



OPERATING MANUAL

MINI-SIZE TRANSILLUMINATOR MAGNETIC

Models UVA-10, UVB-10, and UVC-10

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1.0 General Information

1.1 Introduction

Thank you for choosing Ultra-Lum, Inc. for your Instrument needs. We strive to build quality into each and every product we manufacture. We all hope that the product purchased meets and exceeds your goals and expectations. Please feel free to contact us with any questions as our knowledgeable sales and customer support staff are ready and willing to work with you. Please refer to the following contact information:

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Ultra-Lum's MINI magnetic transilluminator utilizes a full stainless steel cover for corrosion resistance and easy cleaning, an extended-life 5000 hour UV transmitting glass filter, and a UV blocking shield that is hinged so that it can be tilted up and / or removed to allow access to the filter surface area. They are available with only one size UV transmitting 10 x 10cm size filter. The light output is single wavelength ultraviolet at 254nm (UVC), 300nm (UVB), or 365nm (UVA) only. Designed to run using a single AC line voltage of 100, 115, or 230 VAC 50/60Hz. This product is intended for indoor use only.

Unpacking and inspection

- 1.1.1 Opening the shipping container.
 - 1.1.1.1 Using a utility knife or equivalent cut through the packing tape that secures the flaps together.
- 1.1.2 Carefully remove the transilluminator from the container and place the container aside.
 - 1.1.2.1 We suggest saving the container for later instrument storage, moving from one lab to another, or returning the unit for service if required.
- 1.1.3 Inspect the unit for damage.
 - 1.1.3.1 Broken lamps.
 - 1.1.3.2 Dented or damaged enclosure.
 - 1.1.3.3 Fractured or cracked filter glass.
 - 1.1.3.4 Anything else that may be considered unacceptable.
- 1.1.4 Ensure that all of the items purchased are included with the shipment. Listed here are the standard items that ship with each unit.
 - 1.1.4.1 120 VAC line cord (For 100 or 115VAC operation)..... 58-0004-01
 - 1.1.4.2 240 VAC line cord (For 230 VAC operation) 58-0006-01
 - 1.1.4.3 This operation manual 81-0005-23
 - 1.1.4.4 UV blocking shield 19-0015-01
- 1.1.5 If any items are missing or damaged please contact customer service so that the apparent problems may be addressed.

1.2 Warranty

Ultra-Lum, Inc. products are guaranteed to be free of defects in materials, workmanship, and manufacture for a period of two (2) years from the date purchased. Consumable and disposable products including but not limited to Ultraviolet lamps are guaranteed to be free from defects in materials and manufacture for a period of ninety (90) days from the date purchased. If a product failure should occur during the warranty periods listed above Ultra-Lum, Inc. will examine the inoperative product and have the option of repairing or replacing any parts which in the judgment of Ultra-Lum, Inc. were originally defective or became so under conditions of normal usage and service.

No warranty shall apply to any product or part thereof that has been subjected to accident, negligence, alteration, abuse, or misuse by the end-user. However, Ultra-Lum, Inc. makes no warranties, whatsoever, with respect to parts not supplied by Ultra-Lum Inc. or that have been installed, used or serviced, other than in strict compliance with the instructions appearing in the operating manual supplied by Ultra-Lum, Inc.

In no event shall Ultra-Lum, Inc. be responsible to the end user for any incidental or consequential damages, whether foreseeable or not, including but not limited to property damage, inability to use equipment, lost business, lost profits, or inconvenience arising out of or connected with the use of products supplied by Ultra-Lum, Inc., nor is Ultra-Lum, Inc. liable for or responsible for any personal injuries occurring as a result of the use, installation, or servicing of products.

2.0 Specifications

2.1 Safety Precautions

2.1.1 **CAUTION:** Dangerous Ultraviolet Radiation



- 2.1.1.1 Ultraviolet transilluminators are a powerful source of dangerous ultraviolet radiation. It is **VERY IMPORTANT** to protect your eyes and skin from exposure.
- 2.1.1.2 The **UV blocking shield** blocks some of the dangerous ultraviolet radiation from exiting the UV transilluminator, but under no circumstances should the unprotected eyes or skin be exposed to the radiation. Ultra-Lum UV blocking covers, UV blocking shields, UV blocking glasses, UV blocking goggles, and UV blocking full face shields are available which when used in conjunction with long sleeve shirts or lab coats and gloves should provide adequate protection and allow safe handling of ultraviolet products without adverse effects. Ensure that all personnel in the area who are using or observing this equipment are adequately protected.
- 2.1.1.3 **DO NOT** attempt to use an ultraviolet transilluminator without the UV blocking shield, as this will cause undesired exposure to dangerous Ultraviolet radiation.
- 2.1.1.4 Refer to accessories section 2.6 for recommended ultra-violet safety equipment.

2.1.2 **CAUTION:** Electrical Exposure



- 2.1.2.1 Do not attempt to operate the transilluminator with the filter enclosure cover removed as this will expose the user to the **HIGH VOLTAGE** lamp power supply output circuitry as well as the **HIGH VOLTAGE** AC main's circuitry.
- 2.1.2.2 When lamp replacement is required, ensure that the AC mains line cord is **NOT** plugged into the AC wall receptacle. If the AC line cord is plugged in, there may be **DANGEROUS HIGH VOLTAGE** present at the lamp connectors.
- 2.1.2.3 Never operate the system in or near water, or environments with high levels of moisture in the air.

2.1.3 **CAUTION:** Read Manual



- 2.1.3.1 Refer to the manual before operating this device.

2.1.4 **CAUTION:** Lamps contain Mercury



- 2.1.4.1 Dispose according to Local, State, or Federal Laws

2.2 Safety Features

2.2.1 AC Mains Switch

- 2.2.1.1 The AC Mains power switch can be used at any time to turn off and shut down the transilluminator.

2.3 Electrical Ratings

- 2.3.1 Single Input AC Line Voltage 100VAC, 115VAC, or 230VAC (see ratings label)
- 2.3.2 AC Line Frequency 50/60Hz
- 2.3.3 AC Line fuse..... 1A 250 VAC Time Delay

2.4 Mechanical

- 2.4.1 Exterior Dimensions 8" D x 4.25" H x 7.5" W (20 cm x 11 cm x 19 cm)
- 2.4.2 Weight 8 lbs. (3.6 Kg)
- 2.4.3 Filter Size 10 x 10cm
- 2.4.4 Cord Inlet..... IEC Style AC Line Power Entry Module

2.5 Environmental Conditions for Instrument Operation

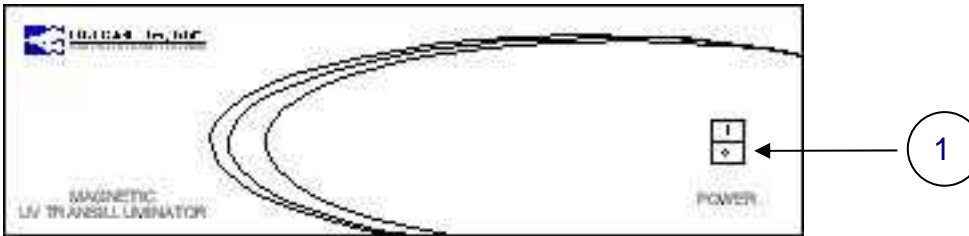
- 2.5.1 Relative Humidity 5-95%
- 2.5.2 Temperature..... 10-40 Degree's C
- 2.5.3 Installation category II
- 2.5.4 Pollution Degree..... 2

2.6 Accessories and Parts

- 2.6.1 Ultra-100 UV blocking spectacles 990-0501-01
- 2.6.2 Ultra-200 UV blocking goggles 990-0502-01
- 2.6.3 Ultra-300 UV blocking face shield..... 990-0503-01
- 2.6.4 100/115 VAC line cord 58-0004-01
- 2.6.5 230 VAC line cord 58-0006-01
- 2.6.6 UVC 6 Watt lamp 990-1060-01
- 2.6.7 UVB 6 Watt lamp..... 990-1060-02
- 2.6.8 UVA 6 Watt lamp..... 990-1060-03
- 2.6.9 100/115 VAC lamp starter..... 36-0004-01
- 2.6.10 230 VAC lamp starter..... 36-0008-01
- 2.6.11 Fuse, 1A 250 VAC 56-0010-10

2.7 Front Panel Symbols and Controls Defined

1. AC Mains power switch.



3.0 Operating Instructions

3.1 Setting up the transilluminator

- 3.1.1 Place the transilluminator on a suitable work surface. The work surface should be clean and dry.
- 3.1.2 The transilluminator has been designed to operate using one of the following Voltages: 100 VAC, 115 VAC, or 230 VAC line from 47 to 63 Hz. Refer to the Ratings label located next to the AC line cord power entry module located on the back panel of the transilluminator.
- 3.1.3 Plug the appropriate AC line cord into the power entry module.
- 3.1.4 Plug the other end of the AC line cord into the appropriate AC line wall receptacle.
- 3.1.5 Ensure that both the product user and any personnel in the area are adequately protected from ultraviolet radiation. See the Safety Precautions section 2.1 of this manual for further information.
- 3.1.6 Turn on the AC mains power switch located on the right side of the front panel. The green illuminated switch and UV lamps should light. There is a warm up period of approximately 5 minutes for the UV lamps to reach maximum intensity. The transilluminator is now ready for use.

4.0 Care and Maintenance

4.1 Cleaning Recommendations

- 4.1.1 Clean all exterior surfaces using a mild non-abrasive cleaner such as glass cleaner with soft paper towels.

4.2 Lamp replacement

- 4.2.1 All lamps should be replaced even if only one or more lamps failed to light. This ensures that the Intensity level remains uniform across the entire surface of the transilluminator filter glass.
 - 4.2.1.1 Turn off the AC mains switch.
 - 4.2.1.2 Unplug the AC line cord from the wall receptacle.
 - 4.2.1.3 Remove the top filter glass cover by unscrewing the six screws located on the sides of the unit.
 - 4.2.1.4 Carefully lift up and remove the filter cover and place it out of the way. Be careful not to scratch the glass filter or place it on a surface that could cause it to fracture or crack.
 - 4.2.1.5 The lamps need to be rotated in the socket to remove and replace. To remove rotate lamp until the lamps pin entry slot on the lamp socket is vertical. Then lift upward to remove.
 - 4.2.1.6 When installing the lamps ensure that the lamp or lamps are seated correctly in the lamp sockets. The dual pins at each end of the lamp should be horizontal when secured correctly.
 - 4.2.1.7 In order to correctly seat the lamp, insert the lamp into the lamp sockets rotate the lamp in the sockets so the lamp snaps into place with the entry slot in the horizontal position.
 - 4.2.1.8 Reassemble the filter cover and ensure that the screws are tight and secure.
 - 4.2.1.9 Plug the AC line cord back into the wall receptacle.
 - 4.2.1.10 Turn ON the AC Mains switch.
 - 4.2.1.11 Check to see if all of the lamps have lit.
- 4.2.2 If not repeat steps 4.2.1 through 4.2.1.11 or refer to the Trouble Shooting section of this manual in section 5.1.

5.0 Service

5.1 Trouble shooting

5.1.1 **Problem:** Unit does not operate.

5.1.1.1 Check the fuse and replace if necessary. Refer to Fuse Replacement section 5.2 of this manual for further instructions.

5.1.2 **Problem:** One or more lamps won't light with the AC power switch on and the power switch indicator is illuminated.

5.1.2.1 **1st Check:** Turn off the AC power switch.

5.1.2.2 Unplug the AC line cord from the wall receptacle.

5.1.2.3 The lamp needs to be rotated in the socket to remove or replace.

5.1.2.4 Ensure that the lamp or lamps are seated correctly in the lamp sockets. In order to correctly seat the lamp rotate the lamp in the socket so that the entry slot on the connector is horizontal and a snapping feeling occurs.

5.1.2.5 Plug the AC line cord back into the wall receptacle.

5.1.2.6 Turn ON the AC Mains switch.

5.1.2.7 If the Lamps still don't light, repeat the procedure, but this time, swap out a lamp that lights with one that does not light.

5.1.2.7.1 If the problem follows the lamp then the lamp should be replaced.

5.1.2.7.2 If problem appears to be in all or one lamp position then go to the Fuse Inspection and Replacement section of this manual.

5.1.2.8 **2nd Check:** Checking the lamp filament continuity. If the lamp appears to be defective often the failure mode is in the filament section of the lamps.

5.1.2.8.1 Turn off the AC Mains switch.

5.1.2.8.2 Unplug the AC Line cord from the wall receptacle.

5.1.2.8.3 Remove the suspect lamp or lamps from the transilluminator.

5.1.2.8.4 The lamp is designed with a filament between the pins at each end of the lamp.

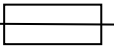
5.1.2.8.5 Using an Ohmmeter measure the resistance between the pins at each end of the lamp.

5.1.2.8.6 The Ohmmeter reading should be approximately within 10 and 50 ohms.

5.1.2.8.7 When a filament failure occurs, the reading is infinite and indicates that the lamp needs to be replaced.

5.1.2.8.8 Contact customer service for replacement parts.

5.2 Fuse Inspection and Replacement

- 5.2.1  This symbol represents the fuse and is located on the rear panel of the unit on a label with the fuse type and rating.
- 5.2.2 Remove the AC line cord from the back of transilluminator.
- 5.2.3 Remove the fuse drawer from the Input AC module.
- 5.2.4 Remove the fuses.
- 5.2.5 Visually inspect the fuses for blackening or an internally open fuse link.
- 5.2.6 If all visual inspection looks good, then continuity check the fuse by measuring its resistance using an Ohmmeter. The resistance should be less than 1 ohm.
- 5.2.6.1 If any of these signs are detected replace both the fuses.
- 5.2.6.2 Refer to Section 2.3 to determine the correct fuse rating.
- 5.2.7 Place the replacement fuses into the fuse drawer.
- 5.2.8 Install the fuse drawer in the Input AC line module.
- 5.2.9 Plug the AC line cord into the Input AC line module.
- 5.2.10 Start and operate the transilluminator.
- 5.2.11 If the fuse blows again, contact customer service. Refer to section 5.3 for contact information.

5.3 Customer Service

5.3.1 Contact Information

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Web Site..... www.ultralum.com

For software technical support, contact the software manufacturer.

6.0 Application Information

6.1 Lamp Spectral Characteristics

