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iAccess™ Multi-Service Platform
- FRM220

The FRM220 series is a multi-service platform chassis, which provides a reliable solution of high density media converter modules for applications such as telecom operator, enterprise, long haul transmission and factory automation. All of critical components of FRM220-CH20 and FRM220-CH08 chassis such as power modules, fans, management module and interface cards are hot swappable, allowing online field replacement. FRM220 series is offered in three chassis densities, a 2U 20-slot (FRM220-CH20), a 1U 8-slot (FRM220-CH08), and a 1U 4-slot (FRM220-CH04A). FRM220-CH04A utilizes fixed type AC, DC power built-in. The available power options are built-in AC, DC power or built-in AC+DC, AC+AC, DC+DC redundant power.

All FRM220/FRM220A series cards are hot-swappable and can be installed in a 20 slots (2U), or 8 slots (1U) rack-mountable chassis with any combination of redundant hot swappable AC, 24VDC or 48VDC power supplies, providing a scalable solution that is space-efficient and cost-effective. The cards can also be mounted in 4 slots, 2 slots, or 1 slot standalone housings with fixed AC/DC powered chassis. The cards of FRM220/FRM220A series provide telecommunication solutions for most applications. CTC union offers a universal and cost-efficient transmission series for a variety of fiber optic technologies (Multimode, Single mode, WDM, CWDM) starting from converters and switches, to modems and extending to intelligent voice/data multiplexer systems. The products are designed as cards in combination with various chassis types. The concept is to ensure an extremely variable mixture of products at low storage costs for spares.

Features

- Interface cards are hot swappable
- Supports AC/DC power modules hot swappable and power redundancy (CH20 & CH08)
- Supports fixed type AC/DC power built-in and power redundancy (CH04A)
- Two alarm relay contacts for critical events warnings (CH20/CH08)
- Chassis backplane consists of passive components (CH20/CH08)
- Fanless (CH02, CH02M-2, CH01, CH01M)
- Cooling Fan (CH20, CH08, CH04A, CH02M, CH02/SMT, CH02/NMC)
- Supports DB9 console port for local management (CH02M, CH02M-2, CH01M)
- Telnet, Web, Console, SNMP management via NMC Card (CH20, CH08, CH04A, CH02/SMT, CH02/NMC)
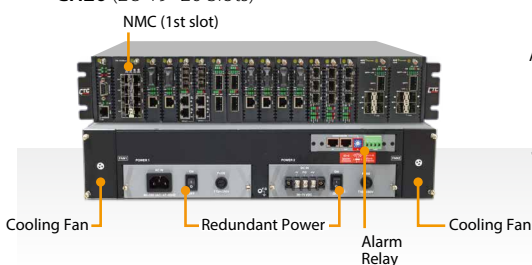
Specifications

Power Input		
AC	100-240VAC (CH20/CH08/CH04A/ CH02/CH01)	
DC24	18-36VDC (CH20/CH08)	
DC48	36-75VDC (CH20/CH08)	
DC	18-72VDC (CH04A/CH02/CH01)	
Adapter Type (CH01)	Input Voltage 100-240VAC 50/60Hz	
	Output Voltage 12VDC 1A	
Weight	5.2kg (CH20), 3.5kg (CH08), 1.5kg (CH04A-AC/DC), 1.9kg (CH04A-AD)	
	0.5kg (CH02), 1.3kg (CH02M),1.2kg (CH02M-2), 1kg (CH02/NMC)	
	0.5-0.8g (CH01), 1.2kg (CH01M), 1.46kg (CH02/SMT)	

Dimensions (D x W x H)		
CH20	303 × 438 × 88 mm	
CH08	310 × 440 × 44 mm	
CH04A	170 × 310 × 44.7 mm	
CH02M, CH02M-2, CH02/NMC	222 × 45.5 × 167.4 mm	
CH02/SMT	220 × 44.7 × 205 mm	
CH01 AC/DC Power build-in	180 × 30 × 135 mm	
CH01 Adapter Type	139 × 23.2 × 88 mm	
CH01M	185 × 30 × 135 mm	
Temperature	Operationg 0-60C, Storage -10~70C	
Humidity	5%~90% non-condensing	
Certification	FCC Class A, VCCI Class A, CE	
Safety	UL60950-1 (FRM220-CH20)	

Chassis Overview
■ Rackmount Chassis

CH20 (2U 19" 20 Slots)

NMC (1st slot)

Cooling Fan — Redundant Power — Alarm Relay — Cooling Fan

CH08 (1U 19" 8 Slots)

Alarm Relay   NMC (1st slot)

Redundant Power — Cooling Fans

CH04A (1U 4 Slots)

NMC (1st slot)   Cooling Fan   Power

- Dimensions: 170(D) x 310(W) x 44.7(H)mm
- Rack mount kits uses **A** type
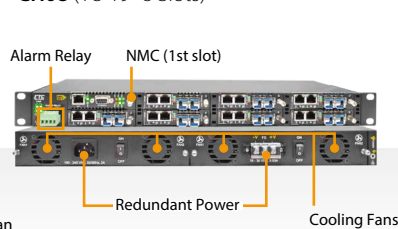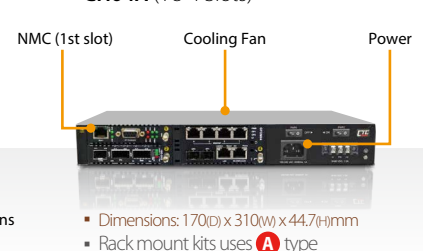
■ Standalone Chassis

▪ 1-Slot Chassis

CH01-AC / DC / AD

— DC IN 18~72 VDC

— AC IN 100~240 VAC

CH01M (with Console)

— DC IN 18~72 VDC
— DB 9 Console Port (Local Management)
— AC IN 100~240 VAC

CH01 (Adapter Type)

— Power Jack 12 VDC

▪ 2-Slot Chassis

CH02M (Cooling Fan) & **CH02M-2** (Fanless)

— DB 9 Console Port (Local Management)
— DC IN 18~72 VDC
— AC IN 100~240 VAC

CH02/NMC

— DB 9 Console Port (Local Management)
— DC IN 18~72 VDC
— AC IN 100~240 VAC
— NMC Card (Remote Management)
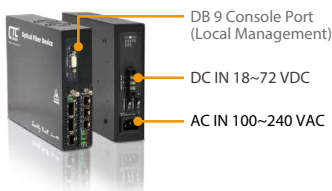
CH02/SMT Power & Cooling Fan Failure Alarm Detection

— AC IN 100~240 VAC
— DC IN 18~72 VDC
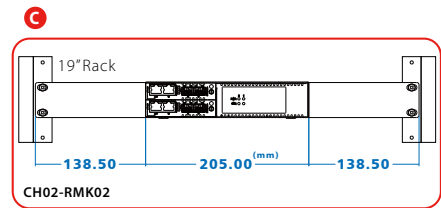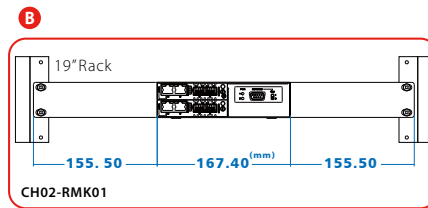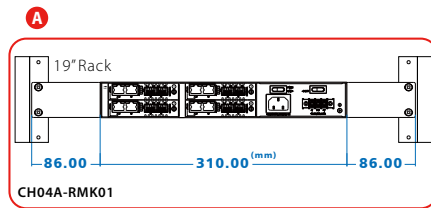— DB 9 Console Port (Local Management)

- Dimensions: 222(D) x 45.5(W) x 167.4(H)mm
- Rack mount kits uses **B** type

- Dimensions: 222(D) x 45.5(W) x 167.4(H)mm
- Rack mount kits uses **B** type

- Dimensions: 222(D) x 44.7(W) x 205(H)mm
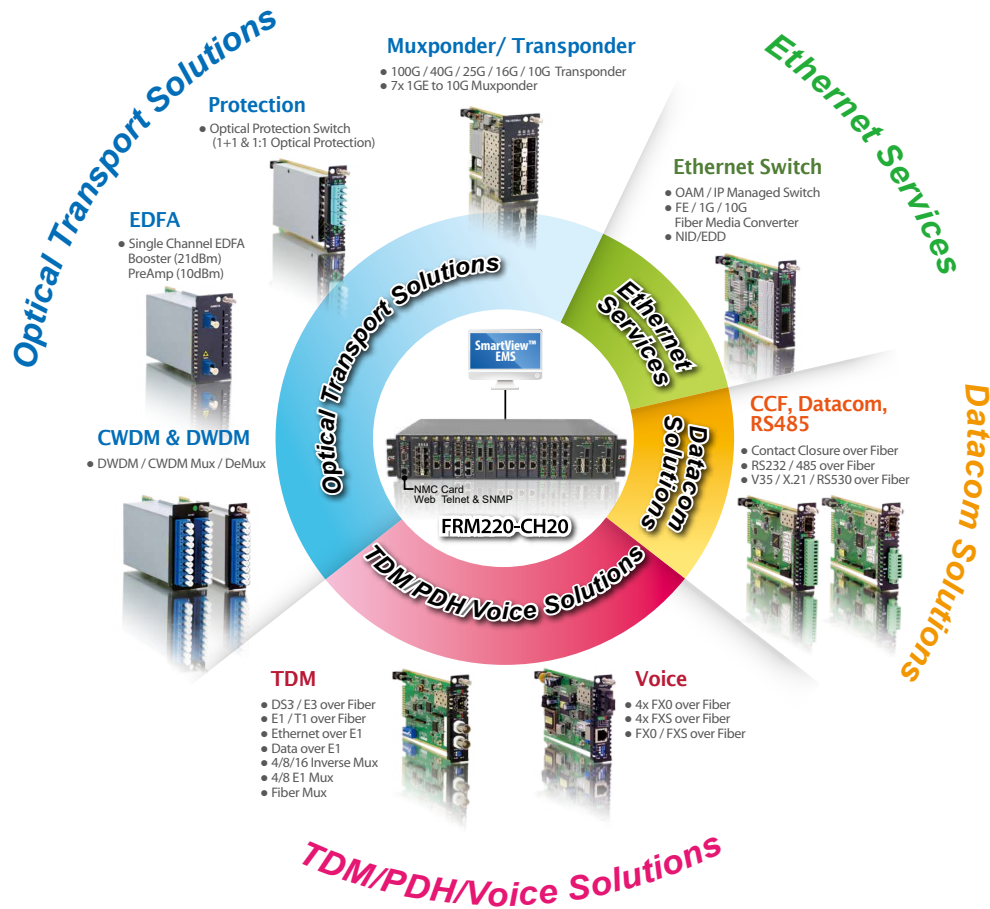- Rack mount kits uses **C** type

■ Rack Mount Kits (optional)

A

19" Rack

|— 86.00 —|— 310.00 (mm) —|— 86.00 —|

CH04A-RMK01

B

19" Rack

|— 155.50 —|— 167.40 (mm) —|— 155.50 —|

CH02-RMK01

C

19" Rack

|— 138.50 —|— 205.00 (mm) —|— 138.50 —|

CH02-RMK02

Ordering Information

Model Name	Description
FRM220-CH20	**2U 20-slot Rackmount Chassis** with 20 line card blank plate
CH20-AC	Chassis **Power module** 100 ~ 240 VAC, IEC connector
CH20-DC24	Chassis **Power module** 18 ~ 36 VDC, 3 pin terminal block, 200W
CH20-DC48	Chassis **Power module** 36 ~ 72 VDC, 3 pin terminal block, 200W
FRM220-CH08	**1U 8-slot Rackmount Chassis** with 8 line card blank plate
CH08-AC	Chassis **Power module** 100 ~ 240 VAC, IEC connector, 180W
CH08-DC24	Chassis **Power module** 18 ~ 36 VDC, 3 pin terminal block, 200W
CH08-DC48	Chassis **Power module** 36 ~ 72 VDC, 3 pin terminal block, 200W
FRM220-CH04A	
CH04A-AC	**4-slot Chassis** with built-in **AC Power**, 65W
CH04A-DC	**4-slot Chassis** with built-in **DC Power**, 50W
CH04A-AD	**4-slot Chassis** with built-in **AC+DC Power** (65W/50W)
FRM220-CH02	**2-slot Chassis** with 100 ~240VAC to 12VDC **Adapter**, Fanless
CH02M-AC, DC, AD	**2-slot Chassis** with **Console** port and 100 ~240VAC 30W, 18 ~72VDC 30W or **Dual Power** (AC+DC), with Cooling **Fan**
CH02M-2-AC, DC, AD	**2-slot Chassis** with **Console** port and 100 ~240VAC 12W, 18 ~72VDC 12W or **Dual Power** (AC+DC), Fanless
CH02/NMC-AC, DC, AD	**2-slot Chassis** manageable via **NMC** card (not included) and 100 ~240VAC 30W, 18 ~72VDC 30W or **Dual Power** (AC+DC), with Cooling **Fan**
CH02/SMT-AC, DC, AD	**2-slot Chassis** with **optional NMC** card and 100~240VAC 30W, 18~72VDC 30W or **Dual Power** (AC+DC), Cooling **Fan**, with Power and Cooling Fan Failure **Alarm Detection** function
FRM220-CH01	**1-slot Chassis** with 100 ~240VAC to 12VDC **Adapter**, Fanless
CH01-AC, DC, AD	**1-slot Chassis** with 100 ~240VAC 18 ~72VDC or **Dual Power** (AC+DC), Fanless
CH01M-AC, DC, AD	**1-slot Chassis** with console port and 100 ~240VAC, 18 ~72VDC or **Dual Power** (AC+DC), Fanless

■ Optional Accessories

Item	Model Name	Description
Rack Mount kits	CH02-RMK01	Single unit rack mount kits only for 2 slots chassis power build-in type (CH02M and CH02/NMC)
	CH02-RMK02	Single unit rack mount kits only for 2 slots chassis power build-in type (CH02/SMT)
	CH04A-RMK01	Single unit rack mount kits only for 4 slots chassis power build-in type (CH04A)

CTC union®

iAccess Platform Solutions

iAccess™ Multi-Service Platform offers a full range of solutions for service providers and enterprises, including **Optical Transport Solutions** (transponders, muxponders, CWDM, DWDM), **TDM/PDH/Voice Solutions** (fiber converters and multiplexers), **Ethernet Services** (switches, converters and NID/EDD) and **Data Communication Solutions** (Sync/Async serial over fiber). The iAccess is a fully modular product series that integrates a wide range of modules for any interface or protocol hosted in a selection of Chassis sizes for simple and flexible operations.


Muxponder/ Transponder
● 100G / 40G / 25G / 16G / 10G Transponder
● 7x 1GE to 10G Muxponder

Protection
● Optical Protection Switch (1+1 & 1:1 Optical Protection)

EDFA
● Single Channel EDFA Booster (21dBm) PreAmp (10dBm)

CWDM & DWDM
● DWDM / CWDM Mux / DeMux

Ethernet Switch
● OAM / IP Managed Switch
● FE / 1G / 10G Fiber Media Converter
● NID/EDD

CCF, Datacom, RS485
● Contact Closure over Fiber
● RS232 / 485 over Fiber
● V35 / X.21 / RS530 over Fiber

TDM
● DS3 / E3 over Fiber
● E1 / T1 over Fiber
● Ethernet over E1
● Data over E1
● 4/8/16 Inverse Mux
● 4/8 E1 Mux
● Fiber Mux

Voice
● 4x FXO over Fiber
● 4x FXS over Fiber
● FXO / FXS over Fiber

FRM220-CH20
NMC Card Web Telnet & SNMP
SmartView™ EMS

**iAccess Platform Solution Category**

Applications

▪ **Optical Transport Solution**

Optical transport is important in providing data over long distances. CTC Union's Optical Transport Solutions include the optical transport building blocks of Mux/Demux, transponders, muxponders, EDFA and optical protection switching.
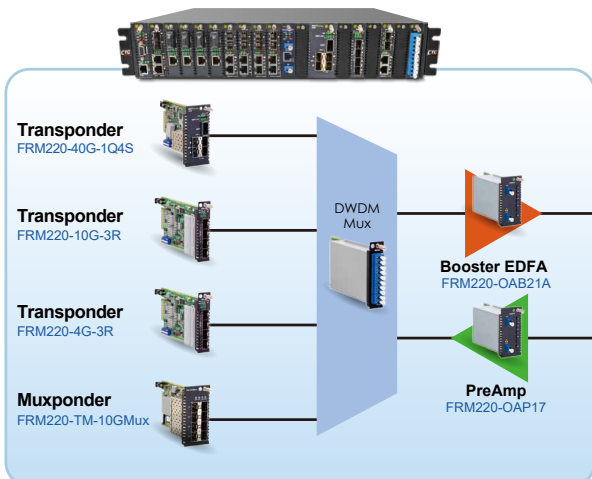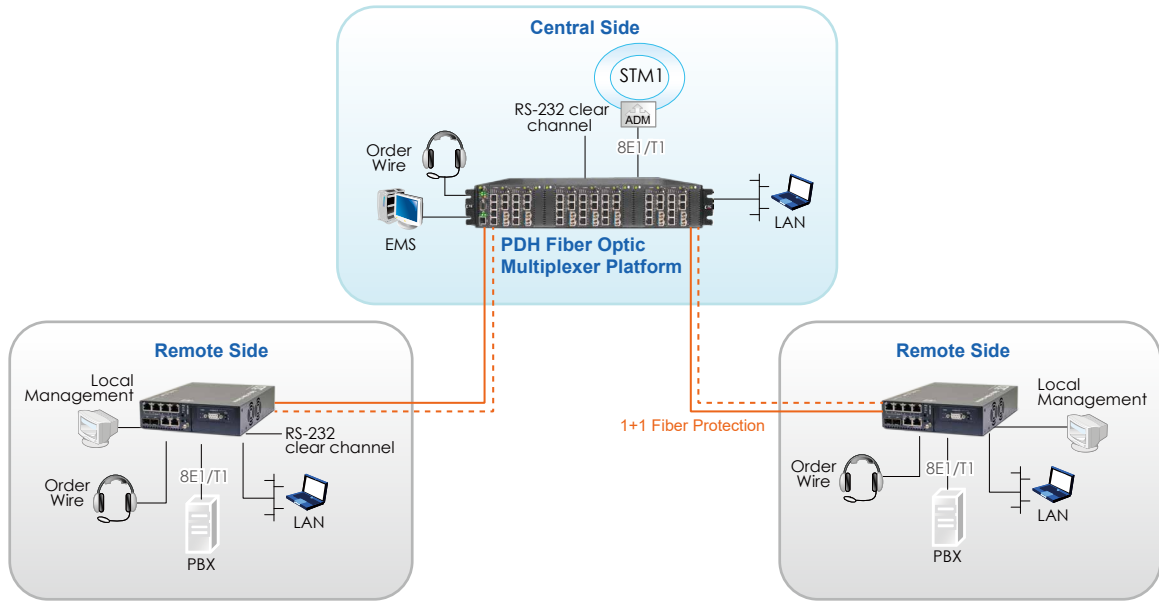
iAccess Multi-Service Platform **iAccess Multi-Service Platform**
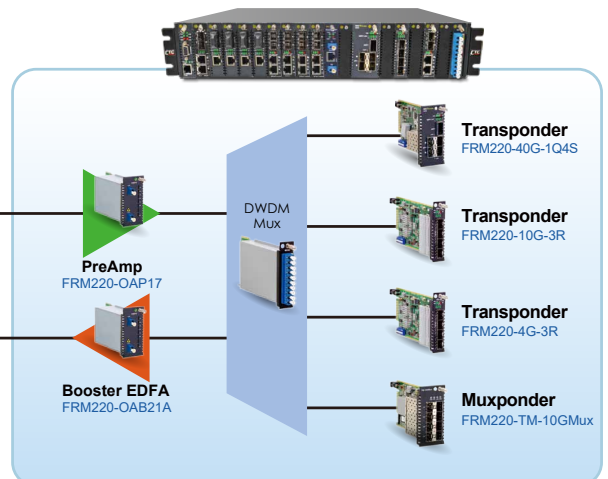
CWDM /DWDM P to P Application
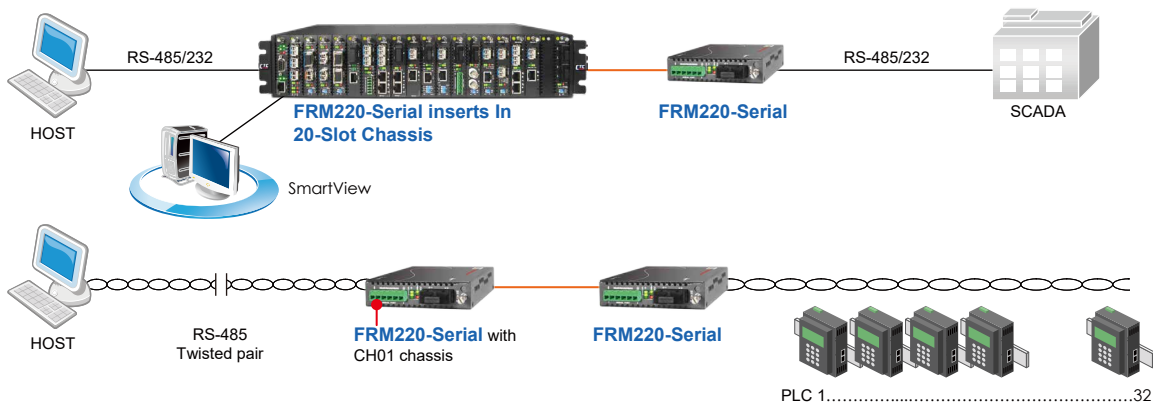
▪ TDM/PDH/Voice solution

TDM and PDH are becoming legacy protocols, however, much of the world's voice communications still rely on devices that transport these protocols. CTC Union's solutions include DSU/CSU access units, Time Division Multiplexers, PDH over fiber and POTS over fiber devices.

Central Side

STM1

RS-232 clear channel

ADM

8E1/T1

Order Wire

EMS

PDH Fiber Optic Multiplexer Platform

LAN

Remote Side

Local Management

RS-232 clear channel

Order Wire

8E1/T1

LAN

PBX

1+1 Fiber Protection

Remote Side

Local Management

Order Wire

8E1/T1

LAN

PBX

PDH Fiber Optical Multiplexer P2P Application

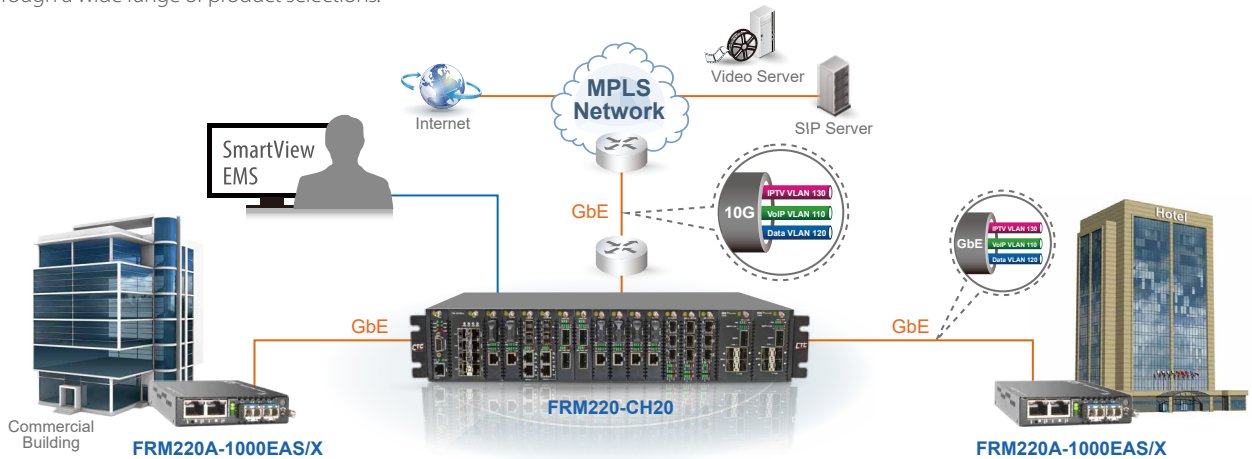## ▪ Data Communication Solution

Data communications are important for device control and satellite communications. CTC Union's devices provide low latency data communications over fiber optical transport.

RS-485/232

HOST

FRM220-Serial inserts In 20-Slot Chassis

SmartView

FRM220-Serial

RS-485/232

SCADA

HOST

RS-485 Twisted pair

FRM220-Serial with CH01 chassis

FRM220-Serial

PLC 1..32

Data Communications Application

▪ Ethernet Services

Ethernet solutions require a range of Ethernet products. CTC Union provides media conversion, Ethernet switching and carrier class Ethernet, through a wide range of product selections.

MPLS Network

Video Server

Internet

SIP Server

SmartView EMS

GbE

IPTV VLAN 130
VoIP VLAN 110
Data VLAN 120

10G

GbE

IPTV VLAN 130
VoIP VLAN 110
Data VLAN 120

GbE

Hotel

GbE

Commercial Building

FRM220A-1000EAS/X

FRM220-CH20

FRM220A-1000EAS/X

Typical FTTB Application

Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

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