Optical Coherence Tomography Products

Fiber Pigtailed Free Space Interferometer

The MZI-001 is a fiber pigtailed compact Mach-Zehnder interferometer, based on free-space optics, for detecting changes in optical frequency. The device comes with two fast photodetectors for the balanced detection of the two complementary outputs of the interferometer. The free spectral range (FSR) or zero-cross spacing of the device is accurately defined to within 2%, a clear advantage over the all-fiber approach. In addition, the FSR can be selected from 10 GHz to as high as 100 GHz when ordering, making it flexible for system integration. Finally, the MZI-001's free-space optical design eliminates the polarization sensitivity commonly associated with all-fiber interferometers. The MZI-001 is ideal for applications in wavelength-swept light sources for determining their instantaneous frequencies, in OCT systems as a frequency clock for system triggering, in fiber sensors for detecting sensing signal spectral drift, and in coherent communication systems for detecting frequency drifts of the lasers.

Specifications:

Center Wavelengths[1]	1060, 1310, 1550 nm
Wavelength Range	±70 nm
FSR	10, 20, 30, 40, 50, 60, 70, 80, 90, 100 GHz, user selectable
FSR Tolerance	2%
Detector Responsivity	> 0.8 A/W
Overall Responsivity Per Channel	> 0.5 A/W
Detector Rise/Fall Time	0.3 ns with 50 Ω load
Detector Capacitance	0.7 pf
Return Loss	55 dB
Polarization Dependent Response	< 0.5 dB
Input Fiber	SMF-28 or Hi1060 fiber with 900 μm buffer
Optical Connectors	FC/APC or FC/PC, specify
Operating Temperature	-10 to 70 °C
Storage Temperature	-20 to 75 °C
Dimensions	2.11" (L) × 1.1" (W) × 0.37" (H)

Note:
1. Specifications in this table are given for 1550 nm operation. Performance at 1060 nm may be slightly different.

Features:

· Compact size
· Accurate free spectral range
· Temperature stable
· Polarization insensitive
· Fine optical frequency spacing
· Balanced photodetectors

Applications:

· Wavelength swept light source
· Optical Coherence Tomography (OCT)
· Fiber optic sensor
· Test & measurement
· Spectrum analysis
· Coherent detection systems

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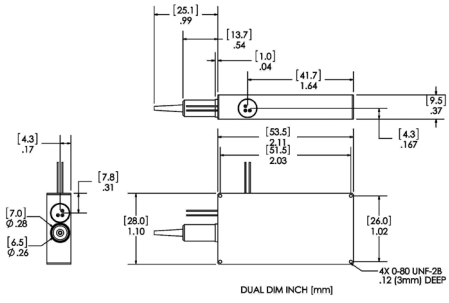
Dimensions (in inches and mm):



Ordering Information:

MZI – 001 – □□ – □□ – □

Wavelength:	FSR	Connector Type:
10 = 1060 nm	See options above	FC/PC, FC/APC or
13 = 1310 nm		NC = no connectors
15 = 1550 nm		