

# LUXBEAM<sup>®</sup> RAPID SYSTEM – PROFESSIONAL LINE

POWERFUL AM SUBSYSTEMS WITH UP TO 32 MILLION ADDRESSABLE PIXEL POSITIONS

# Power and resolution for static 3D printing

The LRS-Professional Line gives you the ultimate DLP<sup>®</sup>-based stereolithography subsystems for professional 3D printing and additive manufacturing systems. Unmatched resolution and power from the LRS-8KA and LRS-WQ Series pair with 24/7 operation robustness and configuration options that meet all your professional additive manufacturing needs.





### WHEN PERFORMANCE MATTERS

The compact footprints contrast with the exceptional power output of the LRS-Professional Line light engines. In demanding additive manufacturing applications, Visitech subsystems provide productivity and perfection – and features the AM world's most powerful WQXGA DLP<sup>®</sup> light engine or the highest resolution true 4K DLP<sup>®</sup> static light engine.

# COMMON NEOS PLATFORM

Your power and resolution requirements determine the specific choice of light engine. Shared is the NEOS platform, on which the Professional Line is built. It signifies a common core that includes advanced and functional mechanical design – resulting in unsurpassed robustness for 24/7 operation.

The encapsulated optical core, liquid cooling, and industrial-grade Ethernet communication all support the Professional Line's durability. On the optical side, the light engines come with the latest field-replaceable Gen 5 LED technology and use Visitech's proprietary Bifrost<sup>™</sup> LED module for optimal performance.

## AM OPTIMIZED SOFTWARE

To ease integration into your AM machine, the Professional Line light engines come with the LUXBEAM Additive Manufacturing Application (LAMA<sup>™</sup>) Standard software, which is fully AM-optimized.

# WHY DUAL LED?

The LRS-WQ Series Dual LED extends the options for leveraging the advanced LED module's power optimally for your application. POWER BOOST OPTION: Combined LED operation for maximum power output with two LEDs with narrow offset in peak wavelengths.

DUAL LED OPTION: Independent LED operation using two distinct wavelenghts, such as for specific photochemical processes.

Power, resolution, and ultimate pixel control in additive manufacturing

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## **Recommended implementation**

High power static stacked configuration

#### Resolution

- 2560 x 1600 WQXGA (LRS-WQ Series)
- 4096 x 2160 (LRS-8KA native pixel mode)
- 8192 x 4320 (LRS-8KA FPSC mode)

#### **LED** Wavelengths

• 460 nm / 405 nm / 385 nm / 365 nm (LRS-WQ Series only)

#### **Optical Power Output**

• Up to 16W (LRS-WQ Series Dual LED power boost)

#### Projection Lens Options

- · Multiple standard options available
- More options under development
- Options for customized lenses available
- View more lens details on final page or visit visitech.com

#### Platform

- NEOS
- Bifrost S

#### Electronics

- LUXBEAM<sup>®</sup> LB6900 (LRS-WQ Series)
- LUXBEAM<sup>®</sup> LB9800 (LRS-8KA)



# LRS-WQ SERIES

The LRS-WQ light engine series is a robust, proven, and reliable plug-and-play module system. Specifically designed for professional 3D printing, static additive manufacturing, and prototyping systems, the WQ Series consists of two product versions:

# LRS-WQ PLUS - LIQUID COOLED

Liquid-cooling unleashes the true power of the LRSWQ. With up to 12 W of UV light power in image, it has more power than any other single LED UV projector in the market. This makes it perfectly suited for static 3D printers with large build sizes.

The main advantage of liquid cooling is improved LED light source temperature control, enabling higher efficiency, thereby achieving higher UV power.

Configurable with numerous imaging lenses at different magnifications, the system provides from 1,9 micron native pixel pitch – up to 130 micron in image, corresponding to an A4-sized build area.

# LRS-WQ PLUS DL - DUAL LED, LIQUID COOLED

The Dual LED Liquid Cooled version further raises the bar for UV projectors, with unparalleled performance of up to 16 W of UV light power in image. It provides the best image performance and power throughput in near-UV wavelengths.

**Robust, proven, and reliable** – this plug-and-play module system will be your "workhorse", with integrated CPU and industry-standard Ethernet communication.

# LRS-8KA

The first 8K "super-resolution" industrial projector is our flagship product and packs unprecedented UV power output.

The 4096 x 2160 native 4K DMD and high-performance UV optics allow up to 32 million pixel positions using a customized optical actuator that shifts the image four times per exposure. It is the only true native 4K light engine available for additive manufacturing.

Optimized for high performance static and stacked configurations in additive manufacturing, a wide range of lenses provide versatility for your application. Visitech's propietary Bifrost™ LED/Laser Diode light source is highly integrated, pre-aligned, and calibrated in the LRS-8KA to yield maximum control.

# FPSC: FULL PIXEL SEQUENCE CONTROL EXPLAINED

The advanced LB9800 controller of the LRS-8KA projector provides full control of the data content in the projected subframes, yielding valuable advantages.



**NO RE-SAMPLING ERRORS:** The LB9800 controller allows for the original video actuator control, equally distributing exposure times to the subframes and possible resulting in re-sampling errors. In addition, Visitech's proprietary FPSC mode provides full control of timing the native resolution subframes.



SMOOTH SURFACE: Control actuator positions for each layer.

# PRODUCTIVITY BENEFITS

More power reduces your layer exposure time, allowing your machine higher print speeds. Higher resolution produces more detail, resulting in a larger print field area and a smoother surface for your printed parts. The LRS-8KA can, with its more than 32 million addressable pixel positions, also be stacked and stitched. Combining multiple static projectors and stitching the images together with extreme precision creates vast build field areas with the highest detail.

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Properties	LRS-WQ Plus / LRS-WQ Plus DL	LRS-8KA		
DMD Type	DLP9000 0,9" WQXGA	0,98" TRUE 4K		
Resolution	WQXGA 2560 x 1600 px	5792 x 3055 (4096 x 2160 native)		
Operation Mode	-	FPSC mode / TI XPR mode		
	DL: Up to 16W with Dual LED			
Projector Output Power	LC: Up to 12W (405nm), 10W (385nm), 8W (365nm)	up to 14w at 405nm		
LED Options	460 nm / 405 nm / 385 nm / 365 nm	405 nm / 385 nm		
LED Driver	BiFrost S	BiFrost		
	Constant flux with Optical Feedback	Constant Flux with Optical Feedback		
Power Uniformity	> 99% after software correction	> 99% after software correction		
Contrast Ratio	Up to 1000:1	Up to 1000:1		
Dimensione w/s land	217 mm (H) x 105 mm (W) x 171 mm (L) (WQ+)	330 mm (H) x 104 mm (W) x 250 mm (L)		
Dimensions w/o iens	267 mm (H) x 105 mm (W) x 192 mm (L) (WQ+ DL)			
Total weight	4 kg (w/o lens and PSU)	4 kg (w/o lens and PSU)		
Power consumption	Max 300W	Max 300W		
Cooling system	Liquid cooling (Air Cooling on request)	Liquid cooling		
Software	LAMA Standard (included)	LAMA Standard (included) or LAMA Pro (advanced features, available at a premium)		

Electrical connections	Signal
Power supply	48 V DC
Image Data	Single Image Pattern Upload with LAMA
Communication	Ethernet (platform independent web interface)
UV / IR Safety	LED Safety Switch (enable/disable)
Frame Sync	External frame synchronization

Lens Options	LRS-WQ Plus / LRS-WQ Plus DL			LRS-8KA				
	Pixel Pitch in Image [µm]	Native Image Size W x H [mm <sup>2</sup> ]	Working Distance [mm]	Mounting Distance [mm]	Pixel Pitch in Image [µm]	Native Image Size W x H [mm <sup>2</sup> ]	Working Distance [mm]	Mounting Distance [mm]
PL LRS 0.3 HC	1.9	4.8 x 3.0	16	268	1.35	5.5 x 2.9	16	tbd.
PL LRS 0.5 HC	3.9	9.7 x 6.0	50	268	2.7	11.1 x 5.8	50	tbd.
PL LRS 1.0 HC	7.6	19.4 x 12.1	71	268	5.4	22.1 x 11.7	71	tbd.
PL LRS 2.0 HC	15.1	38.7 x 24.2	90	269	10.8	44.2 x 23.3	90	tbd.
PL LRS 3.6	28	71.7 x 44.8	148	240	-	-	-	-
PL LRS 4.6	35	89.6 x 56.0	178	280	-	-	-	-
PL LRS 5.3 VIS	40	102.4 x 64.0	161	387	-	-	-	-
PL LRS 8.3	63	161.2 x 100.8	375	463	-	-	-	-
PL LRS 9.9	75	192.0 x 120.0	493	564	-	-	-	-
PL LRS 11.7	90	230.3 x 143.9	575	670	-	-	-	-
PL LRS 17.2	130	332.8 x 208.0	884	990	-	-	-	-
PL 8KA 10x	-	-	-	-	50	204.6 x 107.9	591	tbd.
PL 8KA 15x	-	-	-	-	75	307.2 x 162.0	716	tbd.
PL 8KA 20x	-	-	-	-	100	409.6 x 216.0	996	tbd.

All specifications and features subject to change.



## VISITECH Engineering GmbH

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