NanoSpeed™ High Power 1x2 Variable Fiberoptic Splitter

(Bidirectional)

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

DATASHEET

BUY NOW

The NS 1x2 Solid-State Variable Fiber Optic Splitter splits an incoming optical signal among two output optical fibers with an electrically variable power ratio. This is achieved using a patent pending non-mechanical configuration. When the electrical control signal is removed, the splitter latches to a pre-determined ratio with a standard version of 100:0. The device is bidirectional, transmitting light in both direction simultaneously.

The all-solid-state crystal design eliminates the need for mechanical movement and organic materials. The NS Fiber Optic Splitter is designed to meet the most demanding switching requirements of ultra-high reliability, fast response time, and continuous operation.

Features

- Solid-State High Speed
- Ultra-High Reliability
- Low Insertion Loss
- Compact

Applications

- Optical Channel Blocking
- System Monitoring
- Instrumentation

Specifications

Parameter		Min	Typical	Max	Unit
Central Wavelength		450		2000	nm
Insertion Loss [1]	1260~1650nm		0.6	1	dB
	950~1100nm		0.8	1.3	dB
	850~950nm		1	1.5	dB
	680~780nm		1.5	2.4	dB
Cross Talk at 100% splitter		20	25	35	dB
Splitting Variation	Output 1		100~0		%
	Output 2		0~100		%
	Type		Continuous ratio		
Response Time (Rise, Fall)		80		1000	ns
Repetition Rate [2]		DC	20	100	kHz
PDL (SMF version only)			0.1	0.35	dB
IL Temperature Dependency			0.25	0.5	dB
PMD (SMF version only)			0.1	0.2	ps
Return Loss		45	50	60	dB
Operating Temperature		-5		70	°C
Optical Power Handling [3]				5	W
Storage Temperature		-40		85	°C

Notes:

[1]. Excluding connectors.

[2]. Standard driver. A high repetition rate of up to 100 kHz is available with the special circuit, please call us.

[3]. Defined at 1310/1550nm. The power handling is proportional to the fiber core size. For the shorter wavelength, the handling power is reduced.

Rev 01/10/24

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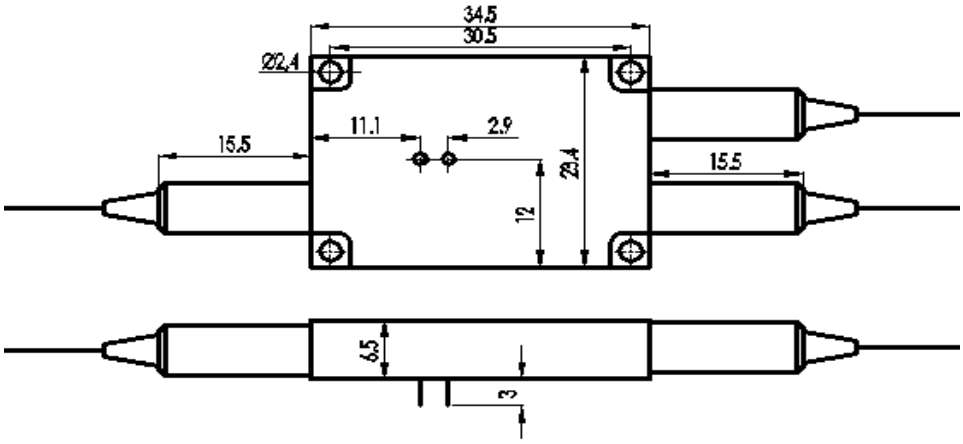
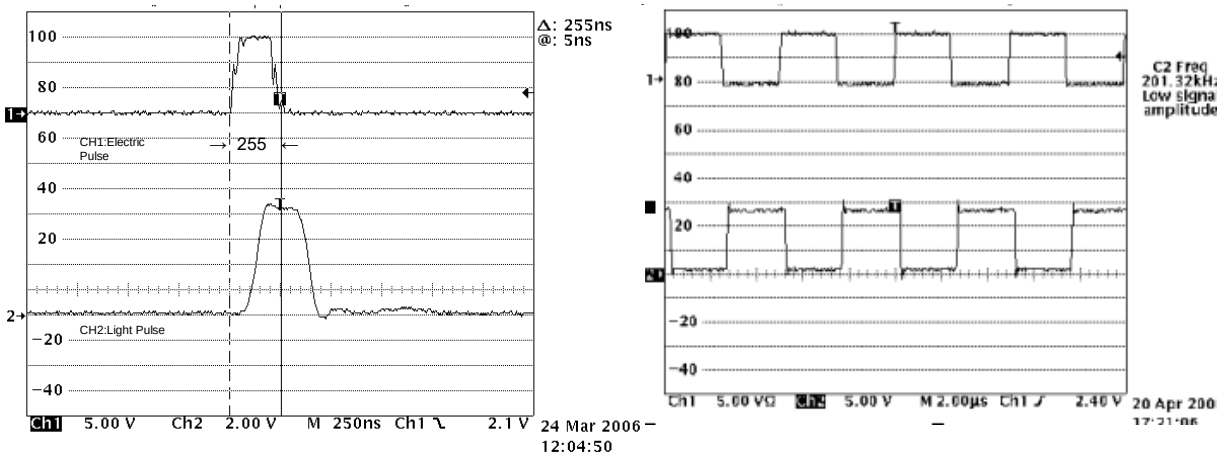
Port Diagram and Function



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

Speed and Repetition Measurement



Operation Instruction

1. Plug in the accompanied power supply
2. Plug in a 0-5V control signal to the input SMA connector (golden color). One can use a DC power supply first, and then a function generator. The optical output will change from maximum to minimum or from minimum to maximum depending on which port is measured.
3. Do not adjust settings on the board

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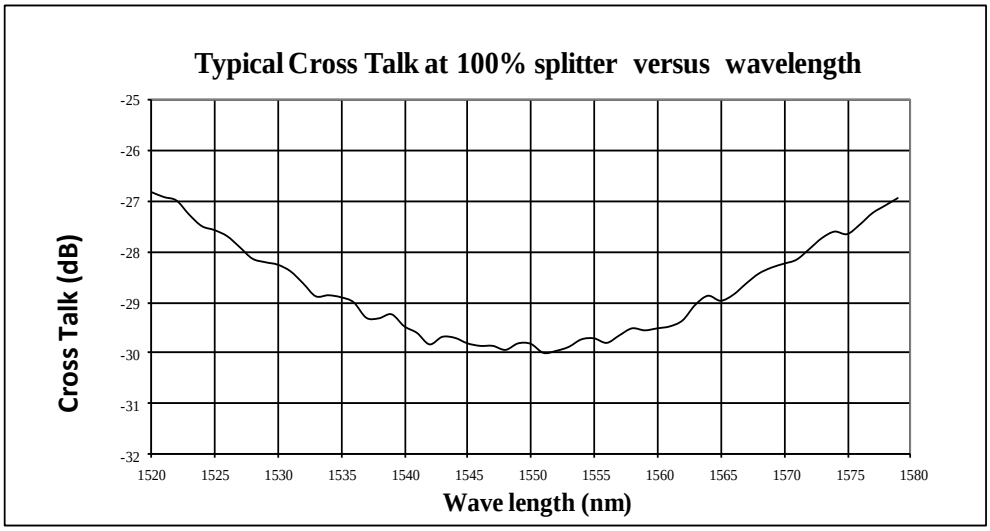
Bandwidth Measurement



Ordering Information

	3 0	☐	1	1	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Configuration**	**Package**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
NHSW-	Splitter = 30	1060nm = 1 L Band = 2 1310nm = 3 1550nm = 5 850nm = 8 980nm = 9 780nm = 7 650nm = 6 450nm = 4 Special = 0			SMF-28 = 1 HI1060 = 2 HI780 = 3 PM1550 = 5 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/PC Duplex = 8 LC/APC = 9 LC/UPC = U Special=0

Red: Expensive crystal is required to handle high power at short wavelengths

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Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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