



NanoSpeed™ Fiber Optical Resonant Modulator/Switch (Bidirectional)

(Protected by U.S. patents 7,403,677B1; 6,757,101B2; and pending patents)

Product Description

The NS Series fiber optic modulator features fast amplitude modulation about 20 Mhz, low driving voltage and low optical loss. This is achieved using a patented electro-optical configuration and operating at a fixed frequency with a built-in high Q resonant circuit. Unlike other modulators, we use special electro-optical crystals of high stability that increase power handling and reduce drift/darkening. The NS fiber optic switch meet the most demanding switching requirements of continuous operations over 25 years and non-mechanical ultra-high reliability.

Our resonant EO phase modulators can be driven by a standard laboratory function generator with a Half-Wave Drive Voltage of only 15 V at 633 nm. Custom versions are also available, with user-specified resonant frequencies from 0.1 to 100 MHz.

Performance Specifications

NanoSpeed Resonant Modulator	Min	Typical	Max	Unit
Insertion Loss ^[1]	1900-2200nm	1.3	1.9	dB
	1260-1650nm	1	1.5	
	960-1100nm	1.5	2	
	780-960nm	1.7	2.2	
Cross Talk ^[2]	18	20	35	dB
Durability	10 ¹⁴			cycles
PDL (SMF Switch only)		0.15	0.3	dB
PMD (SMF Switch only)		0.1	0.3	ps
ER (PMF Switch only)	18	25		dB
IL Temperature Dependency		0.25	1.5	dB
Return Loss	45	50	60	dB
Repetition Rate		20	100	MHz
Optic power Handling ^[4]	Normal power version		300	mW
	High power version		5	W
Operating Temperature	Standard	-5	75	°C
	Large range version	-30	85	
Storage Temperature		-40	100	°C

[1] Measured without connectors.

Wavelength <850nm or > 1700nm is available only in the special version with a long lead time.

[2] Cross talk is measured at 100kHz, which may be degraded at the higher repeat rate.

[3] It is defined as the rising or fall time between 10% and 90% of optical intensities.

[4] Defined at 1310nm/1550nm. For the shorter wavelength, the handling power may be reduced, please contact us for more information. High power version available by incorporating fiber core enlargement (expensive).

Features

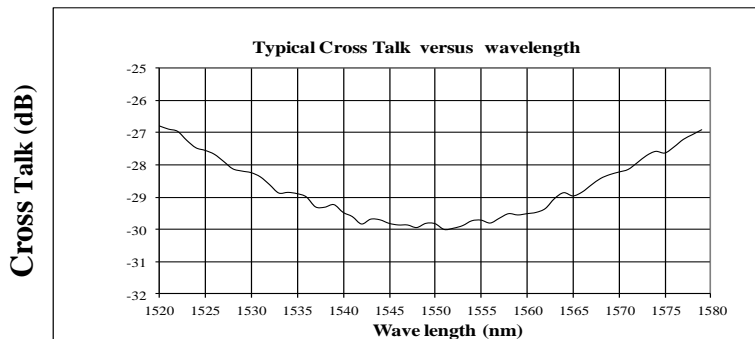
- Solid-State
- High speed
- Ultra-high reliability
- Low insertion loss
- Compact

Applications

- Laser Systems
- Reconfigurable Optics
- Instrumentations

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Typical Bandwidth Measurement



Ordering Information

NSRM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Wavelength	Power Handling ^[1]	Repetition Rate	Fiber Type	Fiber Length	Connector ^[2]	
	1x1=1 1x2=2 2x2=3	1060=1 2000=2 1310=3 1550=5 1625=6 780=7 850=8 650=E Special=0	Regular =1 500mw=2 5W =5	1MHz=01 2MHz=02 5MHz=05 10MHz=10 20MHz=20 Special = 00	SMF-28=1 HI1060=2 HI780=3 PM1550=5 PM850=8 PM980=9 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/PC=7 LC/APC=8 Special=0

[1]: Wavelength < 850nm or > 1700nm is available only in the special version with a long lead time
 [2]: Please contact the sale about the high power connector for NPHW version.

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

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Operation Manual

1. Connect a control signal to the SMA connector on the PCB.
2. Attach the accompanied power supply (typically a wall-pluggable unit).
3. The device should then function properly.

Note: Do not alter device factory settings.