UHP-T-DI
Ultra-High Power LED Light Source for Microplate Illumination

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-DI optics contains aspheric lens to optimize homogeneous illumination. The UHP-T LEDs are available at several discrete wavelengths, white and unique UHP-T-HCRI (High CRI) broadband white LED.

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
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

<table>
<thead>
<tr>
<th>Product P/N:</th>
<th>UHP-T-460-DI</th>
<th>UHP-T-520-DI</th>
<th>UHP-T-625-DI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak</td>
<td>[nm]</td>
<td>456</td>
<td>525</td>
</tr>
<tr>
<td>Centroid</td>
<td>[nm]</td>
<td>460</td>
<td>528</td>
</tr>
<tr>
<td>FWHM</td>
<td>[nm]</td>
<td>24</td>
<td>43</td>
</tr>
<tr>
<td>Power Collimated</td>
<td>[mW]</td>
<td>4300</td>
<td>1800</td>
</tr>
<tr>
<td>Power LLG3</td>
<td>[mW]</td>
<td>1800</td>
<td>700</td>
</tr>
<tr>
<td>Power LLG5</td>
<td>[mW]</td>
<td>2700</td>
<td>1000</td>
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</table>
Optical Specifications – White LEDs

<table>
<thead>
<tr>
<th></th>
<th>UHP-T-W45-DI</th>
<th>UHP-T-W65-DI</th>
<th>UHP-T-HCRI-DI</th>
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</thead>
<tbody>
<tr>
<td>Color Temp [K]</td>
<td>4500</td>
<td>6500</td>
<td>5700</td>
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<tr>
<td>Power Collimated [mW]</td>
<td>3700</td>
<td>3200</td>
<td>2300</td>
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<tr>
<td>Power LLG3 [mW]</td>
<td>1200</td>
<td>1300</td>
<td>1000</td>
</tr>
<tr>
<td>Power LLG5 [mW]</td>
<td>2000</td>
<td>2000</td>
<td>1600</td>
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</table>

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
Prizmatix

Connectors for TTL and Analog input | Optically Isolated BNC
---|---
Digital modulation frequency | Hz DC - 10000
Rise / Fall time | μs <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

<table>
<thead>
<tr>
<th>General Specifications</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Operation temperature range</td>
<td>°C 10 - 35</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>°C -10 - 55</td>
</tr>
<tr>
<td>Operating relative humidity (Non condensing)</td>
<td>% &lt;90</td>
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<tr>
<td>Head dimensions</td>
<td>See drawing below</td>
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<tr>
<td>Head weight</td>
<td>g 350</td>
</tr>
<tr>
<td>Controller dimensions (L x W x H)</td>
<td>mm 197 x 174 x 80</td>
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<tr>
<td>Controller weight</td>
<td>g 400</td>
</tr>
<tr>
<td>Power adaptor dimensions (L x W x H)</td>
<td>mm 175 x 72 x 35</td>
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<tr>
<td>Power adaptor weight</td>
<td>g 650</td>
</tr>
</tbody>
</table>
| Power Adaptor Safety

Mechanical Drawings

* Specifications subject to changes without notice
Optional Accessories
For full details on optional accessories please see:

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 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 Gide coupled LED configuration by means of LLGA Adapator. 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