

### **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, on both directions of a CWDM common fiber link. Using *iConverter* 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. Ten models of the 1-Channel CWDM A/D are available to support the ten CWDM wavelengths from 1270nm to 1450nm, and eight models are available to support the eight CWDM wavelengths from 1470nm to 1610nm.

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 any two wavelengths from 1270nm to 1450nm, or any two 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 *iConverter* 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 are passive devices that require no external power. They can also be installed in an *iConverter* powered chassis with a management module<sup>1</sup> and be managed using Omnitron's *NetOutlook*® network management software, third-party SNMP software, Telnet or a serial console port.

*iConverter* CWDM/AD modules can be installed in any *iConverter* chassis equipped with other *iConverter* media converters and transponders to provide a multi-service platform capable of delivering Ethernet, TDM, SONET and other services across a CWDM common fiber link.



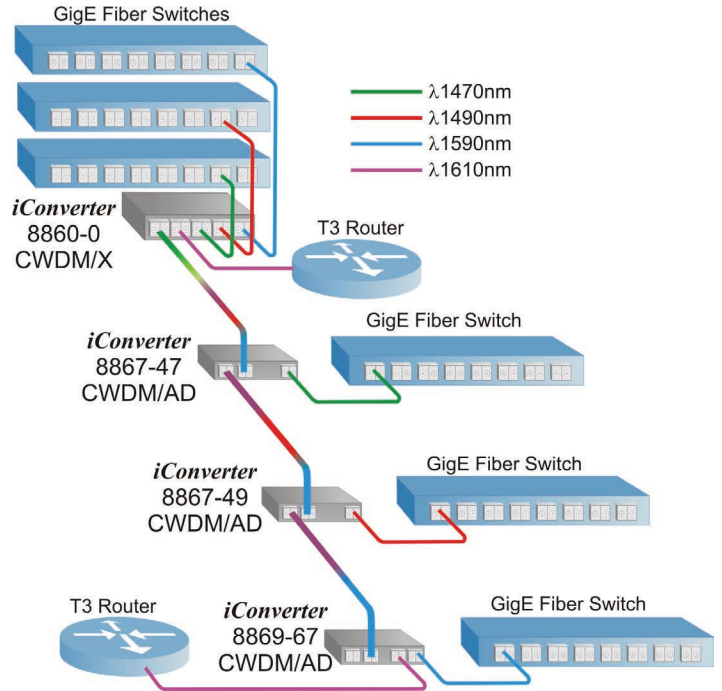
### **KEY FEATURES**

- 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
- Scalable for new deployments and network upgrades
- 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
- One (1) Year Warranty and Free 24/7 Technical Support

<sup>1</sup> For complete management functionality, use M2 series (NMM2, GX/TM2, 2GXM2, 10/100M2, 2FXM2) or higher series.

# APPLICATION EXAMPLES

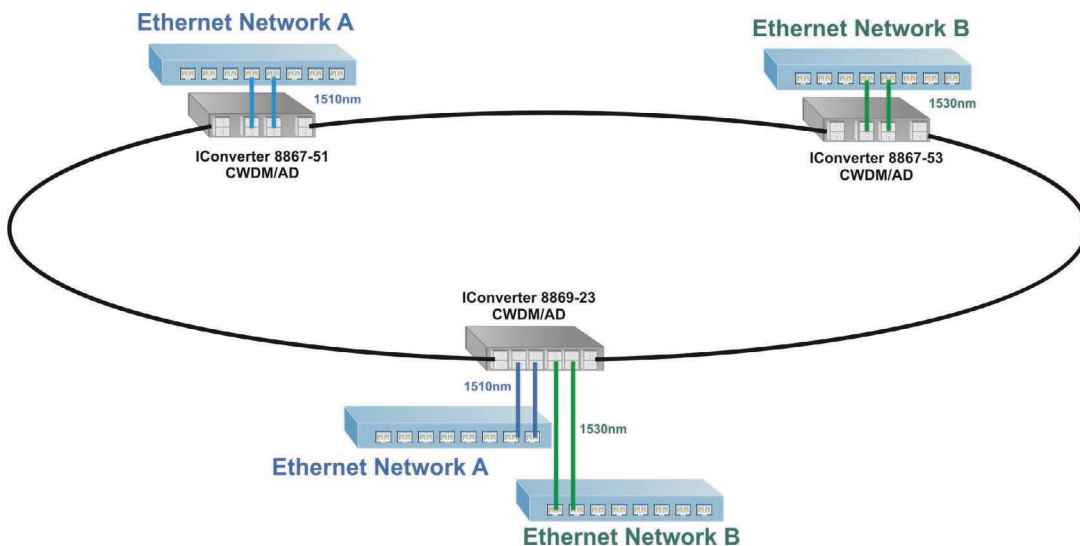
In this application, an *iConverter* 4-Channel Multiplexer/Demultiplexer (CWDM/X) module is used to multiplex one T3 and three Gigabit Ethernet data channels onto one fiber common link, using example wavelengths 1470, 1490, 1590 and 1610. *iConverter* CWDM/AD modules are used to multiplex/demultiplex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



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

One OADM 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).



# ORDERING INFORMATION

ITU Center wavelengths in nm

Lower and Upper Band OADM	
8867-1	Lower Band OADM (1271-1451nm) Add/drop the 1271 - 1451nm band, common port 1271 - 1611nm
8867-2	Upper Band OADM (1471-1611nm) Add/drop the 1471 - 1611nm band, common port 1271 - 1611nm

1-Channel CWDM/AD  
Lower Band  
8867 - xx

xx	Channel Port
27	1271
29	1291
31	1311
33	1331
35	1351
37	1371
39	1391
41	1411
43	1431
45	1451

Common port = 1271 - 1451nm

1-Channel CWDM/AD  
Upper Band  
8867 - xx

xx	Channel Port
47	1471
49	1491
51	1511
53	1531
55	1551
57	1571
59	1591
61	1611

Common port = 1471 - 1611nm

2-Channel CWDM/AD  
Lower Band  
8868 - xx

Channel Port 1	Channel Port 2									
	1271	1291	1311	1331	1351	1371	1391	1411	1431	1451
1271	-	01	02	03	04	05	06	07	08	09
1291	-	-	12	13	14	15	16	17	18	19
1311	-	-	-	23	24	25	26	27	28	29
1331	-	-	-	-	34	35	36	37	38	39
1351	-	-	-	-	-	45	46	47	48	49
1371	-	-	-	-	-	-	56	57	58	59
1391	-	-	-	-	-	-	-	67	68	69
1411	-	-	-	-	-	-	-	-	78	79
1431	-	-	-	-	-	-	-	-	-	89

Common port = 1271 - 1451nm

2-Channel CWDM/AD  
Upper Band  
8869 - xx

Channel Port 1	Channel Port 2							
	1471	1491	1511	1531	1551	1571	1591	1611
1471	-	01	02	03	04	05	06	07
1491	-	-	12	13	14	15	16	17
1511	-	-	-	23	24	25	26	27
1531	-	-	-	-	34	35	36	37
1551	-	-	-	-	-	45	46	47
1571	-	-	-	-	-	-	56	57
1591	-	-	-	-	-	-	-	67

Common port = 1471 - 1611nm

Example: For wavelengths 1511 and 1531, model # is: 8869-23

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

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# SPECIFICATIONS

Model Type	CWDM/AD OADM
Channels	1 or 2 Channels
Common Link	Fiber Pair
Connectors	LC (UPC)
Dimensions	W: 0.85" x D: 4.5" x H:2.8"
Weight	12 oz.
Compliances	UL, CE, FCC Class A
Power Requirements	Not powered for non-managed applications 0.025A max @ 3.3VDC for managed applications
Temperature	Standard: 0 to 70° C Storage: -40 to 80° C
Humidity	5 to 95% (non-condensing)
Altitude	-100m to 4,000m
MTBF (hrs)	> 1,000,000 hrs

Model Type	Insertion Loss	Adjacent Channel Port Isolation	Non-Adjacent Channel Port Isolation	Return Loss (filtered channel)
8867-1, -2	< 2.2dB	> 30dB	> 40dB	> 45dB
8867-xx	< 1.7dB	> 30dB	> 40dB	> 45dB
8868-xx	< 1.9dB	> 30dB	> 40dB	> 45dB
8869-xx	< 1.9dB	> 30dB	> 40dB	> 45dB