



Market Central[®]
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Fiber Optic AB Switch w/Isolated position



Part # 5100622

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1. Specifications

Connectors - (1) duplex ST, (2) duplex SC, (2) 3.5-mm power input

Data Rates - Transparent to signal rates & formats

Switching Speed - less than 1 sec, with minimum 4 sec pause in Isolated state when switching between Classified and Unclassified states

Sensitivity - 750 to 1450 nanometers

Optical Loss - less than 2.0 dB per
FOTP-171 method B1

Compatibility - 62.5/125 μm multimode fiber

Crosstalk - -45 dB typical per FOTP-42

Grounding - None required

Approvals - UL and CE (power supply)

Operating Temperature - 14 to 149°F (-10 to +65°C)

Relative Humidity Tolerance -
10 to 95%, noncondensing

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

Power - 120 VAC, 60 Hz wallmount power supply,
12 VDC output. redundant supply included.

Size - 2.5"H x 8"W x 6.3"D (6.4 x 20.3 x 16 cm)

Weight - 4 lb. (1.8 kg)

2. Introduction

The Latching Fiber Optic ABC Switch is a full-duplex optical switch. It can be used to connect one workstation between two networks, or to other remote devices. It provides a keylock on the front panel that prevents the network connection through the switch from being changed when the keylock is in the Disable position. A front panel rotary style knob allows the user to switch between a Classified network connection and an Unclassified network connection, or to an Isolated position where no connection exists between any of the ports on the Latching Fiber Optic ABC Switch.

The switch operates with a unique internal switching mechanism. When you turn the rotary knob on the front of the switch to select a network, the internal switching mechanism redirects a light beam from one network port to the other network port by rotating a gold-plated, spherical mirror. This technique eliminates the need to convert between optical signals and electrical signals to do the switching, and is therefore transparent to data rates and protocols.

Front panel-mounted LEDs indicate when Power has been applied to the switch, and which port (Classified or Unclassified) is connected to the Common port, or if the Common port has been disconnected from both networks (Isolated).

A second DC power supply is included with the switch for use in applications where a secondary source of power is desired for use as a backup in the event that the primary power source fails.

3. Installation

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

Connect the workstation to the “Common” port on the switch. Connect the Classified network cable to the “Classified” port on the switch. Connect the Unclassified network cable to the “Unclassified” port on the switch. Note that the switch supports separate transmit and receive paths, so you must be consistent when connecting the fiber pairs to the switch. To help insure proper connections, the Common, Classified, and Unclassified ports on the switch are labeled with “A” and “B” to identify how the switch makes the connections between ports.

Connect the DC power supply to either the PWR 1 or PWR 2 jack on the rear of the switch, then plug the DC supply into a 120 VAC 60 Hz wall receptacle. If a redundant supply is also desired, connect the second DC supply to the unused power jack on the rear of the switch, and then plug it into a separate 120 VAC 60 Hz source.

4. Operation

The Latching Fiber Optic ABC Switch uses internal mirrors to switch between ports. These mirrors direct the light beams between the Common port and the Classified port, between the Common port and the Unclassified port, or can be set in the Isolated state where no connections are made between any of the ports on the switch.

The switch latches in the selected position and maintains that selection, even if the switch is powered off. Although the LED indicators will not glow, the switch will continue to pass data to the port that was last selected before the power was lost.

To prevent switching directly between the Classified network and the Unclassified network connection, the Latching Fiber Optic ABC Switch forces all connections to be broken for approximately 5 seconds (switches to the Isolated network connection state) before switching to the new network connection. The operation of the Latching Fiber Optic ABC Switch is described in more detail below.

If the keylock is in the Disable position when power is applied to the switch, the switch will maintain the same network connection that was selected prior to the power outage, however, all three position status LEDs (C, I, and U) will flash simultaneously. When the switch is in this state, moving the front panel rotary knob will have no effect on the network connections through the switch. The LEDs will continue to flash until the keylock is moved to the Enable position. Once the keylock is moved to the Enable position, the Latching Fiber Optic ABC Switch will immediately switch to the Isolated network connection state, wait approximately 5 seconds, and then switch to the network connection state indicated by the position of the front panel rotary knob.

If the keylock is in the Enable position when power is applied to the switch, the switch will go to the Isolated network connection state, wait for approximately 5 seconds, and then switch to the appropriate network connection state as indicated by the front panel rotary knob. The switch first goes to the Isolated network connection state in this situation to eliminate the possibility of switching directly from the Classified network to the Unclassified network or vice versa if the front panel rotary knob was moved while the Latching Fiber Optic ABC Switch was powered off. If you do not want the switch to automatically go to the Isolated network connection state each time it is powered on, the keylock should be set to the Disable position.

If the keylock is in the Disable position and the position of the front panel rotary knob is changed, the Latching Fiber Optic ABC Switch will maintain the current network connection state, but will flash all three position status LEDs (C, I, and U) simultaneously. The LEDs will continue to flash until the keylock is moved to the Enable position. Once the keylock switch is moved to the Enable position, the switch will immediately go to the Isolated network connection state for approximately 5 seconds before then switching to the appropriate network connection as indicated by the front panel rotary knob.

When the keylock is in the Enable position, the network connection can be switched between Classified, Isolated, or Unclassified by moving the front panel rotary knob to the desired position. The Latching Fiber Optic ABC Switch will automatically pause in the Isolated network connection state when switching between Classified and Unclassified positions and vice versa. For example, if the keylock is in the Enable position and the user switches the front panel rotary knob from the Unclassified position to the Classified position, the Latching Fiber Optic ABC Switch will do the following:

- switch from the Unclassified network connection to the Isolated network connection state
- pause in the Isolated network connection state for approximately 5 seconds
- switch from the Isolated network connection state to the Classified network connection

You can leave the Latching Fiber Optic ABC Switch in a powered state indefinitely. It isn't necessary to disconnect power from the switch when it is not in use.

5. Troubleshooting

5.1 Calling Your Supplier

If you determine that your Latching Fiber Optic ABC Switch is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Market Central, Inc. at (412) 494-2800

Before you do, make a record of the history of the problem. Your supplier will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.
- when the problem occurs.
- the components involved in the problem.
- any particular applications that, when used, appears to create the problem or make it worse.

5.2 Shipping and Packaging

If you need to transport or ship your switch:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the switch for repair, make sure you include everything that came in the original package. Before you ship, contact Market Central, Inc. to get a Return Materials Authorization (RMA) number.

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