

FS702 FIBEROPTIC SWITCH

The FS702 Fiber-optic Switch connects optical channels by redirecting an incoming optical signal into a selected output fiber. This is achieved using patent pending non-mechanical proprietary configurations and activated via an electrical control signal. Latching operation preserves the selected optical path after the drive signal has been removed.

The solid-state operation offers ultra-high reliability and fast switching speed. The fiber-optic switches are true switching solutions for optical networking applications.



Key Features:

- Fast switching speed
- Ultra-high reliability
- Latching
- High repeatability
- Simple Control
- Low Cost

Applications:

- Monitoring
- Optical signal routing
- Network protection/restoration
- Configurable optical add/drop
- Transmitter and receiver protection
- Network test systems
- Instrumentation

PARAMETER	Min	Typ	Max	UNIT
Operating Wavelength	1520	1550	1580	nm
Insertion Loss	-	0.7	1	dB
Cross Talk	40	50	60	dB
Switching Speed	20	50	200	µs
Return Loss	50	55	-	dB
Polarization Dependent Loss	-	0.1	0.2	dB
Polarization Mode Dispersion	-	0.1	-	ps
Drive Voltage	4.5	5	6	V
Drive Current (~ 5V)	110	140	195	mA
Drive Pulse Width	0.2	0.3	10	ms
Operating Temperature	-5	-	70	°C
Optical Power	-	300	-	mW
Fiber	Corning SMF28, bare fiber, 1			m
Package Dimension	(L) 58.2 x (W) 8.4 x (H) 8.4			mm

Operation:

The FS702 Optical Switch consists of three Input/Output optical fibers and two electrical input terminals. Of the three I/O fibers, one is a “common” (COM) fiber, exiting the unit from one end, and the other two, exiting from the other end, are the equivalent of the Normally Open (N.O.) and Normally Closed (N.C.) contacts on an electrical switch. Together they form a single pole – double throw (SPDT) Optical switch. The Optical paths are “mono-directional”, meaning light can only be applied to the COM fiber and output on either the N.C. or N.O. fiber.

The two electrical inputs are used to connect to a suitable power source or driver. When properly driven they will cause the active optical path to toggle between the COM-N.C. fibers and the COM-N.O. fibers. The optical path selected is determined by the polarity of the input voltage relative to the two input terminals. Applying two consecutive pulses of the same polarity will NOT cause the switch to toggle. If power is removed, the switch will stay in the last active position.

Example:

- 1) Determine the present state of the switch. Apply light to the COM fiber and determine which of the other two fibers the light is outputting on. Designate this fiber “N.C.” and the dark fiber will be “N.O.”
- 2) Connect the return (-) of a +5V pulse source to the IN 1 terminal. Connect the +5V lead to the IN 2 terminal. Refer to Fig. 1.
- 3) Apply a pulse between 200us and 10ms long. **Avoid exceeding the maximum pulse width! Damage to the switch may occur.**
- 4) If the light is still being output on the N.C. fiber, then this polarity corresponds with the COM-N.C. active path. To toggle to the COM-N.O. path reverse the polarity of the pulse as shown in Fig. 2.
- 5) If light is now being output on the N.O. fiber, then this polarity corresponds to the COM-N.O. active path. To toggle to the COM-N.C. path reverse the polarity of the pulse as shown in Fig. 2.

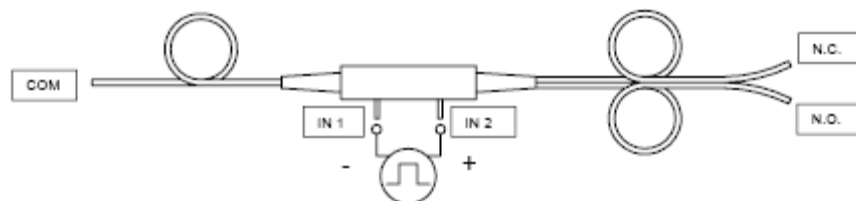


Figure 1 – Applying a Drive Pulse

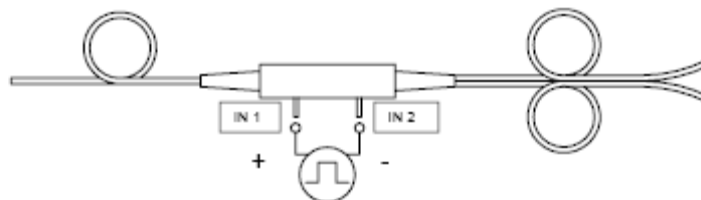


Figure 2 - Reversing the Polarity