

## FRM220-10G-3R

10G 3R Multi-rate Transponder with  
Optical Line Protection

The FRM220-10G-3R has 4 SFP+ slots that can be configured as a dual channel 10G 3R multi-rate transponder or in a 1-to-2 port protection mode. The device provides a flexible transmission of various protocols, such as 1G/10G Ethernet, SDH STM16/STM64, OTU1/OTU1e/OTU2/OTU2e, Fiber Channel 1/2/4/8/10, OBSAI, CPRI, etc. Using SFP+ ports with dedicated CWDM or DWDM wavelengths, the 10G transponder supports multi-rate functionality with optical data rates from 1Gbps up to 10Gbps. With its functionality the FRM220-10G-3R transponder is also suitable as a repeater for transmission over extended distances. In addition, the use of state of the art components greatly reduces the power requirements and heat dissipation factors over our previous transponders.

### // Features

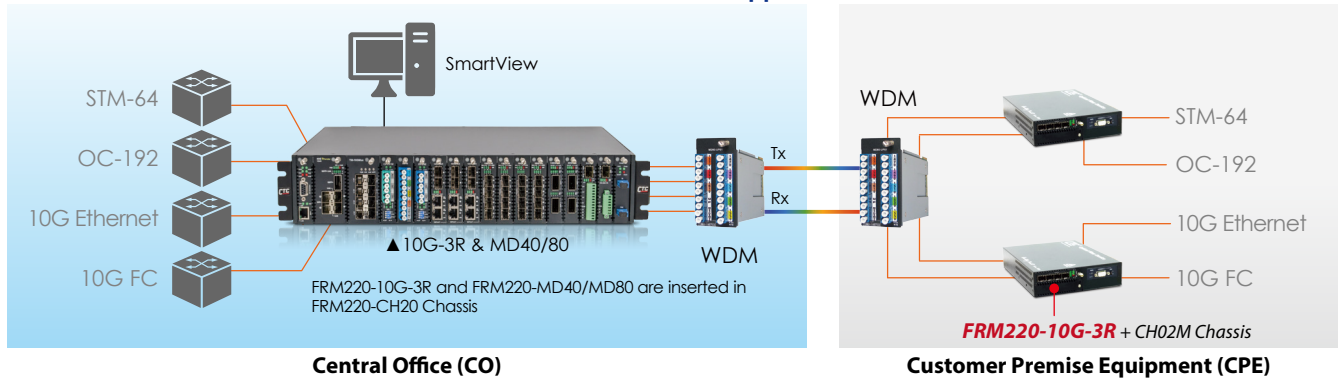
- Multi-rate supports 1Gbps ~ 10Gbps
- Protocol Transparent 3R fiber Media Transponder / Repeater
- Supports 1+1 Optical Line Protection, switching time <50ms
- Supports 2 channels with different bit rate
- Supports Loopback Test.
- Supports 1550nm ITU-T C-band tunable DWDM SFP+ Transceiver
- SFP DDM Information
- Firmware Upgrade
- Setting from DIP Switch, Console, NMC
- Supports Auto Laser Shutdown (ALS)
- Supports LFPT function

### // Specifications

Optical Interface	Connector	LC (SFP+, SFP)
	Wavelength	CWDM 1271 ~ 1611nm DWDM 1529.5~1565.50nm
Operation mode	Dual channel mode	Ch 1 SFP1 line / SFP2 client. Ch 2 SFP3 line / SFP4 client.
	Protection mode	SFP1 line / SFP2, SFP3 client
Protocol	SONET	OC-12, OC-24, OC-48, OC-192
	SDH	STM-4, STM-16, STM-64
	Ethernet	1G, 2.5G, 10G
	OTU	10GE OTU2e, 10GE OTU1e, STM-64 OTU2, STM-16 OTU1, 10GFC OTU2
	ODU	10GE ODU2e, 10GE ODU1e, STM-64 ODU2, STM-16 ODU1
	OBSAI	OBSAI × 1, × 2, × 4, × 8
	CPRI	CPRI × 1, × 2, × 4, × 5, × 8, × 10, × 16, × 20
Fiber Channel	1/2/4/8/10G FC	
Regeneration	Re-Amplification, Re-Shaping, Re-Timing	
LEDs	Power, System, Mode, Test, FX1 Link, FX2 Link, FX3 Link, FX4 Link	
Power	Input	12V / 1A
	Power Consumption	< 8W
Size	Dimensions	Card: 155 × 20.8 × 88mm (D×W×H)
	Weight	150g
Environment	Operating Temperature	0 ~ 50°C
	Storage Temperature	-10 ~ 70°C
	Humidity	10 ~ 90%
	Certification	CE, FCC
	MTBF	65000 hrs
Dimension	159.5 × 20.8 × 88mm (D×W×H)	

## // Application

## 10G-3R CWDM P to P application



## // Ordering Information

Model Name	Description
FRM220-10G-3R	2 Channels 10Gbps 3R Multi-rate transponder card (optional SFP+)

## ■ Chassis Option

Model Name	Description
FRM220-CH20(HS)	2U 19", 20 slots rack mount chassis with high speed cooling fan and rack mounting kit
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-CH02M-AC/DC/AD	2-slot chassis with console port and AC or DC power, with fan
FRM220-CH02/NMC-AC/DC/AD	2-slot chassis with fan, managed via optional NMC card and with AC, DC or AD power
FRM220-CH02/SMT-AC/DC/AD	2-slot chassis with fan, managed via optional NMC card and with AC, DC or AD power plus fan/power alarm detection