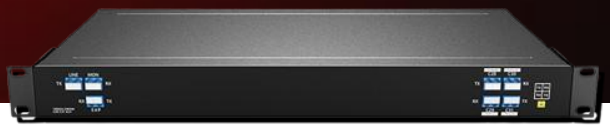
DWDM-4-1U

DWDM MUX DEMUX

4ch, Dual Fiber, MON/EXP, LC/UPC, 1U Rack



Overview

The 4 channel DWDM mux/demux is the smallest step into DWDM that still pays: four wavelengths on one fiber pair, enough to add capacity to a span that is already full. Channels sit on C28 to C31 of the standard 100 GHz ITU grid, so any fixed or tunable DWDM optic can light them. As a passive DWDM module, it carries no power feed, no firmware and no cooling — nothing to fail.

Inside, the filter is TFF — thin-film — and four channels is where that choice pays off: cascaded thin-film stages keep channel separation sharp and isolation high, with a passband that stays put across temperature. That leaves the optical budget for the span itself.

Two auxiliary ports let this 4ch DWDM mux/demux fit a network that already exists rather than a greenfield site: a monitor tap for link supervision without interrupting traffic, and an expansion port that adds channels without leasing more fiber.

Features

- 4-channel DWDM, C28–C31 on the 100 GHz ITU grid
- Insertion loss ≤1.5 dB per channel port — the lowest in the range
- Monitor tap and expansion port on the line side
- Fully passive: no power feed, no cooling, no firmware
- 19-inch 1U chassis, 44 × 440 × 230 mm, duplex LC/UPC

Applications

- Access network and small-cell fronthaul from a BBU pool to RRU groups
- Campus dual-homing and disaster recovery between two sites
- CCTV and traffic-surveillance backhaul where conduit space is short
- The first DWDM step on a CWDM ring that has run out of channels

Technical Specifications

Parameter	Specification
Channel Count	4 (C28–C31)
Wavelength Range	1552.52 – 1554.94 nm
Channel Spacing	100 GHz (≈0.8 nm), ITU-T G.694.1
Channel Passband	±0.11 nm
Filter Technology	TFF — thin-film filter
Insertion Loss, channel ports	≤ 1.5 dB
Link Loss	≤ 2.5 dB
Insertion Loss, MON port 1	≤ 26 dB (1 % tap)
Center Wavelength Accuracy	±0.05 nm
Return Loss	≥ 45 dB
Directivity	≥ 45 dB
Channel Isolation	Adjacent ≥30 dB / non-adjacent ≥45 dB
Polarization Dependent Loss	≤ 0.3 dB
Polarization Mode Dispersion	≤ 0.1 ps
Operating / Storage Temperature	−40 to +85 °C
Connector	LC/UPC duplex (other types on request)
Dimensions (H × W × D)	44 × 440 × 230 mm (482 mm with mounting ears)
Net Weight	3.0 kg

Note: Specified with connectors.

Port functions

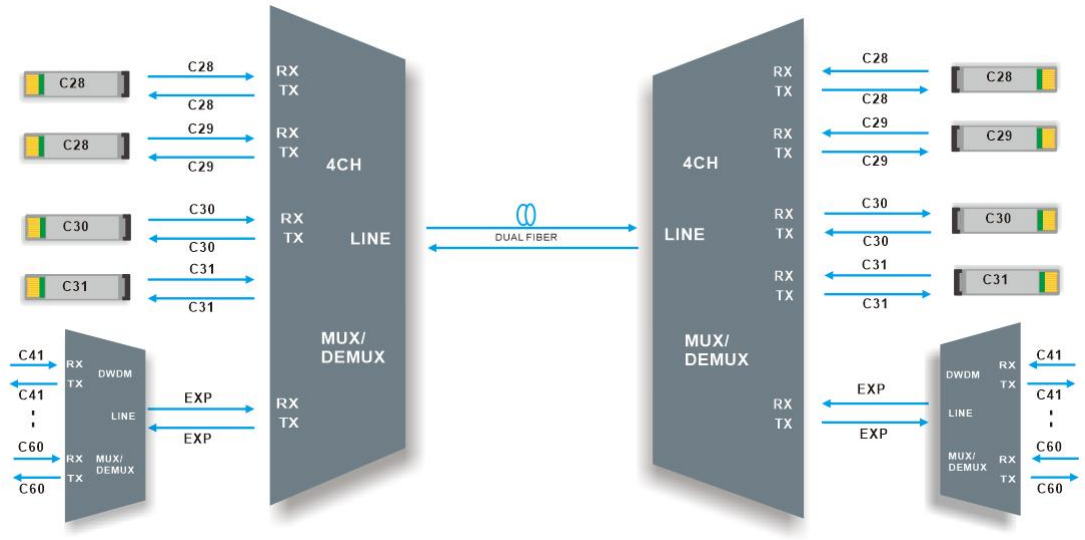
Port	Function
LINE	Trunk port. All 4 DWDM channels, bidirectional, over the paired fiber.
MON	Power monitoring and fault finding, zero traffic interruption.
EXP	Expand with a second DWDM unit (different band) — no new fiber.

Channel Frequencies and Wavelengths

Ch.	Center λ (nm)	Center f (THz)
C28	1554.94	192.8
C29	1554.13	192.9
C30	1553.33	193.0
C31	1552.52	193.1

Center wavelengths are the ITU-T G.694.1 100 GHz reference values at f = 190.0 + 0.1 × n THz. C28–C31 is the standard build; any four adjacent channels can be supplied to order.

Line Link



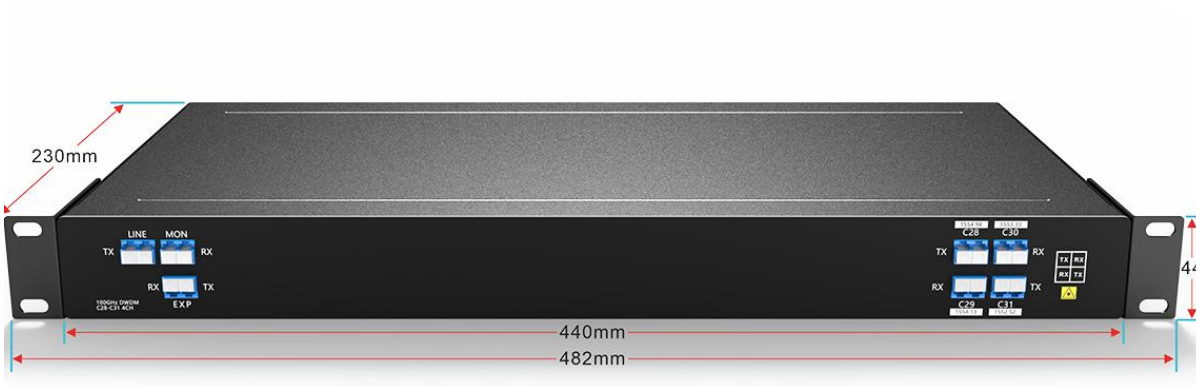
4CH DWDM MUX DEMUX Dual fiber transmission

Front Panel Layout



4CH DWDM MUX DEMUX Dual Fiber

Package Dimensions



19” Inch 1U Rack

Order Information

Product No.	Description
DWDM-4-1U-C2831	DWDM MUX DEMUX, 4CH (C28-C31), with EXP and monitor ports, dual fiber, LC/UPC, 1U 19-inch rack
DWDM-4-1U-Cxxxx	DWDM MUX DEMUX, 4CH (Cxx-Cxx), with EXP and monitor ports, dual fiber, LC/UPC, 1U 19-inch rack (Customized Channel)

Customized channel plans, connector types and port configurations are available on request.

For further information, please visit our website https://www.aoatech.com

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