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PHOTONWARES

NanoSpeed™ Fiber Optical Resonant Modulator

(5MHz, High Power, Bidirectional)

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

Features

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

Applications

- Laser Systems
- Reconfigurable Optics
- Instrumentations

Product Description

The NS Series fiber optic modulator features fast amplitude modulation at a fixed resonance frequency of about 5 Mhz, low optical loss, and 5V control voltage. 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 switch meet the most demanding switching requirements of continuous operations over 25 years and non-mechanical ultra-high reliability.

Performance Specifications

Parameter		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).

Revised on 10/08/24
(Click here for latest revision)

15 Presidential Way, Woburn, MA 01801 Tel: (781) 9351200 Fax: (781) 935-2040

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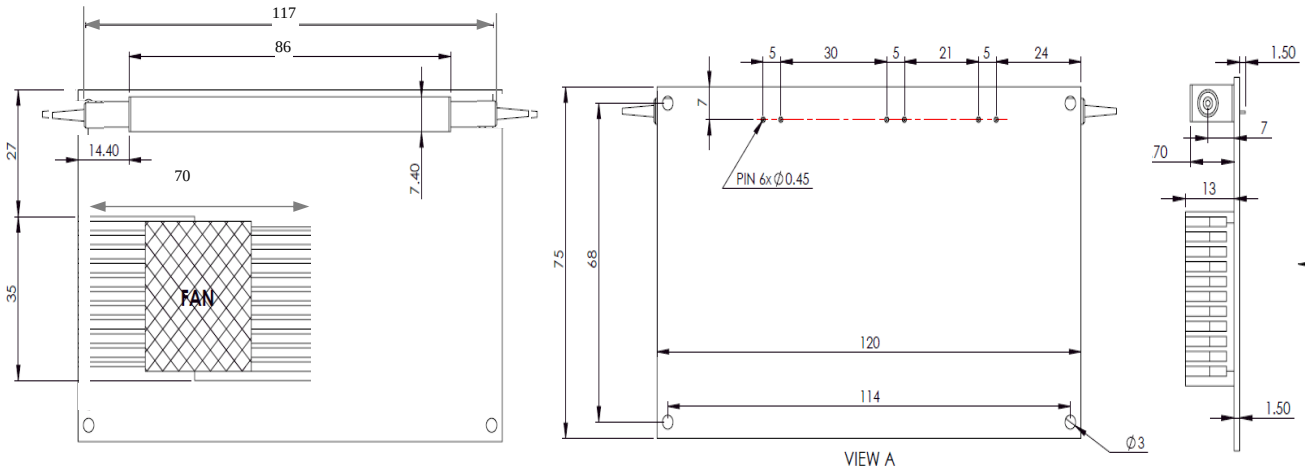
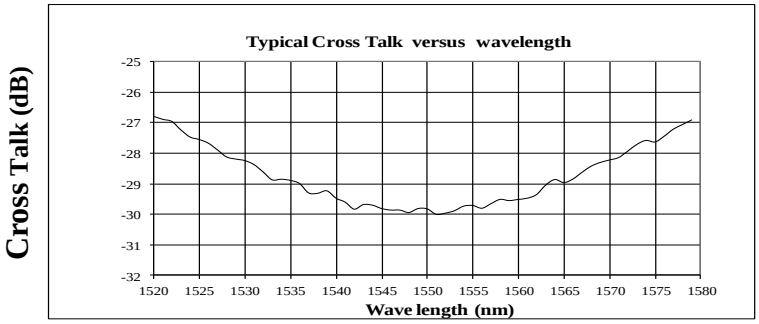
Electrical Information

1. Signal Control Input: 0-5 V Analog BNC
2. Power Input: 12V Wall pluggable (110-240 AVC)

Mechanical Dimensions (mm)



Typical Bandwidth Measurement



Ordering Information

NSRM	☐	☐	☐	☐☐	☐	☐	☐	☐	☐
	Type	Wavelength	Power Handling [1]	Repetition Rate	Fiber Type		Fiber Length	Connector [2]	Enclosure [3]
	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 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	None = 1 Benchtop = B

[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.
[3]: The Benchtop is a turn-key unit that integrates a power supply with 110-240V AC input on the back. Fiber ports and control input are on the front panel

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(Bidirectional)

Operation Manual

1. Connect a control signal to the BNC connector on the box.
2. Attach and connect the accompanying power supply (a wall-pluggable unit).
3. The device should then function properly.

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

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