HELIOS

HIGH-POWER LIGHT ENGINE FOR ADDITIVE MANUFACTURING

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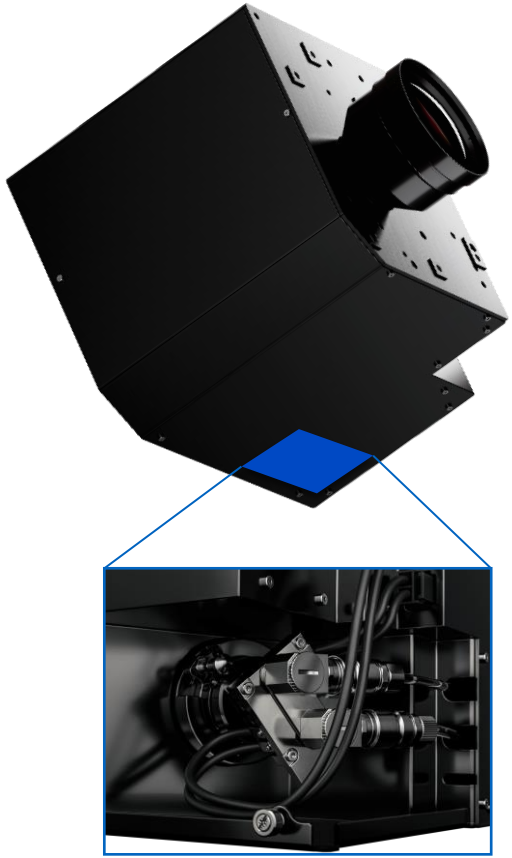
HELIOS LIGHT ENGINE PLATFORM

THE MOST POWERFULL UV LIGHT ENGINE FOR ADDITIVE MANUFACTURING APPLICATIONS



SUPERIOR OPTICAL PERFORMANCE

The most powerful system on the market

- ✓ High intensity light source
- ✓ On/Off contrast and uniformity: tailored prism geometry achieves superior homogeneity values (tested with 25 points of measurement)
- ✓ Coating of mirrors and other optical components tailored and optimized to wavelength to achieve highest intensity values
- ✓ Fused silica lens elements to achieve high transmission illumination
- ✓ DMD Position x/y und and tilt are configured with counter pressure mechanics that allow for precise configuration - optimal alignment of optics and mechanics and achieves superior MTF and distortion values

SIMPLEST HANDLING

It has never been easier to operate and maintain a DLP light engine

- ✓ LED interchangeability: LED can be easily replaced by customer (module cassette)
- ✓ Easy accessibility and modular system – fully built in sub assemblies
- ✓ Fully automated intensity measurement

HIGHEST QUALITY

Thorough testing makes sure only perfect products are being shipped

- ✓ Each engine undergoes extensive end of line testing with detailed test report
- ✓ 25 measurement points for contrast and uniformity
- ✓ Fully enclosed housing of the light path

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SYSTEM SPECIFICATION WITHOUT OPTICAL LENS SYSTEM

Parameter	System Specification
Display type	TI DLP9000
DLP controller	TI DLPC900
Native Resolution	2560 x 1600
Chip pixel pitch	7.56µm
Min. intensity uniformity (IEC 61947)	>92%
Full on/off contrast	up to 1400:1
ANSI contrast	up to 500:1
Optical output power in the image plane	385nm: >12.0W with high-power device and up to 7.0W with mid-power device (other wavelengths on request)
Operating temperature range	15 – 35°C
Max. relative humidity	non-condensing
IP code	IP40 for optical path
Pattern rate binary	9523Hz
Pattern rate grayscale	247Hz
Control interfaces	USP, DLP and LED Trigger inputs, status signal
Data interfaces	DisplayPort, USB

Parameter	Electrical Specification
LED Duty Cycle	10 – 100 %
DLP Frame Rate	120 Hz
DLP Trigger Interface	2 x IN + 2 x OUT, Optocoupler inputs – 3.3.V/4mA
Light Engine Signal Levels	3.3 V
Power Input	Single 24V DC supply
Total Power consumption	< 400W (mid-power device) < 500 W (high-power device)

Parameter	Firmware Specification
Status reports	Reports the HW and SW revision, the HW serial number and the HW status
Field upgrade of firmware	Through the USB control interface(DLP controller and LED driver)
LED current/voltage feedback	Resolution: 0.1A/0.0aV; Accuracy: ±10%
Temperature feedback	DLP, LED, LED driver board; Resolution: 0.1°C; Accuracy: ±10%
LED intensity control	Closed-loop intensity regulation using integrated intensity measurement; activation through software command

Parameter	Mechanical Specification
Weight	13.2kg (including lens)
Focus adjustment	Yes, manual by hex screw
Image size adjustability (micro-zoom)	No
Interface plane screw tightening torque	Given by screw strength, but max. 2.2Nm

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MECHANICAL DRAWING

- confidential and proprietary -