



## 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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## LUXBEAM® RAPID SYSTEM – MCx UV SERIES

### 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)
- 4096 x 2160 (VIS)

#### LED Wavelengths

- 405 nm / 385 nm / 365 nm

#### Optical Power Output

- HD: Up to 13 W (405 nm), 11 W (385 nm), 8 W (365 nm)
- 4K: Up to 13 W (405 nm), 11 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 + Bifrost S
- 4K: NEOS + Bifrost

#### Electronics

- LUXBEAM® LB4800/9800 Controller Board
- Visitech LED driver



## LRS-MC<sub>x</sub> UV HD

The LRS-MC<sub>x</sub> HD is the perfect tool for scaling DLP 3D print in professional AM machines, and comes equipped with the advanced LUXBEAM® LB4800 controller, providing true HD resolution (1920 x 1080 pixels). In its basic arrangement, the LAMA STANDARD software package and API require configuration with a dedicated motion controller to enable maximum performance and full functionality. Its versatile API offers optimal flexibility to integrate the light engines with any motion controller of choice.

10G bandwidth accepts streaming, and the LAMA PRO software version provides advanced operation mode access – including sub-pixelation (improved surface finish) and edge blending for perfect stitching.

## LRS-MC<sub>x</sub> UV 4K

With unprecedented UV power output and over 4 million native pixels (4096 x 2160 pixels), the LRS-MC<sub>x</sub> 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-MC<sub>x</sub> 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 take advantage of the full field of applications for the LRS-MC<sub>x</sub>'s high-performance UV optics, Visitech provides a range of lenses - from 20 to 130 micron (native).

### LUXBEAM® RAPID SYSTEM – MC<sub>x</sub> MOTION STAGE: PLUG-AND-PLAY SOLUTION FOR MULTIHEAD SCROLLING

#### ENLARGING THE BUILD AREA

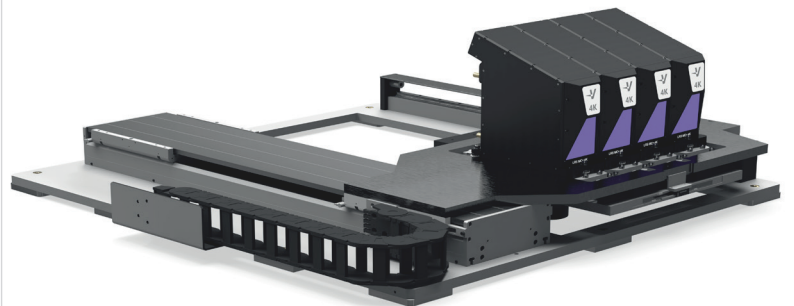
Aligning with multihead scrolling as the foremost productivity-enhancing concept for stereo lithography 3D printing, Visitech aims their plug-and-play LRS-MC<sub>x</sub> Motion Stage directly at expert static 3D print machine developers and manufacturers. Implementing scalable motion systems enables 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-MC<sub>x</sub> 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 LRS-50 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		Clearance			
• 700 mm		• 500 mm			
Scroll Speed		Software			
• 300 mm/sec		• LUXBEAM® Additive Manufacturing Application (LAMA)			
Light Engine	Projection Lens	Number of Photoheads	Pixel Pitch in Image (µm)	Total Pixel count	Total Build size (mm <sup>2</sup> )
LRS-MC <sub>x</sub> 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-MC <sub>x</sub> 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-MC <sub>x</sub> UV HD	LRS-MC <sub>x</sub> UV 4K				
DMD Type	0,95" 1080p HD (VIS/UV)	0,98" TRUE 4K				
Resolution	1920 x 1080 px	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)				
Projector Output Power	Up to 13 W (460/405 nm), 11 W (385 nm), 8 W (365 nm)	Up to 13 W (405 nm), 11 W (385 nm)				
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% PPC corrected	> 99% PPC corrected				
Dimensions w/o lens	270 mm (H) x 94 mm (W) x 230 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)				
Power consumption	Max 300 W	Max 300 W				
Cooling system	Liquid Cooling	Liquid Cooling				
Software	LAMA Standard (included) LAMA Pro (advanced features, available at a premium)	LAMA Standard (included) LAMA Pro (advanced features, available at a premium)				
Features	NEOS, PPC, LAMA STD/PRO, SSw	NEOS, PPC, LAMA STD/PRO, SSw				
Electrical connections	Signal					
Power supply	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-MC <sub>x</sub> UV SERIES		MC <sub>x</sub> UV HD		MC <sub>x</sub> UV 4K	
	Working Distance [mm]	Mounting Distance [mm]	Pixel Pitch in Image [μm]	Native Image Size W x H [mm <sup>2</sup> ]	Pixel Pitch in Image [μm]	Native Image Size W x H [mm <sup>2</sup> ]
PL LRS 0.3 HC	16	268	2.7	5.2 x 2.9	1.4	5.2 x 2.9
PL LRS 0.5 HC	50	268	5.4	10.4 x 5.8	2.7	10.4 x 5.8
PL LRS 1.0 HC	71	268	10.8	20.7 x 11.7	5.4	20.7 x 11.7
PL LRS 2.0 HC	90	269	21.6	41.5 x 23.3	10.8	41.5 x 23.3
PL LRS 3.6	148	240	40	71.7 x 44.8	20.0	71.7 x 44.8
PL LRS 4.6	178	280	50	96.0 x 56.0	25.0	96.0 x 56.0
PL LRS 5.3 VIS	161	387	57	109.4 x 61.6	28.6	109.4 x 61.6
PL LRS 8.3	375	463	90	172.8 x 97.2	45.0	172.8 x 97.2
PL LRS 9.9	493	564	107	205.4 x 115.6	50.2	205.4 x 115.6
PL LRS 11.7	575	670	126	241.9 x 136.1	64.3	241.9 x 136.1
PL LRS 17.2	884	990	187	359.0 x 202.0	92.9	359.0 x 202.0

All specifications and features subject to change.