



NanoSpeed™ Fiber Optical Resonant Phase Modulator (10 to 90MHz, High Power, Bidirectional)

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

Product Description

The resonance NS Series fiber optic phase modulator features fast phase modulation at a fixed frequency with a selection from 10 to 90 MHz, and low optical loss. This is achieved using a patented electro-optical configuration 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 devices meet the most demanding switching requirements of continuous operations over 25 years and have 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.

Features

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

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	
Phase Modulation [2]	0		180	degree
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	90	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 a 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 is available by incorporating fiber core enlargement (expensive).

Applications

- Laser Systems
- Reconfigurable Optics
- Instrumentations

NanoSpeed™

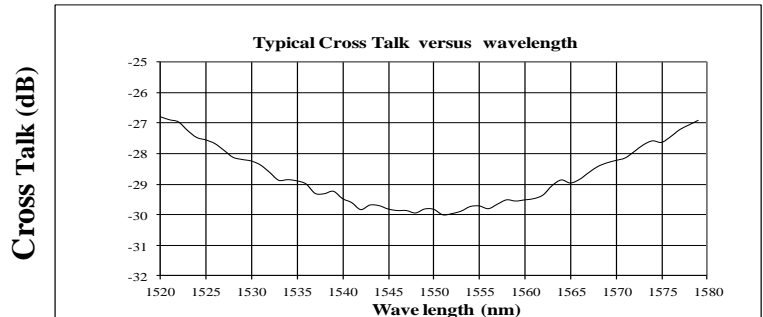
Fiber Optical Resonant Phase Modulator

(10 to 90MHz, High Power, Bidirectional)

Electrical Information

1. Signal Control Input: 0-15 V Analog SMA

Typical Bandwidth Measurement



Ordering Information

Prefix	Type	Wavelength	Power Handling [1]	Repetition Rate	Fiber Type	Fiber Cover	Fiber Length	Connector [2]
NSRM-	1x1=1	1060=1 2000=2 1310=3 1550=5 1625=6 780=7 850=8 650=E Special=0	Regular =1 500mw=2 5W =5	10MHz=10 20MHz= 20 30MHz= 30 40MHz = 40 50MHz = 50 60MHz = 60 70MHz =70 80MHz =80 90MHz =90 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.

NanoSpeed™

Fiber Optical Resonant Phase Modulator (10 to 90MHz, High Power, Bidirectional)

Operation Manual

1. Connect a control signal to the SMA connector on the box.
2. The device should then function properly.

Note: Do not open the box and alter device factory settings.