

PAVOS Ultra

Faraday Rotators and Isolators 1010 nm to 1080 nm

The Coherent 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 less Kerr Lens focal shift and a lower B-integral protecting against catastrophic whole beam self-focusing. 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 400 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
- Complete passive; no tuning required
- Specified performance to 400 W; tested to 1.2 kW average power
- Optically contacted PBS cubes for improved damage threshold
- All isolators contain escape ports
- Adjustable to handle any angle of linear input polarization without additional optics

Options

- Input/Output waveplates available
- Precision mounting capability
- Precision rejected beam pointing available
- Customization available

Applications

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

SPECIFICATIONS

	Rotator	Isolator
Clear Aperture (mm)	5, 8, 12	5, 8, 12
Peak Transmission ² (%)	>95	>95
Peak Isolation ² (dB)	N/A	>33, typical >27, minimum
Extinction (dB)	>36, typical >30, minimum	N/A
Rotation (°)	45 +2/-5	45 +2/-5
Storage Temperature Range (°C)	-40 to 70	-40 to 70
Operational Temperature Range (°C)	10 to 30	10 to 30
Isolated Beam Pointing ³ (mrad)	N/A	<5
Damage Threshold ²	7 J/cm ² at 10 ns 600 mJ/cm ² at 8 ps	7 J/cm ² at 10 ns 600 mJ/cm ² at 8 ps

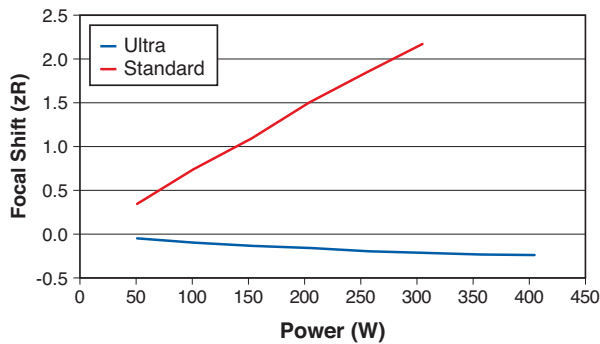
¹ Escape ports should be used if rejected light is >1 W or 0.15 J/cm² at 10 ns or forward light is >25 W. All stray beams should be properly terminated.

² At customer-specified wavelength and temperature.

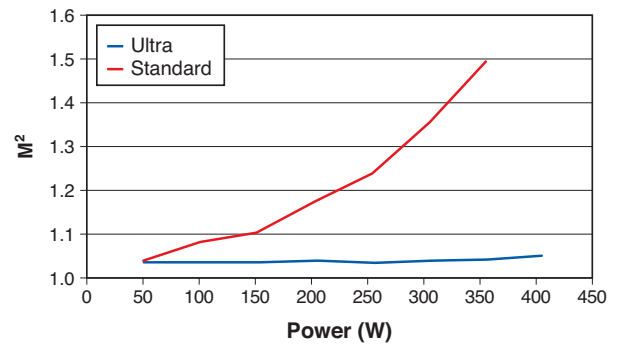
³ Input cube only.

*NOTE: For powers higher than 400 W, contact EOT.

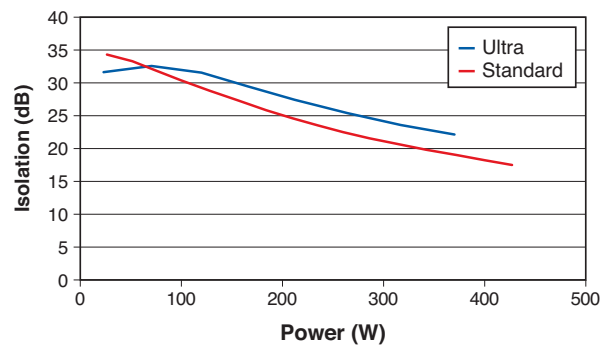
Thermal Lens Focal Shift



Beam Quality - M²



Isolation



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. All products are RoHS compliant.

Coherent offers a limited warranty for all PAVOS Ultra Rotators and Isolators. For full details of this warranty coverage, please refer to the Service section at www.coherent.com or contact your local Sales or Service Representative. Copyright ©10/21 Coherent, Inc.