

iAccess™ Multi-Service Platform

In-Band Managed Multi-Service Platform-
FRM220-CH20/08/04A



The FRM220 series is a multi-service chassis platform, 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-CH04A is a fixed type AC, DC power built-in chassis. The available power options are built-in AC, DC power or built-in AC+DC, AC+AC, DC+DC redundant power.

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)

Features

- Supports AC/DC power module hot swappable and power redundancy (CH20 & CH08)
- Supports fixed type AC/DC power built-in and power redundancy (CH04A)
- Two alarm relays contact for critical events warning
- Interface cards are hot swappable
- Chassis backplane consists of passive components

Specifications

Connectors	Console: RS232 (DB9), LAN 10/100Base-TX RJ45	
Physical Specifications	Dimensions (D x W x H)	303 x 438 x 88 mm (CH20)
		310 x 440 x 44 mm (CH08)
		170 x 310 x 44.7 mm (CH04A)
	Weight	5.2kg (CH20), 3.5kg (CH08) (w/o Power)
		1.9kg (CH04AD), 1.5kg (CH04AC/DC)
Temperatures	Operating 0–60°C, Storage -10–70°C	
Power	AC	100–240VAC (CH20/CH08)

Power	DC24	18~36VDC (CH20/CH08)
	DC48	36~75VDC (CH20/CH08)
	AC	90~264V (CH04A)
	DC	18~75V (CH04A)
Humidity	5%~90% non-condensing	
MTBF	65,000 hrs	
Certification	FCC Class A, VCCI Class A, CE	
Safety	UL 60950-1 (FRM220-CH20)	

iAccess Platform Solutions

iAccess™ Multi-Service Platform solutions offer a full range of solutions for service provider and enterprise, including high density 40G/16G connectivity, DWDM, CWDM, distance extension, Ethernet Switch/NID, Fiber Modem, Fiber Multiplexer and Media Converter. It is a fully modular product series that integrates a wide range of optical transport modules for any interface or protocol hosted in selection of Chassis size for simple and flexible operations.

Transponder

- 40G QSFP to 4x 10G SFP+
- SFP+ to SFP+ Dual 16G FC 3R
- SFP+ to 2x XFP Fiber Protection 10G 3R
- SFP+ to SFP+ 10G 3R

WDM

- CWDM Mux/DelMux
- Single Channel EDFA Booster
- Optical Protection Switch

NID&EDD

- CE2.0 Compliant
- Ethernet OAM
- ITU-T Y.1564 & RFC2544
- MPLS-TP

Ethernet Switch

- OAM / IP managed switch
- 2 GbE RJ45 + 2x Dual port

Datcom / RS485, CCF

- RS232 / 530 / V35 over Fiber
- RS232 / 485 over Fiber
- 2 / 4ch Contact Closure over Fiber

TDM

- DS3 / E3 over Fiber
- E1 / T1 over Fiber
- Ethernet over E1
- E1 to Data
- 4 / 8 / 16 Inverse Mux

Voice

- 4x FXO over Fiber
- 4x FXS over Fiber
- FXO / FXS over Fiber

Main Features

▪ Module Cards for Deployment Scenarios

The FRM220-CH20, FRM220-CH08 and FRM220-CH04A have been designed as a Multi-service platform. This allows network administrators to deploy the chassis in a wide range of networks.

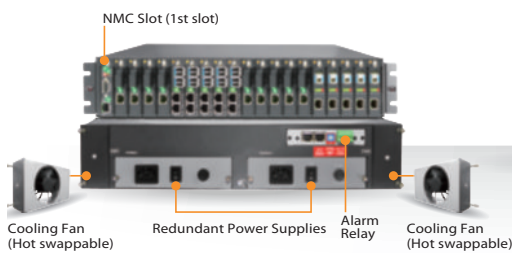
Technologies supported by the chassis include Fast/Gigabit Ethernet, E1/T1, V35/X21/RS-530, Serial RS-485/RS-422, Voice FXO/FXS, Repeater, Fiber Multiplexer, E1 Inverse Multiplexer, CWDM Mux/DeMUX EDFA Booster and 40G/16G/10G 3R Transponder

▪ Network Management

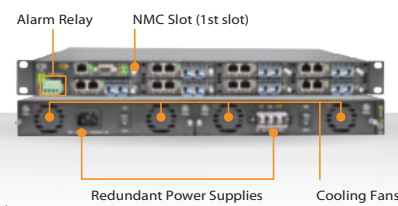
The FRM220-CH20, FRM220-CH08 and FRM220-CH04A require a NMC (Network Management Controller FRM220-NMC page: 2-3) card which must be installed into the first slot of chassis. The NMC card allows a network administrator the ability to configure and monitor the status of the blades. Management can be achieved locally over RS232, or over the network by Telnet, Web or SNMP. If the blades support Ethernet in the First Mile (IEEE 802.3ah), then the management module can also be monitored the status of a remote CPE.

Chassis Overview

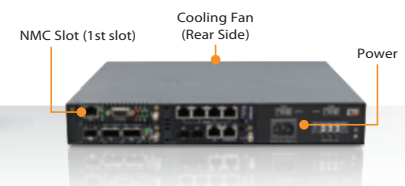
▪ FRM220-CH20 (2U 19" 20 Slots)



▪ FRM220-CH08 (1U 19" 8 Slots)



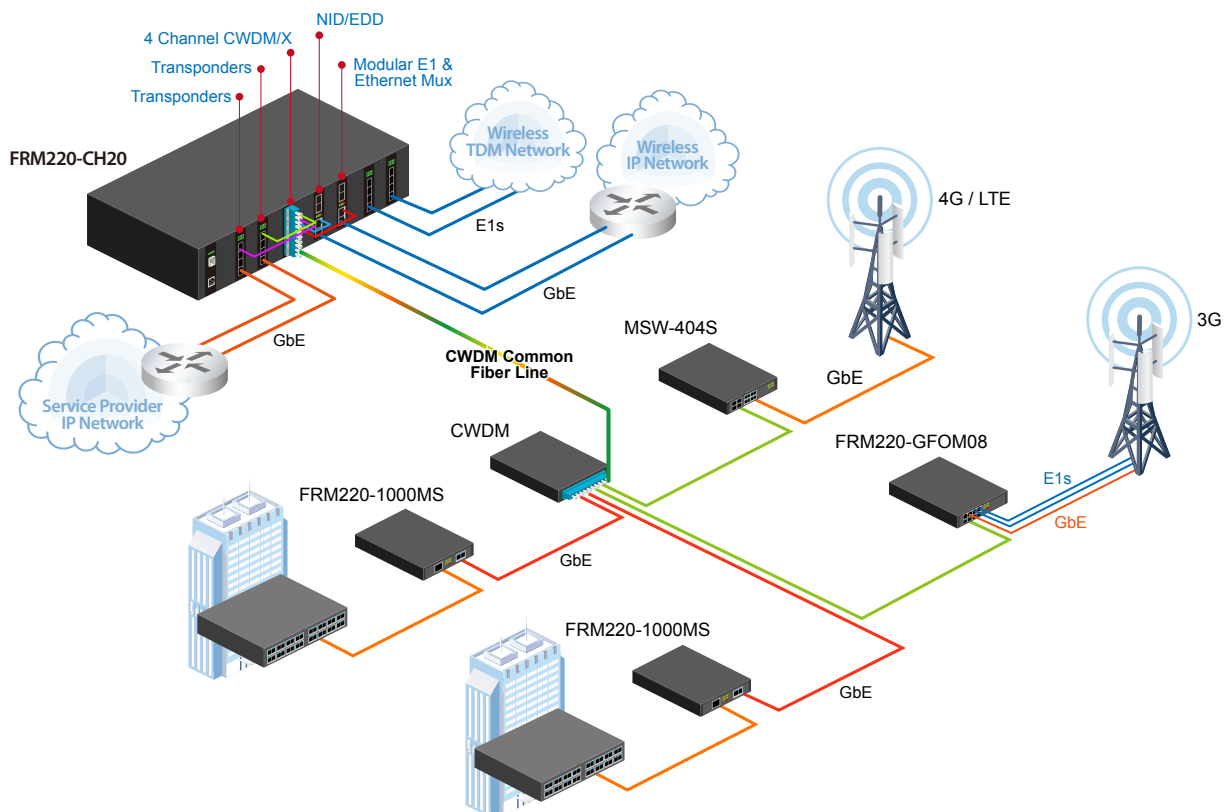
▪ FRM220-CH04A (1U 4 Slots)



Applications

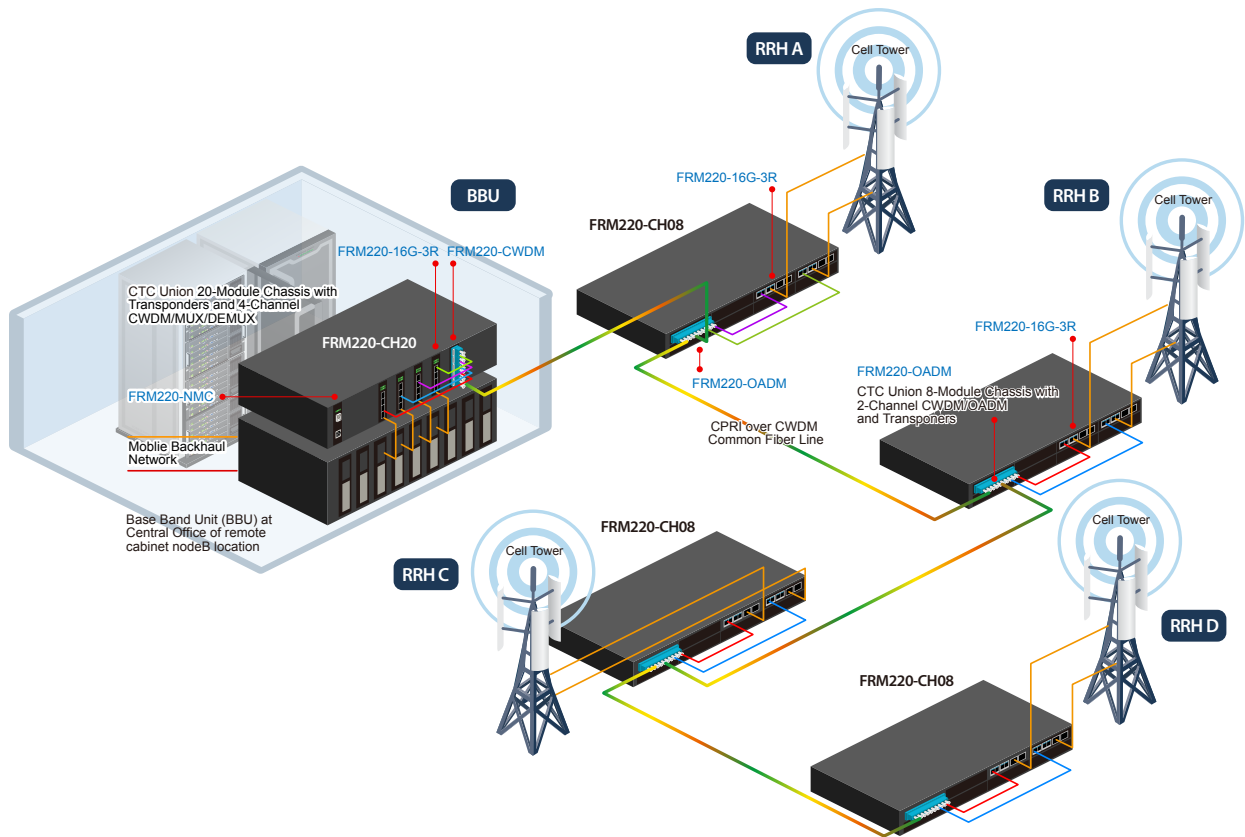
▪ CWDM Telecom Access Network

In this application, the iAccess FRM220 Multi-Service Platform enables a CWDM point-to-point access network incorporating four different services multiplexed over a single fiber link. Two FRM220-1000DS transponders, a MSW-404S NID and FRM220-GFOM08 Fiber Multiplexer are installed in a FRM220 20-slot chassis. There modules are connected with fiber patch cables to a 4-channel CWDM MUX/DEMUX that multiplexes all four channel services over a single fiber link.



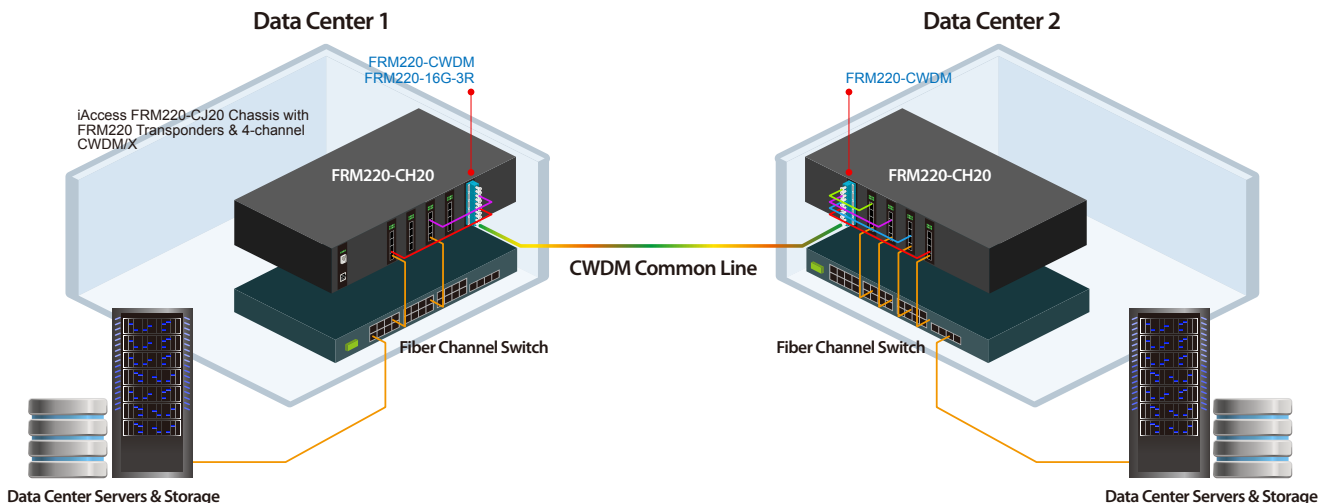
▪ CPRI over CWDM Fronthaul to Cell Towers

This C-RAN application example illustrates how to transport four CPRI (Common Public Radio Interface) channels over one fiber fronthaul link using CWDM (Coarse Wavelength Division Multiplexing). CTC CWDM Multiplexers, CWDM Add+Drop Multiplexers and 3R Transponders enable CWDM connectivity in a C-RAN over a fronthaul fiber link between Base Band Units (BBU) and Remote Radio Heads (RRH) located at two different cell towers.



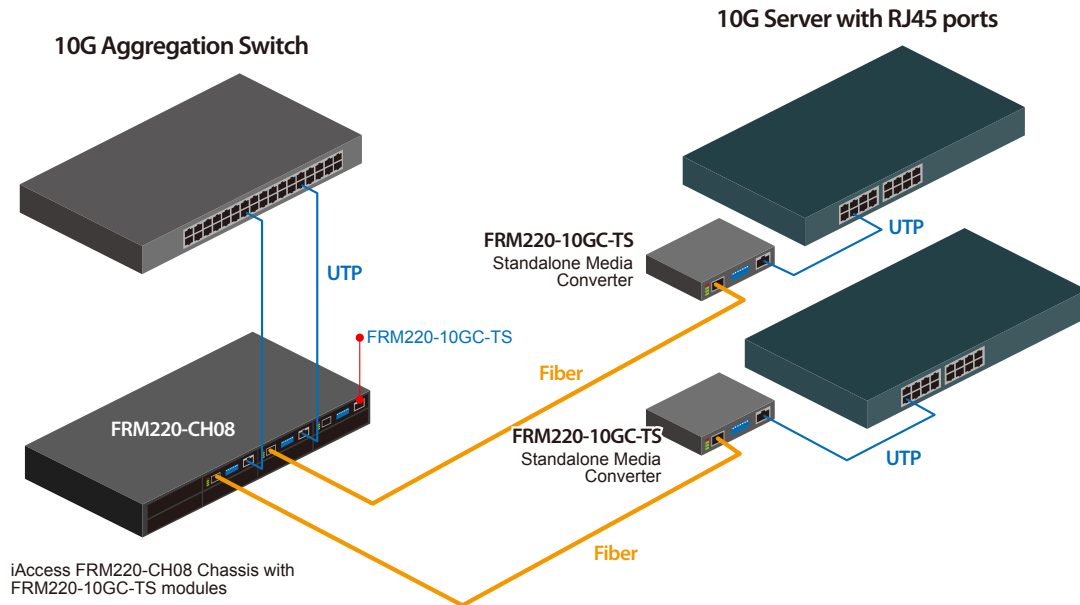
▪ Data Center Fiber Channel CWDM Interconnect

Data Centers often have a cluster of Storage Area Networks (SAN) servers and storage discs connected using Fiber Channel. Data Centers require high speed connectivity to offsite SANs for transaction storage and database mirroring. To provide redundancy and disaster recovery, SAN from one Data Center can be extended to a SAN in another Data Center. This allows each Data Center to have a mirror copy of its database at each location.



▪ 10 Gigabit Data Center Server Connectivity

CTC Union 10G Ethernet converters provide 10G data center connectivity solutions, including copper to fiber connection between rack servers and switches. In this application, fiber cabling is used to extend distances between 10G switches and servers. 8-Module chassis with 10G Ethernet converters is used to convert the CAT-6A cabling from the RJ-45 ports on the aggregation switch to fiber. The 10G Ethernet converter supports SFP+ transceiver and can achieve fiber distances of up to 80km.



Ordering Information

Model Name	Type	Description
FRM220-CH20	Chassis	2U 20-Slot rack mount chassis with 20 line card blank plate
CH20-AC	Power	Chassis power module 100 ~ 240 VAC, IEC connector
CH20-DC24	Power	Chassis power module 18 ~ 36 VDC, 3 pin terminal block, 200W
CH20-DC48	Power	Chassis power module 36 ~ 72 VDC, 3 pin terminal block, 200W
FRM220-CH08	Chassis	1U 8 slots rack mount chassis with 8 line card blank plate
CH08-AC	Power	Chassis power module 100 ~ 240 VAC, IEC connector, 180W
CH08-DC24	Power	Chassis power module 18 ~ 36 VDC, 3 pin terminal block, 200W
CH08-DC48	Power	Chassis power module 36 ~ 72 VDC, 3 pin terminal block, 200W
CH04A-AC	Power	Four slot chassis with built-in AC power, 65W
CH04A-DC	Power	Four slot chassis with built-in DC power, 50W
CH04A-AD	Power	Four slot chassis with built-in AC+DC power (65W/50W)