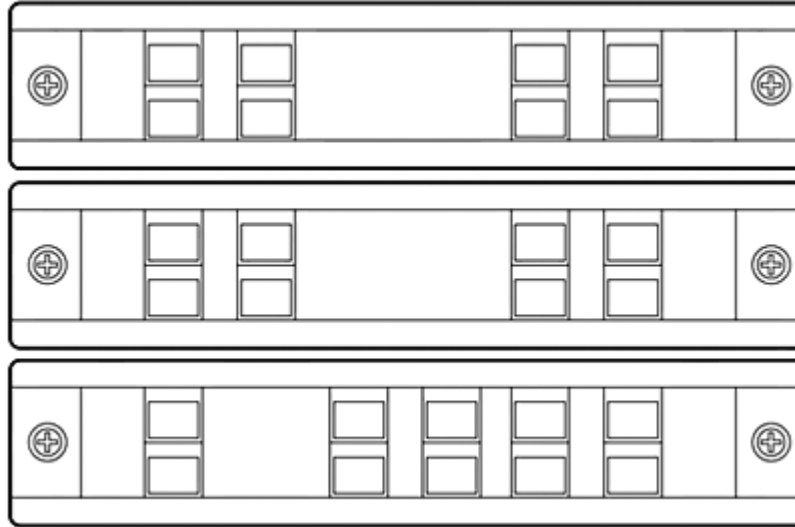


QuickSpecs

HP Coarse Wave Division Multiplexer Family

Overview

The HP Coarse Wave Division Multiplexer (CWDM) solution Family is a set of passive optical systems designed to provide optical network support for high-speed data Fibre Channel & Ethernet communication over Metropolitan Area Networks (MANs). These Multiplexers utilize a set of eight CWDM optical wavelengths in either ring or point-to-point configurations. They are protocol independent; easy to operate with a reliable, low-maintenance design that uses no power supplies and no electronics.



Models

HP CWDM Slot A 4-port Add/Drop Multiplexer	AG878A
HP CWDM Slot B 4-port Add/Drop Multiplexer	AG879A
HP CWDM 8-port Multiplexer	AG880A
HP CWDM Multiplexer 2-Slot Chassis	AG881A

Key Features

- The HP Coarse Wave-Division Multiplexing (CWDM) solution is an integrated optional component of the Cisco MDS 9000 family switch extended distance solutions.
- Provides direct connectivity of SFP networking devices to provide SAN extension over long distances
- Tightly integrates with Cisco MDS 9000 family switching services
- Provides up to eight channels of communications over a single set of single mode fiber
- Requires little or no configuration or maintenance



QuickSpecs

HP Coarse Wave Division Multiplexer Family

Standard Features

The HP Coarse Wavelength-Division Multiplexing (CWDM) Small Form-Factor Pluggable (SFP) Solution allows enterprise companies and service providers to provide scalable and easy-to-deploy Metro Area Networks. The product set enables the flexible design of highly available, multi-service networks.

Course Wave Division Multiplexing Solution

Supports Optical network connections up to 100km The HP CWDM Extended Distance Solution is designed to transmit multiple Gigabit Ethernet traffic streams over a single, shared fiber optic cable. The CWDM solution consists of a two slot (1RU) CWDM Chassis, which accommodates up to two passive optic CWDM Mux plug-in modules. Three types of modules are available: an 8-wavelength multiplexer/demultiplexer module and two 4-wavelength multiplexer/demultiplexer module with add/drop capabilities. The color coded active CWDM wavelength-specific SFPs are installed into available Fibre Channel and IP ports within one or more MDS Directors. Up to 8 CWDM wavelength-specific SFPs may be connected to the passive optic CWDM Mux plug-in module, using the 1 meter or 5 meter single mode Lucent Connector (LC) fiber optic jumper cables.

High Availability

The HP CWDM SFP Solution takes advantage of a multi-channel architecture and the inherent protection of ring architectures. The solution enables:

- Use of Layer 2 and Layer 3 redundancy and failover mechanisms at the channel endpoints (CWDM GBIC/SFP) to build highly available links
- Use of two-path link configurations in a ring architecture to provide protection from fiber cuts

Easy Deployment and Flexible Implementation

The HP CWDM SFP solution fits into a standard SFP port supporting the IEEE 802.3z standard on the supported Cisco platforms. The HP CWDM OADM is passive and requires no power. Neither the CWDM Fibre Chanel SFP nor the HP CWDM OADM requires configuration. The HP CWDM solution allows for a variety of network configurations-from multi-channel point-to-point to hub and meshed-ring configurations.

Investment Protection

The HP CWDM SFP Solution enables enterprises and service providers to increase the bandwidth of an existing Gigabit Ethernet optical infrastructure without adding new fiber strands. The solution can be used in parallel with other HP Cisco SFP devices on the same platform. The HP CWDM 8 and 4 port Multiplexers are compatible with future 4 Gbps SFP Modules.



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Product Highlights

HP CWDM OADMs and HP CWDM Chassis

The HP CWDM Optical Add Drop Modules are passive devices that provide the ability to multiplex and demultiplex, or add and drop wavelengths from multiple fibers onto one fiber. The OADM connectors are interfaced to the color-matching CWDM SFPs on the equipment side. All modules are the same size. The HP CWDM chassis enables rack mounting for up to two Cisco CWDM OADMs in a single rack unit.

HP to provide two different types of CWDM OADMs:

- Slot A 4-Channel OADM: (CWDM-MUX-4=)-This device allows you to add and drop four channels (with different wavelengths) into one direction of an optical ring. The other wavelengths are passed through the OADM. Dual fiber is used for both network and SFP connections. The four wavelengths are set to 1470, 1490, 1510, and 1530 nm.
- Slot B 4-Channel OADM: (CWDM-MUX-4=)-This device allows you to add and drop four channels (with different wavelengths) into one direction of an optical ring. The other wavelengths are passed through the OADM. Dual fiber is used for both network and SFP connections. The four wavelengths are set to 1550, 1570, 1590, and 1610 nm.
- 8-Channel Multiplexer/Demultiplexer (CWDM-MUX-8=)-This device allows you to multiplex and demultiplex eight separate channels into one pair of fiber. Dual fiber is used for both network and SFP connections. The eight wavelengths are set to 1470, 1490, 1510, 1530, 1550, 1570, 1590, and 1610 nm.

Product Service Options Installation service; SAN Solution service; SAN-Environmental Support service; SAN Architecture service; Proactive 24 For more information on these and other service options, please contact any of our worldwide sales offices or visit our Web site at: <http://www.hp.com/hps/support>.

NOTE: This Web site is available in English only.

Warranty

(1-1-1) Hardware Warranty; 1-year parts; 1-year on-site (8x5, next business day response) and 1-year labor.

NOTE: The hardware warranty covers firmware and embedded non-saleable software. Saleable software carries its own warranty.

HP's Limited Software Warranty; the software media will be free of physical defects for a period of ninety (90) days from delivery. EXCLUSIVE REMEDY. The entire liability of HP and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to HP in the country in which you obtained the software.

Hardware or Software product installation is not included in the warranty, but is available and highly recommended.



QuickSpecs

HP Coarse Wave Division Multiplexer Family

Product Highlights

Warranty and support options

The basic hardware warranty service can be enhanced and/or HP Installation services can be purchased. Support options with various response time and durations are available, including:

- Warranty upgrade to 3-3-3
- Various support response times (same/next day, 24x7)
- Various support coverage periods (M - F, 24x7, 1 yr, 3 yr)
- 6-hr Call-To-Repair

To ensure you receive assistance on your software, support options include:

- Software support coverage periods (13x5, 24x7, 1 yr, 3 yr)
- License to Use and SW Updates (1 yr, 3 yr)

<http://www.hp.com/hps/storage/>

NOTE: This Web site is available in English only.



QuickSpecs

HP Coarse Wave Division Multiplexer Family

Configuration Information

Step 1 - Required Options

Select 4 or 8 channel unit and Chassis

Description with Parts Shipped	Quantity	Part Number
CWDM 4 Channel Add/Drop Mux, a slot A 4-wavelength multiplexer/demultiplexer module with add/drop capabilities.		AG878A
CWDM 4 Channel Add/Drop Mux, a slot B 4-wavelength multiplexer/demultiplexer module with add/drop capabilities.		AG879A
CWDM 8 Channel Mux/Demux, an 8-wavelength multiplexer/demultiplexer module.		AG880A
Two slot (1RU) CWDM Chassis, which accommodates up to two passive optic CWDM Mux plug-in modules.		AG881A

Step 2 - Select SFP wavelength

1470 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1470 nano meter SFP	A7475A
1490 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1490 nano meter SFP	A7476A
1510 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1510 nano meter SFP	A7477A
1530 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1530 nano meter SFP	A7478A
1550 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1550 nano meter SFP	A7479A
1570 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1570 nano meter SFP	A7480A
1590 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1590 nano meter SFP	A7481A
1610 NM CWDM FC SFP, color coded active CWDM wavelength-specific 1610 nano meter SFP	A7482A
Fibre Cable LC/SC 1 Meter, 1 meter single mode Lucent Connector (LC)/Standard Connector (SC) fiber optic jumper cable.	A7485A
Fibre Cable LC/SC 5 Meter, 5 meter single mode Lucent Connector (LC)/Standard Connector (SC) fiber optic jumper cable.	A7486A

Select Cables From Supported Option List Above.

For more information on HP SAN switches, contact any of our worldwide sales offices or visit our Web site at: <http://www.hp.com/go/san>.

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QuickSpecs

HP Coarse Wave Division Multiplexer Family

Technical Specifications

SFP Optical parameters	Transmitter center wavelength	Min. (x-4) nm Max. (x+7) nm Available center wavelengths are 1470, 1490, 1510, 1530, 1550, 1570, 1590, and 1610 nm	
	Side-mode suppression ratio (SMSR)	30 dB	
	Transmitter optical output power	Min. 0.0 dBm Max. 5.0 dBm Average power coupled into single-mode fiber	
	Receiver optical input power (BER <10 ⁻¹² with PRBS 2 -7 -1)	Min. -28.0 dBm Max. -7.0 dBm @ 2.12 Gbps, 140 F (60 C) case temperature	
	Receiver optical input power (BER <10 ⁻¹² with PRBS 2 -7 -1)	Min. -29.0 dBm Max. -7.0 dBm @ 1.25 Gbps, 140 F (60 C) case temperature	
	Receiver optical input wavelength	Min. 1470 nm Max. 1610 nm	
	Transmitter extinction ratio	9 dB	
	Dispersion penalty at 100 km	3 dB @ 2.12 Gbps	
	Dispersion penalty at 100 km	2 dB @ 1.25 Gbps	
	Power requirements	HP CWDM OADMs and chassis are passive components without power needs	
Operating temperature	The operating temperature range is between 0 and 60 C(32 to 140 F),storage temperature range is -40 to 85 C(-40 to 185 F).		
Dimensions	All the HP CWDM OADMs have the same dimensions-WxHxD: 8.3 x 1.7 x 10.4 (21.1 cm x 43 cm x 26.4 cm). Two of these modules fit into one HP CWDM Multiplexer 2-Slot Chassis. The HP CWDM Multiplexer 2-Slot Chassis is 1-RU in height and fits in a standard 19" rack.		
Connectors/Cables	Required/Supported	Connectors Cables	None Included None Included
	Relative Humidity (non-condensing)	Operating Shipping	10 to 85%, ambient (non-condensing) operating 10 to 85%, ambient (non-condensing) non-operating and storage
Temperature Range	Operating	23° to 158° F (-5° to 70° C), ambient operating	
	Shipping	-40° to 185° F (-40° to 85° C), ambient non-operating and storage	

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