

### **iConverter® Single Fiber CWDM Multiplexers and Add/Drop OADM MUX/DEMUX and Optical Add/Drop OADM Modules**

iConverter Single-Fiber Course Wave Division Multiplexing (CWDM) modules provide a flexible and cost-effective solution for increasing the fiber capacity of 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 eight separate data channels can be transported on a single fiber link with iConverter Single-Fiber CWDM modules.

The iConverter CWDM/X and CWDM/AD single-fiber modules are protocol and rate transparent allowing different services up to 10Gbps to be transported across the same common fiber link. The single-fiber modules support dual fiber Channel Ports and single-fiber Common Port connections. Each fiber strand on the Channel Port supports a different wavelength, one wavelength for transmit (TX) and a different wavelength for receive (RX).

#### **Single-Fiber CWDM/X Multiplexers/Demultiplexers**

Single-Fiber iConverter CWDM/X modules are available in 2 and 4-Channel models, supporting a variety of wavelength combinations and port configurations. In point-to-point applications, the CWDM/X modules operate in pairs, maximizing the number of wavelengths supported.

#### **Single-Fiber CWDM/AD Add & Drop Multiplexers**

iConverter 1-Channel Single-Fiber CWDM/AD modules are CWDM Optical Add and Drop Multiplexers (OADM). The CWDM/AD modules add (multiplex) and drop (de-multiplex) one channel on one or both directions of a CWDM single-fiber link. 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 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.



## **KEY FEATURES**

### **iConverter Single-Fiber CWDM/X**

- 2 and 4-Channel MUX/DEMUX modules
- 2 and 4-Channel modules are scalable to 4 or 8 Channels using a Band Splitter module

### **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
- Highly compact form factor
- Seamless integration with other iConverter media converters and chassis for multi-service platforms
- Compatible with OmniLight® chassis using the iConverter LGX Adapter
- Passive device that can be installed in a powered chassis for managed applications
- One (1) Year Warranty and Free 24/7 Technical Support

# APPLICATION EXAMPLES

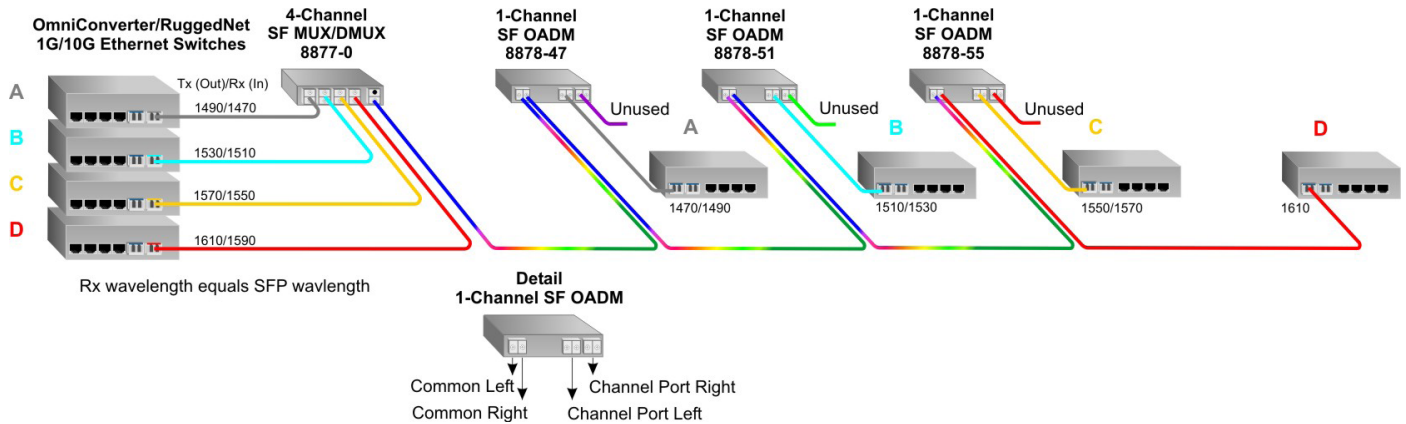
## Linear Add/Drop

In this application, 1-Channel SF OADMs and a 4-Channel SF MUX/DEMUX module creates a linear network dropping services off to four sites on a single-fiber common link.

At the headend, a 4-Channel single-fiber MUX/DEMUX is used to connect four Ethernet switches each supporting two wavelengths over a common fiber link. At the first site, a 1-Channel OADM is installed to remove and add the 1470/1490nm wavelength which is associated with Network A. The remaining wavelengths (1510/1530nm,

1550/1570nm and 1590/1610nm) are passed through the OADM to the next site.

The 1510/1530nm wavelength associated with Network B is dropped at the second site while the 1550/1570nm and 1590/1610nm wavelengths are passed on to the last two sites. The 1550/1570nm wavelength associated with Network C is dropped at the third site. Since only 4 channels are used, the last site does not need a OADM module.



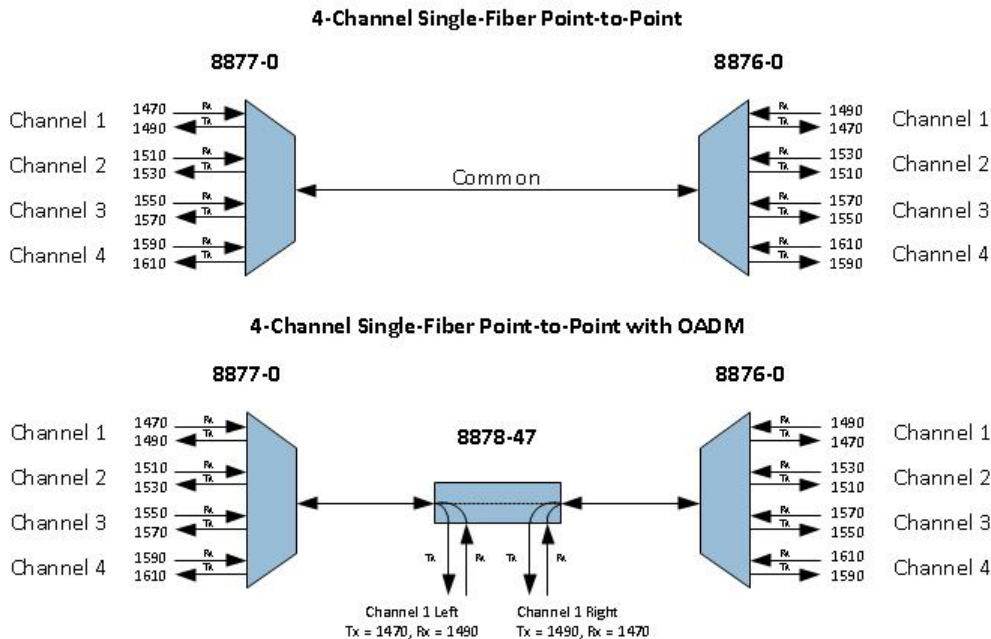
## Basic Application Diagrams

Below are block diagrams representing a 4-Channel CWDM Single-Fiber point-to-point application and a 4-Channel CWDM Single-Fiber point-to-point with an OADM somewhere in between the 4-Channel MUXs.

All Single-Fiber modules have dual fiber channel ports and single-fiber common ports. The CWDM SFP transceiver required for any single-fiber application depends on the Rx wavelength of the Single-Fiber module.

In the 4-Channel point-to-point diagram below, the CWDM SFP transceiver wavelength needed for Channel 1 of the 8877-0 module is 1470nm.

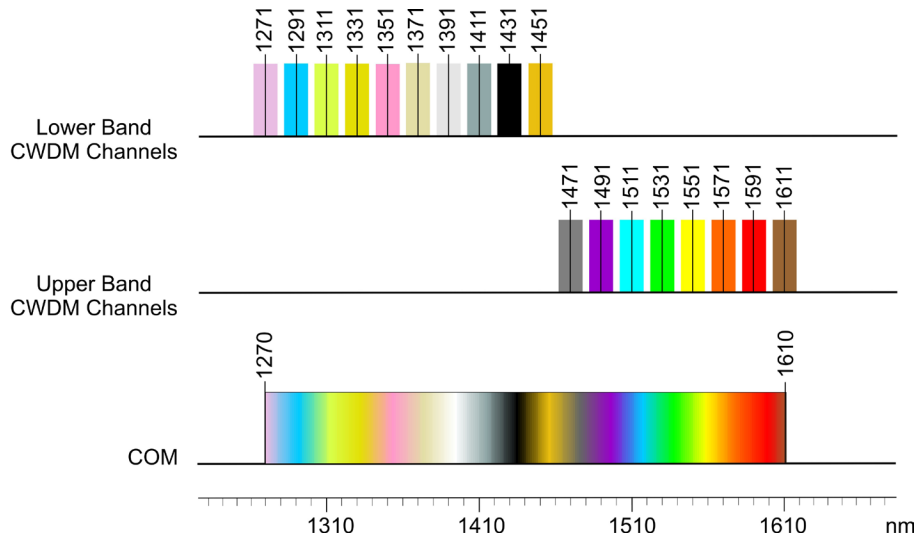
In the 4-Channel point-to-point with OADM, the CWDM SFP transceiver wavelength needed for the OADM Channel 1 Left is 1470nm and for Channel 1 Right is 1490nm.



# 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
1-Channel OADM Insertion Loss	dB	< 1.9
2-Channel MUX Insertion Loss	dB	< 1.9
4-Channel MUX Insertion Loss	dB	< 2.4
Adjacent Channel Isolation	dB	> 30
Non-Adjacent Channel Isolation	dB	> 40
Return Loss (filtered channel)	dB	≥ 45

Description		<i>iConverter</i> CWDM/X and CWDM/AD	
		Single-Fiber CWDM MUX/DEMUX and ADD/DROP	
Regulatory Compliances	Safety:	UL, CE, UKCA	
	EMI:	FCC Class A	
Environmental	RoHS, WEEE, REACH		
Port Types	Fiber:	LC (UPC)	
Cable Types	Fiber:	Single-mode: 9/125µm	
	Channel Ports: Dual Fiber Common Port: Single-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:	0 to 50°C	
	Wide:	-40 to 60°C	
	Storage:	-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

## Step 1: Choose a Base Part Number (xxxx-xt)

Model Number	Model Type	Channel Port ITU Center Wavelengths (nm) Tx (Out) / Rx (In)
8870-0t	2-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1471/1491, Channel 2 = 1511/1531
8871-0t	2-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1491/1471, Channel 2 = 1531/1511
8872-0t	2-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1551/1571, Channel 2 = 1591/1611
8873-0t	2-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1571/1551, Channel 2 = 1611/1591
8874-0t	4-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1271/1291, Channel 2 = 1311/1331, Channel 3 = 1351/1371, Channel 4 = 1431/1451
8875-0t	4-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1291/1271, Channel 2 = 1331/1311, Channel 3 = 1371/1351, Channel 4 = 1451/1431
8876-0t	4-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1471/1491, Channel 2 = 1511/1531, Channel 3 = 1551/1571, Channel 4 = 1591/1611
8877-0t	4-Channel MUX/DEMUX with LC UPC Connectors	Channel 1 = 1491/1471, Channel 2 = 1531/1511, Channel 3 = 1571/1551, Channel 4 = 1611/1591
8878-λt	1-Channel Add/Drop Lower Band with LC UPC Connectors	λ = 27 (1271/1291), 31 (1311/1331), 35 (1351/1371), 39 (1391/1411), 43 (1431/1451)
8878-λt	1-Channel Add/Drop Upper Band with LC UPC Connectors	λ = 47 (1471/1491), 51 (1511/1531), 55 (1551/1571), 59 (1591/1611)

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.

For the 1-Channel OADMs, the Channel Port Left wavelengths are shown in the table above. Channel Port Right wavelengths are reversed from Channel Port Left.

1-Channel Lower Band OADM Example: For wavelength 1351/1371, λ = 35, 8878-35

1-Channel Upper Band OADM Example: For wavelength 1551/1571, λ = 55, 8878-55

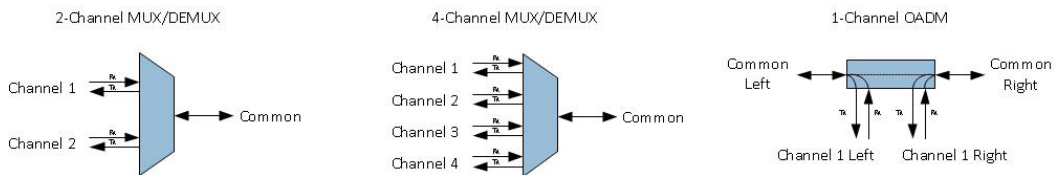
Contact Omnitron for other port configurations, extended temperature (-40 to 75°C) and RoHS (5/6) compliant models.

See chassis and mounting options at: [iConverter Chassis and Mounting Option web page](#).

## Step 2: Choose an Operating Temperature Option (xxxx-xt)

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

### Logic Diagrams



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