fiberoptics technology incorporated

MO150
Fiber optic light source
For microscopy and general illumination

Features, Specification, and Operation Instructions

GENERAL INFORMATION AND CAUTION

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The light source has been engineered with safety as a priority. However, the user is cautioned to observe the following:

1. Read and follow all instructions in this manual.
2. Never look directly at the lamp when it's on; your eyesight may be compromised.
3. Be careful removing fiber optic components or handling the light source; the lamp and surrounding surfaces may be hot.
4. Do not use this unit near water or in an area with excessive moisture.
5. Do not place flammable materials near the unit.
6. Do not defeat the safety purpose of the 3-prong grounded plug or interlock switch. Use only the approved power cord supplied with the unit. Route cord so that it will not be pinched, severed or walked upon.
7. Do not defeat the purpose of the fuse. Replace only with the fuse type described in the manual and as marked on the unit.
8. Unplug before servicing. High voltage is present internally.
9. Keep all safety and operating instructions for future reference.
10. Do not block ventilation openings on this unit. Do not impede airflow. Do not install in a cabinet enclosure without proper ventilation.
11. If you wish to clean the unit, disconnect the power and use only standard detergent type cleaners; do not use solvents or petroleum distillates. Never "spill" liquid on the unit.
12. Allow the unit to cool before servicing.
13. Do not service the unit beyond what is described in this manual. Attempting repair of Electronic or Logic circuits without prior written approval of manufacturer will void the warranty. Should the light source fail at any time, return it to an authorized service center.
14. For a Return Material Authorization, contact your supplier or the service providers listed elsewhere in this manual.

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Product Description
The light source family was designed to be backward compatible, with the standard adapter accepting .625 diameter input tips from Techniquip, IT, Chiu, and Fiberoptics Technology.

With the proper adapter, the light source can accept all major brands of fiber optic component.

Suited for all demanding applications requiring bright, cool output, The Light source can be adapted to most environments and specifications. This light source provides consistent intense white light output to all types of fiber optic illumination components.

The light source is ETL listed to UL-1571 and is CE compliant to standards set for the year 2005.

The light source provides up to 150 watts of radiometric output from a 21 volt tungsten halogen lamp.

The adjustable voltage supply governs output from 0 to 21 VAC.

This model features filter holder, ergonomic handle, bezel adapter with locking design to keep goosenecks steady and space for a second filter, a digital intensity control from 0-100%, and a separate on/off switch to maintain intensity settings when the unit is shut down.

The high output fan, lamp baffle, and unique bezel design provide maximum airflow while restricting stray light from heating outer surfaces.

In the event the rugged pin type lamp connector requires change-out, replacement maintenance is quick and user-friendly, as the device is held in place at a terminal block, not soldered in place.

Installation Guidelines
To insure proper operation of the light source, the following conditions must be met:

Minimum Clearance

Rear	**Bottom**	**Sides and Top**
1.5" (37 mm)	Do not remove feet	.5" (25 mm)

1. Do not block any air vents.
2. Never attempt to operate the unit without the mounting feet – doing so will block ventilation. Proper ventilation must be provided at all times. Failure to do so may cause intermittent operation and/or failure of the electronics.
3. Avoid areas of excessive vibration.
4. Operate the light source only in an environment where people do not require protective equipment.
5. **CAUTION:** Dust accumulation will restrict air flow which can damage the unit.
    a. **(See Cleaning Section for recommendations)**
6. Not intended for recessed installation in ceilings or soffits.
7. The National Electrical Code (NEC) does not permit cords to be concealed where damage

to insulation may go unnoticed. To prevent fire danger, do not run cord behind walls, ceilings, soffits, or cabinets where it may be inaccessible for examination. Cords should be visually examined periodically and immediately replaced when any damage is noted.

Operation

The light source is available in three configurations to accept line voltage in the range 100 to 240 V AC and 50 or 60 cycle operation.

Please refer to the back of your specific unit for power rating (A) before attempting to use it. Failure to do so may cause failure and/or personal injury.

1. Make sure the power button on the front panel is in the "off" (extended) position.
2. Plug the power cord into the power connector (C) in the rear of the lightsource.
3. Plug the other end into a power source.
4. If using a color or heat filter, insert into the bezel (3), or filter holder (5) with the coating side towards the lamp – remove any protective plastic from the filter(s) before installing.
5. Insert the appropriate adapter into bezel, aligning the through-hole in the adapter with the thumbscrew in the top of the bezel. Turn the screw to capture the adapter, but not too far as to obstruct the opening for the fiber optic component.
6. Insert the selected fiber optic component.
7. Make sure the captive thumbscrew on the bezel goes through the adapter and locks the input of the fiber optic component in place.
8. Depress the light source power switch (3) to the "ON" position.
9. Adjust the light intensity with the intensity control knob (2) to desired setting.
10. To turn the unit off, press the power switch to release the button and turn the unit off.

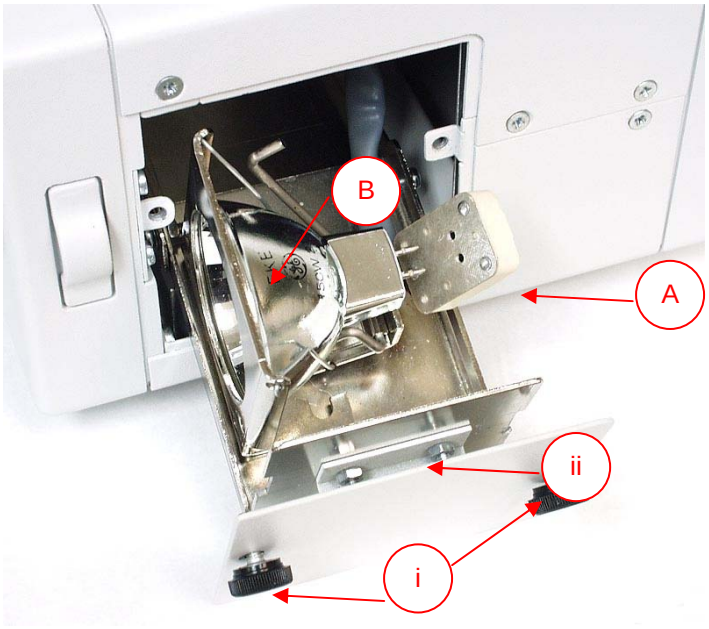
Intensity regulation

The intensity control must be turned to the 9 o'clock position before you will notice any output. This is normal, and does not affect performance.

Lamp Intensity
In the world of filament lamps, halogen lamps are by far the most consistent, but even halogen lamps degrade over their lifetime, most by an average of 15%. Furthermore, all lamps are not created equal. As proven by independent research, new lamps, of the same brand and model number, may vary +/- 20% in maximum intensity, depending on the batch.

Special Note:
Under normal conditions, lamp manufacturers recommend halogen lamps be operated above 80% of their rated intensity for optimum and stable lamp performance.

CAUTION
TO REDUCE THE
RISK OF FIRE – USE 150 WATT OR SMALLER, 21 VOLT TYPE HALOGEN LAMP or equivalent.
See Callout B for lamp type.



Lamp Replacement

1. Depress the power button to the "Off' position.
2. Allow the lamp to cool. CAUTION: Lamp, lamp socket, and surrounding surfaces may be hot!
3. Turn the lamp drawer lock knobs (i) CCW several turns until the module (ii) "springs" out from the housing (A). Gently pull the lamp drawer cover away from the housing until the lamp tray is extended and at rest.
4. Push the lamp release lever (B) toward the lamp socket to raise the lamp and remove it from the ceramic lamp socket, pulling the lamp from the socket.
5. Insert a new lamp into the socket. Making sure lamp release lever has been returned to its original forward position, push the lamp all the way down into its holder.

   Be careful not to touch the bulb or the inside of the reflector. Finger prints may affect the light output.

Fuse Replacement

Under normal use, the fuse should not require replacement. The purpose of the fuse is to protect the electronics from failure due to current inrush. Should it become necessary to change the fuse, replace with the same type (2,5 amp/slow blow) to insure long life and performance.

Cleaning

The aluminum housing, front and back plates have a durable finish that should retain their original luster for many years. Cleaning the exposed areas with a commercial glass cleaner or common household detergent will help maintain the finish.

Unplug and remove the power cord from the lEC connector on the back of the unit. Wipe the exposed areas of the housing and front and back plates with a soft cloth or paper towel moistened with general purpose cleaner.

CAUTION: Do not use excess water, treated cloth, harsh cleaning agents or sprays. Use cleaning fluid sparingly. If fluid spills into the interior, let the unit dry thoroughly before using.

Periodically, dust should be removed from the unit using a vacuum or commercially available cans of compressed air. Pay special attention to the fan blades at the rear of the unit, the air vents in the front (around the bezel), and on the bottom of the main housing.

Use of Filters

All light source models accept the use of 1” diameter filters. We recommend dichroic filters for long life and fade resistant performance.

Seldom or intermittently used filters should be installed in the filter holder, with the coated side facing the lamp. If an IR filter is to be used, install the IR filter in the bezel, coated side facing the lamp. Then install the adapter. You may wish to install a colored filter (such as a daylight filter) with the IR filter in the bezel, rather than use the filter holder accessory. All additional filters installed in the bezel should be installed after the IR filter.

Some filters may be supplied with a protective plastic film covering the coating. **BE SURE TO REMOVE THE FILM BEFORE USE!**

Filter drawer with holder. Install seldom or intermittent use filters here.

Bezel accepts filters too!. Install IR and/or long term use filters here.

Troubleshooting

If you are unsuccessful at resolving the following conditions, contact your supplier for a Return Material Authorization (RMA). Do not attempt to repair the light source. Tampering with the electronics will void the warranty.

Fan operates, but low light output.
Check the lamp to ensure that it is fully seated. See “Installing the lamp” section.
Check to make sure the fiber optic component is fully seated.
Check the lamp…a partial short in the lamp may cause low or intermittent output.
Check the intensity setting.

Fan operates, but output is intermittent (every few minutes, lamp turns off and turns on). The light source is running too hot. A thermal cutoff protects the circuitry from heat failure. Check air intakes and exhaust areas for dust or dirt accumulation. Make sure minimum clearances are maintained. (See installation guidelines for clearance information). Move the light source to another location. NEVER enclose the light source without adequate ventilation.

Fan operates, but the light turns briefly on and then off.
1. The lamp may have a faulty filament. Turn the intensity control knob to maximum setting to test the lamp.
2. If the lamp fails, change the lamp following the instructions in this manual.
3. Examine the lamp socket assembly for damage and continuity.

Fan does not operate, light is dim or non-existent.
Make sure to use the correct model for the power available. Running a 240V unit in 120/100 volt conditions will stop the fan and dim the lamp.

Fan operates, light is not on.
Replace the lamp.

Fan does not operate, light is on.
Return to supplier or service provider.

Fan and lamp are not working.
Make sure the power cord is inserted completely into the IEC connector and also into the correct power source. Check the power cord for damage. Check the fuse. Recheck the lamp drawer lock knobs to make sure the lamp drawer cover is closed tight against the illuminator housing. This ensures the safety switch is engaged. The safety switch cuts power to the lamp and fan while the lamp drawer cover is open.

Fiber input is burning.
Check the fiber type…it may be plastic and susceptible to burning, even with the use of a standard IR heat mirror.

Ask your supplier about the epoxy used to manufacture the fiber optic input…some epoxy types cannot withstand the high temperatures developed in the light source.

Check the lamp type. Replace the lamp following the guidelines listed in a chart elsewhere in this manual. Use an IR filter if possible. Fiberoptic inputs damaged by use of non-approved lamp will void the fiber warranty.

Product Specifications

Improvements may result in specification or feature changes without notice.

Physical Dimensions

Overall Height:	4.75" (121 mm)
Overall Width:	8" (205 mm)
Overall Depth:	7” (219 mm)
Unit Weight:	13,5Ibs. (4,8 kg) including cord
Adapter Receptacle:	1” (25.4mm) OD. (Fiber receptacle varies with adapter)

Lamp Types

P/N	Description	Lamp Mfg	Focal Distance	Spot Size	Voltage	Wattage	Avg Life (hrs)	Beam Spread (NA)	Color Temp (ºK)
FTIII10029	EKE	GE	1.8-2.9”	.5-1”	21.0V	150W	200	N/A	3250
FTIII10846	EJA	GE	1.1”	.25”	21.0V	150W	40	N/A	3350
FTIII16933	DDL	GE	2-2.75”	.75–1”	20.0V	150W	500	N/A	3150

Power Supply Specifications

	US and Canada	Europe	Japan
Rated Power Output (max)	200 Watts	200 Watts	200 Watts
Output Voltage	0-21 Volts	0-21 Volts	0-21 Volts
Input voltage	120 V AC 50/60Hz	230/240 V AC 50 Hz	100 V AC 50/60 Hz
Fuse type	2,5 Amp slow blow	2,5 Amp slow blow	2,5 Amp slow blow
Temperature Range: Operating Storage	0º to 45º C -25º to 85ºC	0º to 45º C -25º to 85ºC	0º to 45º C -25º to 85ºC
Relative humidity, Non Condensing	5% to 95%	5% to 95%	5% to 95%
Vibration: 10-500Hz 2G 10min./cycle. Period for 60 min. Each axis.			

Support

Your supplier has partnered with Fiberoptics Technology (USA) and VEGA International (International) to maintain support services to assist you:

Contact:

Fiberoptics Technology Pomfret, CT Telephone 800-433-5248
VEGA International Ljubljana, SI Telephone 00386 1 589 05 15

Be sure to have your part number and serial number available, as well as a complete description of the problem or situation for the quickest, most accurate assistance.

Service/RMA Policy

Service required for any reason must be performed by an authorized service representative. All service outside warranty will be performed with purchaser's approval, and charged according to normal service charges in effect at the time.

To return any item, whether for warranty repair or chargeable servicing, an RMA number (Return Material Authorization) must be obtained. This number must be clearly visible on the shipping label. All shipping must be prepaid.

If the lightsource was used in a biohazard environment, you may also be asked to supply a certification stipulating the conditions of service, including a list of materials the lightsource may have been exposed to.

All warranty repairs will be completed within two weeks of receipt. All units will ship prepaid using our shipping method of choice. Alternate shipping methods will be shipped freight collect.

Warranty

The light source family is warranted to be free from defects in material and workmanship for a period of two years from date of shipment unless stated otherwise in a specific separate published warranty.

If any product is found to have defects in material or workmanship the purchaser should notify the seller promptly, and request an RMA number. After an RMA number is assigned, purchaser may return defective products prepaid to the originating facility.

The Manufacturer, at its sole discretion, will repair or replace LIGHT SOURCE products found to be defective, and return said products, prepaid. The correction of any defect(s), by the grant of credit, repair, or replacement, shall constitute fulfillment of all obligations and liability to the purchaser hereunder.

The Manufacturer is not responsible for damage to product caused by abuse or neglect, unauthorized installation, maintenance, use, repair, or adjustment. Any of the aforementioned actions shall make this warranty null and void and shall relieve the Manufacturer from any further responsibility hereunder.

The Manufacturer shall not be liable for any incidental, special, or consequential damages in any claim action, suit or preceding arising under this warranty or any other part of the agreement of sale between the Manufacturer and the purchaser, nor shall there be any liability hereunder for labor claims, loss of profits or good will, repairs or other expenses incidental to replacement.

The foregoing warranty is in lieu of all other representations and warranties expressed or implied, written or oral, including warranties of merchantability or fitness of the goods for a particular purpose, unless exception is offered in writing by an officer of the Manufacturer, or separate published warranty is cited for specific product groups.

Warranty is void if:

- We determine the product has been subjected to neglect or misuse or has been installed following procedures not in accordance with our instruction manual.
- Unauthorized repairs or modifications have occurred.
- The warranty seal has been broken or the serial number label has been altered.

Our obligation is limited to repair or replacement, FOB Pomfret CT (North America), or Slovenia (Europe). The Manufacturer will not be held responsible for consequential damages, transportation, installation, adjustment or other expenses arising in connection with our products or parts.

This warranty is in lieu of all other statements or guaranties, written or implied by the Manufacturer or our authorized representatives.

Liability

Any warranty implied under State Law shall be limited to one year from original delivery to original purchaser. Specifically excluded from Manufacturer liability is damage resulting from acts of any deity, malicious mischief, vandalism, riots, wars, improper installation or neglect in the operation or maintenance of the unit or misunderstanding of the properties of the unit. Under no circumstances shall the Manufacturer be obligated for consequential or other damages of any kind or description, losses or expenses in connection with or by reason of the use of, or inability to use this unit for any reason. The stated warranty provides the purchaser with specific legal rights, and there may be additional rights which vary from State to State. Some states, for example, do not allow exclusion of consequential damage.