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

1U Rack Mount, LC/UPC
Data Center & Cloud Computing Infrastructure Solutions

Overview

The 40ch Mux Demux is a high density, low loss and standalone passive optical module that provides excellent solution for infrastructure savings by aggregating all 40 DWDM channels at a single site. All 40 channels are spreading over the C-band per ITU-T 100GHz spacing between channels using high quality AAWG technology.

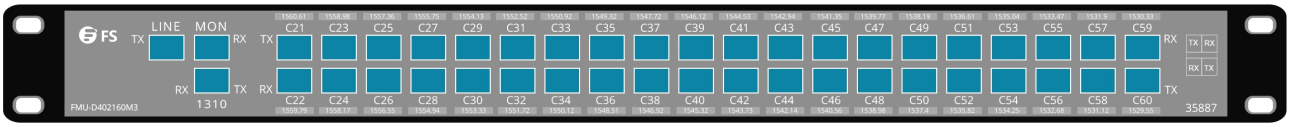
The 1310nm port can be used for 40G/100G transceivers (40GBASE-LR4/ER4 resp. 100GBASE-LR4/ER4). The 40 DWDM channels are able to transport 400Gbps so that one can run totally 500Gbps over this unit.

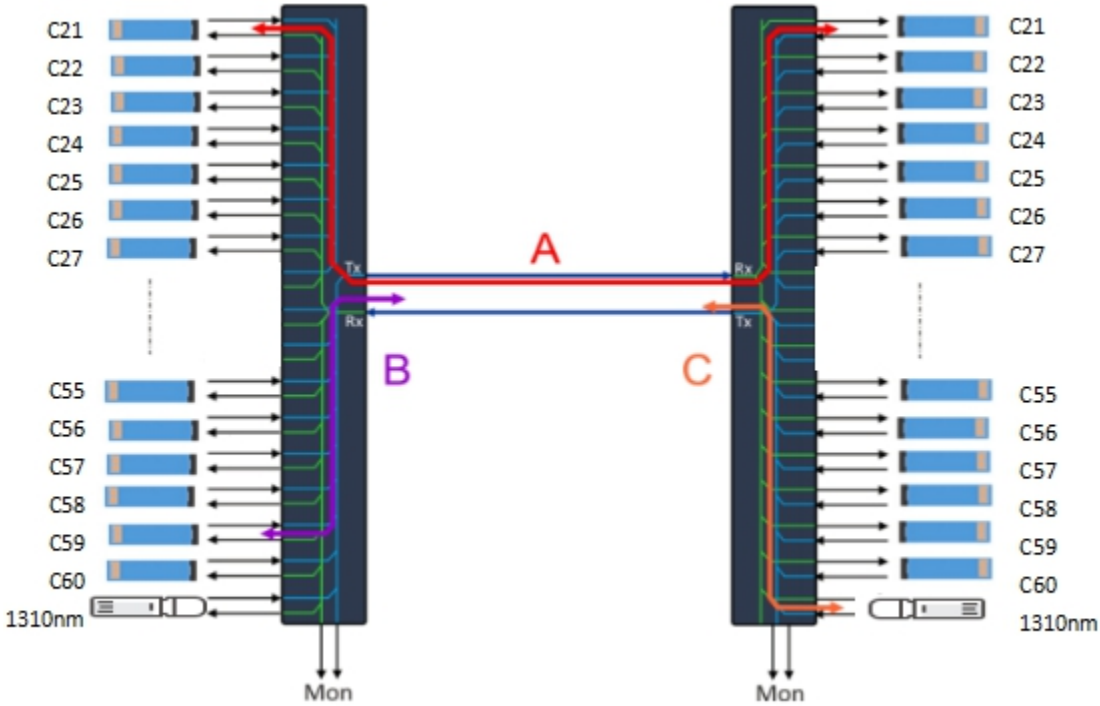
Highlights

- Multiplexing of 40 channels on fiber pair
- Low insertion loss
- 1U 19'' low profile modular design
- LC/UPC duplex connectors
- 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
- Compliant to ITU G.694.1, 100GHz ITU gird, 0.8 nm spacing
- Based on AAWG technology with Gaussian shaped pass bands
- Passive, no electricity needed (MTBF ca. 500 years)

Front View and Port Description

LINE Port		Special Service		Channel Port				
LINE TX	LINE RX	Mon TX	Mon RX	C21 TX	C21 RX	…	C59 TX	C59 RX
		1310 RX	1310 TX	C22 RX	C22 TX	…	C60 RX	C60 TX





Technical Data

Parameter	Value
ITU Channel	40 channels C21-C60 (DWDM ports)
Operating Wavelength	1520-1570nm
Link Loss, Per Channel (A)	≤ 11.0dB
Insertion Loss, Per Channel (B)	≤ 5.5dB, 4.5dB Typical
Insertion Loss, 1310nm Port (C)	≤ 1.5dB
Insertion Loss (1% Mon)	≤ 26dB

Channel Spacing	100GHz (0.8nm)
Channel Passband	±0.11nm
Center Wavelength Accuracy	±0.05nm
-1 dB Channel Bandwidth	≥ 0.40nm
-3 dB Channel Bandwidth	≥ 0.60nm
Adjacent Channel Isolation	≥ 25dB
Non-adjacent Channel Isolation	≥ 29dB
Filter Technology	AAWG (Flat-top)
Insertion Loss Uniformity	≤ 1.5dB
Return Loss	≥ 40dB
Directivity	≥ 40dB
Polarization Dependent Loss	≤ 0.7dB
Polarization Mode Dispersion	≤ 0.5ps
Power Handling	≤ 300mW
Operating Temperature	-5° C~ +65° C
Storage Temperature	-40° C~ +85° C

Notes:

1. Specified with connectors and adapters.

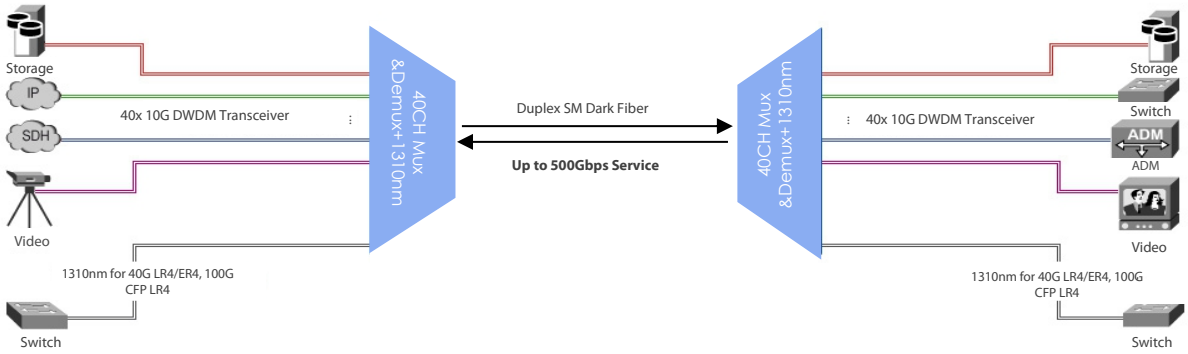
Application Example

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

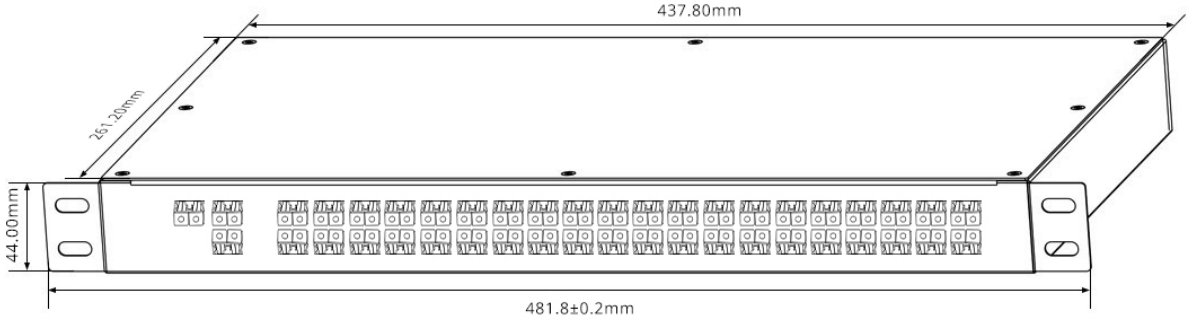
ITU Channel (xx or yy)	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Wavelength (nm)	1560.61	1559.79	1558.98	1558.17	1557.36	1556.55	1555.75	1554.94	1554.13	1553.33	1552.52	1551.72	1550.92	1550.12	1549.32	1548.51	1547.72	1546.92	1546.12	1545.32

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: 481.8±0.2mm (19")
- Height: 44mm (1.73")
- Depth: 261.2mm (10.28")

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



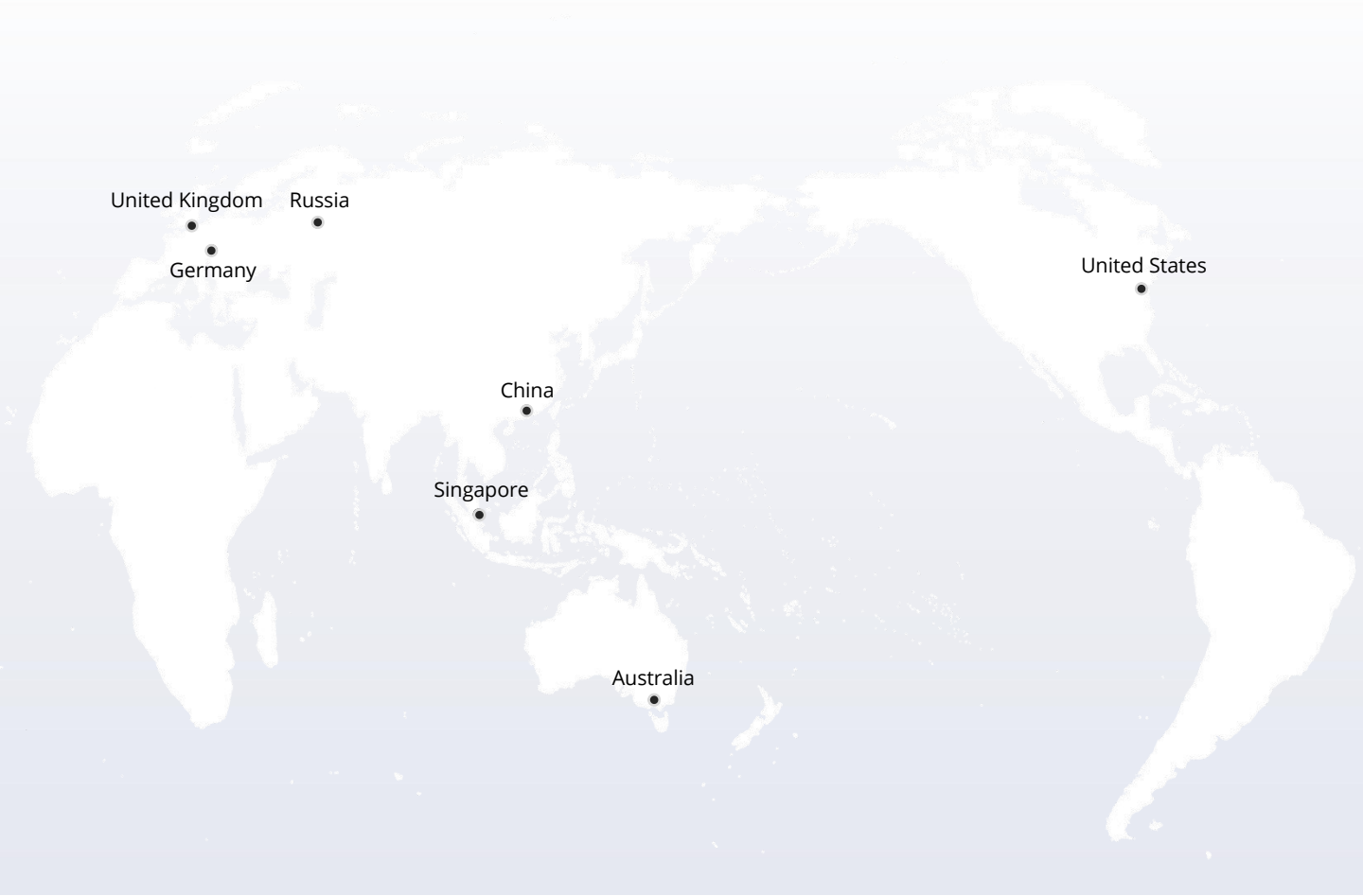
Ordering Information

Mux Demux & OADM		
DWDM MUX DEMUX	FMU-D402160M3	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
	M6200-D2160M	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
	FMU-D162136EM3	16 Channels 100GHz C21-C36, with Monitor, Expansion and 1310nm Port, LC/UPC, Dual Fiber DWDM Mux Demux, 1U Rack Mount #72430
	FMU-MD085360EM3	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	FMU-C182761M	18 Channels 1270-1610nm, with Monitor Port, LC/UPC, Dual Fiber CWDM Mux Demux, 1U Rack Mount #33489
	FMU-MC084761EM	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	ABS-L042930A	4 Channels 1295.56-1309.14nm, Single Fiber LAN-WDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97782
	ABS-C062737A	6 Channels 1271-1371nm, Single Fiber CWDM Mux Demux, Side-A, ABS Pigtailed Module, LC/UPC #97784
OADM	DOADM-DF	Customized Dual Fiber & Single Fiber DWDM OADM #70427
	COADM-DF	Customized Dual Fiber & Single Fiber CWDM OADM #70425
Chassis	FMU-1UFMX-N	FMU 2-Slot 1U 19" Rack Chassis Unloaded, holds up to 2 Units FMU Plug-in Module #30408
	FUD-1UFMX-N	FUD 4-Slot 1U 19" Rack Chassis Unloaded, holds up to 4 Units FUD Plug-in Module #106578
TRANSPONDERS & MUXPONDERS		
8x 200G	M6800-TSP16	16x 100G QSFP28 to 8x 200G CFP2 OTN Managed Transport Platform#111053
100G/200G	M6500-TMXP5	2x 100G QSFP28/4x 40G QSFP+ to 1x 200G CFP2 Transponder/Muxponder#111049
10G	M6200-OEO10G	5 Channels WDM Transponder (Converter), 10 SFP/SFP+ Slots#107365
Chassis	M6500-CH2U	2U Managed Chassis Unloaded Platform, Supports 2x 200G Transponder/Muxponder #96454
	M6500-CH5U	5U Managed Chassis Unloaded Platform, Supports 6x 200G Transponder/Muxponder #111050
	M6200-CH2U	2U Managed Chassis Unloaded Platform, Supports 7x Mux/DEMUX/EDFA/OEO/OLP/DCM Cards #107371
	M6200-CH5U	5U Managed Chassis Unloaded Platform, Supports 15x MUX/DEMUX/EDFA/OEO/OLP/DCM Cards #111052

OPEN LINE SYSTEM		
Amplifiers	M6200-25PA	25dB Gain DWDM EDFA Pre-Amplifier, 16dBm Output#107367
	M6200-20BA	20dBm Output DWDM EDFA Booster Amplifer, 16dB Gain#107366
Dispersion Compensation	M6200-DCM40	40KM DCF-based Passive Dispersion Compensation Module#107370
	M6200-DCM80	80KM DCF-based Passive Dispersion Compensation Module#119071
Line Protection	M6200-OLP2	1+1 Optical Line Protection Switch (OLP)#107368
Red/Blue Filter	M6200-RB	1x2 Single Fiber DWDM Red/Blue Filter#107369
VOA Units	M6200-SFPVOA	SFP Variable Optical Attenuator Module#107373
	AT-M-LCU	Fixed Fiber Optic Attenuators #70009
Chassis	M6200-CH2U	2U Managed Chassis Unloaded Platform, Supports 7x Mux/DEMUX/EDFA/OEO/OLP/DCM Cards #107371
	M6200-CH5U	5U Managed Chassis Unloaded Platform, Supports 15x MUX/DEMUX/EDFA/OEO/OLP/DCM Cards #111052
WDM TRANSCEIVERS		
100G/200G CFP2	M-CFP2-DCO	C14 1566.31nm 100G/200G Tunable CFP2-DCO Coherent Transceiver, up to 1000km #120128
25G SFP28	DWDM-SFP25G-10	25G DWDM SFP28 100GHz 1563.86nm 10km DOM LC SMF Optical Transceiver Module #87000
	CWDM-SFP25G-40S	25G 1270nm CWDM SFP28 40km DOM LC SMF Optical Transceiver Module #100112
	CWDM-SFP25G-10SP	25G 1270nm CWDM SFP28 10km DOM LC SMF Optical Transceiver Module #76003
	LWDM-SFP25G-40	25G LWDM SFP28 1286.66nm 40km DOM LC SMF Optical Transceiver Module #93786
16G/8G FC	DWDM-SFP16G-40	Customized 16G DWDM SFP+ C20-C61 100GHz 40km DDM LC SMF Transceiver Module#73084
	DWDM-SFP16GH-40	Customized 16G DWDM SFP+ 50GHz 40km DDM LC SMF Transceiver Module #73085
	CWDM-SFP16G-40	Customized 16G Fiber Channel CWDM SFP+ 1470-1610nm 40km DDM LC SMF Transceiver Module #80765

10G SFP+	DWDM-SFP10G-80	10G DWDM SFP+ 1559.79nm 80km DOM LC SMF Transceiver Module, Commercial Temperature#31237, Industrial Temperature#113562
	DWDM-SFP10G-40	10G DWDM SFP+ 1560.61nm 40km DOM LC SMF Transceiver Module, Commercial Temperature#38731, Industrial Temperature#113511
	DWDM-SFP10G-C	10G DWDM C-band Tunable SFP+ 50GHz 80km DOM LC SMF Transceiver Module #69267
	CWDM-SFP10G-80L	10G CWDM SFP+ 1470nm 80km DOM LC SMF Transceiver Module #19367
	CWDM-SFP10G-40S	10G CWDM SFP+ 1270nm 40km DOM LC SMF Transceiver Module, Commercial Temperature#22168, Industrial Temperature#112392
1G SFP	DWDM-SFP1G-EZX	1000BASE-DWDM SFP 100GHz 1563.86nm 100km DOM LC SMF Transceiver Module #54150
	DWDM-SFP1G-ZX	1000BASE-DWDM SFP 1563.86nm 80km DOM LC SMF Transceiver Module #47697
	CWDM-SFP1G-EZX	1000BASE-CWDM SFP 1270nm 120km DOM LC SMF Transceiver Module #102776
	CWDM-SFP1G-ZX	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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