

# 8ch Dual Fiber 1470-1610nm CWDM Mux Demux with Expansion and Monitor Port

FHD Plug-in Module, LC/UPC

Data Center & Cloud Computing Infrastructure Solutions



## Overview

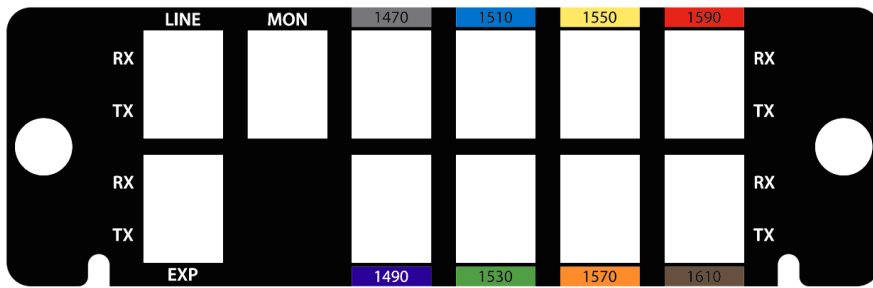
Based on free-space technology, the passive 8 channels CWDM MUX DEMUX allows you to multiplex/demultiplex eight separate channels into one pair of fiber. It's protocol and rate transparent supporting different applications such as 1G/10G/25G Ethernet, SDH/SONET and 8/4/2/1G Fiber Channel across the same fiber link.

With modular design, the Mux can be combined with CWDM/DWDM modules, OADMs and MTP cassettes in 1U FHD enclosures. Also it can support a wide range of architectures from simple point-to-point to ring configurations.

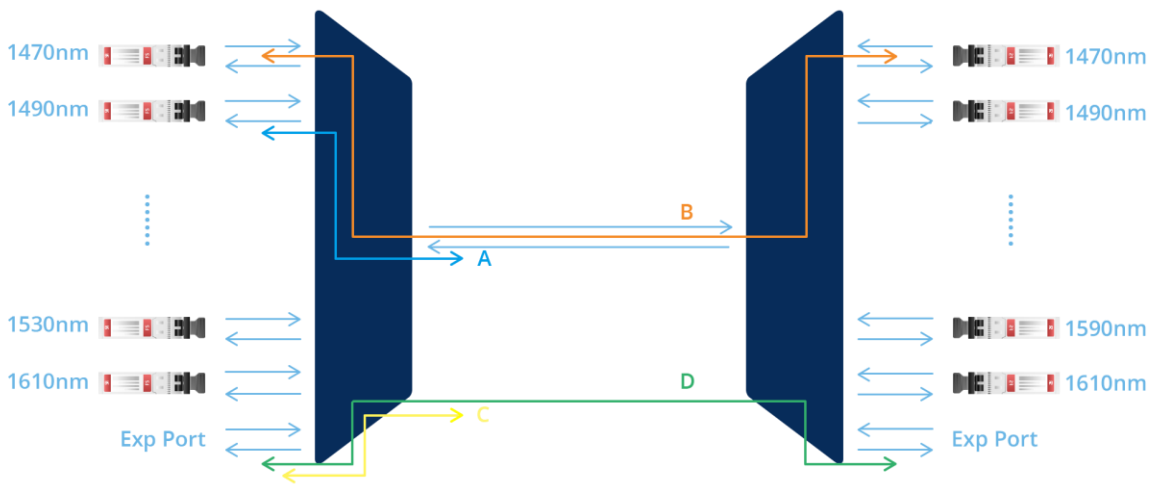
## Benefits

- Modularization, high density, saving data center cabinet space
- Mix CWDM/DWDM Mux Demux, OADMs and MPO Cassettes in 1U FHD enclosures
- Based on free space technology
- Multiplexing of up to 8 channels on fiber pair
- Passive, no electric power required (MTBF ca. 500 years)
- Easy installation, rack or wall mount available

### Front Panel and Port Description



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



### Technical Specification

Parameter	Value
Center Wavelength	1470nm, 1490nm, 1510nm, 1530nm, 1550nm, 1570nm, 1590nm, 1610nm
Channel Spacing	20nm
Channel Passband	± 6.5nm
Channel Passband (Exp port)	1260-1457nm
Insertion Loss, Per Channel (A)	≤ 2.4dB
Link Loss, Per Channel (B)	≤ 4.8dB
Insertion Loss, Expansion Port (C)	≤ 1.0dB
Link Loss, Expansion Ports (D)	≤ 2.0dB

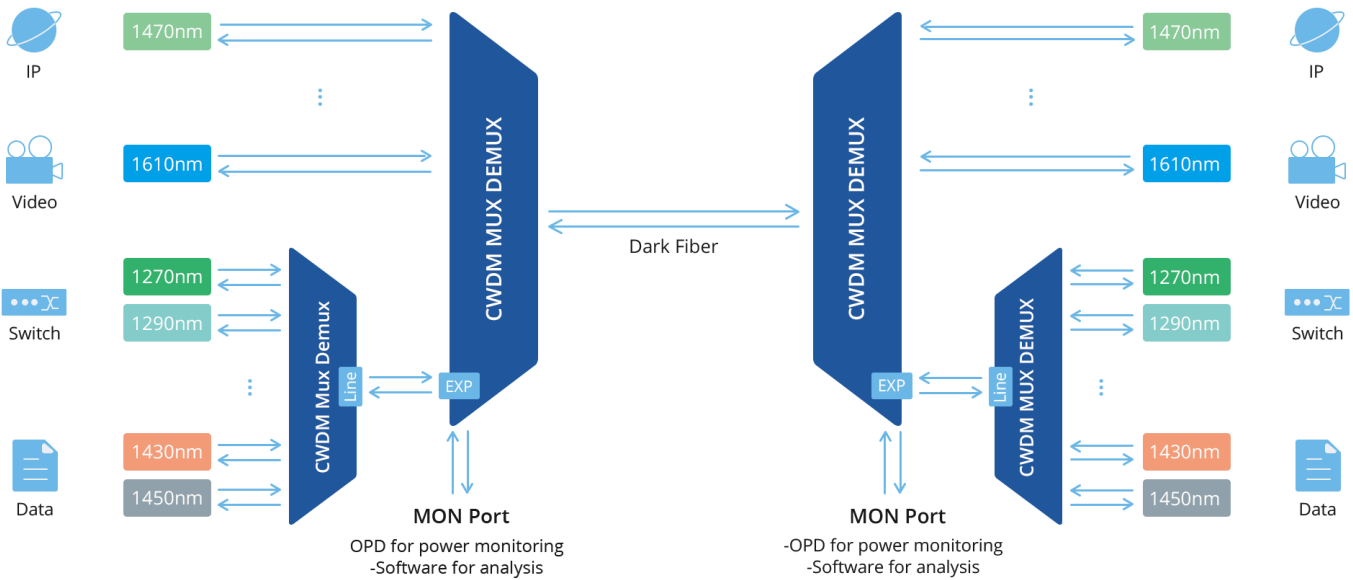
Parameter	Value
Insertion Loss @ 1% Mon	≤ 24dB
Exp Isolation	≥ 15dB
Adjacent Channel Isolation	≥ 30dB
Non-adjacent Channel Isolation	≥ 40dB
Technology	Free Space
Passband Ripple	≤ 0.5dB
Directivity	≥ 50dB
Return Loss	≥ 45dB
PDL	≤ 0.3dB
PMD	≤ 0.1ps
Power Handling	≤ 500mW
Operating Temperature	-40 ~ +85 ° C
Storage Temperature	-40 ~ +85 ° C
Fiber Type	G657 A1
Connector Type	LC/UPC Connector
Warranty	3 Years
Dimensions (H x W x D)	1.38"x4.29"x4.64" (35x109x118mm)

## Notes:

1.Specified with connectors and adapters.

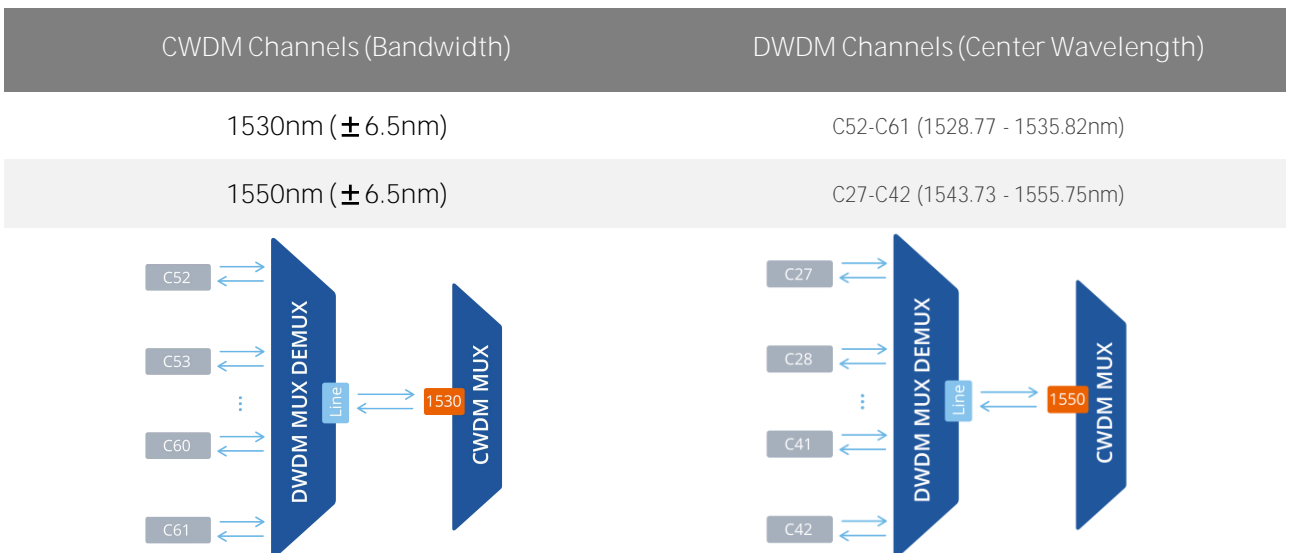
## Network Diagram

Expansion port can be used to connect another CWDM Mux Demux for wavelength expansion, and monitor port can be connected with monitoring devices to test the power of the signal without service interruption, which enables users the ability to monitor and troubleshoot networks.



## Hybrid CWDM/DWDM System

DWDM wavelengths are within the wavelength range of CWDM, which have much smaller channel spacing, so CWDM wavelengths near DWDM can be used to transmit the DWDM wavelengths. A hybrid C/DWDM system is built to expand the existing CWDM system, keeping initial startup costs low.



## Channel Wavelengths and Color Coding for CWDM

For CWDM systems an industry standard color coding scheme is used. The latches of the transceivers match the colored port indicators on the passive units therefore guaranteeing simple setup, following color codes and wavelength are valid for CWDM.

ITU channel no.	Wavelength	Color	Color Coding
27	1270nm	light purple	
29	1290nm	sky blue	
31	1310nm	yellow green	
33	1330nm	yellow ocher	
35	1350nm	pink	
37	1370nm	beige	
39	1390nm	white	
41	1410nm	silver	
43	1430nm	black	

ITU channel no.	Wavelength	Color	Color Coding
45	1450nm	yellow orange	
47	1470nm	gray	
49	1490nm	violet	
51	1510nm	blue	
53	1530nm	green	
55	1550nm	yellow	
57	1570nm	orange	
59	1590nm	red	
61	1610nm	brown	

## 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



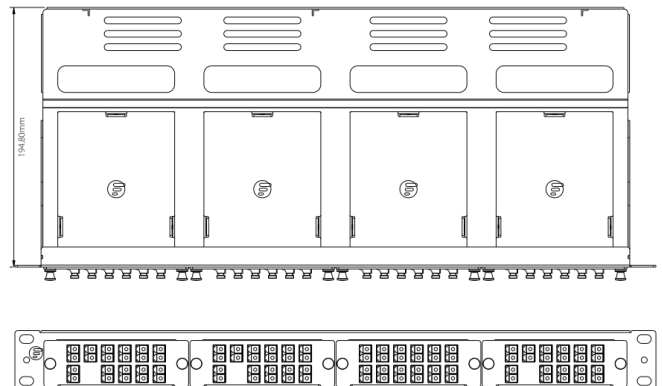
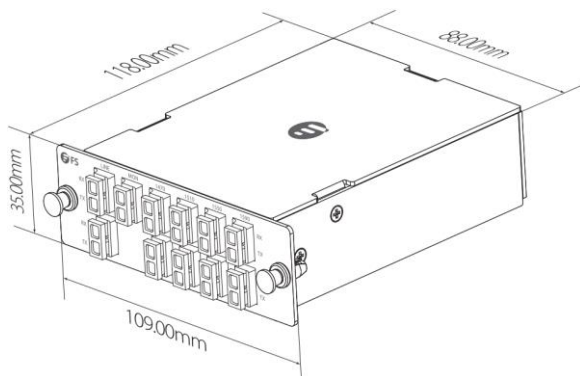
CWDM-3G-SDI-SFP



CWDM-XFP

## Layout and Dimensions

- Width: 109.00mm (4.29")
- Height: 35.00mm (1.35")
- Depth: 118.00mm (4.64")



## Ordering Information

Mux Demux & OADM		
	<a href="#">FMU-D402160M3</a>	40 Channels 100GHz C21-C60, with 1310nm and Monitor Port, 3.5dB Typical IL, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount #35887
DWDM MUX DEMUX	<a href="#">M6200-D2160M</a>	40 Channels 100GHz C21-C60 Dual Fiber DWDM Mux and Demux with Monitor Port, Pluggable Module, LC/UPC, Integrated with M6200 Series Managed Chassis #120424
	<a href="#">FMU-D162136EM3</a>	16 Channels 100GHz C21-C36, with Monitor, Expansion and 1310nm Port, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount #72430
CWDM MUX DEMUX	<a href="#">FMU-MD085360EM3</a>	CWDM/DWDM Hybrid Solution, 8 Channels 100GHz C53-C60, with Monitor, Expansion and 1310nm Port, LC/UPC, Dual Fiber DWDM Mux Demux, FMU Plug-in Module #72433
	<a href="#">FMU-C182761M</a>	18 Channels 1270-1610nm, with Monitor Port, LC/UPC, Dual Fiber CWDM Mux Demux, 1U Rack Mount #33489
	<a href="#">FMU-MC084761EM</a>	8 Channels 1470-1610nm, with Monitor and Expansion Port, LC/UPC, Dual Fiber, Low Insertion Loss CWDM Mux Demux, FMU Plug-in Module #78163
LWDM MUX DEMUX	<a href="#">ABS-L042930A</a>	4 Channels 1295.56-1309.14nm, Single Fiber LAN-WDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97782
	<a href="#">ABS-C062737A</a>	6 Channels 1271-1371nm, Single Fiber CWDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97784
OADM	<a href="#">DOADM-DF</a>	Customized Dual Fiber & Single Fiber DWDM OADM #70427
	<a href="#">COADM-DF</a>	Customized Dual Fiber & Single Fiber CWDM OADM #70425
Chassis	<a href="#">FMU-1UFMX-N</a>	FMU 2-Slot 1U 19" Rack Chassis Unloaded, holds up to 2 Units FMU Plug-in Module #30408
	<a href="#">FUD-1UFMX-N</a>	FUD 4-Slot 1U 19" Rack Chassis Unloaded, holds up to 4 Units FUD Plug-in Module #106578
TRANSPONDERS & MUXPONDERS		
8x 200G	<a href="#">M6800-TSP16</a>	16x 100G QSFP28 to 8x 200G CFP2 OTN Managed Transport Platform#111053
100G/200G	<a href="#">M6500-TMXP5</a>	2x 100G QSFP28/4x 40G QSFP+ to 1x 200G CFP2 Transponder/Muxponder#111049
10G	<a href="#">M6200-OEO10G</a>	5 Channels WDM Transponder (Converter), 10 SFP/SFP+ Slots#107365
	<a href="#">M6500-CH2U</a>	2U Managed Chassis Unloaded Platform, Supports 2x 200G Transponder/Muxponder #96454
	<a href="#">M6500-CH5U</a>	5U Managed Chassis Unloaded Platform, Supports 6x 200G Transponder/Muxponder #111050
	<a href="#">M6200-CH2U</a>	2U Managed Chassis Unloaded Platform, Supports 7x Mux/DEMUX/EDFA/OEO/OLP/DCM Cards #107371
	<a href="#">M6200-CH5U</a>	5U Managed Chassis Unloaded Platform, Supports 15x MUX/DEMUX/EDFA/OEO/OLP/DCM Cards #111052
Chassis		

## OPEN LINE SYSTEM

Amplifiers	<a href="#">M6200-25PA</a>	25dB Gain DWDM EDFA Pre-Amplifier, 16dBm Output#107367
	<a href="#">M6200-20BA</a>	20dBm Output DWDM EDFA Booster Amplifier, 16dB Gain#107366
Dispersion Compensation	<a href="#">M6200-DCM40</a>	40KM DCF-based Passive Dispersion Compensation Module#107370
	<a href="#">M6200-DCM80</a>	80KM DCF-based Passive Dispersion Compensation Module#119071
Line Protection	<a href="#">M6200-OLP2</a>	1+1 Optical Line Protection Switch (OLP)#107368
Red/Blue Filter	<a href="#">M6200-RB</a>	1x2 Single Fiber DWDM Red/Blue Filter#107369
VOA Units	<a href="#">M6200-SFPVOA</a>	SFP Variable Optical Attenuator Module#107373
	<a href="#">AT-M-LCU</a>	Fixed Fiber Optic Attenuators #70009
Chassis	<a href="#">M6200-CH2U</a>	2U Managed Chassis Unloaded Platform, Supports 7x Mux/DEMUX/EDFA/OEO/OLP/DCM Cards #107371
	<a href="#">M6200-CH5U</a>	5U Managed Chassis Unloaded Platform, Supports 15x MUX/DEMUX/EDFA/OEO/OLP/DCM Cards #111052

## WDM TRANSCEIVERS

100G/200G CFP2	<a href="#">M-CFP2-DCO</a>	C14 1566.31nm 100G/200G Tunable CFP2-DCO Coherent Transceiver, up to 1000km #120128
	<a href="#">DWDM-SFP25G-10</a>	25G DWDM SFP28 100GHz 1563.86nm 10km DOM LC SMF Optical Transceiver Module #87000
25G SFP28	<a href="#">CWDM-SFP25G-40S</a>	25G 1270nm CWDM SFP28 40km DOM LC SMF Optical Transceiver Module #100112
	<a href="#">CWDM-SFP25G-10SP</a>	25G 1270nm CWDM SFP28 10km DOM LC SMF Optical Transceiver Module #76003
	<a href="#">LWDM-SFP25G-40</a>	25G LWDM SFP28 1286.66nm 40km DOM LC SMF Optical Transceiver Module #93786
16G/8G FC	<a href="#">DWDM-SFP16G-40</a>	Customized 16G DWDM SFP+ C20-C61 100GHz 40km DDM LC SMF Transceiver Module#73084
	<a href="#">DWDM-SFP16GH-40</a>	Customized 16G DWDM SFP+ 50GHz 40km DDM LC SMF Transceiver Module #73085
	<a href="#">CWDM-SFP16G-40</a>	Customized 16G Fiber Channel CWDM SFP+ 1470-1610nm 40km DDM LC SMF Transceiver Module #80765



	<a href="#">DWDM-SFP10G-80</a>	10G DWDM SFP+ 1559.79nm 80km DOM LC SMF Transceiver Module, Commercial Temperature#31237, Industrial Temperature#113562
	<a href="#">DWDM-SFP10G-40</a>	10G DWDM SFP+ 1560.61nm 40km DOM LC SMF Transceiver Module, Commercial Temperature#38731, Industrial Temperature#113511
10G SFP+	<a href="#">DWDM-SFP10G-C</a>	10G DWDM C-band Tunable SFP+ 50GHz 80km DOM LC SMF Transceiver Module #69267
	<a href="#">CWDM-SFP10G-80L</a>	10G CWDM SFP+ 1470nm 80km DOM LC SMF Transceiver Module #19367
	<a href="#">CWDM-SFP10G-40S</a>	10G CWDM SFP+ 1270nm 40km DOM LC SMF Transceiver Module, Commercial Temperature#22168, Industrial Temperature#112392
	<a href="#">DWDM-SFP1G-EZX</a>	1000BASE-DWDM SFP 100GHz 1563.86nm 100km DOM LC SMF Transceiver Module #54150
	<a href="#">DWDM-SFP1G-ZX</a>	1000BASE-DWDM SFP 1563.86nm 80km DOM LC SMF Transceiver Module #47697
1G SFP	<a href="#">CWDM-SFP1G-EZX</a>	1000BASE-CWDM SFP 1270nm 120km DOM LC SMF Transceiver Module #102776
	<a href="#">CWDM-SFP1G-ZX</a>	1000BASE-CWDM SFP 1270nm 80km DOM LC SMF Transceiver Module #33234

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



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