



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)
- Supports DB9 console port for local management (CH02M, CH01M)
- Telnet, Web, Console, SNMP management via NMC Card (CH20, CH08, CH04A, CH02/SMT, CH02/NMC)
- Two alarm relay contacts for critical events warnings (CH20/CH08)
- Chassis backplane consists of passive components (CH20/CH08)
- Fanless (CH02, CH01, CH01M)
- Cooling Fan (CH20, CH08, CH04A, CH02M, CH02/SMT, CH02/NMC)

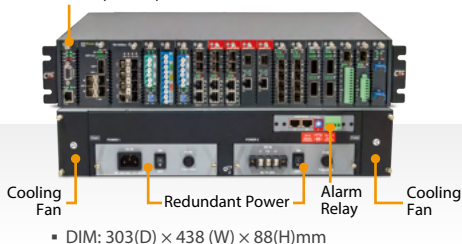
// Specifications

| | | |
|---------------|--|---|
| Power Input | AC | 100-240VAC (CH20/CH08/CH04A/CH02/CH01) |
| | DC24 | 18-36VDC (CH20/CH08) |
| | DC48 | 36-60VDC (CH20/CH08) |
| | DC | 18-60VDC (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) | |
| | 1.3kg (CH02M), 1kg (CH02/NMC), 1.46kg (CH02/SMT) | |
| | 0.5kg (CH01 Adapter Type), 0.8kg (CH01 Power Built-in Type), 1.2kg (CH01M) | |
| 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) | |

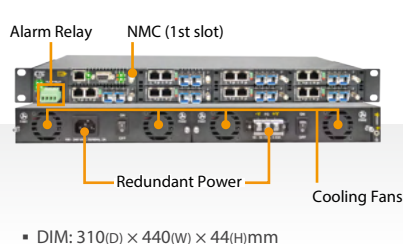
// Chassis Overview

Rackmount Chassis

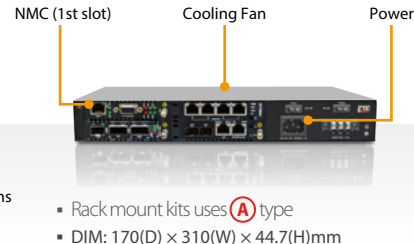
CH20 (2U 19" 20 Slots)
NMC (1st slot)



CH08 (1U 19" 8 Slots)



CH04A (1U 4 Slots)



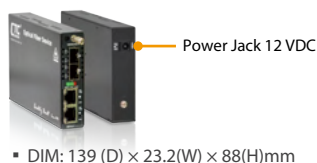
// Ordering Information

| Model Name | Description |
|---|---|
| CH20 | |
| FRM220-CH20 | 2U 19", 20 slots rack mount chassis with cooling fan and rack mounting kit |
| FRM220-CH20 (HS) | 2U 19", 20 slots rack mount chassis with high speed cooling fan and rack mounting kit |
| Power Module | |
| FRM220-AC | Chassis Power module 100~240 VAC, IEC connector, 200W |
| FRM220-DC48 | Chassis Power module 36~60 VDC, 3 pin terminal block, 200W |
| FRM220-AC (HP) | Chassis power module 90 ~ 264 VAC, IEC connector, 300W |
| FRM220-DC48 (HP) | Chassis power module 36 ~ 60 VDC, 3 pin terminal block, 300W |
| <i>Note: When high power dissipation cards are placed in CH20 chassis, we recommend choosing the 300W power module option to ensure adequate power and avoid any performance degradation.</i> | |
| CH08 | |
| FRM220-CH08 | 1U 8-slot Rackmount Chassis |
| FRM220-CH08-AC | Chassis Power module 100~240 VAC, IEC connector, 180W |
| FRM220-CH08-DC48 | Chassis Power module 36~60 VDC, 3 pin terminal block, 200W |
| CH04 | |
| FRM220-CH04A-AC | 4-slot Chassis with built-in AC Power, 65W |
| FRM220-CH04A-DC | 4-slot Chassis with built-in DC Power, 50W |
| FRM220-CH04A-AD | 4-slot Chassis with built-in AC/65W+DC/50W |

Standalone Chassis

■ 1-Slot Chassis

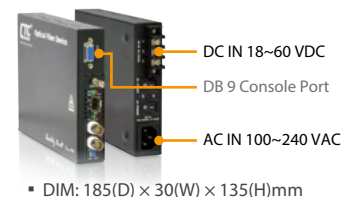
CH01 (Adapter Type)



CH01 (Power Built-in)

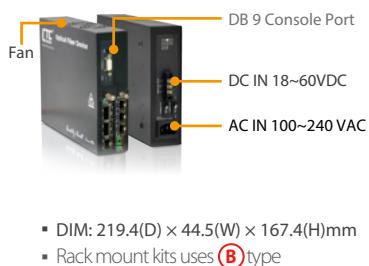


CH01M (Power Built-in)

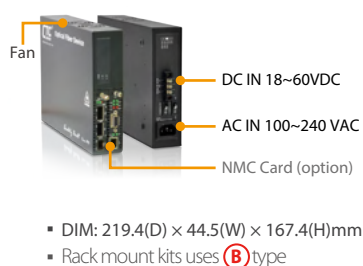


■ 2-Slot Chassis

CH02M (Power Built-in)



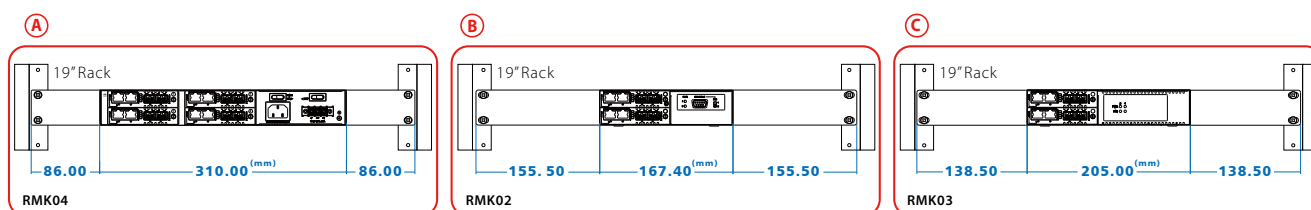
CH02/NMC (Power Built-in)



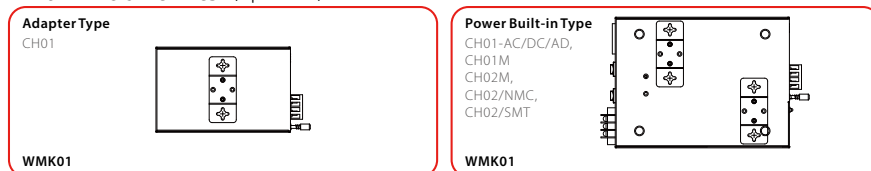
CH02/SMT (Power Built-in)



■ Rack Mount Kits (optional)



■ Wall Mount Kits (optional)



Remark:

Adapter Type uses one wall mount kit, Power built-in Type uses two wall mount kits.

// Ordering Information

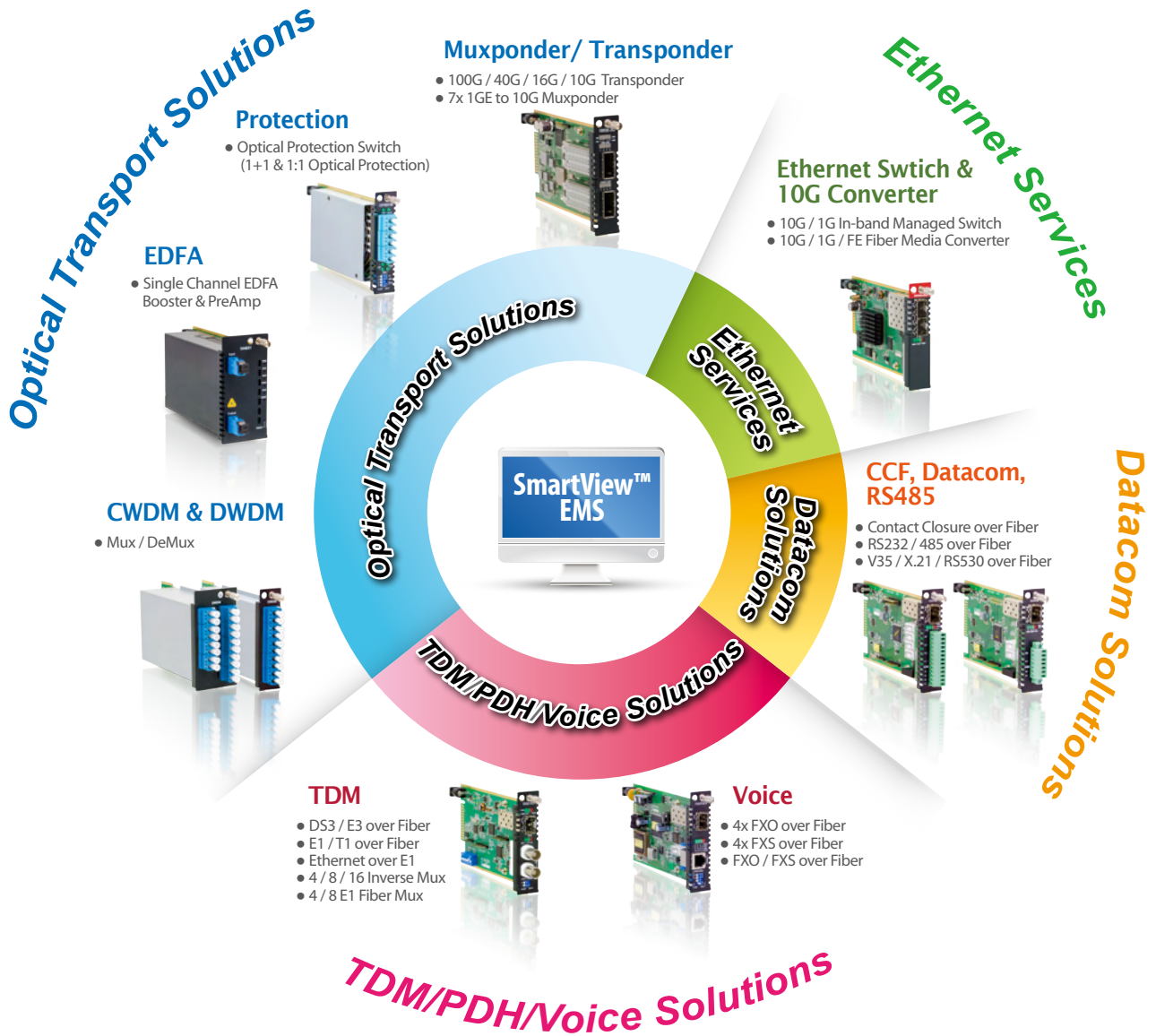
| Model Name | Description |
|--------------------|--|
| FRM220-CH01 | 1-slot chassis with 100 ~240VAC to 12VDC adapter (12W) , fanless |
| FRM220-CH01-AC | 1-slot chassis with 100 ~240VAC (12W), fanless |
| FRM220-CH01-DC | 1-slot chassis with 18 ~60VDC (12W), fanless |
| FRM220-CH01-AD | 1-slot chassis with AC/12W+DC/12W, fanless |
| FRM220-CH01M-AC | 1-slot chassis with console port and 100 ~240VAC (12W), fanless |
| FRM220-CH01M-DC | 1-slot chassis with console port and 18 ~60VDC (12W), fanless |
| FRM220-CH01M-AD | 1-slot chassis with console port and AC/12W+DC/12W, fanless |
| FRM220-CH02M-AC | 2-slot chassis with console port and 100 ~240VAC (30W), with fan |
| FRM220-CH02M-DC | 2-slot chassis with console port and 18 ~60VDC (30W), with fan |
| FRM220-CH02M-AD | 2-slot chassis with console port and AC/30W+DC/30W, with fan |
| FRM220-CH02/NMC-AC | 2-slot chassis with fan, managed via optional NMC card and with 100~240VAC (30W) power |
| FRM220-CH02/NMC-DC | 2-slot chassis with fan, managed via optional NMC card and with 18~60VDC (30W) power |
| FRM220-CH02/NMC-AD | 2-slot chassis with fan, managed via optional NMC card and with AC/30W+DC/30W power |
| FRM220-CH02/SMT-AC | 2-slot chassis with fan, managed via optional NMC card and with 100~240VAC (30W) power plus fan/ power alarm detection |
| FRM220-CH02/SMT-DC | 2-slot chassis with fan, managed via optional NMC card and with 18~60VDC (30W) power plus fan/ power alarm detection |
| FRM220-CH02/SMT-AD | 2-slot chassis with fan, managed via optional NMC card and with AC/30W+DC/30W power plus fan/ power alarm detection |

■ Optional Accessories

| Item | Model Name | Description |
|----------------|------------|---|
| Rack Mount Kit | RMK01 | Single unit rack mount kits only for 1 slot chassis power build-in type (CH01M and CH01/P-AC/DC/AD) |
| | RMK02 | Single unit rack mount kits only for 2 slots chassis power build-in type (CH02M and CH02/NMC) |
| | RMK03 | Single unit rack mount kits only for 2 slots chassis power build-in type (CH02/SMT) |
| | RMK04 | Single unit rack mount kits only for 4 slots chassis power build-in type (CH04A) |
| Wall Mount Kit | WМК01 | Single unit wall mounting kit |

// 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.

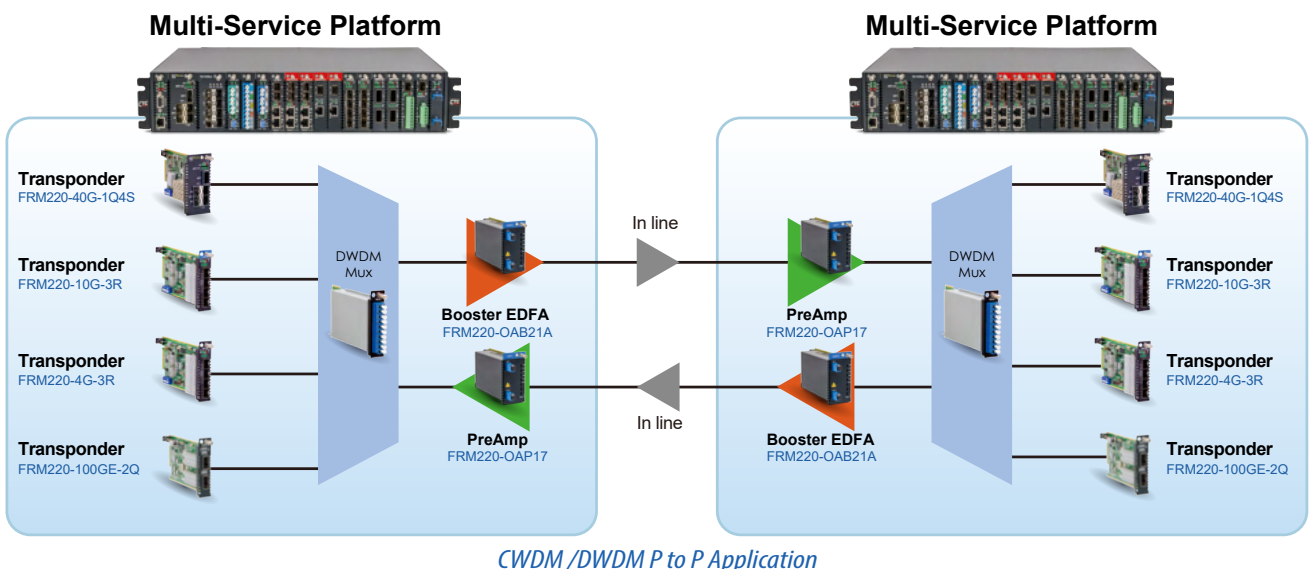


iAccess Platform Solution Category

// Application

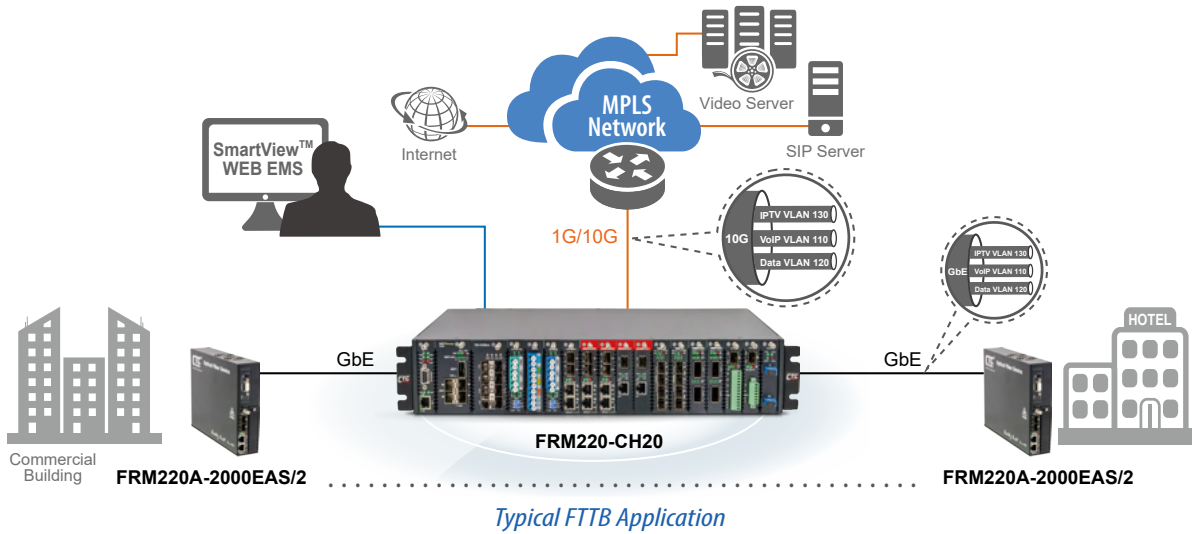
Optical Transport Solution

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.



Ethernet Services

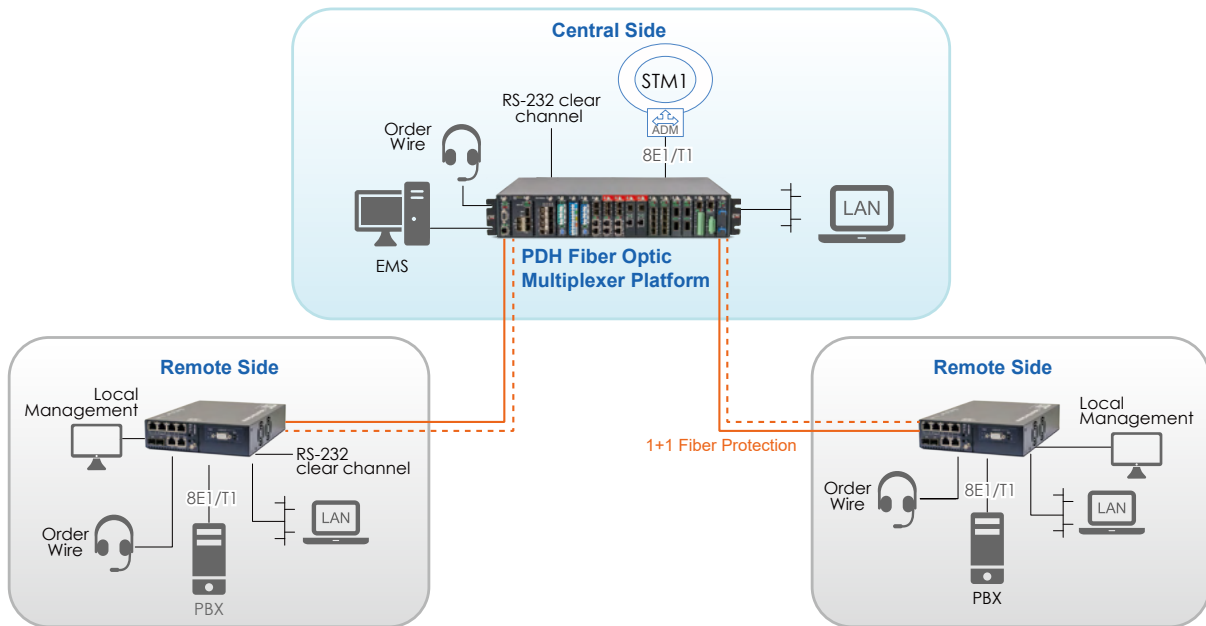
Ethernet solutions require a range of Ethernet products. CTC Union provides media conversion, Ethernet switching and carrier class Ethernet, through a wide range of product selections.



Typical FTTB Application

TDM/PDH/Voice solution

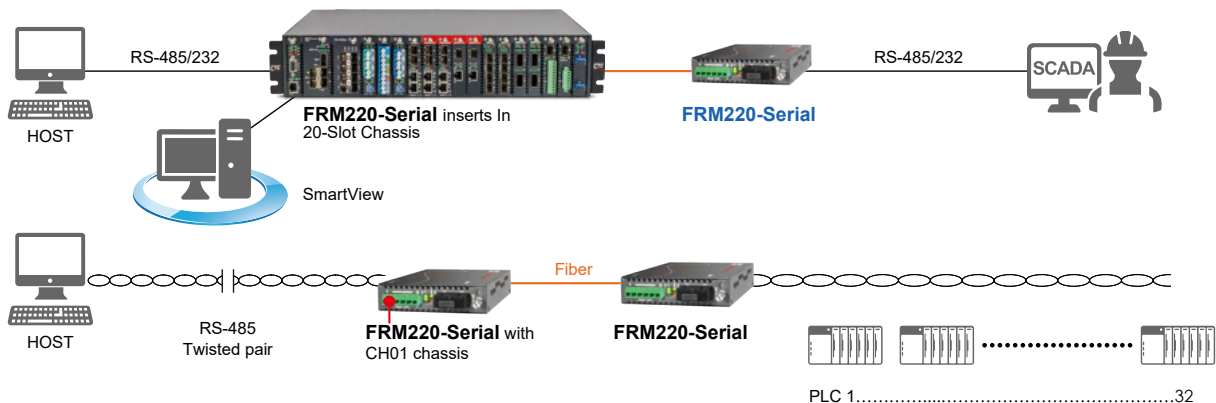
TDM and PDH are becoming legacy protocols, however, much of the world's voice communications still rely on devices that transport these protocols. CTC Union's solutions include DSU/CSU access units, Time Division Multiplexers, PDH over fiber and POTS over fiber devices.



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.



Data Communications Application