WARRANTY

All fiber optic transmission systems, products and accessories manufactured by Liteway, Inc. and it's subsidiaries are fully tested prior to shipment and are warranted against defective materials and workmanship for a period of five full years from the date of the original shipment. Should a problem occur, a Return Material Authorization Number (RMA) must be obtained from Liteway Inc. at (516) 931-2800 and the item returned to Liteway, Inc. 166 Haverford Road, Hicksville, NY 11801, USA, prepaid. Liteway Inc. will then, at its option repair or replace the defective item.

Liteway, Inc. maximum liability under this warranty is limited to the cost of the defective item only. No contingent liabilities of any kind are either assumed or implied.

Any items returned to Liteway, Inc. that have been misused, abused, damaged, modified, connected or adjusted in any way contrary to the instructions furnished by Liteway, Inc. or repaired by unauthorized personnel will not be covered by this warranty. Any non-warranty repairs required will be quoted at the current rate for such services.

Important Notices

CAUTION ! AVOID DIRECT EXPOSURE TO BEAM.
All –5, -7, -8, and -9 Models use laser diodes. These solid-state laser diodes are located in the optical ports of these units. Laser diodes produce invisible radiation that may be harmful to human eyes. Never look directly into the optical port of any fiber optic unit designed to operate with single-mode optical fiber.

NOT FOR LIFE SUPPORT SYSTEMS
Liteway, Inc. does not authorize or warrant any of its products or accessories for use in critical life support systems or applications of any kind.

134598 Rev E

OPERATING INSTRUCTIONS

Fiber Optic Network Protection Switch

Model OS-4221

The OS-4221 is a fiber optic path protection switch normally used to provide a self-healing fiber optic network.

Technical Specifications

Switching Time	< 10 ms
Back Reflection	< -55 dB
Insertion Loss	< 2.5 dB
Cross-talk	< -50 dB
Optical Input (maximum)	+26 dBm (400mw)
Mechanical Life	> 1 Million cycles
Switch sensitivity	-28 dBm to -43dBm
Sensitivity Data rate	DC to 3Gb/s
Electrical Connector	5 pin removable terminal block
Temperature Range	-0 to +70ºC
Operating Power Requirements	11-24 VAC/DC @250 mA*
Physical Size (mm) single	7.0"(178)L x 2.23" (56.6)W x 5.0"(127)D

Models, wavelength, connector

-3 = 850/1310nm Multimode ST/PC	-4 = 850/1310nm Multimode SC/PC
-5 =1310/1550nm Single-mode SC/PC	-6 =1310/1550nm Single-mode LC/PC
-7 =1310/1550nm Single-mode FC/PC	

* -48VDC with PS-4810. All specifications are subject to change without prior notice.

LuxLink®
Fiber Optic Transmission Systems
www.LuxLink.com
USA 516-931-2800

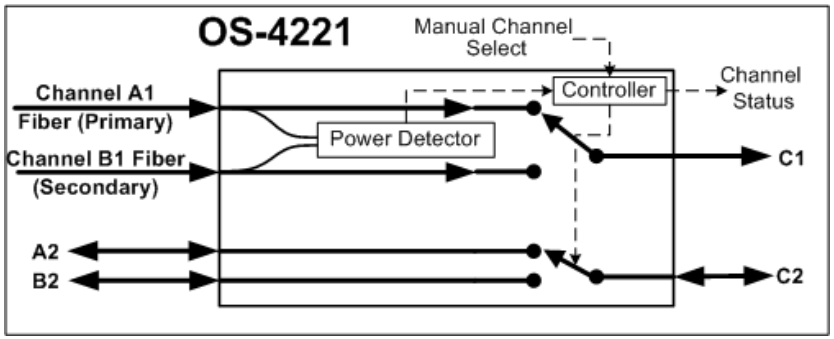
Installation Instructions

The OS-4221 fiber optic switch detects loss of optical power in a primary optical path and automatically switches to a secondary (backup) path. A second set of primary and secondary paths, working in parallel with the first set of paths, are provided for further configuration purposes. When the first primary link is restored, the network path is restored to both sets of paths. Note that the second path simply follows the first one but the secondary path does not detect its input signal level. The optical protection switch can be controlled via three methods; front panel manual switch, remote control signal, or the automatic internal monitoring circuitry.

All optical paths through the unit are purely optical, i.e. there is no optical to electrical to optical conversion. As a result there are no modifications of the optical signal on any of the fiber optic paths.

Common applications for this device are optical routing, system bypass, ring network restoration, and loop-back testing.

The diagram below shows the typical application of the OS-4221. When in the Normal state, channel A1, the primary, is connected to the C1 common port and A2 is connected to the C2 common port..



The OS-4221 switch will go in a bypass state under any of the following conditions:

1) There is a loss of electrical power.
2) There is a loss of the optical signal in Channel A1 only. Note that channel 2 is not sensed but switches when channel 1 switches.
3) The front panel mode switch is put into Bypass mode.
4) The rear panel control signal is grounded.

Power Signal Terminal Block Connections

Pin	Label	Function
1	Pwr+	Power input + (11 - 24V AC/DC)
2	Pwr-	Power Input - (11 - 24V DC/AC return)
3	Ctl	Control Signal (Connect to pin 5 ground to place switch in the bypass state) when in auto mode.
4	Alm	Alarm* Connects to pin 5 (ground) when switch goes into bypass state. Open otherwise.
5	Gnd	Ground (also connected to housing)

* The Alarm signal can be used with the ALM-1000 unit to provide an audible alarm and dry contacts for remote station monitoring.

Indicator Lights

Indicator	Lights when
Power	Proper power is present
Alarm	Alarm state, primary or secondary power level low.
Signal Primary	Signal on primary channel is present
Signal Secondary	Signal on secondary channel is present
Output Primary	Output is connected to Primary
Output Secondary	Output is connected to Secondary > level selected

Front Panel Mode Selector

Position	Function
Pri	Optical port A1 is routed to optical port C1 and A2 is to C2
Sec	Optical port B1 is routed to optical port C1 and B2 is to C2
Auto	Optical port A1 is routed to optical port C1 and A2 is to C2 except when rear control signal is activated, optical power is less than selected or electrical operating power is lost

Optical Power (+/- 1.0 dBm) Level Switch Setting

Switch	Level	Switch	Level	Switch	Level	Switch	Level
0	test	4	-35.0	8	-32.2	12	-31.0
1	-43.0	5	-34.0	9	-32.0	13	-30.3
2	-39.0	6	-33.0	10	-31.5	14	-30.0
3	-36.0	7	-32.5	11	-31.3	15	-29.8

Signal indicator will flash when signal power level is 0.5 dB < selected level. Note for 850nm, table sensitivity levels are 3dB lower