DarkStar® DSM10 Series

2 – 10 Channel DWDM Muxponder

Technical Specifications

Physical Dimensions

Height: 1RU
Width/Depth: 16.9"/27.25" (29.5" with cable relief)
Weight, minimum: 32lbs (No options: EDFA, DCM, etc.)

Power Requirements

Power input AC: 100-240V AC, 50/60Hz
Power input DC: -48 to -60V DC
Power consumption, typical: 74 watts (83 watts maximum)

Environmental

Operating temperature: 0 to 55°C
Storage temperature: -40 to 70°C
MTBF: 87,600 hours
Non-operating (Shock and Vibration): ISTA-2A, IEC60068-2-6, 60068-2-64, 60068-2-27

Management

Command line interface:
- RS-232 serial console port
- TELNET and SSH

Dedicated management network:
- 4x 10BASE-T/100BASE-TX Ethernet ports
- IPv4/IPv6 dual stack
- IPv4 forwarding, RIP routing
- DHCP boot client, BOOTP relay
- DHCP server

Security:
- Simple password
- Local account database
- RADIUS and TACACS+ client
- Host-based access control lists (ACLs)

Monitoring:
- Network Syslog, Local event log
- SNMP versions 1 and 2C
- RFC1213-MIB, SNMPv2-MIB, IF-MIB, XKL-MIB

Administration:
- SNTP time synchronization client
- TFTP file transfer client
- Telnet remote command-line client
- Reboot and upgrade management operating system without interrupting customer data

Redundancy, Availability, Scalability

Dual, hot-swap power supplies and fans
Hot-swap laser transceivers: SFP+, Tunable SFP+, and OSC (Optical Service Channel)
Field-replaceable dual flash storage modules, one is write protected
System-wide watchdog timer to ensure software response
Optical network uninterrupted during software reset and upgrade
Automatic fiber path protection available in all systems, with detection and path switching speeds under 20 ms

Architecture

Integrated Systems Architecture - Mux/demux filter, EDFA(s), dispersion compensation (DCM)
Digital ROADM (Reconfigurable Optical Add Drop Multiplexer) - Remotely switch traffic, any-to-any mapping
No layer 2-3 payload/protocol processing as well as no data buffering. This is both a reliability and security feature, impossible to access transport data through management network.

Optical Wavelengths

Client: SFP+: 850nm or 1310nm
DWDM: C Band Tunable, 1530.33nm-1561.42nm with 100GHz spacing
Integrated Filter Loss: 3.7dB (Typical 10 Channel Mux+Demux)

Supported Interfaces

Ethernet: 1GE, 10GE, 10GE+FEC, 40GE (4 lambdas), 100GE (10 lambdas)
SONET: OC48/STM16, OC192/STM64, OC192+FEC
Fibre Channel: 1G, 2G, 4G, 8G, 10G
Number of client-side ports per system: 10
Number of line-side ports per system: 10

Standards Compliance

UL: IEC 60950-1(ed.1), IEC 60825-1:2007 (2nd Edition)
FCC: Conducted and Radiated Emissions, Part 15 Subpart B Sections 15.107 and 15.109 Class A
CE: EN55024 (1998 w/A1: 01 & A2: 03, EN61000-3-2 (2006), EN61000-3-3 (1995 w/A1:

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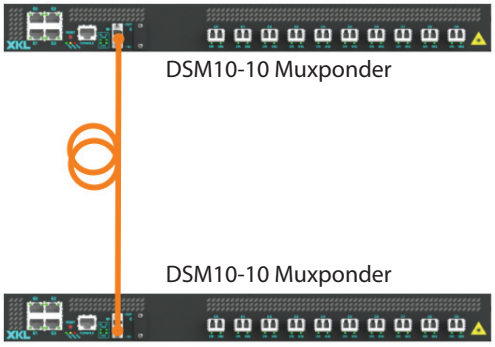
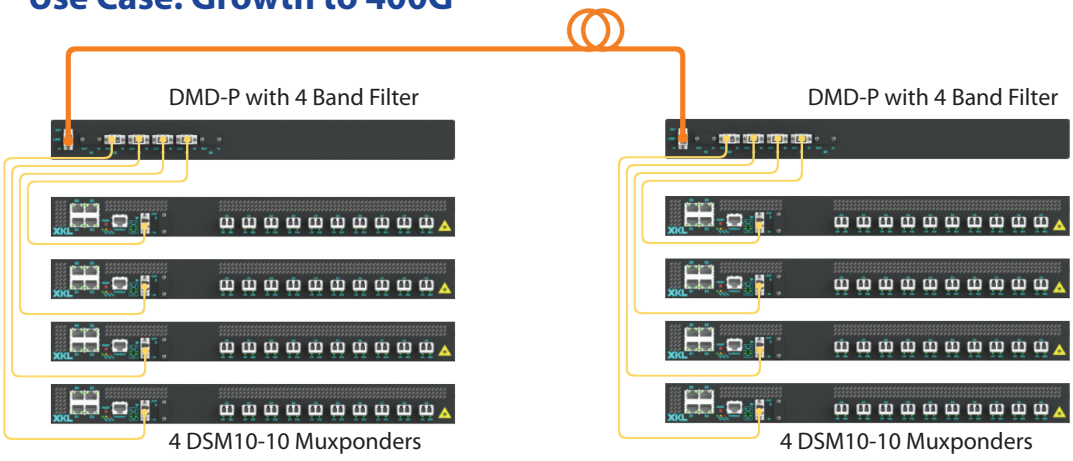
Use Cases

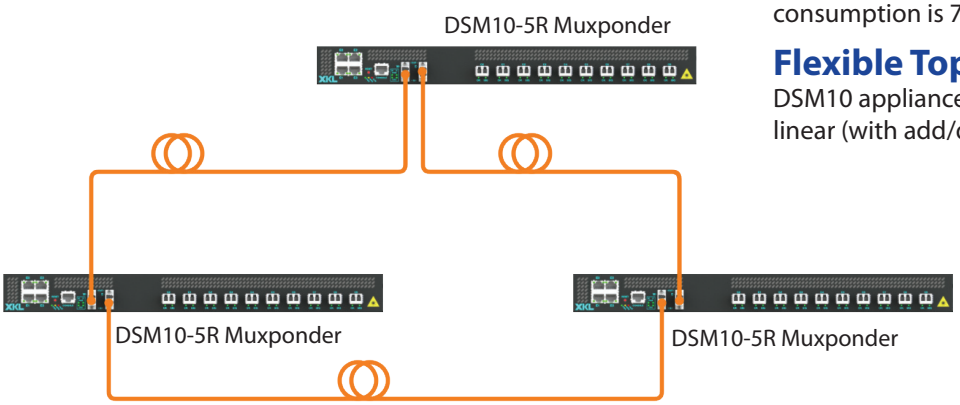
Use Case: 10 x 10G Point-to-Point



Use Case: Growth to 400G



Use Case: Ring Topology



Installation

DarkStar DSM10 muxponders install in under an hour and require 1RU of rack space.

Optical Power Budget

The appliance includes DWDM optics and components pre-configured at the factory to meet OTDR requirements. With internal EDFA amplifiers, the DSM10-10 power budget is 36 dB, enabling spans of up to 130 km at a typical 0.25 dB/km. Longer distances, up to 2,000 km, are supported with XKL's external EDFA and Raman amplifiers.

Performance

The DSM10 series products are Layer 1 devices and operate at line speed. Latency for a DSM10 series system is 25 nanoseconds.

Hitless Upgrade

Operating system upgrades are typically once per year and take about 20 minutes. The upgrade is reversible and launches from a single command. With separate data and management planes, a DSM10 can be rebooted without affecting customer data.

Incremental Growth

Appliances may be stacked by using an XKL DarkStar DMD-P. Up to four appliances may be connected, allowing a total of up to 400G in total bandwidth on a single fiber pair.

Green: Low Power Consumption

Industry-leading low power consumption, typical power consumption is 74 watts.

Flexible Topologies

DSM10 appliances can be configured for point to point, linear, linear (with add/drop), and ring topologies.

DSM10 Muxponder Models

DSM10-10 : 10 x 10G
DSM10-5R : 2 x (5 x 10G) East/West
DSM10-4 : 4 x 10G
DSM10-2R : 2 x (2 x 10G) East/West

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