

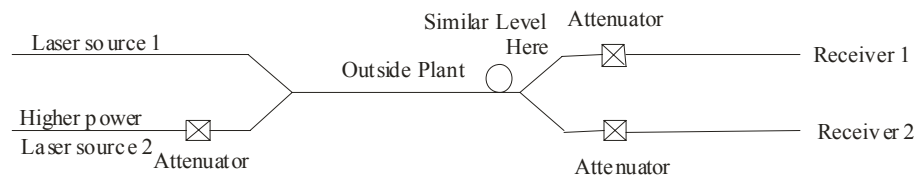
V-WDM Description and Installation Procedure

The V-WDM wavelength division multiplexer combines and separates the 1300nm and 1550nm optical communication bands. This permits two optical communications to coexist in the fiber simultaneously. Two fibers are required; each fiber having light traveling in one direction only. The two different wavelength lasers are combined into a single transmit fiber for connection to the outside plant and isolated by wavelength at the far end for the two communication equipment receivers. This process is duplicated for communication in the reverse direction. **Both optical signals must have the same level before separation, and after separation must be less than 20dB above the receiver thresholds.** Optical receivers are not wavelength selective which requires the filters in the V-WDM to provide all the wavelength isolation. The interfering (crosstalk) wavelength is attenuated a minimum of 30dB below the combined (outside plant) receiving end fiber level. For optimum operation, the crosstalk, which is similar to noise, must be both:

- a) well below the desired wavelength's receive level (for a low bit error rate)
- b) well below the receiver's threshold (so crosstalk will not keep a failed communication link up)

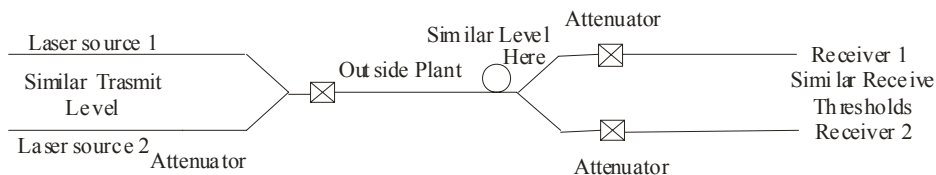
General Procedure for equipment

- 1) Pad (attenuate) the stronger wavelength before combining in the V-WDM to match the level of the weaker wavelength at the far end of the outside plant. This pad attenuates only one wavelength.
- 2) Pad each of the isolated wavelengths coming out of the V-WDM 10 to 20dB above the equipment's receiver threshold. This pad attenuates both the wanted wavelength **and** the interfering crosstalk wavelength.



Typical Procedure for Nebula Equipment

It may be possible to eliminate some or all of the pads depending on the equipment's optical parameters and the outside plant fiber loss. A single pad could be placed on the combined wavelengths provided both receivers have about the same threshold and both the transmitters have about the same launch and the plant has about the same loss at each wavelength.



Note:

- 1) Use the three ports described as **TX, TX, RX** for separating the combined light for connection to the local receivers.
- 2) Attenuators may have different values at each wavelength and the value is usually specified at only one wavelength.
- 3) Powering two V-FAST cards require at least a **12VCD 1.2AMP** power supply.

Specifications

0.8 inch wide 3U high passive optical cards

6 FC connectors total (3 FC [RX, RX, TX] for transmit; 3 FC [TX, TX, RX] for receive)

Insertion loss	Typical 0.7dB
	Max 3.0dB
Isolation center wavelength	>30dB
Wavelength range	1310/1550nm
Optical bandwidth	+/- 20nm
Thermal stability	<0.3dB
Directivity	60dB
Polarization dependant loss	<0.2dB

The V-WDM can also be configured to communicate bi-directionally over a **SINGLE** fiber, one wavelength in each direction. *Please consult the factory.*