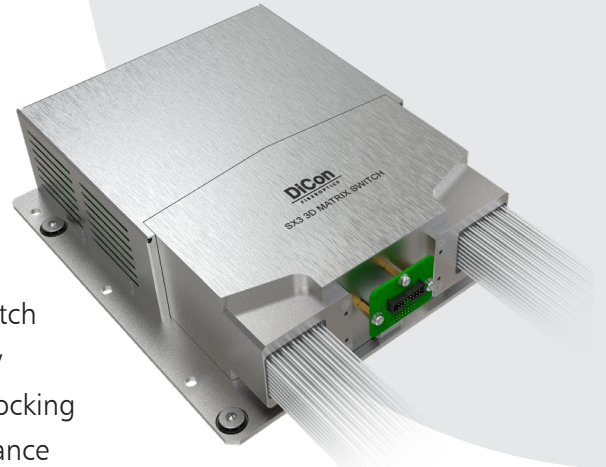


# MEMS 3D MATRIX SWITCH SX3



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.

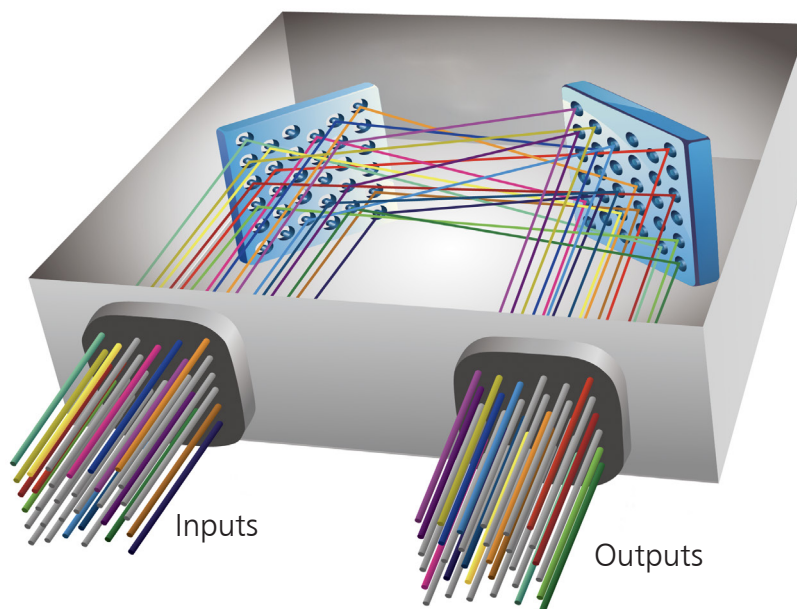
## FEATURES

- No dithering or active alignment artifacts
- High Reliability / Stability
- Lifetime > 1 Billion Switch Cycles
- Available in any MxN configuration up to 96x96
- Proven MEMS Technology

## APPLICATIONS

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

## OPERATING PRINCIPLE



# MEMS 3D SWITCH MODULE - SX3

## ORDERING INFORMATION

	□	-	□	-	P	-	□	-	□	-	U	-	0	-	□	-	□	-	□	-	□	
<b>Product Code</b>																						
SX3	3D Switch																					
<b>Switch Configuration</b>																						
MxN	Specify M≤96, N≤96 (For SMF) M≤72, N≤72 (For PM)																					
<b>Alignment Type</b>																						
P	Opaque																					
<b>Fiber Type</b>																						
9	9/125 μm SMF																					
PM13	Corning PM 1300 Fiber																					
PM15	Corning PM 1550 Fiber																					
<i>*Other fiber options available upon request</i>																						
<b>Wavelength Range</b>																						
O	1260-1360 nm																					
E	1360-1460 nm																					
S	1460-1530 nm																					
C	1530-1570 nm																					
L	1570-1625 nm																					
U	1625-1675 nm																					
<i>*Multiple wavelength ranges can be supported. Use "/" to add multiple ranges. For example: For 1260 - 1360nm &amp; 1530 - 1570nm use O/C</i>																						
<b>Control Interface</b>																						
U	I <sup>2</sup> C/RS232/USB																					
<b>Start Up State</b>																						
0	Channel 0 (Off state)																					
<b>Fiber Jacket</b>																						
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)																					
<i>*Other fiber options available upon request</i>																						
<b>Connector Type</b>																						
FC	FC/UPC																					
FC/APC	FC/APC																					
LC	LC/UPC																					
LC/APC	LC/APC																					
SC	SC/UPC																					
SC/APC	SC/APC																					
N	None																					
<i>*Other connector types available upon request</i>																						
<b>Connector Key Orientation</b>																						
S	Slow Axis																					
F	Fast Axis																					
N	None																					
<b>Pigtail Length</b>																						
1	1 Meter																					
X	Specify X Meters																					
<i>*Tolerance is +/- 0.05 m</i>																						

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

# MEMS 3D SWITCH MODULE - SX3

## Optical Specifications<sup>1,2</sup>

Insertion Loss <sup>3</sup>	0.8 dB typ. 1.4 dB max.
Stability <sup>4,5</sup>	0.07 dB typ. 0.1 dB max.
Crosstalk	-85 dB typ. -60 dB max.
Back Reflection	-55 dB typ. -45 dB max.
Wavelength Dependent Loss <sup>6</sup>	0.1 dB typ. 0.4 dB max.
Polarization Dependent Loss <sup>7</sup>	0.1 dB typ. 0.25 dB max.
Polarization Extinction Ratio <sup>8</sup>	20 dB typ. 18 dB min.
Switching Time	25 ms max.
Durability	10 <sup>9</sup> cycles min.
Repeatability <sup>9</sup>	0.06 dB max.
Optical Power	500 mW max.
Fiber Type	9/125 μm Single-Mode or Polarization Maintaining

## Environmental Temperature Specifications

Operating <sup>10</sup>	10 to 50°C
Storage	-40 to 85°C

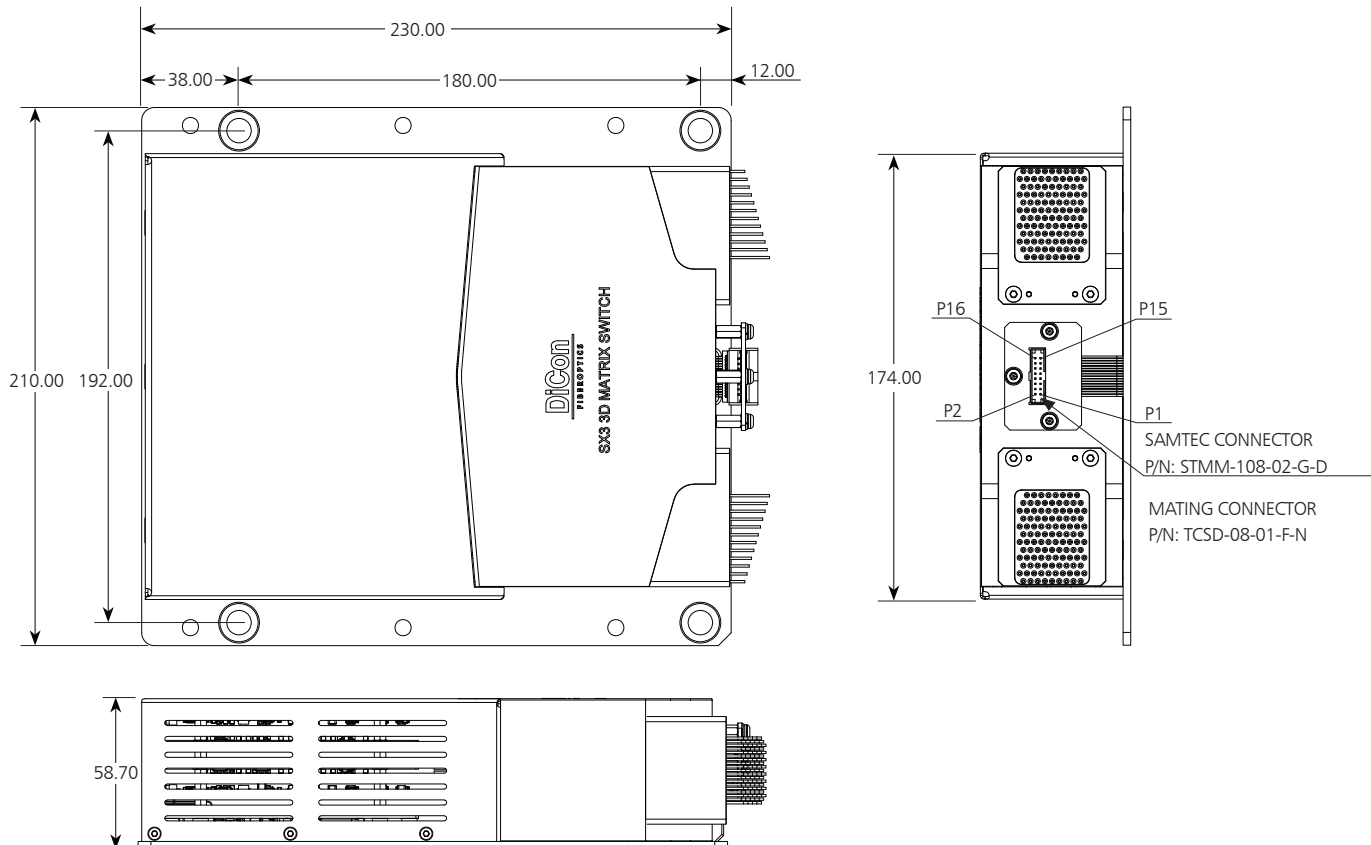
## Electrical Specifications

Control Type	RS-232, I <sup>2</sup> C or USB
Supply Voltage	12 VDC
Power Consumption	19 W max. Operating 24 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.