

# Prizmatix

## UHP-T-SR Ultra-High Brightness LED Light Source

Ver. 02

### Introduction

The UHP-T-SR is a Ultra-High Brightness LEDs series featuring unique LED chips. The UHP-T-SR proprietary thermal management enables us to drive the LED die at high current density, making the UHP-T-SR series a top-brightness system. Applications such as fluorescence microscopy, confocal microscopy, chemical reaction activation and numerous others can benefit from this design.

The shielded UHP-T-SR LED head contains the high current driver, while the LED controller box contains control functions. This arrangement eliminating much of RFI / EMI interference common in high current light sources.

The controller features Optically Isolated TTL and Analog Inputs. These features make this product especially suited for electrophysiology rig applications.

UHP-T-SR 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 See Optional Accessories section below.



### Key Features

- Single ultra-high brightness LED chip provide highly homogeneous illumination over whole field of view.
- Excellent thermal management of LED die enables extreme performance.
- Shielded LED head with high current driver, low RFI/EMI.
- Optically isolated TTL input for external triggering (no shutter needed) or strobe operation
- Optically isolated Analog input (0-5V) for LED power control by external device like D/A interface
- Computer control via USB by Windows software, LabView VI or uManager (optional).
- Long life (no lamp or laser tube replacement required)
- Compatible with Prizmatix modular Microscope-LED Light Source products family – see below for details.
- Special low optical noise model available for detection of small signals (option).

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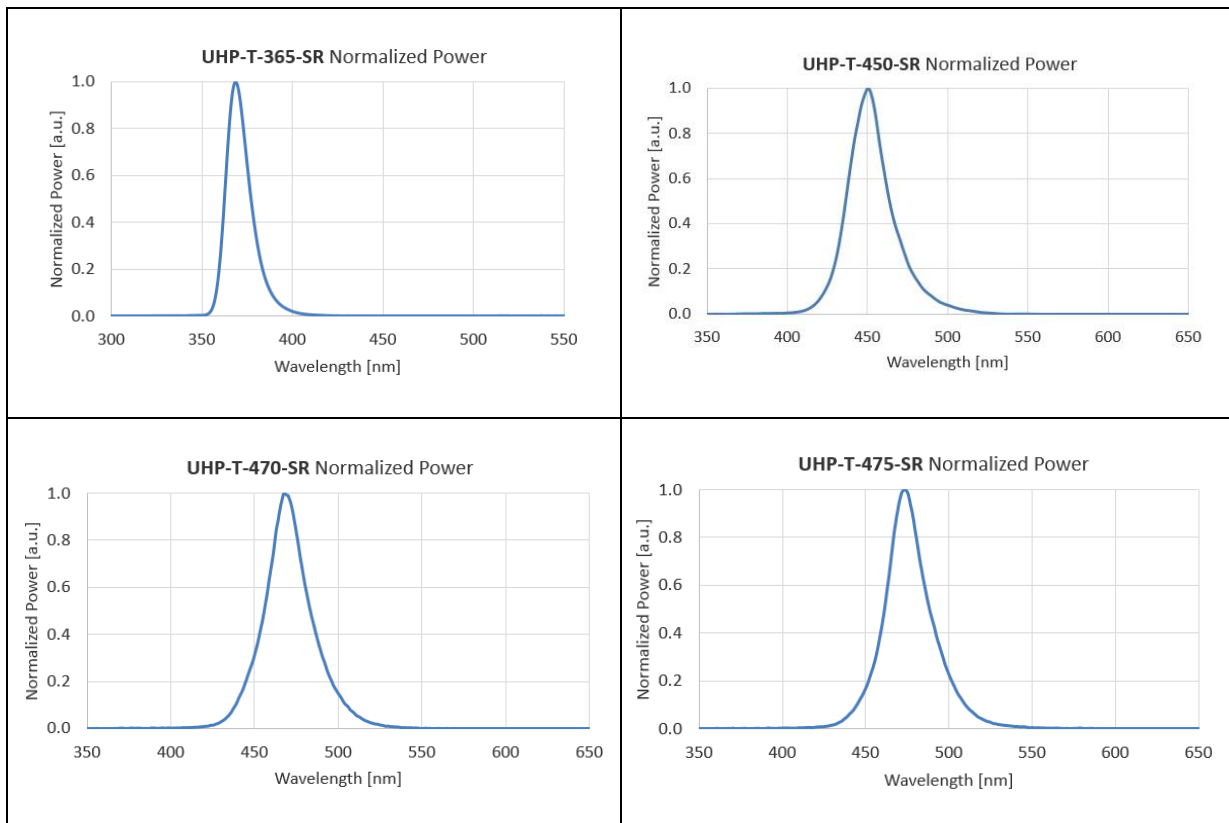
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## Applications

- Fluorescence microscopy in electrophysiology rig.
- Confocal microscopy
- Multi-wavelength systems
- Bio analysis
- OEM

## Optical Specifications

P/N	Peak [nm]	FWHM [nm]	Collimated Source Brightness [mW/mm <sup>2</sup> ]	Power Collimated [mW]
UHP-T-365-SR	369	15	>650	2700
UHP-T-450-SR	450	25	>1000	1850
UHP-T-470-SR	469	28	>1400	1200
UHP-T-475-SR	474	27	>1000	1300
UHP-T-545-SR	544	100	>850	1700
UHP-T-595-SR	596	80	>450	450
UHP-T-620-SR	626	21	>350	760
UHP-T-630-SR	632	23	>250	540



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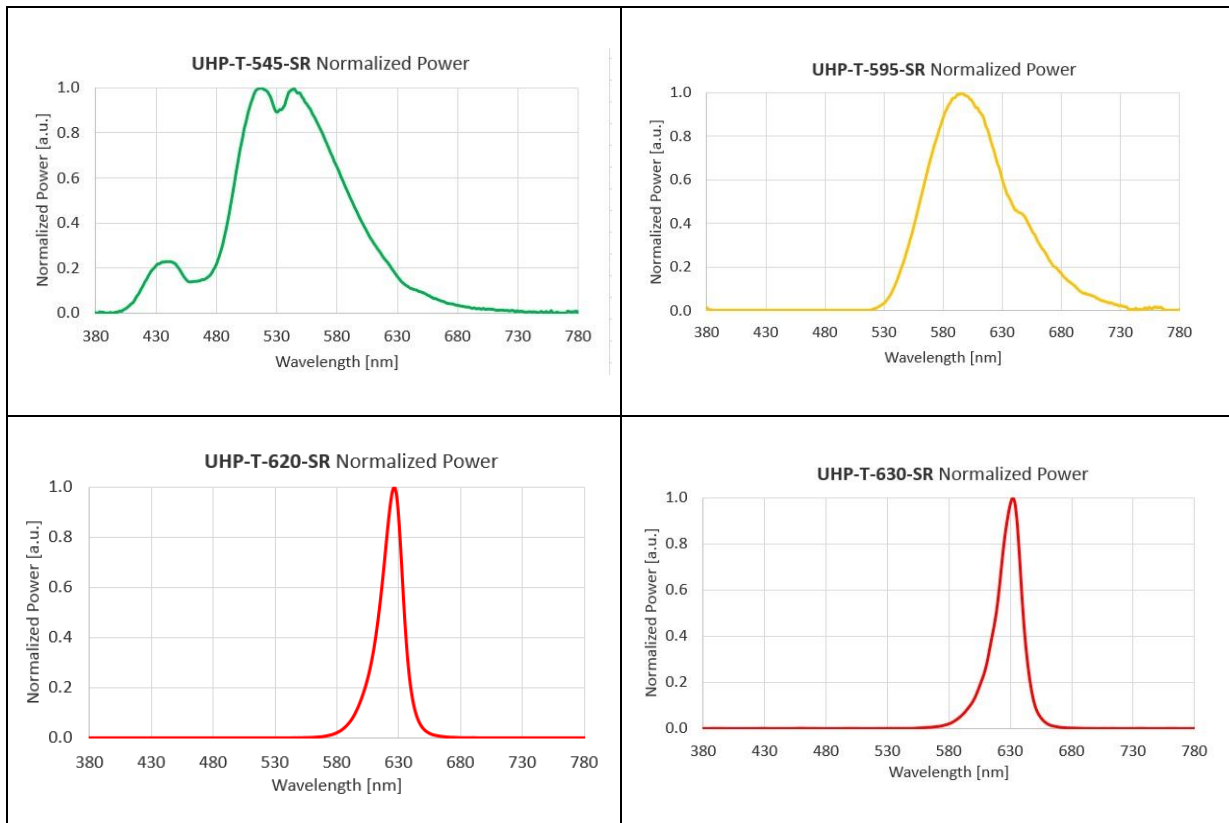
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## Benchtop LED Current Controller Specifications

- Constant current or chopping modes
- Precise LED current setting by 10 turn dial
- TTL external trigger input
- Analog input for external LED power control (0-5Vdc)
- Optically isolated TTL and Analog inputs
- Compact and robust enclosure



Connectors for TTL and Analog input		Optically Isolated BNC
Digital modulation frequency	Hz	DC - 30000
Rise / Fall time	$\mu$ s	<5
Analog input voltage range	V	0 - 5
Analog modulation frequency	Hz	DC - ~100
Current controller supply voltage	V	12

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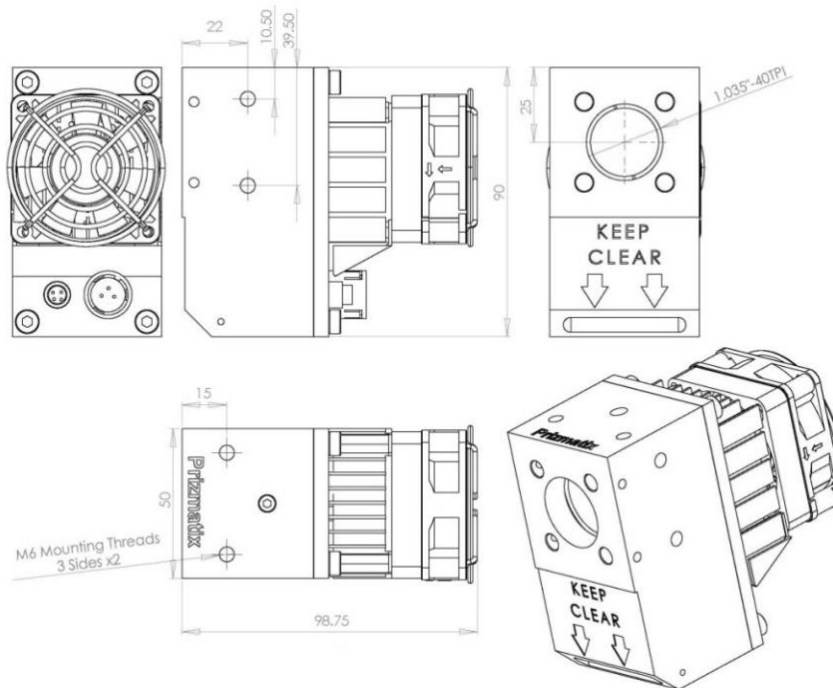
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Power adaptor input		85-264 VAC, 47-63Hz, 1.5A
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## General Specifications

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	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		
LED Head fan noise	dBA	38

## Mechanical Drawings



\* Specifications subject to changes without notice

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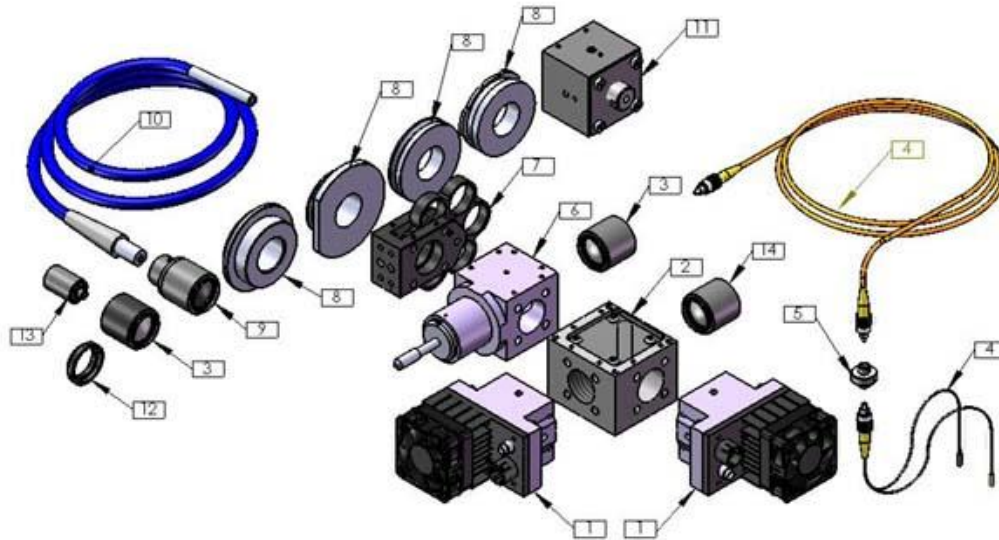
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## Optional Accessories

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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