

# Prizmatix

## UHP-T-LED-460 Ultra High Power Blue LED Light Source

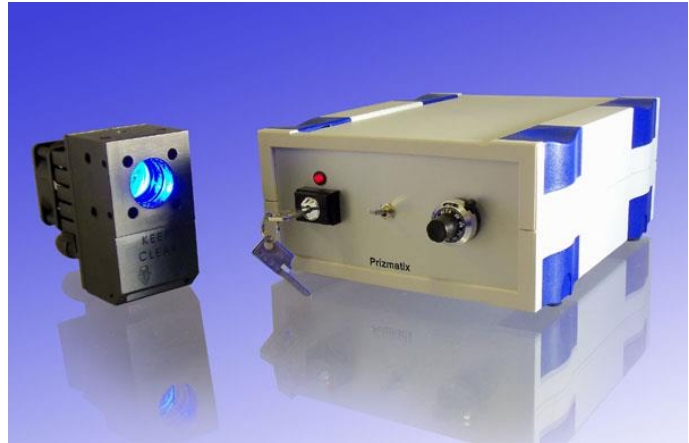
Ver. 01

### Introduction

The Ultra High Power LED provides almost X10 increase of power in comparison with similar High power LED devices. The Ultra High Power LED (> 50 Watt) is an effective replacement of lasers and lamps in many power demanding applications, such as optogenetics, fluorescence microscopy, machine vision, chemical reaction activation and numerous others.

Fluorescence microscopy applications will benefit from highly homogenous and flat field illumination. The 460 nm LED will supply the needs of such power hungry methods as Photostimulation of Channelrhodopsin (ChR1, ChR2), FISH and FRAP.

This new member of the modular OptiBlocks family provides >3.3 Watt of collimated LED power on its output and can be used with a full range of other optical OptiBlocks such as Fiber Coupler, Liquid Light Guide coupler, Beam Combiner, Filter Wheel, Beam Switcher and others.



### Key Features

- Single chip ultra-high brightness blue LED
- Optically isolated TTL input for external triggering (no shutter needed)
- Computer control via USB and LabView software or Analog input (optional)
- Stable precisely adjustable power
- Long life (no lamp or laser tube replacement required)
- Rapid warm up time
- Compatible with Prizmatix modular Microscope-LED Light Source products family – see below for details

### Applications

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

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#### Main Office

Phone: +972-72-2500097  
Fax: +972-72-2500096  
sales@prizmatix.com

#### European Sales Office

Phone: +44-(0)77-9172-9592  
Fax: +44-(0)20-7681-2977  
sales.europe@prizmatix.com

#### North America Sales Office

Phone: +1-(248)-436-8085  
Fax: +1-(248)-281-5236  
sales.usa@prizmatix.com

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P.O.B. 4234 Modiin-Ilite 71919, Israel

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- Inspection and machine vision and OEM

## Optical Specifications

Wavelength	nm	460
Wavelength range	nm	5
Spectrum FWHM (full width at half max.)	nm	~26
Collimated optical power output *	Watt	>3.3

\* Above values are for CW operation mode.

## Benchtop LED Current Controller Specifications

- Constant current or chopping modes
- Precise LED current setting by 10-turn dial
- Opto-isolated fast TTL external trigger input
- Analog Input 0-5V for power control (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	<2
Input voltage	V	12
Max input current	A	6.5
Power adaptor input		85-264 VAC, 47-63Hz, 1.5A

## General Specifications

Operation temperature range	°C	10 - 35
Storage temperature range	°C	-10 - 55
Operating relative humidity (Non condensing)	%	<90
LED head dimensions		See drawing below
LED head weight	g	350
Controller dimensions (L x W x H)	mm	197 x 174 x 80
Controller weight	g	400
Power adaptor dimensions (L x W x H)	mm	175 x 72 x 35
Power adaptor weight	g	650
Power Adaptor Safety		
Head fan noise	dBA	38

## Performance

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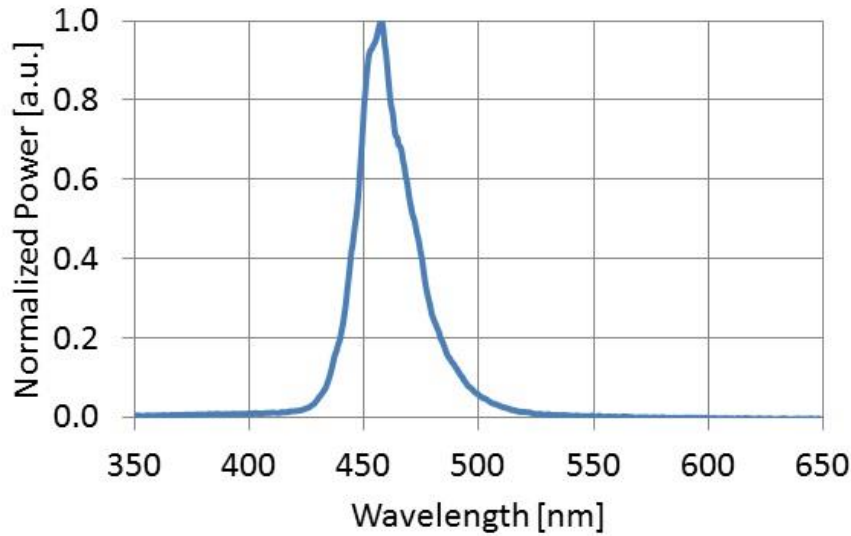
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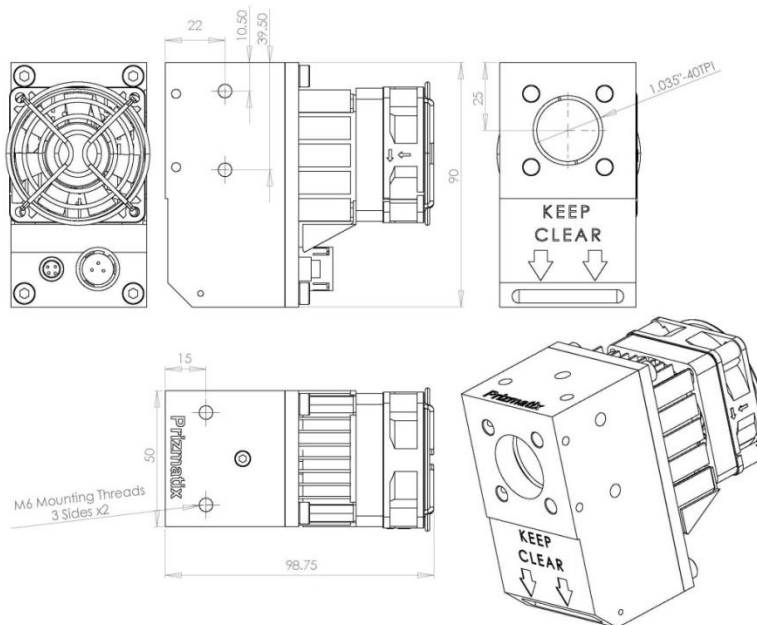
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- UHP-T-LED-460 spectrum

## Mechanical Drawings



\* Specifications subject to changes without notice

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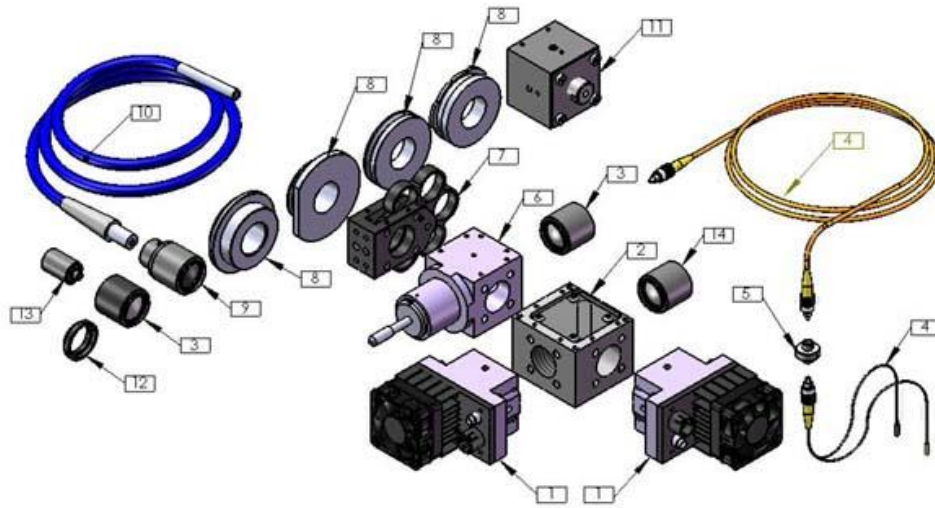
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## Optional Accessories

For more details on optional accessories please see:

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



### Beam Combiner [2]:

The Beam Combiner can join two discrete UHP-LEDs into one collinear output beam.

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

### Fiber Coupler Adaptor [3]:

The UHP-T-LED can be easily changed from direct microscope coupling to a fiber coupled LED configuration by means of Fiber Coupler Adaptor (SMA, CF or ST connector). This adaptor can be easily assembled by a user on the LED output.

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

### Liquid Light Guide Adaptor [9]:

The UHP-T-LED can be quickly and simply attached to a Liquid Light Guide by means of the LLGA adaptor. Please see video clip <http://www.youtube.com/watch?v=iv7dlwLHaUE> for more details.

### Fiber Optics Collimator [13]:

Output from an optical fiber is divergent according to fiber NA. In order to reduce the divergence angle a collimator can be used. Prizmatix's collimator is 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]:

The outputs of multiple LEDs can be combined using a Y-shaped fiber bundle with two or more input branches. 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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