

# In-band Managed Multi-service Platform with Ethernet Switch Trunk card FRM220A

The FRM220A is a 2U high 19" Rack, 20 slot modular media converter rack, designed with one Gigabit Ethernet switch uplink, for efficient scalability and easy deployment in access networks. It provides an economic solution in high density fiber converter installations in enterprises or central offices. All critical components, Power, fans, management module and interface cards are hot swappable, allowing online field replacement. The hot-swappable power modules can be chosen from AC100-240V, DC18-36. or DC 36-72V. The chassis also has a pair of alarm relays and is able to stack up to 10 chassis as one management unit.

### Features

- 2U 19" 20-slot Chassis with AC/DC power redundancy
- Chassis cascade up to 10 with one IP management
- Chassis backplane consists of passive components
- Chassis supports uplink Gigabit Ethernet switch 4-port 10/100/1000T plus 4-port 1000SX/LX SFP trunk card
- All modules and cards support hot-swap function
- Two alarm relays
- E1 Inverse Multiplexers are supported by Gigabit
- Ethernet switch trunk card



### Connectors

- Console RS232(DB9)
- LAN 10/100 Base TX RJ45

### Physical Specifications

Dimensions: 303mm x 438mm x 88mm (W x D x H)  
Weight: 5.2kg w/o P/S

### Power Characteristics

AC : 100 ~ 240VAC  
DC24 : 18 ~ 36VDC, DC48: 36 ~ 75VDC

### Environmental Specifications

Operating 0°C ~ 50°C  
Storage -10°C ~ 70°C  
Relative humidity 5% ~ 90% non-condensing  
Predicted MTBF : 65,000 hrs

### Certification

FCC class A, VCCI class A, CE, RoHS

## 20 slot Multi-service Platform

### Technologies Supported:

- E1 Inverse Multiplexer
- 10G, 2.7G 3R Transponder
- Gigabit Ethernet Converter
- Fast Ethernet Converter
- Fiber Multiplexer
- POTS Fiber Converter
- Fiber Repeater
- E1/T1 Fiber Modem
- V35/X21/RS530 Fiber Modem
- Serial RS485/422 Fiber Converter

Chassis supports uplink Gigabit Ethernet switch 4-port 10/100/1000T plus 4-port 1000SX/LX SFP Trunk card

Thermal fan Holes



Chassis backplane consists of passive components

Chassis supports uplink Gigabit Ethernet switch 4-port 10/100/1000T plus 4-port 1000SX/LX SFP Trunk card

Chassis cascade up to 10 with one IP management

Hot swappable Thermal fans



Two Alarm relays

Single or optional redundant power supplies

### Power Redundancy

All the FRM220A chassis power supplies are hot swappable and modular, installing two into a chassis provides redundancy should a single power supply fail. A fully loaded chassis can run continuously with only one power module fitted into the chassis.

### Cooling Fan

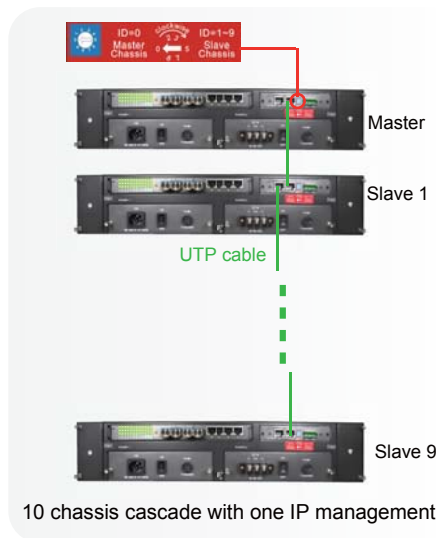
To further increase system reliability, the FRM220A chassis is fitted with two hot swappable fan modules. Both fan modules can be easily removed from the rear of the chassis, without interruption to the operation of the line cards. A fully loaded chassis can run continuously with only one fan module fitted into the chassis.

### Chassis cascade

The FRM220A features cascadeable management which allows managing a stack (up to 10 chassis) from a single IP address. Chassis are interconnected with standard UTP cables that carry control signals. Each chassis has its own ID, starting with the master chassis ID0 and cascading up to ID9.

### Gigabit Ethernet switch with Network Management

The FRM220A incorporates a 24+4 Gigabit Ethernet Switch. Twenty ports supply each slot of the 2U 20-slot chassis with an electrical gigabit Ethernet uplink with the remaining four electrical gigabit ports accessible via the rear of the chassis. The additional four ports are provided by SFP sockets.



All eight gigabit ports (4+4) are usable without restrictions for uplink aggregate to the Ethernet Metropolitan Area Network (E-MAN). The FRM220A-GSW/SNMP card transmits Ethernet between the subscriber equipment (bridge/modem or network interface card) and the E-MAN. The card provides a user-networking interface with Ethernet packets. This card is capable of providing high bandwidth for assembling Ethernet traffic. The FRM220A-GSW/SNMP card is not only the system aggregate/trunk module, but also the system's control module, providing OAM / IP Management functions.

### Protocol Supported

The FRM220A chassis has been designed as a Multi-service platform. This allows network administrators to deploy the chassis in a wide range of network. Technologies supported by the chassis included Fast/Gigabit Ethernet, E1/T1, V35/X21/RS530, Serial RS485/422, Voice FXO/FXS, Repeater, Fiber Multiplexer and E1 Inverse Multiplexer (Supported by Gigabit Ethernet trunk card).

### Ordering Information

**FRM220A-**      Model type  
 CH20 : 2U 19" 20 slot chassis  
 AC : 100 ~ 240 AC power card  
 DC24 : 18 ~ 36 DC power card  
 DC48 : 36 ~ 72 DC power card

Example: FRM220A-CH20

**FRM220A-**      Optional card  
 GSW/SNMP  
 E1/ET100 :E1/ET100 Inverse Mux  
 5E1/ET100 :5E1/ET100 Inverse Mux  
 8E1/ET100 :8E1/ET100 Inverse Mux  
 16E1/ET100 :16E1/ET100 Inverse Mux  
 E1/V35 :E1 to V35  
 E1/X.21 :E1 to X.21  
 E1/RS530 :E1 to RS530

Example: FRM220A-E1/ET100

Example: FRM220A-E1/V35

**FRM220-**      Optional card  
 1000E-2F : 1000X to 1000X  
 1000E-1 : 10/100/1000T to 1000X  
 1000T : 1000T to 1000X  
 10/100A : 10/100TX to 100FX with OAM/IP In-band management  
 10/100i : 10/100TX to 100FX with In-band management  
 FXO/FXS : POTS over fiber converter  
 E1/T1R : E1/T1 RJ40 fiber modem  
 E1B : E1 BNC fiber modem  
 V35 : V35 fiber modem  
 X.21 : X.21 fiber modem  
 RS530 : RS530 fiber modem  
 RS449 : RS449 fiber modem  
 RS232 : RS232 fiber modem  
 Serial : RS485/422/232 fiber converter  
 10G : 10G 3R Transponder  
 2.7G : 2.7G 3R Transponder

Example: FRM220-1000E-2F