



# FRM220-FXO/FXS FRM220-FXO/FXS-SFP

Single port FXO/FXS Fiber Converter

The FRM220-FXO/FXS is a POTS (Plain Old Telephone System) over fiber converter/extender. The POTS connection uses a standard RJ-11C modular connector for one copper pair connection. A pair of FRM220-FXO/FXS is required to implement an end to end system. FXO mode connects to a telephone line (PSTN) or PBX station line and has ability to detect ringing voltages and to act as a telephone. FXS mode is the reciprocal unit and has ability to act as PSTN and connects to a telephone device. When the FRM220-FXO/FXS card is placed in the FRM220 rack with NMC management, in-band management allows configuring and viewing the card and remote converter's status, type, version, fiber link status, on hook status and alarms. Both card and remote can be configured to enable or disable the port, reset the port and set the FXO or FXS mode. When configured in an FXS to FXS fashion, a private "hot line" or direct line is created. When placed in a single slot chassis and used standalone without management, the card may be configured by DIP switch.

## Features

- Extend telephone voice transmission up to 120km over fiber
- Network management via terminal, web or SNMP in FRM220 (NMC)
- Supports caller ID Pass-Through
- Selectable FXO or FXS mode
- Supports FXS to FXS hot line
- Supports D/D function for SFP fiber transceiver

## Specifications

<b>Optical Interface</b>	Connector	SFP-LC / 1x9 (SC, ST, FC)
	Fiber	MM 62.2/125μm, 50/125μm, SM 9/125μm Rate: 155Mbps
	Distance	MM 2km, SM 15/30/50km, WDM 20/40km
	Wavelength	MM 1310nm, SM 1310, 1550nm WDM 1310Tx/1550Rx (type A) 1550Tx/1310Rx (type B)
<b>Indications</b>	LED (Power, FX Link, Phone Act, Test)	
<b>Power Input</b>	12VDC	
<b>Power Consumption</b>	< 6W	
<b>Dimensions</b>	Card: 155 x 20.8 x 88mm (D x W x H)	
<b>Weight</b>	120g	
<b>Temperature</b>	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)	
<b>Humidity</b>	10 ~ 90% non-condensing	
<b>Certification</b>	CE, FCC	
<b>MTBF</b>	65,000 hrs	

<b>Electrical Interface</b>	Connector	RJ-11
	FXO mode	Impedance : 600 ohms Coding : 16 bits liner Loop Current : 10~100mA Ring Frequency : Acceptable 20 ~50Hz Insertion Loss: 0.0 ± 1.0dB at 1000Hz Level Gain : TX 0dB, RX -3dB
	FXS mode	Coding : 16 bits liner Dial: DTMF and Dial Pulse Battery Source: 48VDC ± 4V Ringing Waveform : Sine wave Impedance : 600 ohms Ringing Frequency : 20/25/30/35/40/45/50/55 Hz selectable Ring Cadence: FXS to FXS : On / 1 sec, Off / 2 sec FXO to FXS; Reproduces the cadence detected by FXO Insertion Loss 0.0 ± 1.0dB at 1000Hz REN: 4.0B(Ring Equivalence Number) Level Gain : TX 0dB, RX -3dB

## Application

Figure 1 : Automatic Ring down hotline

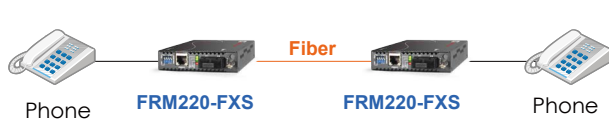
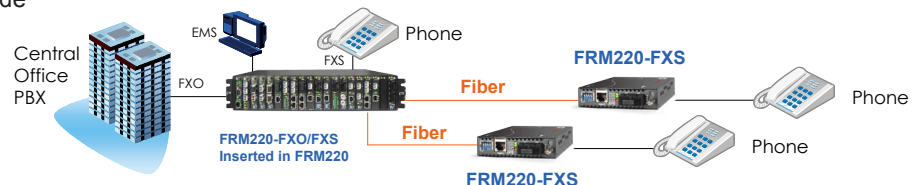


Figure 2 : Voice Transmission from 2km to 120km over fiber



Figure 3 : Selectable FXO or FXS mode



## Ordering Information

Model Name	Description
FRM220-FXO/FXS	FXO / FXS fiber converter card
FRM220-FXO/FXS-SFP	FXO / FXS fiber converter card (SFP-LC)
Connector Type	Connectivity Distance

SC, ST, FC (Not Applicable for SFP type)	002: 2km 015: 15km 030: 30km 050: 50km 20A: WDM 20km A type 20B: WDM 20km B type 40A: WDM 40km A type 40B: WDM 40km B type
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Connector Type Connectivity Distance  
FRM220 - FXO/FXS -       
Example: FRM220 - FXO/FXS- SC002

**Note:** This card may be set by DIP switch and placed in CH01 standalone chassis. When connected as a remote to a managed central chassis, this card supports in-band management.