

# EKINOPS PM 400FRS04-SF

## Pluggable FlexRate™ Muxponder

DATA SHEET 08 | 2020

### KEY FEATURES & BENEFITS

- Selectable line rate evolution from 100Gbps to 400Gbps on existing hardware
- Optimal performance for any capacity or reach requirement
- One module for all applications
- Easy capacity addition using pluggable QSFP28 client optics
- Simple inventory management and reduced sparing requirements
- Single fiber operation

### APPLICATIONS

- Long Haul & ULH Transport
- Metro/Regional Transport
- Data Center Interconnection
- Submarine Transport
- Alien wavelength
- Single fiber networks

### OVERVIEW

In today's networking environment, service providers and other network operators require the ability to deliver a variety of applications and services. With a highly differentiated customer base that is demanding a broad set of services with guaranteed performance, they need a high capacity network that is capable of delivering any service to any point in the network. This means having flexibility at the transport layer that is equivalent to the services layer. Ekinops PM 400FRS04-SF delivers an unprecedented level of configurability and manageability that allows service providers to tune their optical transport network to match their service level needs. Capable of operating in multiple different modes, it supports any type of transport application from metro access to ultra-long haul including data center interconnectivity and even submarine transport.

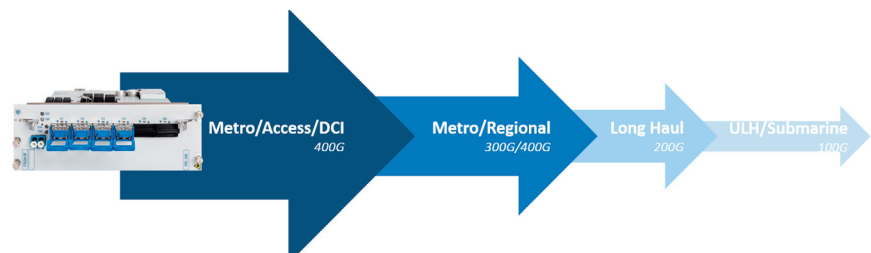


Figure 1: PM 400FRS04-SF multi-rate, multi-reach capability

The PM 400FRS04-SF has multiple adjustable parameters including modulation scheme, Forward Error Correction (FEC) overhead and baud rate as well as tunable wavelengths that allow service providers to optimize the reach and capacity of their transport network.

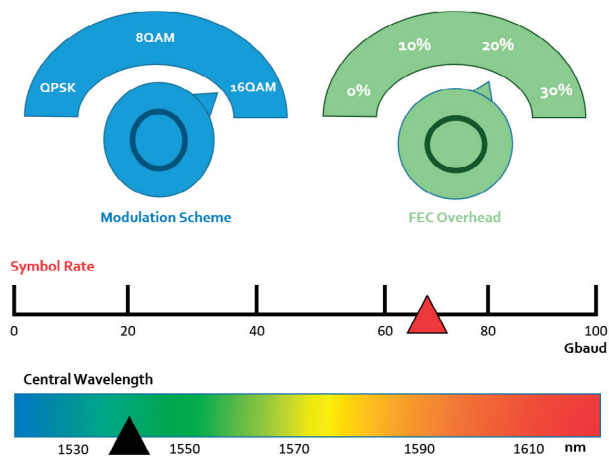
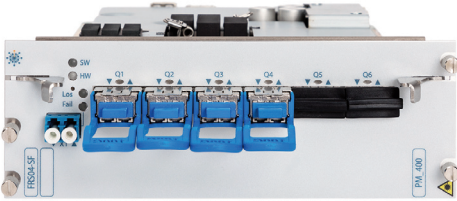


Figure 2: PM 400FRS04-SF adjustable parameters

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## EKINOPS PM 400FRS04-SF

**Pluggable FlexRate™ Muxponder**

The PM 400FRS04-SF is capable of single fiber operation supporting transmit and receive of different channels on the same module over a single strand of fiber at full line rate to deliver high capacity connectivity even in networks normally restricted by fiber availability.

Even with its advanced functionality, PM 400FRS04-SF fits seamlessly into existing Ekinops networks and can even be deployed as an alien wavelength over third party line systems. It is fully compatible with existing EKINOPS 360 chassis and runs using the same software.

### MANAGEMENT

The EKINOPS PM 400FRS04-SF 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 QSFP28 interfaces.

Complete performance monitoring and management are provided by **Celestis NMS**, the Ekinops advanced Network Management System.

### SPECIFICATIONS

#### • CLIENT INTERFACES

|                   |              |
|-------------------|--------------|
| Protocols         | 100GbE; OTU4 |
| Optical interface | QSFP28       |
| Number of ports   | 4            |

#### • LINE INTERFACES

##### Current Specifications

|              | 100G     | 200G    | 200G    | 300G   | 400G    |
|--------------|----------|---------|---------|--------|---------|
| Modulation   | DP-QPSK  | DP-QPSK | 8QAM    | 8QAM   | 16QAM   |
| Max distance | 10 000Km | 4500Km  | 1500Km  | 1000Km | 1000Km  |
| OSNR         | 11 dB    | 14 dB   | 16.5 dB | 19dB   | 22.5 dB |

#### • MANAGEMENT

|     |                      |
|-----|----------------------|
| MIB | SNMP V2c private MIB |
|-----|----------------------|

#### • PHYSICAL SPECIFICATIONS

|                           |  |
|---------------------------|--|
| Module size               | 3 slots  |
| Chassis compatibility     | C200HC<br>C600HC   |
| Operating temperature     | 0°C to +50°C / +32°F to +122°F   |
| Storage temperature       | -20°C to +85°C / -4°F to +185°F  |
| Typical power consumption | 135W (varies according to modulation and baud rate used; includes client optics) |
| Max. power consumption    | 170W (varies according to modulation and baud rate used; includes client optics) |

#### • INDICATORS

|        |                                      |
|--------|--------------------------------------|
| Status | HW ready, SW ready                   |
| Alarm  | Port down ( <i>client and Line</i> ) |

#### • REFERENCE STANDARD

|   |
|---|
| ITU-T G707 12/2003 edition; ITU-T G709; IEEE 802.3-2002; IEEE 803.3ae-2002; IEEE 802.3ba; ISO/IEC 18033-3 |
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# EKINOPS PM 400FRS04-SF

## Pluggable FlexRate™ Muxponder

### ORDERING INFORMATION

#### PLUGGABLE MODULE (PM)

#### EKINOPS CHASSIS

| PRODUCT CODE   | DESCRIPTION   |
|----------------|---|
| PM_400FRS04-SF | 100G ULH, 200G LH, 200G MR, 300G MR and 400G MR FlexRate™ muxponder; 4 client ports (100GbE or OTU4); 1 line port compatible with single fiber configuration with DCC and VOA; QSFP28 clients and tunable 100G/200G/300G/400G line interface (QSFP28 not included, tunable line interface included) |
| C600HC         | High Capacity modular chassis 7RU   |
| C200HC         | High Capacity modular chassis 2RU   |
| PM_MNGT4       | Management card   |
| 400EEM         | Ekinops Craft interface Software  |

### CONTACT



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