

## **User Guide**

### **TLB Light Source**

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## WARNING / CAUTION

TO PREVENT FIRE OR SHOCK HAZARD,  
DO NOT EXPOSE THIS PRODUCT TO  
RAIN OR EXCESSIVE MOISTURE.

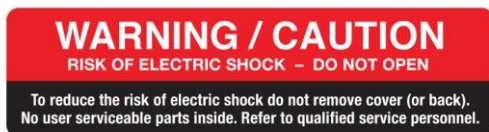


The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.

### CAUTION:



Do not attempt to modify this product in any way without written authorization from Diagnostic Instruments, Inc. Unauthorized modification will void the warranty and may cause personal injury.

### WARNING/CAUTION

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVERS OR OPEN POWER SUPPLY. NO USER SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED PERSONNEL.

The TLB Light Source is designed for the illumination of biological specimens. It is the responsibility of the user to qualify that this product meets the requirements for their application. In no event and under no circumstances shall the manufacturer be liable to an individual or entity for any indirect, special, consequential or incidental losses or damages, including without limitation, lost profits.

# SAFETY INSTRUCTIONS

- Read these instructions
- Keep these instructions
- Heed all warnings
- Follow all instructions

Do not attempt to use this product in any manner not specified by the manufacturer as manufacturer will not be held responsible.

Clean according to the cleaning instructions in the Maintenance and Cleaning section of this guide.

This product is designed for indoor use only. Do not expose to rain or excessive moisture.

Install in accordance with the manufacturer's instructions.

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.

Do not defeat the safety purpose of the grounding-type plug. The TLB Light Source uses a grounding type plug, which has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Only use the attachments/accessories specified by the manufacturer.

Unplug this apparatus when it will be unused for long periods of time.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or excessive moisture, does not operate normally, or has been dropped.

Do not allow an impact shock or any objects to fall into the product.

Do not connect too many devices to the same AC power outlet as this could result in fire or electric shock.

Do not overload wall outlets. Overloaded wall outlets, loose or damaged wall outlets, extension cords, frayed power cords, or damaged or cracked wire insulation are dangerous. Any of these conditions could result in electric shock or fire.

Periodically examine the cord of your system, and if its appearance indicates damage or deterioration, unplug it, discontinue use of the system, and have the cord replaced with an exact replacement part by an authorized servicer.

Be sure to grasp the plug when unplugging the power cord. Do not pull on the power cord to unplug the product.

Protect the power cord from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door, or walked upon. Pay particular attention to plugs, wall outlets, and the point where the cord exits the power supply.

Do not expose the TLB Light Source to dripping or splashing liquids.

## **DISCONNECTING THE DEVICE FROM MAIN POWER SOURCE**

The main plug is the disconnecting device. The plug must remain readily accessible to be disconnected during service or maintenance.

Keep the product away from direct sunlight.

When cleaning, turn off all lights and unplug the power cord. Allow lights to cool prior to cleaning. Do not spray water or other liquids directly into the rear vents as electric shock and damage to the electronics may occur. See additional cleaning instructions in the "General Cleaning Guidelines" section of this guide.

Be sure there is proper and adequate ventilation where the TLB Light Source is installed to minimize the risk of fire when using flammable liquids.

Do not cover the TLB Light Source with cloth or other materials like plastic while plugged in. Do not install in excessively dusty places. Do not block any ventilation openings.

If you smell smoke or other odors coming from the TLB Light Source or hear strange sounds, unplug the power cord and contact customer service.

There are no consumable materials associated with the TLB Light Source.

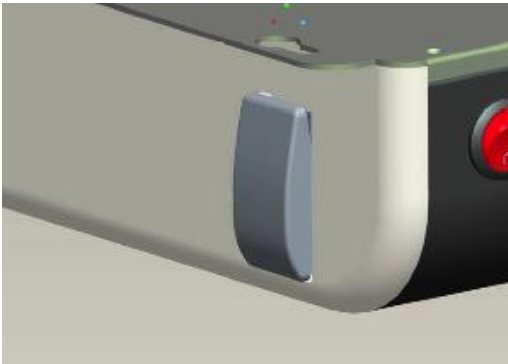
# GENERAL OPERATION

## To Get Started:



1. Turn the Light Source on by pressing the "I" (top) side of the red rocker switch, located on the front of the unit.
2. Turn the Light Source off by pressing the "O" (bottom) side of the red rocker switch.

## To Control the LED Light:

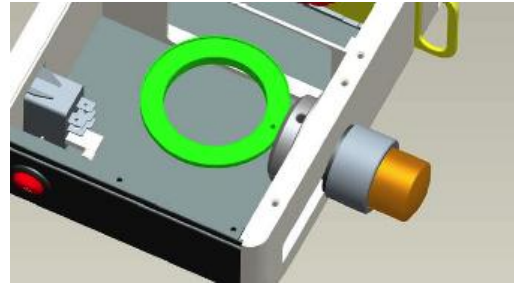


1. Brightness is controlled by a large rocker switch located on the left side of the Light Source (toward the front).

Increase brightness by pressing on the top of the rocker switch. Decrease brightness by pressing on the bottom of the rocker switch.

Momentary taps will change the brightness by one step. Holding the switch down will continuously change the brightness (in steps) until the switch is released or until the brightness limit is reached.

## To Control the Mirror:

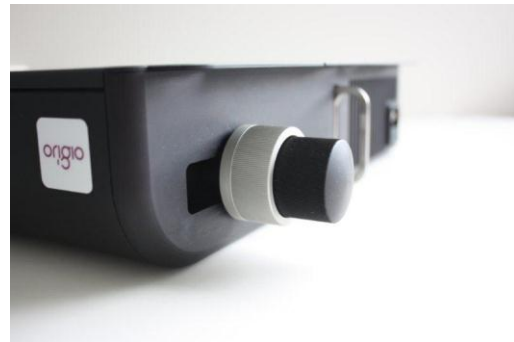


1. The TLB Light Source features a mirror that can be tilted through a 55° arc and can slide front to back.

Different mirror positions change the angle of light that illuminates the specimen.

Sliding the mirror toward the back and tilting it so that bright light fills the field of view is called "brightfield" illumination and is useful for large translucent specimens.

Sliding the mirror toward the front and tilting it so that the light hits the specimen at an angle is called "darkfield" illumination. Darkfield illumination causes small semi-transparent specimens to glow against a dark background. It is useful for unstained transparent biological specimens.



2. The mirror control knob is located on the right side of the base.
3. The mirror control knob consists of two parts, the inner silver locking ring and the outer black tilt control knob.

Turning the silver locking ring clockwise will lock both the tilt and sliding functions. Turning it counterclockwise will allow the tilt and sliding functions to be adjusted.

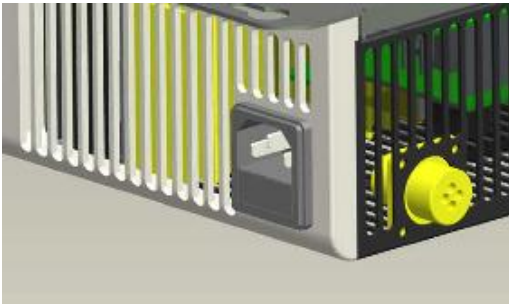
## GENERAL OPERATION

The black tilt control knob is limited to a 55° range of adjustment. It can be adjusted when the silver locking ring is unlocked.

The mirror can slide front to back when the silver locking ring is unlocked. Simply push on the black tilt control knob to slide the mirror assembly from front to back.

### The LED Light:

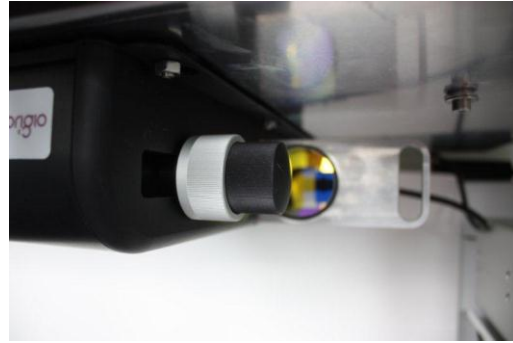
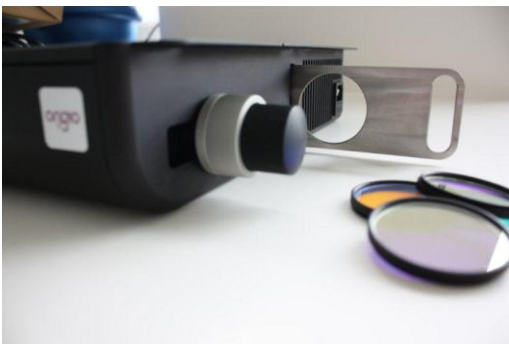
1. The LED light has a lifetime of over 50,000 hours and is designed to be a permanent part of the TLB Light Source. It is NOT replaceable by the customer.



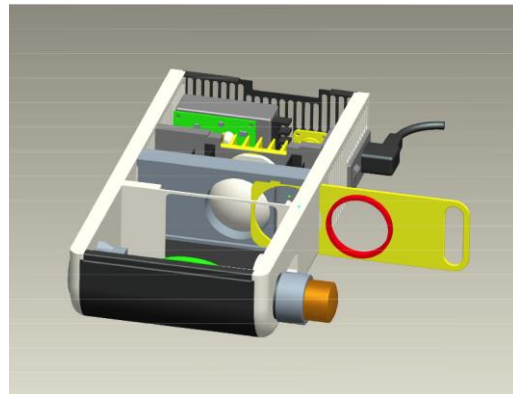
2. If the LED light will not turn on check the fuse, located in the power entry module. The power entry module is where the power cord plugs in and is located on the right side of the base, near the back.

3. In the event of a failure of the LED light or the power supply, the TLB Light Source must be returned to the factory for service. There are no user serviceable parts in the TLB Light Source.

### Color Filters (Optional):

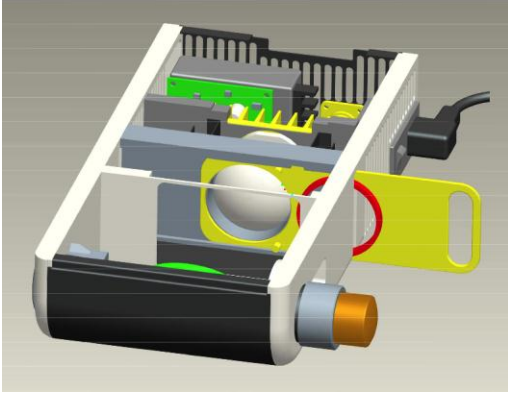


1. The TLB Light Source has the ability to switch one colored filter in or out of the light path. The handle for the filter slide is located on the right side of the TLB Light Source. It is stainless steel and located between the mirror control knob and the power cord. The filter slide can be pulled to the right and has three detents. It has a positive stop to prevent it from being pulled completely out of the base.

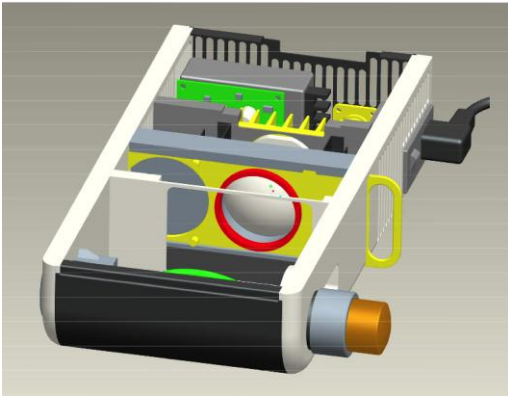


2. Pulling the filter slide all the way to the right (first detent) allows a color filter to be installed or removed. The color filter has very fine threads and must be GENTLY screwed into the opening on the front side of the filter slide. A light touch is required, as forcing the threads will result in permanent damage.

## GENERAL OPERATION



3. Pushing the filter slide to the left will then engage the second (middle) detent. This is the operating position with the color filter OUT of the light path.



4. Pushing the filter slide further to the left will then engage the third detent. This is the operating position with the color filter IN the light path.

### Foot Switch (Optional):

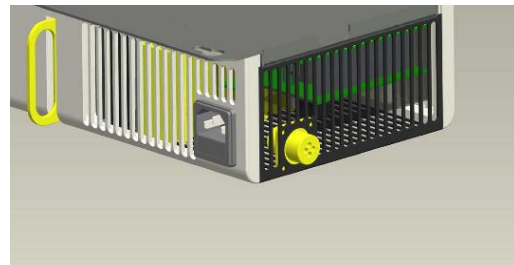
1. The foot switch controls the brightness of the LED light. It is a useful way to change the brightness when the operator's hands are occupied with other tasks.



2. Increase brightness by pressing on the right pedal. Decrease brightness by pressing on the left pedal.

Momentary taps will change the brightness by one step. Holding a pedal down will continuously change the brightness (in steps) until the pedal is released or until the brightness limit is reached.

Note: The rocker switch brightness control on the left side of the base remains operational when the foot switch is plugged in.



3. The connector for the foot switch cable is located on the rear of the TLB Light Source.

# GENERAL OPERATION

## To disconnect the unit:

Unplug the main power cord from either the power entry module (on the base) or from the outlet.



Turn off and unplug your TLB Light Source prior to cleaning.

## GENERAL CLEANING GUIDELINES

### Exterior Surfaces of TLB Illuminating Base:

Use a soft cloth dampened with a mild soapy solution to wipe down all exterior surfaces.



Care should be taken not to spray or drip solution into the rear of the unit through the vented openings.

### Mirror and Color Filters:

Use a cotton swab slightly dampened with 70% isopropyl alcohol and gently wipe in a circular pattern from the center outward. Follow with a dry cotton swab. Repeat as necessary. Use a cotton tipped swab with either a cardboard or plastic shaft, NOT a wooden shaft. Lens tissue can also be used in place of a cotton swab.



Allow color filters and mirror to cool before cleaning.

### Foot Switch:

Use a soft cloth dampened with a mild soapy solution to wipe down all exterior surfaces.

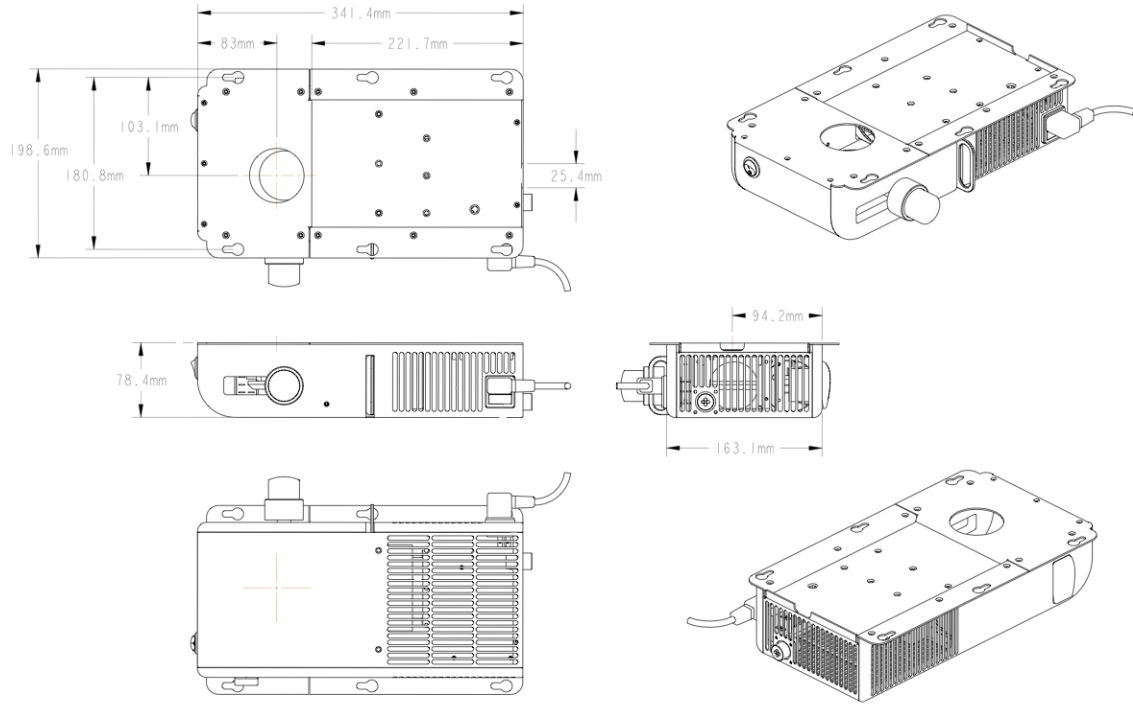


Care should be taken not to spray or drip solution into the foot switch.



# PRODUCT SPECIFICATIONS

## TLB Light Source Dimensions



### Weight (without filter or power cord)

3.27kg/7.20lbs

### Electrical Requirements:

Input: AC 88 – 250V, 47-63 Hz

Max Power: 30 Watts

### Fuse:

2.5 A/250V Slow Blow, 5 x 20mm

### Operating Environment:

0°C – 40°C (32°F – 104°F)

5 – 95% relative humidity, non-condensing

### LED

Lumens: 1,020 lm

Lifetime: 50,000 hours at >70% initial brightness (the LED does not fail, it just slowly gets dimmer)

Color temperature: 4,100 K

CRI: 80

## REPLACEMENT PARTS

DESCRIPTION	CATALOG NUMBER
Power Supply Fuse	FUSE2.5A
Foot Switch	TLBFTSWCH
Red Filter	<i>TBD</i>
Green Filter	<i>TBD</i>
Blue Filter	<i>TBD</i>

***Origio a/s***  
*Knardrupsvej 2*  
*DK 2760*  
*Måløv*  
*Denmark*