DiCon’s MEMS Dual 4x4 Multicast Switch is based on DiCon’s proven MEMS 1xN Switch, and incorporates two 4x4 Multicast Switches for add/drop functionality in a single package. For the drop side, input signals are first broadcast via 1x4 optical splitters into 4 optical switches, which are then used to independently route network traffic from any input to any or all output ports. For the add side, each switch receives an input and selects one of the N splitters to receive traffic for broadcast to the network. The MEMS Dual 4x4 Multicast Switch is ideal for colorless, directionless and contentionless add/drop multiplexing.

**FEATURES**

- Compact Form Factor
- Excellent Thermal Stability
- Proven MEMS Durability and Reliability

**APPLICATIONS**

DiCon’s MEMS Multicast Switches are intended for colorless, directionless and contentionless add/drop multiplexing in ROADM networks.
On the Drop Side, splitters are used on each input to broadcast light to a series of MEMS 1xN optical switches, which select which input goes to which output. In this way each output can contain the signal from any requested input.

On the Add Side, a series of MEMS 1xN optical switches are used to direct each input to a requested output. Splitters are then used on each output to collect and combine the light from the switches, so that each output can contain any requested combination of inputs.
The MEMS Dual 4x4 Multicast Switches can be customized to best meet the applications requirements, and two standard options are available as follows:

1) Upgrade ports can be added to the Add and Drop sides.
2) Tap Detectors to monitor the input and output power.

**ADD SIDE WITH OPTIONS**

![Add Side Diagram]

**DROP SIDE WITH OPTIONS**

![Drop Side Diagram]
MEMS DUAL 4x4 MULTICAST SWITCH

**OPTICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion Loss&lt;sup&gt;2,3,4&lt;/sup&gt;</td>
<td>8.1 dB max.</td>
</tr>
<tr>
<td>Add/Drop Ports&lt;sup&gt;5&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Upgrade Ports</td>
<td>1.6 dB max.</td>
</tr>
<tr>
<td>TDL</td>
<td>0.4 dB max.</td>
</tr>
<tr>
<td>WDL&lt;sup&gt;6&lt;/sup&gt;</td>
<td>0.35 dB max.</td>
</tr>
<tr>
<td>PDL</td>
<td>0.2 dB max.</td>
</tr>
<tr>
<td>Crosstalk&lt;sup&gt;7&lt;/sup&gt;</td>
<td>-50 dB max.</td>
</tr>
<tr>
<td>Back Reflection</td>
<td>-40 dB max.</td>
</tr>
<tr>
<td>Switching Time</td>
<td>30 ms max.</td>
</tr>
<tr>
<td>Repeatability&lt;sup&gt;8&lt;/sup&gt;</td>
<td>0.04 dB max.</td>
</tr>
<tr>
<td>Durability</td>
<td>10&lt;sup&gt;6&lt;/sup&gt; cycles min.</td>
</tr>
<tr>
<td>Optical Power</td>
<td>200 mW max.</td>
</tr>
<tr>
<td>Operating Temp</td>
<td>-5 to 70ºC</td>
</tr>
<tr>
<td>Storage Temp</td>
<td>-40 to 85ºC</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>9/125 µm single mode</td>
</tr>
</tbody>
</table>

**PHOTODIODE PARAMETER**

<table>
<thead>
<tr>
<th>2% Tap TD</th>
<th>Responsivity</th>
<th>Dark Current (70ºC, -5V bias)</th>
<th>Reverse Voltage</th>
<th>Forward Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>1260-1360nm</td>
<td>1510-1610nm</td>
<td>3 nA typ., 10 nA max.</td>
<td>20 V max.</td>
<td>10 mA max.</td>
</tr>
</tbody>
</table>

1. Specifications are without connectors.
2. IL is measured at CWL, 23ºC.
3. IL is for standard opaque model.
4. IL is for single-band. Dual band adds 0.2 dB.
5. IL for Add/Drop Ports without Tap Detectors, add 0.2 dB for optional Tap Detectors.
6. WDL is measured in a +/- 20nm range at 23ºC.
7. Power off isolation is same as cross talk, -35 dB max. for hitless switching.
8. Repeatability is defined after 100 cycles.

**MECHANICAL DIMENSIONS**

(Units: mm)

**ELECTRICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latching Type</td>
<td>non-latching</td>
</tr>
<tr>
<td>Control Type</td>
<td>I²C or RS232</td>
</tr>
<tr>
<td>Vcc Voltage</td>
<td>5 or 12 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>1 W max.</td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

- **Switch Configuration**
  - 4x4/D Dual 4x4
- **Control Interface**
  - I²C I²C
  - RS2 RS-232
- **Wavelength Range**
  - 13 1290 - 1330 nm
  - 15 1530 - 1570 nm
  - 16 1570 - 1610 nm
  - 13/15 1290 - 1330 & 1530 - 1570 nm
  - 15/16 1530 - 1570 & 1570 - 1610 nm
- **Upgrade Port Option**
  - UG With Upgrade Ports
  - N Without Upgrade Ports
- **Tap Detector Option**
  - TD With Tap Detectors
  - N Without Tap Detectors
- **Fiber and Jacket Type**
  - 9/LT Corning SMF-28, Loose-Tube
  - 8/RB 8-Fiber Ribbon Cable, 3mm OD Jacket
  - 9/LR Loose-Tube for In/Out ports and Ribbon Cable for upgrade ports
- **Connector Type**
  - FC/SPC FC/SPC
  - FC/APC FC/APC
  - MPO/APC MPO/APC
  - N NONE

Also Available: SC, SC/UPC, SC/APC, ST, ST/UPC, LC

**Pigtail Length**

- 1 1 Meter
- X Specify X Meters
  Tolerance is +/- 0.05 m