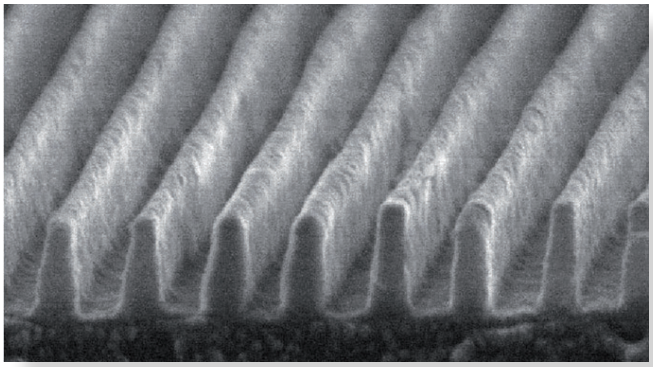
Visible Light Polarizers
PPL & PFU series



120 nanometer wire grid

Applications

- Projection display
- Spectroscopy
- Microscopy
- Medical & dental imaging
- Machine vision
- Automotive
- Head up display (HUD)
- Head mounted display (HMD)
- Polarizing cameras

Standard product options	
Product name	**Description**
PPL04C	High contrast
PFU04C	Ultra high contrast
PPL05C	High transmission
RCV8N2EC	Balanced transmission/contrast
RCV6N2EC	Ultra high transmission
RCV6LCET	High transmission with protective overcoat™

Features	Benefits
Nanowire technology	Brightness and contrast uniformity
	±20° AOI without depolarization
	Wavelength and AOI independent
	Broadband
Inorganic	High heat resistance

Substrate specifications	
Type	Display grade glass
Thickness	0.7 mm ± 0.07 mm
Index of refraction	1.5198 @ 435.8 nm
	1.5078 @ 643.8 nm
Thermal expansion	31.7 x 10^{-7}/°C (0 – 300 °C)

ProFlux® polarizers are designed using Moxtek® Nanowire® technology to control light and image polarization even in high energy and high temperature applications. Made from highly durable materials, ProFlux provides pure polarization that gives high contrast and a bright image for the life of the projector or instrument.

The ProFlux degree of polarization depends little on wavelength and angle of incidence, making these polarizers the ideal choice for various analytical tool applications. ProFlux polarizers have excellent polarization uniformity over large apertures, and provide bright, high contrast, and long-lasting performance.

Moxtek's advanced manufacturing technology is able to manufacture precision polarizers in high volume quantities for projection display, analytical, automotive, medical, research, and other applications.

General specifications	
Wavelength range	420 nm - 700 nm
AR coating	Standard on backside only
Dimensional tolerance	± 0.2 mm
Edge exclusion	2 mm
Transmission axis (TA)	Referenced to long side of part
TA tolerance	±1°
Angle of incidence	0° ± 20°
Maximum temperature	200 °C, >5000 hours
RoHS	Compliant

ProFlux® products groups

PPL04C- PFU04C High contrast polarizers

- Prepolarizer
- Clean-up polarizer

PPL05C- PFU05C High transmission polarizers

Designed to maximize light transmission:

- Polarization recovery in light sources
- Illumination stage prepolarizer

PFU01C Ultra-high transmission

- Pico-projectors and applications with extreme brightness requirements

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The following table contains the performance specifications for all ProFlux® visible light polarizers (PPL and PFU) with standard AR coating.

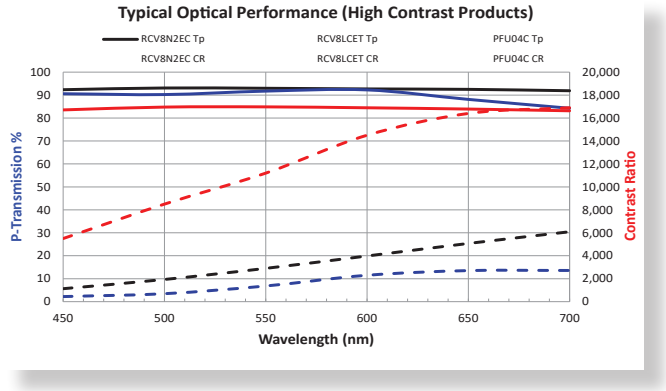
Performance specifications at normal incidence									
ProFlux® PPL and PFU polarizers Performance specifications at 0° AOI	450 nm			550 nm			650 nm		
	Min. Tp (%)	Max. Ts (%)	Cr (Tp/Ts)	Min. Tp (%)	Max. Ts (%)	Cr (Tp/Ts)	Min. Tp (%)	Max. Ts (%)	Cr (Tp/Ts)
PPL04C High contrast	82.0	0.12	683	82.0	0.1	820	82.0	0.08	1025
*PFU04C (Ultra high contrast)	72.0	0.03	2400	82.0	0.018	4556	82.0	0.015	5467
PPL05C (High transmission)	88.6	0.89	100	90.0	0.43	209	88.5	0.26	340
RCV8N2EC (Balanced HT/HC)	90.0	0.12	750	91.0	0.09	1011	90.0	0.06	1500
**RCV8LCET (High contrast)	87.0	0.25	348	88.5	0.10	885	86.0	0.07	1229
RCV6N2EC (Ultra high transmission)	93.0	0.89	104	93.0	0.43	215	92.5	0.26	356
**RCV6LCET (Ultra high transmission)	90.5	0.89	102	91.5	0.43	213	89.0	0.26	342

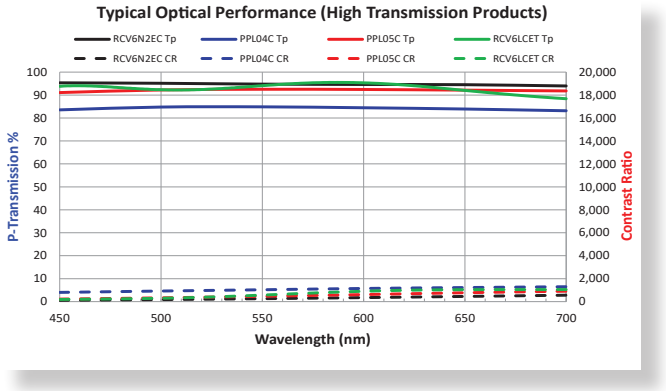
Tp = Transmitted “p” polarization, Ts = Transmitted “s” polarization, Cr = Contrast ratio, Tp/Ts

* Products only available in limited quantities

**RCV8LCET, RCV6LCET have a protective overcoat™ hard coating to protect the polarizer ribs.

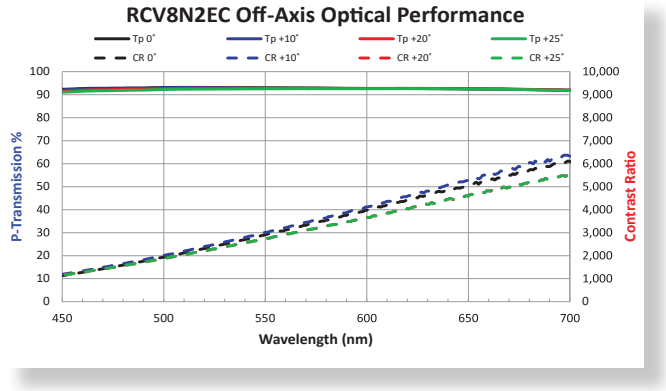
Typical optical performance (Tested at 0°)



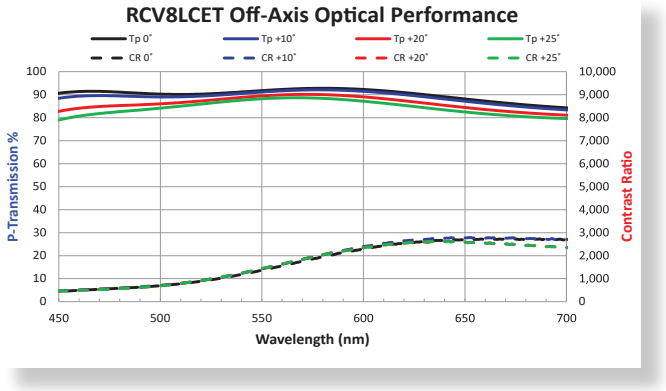


Off-axis performance

The light entering a polarizer is typically a cone. The size of the cone depends upon the f/number of the system. Most systems use a cone half angle of less than 20°. The ProFlux® polarizer performance changes very little with angle of incidence, resulting in uniform system performance over the aperture. This is illustrated in the typical off-axis ½ angle performance graphs of transmittance and contrast shown below.



RCV8N2EC (No overcoat)



**RCV8LCET (With Overcoat)

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