RB-FXSFXO-ETH

POTS and Ethernet Fiber Optic Multiplexer

Quick User Guide

Overview

The RB-FXSFXO-ETH series are using a custom designed digital multiplexing chip, which integrates almost all digital logic functions, significantly improving the performance and reducing the cost. The POTS multiplexer series has excellent performance, with stable and reliable operation and low power consumption. Series can offer up to 128 telephone lines into one single 1RU pizza box 19” rack mountable device. All interfaces are multiplexed over a single optical fiber and up to 16 isolated Ethernet channels can be aggregated. Multiplexers adopt PCM (Pulse Coding Modulation) technology, offering very clear voice quality with a three-level over current voltage protection unit. The POTS multiplexers can be implemented in a variety of applications where telephone lines need to be transported efficiently, in a secure and reliable manner for long distances over fiber.

Features

Up to 128 channels telephone interface transport solution
Up to 16 isolated 10/100 Ethernet Ports per multiplexer
Perfect phone line isolation by use of transformers and photoelectric couplers
Supports caller ID and polarity reversal
Each phone line has three levels of over-current voltage protection
Standard models operate up to 20Km over SMF and 1Km over MMF circuits, custom models can reach up to 100Km over SMF
Standard single fiber operation
No compression, no delay, high fidelity voice sampling
Plug and play operation, no settings required
Complete LED status reporting: power, fiber link, phone line and data
No requirement for data port to be connected, multiplexers can be used strictly for telephone lines transport

Technical Specifications

FXO end (PBX)							
#	Parameter	Symbol	Minimum value	Typical value	Maximum value	Unit	Remarks
1	Ring signal	VR	30		120	VRMS	(17-60) Hz
2	Ring voltage		35			V	
3	Frequency ring detection		17		60	Hz	
4	2-wire AC impedance		200Ω+ 680Ω// 0.1uF				Off-hook state
5	Return loss		20	40		db	
6	Depth of parallelism		60	70		db	
7	Common mode rejection ratio	CMRR	60	70		db	
8	Power supply rejection ratio	PSRR		30		db	
9	Idle channel noise	NC		75		db	
FXS end (telephone sets)							
#	Parameter	Symbol	Min value	Typical value	Max value	Unit	Remarks
1	Ring signal	VR			150	VRMS	
2	Ringing voltage	Vring		75	90	V	
	Ringing frequency		17		60	Hz	
3	Cutting time				200	ms	
4	2-wire AC impedance		200 Ω + 680 Ω // 0.1uF				Can be adjusted to 600Ω
5	Return loss		20	40		db	
6	Depth of parallelism		60	70		db	
7	Common rate rejection ratio	CMRR	60	70			
8	Power supply rejection ratio	PSRR					
	Vcc			30		db	
	Vbat			30		db	
9	Idle channel noise	NC		75		db	

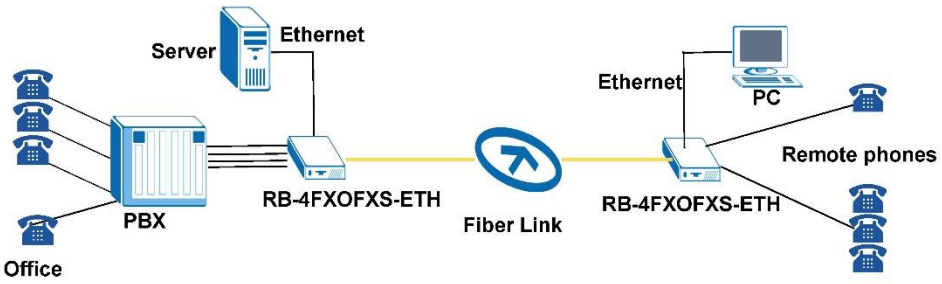
Fiber Optic Interface	
Module type	Single fiber strand(default)
Wavelength	1310nm/1550nm
Module rate	155Mbps or 1.25Gbps (depending on number of Ethernet ports)
Tx Power	Min. -12dBm
Rx Sensitivity	-24dBm
Fiber connector	SC(default)
Ethernet Interface	
Bandwidth	Auto 10/100M rate
Protocols	IEEE802.3 10Base-T Ethernet, IEEE802.3u 100Base-TX/FX Fast Ethernet, IEEE802.3x Flow control, IEEE802.1q VLAN, IEEE802.1p Qos, IEEE802.1d Spanning Tree
Physical interface	RJ45
Mechanical	
Operating temperature	-20°C ~70°C
Storage temperature	-40°C ~85°C
MTBF	>100,000hours

Indicators

Transmitter Unit		
Indicator	**Printed**	**Description**
Power supply	PWR	On: The device is powered Off: The device is not powered
Fiber	FIBER	On: Fiber link established Off: No fiber signal

Receiver		
Indicator	**Printed**	**Description**
Power supply	PWR	On: The device is powered Off: The device is not powered
Fiber	FIBER	On: Fiber link established Off: No fiber signal

Application



Example of application using the 4 channel POTS and Ethernet model (RB-4FXSFXO-ETH)

The set is made of two different units: an FXS capable and an FXO capable unit.
Each unit is marked accordingly. FXO unit must be connected to PBX lines or incoming telco phone lines. FXS unit will serve end devices such as handsets, dialers, fax machines, etc.
Connect the SC/UPC fiber strand between units before powering up.
Make sure PWR and FIBER LEDs are ON and steady on both units.
You can then connect telephone lines to either FXO or FXS end.
The fiber multiplexer is completely transparent to telephone lines. A phone line user will not notice anything about telephone line being transported over fiber optic. All POTS functions, including DTMF and Caller ID are available.
These POTS over fiber devices do NOT support hybrid PBX phone signaling beyond 3.4kHz.

Ordering Information

Part Number	Description	Dimensions	Power Supply
RB-2FXSFXO-ETH	2 channels telephone +1 channel FE 10/100 fiber multiplexer, metal casing desktop	104*104*28mm	DC 5V/1A AC adapters incl.
RB-4FXSFXO-ETH	4 channels telephone +1 channel FE fiber multiplexer, metal casing desktop	104*104*28mm	DC 5V/1A AC adapters incl.
RB-16FXSFXO-4ETH	16 channels telephone + 4 FE fiber optical multiplexer, 19” rack mountable 1RU	445*220*44.5mm	AC 100~240V
RB-32FXSFXO	32 channels telephone fiber multiplexer, 19” rack mountable 1RU	445*220*44.5mm	AC 100~240V
RB-32FXSFXO-4ETH	32 channels telephone + 1 GE fiber multiplexer, 19” rack mountable 1RU	445*220*44.5mm	AC 100~240V
RB-64FXSFXO	64 channels telephone fiber multiplexer, 19” rack mountable 2RU	445*220*89mm	AC 100~240V
RB-64FXSFXO-4ETH	64 channels telephone + 1 GE fiber multiplexer, 19” rack mountable 2RU	445*220*89mm	AC 100~240V
RB-128FXSFXO	128 channels telephone fiber multiplexer, 19” rack mountable, 4RU	445*220*178mm	AC 100~240V
RB-128FXSFXO-4ETH	128 channels telephone + 4GE fiber multiplexer, 19” rack mountable, 4RU	445*220*178mm	AC 100~240V

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