

iConverter

iConverter® CWDM/AD 1 and 2 Channel Optical Add/Drop Multiplexer



1-Module Chassis Not Included

- 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 be installed in a powered chassis for managed applications
- Manageable via SNMPv1/v2c/v3, Telnet or serial console port
- One (1) Year Warranty and Free 24/7 Technical Support

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 fiber common link.

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 route. 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. Eighteen models of the 1-Channel CWDM/AD are available to support all CWDM wavelengths specified by ITU-T G.694.2, ranging from 1270nm 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 common CWDM fiber link.

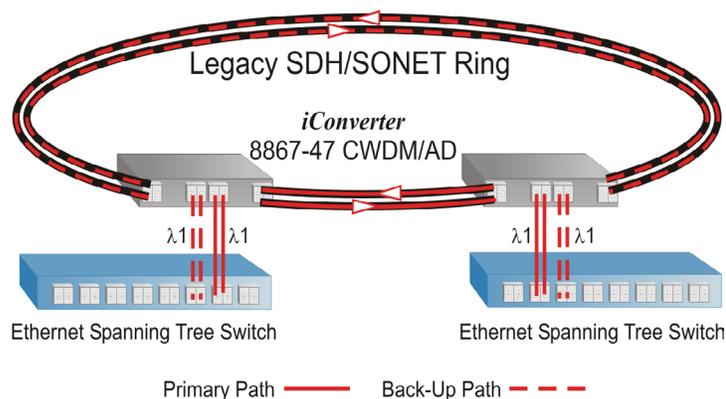
Multiple *iConverter* CWDM/AD devices can be inserted within a CWDM network. The low energy loss associated with each device minimizes the impact to existing wavelengths in the CWDM network.

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 and be managed using Omnitron's *NetOutlook*® network management software, third-party SNMP software, Telnet or a serial console port.

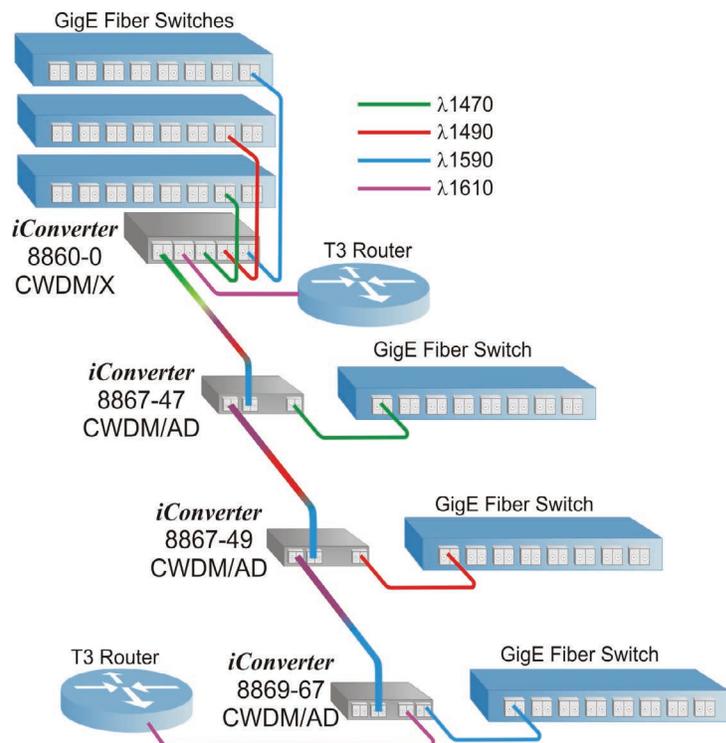


APPLICATION EXAMPLES

In this application, *iConverter* CWDM/AD OADM modules are added to a SONET fiber ring infrastructure to provide point-to-point connectivity with redundant-path protection. Using dual-direction CWDM/AD modules, a primary path and a redundant path can be created between two access points by overlaying a specific CWDM wavelength over the SONET 1310nm network.



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.

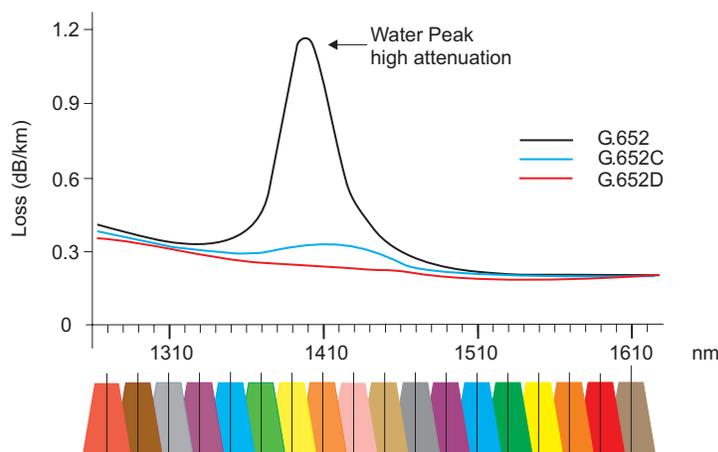


CWDM OVERVIEW

CWDM technology provides the flexibility to increase capacity of existing fiber infrastructure by enabling multiple channels (wavelengths) over the same fiber cabling. Each channel carries data independently from each other, allowing network designers to transport different data rates and protocols (T1, T3, Ethernet, Serial, etc) for different customers or applications.

The wavelengths used with CWDM implementations are defined by the International Telecommunications Union, reference ITU-T G.694.2, listing eighteen wavelengths from 1270nm to 1610nm with 20nm wavelength spacing.*

ITU-T G.652 single-mode fiber optic cable is not optimized for CWDM applications due to the high attenuation around the water peak region centered at 1383nm (wavelengths between 1390nm and 1410nm). When using the 1390 and 1410 wavelength, the water peak attenuation should be factored into the design before implementing.



* Note: The ITU standard specifies the exact center wavelength as 1271nm, 1291nm, 1311nm, etc. However, for clarity (and to comply with general industry conventions) this data sheet refers to these wavelengths as 1270nm, 1290nm, 1310nm, etc.

ORDERING INFORMATION

SPECIFICATIONS

1-Channel CWDM/AD (ITU Center wavelength in nm)

8867 - xx

Channel Port	
27 = 1271	47 = 1471
29 = 1291	49 = 1491
31 = 1311	51 = 1511
33 = 1331	53 = 1531
35 = 1351	55 = 1551
37 = 1371	57 = 1571
39 = 1391	59 = 1591
41 = 1411	61 = 1611
43 = 1431	
45 = 1451	

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-xx	< 1.7dB	> 30dB	> 40dB	> 45dB
8868-xx	< 1.9dB	> 30dB	> 40dB	> 45dB
8869-xx	< 1.9dB	> 30dB	> 40dB	> 45dB

2-Channel CWDM/AD (lower band - ITU Center wavelength in nm)

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

Example: For wavelengths 1311 and 1331, model # is: 8868-23

2-Channel CWDM/AD (upper band - ITU Center wavelength in nm)

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

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

NOTE: When using with 1310nm legacy SDH/SONET, wavelengths between 1260nm to 1360nm should not be used.

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Specifications subject to change without notice.

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