

Prizmatix

UHP-Black-LED-460

Fiber Coupled Ultra High Power LED Light Source

Introduction

The Fiber Coupled Ultra High Power LED provides almost x10 increase of power in comparison with similar High power LED devices. The Ultra High Brightness LED 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. The LED head provides **more than 400 mW** of CW power at fiber output. The LED driver supports CW or pulsed operation.



Key Features

- Ultra High Power fiber coupled LED
- Speckle free
- TTL external modulation
- Excellent for fluorescence excitation
- LED spectrum can be narrowed by optional band pass filter installed inside the head.
- Reciprocal SMA, FC or ST fiber connection
- Precisely adjustable power
- Long life (no lamp or laser tube replacement required)
- Rapid warm up time

Applications

- Machine Vision
- Fluorescence microscopy and imaging (Fura Red, GFP, eGFP, Cy2, Alexa 488)
- Fluorescence spectroscopy
- Photo activation (PA)
- Fluorescence recovery after photo bleach (FRAP)
- Bio analysis
- Component testing

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Optical Specifications

Wavelength	nm	460
Wavelength range	nm	±5
Spectrum half width	nm	27
Polarization		Random
Optical output connector		SMA, FC, ST

Power output from fiber:

UHP-Black-LED power output is limited by the reciprocal fiber characteristics. Larger core and higher NA will increase maximum power output, and vice versa.

The table below shows a few examples of the CW output power at different fibers:

Fiber brand	Fiber type* ¹	NA	Fiber Core Diameter	Output Power Typ.* ²
Toray PGR-FB1500 or Mitsubishi Rayon SH6001	POF	0.5	1500 µm	>400 mW
Toray PGR-FB1000 or Mitsubishi Rayon SH4001	POF	0.5	1000 µm	200mW

*1: Fiber length ~ 1 m; POF – Polymer Optical Fiber

*2: The measurement done by Ophir Nova II power meter equipped with PD300-UV head. The wavelength is set at 460 nm. The values are for non filtered UHP-LED.

Benchtop LED Current Controller Specifications

Features

- Constant current or chopping modes
- Precise LED current setting by 10 turn dial
- TTL external trigger input
- Compact and robust enclosure

Digital modulation input		TTL
Connector for TTL input		BNC
Digital modulation frequency	Hz	DC-30000
Rise / Fall time (10% - 90%)	µs	2
ON/OFF extinction		>10 ⁶ : 1
Input Voltage	V	12
Max Input current	A	5.5
Power Adaptor Input		100-240 VAC, 50-60Hz, 1.5A

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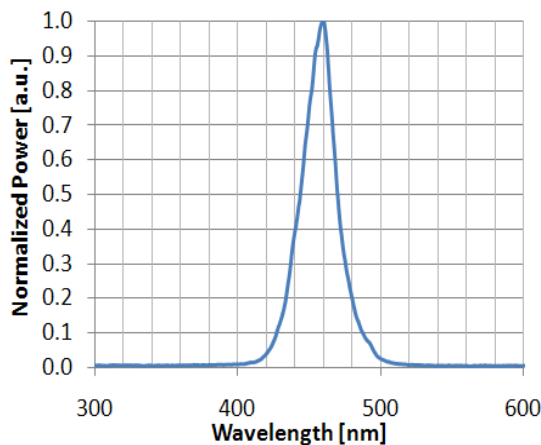
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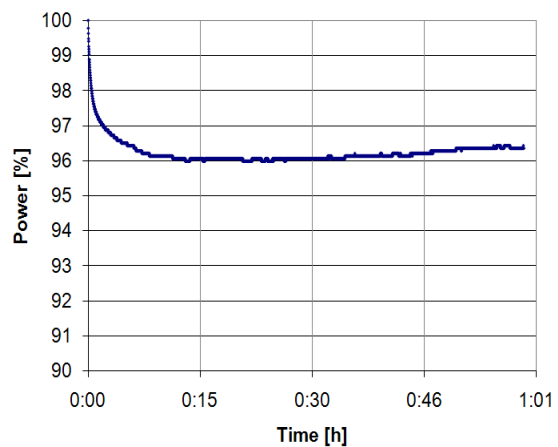
General Specifications

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)		146mm x 76mm x 44mm
Power adaptor weight	g	600
Fan noise	dBA	38

Performance



- UHP-Black-LED-460 spectrum



- UHP-Black-LED-460 Stability

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Optional Accessories:

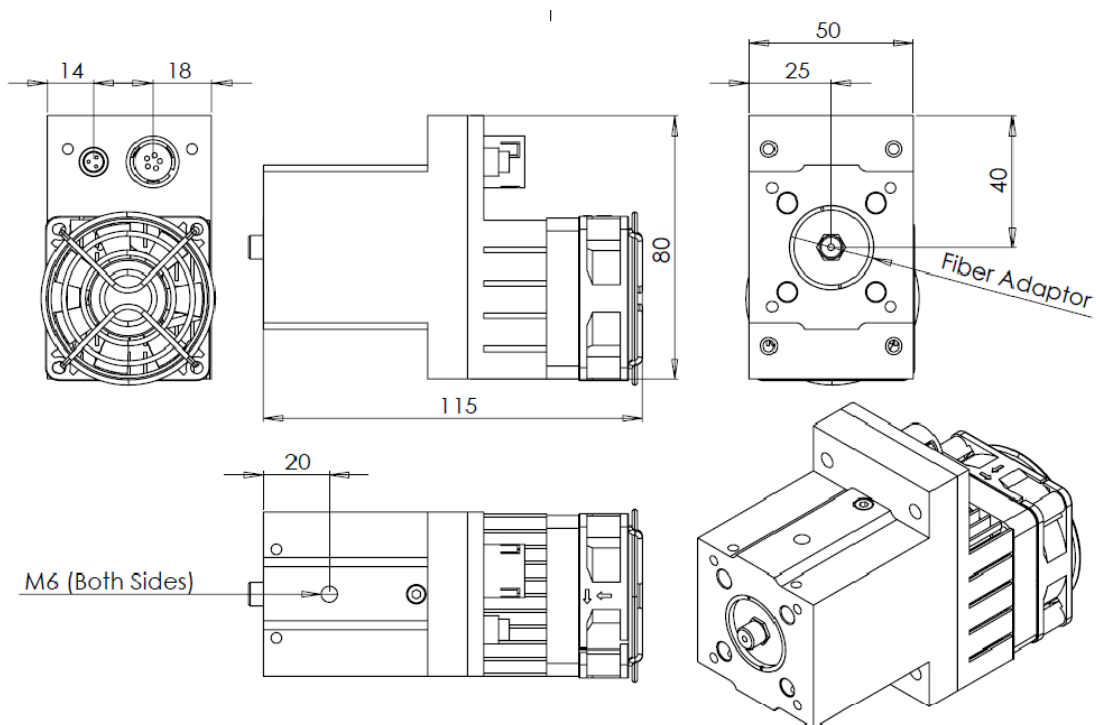
Fiber patch cords: Various fiber optic patch cords are available for use with the 3-LED or 5-LED products. Most popular patch cords are 1000 / 1500 / 2000 micron core diameter Polymer Optical Fibers (POF) terminated by optical SMA connectors on both sides. Prizmatix can provide Stainless Steel tube at one end of the patch cord instead of the SMA connector. This configuration is more convenient in some applications.

Collimator: 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.

Fiber Bundles: 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.

Special Bundles: For spectroscopy application special fiber optic bundles are very important. Special care must be addressed to eliminate possible cross link between the excitation and the collection fibers.

Mechanical Drawings



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