

# NanoSpeed™ Premium 1x1, 1x2, 2X2 Fiber Optical Switch (1MHz)

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

## Product Description

The NS Premium Series solid-state fiber optic switch connects optical channels by redirecting an incoming optical signal into a selected output optical fiber at high speed. This is achieved using patented electro-optical configuration featuring clean fast response without ripples. The NS fiber optic switch is designed to meet the most demanding switching requirements of continuous operations over 25 years and non-mechanical ultra-high reliability.

The NSP Series switch is controlled by 5V TTL signals with a specially designed electronic driver having performance optimized for various repetition rate.



## Features

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

## Performance Specifications

NanoSpeed P Series Switch	Min	Typical	Max	Unit
Wavelength Band	1260-1650nm	0.8	1.2	dB
	960-1260nm	1.0	1.3	dB
Insertion Loss <sup>[1]</sup>	780-960nm	1.2	1.5	dB
	520-680nm	1.5	2	dB
Cross Talk <sup>[2]</sup>	18	25	35	dB
PDL (SMF Switch only)		0.15	0.3	dB
ER (PMF Switch only)	18	25		dB
IL Temperature Dependency		0.25	0.5	dB
Return Loss	45	50	60	dB
Response Time (Rise, Fall)			90	ns
Fiber Type	SMF-28, Panda PM, or equivalent			
Driver Repeat Rate	10kHz driver	DC	10	kHz
	200kHz driver	DC	200	kHz
	1000kHz driver	DC	1000	kHz
Optic power Handling <sup>[3]</sup>		300		mW
Operating Temperature	-5		70	°C
Storage Temperature	-40		85	°C

[1] Measured without connectors. For other wavelength, please contact us.

[2] Cross talk is related to repetition rate, the low value measured at 500kHz.

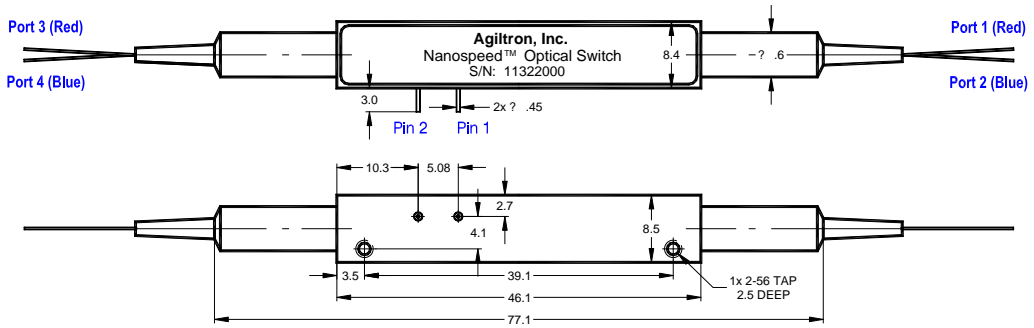
[3] Defined at 1310nm/1550nm. For the shorter wavelength, the handling power may be reduced, please contact us for more information.

## Applications

- Optical blocking
- Configurable operation
- Instrumentation

# NanoSpeed™ Premium 1x1, 1x2, 2X2 Fiber Optical Switch

## Mechanical Dimensions (Unit: mm)



## Optical Path Driving Table

Optical Path	TTL Signal
Port 1→Port 3, Port 2→Port 4	L (< 0.8V)
Port 1→Port 4, Port 2→Port 3	H (> 3.5V)

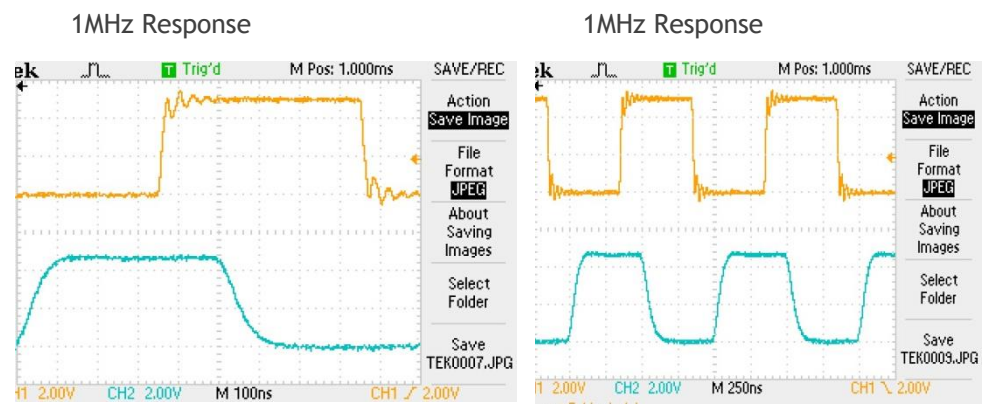
## Driving Board Selection

Maximum Repetition Rate	Part Number (P/N)
200kHz	SWDR-11a2M1111
1000kHz	SWDR-11a2H1111

\* Note: For customers that prefer to design their own driving circuit, they are responsible for the optical performance. For more technical information, please contact us.

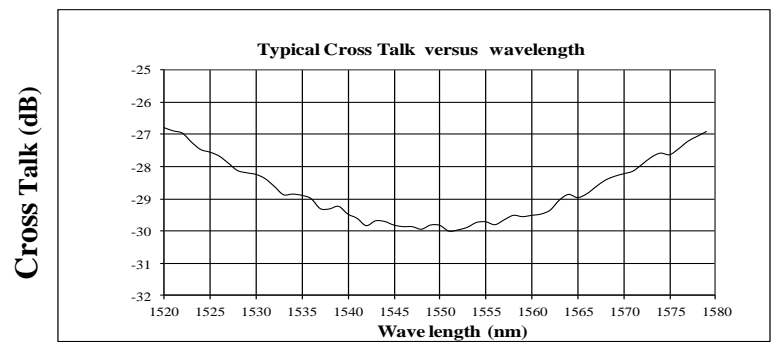
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## Typical Speed and Repetition Measurement



Note: Top Traces are electrical; Bottom traces are optical

## Typical Bandwidth Measurement



## Ordering Information

NPSW-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Type	Wavelength	Configuration	Repetition Rate	Fiber Type		Fiber Length	Connector	
	1x1=11 1x2=12 2x2=22	1060=1 2000=2 1310=3 1480=4 1550=5 1625=6 780=7 850=8 650=E 1565-1620=L Special=0	Single Stage=1	500kHz=1 1MHz=2	SMF-28=1 HI1060=2 HI780=3 PM1550/400=4 PM1550/250=5 PM850=8 PM980=9 Special=0		Bare fiber=1 900um loose 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