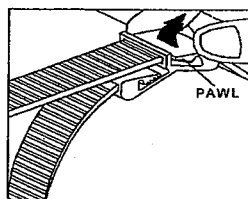
**Option B: Chamber mount**

Follow these steps to mount the electrical control box on the disinfection chamber.

Step	Action	Diagram
1	Feed the electrical control box straps through the upper and lower recessed areas on the back of the electrical control box.	
2	Position the electrical control box on the UV disinfection chamber: Wrap the electrical box straps around the chamber, push loose end through high side of Q-Clip, and pull through to tighten.	

**IMPORTANT!**

! If it is necessary to remove the electrical control box strap, lift the pawl to release the Q-Clip. You may need to use a screwdriver to lift the pawl.





# Installing the UV Lamp

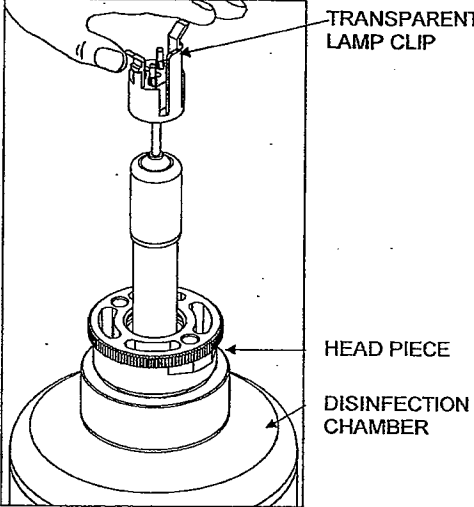
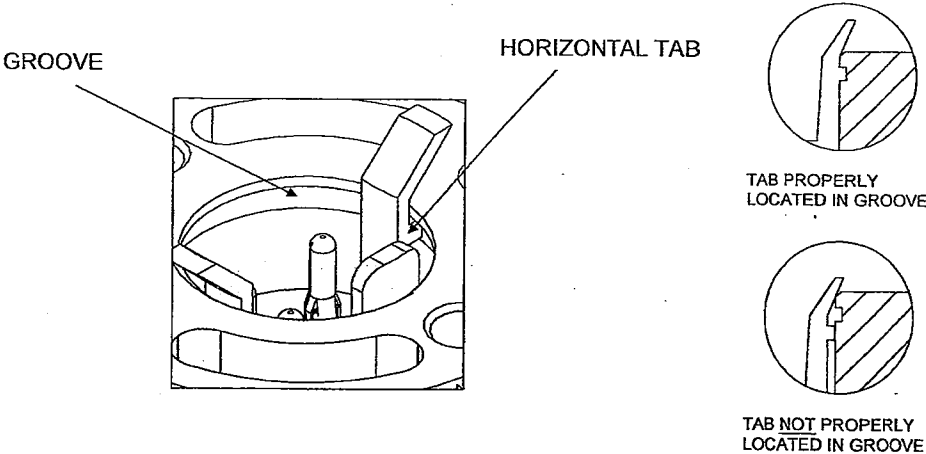
**CAUTION**



UV lamp is very fragile. Do not handle it with bare hands. Use **clean cotton gloves or cloth** when handling lamp to keep it free of dust or fingerprints. If dust or fingerprints get on the lamp, wipe it with a clean cloth and alcohol.

**Insert lamp in chamber**

Follow these steps to install the UV lamp in the disinfection chamber.

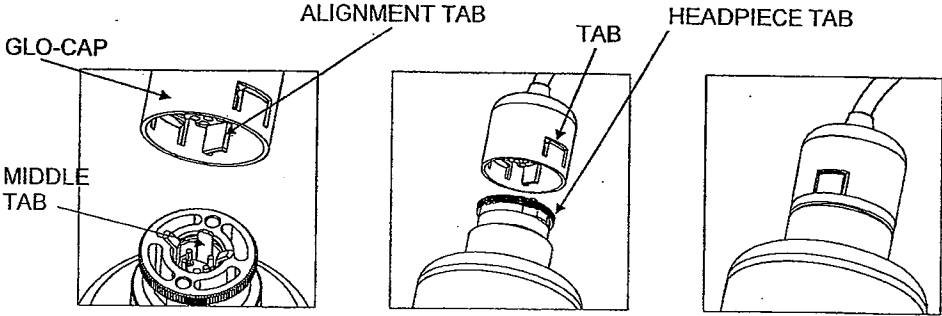
Step	Action
1	<p>Insert the lamp into the headpiece. Gently pinch the two large tabs on the transparent lamp clip and push until the tab locks into the groove (see step 2).</p> 
2	<p>Make sure that the transparent tab is properly snapped into the headpiece and is not pushed down too far.</p> 

## Installing the UV Lamp, Continued

### Position Glo-Cap

The Glo-Cap must be properly placed on the headpiece for the UV disinfection unit to work. Follow the steps below to position the Glo-Cap.

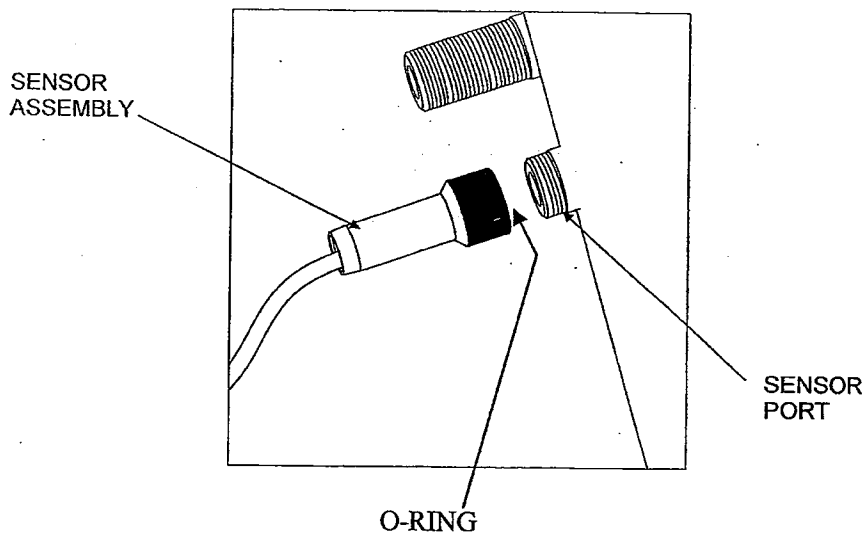
Step	Action
1	Align the tab on the Glo-Cap with the middle tab on the transparent clip.
2	Lower the Glo-Cap onto the headpiece until it clicks into place. If it does not click into place, make sure that the tabs on the Glo-Cap are <b>not</b> over the raised tabs on the headpiece. If they are, turn the Glo-Cap. When properly installed, the Glo-Cap will not separate from the headpiece.



The diagram consists of three sequential illustrations showing the Glo-Cap being attached to the headpiece. The first illustration shows the Glo-Cap above the headpiece, with an 'ALIGNMENT TAB' on the Glo-Cap and a 'MIDDLE TAB' on the headpiece. The second illustration shows the Glo-Cap being lowered onto the headpiece, with a 'TAB' on the Glo-Cap and a 'HEADPIECE TAB' on the headpiece. The third illustration shows the Glo-Cap fully seated on the headpiece.

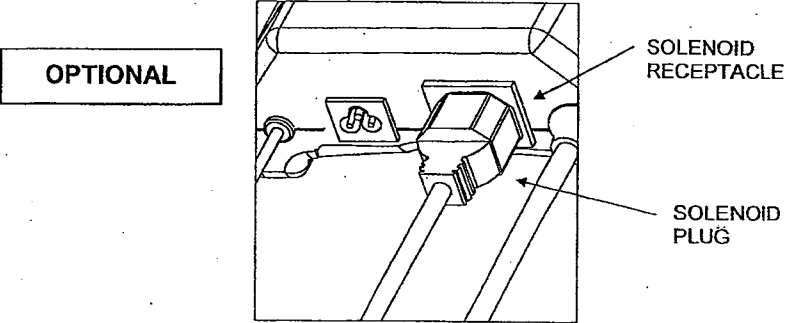
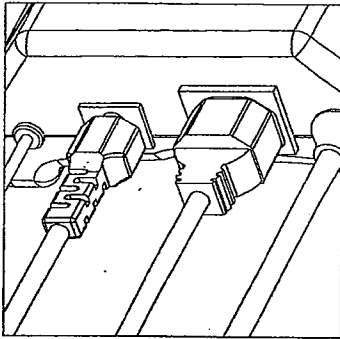
### Attach sensor

The UV system includes a sensor port and sensor assembly. Attach the sensor assembly to the sensor port on the disinfection chamber, as shown below. **Hand-tighten** the sensor assembly onto the threaded nipple by rotating clockwise until you have a proper seal. Do not use tools on the sensor assembly. (**Note: Ensure O-ring is seated properly against lens before installing sensor assembly to sensor port.**)



# Pre-Start Up Sequence

Before using the unit... Follow these steps before operating your WEDECO disinfection unit.

Step	Action
1	Check your plumbing: <ul style="list-style-type: none"> <li>• Make sure that new plumbing has no leaks.</li> <li>• Flush pipes to purge soldering residue or other debris from the system.</li> <li>• Expel air from the system to avoid pressure damage to the unit.</li> </ul>
2	Insert the solenoid valve plug into the solenoid valve receptacle located on the bottom of the electrical box. <div style="text-align: center; margin: 10px 0;">  </div> <p><i>Note: Solenoid is optional. WEDECO recommends installing the solenoid valve, which will shut off water supply in the event that certain alarms are triggered (see Alarms &amp; Troubleshooting sections).</i></p>
3	Plug one end of power cord into receptacle on the bottom of electrical control box, making sure plug is pushed in completely. <p><b>! IMPORTANT! Do not plug power cord into wall outlet until you begin the start-up sequence.</b></p> <div style="text-align: center; margin: 10px 0;">  </div>

# Start-Up Sequence

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Before using the unit...

Follow the start-up procedures below.

If your unit has...

Then...

UV sensor and no solenoid valve

The UV sensor is self-calibrating on initial start-up. Proper calibration requires water flow through the unit.

- Sanitize your system before using your household water (see maintenance section for instructions).
- Slowly fill the unit with water.
- Plug power cord into wall outlet and flush the UV system for a full 30 minutes as you follow this start-up procedure.
- Within the first 5 seconds of applying power, press and hold the RESET button for 5 seconds to set internal "Days" counter to 365. The alarm buzzer will beep three times and all LEDs will blink three times to indicate that the unit has been reset. Release the reset button.
- Wait 30 seconds. If the lamp is functioning properly, the "Lamp On" LED will light and the internal "Days" counter will begin counting down from 365.
- After approximately 30 minutes, the UV intensity "High" (green) LED will light up and system flushing can be stopped.

UV sensor and solenoid valve


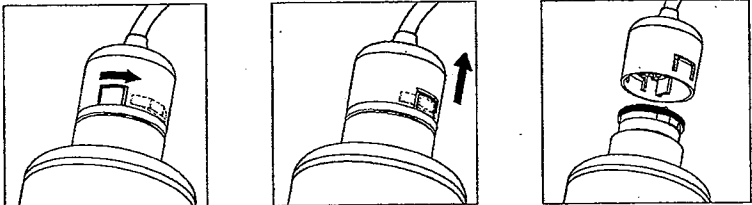
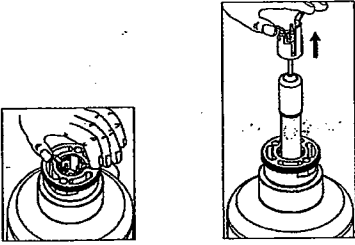
The UV sensor is self-calibrating on initial start-up. Proper calibration requires water flow through the unit.

- Sanitize your water system before using the disinfection unit (see maintenance section for instructions).
- Slowly fill the unit with water.
- Plug power cord into wall outlet and flush the UV system for a full 30 minutes as you follow this start-up procedure.
- Within the first 5 seconds of applying power, press and hold the RESET button for 5 seconds to set the internal "Days" counter to 365. The alarm buzzer will beep three times and all LEDs will blink three times to indicate that the unit has been reset. Release the reset button.
- Wait 30 seconds. If the lamp is working, the "Lamp On" LED will light and the internal "Days" counter will begin counting down.
- After approximately 30 minutes, the UV Intensity "High" (green) LED will light up and system flushing can be stopped.
- Note: The Normally Closed Solenoid Valve is energized when power is applied to the control box.

UV Sensor Calibration and Sanitization

**IMPORTANT NOTE:**  
The 30-minute time period before the High UV intensity LED lights is provided to inhibit alarms during the sanitization process.  
Example: When chlorine is used to sanitize the system, the 30-minute period allows for initial system sanitization and subsequent flushing of the piping with fresh water without causing a UV alarm.

# Maintenance

<b>Required maintenance</b>	Periodically, you will need to perform routine maintenance procedures on your WEDECO UV disinfection unit. This section provides directions for: <ul style="list-style-type: none"> <li>• Replacing the lamp (every 365 days or in the event of a lamp-out alarm).</li> <li>• Cleaning the quartz sleeve (as needed).</li> <li>• Replacing the headpiece O-ring (every 365 days or when needed, based on visual inspection).</li> </ul>	
	<p><b>UV lamps contain mercury. DO NOT PUT IN TRASH.</b>          Recycle or dispose as hazardous waste.  <a href="http://www.lamprecycle.org">www.lamprecycle.org</a> 1-866-457-6697</p>	<p><b>WARNING</b>          This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.</p>
<b>Replacing the lamp</b>	The UV lamp is rated to provide 365 days of continuous use. After this time, it must be replaced for the disinfection unit to operate effectively.	
<b>Step</b>	<b>Action</b>	
1	Turn off the water supply to the UV disinfection unit.	
2	Disconnect all power to the UV disinfection unit and wait several minutes for the lamp to cool.	
3	Drain the system: Have a bucket large enough to hold the water in the chamber, close both shutoff valves, and open the drain to draw off the water.	
4	Remove the Glo-Cap: Rotate the Glo-Cap so that the tabs line up with the raised tabs on the headpiece and pull the cap away from the headpiece to remove it. <div style="text-align: center;">  </div>	
5	Remove the lamp: Gently pinch together the two large tabs on the transparent clip and pull lamp assembly straight up until it is completely removed. <div style="text-align: center;">  </div> <p><b>! IMPORTANT!</b> Lamp must be disposed of properly. Check your local regulations for disposal of hazardous materials.</p>	
6	Insert the new UV lamp (refer to directions for installing the UV lamp).	

## Maintenance, Continued

7	<p><b>Within the first five seconds</b>, press and hold the <b>RESET</b> button for 5 seconds to set internal "Days" counter to 365. The alarm buzzer will beep three times and all LEDs will blink three times to indicate that the unit has been reset.</p> <p>Wait 30 seconds. If the lamp is working, the "Lamp On" LED will light and the internal "Days" counter will begin counting down.</p>
8	Record the date in the maintenance log.
9	Sanitize your water system (see directions in this section).
<b>Cleaning the quartz sleeve, headpiece, &amp; O-Ring</b>	<p>The quartz sleeve must be kept clean to kill bacteria effectively. Your water quality and mineral content will determine cleaning frequency. Perform a visual inspection after thirty (30) days of operation. If the sleeve is dirty, shorten cleaning intervals. If the sleeve is clean, lengthen cleaning intervals. At this time, clean the headpiece and O-Ring also.</p>
Step	Action
1	Fill bucket or other receptacle with warm, soapy water.
2	Follow Steps 1 through 5 for replacing the lamp (see previous page).
3	<p>Unscrew the headpiece and carefully remove the quartz sleeve from the disinfection chamber. <b>IMPORTANT!</b> The quartz sleeve may stick to the headpiece. Be sure to hold both pieces carefully so they don't separate during removal.</p> <div data-bbox="495 976 1112 1218" data-label="Image"> <p>A cross-sectional diagram of the headpiece assembly. It shows a cylindrical headpiece with a smaller inner cylinder. An O-ring is seated between the two cylinders. A quartz sleeve is shown being inserted into the inner cylinder. Labels with arrows point to the HEADPIECE, HEADPIECE O-RING, and QUARTZ SLEEVE.</p> </div>
3	<p>Take the headpiece and O-ring off the quartz sleeve. Clean the headpiece, O-Ring, and quartz sleeve with a mild soap and hot water solution. If the sleeve is still not clean, use a mild acid (citric acid or Lime-Away), then rinse with hot water.</p> <div data-bbox="698 1354 1112 1596" data-label="Image"> <p>A diagram showing the internal components of the headpiece. It features a large outer ring labeled O-RING SEAT and a smaller inner ring labeled QUARTZ SEAT. Arrows point from the labels to the respective parts.</p> </div>
4	<p>Push the O-Ring a few inches down on the quartz sleeve and lower the sleeve into the chamber.</p> <div data-bbox="438 1669 1185 1900" data-label="Image"> <p>A diagram showing a long, thin quartz sleeve and a separate headpiece O-ring. An arrow points from the label QUARTZ SLEEVE to the sleeve, and another arrow points from the label HEADPIECE O-RING to the O-ring.</p> </div>

## Maintenance, Continued

5	Screw the headpiece onto the disinfection chamber to secure the quartz sleeve and O-Ring in place.
6	Carefully reinstall the UV lamp and the Glo-Cap (see directions for installing the UV lamp).
7	Restart your disinfection unit according to the start-up sequence for your model specifications.
8	Record the date in the maintenance log.
9	Sanitize your water system (see directions in this section).

**Replacing the O-Ring**      General maintenance for the O-Ring requires that you replace it every 365 days. If, however, during routine cleaning of the quartz sleeve, you find the O-Ring cut, damaged, or extremely dirty, then it should be replaced at this time. To replace the O-Ring, follow the directions for cleaning.

**Cleaning the sensor quartz**      Clean the sensor quartz during routine cleaning of quartz sleeve and at least every 365 days.

Step	Action
1	Fill a bucket or other receptacle with warm, soapy water.
2	Turn off the water supply to the disinfection unit.
3	Disconnect all power to the disinfection unit.
4	Drain the system: Have a bucket large enough to hold the water in the chamber, close both shutoff valves, and open the drain to draw off the water.
5	By hand, carefully turn the sensor assembly counter-clockwise to remove it from the sensor port on the disinfection chamber. Do not disassemble the sensor unit.
6	Clean the sensor quartz (quartz window) and O-Ring with warm soapy water. Mild acid (such as citric acid or Lime-Away) may be used on the sensor quartz, if needed. Rinse well.
7	Make sure that all surfaces of the sensor quartz are clean to ensure a good seal and replace the sensor assembly on the sensor port, turning clockwise on the threaded nipple. <b>Hand-tighten only.</b>
8	Restart your disinfection unit according to the start-up sequence for your model specifications.
9	Record the date in the maintenance log.
10	Sanitize your water system (see directions in this section).

**Sanitizing the system**      Before initial use of your UV unit and after routine maintenance procedures, you should sanitize your water system to ensure that no organisms are present.

Step	Action
1	Pour household bleach into your water system. If you have a filter container, fill it with bleach. If you have no filter then introduce chlorine directly into your well. The amount of chlorine depends upon the diameter and depth of your well. (Generally, use ½ gallon to treat an 8" diameter/80' deep well and one gallon for anything larger.) You may contact your State Extension Service or a water treatment specialist for additional information.

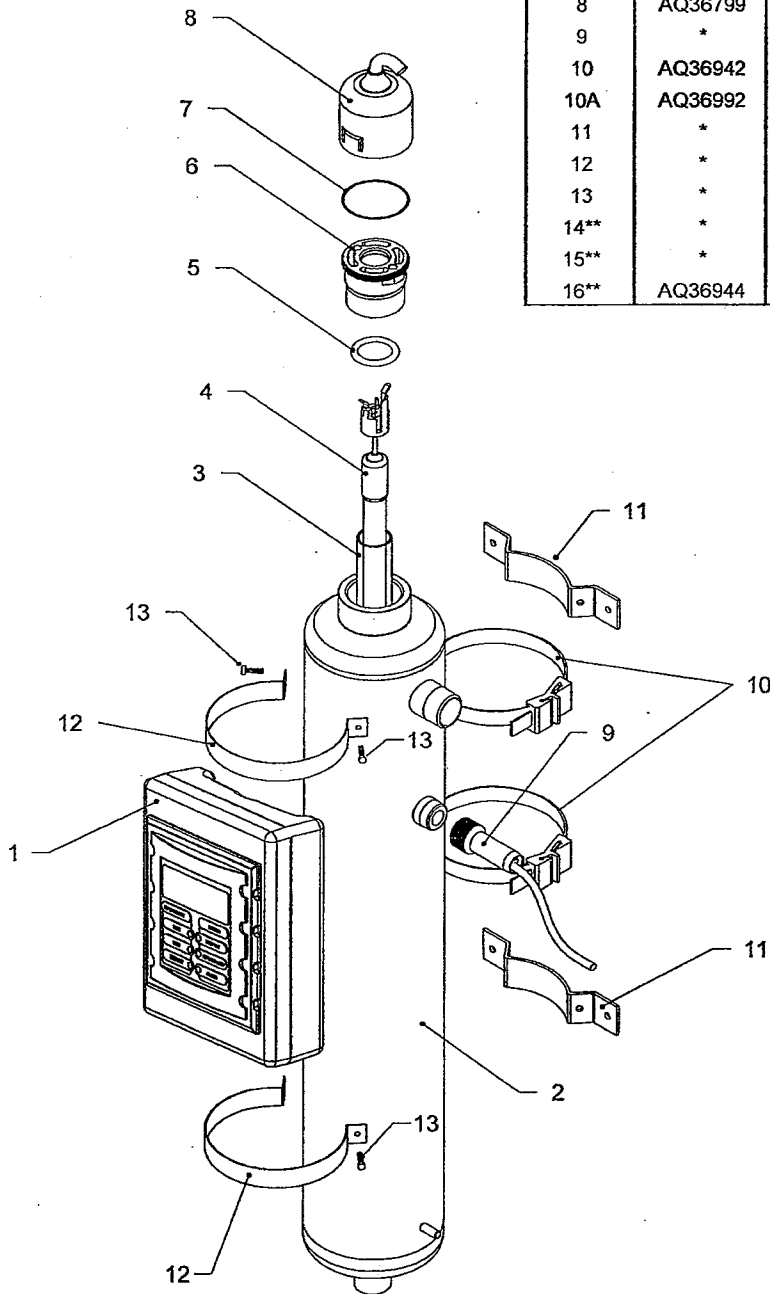
2	<p>Open hot and cold water taps throughout the house and let the water run until you detect a chlorine odor. To ensure that the hot water heater is also purged, allow the hot water to run until the water becomes cold.</p> <p><b>IMPORTANT!</b> You may get a low UV alarm buzzer after introducing chlorine into your water system. Press the <b>RESET</b> button until the buzzer stops. This will disable the buzzer for 5 days. The UV system will reset automatically once all chlorine has been flushed through the UV vessel with fresh water.</p>
3	<p>Turn off the taps and allow the water to stay in the pipeline for about six hours or overnight but not more than 36 hours to avoid corrosion.</p>
4	<p>Open hot and cold water taps throughout the house and let the water run until the chlorine odor disappears.</p>
5	<p>Flush the UV system for 30 minutes and follow the instructions outlined in the start-up sequence section of this manual.</p>





# Parts List

KEY #	PART #	QTY.	DESCRIPTION
1	*	1	Electrical Control Box
2	*	1	Disinfection Chamber
3	*	1	Quartz Sleeve
4	*	1	Ultraviolet Lamp
5	AQ35492	1	Head Piece O-Ring
6	AQ36538	1	Head Piece
7	AQ36617	1	Glo-Cap O-Ring
8	AQ36799	1	Glo-Cap
9	*	1	UV Sensor (Part of Control Box Assembly)
10	AQ36942	2	Electrical Control Box Strap
10A	AQ36992	2	Electrical Control Box Strap Buckle
11	*	2	Wall Mount Bracket
12	*	2	Wall Mount Bracket Strap
13	*	4	Wall Mount Bracket Strap Screw
14**	*	1	Flow Control
15**	*	1	Solenoid Valve (OPTIONAL)
16**	AQ36944	1	Power Cord



Contact the distributor for replacement parts

\* Determined by serial number

\*\* Not shown

For replacement parts and service or to find out who your local water treatment distributor is contact:

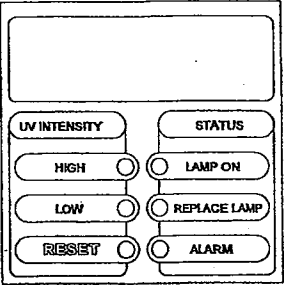
**ITT-WEDECO, Inc.**  
**Aftermarket Services Department**  
**14125 South Bridge Circle**  
**South Point Business Park**  
**Charlotte, NC 28273**  
**Main: 704-716-7600**  
**Fax: 704-295-9080**  
[www.wedeco.com](http://www.wedeco.com)

**The warranty requires the use of WEDECO, Inc. authorized replacement parts only.**

# Alarms

## Displays

The front panel of the electrical control box has the following LED displays:

LED Displays	Diagram
<ul style="list-style-type: none"> <li>• LAMP ON: green</li> <li>• REPLACE LAMP: red</li> <li>• ALARM: red</li> </ul>	 <p>The diagram shows a rectangular control panel with a large empty space at the top. Below this space are two columns of indicators. The left column contains three indicators: 'UV INTENSITY' with a 'HIGH' indicator and a 'LOW' indicator, and a 'RESET' button. The right column contains three indicators: 'STATUS' with a 'LAMP ON' indicator, a 'REPLACE LAMP' indicator, and an 'ALARM' indicator. Each indicator consists of a small circle (LED) and a label.</p>

## Alarm activation

The WEDECO UV disinfection unit has built in alarms to warn of inefficient performance or lamp failure.

What Happens	Cause	How to Resolve
<ul style="list-style-type: none"> <li>• The <b>REPLACE LAMP LED</b> blinks.</li> <li>• The internal <b>ALARM</b> beeps once every 5 minutes.</li> </ul>	<p>The internal counter has reached 30 days of lamp life remaining.</p> <p style="text-align: center;">!</p> <p><b>IMPORTANT!</b> Water to the house is being disinfected and the solenoid valve (optional) will remain open.</p>	<ul style="list-style-type: none"> <li>• Press the <b>RESET</b> button once to silence the alarm buzzer for 5 days. The alarm buzzer will begin to beep again 5 days after pressing the <b>RESET</b> button and continue until lamp has been replaced and the unit reset.</li> <li>• Replace UV lamp within 30 days to ensure optimum performance from the unit.</li> </ul>
<ul style="list-style-type: none"> <li>• The <b>LAMP ON LED</b> is no longer illuminated.</li> <li>• The <b>REPLACE LAMP LED</b> is illuminated continuously.</li> <li>• The <b>ALARM LED</b> blinks</li> <li>• The internal <b>ALARM</b> buzzer beeps continuously.</li> </ul>	<p>The internal counter has reached 0 (zero) days of lamp life. Or, lamp has failed due to another problem. (See Troubleshooting section.)</p> <p style="text-align: center;">⚠</p> <p><b>WARNING!</b> Disinfection may be insufficient to ensure safe drinking water. Do not drink water without boiling or disinfecting through some other means.</p>	<ul style="list-style-type: none"> <li>• Press the <b>RESET</b> button once to silence the alarm buzzer for 5 days. The alarm buzzer will begin to beep again 5 days after pressing the <b>RESET</b> button and continue until lamp has been replaced and the unit reset.</li> <li>• Replace lamp immediately. Follow instructions on lamp replacement in the manual.</li> </ul>

## Alarms, Continued

What Happens	Cause	How to Resolve
<ul style="list-style-type: none"> <li>The UV intensity <b>HIGH LED</b> blinks.</li> <li>The internal <b>ALARM</b> buzzer beeps once every 3 minutes.</li> </ul>	<p>The UV intensity has dropped below 70%. Quartz sleeve or sensor may be dirty.</p> <p style="text-align: center;"><b>!</b></p> <p style="text-align: center;"><b>IMPORTANT!</b> Water to the house is being disinfected.</p> <p style="text-align: center;"><i>See Note Below.</i></p>	<ul style="list-style-type: none"> <li>Press the <b>RESET</b> button once to silence the alarm buzzer for 5 days. The alarm buzzer will begin to beep again 5 days after pressing the <b>RESET</b> button and continue until the problem is resolved and the unit reset.</li> <li>Perform routine maintenance as indicated in the manual.</li> <li>Clean quartz sleeve and UV sensor quartz.</li> <li>If the problem persists, have local water treatment dealer check the water quality.</li> </ul>
<ul style="list-style-type: none"> <li>The UV intensity <b>HIGH LED</b> is no longer illuminated.</li> <li>The UV intensity <b>LOW LED</b> blinks.</li> <li>The internal <b>ALARM</b> buzzer beeps continuously.</li> </ul>	<p>The UV intensity has dropped below 50% indicating that there may be a potential problem within the UV disinfection unit. Quartz sleeve or sensor may be dirty.</p> <p style="text-align: center;"><b>!</b></p> <p style="text-align: center;"><b>WARNING!</b> Disinfection may be insufficient to ensure safe drinking water. Do not drink water without boiling or disinfecting through some other means.</p> <p style="text-align: center;"><i>See Note Below.</i></p>	<ul style="list-style-type: none"> <li>Press the <b>RESET</b> button once to silence the alarm buzzer for 5 days. The alarm buzzer will begin to beep again 5 days after pressing the <b>RESET</b> button and continue until the problem is resolved and the unit reset.</li> <li>Perform routine maintenance as indicated in the manual.</li> <li>Clean quartz sleeve and UV sensor quartz.</li> <li>If the problem persists, have local water treatment dealer check the water quality.</li> </ul>
<ul style="list-style-type: none"> <li>The UV intensity <b>HIGH LED</b> is no longer illuminated.</li> <li>The UV intensity <b>LOW LED</b> blinks.</li> <li>The <b>REPLACE LAMP LED</b> is illuminated</li> <li>The <b>ALARM LED</b> blinks.</li> <li>The internal <b>ALARM</b> buzzer beeps continuously.</li> <li>If the unit has an optional solenoid valve, it will shut off water supply.</li> </ul>	<p>The UV intensity has dropped to zero.</p> <p style="text-align: center;"><b>!</b></p> <p style="text-align: center;"><b>WARNING!</b> UV system is not operational. Do not drink water without boiling or disinfecting through some other means.</p> <p style="text-align: center;"><i>See Note Below.</i></p>	<ul style="list-style-type: none"> <li>Press the <b>RESET</b> button once to silence the alarm buzzer for 5 days. The alarm buzzer will begin to beep again 5 days after pressing the <b>RESET</b> button and continue until the lamp is replaced and the unit reset.</li> <li>Perform routine maintenance as indicated in the manual.</li> <li>Clean quartz sleeve and UV sensor quartz.</li> <li>Replace lamp and quartz sleeve, if necessary.</li> <li>If the problem persists, have local water treatment dealer check the water quality.</li> </ul>

Note: UV lamp intensity can be dramatically effected by external factors, such as water quality, water temperature, and fluctuations in supply voltage. These influences should be addressed as part of any comprehensive troubleshooting procedure. A five minute time delay has been added to the UV intensity warning/ alarm function in order to minimize the nuisance effect of short duration, temporary conditions.

# Troubleshooting

**Determining problem**      The troubleshooting guide gives you suggestions for resolving problems.

If...	Then...
The unit is leaking water	<ul style="list-style-type: none"> <li>• Ensure that the headpiece is tight.</li> <li>• Verify that inlet water pressure is not &gt;148 psi.</li> <li>• Ensure that headpiece O-ring is seated properly.</li> <li>• Lubricate O-ring (use food-grade silicone).</li> <li>• Check O-ring for cracks or rips. Replace if necessary.</li> <li>• Check quartz sleeve for possible cracks. If sleeve is cracked, call distributor for replacement.</li> </ul>
Glo-Cap is not lit or has gone out	<ul style="list-style-type: none"> <li>• Verify that all electrical connections are correct.</li> <li>• Replace lamp. If problem is solved, resume unit operation.</li> <li>• If lamp still does not light, electrical control box may need to be replaced. Call distributor for replacement information.</li> </ul>
Poor bacterial performance	<ul style="list-style-type: none"> <li>• Replace lamp if it is more than 365 days old or nearing the end of its lamp life.</li> <li>• Perform routine maintenance.</li> <li>• Check water quality. If water quality has changed then you may need to install filters or other disinfection units to ensure that water supply does not exceed recommended maximum concentration levels (shown in Step 1 of Pre-Installation Instructions).</li> <li>• Verify flow rate using the flow rate table found in the Technical Specifications at the back of the manual.</li> </ul>
Power Failure	<ul style="list-style-type: none"> <li>• The unit will restart automatically and the internal Days counter will resume counting down as before the power failure. The UV intensity will remain the same as before the power failure, unless actual water conditions change. If the unit has an optional solenoid valve installed, the valve will immediately open after power is restored to the unit.</li> <li>• In the event of a system failure you must disinfect the system. Refer to maintenance instruction on page 16 of this manual. "Sanitizing the system".</li> </ul> <p><b>Note:</b> The unit is designed for continuous operation. Never connect the unit to a timer or other device, which will cause the unit to cycle on and off. Excessive cycling of the power will reduce lamp life.</p>
Display screen is blank	<ul style="list-style-type: none"> <li>• Ensure that the unit is assembled and installed correctly. In the case of improper handling or assembly during installation and/or servicing, the unit will turn off power to the lamp and display a blank screen.</li> <li>• Check for damage to the lamp filament elements, quartz sleeve, or electrode connectors. Applying power to a unit with such damage will cause a blank display screen. Damage may be caused from shipping, overheating the lamp by operating the unit with no water in the chamber, introducing debris into the unit from the water source, or improper handling or assembly during service or installation.</li> </ul> <p><b>Note:</b> Units with the optional solenoid valve installed will turn off. In most cases, replacing the lamp, and/or quartz sleeve will return the unit to proper operation. If the unit fails to resume operation, notify your distributor.</p>
Unit gives faulty alarms	<ul style="list-style-type: none"> <li>• The ballast or control circuit may be faulty. Call distributor for replacement information.</li> </ul>
You miss the 5 second window for resetting unit and/or unit does not beep or LED's blink three times	<ul style="list-style-type: none"> <li>• Disconnect the power for 30 seconds, and then reapply power. Within 5 seconds of reapplying power press and hold the reset button for 5 seconds, As stated in the start-up sequence on page 12. Do not release the reset button until the LED's blink 3 times and the alarm beeps 3 times.</li> </ul>

## Technical Specifications: DLR Series

All prices and specifications are subject to change without notice.

Technical Description	
Description	The DLR Series is designed with a single low-pressure high-intensity UV lamp centered inside a protective quartz sleeve. The disinfection chamber is 316L stainless steel and is electro-polished with male NPT Inlet/Outlet. The UV lamp and quartz jacket assembly are easily removable from one side of the disinfection chamber.
UV disinfection chamber	<ul style="list-style-type: none"> <li>Material: stainless steel electro-polished</li> <li>UV sensor</li> <li>Mounting: vertical or horizontal</li> <li>Inlet/Outlet connections: Male NPT thread</li> <li>Mounting brackets included</li> </ul>
UV lamp	High output low pressure UV lamp
Control Box	<ul style="list-style-type: none"> <li>Material: ABS, designed for wall or UV chamber mounting</li> <li>Electronic power supply (ballast)</li> <li>LED readout</li> <li>Solenoid valve activator outlet</li> <li>Cable length UV chamber/control box: 4.9'</li> <li>120V 60Hz</li> </ul>
Application	The DLR-ES series is engineered to disinfect clear fresh water to meet drinking water standards.
Operational capacity	Clear fresh water up to 29 US GPM
Options	<ul style="list-style-type: none"> <li>Solenoid inlet valve (NPT size corresponding to reactor NPT connection for each unit) 3/4", 1", and 1 1/2" normally closed.</li> </ul>

### Flow Rate Table: Valid for water with minimum UV transmittance $\geq 94\%$ @ 1cm (254nm)

DLR-ES Series Type	10	12	29
Flow rate (gpm) at UV dose of 30 mJ/cm <sup>2</sup> at the end of lamp lifetime	10	12	29
Notes: (1) Flow rates (GPM) calculated using Point Source Summation (PSS) and are based on a 30,000uWs/cm <sup>2</sup> EOL UV Dose at the noted UV transmittance value. 30 mJ/cm <sup>2</sup> = 30,000 $\mu$ Ws/cm <sup>2</sup> (2) EOL (End of Lamp Life) = 8,760 hours of operation (3) UVT = UV Transmittance @ 254nm through 1cm of water (4) Actual dose performance is subject to variability based on: water quality, water temperature, quartz sleeve fouling, flow rate, and lamp intensity.			

### UV Reactor, Stainless Steel 316L Electro-polished

Reactor connections, male NPT thread	3/4"	3/4"	1"
Width (inches)	3.54	5	5
Height (inches)	26.38	26.38	40.55
Diameter (inches)	2.76	4.02	4.02
Weight (lb.) approx.	5.29	7.06	11.03
Operating pressure (psi) max.	125	125	125
Pressure loss (psi) approx.	2	2	2

### UV Lamp, Low Pressure High Output

Lamp Type	NLR1845 WS	NLR1845 WS	NLR1880 WS
Lamp Power (Watt)	40	40	84
UV-C Output at 254 nm, new lamp (Watt)	14	14	25
Quantity	1	1	1
Lamp lifetime (days)	365	365	365

## Technical Specifications: DLR Series, Continued

Control Box			
AP Series	4	4	4
Width (inches) approx.	6.61	6.61	6.61
Height (inches) approx.	7.87	7.87	7.87
Depth (inches) approx.	2.6	2.6	2.6
Weight (lb) approx.	5.51	5.51	5.51
Voltage (V/Hz)	120V/60Hz	120V/60Hz	120V/60Hz
Cable length chamber/cabinet (ft)	4.9	4.9	4.9
Ambient temperature (°F)	95	95	95
Power consumption (W)	55	55	95

The DLR-ES Series is available in different sizes based on flow capacity. The varying technical features of the model are described below.

Model Characteristics	
Features	ES
Effective microbiological protection	•
Electro-polished stainless steel disinfection chamber	•
High output low pressure UV lamp	•
High efficiency electronic ballast power supply	•
Lamp operation indicator	•
Safety lamp connector (no lamp removal without lamp shut-off)	•
Micro-computer control	•
Audible alarm plus visual alarm display (lamp failure and end of lamp life)	•
Lamp change reminder with internal counter	•
Alarm and computer reset button	•
Selective UV monitoring system	•
LED UV intensity display: high-low alarm (with separate UV intensity audible alarm)	•
Power connection for optional automatic solenoid safety shut-off valve	•

Manufactured by:  
 ITT-WEDECO, Inc.  
 14125 South Bridge Circle  
 Charlotte, NC 28273  
 Tel: (704) 716-7600  
 Fax (704) 716-7601  
[www.wedeco.com](http://www.wedeco.com)

Part # 16679, MN-0050 Rev. -, 04/07

# Warranty

## STANDARD PRODUCTS UV DISINFECTION UNIT WARRANTY

WEDECO warrants to the Customer that during the period ending 18 months after the Shipment Date or 12 months after the Start-up Date, whichever occurs first, Equipment which is manufactured by WEDECO will be free from defects in material and workmanship and will conform to the specifications specified in the Scope of Supply.

This warranty shall not apply to any failure or defect which results from the Equipment not being operated and maintained in strict accordance with instructions specified in WEDECO's Operation and Maintenance manual or which results from mishandling, misuse, neglect, improper storage, improper operation of the Equipment with other equipment furnished by the Customer or by other third parties or from defects in designs or specifications furnished by or on behalf of the Customer by a person other than WEDECO. In addition, this warranty shall not apply to Equipment that has been altered, repaired or moved after start-up by any one unless specifically authorized in writing by WEDECO. This warranty applies only to the original purchaser is not transferable to any other party.

Customer must notify WEDECO in writing within 15 days of the date of any Equipment failure. This notification shall include at a minimum a description of the problem, a copy of the Customer's maintenance record and any analytical results detailing the problem. If Customer has not maintained the maintenance record in the manner directed in the Operation and Maintenance manual, or does not notify WEDECO of the problem as specified above, this warranty may, in WEDECO's discretion, be invalid.

Customer will fully cooperate with WEDECO, in the manner requested by WEDECO, in attempting to diagnose and resolve the problem by way of telephone support. If the problem cannot be diagnosed by telephone support, WEDECO will either, repair or replace (at WEDECO's discretion) any defect in material or workmanship. Defective parts must be returned to WEDECO for inspection and repair or replacement. The customer must order the replacement part as a standard purchase until the defective part is returned to the factory and evaluated. The factory will determine the extent of warranty coverage and proper warranty credit to be applied.

Customer must contact WEDECO for a Return Goods Authorization Number prior to shipment. No product may be returned by Buyer until after receipt by Buyer of written or oral shipping instructions from WEDECO. Defective parts must be sent prepaid freight. WEDECO will inspect and test the returned part. WEDECO will not be liable for any field labor (in and out) charges under this warranty. Incidental or consequential damages are not covered by this warranty. This Warranty DOES NOT cover freight costs.

Lamp warranties, and obligations of WEDECO concerning lamp replacements, are set out below. UV Lamps are working parts and are subject to a natural ageing. The following table shows the guaranteed operating hours of the UV Lamp for each WEDECO system.

WEDECO UV System	Guaranteed Operating Hours
DLR/AQUADA**	8,760

\*\* DLR/AQUADA lamps will have full replacement for 8,760 operating hours.

The lamp warranty applies only to defects in material and workmanship and does not cover breakage in any form. Also it is conditional on the continuous operation of the lamp with a maximum of 4 switches per 24 operating hours. All other operating conditions must be in accordance with the WEDECO O&M manual. In all cases this lamp warranty is limited to 30 months after date of shipment by WEDECO.

In all warranty cases the "Returned Goods Policy" outlined above applies. Specifically for UV Lamps this requires the completion of a "Non-Conformance Report" that includes the following information:

- UV System Type & Serial Number
- Operating Hours & Number of Lamp On/Off Cycles per 24 Hours

IT IS EXPRESSLY AGREED THAT THIS SHALL BE THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER AND ITS CUSTOMERS. UNDER NO CIRCUMSTANCES SHALL SELLER, OR ANY COMPANIES THAT ARE AFFILIATED WITH SELLER, BE LIABLE FOR ANY OTHER COSTS, LOSS, EXPENSE, DAMAGES, SPECIAL DAMAGES, INCIDENTAL DAMAGES OR CONSEQUENTIAL DAMAGES WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE OR STRICT LIABILITY. IN NO EVENT WILL LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT.

THE WARRANTY AND LIMITS OF LIABILITY CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM THIS WARRANTY.