

# Prizmatix

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## UHP-Mic-LED-460

### Ultra High Power LED Light Source for Fluorescence Microscopy

Ver. 10

#### Introduction

The Ultra High Power LED (36 Watt) provides almost x10 increase of power in comparison with similar High Power LED devices. In Optogenetics the Ultra High Power LED is excellent for activation of a light-gated ion channels like Channelrhodopsin (ChR) under microscope, in slice preparates, or via optical fiber and ferrule, in freely moving animals.

The Ultra High Power LED 460 is an effective replacement of lasers and lamps in many power demanding applications, such as fluorescence microscopy, machine vision, chemical reaction activation and numerous others. This new member of the modular OptiBlocks family provides **>1.7 Watt** of **collimated** Blue LED power on its output. The LED driver supports CW or TTL triggered operation.



#### Key Features

- Compatible with Prizmatix modular Microscope-LED Light Source products family – see below for details
- Single chip Ultra High Power LED
- Optically isolated TTL input for external triggering
- LED spectrum can be narrowed by optional band pass filter
- Excellent for fluorescence excitation
- Stable precisely adjustable power
- Long life (no lamp or laser tube replacement required)
- Speckle free
- Rapid warm up time

#### Applications

- Optogenetics: photostimulation of Channelrhodopsin ChR1, ChR2
- Fluorescence microscopy: GFP, Auramine, di-8-ANEPPS, Quantum Dots
- Whole body imaging of small animals in-vivo
- Photo activation (PA)
- Fluorescence recovery after photo bleach (FRAP)
- Fluorescence in situ hybridization (FISH)
- Bio analysis
- Machine Vision

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## Optical Specifications

Wavelength	nm	460
Wavelength range	nm	±5
Spectrum half width	nm	27
Collimated optical power output	W	>1.7


## Benchtop LED Current Controller Specifications

### Features

- Constant current or chopping modes
- TTL external trigger input
- Precise LED current setting by 10 turn dial
- Power settings by Analog input (0-5V) – optional
- Computer USB interface - optional
- Compact and robust enclosure

Digital modulation input		Optically isolated TTL
Connector for TTL input		BNC
Digital modulation frequency	Hz	DC-30000
Rise / Fall time (10% - 90%)	µs	<1.5
Input Voltage	V	12
Max Input current	A	5.5
Power Adaptor Input		100-240 VAC, 50-60Hz, 1.5A

## General Specifications

Operation temperature range	°C	10-35
Storage temperature range	°C	-10-55
Operating relative humidity (Non condensing)	%	<90
Head dimensions		See drawing below
Head weight	g	500
Controller dimensions (LxWxH)		220mm x 165mm x 51.5mm
Controller weight	g	700
Power adaptor dimensions (LxWxH)	mm	125 x 50 x 31.5
Power adaptor weight	g	300
Power Adaptor Safety		
Fan noise	dBa	38

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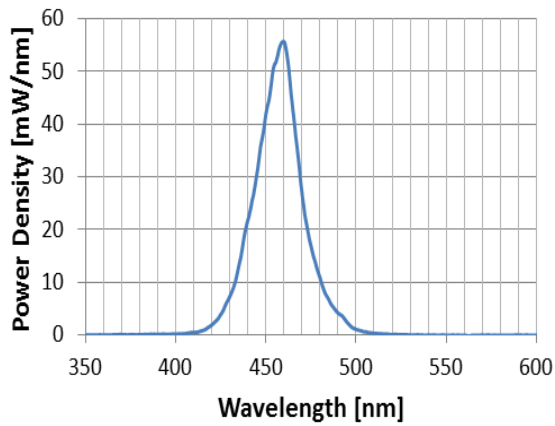
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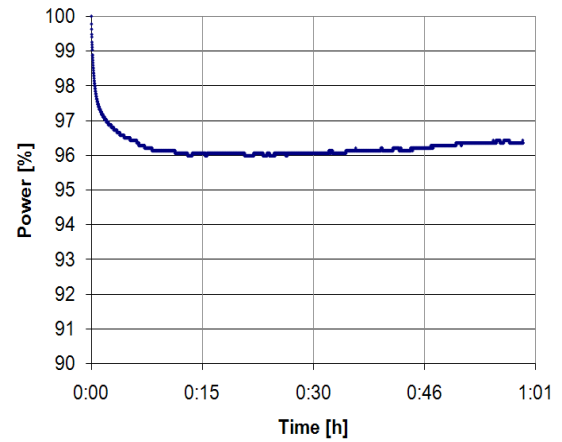
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## Performance

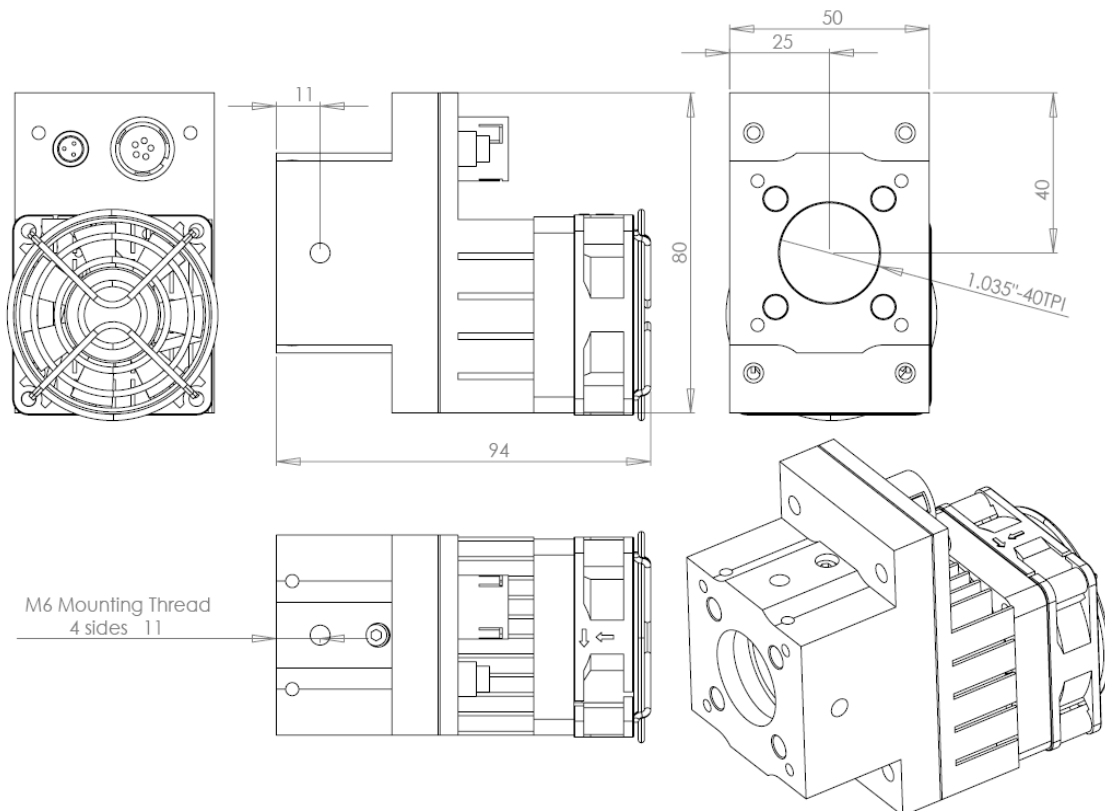


- UHP-Microscope-LED-460 spectrum



- UHP-Microscope-LED-460 stability

## Mechanical Drawings



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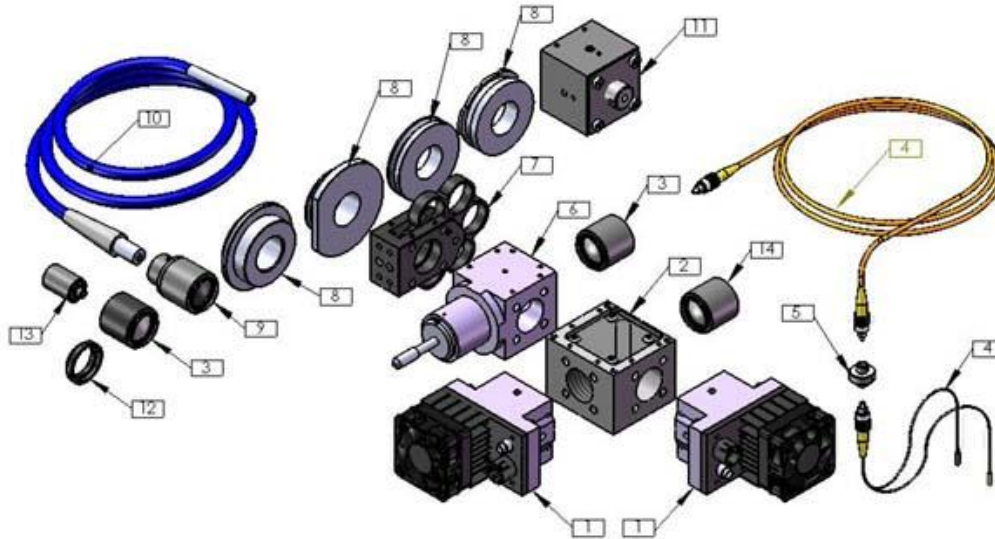
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## Optional Accessories

For full details on optional accessories please see:

<http://www.prizmatix.com/optogenetics/Optogenetics-LED-Light-Sources-and-Fiber-Optics.htm>



### Beam Combiner [2]:

Multiple LED beams can be combined into one output beam. For example UV LED can be combined with White LED to create Mercury lamp like configuration. For more details please see: <http://www.youtube.com/watch?v=iv7dlwLHaUE>

### Filter Wheel [7]:

The UHP-Mic-LED can be equipped with a 6 positions filter wheel at the beam output. This accessory is especially useful for UHP-Mic-LED-White light source.

Please see <http://www.prizmatix.com/Optics/filter-wheel.htm> for more details.

### Fiber Coupler Adaptor [3]:

The UHP-Mic-LED can be easily changed from direct microscope coupling to fiber coupled LED configuration by means of Fiber Coupler Adaptor (SMA, CF or ST connector). Please see video clip <http://www.youtube.com/watch?v=iv7dlwLHaUE> for more details.

### Liquid Light Guide Adaptor [9]:

The Microscope-LED can be easily changed from direct microscope coupling to Liquid Light Guide coupled LED configuration by means of LLGA adaptor. Please see video clip

<http://www.youtube.com/watch?v=iv7dlwLHaUE> for more details.

### Fiber Optics Collimator [13]:

The output from optical fiber is divergent according to fiber NA. In order to reduce the divergence angle a collimator module can be used. Prizmatix collimator was especially designed to fit thick core high NA Polymer Optical Fibers. See more details at:

<http://www.prizmatix.com/Optics/collimator.htm>

### Fiber Bundles [4]:

To combine outputs of multiple LEDs a Y-shaped fiber bundle with two or more input branches can be used. Prizmatix can help to configure and build custom fiber bundles for specific applications. See more details at: <http://www.prizmatix.com/dev/Custom-Fiber-Optic-Assemblies.htm>

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