

Multi-Rate Modular Bypass Switch, supporting up to 8 network links for failsafe connectivity of inline security appliances.



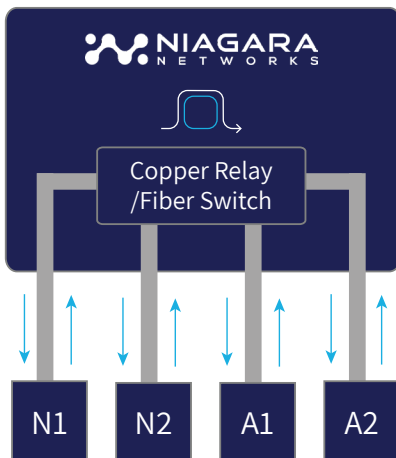
The 3296 Bypass switch supports up to 8 bypass segments in four modules. Users can mix and match network links, depending on their network deployment needs.

Network Links*	Type	Segments per Module	Connectors
10/100/1000M	Copper	2	RJ45
1, 10, 25, 40, 100Gb	Single Mode LX, LR, LR4	2	LC
1, 10, 25, 40, 100Gb	Multimode, SX, SR BiDi, SWDM4	2	LC
40, 100Gb	Multimode SR4	1	MPO
10Gb	Copper	2	RJ45

*Network links and Appliance interfaces are matching

BypassP2 Segment

A full bypass segment comprises two network and two appliance ports. The network ports and the appliance ports offer direct single mode (SM), multimode (MM) or copper connectivity, depending on the module.



Product Highlights

High Density

- Up to 8 full bypass segments. Each bypass segment includes two network ports and two appliance ports
- 4 field replaceable modules

Bypass mode:

- Power failure
- Configurable fail-open fail-close per segment
- Configurable external Heartbeat countdown timer per segment
- Latching high performance optical switch

Multirate Network Links:

- Copper, fiber multimode BiDi and fiber singlemode
- Supports SX, SR, SR4, LX, LR, ER, LR4
- Network links from 10Mb to 400Gb

Management:

- Multifunctional USB Type B interface
- USB API

Form Factor:

- 1U Rack mount
- Fanless for higher reliability

Low power consumption:

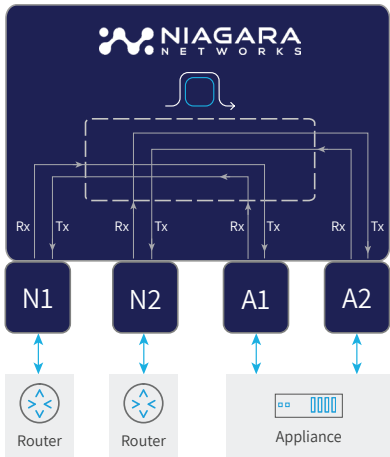
- USB Type B

USB For Efficient Power and Heartbeat Control

The 3296 is equipped with a USB Type B connector port. This is used for powering the unit and all of its modules, to configure segment state in case of failure and external heartbeat count-down timer for each segment. The programmable heartbeat connection is used for automatic link-loss detection. Both the chassis power and heartbeat link are controlled through a single USB port connection to the intended appliance (no separate power supply is required).

Normal Inline Mode

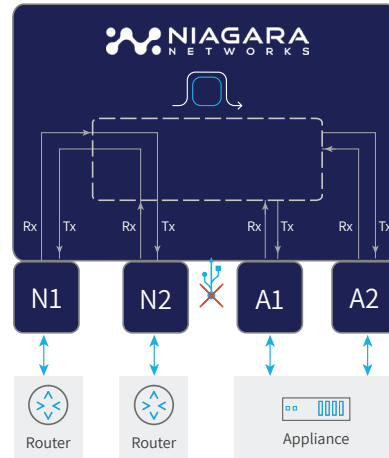
In normal inline mode, the common network deployment for inline security devices such as firewalls and intrusion prevention systems, traffic from one side of the network is forwarded to the inline appliance, and through the inline appliance to the other side of the network.



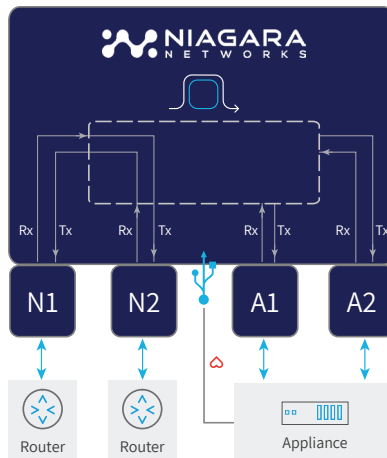
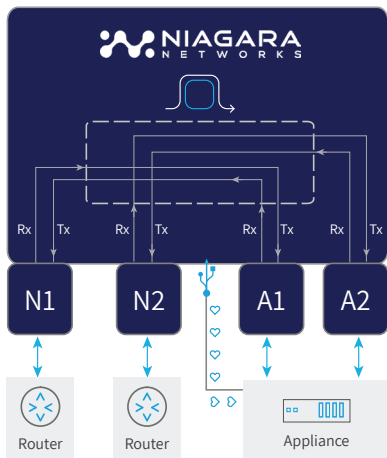
Bypass Mode.

In case of power failure, i.e no USB connectivity, the bypass segment goes from normal mode to bypass mode. Each segment can be individually configured as fail-open or fail close. On the fiber modules, the appliance ports (A1/A2) are disconnected from each other when the module is in bypass state (as depicted).

On the copper modules, the appliance ports (A1/A2) will also go into bypass when the network ports go into bypass.

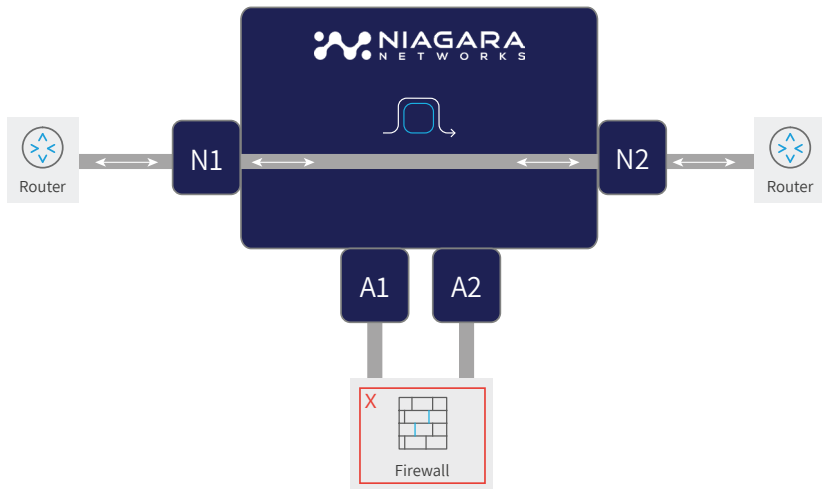


In case an external heartbeat is not received for the appropriate segment, and the count down timer for that segment expires, the affected segment will go into bypass mode.

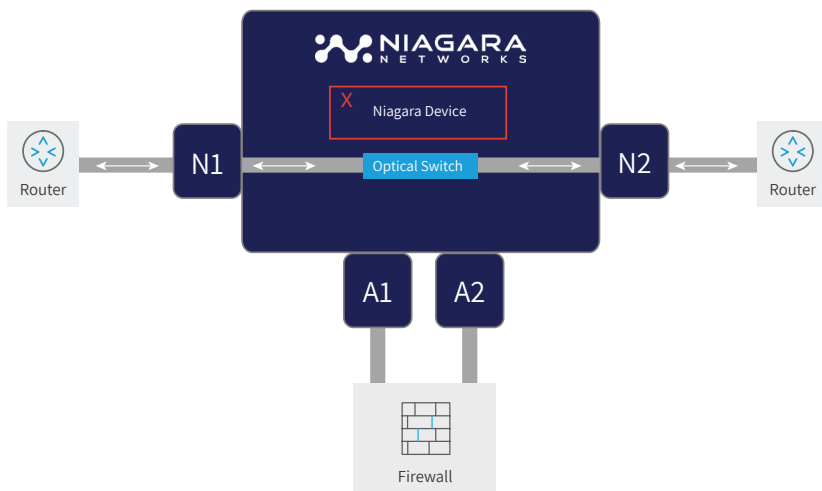


The appliance sends an external heartbeat via the USB port. As long as the heartbeat is received, the segment stays in normal mode and the appliance is inline with the network link. If the heartbeat is not received within the setup time, the segment will go into bypass, connecting the two network ports and bypassing the appliance.

Common Use Cases



Protects network traffic in case of a security appliance failure.



Supports high network availability. Traffic flow is maintained in case of failure of bypass switch

Module Type	Insertion Loss (max.)	Failover Time (max.)
LC Fiber (MM and SM)	2 dB	8 ms
MPO Fiber (MM)	3 dB	8 ms
1G Copper	2.25 dB	4 ms
10G Copper	2.29 dB	10 ms

Specifications

Height	1.75 in (44.5mm)	BTU/hr	8.53
Length	10.07 in (256.0mm)	Fan-less	Passive cooling
Width	17.33 in (440.0mm)	Altitude	15,000 ft
Weight	8.8 lb (3.39 kg) [fully configured]	Max Power	2.5 Watts
Operating Temp	32-104°F (0-40 °C)	DC	5V DC USB
Operating Humidity	5-95% RH, non-condensing		

Safety

Certifications

UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences	North America (NRTL) European Union (EU) VCCI (Japan)	2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE Directive
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Part Number

Description

3296-MN	3296 main chassis. USB power input. Supports up to 4 modules
3296-SG-1TX-2B	2 bypass segments of 1G Base-T. Each segment includes 2 network ports and 2 appliance ports
3296-SG-10TX-2B	2 bypass segments of 10G Base-T. Each segment includes 2 network ports and 2 appliance ports
3296-SG-MM-2B	2 passive bypass segments SR/SX 50/125. Each segment includes 2 network ports and 2 appliance ports. 1G/10G/25G/40G/100G/BiDi/SWDM4
3296-SG-MM5-2B	2 bypass segments SR/SX 62.5/125. Each segment includes 2 network ports and 2 appliance ports. Supports 1/10Gb multimode links
3296-SG-SM-2B	2 passive bypass segments LR4/LR/LX. Each segment includes 2 network ports and 2 appliance ports 1G/10G/25G/40G/100G
3296-SG-MM-MPO-1B	1 bypass segment SR4 MPO. Segment includes 2 network ports and 2 appliance ports. Supports 40/100Gb multimode links

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