



FRM220-OPS51 FRM220-OPS52

Fiber Optical Protection Switch

The FRM220-OPS Series are able to provide fiber path redundancy on a channel by channel basis. These units are particularly well suited for protection in any type of fiber data transmission, including CWDM & DWDM links. This solution includes monitoring capabilities for both the working and protected path fibers. In case of a fiber cut in the active path, traffic will be switched over to the protected path in less than 50ms (FRM220-OPS51) or 20ms (FRM220-OPS52). Monitoring is available through SNMP Management when both card is placed in FRM220 rack with SNMP management. The management can view the converter card's status, type, version, fiber link status and alarms. The card can be configured to enable or disable the port, reset the port, and configure receive threshold levels for path switching.

Features

- Latch feature, if power is lost the switch remains in its current state
- Protection transition < 50 ms (FRM220-OPS51)
- Protection transition < 20 ms (FRM220-OPS52)
- Works with any combination of 1 ~16 wavelengths
- Traffic is switched in one of three modes : revertive, non-revertive, manual
- Programmable Rx threshold setting for switch-over
- Optical Interface Type : LC connectors
- Working and protected lines are physically separated fiber

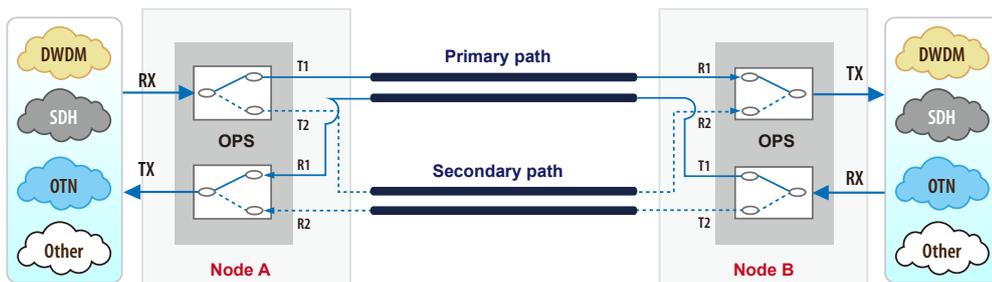
Specifications

| | |
|-----------------------|---|
| Connector | LC |
| LEDs | Power System, Working Path, Protection Path, Work mode |
| Power | DC 12V In |
| Operating Wavelength | 1260 ~ 1620 |
| Switch Type | 2x1 / Latching |
| Input Power (Optical) | -35~5dBm |
| Accuracy | ≤ 2dBm |
| Insertion Loss | ≤ 3dB (Pair) (FRM220-OPS51), ≤ 5.5dB (Pair) (FRM220-OPS52) |
| Return Loss | ≥ 45dB |
| Cross-talk | ≥ 60dB |

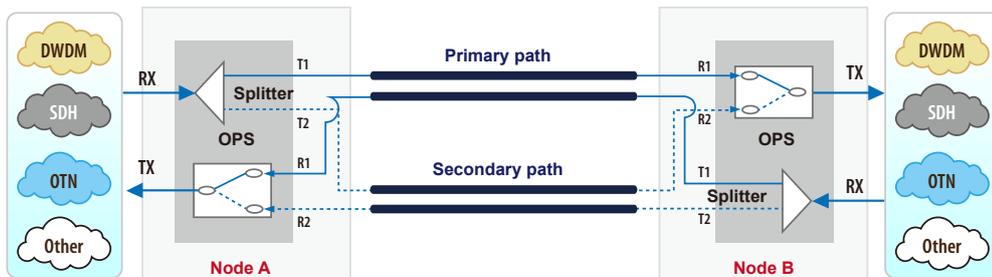
| | |
|-----------------------------------|--|
| Polarization Dependent Loss (PDL) | ≤ 0.1dB |
| Input Power Sensitivity | -35dBm |
| Restoration Time | ≤20ms |
| Power Consumption | < 6W |
| Dimensions | Card: 155 x 20.8 x 88mm (D x W x H) |
| Weight | 130g |
| Temperature | 0 ~ 50°C (Operating), -10 ~ 70°C (Storage) |
| Humidity | 5%RH to 95%RH non-condensing |
| Certification | CE, FCC |
| MTBF | 65,000 hours |

Application

FRM220-OPS51 Working Theory



FRM220-OPS52 Working Theory



Ordering Information

| Model Name | Description |
|--------------|---|
| FRM220-OPS51 | 1:1 Optical Line Protection Switch, dual fiber on WAN port, LC/PC connector |
| FRM220-OPS52 | 1+1 Optical Line Protection Switch, dual fiber on WAN port, LC/PC connector |

Note: This card must use CH01M, with serial console, to configure standalone settings. For SNMP management, place this card in CH02/NMC or CH04A Chassis.

Naming Rule

FRM220-OPS5

- Optical Switch Mode
- 1 : 1:1 OPS
- 2 : 1+1 OPS