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## Fiber Optic Network Access Control (FONAC) A/B Switch

Part Numbers

6100924A-SC	Single MM FONAC A/B Switch, 1U Rackmount, with SC connectors
6100924A-ST	Single MM FONAC A/B Switch, 1U Rackmount, with ST connectors
6100924A-SM-SC	Single SM FONAC A/B Switch, 1U Rackmount, with SC connectors
6100924A-SM-ST	Single SM FONAC A/B Switch, 1U Rackmount, with ST connectors



**Rackmount**

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## 1. Specifications

**Connectors:** (3) duplex SC, (1) 3.5-mm power input,  
(1) Six position terminal block.

**Data Rates:** Transparent to optical signal rates and formats

**Switching Speed:** less than 1 second typical

**Optical Wavelength:** 850 and 1310 nanometers (multimode); 1310 and 1550 nanometers (single mode)

**Insertion Loss:** 2.0 dB maximum (multimode); 1.5 dB maximum (single mode)

**Optical Isolation:** 35 dB minimum (multimode); 55 dB minimum (single mode)

**Temperature:** 32 to 158°F (0 to +70°C) operating; 14 to 158°F (-10 to +70°C) storage

**Relative Humidity:** Up to 80%, non-condensing

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

**Power:** 100-240VAC, 50/60-Hz wall mount supply, 12VDC output

**Size:** 6.7"D x 19"W x 1.75"H - 1U rackmount

**Weight:** 5 lb

**Remote Control Inputs:** External dry contact not to exceed 100 ohms resistance including cable.

**Status Relay Contact Rating:** 30 VDC, 1A maximum (resistive)

## 2. Introduction

The Fiber Optic Network Access Control A/B Switch is a non-latching full-duplex optical switch. It is used to provide access to two different networks at the user's discretion.

The A/B Switch operates with a unique switching mechanism. When you connect (short) Pin 1 to Pin 2 on the terminal block located on the back of the unit, the internal optical mirror mechanism will provide a connection path between the Common port and port B. The front panel B LED will illuminate to indicate that the connection path is B. If power is lost, or if the Pin 1 to Pin 2 connection on the terminal block is removed, the Fiber Optic Network Access Control A/B Switch will revert to the Common port to port A connection state.

The slide switch on the front panel operates in parallel with the rear panel terminal block contacts. When the slide switch is in the ON position, the internal optical mirror mechanism will provide a connection path between the Common port and port B, and the front panel B LED will illuminate to indicate that the connection path is B. When in the ON position, the slide switch also provides a connection between pins 1 and 2 on the terminal block. This feature could be used to activate a set of remote contacts on a secondary device.

The terminal block on the rear of the unit also provides 3 signal pins for remote status indication to allow a programmable controller or similar device to determine the status of connection path through the Fiber Optic Network Access Control A/B Switch (see table 3.1).

### 3. Installation

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

Connect your fiber optic cables to the Common port, Port A and Port B. Note that the switch supports separate transmit and receive paths, so you must be consistent when connecting the fiber pairs to the switch.

Connect your remote contact across Pins 1 & 2 on the terminal block. If using a remote status indicator, connect the remote status indicator to the terminal block (refer to table 3.1 for terminal block pin assignment).

**Note:** The external remote control circuit including cable and external dry contact closure cannot exceed 100 ohms resistance.

Apply power to the Fiber Optic Network Access Control A/B Switch using the 12 VDC power supply provided. Either the A LED or the B LED should illuminate to indicate that the unit is energized and to show the current connection state.

**Table 3.1** - Terminal Block (Pin 1 is on the Left)

Pin 1	Active Contact (to switch to port B)
Pin 2	Ground
Pin 3	Not Used
Pin 4	Status Relay N.C.
Pin 5	Status Relay COM
Pin 6	Status Relay N.O.

NOTE: Pin 4 & 5 are connected when in the Common Port to A Port connection state, Pins 5 & 6 are connected when in the Common Port to B Port connection state.

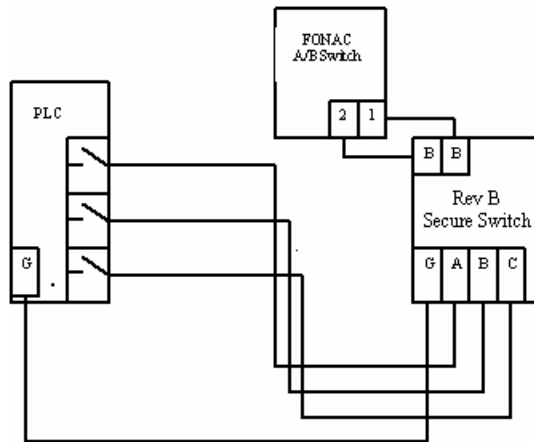
### 4. Operation

The Fiber Optic Network Access Control A/B Switch uses a non-latching optical switching mechanism to direct the light beams between the Common Port and Port A or Port B. There's no optical-to-electrical conversion. The only electrical activity is the DC power required to move the precision mirror mechanism and to power the LEDs. A set of non-latching relay contacts are also provided at the terminal block for remote status. Since non-latching switching mechanisms are used, if power is removed or lost the switch automatically reverts to the Common Port to A Port connection state (the status contacts likewise automatically change state if appropriate).

To operate the switch simply apply power to the unit by providing a source of AC voltage to the wall mount power supply. If power is applied and either the override switch is ON or the terminal block Active contact is shorted to the Ground contact, then the switch will be in the active state (Port B connected to the Common Port). The switch is in the inactive state (Port A connected to the Common Port) if power is removed, or if both the override switch is in the OFF position and the terminal block Active contact is not connected to the Ground contact. (See table below)

Connection State	Power	Override Switch	Remote Contact
Port A to Common	OFF	X	X
Port A to Common	ON	OFF	OPEN
Port B to Common	ON	ON	X
Port B to Common	ON	X	CLOSED

The Fiber Optic Network Access Control A/B Switch has been designed so that it can be easily driven using the remote status dry contact closures from Market Central's SecureSwitch Fiber Optic A/B/C Switch Revision B product. In the example shown below, when the PLC Controller switches the Rev B SecureSwitch to port B, the remote status dry contact outputs B-B on the SecureSwitch Rev. B unit will close, causing the Fiber Optic Network Access Control A/B Switch to optically connect its Common Port to its B Port.



## 5. Troubleshooting

### 5.1 Calling Your Supplier

If you determine that your Fiber Optic Network Access Control A/B 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. We will be able to provide more efficient and accurate assistance if you have a complete description of the problem, 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.

MARKET CENTRAL, INC.

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