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Spatial Light Modulator

— SELECTION GUIDE —

POLARIZERS • SPATIAL LIGHT MODULATORS • WAVEPLATES • LIQUID CRYSTAL DEVICES • OTHER CAPABILITIES

1920 x 1200 Analog Spatial Light Modulator

Resolution: 1920 x 1200
Array Size: 15.36 x 9.60 mm
Pixel Pitch: 8.0 x 8.0 μm
Backplane Refresh: 1.35 kHz

Fill Factor: 95.6%
0th Order Diffraction Efficiency: 76 – 91% (λ dependent)
0th Order Diffraction Efficiency: 87 – 98% (dielectric mirror)
Controller: HDMI

Standard Calibration Wavelengths	STANDARD SPEED Liquid Crystal Response Time			Calibrated Wavefront Distortion
	AR Coating Range 350-850 nm	AR Coating Range 500-1200 nm	AR Coating Range 850-1650 nm	
405 nm	≤ 14.0 ms			λ/5
532 nm	≤ 15.0 ms	≤ 19.0 ms	-	λ/7
635 nm	≤ 15.0 ms	≤ 20.0 ms	-	λ/8
785 nm	≤ 16.0 ms	≤ 23.0 ms	-	λ/10
1064 nm	-	≤ 33.0 ms	≤ 40.0 ms	λ/10
1550 nm	-	≤ 43.0 ms	≤ 55.0 ms	λ/12

1024 x 1024 SLM with PCIe Controller

1920 x 1200 SLM with HDMI Controller

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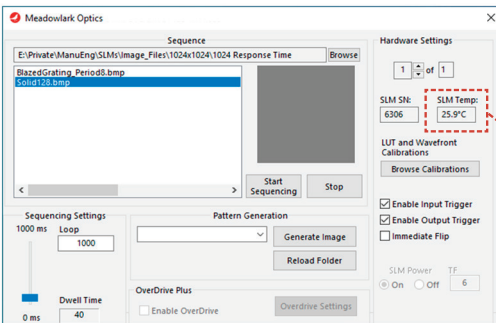**5964 Iris Parkway, Frederick, CO 80504**
sales@meadowlark.com – www.meadowlark.com - 303-833-4333

1024 x 1024 Analog Spatial Light Modulator

Resolution: 1024 x 1024   **Fill Factor**: 97.2%
Array Size: 17.4 x 17.4 mm   **0th Order Diffraction Efficiency**: 75 – 87%
Pixel Pitch: 17 x 17 µm   **0th Order Diffraction Efficiency**: 90 – 98% (dielectric mirror)
Backplane Refresh: 1.436 kHz **Controller**: PCIe with 752 Frames of On-Board Memory

Standard Calibration Wavelengths	HIGH SPEED Liquid Crystal Response Time			Calibrated Wavefront Distortion
	AR Coating Range 488-850 nm	AR Coating Range 500-1200 nm	AR Coating Range 850-1650 nm	
532 nm	≤ 1.0 ms	≤ 1.4 ms	-	λ/5
635 nm	≤ 1.3 ms	≤ 1.8 ms	-	λ/6
785 nm	≤ 1.8 ms	≤ 2.4 ms	-	λ/7
1064 nm	-	≤ 3.4 ms	≤ 6.0 ms	λ/10
1550 nm	-	-	≤ 9.0 ms	λ/12

Standard Calibration Wavelengths	ULTRA HIGH SPEED Liquid Crystal Response Time			Calibrated Wavefront Distortion
	AR Coating Range 488-850 nm	AR Coating Range 500-1200 nm	AR Coating Range 850-1650 nm	
532 nm	≤ 0.6 ms	≤ 0.7 ms	-	λ/5
635 nm	≤ 0.7 ms	≤ 0.9 ms	-	λ/6
785 nm	≤ 0.9 ms	≤ 1.2 ms	-	λ/7
1064 nm	-	≤ 1.7 ms	≤ 2.0 ms	λ/10
1550 nm	-	-	≤ 3.9 ms	λ/12

Temperature control is available on both the 1920 x 1200 and the 1024 x 1024 models. Cooling options for high power lasers and phase stability or heating options to increase switching speed.

On chip temperature sensors allow the user to monitor the SLM temperature either through the example program or the software developer kits.

768 x 768 Analog Spatial Light Modulator

Resolution: 768 x 768
Array Size: 15.4 x 15.4 mm
Pixel Pitch: 20.0 x 20.0 μm
Array Refresh Rate: 2.3 kHz

Fill Factor: 96.0%
Max Hologram Frame Rate at 1064 nm: >800 fps
Response for On-board Holograms: 6 μs ± 3 μs
Controller: PCIe (up to 4,000 frames On-Board Memory)

1536 x 1536 Analog Spatial Light Modulator

Resolution: 1536 x 1536
Array Size: 30.7 x 30.7 mm
Pixel Pitch: 20.0 x 20.0 μm
**Pixel Voltage:** 12V

Fill Factor: 96.0%
Max Hologram Frame Rate at 1064 nm: >600 fps
Response for On-board Holograms: 6 μs ± 3 μs
Controller: PCIe (up to 2,045 frames On-Board Memory)

Remove the computer bottleneck. The SLM drive electronics can store a library of up to 2,045 (for 1536 SLM) or 4,000 (for 768 SLM) user specified phase masks on the driver board. These masks can be selected in any sequence using on-board OverdrivePlus transition calculation for high-speed switching and extremely precise timing, without being limited by computer computation and data transfer speeds.

High power handling. The 1536 SLM combines a large 3 cm x 3 cm active array with liquid cooling to support high laser powers. Delivering more power on target for applications that need it, from multi-spot photostimulation to laser welding.
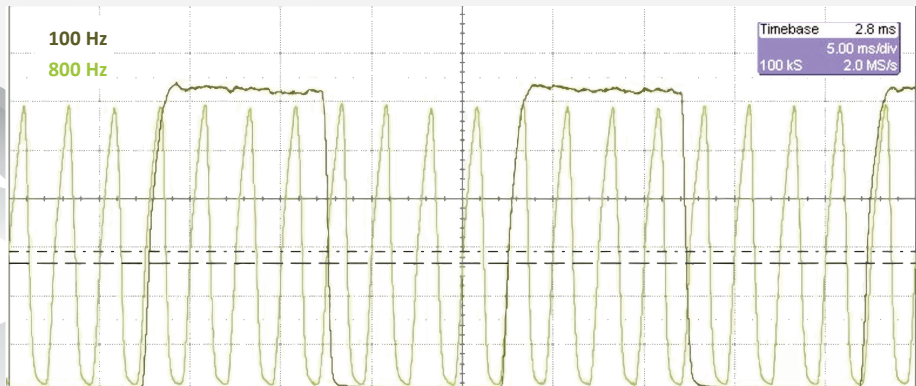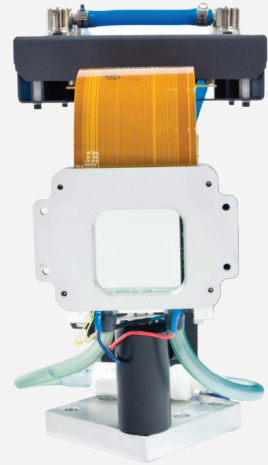
High Resolution Holography at 800 fps! Oscilloscope traces show diffracted spots generated by 768 SLM at 800 Hz vs 100 Hz.