

UHP-T-DI

Ultra-High Power LED Light Source for Scientific Illumination

Ver. 05

Introduction

The UHP-T-DI series Ultra High Power LEDs (~50 Watt) feature a powerful square homogeneous collimated beam (direct illumination without a light guide) useful in many power demanding applications such as fluorescence excitation, microscopy whole body imaging and machine vision.

The UHP-T high current driver is installed inside the LED head enabling low RFI/EMI interference with another lab equipment. The UHP-T-DI optics contains aspheric lens to optimize homogeneous illumination.

The UHP-T LEDs are available at several discrete wavelengths including unique Lime-Green (UHP-T-560-DI) and Ultra High-Power White (e.g. UHP-T-WCS-DI).

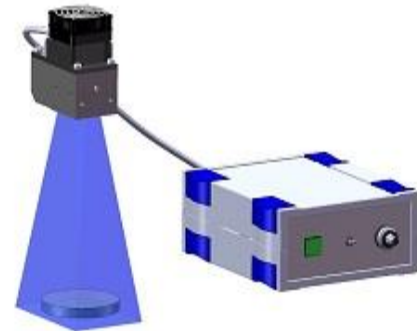
The LED current controller supports CW or pulsed operation via TTL trigger. The LED power can be controlled by 10 turn dial or via Analog input (0-5V).

The product can be used in various configurations such as collimated light source, directly connected to microscope, coupled to liquid light guide or coupled to optical fiber.



Key Features

- Ultra-High Brightness large homogeneous emission surface square LED chip (Not LED Array).
- 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.
- Stable precisely adjustable power



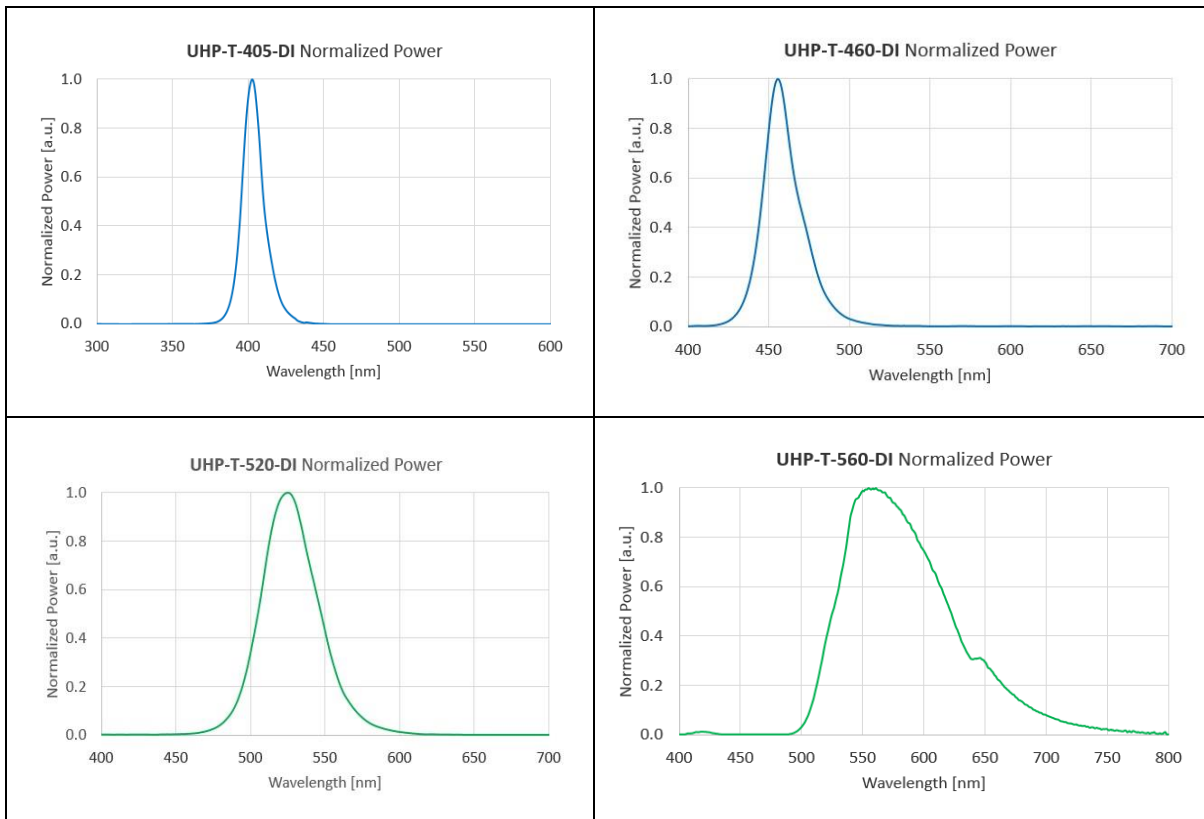
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Applications

- Fluorescence microscopy
- *In-Vitro* Optogenetics
- Microplate illumination, Petri Dish illumination
- Whole body imaging of small animals
- Bio analysis
- Machine Vision
- OEM

Optical Specifications – Color LEDs

Product P/N	Peak [nm]	Centroid [nm]	FWHM [nm]	Power Collimated [mW]	Power LLG3 [mW]	Power LLG5 [mW]
UHP-T-405-DI	404	406	14	5700	2000	3600
UHP-T-460-DI	456	460	24	4300	1800	2700
UHP-T-520-DI	525	528	43	1800	700	1000
UHP-T-560-DI	560	570	97	2600	1000	1600
UHP-T-625-DI	627	624	19	1800	800	1200



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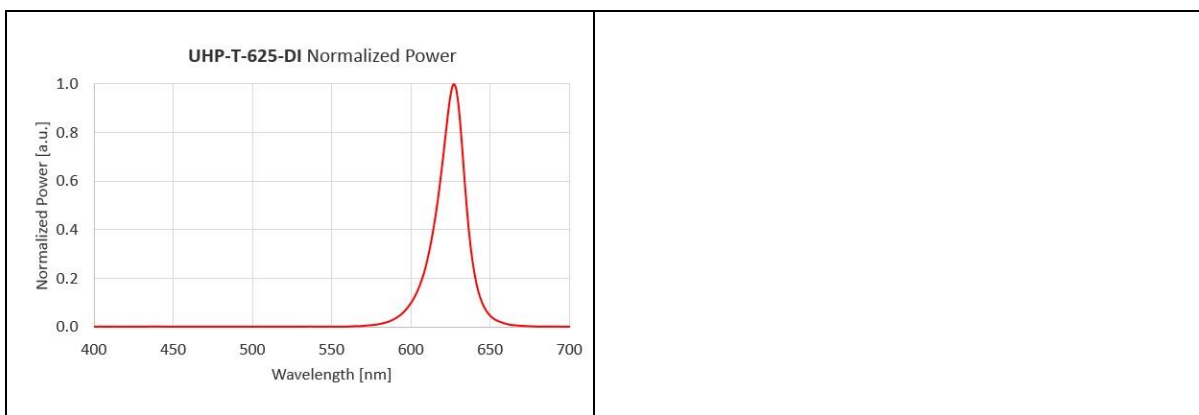
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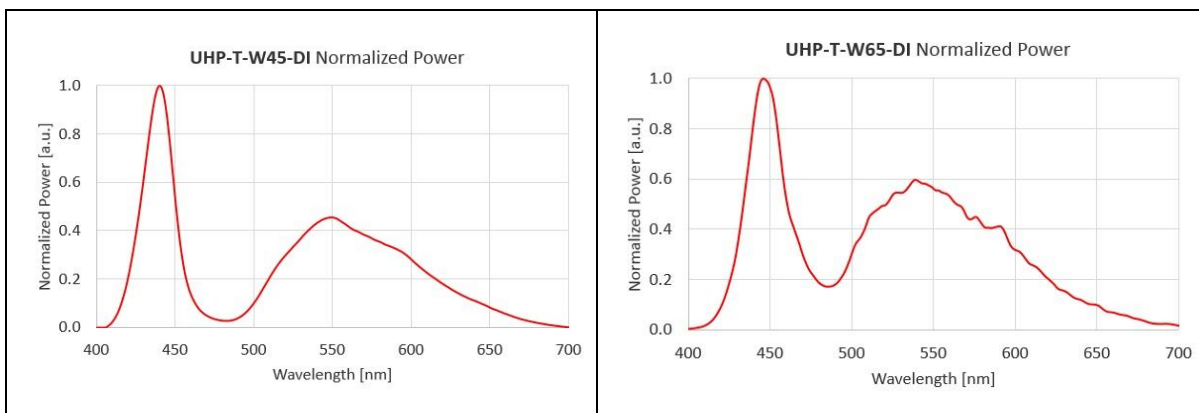


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Optical Specifications – White LEDs

Product P/N	Color Temp. [K]	Power Collimated [mW]	Power LLG3 [mW]	Power LLG5 [mW]
UHP-T-W45-DI	4500	3700	1200	2000
UHP-T-W65-DI	6500	3200	1300	2000
UHP-T-HCRI-DI	5700	2300	1000	1600
UHP-T-WCS-DI	6500	4400	1500	2500
UHP-T-WCS-DI	5665	4800	1800	2700
UHP-T-WCS-DI	8500	4700	1600	2600

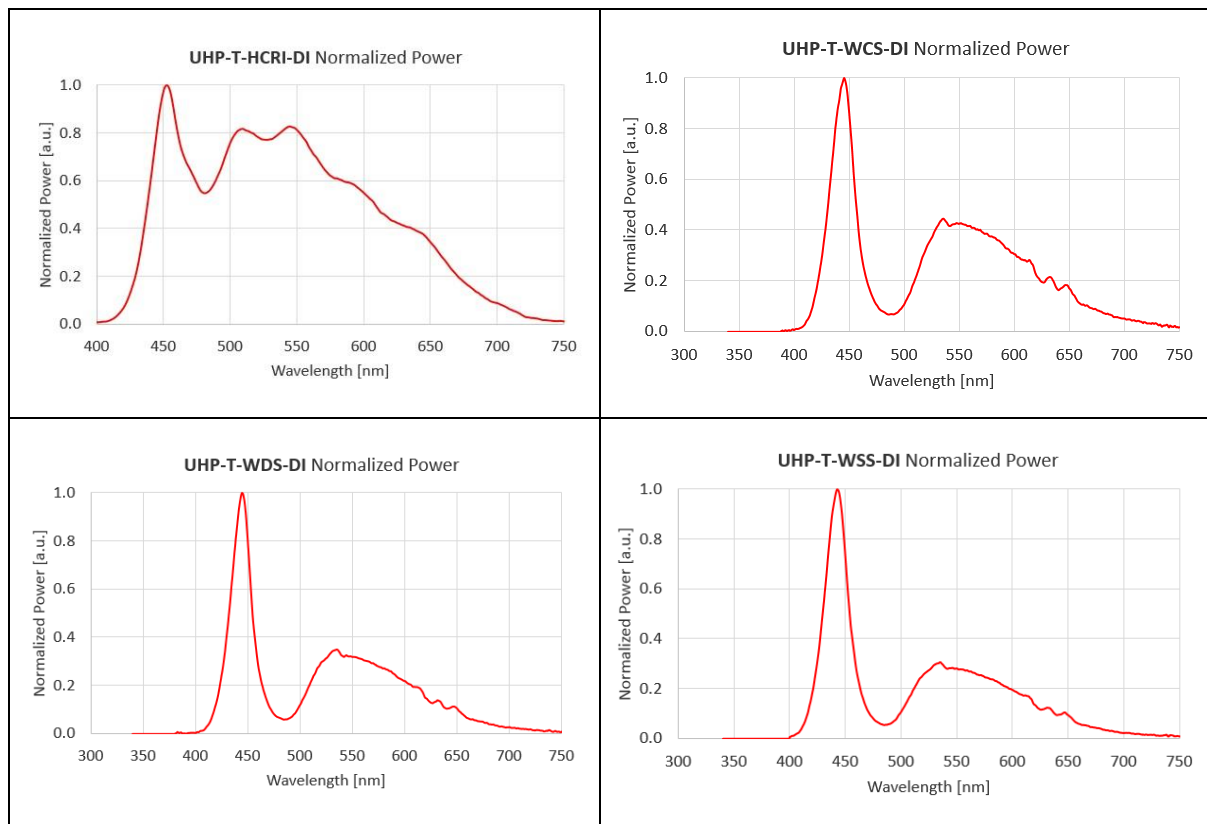


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Benchtop LED Current Controller Specifications

- 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 - 10000
Rise / Fall time	μ s	<10 / <3
Analog input voltage range	V	0 - 5
Analog modulation frequency	Hz	DC - ~100
Current controller supply voltage	V	12
Power adaptor input		85-264 VAC, 47-63Hz, 1.5A

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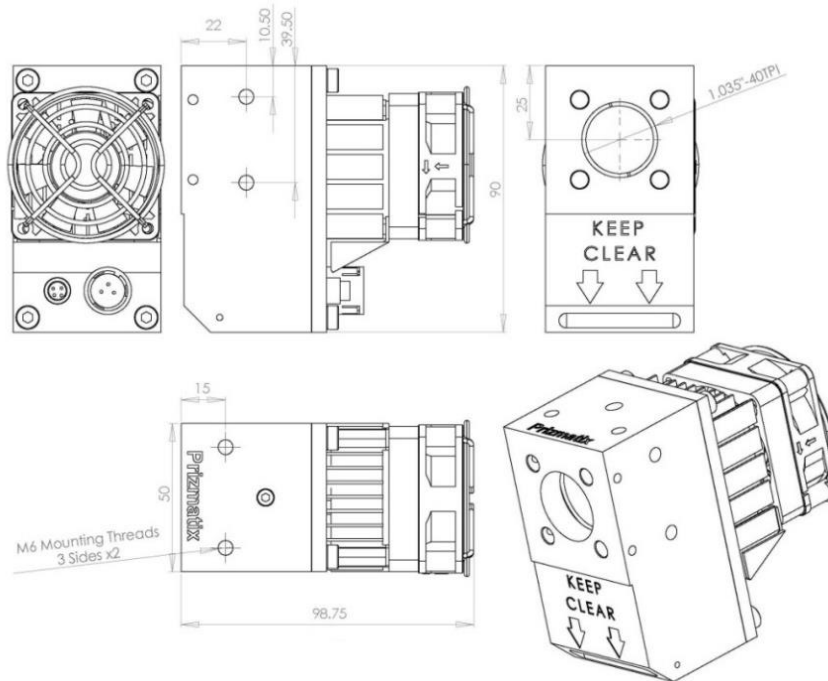


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General Specifications

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	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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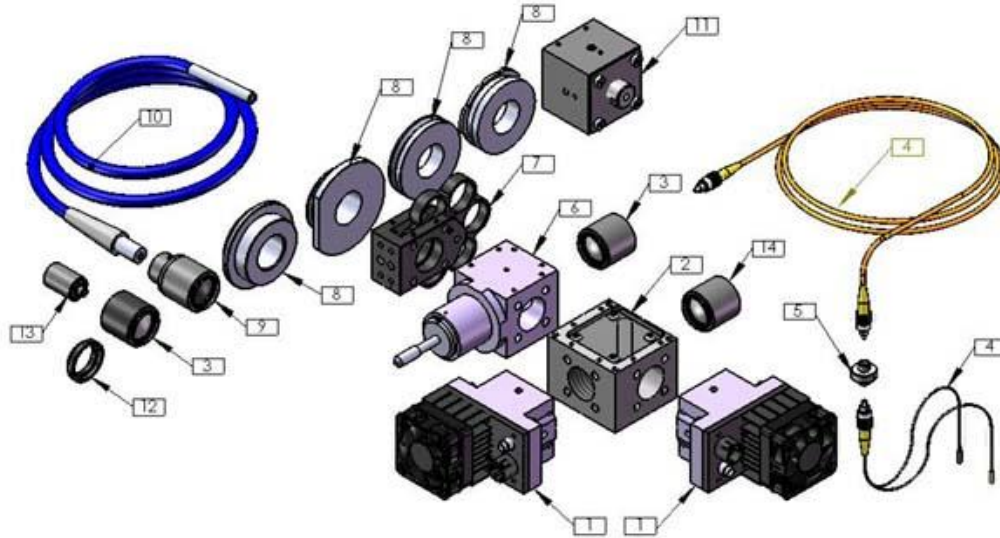


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Optional Accessories

For full details on optional accessories please see:

<https://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:

<https://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. For more details please see:

<https://www.prizmatix.com/Optics/filter-wheel.htm>

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

<https://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

<https://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: <https://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: <https://www.prizmatix.com/dev/Custom-Fiber-Optic-Assemblies.htm>

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