

The transmitter optical output power and receiver optical sensitivity values can be obtained from the manufacturers of the respective equipment. Please consult the *iConverter* data sheets for CWDM/AD optical specifications.

For more information, access Omnitron's documentation download web page to view all relevant documents:

<http://www.omnitron-systems.com/downloads.php>

Model Number

Model Number	Channel Port ITU Center Wavelength (nm)	Common Port ITU Center Wavelength (nm)
8867-1	Add/Drop lower band (1271 to 1451)	1271 to 1611
8867-2	Add/Drop upper band (1471 to 1611)	1271 to 1611
8867-27 to -45	Add/Drop any one channel between 1271 and 1451	1271 to 1451
8867-47 to -61	Add/Drop any one channel between 1471 and 1611	1471 to 1611
8868-27 to -45	Add/Drop any two channels between 1271 and 1451	1271 to 1451
8869-47 to 61	Add/Drop any two channels between 1471 and 1611	1471 to 1611

See *iConverter* CWDM/AD 1 and 2 Channel Optical Add/Drop Multiplexer Data Sheet (091-18867-001) for exact model numbers.

Warranty

WARNING

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology.

Warranty

This product is warranted to the original purchaser against defects in material and workmanship for a period of ONE YEAR from the date of shipment. You may register your product on the Internet at <http://www.omnitron-systems.com>. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

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.

Limitation of Warranty

The foregoing warranty shall not apply to defects 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.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

iConverter CWDM/AD
1 and 2 Channel Add/Drop Multiplexers for Fiber Pair
USER MANUAL

Product Overview

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. Access points can be added to linear, bus, and ring networks.



Port Definitions

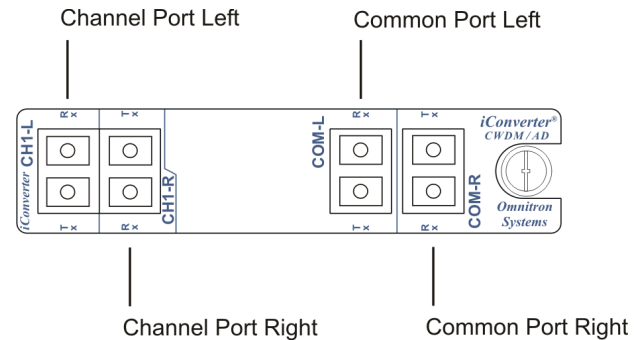


Figure 1: Front Panel View of a 1-Channel CWDM/AD module

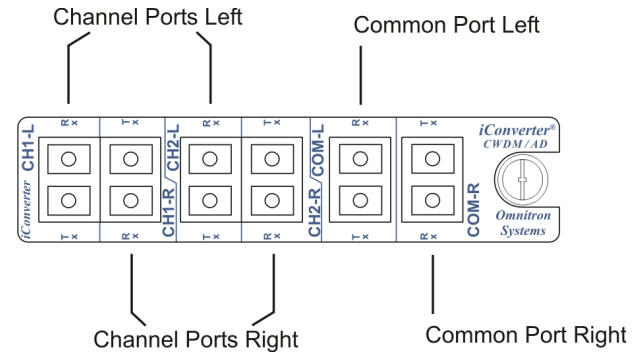


Figure 2: Front Panel View of a 2-Channel CWDM/AD module

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 Figure 3 and 4, a 1-Channel CWDM/AD supports a single channel in both directions and a 2-Channel CWDM/AD 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.

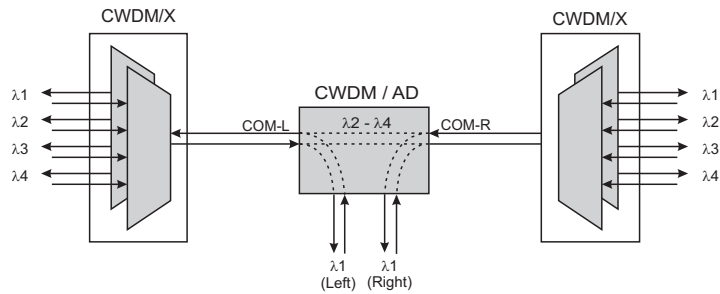


Figure 3: 1-Channel Add/Drop MUX/DEMUX

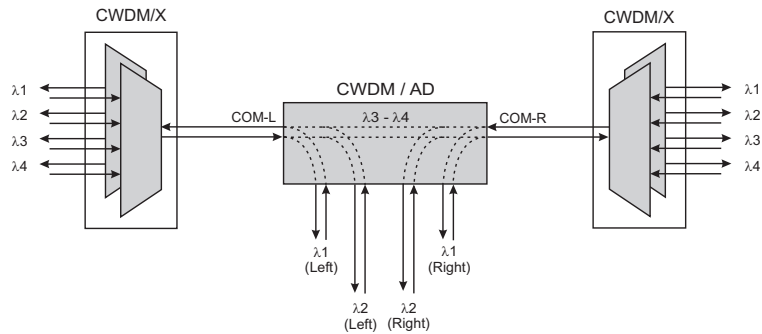


Figure 4: 2-Channel Add/Drop MUX/DEMUX

NOTE: For more information on the *iConverter* CWDM/X modules, visit Omnitron's website at: <http://www.omnitron-systems.com>

Common Port (Left and Right)

The Common Ports transmit and receive the aggregated wavelengths connected to the Channel Ports. As shown in Figures 3 and 4, there are Left and Right Common Ports on the CWDM/AD module. Common Port Left (COM-L) and Common Port Right (COM-R) are internally connected to pass through all wavelengths not dropped or added by the specific CWDM/AD model. Only the specific wavelength of the model selected will be dropped to the appropriate Channel Port. 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.

Installation

1. 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 (push in and turn clockwise to tighten) to the chassis front. The CWDM/AD module requires no external power, however, if management is required, the module must be installed in an *iConverter* powered chassis with a Network Management Module (NMM2 Model 8000N-0) or a media converter with integrated management (such as the *iConverter* 10/100M2)*.
2. 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.
3. 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.

*For complete management functionality, use M2 series (NMM2, GX/TM2, 2GXM2, 10/100M2, 2FXM2) or higher.

Design Considerations

iConverter CWDM/AD modules are passive devices that require no external power. Attenuation (signal loss) of less than 1.9dB will be realized through each port on the module (see the CWDM/AD Data Sheet 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.