

## Single Fiber Applications

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The extensive growth in metro Ethernet networks has increased the range of metro Wave Division Multiplexing (WDM) product offerings. One derivative of this is single strand fiber products. Single strand fiber allows the user to simultaneously send and receive data on one strand of fiber. It provides full duplex operation without the cost of a secondary fiber cable.

The majority of optical networks require a pair of fibers to achieve full duplex operation. However, single strand fiber allows a full duplex transmission over a single (bi-directional) fiber. This provides options for network managers with limited fiber capacity and limited budgets. Single fiber is an important consideration for new installations as well.

*Example:* If you have a 12-strand bundle of fiber, using single strand fiber would result in 12 lines available for communication. Using the traditional method of transmitting and receiving on separate fibers would only give you six available lines of communication

### Benefits of single strand fiber:

#### **Instantly doubles network capacity**

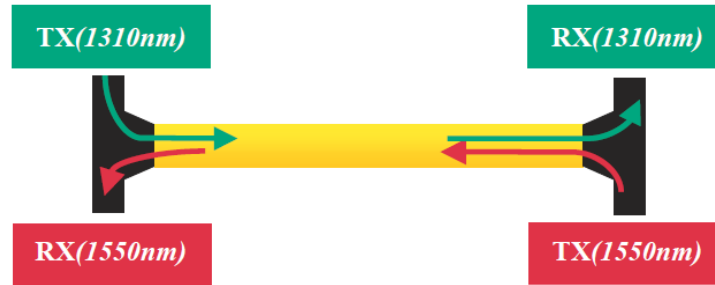
Single strand fiber increases the capacity of the fiber by simultaneously operating at more than one wavelength, transmitting and receiving on a single strand.

#### **Increases reliability**

By decreasing the number of connections or end points in a network, the number of potential issues is decreased. A customer may also choose to use single fiber to increase redundancy in the network.

#### **Decreases cost**

The costs associated with installation and maintenance of the fiber are reduced. Decreasing the total amount of fiber results in a reduction of overall labor costs. Construction costs are avoided since you are increasing the capacity of existing fiber versus installing additional fiber.



Single strand media converters from Transition Networks provide additional savings to the customer. Media converters allow customers to avoid costly equipment upgrades by converting copper signaling into fiber optic wavelengths. Customers can extend the life of copper equipment through the use of media converters.

Transition Networks bi-directional media converters allow data to be transmitted over a single strand of fiber. Deployed in pairs, these media converters transmit and receive data at different wavelengths. One converter transmits at 1310nm and the other unit transmits at 1550nm. Therefore, when selecting a pair of single fiber converters users must choose one unit that transmits at 1310nm (receives 1550nm) and one unit that transmits at 1550nm (receives 1310nm).

Single strand optics provide a viable alternative to paired fibers for full duplex communication. Whether you are looking to increase capacity or introduce redundancy to your network, single strand fiber can prove to be a cost-effective solution.

### Single Strand Fiber Media Conversion offerings from Transition Networks

Transition Networks has an extensive offering of media converters and SFP modules that support single strand fiber, including:

- Fast Ethernet
- Gigabit Ethernet
- 10/100 Bridging
- 10/100/1000 Bridging
- High Speed Serial V.35,X.2
- T1 / E1
- POTS
- DS3

All of these products are available in the stand-alone or Chassis card form factors (see chart below).

Product Description	Chassis Card	Stand-alone
Fast Ethernet	C2110 Series	E-100BTX-FX-05
10/100 Bridging	C2210 Series	SBFTF Series
10/100/1000 Bridging	C3210 Series	SGFEB Series
Gigabit Ethernet	C3110 Series	SGETF Series
DS3/T3/E3	C6210 Series	S6210 Series
High Speed Serial	CPSVT2629-10x	
T1/E1	C6010 Series	S6010 Series
POTS	CAPTF3329-1xx	SAPTF3329-1xx

Contact your Transition Networks sales representative for more information and assistance selecting the correct single fiber converters to match your project.