iConverter Single Fiber CWDM Multiplexers and Add/Drop MUX/DEMUX and Optical Add/Drop Mux Modules

iConverter Single-Fiber Course Wave Division Multiplexing (CWDM) modules provide a flexible and cost effective solution for increasing fiber capacity over single fiber networks. CWDM over single-fiber increases network bandwidth capacity by enabling multiple wavelengths, or data channels that carry independent services over existing fiber infrastructure. Up to sixteen separate wavelengths can be transported on a single-fiber link with *iConverter* Single-Fiber CWDM modules.

Single-Fiber CWDM/X Multiplexer/Demultiplexer Modules

Single-Fiber *iConverter* CWDM/X modules are available in 2 and 4-Channel models, supporting a variety of wavelength combinations and port configurations.



The figure above shows a pair of 2-Channel, single-fiber CWDM/X units that operate using the 1550nm, 1570nm, 1590nm and 1610nm wavelengths. Note that each wavelength is unidirectional and only flows in one direction. The channel ports of *iConverter* CWDM/X model 8872 receive 1570nm and 1610nm, while the channel ports of model 8873 receive 1550nm and 1590nm.

Single-Fiber CWDM/AD Add & Drop Multiplexers

iConverter 1-Channel Single-Fiber CWDM/AD modules are Course Wave Division Multiplexing (CWDM) Optical Add and Drop Multiplexers (OADM). The CWDM/AD modules add (multiplex) and drop (de-multiplex) one channel on both directions of a CWDM single-fiber route. Nine standard models of the 1-Channel Single-Fiber CWDM/AD modules are available.



iConverter CWDM/AD modules add new access points anywhere on a single-fiber CWDM network, without impacting points can be added to linear, bus, and ring networks, where the dual-direction ring design provides redundant protected architecture.



KEY FEATURES

iConverter Single-Fiber CWDM/X

- 2 and 4 Channel MUX/DEMUX modules
- Scalable to 8 Channels using Band Splitter

iConverter Single-Fiber CWDM/AD

- 1-Channel Optical Add and Drop Multiplexers modules
- Add and Drop functions in both directions

Common Product Features

- Protocol and rate transparent for applications up to 10Gbps
- Minimal and uniform optical loss facilitates easy network planning
- 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



The small and compact size of the *iConverter* CWDM/X and CWDM/AD modules yields one of the highest port densities in the industry. A2U high 19-module *iConverter* chassis populated with modules can yield up to 120 wavelengths of capacity.



iConverter CWDM/X modules are passive devices that require no external power. They can also be installed in an *iConverter* powered chassis with a management module¹ and be managed using Omnitron's *NetOutlook*[®] network management software, third-party SNMP software, Telnet or a serial console port.

The 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.

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

APPLICATION EXAMPLE

Two Networks on a Single-Fiber Protected Ring

The application below shows how the *iConverter* Single-Fiber CWDM/AD can enable protected path redundancy on a single-fiber ring.

Network A consists of two Fast Ethernet switches connected by two independent paths running Spanning Tree Protocol (STP). These switches are connected to the single-fiber ring using two 8878-55 *iConverter* Single-Fiber CWDM/AD modules. Both modules use 1550nm and 1570nm wavelengths. The 1550nm runs clockwise, and the 1570nm runs counterclockwise.

When the network is initialized, STP will choose an active path (segment) and a backup path (illustrated by the dotted line) for

protection of the network. In the event of a fiber failure that interrupts the active path, both switches on Network A will switch paths and continue normal operation.

Network B consists of two Gigabit Ethernet switches connected by two independent paths, also running STP. Network B coexists on the single-fiber ring in a separate CWDM channel, with no impact to Network A. Network B uses two 8878-59 *iConverter* Single-Fiber CWDM/AD modules. These modules use 1590nm and 1610nm wavelengths. Traffic on Network B is transparent to Network A. Both paths on Network B are also protected, and in the event of a fiber failure, both switches on Network B will switch paths and continue normal operation.

Omnitron Systems

Technology, Inc.



SPECIFICATIONS

Model Type	Single-Fiber CWDM/AD Add/Drop MUX
Channels	1 Channel
Common Link	Single-Fiber
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	Single-Fiber CWDM/X MUX/DEMUX			
Channela	2 Channel			
Channels	4 Channel			
Common Link	Single-Fiber			
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			

ORDERING INFORMATION

Model Type	Model Number	Channel Port ITU Center Wavelength (nm) Tx/Rx	Insertion Loss	Adjacent Channel Port Isolation	Non-adjacent Channel Port Isolation	Return Loss (filtered channel)
2-Channel MUX/DEMUX•	8870-0	1471/1491, 1511/1531	<1.9dB	>30dB	>40dB	>45dB
	8871-0	1491/1471, 1531/1511	<1.9dB	>30dB	>40dB	>45dB
	8872-0	1551/1571, 1591/1611	<1.9dB	>30dB	>40dB	>45dB
	8873-0	1571/1551, 1611/1591	<1.9dB	>30dB	>40dB	>45dB
4-Channel MUX/DEMUX•	8874-0	1271/1291, 1311/1331, 1351/1371, 1431/1451	<2.4dB	>30dB	>40dB	>45dB
	8875-0	1291/1271, 1331/1311, 1371/1351, 1451/1431	<2.4dB	>30dB	>40dB	>45dB
	8876-0	1471/1491, 1511/1531, 1551/1571, 1591/1611	<2.4dB	>30dB	>40dB	>45dB
	8877-0	1491/1471, 1531/1511, 1571/1551, 1611/1591	<2.4dB	>30dB	>40dB	>45dB
1-Channel OADM	8878-XX	See below	<1.9dB	>30dB	>40dB	>45dB

+Single-fiber CWDM/X models must be used in pairs. The Tx wavelengths on one end has to match the Rx wavelengths on the other.

Consult factory for customized CWDM models

1-Channel CWDM/AD

8878 - x

х Г	xx	Channel Port Lower Band ITU Center Wavelength (nm) Wavelength Pairing Tx/Rx	xx	Channel Port Upper Band ITU Center Wavelength (nm) Wavelength Pairing Tx/Rx
	27	1271/1291	47	1471/1491
	31	1311/1331	51	1511/1531
	35	1351/1371	55	1551/1571
	39	1391/1411	59	1591/1611
	43 1431/1451 Common port = 1271 - 1451nm		Common port	= 1471 - 1611nm

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800-675-8410 • 949-250-6510 • www.omnitron-systems.com • info@omnitron-systems.com • 140 Technology Dr. Irvine, CA 92618