Fiber Fabry-Perot Interferometer | FFP-I

Applications

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

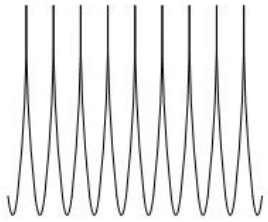
Features

- 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.

FFP-I, FFP-ITU, *pico*Wave®

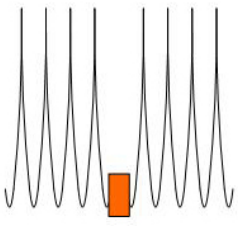


FFP-I

*pico*Wave®

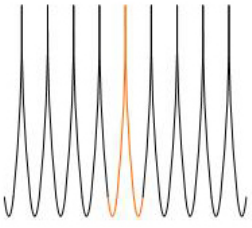
The *pico*Wave® is Micron Optics' patented multi-wavelength reference that enables real time wavelength calibration to picometer accuracy. Combining the uniform frequency spacing of the FFP-I, a wavelength marker of a Fiber Bragg Grating, and a built-in TEC for thermal stability, the *pico*Wave® makes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

*pico*Wave® (Serial Configuration)



λ Marker

*pico*Wave® (Parallel Configuration)



λ Marker

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Specifications	FFP-I
Operating Wavelength Range[1]	
Typical Spectral Ranges (nm)	780 - 1640 nm
Optical FFP-I	
Free Spectral Range (Fixed FSR but selectable within this range)	0.01 - 10,000 GHz
Standard Finesse Values (nominal)	10, 40, 100, 200, 500, 1000, 2000
Insertion Loss (typical) [2]	< 3 dB
Thermal Coefficient	~ 1.6 GHz/ °C
Input Power [3]	< 100 mW (for finesse < 200)
Optical: *pico*Wave®	
Free Spectral Range (Fixed FSR but selectable within this range)	10 to 100 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 *pico*Wave®)	
TEC	Melcor Epoxy Filled 04OT2.0-30-F2-EP
TEC Drive Current	<2 A
TEC Qmax (T_H= 25 °C)	<4 W
TEC Vmax (T_H = 25 °C)	<3.6 V
TEC Δmax (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 (laboratory conditions)	± 0.125 GHz
FSR Variation Over Tuning Range	0.05% of FSR

Notes:

1. Each useful spectral range defined by mirror pass band.
2. High resolution (BW <2 GHz) FFP-Is are generally polarization sensitive. However, polarization properties are stable and can be adjusted by a polarization controller at the FFP-I input.
3. Maximum input power level depends on finesse value.

Ordering Information

FFP-I-wwww-bbbuffff-ii (Example: FFP-I -1550-010G0200-2.0)

wwww: Wavelength Band	bbb: Bandwidth	u: Bandwidth Unit	ffff: Finesse	i.i: Insertion Loss
1500 *(S Band)* 1550 *(C Band)* 1600 *(L Band)*	Specify bandwidth (i.e: 010 = 10GHz)	G GHz M MHz K KHz	Specify finesse (i.e: 0200=Finesse of 200)	Specify Loss (i.e: 2.0 = 2dB)

FFP-ITU FSR Tolerance Options

0050 ± 0.5% 0020 ± 0.2% 0010 ± 0.1% 0005 ± 0.05%

Options

060 FC/SPC Connectors (Fusion Spliced) 061 FC/APC Connectors (Fusion Spliced) 062 SC/SPC Connectors (Fusion Spliced) 063 SC/APC Connectors (Fusion Spliced)
065 FC/APC Connectors (Connectorized) 069 Other Connectors 070 Side Terminal Configuration 080 TEC Equipped

MICRON OPTICS
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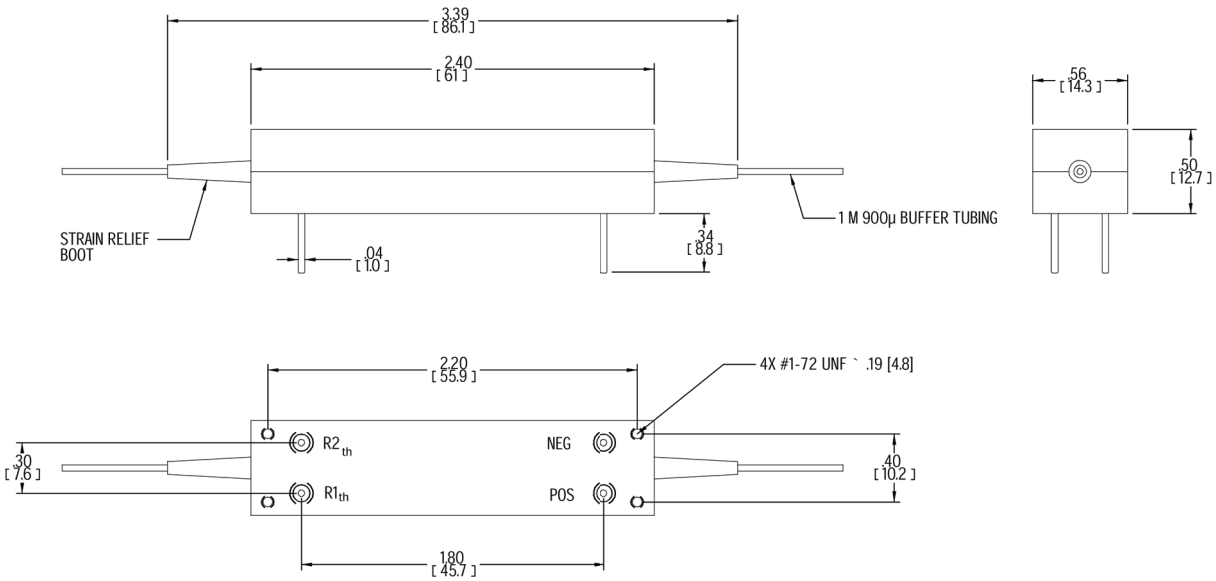
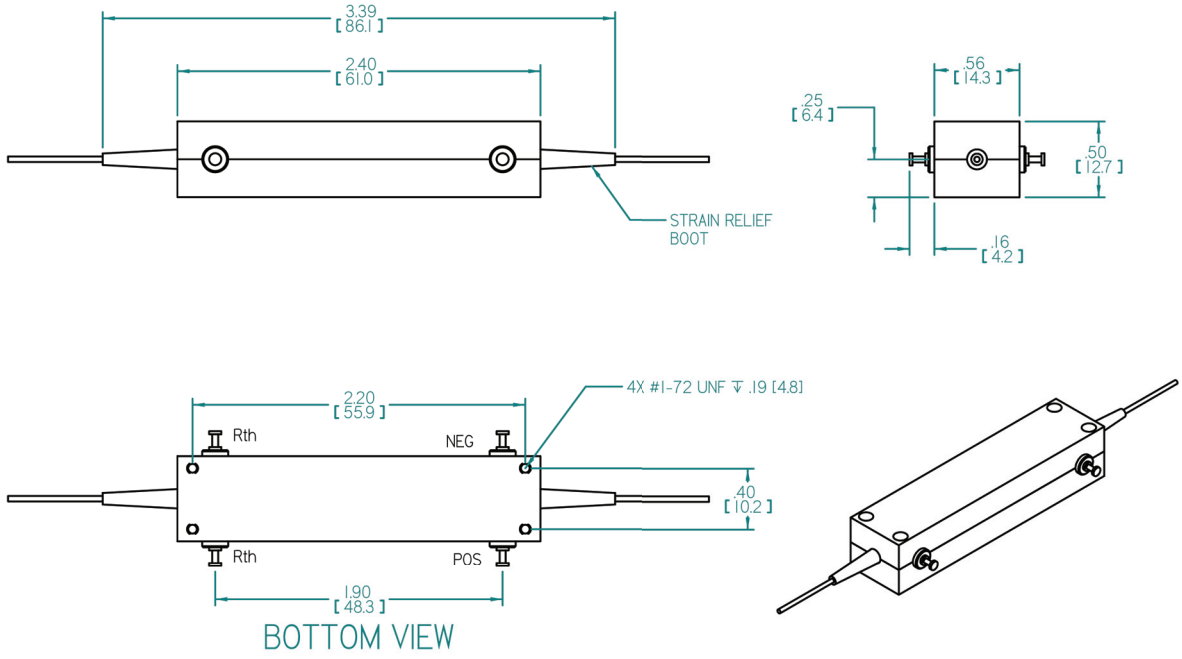
Dimensions

FFP-I with Dip Pin and TEC Controller



FFP-I with Side Terminals and TEC Controller



Note 1: FFP-I and FFP-ITU without the TEC package do not have pins.

Note 2: For FSRs < 4GHz, call Micron Optics for package dimensions.

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