

# NanoSpeed™ Fiber Optical Resonant Switch/Modulator

(10 to 90MHz, High Power, Bidirectional)



DATASHEET

BUY NOW



The resonance NS Series fiber optic switch/modulator is either a 2-port or a 3-port device featuring fast amplitude 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 switch meets the most demanding switching requirements of continuous operations over 25 years and has non-mechanical ultra-high reliability. The switch is intrinsically bidirectional and selectable for polarization-independent or polarization-maintain by the fiber type.

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.

The rise/fall time is intrinsically related to the crystal properties, and the repetition rate is associated with the driver. There are poor frequency response sections due to the device resonances. The NS devices are shipped mounted on a tuned driver.

## Features

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

## Applications

- Laser Systems
- Reconfigurable Optics
- Instrumentations

## Specifications

Parameter		Min	Typical	Max	Unit
Insertion Loss <sup>[1]</sup>	1900-2200nm		1.3	2.2	dB
	1260~1620nm		1	2	dB
	960~1100nm		1.5	2.6	dB
	780-960nm		1.7	3	dB
Cross Talk <sup>[2]</sup>		18	20	35	dB
Durability		10 <sup>14</sup>			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 <sup>[4]</sup>	Normal power version		300		mW
	High power version			5	W
Operating Temperature	Standard	-5		75	°C
	Large range version	-30		85	°C
Storage Temperature		-40		100	°C

### Note:

[1] Measured without connectors.

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

[2] ±25nm, 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).

**Legal notices:** All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

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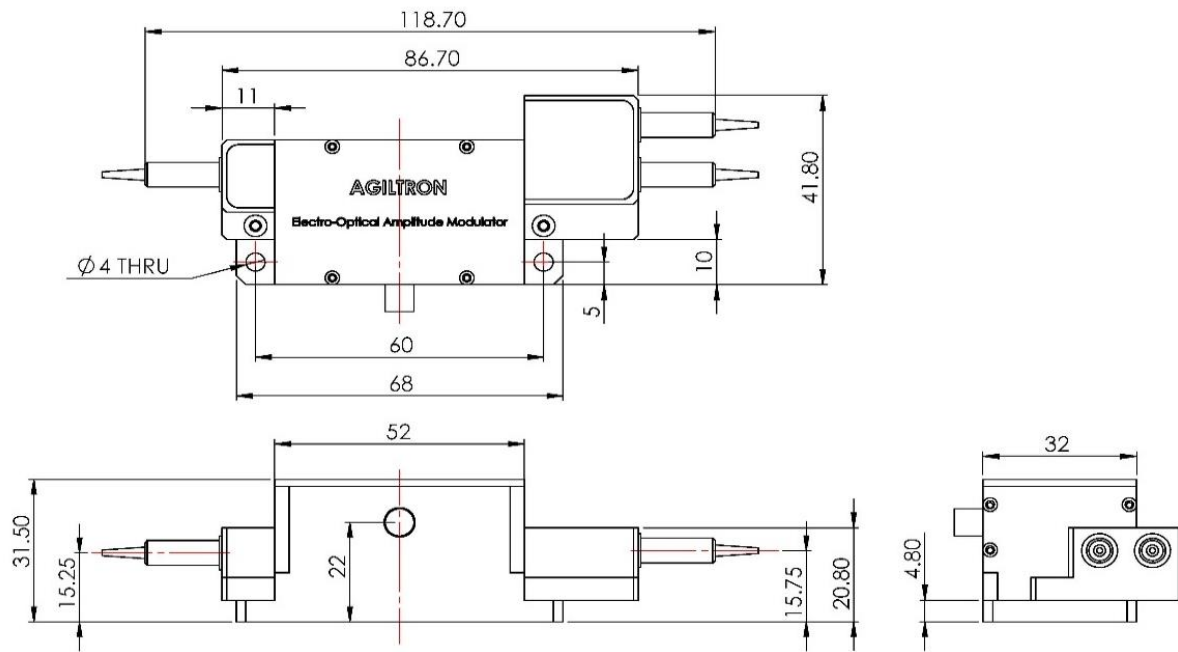


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### Electrical Information

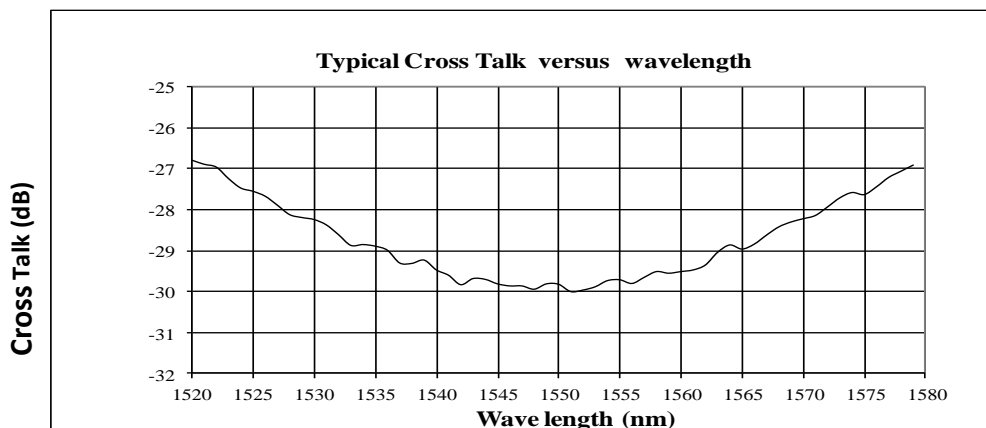
Signal Control Input: 0-15 V Analog SMA

### Mechanical Dimensions (Unit: mm)



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

### Typical Bandwidth Measurement



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### Ordering Information

Prefix	Type	Wavelength	Power Handling <sup>[1]</sup>	Repetition Rate	Fiber Type	Fiber Cover	Fiber Length	Connector <sup>[2]</sup>
NSRM-	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	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 E2000 APC=9 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.

**NOTE:**

- PM1550 fiber works well for 1310nm

### 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.