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Data DeadBolt[®]

Fiber Optic A/B Switch with Loopback



Model 6100845 (SC Connectors)
Model 6100846 (ST Connectors)

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1. Specifications

Connectors: 6100846 - (6) ST, (1) 3.5 mm power input, or
6100845 - (3) duplex SC, (1) 3.5 mm power input

Data Rates: Transparent to optical signal rates and formats

Switching Speed: 5 msec typical, 10 msec maximum

Sensitivity: 750 to 1450 nanometers

Optical Loss: less than 3.0 dB typical per FOTP-171 method B1

Compatibility: 62.5/125 μm multimode fiber

Crosstalk: -45 dB typical per FOTP-42

Temperature: 0 to 40°C operating, -20 to 70°C storage

Relative Humidity: 95% max, non-condensing

Mean Time Between Failures: 100,000 hours or 1,000,000 cycles

Power: 100-240 VAC, 50/60 Hz wallmount power supply, 12VDC output

Size: 2.5"H x 8.1"W x 10.8"D

Weight: 2.5 lb.

2. Introduction

The Fiber Optic A/B Switch with Loopback is an all optical, fiber optic, latching style A/B switch (maintains the connection even when power is removed) that includes additional optical switching mechanisms to automatically loopback the unselected port. For example, if position A is selected, the A port will be connected to the C port, while any signals received on the B port will be looped back out port B. Likewise, if position B is selected, the B port will be connected to the C port, while any signals received on the A port will be looped back out port A. This is especially useful in failover applications, as this added functionality allows the "unused" circuit to be continuously tested to insure that it is operating correctly and available for use if needed.

3. Installation

Place the switch in a location that is relatively free from vibration and mechanical disturbances.

Apply power to the switch by plugging the AC power supply module into the connector on the back of the switch, and then plug the power supply module into a suitable source of AC power. Next, change the connection states of the switch by rotating the front panel control knob between the A and B positions. This causes all of the internal optical switch mechanisms to switch to an appropriate connection state prior to making any fiber optic cable connections to the switch. As soon as the fiber optic cables are attached, the network connection between the C port and the selected network port (A or B) will be immediately active.

Now that the switch connection state is configured for your application, connect the "shared" network connection to the Port C fiber optic connectors. Connect the one fiber link (of the two to be switched) to Port A. Connect the second fiber link to Port B

Take care to connect inputs and outputs consistently.

Note that the Fiber Optic A/B Switch with Loopback supports separate transmit and receive paths, so you must be consistent when connecting the fiber pairs to the switch. The fiber optic connectors on the ST version of the switch are marked “1” and “2” to help insure that the proper connections are made to each port. On the SC version of the switch, the left connector position of the SC duplex connector for the C port is switched to either the left connector position of either the A or B port duplex connector, and the right connector position of the SC duplex connector for the C port is switched to either the right connector position of either the A or B port duplex connector. For example, connect the receive in cable from your shared device to port C connector “1”, and connect the transmit out cables from your network switches to port A connector “1” and port B connector “1”. In a similar fashion, connect the transmit out cable from your shared device to port C connector “2”, and connect the receive in cables from your network switches to port A connector “2” and port B connector “2”.

4. Operation

The Fiber Optic A/B Switch with Loopback incorporates full-duplex optical switch mechanisms controlled by a front-panel-mounted rotary A/B switch. It is used to share a fiber optic link between two fiber optic networks .

The switch utilizes a unique optical switching mechanism. When you turn the knob on the front of the switch to select a port, circuitry activates the optical switch mechanisms causing them to redirect light beams from Port C (the “common” port) to either Port A or Port B by rotating a gold-plated, spherical mirror. There’s no optical-to-electrical conversion between your fiber optic links.

To operate the switch, simply turn the knob on the front panel of the switch to route the signals. Turning the knob to position “A” will route signals from Port C to Port A, while simultaneously looping back signals on port B. And selecting “B” routes the signals from Port C to Port B, while simultaneously looping back signals on port A.

And because the switch uses latching fiber optic switch mechanisms, if the switch loses power, it will continue to pass signals between port C and the selected port, while also looping back the signals on the un-selected port.

5. Troubleshooting

If the Fiber Optic A/B Switch with Loopback fails to operate, check the following before calling for technical support.

1. Ensure that the power supply connected to a power source and to the switch.
2. Check the fiber optic connectors for proper connections to the correct ports of the switch.
3. Operate the switch knob to verify that it’s tightly secured to the switch shaft and does not spin loosely.
4. Verify the integrity of the fiber optic leads by replacing a suspect cable with a spare.

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