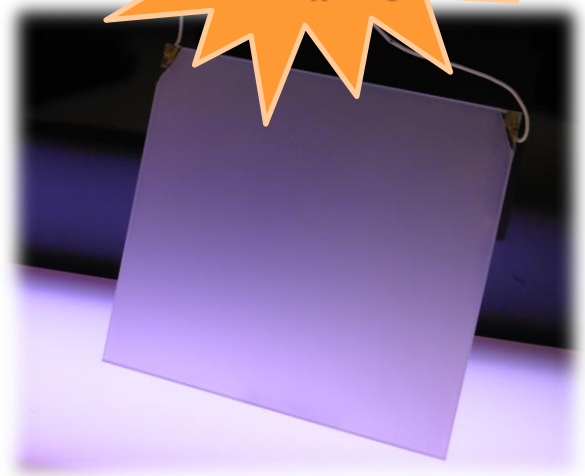


## Polymer Dispersed Liquid Crystal Shutter

An Optical Shutter is a two-state device used to rapidly open and close a light path (from lens to film, for example). Optical Shutters are typically used to control the amount of time that a light-sensitive material is exposed to optical radiation.

Meadowlark Optics (MLO) manufactures and sells liquid crystal based Optical Shutters for applications requiring active timing control of beam transmittance. Key features of our Optical Shutters include high-speed binary operation, maximum open state transmittance, and high extinction ratio performance. Since these devices are solid state – undesirable mechanical motion, associated noise, and vibration problems are eliminated.

Designed for large format applications with maximum open state transmission, the PDLC Series of Optical Shutters provides a cost-effective solution for applications requiring throughput optimization. This unique PDLC Optical Shutter design enables up to 70% open state unpolarized transmittance across the visible wavelength range. Drive voltage requirements range from  $\pm 60$  to  $\pm 70$  V AC. Large aperture sizes (up to 150 mm) are easily accommodated with the PDLC Series. Broad thermal performance is also characteristic of the PDLC Series Optical Shutters.

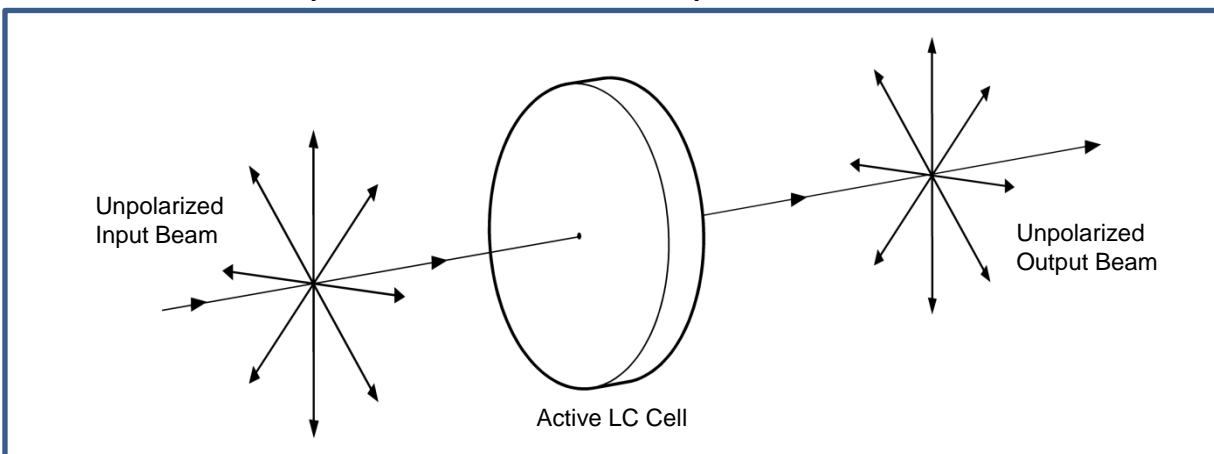


*Many Custom Sizes and Shapes Available.*

### PDLC Features

- Maximum open state transmittance
- Low absorption, non-polarizing design
- No mechanical motion
- High speed binary operation
- High extinction ratio
- Broad thermal performance

### Conceptual Illustration of a PDLC Optical Shutter Function



SPECIFICATIONS	
<b>Retarder Material</b>	Nematic liquid crystal
<b>Substrate Material</b>	Optical quality synthetic fused silica
<b>Wavelength Range</b>	400 -700 nm
<b>Transmitted Wavefront Distortion</b>	2λ (P-V @ 633 nm) [λ/2 (RMS @ 633 nm)]
<b>Contrast Ratio</b>	150:1
<b>Switching Speed</b>	30 – 40 ms
<b>Surface Quality</b>	40-20 scratch-dig
<b>Reflectance (per surface)</b>	0.5% at normal incidence
<b>Diameter Tolerance</b>	± 0.010 in.
<b>Operating Temperature Range</b>	10°C to 60°C

ORDERING INFORMATION			
Diameter (in.)	Clear Aperture (in.)	Thickness (in.)	Part Number
1.00 [25.4 mm]	0.37 [9.4 mm]	1.23 [31.24 mm]	PCS – 100 – λ
2.00 [50.8 mm]	0.70 [17.8 mm]	0.75 [19.05 mm]	PCS – 200 – λ
3.00 [76.2 mm]	1.60 [40.6 mm]	1.00 [25.4 mm]	PCS – 300 – λ