FOXBORO®

PSS 21H-7F7 B4

I/A Series® Hardware Splitter/Combiner

The Splitter/Combiner is a passive fiber optic distribution unit that performs quadruple to dual (and vice versa) signal conversions in fiber optic IEEE 802.4 compatible networks. As shown in Figure 1, the splitter/combiner is designed to interconnect a fault-tolerant pair of Fiber Optic Carrierband LAN Interfaces and a pair of (redundant) active concentrators. It combines the four (redundant) signals from the pair of Interfaces into two signals, each directed (separately) to the two concentrators. In the reverse direction, it splits the two signals from the concentrators into four signals for the Interfaces.

In this way, the splitter/combiner maintains the redundancy of the network while reducing the amount of redundant cabling required. This approach yields significant cable savings and increases the maximum number of I/A Series nodes that can connect to the (redundant) concentrators from four to nine, with a loss of 5.3 db per cable to the power budget.

The splitter/combiner has twelve ports (connecting to four 2x1 couplers inside – see Figure 2) which accept industry standard ST fiber connectors.

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Product Specifications

Communications directed through these 2x1 couplers are either split into four signals, or combined into two signals. Figure 3 shows how splitter/combiners are used in a typical fiber optic LAN.

The splitter/combiner mounts in a standard 19-inch EIA rack or in an optionally available enclosure.

Splitter/combiners are intended to be used with fault-tolerant Fiber Optic Carrierband LAN Interface modules, but can be used with non-fault-tolerant Fiber Optic Carrierband LAN Interfaces to reduce cabling requirements. Up to 18 non-fault-tolerant Fiber Optic Carrierband LAN Interfaces can be connected to one active concentrator when used in conjunction with splitter/combiners.

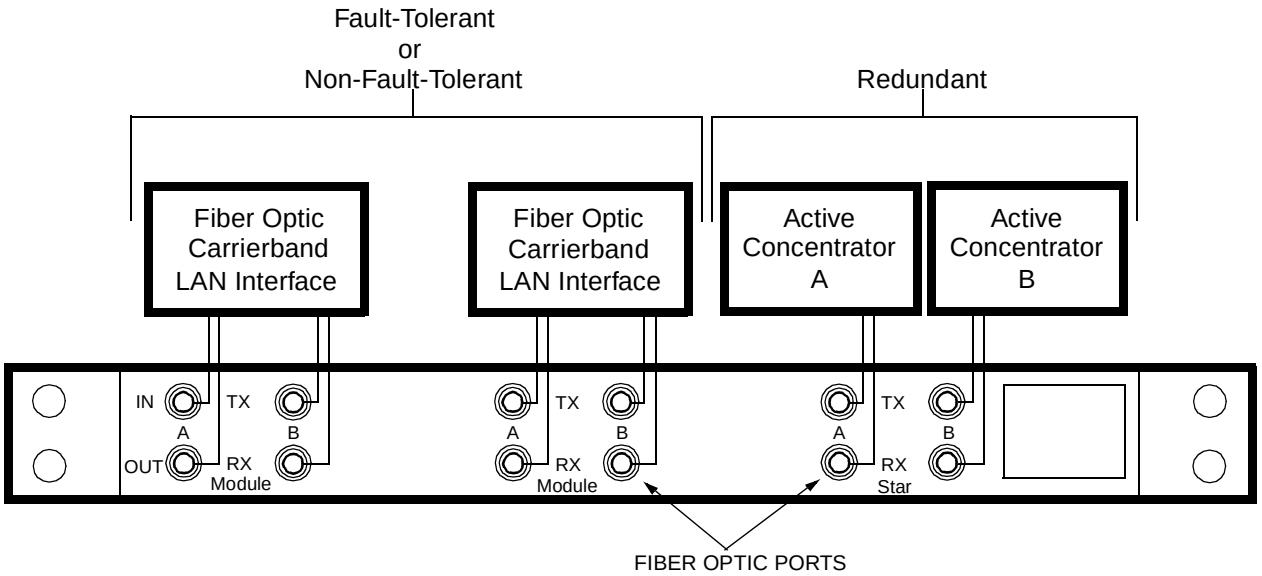


Figure 1. Splitter/Combiner Connections

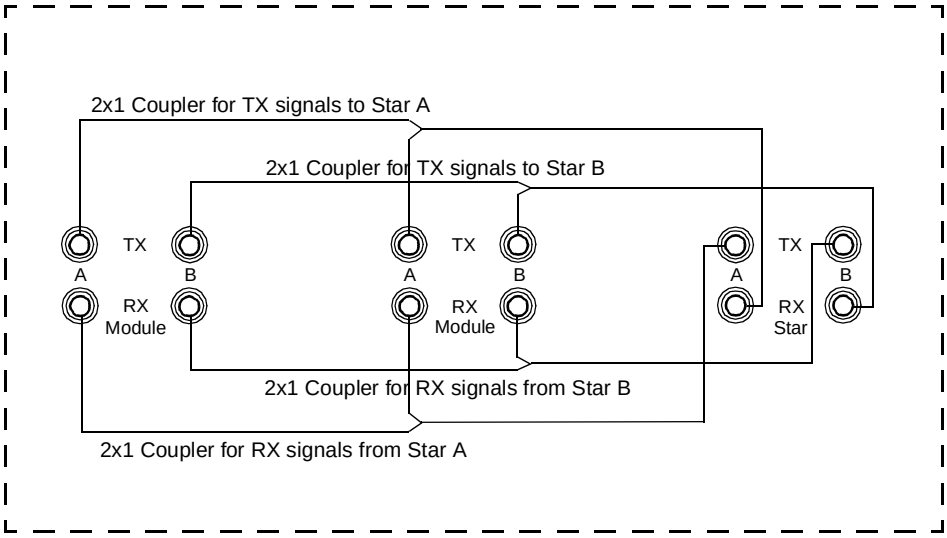
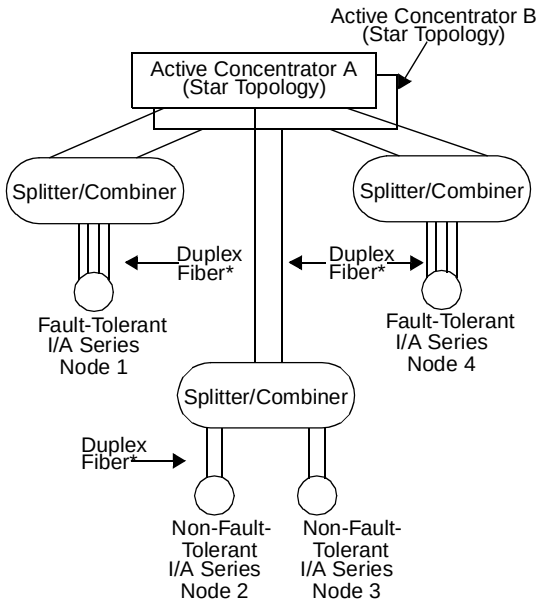


Figure 2. Splitter/Combiner (Internal)



*NOTE: Each line shown represents two fiber optic cables (one duplex cable).

Figure 3. Typical Redundant Fiber Optic LAN using Star Topology with Splitter/Combiners and Fiber Optic Carrierband LAN Interfaces

The splitter/combiner must be connected to an active device which echoes signals(1), such as an active concentrator. If it is connected to a passive device, such as a passive star, the resulting signal loss will exceed the maximum limit allowed in a fiber optic LAN.

Fiber Optic LAN Enclosures

The optional Fiber Optic LAN Enclosures provide dedicated housing for the splitter/combiners and other fiber optic LAN equipment. The enclosures are made of steel, have front and rear doors with slotted locks (which are actuated by a supplied key or standard flat-blade screwdriver) and are provided with leveling feet.

The interior is equipped with front-to-back adjustable 19-inch EIA rails for mounting the splitter/combiners. Two, independently-powered power strips accept the power cord plugs from active sources and a junction box connects customer ac power wiring. The enclosures are available in three sizes to accommodate 4, 6, or 8 splitter/combiners and other fiber optic LAN equipment.

Fiber Optic Cabling

Fiber optic cabling is purchased by the customer from a fiber optics vendor/installer. Four optical fibers are required for basic configurations, since a single node has two sets of transmit and receive connectors (to allow for redundancy). The cables must be terminated with ST type connectors (to match those on the splitter/combiner). Other cable requirements (flexibility, durability, etc.) depend on the particular application. Check with a cable vendor/installer for a listing of application-specific cable characteristics.

The maximum length permitted for any run of fiber optic cabling is 10 km (6.2 mi). The number of nodes allowed and the maximum allowable cabling distance for a particular installation depend on various hardware and software constraints. Consult your Foxboro representative for more information.

ENVIRONMENTAL SPECIFICATIONS

Splitter/Combiner

TEMPERATURE

Operating

-40 to 85°C (-40 to 185°F)

Storage

–40 to 85°C (–40 to 185°F)

RELATIVE HUMIDITY

5 to 95% (noncondensing) at 30°C (86°F)

(1) The Fiber Optic LAN Converter does not actively echo signals; therefore, the splitter/combiner cannot directly connect to it.

PHYSICAL SPECIFICATIONS

Fiber Optic LAN Cables (Customer Supplied)
Multimode graded-index glass fiber; 62.5 micron core, 125 micron cladding

Splitter/Combiner
FIBER OPTIC CONNECTORS
ST type (12)
MASS
1.8 kg (3.9 lbs)

MOUNTING
Standard 483 mm (19 inch) wide rack
Standard EIA rack, configuration 1U
SIZE
See Figure 4
OPTICAL LOSS
5.3 dB per channel

DIMENSIONS--NOMINAL

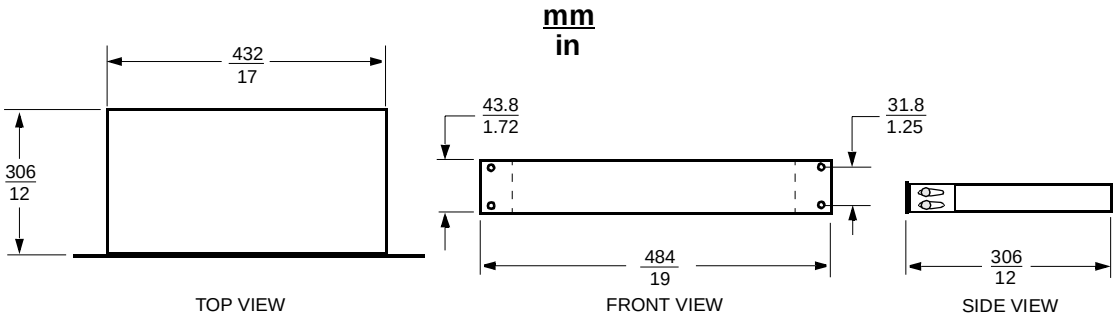


Figure 4. Splitter/Combiner Dimensions

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