

DESCRIPTION

iConverter CWDM/AD modules are Course Wave Division Multiplexing (CWDM) Optical Add/Drop Multiplexers (OADM). The CWDM/AD modules add (multiplex) and drop (demultiplex) selected channels, or wavelengths, on both directions of a CWDM fiber link.

The 1-Channel modules multiplex and demultiplex one specific CWDM channel from the common CWDM fiber link. Eighteen models of the 1-Channel modules are available to support the Lower and Upper Bands.

The 2-Channel modules offer the same functions as 1-Channel modules but for two specific CWDM channels. Twelve models of the 2-Channel modules are available to support the Lower and Upper Bands.

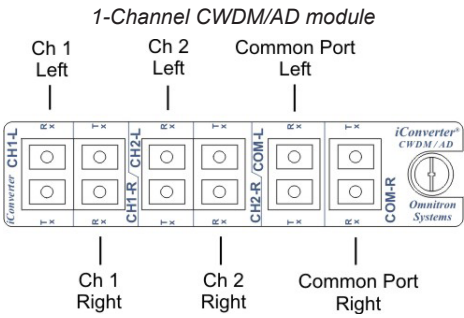
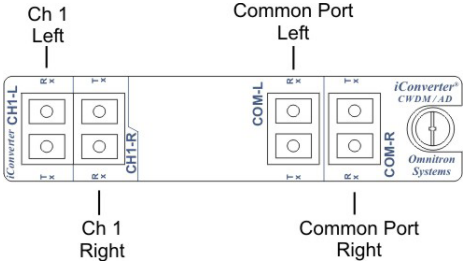
When adding CWDM channels to legacy 1310nm and 1550nm networks, the Lower and Upper Band OADM modules can be used. The Lower Band OADM adds/drops the 1270nm to 1450nm wavelengths and passes the 1470nm to 1610nm wavelengths, allowing either legacy 1310nm services or lower band CWDM wavelengths to be added and dropped from the common fiber. The Upper Band OADM adds/drops the 1470nm to 1610nm wavelengths and passes the 1270nm to

1430nm wavelengths, for legacy 1550nm services or upper band CWDM wavelengths.

The CWDM modules can be used in an unmanaged or managed applications. To be managed, an Network Management Module (NMM2) or a module with integrated management must be installed in the same chassis.

See data sheet for available models.

PORT DEFINITIONS



2-Channel CWDM/AD module

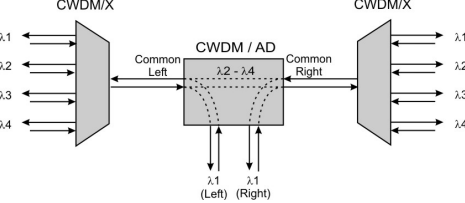
Lower and Upper OADMs are not shown.

Channel Port (Left and Right)

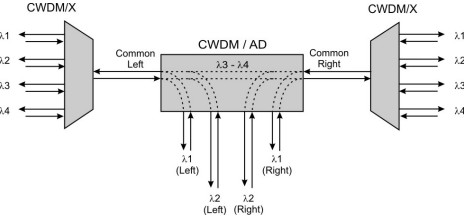
The Channel Ports transmit and receive signals on a specific CWDM wavelength. The Channel Ports are multiplexed on and demultiplexed from the Common Ports. As shown in the figures, a 1-Channel supports a single channel in both directions and a 2-Channel supports two channels in both directions. Each Channel Port has a Left and Right port. Data transmitted and received by Channel Port Left is aggregated on Common Port Left and data transmitted and received by Channel Port Right is aggregated on Common Port Right.

Common Port (Left and Right)

The Common Ports transmit and receive the aggregated wavelengths connected to the Channel Ports. As shown in the figures, there are Left and Right Common Ports on the module. Common Port Left and Common Port Right are internally connected to pass through all wavelengths not dropped or added by the specific model. Only the specific wavelength of the model selected will be dropped. Common Port Left drops and adds wavelength traffic from Channel Port Left and Common Port Right drops and adds wavelength traffic from Channel Port Right.



1-Channel Add/Drop MUX/DEMUX



2-Channel Add/Drop MUX/DEMUX

MOUNTING AND CABLE ATTACHMENT

- Carefully slide the module into an open slot in an iConverter chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew(s) (push in and turn clockwise to tighten) to the chassis front.
- Connect a single-mode, dual fiber duplex LC cable between the Channel Port of the CWDM/AD module and the attached device. It is important to ensure that the wavelength of the CWDM/AD matches the wavelength of the attached device. When connecting the Channel Port, make sure the Left/Right designation is followed. This will ensure the data from the Channel Port is aggregated onto the corresponding Common Port. Ensure that the transmit (Tx) is attached to the receive side of the device at the other end, and the receive (Rx) is attached to the transmit side.
- Connect a single-mode, dual fiber duplex LC cable between the Common Ports on the CWDM/AD module(s) (this connection may be made through fiber patch panels since the modules may

not be co-located) or CWDM/X devices. When connecting between the Common Ports on the CWDM/AD modules, it is recommended to connect the Common Port Right (COM-R) to the Common Port Left (COM-L) on the other CWDM/AD module. Ensure that the transmit (Tx) is attached to the receive side of the device at the other end, and the receive (Rx) is attached to the transmit side.

NOTE: For proper installation, a network diagram indicating port designations is recommended.

NOTE: The iConverter CWDM/AD modules can not be installed in slots 4, 8, 12 and 16 of a 19-Module Chassis or in the top slot of a 2-Module Chassis or in a 1-Module Redundant Power Chassis.

SOFTWARE OPTIONS

The CWDM modules do not have any configurable settings. If used in a managed application, the modules can be viewed and model and serial numbers are displayed.

For more information on management, register for access to the [NetOutlook Management Software user manual](#).

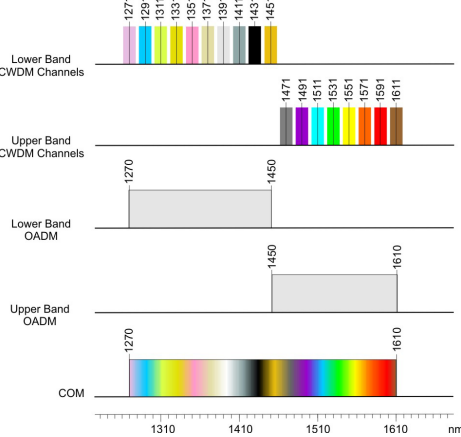
DESIGN CONSIDERATIONS

iConverter CWDM/AD modules are passive devices that require no external power. Attenuation (signal loss) of less than 1.5dB (1-Channel) and 1.6dB (2-Channel) will be realized through each port on the module (see the Optical Specifications for exact loss specification for each model). Detailed calculations should be performed for each fiber optic link in the network to ensure the proper optical devices are specified with sufficient transmitter power.

When calculating optical loss, ensure that the total loss, plus a safety factor (typically 3dB) does not exceed the optical power budget. The optical power budget is the difference between the transmitter optical output power and the receiver's optical sensitivity. The transmitter optical output power and receiver optical sensitivity values can be obtained from the manufacturers of the respective equipment.

For more information, access the [CWDM Resource Center](#) to view all relevant documents.

WAVELENGTH DIAGRAM



OPTICAL SPECIFICATIONS

Optical Characteristics		
Parameter	Units	Values
Common Port	nm	1270 - 1610
CWDM Center Channel	nm	1271, 1291, 1311, 1331, 1351, 1371, 1431, 1451, 1431, 1451, 1471, 1491, 1511, 1531, 1551, 1571, 1591, 1611
CWDM Channel Spacing	nm	20
Lower Band OADM	nm	1270 - 1450
Upper Band OADM	nm	1470 - 1610
1-Channel Insertion Loss	dB	< 1.5
2-Channel Insertion Loss	dB	< 1.6
OADM Insertion Loss	dB	< 2.2
Adjacent Channel Isolation	dB	> 30
Non-Adjacent Channel Isolation 1 and 2 Channel	dB	> 45
Non-Adjacent Channel Isolation OADM	dB	> 40
Return Loss (filtered channel)	dB	≥ 45

MODULE SPECIFICATIONS

Standards	Telecordia GR-1209, GR-1221	
Regulatory	Safety:	UL, CE, UKCA
	EMI:	FCC Class A
Environmental	RoHS, WEEE, REACH	
Port Types	Fiber: Channel Ports: LC/UPC, Dual Fiber OADM Ports: LC/APC, Dual Fiber Common: LC/UPC, Dual Fiber	
Cable Types	Fiber: Single-mode: 9/125µm	
DC Power Requirements	DC Input (Backplane): 3.3VDC, 0.025A @ 3.3VDC (when management is required, otherwise passive operation)	
Dimensions W x D x H	0.85" x 4.5" x 2.8" (21.6 mm x 114.3 mm x 71.1 mm)	
Weight	12.0 oz. (340.2 grams)	
Temperature	Commercial:	0 to 50°C
	Wide:	-40 to 60°C
	Storage:	-40 to 80°C
Humidity	5 to 95% (non-condensing)	
Altitude	-100m to 4,000m	
MTBF (hrs)	> 1,000,000	
Warranty	One (1) year warranty with 24/7/365 free Technical Support	

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For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge

to return the product to Buyer's designated US address using Omnitron's standard shipping method.

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The foregoing warranty shall not apply to product malfunctions resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

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Environmental Notices

The equipment covered by this manual must be disposed of or recycled in accordance with the Waste Electrical and Electronic Equipment Directive (WEEE Directive) of the European Community directive 2012/19/EU on waste electrical and electronic equipment (WEEE) which, together with the RoHS Directive 2015/863/EU, for electrical and electronic equipment sold in the EU after July 2019. Such disposal must follow national legislation for IT and Telecommunication equipment in accordance with the WEEE directive: (a) Do not dispose waste equipment with unsorted municipal and household waste. (b) Collect equipment waste separately. (c) Return equipment using collection method agreed with Omnitron.

The equipment is marked with the WEEE symbol shown to indicate that it must be collected separately from other types of waste. In case of small items the symbol may be printed only on the packaging or in the user manual. If you have questions regarding the correct disposal of equipment go to [www.omnitron-systems.com/support](http://www.omnitron-systems.com/support) or e-mail to Omnitron at [intlinfo@omnitron-systems.com](mailto:intlinfo@omnitron-systems.com).



Safety Warnings and Cautions



ATTENTION: Observe precautions for handling electrostatic discharge sensitive devices.



WARNING: Potential damage to equipment and personal injury.



WARNING: Risk of electrical shock.

Customer Support Information

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