XTA-50

TUNABLE FILTER WITH ADJUSTABLE BANDWIDTH

The XTA-50 is electronically controlled and both center wavelength and bandwidth can be set precisely and independently. Versions are available covering all the key telecom wavelengths from 1260 nm to 1650 nm and bandwidths from 32 pm (4 GHz) to 5 nm.

SPEC SHEET

KEY FEATURES

- Adjustable bandwidth flat-top filter
- Ultra-sharp filter edges
- High isolation
- 200 nm wavelength range
- High accuracy and repeatability
- Narrowest filter—Highest selectivity

KEY FEATURES

Adjustable bandwidth flat-top filter

The bandwidth of the XTA-50 filters can be adjusted independently of the center wavelength. The filter has a flat-top profile with minimal ripple, less than 0.2 dB. Models are available with FWHM bandwidths from 32 pm (4 GHz) up to 5 nm (625 GHz).

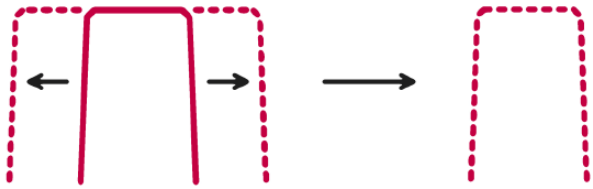

Figure 1. Bandwidth and wavelength tuning.

Ultra-sharp filter edges

The XTA-50 uses EXFO patented quadrupal pass technology. This creates extremely sharp filter edges with slopes of up to 800 dB/nm. Single or groups of narrowly spaced DWDM channels or coherent super-channels can be selected with ease.

High isolation

In addition to the sharp filter edges, the quadrupal pass technology achieves higher isolation than conventional double-pass filters. Isolation is typically 60 dB.

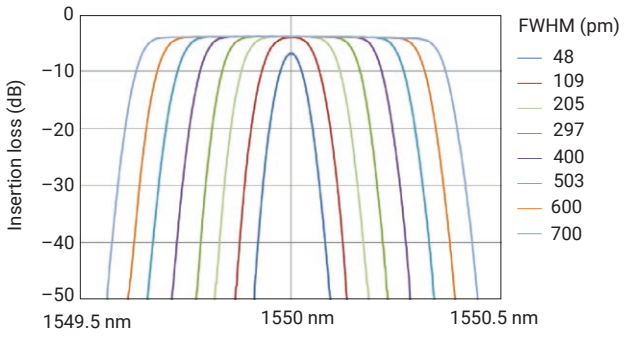

Figure 2. Bandwidth and wavelength tuning

200 nm wavelength range

All models have a very wide wavelength range and cover the key telecom wavelengths from 1260 nm to 1650 nm. The O-band model has 100 nm range. The SCL band model cover up to a useful 200 nm range.

High accuracy and repeatability

High resolution translation stages are used for both wavelength and bandwidth control. This ensures the XTA-50 can be set accuracy and repeatedly over time.

Narrowest filter—Highest selectivity

The XTA-50 is the most selective filter on the market. Models are available with filter bandwidths from 32 pm (4 GHz) up to 5 nm (625 GHz).

APPLICATION

DWDM channel selection

Low dispersion, steep edges and high isolation mean that DWDM channels, or even coherent superchannels with spacing down to 10 GHz, can be separated with ease. BER tests have never been so good!

Variable OSNR source

A variable OSNR source typically consists of an ASE source combined with a variable attenuator. Adding the XTA-50 with a flat-top adjustable bandwidth enables consistent noise loading for all DWDM wavelengths.

R&D of modulation formatss

The XTA-50 is perfect for the filtering and analysis of sub-bands of complex modulations formats.

Pulse shaping

Wide bandwidth flexibility enables the filter to be used for pulse shaping of femtosecond lasers.

All specifications are given at 21°± 3°C after 30 minutes warm-up.

SPECIFICATIONS

Optical characteristics	XTA-50 standard	XTA-50 ultrafine	XTA-50 O-band [a]	XTA-50 wide
Wavelength range (nm)	1450 to 1650	1480 to 1620	1260 to 1360	1525 to 1610
Wavelength resolution (pm)	1	1	1	1
Wavelength accuracy (pm) [b]	±30	±30	±30	±30
Wavelength tuning speed (s)	1	1	1	1
Minimum bandwidth (FWHM)	50 pm (6.25 GHz)	32 pm (4 GHz)	50 pm (8 GHz)	50 pm (6.25 GHz)
Maximum bandwidth (FWHM)	950 pm (120 GHz)	650 pm (80 GHz)	900 pm (160 GHz)	5000 pm (625 GHz)
Bandwidth resolution (pm)	1	1	1	1
Bandwidth tuning speed (s)	1	1	1	1
Filter edge roll-off (dB/nm)	500 (typical) [c]	800 (typical)	500 (typical) [c]	500 (typical) [d]
Insertion loss (dB)	5 (4.5 dB typical) [e, f]	5 (4.0 dB typical) [f, g]	5 (4.5 dB typical) [f, h]	5 (4.5 dB typical) [i, j]
Flatness (dB)	0.2 [k]	0.2 [l]	0.3 [k, m]	0.2 [n]
Polarization dependent loss (dB)	±0.2 [e]	±0.2 [g]	±0.2 [h]	±0.2 [i]
Out-of-band suppression (crosstalk)	40 dB (60 dB typical) [o]	40 dB (50 dB typical) [o]	40 dB (60 dB typical) [o]	40 dB (45 dB typical) [o]
Interfaces				
Display	7 inch resistive touch-screen (resolution 800 x 480)			
Communication interfaces	USB-B, Ethernet (x2), RS-232C, GPIB [p]			
Display and other interfaces	DVI-I (x1), USB 2.0-A (x4), PS/2 (x2)			
Optical fiber type	SMF or PMF	SMF or PMF	SMF or PMF	SMF
Connector type	FC/PC or FC/APC			
Operating conditions				
Temperature range	15 °C to 35 °C (59 °F to 95 °F)			
Maximum optical input power (dBm)	30	30	30	27
Size				
Dimensions (W x D x H)	254 mm x 385 mm x 154 mm (10 in x 15 1/8 in x 6 in)			
Weight	7 kg (15.4 lb)			

a. Specifications apply for wavelengths not equal to anywater absorption line.
b. With “Backlash suppression” setting enabled.
c. Between −3 and −40 dB for FWHM <800 pm.
d. Between −3 and −40 dB. Typically 550 dB/nm at FWHM = 50 pm, 450 dB/nm at FWHM = 1 nm, 225 dB/nm at FWHM = 5 nm.
e. From 1500 nm to 1600 nm and FWHM >100 pm.
f. At lowest FWHM the insertion loss is 7 dB typical.
g. From 1500 nm to 1600 nm and FWHM >60 pm.
h. From 1280 nm to 1340 nm and FWHM >100 pm.
i. For FWHM >100 pm.
j. At lowest FWHM the insertion loss is < 7.0 dB.
k. Centered width of FWHM-150 pm. For 150 pm < FWHM < 650 pm.
l. Centered width of FWHM-100 pm. For 100 pm < FWHM < 500 pm.
m. From 1280 nm to 1340 nm.
n. Centered width of FWHM-150 pm. For 150 pm < FWHM < 2000 pm.
o. Measured 1 nm away from the −3 dB points.
p. GPIB is supported as an option through an external RS-232/GPIB converter.

ADVANCED FEATURES AND PERFORMANCE

Easy access to optical connectors for cleaning. Easing maintenance and enabling the lowest losses to be maintained.

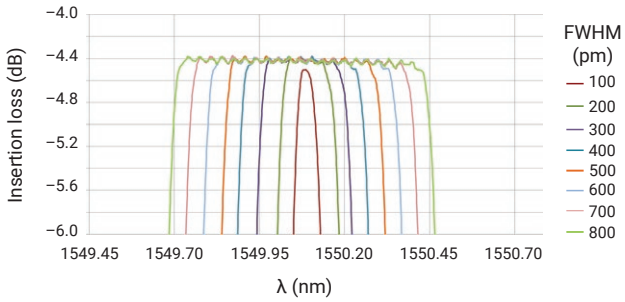

Figure 3. Expanded view of filter profile (wide)

ORDERING INFORMATION

XTA-50-XX-XX-XX

Model
SCL-S = 1450 - 1650 nm, bandwidth 50 - 950 pm
SCL-U = 1480 - 1620 nm, bandwidth 32 - 650 pm
CL-W = 1525 - 1610 nm, bandwidth 50 - 5000 pm
O-S = 1260 - 1360 nm, bandwidth 50 - 900 pm

Connector
58 = FC/APC
50 = FC/PC

Output fiber
00 = SMF28 singlemode fiber
M = Polarization maintaining fiber [a]

Example: XTA-50-SCL-S-M-50

a. Not available for CL-W model.

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XTM-50

TUNABLE FILTER WITH ADJUSTABLE BANDWIDTH

With the XTM-50 both center wavelength and bandwidth can be independently adjusted. It is manually controlled and versions are available covering all the key telecom wavelengths from 1260 nm to 1650 nm and bandwidths from 32 pm (4 GHz) to 5 nm.

SPEC SHEET

KEY FEATURES

- Adjustable bandwidth flat-top filter
- Ultra-sharp filter edges
- High isolation
- Up to 200 nm wavelength tunability
- High accuracy and repeatability
- Narrowest filter—highest selectivity

KEY FEATURES

Adjustable bandwidth flat-top filter

The bandwidth of the XTM-50 filters can be adjusted independently of the center wavelength. The filter has a flat-top profile with minimal ripple, less than 0.2 dB. Models are available with full width at half maximum (FWHM) bandwidths from 32 pm (4 GHz) up to 5 nm (625 GHz).

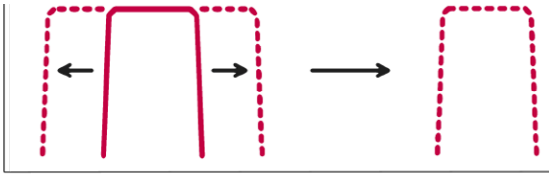

Figure 1. Bandwidth and wavelength tuning

Ultra-sharp filter edges

The XTM-50 uses EXFO patented quadruple pass technology. This creates extremely sharp filter edges with slopes of up to 800 dB/nm. Single or groups of narrowly spaced DWDM channels or coherent super-channels can be selected with ease.

High isolation

EXFO quadruple pass technology achieves higher out-of-band isolation than conventional double-pass filters.

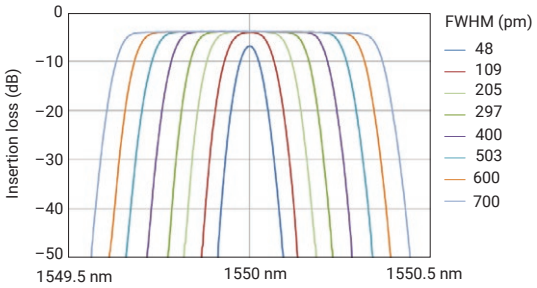

Figure 2. Example of filter's flat-top spectrum for various FWHM

Excellent wavelength coverage

Center wavelength of the XTM-50 standard model can be adjusted over a 200 nm range, covering the S, C and L telecom bands. The XTM-50 O-band covers 100 nm.

High accuracy and repeatability

High resolution translation stages are used for both wavelength and bandwidth control. This ensures the XTM-50 can be set accurately and repeatedly over time.

Narrowest filter—highest selectivity

The XTM-50 is the most selective filter on the market. Models are available with filter bandwidths from 32 pm (4 GHz) up to 5 nm (625 GHz).

APPLICATION

DWDM channel selection

Low dispersion, steep edges and high isolation mean that DWDM channels, or even coherent superchannels with spacing down to 10 GHz, can be separated with ease.

Variable OSNR source

A variable OSNR source typically consists of an ASE source combined with a variable attenuator. Adding the XTM-50 to such a syste enables consistent noise loading for all DWDM wavelengths.

R&D of modulation formats

The XTM-50 is perfect for the filtering and analysis of sub-bands of complex modulations formats.

SPECIFICATIONS

		XTM-50 standard	XTM-50 ultrafine	XTM-50 O-band [a]	XTM-50 wide
Optical characteristics	Wavelength range (nm)	1450 to 1650	1480 to 1620	1260 to 1360	1525 to 1610
	Wavelength resolution (pm) [b]	5	5	5	5
	Bandwidth (FWHM) Minimum Maximum	50 pm (6.25GHz) 950 pm (120 GHz)	32 pm (4 GHz) 650 pm (80 GHz)	50 pm (8 GHz) 900 pm (160 GHz)	50 pm (6.25 GHz) 5000 pm (625 GHz)
	Bandwidth resolution	1 pm	1 pm	1 pm	0.3 % of FWHM typical
	Filter edge gradient	500 dB/nm typical [c]	800 dB/nm typical	500 dB/nm typical [c]	500 dB/nm typical [d]
	Insertion loss	5 dB (4.5 dB typical) [e, f]	5 dB (4.0 dB typical) [f, g]	5 dB (4.5 dB typical) [f, h]	5 dB (4.5 dB typical) [i, j]
	Flatness (dB)	0.2 [k]	0.2 [l]	0.3 [k, m]	0.2 [n]
	Polarization dependent loss (dB)	±0.2 [e]	±0.2 [g]	±0.2 [h]	±0.2 [i]
	Out-of-band suppression (crosstalk) [o]	40 dB (60 dB typical)	40 dB (50 dB typical)	40 dB (60 dB typical)	40 dB (45 dB typical)
Interface	Optical fiber type	SMF or PMF	SMF or PMF	SMF or PMF	SMF
	Connector type	FC/PC or FC/APC			
Operating conditions	Temperature range	15 °C to 35 °C (59 °F to 95 °F)			
	Maximum optical input power (dBm)	30	30	30	27
Size	Dimensions (W x D x H)	230 mm x 173 mm x 136 mm (9 in x 6.8 in x 5.35 in)			
	Weight	2.2 kg (4.4 lbs)			

a. Specifications apply for wavelengths not equal to any water absorption line.
b. Typical, related to user dexterity.
c. From –3 dB and –40 dB for FWHM < 800 pm.
d. Between –3 and –40 dB. Typically 550 dB/nm at FWHM = 50 pm; 450 dB/nm at FWHM = 1 nm; 225 dB/nm at FWHM = 5 nm.
e. From 1500 nm to 1600 nm and FWHM > 100 pm.
f. At lowest FWHM the insertion loss is 7 dB typical.
g. From 1500 nm to 1600 nm and FWHM > 60 pm.
h. From 1280 nm to 1340 nm and FWHM > 100 pm.
i. For FWHM >100 pm.
j. At lowest FWHM the insertion loss is < 7.0 dB.
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m. From 1280 nm to 1340 nm.
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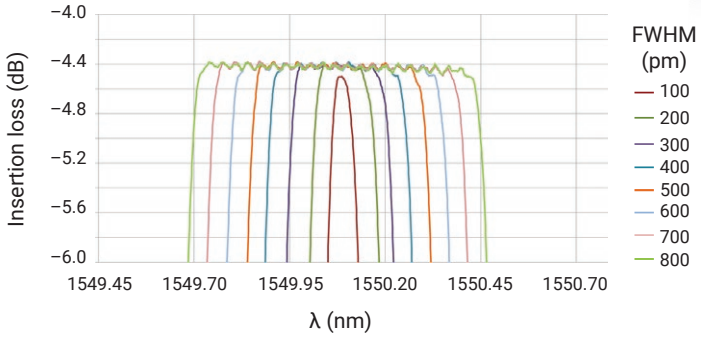
o. Measured 1 nm away from the –3 dB points.

ADVANCED FEATURES AND PERFORMANCE

Easy access to optical connectors for cleaning. Easing maintenance and enabling the lowest losses to be maintained.

ELECTRONIC VERSIONS AVAILABLE

Electronic versions are also available. These provide a touch panel interface as well as USB, Ethernet and RS-232C ports for remote control. The XFA filter has a fixed bandwidth and is designed to minimize costs for production facilities. The XTA-50 is accurately calibrated and has both bandwidth and wavelength control. Optical properties are equivalent to the XTM-50.



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SCL-S = 1450 nm to 1650 nm, bandwidth 50 pm to 950 pm
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CL-W = 1525 nm to 1610 nm, bandwidth 50 pm to 5000 pm
O-S = 1260 nm to 1360 nm, bandwidth 50 pm to 900 pm

Output fiber
00 = SMF28 singlemode fiber
M = Polarization maintaining fiber [a]

Connector adapter
50 = FC/PC
58 = FC/APC

Example: XTM-50-SCL-S-M-58

a. Not available for CL-W model.

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