

Fiber Fabry-Perot Interferometer | FFP-I

Applications

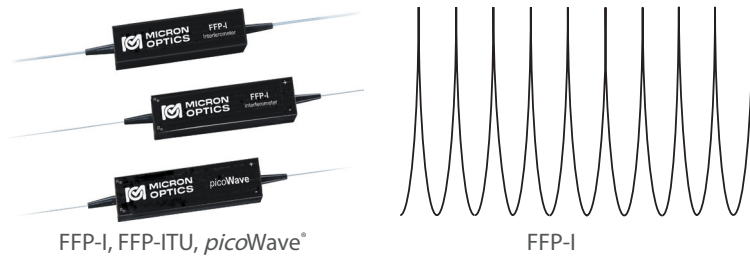
- Spectrum Sliced Source
- ITU Filter
- Calibrated Wavelength Reference
- Laser Stabilization
- WDM Emulation
- Optical Sensing

Features

- Uniformly spaced transmission peaks
- Small footprint
- Vibration and shock resistant
- Low loss
- No alignment required

Description

The Micron Optics FFP-I, Fiber Fabry-Perot Interferometer family of products is based on a fixed interferometer design with smooth, uniformly spaced transmission peaks. The FFP-I consists of a lensless plane Fabry-Perot Interferometer with a single-mode optical fiber waveguide between two highly reflective multilayer mirrors. The FFP-I is manufactured directly with optical fibers so no alignment or mode-matching is required. The distances between peaks (FSR) may be designed exactly to customer specifications and a TEC package is available for thermal stability and minor adjustments of the bandpass frequency or wavelength.

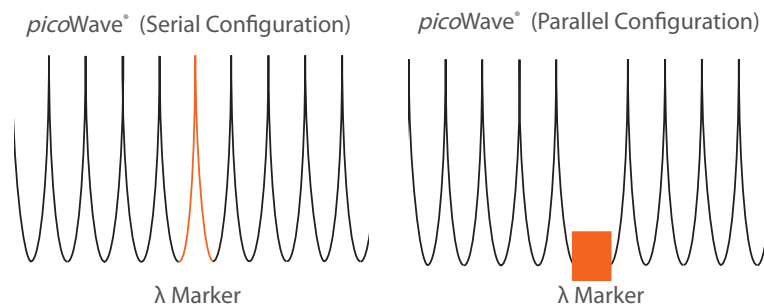


TEC Controller

The Micron Optics *picoWave*® Controller is designed to be used in conjunction with Micron Optics' *picoWave*®, FFP-ITU and Fiber Fabry-Perot Interferometer (FFP-I), where temperature stability is critical for wavelength reference.

picoWave®

The *picoWave*® is Micron Optics' patented multi-wavelength reference that enables real time wavelength calibration to picometer accuracy. Combining the uniform frequency spacing of the FFP-I, a wavelength marker of a Fiber Bragg Grating, and a built-in TEC for thermal stability, the *picoWave*® makes an ideal calibrated wavelength reference. The FFP-I and FBG can be configured in Series or in Parallel (see diagrams below).



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Specifications

FFP-I

Operating Wavelength Range ¹

Typical Spectral Ranges (nm) 800 - 1600 nm

Optical FFP-I

Free Spectral Range (Fixed FSR but selectable within this range) 0.01 - 10,000 GHz
 Standard Finesse Values (nominal) 5, 10, 40, 100, 150, 200, 500, 1000, 2000, 4000
 Insertion Loss (typical) ² 3 dB
 Thermal Coefficient ~ 1.6 GHz/ °C
 Input Power ³ < 100 mW (for finesse < 200)

Optical: *picoWave*[®]

Free Spectral Range (Fixed FSR but selectable within this range) 10 to 200 GHz
 Standard Finesse Values (nominal) 10
 Insertion Loss (typical) ² 3dB
 Wavelength Marker Location User Defined

Electrical (optional for FFP-I with FSR > 10GHz, standard for *picoWave*[®])

TEC Melcor Epoxy Filled 040T2.0-30-F2-EP
 TEC Drive Current <2 A
 TEC Q_{max} (T_H = 25 °C) <4 W
 TEC V_{max} (T_H = 25 °C) <3.6 V
 TEC Δ_{max} (T_H = 25°C) 67°C
 Thermistor 10 KΩ NTC
 Thermal Tuning Wavelength Range (0 - 60°C) 80 GHz
 Thermal Tuning Wavelength Speed (typical) ~1 GHz/sec
 Wavelength Stability (0 - 60°C) ⁴ 0.625 GHz
 Wavelength Stability (laboratory conditions) ⁴ ± 0.125 GHz
 FSR Variation Over Tuning Range 0.05% of FSR

Notes:

- Each useful spectral range defined by mirror pass band.
- High resolution (BW <2 GHz) FFP-I's are generally polarization sensitive. However, polarization properties are stable and can be adjusted by a polarization controller at the FFP-I input.
- Maximum input power level depends on finesse value.
- Using Micron Optics *picoWave*[®] Controller.

Ordering Information

FFP-I - **www** - **bbb**ffff - **ii**

(Example: FFP-I - 1550 -10G200-2.0)

www : Wavelength Band Specify X Center (i.e: 0800 = 800nm)	bbb : Bandwidth Specify bandwidth (i.e: 010 = 10GHz)	u : Bandwidth Unit G GHz M MHz K KHz	ffff : Finesse Specify finesse (i.e: 200=Finesse of 200)	ii : Insertion Loss Specify Loss (i.e: 2.0 = 2dB)
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Options

- 020 PM Fiber* 060 FC/SPC Connectors (Fusion Spliced) 062 SC/SPC Connectors (Fusion Spliced) 065 FC/APC Connectors (Connectorized)
 030 Low Variation Bandwidth* 061 FC/APC Connectors (Fusion Spliced) 063 SC/APC Connectors (Fusion Spliced) 069 Other Connectors

*Please verify specifications with Micron Optics.



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