Cisco Prisma iWDM Passives

Facing competitive pressures and rapidly accelerating user demand for interactive services, cable operators need to upgrade their network architectures. These upgrade requirements are pushing optical fiber deeper into the network. But simply replacing existing transmission lines with fiber is no longer the most cost-effective way to handle increasing bandwidth requirements. Operators are now taking advantage of advances in optical filtering that significantly increase the number of signals (or wavelengths) that can be carried on a single fiber, a process known as interoperable multi wavelength (iWDM).

The iWDM plan consists of 16 wavelengths in the C-band in the range of ITU 21 through ITU 62. While there are predefined offsets for some of the 16 wavelengths, the multiplexer and demultiplexer of optical signals can continue to be supported through standard ITU optical passives as the offsets are within the guard band of the passive - typically 0.12 nm.

Cisco Prisma® interoperable multi-wavelength optics passives multiplexer and demultiplexer components (Figure 1) are essential when iWDM is implemented to increase network efficiency by significantly reducing fiber counts. Most units are available in the industry-recognized, LGX-compatible form factor to allow easy, snap-in mounting in a variety of enclosures and cabinets.

Features

- Cisco Prisma Interoperable multi wavelength multiplexer and demultiplexer modules (available in 4-, 8-, and 16-channel configurations)
- Channels spaced at 100 GHz, following the standard ITU wavelength grid
- Wavelength-mapping options that allow broadcast and narrowcast services to be combined on a single fiber
- Support for both analog and digital forward-path transmission applications, as well as reverse-path transmission applications, such as baseband digital reverse, to significantly increase bidirectional throughput
- Module for multiplexer and demultiplexer applications
- LGX-compatible modules that easily snap into a wide variety of enclosures and cabinets
- Industry-standard SC/APC adapters that help ensure connector compatibility; reduce back reflection and insertion losses; simplify moves, adds, and changes; and reduce connector maintenance requirements

Figure 1. Cisco Prisma LGX iWDM (Left), GS 7000 Module (Top Left), and Cassette (Bottom Right)

Specifications

Tables 1 and 2 provide product specifications for the Cisco Prisma multiplexer and demultiplexer components.

Table 1. Unique Specifications

Specification	Units	Cisco Prisma LGX	Cisco GS 7000 Optical Hub	Cisco Prisma Cassette
Insertion loss (maximum) multiplexer and demultiplexer	dB	4 channel: 1.5 8 channel: 2.3 16 channel: 3.0	- 8 channel: 2.3 16 channel: 3.0	4 channel: 1.8 8 channel: 2.5 16 channel: 3.3
Isolation (maximum)	dB	>28 (adjacent channels) >40 (nonadjacent channels)		
Dimensions				
Depth (maximum)	in.	6.26	21.3	1.77 or 3.54 (4,8, or 16 channel)
	cm	15.9	54.1 (GS 7000 Optical Hub)	4.5 or 9.0 (4,8, or 16 channel)
Width	in.	2.3 or 3.45 (2 slots or 3 slots)	11.1	2.75 or 4.33 (4,8, or 16 channel)
	cm	5.8 or 8.7 (2 slots or 3 slots)	28.2 (GS 7000 Optical Hub)	7.0 or 11.0 (4,8, or 16 channel)
Height	in.	4.0	11.6	0.35 or 0.31 (4,8, or 16 channel)
	cm	10.2	29.5 (GS 7000 Optical Hub)	0.9 or 0.8 (4,8, or 16 channel)
Faceplate height	in.	5.1	-	-
	cm	13.0		

Table 2. General Specifications

Specification	Units	Cisco Prisma LGX	Cisco GS 7000 Optical Hub	Cisco Prisma Cassette
Channel bandwidth @ −0.5 dB	nm	$\lambda_c \pm 0.125$		
Channel spacing	GHz	100		
Polarization dependent loss (PDL)	dB	4, 8 channel: ≤ 0.15 16 channel: ≤ 0.20	4, 8 channel: ≤ 0.15 16 channel: ≤ 0.20	0.20
Polarization mode dispersion (PMD)	ps	≤ 0.15		
Directivity	dB	≥ 50		

Specification	Units	Cisco Prisma LGX	Cisco GS 7000 Optical Hub	Cisco Prisma Cassette
Optical return loss	dB	≥ 50		
Optical connector type		SC/APC	MPO, SC/APC	SC/APC with Test Port
Environment Specifications				
Operating temperature range	ºC	–5 to 65	-40 to 85	-40 to 85
Storage temperature range	ºC	–40 to 85		

Notes:

- Losses include input, output, and common connector losses.
- Recommended for use in noncondensing environments only.
- Unless otherwise noted, specifications are based on measurements made in accordance with NCTA recommended practices for measurements made on cable systems using standard frequency assignments.

Ordering Information

To place an order, visit the Cisco Ordering Home Page and refer to the ordering information provided in Table 3.

Table 3.   Cisco Prisma iWDM Multiplexer and Demultiplexer Components

Description	LGX Module Width	Part Numbers Multiplexer and Demultiplexer
LGX-MXDX-4CH-iWDM ITU 21, 22, 24, 26 EXP-DTP-SC/APC	2 slots	1030007
LGX-MXDX-4CH-iWDM ITU 28, 33, 36, 39 EXP-DTP-SC/APC	2 slots	1030008
LGX-MXDX-4CH-iWDM ITU 44, 48, 52, 54 EXP-DTP-SC/APC	2 slots	1030009
LGX-MXDX-4CHiWDM ITU 57, 60, 61, 62 EXP-DTP-SC/APC	2 slots	1030010
LGX-MXDX-8CH-iWDM ITU 21, 22, 24, 26, 28, 33, 36, 39 EXP-DTP-SC/APC	2 slots	4043597
LGX-MXDX-8CH-iWDM ITU 44, 48, 52, 54, 57, 60, 61, 62 EXP-DTP-SC/APC	2 slots	4043598
LGX-MXDX-16CH-iWDM ITU 21, 22, 24, 26, 28, 33, 36, 39, 44, 48, 52, 54, 57, 60, 61, 62 DTP-SC/APC	3 slots	4043556
Description	**Cassette**	**Part Numbers Multiplexer and Demultiplexer**
CAS-MXDX-4CH-iWDM ITU 21, 22, 24, 26 EXP-DTP-SC/APC	Single iWDM in one Cassette	1030011
CAS-MXDX-4CH-iWDM ITU 28, 33, 36, 39 EXP-DTP-SC/APC	Single iWDM in one Cassette	1030012
CAS-MXDX-4CH-iWDM ITU 44, 48, 52, 54 EXP-DTP-SC/APC	Single iWDM in one Cassette	1030013
CAS-MXDX-4CH-iWDM ITU 57, 60, 61, 62 EXP-DTP-SC/APC	Single iWDM in one Cassette	1030014
CAS-MXDX-8CH-iWDM ITU 21, 22, 24, 26, 28, 33, 36, 39 EXP-DTP-SC/APC	Single iWDM in one Cassette	4043602
CAS-MXDX-8CH-iWDM ITU 44, 48, 52, 54, 57, 60, 61 62 EXP-DTP-SC/APC	Single iWDM in one Cassette	4043603
CAS-MXDX-16CH-iWDM ITU 21, 22, 24, 26, 28, 33, 36, 39, 44, 48, 52, 54, 57, 60, 61, 62 DTP-SC/APC	Single iWDM in one Cassette	4043601
Description	**GS 7000**	**Part Numbers Multiplexer and Demultiplexer**
GS7000-OP-iWDM ITU 21, 22, 24, 26, 28, 33, 36, 39 EXP-DTP-MPO-SC/APC	2 widths	4043955
GS7000-OP-iWDM ITU 44, 48, 52, 54, 57, 60, 61, 62 EXP-DTP-MPO-SC/APC	2 widths	4043956
GS7000-OP-iWDM ITU 21, 22, 24, 26, 28, 33, 36, 39, 44, 48, 52, 54, 57, 60, 61, 62 DTP-MPO-SC/APC	3 widths	4043953

Table 4.   ITU Wavelength Map

ITU Channel	Center Frequency (Hz)	Number of ITU Channels		
		4 channels	8 channels	16 channels
21	192100	X		
22	192200	X		
24	192400	X		
26	192600		X	
28	192800	X		
33	193300	X		
36	193600	X		
39	193900			X
44	194400	X		
48	194800	X		
52	195200	X		
54	195400		X	
57	195700	X		
60	196000	X		
61	196100			
62	196200			

For More Information

Cisco Prisma iWDM passives products offer one of the most complete ranges of high-performance components in the industry. For additional information, please go to: http://www.cisco.com/en/US/products/ps8981/index.html

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