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

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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Applications

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

Optical Specifications

<table>
<thead>
<tr>
<th>P/N</th>
<th>Peak [nm]</th>
<th>FWHM [nm]</th>
<th>Collimated Source Brightness [mW/mm²]</th>
<th>Power Collimated [mW]</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHP-T-450-SR</td>
<td>450</td>
<td>25</td>
<td>&gt;1000</td>
<td>1850</td>
</tr>
<tr>
<td>UHP-T-545-SR</td>
<td>544</td>
<td>100</td>
<td>&gt;850</td>
<td>1700</td>
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<tr>
<td>UHP-T-595-SR</td>
<td>596</td>
<td>80</td>
<td>&gt;300</td>
<td>260</td>
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<tr>
<td>UHP-T-630-SR</td>
<td>632</td>
<td>23</td>
<td>&gt;300</td>
<td>550</td>
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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

<table>
<thead>
<tr>
<th>Connectors for TTL and Analog input</th>
<th>Optically Isolated BNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital modulation frequency</td>
<td>Hz</td>
</tr>
<tr>
<td>Rise / Fall time</td>
<td>µs</td>
</tr>
<tr>
<td>Analog input voltage range</td>
<td>V</td>
</tr>
<tr>
<td>Analog modulation frequency</td>
<td>Hz</td>
</tr>
<tr>
<td>Current controller supply voltage</td>
<td>V</td>
</tr>
<tr>
<td>Power adaptor input</td>
<td></td>
</tr>
</tbody>
</table>

General Specifications

| Operation temperature range       | °C | 10 - 35 |
| Storage temperature range         | °C | -10 - 55 |
| Operating relative humidity       | %  | <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     |
* 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 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