

Meadowlark Optics 空间光调制器产品简介

Meadowlark 公司的 XY 系列空间光调制器 (SLM) 具备多种专利的设计, 具有广泛光学领域, 现已在全球的科研实验室广泛使用。XY 系列液晶空间光调制器是一类二维可编程的光学器件, 可以对入射光进行单像素控制, 可以实现纯相位、纯振幅以及位相振幅的混合调制。

XY 系列以及空间光调制器 (SLM) 具有 6KHz 寻址速度, 有效消除相位纹波 (小于 0.1%) ; 500Hz 液晶响应速度; 高达 95% 光能利用效率, 10W/cm² 高损伤阈值等特点。我们可以根据客户的具体应用要求, 提供个性化的 SLM 定制方案!



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XY 系列液晶空间光调制器产品参数特点:

Small 512 x 512 Spatial Light Modulator							
Design Wavelength, custom wavelengths available for UV - MW/IR	Model	$\lambda = 532 \text{ nm}$	$\lambda = 635 \text{ nm}$	$\lambda = 785 \text{ nm}$	$\lambda = 1064 \text{ nm}$	$\lambda = 1550 \text{ nm}$	
Array Size		7.69 x 7.69 mm					
Zero-Order Diffraction Efficiency (Standard)	PS12, HSP512, ODP512	61.5% (maximum)					
Zero-Order Diffraction Efficiency (Hi-Efficiency)	PDMS12, HSPDMS12, ODPDMS12	90 - 95% (maximum)					
External Window		AR coated, Rang < 1.25% @ λ					
Fill Factor (standard)		83.4%					
Fill Factor (Hi-Efficiency)		100%					
Format		512 x 512 (262,144 active pixels)					
Phase Stroke (Double Pass)		2π @ λ					
Pixel Pitch		15 x 15 μm					
Phase Ripple		As low as 0.1%, based on SLM configuration					
Reflected Wavefront Distortion (RMS Calibrated)		$\lambda/7$	$\lambda/8$	$\lambda/10$	$\lambda/10$	$\lambda/12$	
Liquid Crystal Response Time, 10-90% (Standard)	PS12	$\leq 33.3 \text{ ms}$	$\leq 33.3 \text{ ms}$	$\leq 55.5 \text{ ms}$	$\leq 66.7 \text{ ms}$	$\leq 100 \text{ ms}$	
Maximum Liquid Crystal Switching Frequency (Standard)	PS12	$\geq 30 \text{ Hz}$	$\geq 30 \text{ Hz}$	$\geq 18 \text{ Hz}$	$\geq 15 \text{ Hz}$	$\geq 10 \text{ Hz}$	
Liquid Crystal Response Time, 10-90% (Hi-Efficiency)	PDMS12	$\leq 45 \text{ ms}$	$\leq 45 \text{ ms}$	$\leq 80 \text{ ms}$	$\leq 100 \text{ ms}$	$\leq 130 \text{ ms}$	
Maximum Liquid Crystal Switching Frequency (Hi-Efficiency)	PDMS12	$\geq 22 \text{ Hz}$	$\geq 22 \text{ Hz}$	$\geq 12.5 \text{ Hz}$	$\geq 10 \text{ Hz}$	$\geq 7.7 \text{ Hz}$	
Liquid Crystal Response Time, 10-90% (Hi-Speed)	HSP512	$\leq 7 \text{ ms}$	$\leq 12 \text{ ms}$	$\leq 17.2 \text{ ms}$	$\leq 10 \text{ ms}$	$\leq 20 \text{ ms}$	
Maximum Liquid Crystal Switching Frequency (Hi-Speed)	HSP512	$\geq 142 \text{ Hz}$	$\geq 83 \text{ Hz}$	$\geq 58 \text{ Hz}$	$\geq 100 \text{ Hz}$	$\geq 50 \text{ Hz}$	
Liquid Crystal Response Time, 10-90% (Hi-Speed & Hi-Efficiency)	HSPDMS12	$\leq 10 \text{ ms}$	$\leq 16.7 \text{ ms}$	$\leq 22.2 \text{ ms}$	$\leq 16.7 \text{ ms}$	$\leq 28.5 \text{ ms}$	
Maximum Liquid Crystal Switching Frequency (Hi-Speed & Hi-Efficiency)	HSPDMS12	$\geq 100 \text{ Hz}$	$\geq 60 \text{ Hz}$	$\geq 45 \text{ Hz}$	$\geq 60 \text{ Hz}$	$\geq 35 \text{ Hz}$	
Liquid Crystal Response Time, 10-90% (Ultra Hi-Speed)	OP512	$1.5 - 3.5 \text{ ms}$	$2 - 4 \text{ ms}$	$2.5 - 4.5 \text{ ms}$	$3 - 5 \text{ ms}$	$4 - 6 \text{ ms}$	
Maximum Liquid Crystal Switching Frequency (Ultra Hi-Speed)	OP512	$\geq 285 - 667 \text{ Hz}$	$\geq 250 - 500 \text{ Hz}$	$\geq 222 - 400 \text{ Hz}$	$\geq 200 - 333 \text{ Hz}$	$\geq 166 - 250 \text{ Hz}$	
Liquid Crystal Response Time, 10-90% (Ultra Hi-Speed & Hi-Efficiency)	OPDMS12	$2.5 - 4.5 \text{ ms}$	$3 - 5 \text{ ms}$	$3.5 - 5.5 \text{ ms}$	$4 - 6 \text{ ms}$	$5 - 7 \text{ ms}$	
Maximum Liquid Crystal Switching Frequency (Ultra Hi-Speed & Hi-Efficiency)	OPDMS12	$\geq 222 - 400 \text{ Hz}$	$\geq 200 - 333 \text{ Hz}$	$\geq 181 - 285 \text{ Hz}$	$\geq 166 - 250 \text{ Hz}$	$\geq 142 - 200 \text{ Hz}$	

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Large 512 x 512 Spatial Light Modulator	
Standard Design Wavelengths	532, 635, 785, 1064, & 1550 nm
Array Size	12.8 x 12.8 mm
Zero-Order Diffraction Efficiency	88% (maximum)
External Window	AR coated, $R_{avg} < 1.25\% @ \lambda$
Fill Factor (standard)	0.96
Format	512 x 512 (262,144 active pixels)
Phase Stroke (Double Pass)	$2\pi @ \lambda$
Pixel Pitch	25 x 25 μm
Phase Ripple	As low as 0.1%, based on SLM configuration
Reflected Wavefront Distortion (RMS Calibrated)	$\lambda/7 - \lambda/12$
Liquid Crystal Response Time, 10-90% (Standard)	30 - 100 ms
Maximum Liquid Crystal Switching Frequency (Standard)	10 - 33 Hz
Liquid Crystal Response Time, 10-90% (Hi-Speed)	2 - 15 ms
Maximum Liquid Crystal Switching Frequency (Hi-Speed)	67 - 500 Hz

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1920 x 1152 Spatial Light Modulator	
Standard Design Wavelengths	532, 635, 785, 1064, & 1550 nm
Array Size	12.7 x 10.6 mm
Zero-Order Diffraction Efficiency	87%
External Window	AR coated, Ravg < 1.25% @ λ
Fill Factor (standard)	95.7%
Format	1920 x 1152 (2,211,840 active pixels)
Phase Stroke (Double Pass)	2π @ λ
Pixel Pitch	9.2 x 9.2 μm
Phase Ripple	As low as 0.1%, based on SLM configuration
Reflected Wavefront Distortion (RMS Calibrated)	$\lambda/7$ - $\lambda/12$
Liquid Crystal Response Time, 10-90% (Standard)	30 - 100 ms
Maximum Liquid Crystal Switching Frequency (Standard)	10 - 33 Hz

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