

## 超快铁电液晶偏振旋转器（100 微秒）

美国 Meadowlark Optics 公司的超快铁电液晶偏振旋转器（Ferroelectric Liquid Crystal Polarization Rotator）利用铁电液晶材料的快速响应特性，并结合了世界领先的偏振技术，具有超高速、高纯净线偏振光输出及最大的消光比等特点。通过改变施加在铁电液晶光学快门上的驱动电压来控制铁电液晶分子的排列，从而可对线偏振入射光实现  $0^\circ$  or  $90^\circ$  的偏振方向的旋转，偏振方向发生旋转的光通过一定角度放置的精密线偏振片后，即可实现对光的开关控制。与向列型液晶光学快门相比，铁电液晶快门在响应速度方面，具有无与伦比的优势。

Meadowlark Optics 的超快铁电液晶偏振旋转器在需要最快光学响应时间的光开关和偏振态旋转应用中具有不可比拟的性能优势。标准超快铁电液晶偏振旋转器的波长范围为 400-800 nm，同时我们也可提供波长在  $2\mu\text{m}$  微米以内的定制化超快铁电液晶偏振旋转器；Meadowlark Optics 超快铁电液晶偏振旋转器的通光孔径有  $\varnothing 9.4\text{mm}$ ,  $\varnothing 17.78\text{mm}$  可选。此外，Meadowlark Optics 铁电液晶偏振旋转器还提供温度控制选项。



Meadowlark Optics 超快铁电液晶光学快门/光阀应采用无直流偏置的交流方波电压信号进行驱动；我们建议使用 FC-010 控制器控制超快铁电液晶偏振旋转器，FC-010 控制器是 Meadowlark 专门针对超快铁电液晶偏振旋转器进行优化的理想高性能控制器。

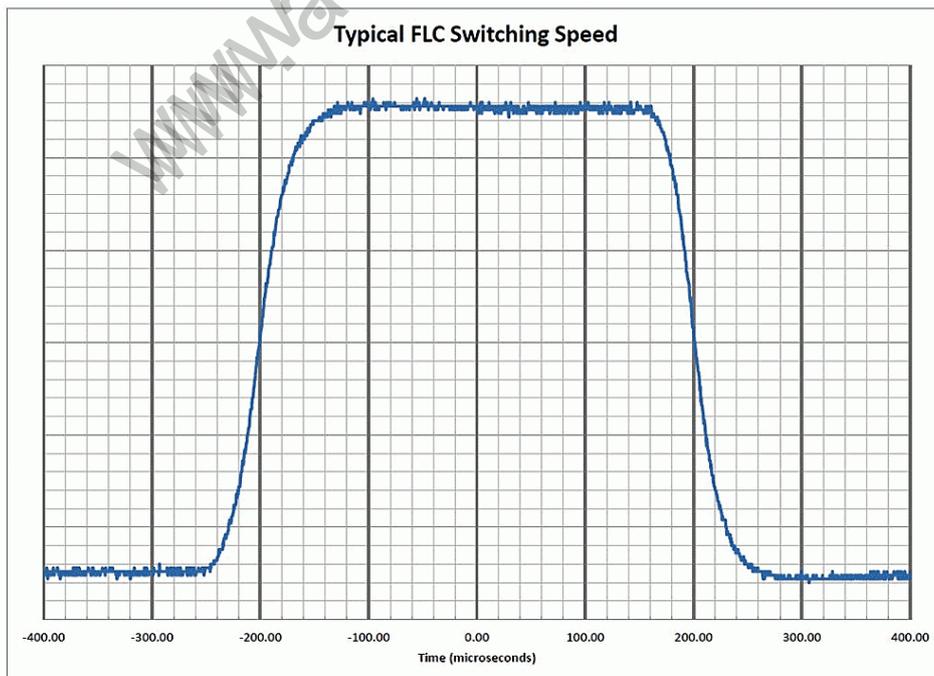


FLC Driver sold separately

优势:

- 超快响应速度 100 $\mu$ s
- 大通光口径 17.78mm
- 可用波长范围 400-2 $\mu$ m
- 精密无机械控制

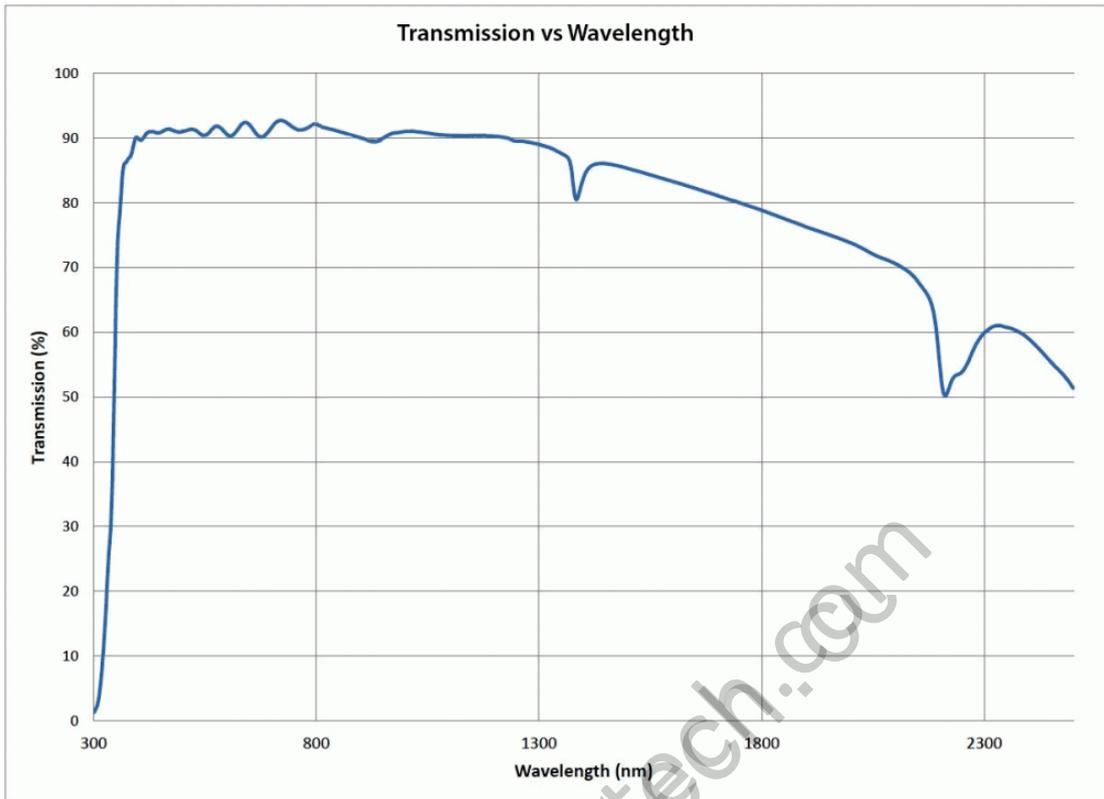
典型超快铁电液晶偏振旋转器响应时间:



规格:

ROTATOR SPECIFICATIONS	
Retarder Material	Ferroelectric liquid crystal
Substrate Material	Fused silica
Wavelength Range	400-800 nm <i>custom ranges up to 2 microns</i>
Transmitted Wavefront Distortion	$\lambda/4$ (P-V @ 633) [ $\lambda/10$ (RMS @ 633)]
Surface Quality	60-40 scratch-dig
Beam Deviation	$\leq 5$ arc min
Outside Diameter (mounted)	1.00 / 2.00 $\pm$ 0.005 in. <i>please inquire about custom sizes</i>
Clear Aperture	0.37 / .70 in.
Response Time (10-90% & 90-10%)	$\leq 100$ micro-sec at room temp <i>wavelength dependent</i>
Operating Temperature	20°C to 30°C
Storage Temperature	0°C to 60°C
Driver Requirements	$\pm 5$ to 20 Volts, 50% duty cycle
SHUTTER SPECIFICATIONS (rotator with polarizers – includes specifications from above table)	
Polarizer Material	Dichroic Polymer
Transmission <i>please inquire about higher transmission options</i>	$\geq 30\%$ (typical - unpolarized light) $\geq 65\%$ (typical - polarized light)
Wavelength Range	450-720 nm <i>custom ranges up to 2 microns</i>
Transmitted Wavefront Distortion	$\lambda/2$ (P-V @ 633) [ $\lambda/8$ (RMS @ 633)]
Contrast Ratio	$\geq 200:1$

波长透过率曲线:



控制器参数:

CONTROLLER SPECIFICATIONS	
<b>Dimensions</b>	5.3 in. W x 5.3 in. L x 2.0 in. H (13.5 cm W x 13.5 cm L x 5.1 cm H)
<b>Number of LC Channels</b>	Two, running identical programs 180 degrees out of phase
<b>Output Waveform</b>	Bipolar $\pm 15V$ peak voltage, $\pm 5V$ holding voltage
<b>Amplitude Resolution</b>	16-bit; 1 mV voltage resolution
<b>Internal Drive</b>	1 to 10,000 Hz, 50% duty cycle, frequency controlled by front-panel 10-turn knob

产品订购信息:

ORDERING INFORMATION				
<i>Product Description</i>	<i>Diameter (in.)</i>	<i>Clear Aperture (in.)</i>	<i>Thickness (in.)</i>	<i>Part Number</i>
Rotator	1.00 [25.4 mm]	0.37 [9.4 mm]	1.23 [31.24 mm]	FPR – 100 – $\lambda$
	2.00 [50.8 mm]	0.70 [17.78 mm]	0.75 [19.05 mm]	FPR – 200 – $\lambda$
Shutter	1.00 [25.4 mm]	0.37 [9.4 mm]	1.42 [36.07 mm]	FCS – 100 – $\lambda$
	2.00 [50.8 mm]	0.70 [17.78 mm]	1.13 [28.7 mm]	FCS – 200 – $\lambda$
Controller	N/A	N/A	N/A	FC-010
<i>Please specify a wavelength when placing your order.</i>				

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