



TRANSILLUMINATOR MANUAL STANDARD SIZE

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1.0 General Information

Ultra-Lum, Inc. 1480 N. Claremont Blvd. Claremont, Ca. 91711-3538 www.ultralum.com
81-0005-23 REV C

1.1 Introduction

Thank you for choosing Ultra-Lum, Inc. for your Instrument needs. We here at Ultra-Lum Inc. 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. We can be contacted at the following location:

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Claremont, Ca 91711

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

The Ultra-Lum, Inc. variable intensity electronic transilluminator allows users to adjust the lamp intensity in a usable range of approximately 30% to 100%. The unique patented electronic high frequency lamp power supply ballast design extends lamp life and allows units to have flicker free operation for more consistent results over magnetic units.

Other important included features consist of full stainless steel covers for corrosion resistance and easy cleaning, extended-life 5000 hour filter glass, fan cooling for long lamp and system life, and a UV blocking shield on ultraviolet units. Variable intensity electronic transilluminators are available in two footprints: mid size and standard size. Several filter sizes are available from 15x15 cm to 21x25 cm on the mid size units and 20x20 cm to 20x40 cm on the standard size units. All units are available in either 254 nm, 300 nm, or 365 nm output models. Dualwave and Multiwave models are available.

1.2 Unpacking and inspection

- 1.2.1 Opening the shipping container.
 - 1.2.1.1 Using a utility knife, cut through the packing tape that secures the flaps together.
- 1.2.2 Carefully remove the transilluminator from the container and place the container aside.
 - 1.2.2.1 We suggest saving the container for later instrument storage, moving from one lab to another, or returning the unit for service if required.
- 1.2.3 Inspect the unit for damage.
 - 1.2.3.1 Broken lamps.
 - 1.2.3.2 Dented or damaged enclosure.
 - 1.2.3.3 Fractured or cracked filter glass.
 - 1.2.3.4 Anything that might be considered unacceptable.
- 1.2.4 Ensure that all of the items purchased are included with the shipment. Listed here are the standard items that ship with each unit.
 - 1.2.4.1 120 VAC line cord.....58-0004-01
 - 1.2.4.2 240 VAC line cord.....58-0006-01
 - 1.2.4.3 Operation manual.....81-0005-23
 - 1.2.4.4 UV blocking shield (on ultraviolet units only).....990-0201-01
- 1.2.5 If any items are missing or damaged please contact customer service so that the apparent problems may be addressed.

1.3 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.

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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 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 in environments with high levels of moisture in the air.

2.1.3 **CAUTION:** Read Manual



- 2.1.3.1 Refer to the transilluminator manual before operating the instrument.

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 Input AC Line Voltage 100VAC, 115VAC, or 230VAC
- 2.3.2 AC Line Frequency 50/60Hz
- 2.3.3 Dual Fuse Rating: See section 8.1 for fuse specification.

2.4 Mechanical

- 2.4.1 Exterior Dimensions 15" D x 5" H x 18.5" W (38 cm x 13 cm x 47 cm)
- 2.4.2 Weight 18 lbs. (8.1 Kg)
- 2.4.3 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

2.6 Replacement Components

2.6.1	8 Watt UVA ultraviolet lamp	990-1080-03
2.6.2	8 Watt UVB ultraviolet lamp	990-1080-02
2.6.3	8 Watt UVC ultraviolet lamp	990-1080-01
2.6.4	8 Watt Fluorescent white lamp.....	990-1080-04
2.6.5	15 Watt UVA ultraviolet lamp	990-1050-03
2.6.6	15 Watt UVB ultraviolet lamp	990-1050-02
2.6.7	15 Watt UVC ultraviolet lamp	990-1050-01
2.6.8	15 Watt fluorescent white lamp	990-1050-04
2.6.9	20x20 cm UVB std size filter cover assembly	990-0343-01
2.6.10	20x20 cm UVA std size filter cover assembly	990-0343-03
2.6.11	21x25 cm UVB std size filter cover assembly	990-0344-21
2.6.12	21x25 cm UVA std size filter cover assembly	990-0344-03
2.6.13	25x40 cm UVB std size filter cover assembly	990-0347-02
2.6.14	25x40 cm UVA std size filter cover assembly	990-0347-03
2.6.15	25x40 cm Opal std size filter cover assembly.....	990-0347-04
2.6.16	20x40 cm UVB std size filter cover assembly	990-0346-01
2.6.17	20x20 cm UVB + 20x20 cm opal std size filter cover assy	990-0343-24
2.6.18	20x20 cm UVA + 20x20 cm opal std size filter cover assy	990-0343-34
2.6.19	20x20 cm UVA + 20x20 cm UVB std size filter cover assy	990-0343-32
2.6.20	UV blocking shield std size	990-0201-01
2.6.21	Fuse 2A 250VAC T 5x20mm	56-0010-04
2.6.22	Fuse 3A 250VAC T 5x20mm	56-0010-03
2.6.23	120 VAC line cord	58-0004-01
2.6.24	240 VAC line cord	58-0006-01
2.6.25	This operation manual.....	81-0005-23

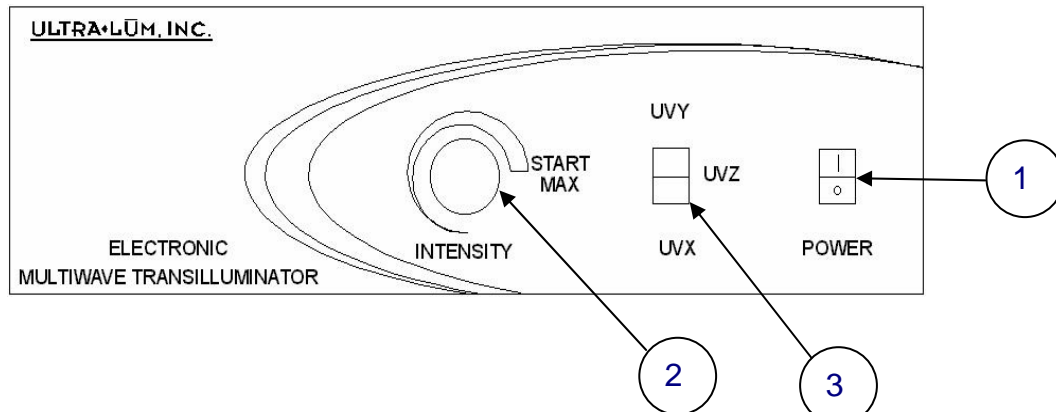
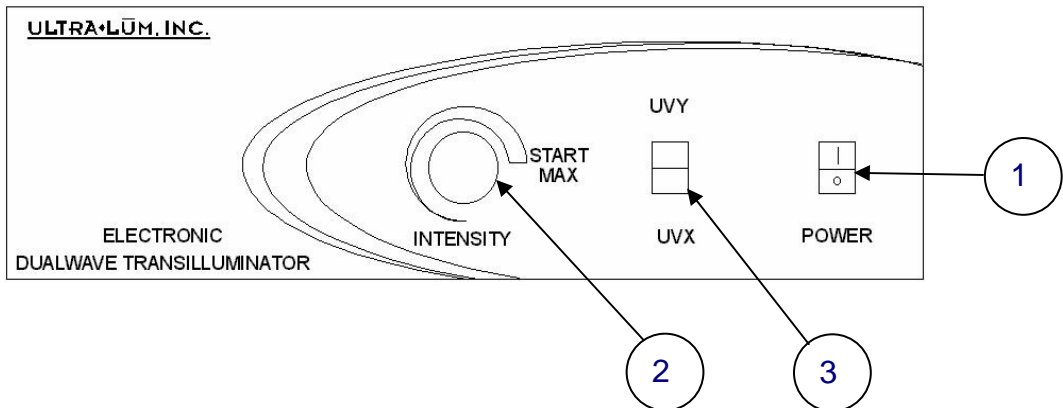
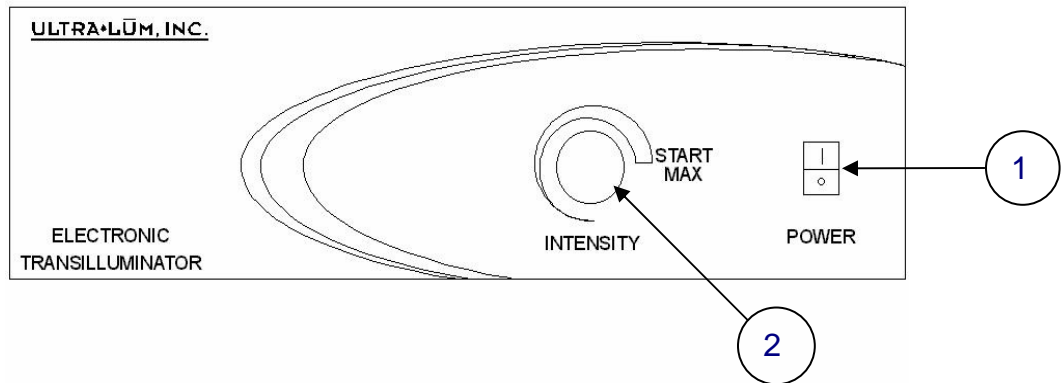
2.7 Accessories

2.7.1	Ultra-Glo red, 30x22 cm UV to visible light converter	990-0211-03
2.7.2	Ultra-Glo blue, 30x22 cm UV to visible light converter	990-0211-04
2.7.3	Ultra-Glo red, 42x24 cm UV to visible light converter	990-0212-03
2.7.4	Ultra-Glo blue, 42x24 cm UV to visible light converter	990-0212-04
2.7.5	UV blocking cover std size	990-0201-10
2.7.6	UV transmitting work surface std size	990-0201-02
2.7.7	Ultra-100 UV blocking spectacles	990-0501-01
2.7.8	Ultra-200 UV blocking goggles	990-0502-01
2.7.9	Ultra-300 UV blocking face shield.....	990-0503-01

2.8 Front Panel Symbols and Controls Defined

1. AC Mains power switch.
2. Intensity knob.
3. Lamp selector switch.

Lamp selector switch note: UVX, Y, Z can be any combination of UVA, B, C or white light depending on the transilluminator model purchased.



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 the 100 VAC, 115 VAC, or 230 VAC line from 47 to 63 Hz. No user voltage selection is required.
- 3.1.3 Plug the appropriate AC line cord into the power entry module located in the back of the transilluminator.
- 3.1.4 Plug the other end of the AC line cord into the appropriate AC line wall receptacle.
- 3.1.5 Ensure that the variable intensity knob is at the **START/MAX** setting. This must be done each and every time the unit is turned on.
- 3.1.6 Ensure that the user and all personnel in the area are adequately protected from ultraviolet radiation. See the Safety Precautions section 2.1 of this manual for further information.
- 3.1.7 Turn on the AC mains power switch located on the right side of the front panel. The transilluminator is now ready for operation.

3.2 Using the Variable Intensity Feature (Lamp dimming control)

- 3.2.1 The lamp intensity feature allows users to adjust the ultraviolet intensity in a usable range of approximately 30% to 100%.
- 3.2.2 Before turning the lamps on, the variable intensity knob must be at the **START/MAX** setting. This indicates 100% output.
- 3.2.3 If it is desired to reduce the level of lamp illumination or brightness, the user can accomplish this by rotating the intensity knob counter-clockwise.
- 3.2.4 After viewing the sample(s), return the intensity knob to the **START/MAX** setting.

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 glass cover and place it out of the way. Be careful not to scratch the 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 or replace; to remove the lamp rotate it until the lamp pin entry slot on the lamp socket is vertical.
 - 4.2.1.6 When installing the lamps ensure that the lamp or lamps are seated correctly in the lamp sockets.

- 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 thru 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.

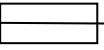
- 5.1.1.1 Check the fuse and replace if necessary. Refer to Fuse Replacement section 5.2 of this manual for further instructions.

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

- 5.1.2.1 **1st Check:** Ensure that the Variable Intensity knob is at the **START/MAX** setting.
- 5.1.2.2 Turn off the AC mains switch.
- 5.1.2.3 Unplug the AC line cord from the wall receptacle.
- 5.1.2.4 The lamp needs to be rotated in the socket to remove or replace.
- 5.1.2.5 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.
- 5.1.2.6 Plug the AC line cord back into the wall receptacle.
- 5.1.2.7 Turn ON the AC Mains switch.
- 5.1.2.8 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.
 - 5.1.2.8.1 If the problem follows the lamp then the lamp should be replaced.
 - 5.1.2.8.2 If problem appears to be in all or one lamp position then go to the Fuse Inspection and Replacement section of this manual.
- 5.1.2.9 **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.
 - 5.1.2.9.1 Turn off the AC Mains switch.
 - 5.1.2.9.2 Unplug the AC Line cord from the wall receptacle.
 - 5.1.2.9.3 Remove the suspect lamp or lamps from the transilluminator.
 - 5.1.2.9.4 The lamp is designed with a filament between the pins at each end of the lamp.
 - 5.1.2.9.5 Using an Ohmmeter measure the resistance between the pins at each end of the lamp.
 - 5.1.2.9.6 The Ohmmeter reading should be approximately within 10 and 50 ohms.
 - 5.1.2.9.7 When a filament failure occurs, the reading is infinite and indicates that the lamp needs to be replaced.

5.1.2.9.8 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 .

5.3 Customer Service

5.3.1 Contact Information

Ultra-Lum, Inc.
1480 N. Claremont Blvd.
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For software technical support, contact the software manufacturer.

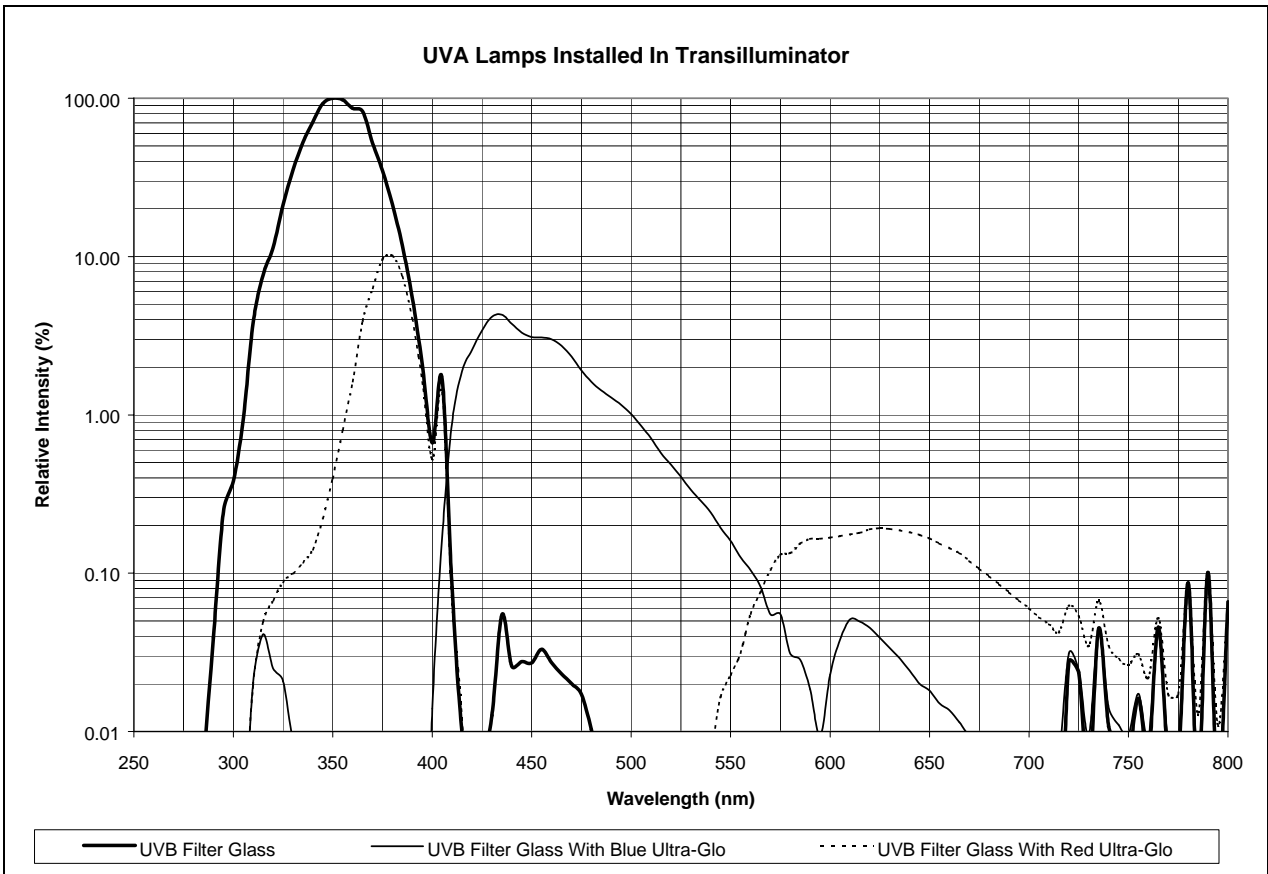
6.0 Mercury Notification

- 6.1 LAMPS IN THESE PRODUCTS CONTAIN MERCURY--- DISPOSE ACCORDING TO LOCAL, STATE, OR FEDERAL LAWS.

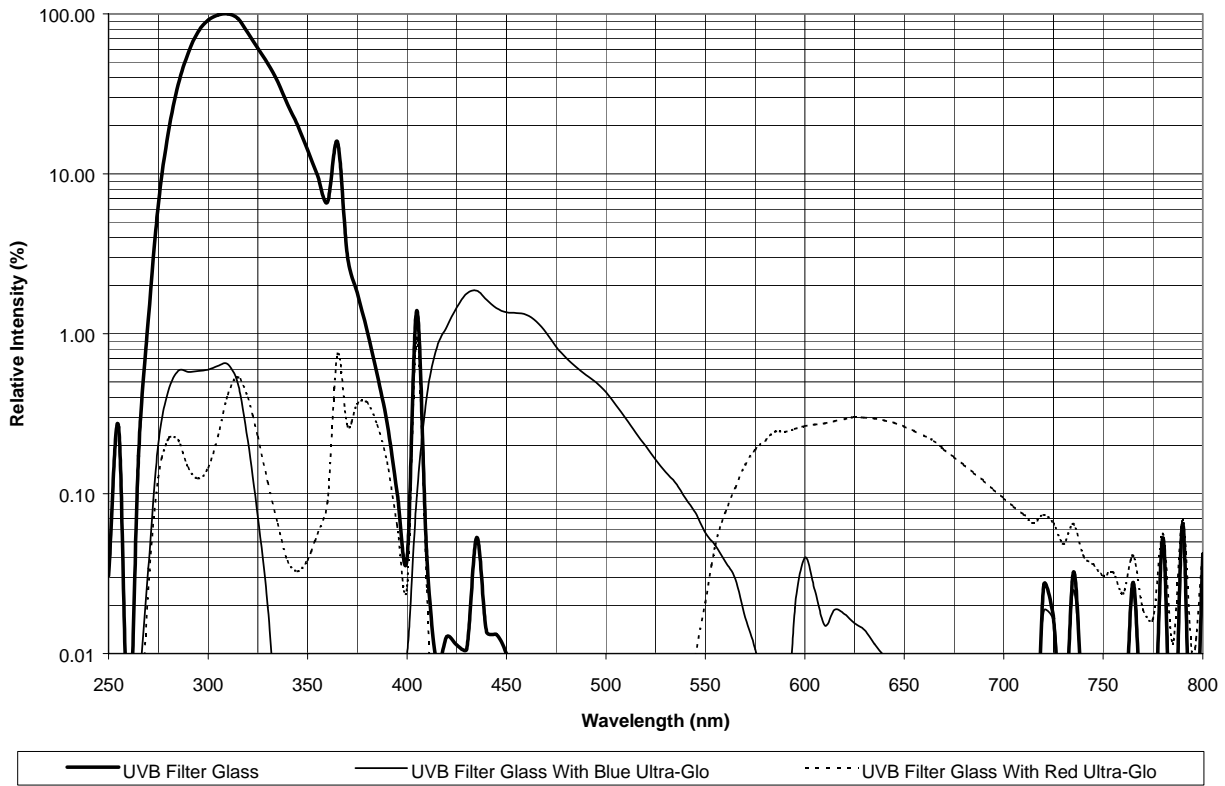
7.0 Application Information

- 7.1 **Lamp Spectral Characteristics**
See following pages.

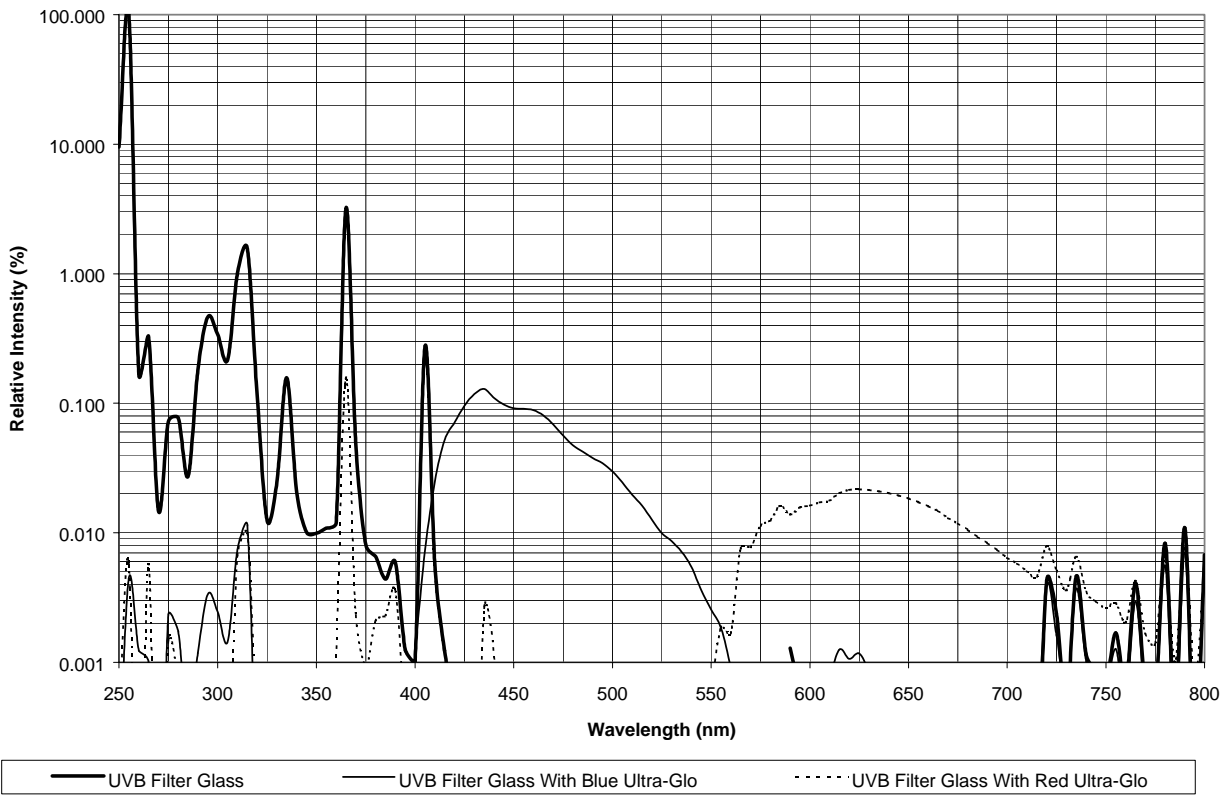
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UVB Lamps Installed In Transilluminator



UVC Lamps Installed In Transilluminator





Section 8 – Appendix

8.1 Specific Part Identifier Chart

15 Watt Lamp Versions							
Part Number	Model	Filter Type	Filter Cover Assembly Part Number	Filter size (cm)	Wavelength	Number of Lamps	Dual Fuse Rating, 250 VAC T 5x20 mm (Amps)
900-1423-01	EC-20	UVB	990-0343-01	20 x 20	UVC	6	3A
900-1423-02	EB-20				UVB	6	3A
900-1423-03	EA-20				UVA	990-0343-03	UVA
900-1424-01	EC-25	UVB	900-0344-01	21 x 25	UVC	6	3A
900-1424-02	EB-25				UVB	6	3A
900-1424-03	EA-25				UVA	990-0344-03	UVA
900-1427-01	EC-40	UVB	990-0347-02	25 x 40	UVC	6	3A
900-1427-02	EB-40				UVB	6	3A
900-1427-03	EA-40				UVA	990-0347-03	UVA
900-1427-04	WL-40	OPAL	990-0347-04	25 x 40	WHITE	6	3A
8 Watt Lamp Versions							
900-1423-12	EBCS-20	UVB	990-0343-01	20 x 20	UVC/UVB	5/4	2A
900-1423-13	EACS-20				UVC/UVA	5/4	2A
900-1423-23	EABS-20				UVB/UVA	5/4	2A
900-1426-12	EBCS-40	UVB	990-0346-01	20 x 40	UVC/UVB	9/8	3A
900-1426-13	EACS-40				UVC/UVA	9/8	3A
900-1426-23	EABS-40				UVB/UVA	9/8	3A
900-1425-14	ECW-20	UVB / OPAL	990-0343-24	20 x 20 + 20 x 20	UVC/WHITE	4/4	2A
900-1425-24	EBW-20				UVB/WHITE	4/4	2A
900-1425-34	EAW-20				UVA/OPAL	990-0343-34	UVA/WHITE
900-1425-08	EBCW-20	UVB / OPAL	990-0343-24	20 x 20 + 20 x 20	UVC/WHITE/UVB	5/4/4	2A
900-1425-07	EACW-20				UVC/WHITE/UVA	5/4/4	2A
900-1425-06	EABW-20				UVB/WHITE/UVA	5/4/4	2A
900-1425-05	EABC-20	UVA / UVB	990-0343-32	20 x 20 + 20 x 20	UVC/UVA/UVB	5/4/4	2A

8.2 Declaration of Conformity for CE (European Community)

	
<p>Application of Council Directive: 89/336/EEC and 73/23/EEC</p>	
Standards To Which Conformity Is Declared:	EN61010-1:2001 EN61326:1998 EN55011 Class A Group 1 EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11 EN61000-3-2:2001 EN61000-3-3:2000
Manufacturer's Name:	Ultra-Lum Inc.
Manufacturer's Address:	1480 N. Claremont Blvd. Claremont, CA 91711 909-399-3694
Equipment Description:	Trans-Illuminator
Equipment Class:	Laboratory, Measurement, & Process Control Equipment: Normal Environment
Part Numbers:	Inclusive of all 900-14XX-XX And 900-13XX-XX Series
	
	Claremont, CA U.S.A _____ Place:
	_____ Signature:
	Steven G. Boland _____ Full Name:
	COO _____ Position:
FORM: EN219, REV A, 12-19-05 LOC: C:\ACADIULFORM. CONTROLLED	