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

Applications

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

Performance Specifications

Parameter		Min	Typical	Max	Unit
Center Wavelength		350		2400	nm
Tuning Range[1]		-	+ - 30	+ - 50	nm
Tuning Resolution		-	0.1	-	nm
Insertion Loss [2]		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
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

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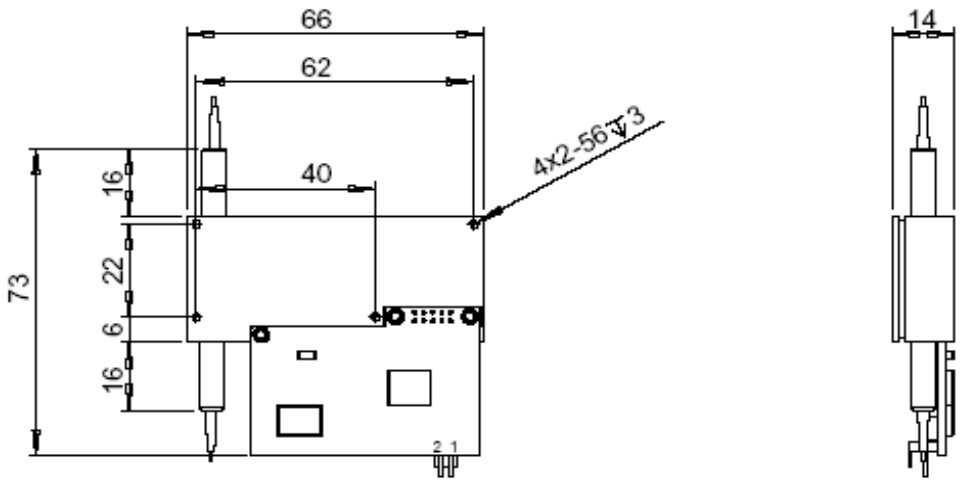
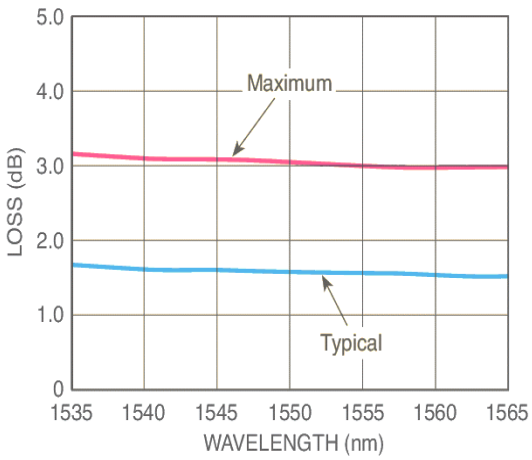
Motorized Etalon-Based Fiber Optic Tunable Filter

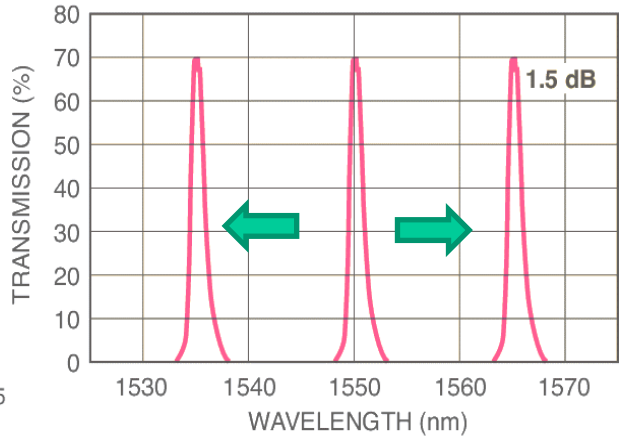
Mechanical Dimension (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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

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Ordering Information

FOTF-	0 1	☐	☐	2	☐	☐	☐	☐
	Type	Wavelength	Power	Pack	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		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

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.

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