

Eurys Series – Large Aperture (>5mm)

Broadband Faraday Rotators and Isolators for Ti:Sapphire Lasers

EOT's *Eurys Series* Broadband Rotators rotate the plane of polarized light 90° at 800nm in the forward direction and 0° from 720–950nm 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 Series* broadband optical isolators provide high transmission in the forward direction and strongly attenuates back-reflected light between 720–950nm 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 pathlengths minimizes pulse broadening due to dispersion in the optics associated with ultra-short laser pulses.



Benefits:

- Eliminate ASE from high-gain amplifiers that can cause parasitic or relaxation oscillations
- Prevent preferential lasing at low-gain wavelengths by providing broadband isolation

Features:

- All devices are completely passive; no tuning is required
- Combination of low refractive index optics and short optical pathlengths minimizes pulse broadening that can be associated with ultra-short pulses
- All isolators contain escape ports; all rejected beams are deflected at 90°

Specifications^a:

	Rotator	Isolator ^b
Center Wavelength	800nm	800nm
Spectral Range	720–950nm	720–950nm
Polarizer Type	N/A	PBS Cube
Transmission at 22°C ^c	>98%	>92%
Isolation at 22°C	N/A	>30dB
Damage Threshold	5J/cm ² at 10ns 2kW/cm ² at 10ns	1J/cm ² at 10ns 2kW/cm ² at 10ns

^a Product specifications are subject to change.

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

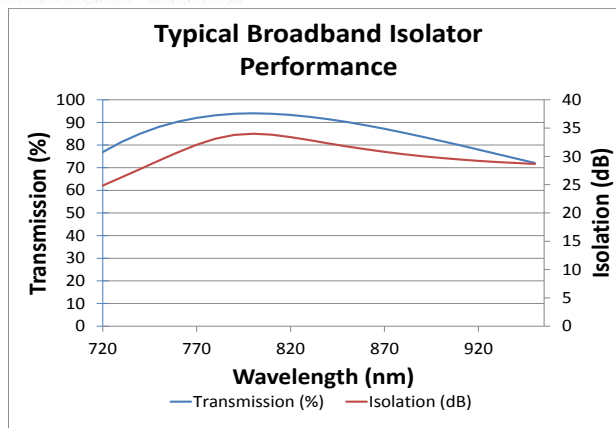
^c At center wavelength

Note: All products are RoHS compliant.

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

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

where: E_o = 9.223eV and E_d = 25.208eV

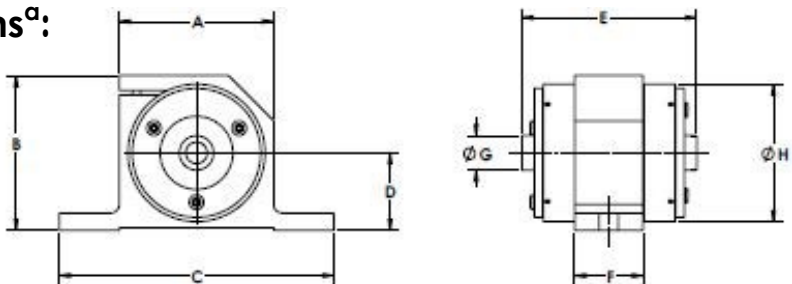


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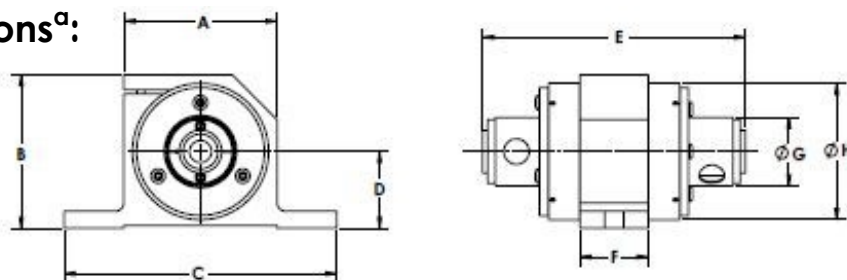
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Eurys Series Rotator Dimensions^a:



Aperture (mm)	A	B	C	D	E	F	G	H
8 ^b	2.00	2.00	2.00	1.00	2.67	n/a	0.44	1.00
10 ^b	2.00	2.00	2.00	1.00	2.95	n/a	0.60	1.26

Eurys Series Isolator Dimensions^a:



Aperture (mm)	A	B	C	D	E	F	G	H
8	2.25	2.25	4.00	1.13	3.86	1.00	1.00	2.00
10 ^b	2.00	2.00	2.00	1.00	4.69	n/a	1.00	n/a

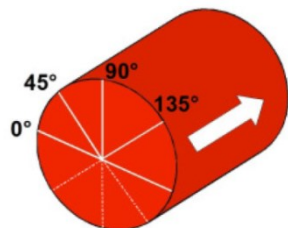
^a All dimensions in inches
^b Square body, no clamp

Model Number:

<u>A A</u>	<u>B B</u>	<u>C</u>	<u>D D D</u>	<u>E E E</u>	<u>F F F</u>
Product Type	Aperture Size (mm)	Device type	Oper. Wavelength	Input Polarization	Output Polarization
BB	08, 10	R-Rotator I-Isolator	800nm	000	000
				045	045
				090	090
				135	135

Example: Description: 8mm isolator centered at 800nm; input horizontal, output vertical
 Model Number: BB-08-I-800-000-090

Input Polarization Reference



Notes: 1) Light is rotated clockwise 90° from input to output for all catalog devices.

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