FS.COM

Data Center & Cloud Computing

DATASHEET

FMU-MC04E-A/B, w/Expansion Port

4 Channels Single Fiber CWDM Mux Demux, Plug-in Module, LC/UPC

Data Center & Cloud Computing
Infrastruture Solutions

REV.1.0
2018

Overview

These compact CWDM Mux Demux work in a pair to provide 4 bidirectional channels on a single strand of fiber. They use the 4 CWDM wavelengths 1490 to 1610nm being used in each direction.

The main fields of application 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 Fibre Channel) networks.

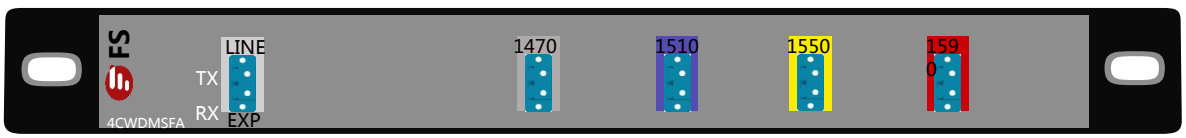
Highlights

- 4 bi-directional channels using standard 8-channel CWDM band 1490-1610nm, 20 nm spacing
- Low insertion loss
- Low-profile modular design, fits in FMU 2-slot 1U chassis
- Duplex LC/UPC, easily support duplex patch cables between transceiver and passive unit
- Compliant to ITU-T G.694.2 standard
- Based on thin-film filter technology
- Passive, no electric power required. (MTBF ca. 500 years)

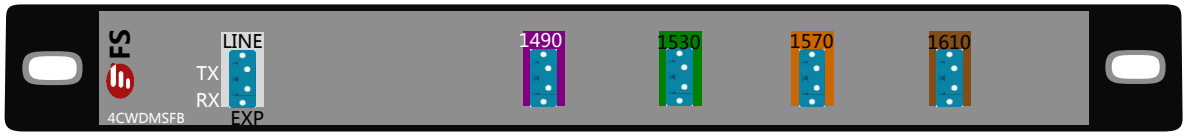
Front View

Single fiber bi-directional transmission should be used in pairs, Mux/Demux port for specific wavelength mush be opposite.
Color coding helps to indicate the wavelength of the individual CWDM transceivers.

FMU-MC04E-A



FMU-MC04E-B



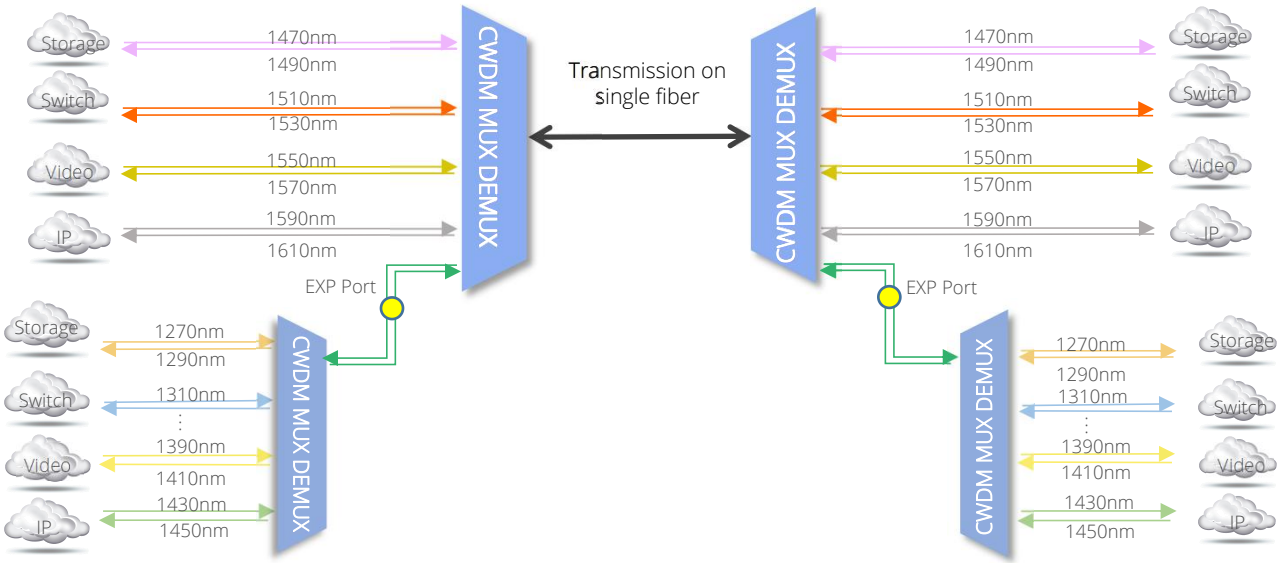
Technical Data

Parameter	Unit	Value
Center Wavelength FMU-MC04E-A	nm	Tx/Rx:1470/1490, 1510/1530, 1550/1570, 1590/1610
Center Wavelength FMU-MC04E-B	nm	Tx/Rx:1490/1470, 1530/1510, 1570/1550, 1610/1590
Channel Spacing	nm	20
Channel Passband	nm	±6.5
Insertion Loss	dB	≤ 3.1
Insertion Loss (Exp)	dB	≤ 2.8
Adjacent Channel Isolation	dB	≥ 30
Non-adjacent Channel Isolation	dB	≥ 35
Technology	--	TFF (Thin Film Filter)
Passband Ripple	dB	≤ 0.3
PDL	dB	≤ 0.3
Return Loss	dB	≥ 45
Directivity	dB	≥ 50
PMD	ps	≤ 0.2
Power Handling	mW	≤ 300
Operating Temperature	°C	-5 ~ +75
Storage Temperature	°C	-40 ~ +85

Note: Specified with connectors and adapters.

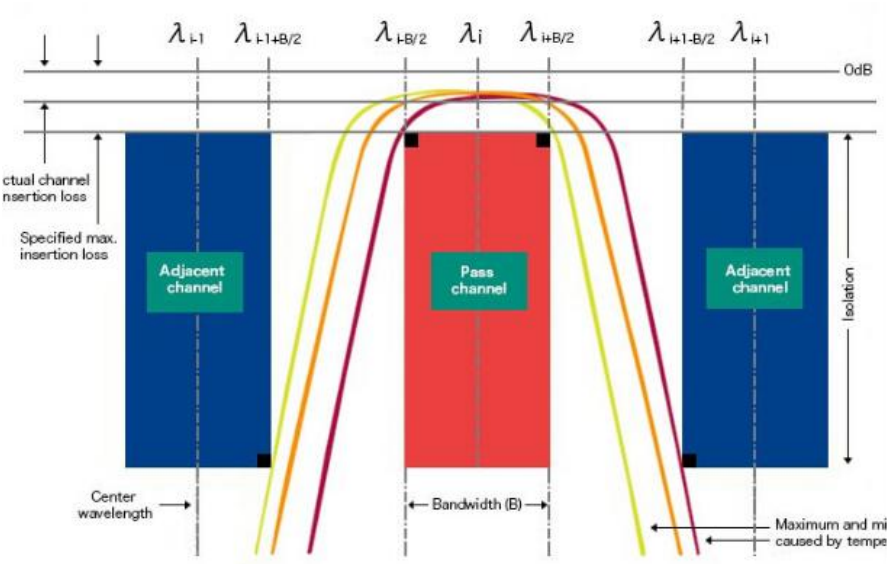
Function

Increase capacity on the existing fiber infrastructure.



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.



CWDM Mux Demux Series

Application	ID#	Description
WHOLE BAND (1270-1610NM)		
Whole band (1270-1610nm)	33489	18 ch. CWDM Mux Demux, 1270-1610nm, with monitor port, IL Link ≤ 5.2dB, duplex LC/UPC
HIGH BAND (1470-1610NM)		
Highband (1470-1610nm)	43099	8 ch. CWDM Mux Demux, 1470-1610nm, with expansion port, IL Link ≤ 3.1dB, duplex LC/UPC
High band (1470-1610nm)	43097	8 ch. CWDM Mux Demux, 1470-1610nm, IL Link ≤ 3.1dB, duplex LC/UPC
High band (1470-1610nm)	42973	4 ch. CWDM Mux Demux, 1510-1570nm, with expansion port, IL Link ≤ 2.2dB, duplex LC/UPC
High band (1470-1610nm)	42944	4 ch. CWDM Mux Demux, 1510-1570nm, IL Link ≤ 2.2dB, duplex LC/UPC
LOW BAND (1270-1430NM)		
Low band (1270-1430nm)	42945	8 ch. CWDM Mux Demux, 1290-1430nm, IL ≤ 3.1dB, duplex LC/UPC, Expansion Mux Demux to ID#43099
LOW band (1270-1450nm)	42937	8 ch. CWDM Mux Demux, 1270-1450nm (Skip 1390, 1410nm), IL ≤ 3.1dB, duplex LC/UPC, Expansion Mux Demux to ID#42973
Low band (1270-1430nm)	42972	4 ch. CWDM Mux Demux, 1270-1330, IL ≤ 2.2dB, duplex LC/UPC, Expansion Mux Demux to ID#42973
SINGLE FIBER		
Single fiber	43699	9 ch. CWDM Mux Demux, single fiber, 1270-1590nm, for transceiver wavelengths, IL ≤ 4.9dB, LC/UPC, used together with ID#43711
Single fiber	43711	9 ch. CWDM Mux Demux, single fiber, 1290-1610nm, for transceiver wavelengths, IL ≤ 4.9dB, LC/UPC, used together with ID#43699
Single fiber	48393	4 ch. CWDM Mux Demux, Single Fiber, 1470-1590nm for transceiver wavelengths, IL ≤ 3.1dB, LC/UPC, used together with ID#48394
Single fiber	48394	4 ch. CWDM Mux Demux, Single Fiber, 1490-1610nm for transceiver wavelengths, IL ≤ 3.1dB, LC/UPC, used together with ID#48393

*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 tranceivers match the colored port indicators on the passive units therefore gauranteeing 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+, XFP, Xenpak and X2 formats. Every optics is tested in real switches and full compatible with Cisco, Juniper, Arista, Brocade, Dell, Extreme, etc.

Transmission distances range from 10-120 km for Gigabit speeds, and 10-100km for 10 Gigabit speeds, without the use of optical amplifiers.

CWDM-SFP-1550

CWDM-10G SFP+-1470

CWDM-XFP-1490-80

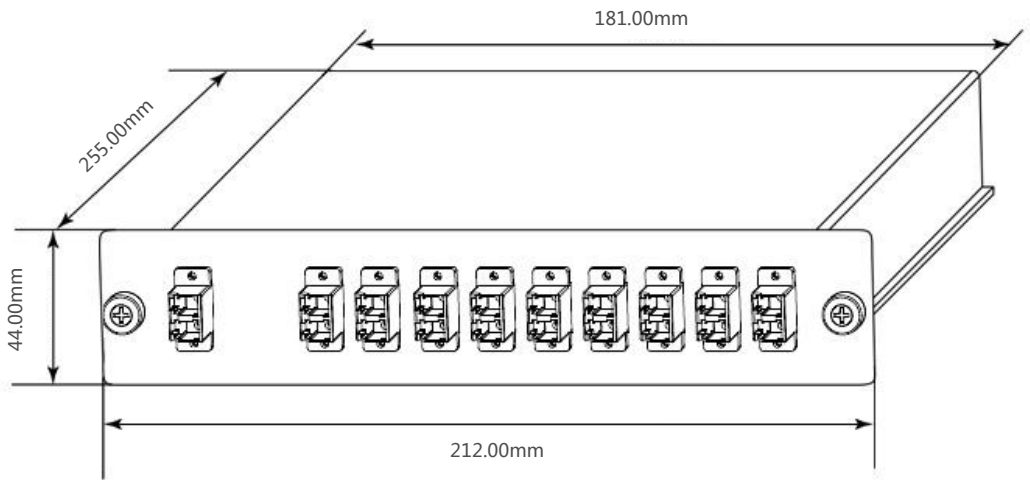
10G CWDM X2

10G CWDM XENPAK

Layout and Dimensions (skip plastic frame)

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

- The color of the module is black
- All fonts and lables are printed in black



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