EKINOPS PM C1008MPLH

Multi-Protocol, Multi-Rate, 10G Multiplexer/ADM with FEC

DATA SHEET 12 | 2020

KEY FEATURES & BENEFITS

- Single module for aggregation of most common service types
- Efficient multiplexing that supports aggregation of multiple service types onto a single wavelength
- Support for a wide variety of applications with a single module simplifying inventory and sparing
- Redundant line port for 50 ms network switching
- ADM capability allowing for the adding and dropping of any mix of services at multiple remote locations using only a single wavelength

APPLICATIONS

- Business Services
  (TDM, Ethernet, Fibre Channel)
- Data Center Interconnect / Disaster Recovery
- Triple or Quadruple Play
- Wireless Back Haul
- IP DLC / DSLAM Back Haul
- Transport Infrastructure

OVERVIEW

The EKINOPS PM C1008MPLH module is amongst the industry's most flexible multi-protocol DWDM add drop multiplexers. This module has the ability to multiplex any mix of 1GbE, 1G Fibre Channel, 2G Fibre Channel, 4G Fibre Channel, OC-12/STM-4 and OC-48/STM-16 up to to a total bandwidth of 10 gigabits per second. It has eight client ports which can be used as inputs for these different service types. All client ports are software programmable and can be reprogrammed to a different client service in the field, on the fly, without any effect on traffic being carried by other ports on the cards. The PM C1008MPLH also supports add-drop multiplexing (ADM).

The flexibility of the EKINOPS PM C1008MPLH provides the end user with a number of advantages. First, enterprises and service providers can utilize it without any need to understand or forecast the mix of different traffic types that will need to be supported in the future. Second, it's ADM capability allows service providers to add or drop any individual service or group of services at any location. Third, the flexibility of the module provides unsurpassed wavelength utilization for complex applications consisting of multiple service types by aggregating them all on to a single 10G wavelength where traditional multiplexers require a different wavelength for each service type.

The EKINOPS PM C1008MPLH module provides a second redundant line port to support 50 ms line side switching. Protection using the redundant line port is based on loss of signal as well as signal degradation.

The EKINOPS PM C1008MPLH module can be used in conjunction with the PM 124 *(separate datasheet available)* in order to efficiently aggregate lower rate traffic. The PM 124 allows the aggregation of 10/100 Ethernet, OC-3/STM-1, and OC-12/STM-4 into a single client port on the PM C1008MPLH module.
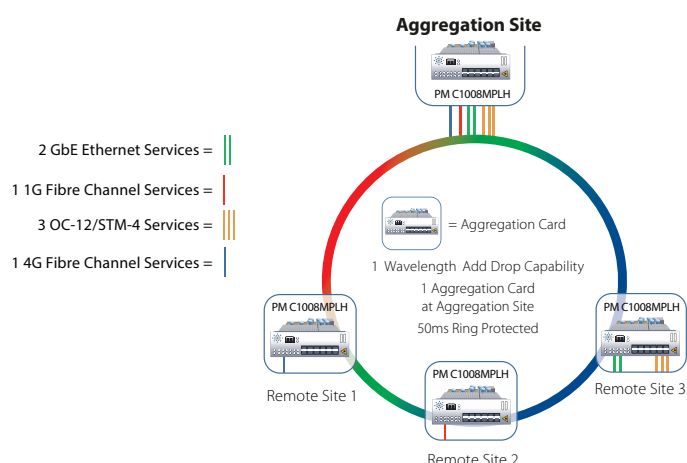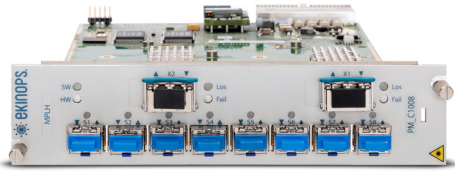

Aggregation Site

2 GbE Ethernet Services =
1 1G Fibre Channel Services =
3 OC-12/STM-4 Services =
1 4G Fibre Channel Services =

= Aggregation Card

1 Wavelength Add Drop Capability
1 Aggregation Card at Aggregation Site
50ms Ring Protected

Remote Site 1
Remote Site 2
Remote Site 3

Figure 1: Example use of the EKINOPS PM C1008MPLH ADM capability for multiplexing multiple traffic types on a single wavelength

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EKINOPS PM C1008MPLH

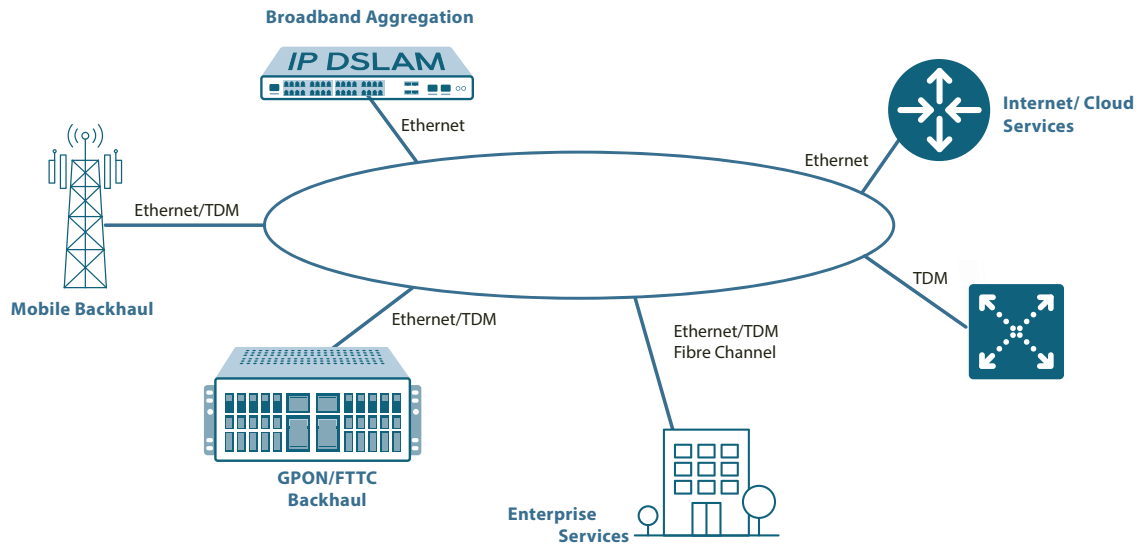## Multi-Protocol, Multi-Rate, 10G Multiplexer/ADM with FEC

Figure 2: Mix of applications and service types: an ideal environment for the EKINOPS PM C1008MPLH

APPLICATIONS

Because of the flexibility of the EKINOPS PM C1008MPLH, it can be used for a multitude of applications. Particularly useful in applications where multiple service types are necessary, it can be used for single service type applications as well. Examples of applications requiring multiple converged service types include wireless backhaul, broadband aggregation, and business services. For wireless back haul applications, there is a need to mix Ethernet and TDM services. For broadband backhaul, IP DSLAMs/DLCs and traditional TDM based DLCs/DSLAMs require a mix of TDM and Ethernet services. Finally, for business services, one could encounter multiple service types including Ethernet, TDM, and Fibre Channel. With all of these applications, flexibility in traffic mix is critical. The ability of the PM C1008MPLH module to support different service types in any combination on a single wavelength allows for service providers and enterprises to deploy these applications utilizing minimal network resources (wavelengths) without the need to anticipate what the mix of the different service types will be.
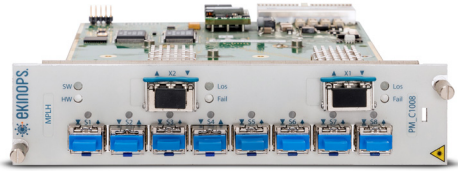
MANAGEMENT

The EKINOPS PM C1008MPLH module can be managed through SNMP or via the Ekinops standard element level management interfaces, which include a Command Line Interface *(CLI)* and an Ekinops Graphical User Interface *(GUI)*. The CLI is accessible via Secure Socket Shell *(SSH)* and Telnet remotely or via a local serial port on the management board.

Complete performance monitoring and management are provided, including laser shutoff and local and remote loopback, useful for maintenance and fault isolation.

Digital Diagnostics Management *(DDM)* is supported for SFP and XFP interfaces. This includes link status, transmit (TX) and receive (RX) signal power monitoring, and operational temperature, as well as manufacturer and transceiver model information essential for inventory management. A 10 Mbps in-band Data Communications Channel *(DCC)* is embedded in the line side for remote management.

The EKINOPS PM C1008MPLH module offers SONET/SDH Performance Counters for TDM services and RMON statistics for Ethernet services.

The EKINOPS PM C1008MPLH module is also supported by Celestis **NMS**, the Ekinops advanced Network Management System.

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SPECIFICATIONS

• CLIENT INTERFACE

Protocol	GbE, 1 GFC, 2 GFC, 4 GFC, OC-12/STM-4, OC-48 STM-16
Optical interface	SFP

• LINE INTERFACES

Protocol	OTU2 bit rate
Optical interfaces	XFP 1310 nm, 1550 nm, CWDM, DWDM

• MANAGEMENT

MIB	SNMP V2c Private MIB
Remote Management	10 Mb DCC

• PHYSICAL SPECIFICATIONS

Module size	2 slots in an Ekinops Chassis
Operating temperature	0°C to +50°C / +32°F to +122°F
Storage temperature	-20°C to +85°C / -4°F to +185°F
Power consumption *(Typ.)*	38W

• INDICATORS

Status	HW Ready, SW Ready
Alarm	Port Down *(Clients and Lines)*

• PERFORMANCE

FEC	6.5 dB
Optical Spacing	100GHz or 50GHz available

• REFERENCE STANDARD

IEEE, 802.3-2002, IEEE 802.3-2002, Fiber Channel-FS standard Rev 1.70, FC-PI Standard Rev 13, ITU-T G.707, Telcordia GR-253 Issue 3

ORDERING INFORMATION

PLUGGABLE MODULE (PM)

PRODUCT CODE	DESCRIPTION
PM_C1008MPLH-XX	Multi-protocol ADM, 8 access ports, 2 line ports - 1G FC, 2G FC, 4GFC, OC-48/STM-16, OC-12/STM-4, GbE ADM with DCC, 6.5dB FEC, SFP client and XFP line interfaces *(SFP/XFP not included)*

EKINOPS CHASSIS

PRODUCT CODE	DESCRIPTION
C600HC	High capacity modular chassis 7RU
C200HC	High capacity modular chassis 2RU
PM_MNGT4	Management card
400EEM	Ekinops Craft interface software

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