1-2 Channel DWDM Muxponders

DarkStar **DQM100 Series**

The DQM100 is part of XKL's DarkStar DWDM Muxponder family of products and is based on XKL's DarkStar architecture, the foundation for addressing today's IT challenges and scalable growth.

These systems enable customers to soft-configure the aggregation of Ethernet services at multiple data rates. The DQM100 is an optical appliance, and as such, includes optical amplifiers and channel filters fully integrated and pre-configured at the factory. Organizations can easily plan for increasing capacity to address bandwidth needs, as well as to meet the demand in the growth of mobile devices, streaming video, and bandwidth intensive applications. DQM100 systems are ready to grow up to 36 channels with the addition of a DarkStar DMD-A or DMD-P.

The DQM100 solution includes a powerful aggregation scheme based on statistical multiplexing. This approach to data aggregation optimizes channel utilization, provides bandwidth shaping controls, and gives the customer complete control over their data transport. Under the instantaneous demands of real-world internet traffic, statistical multiplexing leverages the statistics of real-time demand, allowing many more users to transmit their data packets over a shared channel than would normally be the case if a static aggregation approach, such as time-division multiplexing, were employed. As a result, statistical multiplexing can help lower the cost of building and maintaining an optical network.

DQM100 systems install in under an hour and are available in 1 rack unit (1U) or 2 rack unit (2U) configurations. A typical DQM100 (i.e.,1 port) uses 164 watts of power.

The DQM100 is a DWDM appliance. As such, network administrators can deploy and commission these systems in a fraction of the time it takes to deploy traditional optical transport equipment. Setting up the management network, as well as configuring services, are done in minutes. All the complexities of building an optical network are handled by the DQM100 system, leaving network administrators with confidence in their deployments.

More about this product...

Integrated System Architecture:

- DWDM Mux/Demux filter
- Statistical multiplexing
- Dynamic bandwidth allocation
- Soft-configured weighted round-robin priority scheduler
- Maximizes channel utilization with no wasted bandwidth

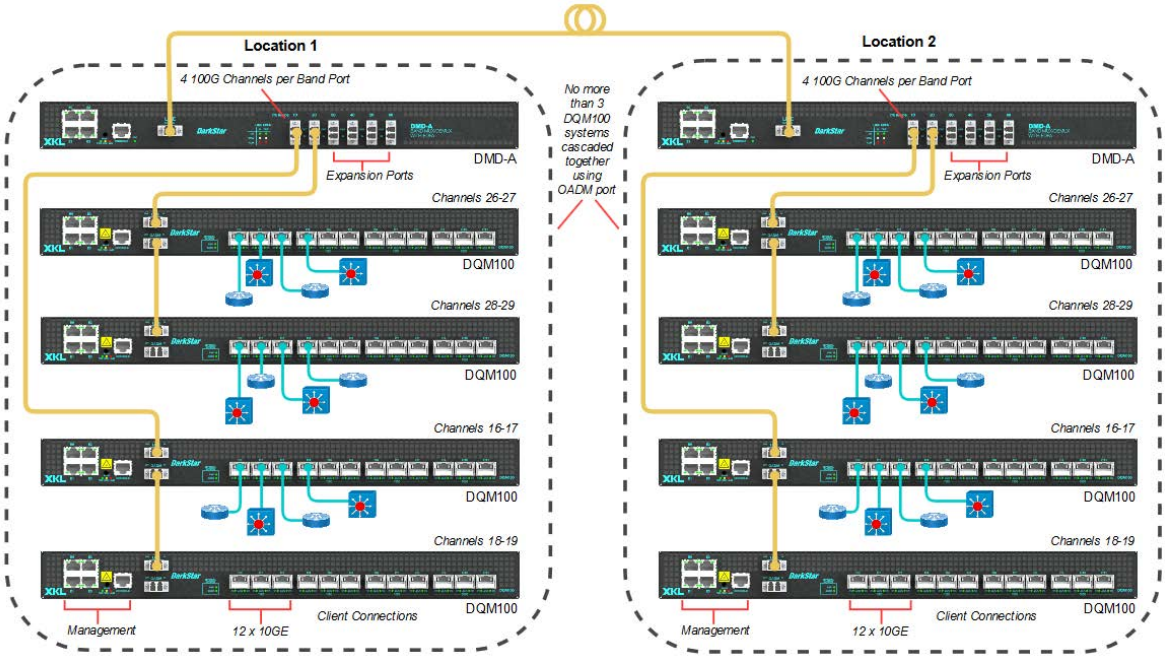
System Level Features:

- Hot-swap components:
  - 1+1 redundant power supplies, supports AC and DC
  - Redundant fans
  - Laser transceivers: QSFP+, and Optical Service Channel (OSC)
- Field-replaceable dual flash storage modules; one is write-protected
- Hitless software upgrades - no customer data loss
- System-wide watchdog timer to ensure software response

Also see "Technical Specifications" on back.

Typical Use Case

8 x 240G Point-to-Point with Growth to 24 x 240G



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 p/n 50103-51003-01

Supported Topologies
Point-to-Point, Linear, and Protected (upcoming support)

Capacity/Growth
Each DQM100 system has one or two (depending on the configuration) trunks or channels, and up to three systems may be cascaded to allow for up to a six-channel subsystem on a single fiber pair. Furthermore, the network can grow beyond these channels by connecting each group of systems to a single band port of the DMD with band filters, thus allowing for up to 36 channels on the same fiber pair.

Network Management and Control Plane
Command line interface (CLI):
- 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

Optical Service Channel: 2

Supported Reach
Links up to 140km (0.25dB/km of fiber loss)

Supported Fiber Types
G.652, G.654, G.655 (others supported on demand)

Product Configurations
A single Line port on the front panel providing access to one or two DWDM trunks and one OSC

Optionally includes: EDFA per-amp, EDFA booster, Optical Protection Switch (upcoming feature), various client interfaces, AC/DC power supplies, 1U or 2U chassis

Optical Components/Characteristics
Client-side Optics: QSFP+: 40GBase-SR4 (4 x 850nm), 40GBase-PSM4 (4 x 1310nm), 40GBase-LR4 (CWDM: 1271nm, 1291nm, 1311nm, 1331nm)

Line-side Optics: DWDM: Coherent CFP (C Band: 1533.47nm-1561.42nm) with 100GHz spacing

Integrated Filter Loss: 3dB (typical Mux+Demux)

Amplification: EDFA pre-amp, EDFA booster

Mux/Demux: 2 Channel Mux/Demux, 100GHz spacing

Optical Protection
Optical Protection Switch (upcoming feature)

Services
Ethernet: 10GE

Client Interfaces
Number of client-side ports per system: 3 or 6 (QSFP+) - Up to 240Gbps client-side services (up to 480Gbps, upcoming feature)

Line Interfaces
Number of line-side ports per system: 1 or 2 (CFP) - 100Gbps or 200Gbps line-side bandwidth

Physical Dimensions
IEC 60297-3 Compliant

Height: 1U (1.75"/44.5mm)/2U (3.5"/88.9mm)

Width/Depth:
- 1U: 16.9"/27.3" (29.5" with cable relief)
  429.3mm/693mm (749.3mm with cable relief)
- 2U: 16.9"/17.5" (19.8" with cable relief)
  429.3mm/444.5mm (502.9mm with cable relief)

Weight, minimum: 32lbs/14.5kg (No options: EDFA, etc.)

Power and Cooling
Power input AC: 90-264V AC, 50/60Hz

Power input DC: -40 to -75V DC
(1+1 redundant AC or DC, or both)

Power consumption, typical:
- DQM100 (2 port):160W
- DQM100 (1 port): 125W

Power consumption, maximum:
- DQM100 (2 port):190W
- DQM100 (1 port): 155W

Environmental
Operating temperature: 0 to 50°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

Laser Safety Classification
Class 1

Regulatory 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/A1:01 & A2:06), EN55022 (2006) Class A & CISPR 22 (2005) Class A