Fiber Optical A/B/C/D Switch

(Telnet Interface)

The Fiber Optical A/B/C/D Switch with Telnet allows the user to connect the "COMMON" port among four other devices connected to the "A," "B," "C," and "D" ports. The default configuration is a duplex 1U metal chassis rack. Each channel is a front pluggable module designed for easy repair. Up to 20 channels can be accommodated.

- It is an all-optical routing supporting Gigabit data rate.
- Two data channels are activated together by a single command via either a front pushbutton or remote.
- Front panel LED's display present position and power status.
- Remote Control access uses an Ethernet 10/100Base-T connection with Telnet commands, reachable through the local EJ45 Ethernet port. It can lockout front panel operations, obtain switch status, as well as query firmware version number, query serial number, and enable/disable autosend of switch positions.
- The unit has two power suppliers to increase reliability. EMI power inlet filter reduces the effect of power supply noise.
- We uniquely provide several switch choices: low-cost mechanical, high-reliability MEMS, fast 100 ns switching, and vibration-insensitive switch that can function live in a shock/vibration environment.
- Moreover, the system can be configured by automatically switching when the power value is lower than a user-defined threshold.

The order table includes a list of standard control interfaces. Additionally, we provide a list of commands to assist customer engineers in coding. For those who require it, we offer a code-writing service for customer interfaces at an additional charge.

Features

- Vibration Resist
- Dual Power
- Pluggable
- High Speed
- Easy to Use
- Low Cost
- Reliable

Applications

- Network
- Shipboard

Specifications [1]

Parameters		Min	Typical	Max	Unit
Operating Wavelength		850		1620	nm
Insertion Loss [1], [2]	1x4		1.0	1.3	dB
Return Loss			45		dB
Cross Talk			55	70 [3]	dB
PDL				0.05	dB
Optical Switching Time [4]		100 ns	10 ms		
Repeatability				± 0.05	dB
Durability [5]		10^7		10^{13}	cycle
Operating Temperature		0		70	°C
Storage Temperature		-40		85	°C
Interface		RJ45, Console, SFP, CLI, SSH, Telnet, SNMP			
Power Supply		DC: 12~48V; AC: 110~220V (50/60 Hz), 50W, Dual and Hot Swappable			
Alarms		Signal Degradation, Switching Event, Fan Failure, CPU at high work load			
Fiber Type		SMF-28 or equivalent			
Chassis Type		19" Rack, 1U Supports 4 pluggable with Dimension 44.5x482.6x300mm			
Internal Cooling Fan		Included			
Relative Humidity		5-95%			

[1]. Excluding connectors.

[2]. Multimode IL measure @ Light Source CPR<14 dB.

[3]. Special order for 70dB

[4]. Optical switch speed only, there are electrical signal delay in the system

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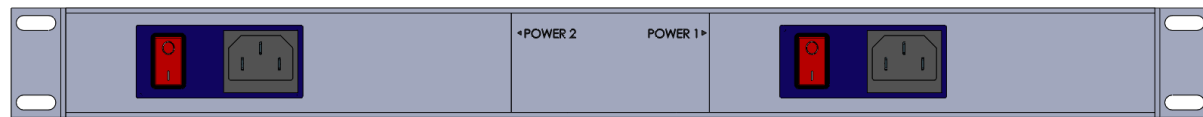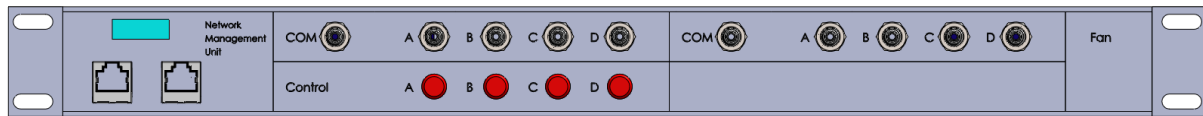## Optical Path Diagram (an example of 4 duplex total 8 channel ABCD)
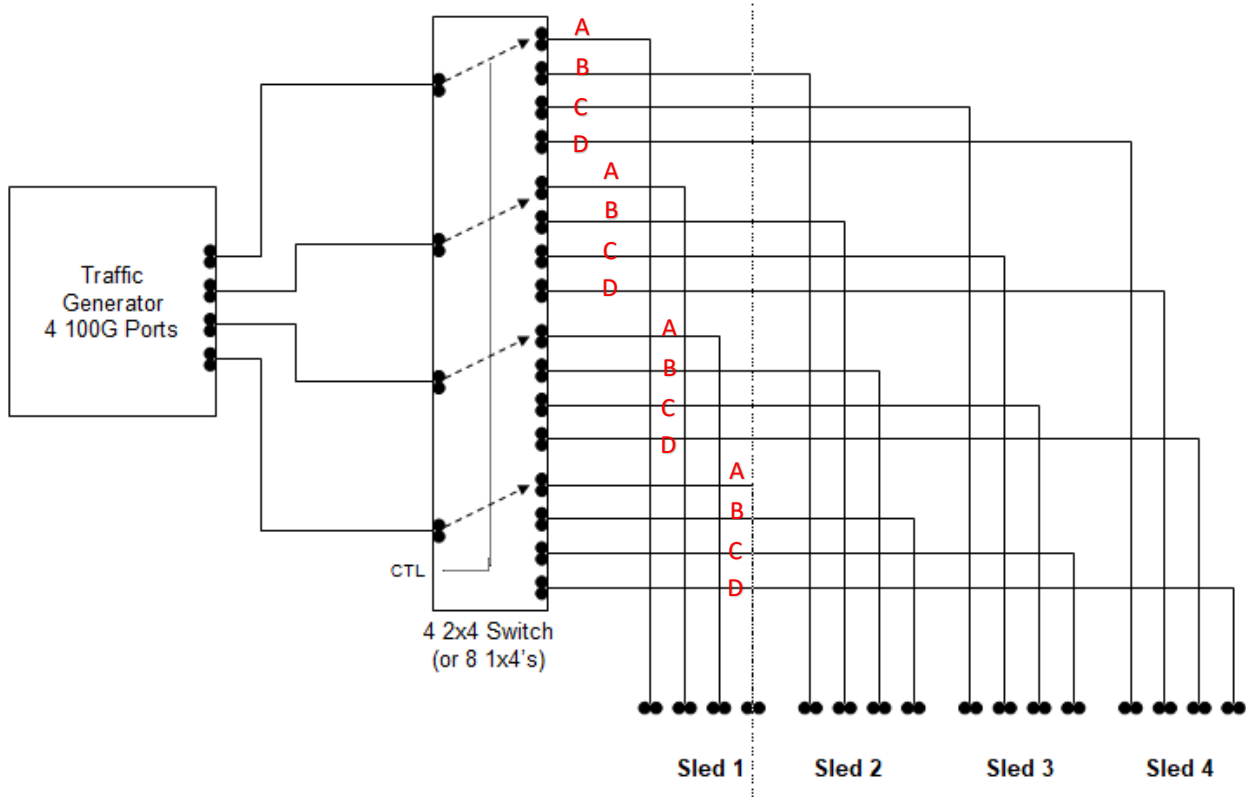
Typical Dimensions (Unit: mm) (it uses fitted rackmount size)

1U DIMENSIONS WITHOUT EARS: 16.75" W x 1.75" H x 10.63" D. (42.5 x 4.4 x 27.1 cm)

1U DIMENSIONS WITH EARS: 19.0" W x 1.75" H x 10.63" D. (48.3 x 4.4 x 27.1 cm)

1U WEIGHT: Approximately 4.7 lbs. (2.2 kg)

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

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Electrical/Computer Connection

DISPLAY: (4) Front panel LED's display switch position and power status.

REMOTE: (1) RJ45 female connector on rear panel accepts 10/100 Base-T LAN access Ethernet for Remote Control.

POWER SUPPLY: 110VAC-220VAC, 50Hz/60Hz receptacle.

Ordering Information

	☐	☐☐	☐	☐	☐	☐	☐	☐
Prefix	**Config**	**Channel [1]**	**Wavelength**	**Interface**	**Fiber Type**	**Switch Type**	**Pushbutton [3]**	**Connector [2]**
ABSW-	1x1 = 1 dual 1x1 = B 1x2 = 2 dual 1x2 = D 1x3 = 3 dual1x3 = F 1x4 = 4 dual 1x4 = H 1x5 = 5 Special = 0	2 = 02 4 = 04 6 = 06 12 = 12	1270-1620nm = 1 850nm = 2 1310nm = 3 850/1310 = 4	Ethernet = A RS232 = B USB = C TTL = D Special = 0	SMF28e = 1 MM50/125 = 5 MM62.5/125 = 6 Special = 0	10 ms = 1 100 ns = 3 1 ms = 5 0.1 ms = 6 Special = 0	Yes = 1 No = 0	ST Simplex = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 Duple LC/PC = 8 LC/UPC = U Special = 0

[1]. The channels are defined as A, B, C, and D (see the diagram). Each channel consists of one, two (duplex), or multiple fiber paths that switch together (selectable in Configuration). For example, dual 1x2 is for one input fiber pair switching between two output fiber pairs.

[2]. Duplex LC connector enables dual channel per pluggable card

[3]. Manual Pushbutton need at least one pluggable card

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Questions and Answers

Q: If the device were to fail, would the switch continue to pass the fiber light through the switch as configured before failure? When power is restored, does the IN/OUT configuration before failure remain in place?
A: This depends, if one mirror fails, it only affects the light go through that mirror. Yes, when power back up it will go to the previous points

Q: When power is restored, does the IN/OUT configuration before failure remain in place?
A: Yes, when power back up it will go to the previous flightpath

Q: If power to the device were shutoff, would the device continue to pass the fiber light as configured before failure?
A: This function is call latching. We uniquely offer MEMS latching switch but cost more.

Q: With the Ethernet Control Option, does the switch support SNMPv3
A: Yes. This internet standard protocol allows user to write their own control code

Q: With the Ethernet Control Option, what type of encryption does the SNMPv3 use?
A: MD5/DES

Q: With the Ethernet Control Option, could this device be controlled by multiple users at different locations and all users will also see the configuration updates?
A: Yes

Q: With the Ethernet Control Option, could this switch be controlled by multiple users at different locations and all users will also see the configuration updates?
A: Yes

Q: With the Ethernet Control Option, does the user need to install any software on their computer other than a web browser?
A: No

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.

DANGER
INVISIBLE LASER RADIATION
AVOID DIRECT EXPOSURE TO
BEAM

Wavelength: 1.5 µm Max.
Output: 50 mW Class 1M
Laser Product

DANGER
INVISIBLE LASER RADIATION IS
EMITTED FROM THE END OF FIBER
OR CONNECTOR

Avoid direct exposure to beam Do
not view beam directly with
optical instruments

INVISIBLE LASER RADIATION EMITTED FROM END OF FIBER OR CONNECTOR

CLASS 1M LASER PRODUCT IEC 60825-1:2007 EN 60825-1:2007 MAX
OUTPUT: 50 mW WAVELENGTH: 1.5 µm (+ 1460 to 1620 nm)

Complies with 21 CRF 1040.10 and 1040.11 except for deviations pursuant to
Laser Notice No. 50, dated June 24, 2007

G8760-073-001 REV.3

*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
*IEC is a registered trademark of the International Electrotechnical Commission.