

The Coherent EURYS Broadband Rotators rotate the plane of polarized light  $90^\circ$  at 800 nm in the forward direction and  $0^\circ$  from 720 nm to 950 nm in the reverse direction while maintaining the light's linear polarization. When placed between crossed polarizers, a broadband Faraday rotator becomes a broadband optical isolator.

EURYS Broadband Optical Isolators provide high transmission in the forward direction and strongly attenuate back-reflected light between 720 nm to 950 nm in the reverse direction protecting Ti:Sapphire oscillators from the deleterious effects of back reflections and also eliminating preferential lasing at the lower gain wavelengths of Ti:Sapphire lasers. Utilizing optics with low refractive indices and short optical path-lengths minimizes pulse broadening due to dispersion in the optics associated with ultra-short laser pulses.

### Features

- Completely passive; no tuning required
- All isolators contain rejected beam escape ports
- Adjustable to handle any angle of linear input polarization without additional optics

### Options

- Input/Output waveplates available
- Precision mounting options on the 5 mm version
- Precision rejected beam pointing available on the 5 mm version
- Customization available

### Applications

- Protect Ti:Sapphire oscillators from back reflections
- Eliminate preferential lasing at lower gain wavelengths of Ti:Sapphire lasers
- Eliminate ASE from high-gain amplifiers
- Minimize pulse broadening due to dispersion in the optics



## SPECIFICATIONS

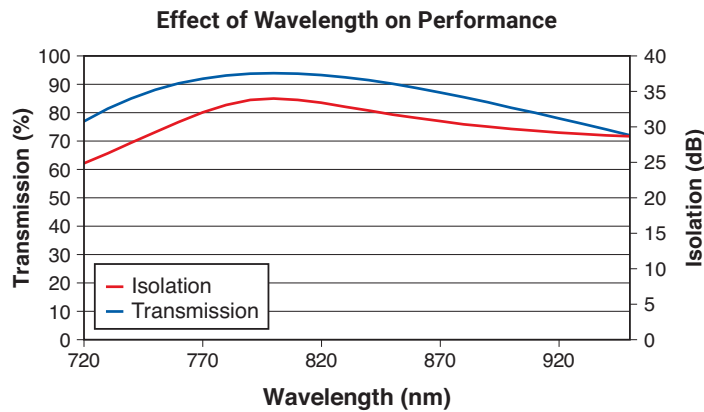
|                           | Small Aperture Rotators   | Small Aperture Isolators <sup>1</sup>                           | Large Aperture Rotators                                 | Large Aperture Isolators <sup>1</sup>                   |
|---------------------------|---|---|---|---|
| Clear Aperture (mm)       | 5   | 5   | 8, 10   | 8, 10   |
| Center Wavelength (nm)    | 800   | 800   | 800   | 800   |
| Spectral Range (nm)       | 720 to 950  | 720 to 950  | 720 to 950  | 720 to 950  |
| Transmission at 22 °C (%) | >98   | >92   | >98   | >92   |
| Isolation at 22 °C (dB)   | N/A   | >33   | N/A   | >30   |
| Damage Threshold          | >3.4 J/cm <sup>2</sup> at 10 ns<br>>1 J/cm <sup>2</sup> at 8 ps | >3.4 J/cm <sup>2</sup> at 10 ns<br>>1 J/cm <sup>2</sup> at 8 ps | 5 J/cm <sup>2</sup> at 10 ns<br>2 kW/cm <sup>2</sup> CW | 1 J/cm <sup>2</sup> at 10 ns<br>2 kW/cm <sup>2</sup> CW |

<sup>1</sup> Escape ports should be used if rejected light is >1 W or 0.15 J/cm<sup>2</sup> at 10 ns or forward light is >25 W. All stray beams should be properly terminated.

**Dispersion:** Some pulse broadening does occur when using EOT's EURYS Broadband Isolators. The Sellmeiers Equation for TGG used in the broadband isolators is:

$$n^2 - 1 = \frac{E_d E_o}{E^2 - (hc / \lambda)^2}$$

where  $E_o = 9.223\text{eV}$  and  $E_d = 25.208\text{eV}$



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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 EURYS 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.