

LumiDL™ Modular Illuminator

Features

- UV Powers of 25-35 Watts (18 die array)
- Designs for Large Format TI DLP™ Chipsets
- Multi-wavelengths in one illuminator
- Non-imaging Etendue Preserving Optics
- Bi-telecentric Lens System
- Recirculating Liquid Heat Exchanger
- Field Replaceable Light Engine – FRU



Learn more here



The LumiDL™ Illuminator allows unprecedented speed and resolution for Ultraviolet DLP applications by providing highly uniform flux density over large areas. The patented, modular device couples a densely packed UV-LED array to a high efficiency, non-imaging collection optic integrated with a telecentric imaging optic optimized to the DLP chipset.

Applications

Industrial

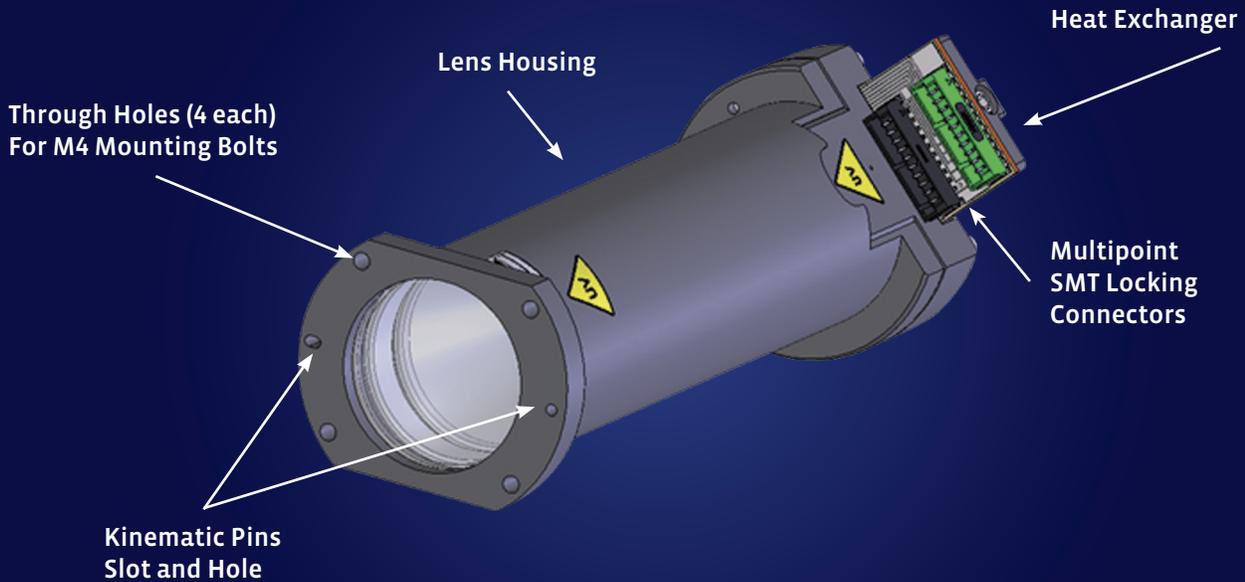
- Direct imaging Lithography
- Computer to Plate Printers
- Rapid Prototype Machines

Medical

- Ophthalmology
- Photo Therapy
- Hyperspectral Imaging

The LumiDL™ is sold as a kit, including the optics module and a driver. The optics module is easily mounted with kinematic registration on a flange mount. The field replaceable unit (FRU) provides fast, easy light engine replacement with no need for re-alignment or adjustment.

LumiDL™ – Illuminator Assembly



Modular Design for Field Serviceability

UV Bi-Telecentric Lens System
within UV Resistant Coated
Housing

Straight or Elbow (90°) Quick Con-
nect/Disconnect Liquid Cooling
Manifold Option



- Field Replaceable Unit (FRU) is pre-aligned, calibrated, with quick disconnects for coolant
- Provides fast, easy replacement with no need for re-alignment or adjustment

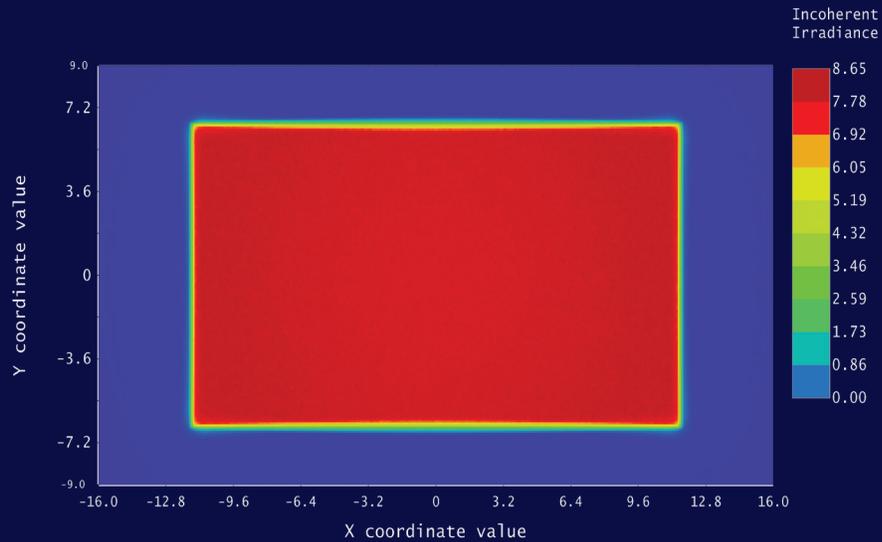
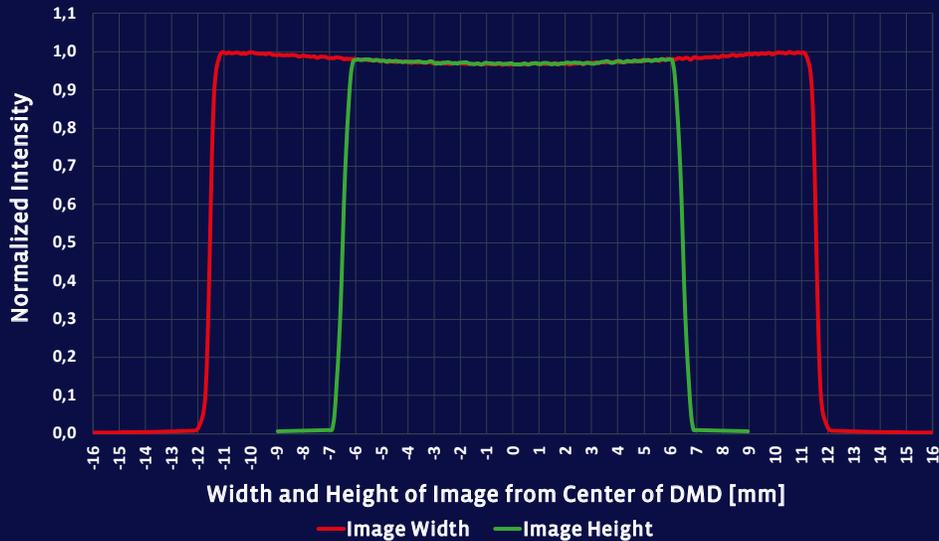
LumiDL™ – Excellent Spatial Uniformity

LumiDL™ optical design provides highly uniform flux density over large areas

Radiant flux is confined to 12° acceptance half-angle and DLP active area

Illumination overfill of the DLP relaxes positional tolerances along optical axis

Image Dimensions at Plane of DLP9500 (normal in air incidence)
3300B UV DLP Illuminator

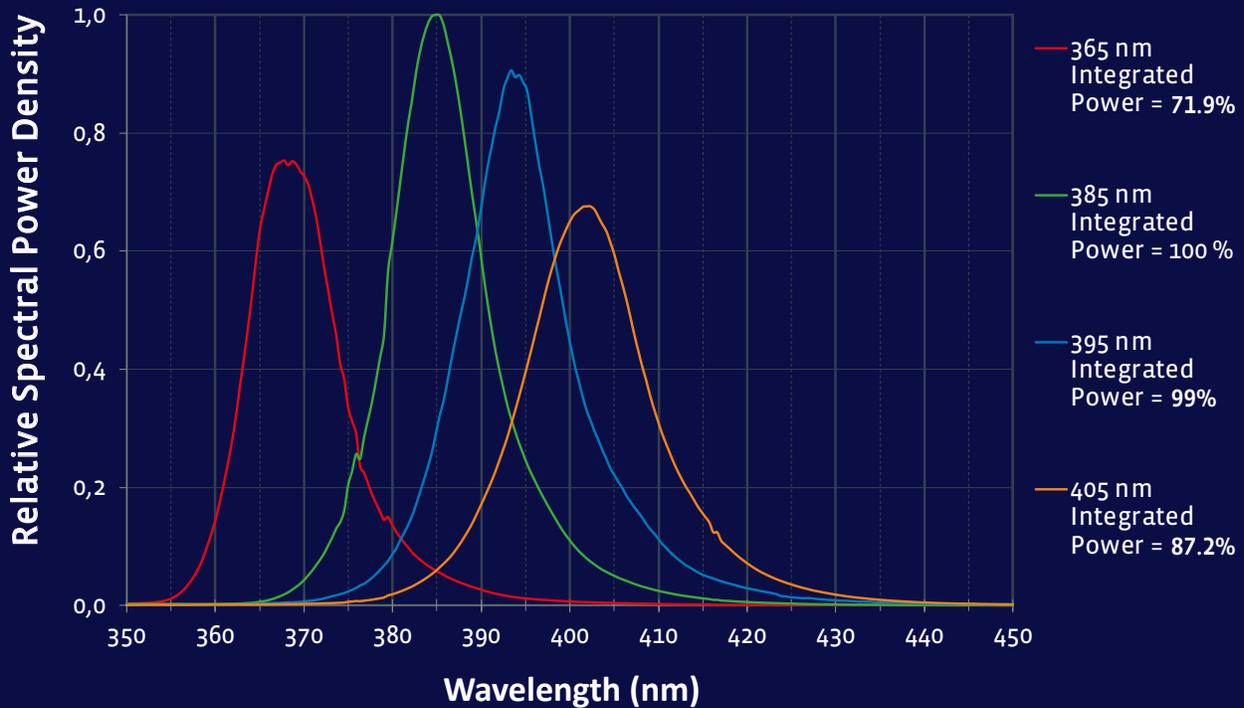


Detector Image: Incoherent Irradiance	
1/4/2021 Detector 55, NSCG Surface 1: DMD Plane Size 32.000 W X 18.000 H Millimeters, Pixels 400 W X 200 H, Total Hits = 3628605079 Peak Irradiance : 8.6495E+00 Watts/cm^2 Total Power : 2.5266E+01 Watts	Zemax Zemax OpticStudio 16.5 SP1 <small>3300B DLP Illuminator Production Design-18 Die-RSC-1 uniformity plot.zmx</small>

LumiDL™ – Excellent Spatial Uniformity

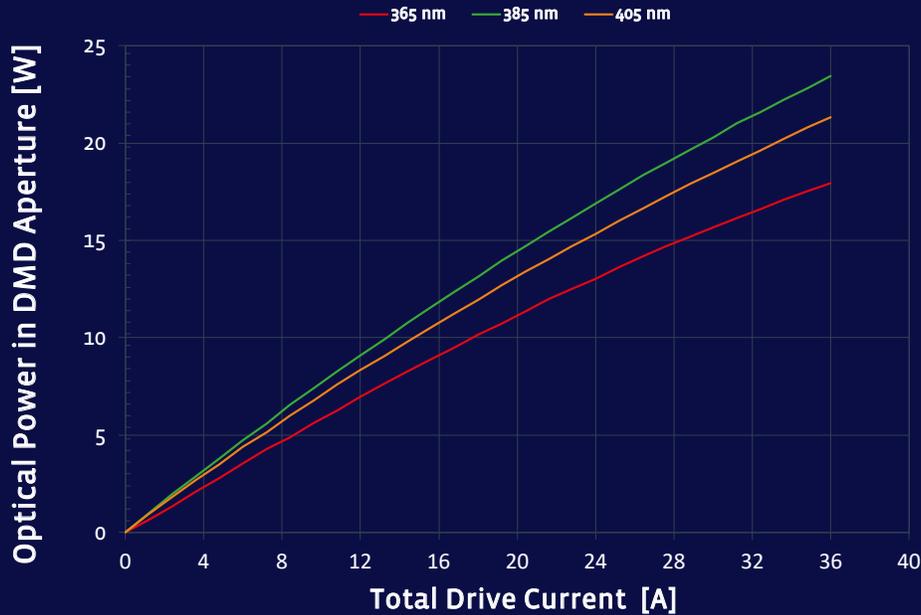
- LED die are available in a range of UV and Violet wavelengths
- For example - Mercury - Xenon Lamp
 - 365nm – i-line
 - 405nm – h-line
- Mix of die is ideal for thicker UV resists
- Array can be populated to fit your needs

**UV Die Bins: Spectral Power Distribution
(at equal current density)**



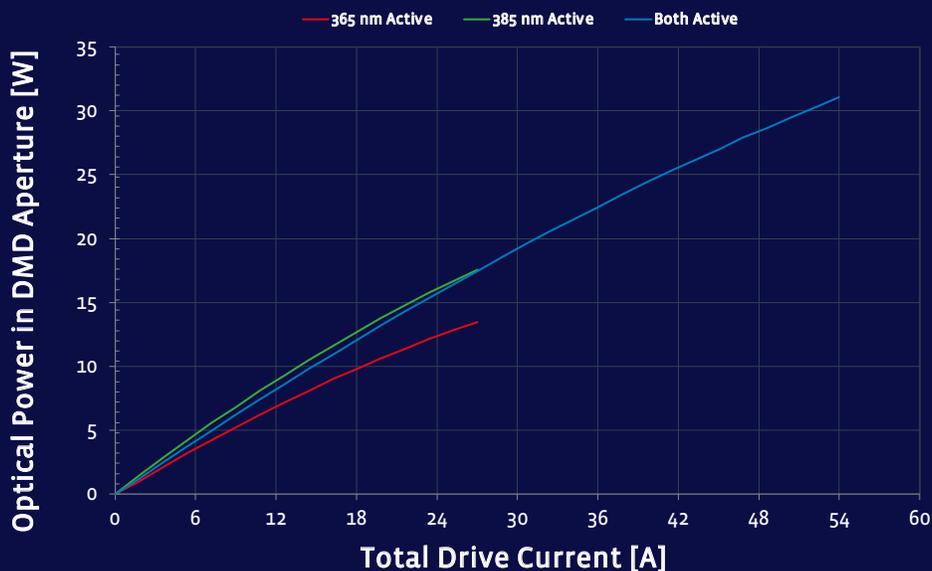
LumiDL™ Total Flux – Single Wavelength

3300B UV DLP Illuminators for 0.7 XGA DLP Single Wavelength Configurations



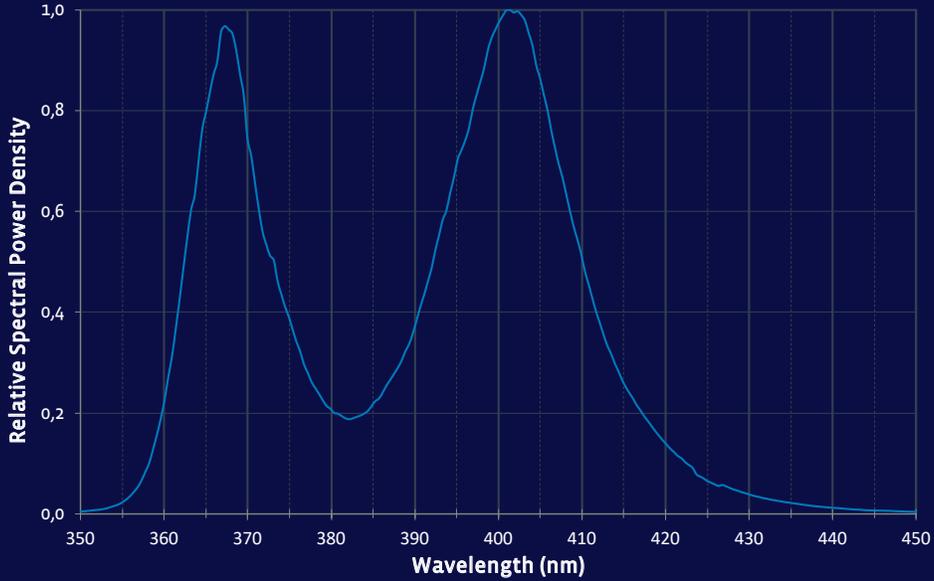
LumiDL™ Total Flux – Dual Wavelength Configuration

Optical Power on DLP9500 from 18-Die UV Led Array Dual Wavelength Configuration

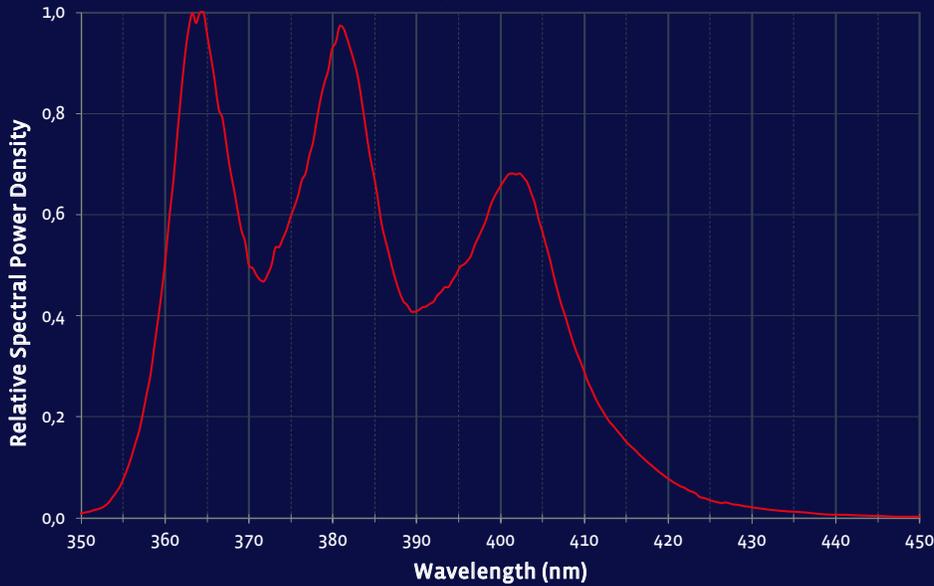


LumiDL™ Wavelength Combination Options

Dual Wavelength Configuration: Spectral Power Distribution
365 nm and 405 nm



Triple Wavelength Configuration: Spectral Power Distribution
365 nm , 385 nm and 405 nm

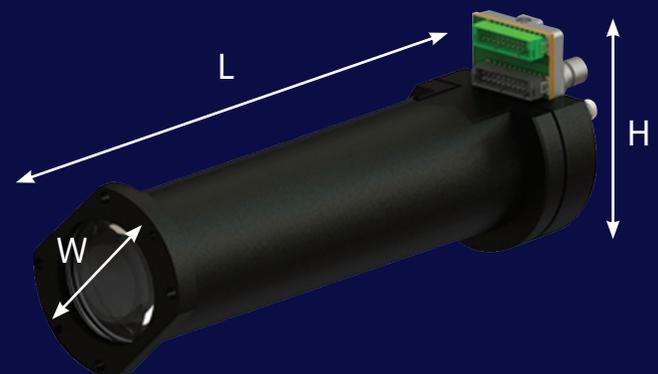


LumiDL™ Specifications

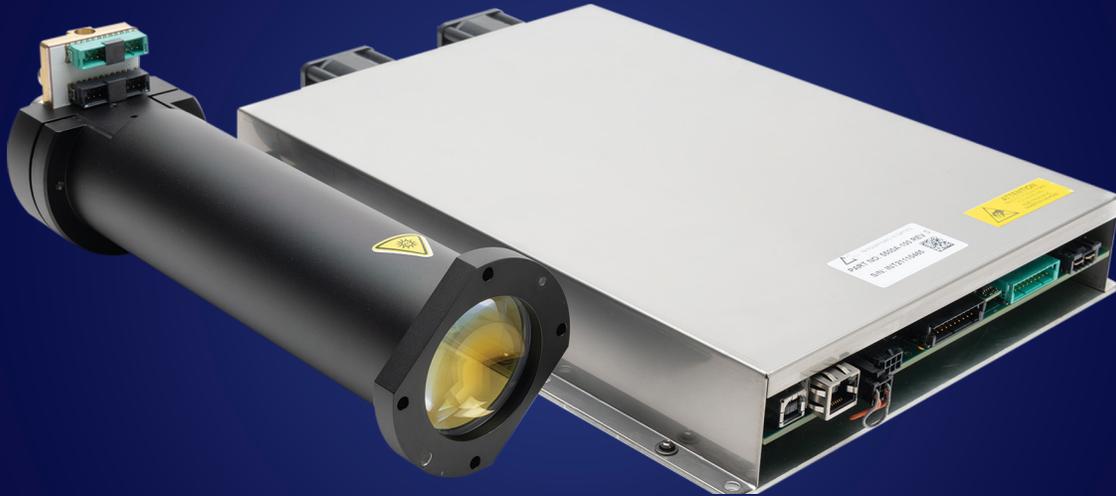
Parameter	Specification	Comment
Optical power output at 3 amps drive current	> 35 Watts	18 array die
Drive current per channel / die	Min 0.30 Amps Max 3.0 Amps	Continuous operation. Die can be driven individually.
Typical UV wavelength bins	365 to 405 nm	Contact Sales Engineer for additional bins
Output numerical aperture	NA = 0.208	Matches DLP +/- 12° micromirror tilt angle
Numerical aperture overfill	5%	
Electrical power input	300W	Typical Maximum
Operating environment	15°C to 35°C	5% to 85%, relative humidity, non-condensing
Thermal impedance	10 kΩ	At 25°C
Thermistor B25/85	3574-3646	For 10 kΩ
Cooler fittings	Quick disconnect/No spill	Right angle (articulating) or in-line
Liquid cooling supply	Use in-line filter on inlet	Must be 20 m rating
Mounting flange	Four through holes on 68mm diameter	10mm depth for M4 bolts
	Kinematic hole/slot	Locks position/rotation

Dimensions

Length	Height	Width
272 mm	76 mm	85.5 mm



Multi-Channel Driver/Controller 5500A Series



Features

- Single constant current source
- Uniform drive current across array for precise exposure control
- Up to 5A each for up to 18 UV-LED die (maximum recommended for LumiDL™ is 3.0A per die)

Connectivity

- Command set for Ethernet and Modbus serial communication
- External trigger

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