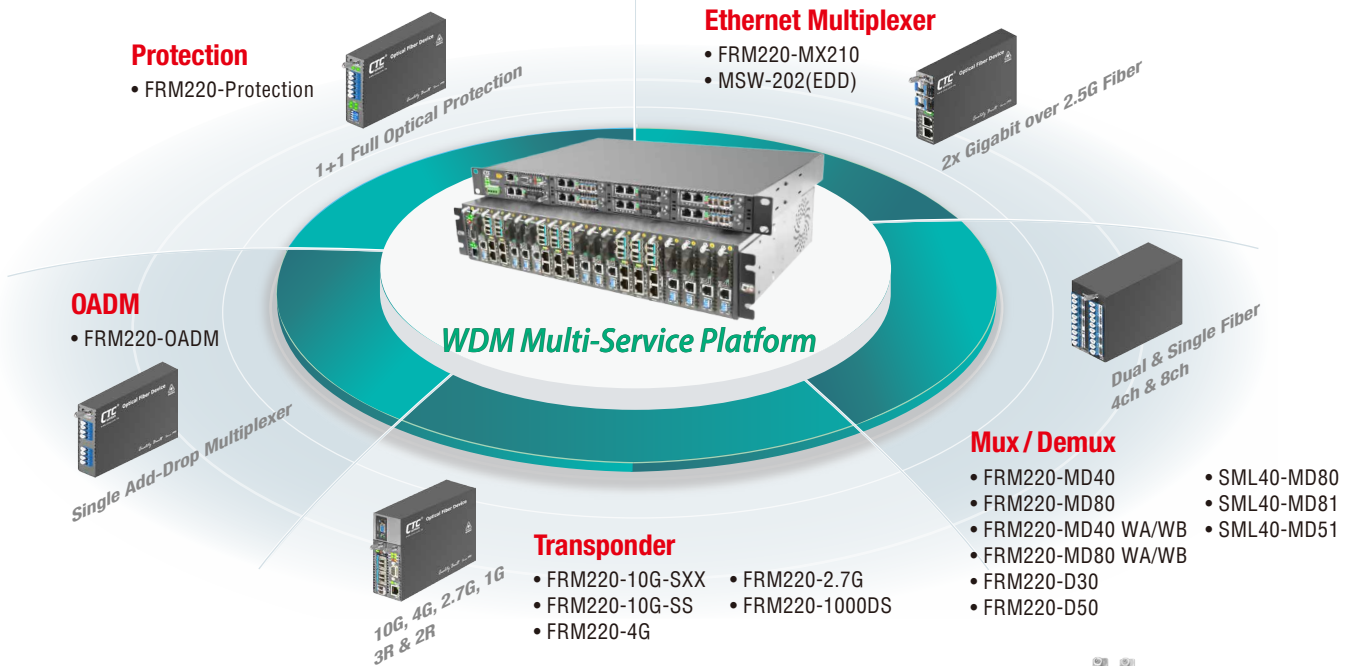


WDM Solution Optional Cards

WDM Platform supports WDM, transponder, GE Multiplexer, OADM and Protection cards. All cards can be inserted in WDM Platform for network management via SNMP card.



CWDM Mux/DeMux

Dual Fiber 1471~1611nm **Single Fiber 1271~1611nm**

- | | |
|------------------------------------|--|
| FRM220-MD40
4ch CWDM Dual Fiber | FRM220-MD40 WA/WB
4ch CWDM Single Fiber |
| FRM220-MD80
8ch CWDM Dual Fiber | FRM220-MD80 WA/WB
8ch CWDM Single Fiber |

- Optical Connectors
- Protocol transparent no limitation
- Native Mode Performance
- Passive model require no power



DWDM Mux/DeMux

Single Fiber 1530.33~1554.13nm

- | |
|-------------------------------------|
| FRM220-D30
4ch DWDM Single Fiber |
| FRM220-D50
4ch DWDM Single Fiber |



CWDM Mux/DeMux

1471~1611nm

- | |
|--|
| SML40-MD80
8ch CWDM Fiber |
| SML40-MD81
8ch CWDM Fiber with Monitor Port |
| SML40-MD51
5ch Mux/DeMux with Monitor Port |

- Utilizes industry standard ITU CWDM wavelength



10G 4G 2.7G 1G

Transponder

- | | |
|--|---|
| FRM220-10G-SXX
3x10G 3R, 1+1 Protection | FRM220-2.7G-3S
2.7G 3R, SFPx3, 1+1 Protection |
| FRM220-10G-SS
2x10G 3R, Support DWDM | FRM220-1000DS
1G 2R, SFPx2, 2km to 120km extension |
| FRM220-4G-3S
SFPx3, 1+1 Protection | |



Gigabit Ethernet Multiplexer

- | |
|---|
| FRM220-MX210
2 Port 1.25G Fiber over 2.5G Fiber |
| MSW-202 (Ethernet Demarcation Device)
MEF9/14/21 Compliant
2 Ports GbE Cooper over 2.5G Fiber |



(Applies to SML40-MD modular cards)



Mux/DeMux Passive Rack SML40-CH04

- 1U, 19-inch, 4-slot
- Passive Model Require on Power
- Plug & Play Operation
- Optical Connectors



Protection

- | | |
|-------------------------------|----------------------------------|
| FRM220-Protection | • Low channel cross talk < -55dB |
| • 1+1 optical protection | |
| • Protection transition <50ms | |



OADM

- | |
|---|
| FRM220-OADM |
| • Single Add/Drop Channel |
| • Passive optical module, no power required |

• The specification and pictures are subject to change without notice.



WDM Solution Overview

WDM provide high performance multiplexing or de-multiplexing for various of applications. CTC Union WDM product family covers following wavelength windows commonly used in optical fiber systems: From 1470nm to 1610nm for CWDM optical communications. The optical multiplexers are used to combine signal from the traffic card (single channel transponders or GE Multiplexer) on to a single pair of fiber. The WDM components have much wider operating bandwidth, lower insertion loss, higher power handling, high isolation, etc.

2-port Gigabit Ethernet Multiplexer

FRM220-MX210



Transporting two Gigabit Ethernet Over one wavelength

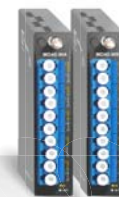
FRM220-MX210 is 2-port Gigabit Ethernet Multiplexer which aggregates two wire-speed Gigabit Ethernet services into one 2.5G uplink, reducing the conversion CAPEX and increasing the fiber utilization effectively. The Multiplexer can be used either in point-to-point topology functioning as a media converter for transporting 2 Gigabit Ethernet services over one fiber or in CWDM system working as a wavelength converter for extending the system's transmission capacity doubly. FRM220-MX210 is equipped with one 10/100/1000M RJ-45 network management port and three SFP based ports: two Gigabit Ethernet service ports and one 2.5G uplink port, enabling a flexible application as required and realizing a cost effective remote management. Additionally its advanced features such as downlink and uplink loop back, auto laser shutdown and remote network management provide carriers a flexible, reliable and cost-effective two Gigabit Ethernet over one wavelength conversion solution.

Key Specifications

- Local configuration via DB9 craft port in stand-alone (CH01M)
- Forward 9K bytes Jumbo Packets
- Transports two Gigabit Ethernet over one wavelength doubling the CWDM system transmission capacity
- Facility loopback on both Line / client sides
- Auto Laser Shutdown (ALS)
- Hot-swappable SFP module
- Detect transceiver error Alarm
- Network Management via web, Telnet, SNMP in central FRM220 chassis
- 10/100/1000M Network management port
- Forward 9k bytes Jumbo packets(max.)packets
- Supports Q in Q double tagged frame transparent
- Supports IEEE802.1q Tag and Port based VLAN
- Spanning Tree
- Default port and 802.1p tag priority QoS

4ch Single CWDM Fiber MUX/DeMUX

The single Fiber Optical Multiplerer are available in 4 channels versions and are used to combine signals from the traffic cards on to a single fiber. The **FRM220-MD40-WA** is 4 channels single fiber MUX/DeMUX modular design card for CWDM wavelengths including 1470nm, 1510nm, 1590nm. The **FRM220-MD40-WB** is 4 channels single fiber MUX/DeMUX, modular design card for CWDM wavelengths including 1490nm, 1530nm, 1570nm, 1610nm. The single fiber MUX/DeMUX cards provide the primary wave division and combination functions for CWDM. Line side wavelengths require translation to client side equipment via at transponder card.



FRM220-MD40 WA/WB

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

4ch/8ch CWDM Single Fiber MUX/DeMUX

The **FRM220-MD40** is 4 channels MUX/DEMUX, modular design card for CWDM wavelengths including 1510nm, 1530nm, 1550nm, 1570nm. The FRM220-MD40-2UP is 4 channels MUX/DEMUX, modular design card for CWDM wavelengths including 1470nm, 1490nm, 1590nm, 1610nm and two upgrade ports for CWDM wavelength ranges of 1503nm ~ 1577nm and 1260nm ~ 1457nm.

The **FRM220-MD80** is 8 channels MUX/DEMUX, modular design card for CWDM wavelengths including 1470nm, 1490nm, 1510nm, 1530nm, 1550nm, 1570, 1590, 1610nm and one upgrade port for CWDM wavelength range of 1260nm ~ 1457nm. The MUX/DEMUX cards provide the primary wave division and combination functions for CWDM. Line side wave lengths require translation to client side equipment via a transponder card.



FRM220-MD40/MD80

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

Application Diagram

