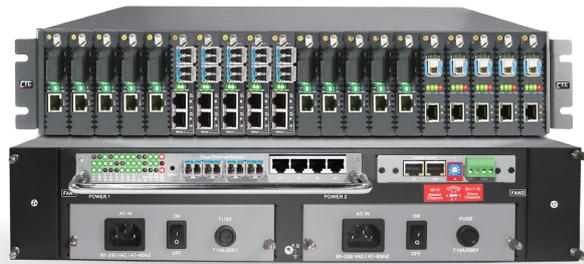


10G Ethernet uplink**FRM220A****Ethernet Aggregation Platform**

2

FRM220A

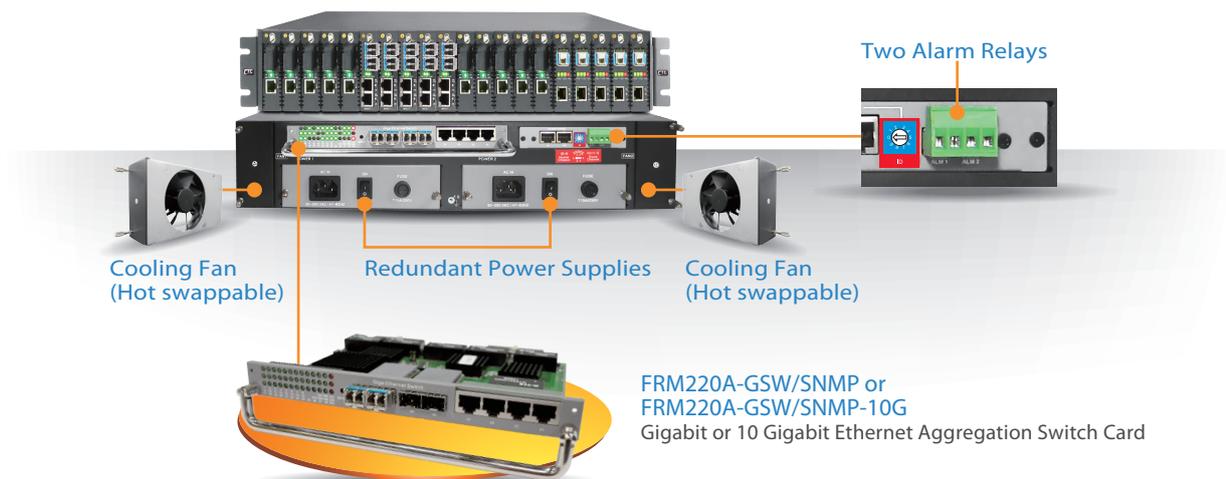
The FRM220A series is a IP based Ethernet aggregation platform, which incorporates a 24+4 port L2 Gigabit Ethernet switch (FRM220A-GSW/SNMP) or a new 20+4 port L2 Gigabit Ethernet switch with 4x10Gigabit uplink (FRM220A-GSW/SNMP-10G). The FRM220A has a built-in Gigabit Ethernet backplane to interconnect the Ethernet access and E1 TDM based inverse multiplexer module cards with the FRM220-GSW/SNMP card. The L2 switch card supports many advanced Layer 2 switch technologies including port and tag based VLAN, QoS, LACP, RSTP to name just a few. The FRM220A chassis solution significantly lowers the OPEX for operator and service provider when deploying fiber access networks.

The product lists designed to be adequately to the FRM220A-CH20 Ethernet aggregation application such as Ethernet access and Ethernet over PDH are included

- FRM220A-1000EAS/X : 2x 10/100/1000Base-T + 2x1000Base-X OAM/IP Managed Switch
- FRM220A-1002ES : 2x 10/100/1000Base-T + 2x100/1000Base-X Managed Switch
- FRM220A-iMux Series : E1 inverse multiplexer module card
- FRM220A-FSW103 : 3x 10/100Base-TX + 100Base-FX Managed Switch

Specifications

Connectors	Consoles RS232 (DB9)	Temperatures	Operating 0~60°C
	LAN 10/100Base-TX RJ45		Storage -10~70°C
Physical Specifications	Dimensions 303 x 438 x 88 mm (D x W x H)	Humidity	5%~90% non-condensing
	Weight (w/o Power) 5.2kg	MTBF	65,000 hrs
Power	AC 18~240VAC	Certification	FCC Class A, VCCI Class A, CE, RoHS compliant
	DC24 18~36VDC		
	DC48 36~72VDC		

Chassis Overview**Gigabit or 10G Ethernet uplink**

10G Ethernet uplink

NEW



Ethernet Aggregate Switch Card

- **FRM220A-GSW/SNMP-10G**

10G uplink Ethernet Aggregate Switch Card

The FRM220A-GSW/SNMP-10G is the next generation management module card of FRM220A chassis. It is built in gigabit Ethernet interface to connect with backplane and link to each slot of FRM220A chassis.

To aim at the Metro Ethernet application, the specifications of FRM220A-GSW/SNMP-10G fully meet the attributes of Carrier Ethernet proposed by MEF (Metro Ethernet Forum). It comply MEF 9 standard to support E-Line/E-LAN service, MEF 14 standard to enable the bandwidth profile configuration delivering SLA (Service Level Agreement) for end-to-end performance characteristics as well as MEF21 to support carrier grade service OAM management rapidly detecting and recovering from the network incidents in real time.



- **FRM220A-GSW/SNMP**

Gigabit Ethernet Aggregate Switch Card

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 Management functions.

Features

- Provides chassis aggregation via 4x1000Base-X SFP uplink slots (FRM220A-GSW/SNMP)
- Provides chassis aggregation via 4x10Gigabit Base-X SFP+ uplink slots (FRM220A-GSW/SNMP-10G)
- Supports ITU-T G.8032 Ethernet ring protection (FRM220A-GSW/SNMP-10G)
- Supports IEEE 802.1p HW based 8 priority queues and L2~L4 QoS functions (FRM220A-GSW/SNMP-10G)
- Supports IEEE 802.3ah/IEEE 802.1ag/ITU-T Y.1731 Ethernet OAM features (FRM220A-GSW/SNMP-10G)
- Supports IPv6 management (FRM220A-GSW/SNMP-10G)
- Compliant to MEF 9/MEF 14 standards for E-Line, E-LAN services (FRM220A-GSW/SNMP-10G)
- Fiber optical ports supports ring or chain topology
- Built-in gigabit Ethernet interface to link with each slot of FRM220A chassis
- Provides Web, Telnet, SNMP management interface
- Supports IEEE802.1D/802.1w/802.1s for ring protection on the trunk interfaces
- Supports IEEE 802.1Q tagged VLAN and IEEE 802.1ad Q-in-Q application

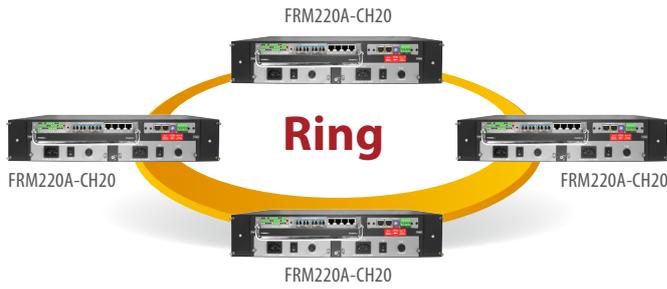
Specifications

Trunk Interface	4x10/100/1000Base-T plus 4x1000Base-X/2500Base-X GbE switch trunk card (FRM220-GSW/SNMP) 4x10G Base-X switch trunk card (FRM220-GSW/SNMP-10G) Supports full-duplex mode for 1000Mbps (FRM220A-GSW/SNMP) Supports full-duplex mode for 10G Mbps (FRM220-GSW/SNMP-10G)
Capacity	Supports up to 20 service cards
Temperature	0~60°C (Operating), -10~70°C (Storage)
Humidity	5~90% non-condensing
Certification	CE, FCC, RoHS compliant

Physical Specifications	In-band management	Provides all system OAM functions: software updates, and management system interaction through Ethernet trunk port
	Out-band management	Supports Web, Telnet and SNMP, EMS management
Indications	PWR, FAN, Alarm, STK	
Dimensions	142 x 200 x 26 mm (D x W x H)	
Weight	0.5kg	
MTBF	65,000 hrs	

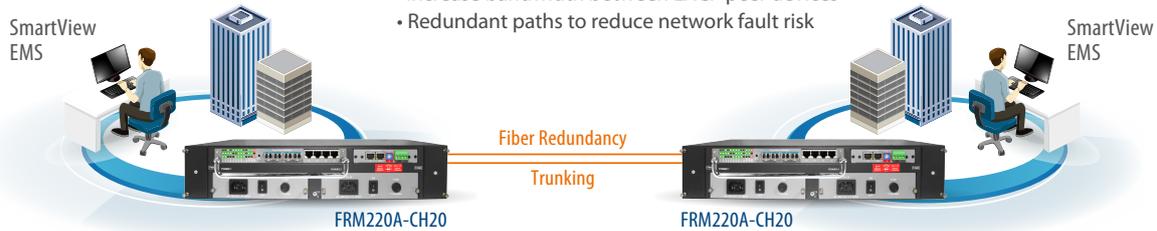
Benefits of FRM220A Chassis Platform

■ Enabling IP Transportation Protection Mechanism - STP/RSTP Featured Ring Protection



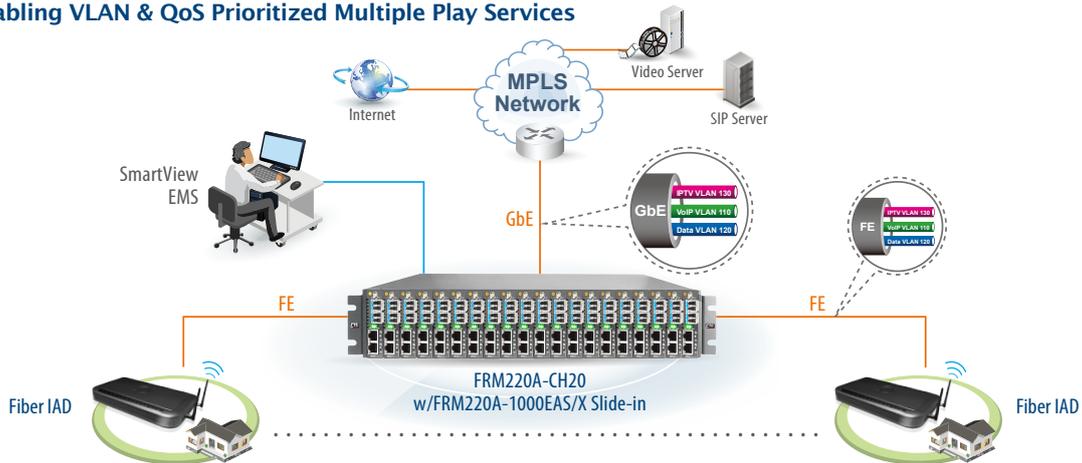
- Standard based but advanced fault protection systems
- Rapidly recovery path from failed connection (1-2 seconds min. recovery time)

■ LACP Enabled Traffic Aggregation - Fiber Redundant / Trunking Application

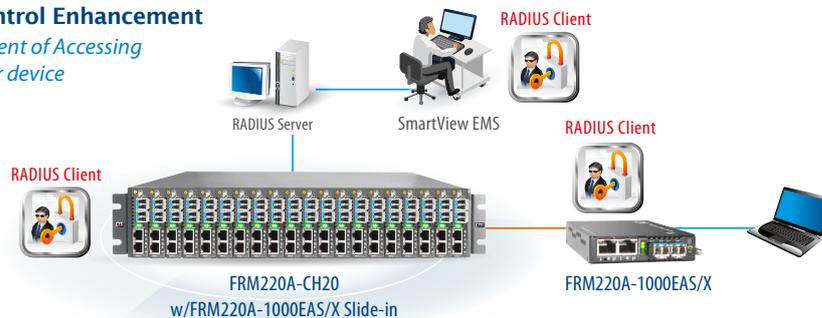


- Dynamically port aggregation or trucking to increase bandwidth between LACP peer devices
- Redundant paths to reduce network fault risk

■ Enabling VLAN & QoS Prioritized Multiple Play Services



■ Secured Access Control Enhancement - Centralized Management of Accessing the Network for user or device



Ordering Information

Model Name	Type	Description
FRM220A-CH20	Chassis	2U 20-Slot rack mount chassis with 20 line card blank plate
FRM220A-GSW/SNMP	Card	Gigabit Ethernet Aggregate switch card supports web, telnet, SNMP management interface
FRM220A-GSW/SNMP-10G	Card	10G Ethernet Aggregate switch card supports web, telnet, SNMP management interface
FRM220A-AC	Power	Chassis power module 100 ~ 240 VAC, IEC connector
FRM220A-DC24	Power	Chassis power module 18 ~ 36 VDC, 3 pin terminal block
FRM220A-DC48	Power	Chassis power module 36 ~ 72 VDC, 3 pin terminal block

Example: FRM220A – CH20

Example: FRM220A – GSW/SNMP