

8CH Dual Fiber 1470-1610nm CWDM Mux Demux + Expansion and Monitor Port

FMU Plug-in Module, LC/UPC

Data Center & Cloud Computing Infrastructure Solutions



Overview

The 8CH Mux Demux is a cost-effective, flexible, and suitable for short-distance transmission passive CWDM device based on Free Space technology. It is integrated with a monitor port and an expansion port. The 1% monitor port allows easy troubleshooting without downtime and the expansion port supports expanding the capacity of existing fiber infrastructure. It utilizes 1530nm and 1550nm CWDM channels to transmit multiple DWDM wavelengths within a single CWDM channel, providing a cost-effective and easily scalable solution. In addition, this unit can be used as either a multiplexer or de-multiplexer (Mux/Demux) .

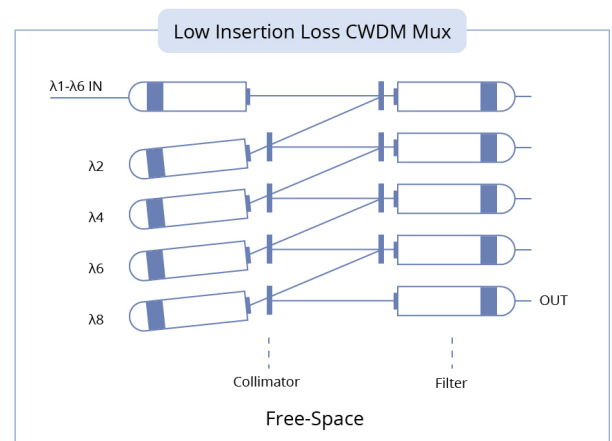
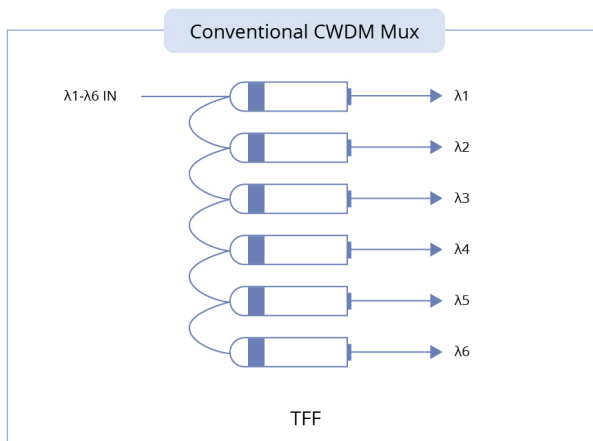
It combines 8-channels of CWDM wavelengths into a composite signal and separates the combined CWDM signal into 8-channels individual wavelengths over a pair of single-mode optical fiber. In accordance with the ITU-T G.694.2, it maximizes the capacity of the C-band range. Designed for maximum configuration flexibility, the CWDM Mux Demux can plug directly into the FMU Chassis, each module occupying one slot. It supports 1G/10G/25G Ethernet, SDH/SONET, 16/8/4/2/1G Fibre Channel, FTTx and CATV, when deployed with FS CWDM optical transceivers, FMT series OEO and OADM modules, it seamlessly enables flexible network architectures ranging from simple point-to-point connections to amplified ring configurations.

Highlights

- Multiplexing of up to 8 Channels on Fiber Pair to Maximize the Using of Existing Fiber
- Low Insertion Loss: Typical 2.0dB, Max 2.4dB
- Compatible with ITU Grid and Interconnects with All 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 and LANWDM within the FMU Chassis
- 100% Passive Operation with No Power Supply or Temperature Control Required
- Passive Transparent Multiplexing at Any Rate, Any Service, Including Ethernet, SDH/SONET, Fibre Channel, FTTx, and CATV
- Suitable for Short Distance Transmission, Commonly Used in Small and Medium-sized Fiber Optic Networks
- The Solution Can be [Customized](#) per Customer Application Requirements
- Fit into One Slot of the [FMU 2-Slot 1U 19" Rack Chassis](#)

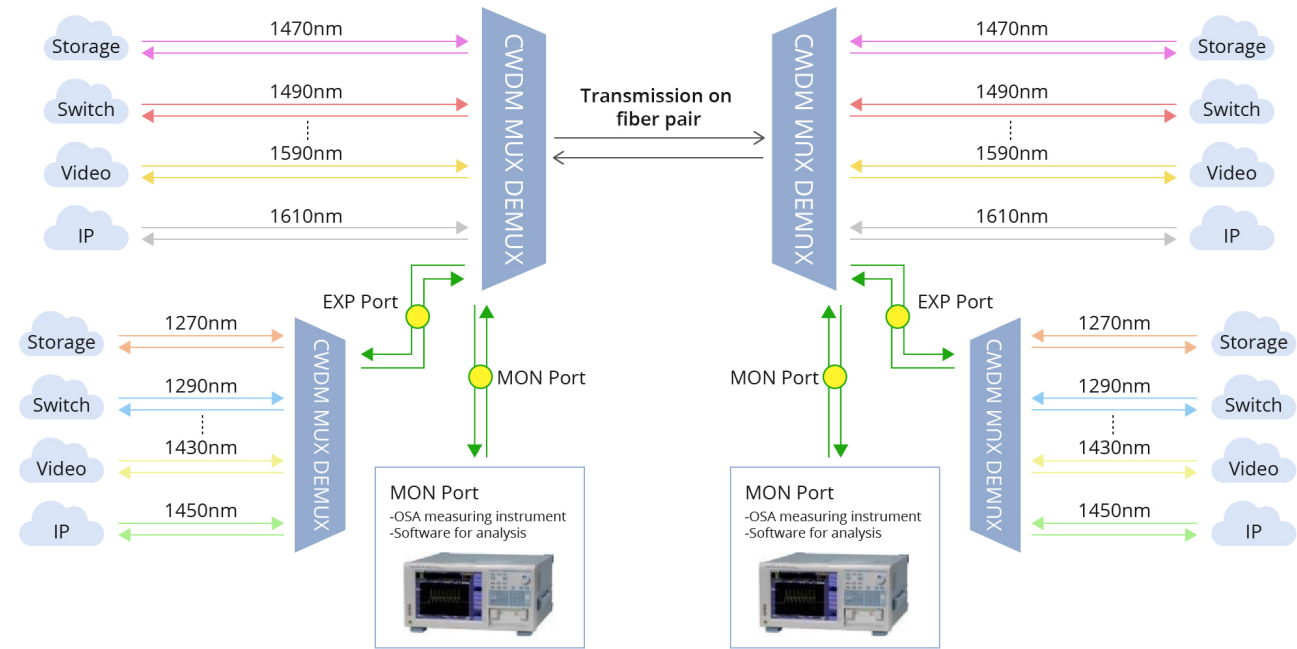
Unique Free-Space Technology

Different from the conventional CWDM Mux, the low insertion loss 8ch CWDM Mux adopts Free-Space technology, which uses light propagating in free space to wirelessly transmit data. This unique technology and great workmanship help it with low insertion loss.



General Specification

78163



Technical Data

Parameter	Value
Channel	8
Wavelength	1470-1610nm
Connector	LC/UPC
Fiber Type	Dual Fiber
Insertion Loss	≤ 2.4dB, 2.0dB Typical
Special Port	Monitor, Expansion Port
Passband Ripple	≤ 0.5dB
Channel Passband	±6.5nm
Technology	Free Space
Channel Spacing	20nm
Channel Isolation	Adjacent ≥ 30dB Non-adjacent ≥ 40dB
Expansion Port Passband	1260nm~1457nm
Insertion Loss @ 1% Mon Port	≤ 24.3dB
Return Loss	≥ 45dB
Property	Passive
Directivity	≥50dB
Ploarization Dependent Loss	≤0.3dB
Ploarization Mode Dispersion	≤0.1ps
Monitoring Type	OPD/OPM
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 (HxWx D)	1.73"x8.35"x10.04" (44x212x255mm)

Notes:
1.Specified with connectors and adapters.

CWDM Mux Demux Series

Application	ID#	Description
-------------	-----	-------------

WHOLEBAND(1270- 1610NM)

Whole band (1270-1610nm)	#33489	18 Channels CWDM Mux Demux, 1270-1610nm, with Monitor Port, 5.0dB Typical IL, LC/UPC, Dual Fiber, 1U Rack Mount
-----------------------------	------------------------	---

Whole band (1270-1610nm)	#333887	18 Channels CWDM Mux Demux, 1270-1610nm, with Monitor Port, 5.0dB Typical IL, LC/UPC, Dual Fiber, FTD Plug-in Module
-----------------------------	-------------------------	--

HIGH BAND(1470-1610NM)

High band (1470-1610nm)	#78163	8 Channels CWDM Mux Demux, 1470-1610nm, with Monitor and Expansion Port, 2.0dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module
----------------------------	------------------------	---

High band (1470-1610nm)	#333873	8 Channels CWDM Mux Demux, 1470-1610nm, with Monitor Port, 2.0dB Typical IL, LC/UPC, Dual Fiber, FTD Plug-in Module
----------------------------	-------------------------	---

High band (1470-1610nm)	#126902	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
----------------------------	-------------------------	--

LOW BAND(1270-1450NM)

Low band (1270-1450nm)	#42937	8 Channels CWDM Mux Demux, 1270-1450nm (Skip 1390, 1410nm), 2.5dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module
---------------------------	------------------------	--

Low band (1270-1450nm)	#42932	4 Channels CWDM Mux Demux, 1270-1330nm, 1.0dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module
---------------------------	------------------------	--

Low band (1270-1450nm)	#33875	8 Channels CWDM Mux Demux, 1270-1450nm (Skip 1390,1410nm), with Monitor Port, 2.5dB Typical IL, LC/UPC, Dual Fiber, FTD Plug-in Module
---------------------------	------------------------	--

SINGLE FIBER

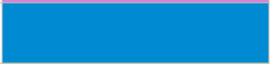
Single fiber	#43711	9 Channels CWDM Mux Demux, 1270-1590nm, 2.4dB Typical IL, LC/UPC, Single Fiber, Side-A, FMU Plug-in Module
--------------	------------------------	--

Single fiber	#43699	9 Channels 1290-1610nm, LC/UPC, Single Fiber CWDM Mux Demux, Side-B, Plug-in Module, used together with ID#43711
--------------	------------------------	--

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

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

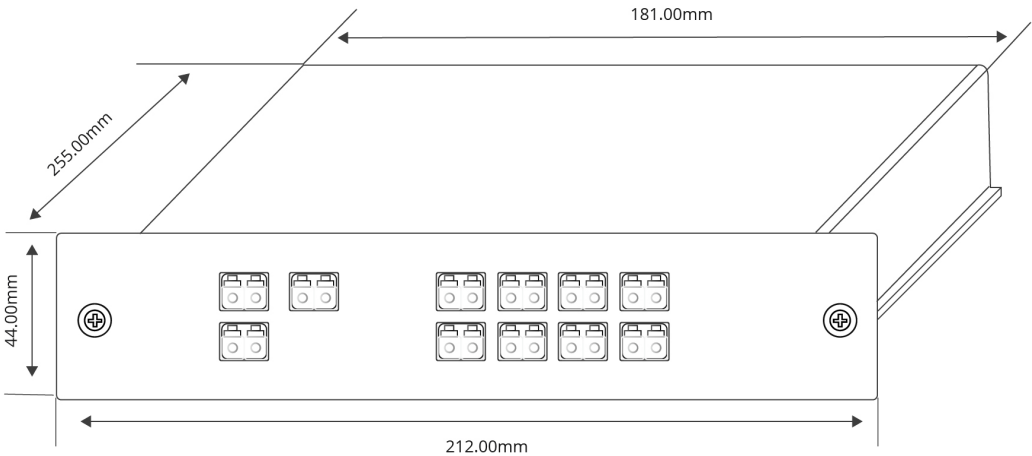
FS.COM offers CWDM transceiver modules in SFP, SFP+, SFP28, 3G-SDI SFP and XFP formats. Every optics is tested in real switches and fully compatible with Cisco, Juniper, Arista, Brocade, Dell, Extreme, etc.

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



Layout and Dimensions

- Width: 212.00 mm (8.35")
- Height: 44.00 mm (1.73")
- Depth: 255.00 mm (10.04")
- The color of the module is black
- All fonts and lables are printed in black

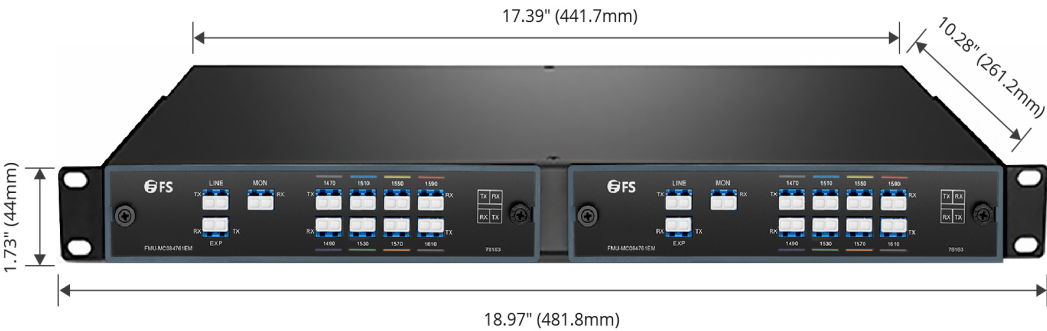


Dimensions

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-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-MC163161 EMS	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-MC082759 EMA	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-MC082961 EMB	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 Series
Mux Demux



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-D64 BMW5	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
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 1310 nm Port, 3.0dB Typical IL, LC/UPC, Dual Fiber, FMU Plug-in Module, CWDM/DWDM Hybrid Solution#72433
FMU-L042728B	4 Channels 1273.55-1286.66 nm, Single Fiber LAN-WDM Mux Demux, Side-B, FMU Plug-in Module, LC/UPC#244655
FMU-L042930A	4 Channels 1295.56-1309.14 nm, Single Fiber LAN-WDM Mux Demux, Side-A, FMU Plug-in Module, LC/UPC#244657
DOADM-DF	Customized Dual Fiber DWDM OADM#70427
COADM-DF	Customized Dual Fiber CWDM OADM#70425

FMU Series
Mux Demux

OADM

Chassis	FMT-1UFMX-N	FMT-1UFMX-N, High Density 1U 19" Rack Chassis Unloaded, Holds up to 2 Units FMT Plug-in Module#30408
	FTD-1UFMX-N	FTD-1UFMX-N, High Density 1U 19" Rack Chassis, Holds up to 9/6/3 FTD Plug-in Modules#333865
	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)#704198

TRANSpondERS & MUXPONDERS

25G	FMT4DL-OEO25GSFP28	FMT4DL-OEO25GSFP28, 4 Channels 25GWDM Transponder (Converter) for FMT Managed Chassis, 8 SFP28/SFP+ Slots#92056
10G	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 SNMPV1 Network Management#39214
	FMT-CH	FMT-CH, Customized4/8/16 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	C 14 1566.31 nm 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 C 17 DWDM-SFP25G-63.86 Compatible SFP28 25G DWDM 1563.86 nm 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 1270 nm 30km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#100112
	CW-SFP25G10-27	Cisco CWDM-SFP25G-1270-10 Compatible SFP28 25G CWDM 1270 nm 10km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#76003
	LW-SFP25G40-86	Cisco LWDM-SFP25G-86.66 Compatible SFP28 25G LWDM 1286.66 nm 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
10G SFP+	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 1470 nm 80 km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#19367
	CW-SFP10G40-27-I	Cisco CWDM-SFP10G-1270-I Compatible SFP+ 10G CWDM 1270 nm 40km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission (Industrial)#112392
1G SFP	DWDM-SFP1G- EZX	Cisco C 17 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 1270 nm 80 km DOM Duplex LC/UPC SMF Optical Transceiver Module for Transmission#33234

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