Operation Manual

LED Ring Illuminators

Models
LED140

LED150

LED240

LED580

Contents

Symbols

Symbols Used in this Manual or on the Device

This symbol 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.

This symbol is intended to alert the user to the presence of important operating and servicing (maintenance) instructions.

This symbol is intended to alert the user to the presence of hot surfaces that could result in burns to the user.

This symbol is intended to alert the user to the presence of Ultraviolet Light which can be very harmful to the user. (See Safety Warning)

Warnings

People who use or service this unit should familiarize themselves with this manual and must ensure that they understand all the important safety requirements.

This unit may generate and transmit and/or radiate electromagnetic energy. Do not place the device next to other sensitive electronic devices. Failure to do so could result in errant operation of the nearby device.

Do not look directly into the LED Ring when unit is powered. The high intensity focused beam of light may cause eye damage. Do not operate the UV version LED without proper glasses. UV rays are harmful. Use caution.

Use only approved power supply (24V 0.75A) as failure to do so could result in damage to the LED's. Do not make any technical modifications to the unit.

Do not remove safety labels.

Do not operate if liquid spills on unit and immediately remove power to the unit if fluid is spilled on unit.

Do not attempt servicing the unit beyond the procedures described in this manual.

Description

Intended Use

LED Rings are intended primarily to be used by trained professional microscopists to provide various forms of illumination to microscopes and other imaging systems.

It is not intended for home or consumer use. It is intended for indoor use only. The unit is not waterproof and should not be used in any location which will expose it to liquids.

Primary Safety Features

Our LED Rings are housed in aluminum casing designed to prevent the user from being able to access any unsafe voltages and protect the LEDs. The controller enclosure is made of flame retardant ABS plastic.

The 140 Led Ring is made from a blend of Polycarbonate and ABS that provides a low cost safety protection for the user and the LEDs. The 140 does not require a controller.

Input power to the unit is provided by a 24V 0.75A wall wart power supply.

Basic Setup and Operation

Establish ESD Safe Connections (If Applicable)

See ESD Procedures.

Attach to Power

The power supply is plugged into the wall socket and connected to the ring (140) or the controller (240 and 580).

Basic Operation

Turn the unit on by sliding the ON/OFF switch to the ON position.

Adjust intensity by rotating the intensity control knob clockwise – note that there are two dimming knobs for the 580 controller – one for the inner ring of leds and one for the outer ring of leds.

For the ProLine series select the quadrants you want to be active by pushing down on the representative quadrant control buttons.

Service Procedures

Do not attempt to repair the LED ring.

ESD Procedures

ESD Protection Procedure

A wrist strap is provided for use by operator.

1. ESD protection is established when the ESD device is connected to earth ground. This can be achieved by having a common ground point on the workstation that is connected to earth ground.

2. A ground block located on your workstation can provide the connecting point of the ESD device. It is important to keep all ESD surfaces clean and scratch-free, as well as connected to the ground block at all times. Clean surfaces periodically using a plain cotton cloth with a good ammoniated detergent. Dust and dirt may cause conditions that cause electrostatic discharge.

WARNING! DO NOT USE CLEANING MATERIALS CONTAINING WAX OR AGGRESSIVE SOLVENTS THAT MAY MODIFY THE ELECTRICAL PROPERTIES OF THE SURFACE.

DO NO USE THE THIRD WIRE GROUND IN AN ELECTRICAL OUTLET TO PROVIDE ESD PROTECTION. EARTH GROUND IS PROVIDED USING A BRASS STUD WITH A ONE HUNDRED MEG OHM RESISTOR IN LINE.

**Installing a Polarizer Analyzer Kit (SlimLine Series)**

Tools you will need
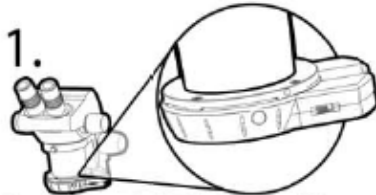
1. Mount High Intensity LED Ring Light Onto Microscope Objective Using One of the available mounting options. (Thumbscrews, Plastic Thumbscrews, Set Screws, Adapter, etc.)

2. Connect the Power Supply to the LED Ring Using By Inserting the 5.5 mm Power Jack on the Power Supply into the Female Connector on the Side of the LED Ring.
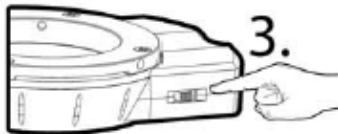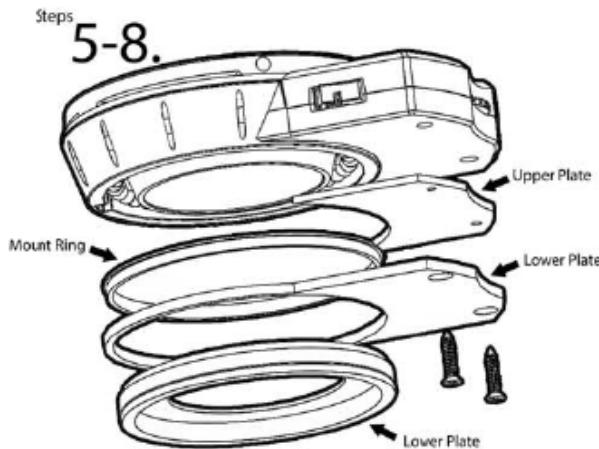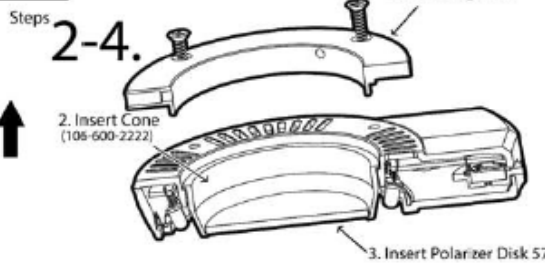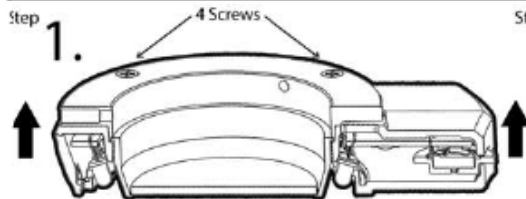
3. Turn Power to the LED Ring On using the Slide Switch Located on the Side of the LED Ring.

4. Adjust the Light Intensity Using the Dimmer Knob Located on the Rear of the LED Ring.

Polarizer Installation

Step **1.** 4 Screws

Steps **2-4.**
4. Mounting Plate
2. Insert Cone (108-600-2222)
3. Insert Polarizer Disk 57

Steps **5-8.**
Upper Plate
Mount Ring
Lower Plate
Lower Plate

1. Turn the Slimline over and remove the 4 screws holding the mounting ring to the SlimLine.

2. Drop in the polarizer cone.

3. Drop in the polarizing disk.

4. Re-install the mounting ring to the SlimLine. (This will lock down the cone and disk.)

5. With the SlimLine facing up, (LED's up), remove the 2 screws.

6. Position the mount plate lower over the 2 holes.

7. Set the polarizer ring into the mount plate upper.

8. Hold in place and set the mount plate upper on the mount plate lower and install screws. (The polarizer should be over the LED's at this time.)

Polarizer Cleaning Procedure

1) Us a bulb blower, Dust Pro or similar aerosol canned air blower to puff away visible loose dust. Puff vigorously but keep the nozzle tip maybe 2 inches from the filter.

2) Next, use a clean soft hair static free brush to carefully wipe over the whole surface of the filter. This step is meant to remove more stubborn dirt not blown away in step 1.

3) **Repeat step 1 as required.**

4) Use an isopropyl pre-moistened napkin. Open up one of these packets. Remove the isopropyl napkin. Unfold it all the way, then fold it in half 2 or 3 times to make it more manageable. Using a corner of the isopropyl napkin, carefully and smoothly wipe over the filter surface using a smooth circular motion. Begin at the outside and work your way to the inside. At the end of each circular stroke, lift the napkin off the surface, like a plane taking off. If the filter has fungus, use a bit more pressure to clean off the fungus. But for ordinary dirt, use a more gentle pressure.

FOLLOW THE ISOPROPYL NAPKIN WITH A GENTLER CLEANING USING A MICRO-FIBER CLOTH. PROPER TECHNIQUE REQUIRES MINIMAL PRESSURE COUPLED WITH MANY PASSES OF THE FRESH CLEANING SURFACE.

Safety Procedures Specific to Units Equipped with UV LEDS

The UV-LED radiates intense ultra-violet light (hereinafter referred to as "UV light" and can be harmful to the eyes even during a brief period of exposure.

UV-LED means any UV-LED dice or packaged UV-LEDs which emit ultra-violet light whose peak wavelength is shorter than 400nm.

UV light can cause skin damage, up to and including, skin cancer.

1	Do not look directly into the ultra-violet LED (hereinafter referred to as "UV-LED") during operation of the device.
2	Always wear UV protective eyewear when handling the UV-LEDs.
3	Always wear protective clothing to prevent UV-LED exposure to skin.
4	Always instruct and warn all intended users of proper handling of the UV-LEDs and all potential hazards.
5	Always provide proper instructions, labels and warnings with your product in accordance, at minimum, with the standards set forth by the International Electric Committee (IED).
6	All UV light should be used in your product in such a way as to ensure that no direct exposure to the UV light on the human body, particularly the eyes, is experienced.
7	Always keep this product out of the reach of children and other untrained persons.
8	Always adhere to safety instructions and warnings, including any and all instructions set forth in the Product Specifications.

Troubleshooting

Problem	Possible Cause	Diagnosis Method	Possible Solution
No Light	Bad Cable	No visual or electrical test available – to confirm you may try switching a cable from an operating ring	Replace Cable
No Light	Bad Conroller	Switch controller with a known operating controller	Replace controller
No Light	Bad Power Supply	Switch power supply with known operating power supply	Replace power supply

Specifications

Series	Models	Input Power	Power Supply Rating
ProLine	240	24VDC	0.75A
ProLine	240	24VDC	0.75A
ProLine	580	24VDC	0.75A
ProLine	580	24VDC	0.75A
SlimLine	140	24VDC	0.75A

Environmental

Operating Temperature Range	Non-Operating Temperature Range	Humidity Range
32 – 104 F (0 – 40 C)	0 – 120 F	0-80% Non Condensing

Parts List

	SlimLine Series	ProLine Series
LED Ring	1	1
Controller	None	1
Power Supply	1	1
HDMI Cable	None	Certain ProLine 8xx models only
ESD Cable	If ESD Version Only	If ESD Version Only
UV Safety Glasses	Not Applicable	UV Models Only
Polarizer / Analyzer Kit	If Ordered	If Ordered
Mounting Adapter	If Ordered	If Ordered

Warranty

UNITRON warrants this product to be free from defect in material and workmanship for a period of 12 months following original purchase. This warranty excludes any product which may have been misused, neglected, damaged, or altered – including non-factory authorized repairs. UNITRON obligations under this warranty are limited to the repair, replacement, or reimbursement of the product only, and in no event is UNITRON liable for any consequential or special damages, or costs related to the transportation, installation or any other cost related to a warranted product.

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