



WLTF- NM Manual Narrow bandwidth Tunable Filter

The WLTF-NM is a Gaussian-shape narrowband optical tunable filter that allows manual-tuning of center wavelength over X, O, S, C, & L bands. Its bandwidth ranges from 1.5nm to 0.1nm. The filter is built based on WL Photonics' proprietary platform of "Crystal-Bench" with free-space diffraction grating. Manually wavelength tuning is done through a precise micrometer driver. Due to the optimized linear dispersion with the filter, the center wavelength of transmission band can be read easily from the micrometer.

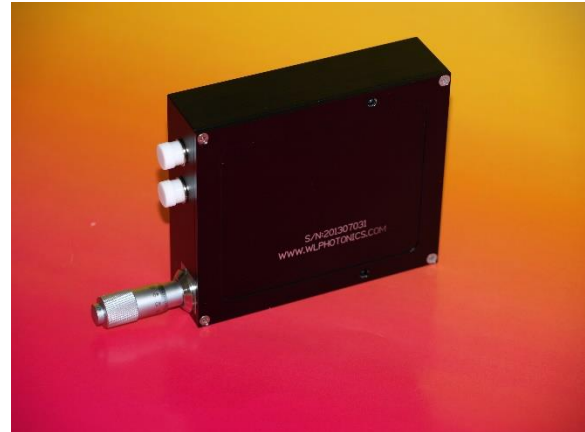
Unique optics design enables the filter to offer a great variation of bandwidth options, unprecedented & unsuppressed low insertion loss and polarization dependent loss (PDL) over main wavelength bands from 1000nm to 1700nm. Precise tuning mechanism enables filter to provide high wavelength resolution and excellent wavelength repeatability. Superior performance and compact footprint enable the filter to be a cost-effective wavelength-tuning solution for system integrations as well as laboratory purposes.

Key Features

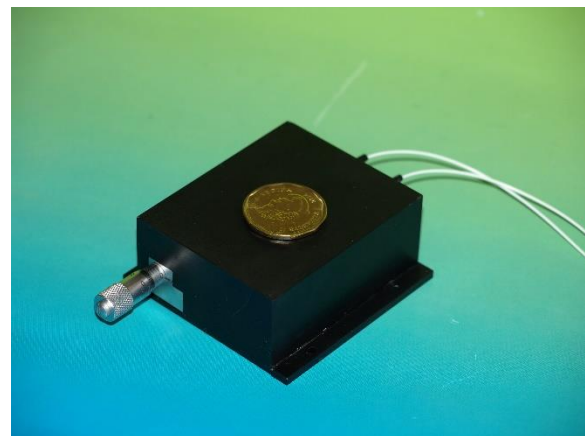
- Wavelength range available over X-, O-, S-, C- and L- bands
- Up to 200nm wavelength tuning range
- Down to 0.1nm FWHM bandwidth
- Unprecedented insertion loss and PDL
- High out-band suppression
- High optical power handling
- Customized versions available on request

Applications

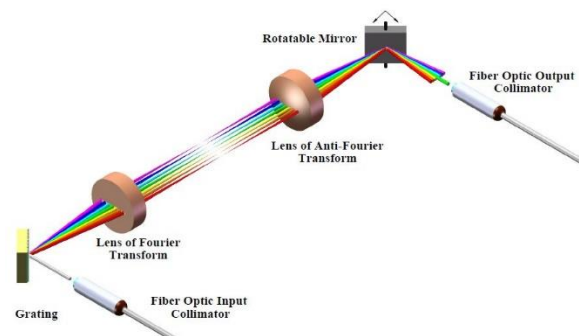
- ASE noise suppression
- Narrowband DWDM channel filtering
- WDM wavelength tuning
- Pulse Shaping
- Tunable fiber lasers



Standard Version (Pigtail and Receptacle)



Smaller Version (Pigtail only)



Operating Principle and Tuning Mechanism



Main Specifications of Narrow bandwidth Tunable Filter:

Center Wavelength	1060nm±15nm		1310nm±15nm		1550nm±20nm		1600±20nm	
Tuning Range ¹	60nm	120nm	60nm	120nm	60nm	140nm	60nm	140nm
Insertion Loss	1.75dB typ.	1.95dB typ.	1.5dB typ.	1.8dB typ.	1.5dB typ.	1.8dB typ.	1.5dB typ.	1.8dB typ.
	2.5dB max.	3.0dB max.	2.5dB max.	3.0dB max.	2.5dB max.	3.0dB max.	2.5dB max.	3.0dB max.
FWHM Bandwidth	0.80nm, 0.70nm, 0.60nm, 0.40nm, 0.35nm, 0.26nm, 0.20nm, 0.15nm, 0.10nm.		1.40nm, 1.15nm, 1.00nm, 0.90nm, 0.80nm, 0.70nm, 0.60nm, 0.50nm, 0.45nm, 0.40nm, 0.35nm, 0.30nm, 0.25nm, 0.20nm, 0.18nm, 0.15nm, 0.13nm, 0.10nm.		1.40nm, 1.20nm, 1.00nm, 0.90nm, 0.80nm, 0.70nm, 0.60nm, 0.50nm, 0.45nm, 0.40nm, 0.35nm, 0.30nm, 0.25nm, 0.20nm, 0.18nm, 0.15nm, 0.13nm, 0.11nm.		1.50nm, 1.40nm, 1.25nm, 0.85nm, 0.75nm, 0.65nm, 0.55nm, 0.50nm, 0.40nm, 0.35nm, 0.30nm, 0.25nm, 0.20nm, 0.18nm, 0.15nm.	
Wavelength Resolution	0.01nm		0.015nm		0.02nm		0.02nm	
Wavelength Repeatability	±0.01nm		±0.015nm		±0.02nm		±0.02nm	
Polarization-Dependent Loss	0.08dB typ./0.15dB max. over 60nm range and 0.15dB typ./0.30dB max. over 120nm range							
Transmission Shape	Gaussian-like							
3/20/30dB Bandwidth Ratio	~1/2.5/3.5							
Bandwidth Variation	±2% over 60nm and ± 4% over 120nm							
Input Optical Power ²	500mW (CW)							
Return Loss	>45dB (Optional: built-in isolator on input inside)							
Out Band Suppression	>40dB (peak to the average of background)							
Polarization Mode Dispersion	<0.2ps							
Group Delay Variation Within - 3dB Bandwidth	<1ps/nm							
Pigtail Fiber Type ³	HI1060				SMF-28 (or 28e)			
Operating Temperature	10 to 50°C							
Storage Temperature	-10 to 75°C							
Dimension	Standard version: 30mm (H)x95mm (W)x110mm (L); Small version: 30mm(H)x55mm(W)x70mm(L)							
Weight	<0.5kg							
Other	RoHS compliant							
Notes	¹ Up to 200nm tuning range is available on request. ² High power version up to 3.0W (CW) is available on request. ³ Panda PM fiber available on request, which are aligned in the PM slow axes (fast-axis blocking).							

Ordering Information

Part Number: **WLTF-NM-A-B-C/D-E-F/G-H**

- A. 13 is for either pigtail or receptacle standard version and 6.5 is only for pigtail smaller version.
- B. Center wavelength in nanometer: 1550 is for 1550nm center wavelength and 1310 is for 1310nm center wavelength.
- C. Tuning wavelength range in nanometer: 60 is for 60nm tuning range and 120 is for 120nm tuning wavelength range.
- D. FWHM bandwidth in nanometer: 0.5 is for 0.5nm FWHM bandwidth.
- E. Fiber type: SM for single mode fiber and PM for Panda polarization maintaining fiber.
- F. Pigtail cable diameter in millimeter: 0.25 is for 250µm OD buffer fiber, 0.9 is for 900µm OD loose tube and 3.0 is for 3.0mm OD cable (only existing for pigtail version).
- G. Pigtail length in meter: 0.5 is for 0.5m long and 1.0 is for 1M long (only existing for pigtail version).
- H. Connector type of either pigtail termination or receptacle adapter, such as FC/APC, FC/UPC SC/APC or LU/UPC and 00 is for no connector.

Example 1: WLTF-NM-13-1550-120/0.25-SM-3.0/1.0-FC/APC

Description: Fiber pigtail polarization-insensitive manually tunable optical filter of 0.25nm FWHM bandwidth over 120nm tuning range @ 1550nm center wavelength with 1M long, 3.0mm OD loose cabled SMF-28 single mode fiber pigtails and FC/APC connectors on both ports.



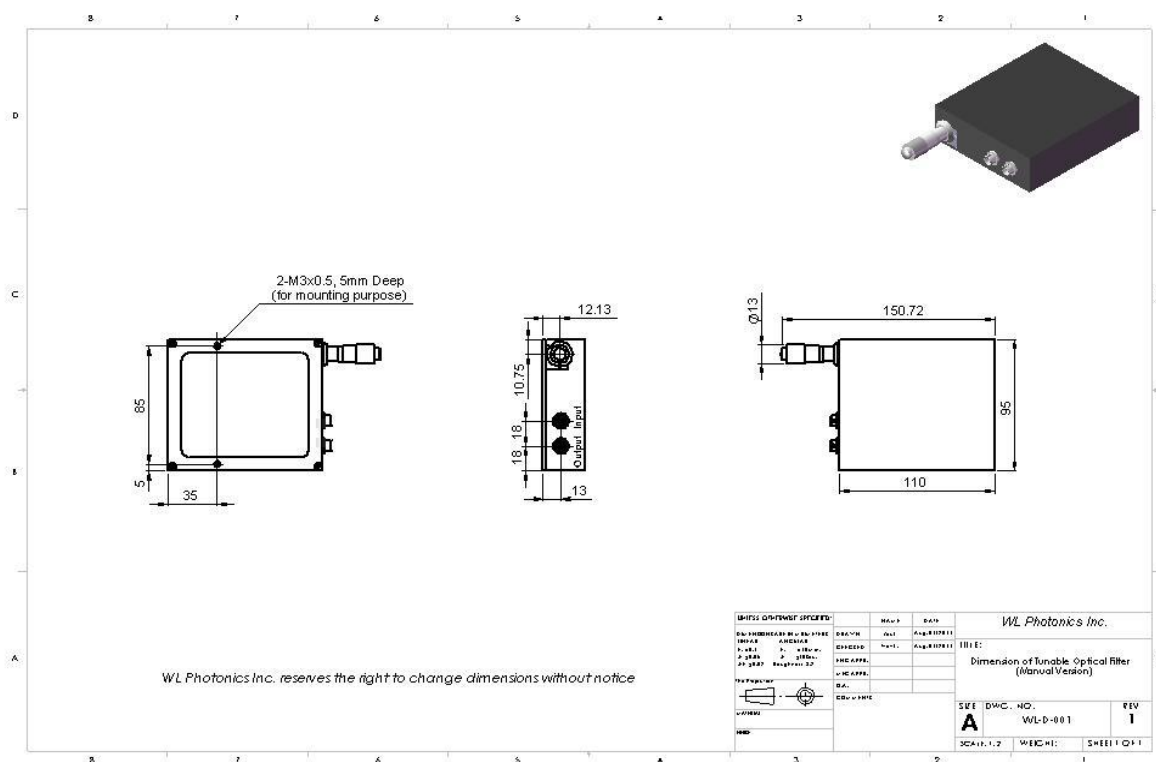
Example 2: WLTF-NM-13-1310-60/0.5-SM-FC/APC

Description: Fiber optic polarization-insensitive manually tunable optical filter of 0.50nm FWHM bandwidth over 60nm tuning range @ 1310nm center wavelength with receptacle input and output for FC/APC connectors. SMF-28 operating fiber.

Example 3: WLTF-NM-6.5-1060-80/0.1-SM-0.9/1.0-00

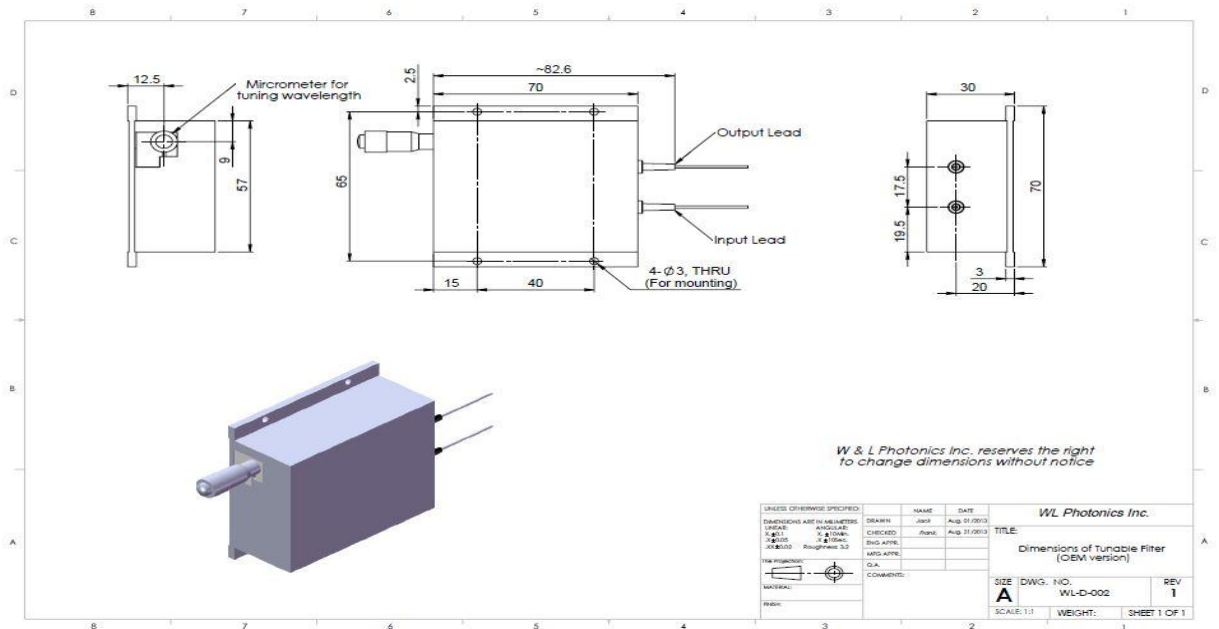
Description: Fiber pigtail polarization-insensitive manually tunable optical filter (smaller version) of 0.1nm FWHM bandwidth over 80nm tuning range @ 1060nm center wavelength with 1M long, 900 μ m OD loose cabled HI1060 single mode fiber pigtails and no connectors on both ports.

Dimensions of WLTF-NM-13 (Standard Version)





Dimensions of WLTF-NM-6.5 (Smaller Version)



Typical Spectrum

