iConverter® CWDM/AD

1 and 2 Channel Optical Add/Drop Multiplexer

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, in both directions on a CWDM common fiber link. Using CWDM/AD modules, network designers can add new access points anywhere on a CWDM network, without impacting the remaining channels traversing the network. Access points can be added to linear, bus, and ring networks, where the dual-direction ring design provides redundant protected architecture.

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

The iConverter 2-Channel CWDM/AD modules offer the same functions as 1-Channel CWDM/AD modules but for two specific CWDM channels. Models are available to support two specific wavelengths from 1270nm to 1450nm, or two specific wavelengths from 1470nm to 1610nm.

The 1 and 2-channel models can be used to transport channels in one direction or in both directions of the CWDM common fiber link.

When adding CWDM channels to legacy 1310nm and 1550nm networks such as SONET/SDH, the iConverter Lower Band OADM and Upper Band OADM modules can be used. The Lower Band OADM adds/drops the 1270nm to 1450nm band, 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 band, for legacy 1550nm services or upper band CWDM wavelengths.

Multiple CWDM/AD devices can be inserted within a CWDM network. The low energy loss associated with each device minimizes the impact to existing wavelengths in the CWDM network.

iConverter CWDM/AD modules can be installed in an iConverter powered chassis with a management module and be managed using Omnitron's NetOutlook® network management software, third-party SNMP software, Telnet or a serial console port.

KEY FEATURES

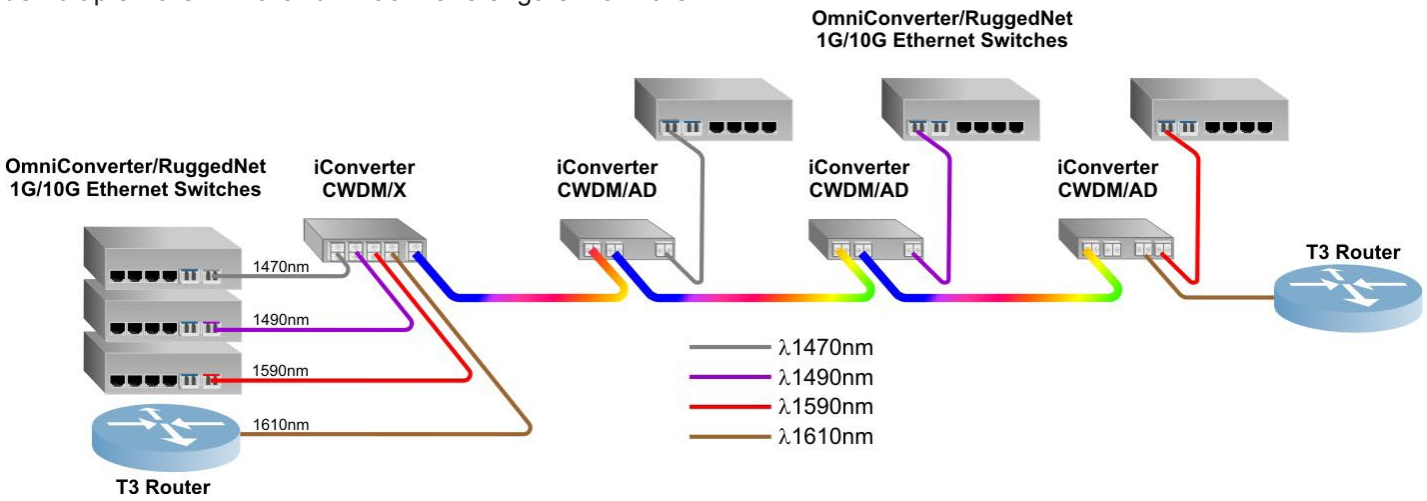
- 1 and 2 Channel Optical Add and Drop Multiplexers
- Add and Drop functions in both directions
- Protocol and rate transparent for applications up to 10Gbps
- Minimal and uniform optical loss facilitates easy network planning
- Compact iConverter form factor yields one of the highest port densities in the industry
- Compatible with LGX chassis using the iConverter LGX Adapter
- Industry standard LC connectors
- Seamless integration with other iConverter media converters and chassis for multi-service platforms
- Passive device that can also be installed in a powered chassis for managed applications
- Management available with the addition of a management module to the chassis
- Commercial (0 to 50°C) and wide (-40 to 60°C) temperature ranges
- Made in the USA
- One (1) Year Warranty and Free 24/7 Technical Support

APPLICATION EXAMPLES

Linear Add/Drop

In this application, an iConverter 4-Channel Multiplexer/Demultiplexer (CWDM/X) module is used to multiplex one T3 and three 10Gigabit Ethernet data channels onto one fiber common link, using example wavelengths 1470, 1490, 1590 and 1610.

iConverter CWDM/AD modules are used to multiplex/demultiplex the 1470 and 1490 wavelengths from the fiber common link coming from the CWDM/X to 10Gigabit Ethernet switches, while the remaining wavelengths continue along the common link. At the end of the network, a third CWDM/AD is used to drop the 1590 wavelength to the Ethernet switch and the 1610 wavelength to the T3 router.

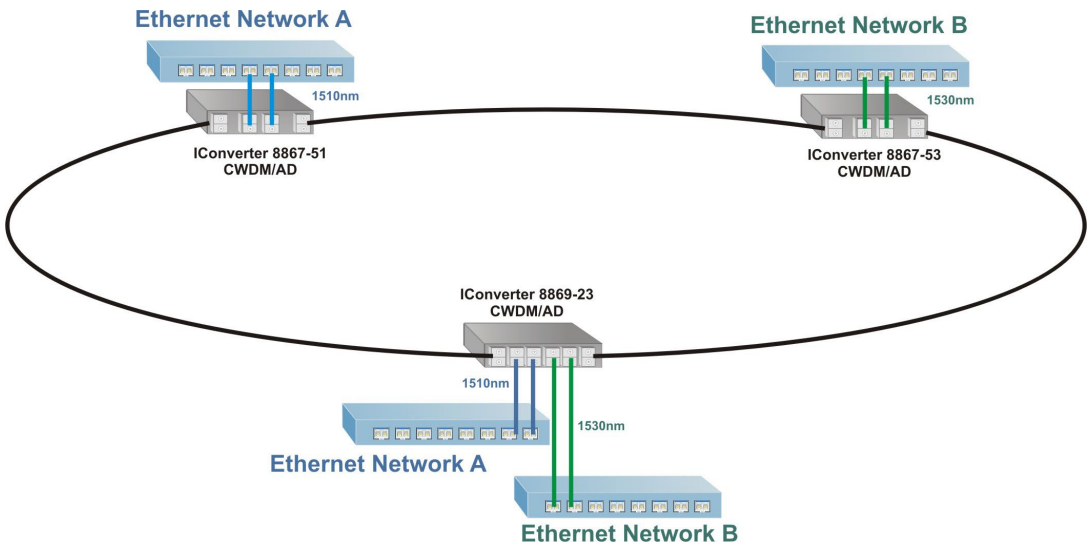


SONET Ring Add/Drop

In this application, iConverter Dual-direction CWDM/AD modules are utilized in a fiber ring architecture to provide point-to-point connectivity with redundant-path protection for two new Ethernet networks.

One CWDM/AD module is installed at each Ethernet switch location. Each module adds/drops the appropriate CWDM wavelength, while transparently passing the remaining wavelengths through the common ports.

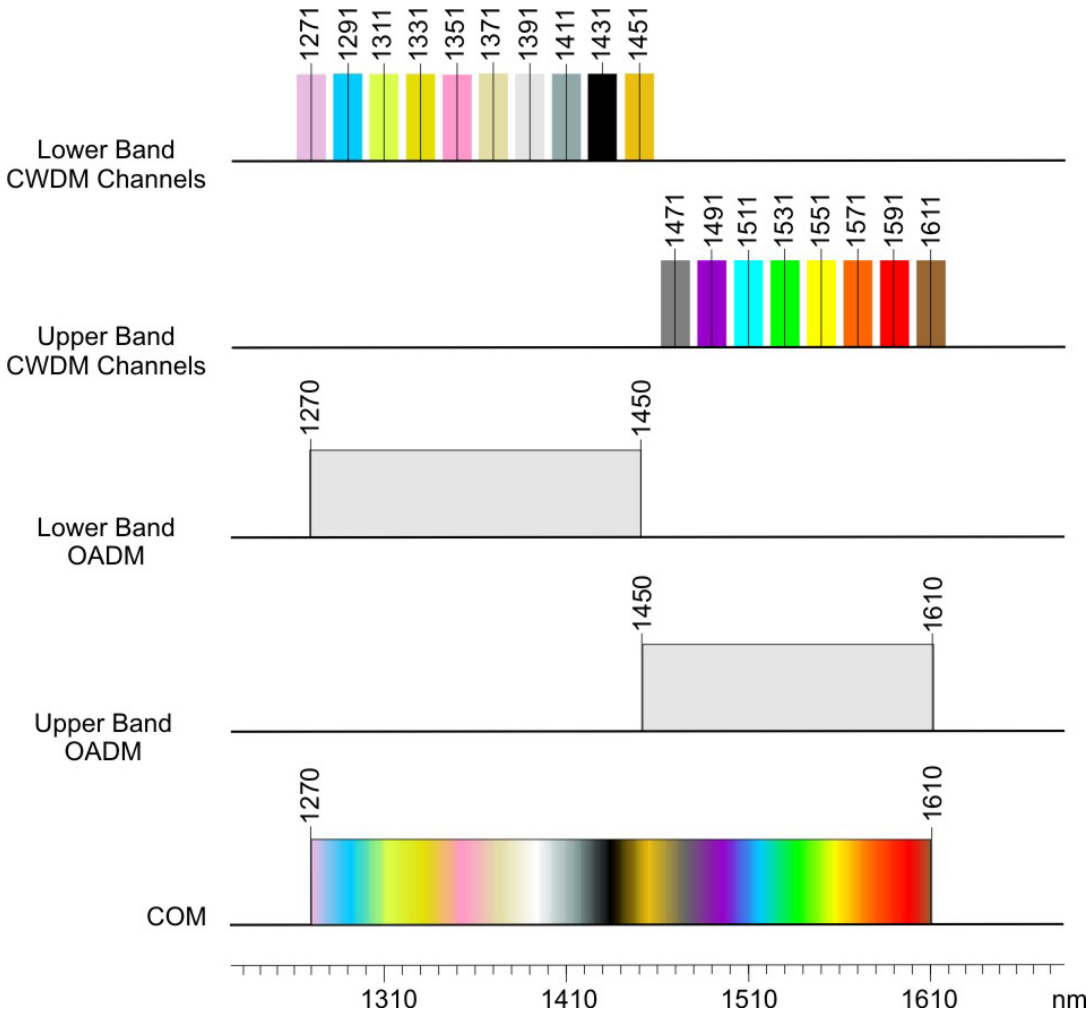
Switches on Network A use the 1510nm wavelength. Switches on Network B use the 1530nm wavelength. Where two switches are located together, a 2-Channel CWDM/AD is used to enable access to both networks. Up to eight separate and independent networks can be deployed on the fiber ring using eight CWDM wavelengths (1470, 1490, 1510, 1530, 1550, 1570, 1590 and 1610nm).



SPECIFICATIONS

Optical Characteristics		
Parameter	**Units**	**Values**
Common Port Operating Wavelength	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
Lower/Upper 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 Lower/Upper OADM	dB	> 40
Return Loss (filtered channel)	dB	≥ 45

Description	***iConverter* CWDM/AD** 1 and 2 Channel Optical Add/Drop Multiplexer	
Regulatory Compliances	UL, CE, FCC Class A, RoHS, WEEE, REACH	
Port Types	Fiber:	1 or 2 Channels: LC (UPC) Lower/Upper OADM: LC (UPC)
Cable Types	Fiber:	Single-mode: 9/125µm Channel Ports: Dual Fiber Common Port: Dual Fiber
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 oz. (340.2 grams)	
Temperature	Commercial: Wide: Storage:	0 to 50°C -40 to 60°C -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	



ORDERING INFORMATION

Model Number	Model Type	Channel Port ITU Center Wavelengths (nm)
8867-1t	Lower Band OADM with LC UPC Connectors	Add/drop 1271nm to 1451nm, Common port = 1271 to 1611nm
8867-2t	Upper Band OADM with LC UPC Connectors	Add/drop 1471nm to 1611nm, Common port = 1271 to 1611nm
8867-λ1t	1-Channel Add/Drop Lower Band with LC UPC Connectors	λ1 = 27 (1271), 29 (1291), 31 (1311), 33 (1331), 35 (1351), 37 (1371), 39 (1391), 41 (1411), 43 (1431), 45 (1451) Common port = 1260 to 1620nm
8867-λ1t	1-Channel Add/Drop Upper Band with LC UPC Connectors	λ1 = 47 (1471), 49 (1491), 51 (1511), 53 (1531), 55 (1551), 57 (1571), 59 (1591), 61 (1611) Common port = 1260 to 1620nm
8868-λ1λ2t	2-Channel Add/Drop Lower Band with LC UPC Connectors	λ1 = 0 (1271), 1 (1311), 2 (1351), 3 (1391), 4 (1431) λ2 = 0 (1291), 1 (1331), 2 (1371), 3 (1411), 4 (1451) Common port = 1260 to 1620nm
8869-λ1λ2t	2-Channel Add/Drop Upper Band with LC UPC Connectors	λ1 = 0 (1471), 1 (1491), 2 (1511), 3 (1531), 4 (1551), 5 (1571), 6 (1591) λ2 = 0 (1491), 1 (1511), 2 (1531), 3 (1551), 4 (1571), 5 (1591), 6 (1611) Common port = 1260 to 1620nm

When using with 1310nm legacy, CWDM wavelengths 1271, 1291, 1311, 1331 and 1351nm should not be used.
When using with 1550nm legacy, CWDM wavelengths 1511, 1531, 1551, 1571 and 1591nm should not be used.

1-Channel Lower Band A/D Example: For wavelength 1351, λ1 = 35, 8867-35.
1-Channel Upper Band A/D Example: For wavelength 1551, λ1 = 55, 8867-55.

2-Channel Lower Band A/D Example: For wavelengths 1311/1331, λ1 = 1 and λ2 = 1, 8868-11. For wavelengths 1431/1451, x = 4 and y = 4, 8868-44.
2-Channel Upper Band A/D Example: For wavelengths 1511/1531, λ1 = 2 and λ2 = 2, 8869-22. For wavelengths 1591/1611, x = 6 and y = 6, 8869-66.
Note: For the 2-Channel A/D, the x and y values must be the same combination

Base Model Number: 88xx-xt

Select the model with wavelength requirement from ordering table above.

Add operating temperature range (**t**) to the model type selected.

Operating Temperature Options (t):

<leave blank> = Commercial temperature (0 to 50°C)	**W** = Wide temperature (-40 to 60°C)

Contact Omnitron for other port configurations, extended temperature (-40 to 75°C) and RoHS (5/6) compliant models.
See chassis and mounting options at: iConverter Chassis and Mounting Option web page.

Logical Diagrams