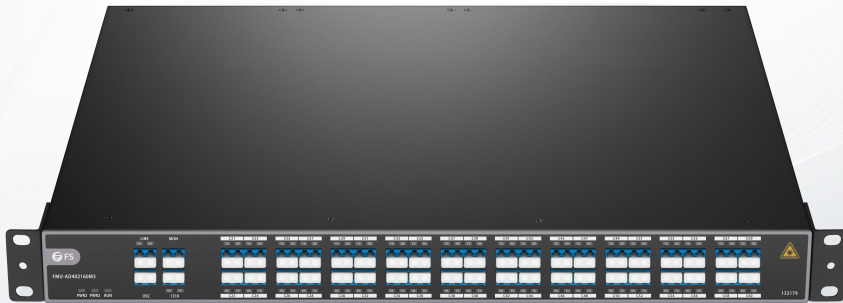


# Active 40ch C21-C60 DWDM Mux Demux + Monitor Port + 1310nm Port

1U Rack Mount, LC/UPC

Data Center & Cloud Computing Infrastructure Solutions



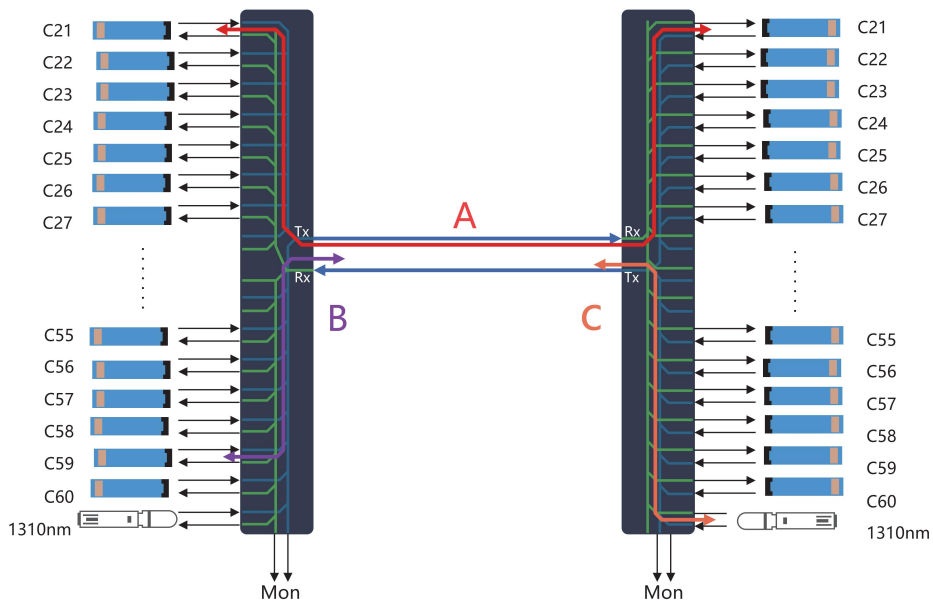
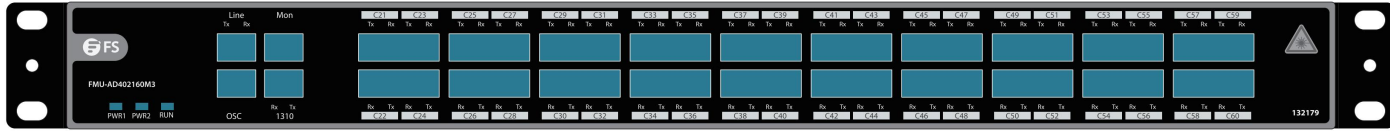
## Overview

The Active 40ch Mux Demux is exactly like using a passive multiplexer, but unlike passive multiplexer, it monitors the traffic with Web management and the front visual indicators. It is a high density, low loss and standalone DWDM device based on AAWG technology. In accordance with the ITU-T G.694.1 100GHz grid, it maximizes the capacity of the C-band range.

## Highlights

- Easy Web Management, no professional skills required
- 1% monitor port for easy troubleshooting without downtime
- 1310nm port for existing legacy traffic, such as 1000Base SFP LX/EX, 10G SFP+ LR/ER, 40G/100G ER4/LR4
- Multiplexing of 40 channels on one fiber pair
- 4.8dB Typical insertion loss
- 1U 19" low profile modular design
- LC/UPC duplex connectors
- Compliant to ITU G.694.1, 100GHz ITU grid, 0.8 nm spacing
- Based on AAWG technology with Gaussian shaped passbands

## General Specification



## Technical Data

Parameter	Value
<b>ITU Channel</b>	40 channels C21-C60 (DWDM ports)
<b>Operating Wavelength</b>	1520-1570nm
<b>Link Loss, Per Channel (A)<sup>1</sup></b>	≤ 11.0dB
<b>Insertion Loss, Per Channel (B)<sup>1</sup></b>	≤ 5.5dB, 4.8dB typical
<b>Insertion Loss, 1310nm Port(C)<sup>1</sup></b>	≤ 1.5dB
<b>Insertion Loss (1% Mon)<sup>1</sup></b>	≤ 26dB

<b>Channel Spacing</b>	100GHz (0.8nm)
<b>Channel Passband</b>	$\pm 0.1\text{nm}$
<b>Center Wavelength Accuracy</b>	$\pm 0.05\text{nm}$
<b>-1 dB Channel Bandwidth</b>	$\geq 0.2\text{nm}$
<b>-3 dB Channel Bandwidth</b>	$\geq 0.4\text{nm}$
<b>Adjacent Channel Isolation</b>	$\geq 25\text{dB}$
<b>Non-adjacent Channel Isolation</b>	$\geq 30\text{dB}$
<b>Filter Technology</b>	AAWG (Gaussian)
<b>Insertion Loss Uniformity</b>	$\leq 1.5\text{dB}$
<b>Return Loss</b>	$\geq 40\text{dB}$
<b>Directivity</b>	$\geq 40\text{dB}$
<b>Polarization Dependent Loss</b>	$\leq 0.9\text{dB}$
<b>Polarization Mode Dispersion</b>	$\leq 0.5\text{ps}$
<b>Power Handling</b>	$\leq 500\text{mW}$
<b>Operating Temperature</b>	$-5^{\circ}\text{C} \sim +65^{\circ}\text{C}$
<b>Storage Temperature</b>	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

**Notes:**

1. Specified with connectors and adapters.

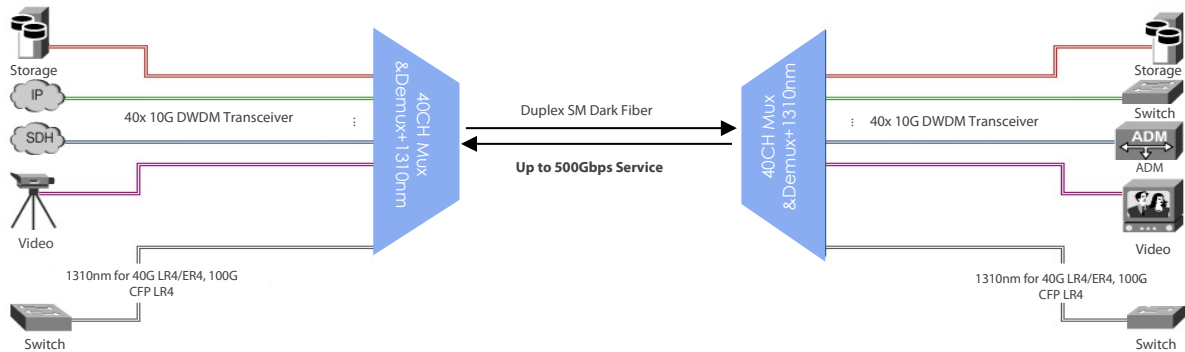
## Application Example

Overlaying 10Gbps Networks with Additional 40Gbps or 100Gbps Services

How to add 40Gbps and 100Gbps services to your existing metro networks without effecting the legacy installation?

In fact, you just need to plug 40G or 100G fiber optic transceiver into the terminal equipment (Ethernet switch, router etc.) , then use the patch cable to connect it to your existing DWDM network via a 1310nm band pass port on the DWDM multiplexer.

Since the 1310nm band port is integrated into a 40 channels 100GHz DWDM multiplexer, then this set-up allows the transport of up to 40 x10Gbps plus 100Gbps over one fiber pair, in total 500Gbps, but without replacing any infrastructure.



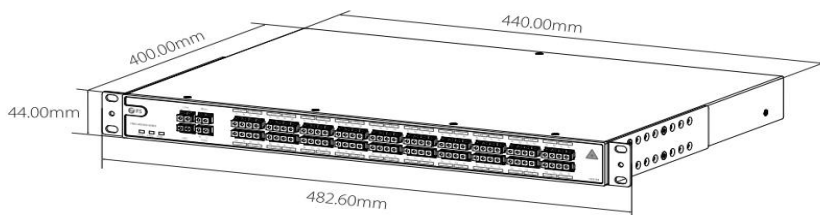
## ITU Channel Guiding

ITU Channel (xx or yy)	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Wavelength (nm)	1560.61	1559.79	1558.98	1558.17	1557.36	1556.55	1555.75	1554.94	1554.13	1553.33	1552.52	1551.72	1550.92	1550.12	1549.32	1548.51	1547.72	1546.92	1546.12	1545.32

ITU Channel (xx or yy)	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Wavelength (nm)	1544.53	1543.73	1542.94	1542.14	1541.35	1540.56	1539.77	1538.98	1538.19	1537.40	1536.61	1535.82	1535.04	1534.25	1533.47	1532.68	1531.90	1531.12	1530.33	1529.55

## Layout and Dimensions

- Width: 482.6mm (19")
- Height: 44mm (1.73")
- Depth: 400mm (12")
- The color of the module is black
- All fonts and lables are printed in black



## 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
	<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
CWDM MUX DEMUX	<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
	<a href="#">M6200-OEO100G</a>	3 Channels 40G & 100G WDM Transponder, QSFP28 to QSFP28, QSFP+ to QSFP+ #129994
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
Chassis	<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
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
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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