



December, 2016

Fiber Optic Network Access Control (FONAC) Switch

6100920A-SC	MM FONAC, Desktop, SC connectors
6100921A-SC	Single MM FONAC, 1U Rackmount, SC connectors
6100922A-SC	Dual MM FONAC, 1U Rackmount, SC connectors
6100923A-SC	Triple MM FONAC, 1U Rackmount, SC connectors
6100920A-SM-SC	SM FONAC, Desktop, SC connectors
6100921A-SM-SC	Single SM FONAC, 1U Rackmount, SC connectors
6100922A-SM-SC	Dual SM FONAC, 1U Rackmount, SC connectors
6100923A-SM-SC	Triple SM FONAC, 1U Rackmount, SC connectors

For ST connectors, replace SC with ST in above part numbers.



Desktop



Rackmount

Market Central, Inc.

1. Specifications

Connectors: (2) duplex ST or duplex SC depending on model, (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: 5.5"D x 5.1"W x 1.5"H - desktop,
6.7"D x 19"W x 1.75"H - 1U rackmount

Weight: 2 lb. - desktop, 7 lb. rackmount with 3 switches

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 Switch is a non-latching full-duplex optical switch. It is used to provide network access at the user's discretion.

The switch operates with a unique switching mechanism. When you connect (short) Pin 1 to Pin 2 on the terminal strip located on the back of the unit, the internal optical mirror mechanism will provide a connection path between port A and port B. The front panel LED will illuminate to indicate that the connection path is active. And since this is a non-latching switch, if power is lost or the Pin 1 to 2 connection on the terminal strip is removed, the Fiber Optic Network Access Control Switch will revert to the inactive connection state (no optical path between port A and port B). There is a slide switch on the front panel, which operates in parallel with the terminal contact. This switch allows local control of the Fiber Optic Network Access Control Switch.

Note: The slide switch when in the override position provides a connection between pins 1 and 2 on the terminal contact which 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 Switch.

3. Installation

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

Connect your fiber optic cables to 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.

If using a remote contact to control the switch, connect the remote contact to 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 remote control circuit including cable and external dry contact closure cannot exceed 100 ohms resistance.

Apply power to the fiber optic network access switch using the 12 VDC power supply provided. The Power LED should illuminate to indicate that the unit is energized. The Active LED will illuminate when the fiber optic network access switch is active (port A connected to port B).

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

Pin 1	Active Contact
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 in the inactive state, while pins 5 & 6 are connected in the active state.

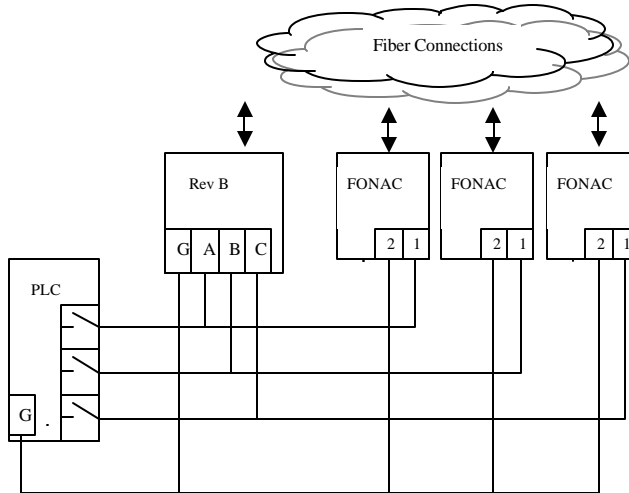
4. Operation

Operation is easy. Apply power to the unit by providing a source of AC voltage to the wall mount power supply. Use either the override slide switch or the terminal block contacts to connect (short) the Active contact to ground. The Fiber Optic Network Access Control Switch is active (Port A connected to Port B) if power is applied and either the override switch is ON or the terminal block Active contact is shorted to the Ground contact. The Fiber Optic Network Access Control Switch is in the inactive state (Port A not connected to Port B) if power is removed or 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)

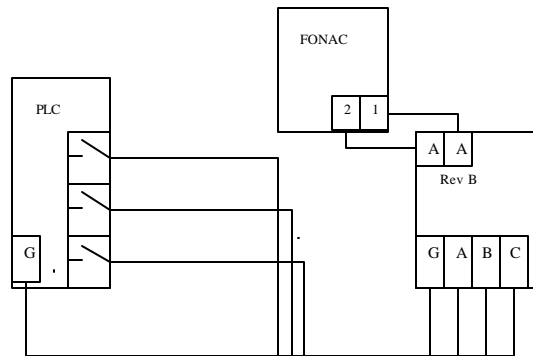
The switch uses an optical switching mechanism to direct the light beams between Port A and Port B. There's no optical-to-electrical conversion. The only electrical activity is the DC power required to move the precision mirror mechanism and to power the LEDs. A set of relay contacts are provided at the terminal block for remote status.

Network Access	Power	Override Switch	Remote Contact
Disabled	OFF	X	X
Disabled	ON	OFF	OPEN
Enabled	ON	ON	X
Enabled	ON	X	CLOSED

The Fiber Optic Network Access Control Switch can be used in conjunction with the SecureSwitch® Fiber Optic A/B/C Switch Revision B to connect the selected optical network connections and disconnect all other connections when the PLC controller or similar device actively selects one of the networks (A, B, or C). One fiber optic port on each FONAC would connect to the appropriate A, B, or C port on the Rev B SecureSwitch, while the other port on each FONAC would connect to the appropriate secure/non secure optical network. For clarity reasons, the diagram below shows only the control connections required for this configuration.



The Fiber Optic Network Access Control Switches can also be driven using the remote status dry contact closures from the SecureSwitch Rev B. In the example shown below, when the PLC Controller switches the Rev B SecureSwitch to port A, the remote status Dry Contact outputs A-A on the SecureSwitch will activate the appropriate FONAC, which will then optically connect the associated secure/non-secure network to port A on the SecureSwitch. The other FONACs would remain in the inactive state, causing the other fiber optic network connections to remain disconnected from the Rev B SecureSwitch.



5. Troubleshooting

5.1 Calling Your Supplier

If you determine that your Fiber Optic Network Access Control 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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