

A solid red circle graphic.

FMU-MD08EA Data Sheet

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Product Overview

The 8CH Mux Demux, based on TFF (Thin Film Filter), is a passive DWDM device featuring high density, low loss, and long-haul transmission suitability. It features an 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-channels of DWDM wavelengths into a composite signal and separates the combined DWDM signal into 8-channels 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 DWDM Mux Demux can plug directly into the FMU chassis, each module occupying one slot. Moreover, because single fiber Mux/Demux is always used in pairs, this device needs to be used in conjunction with the FMU-MD08EB.

It supports 1G/10G/25G Ethernet, SDH/SONET, 16/8/4/2/1G Fiber Channel, FTTx and CATV. When deployed with FS DWDM optical transceivers, OEO, EDFA and OADM modules, the Mux Demux 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 All Optical Networking Products
- Expansion Port for Adding Additional Channels and Increasing Capacity
- Enables Space-efficient Integration and Hybrid Deployment of CWDM, DWDM and LANWDM within the FMU Chassis
- Passive Transparent Multiplexing at Any Rate, Any Service, Including Ethernet, SDH/SONET, Fibre Channel, FTTx, and CATV
- Suitable for Long-distance Transmission, Including OTN, DCI and WAN Networks• The Solution Can be [Customized](#) per Customer Application Requirements
- Fit into One Slot of the [FMU 2-Slot 1U 19" Rack Chassis](#)

Front Panel and Port Description



LINE

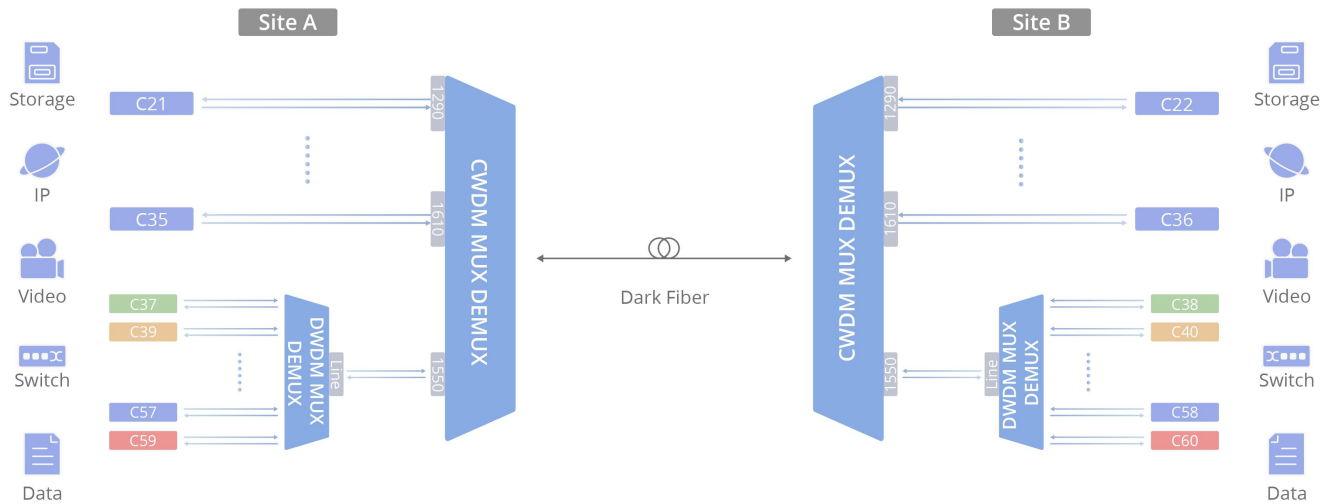
EXP

Line interface for common signal

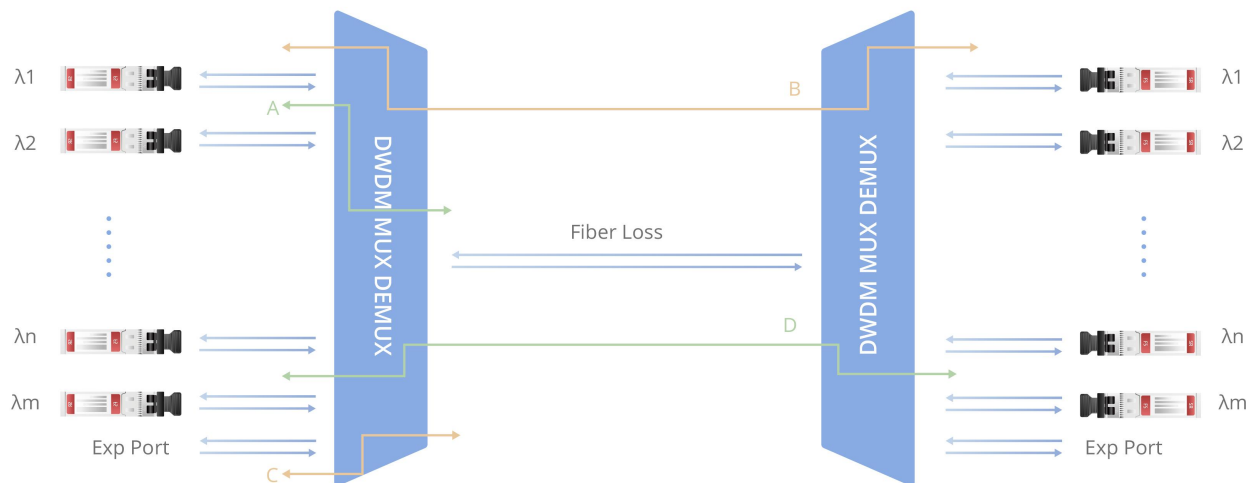
Expansion for add additional channels

Application

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



Fiber Loss



Technical Specification

Parameter	Value
Channel	8 Channels, RX-C21-C35, TX-C22-C36
Operating Wavelength	1549.32-1560.61nm
Channel Spacing	100GHz (0.8nm)
Channel Passband	$\pm 0.11\text{nm}$
Insertion Loss	$\leq 4.6\text{dB}$, 4.2dB Typical
EXP Isolation	$\leq 4.6\text{dB}$
Technology	Free Space
Center Wavelength Accuracy	$\pm 0.05\text{nm}$
Adjacent Channel Isolation	$\geq 30\text{dB}$
Non-adjacent Channel Isolation	$\geq 40\text{dB}$
Return Loss	$\geq 45\text{dB}$
Directivity	$\geq 45\text{dB}$

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 ½-width Plug-in Module
Housing	Pluggable Module (Occupies 1 Slot in FMU Chassis)
Dimensions	1.73"x8.35"x10.04" (44x212x255mm)

Notes: 1.Specified with connectors and adapters.

ITU Channel Guiding

ITU Channel (xx or yy)	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Wavelength (nm)	1560.61	1559.79	1558.98	1558.17	1557.36	1556.55	1555.75	1554.94	1554.13	1553.33	1552.52	1551.72	1550.92	1550.12	1549.32	1548.51	1547.72	1546.92	1546.12	1545.32

ITU Channel (xx or yy)	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Wavelength (nm)	1544.53	1543.73	1542.94	1542.14	1541.35	1540.56	1539.77	1538.98	1538.19	1537.40	1536.61	1535.82	1535.04	1534.25	1533.47	1532.68	1531.90	1531.12	1530.33	1529.55

High Quality DWDM Transceivers to Build a Passive DWDM System

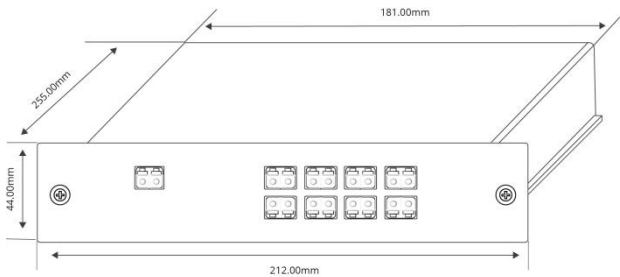
FS.COM offers DWDM transceiver modules in SFP, SFP+ and XFP formats. Every optics is tested in real switches and full compatible with Cisco, Juniper, Arista, Brocade, Dell, Extreme, etc.

Transmission distances range from 20-120km for Gigabit speeds, and 40-120km for 10 Gigabit speeds, without the use of optical amplifiers.



DWDM-SFP10G-80 DWDM-XFP10G-80 DWDM-Tunable-XFP DWDM-Tunable-SFP+ DWDM-SFP1G-ZX

Layout and Dimension



Width:212.00mm(8.35")
Height:44.00mm(1.73")
Depth:255.00mm(10.04")



2-slot FMU managed chassis, supports up to 2 DWDM Mux Demux or CWDM Mux Demux modules with different channels in FMU packages.
Width: 18.97" (481.8mm)
Height: 1.73" (44mm)
Depth: 10.28" (261.2mm)
Mux Demux plug-in module occupies one slot.

Ordering Information

Mux Demux &OADM

FMU Series
Mux Demux

FMU-MC045561ES	4 Channels CWDM Mux or Demux, 1550-1610nm, with Expansion Port, 1.5dB Typical IL, LC/UPC, Single Fiber, FMU Plug-in Module#214979
FMU-MC163161EMS	16 Channels CWDM Mux or Demux, 1310-1610nm, with Monitor and Expansion Port, 4.5dB Typical IL, LC/UPC, Single Fiber, FMU Plug-in Module#214981
FMU-MC082759EMA	8 Channels CWDM Mux Demux, 1270-1590nm, with Monitor and Expansion Port, 4.5dB Typical IL, LC/UPC, Single Fiber, Side A, FMU Plug-in Module#214983
FMU-MC082961EMB	8 Channels CWDM Mux Demux, 1290-1610nm, with Monitor and Expansion Port, 4.5dB Typical IL, LC/UPC, Single Fiber, Side B, FMU Plug-in Module#214985
FMU-C182761M	18 Channels CWDM Mux Demux, 1270-1610nm, with Monitor Port, 5.0dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#33489
FMU-MC082745	8 Channels CWDM Mux Demux, 1270-1450nm (Skip 1390, 1410nm), 2.5dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module#42937
FMU-MC042733	4 Channels CWDM Mux Demux, 1270-1330nm, 1.0dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module#42972
FMU-MC09B	9 Channels CWDM Mux Demux, 1290-1610nm, 2.4dB Typical IL, LC/UPC, Single Fiber, Side-B, FMU Plug-in Module#43699
FMU-MC09A	9 Channels CWDM Mux Demux, 1270-1590nm, 2.4dB Typical IL, LC/UPC, Single Fiber, Side-A, FMU Plug-in Module#43711
FMU-MC084761EM	8 Channels CWDM Mux Demux, 1470-1610nm, with Monitor and Expansion Port, 2.0dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module#78163
FMU-C182761M	18 Channels CWDM Mux Demux, 1270-1610nm, with Monitor Port, 2.2dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#123533
FMU-D60.OCMW5	60 Odd Channels DWDM Mux Demux, Super C-band 100GHz 1524.50-1571.65nm, with Monitor Port, 6.0dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#166000
FMU-D60.ECMW5	60 Even Channels DWDM Mux Demux, Super C-band 100GHz 1524.89-1572.06nm, with Monitor Port, 6.0dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#166001
FMU-D40.ODMW5	40 Odd Channels Super C-band 150GHz 190.7875-196.6375THz, with Monitor Port, 5.5dB Typical IL, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount#166002
FMU-D40.EDMW5	40 Even Channels Super C-band 150GHz 190.7125-196.5625THz, with Monitor Port, 5.5dB Typical IL, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount#166003
FMU-D64BMW5	64 Channels DWDM Mux Demux, Super C-band 75GHz 1528.87-1566.62nm, with Monitor Port, 5.8dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#166004
FMU-MD082128EMS	8 Channels DWDM Mux or Demux, 100GHz C21-C28, with Monitor and Expansion Port, 2.75dB Typical IL, LC/UPC, Single Fiber, FMU Plug-in Module#214969
FMU-MD042124EMA	4 Channels DWDM Mux Demux, 100GHz C21-C24, with Monitor and Expansion Port, 2.75dB Typical IL, LC/UPC, Single Fiber, Side A, FMU Plug-in Module#214971
FMU-MD045760EMB	4 Channels DWDM Mux Demux, 100GHz C57-C60, with Monitor and Expansion Port, 2.75dB Typical IL, LC/UPC, Single Fiber, Side B, FMU Plug-in Module#214973
FMU-MD042023EMD	4 Channels DWDM Mux Demux, 100GHz C20-C23, with Monitor and Expansion Port, 1.6dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module#214975

Mux Demux & OADM

	FMU-D402160M3	40 Channels DWDM Mux Demux, 100GHz C21-C60, with 1310nm and Monitor Port, 3.5dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#35887
	FMU-D162136EM3	16 Channels DWDM Mux Demux, 100GHz C21-C36, with Monitor, Expansion and 1310nm Port, 4.4dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#72430
	FMU-D162136A	16 Channels DWDM Mux Demux, 100GHz C21-C36, 4.0dB Typical IL, LC/UPC, Single Fiber, Side-A, 1U Rack Mount#78535
	FMU-D164560B	16 Channels DWDM Mux Demux, 100GHz C45-C60, 4.0dB Typical IL, LC/UPC, Single Fiber, Side-B, 1U Rack Mount#78536
	FMU-FD402160M3	40 Channels DWDM Mux Demux, 100GHz C21-C60, with 1310nm Port and Monitor Port, 4.5dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#84492
	FMU-MD085360E	8 Channels DWDM Mux Demux, C53-C60, with Expansion Port, 2.8dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module, CWDM/DWDM Hybrid Solution#30568
	FMU-D402160M	40 Channels DWDM Mux Demux, 100GHz C21-C60, with Monitor Port, 3.0dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount#33485
	FMU-MD08_EB	8 Channels DWDM Mux Demux, 100GHz C22-C36, with Expansion Port, 4.2dB Typical IL, LC/UPC, Single Fiber, Side-B, FMU Plug-in Module#50116
	FMU-MD08_EA	8 Channels DWDM Mux Demux, 100GHz C21-C35, with Expansion Port, 4.2dB Typical IL, LC/UPC, Single Fiber, Side-A, FMU Plug-in Module#50117
	FMU-MD085360EM3	8 Channels DWDM Mux Demux, 100GHz C53-C60, with Monitor, Expansion and 1310nm Port, 3.0dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module, CWDM/DWDM Hybrid Solution#72433
Custom Mux Demux	FMU-L042728B	4 Channels 1273.55-1286.66nm, Single Fiber LAN-WDM Mux Demux, Side-B, FMU Plug-in Module, LC/UPC#244655
	FMU-L042930A	4 Channels 1295.56-1309.14nm, Single Fiber LAN-WDM Mux Demux, Side-A, FMU Plug-in Module, LC/UPC#244657
	MUX-DWDM	Customized Dual and Single Fiber DWDM Mux Demux#322911
OADM	MUX-CWDM	Customized Dual and Single Fiber CWDM Mux Demux#70410
	MUX-CCWDM	Customized Dual and Single Fiber Compact CWDM Mux Demux#73961
	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
Chassis	COADM-EOW	Customized Dual and Single Fiber CWDM OADM, East or West#73794
	FMU-1UFMX-N	FMU 2-Slot 1U 19" Rack Chassis Unloaded, Holds up to 2 Units FMU Plug-in Module#30408

Optical Line System

Amplifiers	FMT20PA-EDFA	FMT20PA-EDFA, 20dB Gain C-band DWDM EDFA Pre-amplifier for FMT Managed Chassis, 13dBm Output#72284
	FMT26PA-EDFA	FMT26PA-EDFA, 26dB Gain C-band DWDM EDFA Pre-amplifier for FMT Managed Chassis, 16dBm Output#36524
	FMT17BA-EDFA	FMT17BA-EDFA, 17dB Gain C-band DWDM EDFA Booster Amplifier for FMT Managed Chassis, 17dBm Output#72283
	FMT26PA-51EDFA	FMT26PA-51EDFA, 26dB Gain Extended C-Band DWDM EDFA Pre-amplifier for FMT Managed Chassis, 20dBm Output#248135
	FMT17BA-51EDFA	FMT17BA-51EDFA, 17dB Gain Extended C-Band DWDM EDFA Booster Amplifier for FMT Managed Chassis, 20dBm Output#248133

FMT-EDFA	Customized C-band DWDM EDFA Amplifier for DWDM Solution#322907
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Optical Line System

Dispersion Compensation	FMT-ARRAY-OA	Customized Multiports DWDM Array EDFA Amplifier#322909
	FMT40-DCM	FMT40-DCM, C-Band 40km DCF-based Passive Dispersion Compensation Module for FMT Managed Chassis#65781
	FMT80-DCM	FMT80-DCM, C-Band 80km DCF-based Passive Dispersion Compensation Module for FMT Managed Chassis#65779
Line Protection	FS-DCM	Customized C-Band DCF-based Dispersion Compensation Module for FMT Managed Chassis#65783
	FMT-OLP2	FMT-OLP2, 1+1 Optical Line Protection Switch for FMT Managed Chassis#66010
	FMT-OLP	FMT-OLP, 1:1 Optical Line Protection Switch for FMT Managed Chassis#192620

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
	FMT04-CH1U	FMT04-CH1U, 4 Slots 1U Managed Chassis Unloaded Platform, Redundant AC PSUs, Support SNMP V1 Network Management#39214
Chassis	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
	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
10GSFP	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
	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

WDM TRANSCEIVERS	
1G SFP	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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