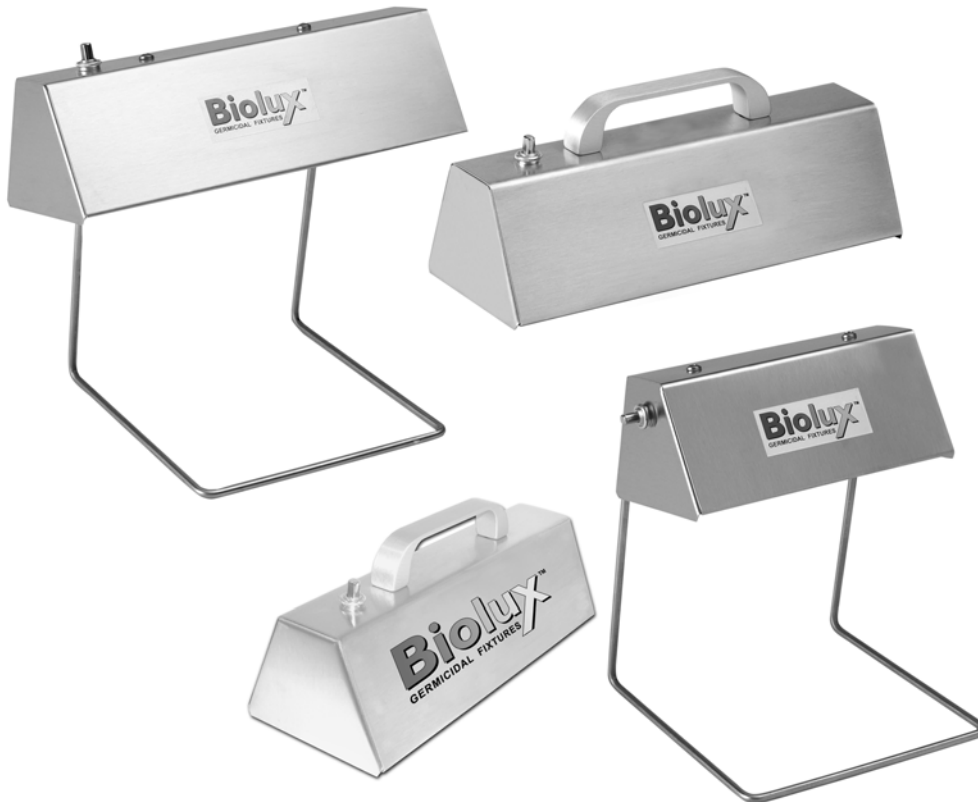


Biolux[®]

GERMICIDAL FIXTURES

Models NO4G, NO4GS, NO6G & NO6GS



Installation, Operation & Maintenance

ATLANTIC  **ULTRAVIOLET**
CORPORATION[®]

375 Marcus Boulevard • Hauppauge, NY 11788 • USA
631.273.0500 • Fax: 631.273.0771
e-mail: info@ultraviolet.com

Extensive Product Information Available at:

ultraviolet.com

Document No. 98-1413A2 • July 2011 • ©2008-2011 Atlantic Ultraviolet Corporation[®]

Owner's Manual

TABLE OF CONTENTS

| | |
|---------------------------------------|----------|
| SAFETY WARNINGS | 3 |
| SAFETY INSTRUCTIONS | 3 |
| PRODUCT APPLICATION | 4 |
| CONSTRUCTION | 4 |
| PRINCIPLE OF OPERATION | 4 |
| LIMITATIONS | 4 |
| UNPACKING | 4 |
| INSTALLATION | 5 |
| PRECAUTION | 5 |
| MAINTENANCE | 6 |
| BREAKAGE | 6 |
| DISPOSAL OF MERCURY ADDED LAMP..... | 6 |
| OPTIONAL ACCESSORY | 6 |
| TROUBLESHOOTING | 6 |
| TECHNICAL SPECIFICATIONS | 7 |
| REPLACEMENT PARTS | 7 |
| USER ASSISTANCE | 8 |
| WARRANTY | 8 |
| PATENT NOTICE..... | 8 |

These instructions generally describe the installation, operation and maintenance of the **Biolux**[®] Germicidal Ultraviolet Fixtures. Questions that are not specifically answerable by these instructions should be directed to the factory. 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 in this manual and by the product safety labeling on this equipment.
- 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.



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

WARNING

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



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

CAUTION

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



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

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 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 the 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.



 WARNING: Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.

2. Intended for indoor use only.
3. Do not alter the construction or design.
4. Do not use this fixture for other than its intended purpose, as described in this manual.
5. Do not remove any labels or devices.
6. Do not mount under any source of moisture or condensation.
7. **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.
8. Do not operate the fixture if there is visible or suspected damage to the fixture or, if applicable, there is damage to power cord and/or plug.
9. Utility power supplied, to the fixture, **MUST** match power requirements listed on the fixture label.
10. ** WARNING:** Always disconnect power to the fixture before performing any service or maintenance.
11. Read and follow all notices and warnings on the fixture.
12. **SAVE THESE INSTRUCTIONS.**

PRODUCT APPLICATION

CONSTRUCTION

The **Biolux**[®] Germicidal Ultraviolet Fixture consists of:

- 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.
- Ballasts capable of operating at 120 volts 60 Hertz.
- Standard, NEMA 5-15, three-prong plug, and operates on 120VAC 60Hz single-phase standard household current.
- All electrical parts and wiring are housed in an enclosure constructed of stainless steel, type 304. Stainless steel construction provides strength, durability and lasting value.
- Stainless steel mounting stand or brushed aluminum handle.

PRINCIPLE OF OPERATION

The **Biolux**[®] line of germicidal ultraviolet fixtures has been carefully conceived to provide germicidal ultraviolet exposure for air or 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 or surface is exposed.

LIMITATIONS

- Personal protection equipment is required when the germicidal lamp is operating. Personal protection equipment includes skin and eye protection such as gloves, long sleeves with no gaps between cuff and gloves, and an ultraviolet resistant face shield.
- Exposure 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 so as to avoid exposure, of personnel, to direct or reflected ultraviolet rays.
- The American Conference of Governmental Industrial Hygienists (ACGIH) has established that the ultraviolet radiant exposure incident for unprotected eyes or skin should not exceed 0.2 microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$) at 254 nanometers (nm) for an eight (8) hour period. ("2004 TLVs[®] and BEIs[®]")
- To monitor and test ultraviolet intensity, see "**Zenith[™] Ultraviolet Meter**" on page 5 for further details.

UNPACKING

- Remove the **Biolux**[®] Germicidal Ultraviolet Fixture from its shipping carton.
- Atlantic Ultraviolet Corporation takes all possible precautions when packaging this fixture to prevent damage. Carefully inspect the fixture, power cord and plug if applicable, for damage, report all damage immediately. Do not assemble or operate if there is any damage, visible or suspected.
- The germicidal lamp is packed separately, to ensure maximum protection for the lamp. Keep the lamp aside until ready for installation. When installing lamp, avoid touching glass with bare hands. Oils deposited, from fingers, on the glass could effect ultraviolet transmission.
- Carefully inspect all packing materials to prevent the loss of accessories, mounting hardware, spare parts or instructions.
- Do not discard packing materials until fixture is assembled and check out is complete.

The **Biolux**[®] Germicidal Ultraviolet Fixture includes:

- 1 - Germicidal ultraviolet fixture with attached lead cord.
- 1 - Germicidal ultraviolet lamp
- 1 - Installation and Operation Manual.

INSTALLATION

WARNING: Always disconnect power fixture before performing any service or maintenance.

▲ CAUTION: Ultraviolet lamps are easily damaged. Exercise care when handling.

1. The **Biolux**[®] Germicidal Ultraviolet Fixtures are portable, and require no professional installation.
2. Install lamp: line up the contact pins, of the lamp, with the openings in the lampholders. Make sure that the contact pins are inserted into both lampholders. Once the pins are in, turn the lamp a ¼ turn (90°), the lamp should "snap" into place.
3. Verify that the lamp is properly seated.
4. Moisten a clean, lint-free cloth with denatured alcohol and clean lamp.



▲ WARNING: Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.

Use personal protection equipment, such as gloves; long sleeves with no gaps between cuffs and gloves, and ultraviolet resistant face shield, when exposed to ultraviolet rays or troubleshooting **Biolux**[®].

5. Apply power to the **Biolux**[®] fixture.
6. Verify operation by viewing lamp, use of personal protection equipment is required. If the fixture is not operating properly, go to "Troubleshooting" section.

PRECAUTIONS

- Procedures should be adopted to insure that the **Biolux**[®] is disconnected from power whenever personnel work in the irradiated space. Personnel who work in and around the fixture should be briefed on the precautions to be observed.
- 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.

OPTIONAL ACCESSORY

The **Zenith**[™] Ultraviolet Meter is a sensitive, hand-held, ultraviolet meter that can be used to:

- Survey ultraviolet room air sanitizer installations to ensure that the germicidal ultraviolet radiant exposure, of personnel within the treated area, is within acceptable limits. The **Zenith**[™] Ultraviolet Meter provides accurate and easy-to-read levels of intensity that may be interpreted by anyone - not just engineers.
- Check the intensity of aging ultraviolet lamps

The **Zenith**[™] Part No. 30-0081-R is the recommended meter for this application.

For more information and purchasing 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

MAINTENANCE

- The **Biolux**[®] is designed to operate with a minimal amount of maintenance.
- A regular cleaning schedule of the germicidal lamp 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 recommended that the ultraviolet lamp be cleaned whenever dust or visible deposits are observed on lamp.
- The germicidal ultraviolet lamps used in the **Biolux**[®] have a manufacturer's rated average effective life of 6,000 hours. Lamps may operate longer than their 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 6,000 hours of continuous operation.
- See "INSTALLATION" instructions for proper germicidal lamp replacement and cleaning procedure.

⚠ WARNING: Always disconnect power to the fixture before performing any service or maintenance.

BREAKAGE

⚠ CAUTION: Broken Quartz is SHARP.



Wear protective gloves when handling broken ultraviolet lamps.

In the event of breakage, **DO NOT** use a household vacuum cleaner to pick up fragments of the lamp. 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>.

TROUBLESHOOTING

⚠ WARNING: Always disconnect power to the unit before performing any service or maintenance.



Use personal protection equipment, such as gloves; long sleeves with no gaps between cuffs and gloves, and ultraviolet resistant face shield, if troubleshooting **Biolux**[®].

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

Table 1 - Troubleshooting

| Problem | Possible Cause | Corrective Action |
|---------------------------------------|--|--|
| Unit not operating. | No electrical power... | Verify that the fixture is connected to a live power source. |
| | Power connections loose or disconnected... | Verify power connections to fixture are fully engaged. |
| Germicidal lamp not operating. | Germicidal lamp not operating... | Swap suspect lamp, with lamp known to be good. If suspect lamp does not operate, replace lamp. |
| | Germicidal lamp not properly seated... | Confirm connection of lamp and lamp socket, contacts are tight and lamp socket is making full contact with lamp. |
| | Ballast not functioning... | Locate ballast and replace. |

If the above measures fail to correct the problem(s), contact our application specialists. Contact options can be found in the "User Assistance" section of this manual.

TECHNICAL SPECIFICATIONS

Table 2 - Technical Specifications

| Model: | NO4G | NO4GS | NO6G | NO6GS |
|----------------------------------|-----------|---------|-----------|---------|
| Volts (V) | 120 | 120 | 120 | 120 |
| Amps (A) | 0.10 | 0.10 | 0.12 | 0.12 |
| Length (in) | 6-3/16 | 6-3/16 | 7-11/16 | 7-11/16 |
| Width (in) | 3-21/32 | 3-21/32 | 3-21/32 | 3-21/32 |
| Height (in) | 3-11/16 | 8-1/8 | 3-11/16 | 8-1/8 |
| Lamp Model | 05-1110-R | | 05-1109-R | |
| Power Consumption (W)① | 4.6 | | 5.9 | |
| Ultraviolet Output (Watts/Lamp)② | 0.8 | | 1.6 | |
| Ave. Effective Life: (Hrs) | 6,000 | | 6,000 | |

① Wattage is lamp watts only and does not include ballast loss.

② Ultraviolet output at 254nm at 100 hours and 80°F (approximate).

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

Note: **Biolux**® NO4G, NO4GS, NO6G and NO6GS are available in other voltages. Contact factory with your requirements.

REPLACEMENT PARTS

Table 3 - Replacement Parts

| Model: | NO4G | NO4GS | NO6G | NO6GS |
|-----------------------------|-----------|-----------|-----------|-----------|
| Germicidal Ultraviolet Lamp | 05-1110-R | 05-1110-R | 05-1109-R | 05-1109-R |
| Ballast: 120v 60Hz | 10-1055 | 10-1055 | 10-1055 | 10-1055 |
| Starter Switch | 35-1335 | 35-1335 | 35-1335 | 35-1335 |
| Lampholder | 05-1322 | 05-1322 | 05-1322 | 05-1322 |
| Lead Cord 120v | 35-1100-R | 35-1100-R | 35-1100-R | 35-1100-R |

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

USER ASSISTANCE

Atlantic Ultraviolet Corporation makes every effort to ensure that the **Biolux**® Germicidal Ultraviolet Fixtures are products of superior quality and workmanship. This manual describes the installation, operation and maintenance of the **Biolux**® Germicidal Ultraviolet Fixture.

Please read and become familiar with the contents of this manual before installing or using the **Biolux**®. 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 REGISTER your product immediately - you can do this in a number of ways. Go online to 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 **Biolux**® Germicidal Ultraviolet Fixture. 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 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.