

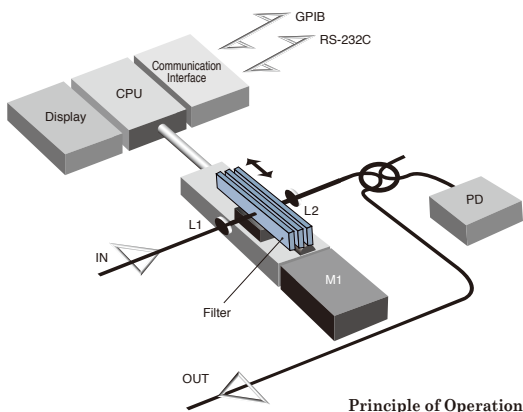
Optical Tunable Filter OTF-930

The OTF-930 is a polarization independent 80 nm tunable filter. Santec's unique "Linear Sliding" technology is a breakthrough in filter design that enables precise and continuous wavelength tuning with constant optical properties such as PDL, bandwidth and insertion loss. The instrument is designed to allow filters to be cascaded to increase filter isolation with minimal increase in insertion loss. This model has a wide selection of filters that are suitable for most of the fiber optic applications in the market.



Features

- ▶ 80 nm tuning range
- ▶ Low insertion loss
- ▶ Low PDL (< 0.1 dB) & PMD (< 0.1 ps) over whole tuning range
- ▶ 0.01 nm resolution
- ▶ Full GPIB support



Applications

▶ ASE Noise Suppression

When optical signals are amplified with EDFAs, the unwanted effect of amplified spontaneous emission (ASE) could decrease the signal-to-noise ratio. The OTF-930 with 08-S1, 08-S2 or 12-S2 filters are able to remove the ASE noise with minimal loss.

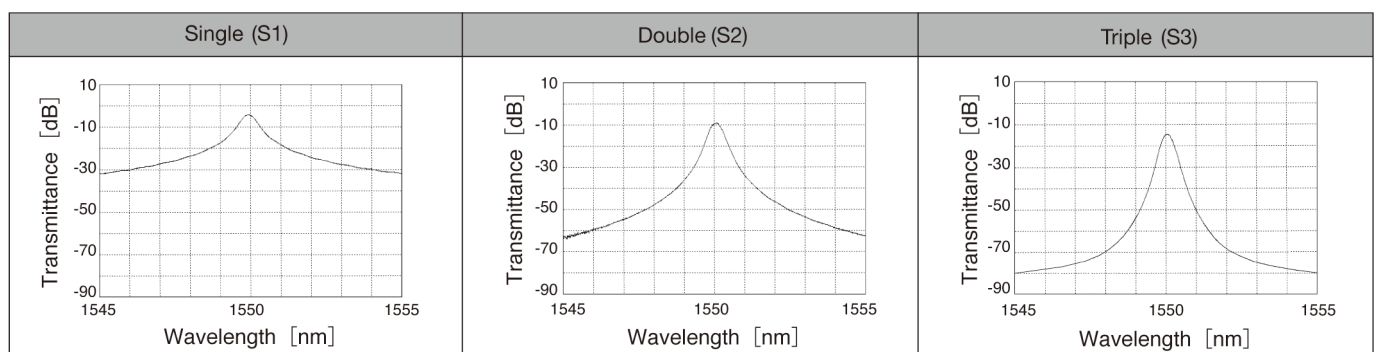
▶ Wavelength Channel Selection

The 03-S2 filter configuration is particularly suitable for selecting a single DWDM wavelength from a 100 GHz grid. Other filters can be used to select other ITU grid spaced signals.

▶ Incoherent Light Source

When used in combination with a broadband light source the OTF-930 can be configured as a tunable light source. Although the output power is relatively low (-30 to -20 dBm) incoherent light is used for applications that are affected by coherent resonance effects or non-linear interference.

■ Filter Structure



Filter Selections

Filter type	03			04			06		
Filter Structure	S1	S2	S3	S1	S2	S3	S1	S2	S3
Bandwidth @ -3 dB (nm)	0.4 ± 0.1	0.3 ± 0.1	0.25 ± 0.1	0.5 ± 0.1	0.35 ± 0.1	0.3 ± 0.1	0.7 ± 0.1	0.5 ± 0.1	0.4 ± 0.1
Bandwidth @ -20 dB (nm)	< 3.8	< 1.5	< 1.2	< 5.0	< 1.7	< 1.2	< 7.5	< 2.4	< 1.5
Insertion Loss (dB)	3.5	6	7.5	3	5	6.5	2.5	3	4
Chromatic dispersion (ps/nm) (typ.)	23	33.5	35	18	21.5	26	6.5	14.5	26.5
	-19	-31.5	-23	-12.5	-17.5	-17	-6.5	-11	-17.5

Filter type	08			12			24			50
Filter Structure	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1
Bandwidth @ -3 dB (nm)	0.95 ± 0.1	0.65 ± 0.1	0.5 ± 0.1	1.3 ± 0.1	0.9 ± 0.1	0.7 ± 0.1	2.9 ± 0.3	1.95 ± 0.3	1.5 ± 0.3	5.5 ± 1.0
Bandwidth @ -20 dB (nm)	< 9.8	< 3.0	< 2.2	< 15.0	< 4.5	< 3.0	< 32.0	< 10.0	< 6.5	< 60(Typ.)
Insertion Loss (dB)	2	3	3.5	2	2.5	3	2.5	2.5	2.5	2.9
Chromatic dispersion (ps/nm) (typ.)	7	8	12	3.5	5	8	3.5	3.5	3.5	-
	-7	-5	-10.5	-4	-5	-5.5	-3.5	-3.5	-3.5	-

Filter type	05 (1500-1630 nm)			12 (1270-1350 nm)		
Filter Structure	S1	S2	S3	S1	S2	S3
Bandwidth @ -3 dB (nm)	0.5 ± 0.1	0.35 ± 0.1	0.3 ± 0.1	1.3 ± 0.15	0.9 ± 0.1	0.7 ± 0.1
Bandwidth @ -20 dB (nm)	< 5.0	< 1.7	< 1.2	< 15.0	< 4.5	< 3.0
Insertion Loss (dB)	4.5 *1	6.5 *1	8 *1	3	3.5	4
Chromatic dispersion (ps/nm) (typ.)	18	21.5	26	3.5	5	8
	-12.5	-17.5	-17	-4	-5	-5.5

*1: The insertion loss at 1500-1530 nm and 1610-1630 nm may increase by 1 dB.

Specifications

Category	Parameter	Unit	Spec	Notes
Wavelength Characteristics	Tuning Range	nm	1530-1610 1500-1630 (05 bandwidth) 1270-1350 (12 bandwidth)	
	Resolution	nm	0.01	Mechanical resolution
	Accuracy	nm	< ± 0.1, < ± 0.15(24), < ± 0.2(50)	
	Repeatability	nm	< ± 0.05, < ± 0.1(50)	n = 50/ Measured at center wavelength of slider
	Temperature Stability	pm/°C	2	
Power Characteristics	PDL (SMF)	dB	< 0.2	Filter Structure(S2) and (S3)
	Insertion Loss *1	dB		Refer to "Filter Selections" (Typ.)
	Return Loss	dB	> 45	
Power Monitor	Relative Accuracy	dB	< ± 0.1	Output Power : -20 ~ +10 dBm
Max Rating	Maximum Input Power	dBm	+20	Damage Threshold
PMD	PMD	ps	< 0.1	Design guaranteed performance
Environmental Conditions	Operating Temperature	°C	20-30	
	Operating Humidity	%	< 80 RH	non-condensing
Interface	Optical Fiber	-	SMF or PMF *2	
	Optical Connector	-	FC or SC	
	Connector Polish	-	SPC or APC	*3
Power supply	Communication Interface	-	GPIO (IEEE-488) & RS-232C	
	Voltage	V	AC100-240	
Dimensions	Frequency	Hz	50/60	
	Power Consumption	VA	35 @ 230 to 240 V 30 @ 100 to 120 V	
	Width x Height x Depth	mm	210 x 80 x 300	
	Weight	kg	4	

*1: In case of PMF, the insertion loss increases by 1.0 dB.

*2: In case of PMF, polarization extinction ratio 20 dB (typical). Polarization axis in alignment with connector key.

*3: SPC = Super Physical Contact, APC = Angled Physical Contact.

Ordering Code

OTF-930 - **A** - **B** - **C** - **D** - **E** - **F**

Connector Polish: **SP**: SPC / **AP**: APC (Angled PC)

Connector Type : **F**: FC / **S**: SC

Fiber Type : **S**: SMF / **P**: PMF

Filter Structure : **S1**: 1 stage / **S2**: 2 stage / **S3**: 3 stage

Bandwidth Type : **03** / **04** / **06** / **08** / **12** / **24** / **50** / **05** (Only Range 2: 1500 - 1630 nm)

Wavelength Range : **1**: 1530 - 1610 nm / **2**: 1500 - 1630 nm (Only 05 Bandwidth) / **3**: 1270 - 1350 nm (Only 12 Bandwidth) / **4**: Other

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