

EKINOPS PM 100G-EMUX

100 Gigabit Ethernet Aggregation Module

DATA SHEET 06 | 2021

KEY FEATURES & BENEFITS

- Efficient Ethernet services aggregation to 100G line
- QSFP+ client ports with multi-rate support — 10GbE & 40 GbE
- Increased bandwidth utilization
- Direct interface with any Ethernet switched network
- Single slot for high service density

APPLICATIONS

- Carrier managed services
- Ethernet business services
- Campus connectivity
- High speed Ethernet backhaul

OVERVIEW

The PM 100G-EMUX is an Ethernet-based aggregation module that allows network operators to deliver connectivity and managed services. Designed as a companion card to either of Ekinops' FlexRate™ modules, the PM 400FRS04 or the PM 200FRS02 (*see separate data sheets*), it aggregates up to twenty lower speed services on to a single 200G optical carrier for greater bandwidth and spectral efficiency. This combination of modules provides extensive service flexibility to the network by providing a low cost on-ramp for 10GbE and 40GbE services to a higher speed coherent optical link. The PM 100GEMUX can support either pure 10GbE, pure 40GbE or a combination of 10GbE and 40GbE clients. The 100G line is 100GbE bit rate with Ekinops proprietary framing and allows the signal to be handed off natively as a client to Ekinops' FlexRate™ modules for further aggregation on to high speed links up to 600G at any distance from metro to ultra-long haul. This approach is designed to provide a modular, cost-efficient approach to multiplexing 10GbE and 40GbE services onto high speed wavelengths. It also allows the operator to add services quickly by simply plugging in a new client optic without having to turn up a new wavelength.

The EKINOPS PM 100G-EMUX provides three QSFP+ client interfaces that support both 10GbE and 40GbE. Occupying only a single slot in either Ekinops' C200HC or C600HC chassis, up to twenty modules can be located in a single 7RU shelf supporting up to 200 10GbE or 40 40GbE services per shelf.

MANAGEMENT

The EKINOPS PM 100G-EMUX 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, which is useful for maintenance and fault isolation.

Digital Diagnostics Management (DDM) is supported for QSFP+ and QSFP28 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. The EKINOPS PM 100G-EMUX module is also supported by Celestis NMS, the Ekinops advanced Network Management System.

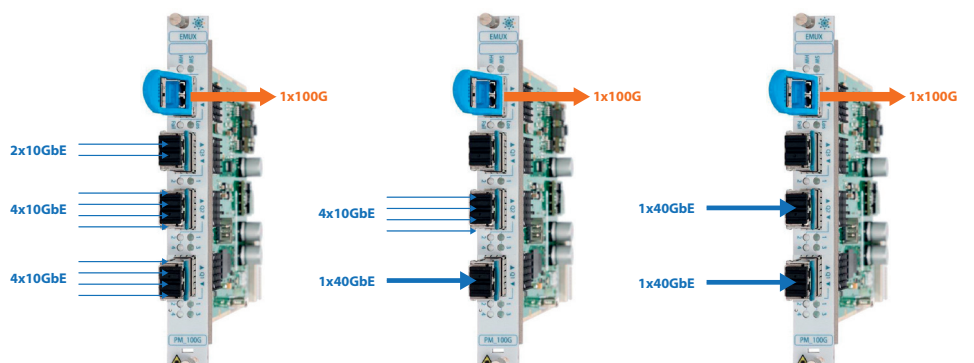
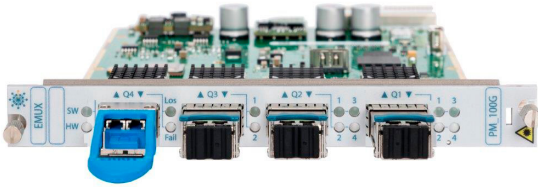


Figure 1: 10GbE and 40GbE service aggregation configurations using PM 100G-EMUX



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SPECIFICATIONS

CLIENT INTERFACE

Protocols	10GbE; 40GbE
Optical interface	QSFP+
Number of ports	3 (10GbE: Q1/Q2/Q3; 40GbE: Q1/Q2)

LINE INTERFACES

Protocol	100GbE bit rate, proprietary framing
Optical interfaces	QSFP28
Number of ports	1 (Q4)

MANAGEMENT

MIB	SNMP V2c Private MIB
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PHYSICAL SPECIFICATIONS

Module size	1 slot
Chassis compatibility	C200HC (6x100G modules per chassis) C600HC (20x100G modules per 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.)	17W (includes optics)
Power consumption (max.)	20W (includes optics)

INDICATORS

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

REFERENCE STANDARD

IEEE 802.3-2002; IEEE 803.3ae-2002; IEEE 802.3ba

ORDERING INFORMATION

PLUGGABLE MODULE (PM)

EKINOPS CHASSIS

PRODUCT CODE	DESCRIPTION
PM_100G-EMUX	10GbE & 40GbE to 100G Ethernet aggregator module, 3 client ports, 1 line port, QSFP+ 40GbE clients and QSFP28 100GbE line interface (QSFP+s and QSFP28 not included).
OK_100GbE_SR4-05	100G SR4 multimode optical kit (MPO to MPO, 5 meters)
OK_40GbE_MM03	40GbE QSFP+ multimode optical kit (MPO to 4 duplex LC/PC, 3 meters)
OK_SM02	Single Mode Client SFP Duplex LC/LC patchcord (2 meters)
OK_40GbE_SM-MPO-03	MPO/APC to 4xLC, monomode (3 meters)
PRODUCT CODE	DESCRIPTION
C600HC	High capacity modular chassis 7RU
C200HC	High capacity modular chassis 2RU
PM_MNGT4	Management card
400EEM	Ekinops Craft interface software

CONTACT



www.ekinops.com

Ekinops EMEA
sales.eu@ekinops.com

Ekinops APAC
sales.asia@ekinops.com

Ekinops Americas
sales.us@ekinops.com