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

Product Code 3D Switch SSR High Performance 3D Switch SSR High Performance 3D Switch Switch Configuration MAN MN Specify Regression Specify Regression Algoment Type P P Opaque Fiber Type P 9 9125 µm SMF 0 1260-1380 nm 1235 1-150 nm 1261-150 nm 1245 1-150 nm 1261-150 nm 125 1-150 nm 1261-150 nm 125 1-150 nm 1261-150 nm 125 1-150 nm 1261-150 nm 1261 Type Type 1380-1500 nm 125 1-150 nm 1261-150 nm 1261 Type Type 1380-1500 nm 1281 Type Type 1380-1500 nm 1281 Type Type 1380-1500 nm 1281 Type Type 1380-1500 nm		□ - □ - P - □ - □ - ∪ - 0 - □ - □ - □ - □	
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*Tolerance is +/- 0.05 m

Please contact DiCon Fiberoptics to discuss any special requirements not defined above. DiCon Fiberoptics, Inc. 0424A-230531 _____

MEMS 3D SWITCH MODULE - SX3

Optical Specifications^{1,2}

<u> </u>			
Insertion Loss ³	0.8 dB typ.	1.4 dB max.	
Stability ^{4,5}	SX3	0.07 dB typ.	0.1 dB max.
	SX3H	TBD dB typ.	TBD dB max.
Crosstalk	SX3	-85 dB typ.	-70 dB max.
	SX3H	-85 dB typ.	-80 dB max.
Back Reflection	-55 dB typ.	-45 dB max.	
Wavelength Dependent Loss ⁶		0.1 dB typ.	0.4 dB max.
Polarization Dependent L	0.1 dB typ.	0.25 dB max.	
Polarization Extinction Ra	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 Sir Polarization N	ngle-Mode or 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	19 W max. Operating		
Consumption	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 it's 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.

- 3. 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.
- 5. Defined over 10 second period using 10 kHz sample rate.
- 6. The Wavelength Dependent Loss (WDL) is measured from CWL +/- 20nm.
- 7. Polraization Dependent Loss (PDL) is for single-mode fiber.
- 8. Polarization Extinction Ratio with connectors is 18 dB typ., 14 dB min.
- 9. Repeatability is defined over 100 cycles.

10.Extended operational temperature ranges are available.

MECHANICAL SPECIFICATIONS



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