

# 2023



## Telecom Ethernet

# Product Guide

[www.ctcu.com](http://www.ctcu.com)

- Web SmartView EMS
- L2+ 10G Switch
- 10G NID
- Protocol Gateway
- Multi-Service Platform
- 10G Aggregation Switch Platform



ISO 9001  
ISO 14001



*Since 1993*  
[www.ctcu.com](http://www.ctcu.com)

About

Since 1993

# CTC Union



**CTC Union** Technologies, founded in 1993, is an ISO9001/14001 certified designer and manufacturer. CTC Union's software development system follows the cybersecurity **IEC62443** regulations for the design of Industrial & Telecom networking products. With their own in-house R&D and factory, CTC Union develops and manufactures high-quality products in Taiwan. CTC Union offers a full spectrum of products, including Industrial Ethernet, PoE, EN50155 and **E-mark** certified switches. CTC Union's goal is to provide reliable, temperature resistant and rugged designs for mission critical systems used in harsh environments. With more than 30 years of experience in design of Telecom products, CTC Union is highly motivated to deliver various access switches and FTTP CPE products.

## Our Advantages

### • Core Technologies

**In-House hardware, software and mechanical design**

- In-band Management
- 10G Ethernet
- Rugged Design
- EMS
- Multi-Service Platform
- OAM

### • Customer Support

**Professional pre/post sales technical support, 24/7 e-platform services**

### • Quality Assurance

**ISO 9001, ISO-14001, CE, FCC and UL**

### • Green Care

**WEEE and RoHS 2.0 Manufacturing Compliance**



## Green Care



As a socially responsible manufacturer, CTC Union is concerned with the environment and has taken active measures to reduce carbon emissions and eliminate hazardous materials in their products. None of CTC Union products use chlorofluorocarbons (CFC) in their production process and since 2007 all electronics use non-lead soldering according to RoHS and WEEE directives.



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# SmartView™ WEB EMS

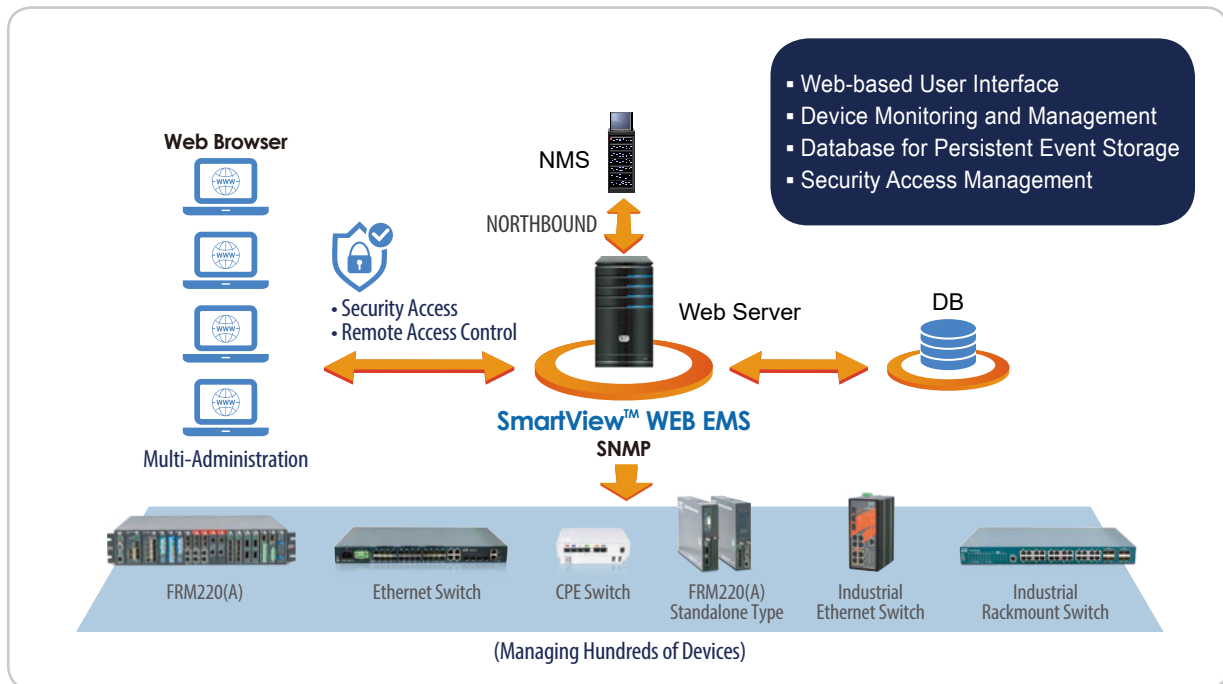


- **Web-based User Interface**
- **Remote Access and Centralized Device Management**
- Real-time visual representations & processing of alarms
- Long term event storage (up to 1 year)

## Functions

- Main Functions (FCAPS):
  - Fault Management,
  - Configuration Management,
  - Accounting Management,
  - Performance Management,
  - Security Management
- Remote access control for efficient configuration
- Network element performance monitoring
- Alarm event and notification
- Auto discovery and device viewer
- Allow multiple concurrent operating users

## WEB EMS Topology



# L2 Ethernet Switch

CTC Union's standalone layer 2 switch series of Gigabit Ethernet managed switches are positioned for market segments included SOHO/residential, SMB and Enterprise as well as ISP/Telecom operator customers. For any deployment scale, CTC Union's standalone fiber switches fulfill the simple installation requirements of Ethernet Technology based networks in a cost effective manner.

## Carrier Ethernet Switch & NID/EDD

CTC Union carrier Ethernet switch family offers the product scope from EDD/NID deployed at the enterprise customer as well as the access end of metro network. They comply with CE 2.0 standard to support MEF defined E-Line/E-LAN/E-Tree/E-Access service types and enable the bandwidth profile configuration to deliver end-to-end high performance SLA-based business connection service. On the other hand, the advanced model can support timing synchronization features included SyncE and IEEE 1588v2 PTP to enhance and migrate a carrier Ethernet network for mobile backhaul network application.

### ► Carrier Ethernet Switch



Model	MSW-4424C	MSW-4424CS	MSW-4424A	MSW-4428X
MEF standard compliance	CE 2.0 E-Line/E-Access	CE 2.0 E-Line/E-Access	CE 2.0 E-Line/E-Access	CE 2.0 E-Line/E-LAN/E-tree/E-Access
Uplink port	10GBase-X/1000Base-X SFP slot × 4	10GBase-X/1000Base-X SFP slot × 4	10GBase-X/1000Base-X SFP slot × 4	10GBase-X/1000Base-X SFP slot × 4
Service LAN port	100/1000Base-X SFP slot × 20 + GbE combo port × 4	100/1000Base-X SFP slot × 20 + GbE combo port × 4	100/1000Base-X SFP slot × 24	100/1000Base-X SFP slot × 24 + 10/100/1000Base-T RJ45 × 4
Console port	RJ45 × 1 (RS-232)	RJ45 × 1 (RS-232)	RJ45 × 1 (RS-232)	RJ45 × 1 (RS-232)
Management port	10/100/1000Base-T RJ45 × 1	10/100/1000Base-T RJ45 × 1	10/100/1000Base-T RJ45 × 1	10/100/1000Base-T RJ45 × 1
Power module	AC power : 100 ~ 240VAC DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 60VDC (-24V), 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 60VDC (-24V), 36 ~ 60VDC (-48V)
Switching fabric capacity	128Gbps	128Gbps	128Gbps	136Gbps
Packet buffer	32M bits	32M bits	32M bits	32M bits
MAC address table size	32K	32K	32K	32K
Jumbo frame size	10K Bytes	10K Bytes	10K Bytes	10K Bytes
ITU-T G.8262 SyncE		✓		
IEEE 1588v2 PTP		✓		
Dimension	250 × 440 × 43.5 mm	250 × 440 × 43.5 mm	270.3 × 437.5 × 43.5 mm	270.3 × 437.5 × 43.5 mm

### ► NID/EDD



Model	MSW-4204	MSW-4204S	MSW-202A	MSW-404
MEF standard compliance	CE 2.0 E-Line/E-LAN/E-Tree/E-Access	CE 2.0 E-Line/E-LAN/E-Tree/E-Access	CE 2.0 E-Line/E-Access	CE 2.0 E-Line/E-LAN/E-Tree/E-Access
Uplink port	1000Base-X/10GBase-X SFP slot × 2	1000Base-X/10GBase-X SFP slot × 2	100/1000Base-X SFP slot × 2	100/1000Base-X SFP slot × 4
Service LAN port	10/100/1000Base-T RJ45 × 4	10/100/1000Base-T RJ45 × 4	10/100/1000Base-T RJ45 × 2	10/100/1000Base-T RJ45 × 4
Console port	RJ45 × 1 (RS-232)	RJ45 × 1 (RS-232)	RS-232 DB9 × 1 (when plugged into FRM220-CH01M)	RS-232 DB9 × 1 (when plugged into FRM220-CH02M)
Management port	10/100/1000Base-T RJ45 × 1	10/100/1000Base-T RJ45 × 1		
Power module	AC power : 100 ~ 240VAC DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 72VDC (-48V)	AC power : 100 ~ 240VAC DC power : 18 ~ 72VDC (-48V)
Switching fabric capacity	54Gbps	54Gbps	8Gbps	16Gbps
Packet buffer	54Gbps	54Gbps	2M Bits	1M bits
MAC address table size	16K	16K	8K	8K
Jumbo frame size	10K Bytes	10K Bytes	9.6 Bytes	10K Bytes
ITU-T G.8262 SyncE		✓		
IEEE 1588v2 PTP		✓		
Dimension	117 × 250 × 43.8 mm	117 × 250 × 43.8 mm	180 × 135 × 30 mm	219.4 × 167.4 × 44.5 mm

## Access Switch

CTC Union access switch series offer 10 ~ 32 fiber/UTP ports density option including 1Gbps Ethernet downlink speed and 1G or 10Gbps speed for uplink ports. They are suitable for the intranet network deployment of enterprise or treated as MDU(Multiple Dwelling Unit) deployment to provision internet service by ISP. This switch family supports complete L2 feature sets such as VLAN, QoS, IGMP multicast as well as robust security management to facilitate service provider's build out of a secured and manageable Ethernet access network.

NEW



NEW



NEW



Model	XGS-1208SE	XGS-1208M	GSW-4424CM	GSW-4448CM
Uplink port	10GBase-X SFP+ slot x 12	10GBase-X SFP+ slot x 12	10GBase-X/1000Base-X SFP slot x 4	10GBase-X/1000Base-X SFP slot x 4
Service LAN port	10/100/1000Base-T RJ45 x 8	10/100/1000Base-T RJ45 x 8	10/100/1000Base-T RJ45 x 24	1000Base-X SFP x 44 + GbE Combo port x 4
Console port	RS-232 in USB type C x 1	RS-232 in USB type C x 1	RJ45 x 1 (RS-232)	RJ45 x 1 (RS-232)
Power module	AC power : 100 ~ 240VAC or DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC or DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC or DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC or DC power : 36 ~ 60VDC (-48V)
Switch fabric capacity	256Gbps	256Gbps	128Gbps	168Gbps
Packet buffer	32M bits	32M bits	32M bits	32M bits
MAC address table size	32K	32K	32K	32K
Jumbo frame size	10K Bytes	10K Bytes	10K Bytes	10K Bytes
Dimension	280 x 440 x 43.5 mm	280 x 440 x 43.5 mm	250 x 440 x 43.5 mm	250 x 440 x 43.5 mm



Model	GSW-3424FM	GSW-4208CM	GSW-3424M1A	GSW-3208M2
Uplink port	10GBase-X/1000Base-X SFP slot x 4	10GBase-X/1000Base-X SFP slot x 2	1000Base-X SFP slot x 2	100/1000Base-X SFP slot x 2
Service LAN port	100/1000Base-X SFP slot x 24 + 10/100/1000Base-T RJ45 x 4	10/100/1000Base-T RJ45 x 8	10/100/1000Base-T RJ45 x 22 + GbE Combo port x 2	10/100/1000Base-T RJ45 x 8
Console port	RJ45 x 1 (RS-232)	RS-232 DB9 x 1	RS-232 DB9 x 1	RS-232 DB9 x 1
Power module	AC power : 100 ~ 240VAC or DC power : 36 ~ 60VDC (-48V)	AC power : 100 ~ 240VAC or DC power : 18 ~ 72VDC (-48V)	AC power : 100 ~ 240VAC	AC power : 100 ~ 240VAC or DC power : 18 ~ 72VDC (-48V)
Switch fabric capacity	136Gbps	56Gbps	48Gbps	20Gbps
Packet buffer	32M bits	8M bits	4M bits	4M bits
MAC address table size	32K	16K	8K	8K
Jumbo frame size	10K Bytes	10K Bytes	9.6K Bytes	9.6K Bytes
Dimension	250 x 440 x 43.5 mm	250 x 117 x 43.8 mm	204 x 330 x 44 mm	250 x 117 x 43.8 mm

## CPE Switch

CTC Union's CPE switch family mainly focuses on the P2P active Ethernet technology based FTTX market with overall port density from 6 to 10 ports Gigabit UTP/Fiber. Their design concept is well considered from the basis of stylish and elegant appearance for the residential user as well as the advantage of easy installation for the FTTH service provider. The whole CPE switch family adopts evolutionary cable tray structural design to help the installer more easily and protectively manage the excess fiber within the unit. Also, the CPE switch supports completely L2 feature sets and highly preferred zero touch provision (ZTP) function which is suitable for the very large scale deployment to avoid truck rolls and save OPEX for FTTH service providers or operators.



Model	GSW-3202M	QSW-4204M	GSW-2020C7	GSW-2008MS
Uplink port	100/1000Base-X × 2	1000Base-X/10GBase-X × 2	100/1000Base-X × 1	100/1000Base-X × 2
Service LAN port	10/100/1000Base-T RJ45 × 2	10/100/1000/2.5GBase-T RJ45 × 4	10/100/1000Base-T RJ45 × 7	10/100/1000Base-T RJ45 × 8
Power module	DC in : 12V , 1A	DC in : 12V , 2A	DC in : 12V , 1A	DC in : 12V , 1A
Switching fabric capacity	20Gbps	62 Gbps	16Gbps	20Gbps
Packet buffer	4M bits	8M bits	1.75M bits	4M bits
MAC address table size	8K	16K	8K	8K
Jumbo frame size	9.6K Bytes	10240 Bytes	10240 Bytes	9.6K Bytes
Dimension	139 × 23.2 × 87.8 mm	162 × 122 × 43.5 mm	162 × 122 × 32.2 mm	170 × 120 × 35 mm
Operating temperature	0 ~ 50°C	0 ~ 50°C	0 ~ 50°C	0 ~ 50°C

## PoE Switch

CTC Union's PoE switch series includes 8 ports and 24 ports density for small and medium network environment for deployment in office applications such as PoE powered IP telephony, WiFi access and IP surveillance. They support IEEE 802.3af/af PoE standard up to 30W per port and maximum 100m transmission distance. These PoE switch models support completely L2 management feature sets as well as advanced PoE management functions to boost your network with optimal performance, efficiency and PoE power consumption.



Model	GSW-4424MP	GSW-3424MP	GSW3208MP-1
Uplink port	10GBase-X /1000Base-X × 4	1000Base-X × 4	100/1000Base-X × 2
Service LAN port	10/100/1000Base-T RJ45 × 24	10/100/1000Base-T RJ45 × 24	10/100/1000Base-T RJ45 × 8
Console port	RJ45 × 1 (RS-232)	RJ45 × 1 (RS-232)	RS-232 DB9 × 1
Power module	AC : 100 ~ 240VAC	AC : 100 ~ 240VAC	AC : 100 ~ 240VAC
Switching fabric capacity	128Gbps	56Gbps	20Gbps
Packet buffer	32M bits	32M bits	4M bits
MAC address table size	32K	32K	8K
Jumbo frame size	10K bytes	10K bytes	9.6K bytes
IEEE 802.3af/802.3at PoE/PSE compliance	✓	✓	✓
PoE power budget	450W	450W	180W
Dimension	250 x 440 x 43.5mm	250 x 440 x 43.5mm	285 × 140 × 44 mm

# PoE Series (Converter / Injector / Splitter)

## PoE Media Converter

### PMC-1000S

10/100/1000Base-T to 100/1000Base-X SFP with PoE+ (30W) Media Converter



- Conversion between 10/100/1000Base-T and 100/1000Base-X
- Supports dual rate (100/1000) SFP for selectable Fast or Gigabit speed on fiber
- PoE output voltage up to 55VDC
- Supports IEEE 802.3at/af PoE, output 30Watts Power Budget
- Supports LFPT (Link Fault Pass Through)
- Supports DIP SW for setting LFPT, Switch or Converter mode, SFP speed

### PMC-100PD

10/100Base-TX to 100Base-FX PoE PD Converter



- Conversion between 10/100Base-TX to 100Base-FX
- Supports LFPT (Link Fault Pass Through)
- Supports IEEE802.3af PoE PD (Power Device)
- Supports flow control (Pause)
- Supports PD input power 48VDC

## Gigabit PoE Injector

### INJ-G30

Gigabit Ethernet IEEE 802.3af/at PoE Injector (15/30/36W)



- Complies with IEEE 802.3af/at
- Provides 1 10/100/1000Mbps pass through data rate
- Wall Mountable
- Complies with IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX and IEEE 802.3ab 1000Base-T
- CE & FCC Class B Certificates

## Industrial PoE Splitter

### INJ-SPL01

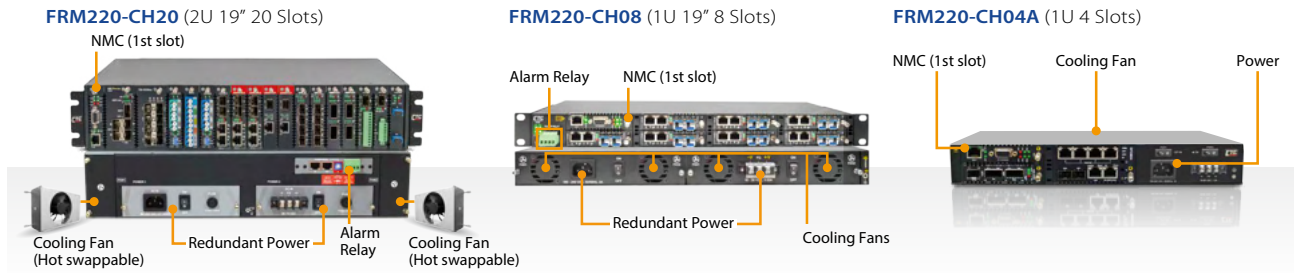
GbE, IEEE802.3af/at PoE Splitter, output voltage 12/19/24VDC selectable



- Splits power and data from PoE Input
- Supports PoE IEEE802.3af/at A mode (1,2,3,6) or B mode (4,5,7,8)
- Selectable output voltage, 12/19/24VDC select by slide SW
- Supports output power upto 12VDC/1.4A, 19VDC/1.05A, or 24VDC/0.85A
- Compliant with 10/100/1000Base-T(X)
- IP30 rugged metal housing and fanless



# Multi-Service Platform – FRM220



## Main Features

### Module Cards for Deployment Scenarios

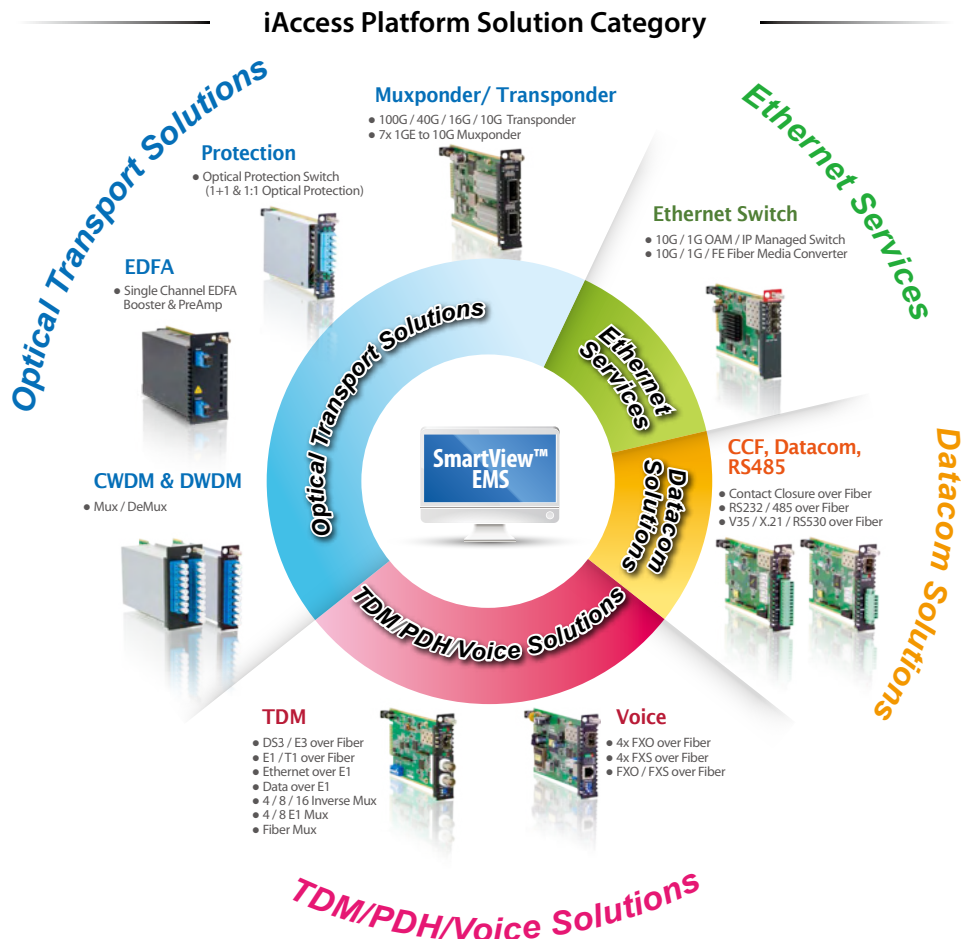
The FRM220-CH20, FRM220-CH08 and FRM220-CH04A have been designed as a Multi-service platform. This allows network administrators to deploy the chassis in a wide range of networks. Technologies supported by the chassis include Fast/Gigabit Ethernet, E1/T1, V35/X21/RS-530, Serial RS-485/RS-422, Voice FXO/FXS, Repeater, Fiber Multiplexer, E1 Inverse Multiplexer, CWDM Mux/DeMUX EDFA Booster and 10G/16G/40G 3R Transponder.

### Network Management

The FRM220-CH20, FRM220-CH08 and FRM220-CH04A require a NMC 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.

## 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 and converters) 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.



# FRM220 Slide-in Cards

## NMC

- FRM220-NMC-R3 Network Management Controller

## Transponder

- FRM220-100GE-2Q 100GE QSFP28 to QSFP28 3R Transponder
- FRM220-40G-2Q 40G QSFP+ to QSFP+ 3R Transponder
- FRM220-40G-1Q4S 40G QSFP+ to 4x 10G SFP+ Transponder
- FRM220-16G-3R 16G 3R Multi-rate Transponder with Optical Line Protection
- FRM220-10G-3R 10G 3R Multi-rate Transponder with Optical Line Protection
- FRM220-4G-3R 4G 3R Multi-rate Transponder with Optical Line Protection
- FRM220-4G-3S 4G 2R Multi-rate Transponder with Optical Line Protection
- FRM220-4G-2S 4G 2R Multi-rate Transponder
- FRM220-1000DS 1G 2R Multi-rate Transponder

## Muxponder

- FRM220-TM-10GMux 7x GE to 10Gbps Muxponder

## EDFA

- FRM220-OAP10 Single Channel EDFA Preamp 10dB
- FRM220-OAP17 Single Channel EDFA Preamp 17dB
- FRM220-OAB15 Single Channel EDFA Booster 15dB
- FRM220-OAB21A Single Channel EDFA Booster 21dB
- FRM220-OAB21 Single Channel EDFA Booster with AGC

## Optical Protection Switch

- FRM220-OPS51 1:1 Single-mode Fiber Optical Protection Switch
- FRM220-OPS52 1+1 Single-mode Fiber Optical Protection Switch
- FRM220-OPS51M 1:1 Multi-mode Optical Protection Switch

## WDM Optical Multiplexer

- FRM220-DWMD DWDM Mux/DeMUX
- FRM220-CWMD CWDM Mux/DeMUX

## Ethernet Switch

- FRM220A-2000EAS/4F 4x 100/1000Base-X SFP OAM/IP GbE Managed Switch
- FRM220A-2000EAS/2 2x 100/1000Base-T + 2x 100/1000Base-X SFP OAM/IP GbE Managed Switch
- FRM220A-2000EAS/1 100/1000Base-T + 100/1000Base-X SFP OAM/IP GbE Managed Switch
- FRM220-2000MS 100/1000Base-T to 100/1000Base-X SFP Web Smart In-Band OAM Managed GbE Switch
- FRM220A-1002ES 2x 100/1000Base-T + 2x 100/1000Base-X SFP GbE Switch

## Ethernet Media Converter

- FRM220-10/100i In-Band Managed FE Media Converter, 100Base-TX to 100Base-FX
- FRM220-10/100iS-2 In-Band Managed FE Media Converter, Dual Channel 10/100Base-TX to 100Base-X SFP Managed GbE Media Converter, 1000Base-TX to 1000Base-X SFP
- FRM220-1000TS Managed GbE Media Converter, 1000Base-TX to 1000Base-X SFP
- FRM220-10/100 Non-managed FE Media Converter, 100Base-TX to 100Base-FX

## 10G Ethernet Converter

- NEW** FRM220-10GCM 10G Base-T to 10G Base-R SFP\*

## CCF (Contact Closure Fiber Converter)

- FRM220-CCF20 2ch Contact Closure Fiber Converter, In-Band Managed
- FRM220-CCF40 4ch Contact Closure Fiber Converter, In-Band Managed

## Voice over Fiber

- FRM220-FXO/FXS FXO/FXS over Fiber In-Band Managed Converter
- FRM220-FXO-4 4x FXO over Fiber In-Band Managed Converter
- FRM220-FXS-4 4x FXS over Fiber In-Band Managed Converter

# Standaone Chassis



Type	CH01 (Adapter Type)	CH01	CH01M	CH02M	CH02/NMC	CH02/SMT
Slot	1	1	1	2	2	2
Console			✓ DB 9	✓ DB 9		
NMC					✓	✓
Adapter (Power Jack 12VDC)	✓					
Power Build-in (18-72VDC / 100-240VAC)		✓	✓	✓	✓	✓
FAN				✓	✓	✓
Dimension (DxWxH)mm	139x23.2x88	180x30x135		219x44.5x167.4		220x44.5x205

# Ethernet Aggregation Switch Platform – FRM220A



The FRM220A series is an Ethernet based aggregation platform, which incorporates a 24+4 port L2 Gigabit Ethernet switch (FRM220AGSW/SNMP(n) or a 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 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

## 10G/1G Uplink Ethernet Aggregation Switch Card

### FRM220A-GSW/SNMP-10G

**10G** uplink Ethernet Aggregation Switch Card with In-Band Management

### FRM220A-GSW/SNMP-1G

Gigabit uplink Ethernet Aggregation Switch Card with In-Band Management



- Provides chassis aggregation via 4x1G/10Gigabit Base-X SFP/SFP+ plus 4x10/100/1000Base-T uplink ports
- Supports IEEE 802.1p HW based 8 priority queues and L2~L4 QoS functions
- Supports IPv6 management
- Provides Web (https), Telnet, SSHv2, SNMP(V1, V2c, V3) management interfaces
- Supports secure authentication by IEEE802.1x, RADIUS or TACACS+
- Supports IEEE802.1D/802.1w/802.1s for ring protection on all interfaces
- Supports IEEE 802.1Q tagged VLAN and IEEE 802.1ad Q-in-Q application

## FRM220A Switch Cards

[FRM220A-2000EAS/4F](#) 4x 100/1000Base-X SFP OAM/IP GbE managed switch

[FRM220A-2000EAS/2](#) 2x 100/1000Base-T + 2x 100/1000Base-X SFP OAM/IP GbE managed switch

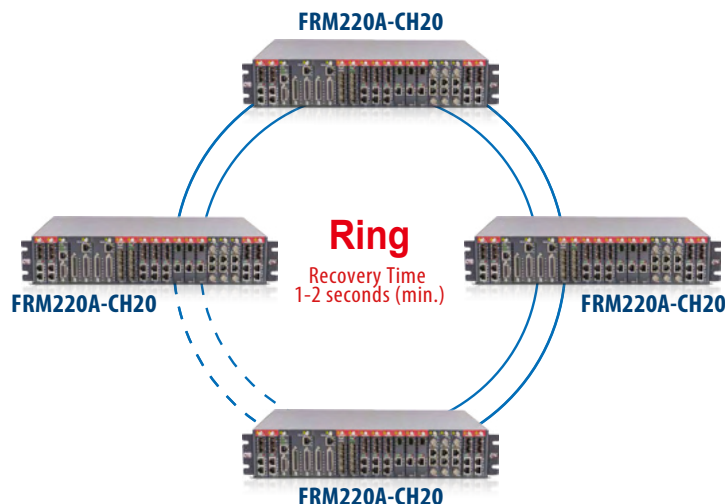
[FRM220A-2000EAS/1](#) 100/1000Base-T + 100/1000Base-X SFP OAM/IP GbE managed switch

## Application

### ■ 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)



# Serial Connectivity

## Serial Device Server

The Serial to Ethernet with/without Wi-Fi Converter, provides a bridging device to connect RS-232/RS-485 Serial Data communications to hardwired Ethernet networks or WiFi. It connects serial devices such as PLC, alarm sensors and PTZ camera control to IP networks. Applications include industrial/factory automation, public safety, and surveillance systems. The Serial converter is built for use in light industrial environments, featuring a compact wall-mount design.



Model	STE211W	STE211	STE400A-232	STE800A-232
LAN	10/100TX	10/100TX	10/100TX	10/100TX
WiFi	WiFi 802.11b/g/n			
Serial Interface	1xRS-232, 1xRS-422/485	1xRS-232, 1xRS-422/485	RS-232	RS-232
Serial Connector	1xDB9M + 1xTerminal block	1xDB9M + 1xTerminal block	4x DB9M	8x DB9M
Protocols	ARP, IP, ICMP, UDP, TCP, HTTP, DHCP, DNS, NTP	ARP, IP, ICMP, UDP, TCP, HTTP, DHCP, DNS, NTP	TCP, UDP, IP, ARP, ICMP, HTTP, DHCP	TCP, UDP, IP, ARP, ICMP, HTTP, DHCP
Communication Modes	TCP Server/TCP Client/UDP/Virtual Com	TCP Server/TCP Client/UDP/Virtual Com	TCP Server, TCP Client, Virtual Com Mode, UDP	TCP Server, TCP Client, Virtual Com Mode, UDP
Baud Rate	300 bps ~ 921.6 K bps Asynchronous	300 bps ~ 921.6 K bps Asynchronous	110 to 230.4Kbps Asynchronous	110 to 230.4Kbps Asynchronous
Management	WEB Pages	WEB Pages	WEB Pages	WEB Pages

## Protocol Gateway

The MQTT/Modbus Wi-Fi / Ethernet / Serial Gateway, provides an easy to deploy device to send RS-232/RS-485 Serial Modbus RTU Data communications to TCP networks on hard-wired Ethernet or over wireless WiFi. The Gateway works with standard Modbus Slave devices, such as PLCs, IoT Sensors, Energy meters (AMRs), Solar Inverters, Wind Turbines, IO Modules, Flow Meters and more. The MQTT Gateway is built for use in light industrial environments and features a compact wall-mount design.



Model Name	GW211W-MQ	GW211W-MB
Ethernet Interface		
RJ45 10/100Base-TX	1	1
WiFi Interface		
IEEE802.11b/g/n WiFi	1	1
Antenna	1 SMA	1 SMA
Serial Interface		
Total Serial port	2	2
RS232	1	1
RS422/485	1	1
Baud rate	300~921.6 Kbps	300~921.6 Kbps
Function		
Gateway	Modbus RTU to MQTT	Modbus TCP to Modbus RTU
Power		
Power input	9~32VDC	9~32VDC
Connector	Power Jack & Terminal	Power Jack & Terminal
Physical		
Dimension (W x D x H)	110x90x26mm	110x90x26mm
Mount	Wall Mount	Wall Mount
Operating Temperature		
-20 ~ 70°C	✓	✓
Certification		
CE, FCC	✓	✓

# Fiber Media Converter Rack

## 18 ports Gigabit Media Converter Rack — FMC-1800



### Features

- 1U 19" 18 channels Managed Media Converter Rack
- 18-port 100/1000Base-T to 18-port 100/1000Base-X SFP
- Auto MDI/MDIX in TP port
- Auto-Negotiation in TP port
- Supports hot-swappable SFPs working at 100 Mbps and 1000 Mbps
- Supports Web, Telnet, SNMP, Console Management
- Local configuration via USB port
- Supports Link Pass-Through & Link loss Alarm
- Supports any third-party standard SFP module
- Supports SFP DDMI
- Layer 2 wire-speed conversion with fully transparent function
- Available in 3 types : power built-in AC, DC, AC+DC

## 17 ports Fiber Media Rack — FMC-CH17



The FMC-CH17 is a 2U high 19" 17 slots chassis and the FMC-CH08 is a 2U high 10" 8 slots chassis. The FMC chassis provides an economic solution in low density fiber converter installations where no management features are required. Each FMC converter is an independent Ethernet to fiber or Ethernet to copper media converter that may be used as a standalone converter or placed in the FMC-CH17 or FMC-CH08 chassis. With two power supplies, the FMC-CH17 chassis supports redundant power from any of two power options while FMC-CH08 supports single power options. The AC supplies operate from (100-240VAC) and DC supplies operate from 18-60VDC. The built in cooling fan ensures that the temperatures in the rack remain within the tolerated working range

### ► Slide in Module

[FMC-2000MS](#) 10/100/1000Base-T to 100/1000Base-X SFP Web Smart In-Band OAM Managed Switch

[FMC-1001S](#) 10/100/1000Base-T to 100/1000Base-X SFP Media Converter

# WDM Multiplexer & LAN Extender

## WDM Multiplexer



### CWDM-80/40

8/4 Ch. Dual Fiber CWDM Mux/Demux

- Full native mode performance
- Passive model requires no power
- Protocol transparent, no limitation
- Utilizes industry standard ITU CWDM wavelength
- Standard LC connectors

## Optical Path Converter



### OPC-1500/1400/1300

- Convert any light wavelength from dual-core fiber to single-core fiber
- Passive model requires no power
- Protocol transparent, no limitation
- Connect to active and passive optical interfaces
- No wavelength and data rate limitation
- Number of WDM ports can be increased and decreased any time.

## LAN Extender



### LX100

10/100 Base-TX LAN Extender

- 1x10/100Base-TX RJ45 LAN port + 1x RJ-45 WAN port
- Long distance data transmission up to 800 meter on 1/2 pair UTP cable
- Quick deployment and easy maintenance



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