

# Electrically Tunable Fiber Optic Filter

(patent pending)

## Product Description

Based on a proprietary thin film cavity filter technology, Agiltron offers Fiber Optic Tunable Filters with central wavelengths of 1060nm, 1310nm, 1550nm and 2000nm. It is tunable continuously over a wide spectral range up to 80 nm. The wavelength tuning is actuated by driving a build-in precise stepper motor through interface of USB or RS232.

Agiltron's unique high reliability and low insertion loss design presents a most cost-effective solution for OEM applications from fiber optic networks to fiber sensing interrogation.



## Features

- Compact and Low Cost
- Wide Tune Range
- Wide Wavelength Coverage
- Low IL and PDL

## Performance Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength	350		2400	nm
Tuning Range <sup>[1]</sup>	-	+ - 30	+ - 50	nm
Tuning Resolution	-	0.1	-	nm
Insertion Loss <sup>[2]</sup>	1.5	2	3.5	dB
Bandwidth @-3dB	-	1	1.2	nm
Bandwidth @-20dB	-	10	-	nm
Off-Band Suppression	-	30	-	dB
PDL (SM fiber only)	-	0.15	0.35	dB
PMD (SM fiber only)	-	-	0.5	ps
Extinction Ratio (PM fiber only)	18	23	-	dB
Return Loss	40	-	-	dB
Optical Power Handling (CW)	Standard version	-	0.5	W
	High power version	-	10	W
Power Consumption (5V power supply)		1	1.5	W
Operating Temperature	0	20	60	° C
Storage Temperature	-10	-	70	° C

[1]. Longer the wavelength, larger the tuning range

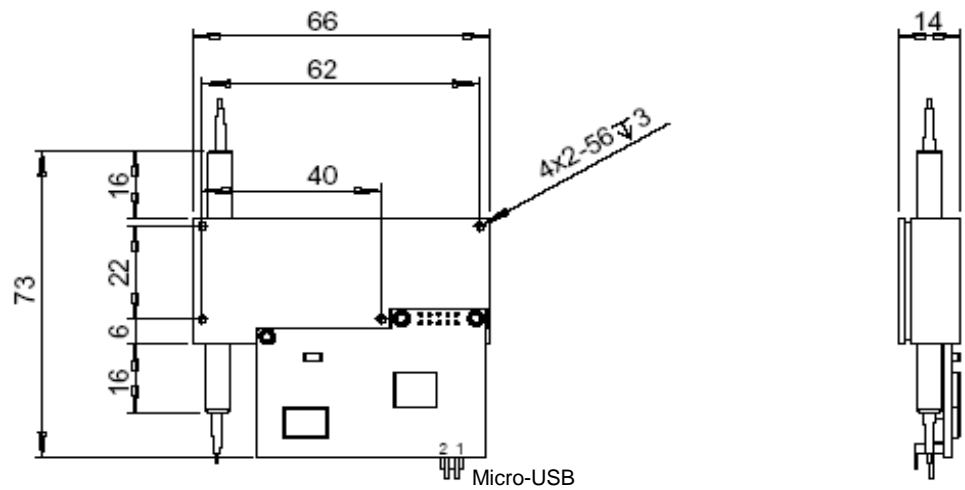
[2]. Measured using a broadband light source with integration of the transmission peak. If the laser source does not matching the filter profile, extra loss can occur. Special filter can be made to match the application. Smaller the fiber core, higher the loss. Excluding connector loss

## Applications

- DWDM networks
- Fiber Sensing
- ASE control
- Tunable Fiber Laser

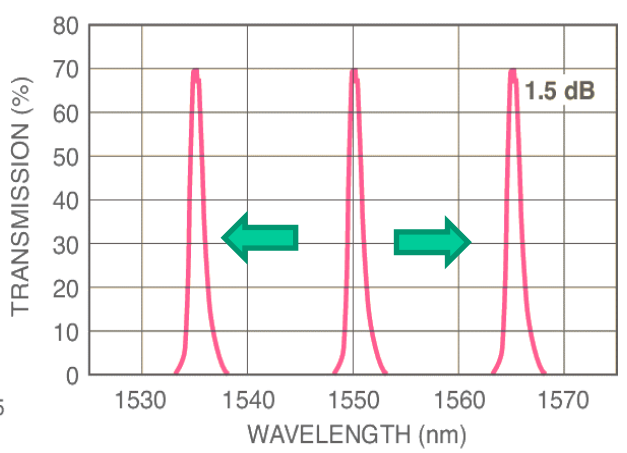
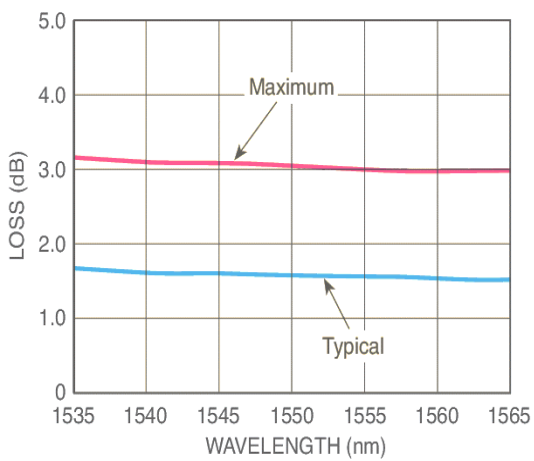
# Motorized Etalon-Based Fiber Optic Tunable Filter

## Mechanical Dimension (mm)



\*Product dimensions may change without notice. This is sometimes required for non-standard specifications. Ship with a 5V DC power supply, an USB-micro USB cable, an USB flash disk, and user manual.

## Typical Transmission Curve



## Electrical Driving

Agiltron provides communication protocols and a computer control kit with USB or RS232 interface and Windows™ GUI.

Connector Pin Definition:

Power	Pin 1	GND
	Pin 2	5V

# Motorized Etalon-Based Fiber Optic Tunable Filter



## Ordering Information

FOTF-	0 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type	Wavelength	Power	Control	Fiber Type		Fiber Length	Connector	
	2100± 60nm = 1 2000± 50nm = 2 1960± 40nm = 4 1850± 50nm = A 1620± 40nm = 7 1550± 40nm = 5 1550± 50nm = 9 1480± 40nm = 8 1310± 40nm = 3 1130± 40nm = C 1060± 40nm = 6 1005± 45nm = B Special = 0	Standard = 1 High Power=2	USB = 1 RS232=2	SMF-28 = 1 HI1060 = 2 PM980 = 3 PM1550 = 4 SM1950 = 5 PM1950 = 6 Special = 0	Bare fiber=1 900um tube=3 Special=0	0.25m= 1 0.5m = 2 1.0 m= 3 Special =0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC = 7 Special = 0	

## Operation Manual

1. Connect the accompanied wall pluggable power supply
2. Install the accompanied GUI into a computer
3. Connect the device with the computer using the accompanied cable
4. Connect the optical fibers, normally with one end to a source and the other to a system
5. Open the GUI and start scanning the wavelength

## How to test insertion loss of a tunable filter

1. Connect a broadband fiber-coupled laser source to OSA, sweep one time over the specified range of the tunable filter, then fix the curve in Trace A as reference.
2. Connect the broadband laser source to the fiberoptic tunable filter fiber as input, then connect the other fiber port of the tunable filter as the output to the OSA.
3. Set OSA Trace B as 'write,' Trace C as 'Calculate: B-A.' Auto sweep Trace C from the specific range. Tune the micrometer to shift the peak at a different wavelength. Use 'Peak search' to record IL at a different wavelength.