

# Prizmatix

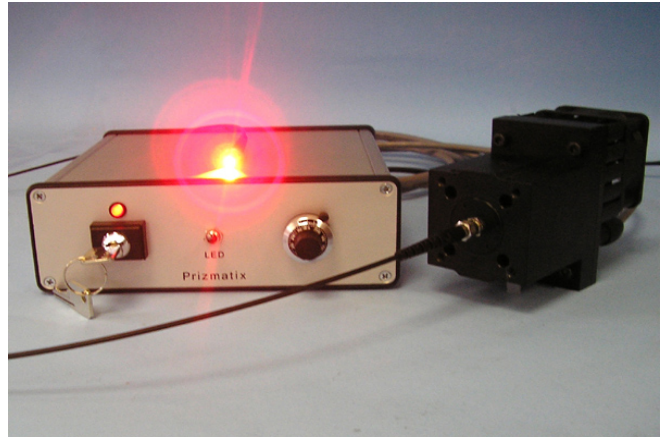
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## UHP-Black-LED-630

### 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 (Cy5, Alexa Fluor 633)
- Fluorescence spectroscopy
- Photo activation (PA)
- Fluorescence recovery after photo bleach (FRAP)
- Bio analysis
- Component testing

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## Optical Specifications

|                          |    |             |
|--------------------------|----|-------------|
| Wavelength               | nm | 630         |
| Wavelength range         | nm | ±5          |
| Spectrum half width      | nm | 17          |
| 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* <sup>1</sup> | NA  | Fiber Core Diameter | Output Power Typ.* <sup>2</sup> |
|---|--------------------------|-----|---------------------|---------------------------------|
| 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 630 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 <sup>6</sup> : 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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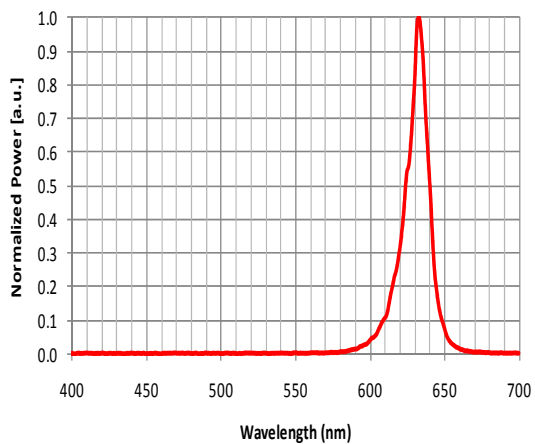
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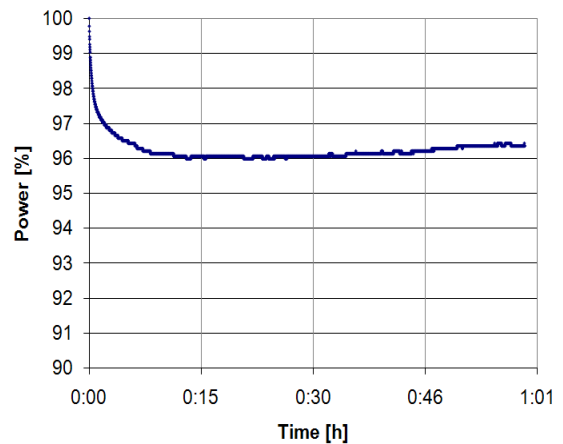
## General Specifications

|  |     |                        |
|--|-----|------------------------|
| 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-630 spectrum



- UHP-Black-LED-630 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.

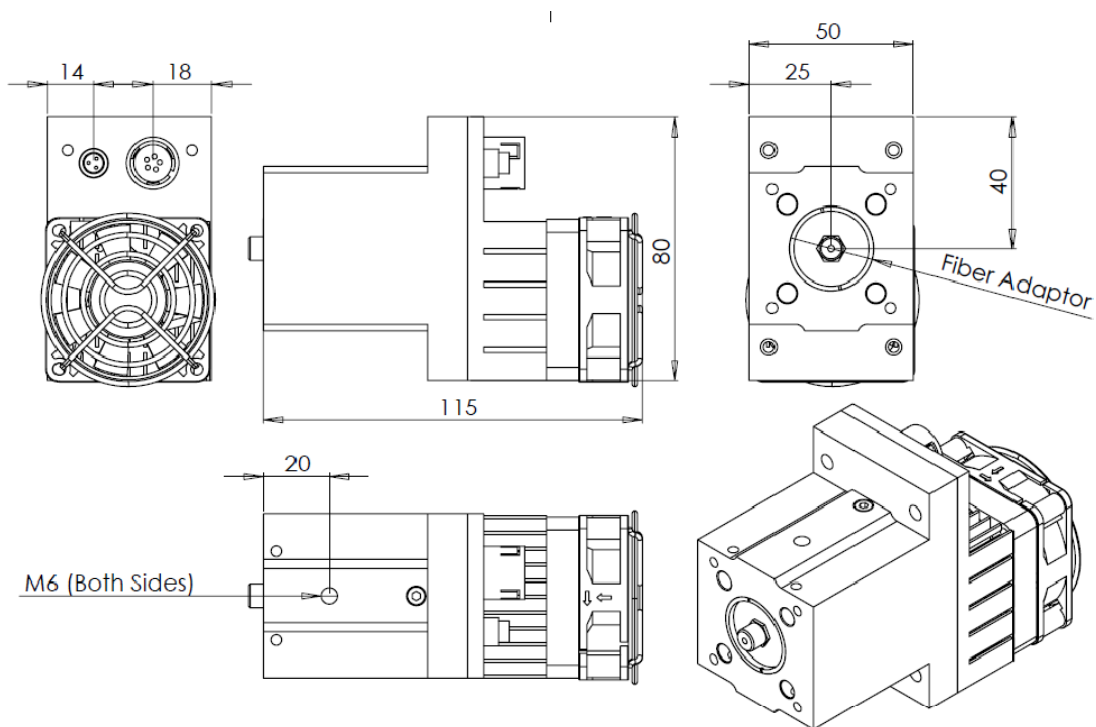
**Collimator:** The output from optical fiber is divergent according to fiber NA. In order to reduce the divergence angle a collimator module can be used. Prizmatix collimator was especially designed to fit thick core high NA Polymer Optical Fibers.

**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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