

PAVOS Ultra

Faraday Rotators and Isolators – 1010 nm to 1080 nm

The PAVOS Ultra line of Faraday devices offers roughly 1/10th the absorption and thermal lens focal shift and can theoretically provide ten times lower non-linear refractive index compared to the standard PAVOS rotators and isolators. This results in a lower B-integral protecting against catastrophic whole beam self-focusing (also known as Kerr Lensing). The PAVOS Ultra line has been specifically designed to meet the needs of the high power and high energy 1 μm (1010 nm to 1080 nm) laser market with stable performance up through 1000 W of average power.

Our PAVOS Ultra rotators and isolators deliver industry-best laser reliability and performance. The PAVOS Ultra family of Faraday devices provide superior isolation, especially at higher average power levels, while maintaining very high transmission values.

PAVOS Ultra products rely on the Faraday effect from high Verdet constant, low absorption materials to rotate the plane of linearly polarized light in the forward direction and an additional 45° of non-reciprocal rotation in the reverse direction. The PAVOS Ultra is available as a rotator or an isolator.



FEATURES

- 1/10th the absorption and thermal lens focal shift compared to standard PAVOS
- Theoretically ten times lower non-linear refractive index
- Completely passive; no tuning required
- All isolators contain escape ports
- Adjustable to handle any angle of linear input polarization without additional optics
- PAVOS kW Ultra includes thin film polarizers, larger magnets, and reduced optical path length for optimized performance up to 1000 W
- PAVOS+ Ultra is our most compact and shortest optical pathlength version of the PAVOS Ultra

APPLICATIONS

- High average power applications
- Ultrafast R&D
- Microelectronics
- Medical Systems and Device Manufacturing
- Micromachining
- Particle Acceleration

OPTIONS

- Input/output waveplates
- Precision mounting capability
- Precision rejected beam pointing
- Customization

Attalon

Specifications	PAVOS+ Ultra		PAVOS Ultra		PAVOS kW Ultra
	Rotator	Isolator	Rotator	Isolator	Isolator
Clear Aperture (mm)	4	4	8, 12	8, 12	12
Wavelengths ¹ (nm)	1030, 1064	1030, 1064	1030, 1064	1030, 1064	1030, 1064
Transmission (%)	98	93	95	95	95
Isolation ² (dB)	NA	33 (typical)	NA	30 (typical)	23 (typical)
Extinction ² (dB)	36 (typical)	NA	33 (typical)	NA	NA
Max. Rated Power Handling (W)	400				1000
Thermal Lens Focal Shift (zR/kW)	<1 (typical)				
Damage Threshold	10 J/cm ² at 10 ns 1 J/cm ² at 8 ps				

Notes:

1. Other wavelengths available upon request.
2. At operating wavelength and temperature (default = 22 °C).

Typical Performance Data

