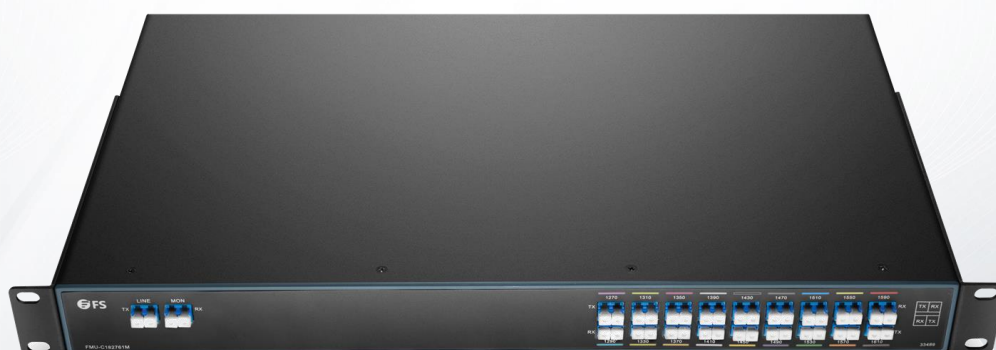


# 18ch Dual Fiber 1270-1610nm CWDM Mux Demux + Monitor Port

1U Rack Mount, LC/UPC

Data Center & Cloud Computing Infrastructure Solutions



## Overview

The CWDM Mux Demux covers all channels from 1270nm to 1610nm in 20nm increments. Without replacing any infrastructure, it totally supports data rates up to 180 Gbps by being completely protocol transparent.

The main fields of applications are the use in SDH (STM-1, STM-4, STM-16, STM-64), IP (Fast Ethernet, Gigabit Ethernet, 10 Gigabit) ATM and storage (1G, 2G, 4G, 8G, 10G Fiber Channel) networks.

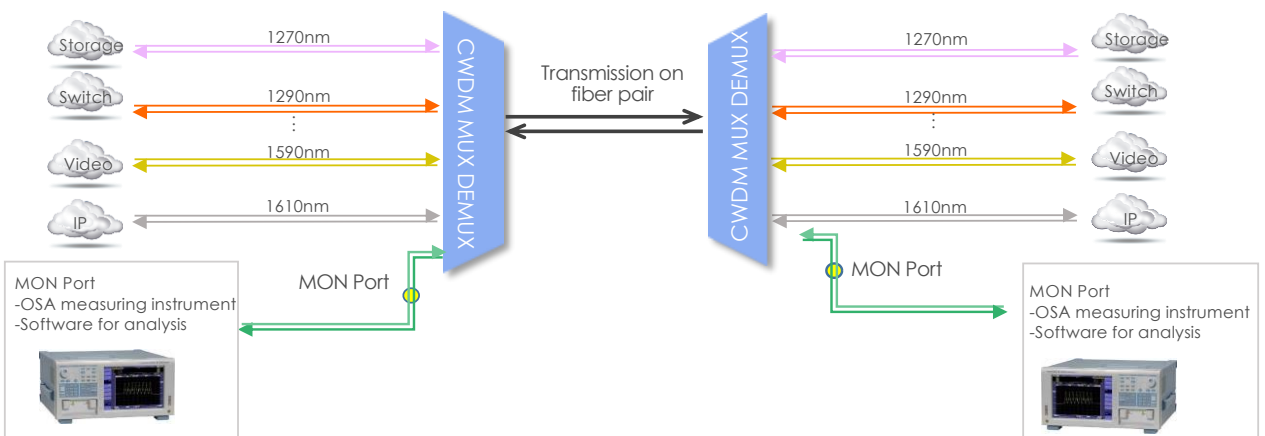
## Highlights

- Multiplexing of up to 18 channels on fiber pair
- Low insertion loss
- 1U 19" low profile modular design
- 1% monitor port for Tx and Rx, ensures easy troubleshooting without downtime
- Duplex LC/UPC, easily support duplex patch cables between transceiver and passive unit
- Compliant to ITU-T G.694.2 standard
- Standard 18-channel CWDM band 1270 nm - 1610 nm, 20 nm spacing
- Based on thin-film filter technology
- Passive, no electric power required. (MTBF ca. 500 years)

## General Specification



33489



## Technical Data

Parameter	Value
Center Wavelength	1270-1610nm
Channel Spacing	20nm
Channel Passband	$\pm 6.5\text{nm}$
Insertion Loss (passband)	$\leq 5.5\text{dB}$
Insertion Loss (1% Mon)	$\leq 24.5\text{dB}$
Adjacent Channel Isolation	$\geq 30\text{dB}$
Non-adjacent Channel Isolation	$\geq 40\text{dB}$
Technology	TFF (Thin Film Filter)
Passband Ripple	$\leq 0.3\text{dB}$
PDL	$\leq 0.3\text{dB}$
Return Loss	$\geq 45\text{dB}$
Directivity	$\geq 50\text{dB}$
PMD	$\leq 0.1\text{ps}$
Power Handling	$\leq 500\text{mW}$
Operating Temperature	-40 ~ +85 ° C
Storage Temperature	-40 ~ +85 ° C
Fiber Type	G657 A1
Connector Type	LC/UPC Connector
Warranty	3 years warranty with free technical support
Dimensions (H x W x D)	1.73"x19"x10.28" (44x481.8 $\pm$ 0.2x261.2mm)

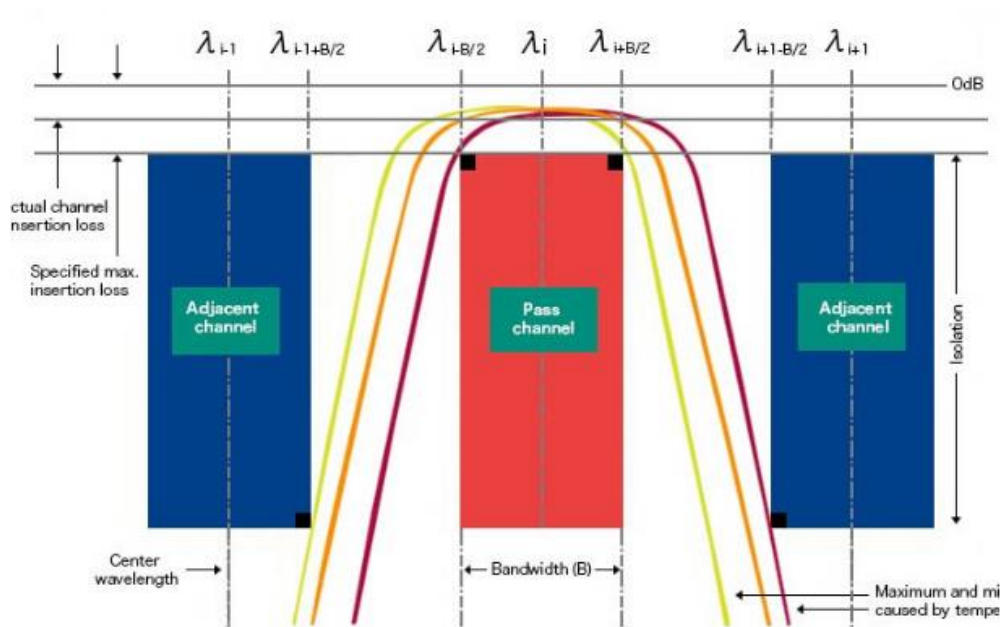
### Notes:

1.Specified with connectors and adapters.

## FS.COM Quality Assurance by Using High-quality CWDM Multiplexers

Our components fulfill or exceed standard market specifications for optical components. It may still not be entirely obvious how different parameters like isolation are more closely defined. The following diagram illustrates the most important parameters, following the "red box model", in accordance with ITU. The channel, including its bandwidth and isolation as defined by the component specifications, delineates a box.

The measured transmission spectrum of each channel has to be above the box. Under no circumstances can it interfere with any neighboring box (channel). Therefore, isolation and insertion losses have to be maintained within the borders set out by the defined center wavelengths and bandwidth.



## 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

## Channel Wavelengths and Color Coding for CWDM

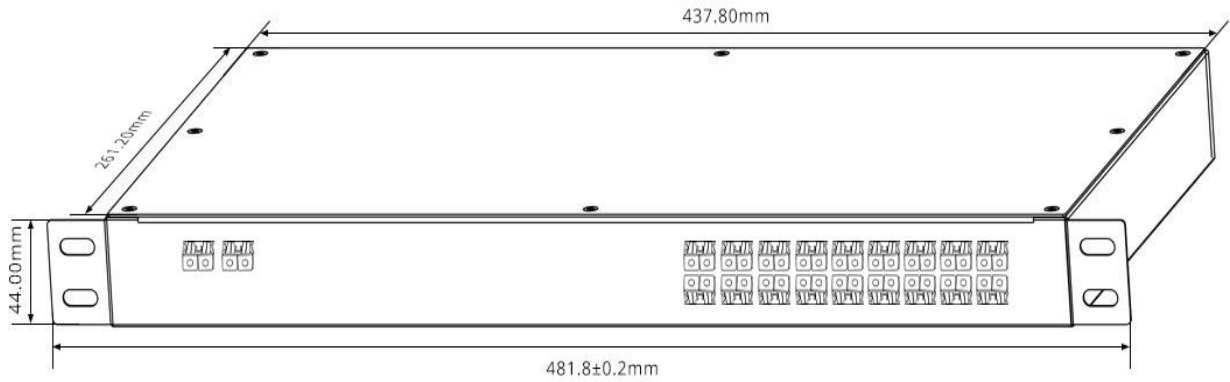
For CWDM systems an industry standard color coding scheme is used. The latches of the transceivers match the colored port indicators on the passive units therefore guaranteeing simple setup, following color codes and wavelength are valid for CWDM.

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	

## Layout and Dimensions

- Width: 481.8±0.2mm (19")
- Height: 44mm (1.73")
- Depth: 261.2mm (10.28")
- The color of the module is black
- All fonts and labels are printed in black



## Ordering Information

Mux Demux & OADM	
	<p><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</p>
DWDM MUX DEMUX	<p><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</p>
	<p><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</p>
	<p><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</p>
CWDM MUX DEMUX	<p><a href="#">FMU-C182761M</a> 18 Channels 1270-1610nm, with Monitor Port, LC/UPC, Dual Fiber CWDM Mux Demux, 1U Rack Mount #33489</p>
	<p><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</p>
LWDM MUX DEMUX	<p><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</p>
	<p><a href="#">ABS-C062737A</a> 6 Channels 1271-1371nm, Single Fiber CWDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97784</p>
OADM	<p><a href="#">DOADM-DF</a> Customized Dual Fiber &amp; Single Fiber DWDM OADM #70427</p>
	<p><a href="#">COADM-DF</a> Customized Dual Fiber &amp; Single Fiber CWDM OADM #70425</p>
Chassis	<p><a href="#">FMU-1UFMX-N</a> FMU 2-Slot 1U 19" Rack Chassis Unloaded, holds up to 2 Units FMU Plug-in Module #30408</p>
	<p><a href="#">FUD-1UFMX-N</a> FUD 4-Slot 1U 19" Rack Chassis Unloaded, holds up to 4 Units FUD Plug-in Module #106578</p>

## TRANSPONDERS &amp; 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
Chassis	<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

## 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
	<a href="#">DWDM-SFP16G-40</a>	Customized 16G DWDM SFP+ C20-C61 100GHz 40km DDM LC SMF Transceiver Module#73084
16G/8G FC	<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
1G SFP	<a href="#">DWDM-SFP1G-ZX</a>	1000BASE-DWDM SFP 1563.86nm 80km DOM LC SMF Transceiver Module #47697
	<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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