eLITE Xenon

Multispectral Light Source

Installation and User Instructions

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General information about **Analytik Jena AG**
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This publication describes the state of this product at the time of publishing. It need not necessarily agree with future versions of the product.
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Contents

1 Basic information

1.1 User manual notes

The eLITE is intended for operation by qualified specialist personnel observing this user manual.

The user manual informs about the design and function of the eLITE and provides the necessary know-how for the safe handling of the device and its components to personnel familiar with analysis. The user manual further includes notes on the maintenance and service of the equipment.

User manual conventions

Instructions for action which occur in chronological order are numbered and combined into action units and furnished with the corresponding results.

Lists which are not in chronological order are shown as itemized lists, sub-listings as bullet points.

Safety notes are indicated by pictographs and signal words. The type and source of the danger are stated together with notes on preventing the danger. The meaning of the pictographs and signal words used is explained in the chapter "Safety instructions".

1.2 Intended use

The eLITE Xe MultiSpectral Light Source is a 150 watt xenon light source designed for use with select UVP Advanced Imaging Systems. The unit features a closed optical path to tightly control the output spectrum, allowing consistent and repeatable measurements with superior signal to noise. The eLITE Xe features a six position dimmer permitting variable intensity, and the integrated filter wheel accommodates up to eight excitation filters. System control is via either the VisionWorks®LS software interface or switches located on the front of the unit.

The unit's fiber optic bundle, designed uniquely for the eLITE, directs lighting to the darkroom. Refer to the components list included with the eLITE and imaging system to determine the appropriate assembly instructions.

1.3 Warranty and liability

The warranty duration and liability comply with the legal requirements and the provisions in the general terms and conditions of Analytik Jena AG. Filters are warranted for 90 days.

Deviations from the intended use described in this user manual result in limitations of warranty and liability during a damage event. Damage to wearing parts is not included in the warranty.

Warranty and liability claims are excluded for personal injury and property damage due to one or several of the following causes:

use of the eLITE other than intended

improper commissioning, operation and service of the device

modifications of the equipment without prior consultation with Analytik Jena AG

unauthorized intervention in the equipment

operation of the device with faulty safety equipment or improperly fitted safety and protection equipment

inadequate monitoring of the equipment components subject to wear

use of other than original spare parts, wearing parts or consumables

improper repairs

faults due to the non-observance of this user manual

2 Technical data

2.1 Specifications

Bulb Type:	150 Watt Xenon
Ferrule Dimension:	0.718 inch (18.2 mm)

Physical Dimensions:

Height	12.5 Inches
Width	13.5 Inches
Depth	10 Inches
Weight	13.75 pounds (4 kg)

Power Requirements:

115V	1.8 Amps max, 50/60 Hz
230V	0.9 Amps max. 50/60 Hz
100V	2.1 Amps max, 50/60 Hz

2.2 Output Spectrum

The graph below displays the spectral emission curve for the xenon arc light source within the eLITE, without filtering:
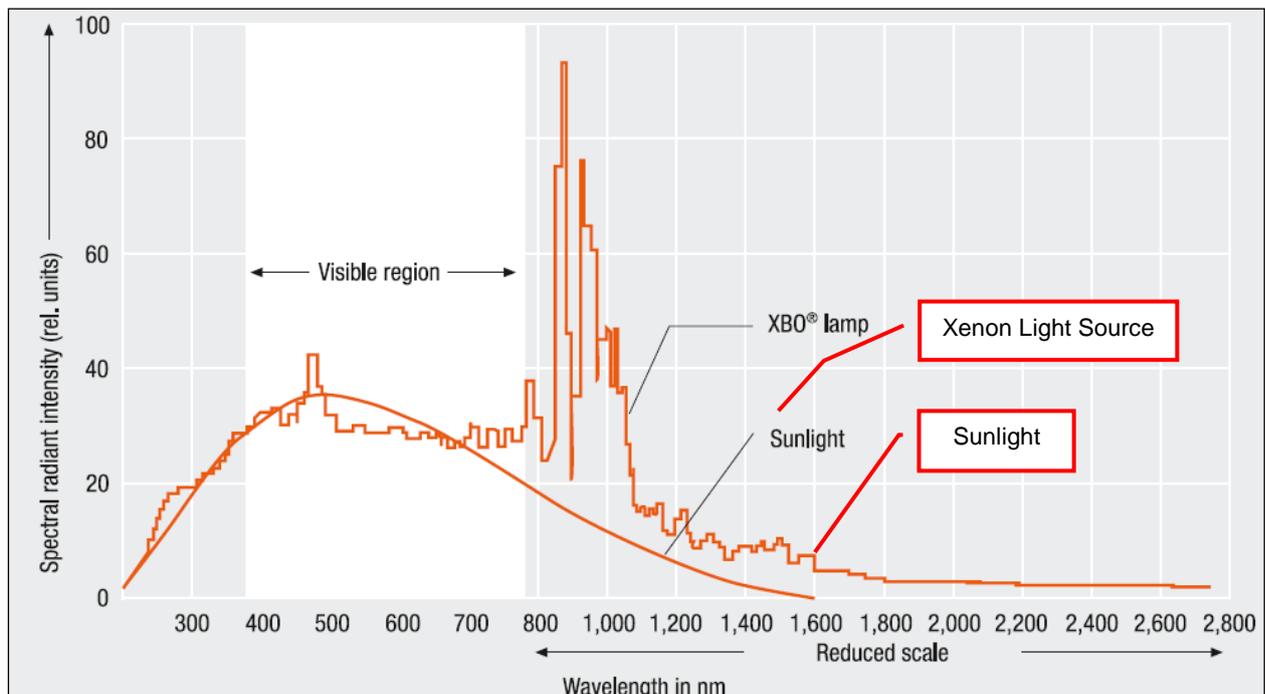
3 Safety instructions

3.1 General notes

For your own safety and to ensure error-free and safe operation of the System, please read this chapter carefully before commissioning.

Observe all safety notes listed in this user manual.

Besides the safety instructions in this user manual and the local safety regulations that apply to the operation of the device the general applicable regulations regarding accident prevention, occupational health and safety and environmental protection have to be observed and complied with.

References to potential dangers do not replace the work protection regulations which must be observed.

3.2 Symbols and signal words used

The user manual uses the following symbols and signal words to indicate hazards or instructions. The safety instructions are always placed before an action.

CAUTION

Indicates a potentially hazardous situation.

If it is not prevented light or minor injuries and material damage can result.

IMPORTANT

Indicates application hints and other especially useful information without any resulting hazardous or damaging situations.

3.3 Safety warnings

The device will overheat if the fan outlet on the back of the eLITE is blocked.

The xenon bulb becomes very hot with use. Do not open the bottom access panel while the eLITE is running or without allowing it to cool down.

3.4 Caution instructions

Never touch the inner portion of the xenon bulb. If it accidentally comes in contact with skin, carefully clean the glass with rubbing alcohol and a clean, lint free cloth.

Never look into the output port or fiber optic bundle of the eLITE when it is on, as the intense light may hurt your eyes.

3.5 Technical condition

The instrument corresponds in its design and construction to the current state of the art technology. Unauthorized modifications or changes, especially such that affect the safety of the staff and the environment, are generally not allowed.

Observe the following notes:

The operator must only operate the device in a sound and operationally safe condition. The technical condition must always comply with the legal requirements and regulations.

Prior to every use the device must be checked for damage and sound condition.

Any changes in the device affecting its safety must be reported by the operating personnel to the operator without delay.

3.6 Requirements for the operating personnel

Observe the following notes:

The device must only be commissioned, operated and serviced by trained personnel instructed in technical safety.

The operation or servicing of the device by minors or individuals under the influence of alcohol, drugs or medication is not permitted.

It must be ensured that only authorized personnel works at the device.

The operating personnel must be familiar with the dangers arising from samples to be used. The appropriate protective equipment must be used.

3.7 Safety instructions – transport and assembly

Clean and decontaminate the instrument.

Allow for a sufficient cool-down of the light tube before transport.

Protect the instrument against moisture.

3.8 Safety instructions – operation

The instrument is designed with function, reliability, and safety in mind.

For your own safety observe the following notes:

The device must only be operated if all protective equipment is present, properly installed and fully operational.

The sound condition of the protection and safety equipment must be checked regularly. Any defects must be corrected as soon as they occur.

The instrument must only be connected to a power supply with the indicated voltage (100 V, 110 V or 230 V).

Free access to the power plug on the back of the unit must be ensured.

Covered vents may cause the device to break down or may cause damage to it.

3.9 Handling of auxiliary and operating materials

The operator is responsible for the selection of substances used in the process as well as for their safe handling. This is particularly important for radioactive, infectious, poisonous, corrosive, combustible, explosive and otherwise dangerous substances.

Observe the following notes:

Hazardous substances have to be handled according to the biosafety level of the laboratory. The relevant regulations and the notes in the EC safety data sheets of the manufacturers have to be observed as well as the national and international guidelines (WHO, "Laboratory Biosafety Manual").

Obey all security instructions for decontaminating the instruments.

3.10 Safety instructions – maintenance

Observe the following notes:

Disconnect the power supply before servicing the instrument System.

Allow for a sufficient cool-down of the light tube before maintaining them.

To clean the unit:

Use only mild soap and a damp soft cloth or damp sponge to clean the unit surface.

Never use organic based compounds, Alcohol, or Ammonia containing cleaners.

Do not use abrasive pads or cleaners..

3.11 Behavior during emergencies

In case of emergency disconnect immediately the plug of the instrument from the outlet!

Because a rapid response can save lives during an emergency, the following has to be ensured:

The operating staff must be familiar with the location of safety equipment, accident and danger alarms, first aid and rescue equipment as well as their handling.
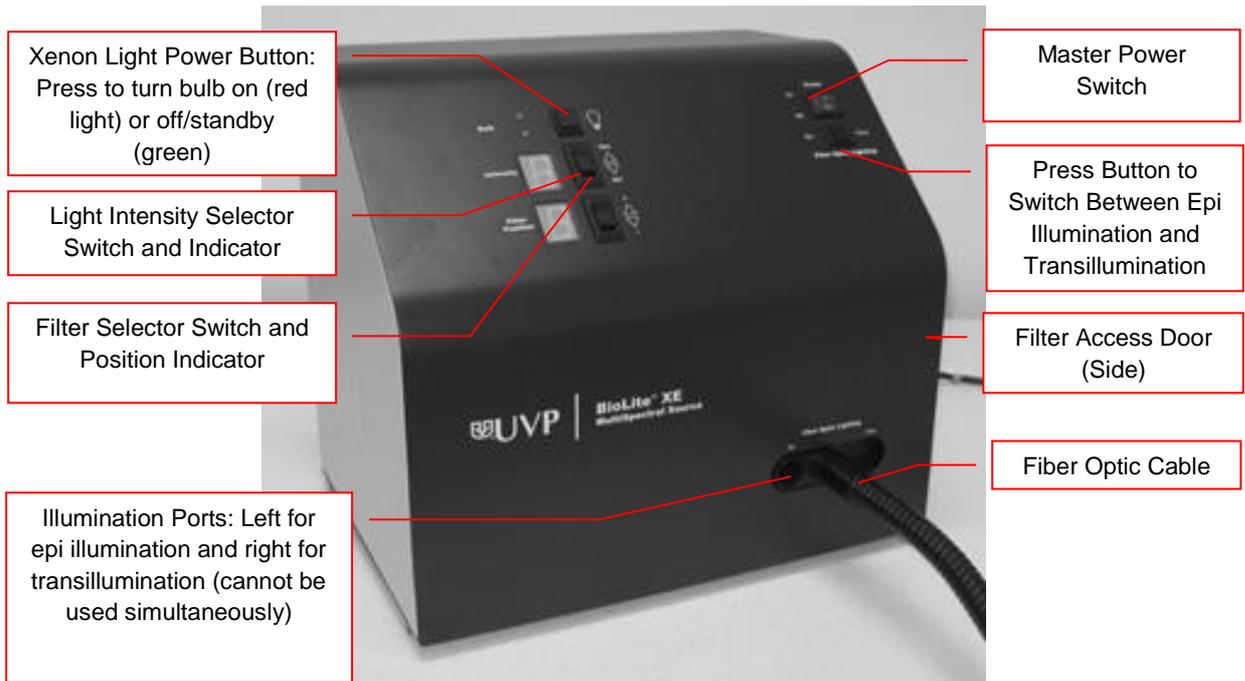
The operator is responsible for the respective training of the operating staff.

All equipment for first aid (first-aid kit, eyewash bottles, stretcher, etc.) as well as equipment for firefighting (fire extinguishers) must be within reach and easy to access. All equipment has to be in a sound condition and should be checked at regular intervals.

4 System design

4.1 Components

Refer to the packing slip and schematic shown below for specific parts and components included with the eLITE MultiSpectral Light Source.

Xenon Light Power Button: Press to turn bulb on (red light) or off/standby (green)	Master Power Switch
Light Intensity Selector Switch and Indicator	Press Button to Switch Between Epi Illumination and Transillumination
Filter Selector Switch and Position Indicator	Filter Access Door (Side)
Illumination Ports: Left for epi illumination and right for transillumination (cannot be used simultaneously)	Fiber Optic Cable

5 Set-Up

5.1 eLITE setup

1. Plug the power cord into the receptacle on the back of the unit and the other end to a power outlet. Connect the USB cable to the eLITE and the other end to an available port on the computer.


USB Cable

Power Cord
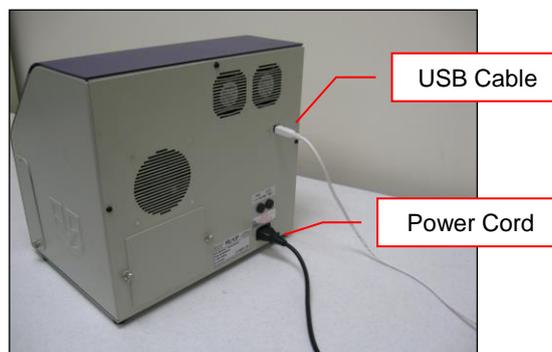
2.   Position the eLITE to the left of the darkroom.

5.2   Excitation Filter Installation

Filters are installed in a metal black casing from the UVP factory. To install the filters into the eLITE filter wheel:

1. Hold the filter assembly so that it is positioned vertically with the filter holder's ridge facing toward the front of the eLITE as shown below.
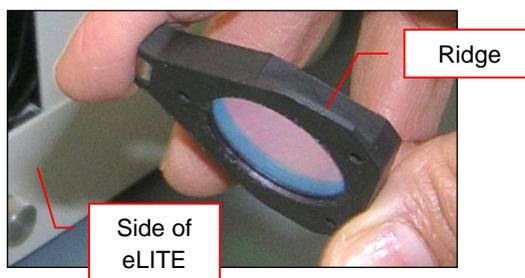

2. Slide the filter into the filter wheel as shown below. The small metal tab on the filter holder will magnetically hold the filter in place within the eLITE. **Note:** Do not force the filter into the eLITE wheel slot. If the filter is not fitting smoothly, ensure that the orientation of the filter assembly is correct.


3. To access the other filter positions, manually rotate the filter wheel with the eLITE powered off.

5.3   Epi Light Guide Installation (ChemStudio PLUS)

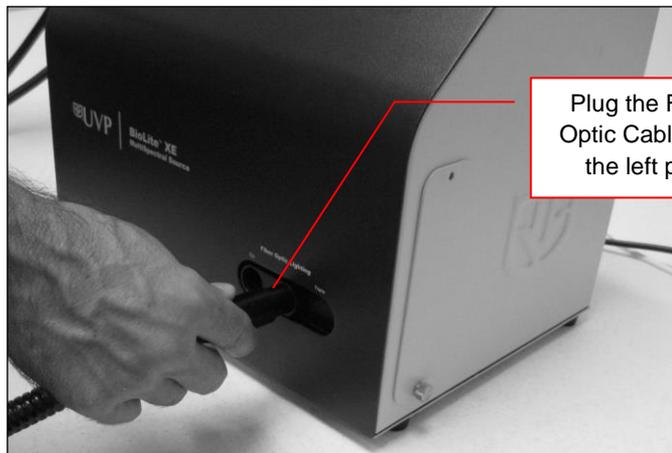Remove the epi light covers at the top of the darkroom.
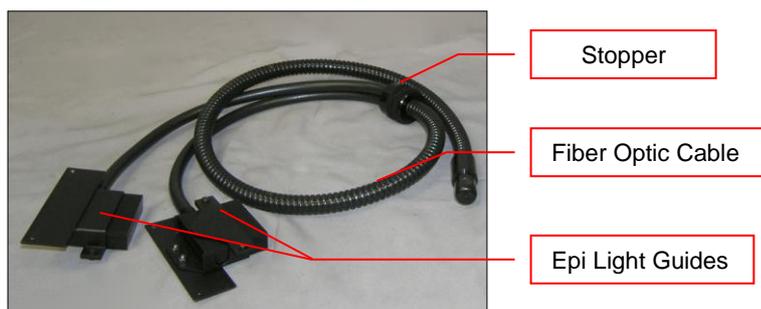
1. Remove one stopper at the left side of the darkroom.

2. Thread the knurled (non-smooth side) of the fiber optic cable from the inside of the dark-room through the hole created by removing the stopper until the large bulb separating the smooth and rough side of the fiber optic cable can no longer be pushed through the opening.

3. The light guides should be on the inside of the darkroom. Make sure the fiber optic ca-bles extend from the light guide toward the front of the darkroom (toward you). Match the drilled holes in the light guide holders to the protruding screws on the epi light struc-ture. Use the brass thumb nuts to secure the light guides to the darkroom.
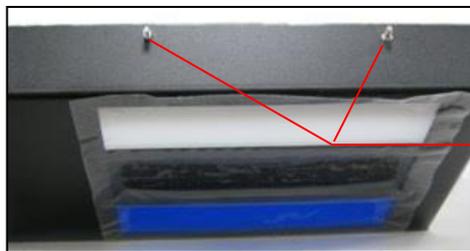
Attach light guides to these screws at top of darkroom using the brass thumb nuts

4. Remove the rubber cap from the input side of the fiber optic trunk and plug the cable into the left port on the eLITE unit.



Plug the Fiber Optic Cable into the left port

5.4 Epi Light Guide Installation (GelStudio SA^2 and ChemStudio SA^2)

Remove one stopper at the left side of the darkroom.

1. Remove any existing plates or screws from the mounting bracket so that the epi light guide bracket appears as follows:
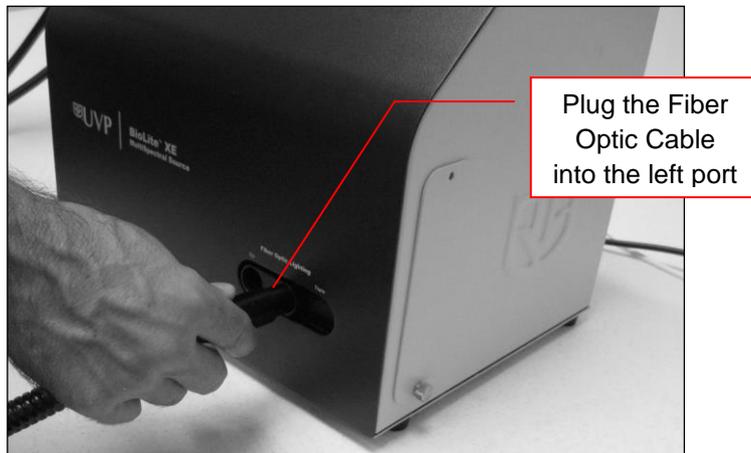

2. Thread the knurled (non-smooth side) of the fiber optic cable from the inside of the darkroom through the hole created by removing the stopper until the large bulb separating the smooth and rough side of the fiber optic cable can no longer be pushed through the opening.

3. Position the light guide in the mounting bracket as shown below. Make sure the cable protruding from the light guide faces toward the front of the darkroom (toward the darkroom door) and that the light emitting portion of the light guide is facing toward the platform tray.

Cable faces the front of the darkroom

Light guide fits snugly in mounting bracket

Light emitting portion of the light guide is facing platform tray
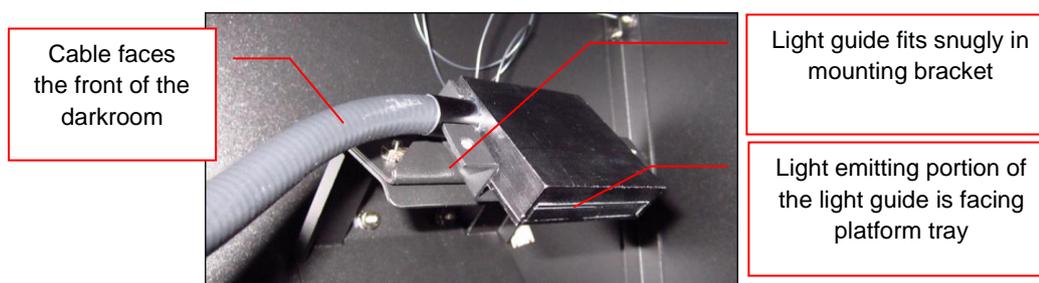
4. Attach the mounting bracket plate to the mounting bracket using two of the screws provided, as shown below. Make sure the tab on the plate faces up.
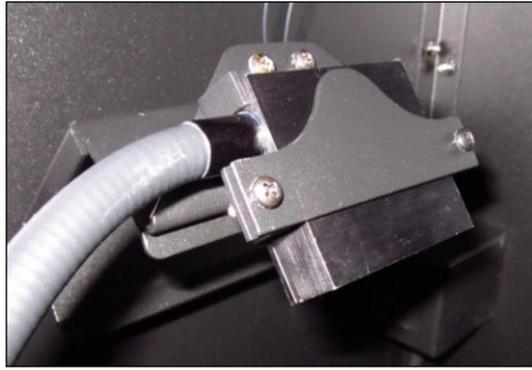
5. Repeat the process for the other light guide within the darkroom.

6. Remove the rubber cap from the input side of the fiber optic trunk and plug the cable into the left port on the eLITE unit.

Plug the Fiber Optic Cable into the left port

## 5.5   Fiber Optic Light Table (Transilluminator) Installation

Remove one stopper at the left side of the darkroom.

1. If the imaging system already contains a transilluminator, unplug and remove the transilluminator.

2. Insert the fiber optic light table transilluminator in the imaging system.

3. Thread the knurled (non-smooth side) of the fiber optic cable from the inside of the darkroom through the hole created by removing the stopper until the large bulb separating the smooth and rough side of the fiber optic cable can no longer be pushed through the opening.

4. Remove the rubber cap from the input side of the fiber optic trunk and plug the cable into the left port on the eLITE unit.
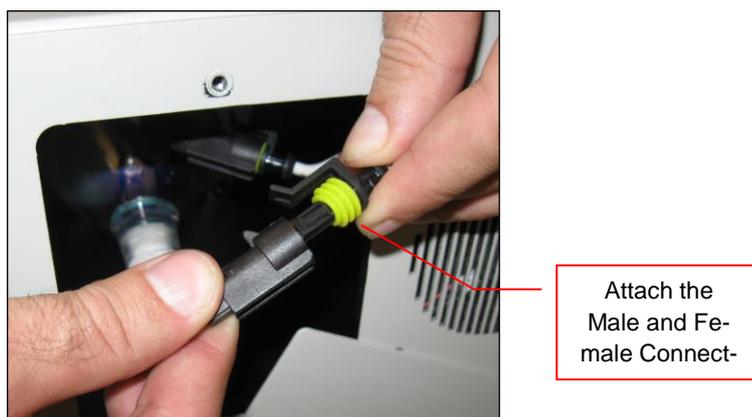
5.6 Lamp Assembly Installation

The eLITE Xe is shipped from the factory with the xenon lamp assembly uninstalled. Prior to initial use, the lamp assembly must be installed in the eLITE Xe as described below.

The eLITE Xe xenon light bulb is a lamp assembly which includes a mounting plate and bracket. The assembly is installed through the bottom of the unit as shown:

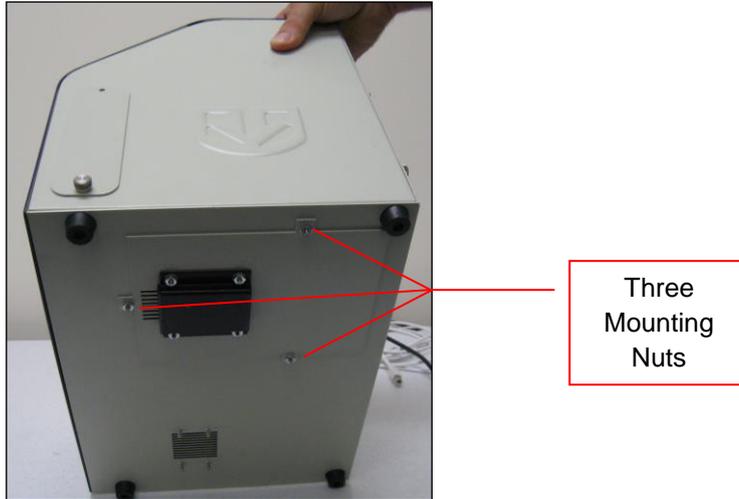Light Bulb

Bracket

Mounting Plate
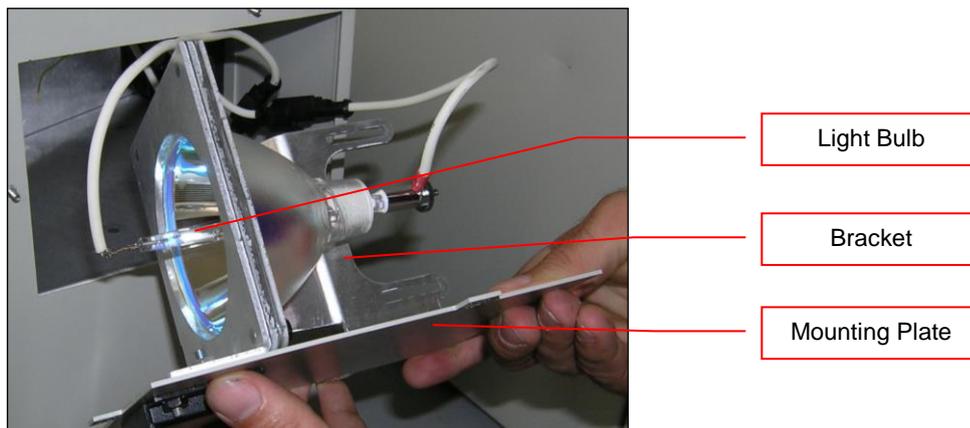
1. Unplug the power cable and USB cable from the back of the eLITE Xe.

2. The lamp assembly will have a wire coming from each end of the xenon bulb. One wire has a male connector on the end and the other wire has a female connector. Attach the male connector from the lamp to the female connector from the eLITE Xe unit, and vice versa.

CAUTION: DO NOT TOUCH THE GLASS OF THE BULB!


Attach the Male and Female Connect-

3.   Insert the lamp assembly into the bottom of the eLITE Xe, aligning the three all-thread screws on the bottom of the eLITE Xe with the three holes in the lamp assembly mounting plate.

4. Reconnect the plate to the bottom of the unit using the three supplied nuts.

Three
Mounting
Nuts

5. Plug the power cable into the receptacle on the back of the eLITE Xe and the other end into a power outlet.

6. Plug the USB cable into the back of the eLITE Xe and the other end into the computer.

6   Using the Light Source

1. Set the power switch on the front of the system to the **ON** (**I**) position.

2. Use the VisionWorksLS "eLITE" module (shown below) to adjust the various eLITE settings:
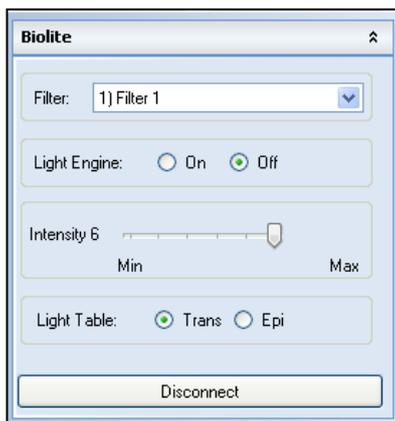
a. **Filter:** Select the desired excitation filter position from the dropdown menu.

b. **Light Engine:** Turn the eLITE bulb on or off using the radio buttons (note that the eLITE's green power switch must be in the ON position to use the lighting controls). When the bulb is on, the lower indicator light to the left of the switch on the front of the eLITE will glow red.

NOTE: For optimal eLITE Xe performance and operation, each time the xenon light is turned off it is important to wait at least 30 seconds before turning it back on again.

c. **Intensity:** This setting regulates the amount of illumination in six increments. The relative output levels are specified in the chart below:

Intensity Setting	Relative Intensity
6	100%
5	50%
4	40%
3	25%
2	12%
1	0%

Light Table: Select between either **Epi** (overhead) or **Trans** (base lighting) depending on the application. Note that both the epi and transillumination cannot be used simultaneously.

NOTE: If using the darkroom to perform light-tight experiments such as capturing a chemi-luminescence sample for more than two minutes, use the black rubber cap to cover the end of the fiber optic cable. Exposing an image for less than two minutes with the rubber cap removed will not impact the resultant image, so long as the fiber optic cable is installed in the eLITE. Without capping the fiber optic cable, light may enter the darkroom through the end of the fiber optic cable, thus affecting the results of an extended resolution image.

3. It is possible to adjust the eLITE's settings using the switches located on the front of the eLITE. Note, however, that any settings modified using the switches will NOT be reflected in VisionWorksLS' eLITE software interface.
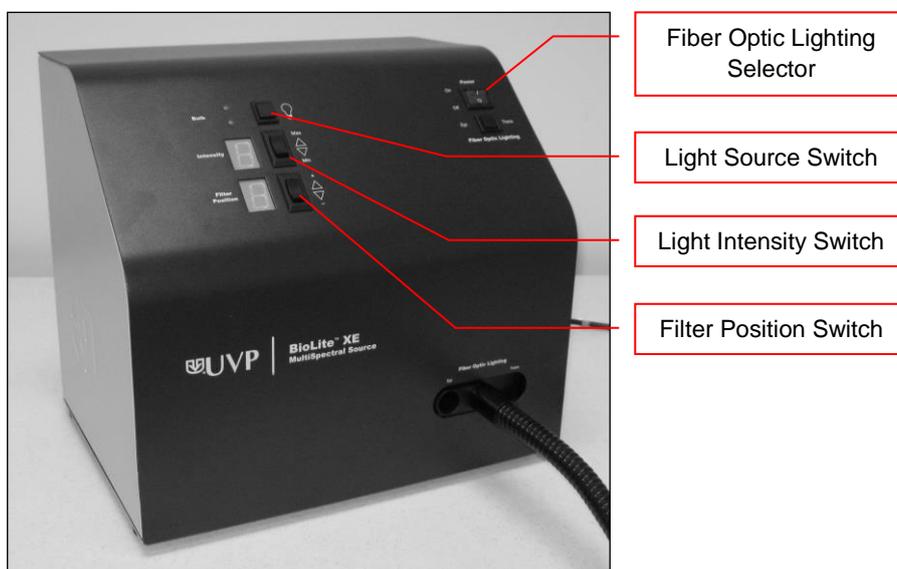
a. **Fiber Optic Lighting:** Press this button to select either Epi or Transillumination lighting. Note that both epi and transillumination cannot be used simultaneously.

b. **Light Source:** Press this button to turn the xenon light bulb on or off. When the bulb is on, the lower indicator light to the left of the switch will glow red.

NOTE: For optimal eLITE Xe performance and operation, each time the xenon light is turned off it is important to wait at least 30 seconds before turning it back on again.

c. **Light Intensity:** Press the rocker switch toward **Max** to increase the relative intensity of the lighting. Inversely, press the rocker switch toward **Min** to decrease the relative intensity of the lighting. Lighting is provided in six increments, indicated on the LCD display to the left of the rocker switch.

d. **Filter Position:** Press the rocker switch toward **+** to move to the next excitation filter position. Inversely, press the rocker switch toward **–** to move to the previous excitation filter position. There are a total of eight filter positions; the current position will be indicated on the LCD display to the left of the rocker switch.

7   Maintenance, replacement parts/accessories

7.1   Care and cleaning

⚠️ **CAUTION! Risk of electrical shock!**

Ensure that the system is turned OFF and unplugged during cleaning.

❑ Clean unit surface with a damp soft cloth or sponge. Use mild soap or detergent solution.

Never use abrasive cleaners (can damage the UV filter surface of the transilluminator). Do NOT use oil- or petroleum-based cleaners for the cabinet.

❑ Clean the instrument only from outside.

The imaging system or the transilluminator must not be dipped into water or other liquids!

7.2   Bulb Replacement

The eLITE Xe xenon light bulb is a lamp assembly which includes a mounting plate and bracket. The assembly is installed through the bottom of the unit as shown:
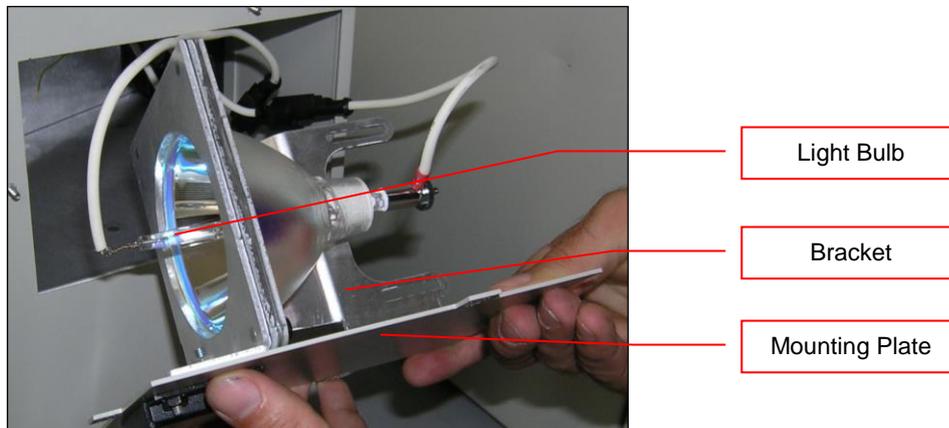

1. Unplug the power cable and USB cable from the back of the eLITE Xe and allow the bulb at least ½ hour to cool.

2. The lamp assembly will have a wire coming from each end of the xenon bulb. One wire has a male connector on the end and the other wire has a female connector. Attach the male connector from the lamp to the female connector from the eLITE Xe unit, and vice versa.

CAUTION: DO NOT TOUCH THE GLASS OF THE BULB!
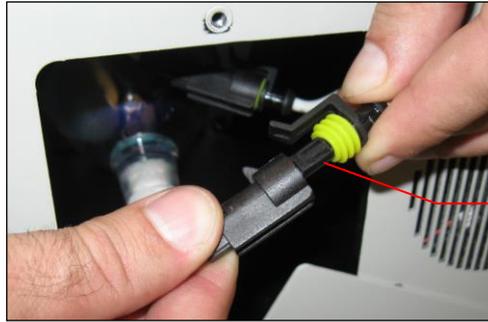
Attach the Male and Female Connectors

3. Insert the lamp assembly into the bottom of the eLITE Xe, aligning the three all-thread screws on the bottom of the eLITE Xe with the three holes in the lamp assembly mounting plate.

4. Reconnect the plate to the bottom of the unit using the three supplied nuts.
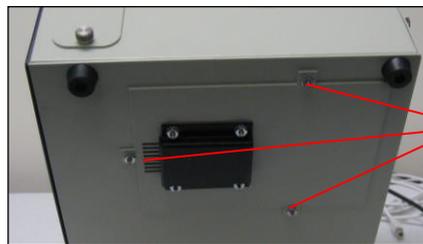
Three Mounting Nuts

5. Plug the power cable into the receptacle on the back of the eLITE Xe and the other end into a power outlet.

7.3   Troubleshooting

Bulb Does Not Illuminate

1. Recheck the main power cord connection to the eLITE unit.

2. Check the fuses located at the back of the unit next to the power port. A small flat-head screwdriver or similar tool will be required. Turn the fuseholder cap counterclockwise and the fuse holder will pop out. Inspect the thin wire within the glass fuse to see if there is a break in the wire. If so, replace the fuse(s). If fuses are blowing repeatedly, contact UVP Technical Support for additional troubleshooting.

3. The bulb's wires may have come loose. Recheck the bulb electrical connections by following the "Bulb Replacement" instruction earlier in this manual.

4. The bulb may be burned out. Follow the "Bulb Replacement" instruction earlier in this manual.
    .

8   Disposal

At the end of its service life the eLITE System and all its electronic components must be disposed of in accordance with the applicable regulations as electronic waste.