

Ultra High Power Fiber Coupled Isolator

kW, 450nm to 2400nm



DATASHEET

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Features

- Broadband
- Large Aperture
- Low Loss
- High Reliability
- KW Optical Power Handling
- Polarization Dependent Input

Applications

- Laser System
- Lab Use
- Instruments

The FHOI series fiber-coupled optical isolators are designed for kilowatt-class, single-polarization laser systems, incorporating Agiltron's proprietary configuration with advanced thermal lensing and wavelength shift compensation technologies to ensure stable performance under high optical radiation. These isolators deliver broadband isolation, achieving >40 dB over a 100 nm bandwidth and >30 dB over 300 nm, with power handling up to the kilowatt level. This is accomplished through beam expansion and collimation to reduce power density by matching the beam to the aperture size. Covering a wide spectral range from 450 to 2450 nm, the standard model is centered at 1550 nm, with an optional built-in output tap monitor available. For 1550 nm lasers, the maximum aperture is 10 mm, while for shorter wavelengths such as 1060 nm and 980 nm, it reaches up to 30 mm. The FHOI uses specialized fibers with core diameters greater than 20 μm , available in both single-mode and polarization-maintaining configurations. The output fiber collimator requires water cooling, while the input collimator has a unique passive built-in liquid circulating design.

Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength	450		2400	nm
Wavelength Range ($\pm$ center)	100	150	270	nm
Insertion Loss ^[1]	0.3	0.5	0.7	dB
Return Loss	50			dB
Isolation	30	40	45	dB
Forward Optical Power (CW) ^[2]			1	kW
Backward Optical Power (CW) ^[3]			100	mW
Aperture ^[4]		10		cm
Operating Temperature	-5		60	°C
Storage Temperature	-40		85	°C
Mounting Adaptor	Available			

Notes:

- [1]. For 1550nm, other wavelengths may have a higher loss.
- [2]. CW tested. Short pulse of high energy may damage the isolator
- [3]. CW tested. Short pulse of high energy may damage the isolator
- [4]. The large the aperture size the higher the power handling. The beam must be expanded and collimated to match the aperture size to reduce power density.

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.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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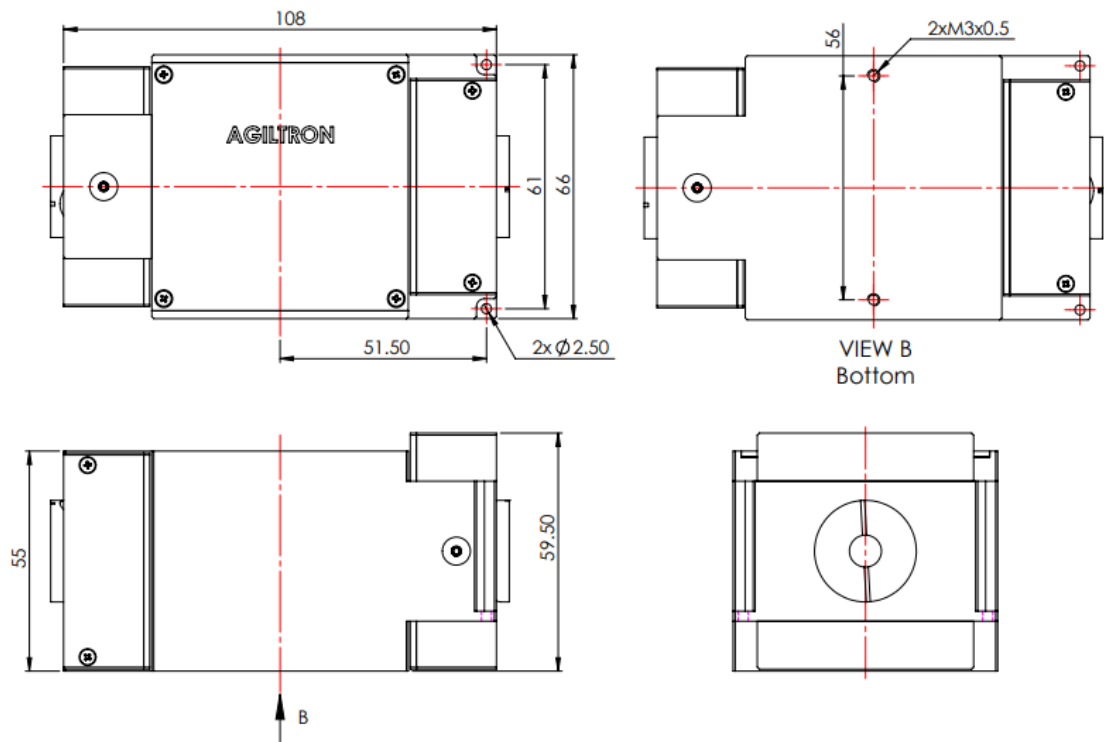
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Mechanical Dimensions (mm)



Optical Performance (typical single stage)

Ordering Information

Prefix	Type	Wavelength	Aperture	Package	Forward Power	Backward Power	Fiber Type	Fiber Cover	Compensator
FHOI-		1060nm = 1 1310nm = 3 1550nm = 5 2000nm = 2 980nm = 9 850nm = 8 780nm = 7 650nm = 6 450nm = 4	1cm ^[1] = 4 3cm = 3 10cm = 1 Special = 0	Regular = 1 With tap = 2 Special = 0	1kW = 1 2kW = 2 Special = 0	5W = 1 10W = 2 20W = 3 50W = 4 100W = 5 Special = 0	20 mm core = 1	Armorer = 1	Yes = 1 Non = 2

RED color for special order

[1]. For wavelength >1310nm, only 1 cm aperture is available.