

# Free Space Optical Isolator

(405-1060nm, 2mm to 40mm apertures, TGG Crystal)

DATASHEET

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The OITG Series Free Space optical Isolator is a unidirectional light valve that transmits light in the normal direction while blocking back-reflection and backscattering in the reverse direction. The device protects a laser source from destabilizing feedback or damage from back-reflected light. The OITG isolators are based on high-quality TGG Faraday crystals of low loss and high optical power threshold. High-power fused silica PBS cubes are used for polarization filtering and a waveplate is optional to rotate the polarization of the output beam to a desired direction. Double escape ports are built-in for added application flexibility.

It is available with options of wavelength tunable configuration, thin film polarizers for compactness, integrated tap monitor for feedback. Agiltron excels at providing customized design solutions to meet special applications.

## Features

- Low Insertion Loss
- High Isolation
- High Stability
- High Reliability
- Cost Effective

## Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength	450		1060	nm
Insertion Loss		0.3	0.6	dB
Wavelength Dependent Loss			0.2	dB
Isolation Single Stage	25	35	38	dB
Isolation Double Stage	40	45	55	dB
Optical Aperture Ø	2	5	40	mm
Pulse Damage Threshold @10ns	3.5		5	J/cm <sup>2</sup>
Operating Temperature	-10		45	°C
Polarizer Type	Horizontal			
Polarizer Type	PBS Cube, Polacore			

**Note:** For a polarized input light version, the isolation is optimized to block the light reflection of the same polarization. Although lights of other polarizations may also be blocked, the extinction may be poor. PM isolators can be specially made to block backward propagating lights of all polarizations. PM isolators can also be made with a light polarizing function.

## Applications

- Optic Sensor
- Laser Systems
- Test and Measurement
- Instrumentation

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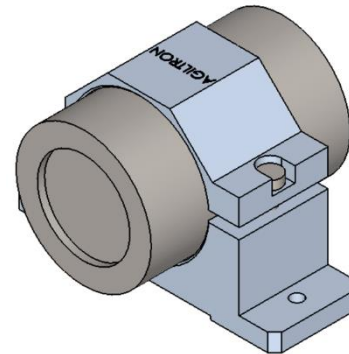
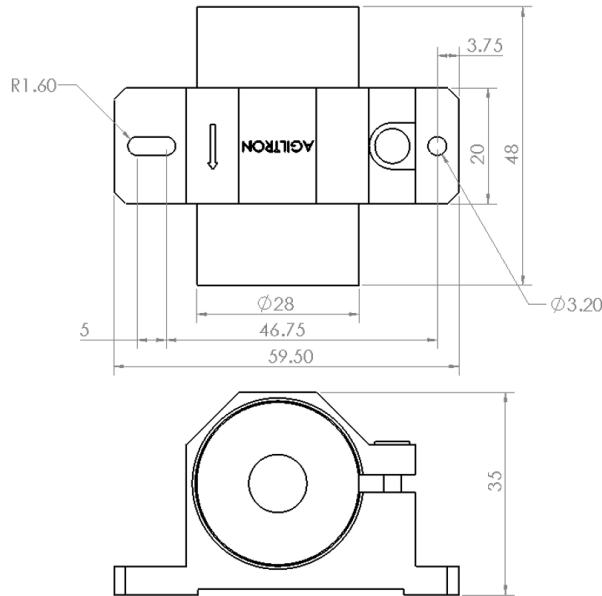
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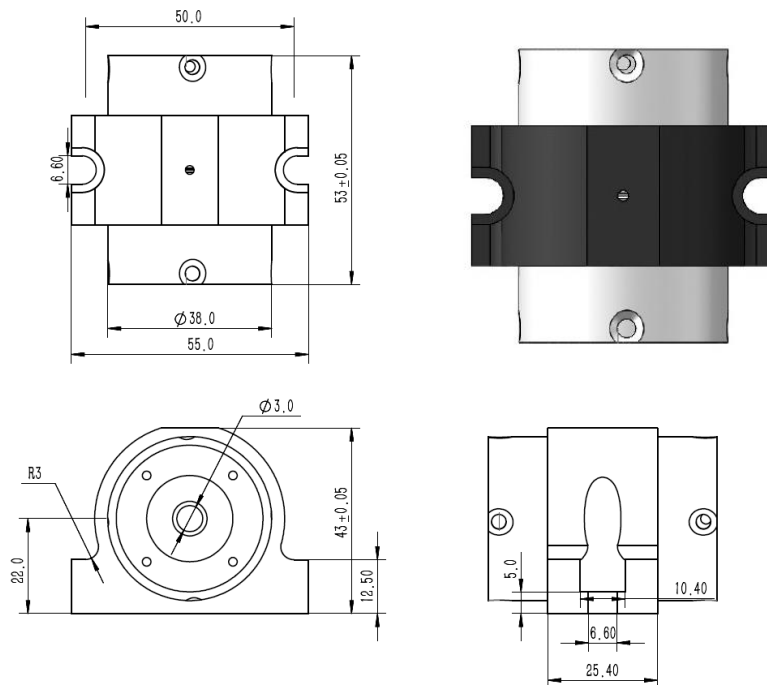
### Mechanical Dimensions (mm) – Single Stage

#### ■ 850-1060nm 2mm Aperture



Note: The listed dimensions are for using thin polacore, for PBS version both ends add about 5mm extrusions

#### ■ 850-1060nm 3/5 mm Aperture



Polarizer Type: High Power(HP)  
 Transmission@ 1020-1060nm >92%  
 Clear Aperture: 3mm/5mm  
 Optical Rotation: 45.5°  
 Damage Threshold: 10J/cm<sup>2</sup>@10ns

\*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

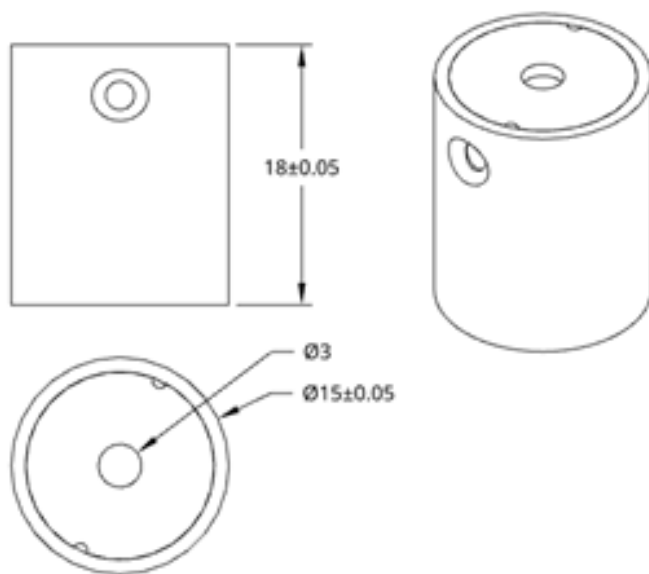
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### Mechanical Dimensions (mm)

- <5300nm 3/mm Aperture without polarizers

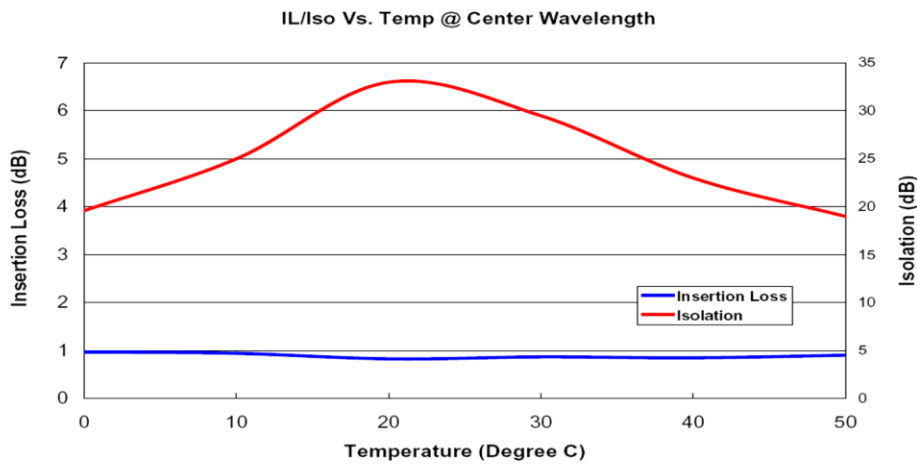
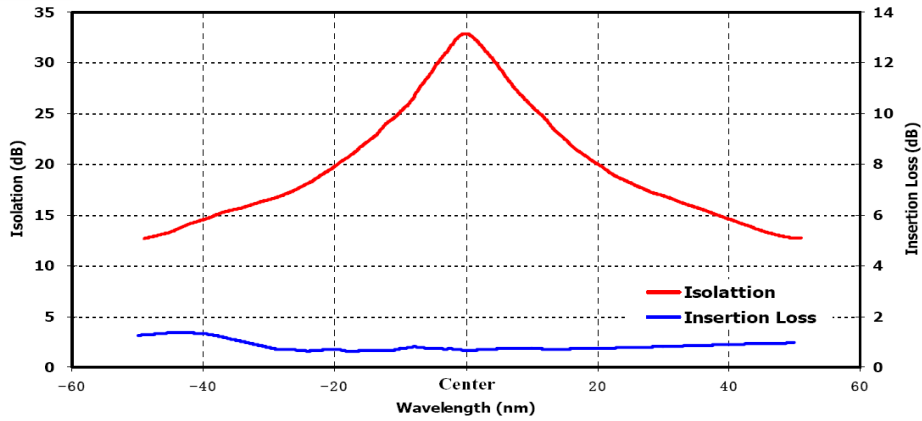


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### Optical Performance (Single Stage)



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### Ordering Information

Prefix	Type	Wavelength (nm)	Isolation Stage	Aperture	Power Handling	Waveplate Rotation	Mounting Plate	Polarizer
<b>OITG-</b>	Free Space = 1 Special = 0	1060 =16 1050 =15 1030 =13 980 =98 940 =94 895 =89 850 =85 830 =83 780 =78 633 =63 660 =66 670 =67 589 =58 560 =56 532 =53 488 =48 440 =44 405 =40	Single = 1 Double = 2 Special = 0	2mm = 1 3mm = 2 5mm = 5 8mm = 8 10mm = A 25mm = B 40mm = C	0.2W = 1 1W = 2 5W = 5 10W = 6 15W = 7 Special = 0	Yes = 1 No = 0	Yes = 1 No = 0	PBS= 1 Polacore = 2 Non = 3