

Application Note - Single Fiber

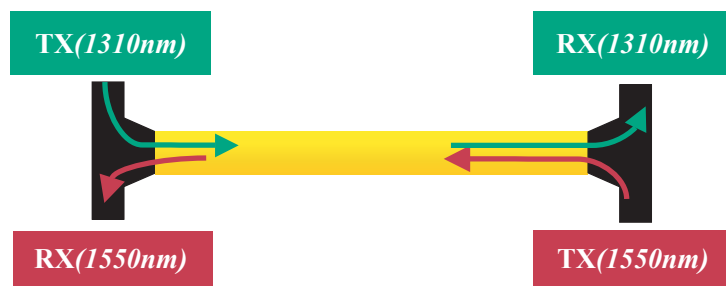
The extensive growth in metro Ethernet networks has increased the range of metro WDM product offerings. One prominent feature is the availability of single strand fiber products. Single strand fiber allows the user to simultaneously send and receive data on one strand of fiber. It provides full duplex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

For a majority of optical networks a pair of fibers is required 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 only gives 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 signalling into fiber optic wavelengths. Customers can extend the life of copper equipment through the use of media converters.

Transition Networks allows data to be transmitted over a single strand of fiber by using a pair of media converters, each transmitting and receiving 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 and one unit that transmits at 1550nm.

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 single strand fiber media converters including:

- Fast Ethernet
- Gigabit Ethernet
- 10/100 Bridging
- 10/100/1000 Bridging
- High Speed Serial V.35,X.2
- Fast Ethernet or ATM/SONET
- T1 / E1
- E & M
- POTS
- MAC
- DS3

All of these products are available in the stand-alone or Point System Chassis card form factors.



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Product Description	Point System Card Part Number	Stand Alone Part Number
Fast Ethernet	CFETF1029-20x CRMFE1029-20x	E-100BTX-FX-05(10x) SRMFE1029-20x
Fast Ethernet or ATM/SONET	CFMFF1329-20x	SFMFF1329-20x
Dual Fast Ethernet	CDFTF2929-10x	
10/100 Bridging	CBFTF1029-xxx SMACF1029-2xx	SBFTF1029-xxx
10/100/1000 Bridging	CGFEB1029-10x	
Gigabit Ethernet	CGETF1029-10x CFMFF1329-22x	SGETF1029-10x SFMFF1329-22x
DS3 / T3 / E3	CCSCF3029-10x	SCSCF3029-10x
High Speed Serial	CPSVT2629-10x	SPSVT2629-10x
T1 / E1	CSDTF1029-1xx	SSDTF1029-1xx
E & M	CEMTF1029-10x	
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.