Photonics On Crystals

POC-OC-120210-Fiber-Coupled Acousto-Optic Modulators Datasheet

Key Features

- High-performance fiber-coupled design for amplitude and frequency modulation.
- Compatible with frequencies up to 300 MHz and rise/fall times as low as 6 ns.
- Compact and robust design offering easy integration into fiber optic systems.
- Low insertion loss (<3 dB) and high extinction ratios (>45 dB) for superior modulation quality.
- Supports various fiber types (polarization-maintaining or non-polarization-maintaining).

General Description

Photonics of Crystals (POC) **Fiber-Coupled Acousto-Optic Modulators (FAOM)** leverage the principles of bulk wave acousto-optic interaction for precise control of optical beam intensity and frequency. These modulators combine high-performance modulation capabilities with the convenience of fiber coupling, ensuring reliable operation in advanced optical systems.

The FAOM is designed to modulate both the amplitude of optical pulses and the frequency shift of light. Its modulation speed is dictated by the rise time of the output pulses, enabling high-speed, low-latency applications. POC's FAOMs employ fiber coupling to enhance operational efficiency and simplify integration, providing advantages over free-space devices such as reduced alignment complexity and higher system reliability.

Available in polarization-maintaining and non-polarization-maintaining configurations, these modulators operate at frequencies up to 300 MHz and are tailored for various applications, including sensor communications, quantum technology, and industrial lasers. Customization options are available for fiber termination (bare fiber, FC/APC connectors), wavelength, and parameter indicators, ensuring optimal performance across diverse environments.

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General Applications and Examples

1. **Industrial Laser Systems:**
   FAOMs are integral to high-speed modulation in laser systems for cutting, welding, and marking applications, ensuring precise control of laser intensity for superior results.
2. **Scientific Research:**
   In laboratory setups, FAOMs provide high-speed modulation of laser beams for experiments in physics, spectroscopy, and optics, delivering unparalleled accuracy and reliability.
3. **Sensor Communication:**
   FAOMs enable accurate signal processing in fiber optic sensors, improving detection sensitivity and communication stability in various monitoring applications.
4. **Quantum Technology:**
   FAOMs play a critical role in quantum computing and communications by enabling precise manipulation of optical signals for quantum state generation and processing.

Our Standard Products and Model Numbers

Model Number	Center Frequency (MHz)	RF Power (W)	Material	Aperture (mm)	Fiber Type	Fiber Termination	Wavelength (nm)	RF Connector	Housing
CAFA-f-p-mxb-w-c-h	80	2	CQ / TE	2	HI1060	Bare / FC/APC	633	SMA-F	A88

Typical Specifications

Wavelength (nm)	Operation Frequency (MHz)	Insertion Loss (dB)	Extinction Ratio (dB)	Rise/Fall Time (ns)	Fiber Type
1064	100, 120	≤1.2	>45	≤45	10/125
1064	200	≤2.2	>45	≤10	PM980-X
1064	250	≤2.5	>45	≤8	PM980-X
1064	300	≤3	>45	≤6	PM980-X
1550	80	≤3	>55	≤40	PM1550-XP
1550	200	≤3	>55	≤10	PM1550-XP

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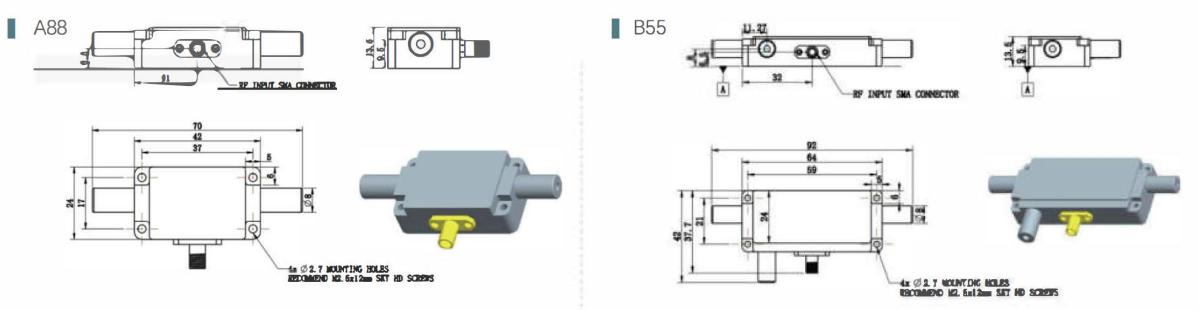
Housing Dimensions (mm)

- **A88:** 91 x 42 x 32 mm, optimized for compact applications requiring high precision.
- **B55:** 92 x 64 x 38 mm, designed for robust industrial setups with advanced housing needs.



POC Strength and Capabilities

Photonics of Crystals (POC) specializes in designing and manufacturing high-precision Fiber-Coupled Acousto-Optic Modulators tailored to meet the rigorous demands of modern optical systems.

Why Choose POC?

- **Customized Solutions:** We provide tailored modulators for specific wavelengths, frequencies, and fiber types to meet customer-specific requirements.
- **Precision Engineering:** POC employs advanced materials like Crystalline Quartz (CQ) and Tellurium Oxide (TE) for high efficiency, low insertion loss, and long-term reliability.
- **Global Application Expertise:** Our FAOMs serve a wide range of industries, including industrial manufacturing, telecommunications, and quantum technology.
- **Comprehensive Support:** From product design to post-sales assistance, POC ensures customers receive unparalleled service and support for all their needs.

POC is committed to delivering innovative, high-quality solutions that empower customers to excel in their fields.

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