Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel and Cisco ONS 15216 Mux/Demux Patch Panel 50-GHz Interleaver De-Interleaver

Product Overview

The Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel introduces athermal arrayed waveguide grating (AWG) technology, which allows passive dense wavelength-division multiplexing (DWDM) systems to have the same optical performance as systems using active-temperature-controlled AWG technology. This breakthrough lets enterprises and service providers deploy 80 channels of DWDM capacity, taking advantage of a reduced footprint while consuming no electricity.

Figure 1.   Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel

The Cisco ONS 15216 Mux/Demux 40-Channel Patch Panels (Figure 1) are standalone units that contain both a 40-channel optical multiplexer and a 40-channel optical de-multiplexer, which are precabled in the housing for easy and immediate operation. Two units are available, covering the even and odd numbered channels specified by the (International Telecommunication Union) ITU grid. The Cisco ONS 15216 Mux/Demux Patch Panel 50-GHz Interleaver De-Interleaver easily plugs into the Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel for in-service capacity upgrade from 40 channels up to 80 channels in a 4 rack unit (RU) footprint, combining both the odd and even channel units. Figures 2 through 5 illustrate the different application configurations in which the Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel can be deployed.

Features and Benefits

The Cisco ONS 15216 Mux/Demux 40-Channel Patch Panels and Cisco ONS 15216 Mux/Demux Patch Panel 50-GHz Interleaver De-Interleaver offer the following features and benefits:

- Cost effective for DWDM applications
- Best-in-class operational efficiency, with no electrical power requirements
- Connector panel that slides forward and locks into place for easy access and maintenance
- Patch panel front door that securely locks to prevent accidental tampering with the fiber connections
- Integrated cable routing guides that maintain fiber bend radius for optimal optical performance and prevent fibers from being pinched

- Low optical-insertion loss for improved distance and performance
- USB port for passive inventory
- Entire unit that comes preassembled

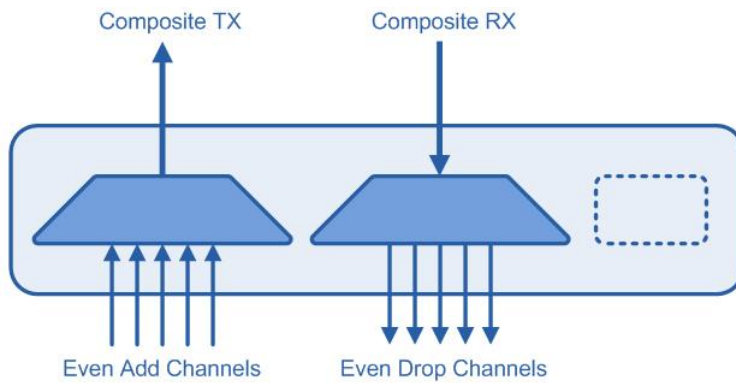**Figure 2.**   40-Channel Standalone Configuration

Figure 3.   40-Channel In-Service Upgrade to 80-Channel Standalone Configuration
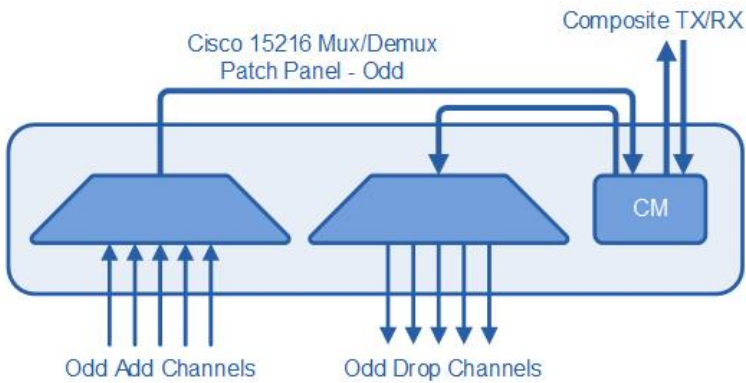
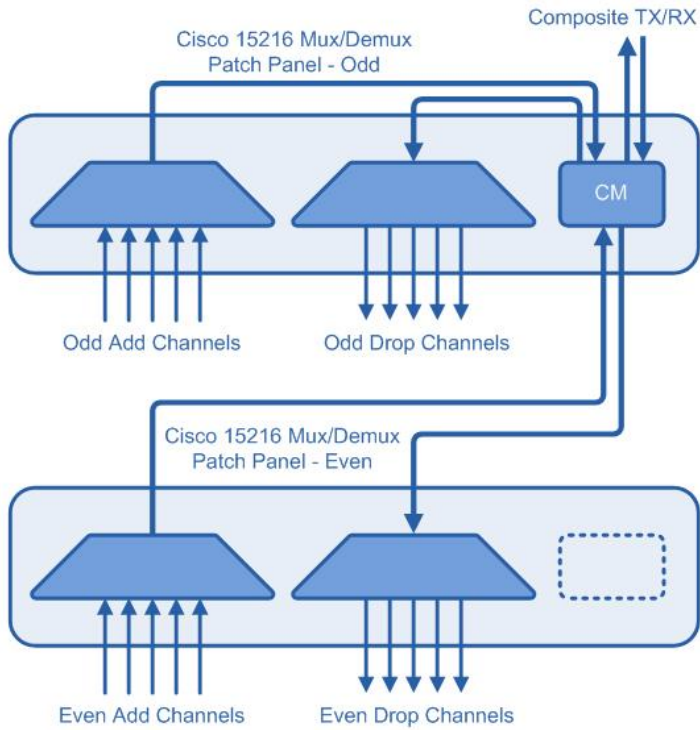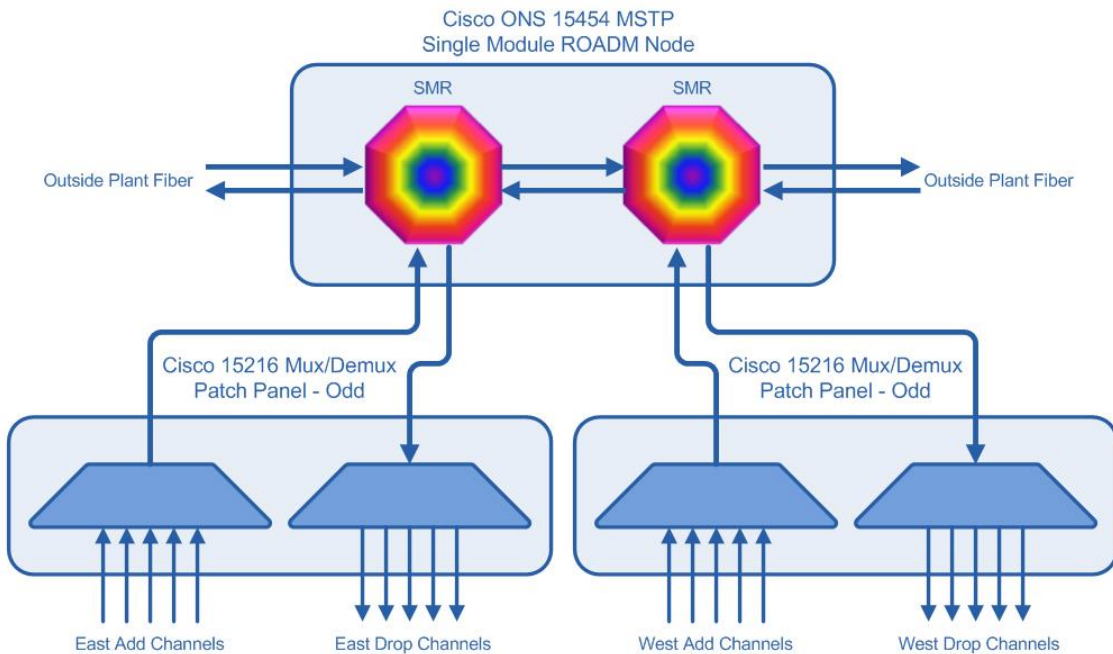**Figure 4.**   80-Channel Standalone Configuration

Figure 5.   Cisco ONS 15216 Mux/Demux 40-Channel Odd Patch Panel Connected to Single Module ROADM Configuration

Product Specifications

Tables 1 through 4 provide optical and mechanical specifications for the Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel and the Cisco ONS 15216 Mux/Demux Patch Panel 50-GHz Interleaver De-Interleaver.

Table 1.   Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel Channel Plan

Cisco Product Number 15216-MD-40-ODD			Cisco Product Number 15216-MD-40-EVEN		
Channel Id	Frequency (THz)	Wavelength (nm)	Channel Id	Frequency (THz)	Wavelength (nm)
1	195.9	1530.33	1	195.85	1530.72
2	195.8	1531.12	2	195.75	1531.51
3	195.7	1531.90	3	195.65	1532.29
4	195.6	1532.68	4	195.55	1533.07
5	195.5	1533.47	5	195.45	1533.86
6	195.4	1534.25	6	195.35	1534.64
7	195.3	1535.04	7	195.25	1535.43
8	195.2	1535.82	8	195.15	1536.22
9	195.1	1536.61	9	195.05	1537.00
10	195.0	1537.40	10	194.95	1537.79
11	194.9	1538.19	11	194.85	1538.58
12	194.8	1538.98	12	194.75	1539.37
13	194.7	1539.77	13	194.65	1540.16
14	194.6	1540.56	14	194.55	1540.95
15	194.5	1541.35	15	194.45	1541.75
16	194.4	1542.14	16	194.35	1542.54
17	194.3	1542.94	17	194.25	1543.33
18	194.2	1543.73	18	194.15	1544.13
19	194.1	1544.53	19	194.05	1544.92
20	194.0	1545.32	20	193.95	1545.72
21	193.9	1546.12	21	193.85	1546.52
22	193.8	1546.92	22	193.75	1547.32
23	193.7	1547.72	23	193.65	1548.11
24	193.6	1548.51	24	193.55	1548.91
25	193.5	1549.32	25	193.45	1549.72
26	193.4	1550.12	26	193.35	1550.52
27	193.3	1550.92	27	193.25	1551.32
28	193.2	1551.72	28	193.15	1552.12
29	193.1	1552.52	29	193.05	1552.93
30	193.0	1553.33	30	192.95	1553.73
31	192.9	1554.13	31	192.85	1554.54
32	192.8	1554.94	32	192.75	1555.34
33	192.7	1555.75	33	192.65	1556.15
34	192.6	1556.55	34	192.55	1556.96
35	192.5	1557.36	35	192.45	1557.77
36	192.4	1558.17	36	192.35	1558.58
37	192.3	1558.98	37	192.25	1559.39
38	192.2	1559.79	38	192.15	1560.20
39	192.1	1560.61	39	192.05	1561.01
40	192.0	1561.42	40	191.95	1561.83

Table 2. Optical Specifications for Cisco Product Number 15216-MD-40-ODD/EVEN

Parameters	Specification
Maximum input optical power	300 mW
Insertion loss	4.5 dB – 6.5 dB
Drop adjacent channel isolation	20 dB
Drop nonadjacent channel isolation	30 dB
Drop crosstalk	16 dB
Add adjacent channel isolation	17 dB
Add nonadjacent channel isolation	30 dB
Add crosstalk	14 dB
Return loss	40 dB
Monitor add or drop loss	18 dB – 22 dB
Filter type	Athermal array waveguide
Polarization-dependent loss (PDL)	0.7 dB
Polarization mode dispersion (PMD)	0.5 ps
Insertion loss uniformity	1.5 dB
Chromatic dispersion (CD)	±12.0 ps per nm

Table 3. Optical Specifications for Cisco Product Number 15216-MD-ID-50

Parameters	Minimum
Maximum input optical power	300 mW
Insertion loss	1.5 dB – 2.5 dB
Insertion loss uniformity	0.5 dB
Channel band ripple	0.3 dB
Group delay ripple (GDR)	2.5 ps
Chromatic dispersion (CD)	–20.0 ps per nm to 20.0 ps per nm
Optical-return loss	40.0 dB
Polarization-dependent loss (PDL)	0.4 dB
Polarization mode dispersion (PMD)	0.3 ps
De-Interleaver Specifications	
Operating bandwidth	–10 GHz to 10 GHz
Adjacent channel isolation	25 dB
Interleaver Specifications	
Operating bandwidth	–10 GHz to 10 GHz
Adjacent channel isolation	25 dB

Table 4. Environmental and Mechanical Specifications

Product Number	Parameters	Specification
15216-MD-40-ODD= 15216-MD-40-EVEN=	Operating temperature range	32°F to 122°F (0°C to 50°C)
15216-MD-ID-50=		41°F to 104°F (5°C to 40°C)
15216-MD-40-ODD= 15216-MD-40-EVEN=	Dimensions (H x W x D)	3.45 x 17.21 x 10.895 in. (87.6 x 437.1 x 276.7 mm)
	Weight	10.36 lb (4.7 kg)
	Humidity	5% to 95% noncondensing
	USB port power	400 mW to 600 mW
15216-MD-ID-50=	Dimensions (H x W x D)	2.452 x 2.645 x 9.911 in. (62.2 x 67.2 x 251.7 mm)
	Weight	1.54 lb (0.7 kg)
	Humidity	5% to 95% noncondensing
	USB port power	400 mW to 600 mW
Connector type		LC UPC II
USB		Type A

Table 5. Regulatory Compliance

Description	Specification
Safety	GR-1089 UL60950/CSA 22.2 No. 60950-00 IEC 60950
Environmental	GR-63-CORE

Warranty Information

Find warranty information on Cisco.com at the Product Warranties page.

Ordering Information

To place an order, visit the Cisco Ordering homepage. To download software, visit the Cisco Software Center. For part numbers, refer to Table 6.

Table 6. Ordering Information

Product Name	Part Number
ONS 15216 40ch Mux Demux Patch Panel Odd	15216-MD-40-ODD=
ONS 15216 40ch Mux Demux Patch Panel Even	15216-MD-40-EVEN=
Mux/Demux Plugin Interleaver Module	15216-MD-ID-50=

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For More Information

For more information about the Cisco ONS 15216 Mux/Demux 40-Channel Patch Panel and the ONS 15216 Mux/Demux Patch Panel 50-GHz Interleaver De-Interleaver, visit http://www.cisco.com/en/US/products/hw/optical/ps1996/ps1999/index.html or contact your local account representative.

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