LUXBEAM® RAPID SYSTEM – MCx UV SERIES

SCALABLE SUBSYSTEMS FOR LARGE BUILD AREAS

Highest productivity through scrolling

The LRS-MCx UV Series is specifically designed for high throughput implementations in 3D printing and additive manufacturing systems, with static or scrolling configurations using two or more projectors. Headlined by the world's only true 4K light engine for scrolling AM applications, the LRS-MCx UV Series takes industrial productivity performance to the next level.

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VAST THROUGHPUT CAPABILITIES

We designed the LRS-MCx UV Series to drive performance of UV-SLA light engines to the peak. A narrow footprint enables stackability of modules with stitched images down to 50 micron (MCx HD) or 25 micron (MCx 4K) pixel pitch. In a scrolling dynamic configuration, this allows for the highest throughput with a single pass linear motion system. Special alignment features grant pixel precise alignment of the modules.

STACKED HEADS FOR BEST PRODUCTIVITY

The LRS-MCx UV Series is a stackable and configurable system, specifically designed for static and scrolling multihead AM system implementations. A typical implementation comprises one or more projection modules on a linear stage system. The UV-optimized optical system provides optimal power output for N-UV light sources. Multiple lens options support a wide scalability.

COMMON NEOS PLATFORM

While power and resolution requirements determine your choice of light engine, the shared NEOS platform benefits include advanced and functional mechanical design, resulting in unsurpassed robustness for 24/7 operation. The encapsulated optical core, liquid cooling, and industrial-grade Ethernet communication further support the LRS-MCx UV Series' unmatched durability.

AM OPTIMIZED SOFTWARE

To ease integration into your AM machine, UV Series light engines come with the LUXBEAM® Additive Manufacturing Application (LAMA™) Standard software, which is fully AM-optimized.

Achieve maximum productivity from a single subsystem by stacking and scrolling

LUXBEAM® RAPID SYSTEM – MCx UV SERIES
Recommended implementation • Multihead scrolling systems
Resolution • 1920 x 1080 (UV/VIS) • 2560 x 1600 (UV/VIS) • 4096 x 2160 (VIS)
LED Wavelengths • 405 nm / 385 nm / 365 nm
Optical Power Output • HD/WQ: Up to 11 W (405 nm), 10 W (385 nm), 8 W (365 nm) • 4K: Up to 11 W (405 nm), 10 W (385 nm)
Projection Lens Options • High contrast: 0.25x, 0.5x, 1.0x, 2.0x • Standard: 3.6x, 4.6x, 8.3x, 9.9x, 11.7x, 17.2x • VIS: 5.3x • Options for customised lenses
Platform • HD: NEOS + LLS Led Beam Driver • WQ: NEOS + Bifrost LRS • 4K: NEOS + Bifrost LRS
Electronics • LUXBEAM® LB4800/9500/9800 Controller Board • Visitech LED driver

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LRS-MCx UV HD / WQ

The MCx HD / WQ projectors are ideal for scaling DLP 3D printing in professional AM machines. Equipped with the advanced LUXBEAM® LB4800 / LB9500 controllers, they deliver respectively true HD (1920 x 1080 pixels) or WQXGA (2560 x 1600 pixels) resolutions. The basic setup requires configuring the LAMA STANDARD software and API with a motion controller for maximum performance. The versatile API allows seamless integration with any motion controller.

The LAMA PRO optional software offers advanced features like sub-pixelation for improved surface finish and edge blending for precise stitching. Additionally, the projectors support 10G bandwidth for high-speed streaming.

LRS-MCx UV 4K

With unprecedented UV power output and over 4 million native pixels (4096 x 2160 pixels), the LRS-MCx UV 4K takes industrial performance to the next level. As the world's first light engine with true native 4K resolution for scrolling additive manufacturing applications, the LRS-MCx 4K comes equipped with the latest Gen 5 LED technology with Visitech's proprietary Bifrost™ LED/Laser Diode light source for maximum control.

Optimized for high-performance, stacked scrolling 3D print machine configurations, this light engine is a productivity booster for your next-generation industrial machine builds. To fully utilize the LRS-MCx's high-performance UV optics, Visitech provides a range of lenses—from 20 to 130 microns (native resolution).

LUXBEAM® RAPID SYSTEM – MCx MOTION STAGE: PLUG-AND-PLAY SOLUTION FOR MULTIHEAD SCROLLING

ENLARGING THE BUILD AREA

Aligning with multihead scrolling as the foremost productivity-enhancing concept for stereo lithography 3D printing, Visitech aims their plug-and-play LRS-MCx Motion Stage directly at expert static 3D print machine developers and manufacturers. Implementing scalable motion systems enables large build field areas, which opens for new business opportunities.

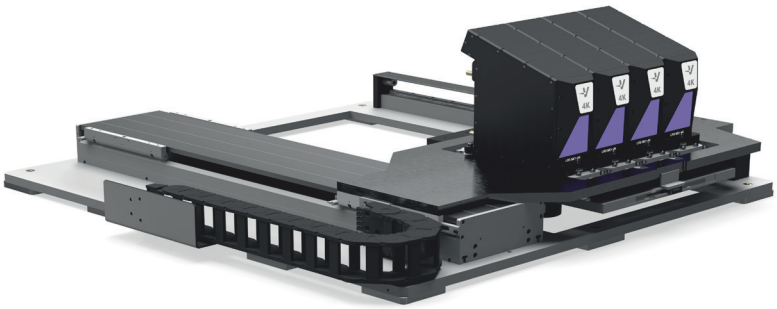
FLEXIBLE MOTION STAGE PLATFORM

Designed for installation in bottom-up and top-down configurations, the motion stage rooms up to four LRS-MCx light engines. A wide projection lens selection enables various configuration options, permitting seamless stitching of native images – with pixel pitch as small as 25 microns. The flexible motion stage platform is suitable for UV stereo lithography and works equally well in polymer-based powder bed fusion installations.

SUPERB PRODUCTIVITY ILLUSTRATED

A simple calculation illustrates the system's productivity.

- Four light engines with PL LRS 4.6x lenses create a 380 mm wide image of 7,620 pixels horizontally.
- A 700 mm scroll range enables a 650 mm long image of 13,000 pixels vertically.
- A single setup with a 4-head subsystem is as productive as 128 static desktop machines at the same pixel pitch, depending on material sensitivity.



Scroll Range • 700 mm	**Clearance** • 500 mm
Scroll Speed • 300 mm/sec	**Software** • LUXBEAM® Additive Manufacturing Application (LAMA)

CONFIGURATION EXAMPLES – Contact us for more details and other options

Light Engine	Projection Lens	Number of Photoheads	Pixel Pitch in Image (µm)	Total Pixel count	Total Build size (mm²)
LRS-MCx UV HD	PL-LRS 4.6	4	50	12.920 x 7.620	646 x 381
	PL-LRS 8.3	3	90	6.700 x 5.077	603 x 457
	PL-LRS 9.9	2	107	5.457 x 3.831	584 x 410
	PL-LRS 11.7	2	126	4.476 x 4.182	564 x 527
	PL-LRS 17.2	2	187	2.663 x 3.443	498 x 644
LRS-MCx UV 4K	PL-LRS 4.6	4	25	25.840 x 16.350	646 x 409
	PL-LRS 8.3	3	45	13.395 x 12.260	602 x 552
	PL-LRS 9.9	2	54	10.800 x 8.182	583 x 442
	PL-LRS 11.7	2	63	8.950 x 8.182	564 x 515
	PL-LRS 17.2	2	94	5.285 x 8.182	497 x 769

LUXBEAM® RAPID SYSTEM – MCx UV SERIES

Properties	LRS-MCx UV HD	LRS-MCx WQ	LRS-MCx UV 4K
DMD Type	0.95" 1080p HD (VIS/UV)	DLP9000X/XUV 0.9" WQXGA	0.98" TRUE 4K
Resolution	1920 x 1080 px	2560 x 1600 pixels	4096 x 2160 px
Operation Mode	Native pixel mode, scrolling Subpixelation SPX mode (requires LAMA Pro)	Native pixel mode, scrolling Subpixelation SPX mode (requires LAMA Pro)	Native pixel mode, scrolling Subpixelation SPX mode (requires LAMA Pro)
Projector Output Power	Up to 11 W (460/405 nm), 10 W (385 nm), 8 W (365 nm)	Up to 11 W (460/405 nm), 10 W (385 nm), 8 W (365 nm)	Up to 11 W (405 nm), 10 W (385 nm)
LED Options	460 nm / 405 nm / 385 nm / 365 nm	460 nm / 405 nm / 385 nm / 365 nm	405 nm / 385 nm
LED Driver	LLS LED Beam Driver	Bifrost LRS	Bifrost LRS
	Constant Flux with Optical Feedback	Constant Flux with Optical Feedback	Constant Flux with Optical Feedback
Power Uniformity	> 99% after Software Correction	> 99% after Software Correction	> 99% after Software Correction
Dimensions w/o lens	270 mm (H) x 92 mm (W) x 240 mm (L)	270 mm (H) x 92 mm (W) x 240 mm (L)	274 mm (H) x 98 mm (W) x 240 mm (L)
Total weight w/o PSU	5 kg (w/o lens)	5 kg (w/o lens)	5 kg (w/o lens)
Power consumption	Max 300 W	Max 300 W	Max 300 W
Cooling system	Liquid Cooling	Liquid Cooling	Liquid Cooling
Software	LAMA Standard (included) LAMA Pro (adv. features, avail. at a premium)	LAMA Standard (included) LAMA Pro (adv. features, avail. at a premium)	LAMA Standard (included) LAMA Pro (adv. features, avail. at a premium)
Features	NEOS, PPC, LAMA STD/PRO, SSw	NEOS, PPC, LAMA STD/PRO, SSw	NEOS, PPC, LAMA STD/PRO, SSw

Connections	Signal	
Power supply	12 V DC	48 V DC
Image Data	Pattern Streaming with LAMA	
Communication	Ethernet	
UV / IR Safety	LED Safety Switch (enable/disable)	
Frame Sync	External Frame Synchronization	

Lens Options	LRS-MCx UV SERIES		MCx UV HD		MCx WQ		MCx UV 4K	
	Working Distance [mm]	Mounting Distance [mm]	Pixel Pitch in Image [µm]	Native Image Size W x H [mm²]	Pixel Pitch in Image [µm]	Native Image Size W x H [mm²]	Pixel Pitch in Image [µm]	Native Image Size W x H [mm²]
PL LRS 0.3 HC	16	268	2.7	5.2 x 2.9	1.9	4.8 x 3.0	1.4	5.7 x 3.0
PL LRS 0.5 HC	50	268	5.4	10.4 x 5.8	3.8	9.7 x 6.0	2.7	11.1 x 5.8
PL LRS 1.0 HC	71	268	10.8	20.7 x 11.7	7.6	19.4 x 12.1	5.4	22.1 x 11.7
PL LRS 2.0 HC	90	269	21.6	41.5 x 23.3	15.1	38.7 x 24.2	10.8	44.2 x 23.3
PL LRS 3.6	148	239	40	76.8 x 43.2	28	71.7 x 44.8	20.0	80.1 x 42.3
PL LRS 4.6	178	279	50	96.0 x 54.0	35	89.6 x 56.0	25.0	102.4 x 54.0
PL LRS 5.3 VIS	161	376	57.1	109.7 x 61.7	40	109.8 x 61.8	28.6	117.1 x 61.8
PL LRS 8.3	375	463	90	172.8 x 97.2	63	161.3 x 100.8	45.0	184.3 x 97.2
PL LRS 9.9	493	563	107.2	205.3 x 115.5	75	191.6 x 119.8	53.6	219.0 x 115.5
PL LRS 11.7	575	667	128.6	241.5 x 135.8	90	140.9 x 225.4	64.3	257.6 x 135.8
PL LRS 17.2	884	975	187	358.9 x 201.9	130	335.0 x 209.4	93.5	382.9 x 201.9
PL LRS 4K 4.6	123	282	-	- -	-	- -	25.0	102.4 x 54.0
PL LRS 4K 9.3	319	494	-	- -	-	- -	50.0	204.8 x 108.0
PL LRS 4K 13.9	470	634	-	- -	-	- -	75.0	307.2 x 162.0

All specifications and features subject to change.

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