

Fiberdyne Mux/Demux modules combine (i.e. multiplex) fiber-optic “transmit” signals and separate (i.e. demultiplex) fiber-optic “receive” signals. The fiber-optic signals use CWDM (Coarse Wavelength Division Multiplexing) wavelengths, per the *ITU-T G.694.2* standard. To minimize link loss, the modules, at both ends of the inter-site fiber link, must be correctly connected, per this instruction.

**WARNING:** Use proper fiber-optic handling and cleaning techniques, to avoid personnel harm (i.e. from lasers) and to prevent fiber/connector damage.

## Link Requirements:

- Network equipment with CWDM outputs (e.g. Fiberdyne SFP Gigabit Converters)
- CWDM Mux/Demux modules: 2 (one for each end of the link)
- Patchcords: for connecting the CWDM modules to network equipment
- Inter-site fiber-optic cable: for connecting the two Mux/Demux modules

## Installation Instructions:

1. Connect network equipment, Mux/Demux modules and cables, as shown in the diagrams, on Page 2.
  - a) Dual-fiber Solution: transmit signals are multiplexed onto one fiber, and receive signals are de-multiplexed from the other fiber. The same wavelengths are used on both fibers.
  - b) Single-fiber Solution: both, transmit and receive signals, are combined onto one fiber. A different wavelength is used for each transmit signal and for each receive signal. *Note:* two different modules, Alpha and Omega, are used, to minimize link insertion loss and to improve wavelength isolation. The transmit and receive signals are typically used in pairs (e.g. 1550 and 1570). Therefore, the “received 1570” is connected to the 1550 “receiver” port, on the network equipment. The opposite is true at the other end; the “received 1550” is connected to the 1570 “receiver” port.
2. Power-up network equipment.
3. Check for correct “link” and “activity” indications on network equipment.

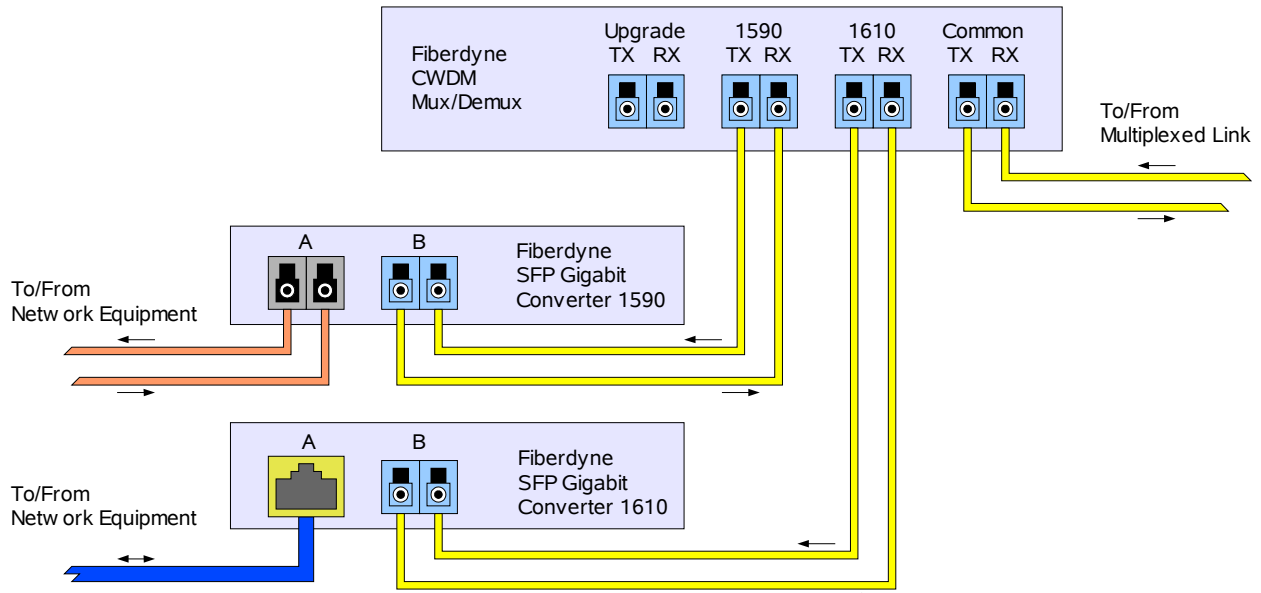
## Notes:

1. The diagrams show two example setups for a *2-Link* (i.e. 2 TX and 2 RX) multiplexer.
2. Mux/Demux *Port Labels* indicate the direction of light at the connection (i.e. “TX from” or “RX into” the module port).
3. If you are adding a module to an existing system, then connect the “Common” (or “Link”) from the new module to the “Upgrade” of the existing module.
4. Connector/module configurations and appearance will vary, depending on options.

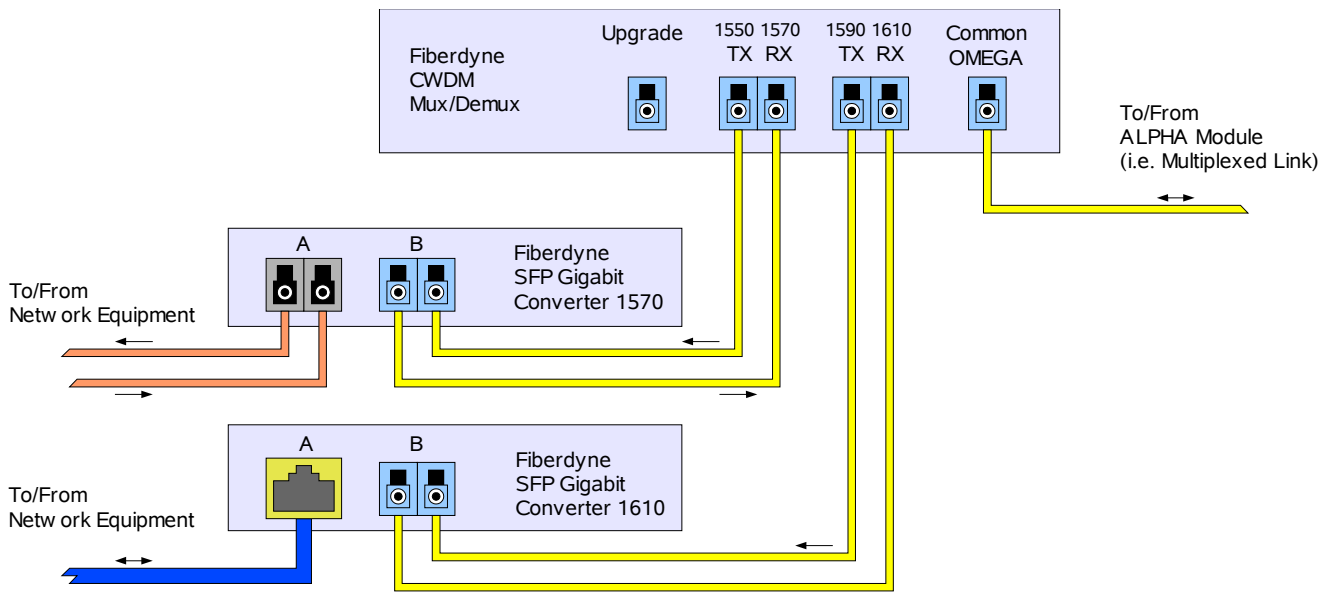
# Gigabit Multiplexing using CWDM

Fiberdyne Labs, Inc.  
Installation Guide

## Dual-fiber Solution: (two inter-site fibers)



## Single-fiber Solution: (one inter-site fiber with both signals -- transmit and receive)



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