

# 4 mm 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  $\mu\text{m}$  (1010 nm to 1080 nm) laser market with stable performance up through 150 W of average power compared to 80 W for the standard PAVOS+.

For laser systems having large distances between amplification stages, the reduced thermal lens focal shift of the PAVOS+ Ultra results in greater coupling efficiency and simpler optical design.

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

- 1/10<sup>th</sup> the absorption and thermal lens focal shift compared to standard PAVOS
- Theoretically ten times lower non-linear refractive index
- Completely passive; no tuning required
- Specified performance to 150 W
- Available with polarizing beam splitting cubes or EOT's high performance thin film polarizers
- EOT's most compact and shortest optical pathlength version of the PAVOS Ultra

## Options

- Input/Output waveplates available
- Precision mounting capability
- Customization available

## Applications

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

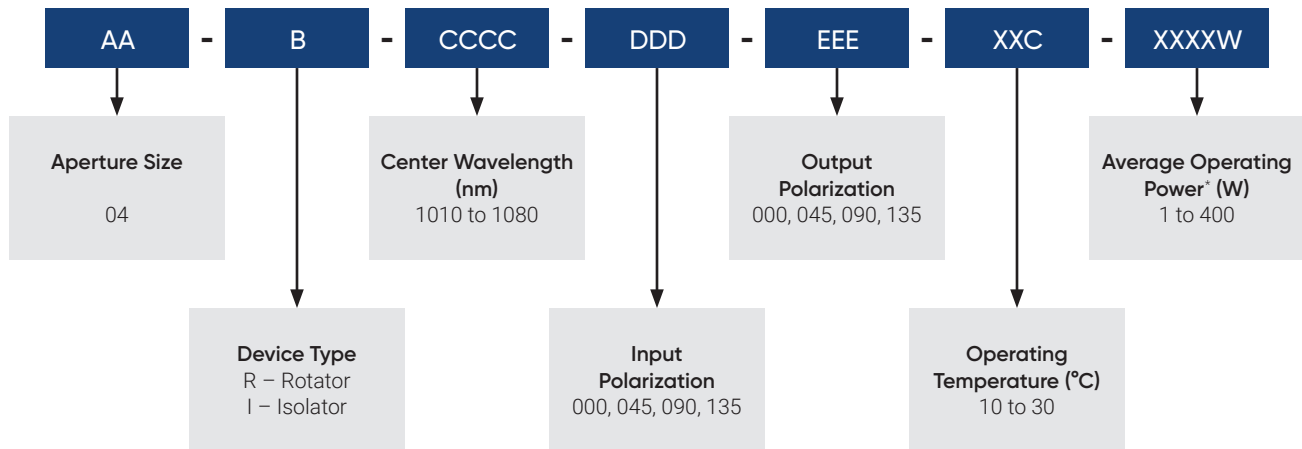
## SPECIFICATIONS

	Rotator		Isolator	
	Minimum	Typical	Minimum	Typical
Clear Aperture (mm)	4		4	
Max. Rated Power Handling <sup>2</sup> (W)	≥125	≥150	≥125	≥150
Peak Transmission <sup>3</sup> (%)	>98		>93	>95
Peak Isolation <sup>3</sup> (dB)	N/A		>33 <sup>3</sup>	
Peak Extinction <sup>3</sup> (dB)	≥30 <sup>4</sup> ≥27 <sup>5</sup>	≥36 <sup>4</sup> ≥33 <sup>5</sup>	N/A	
Rotation (°)	45 ±2	45 ±1	45 ±2	45 ±1
Storage Temperature Range (°C)	-20 to 60		-20 to 60	
Damage Threshold <sup>6</sup>	≥6 J/cm <sup>2</sup> at 10 ns ≥0.6 J/cm <sup>2</sup> at 8 ps	≥10 J/cm <sup>2</sup> at 10 ns ≥1 J/cm <sup>2</sup> at 8 ps	≥6 J/cm <sup>2</sup> at 10 ns ≥0.6 J/cm <sup>2</sup> at 8 ps	≥10 J/cm <sup>2</sup> at 10 ns ≥1 J/cm <sup>2</sup> at 8 ps

1 See technical bulletin, Advantages of the PAVOS Product Line.  
 2 Specification performance guaranteed to max. power rating, but device has been tested to >400 W without failure.  
 3 At customer-specified wavelength and temperature.  
 4 With 1/e<sup>2</sup> beam diameter ≤ clear aperture/2 (50% encroachment), ≤ 5 mW power.  
 5 With 1/e<sup>2</sup> beam diameter ≤ clear aperture/2 (50% encroachment), max. power.  
 6 Limited by KTF crystal. Polarizers qualified to ≥ 10 J/cm<sup>2</sup> at 10 ns.  
 NOTE: For operating conditions not specified, contact EOT.

## MODEL NUMBER SCHEME

### AA-B-CCC-DDD-EEE-XXC-XXXXW



**AA:** Aperture  
**B:** Device Type  
**CCC:** Wavelength (nm)  
**DDD:** Input Polarization - N/A for Rotators. Defaults to 000 (horizontal) unless otherwise specified.  
**EEE:** Output Polarization - N/A for Rotators. Defaults to 045 (45° clockwise from input) unless otherwise specified.\*\*  
**XXC:** Nominal Operating Temperature - Defaults to 22C (22 °C) unless otherwise specified.  
**XXXXW:** Nominal Operating Average Power - Defaults to 0100W (100 W) unless otherwise specified.

\* Power levels above 150 W may result in a change in specification. Contact EOT to discuss.  
 \*\* The addition of a waveplate will add an additional 45° or 135° of rotation through the device.



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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 4 mm PAVOS+ Ultra Rotators and Isolators. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. Copyright ©10/21 Coherent, Inc.