

MEMS 3D MATRIX SWITCH SX2

DiCon's MEMS 3D Matrix Optical Switch is a proprietary optical switch structure built on DiCon's industry-proven MEMS mirror technology that enables any input to connect to any output in a stable, non-blocking all-optical cross-connect configuration. Its superior optical performance and reliability make it a versatile solution for routing both classical optical signals as well as sensitive quantum information.



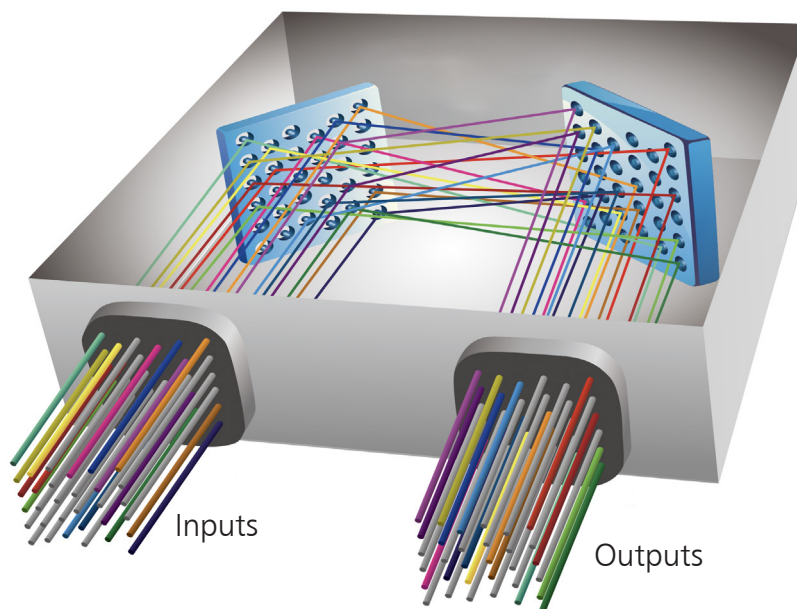
FEATURES

- No dithering or active alignment artifacts
- High Reliability / Stability
- Lifetime > 1 Billion Switch Cycles
- Available in any MxN configuration up to 32x32
- Proven MEMS Technology

APPLICATIONS

- Quantum Computing / Communication
- Cyber Surveillance
- Data Center Network
- Configurable Test & Measurement

OPERATING PRINCIPLE



MEMS 3D SWITCH MODULE - SX2

ORDERING INFORMATION

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Product Code

SX2 3D Switch

Switch Configuration

MxN Specify
M ≤ 32, N ≤ 32 (For SMF)
M ≤ 24, N ≤ 24 (For PM)

Alignment Type

P Opaque

Fiber Type

9 9/125 μm SMF
PM13 Corning PM 1300 Fiber
PM15 Corning PM 1550 Fiber
*Other fiber options available upon request

Wavelength Range

O 1260-1360 nm
E 1360-1460 nm
S 1460-1530 nm
C 1530-1570 nm
L 1570-1625 nm
U 1625-1675 nm

*Multiple wavelength ranges can be supported. Use "/" to add multiple ranges.
For example: For 1260 - 1360nm & 1530 - 1570nm use O/C

Control Interface

U I²C/RS232/USB

Start Up State

0 Channel 0 (Off state)

Fiber Jacket

L 900 μm Loose Tube Fiber (For PM Type Only)
B 250 μm Bare Fiber (For PM Fiber Only)
T 900 μm Tight Buffer (For 9/125 μm SMF Only)

*Other fiber options available upon request

Connector Type

FC FC/UPC
FC/APC FC/APC
LC LC/UPC
LC/APC LC/APC
SC SC/UPC
SC/APC SC/APC
N None

*Other connector types available upon request

Connector Key Orientation

S Slow Axis
F Fast Axis
N None

Pigtail Length

1 1 Meter
X Specify X Meters

*Tolerance is +/- 0.05 m

Please contact DiCon Fiberoptics to discuss any special requirements not defined above.

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Optical Specifications^{1,2}

Insertion Loss ³	0.6 dB typ.	1.1 dB max.
Stability ^{4,5}	0.01 dB typ.	0.02 dB max.
Crosstalk	-85 dB typ.	-60 dB max.
Back Reflection	-55 dB typ.	-45 dB max.
Wavelength Dependent Loss ⁶	0.1 dB typ.	0.4 dB max.
Polarization Dependent Loss ⁷	0.1 dB typ.	0.25 dB max.
Polarization Extinction Ratio ⁸	20 dB typ.	18 dB min.
Switching Time	25 ms max.	
Durability	10 ⁹ cycles min.	
Repeatability ⁹	0.06 dB max.	
Optical Power	500 mW max.	
Fiber Type	9/125 μm Single-Mode or Polarization Maintaining	

Environmental Temperature Specifications

Operating ¹⁰	10 to 50°C
Storage	-40 to 85°C

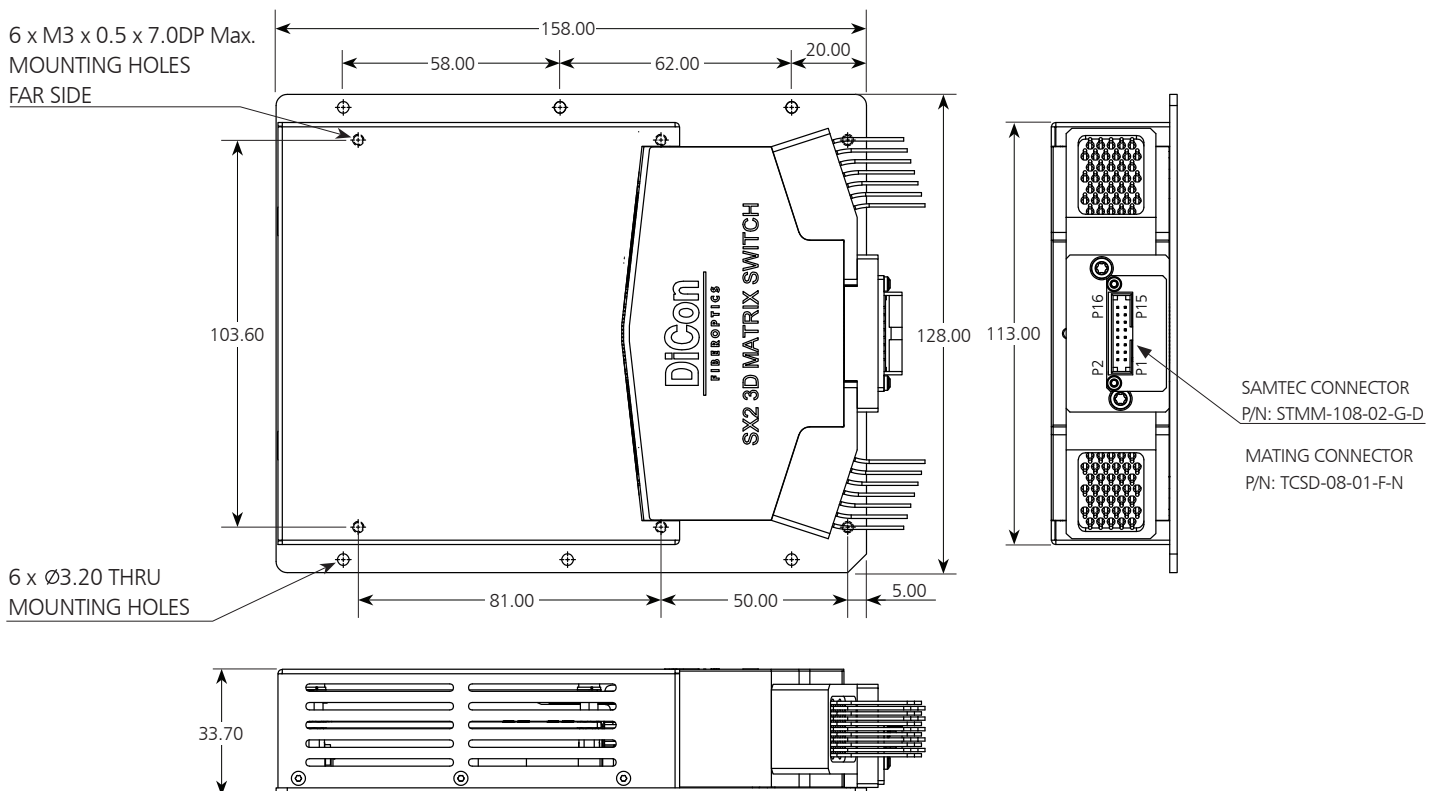
Electrical Specifications

Control Type	RS-232, I ² C or USB
Supply Voltage	12 VDC
Power Consumption	5.6 W max. Operating 8.6 W max. Start Up
Connector type	Samtec P/N:STMM-108-02-G-D
Mating connector	Samtec P/N:TCSD-08-01-F-N

- Specifications are without connector loss. IL adds 0.2 dB for one pair connector loss.
- All measurements taken at room temperature for the set wavelength band index.
Note: Each wavelength band has its own wavelength band index, which can be set to optimize the optical performance for that band. Only one wavelength band index can be selected at a time. The provided wavelength band index will be 1310nm, 1550nm & 1625nm for the full band version. Set a nearby wavelength band index to have the best performance if the selected band has no wavelength band index.
- For multi-band operation, add up to 0.2dB IL max over entire range.
- Stability is defined as the difference between highest and lowest insertion loss for a given connection, over a given period.
- Defined over 10 second period using 10 kHz sample rate.
- The Wavelength Dependent Loss (WDL) is measured from CWL +/- 20nm.
- Polarization Dependent Loss (PDL) is for single-mode fiber.
- Polarization Extinction Ratio with connectors is 18 dB typ., 14 dB min.
- Repeatability is defined over 100 cycles.
- Extended operational temperature ranges are available.

MECHANICAL SPECIFICATIONS

Dimensions in mm



Please contact DiCon Fiberoptics to discuss any special requirements not defined above.