



# OMM16x16 Photonic Switching Subsystem

## PRODUCT BRIEF

### Product Description

OMM utilizes the latest micro-electromechanical systems (MEMS) technology to provide strictly non-blocking *photonic switching* of fiber-optic traffic. OMM's all-optical approach eliminates the need for optical-to-electrical conversions, providing switching solutions that are independent of wavelength, data rate, and signal format.

OMM's subsystems can be combined to provide mid-sized optical cross-connect switches. The fiber port connections can be remotely reconfigured in milliseconds. OMM's photonic switching subsystems are hermetically sealed and designed to meet rigorous reliability specifications, including Telcordia GR-1073-CORE.



Figure 1: OMM16x16 Optical Cross-Connect Switch

### FEATURES

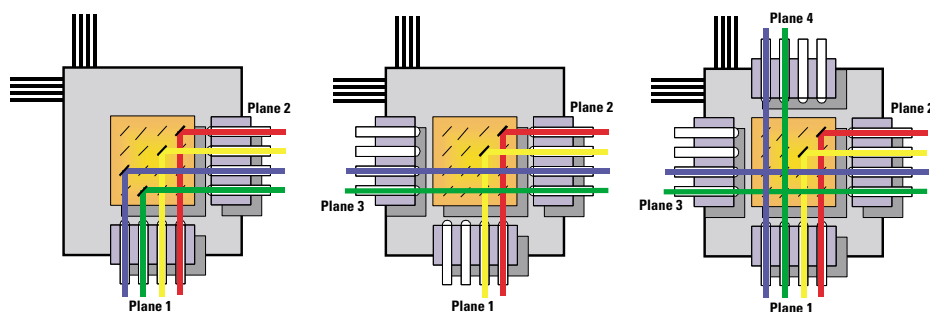
- Low Loss
- Fast switching speed
- Data rate transparency
- Protocol and bandwidth independence
- Bi-directional operation
- Multiple wavelength capability
- Non-blocking operation
- Non-delayed signal transmission

### Principle of Operation

The principle of operation of an OMM switch is illustrated in Figure 2. For simplicity, the fabric of an OMM4x4 is used instead of that of the 16x16. In general, the principle of operation is identical across all OMM optical switches.

The fiber connections are controlled through an array of micro-mirrors (diagonal lines) on a microchip (center) that are selectively activated to connect the desired fiber paths. The OMM16x16 optical switch is available in two-, three- and four-plane configurations. All signal paths are bi-directional. Note that the switching function only occurs between planes one and two.

Figure 2: Illustrated operation of two-, three- and four-plane switch configurations.



**Two-plane configuration:**  
Provides switching between planes one and two.

**Three-plane configuration:**  
Provides switching between planes one and two and also allows signals to pass between planes two and three where no mirror is activated.

**Four-plane configuration:**  
Provides switching between planes one and two and also passes signals between planes two and three and between planes one and four where no mirror is activated.

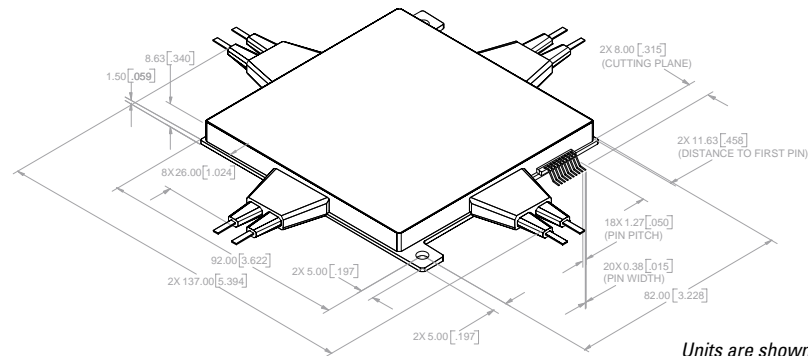
## Optical Characteristics

All parameters are specified for non-connectorized optical switches and measured at 1550nm at room temperature and at undefined polarization state unless noted.

Parameter	Minimum	Maximum	Units
Measured Insertion Loss at 1550nm <sup>1</sup>	0.4	6.0	dB
Measured Insertion Loss at 1310nm	0.4	6.5	dB
Insertion Loss of Through-paths	0.4	3.0	dB
Repeatability	-	1.3	dB
PDL	-	0.9	dB
Cross-talk	-	-50	dB
Return loss	50	-	dB
Switch time	-	13	ms
Wavelength dependence <sup>2</sup>	-	1.0	dB
Temperature dependence <sup>3</sup>	-	1.0	dB
Operational Temperature range	-5	70	°C
Operational Wavelength band 1	1290	1330	nm
Operational Wavelength band 2	1530	1570	nm
Operational Wavelength band 3	1570	1610	nm
Maximum Optical Power <sup>4</sup>	-	20	dBm

<sup>1</sup> Includes repeatability (maximum loss measured over 20 cycles) <sup>2</sup> Within any operational wavelength band

<sup>3</sup> Within operational temperature range <sup>4</sup> Within operational wavelength range



Units are shown in millimeters.

## Ordering Information

Model Number	Part Number	Description
OMM16x16-2	115-32001-04	16x16 photonic switch
OMM16x16-3	115-33001-04	16x16 photonic switch with one additional pass-through plane
OMM16x16-4	115-34001-04	16x16 photonic switch with two additional pass-through planes

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