Photonics On Crystals

POC-OC-120204-In-Line Isolators Datasheet

Key Features

- High-power handling capabilities, supporting up to 500 W for diverse applications.
- Exceptional optical isolation with options exceeding 50 dB for dual-stage models.
- Low insertion loss of less than 0.6 dB, ensuring efficient signal transmission.
- Versatile wavelength compatibility spanning 850 nm to 2000 nm.
- Customizable configurations, including fiber type, pigtail diameter, and housing dimensions.

General Description

The in-line isolators offered by Photonics of Crystals (POC) are cutting-edge devices designed to provide optical isolation via fiber optic coupling. These devices are essential for preventing unwanted back reflections and scattered light, enhancing system performance and stability.

POC in-line isolators are available in two primary types:

1. **Non-Polarization-Maintaining In-Line Isolators:** Ideal for general optical systems, featuring components such as birefringent crystals, Faraday rotators, and collimators to deliver high isolation.
2. **Polarization-Maintaining In-Line Isolators:** Designed for systems requiring the preservation of polarization states, utilizing polarizers and half-wave plates for steady transmittance.

With a robust design capable of handling high power, minimal insertion loss, and a wide wavelength range, POC in-line isolators excel in applications such as DWDM systems, optical coherence detection, and fiber communications. These isolators are built for durability and environmental stability, ensuring long-term reliability even in demanding conditions.

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General Applications and Examples

1. **EDFA (Erbium-Doped Fiber Amplifiers):**
   In-line isolators are integral components in EDFA setups, enhancing amplification efficiency by eliminating feedback and preventing system instabilities caused by reflected light.
2. **DWDM Systems (Dense Wavelength Division Multiplexing):**
   POC isolators support high-density data transmission by ensuring signal isolation across multiple wavelengths, boosting system throughput and reducing cross-channel interference.
3. **Optical Coherence Detection:**
   These isolators improve the precision of coherence-based measurements, such as OCT (Optical Coherence Tomography), by suppressing noise and unwanted reflections in the optical path.
4. **Laser Sensing and Fiber Communication:**
   POC isolators are critical in ensuring accurate data transmission in sensing and telecommunication systems, delivering clean, reliable signals over extended distances.

Our Standard Products and Model Numbers

Type	Power	Fiber Type	Wavelength (nm)	Pigtail Diameter	Fiber Length	Filter	Housing
IL (Common)	0.3–500 W	HI1060	980–1940	900 µm Loose Tube / 3 mm Loose Tube	1 m / 1.5 m	Contained / Not Contained	A03 / A08

Typical Specifications

Withstand Power	Insertion Loss	Peak Isolation
5 W	<0.6 dB *	>33 dB *, >50 dB **
100 W	<0.6 dB	>33 dB
500 W	<0.6 dB	>33 dB

- Only applicable to single-stage isolator
  ** Only applicable to dual-stage isolator

Housing Dimensions (mm)

- **A01:** 96 x 34 x 30 (see detailed diagram for port alignment and mounting specifics).
- **A33:** 73 x 49 x 25 (optimized for compact installations with robust port fittings).

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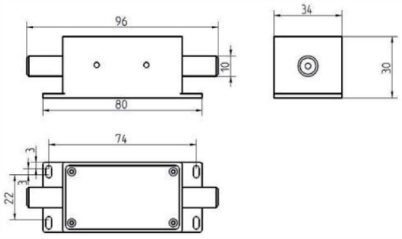
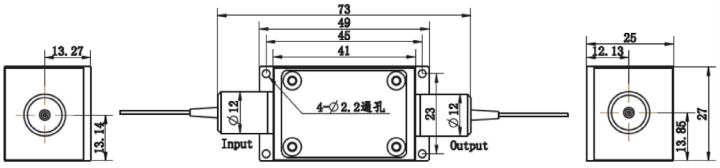
A01



A33



POC Strength and Capabilities

At Photonics of Crystals (POC), we pride ourselves on our ability to deliver innovative and highly customizable photonics solutions. Our in-line isolators are manufactured using advanced production techniques, ensuring precision and performance. Our facilities are equipped to handle high-volume production while maintaining strict quality control standards.

Key strengths of POC include:

- Comprehensive in-house design and fabrication capabilities, ensuring fast turnarounds and high customization potential.
- A dedicated team of optical engineers ready to assist in tailoring isolators to meet specific system requirements.
- Proven reliability across diverse industries, from telecommunications to medical imaging.
- Full support for OEMs and system integrators, offering scalable solutions to match project demands.

Contact us today to explore how our in-line isolators can elevate your system performance.