

A solid red circle positioned to the left of the title text.

COADM-EAW Data Sheet



Contents

Product Overview	3
Product Highlights	3
Technical Specification	4
Line Type	8
Transmission Direction	9
High Quality CWDM Transceivers to Build a Passive CWDM System	10
Ordering Information	11

Product Overview

The customized OADM, based on TFF technology, is a passive CWDM device featuring high flexibility, easy upgradeability, and signal amplification. It supports configurable options for monitor, 1310nm and 1550nm port. The monitor port allows easy troubleshooting without downtime, while the 1310nm and 1550nm port can be utilized to add additional channels, delivering a cost-effective and easily scalable solution. Compliant with ITU-T G.694.2, it maximizes C-band capacity by allowing selected 20nm CWDM channels to be added or dropped from one or two fibers, while all non-terminated wavelengths pass through unaffected. This enables seamless aggregation of multi-site traffic without disrupting existing services. Moreover, the product supports FMU plug-in module, FHD® plug-in module, 1U rack-mount, and ABS modules to meet diverse requirements.

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 Mux/Demux modules, it seamlessly enables flexible network architectures ranging from simple point-to-point connections to amplified ring configurations.

Product Highlights

- Selectively Add or Drop Signals on Single or Dual Fiber
- Compatible with ITU Grid and Interconnects with Optical Networking Products
- 1U Rack Mount, FHD/FMU Plug-in and ABS Module are Available for Various Installation Methods
- Monitor, 1310nm and 1550nm Port are Optional for Diverse Needs
- 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

Technical Specification

Parameter	Dual Fiber				
Number of Channels	1CH	2CH	4CH	8CH	16CH
Operating Wavelength	1260-1620nm				
Channel Spacing	20nm				
Channel Passband	±6.5nm				
Insertion Loss (Add/Drop)	≤0.8dB	≤1.2dB	≤1.9dB	≤4.6dB	≤4.9dB
Insertion Loss (+ 1% Mon)	≤+0.3dB				
Insertion Loss (+ 1310nm port)	≤+0.6dB				
Insertion Loss (+1550nm port)	≤+0.6dB				
Passband Ripple	≤0.3dB				
Adjacent Channel Isolation	≥30dB				
Non-adjacent Channel Isolation	≥35dB				
Technology	TFF (Thin Film Filter)				
Return Loss	≥45dB				

Parameter	Dual Fiber
Directivity	≥50dB
Polarization Dependent Loss	≤0.3dB
Polarization Mode Dispersion	≤0.2ps
Max Optical Power	≤300mW (24.77dBm)
Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Fiber Type	G657 A1
Dimensions	FHD Plug-in Module:1.38"x4.29"x4.64" (35x109x118mm) FMU Plug-in Module: 1.73"x8.35"x10.04" (44x212x255mm) 1U 19" Rack Mount: 1.73"x18.97"x10.28" (44x481.8x261.2mm) ABS Pigtailed Module: 0.9mm/2.0mm/3.0mm cable diameter

Parameter	Single Fiber			
Number of Channels	1CH	2CH	4CH	8CH
Operating Wavelength	1260-1620nm			
Channel Spacing	20nm			
Channel Passband	±6.5nm			
Insertion Loss (Add/Drop)	≤1.2dB	≤1.9dB	≤2.7dB	≤4.8dB
Insertion Loss (+ 1% Mon)	≤+0.6dB			
Insertion Loss (+ 1310nm port)	≤+0.6dB			
Insertion Loss (+ 1550nm port)	≤+0.6dB			
Passband Ripple	≤0.3dB			
Adjacent Channel Isolation	≥30dB			
Non-adjacent Channel Isolation	≥35dB			
Technology	TFF (Thin Film Filter)			
Return Loss	≥45dB			
Directivity	≥50dB			
Polarization Dependent Loss	≤0.3dB			
Polarization Mode Dispersion	≤0.2ps			

Parameter	Single Fiber
Max Optical Power	≤300mW (24.77dBm)
Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Fiber Type	G657 A1
Dimensions	FHD Plug-in Module: 1.38"x4.29"x4.64" (35x109x118mm)
	FMU Plug-in Module: 1.73"x8.35"x10.04" (44x212x255mm)
	1U 19" Rack Mount: 1.73"x18.97"x10.28" (44x481.8x261.2mm)
	ABS Pigtailed Module: 0.9mm/2.0mm/3.0mm cable diameter

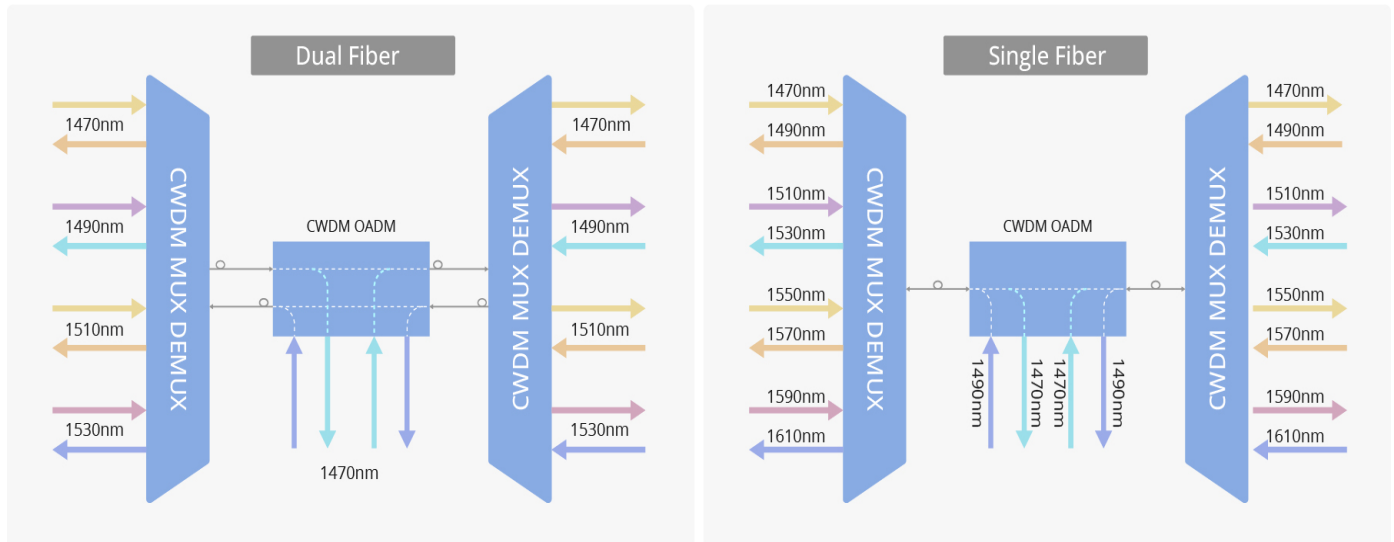
Notes:

- (1) Specified without connectors. Add an additional 0.2dB loss per connector.
- (2) If any Mon/1310nm/1550nm port is added, passband insertion loss will increase about 0.3dB (West or East) / 0.6dB (West and East).

Line Type

Dual-fiber CWDM OADM adds and drops optical signals of same wavelengths into two fibers, while letting the rest of the wavelengths bypass to the needed destination. The CWDM transceiver connected to CWDM OADM should have the same wavelength as the client port.

While the single-fiber CWDM OADM adds and drops optical signals of different wavelengths into a fiber in the opposite direction. It utilizes a single fiber for both adding and dropping, which reduces overall costs, and increases the capacity of the fiber.

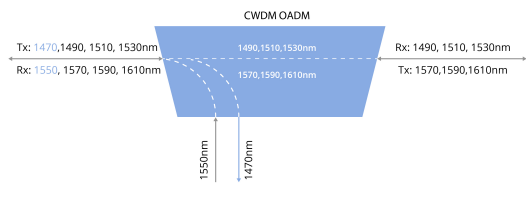
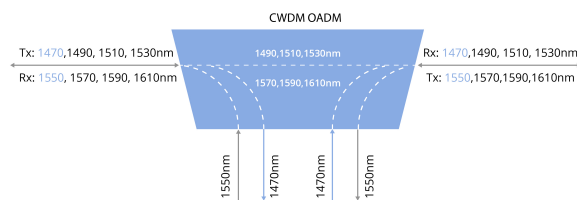
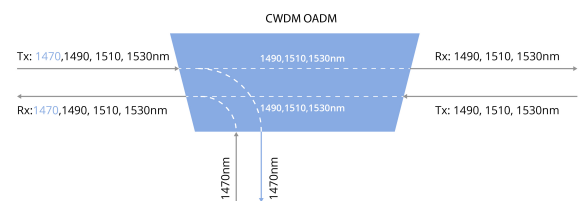
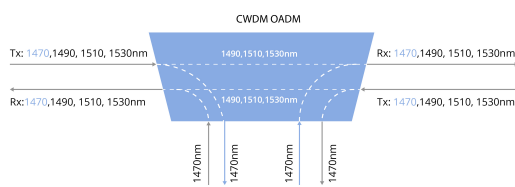


Transmission Direction

For adding/dropping CWDM channels across sites, we categorize our CWDM OADM in two groups: single-sided (East or West) and dual-sided (East and West) OADM. If CWDM OADM adds/drops the wavelengths in one side on fiber network, it is the East or West OADM; On the contrary, it is the East and West OADM.

The East and West OADM removes one channel from the network in one direction and sends it to a local interface in one direction. It also allows a second local port to add the same channel back onto the network fiber in the opposite direction.

The East or West OADM removes one channel from the network in one direction and sends it to a local interface. The remaining channels are passed straight through to other nodes along the network.



Special Service

1. Monitor Port

Monitor port is used to monitor or test the power signal, usually at a 1% ratio, 2%, 3%, 5%, etc, also available. By connecting with measurement or monitoring equipment, such as power meters, spectrum analyzer, or OPM/OPD, the signal can be inspected without interrupting the existing network.

2. 1310nm Port

These two extra ports allow existing legacy 1310nm traffic to be added such as conventional SFP, SFP+ or other data rate conventional transceiver.

3. 1550nm Port

The 1550nm Port can be used to cascade with another OADM for expansion.

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

ITU Channel Guiding

ITU Channel No.	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61
Wavelength (nm)	1270	1290	1310	1330	1350	1370	1390	1410	1430	1450	1470	1490	1510	1530	1550	1570	1590	1610

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-D60OCMW5	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-D60ECMW5	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-D40ODMW5	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		
FHD Series Mux Demux	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
	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
	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
Custom Mux Demux	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
	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
	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
	FMT04-CH1U	FMT04-CH1U, 4 Slots 1U Managed Chassis Unloaded Platform, Redundant AC PSUs, Support SNMP V1 Network Management#39214
Chassis	FMTCH	FMT-CH, Customized 4/8/16 Slots 1U/2U/4U Managed Chassis Unloaded Platform, Redundant AC/DC PSUs, Support SNMP Network Management#70413

WDMTRANSCEIVERS

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.



Delaware, United States

Address: Delaware: 380 Centerpoint Blvd, New Castle, DE 19720, United States
Email: US@fs.com
Tel: +1 (888) 468-9910

Germany

Address: Röntgenstraße 18, 85757 Karlsfeld, Germany
Email: DE@fs.com
Tel: +49 (0) 8131 377 3008

Australia

Address: 57-59 Edison Rd, Dandenong South, VIC 3175, Australia
Email: AU@fs.com
Tel: +61 3 5909 9990

Japan

Address: JS Progress Building 5F, 4-1-23, Heiwajima, Ota Ku, Tokyo, 143-0006, Japan
Email: JP@fs.com
Tel: +81-3-6897-9438

California, United States

Address: California: 15241 Don Julian Rd, City of Industry, CA 91745, United States
Email: US@fs.com
Tel: +1 (888) 468-9910

United Kingdom

Address: Unit 8, Urban Express Park, Union Way, Aston, Birmingham B6 7FH, United Kingdom
Email: UK@fs.com
Tel: +44 (0) 121 726 4775

Singapore

Address: 7002 ANG MO KIO AVENUE 5 #05-02 Singapore 569914
Email: SG@fs.com
Tel: +65 31381992



FS has several offices around the world. Addresses, phone numbers are listed on the FS Website at https://www.fs.com/contact_us.html. FS and FS logo are trademarks or registered trademarks of FS in the U.S. and other countries.