

SPECTRUM 100

**UV SPOTCURE SYSTEM
100 WATT**

TECHNICAL REFERENCE MANUAL

Model: VZM1001

AUV/LESCOTM

A Division of American Ultraviolet Company

WWW.LESCOUV.COM

*2355 Telo Avenue
Torrance, CA 90505*



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3/29/2012



American Ultraviolet™

UV is all we do SINCE 1960

WARRANTY AUV/LESCO EQUIPMENT POLICY

UV STANDARD PRODUCT WARRANTY:

All ultraviolet equipment manufactured by American Ultraviolet West/LESCO (AUV West/LESCO) is warranted to be free from defects in material and workmanship under normal and proper use for one (1) full year from the date of original shipment. As of October 9, 2008 normal use is based on an 8-hour work day, 5 days a week (8*5*52=2080Hrs). AUV West/LESCO will repair or replace at its option any defective parts (excluding consumables listed below) when returned to AUV/LESCO by the purchaser within the warranty period using a Return Material Authorization (RMA) number provided by AUV West/LESCO. The purchaser is responsible for all transportation charges for shipping the equipment to and from AUV West/LESCO. Equipment may not be returned, whether for warranty or other purposes, without an RMA number. Any equipment that is received without obtaining an RMA number will be refused and returned to the purchaser at their expense. AUV West/LESCO assumes no expense or liability for repairs made outside its plant without the written consent of an authorized AUV West/LESCO representative, or for any labor costs which are so incurred. AUV West/LESCO will not be liable for any consequential costs or damages of any kind.

If it is not feasible for the purchaser to return the equipment to AUV West/LESCO for repair, then by mutual consent the purchaser will cover the expenses for an authorized AUV West/LESCO service representative to travel to the equipment's location to perform a diagnostic evaluation and any necessary repairs. Warranty period for any and all equipment which is repaired while under original equipment warranty will remain one (1) full year from date of original shipment. Any repairs made after the original equipment warranty period has expired are warranted for ninety (90) days from the date the repaired equipment is shipped back to the purchaser. After all warranties have expired, the diagnostic evaluation fee for all non-warranty equipment is \$150.00.

PARTS AND ACCESSORIES WARRANTY:

AUV West/LESCO warrants all spare parts and accessories which are purchased separately from UV equipment to be free from defects in material and workmanship under normal and proper use for a period of 60 days. Consumable items not covered under the warranty include Bulbs, I.R. Filters, Fan Filters, Reflectors, and Lightguides.

CONDITIONS OF WARRANTY:

For above warranty on AUV West/LESCO equipment to be enforceable, the purchaser must:

1. Be the original owner and provide proof of purchase. All warranties are non-transferable.
2. Obtain pre-authorization by calling AUV West/LESCO for RMA number at 310-784-2930.
3. Return any items suspected of being defective to AUV West/LESCO for diagnostic evaluation and possible repair. All returns must be correctly packaged and shipped via an appropriate courier. AUV West/LESCO is not liable for any damage or charges incurred as a result of improper packaging and shipping by the purchaser.
4. Keep accurate records of the time elapsed from installation to removal in sufficient detail to determine the running time and environment of equipment in question. The purchaser will allow AUV West/LESCO to verify such records if necessary.

EXCLUSIONS:

The following will void all AUV West/LESCO warranties stated above:

- Defects resulting from improper installation or use
- Unauthorized service
- Tampering with equipment
- Lack of preventative maintenance
- Acts of God, or other circumstances beyond the control of AUV West/LESCO

There are no warranties, expressed or implied, except as stated above or provided in writing by an authorized AUV/LESCO representative.



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Warranty AUV/LESCO 1000-Hour SST Bulb Policy

BULB WARRANTY:

American Ultraviolet West/LESCO (AUV West/LESCO) warrants its UV Super Spot Technology (SST) premium bulbs for 1000 hours of operation when used with AUV West/LESCO manufactured products listed below. AUV West/LESCO designs and manufactures its SST bulbs for exceptionally long service life at higher than conventional intensities. However, there are no performance guarantees beyond that the bulb will successfully ignite and maintain power; system specifications are only estimates. Bulb performance is also dependent upon the extent of degradation in the I.R. Filter and Reflector, so those components must be checked prior to concluding a defect exists in the bulb. Only bulbs supplied by AUV West/LESCO and specifically used in well-maintained AUV West/LESCO SST products are covered by this warranty. Qualifying AUV West/LESCO products:

System	Model#	Bulb#
MKIII	VSM3003	LPB1008
MAX100	VSM3002	LPB1008
MAXHP	VSM3002HP	LPB2001
Rocket LP	VRM3002	LPB1003

System	Model#	Bulb#
Rocket 225	VRM2002	LPB1002
Spectrum 100	VZM1001	LPB1014
Green Spot II	VSM5001	LPB1014

CONDITIONS OF WARRANTY:

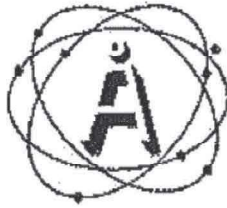
For above warranty on AUV West/LESCO bulb to be enforceable, the purchaser must:

1. Have completed the Lamp Hour Control Log inside the SST User Manual. If necessary, additional copies of the Lamp Hour Control Log can be obtained by contacting a service representative at 310-784-2930. There will be no warranty coverage for any bulb received without a Lamp Hour Control Log completed by the purchaser. The purchaser will allow AUV West/LESCO to verify such records if necessary.
2. Obtain pre-authorization by calling AUV West/LESCO for RMA number at 310-784-2930. Bulbs received without an RMA number will be returned at the purchaser's expense.
3. All returns must be correctly packaged and shipped via an appropriate courier. AUV West/LESCO is not liable for any damage or charges incurred as a result of improper packaging and shipping by the purchaser. All transportation charges to and from AUV West/LESCO are the responsibility of the purchaser.
4. All bulbs are warranted to successfully ignite and maintain power (no flickering) for the first 200 hours at full replacement.
5. Warranty period for 201 through 1000 hours is pro-rated. Providing an authorized AUV West/LESCO representative has determined a bulb is defective, the purchaser will be credited against the replacement price of the warranted bulb starting at 90% credit (@ 201 hours) pro-rated through 0% credit (@ 1000 hours).
6. There are no performance guarantees, expressed or implied, by AUV West/LESCO for UV SST bulbs; the above conditions for replacement and pro-rating are based solely on manufacturing defects, not performance. System specifications for performance are estimates only.
7. AUV West/LESCO is not liable for costs or damages of any kind due to unauthorized repairs.

EXCLUSIONS:

- Excessive lamp start/restart operations (>2 starts/day)
- Failure due to mechanical damage, breakage, mishandling, or dropping the system
- Contamination of quartz bulb envelope by oils, foreign material or other contaminants
- Damage resulting from corrosive or caustic environments
- Failure resulting from tampering with functions not intended for operator access such as polarity reversal, internal voltage, or control assemblies
- Neglect, damage by acts of God, or any other uncontrollable circumstances
- Failure to follow recommended maintenance procedures for unit airflow and cleanliness

This warranty applies to the bulb only and supersedes all previous warranties. There are no warranties, expressed or implied, except as stated above.



AUV West/LESCO

Division of American Ultraviolet Company

LAMP CONTROL LOG

Company Name:		EIT Radiometer Only (AIB1001)	Calibration Due Date:	S/N:
Contact:		Intensity measured at calibration test fixture (VSM9001)	First measure intensity using quartz fixture, then using lightguide. Difference in intensity measurement will indicate possible defects/damage in lightguide.	
Tel./Email:				

Reading should always be taken first time bulb is used. Lamp Hour Meter should be reset for each new bulb before recording data. Under normal usage of 8hrs/day, 5days/wk, readings should be taken every 2 weeks. Otherwise, if less frequent usage, readings should be taken whenever bulb is used.

MKIII Measurement Procedure
1. Adjust FEEDBACK SET potentiometer 20 turn C.C.W.
2. Set timer to 1.5sec.
3. Insert VSM9001
4. Use EIT Radiometer to measure output.
EX: Sample 3x reading and average, then record

Max Measurement Procedure
1. Set intensity to LOWEST value
2. Insert VSM9001
3. Set timer to 1.5sec.
4. Use EIT Radiometer to measure output.
EX: Sample 3x reading and average, then record

Spot Cure Model:	Spot Cure S/N:				
Bulb Model:	Bulb S/N:				
Date					
# Hours Indicated					
Intensity Reading					
Date					
# Hours Indicated					
Intensity Reading					
Date					
# Hours Indicated					
Intensity Reading					

Recommended to change lamp when intensity reaches 70% of original at the source in Low Power Idle or Stand-by. Contact AUV/Lesco for RA# to return warranty bulbs (under 1000hrs) with low intensity.

Contact Signature (for Warranty Return)

Date

RA#

23555 Telo Avenue, Torrance, CA 90505 Ph. (310) 784-2930/(800) 615-3726 Fax (310) 784-2929

AUV/LESCO FIBER OPTIC & LIQUID LIGHTGUIDES WARRANTY POLICY

WARRANTY:

New fiber optic and new liquid light guides manufactured and sold by **AUV/LESCO** are warranted to be free from defects in material and workmanship under normal and proper use for 60 days from date of original shipment. This warranty applies solely to defects in material or workmanship. AUV/LESCO will repair or replace at its option, any defective fiber optic or liquid light guides when returned to AUV/LESCO by the purchaser, all transportation paid by the purchaser, within one year from date of original shipment. Said light guides may not be returned, whether for warranty or other purposes, without a RMA (Return Material Authorization) number.

AUV/LESCO will assume no expense or liability for repairs made outside its plant without written consent by AUV/LESCO, or for any labor costs, which are so incurred.

For liquid light guides manufactured by manufacturers other than AUV/LESCO, AUV/LESCO will extend to the purchaser any warranty it receives from them, and AUV/LESCO will not be responsible for any incurred expenses outside of such warranty.

AUV/LESCO will not be liable for any consequential costs or damages of any kind.

CONDITIONS OF WARRANTY:

For above warranty on AUV/LESCO fiber optic and liquid light guides to be enforceable, the purchaser must:

1. Return any light guides claimed to be defective for inspection and action by AUV/LESCO. All returns must be pre-authorized, correctly packaged and shipped, and accompanied by a RMA (Returned Material Authorization) number.
2. Keep accurate records of elapsed time, time of installation or removal in sufficient detail, to determine the running time and environment of the light guide in question. The purchaser will allow AUV/LESCO to verify such records if necessary.

The following will void AUV/LESCO's warranty:

1. Chemical and/or mechanical damage of any kind, damage caused by excessive heat or radiation, scratching, or damage caused by using the light guides outside of the service intended or their operating parameters,
2. Defects resulting from improper installation, storage or use,
3. Tampering with equipment,
4. Lack of maintenance,
5. Service not in accordance with AUV/LESCO *Technical Reference Manual*,
6. Acts of God, or
7. Other circumstances beyond AUV/LESCO's control.

There are no warranties, expressed or implied, except as stated above or provided in writing by an authorized AUV/LESCO representative.

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Spectrum 100

1.0 General Information

1.1 Scope of Manual

This manual provides information necessary for operating and maintaining the AUV/LESCO Spectrum 100 UV spot curing system. It also includes safety requirements and references to pertinent mechanical and electrical drawings.

Throughout this manual, precautions necessary to prevent injury to personnel are preceded by the heading **WARNING**; precautions necessary to prevent damage to equipment are preceded by the heading **CAUTION**. See examples below.

**** WARNING ****

(Precautions necessary to prevent injury to personnel)

**** CAUTION ****

(Precautions necessary to prevent damage to equipment)

1.2 System Description

The AUV/LESCO Spectrum 100 curing systems are ultraviolet (UV) light sources that provide an intense concentration of UV light for the purpose of curing UV sensitive materials (photo polymerization). Utilizing a light guide delivery method (liquid filled or fiber type), it provides a high intensity high precision cure area.

The shutter is activated by a footswitch. The duration of UV emission is controlled by the unit's microprocessor timer.

The Spectrum 100 is a system designed for clean, high speed and high accuracy production applications for worldwide manufacturing.

The AUV/LESCO Spectrum 100 features:

- UV intensity up to 10 Watts in UVA and up to 15 Watts or more total intensity (Traceable to NIST)
- Membrane keypad with digital readouts
- Stainless steel cover
- Liquid filled 1 Meter flexible light guide with 5mm diameter tip
- Dual, Tri, or Quad liquid filled light guides (Optional)
- Large selection of standard fiber optic light guides, as well as custom designs (Optional)
- Remote footswitch for operation
- Air-cooled lamp and power supply with ventilation protection
- IR filter for reduced heat transmission

2.0 Safety

AUV/LESCO UV spot cure systems have been designed to operate safely. They have been used in a wide variety of industrial environments worldwide without any worker safety problems or health hazards. However, this equipment can present worker safety problems if care is not taken to install and operate correctly.

****WARNING****

It is important that all personnel operating this equipment become familiar with this safety information.

The following information is provided concerning various aspects of worker safety with this equipment. All personnel should read this manual to understand the safety issues and government regulations pertaining to this equipment.

With care in installation and operation, coupled with adequate worker training, no unusual safety problems should arise.

2.1 Ultraviolet Radiation

Ultraviolet radiation (UV), which is emitted during normal operation of AUV/LESCO spot cure systems, can be dangerous to the eyes and skin. All personnel within close proximity of direct UV light should be required to wear goggles with UV certified lenses or remain behind UV blocking light shielding. Personnel should also be prevented from allowing any skin surface from coming within close proximity of the high intensity light output(s).

Additionally, it is never advisable to stare directly at any high intensity light source whether visible or ultraviolet for prolonged periods unless precautions have been taken to reduce both visible and ultraviolet light to safe levels. Discomfort from excessive eye exposure to UV light typically occurs about six hours after exposure. Personnel who experience eye pain after possible exposure to direct UV light should see a doctor immediately. Paper and similar combustible materials can be ignited with a highly focused radiation, whether UV or visible light. Care should be taken to avoid this.

There is no present US government standard on worker exposure to UV light. However, there is a NIOSH (National Institute for Occupational Safety and Health) document, "Criteria for a Recommended Standard - Occupational Exposure to Ultraviolet Radiation" (No. HSM 73-11009), and several useful publications are available from the Bureau of Radiological Health of the Food and Drug Administration.

2.2 Power up

This unit has an auto ranging power supply allowing it to be used in a voltage range of 94VAC to 240VAC, 50 or 60 Hz. Depending on the voltage used the correct fuse should be placed in the power entry module as indicated on the rear panel label. Refer to section 3.2.3 for more information.

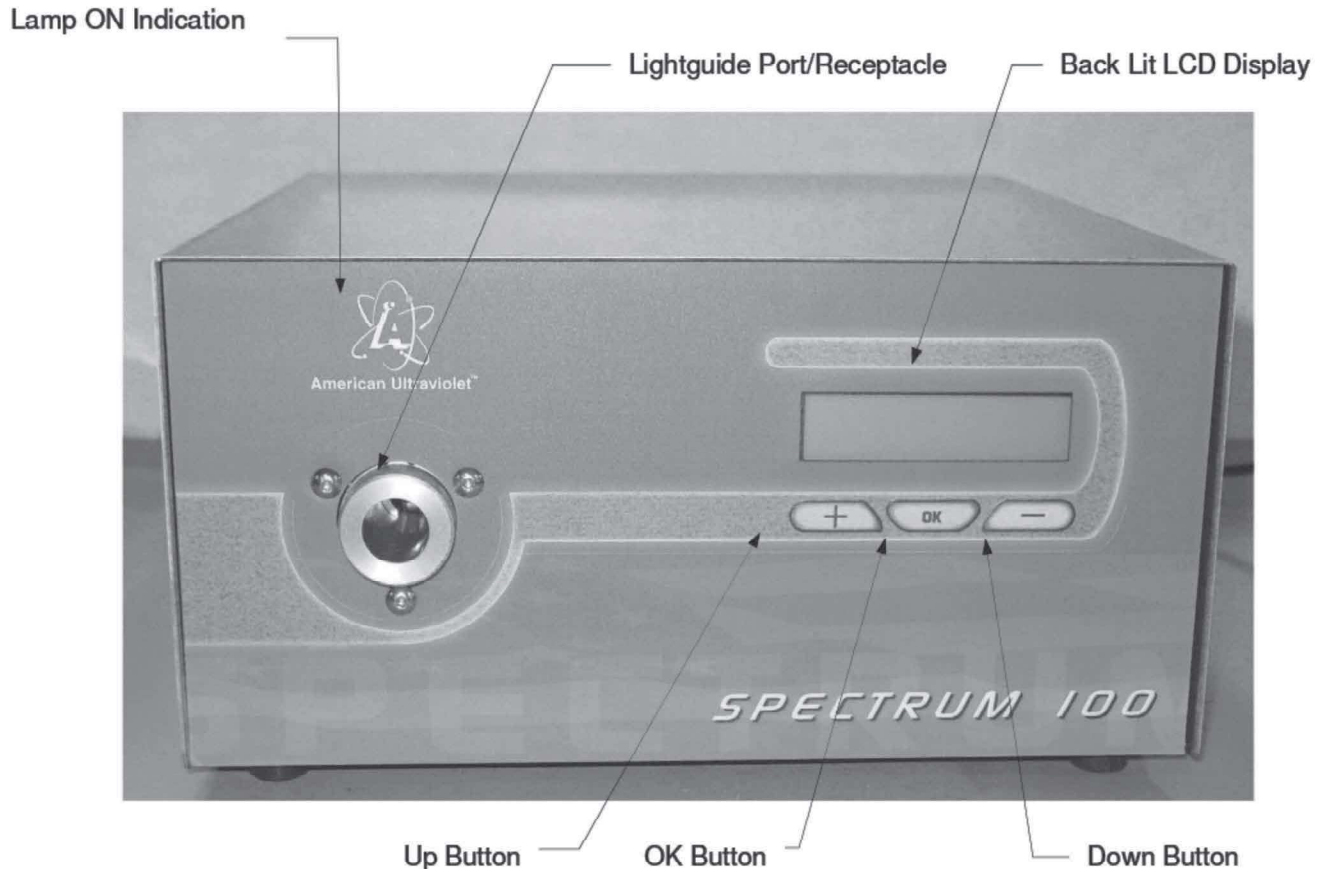
**** CAUTION ****

Before connecting the footswitch, disconnect the VAC power source from the system.

3.0 Component Descriptions

3.1 Front Panel

The front panel is a membrane control pad with an LCD display. The keypad controls all the major operating features of the Spectrum 100.



3.1.1 LCD Display

The digital display is the user interface to the Spectrum 100. It is used to set and view the shutter ON/OFF time, number of cycles, lamp hours, and system hours. During a cure cycle the time and duration will be shown counting down for user viewing.

3.1.2 OK Button

The OK button allows the user to scroll through the levels of set-up parameters. It is also used to accept any changes that are made to the current set of parameters.

3.1.3 UP Button (+)

The Up Button (+) allows the user to either select options on the left hand side of the screen or increase values of set-up parameters.

3.1.4 Down Button (-)

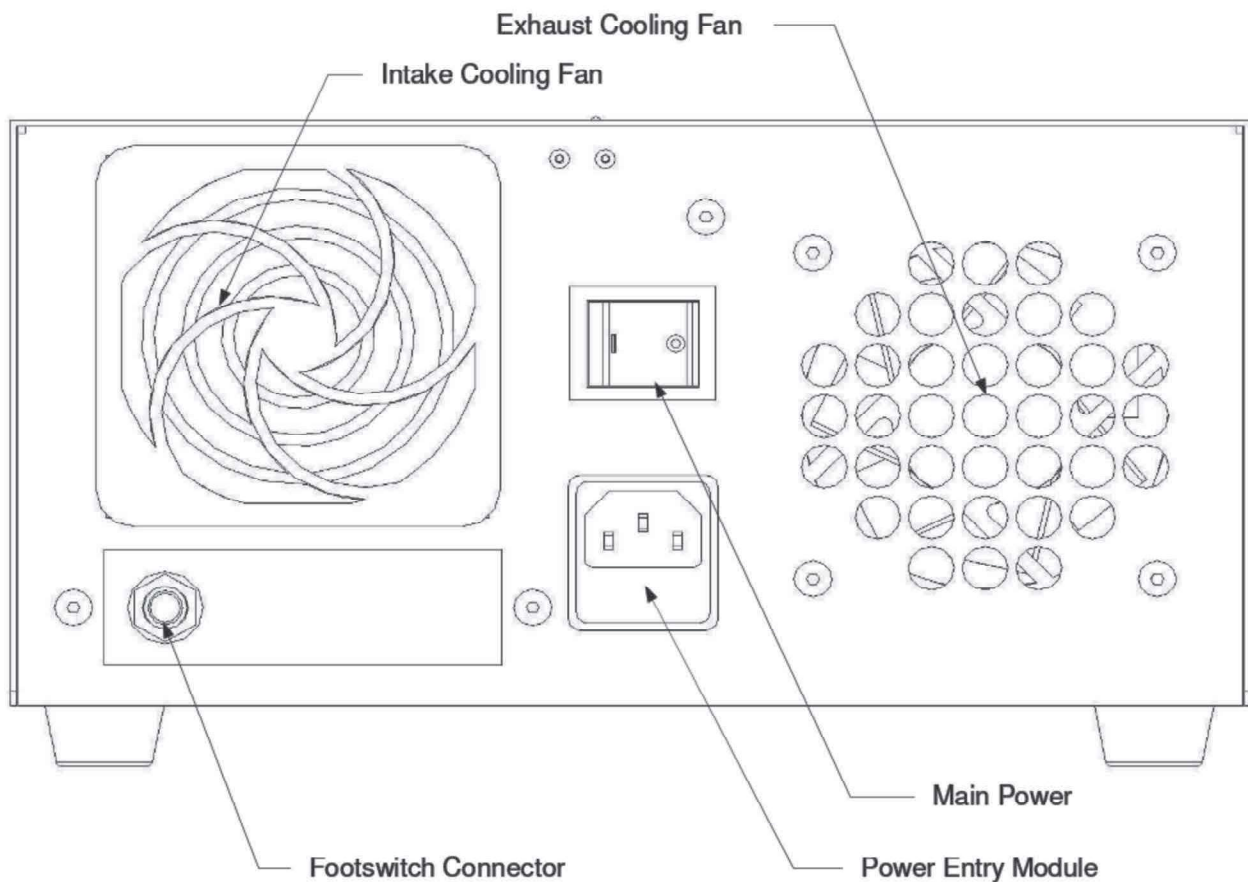
The Down Button (-) allows the user to either select options on the right hand side of the screen or decrease values of set-up parameters.

3.1.5 Lamp ON Indication

The lamp on indicator allows the user to insure that the lamp has ignited and is running during operation. When the lamp is ON the LESCO symbol will be illuminated. This gives the user a quick check to insure that the unit is running properly.

3.2 Back Panel

The Spectrum 100 housing is made of a stainless steel cover and anodized aluminum base, making it ideal for clean room applications. The following parts and connections are located on the rear of the system.



**** CAUTION ****

Before connecting the footswitch, disconnect the VAC power source from the system.

3.2.1 Cooling Fans

The fan system is used to maintain the optimum temperature of the lamp while cooling the optics and electronics. One fan is used for intake and the other fan is used for exhaust. The intake fan has a removable filter that should be cleaned regularly, depending on the environment.

3.2.2 Main Power Switch

This switch turns the unit on and off.

3.2.3 Power Entry Module

This contains the power cord socket (IEC type) and main fuse.

**** WARNING ****

For continued protection against risk of fire, replace only with the same type and rating of fuse.

<u>Input volts</u>	<u>Fuse rating</u>
115-120	4A T, 250VAC, Slow Blow
220-250	2A T, 250VAC, Slow Blow

3.2.4 Footswitch Connector

A standard stereo phone jack connector is used for the foot pedal plug.

**** CAUTION ****

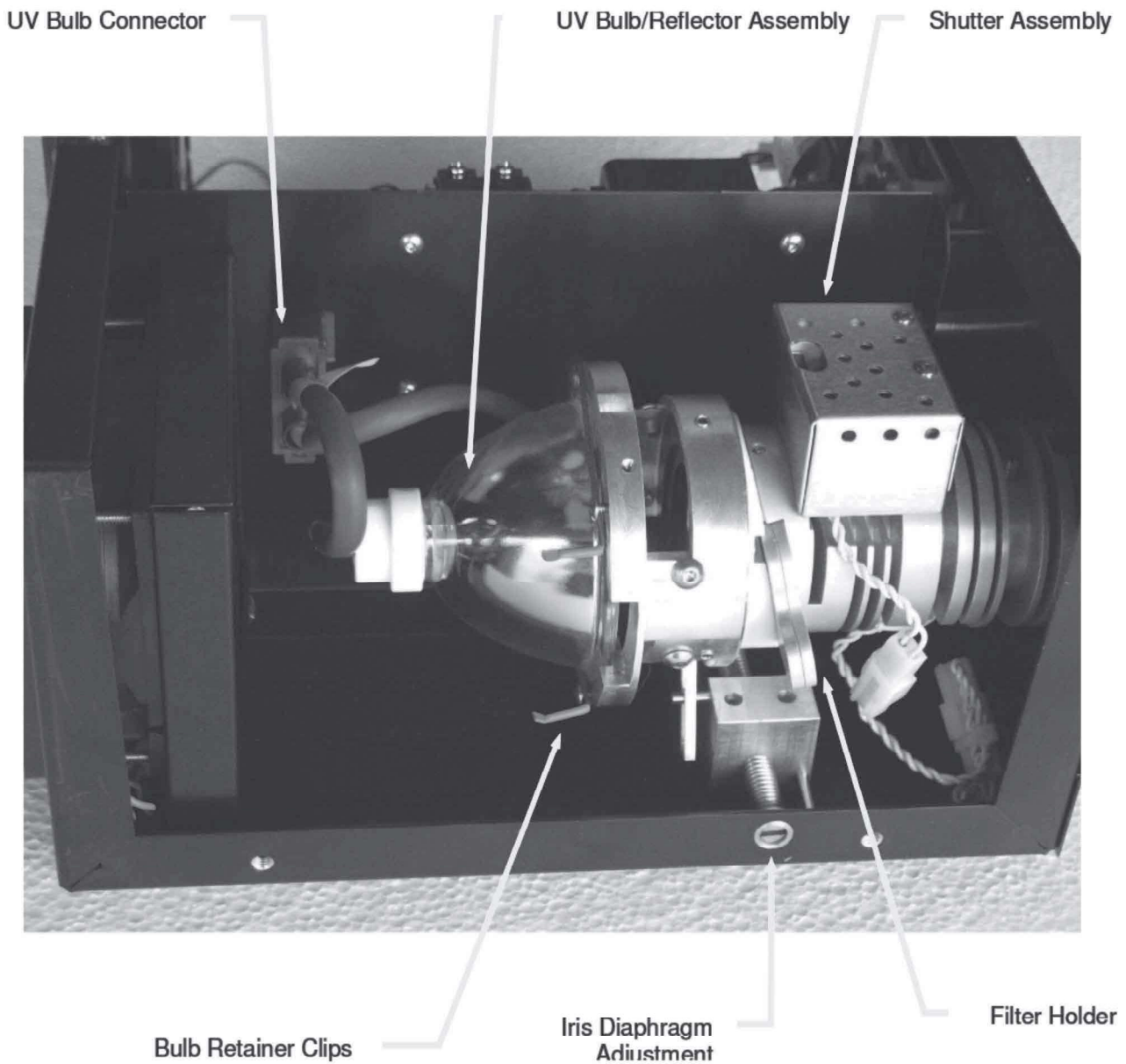
Before connecting the footswitch, disconnect the VAC power source from the system.

3.3 Housing

The Spectrum 100 housing is made of stainless steel and anodized aluminum, making the equipment suitable for clean room operations and allowing for easy cleaning. The housing consists of 2 main sections, the Lamp Housing and the Power Supply Housing.

3.3.1 Lamp Housing

This area contains the optical transmission assembly, bulb, reflector, iris diaphragm and electrical lamp connections. The function and relationship of each component in the lamp housing is described below:



3.3.1.1 Shutter Assembly

The Shutter Assembly is a shutter plate that is connected to a positive open, spring return, rotary solenoid for efficient control and safety. The shutter is also connected to an interlock switch located on the light guide receptacle where the proximal end of the light guide is inserted.

This switch disables the shutter to ensure there is no unintentional exposure, if the light guide is missing or improperly inserted into the Spectrum 100.

3.3.1.2 Bulb/Reflector

The Spectrum 100 uses a proprietary high-pressure short arc mercury vapor bulb designed for long life at a very high intensity. The bulb is mounted integral to the Reflector for optimum performance.

3.3.1.3 Light guide Receptacle

The Light guide Receptacle is a precision mechanical assembly that aligns the bulb, bulb reflector, and light guide for optimal focal point location. It also supports the shutter assembly, light guide safety switch, and infrared filter.

3.3.1.4 Filter Holder

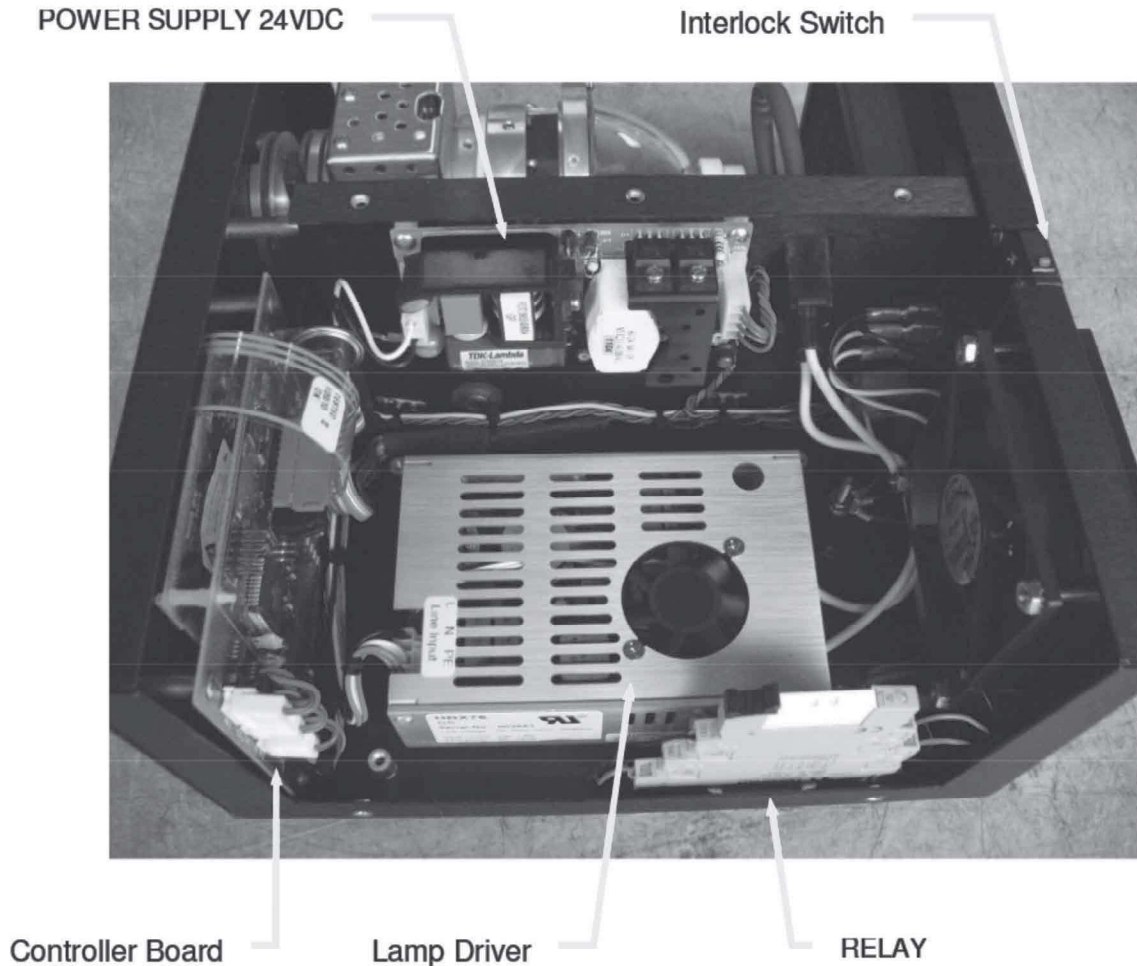
The filter holder is a removable unit that holds the IR filter. AUV/LESCO has a variety of filters that all can fit in this same filter holder. The variety of filters can be seen in Appendix B.

3.3.1.5 Iris Diaphragm assembly

The Iris Diaphragm assembly is a system that allows for accurate control for different aperture diameters and lets the operator achieve different levels of UV Power. The default position of the aperture is totally open (full power) from the factory.

3.3.2 Power Supply Housing

This area, which is encased by a sheet metal cover, contains the power supply 24VDC, the Lamp Driver, a relay, controller board, and the main interlock switch. Only qualified personnel should remove the cover. There are no serviceable parts inside. The function and relationship of each component in the power supply housing is described below:



3.3.2.1 Power Supply 24VDC

The power supply is a high regulation, auto ranging power supply. It provides 24vdc to all components in the Spectrum 100

3.3.2.2 Lamp Driver

The Lamp Driver is a high regulation, auto ranging power supply. It provides power to the lamp. The mounting bracket is also used as a heat sink and to mount the housing cover.

3.3.2.3 Controller Board

The controller board is the user interface to the Spectrum 100. It integrates the power supply and the optics and allows the user to define operation parameters.

3.3.2.4 Relay

The relay is the component that provides the signal for the lamp ON indication.

3.3.2.5 Interlock Switch

The interlock switch cuts all power to the unit if the top cover is removed. If the top is not properly mounted on the base of the unit, the interlock switch will not be activated, and the unit will not power up.

4.0 Installation/Setup

Before unpacking the system, inspect the shipping container for any damage such as broken corners, deformity, holes and tears.

After unpacking the system, examine the equipment for any damage i.e. unusual dents or rattling of components. Check components against the packing list to make sure all components were shipped correctly.

Should one find any major damage immediately inform the shipping company and AUV/LESCO Inc. **Note:** Any delay in reporting damage may invalidate the claim.

Make sure to keep the shipping container in case there is a need to ship the system back to AUV/LESCO.

4.1 System Components

The Spectrum 100 comes with the following separately packaged components:

- A High pressure mercury short arc bulb
- Light guide
- Footswitch
- UV safety glasses
- Spectrum 100 Manual
- Power Cord

The Spectrum 100 must never be placed with the front panel facing downwards. This places the cathode of the lamp in an unfavorable orientation and will cause premature bulb failure.

4.2 Bulb Installation

**** WARNING ****
Disconnect power and unplug unit from VAC source before installing/removing lamp or servicing unit.

The following procedures will allow for proper operation of the Spectrum 100 system.

1. Using a 3/32" Allen wrench, loosen the four button head screws that are on the sides of the top cover.
2. Lift the cover straight up off of the chassis. This will allow access to the bulb reflector assembly.
3. Unplug the lamp from the power supply (see photo #1)



Photo #1

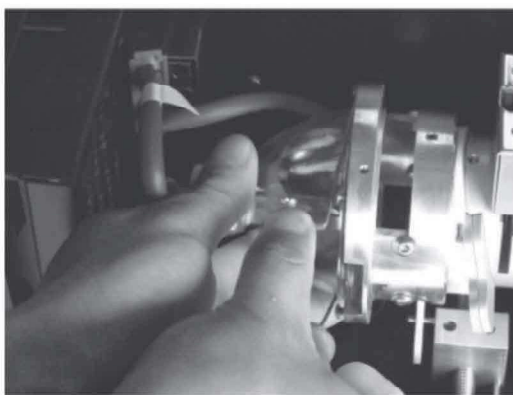


Photo #2

4. Remove the bulb/reflector assembly by lifting the retainer clips off the reflector holder (See photo #2)
5. Lift the bulb/reflector assembly from nosepiece (see photo #3 & #4).



Photo #3

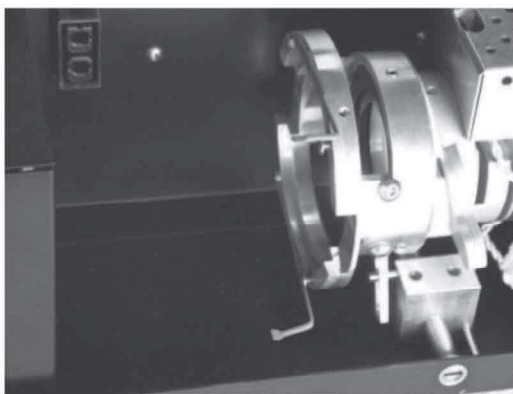


Photo #4

6. Replace the bulb/reflector assembly by remounting retaining clips to the assembly.

**** CAUTION ****
Lamp surface is hot during normal operation. Avoid contact.

7. Plug the lamp into the power supply.
8. Re-attach cover and connect the power cord to the rear of the Spectrum 100
9. Insert the light guide into the receptacle located on the left section of the front control panel of the Spectrum 100.

**** WARNING ****

Do not look into the emitting end of the lightguide. Use proper shielding at all times. Safety glasses are provided with each system. Avoid exposing skin to UV light. Shielded UV enclosures and safety glasses are available for purchase from AUV/LESCO.

5.0 Operation

Turn on the power switch located on the back of the Spectrum 100, above the power cord receptacle; the system takes just over a minute to warm up. If for some reason the bulb does not ignite, turn the power off, wait ten seconds, and turn on again to strike the bulb.

During the warm-up time, the LCD display will show a numerical percentage with an associated progress bar, to indicate the progression of the warm up sequence. During this time all systems operations will be disabled.

Once the system has completed the warm up cycle the text message "SYSTEM READY" will be displayed on the screen.

At this time the operating parameters can be changed, or the existing parameters can be utilized. The footswitch can now be pressed to initiate the operation of the machine.

The system hours and lamp hours can be viewed by pressing the **OK** button. The system hours are a non-reset able timer that tracks the age of the unit. The lamp hour indicator is a reset able timer to aid in tracking the life of the bulb. The resetting of the lamp hours can be done in a later function, see section 5.4. To escape from this screen either press the OK button to cycle through the system settings or wait 7 seconds to return to the main display.

The front control panel allows access to all of the unit's functions. To access these functions and make changes press the **OK** button twice. The user can cycle through all the functions and parameters of the unit by continuing to press the **OK** button.

These functions appear in the following order:

- Shutter ON time setting (section 5.1)
- Shutter OFF time setting (section 5.2)
- Cycle count (section 5.3)
- Lamp hour reset (section 5.4)
- Save parameter changes (section 5.5)

5.1 Shutter ON Time Setting

The first parameter that can be changed is the amount of time that the shutter is open during a cycle. The time can be increased or decreased using the **UP** or **DOWN** buttons. The shutter open time can be set with the following limits:

Time Base	Min Time	Max Time
0.1 sec	.3 sec	24.9 sec
1.0 sec	25 sec	250 sec

The time base automatically changes at 25 seconds. If a user selects a time below the minimum range the unit goes to *MANUAL* mode. In *MANUAL* mode the shutter is directly operated by the footswitch. If the footswitch is pressed the shutter will open, closing as soon as it is no longer pressed. Once this parameter is set press **OK** to continue.

5.2 Shutter OFF Time Setting

The next parameter that can be changed is the amount of time that the shutter is closed during a cycle. The time can be increased or decreased using the **UP** or **DOWN** buttons. The shutter close time can be set with the following limits:

Time Base	Min Time	Max Time
0.1 sec	.1 sec	24.9 sec
1.0 sec	25 sec	250 sec

The time base automatically changes at 25 seconds. Once this parameter is set press **OK** to continue.

5.3 Cycle Count

The next parameter that can be changed is the number of cycles that will run during a single iteration. The number of cycles can be increased or decreased using the **UP** or **DOWN** buttons. The maximum number of cycles that can be run during a single iteration is 255. Once this parameter is set press **OK** to continue.

5.4 Lamp Hour Reset

The lamp hour meter is used to keep track of the time that the given bulb has been in service. Once the bulb has been changed the lamp hour meter should be reset to accurately track the service of the new bulb. Determine if you would like to reset your lamp hour meter and make your selection using the **UP** or **DOWN** button. Once this parameter is set press **OK** to continue. *NO* is set as the default in case the user is cycling through the functions quickly.

5.5 Save Parameter Changes

At this point all the parameters have been changed to the user's preferences. These changes have not been saved to memory, and if they are not, all parameters will revert back to the previous values. At this point the user is prompted to save the changes. Determine if you would like to save the changes to memory and make your selection using the **UP** or **DOWN** button. Once the selection has been made press **OK** to continue.

**** NOTE ****

At any time, while making changes to the parameters, the user pauses for longer than 7sec, the display will return to the "SYSTEM READY" screen. No changes will be saved.

5.6 Power Adjustments

The adjustment has approx. 35 to 40 turns. Make clockwise turns to increase power output (+) and counter clockwise turns to decrease power output (-). The unit is set to full power (completely clockwise position) from factory.



NOTE:

When the power adjustment is in progress DO NOT OVERTURN the adjustment after mechanical resistance is feeling. This indicates the end of the screw travel.

6.0 Maintenance

6.1 Housing

The Spectrum 100 is a simple, rugged unit and does not require complicated routine maintenance. Routine maintenance consists of keeping the unit clean, periodical cleaning of the air filter, and periodical UV output measurements to ensure that the unit performs optimally.

6.1.1 Cleaning

****WARNING****

Make sure the main power switch is turned off and the power cord is unplugged before cleaning the unit.

To clean, unplug the unit and wipe down outer surfaces with a damp, clean cloth. If necessary, use mild detergent, acetone, or alcohol. Let unit air dry before applying power.

****CAUTION****

Use of any other chemical may result in rust or tarnish to the surface, and void the warranty.

6.1.2 Air Filter Cleaning

The Spectrum 100 has two fans located at the rear panel; only one of the fans is equipped with a removable air filter. To remove the air filter, snap off the flexible plastic fan cover. The air filter is easily removable from the fan opening. Wash the filter with warm water and air dry. When dry, place the filter inside the plastic cover and snap shut over fan.

6.1.3 Fuse Replacement

The external fuse is below the power-input receptacle on the rear panel. Remove power cord and open the small drawer underneath the receptacle. Using a small screwdriver remove the fuse and replace, then push the drawer shut. Insure that the replacement fuse has the same rating as the blown fuse.

6.2 Optical Components

The optical components that need maintenance are the reflector, the shutter assembly, the IR filter, and the lightguide.

6.2.1 Shutter Assembly

The shutter is actuated by a high MTBF (mean time before failure) rotary solenoid. Under normal operating conditions, this should not need any maintenance or replacement. However, on high duty cycle applications, it should be replaced to prevent failures or misoperation every 10 million cycles.

6.2.2 IR Filter

The IR filter is a specially coated, high quality quartz plate. The filter is a critical component, since all of the UV light must pass through it before being transmitted by the lightguide.

There are a variety of filters available for different applications. Please refer to Appendix B "IR Filter Descriptions" or call AUV/LESCO for an appropriate choice.

Always check the filter when re-lamping by removing the filter holder. Make sure the coating side of the IR filter faces the lamp/bulb. Inspect it for blemishes and/or cracks. It is recommended to replace the filters every 4-8 bulb changes or when necessary.

6.2.3 Lightguides

AUV/LESCO lightguides are available in either "liquid-filled" (LF) or "fiber optic" (FO) types.

3.3.2.6 Liquid-Filled Lightguides

The standard lightguide shipped with most AUV/LESCO SUPERSPOT cure products is a 1M x 5mm LF model. This device allows flexible delivery of high intensities of energy with approximately 80% transmission efficiency in the UV "A" and visible ranges. LF light guides come standard in 1M and 1.5M lengths, in single, bifurcated (dual outputs), and trifurcated (3 outputs) orientations. The light guide tips are available in 3mm, 5mm, or 8mm diameter models. AUV/LESCO also offers a variety of custom lightguides for special purposes. These include special models optimized for high transmission in the UV "B" and UV "C" range (230 to 390 nm). Custom lengths are also available upon request. Contact AUV/LESCO for price and delivery of special products.

AUV/LESCO's precision-built LF lightguides are high quality optical instruments, but their performance will degrade with exposure to UV energy. Under normal operating conditions, the user can expect from 1 to 2 years of use from a LF lightguide if cared for properly. However, normal degradation will be greatly accelerated with aggressive radiation and/or extreme heat levels. For a given dosage, it is well established that higher intensity for shorter time periods is the preferred method for producing maximum cure strength for the majority of applications. However, care must be taken to minimize very high intensity levels for sustained periods of exposure time.

The special IR reduction filter in AUV/LESCO SUPERSPOT cure systems must not be removed if working with moderate to high levels of intensity and exposure time. If either of these conditions occurs, the LF lightguide may suffer irreparable damage or have its service

life reduced dramatically. Special duty AUV/LESCO FO lightguides are available for extreme intensity/dosage applications (contact factory at 1-800-615-3726).

3.3.2.7 Fiber Optic Lightguides

AUV/LESCO fiber optic (FO) lightguides are used for applications where long lengths, tight clearances, or multiple outputs are required. FO lightguides are available in almost endless configurations for specialized applications. Popular standard products are Bi-, Tri-, and Quad furcated lightguides, but AUV/LESCO FO lightguides can be ordered with 10 or more output ends arranged in circular, line, or random configurations.

All lightguides can be damaged or suffer impaired light transmission if not used properly. Minimize bending a lightguide radically (i.e. – more than 90° over a 6” radius for a LF). Be extremely careful not to scratch, mar or accidentally apply curable material to the guide end tips. One may (and should) clean the quartz end tips with alcohol on a regular basis and check transmission levels at least every 100 operating hours (more often if end tips are not fixtured). Transmission losses can be easily determined by using an AUV/LESCO Quartz Calibration Fixture and radiometer.

Refer to Troubleshooting Section “Low UV Output” for further details.

3.3.2.8 Lightguide Maintenance

Your Fiber Optic Light Guide (FOLG) is designed to provide a long life of dependable and consistent energy transmission. In order to sustain the high levels of throughput and extend its useful life, the FOLG must be properly maintained.

Following are some general maintenance guidelines for your reference. If you need any additional help or have further questions, please contact AUV/LESCO.

1. Inspect the FOLG regularly. A visual inspection of the light emitting ends will detect most problems associated with build up of residues or signs of deterioration. To inspect it, use a bright incandescent lamp. It is better to cover the opposite end to prevent back illumination. The surface should look black and very shiny. If it looks dull, there is residue on it and it should be cleaned.
2. Never use a sharp object to clean the fiber surfaces. Use only high quality solvents. We recommend using reagent free acetone. Do not use regular acetone as it may leave a residue.
3. Use a clean Q-tip or Clean-wipe to scrub the surface when applying the solvent. Make sure no material “bleeds” from the surface, as this is an indication that there has been mechanical damage.
4. Be careful not to expose the mono-coil jacket (black flexible tubing) surface to the acetone. Do not use any solvents that can dilute epoxy adhesives. Use alcohol to clean any deposits on the mono-coil surface.
5. If the fiber surfaces cannot be cleaned or continue to release material, please return the FOLG to AUV/LESCO for repair. It may be necessary to re-polish the surfaces or rebuild the ends.

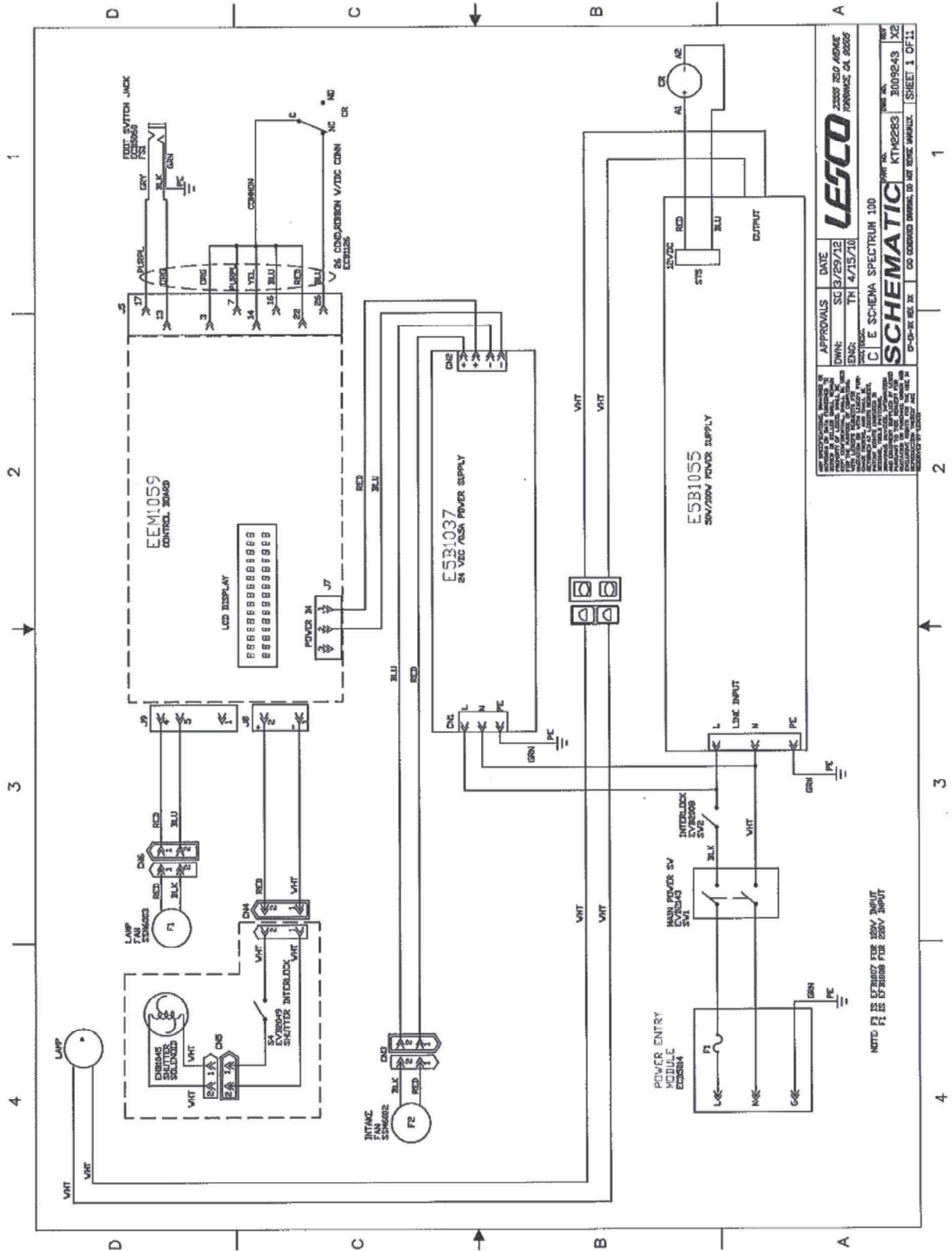
6. Always inspect the IR filter in the Super Spot unit, since it is essential for the protection of the proximal (entrance) end of the FOLG. Using the FOLG with a damaged, broken, or removed filter will cause serious damage to the fiber.

Following these general guidelines and proper preventive maintenance will give you the expected long life of your FOLG. Please make sure you keep it clean and working properly to benefit from its unmatched performance.

7.0 Drawings/Schematics

The following section is a set of drawings and schematics complete with specifications for the Spectrum 100 system and accessories.

7.1 Spectrum 100 Main Schematic



LESCO	
APPROVALS	DATE
DWNE: SC 8/25/72	TRN 4/15/70
ENR: TRN 4/15/70	
C E SCHEMA SPECTRUM 100	
SCHEMATIC	
PROJECT NO. 3009243 X2	DATE 10/15/70
DESIGNED BY KTH2283	CHECKED BY
COPYRIGHT © 1970 LESCO MANUFACTURING CO. ALL RIGHTS RESERVED.	
THIS SCHEMATIC IS THE PROPERTY OF LESCO MANUFACTURING CO. IT IS TO BE USED ONLY FOR THE PROJECT AND DATE SPECIFIED HEREON. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM LESCO MANUFACTURING CO.	
SHEET 1 OF 11	

NOTE: F1 IS EXEMPT FOR 150V INPUT
F1 IS EXEMPT FOR 200V INPUT

8.0 Accessories

8.1 Standard Replacement Parts

To order replacement parts please call the AUV/LESCO spare parts dept. in Torrance, CA. TOLL FREE (800) 615-3726 or (310) 784-2930.

Shutter	NZB1010
4 Amp, 250V AC input fuse	EFB1007
2 Amp, 250V AC input fuse	EFB1008
Foot Pedal	EVB2115
IR Filter	OFB1013
Replacement Bulb/Reflector Assembly	LPB1014
Replacement Fans	EPB1006
Replacement Fan Filters (pack of 5)	KFB1003
Solenoid	EHB1045
UV Safety Glasses	VXB1001
AUV/LESCO Spotcure Intensity Meter	AIB1001
AUV/LESCO Calibration Fixture	VSM9001
Power Supply	E5B1055
Controller	EEM1059

8.2 Optional Liquid-filled Lightguides

5mm x 1M	OLB1003
5mm x 1.5M	OLB1004
5mm x 3M	OLB1009
Dual 2 x 3mm x 1M	OLB1001
Dual 2 x 3mm x 1.5M	OLB1002
Trifurcated 3 x 3mm x 1.5M	OLB1012
8mm x 1M	OLB1008
8mm x 1.5M	OLB1010

Fiber Optic Lightguides

UV transmitting lightguides fabricated to specific applications are available upon request. Please call AUV/LESCO for pricing information.

9.0 Troubleshooting

***** WARNING *****

Disconnect power and unplug from VAC source before troubleshooting.

***** CAUTION *****

*PARTS MAY BE HOT. If unit was running allow time for cool down.
Exercise care when touching internal optical parts.*

***** WARNING: HIGH VOLTAGE *****

*High voltage may be present in bulb terminal connections.
Allow 2 minutes to bleed down capacitor voltage.*

***** CAUTION *****

Before connecting the footswitch, disconnect the VAC power source from the system.

<u>Fault</u>	<u>Action</u>
Unit Does Not Turn On	Check power availability at the selected power outlet. Check that power cord is properly connected. Check the fuse. Check that the top cover is installed properly and is pressing down on the safety interlock switch (top of rear panel).
Unit Blows Fuses	Check fuse for proper rating. Perform visual examination of wiring harness. Any obvious electrical shorts (disconnected terminals, etc) touching the chassis will cause the fuse to blow. Insulate, repair and retest power supply. Replace power supply if necessary.
Bulb Fails to Ignite	Verify the proper installation of the bulb/reflector assembly. Check lamp connections and ensure the lamp connector is properly plugged in. If still no lamp ignition, replace the bulb/reflector assembly.

Shutter does not open

Verify footswitch is plugged in and is in proper operation.
Turn power OFF.

Verify shutter is mechanically free & operable by lifting shutter from rest & allowing it to return. If broken, stuck or pinching at friction point, adjust fasteners to relieve friction or replace.

Verify that the lightguide is properly seated into the lightguide socket and that the ball plunger is in the detent groove. The Spectrum 100 unit safety system disallows shutter operation if no lightguide is sensed by interlock switch within entrance fitting.

Set the unit to "Manual" mode. Turn the power ON. With a DC voltmeter, verify 24 VDC are present on the harness side of the solenoid connector and the footswitch is depressed. If no power is present, replace the harness. If power is present, replace the solenoid.

Fans Do Not Work

Check for obstructions to the fan blades.

Disconnect the AC power. Remove the top cover and bulb. Disconnect the fan connector, plug system power in, turn the unit on, press top cover interlock switch and check for 24 VDC in the harness side of the connector. If 24 VDC is present, then change the fan. If no voltage is present, replace the power supply.

Low UV Output

Verify that the Iris diaphragm is open

Confirm all elements of optical train (bulb, reflector, shutter, and IR filter) are intact and functioning correctly by taking radiometer reading with calibrated radiometer and AUV/LESCO Quartz Test Fixture.

Verify that the lightguide is properly seated completely into the lightguide socket (and that the ball plunger is in the detent groove if applicable).

Verify that both ends of the lightguide are clean. Clean quartz surfaces with reagent free grade acetone using cotton swab or equivalent means. If contamination cannot be removed, please send the lightguide back to AUV/LESCO for re-polishing.

****WARNING****

Bulbs are extremely hot when first shut off and can cause severe burns!

Disconnect and remove the bulb/reflector assembly; inspect the bulb visually. (**NOTE:** Do not touch quartz surfaces, particularly if hot. Fingerprints/body oils will shorten lamp life.) If the bulb is discolored or cloudy, or has excessive hours, replace the bulb/reflector assembly.

Check the IR filter for scratches, cracks, fingerprints, or other visual problems. Replace if noted.

Check reflector surface quality. Confirm highly reflective (shiny) surface and correct seating within cradle assembly. Check reflector for any discoloration Replace Bulb/reflector assembly if found.

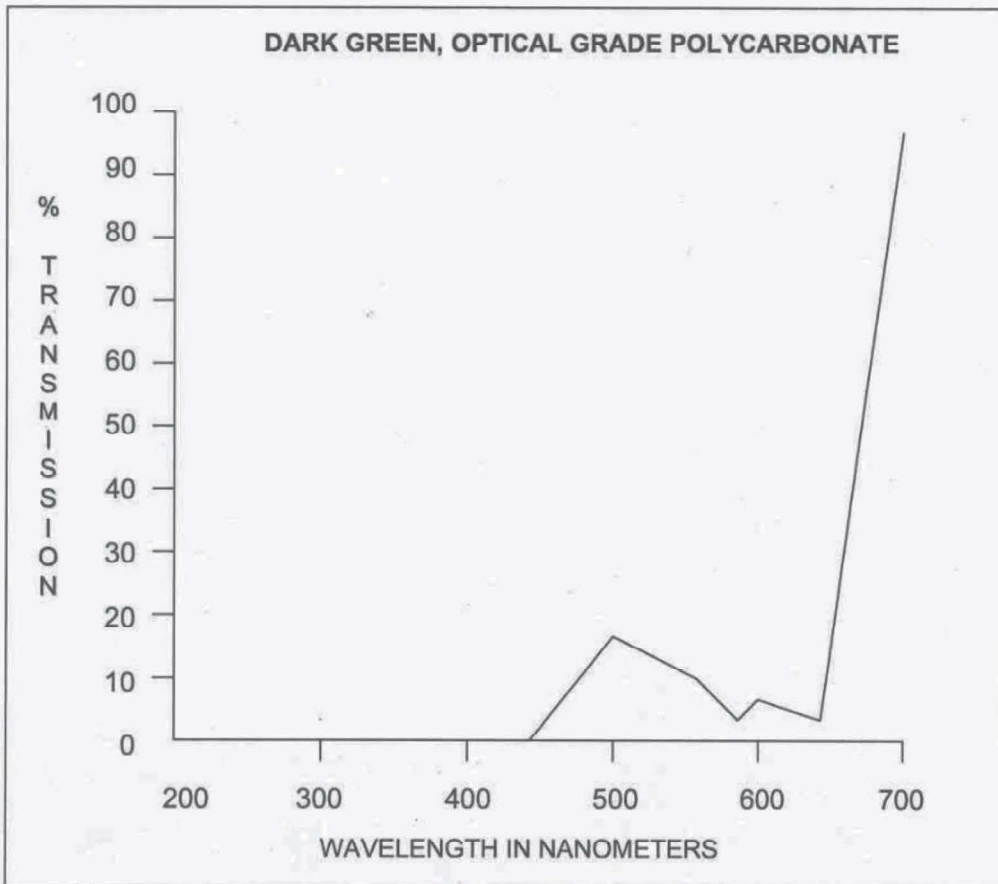
If intensity is still low after all above checks have been done and unit has been dropped or jarred prior to low intensity readings, optical alignment problems may exist. Contact factory.

Appendix A – UV Protective Eye Glasses

UV PROTECTIVE EYE GLASSES

Eye protection glasses cannot completely eliminate the possibility of eye damage under all circumstances, but UV protective eyeglasses are designed to provide quality aids to eye protection against most commonly encountered hazards. These lenses are made of hi-impact polycarbonate with a scratch resistant coating and are impact resistant.

These tinted lenses meet ANSI Z87.1-1989 standards and absorb 100% of solar ultraviolet radiation as defined by ANSI Z87.1-1989. They have been accepted by OSHA as being in compliance with 29 CFR 1910 if used and maintained properly. Inspect glasses frequently and clean with a mild soap solution. Do not clean them with solvents. Scratched, pitted or damage lenses reduce visibility and protective ability. Replace immediately when damage is evident.

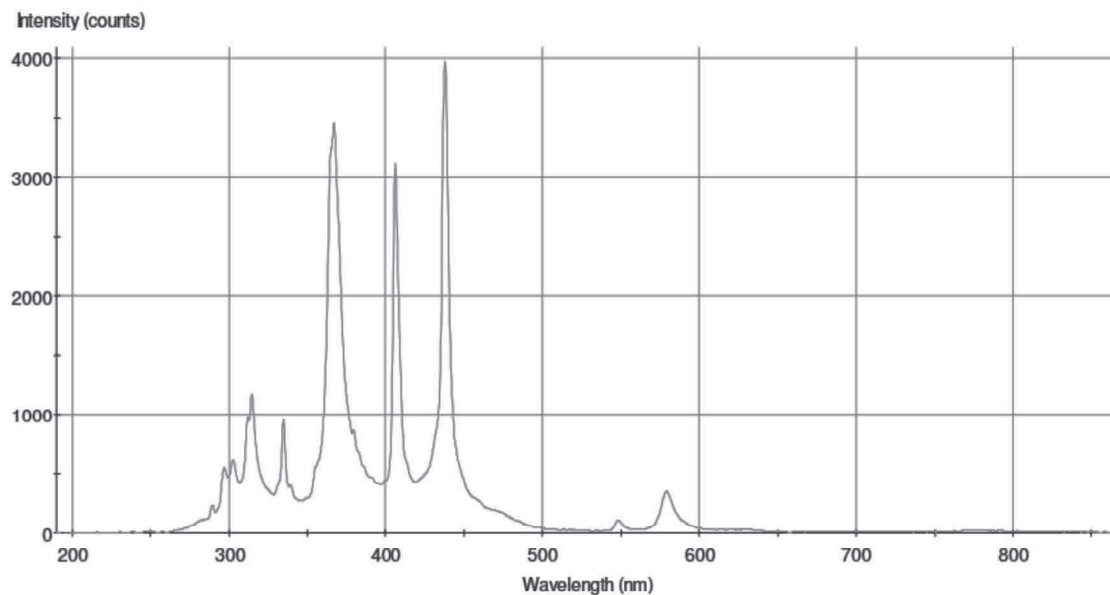


UV RADIATION			VISIBLE LIGHT				INFRARED RADIATION	
200	300	380	500	600	700	780		

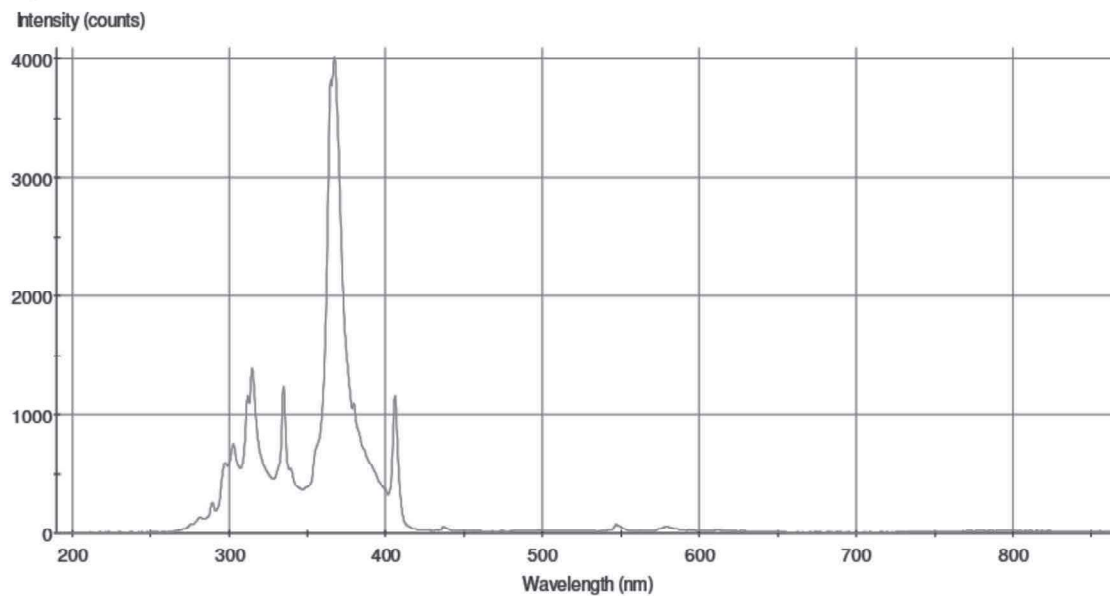
Appendix B – IR Filter Description

Presented here are the different spectral output graphs of our various filters on the UV SpotCure series.

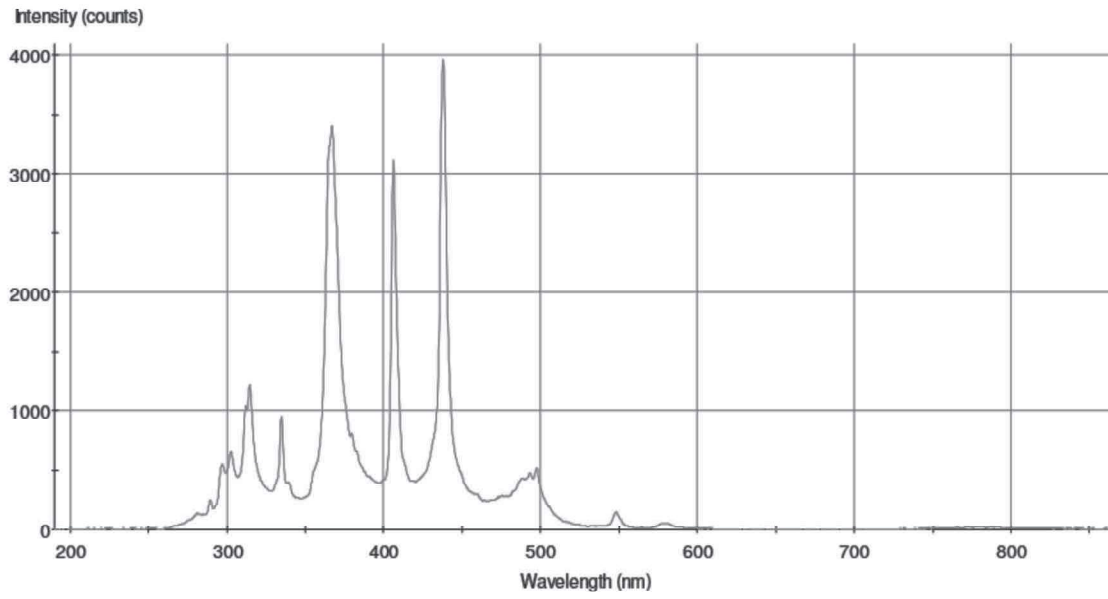
Filter OFB1004 280nm-480nm



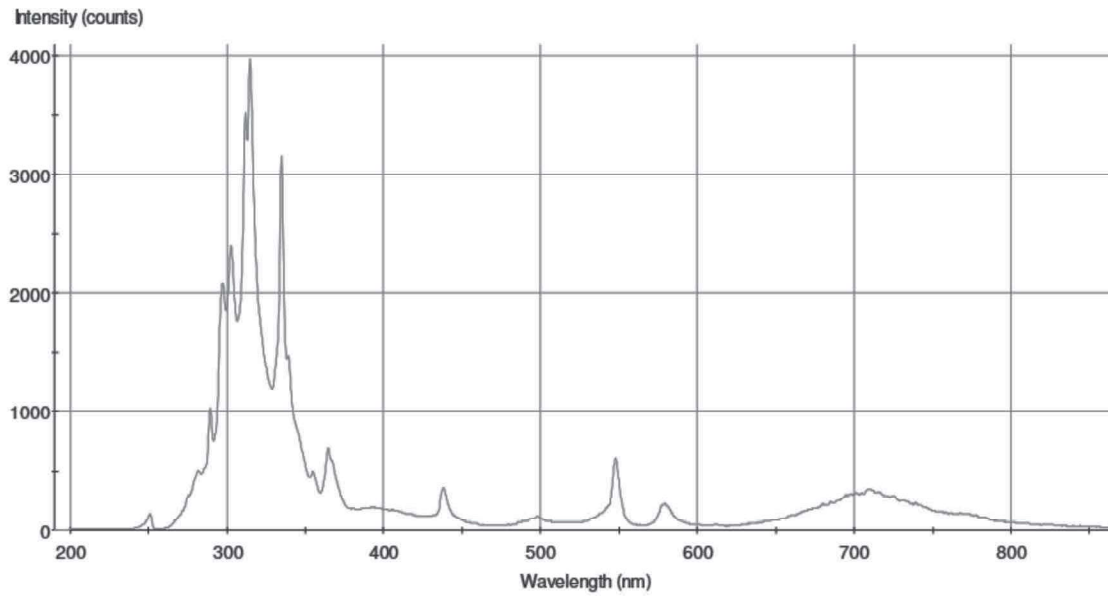
Filter OFB1008 280nm-400nm



Filter OFB1013 275nm-500nm



Filter OFB1014 280nm-320nm



Filter OFB1021 320nm-420nm

