

LUXBEAM® RAPID SYSTEM – MCx SERIES

SCALABLE SUBSYSTEMS FOR LARGE BUILD AREAS

Highest productivity through scrolling

The LRS MCx 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 Series takes industrial productivity performance to the next level.

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LUXBEAM® RAPID SYSTEM – MCx SERIES

VAST THROUGHPUT CAPABILITIES

We designed the LRS MCx 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 V2) 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 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 Series' unmatched durability.

AM OPTIMIZED SOFTWARE

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

Achieve maximum productivity from a single subsystem by stacking and scrolling

LUXBEAM® RAPID SYSTEM – MCx 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 10 W (405 nm), 9 W (385 nm), 7.5 W (365 nm) • 4K: Up to 11 W (405 nm), 10 W (385 nm)
Projection Lens Options • High contrast: 0.25x, 0.36x, 0.5x, 1.0x, 2.0x • Standard: 3.6x, 4.6x, 8.3x, 9.9x, 11.7x, 17.2x • Performance: 1.1x, 2.8x, 4.6x, 5.3x, 9.3x, 13.9x • VIS: 5.3x • Options for customised lenses
Platform • HD: NEOS + Bifrost • WQ: NEOS + Bifrost • 4K: NEOS + Bifrost
Electronics • LUXBEAM® LB4800/9500/9800 Controller Board • Visitech LED driver

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LRS MCx HD V2 / WQ

The MCx HD V2 / 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 software and API with a motion controller for maximum performance. The versatile API allows seamless integration with any motion controller.

The LAMA software offers advanced features for MCx Series projectors, like motion control support. The projectors additionally have a 10 GBit interface for high-speed streaming.

LRS MCx 4K

With unprecedented UV power output and nearly nine million native pixels (4096 x 2160 pixels), the LRS MCx 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 1.4 to 93.5 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.

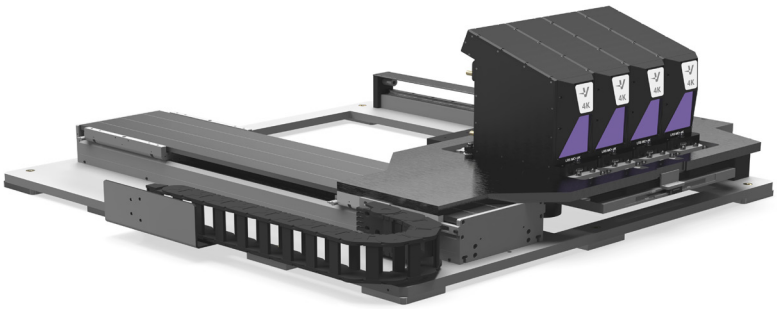
FLEXIBLE MOTION STAGE PLATFORM

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 options with LRS MCx WQ

Light Engine	Projection Lens	Number of Photoheads	Pixel Pitch in Image (µm)	Total Pixel count	Total Build size (mm²)
LRS MCx HD V2	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 4K	PL LRS 4K 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 SERIES

Properties	LRS MCx HD V2	LRS MCx WQ	LRS MCx 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		
Projector Output Power	Up to 10W (460/405 nm), 9W (385 nm), 7.5W (365 nm)	Up to 10W (460/405 nm), 9W (385 nm), 7.5W (365 nm)	Up to 11W (405 nm), 10W (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	Bifrost		
	Constant Flux with Optical Feedback		
Power Uniformity	> 99% after Software Correction		
Dimensions w/o lens	270 mm (H) x 94 mm (W) x 230 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)		
Power consumption	Max 300 W		
Cooling system	Liquid Cooling		
Software	LAMA (included)		
Features	PPC, LAMA, 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 SERIES		MCx HD V2		MCx WQ		MCx 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 0.36 HC	53	270	3.9	7.4 x 4.2	2.7	6.9 x 4.3	1.9	7.9 x 4.2
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	40.0	76.8 x 43.2	28.0	71.7 x 44.8	20.0	80.1 x 42.3
PL LRS 4.6	178	279	50.0	96.0 x 54.0	35.0	89.6 x 56.0	-	- -
PL LRS 8.3	375	469	90.0	172.8 x 97.2	63.0	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	75.0	191.6 x 119.8	53.6	219.0 x 115.5
PL LRS 11.7	575	667	125.8	241.5 x 135.8	88.0	225.4 x 140.9	62.9	257.6 x 135.8
PL LRS 17.2	884	975	187.0	358.9 x 201.9	130.9	335.0 x 209.4	93.5	382.9 x 201.9
PL LRS 5.3 VIS	161	376	57.1	109.7 x 61.7	40.0	102.4 x 64.0	28.6	117.1 x 61.8
PL LRS 4K 1.1	92	270	12.0	23.0 x 13.0	8.4	21.5 x 13.4	6.0	24.6 x 13.0
PL LRS 4K 2.8	160	316	30.0	57.6 x 32.4	21.0	53.8 x 33.6	15.0	61.4 x 32.4
PL LRS 4K 4.6	123	282	-	- -	-	- -	25.0	102.4 x 54.0
PL LRS 4K 9.3	319	483	-	- -	-	- -	50.0	204.8 x 108.0
PL LRS 4K 13.9	470	634	-	- -	-	- -	75.0	307.2 x 162.0
PL LRS 4KS 4.6	152	279	50.0	96.0 x 54.0	35.0	89.6 x 56.0	25.0	102.4 x 54.0
PL LRS 4KS 5.3	182	305	57.1	109.7 x 61.7	40.0	102.4 x 64.0	28.6	117.1 x 61.8

All specifications and features subject to change.



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