

# Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel and Splitter Coupler Module

## Product Overview

The Cisco® ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel is a standalone unit that contains both a 48-channel optical multiplexer and a 48-channel optical demultiplexer, pre-cabled within the unit's housing. Two models are available: 15216-MD-48-ODDE includes the odd-numbered frequencies as defined by ITU G.694.2, while 15216-MD-48-EVENE includes the even-numbered frequencies. The two units can be combined using the Cisco ONS 15216 48-Channel 50 GHz coupler splitter module for in-service capacity upgrade from 48 to 96 channels.

These units provide support for higher baud rate (40GBaud/s and above) coherent signals that have higher bandwidth and need higher passband filters. These units should not be used with non-coherent DWDM channels due to lower channel isolation.

**Figure 1.** Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel



The panel's ports are arranged in eleven columns and five rows. The placement of the clips provides optimal fiber routing, facilitating the addition of fibers in an incremental manner and resulting in a simple design that is easy to maintain and troubleshoot. A separate tie wrap is provided for fastening the USB cable used for passive inventory management.

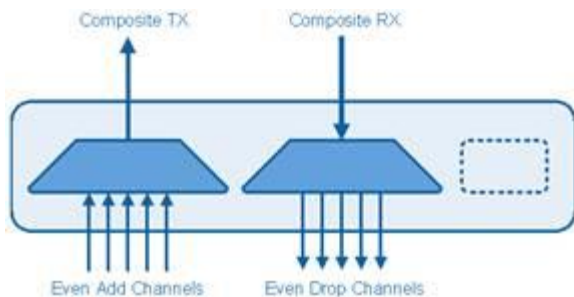
**Figure 2.** Cisco ONS 15216 48-Channel 50-GHz Coupler Splitter



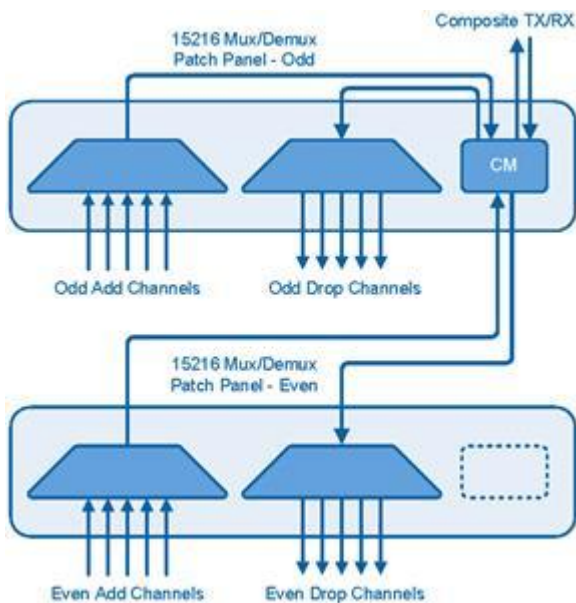
The Cisco ONS 15216 48-Channel 50-GHz De-Interleaver with Coupler is recommended for systems transporting 100-Gbps wavelengths, as its use of a coupler instead of an interleaver on the transmit stage reduces filtering penalties.

Figures 3 through 4 illustrate the different application configurations in which the Cisco ONS patch panels can be deployed.

**Figure 3.** 48-Channel Standalone Configuration

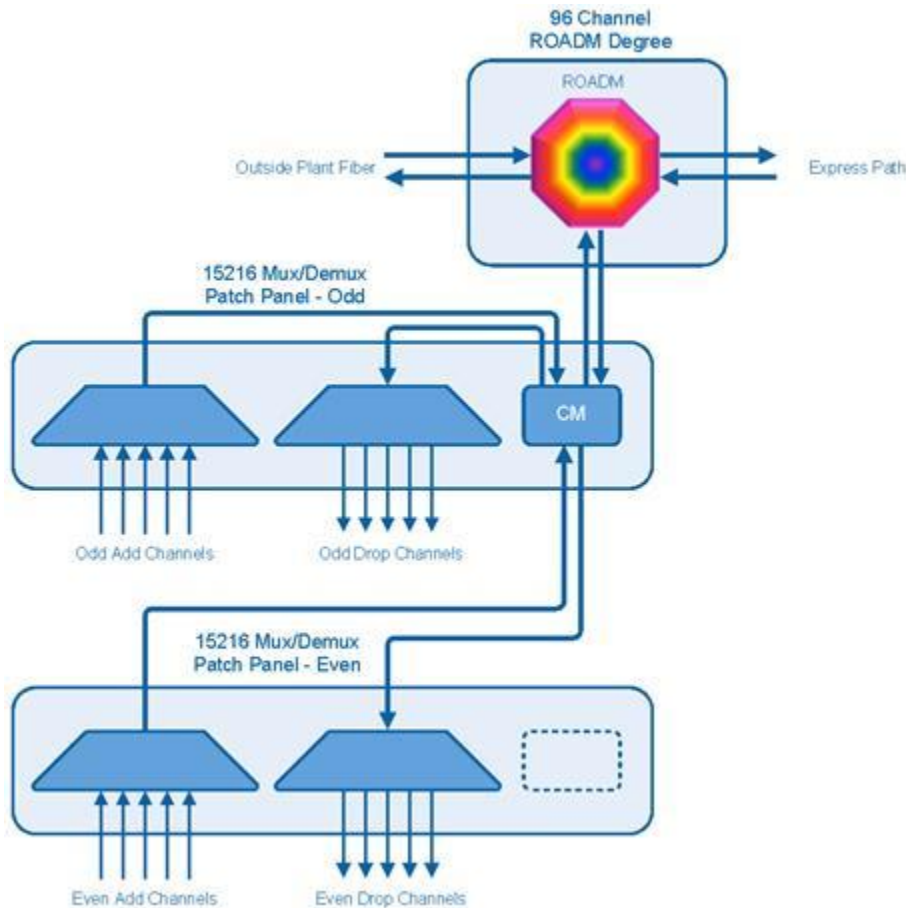


**Figure 4.** 96-Channel Standalone Configuration



The ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Patch Panel can also be used as the add/drop stage of 96-channel Reconfigurable Add/Drop Multiplexers (ROADMs), as shown in Figure 5.

**Figure 5.** Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Patch Panel ROADM Configuration



## Major Features and Benefits

The Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel provides the following customer benefits:

- Cost-effectiveness for dense wavelength-division multiplexing (DWDM) hub or terminal applications; ideal for point-to-point data center interconnections
- Ideal for higher baud rate coherent DWDM channels
- Best-in-class operational efficiency with zero electrical power requirements
- No moving parts, providing easy installation and troubleshooting
- Fiber management plate with integrated clips for secure but easy fiber access
- Tie wraps for fastening USB cables
- Integrated cable routing guides that determine fiber bend radius to maintain optimal optical performance, also preventing fibers from becoming pinched
- Low optical insertion loss for improved distance and performance
- USB port for passive inventory
- Preassembled unit

## Product Specifications

Table 1 provides the channel plan for the Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Patch Panel. Tables 2 through 5 provide optical and mechanical specifications.



**Table 1.** Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel Channel Plan

| Channel Wavelength |                 |                 |                  |                 |                 |
|--------------------|-----------------|-----------------|------------------|-----------------|-----------------|
| 15216-MD-48-ODD    |                 |                 | 15216-MD-48-EVEN |                 |                 |
| Channel ID         | Frequency (THz) | Wavelength (nm) | Channel ID       | Frequency (THz) | Wavelength (nm) |
| 1                  | 196.1           | 1528.77         | 1                | 196.05          | 1529.16         |
| 2                  | 196             | 1529.94         | 2                | 195.95          | 1529.94         |
| 3                  | 195.9           | 1530.33         | 3                | 195.85          | 1530.72         |
| 4                  | 195.8           | 1531.12         | 4                | 195.75          | 1531.51         |
| 5                  | 195.7           | 1531.9          | 5                | 195.65          | 1532.29         |
| 6                  | 195.6           | 1532.68         | 6                | 195.55          | 1533.07         |
| 7                  | 195.5           | 1533.47         | 7                | 195.45          | 1533.86         |
| 8                  | 195.4           | 1534.25         | 8                | 195.35          | 1534.64         |
| 9                  | 195.3           | 1535.04         | 9                | 195.25          | 1535.43         |
| 10                 | 195.2           | 1535.82         | 10               | 195.15          | 1536.22         |
| 11                 | 195.1           | 1536.61         | 11               | 195.05          | 1537            |
| 12                 | 195             | 1537.4          | 12               | 194.95          | 1537.79         |
| 13                 | 194.9           | 1538.19         | 13               | 194.85          | 1538.58         |
| 14                 | 194.8           | 1538.98         | 14               | 194.75          | 1539.37         |
| 15                 | 194.7           | 1539.77         | 15               | 194.65          | 1540.16         |
| 16                 | 194.6           | 1540.56         | 16               | 194.55          | 1540.95         |
| 17                 | 194.5           | 1541.35         | 17               | 194.45          | 1541.75         |
| 18                 | 194.4           | 1542.14         | 18               | 194.35          | 1542.54         |

| <b>Channel Wavelength</b> |                 |                 |                  |                 |                 |
|---------------------------|-----------------|-----------------|------------------|-----------------|-----------------|
| 15216-MD-48-ODD           |                 |                 | 15216-MD-48-EVEN |                 |                 |
| Channel ID                | Frequency (THz) | Wavelength (nm) | Channel ID       | Frequency (THz) | Wavelength (nm) |
| 19                        | 194.3           | 1542.94         | 19               | 194.25          | 1543.33         |
| 20                        | 194.2           | 1543.73         | 20               | 194.15          | 1544.13         |
| 21                        | 194.1           | 1544.53         | 21               | 194.05          | 1544.92         |
| 22                        | 194             | 1545.32         | 22               | 193.95          | 1545.72         |
| 23                        | 193.9           | 1546.12         | 23               | 193.85          | 1546.52         |
| 24                        | 193.8           | 1546.92         | 24               | 193.75          | 1547.32         |
| 25                        | 193.7           | 1547.72         | 25               | 193.65          | 1548.11         |
| 26                        | 193.6           | 1548.51         | 26               | 193.55          | 1548.91         |
| 27                        | 193.5           | 1549.32         | 27               | 193.45          | 1549.72         |
| 28                        | 193.4           | 1550.12         | 28               | 193.35          | 1550.52         |
| 29                        | 193.3           | 1550.92         | 29               | 193.25          | 1551.32         |
| 30                        | 193.2           | 1551.72         | 30               | 193.15          | 1552.12         |
| 31                        | 193.1           | 1552.52         | 31               | 193.05          | 1552.93         |
| 32                        | 193             | 1553.33         | 32               | 192.95          | 1553.73         |
| 33                        | 192.9           | 1554.13         | 33               | 192.85          | 1554.54         |
| 34                        | 192.8           | 1554.94         | 34               | 192.75          | 1555.34         |
| 35                        | 192.7           | 1555.75         | 35               | 192.65          | 1556.15         |
| 36                        | 192.6           | 1556.55         | 36               | 192.55          | 1556.96         |
| 37                        | 192.5           | 1557.36         | 37               | 192.45          | 1557.77         |



| Channel Wavelength |                 |                 |                  |                 |                 |
|--------------------|-----------------|-----------------|------------------|-----------------|-----------------|
| 15216-MD-48-ODD    |                 |                 | 15216-MD-48-EVEN |                 |                 |
| Channel ID         | Frequency (THz) | Wavelength (nm) | Channel ID       | Frequency (THz) | Wavelength (nm) |
| 38                 | 192.4           | 1558.17         | 38               | 192.35          | 1558.58         |
| 39                 | 192.3           | 1558.98         | 39               | 192.25          | 1559.39         |
| 40                 | 192.2           | 1559.79         | 40               | 192.15          | 1560.2          |
| 41                 | 192.1           | 1560.61         | 41               | 192.05          | 1561.01         |
| 42                 | 192             | 1561.42         | 42               | 191.95          | 1561.83         |
| 43                 | 191.9           | 1562.23         | 43               | 191.85          | 1562.64         |
| 44                 | 191.8           | 1563.05         | 44               | 191.75          | 1563.45         |
| 45                 | 191.7           | 1563.86         | 45               | 191.65          | 1564.27         |
| 46                 | 191.6           | 1564.68         | 46               | 191.55          | 1565.09         |
| 47                 | 191.5           | 1565.5          | 47               | 191.45          | 1565.9          |
| 48                 | 191.4           | 1566.31         | 48               | 191.35          | 1566.72         |

**Table 2.** Optical Specifications of Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel

| Parameter   | Minimum    | Maximum |
|---|------------|---------|
| Input optical power                                 | 300 mW     |         |
| Insertion loss                                      | 3 dB       | 5.5 dB  |
| 3 dB net bandwidth around ITU-T center wavelength   | +/-37.5Ghz | n/a     |
| 1.5 dB net bandwidth around ITU-T center wavelength | +/- 30 Ghz | n/a     |
| Add CrossTalk                                       | 5 dB       |         |



| Parameter                          | Minimum | Maximum     |
|------------------------------------|---------|-------------|
| Drop CrossTalk                     | 6 dB    |             |
| Return loss                        | 40 dB   |             |
| Monitor add/drop loss              | 18 dB   | 22 dB       |
| Polarization dependent loss (PDL)  |         | 0.7 dB      |
| Polarization mode dispersion (PMD) |         | 0.5 ps      |
| Insertion loss uniformity          |         | 1 dB        |
| Chromatic dispersion (CD)          |         | ±12.0 ps/nm |

**Table 3.** Optical Specifications of Cisco ONS 15216 48-Channel 50 GHz coupler splitter module

| Parameter                    | Minimum | Typical | Maximum    |
|------------------------------|---------|---------|------------|
| Coupler Specification        |         |         |            |
| Insertion loss               | 2.5 dB  |         | 3.5 dB     |
| Insertion loss uniformity    |         |         | 0.5 dB     |
| Insertion Loss ripple        |         |         | 0.2 dB     |
| Chromatic dispersion         |         |         | ±5.0 ps/nm |
| Optical return loss          | 40 dB   |         |            |
| Polarization dependent loss  |         |         | 0.5 dB     |
| Polarization mode dispersion |         |         | 0.5 ps     |
| Directivity                  | 60 dB   |         |            |

**Table 4.** Environmental and Mechanical Specifications of Cisco ONS 15216 48-Channel 50 GHz coupler splitter module

| Parameter | Minimum | Maximum |
|-----------|---------|---------|
|-----------|---------|---------|



| Parameter                   | Minimum       | Maximum            |
|-----------------------------|---------------|--------------------|
| Operating temperature range | 23°F (-5°C)   | 149°F (65°C)       |
| Storage temperature range   | -40°F (-40°C) | 185°F (85°C)       |
| Height                      |               | 2.44 in. (62.2 mm) |
| Width                       |               | 2.65 in. (67.2 mm) |
| Depth                       |               | 9.9 in. (251.7 mm) |
| Weight                      |               | 1.1 lbs. (0.5 kg)  |
| Humidity                    | 5%            | 95%                |
| USB port power              | 400 mW        | 600 mW             |

**Table 5.** Environmental and Mechanical Specifications of Cisco ONS 15216 Exposed Faceplate Mux/Demux 48-Channel Extended Bandwidth Patch Panel

| Parameter                   | 15216-MD-48-ODD= |                      | 15216-MD-48-EVEN= |                      |
|-----------------------------|------------------|----------------------|-------------------|----------------------|
|                             | Minimum          | Maximum              | Minimum           | Maximum              |
| Operating temperature range | 41°F (-5°C)      | 149°F (65°C)         | 41°F (-5°C)       | 149°F (65°C)         |
| Storage temperature range   | -40°F (-40°C)    | 185°F (85°C)         | -40°F (-40°C)     | 185°F (85°C)         |
| Dimensions height           |                  | 3.45 in. (87.6 mm)   |                   | 3.45 in. (87.6 mm)   |
| Dimensions width            |                  | 17.21 in. (437.1 mm) |                   | 17.21 in. (437.1 mm) |
| Dimensions depth            |                  | 10.89 in. (276.7 mm) |                   | 10.89 in. (276.7 mm) |





| Parameter      | 15216-MD-48-ODD= |                     | 15216-MD-48-EVEN= |                     |
|----------------|------------------|---------------------|-------------------|---------------------|
| Weight         |                  | 10.36 lbs. (4.7 kg) |                   | 10.36 lbs. (4.7 kg) |
| Humidity       | 5%               | 95%                 | 5%                | 95%                 |
| USB port power | 400 mW           | 600 mW              | 400 mW            | 600 mW              |

Table 6 provides ordering information. To place an order, visit the [Cisco Ordering Home Page](#). To download software, visit the [Cisco Software Center](#).

**Table 6.** Ordering Information

| Part Number        | Description  |
|--------------------|--|
| 15216-MD-48-ODDE=  | ONS 15216 48ch Mux/DeMux Patch Panel Odd extended bandwidth  |
| 15216-MD-48-EVENE= | ONS 15216 48ch Mux/DeMux Patch Panel Even extended bandwidth |
| 15216-MD-48-CME=   | ONS 15216 Mux/Demux Plugin Coupler/Splitter Module           |