

A solid red circle.

FHD-MC082961EMB Data Sheet

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Product Overview

The 8CH Mux Demux, based on TFF (Thin Film Filter), is a passive CWDM device featuring high density, low loss, and long-haul transmission suitability. It is integrated with a monitor port and an expansion port. The 1% monitor port allows easy troubleshooting without downtime and the expansion port can be used to add additional channels, providing a cost-effective and easily expandable solution. In addition, this unit can be used as either a multiplexer or de-multiplexer (Mux/Demux). It combines 8-channel of CWDM wavelengths into a composite signal and separates the combined CWDM signal into 8-channel individual wavelengths over a single-mode optical fiber. In accordance with the ITU-T G.694.2, it maximizes the capacity of the C-band range. Designed for maximum configuration flexibility, the CWDM Mux Demux can plug directly into the FHD® chassis, each module occupying one slot.

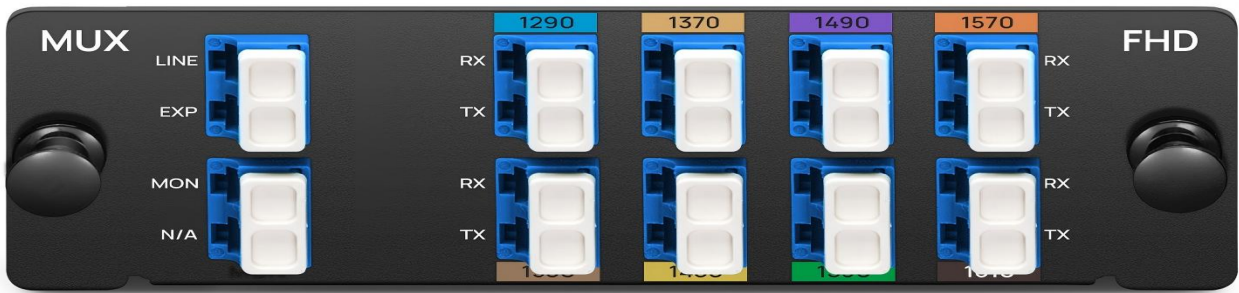
It supports 1G/10G/25G Ethernet, SDH/SONET, 1/2/4/8/16G Fiber Channel, FTTx and CATV. When deployed with FS CWDM optical transceivers, OEO and OADM modules, it seamlessly enables flexible network architectures ranging from simple point-to-point connections to amplified ring configurations.



Features and Benefits

- Multiplexing of up to 8 Channels on Single Fiber to Maximize the Using of Existing Fiber
- Compatible with ITU Grid and Interconnects with Optical Networking Products
- Expansion Port for Adding Additional Channels and Increasing Capacity
- Monitor Port Taps off 1% of the Signal to Monitor the Channel Power Levels
- Hybrid C/DWDM System via 1530nm/1550nm for Additional DWDM Channels
- Enables Space-efficient Integration and Hybrid Deployment of CWDM, DWDM, LWDM, OWDM, FAP and MTP Cassettes within the FHD® Chassis
- Passive Transparent Multiplexing at Any Rate, Any Service, Including Ethernet, SDH/SONET, Fiber Channel, FTTx, and CATV
- Suitable for Short Distance Transmission, Commonly Used in Small and Medium-sized Networks
- The Solution Can be [Customized](#) per Customer Application Requirements
- Fit into One Slot of the [FHD® 4-Slot 1U 19" Rack Chassis](#)

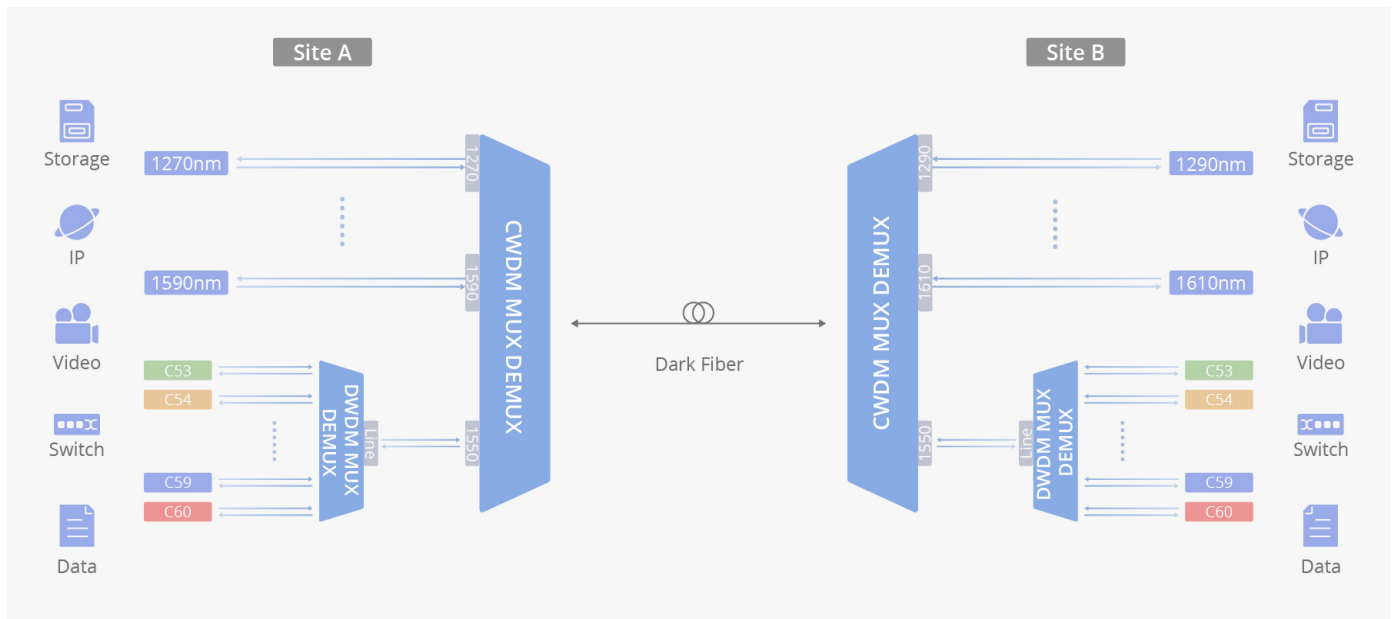
Front Panel and Port Description



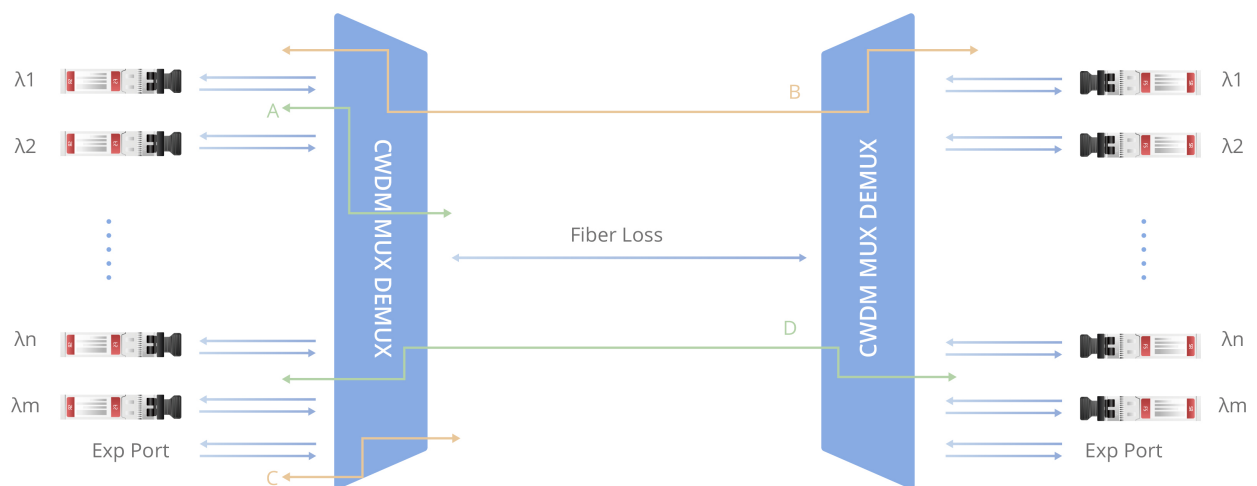
LINE	MON	EXP
Line interface for common signal	1% Monitoring for easy troubleshooting	Expansion for additional channels

Application

The EXP port supports future upgrades by adding more CWDM wavelengths to increase network capacity without disruption.



Fiber Loss



I Technical Specification

Parameter	Value
Channel	8 Channels
Wavelength	TX: 1270, 1310, 1350, 1430, 1470, 1510, 1550, 1590nm
	RX: 1290, 1330, 1370, 1450, 1490, 1530, 1570, 1610nm
Connector	LC/UPC
Fiber Type	Single Fiber
Insertion Loss	≤ 5.0dB, 4.5dB Typical
Passband Ripple	≤0.5dB
Channel Passband	± 6.5nm
Center Wavelength Accuracy	±0.05nm
-1 dB Channel Bandwidth	≥13nm
Technology	TFF (Thin Film Filter)
Channel Spacing	20nm
Adjacent Channel Isolation	≥30dB
Non-adjacent Channel Isolation	≥40dB
Insertion Loss @ 1% Mon Port	≤ 22dB
Directivity	≥45dB
Return Loss	≥45dB

Parameter	Value
Polarization Dependent Loss	≤0.3dB
Polarization Mode Dispersion	≤0.1ps
Max Optical Power	≤500mW (27dBm)
Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Rack Space	1U ¼-width Plug-in Module
Housing	Pluggable Module (Occupies 1 Slot in FHD Chassis)
Dimensions	1.38"x4.29"x4.64" (35x109x118mm)

ITU Channel Guiding

ITU Channel No.	27	29	31	33	35	37	39	41	43
Wavelength (nm)	1270	1290	1310	1330	1350	1370	1390	1410	1430

ITU Channel No.	45	47	49	51	53	55	57	59	61
Wavelength (nm)	1450	1470	1490	1510	1530	1550	1570	1590	1610

High Quality CWDM Transceivers to Build a Passive CWDM System

FS.COM offers CWDM transceiver modules in SFP, SFP+, SFP28, 3G-SDI SFP and XFP formats. Every optics is tested in real switches and fully compatible with Cisco, Juniper, Arista, Brocade, Dell, Extreme, etc.

Transmission distances range from 10-80km, transmission data rate range from 1G-25G speeds, without the use of optical amplifiers.



CWDM-SFP



CWDM-10G SFP+



CWDM-25G SFP28

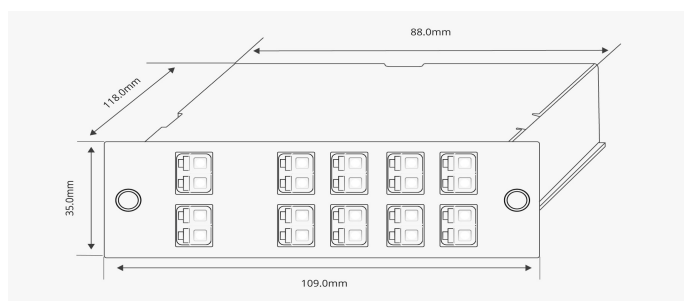


CWDM-3G-SDI-SFP

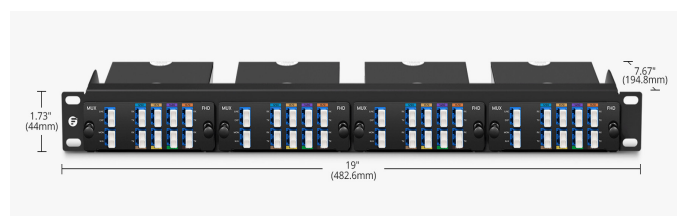


CWDM-XFP

Layout and Dimension



Height: 1.38" (35mm)
Width: 4.29" (109mm)
Depth: 4.64" (118mm)



4-slot FHD managed chassis, supports up to 4 CWDM, DWDM, LWDM, OWDM Mux Demux modules with different channels in FHD packages.

Height: 1.73" (44mm)
Width: 19.00" (482.6mm)
Depth: 7.67" (194.8mm)
Mux Demux plug-in module occupies one slot.

Ordering Information

Mux Demux &OADM

FHD Series DWDM Mux Demux	FHD-D82128EM3	8 Channels DWDM Mux Demux, 100GHz C21-C28, with EXP & Mon and 1310nm Port, 2.4dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD® Plug-in Module#126899
	FHD-D82936EM	8 Channels DWDM Mux Demux, 100GHz C29-C36, with Monitor and Expansion Port, 2.4dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module#126900
	FHD-D85360EM	8 Channels DWDM Mux Demux, 100GHz C53-C60, with Monitor and Expansion Port, 2.4dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module, CWDM/DWDM Hybrid Solution#126901
	FHD-MD042128EMA	4 Channels DWDM Mux Demux, 100GHz C21-C27, with Monitor and Expansion Port, 2.5dB IL, LC/UPC, Single Fiber, Side-A, High Density, FHD Plug-in Module#374823
	FHD-MD042128EMB	4 Channels DWDM Mux Demux, 100GHz C22-C28, with Monitor and Expansion Port, 2.5dB IL, LC/UPC, Single Fiber, Side-B, High Density, FHD Plug-in Module#374825
	FHD-MD042936EMA	4 Channels DWDM Mux Demux, 100GHz C29-C35, with Monitor and Expansion Port, 2.5dB IL, LC/UPC, Single Fiber, Side-A, High Density, FHD Plug-in Module#374827
	FHD-MD042936EMB	4 Channels DWDM Mux Demux, 100GHz C30-C36, with Monitor and Expansion Port, 2.5dB IL, LC/UPC, Single Fiber, Side-B, High Density, FHD Plug-in Module#374829
	FHD-MD052160BPD	1x 5 Band DWDM Mux/Demux, 100GHz C21-C60, 2.2dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module#374831
	FHD-MD042124EMA	4 Channels DWDM Mux Demux, 100GHz C21-C24, with Monitor and Expansion Port, 2.75dB Typical IL, LC/UPC, Single Fiber, Side A, High Density, FHD Plug-in Module#374833
	FHD-MD045760EMB	4 Channels DWDM Mux Demux, 100GHz C57-C60, with Monitor and Expansion Port, 2.75dB Typical IL, LC/UPC, Single Fiber, Side B, High Density, FHD Plug-in Module#374835
FHD Series CWDM Mux Demux	FHD-MD082128EMS	8 Channels DWDM Mux or Demux, 100GHz C21-C28, with Monitor and Expansion Port, 2.75dB Typical IL, LC/UPC, Single Fiber, High Density, FHD Plug-in Module#374839
	FHD-C84761EM	8 Channels CWDM Mux Demux, 1470-1610nm, with Monitor and Expansion Port, 2.0dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module#126902
	FHD-C82745EM	8 Channels CWDM Mux Demux, 1270-1450nm (Skip 1390, 1410nm), with Monitor and Expansion Port, 2.0dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module#126903
FHD Series LWDM Mux Demux	FHD-MC082961EMB	8 Channels CWDM Mux Demux, 1290-1610nm, with Monitor and Expansion Port, 4.5dB Typical IL, LC/UPC, Single Fiber, Side B, High Density, FHD Plug-in Module#374853
	FHD-ML04MA	4 Channels LAN-WDM Mux Demux, 1295.56-1309.14nm, with Monitor Port, 2.8dB Typical IL, LC/UPC, Single Fiber, Side-A, High Density, FHD Plug-in Module#374855
	FHD-ML04MB	4 Channels LAN-WDM Mux Demux, 1273.55-1286.66nm, with Monitor Port, 2.8dB Typical IL, LC/UPC, Single Fiber, Side-B, High Density, FHD Plug-in Module#374857
FHD Series O-band DWDM Mux Demux	FHD-ML042930MD	4 Channels LAN-WDM Mux Demux, 1295.56-1309.14nm, with Monitor Port, 1.5dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module#374859
	FHD-MO083031MD	8 Channels O-band DWDM Mux Demux, 228.4-229.8THz, with Monitor Port, 3.0dB Typical IL, LC/UPC, Dual Fiber, High Density, FHD Plug-in Module#374861
	MUX-DWDM	Customized Dual and Single Fiber DWDM Mux Demux#322911
Custom Mux Demux	MUX-CWDM	Customized Dual and Single Fiber CWDM Mux Demux#70410
	MUX-CCWDM	Customized Dual and Single Fiber Compact CWDM Mux Demux#73961

Mux Demux & OADM

OADM	DOADM-EAW	Customized Dual and Single Fiber DWDM OADM, East and West#70427
	DOADM-EOW	Customized Dual and Single Fiber DWDM OADM, East or West#73795
	COADM-EAW	Customized Dual and Single Fiber CWDM OADM, East and West#70425
	COADM-EOW	Customized Dual and Single Fiber CWDM OADM, East or West#73794
Chassis	FHD-1U-CMP400	FHD® High Density 1U Rack Mount Modular Enclosure Unloaded, Rear Cable Managers, Holds up to 4 x FHD® Cassettes or Panels, 144 Fibers (LC)#70419

TRANSPONDERS & MUXPONDERS

10G	FMT4DL-OEO25GSFP28	FMT4DL-OEO25GSFP28, 4 Channels 25G WDM Transponder (Converter) for FMT Managed Chassis, 8 SFP28/SFP+ Slots#92056
	FMT4DL-OEO10GSFP	FMT4DL-OEO10GSFP, 4 Channels WDM Transponder (Converter) for FMT Managed Chassis, 8 SFP/SFP+ Slots#30515
Chassis	FMT04-CH1U	FMT04-CH1U, 4 Slots 1U Managed Chassis Unloaded Platform, Redundant AC PSUs, Support SNMP V3 Network Management#39214
	FMT-CH	FMT-CH, Customized 4/8/16 Slots 1U/2U/4U Managed Chassis Unloaded Platform, Redundant AC/DC PSUs, Support SNMP Network Management#70413

WDM TRANSCEIVERS

100G/200G CFP2	CFP2-DCO-200G-M	C14 1566.31nm CFP2-DCO 100G/200G DWDM C-band Tunable 96Chs ITU CH13-CH60 50GHz 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#120128
25G SFP28	DW-SFP25G10-17	Cisco C17 DWDM-SFP25G-63.86 Compatible SFP28 25G DWDM 1563.86nm 100GHz 10km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#87000
	CW-SFP25G30-27	Cisco CWDM-SFP25G-1270-30 Compatible SFP28 25G CWDM 1270nm 30km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#100112
	CW-SFP25G10-27	Cisco CWDM-SFP25G-1270-10 Compatible SFP28 25G CWDM 1270nm 10km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#76003
10G SFP+	LW-SFP25G40-86	Cisco LWDM-SFP25G-86.66 Compatible SFP28 25G LWDM 1286.66nm 40km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#93786
	DW-SFP10G80-21-I	Cisco C21 DWDM-SFP10G-60.61-I Compatible SFP+ 10G DWDM 1560.61nm 100GHz 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission (Industrial)#113562
	DW-SFP10G40-21-I	Cisco C21 DWDM-SFP10G-60.61-I Compatible SFP+ 10G DWDM 1560.61nm 100GHz 40km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission (Industrial)#113511
1GSFP	CW-SFP10G80-47	Cisco CWDM-SFP10G-1470 Compatible SFP+ 10G CWDM 1470nm 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#19367
	CW-SFP10G40-27-I	Cisco CWDM-SFP10G-1270-I Compatible SFP+ 10G CWDM 1270nm 40km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission (Industrial)#112392
	DWDM-SFP1G-EZX	Cisco C17 DWDM-SFP-6386 Compatible SFP 1000BASE-DWDM 1563.86nm 100GHz 100km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#54150
	DWDM-SFP1G-ZX	Cisco C17 DWDM-SFP-6386-80 Compatible SFP 1000BASE-DWDM 1563.86nm 100GHz 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#47697
	CWDM-SFP1G-ZX	Cisco CWDM-SFP-1270 Compatible SFP 1000BASE-CWDM 1270nm 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#33234
	DWDM-SFP1G-ZX	Cisco C17 DWDM-SFP-6386-80 Compatible SFP 1000BASE-DWDM 1563.86nm 100GHz 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#47697
	CWDM-SFP1G-ZX	Cisco CWDM-SFP-1270 Compatible SFP 1000BASE-CWDM 1270nm 80km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#33234

*Standard products are listed above. Customized specifications are available upon request.



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