

AeroLogic®

AIR DUCT DISINFECTION

Models AD436/P & AD436/D



Installation, Operation & Maintenance

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

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Owner's Manual

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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 resistant face shield.




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






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

- Product safety labels should be periodically inspected and cleaned, as necessary, to maintain good legibility. Always replace illegible safety labels. Contact factory to obtain replacement safety labels.

SAFETY INSTRUCTIONS

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

1. Read and follow **ALL** safety instructions.
2.  **WARNING:** Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. **Germicidal ultraviolet rays are harmful to the eyes and skin.**
3. Intended for indoor use only.
4. Do not alter the construction or design.
5. Do not use this unit for other than its intended purpose, as described in this manual.
6. Do not mount under any source of moisture or condensation, such as humidifiers, cooling coils, etc.
7. Do not mount this unit so that ultraviolet light is visible after installation.
8. **CAUTION:** Germicidal ultraviolet rays may break down plastic, rubber or other non-metallic materials, with inadequate resistance to ultraviolet. Shield all plastic, rubber or other non-metallic parts such as; plastic drain pans, wire insulation, flex ducts, humidifiers, filters, etc. which may be exposed to direct or reflected germicidal ultraviolet rays.
9. Do not remove safety labels or devices.
10.  **CAUTION:** Do not operate without proper electrical ground.
11. Do not operate the unit if the power cord and/or plug are damaged, or if any other damage to the unit is visible or suspected.
12. Utility power supplied, to the unit, must match power requirements listed on the unit label.
13.  **WARNING:** Always disconnect power, to the unit and unplug, before performing any service or maintenance.
14. Read and follow all notices and warnings on the unit.
15. **SAVE THESE INSTRUCTIONS.**

PRODUCT APPLICATION

PRINCIPLE OF OPERATION

The **AeroLogic**[®] line of Air Duct Purification systems has been carefully conceived to provide germicidal ultraviolet exposure for air stream and surface disinfection. The dosage, as it applies to ultraviolet disinfection, is a function of time, and the intensity, of ultraviolet radiation, to which the air stream and surface is exposed.

CONSTRUCTION

The **AeroLogic**[®] Air Duct Purification system consists of:

- Quartz sleeve to protect and insulate the germicidal ultraviolet lamp. The quartz sleeve protects the ultraviolet lamp from deposits of dirt and/or dust while insulating it from low air temperatures and the cooling affects of high air velocities in the air duct.
- Germicidal ultraviolet lamp, which delivers ultraviolet energy at the specific wavelength of 254 nanometers (**nm**). This wavelength is highly effective against microbes including: virus, bacteria, and mold spores.
- Electronic ballast capable of operating at 120v 60Hz or 230v 50Hz.
- All electronics and wiring are housed in an enclosure constructed of lightweight, anodized aluminum alloy. The hard coat anodize offers an increased surface hardness, for durability, and corrosion resistance similar to that of stainless steel.
- Multiple power supply connections are available. Power supply cords can be wired directly to the **AeroLogic**[®], and with the use of a liquid-tight cord grip form a “drip-proof” assembly (for more demanding applications). The **AeroLogic**[®] can also be equipped with a power inlet connector allowing the use of detachable power supply cords.

LIMITATIONS

- **AeroLogic**[®] requires planning for: location, installation, and to prevent ultraviolet exposure of personnel.
- Overexposure to germicidal ultraviolet rays will result in the irritation of the eyes and reddening of the skin. For that reason, it is of the utmost importance that your ultraviolet application be carefully planned and implemented so as to avoid exposure, of personnel, to direct or reflected ultraviolet rays.
- The American Conference of Governmental Industrial Hygienists (**ACGIH**) has established a Threshold Limit Value (**TLV**) for occupational exposure to radiant ultraviolet energy.
- Currently the ultraviolet radiant exposure incident for unprotected eyes or skin should not exceed 0.2 microwatts per square centimeter (**μW/cm²**) at 254 nanometers (**nm**) for an eight (8) hour period.
- Care must be taken to prevent accidental exposure of personnel, who maintain the HVAC system. All work performed on the HVAC system must be monitored to insure that it does not adversely impact the safety or effectiveness of the installation.

UNPACKING

- Remove the **AeroLogic®** Air Duct Purification system from its shipping carton.
- Atlantic Ultraviolet Corporation takes all possible precautions when packaging this unit to prevent damage. Carefully inspect the unit, power cord and plug for damage, report all damage immediately. Do not assemble or operate if there is any damage, visible or suspected.
- The germicidal lamp and quartz sleeve, o-ring and Teflon® washer are packed separately, to ensure maximum protection. Keep these items aside until ready for installation.
- Carefully inspect all packing materials to prevent the loss of accessories, mounting hardware, spare parts or instructions.
- Do not discard packing materials until unit is assembled and check out is complete.

AeroLogic® AD436/P kit includes:

- 1 - AD436/P chassis with attached line cord
- 1 - Duct mounting bracket with gasket
- 4 - No. 8-18 x ½” Self-Drilling Screws
- 1 - Germicidal Ultraviolet Lamp
- 1 - Quartz sleeve, o-ring and Teflon® washer
- 1 - Operating Instructions
- 1 - Mounting Pattern
- 1 - Warranty Card

AeroLogic® AD436/D kit includes:

- 1 - AD436/D chassis with power inlet connector
- 1 - Duct mounting bracket with gasket
- 4 - No. 8-18 x ½” Self-Drilling Screws
- 1 - Germicidal Ultraviolet Lamp
- 1 - Quartz sleeve, o-ring and Teflon® washer
- 1 - Detachable line cord
- 1 - Operating Instructions
- 1 - Mounting Pattern
- 1 - Warranty Card

INSTALLATION

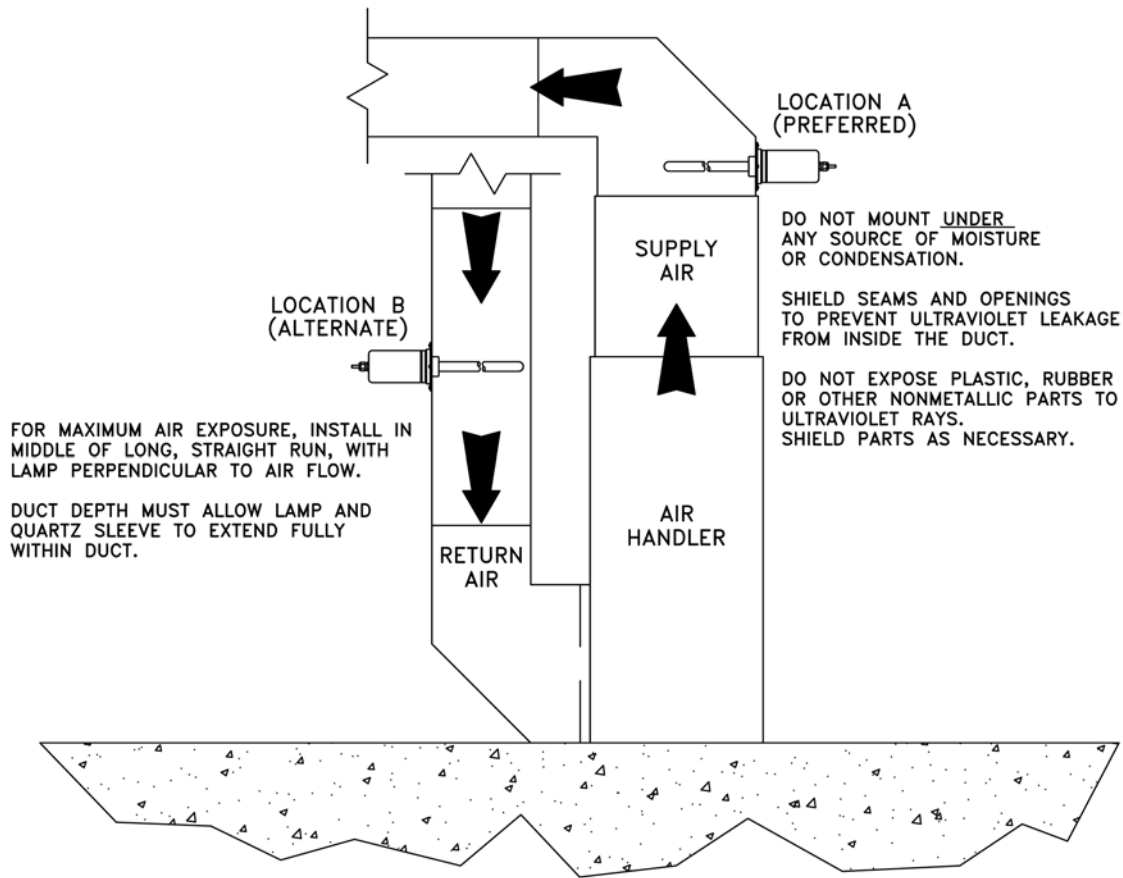
UNIT PLACEMENT

Proper unit placement is essential. To ensure safe and effective operation, the location should:

- Have enough duct width to mount unit with lamp perpendicular to airflow, with the longest duct length for increased exposure time.
- Be on the supply air plenum, LOCATION A (preferred), or on the return air plenum, LOCATION B (alternate).
- Have a properly grounded, electrical outlet within reach of the unit.
- Not be mounted under any source of moisture or condensation, such as humidifiers, cooling coils, etc.
- Not be mounted near any duct openings, joints, seams, etc. If necessary, seal all openings, joints, seams, etc. using aluminum tape or equivalent ultraviolet resistant material.
- Prevent exposure of any plastic, rubber or other non-metallic materials, with inadequate resistance to ultraviolet, such as; plastic drain pans, wiring insulation, flex ducts, humidifiers, filters etc. If necessary, shield all plastic, rubber or other non-metallic parts using aluminum tape, conduit, sheet metal or equivalent ultraviolet resistant material.
- Be free of any components that would be damaged by or interfere with the installation.
- Be easily accessible and allows enough clearance for routine cleaning or maintenance.
- Be down stream from air filters. Dust particles will reduce the effectiveness of the unit.

UNIT PLACEMENT

Figure 1 - Unit Placement



REQUIRED TOOLS

- Mounting Pattern (supplied)
- Ultraviolet protective eye wear with side shield
- Protective gloves
- Power drill with drill bits and drivers
- 2 1/8" diameter hole saw for cutting duct sheetmetal
- No. 8-18 x 1/2" long self-drilling screws (supplied)
- Soft, clean, lint-free cloth
- Alcohol, or suitable glass cleaner

INSTALLATION

1. Disconnect power to the HVAC system.
2. Using mounting pattern or mounting bracket, mark the centers (locations) of the four (4) 3/32" pilot holes and the 2 1/8" center hole.
▲ CAUTION: Mechanical hazard. Duct sheetmetal has sharp edges. Wear protective gloves when working on or around duct sheetmetal.
3. Drill the appropriate holes as indicated on the mounting pattern. Remove burrs and sharp edges where possible.
4. Install the mounting bracket (gasket side against duct) to the duct using the supplied No. 8-18 x 1/2" mounting hardware.
▲ CAUTION: Ultraviolet lamps are easily damaged and may cause injury if broken. Exercise care when handling lamps.
5. Install lamp. The lamp socket is located inside the threaded end of the AeroLogic® base. To install; line up lamp pins with lamp socket. Carefully press lamp pins into the socket until lamp is seated against the socket. Verify that the lamp is properly seated.
6. Moisten a clean, lint-free cloth with alcohol, or suitable glass cleaner and wipe the outer surface of lamp to remove any visible fingerprints, smears, etc.

Figure 2 - Quartz Sleeve Installation



7. Install quartz sleeve.
 - a. Place o-ring approximately 3/4" to 1" from the open end of the quartz sleeve.
 - b. Carefully slide the quartz sleeve over the lamp, into the threaded base. The quartz sleeve will rest against a shoulder in the mounting base. Slide the o-ring down until it is seated against the angled face of the base.
 - c. Slide the Teflon® washer over the quartz sleeve until it is resting against the o-ring.
 - d. Slide the nut over the quartz sleeve and tighten firmly (by hand only). **Do not use hand tools!** Tightening with hand tools is likely to cause quartz sleeve to break.
8. Moisten a clean, lint-free cloth with alcohol, or suitable glass cleaner and wipe the outer surface of quartz sleeve to remove any visible fingerprints, smears, etc.
9. Fit AeroLogic® to the mounting bracket, and tighten until secure.
10. Plug AeroLogic® into properly grounded, electrical outlet.
11. Restore power to the HVAC system.
12. Verify operation. If the unit is not operating properly, go to "**Troubleshooting**" section.
13. While wearing protective eye wear, inspect HVAC system for any ultraviolet light leakage. No ultraviolet light should be visible from any duct opening, joint, seam, or the AeroLogic® unit itself. The installation can also be inspected using a sensitive ultraviolet meter, to insure that the ultraviolet radiant exposure of personnel is within acceptable limits. If necessary, seal any openings, joints, seams, etc. using aluminum tape or equivalent ultraviolet resistant material.

PRECAUTIONS

- The **AeroLogic®** must be disconnected from power whenever anyone works on the HVAC system. Anyone who works in and around the system should be briefed on the precautions to be observed.
- The HVAC system should be re-inspected for any ultraviolet light leakage whenever any maintenance or modifications are performed.
- If there are any doubts or concerns about the safety or the effectiveness of the installation, or if a sensitive ultraviolet meter is required, please contact our application specialists.

TECHNICAL ASSISTANCE

Atlantic Ultraviolet Corporation maintains a qualified team of application specialists that can provide technical assistance, which may be required during the use of this equipment. If you have any questions, concerns, or require technical assistance, please contact us for help. Contact options can be found in the “**User Assistance**” section of this manual.

MAINTENANCE

- The **AeroLogic®** is designed to operate with a minimal amount of maintenance.
- A regular cleaning schedule of the quartz sleeve should be established, and carefully maintained, based on visual inspection and experience. The time between cleanings will vary with the conditions surrounding each installation. It is recommend that the quartz sleeve be cleaned whenever dust or visible deposits are observed on the quartz sleeve.
- The germicidal ultraviolet lamp used in the **AeroLogic®** has a manufacturer’s rated average effective life of 10,000 hours. Lamp may operate longer than its rated effective life, but the reduction in ultraviolet output will make it impractical to use past the manufacturer’s rated life. For maximum efficiency lamp replacement is recommended every one year of continuous operation.
- See Installation instructions for proper germicidal lamp and or quartz sleeve replacement and cleaning procedure.

BREAKAGE

▲ CAUTION: Broken Quartz is SHARP. Wear protective gloves when handling broken ultraviolet lamps or quartz sleeves. In the event of breakage, DO NOT use a household vacuum cleaner to pick up quartz fragments. Sweep up debris into a plastic bag and dispose of properly.

DISPOSAL OF MERCURY ADDED LAMPS

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-OUT PROTECTION

If power is applied to the **AeroLogic®** without a lamp connected or if the lamp fails, the system’s ballast lamp-out protection will prevent the system from operating.

To reset: disconnect the **AeroLogic®** from power and install/replace the lamp. **The system must remain disconnected from power for two (2) minutes to reset.** After 2 minutes restore power, system should resume normal operation.

TROUBLESHOOTING

⚠ CAUTION: Always disconnect power to the unit, before performing any service.



Use **personal protection equipment**, such as gloves; long sleeves with no gaps between cuffs and gloves, and ultraviolet resistant face shield, if troubleshooting **AeroLogic®** outside of duct.

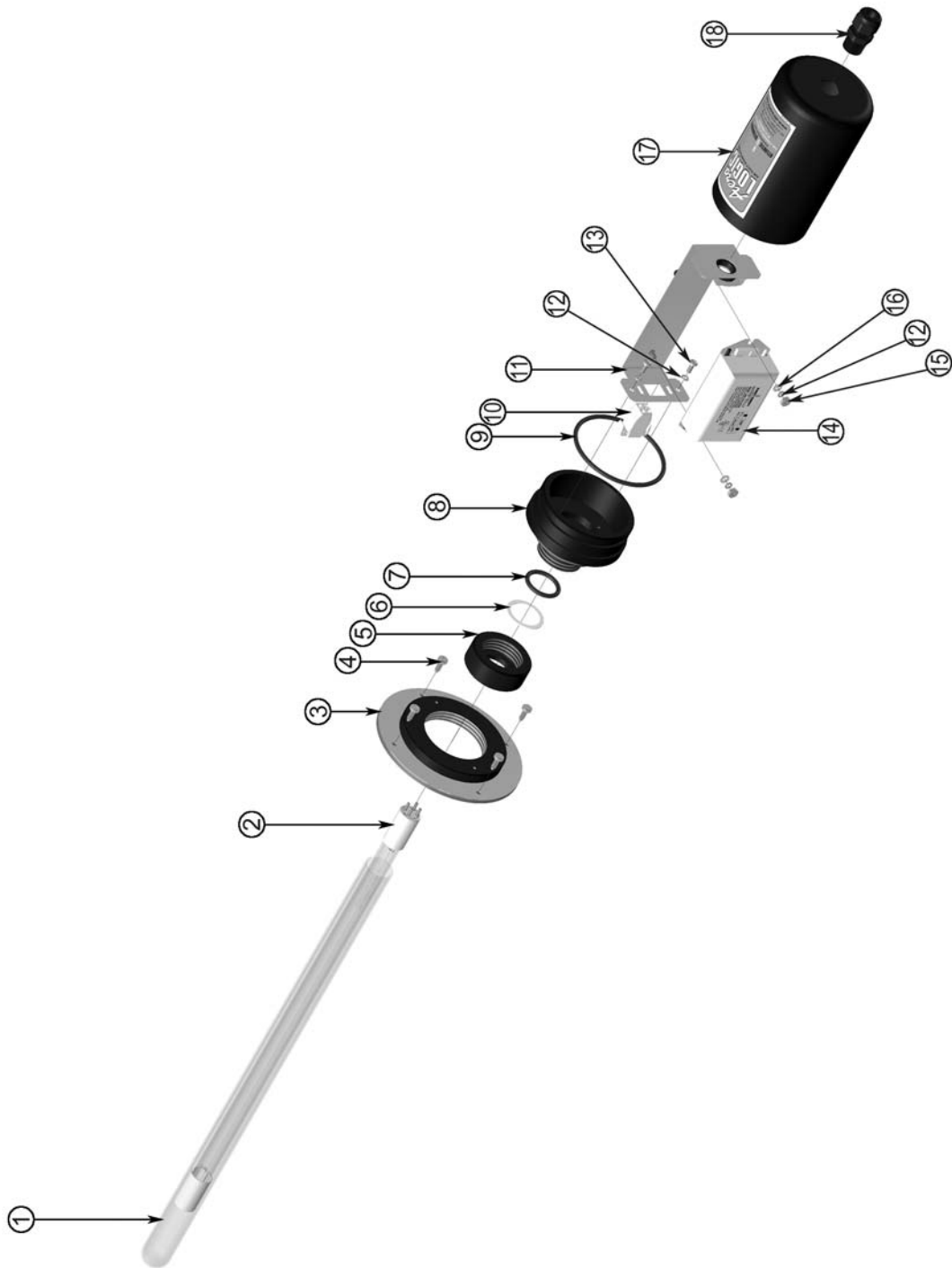
- **IMPORTANT:** This unit is to be serviced **ONLY** by qualified, and appropriately licensed, personnel.

Table 1 - Troubleshooting

Problem	Possible Cause	Corrective Action
System not operating.	No electrical power...	Verify that the system is connected to a live power source.
	Ballast Lamp-out Protection...	Unplug system from power source. Replace lamp. The system must remain disconnected from power for two (2) minutes to reset.
Germicidal lamp not operating.	Germicidal lamp not properly seated...	Confirm connection of lamp and lamp socket, make sure connection is tight and lamp is making full contact with lamp socket.
	Germicidal lamp faulty...	Replace lamp.
	Ballast not functioning...	Replace ballast.

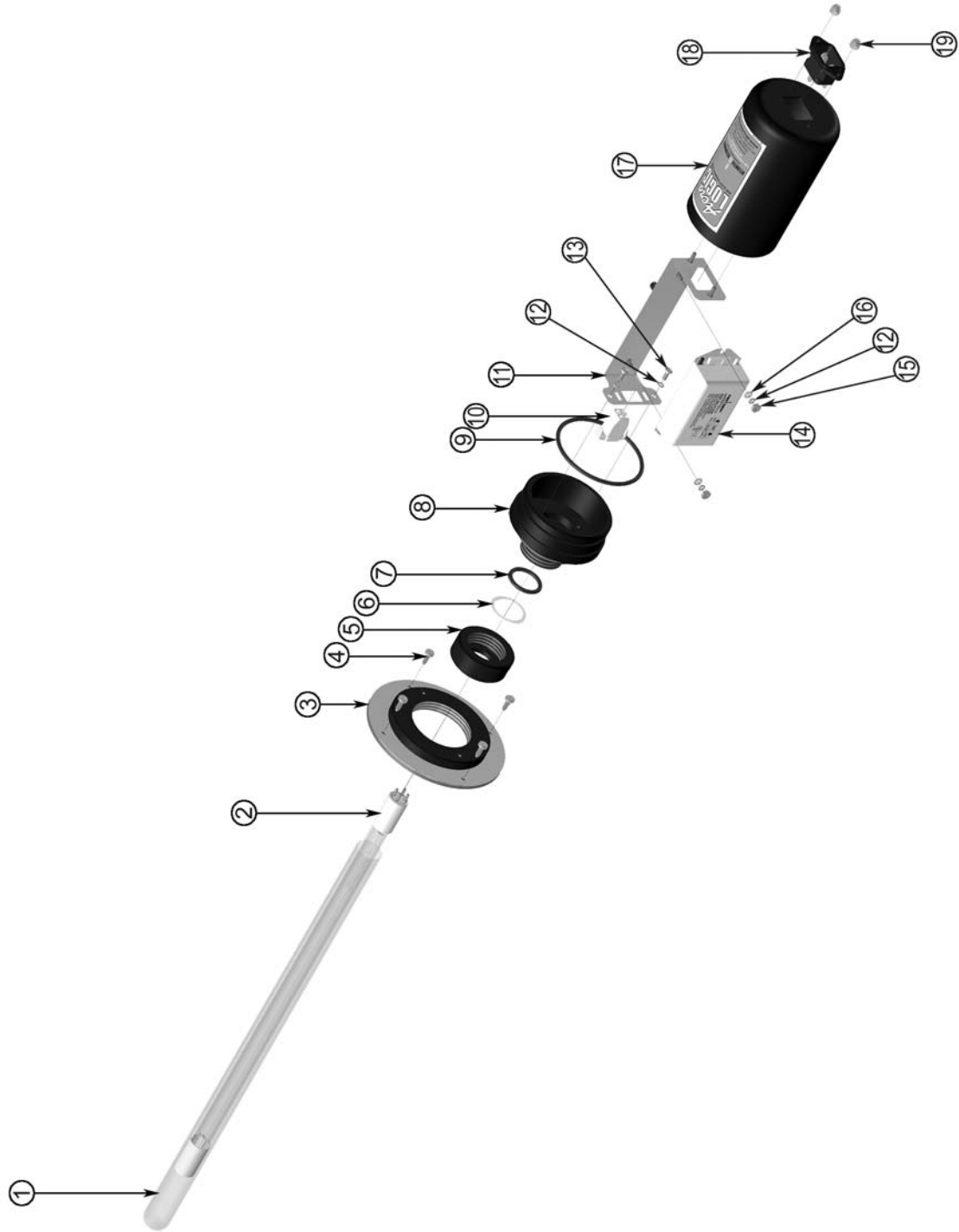
REPLACEMENT PARTS

Figure 3 - Exploded View AD436/P



REPLACEMENT PARTS

Figure 4 - Exploded View AD436/D



REPLACEMENT PARTS

Table 2 - Replacement Parts

ITEM NO.	DESCRIPTION	QTY	AD436M/P	AD436M/D
1	Quartz Sleeve	1	15-6000A1	15-6000A1
2	Germicidal Ultraviolet Lamp	1	05-1370	05-1370
3	Mounting Bracket	1	40-6020A	40-6020A
4	Screw: 8-18x1/2" Pan Head	4	50-0016	50-0016
5	Nut: AeroLogic Mini	1	40-6002A2	40-6002A2
6	Teflon [®] Washer	1	00-0229A	00-0229A
7	O-Ring	1	00-0116	00-0116
8	Base: AeroLogic Mini	1	40-6001A1	40-6001A1
9	O-Ring	1	00-2233	00-2233
10	Lamp Socket: 4 Pin Snap-In	1	35-1124A	35-1124A
11	Chassis: AeroLogic Mini	1	40-6006A	40-6007A
12	Washer: No. 6 Split-Lock	5	50-1393	50-1393
13	Screw: 6-32 x 3/8" Philips	2	50-0061	50-0061
14	Ballast: 120v/60Hz 230v/50Hz	1	10-1036	10-1036
15	Nut: 6-32 Finish Hex	3	50-1178	50-1178
16	Washer: No. 6 Flat	3	50-1402	50-1402
17	Cover: Anodized Hard Coat	1	40-6015	40-6017
18	Strain Relief: Liquid Tight	1	35-1058	-
	Connector: AC Power Inlet	1	-	35-0046
19	Nut: 6-32 Cap Hex - Acorn	2	-	50-1303
21	Line Cord: 120v	1	35-1100	35-1754
22	Line Cord: 220-240v	1	35-1452	35-1767

Other replacement parts are available. Consult the factory with specific requirements.

OPTIONAL ACCESSORIES

1. **Observation Port Sight Glass Assembly**

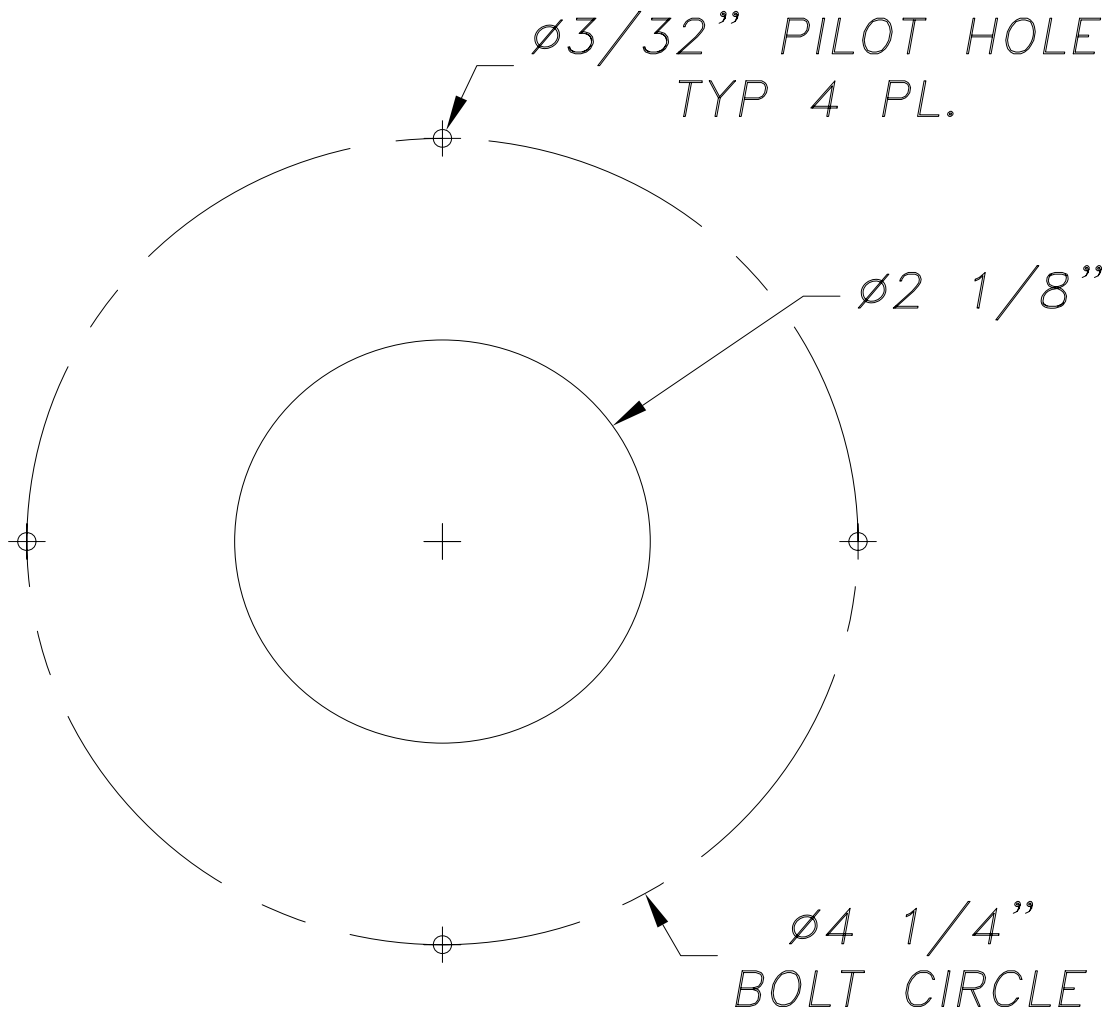
A Sight Glass Assembly allows for visual inspection of the lamps, without the need to remove the unit from the duct. Available in 1 and 2 inch diameters.

2. **Zenith™ Ultraviolet Meter**

A sensitive, hand-held, ultraviolet meter; used to check the intensity of aging ultraviolet lamps and survey rooms utilizing an ultraviolet air sanitizer to ensure that the ultraviolet radiant exposure of personnel within the treated area is within acceptable limits.

MOUNTING PATTERN

Figure 5 - AD436 Mounting Pattern



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TECHNICAL SPECIFICATIONS

Figure 6 - Dimentional Data AD436/P

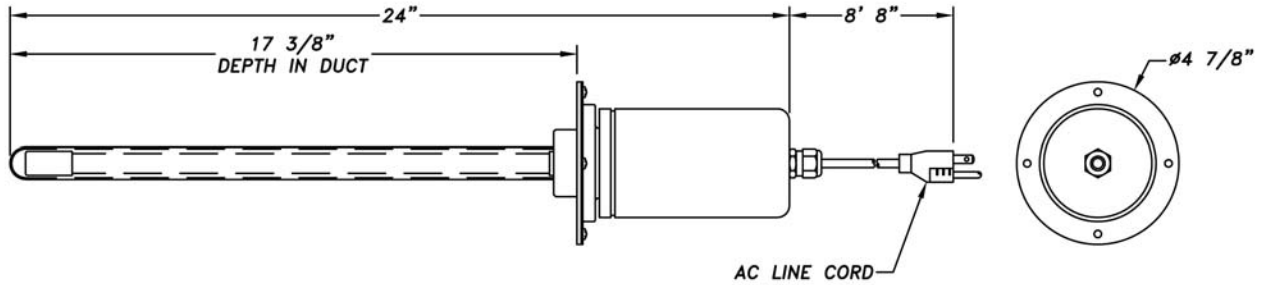


Figure 7 - Dimentional Data AD436/D

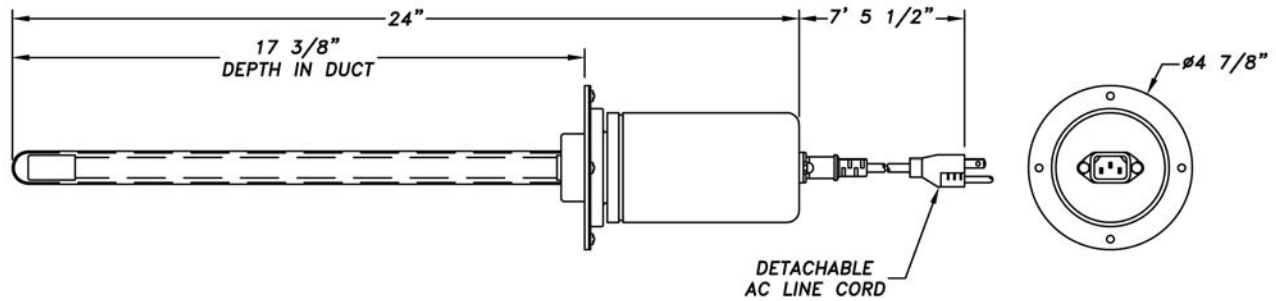


Table 3 - Technical Specifications

Model No	Volts ^①	Hertz	120v	Amps 230v	Lamp Model	Power Consumption ^②	Ultraviolet Output ^③	Ave. Effective Life
AD436/P	120v	60Hz	.34A	.17A	GPH436T5L/4	40W	6.4W	10,000 Hrs
AD436/D	120v	60Hz	.34A	.17A	GPH436T5L/4	40W	6.4W	10,000 Hrs

① 230v 50Hz units are available. Consult Factory with specific requirements.

② Wattage is lamp watts only and does not include ballast loss.

③ Ultraviolet output at 254nm at 100 hours and 80°F (approximate).

USER ASSISTANCE

Atlantic Ultraviolet Corporation makes every effort to ensure that the **AeroLogic**® Air Duct Purification systems are products of superior quality and workmanship. This manual describes the installation, operation and maintenance of the **AeroLogic**® Air Duct Purification system.

Please read and become familiar with the contents of this manual before installing or using the **AeroLogic**®. If after reading the manual you still have questions, or concerns, regarding the installation or use of this system, 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
Website: www.ultraviolet.com

Please fill out and return the Owner Registration card immediately. If the card is missing from this manual, please contact us to obtain one.

Atlantic Ultraviolet Corporation takes considerable care when packaging equipment to prevent damage. Carefully inspect and report all damage. **Do not** install damaged equipment. Follow all instructions in this manual and 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 **AeroLogic**® Air Duct Purification system. Keep this manual, along with proof of purchase, handy when contacting our offices.

Purchased From:	Date:
Model:	Serial No.:

WARRANTY

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 Company 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

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.