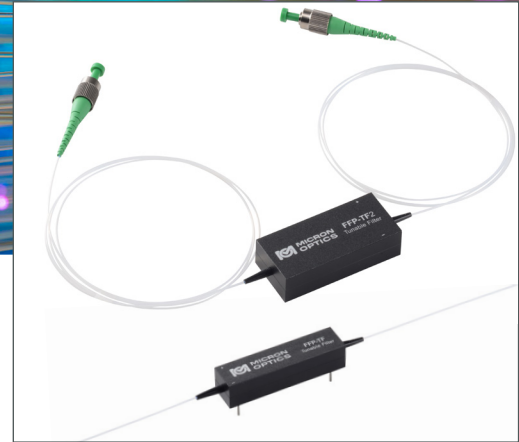




# FFP-TF/TF2

## Fiber Fabry-Perot Tunable Filter

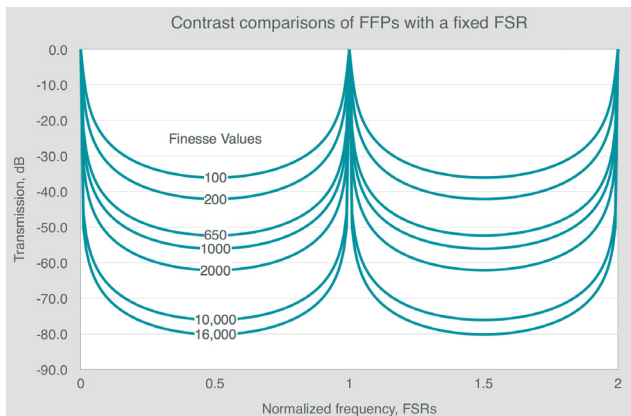


Luna Innovations' patented Fiber Fabry-Perot (FFP) Tunable Filter achieves high finesse and maintains low loss in a rugged package.

The key to the simple and elegant design of the FFP tunable filter is its lensless all-fiber construction. There are no collimating optics or lenses, eliminating the pitfalls of other Fabry-Perot component technologies, including misalignment, environmental sensitivity, and extraneous modes.

The FFP tunable filter follows the Airy function. Engineers can design it into OEM systems knowing that it will provide results very close to the theoretical mathematical model.

The FFP-TF2 design provides improved etalon alignment for stable long-term, high reliability, and Telcordia-qualified performance. Several standard low-cost configurations are readily available for quick delivery. Custom high performance multi-band configurations are also available for specialized applications.



### KEY FEATURES

- All-fiber platform
- High resolution and low loss design
- Super-cavity finesse
- Vibration and shock resistant
- Thermally stable
- Fast scanning and large dynamic range permits fast, accurate measurements
- Ideal for OEM applications
  - Small footprint
  - Low power requirements
  - Telcordia GR 2883 qualified
  - Proven reliability over decades of use
  - Customizable wavelength, free spectral range, finesse and bandwidth

### APPLICATIONS

- Optical performance monitoring
- Optical coherence tomography
- Spectrum analysis
- Tunable optical noise filtering
- Tunable channel drop for DWDM
- Tunable sources
- Optical sensing

**An all-fiber Fabry-Perot super-cavity in a robust, fast tuning Telcordia-qualified package**

## PERFORMANCE

Performance Properties						
Optical Properties		Standard FFP-TF and FFP-TF2 <sup>1</sup>				
Operating wavelength range	1520 - 1620 nm					
Free spectral range <sup>2</sup>	15 THz (120 nm) 27.5 THz (220 nm)	15 THz (120 nm) 27.5 THz (220 nm)	15 THz (120 nm) 27.5 THz (220 nm)	15 THz (120 nm) 27.5 THz (220 nm)	15 THz (120 nm) 27.5 THz (220 nm)	27.5 THz (220 nm)
Finesse	100	500	650	1000	2000	6000
Bandwidth (FWHM or 3dB) <sup>3</sup>	150 GHz (1200 pm) 275 GHz (2200 pm)	30 GHz (240 pm) 55 GHz (440 pm)	23 GHz (185 pm) 42 GHz (338 pm)	15 GHz (120 pm) 27.5 GHz (220 pm)	7.5 GHz (60 pm) 13.8 GHz (110 pm)	4.6 GHz (37 pm)
Insertion loss	< 2.5 dB	< 2.5 dB	< 2.5 dB	< 3.0 dB	< 3.0 dB	< 3.0 dB
Polarization dependent loss	<0.2 dB	<0.2 dB	<0.2 dB	<0.2 dB	<0.2 dB	<0.2 dB
Input power	310 mW	50 mW	48 mW	30 mW	15 mW	5 mW
	FFP-TF			FFP-TF2		
Electrical Properties						
Tuning voltages/FSR	< 12 V			< 18 V		
Tuning rate/FSR <sup>4</sup>	2,500 Hz			800 Hz		
Capacitance	< 3 μF			< 3 μF		
Tuning voltage, maximum	70 V			70 V		
Mechanical Properties						
Dimension; weight	12.7 mm x 14.3 mm x 57.2 mm			13.5 mm x 25.8 mm x 57.2 mm		
Weight	28 g			53 g		
Mounting holes	(4) #1-72 UNF x 0.16" deep			(4) #1-72 UNF x 0.16" deep		
Cable jacket	900 μm loose buffer tubing			900 μm loose buffer tubing		
Cable length	~ 1 m			~ 1 m		
Environmental Properties <sup>5</sup>						
Operating temperature	-20 to 80 °C			-20 to 80 °C		
Change in voltage <sup>6</sup>	< 19 V			< 19 V		

## ORDERING

FFP-TF-**www-wwww-bbbu-ffff-ii-ccc**  
 FFP-TF2-**www-wwww-bbbu-ffff-ii-ccc**

<b>www</b>	Operating wavelength range For example, 1520 - 1620
<b>bbb</b>	Bandwidth For example, 015 = 15 GHz
<b>u</b>	Bandwidth unit G GHz M MHz
<b>ffff</b>	Finesse For example, 01000 = finesse of 1000
<b>ii</b>	Insertion loss For example, 2.5 = 2.5 dB loss
<b>ccc</b>	000 Unconnectorized 065 FC/APC (connectorized)

## NOTES

- Standard specifications are fixed configurations. Please contact Luna for custom configurations.
- FSRs are fixed but customizable within these ranges.
- Bandwidth tolerances are typically +/-20%
- Tuning rate/FSR are recommended maximums.
- Complies to Telecordia GR 2883.
- Locking voltage verified over -20 to 80 °C range. Voltage neither specified nor tested for bandwidth less than 2 GHz.

## CUSTOM AND OEM OPTIONS

Contact Luna for configuration details.

**Wavelength bands:** from 800 to 2000 nm  
**Free spectral range:** 100 to 40,000 GHz  
**Finesse:** up to 16,000  
**Bandwidth:** from MHz to GHz



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