

FRM220A-iMux5

5E1 Inverse Multiplexer



The FRM220A-iMux5 is an E1 inverse multiplexer capable of bundling up to 5 E1 lines for cost-effective connection of 10/100Base-(TX) or 100Base-FX LANs over multiple E1 transports. The FRM220A-iMux5 inverse multiplexer transmits up to a 9.92Mbps Ethernet bridge channel (GFP-F encapsulated) over 5 E1 links. The FRM220A-iMux5 bridges the gap between E1 and E3, allowing bridges to operate at faster rates. It also provides high speed access to SDH/SONET backbones where the only access services available are E1 lines. The FRM220A-iMux5 supports an E1 attenuation of up to 43 dB on twisted pair or coax cable. This provides an approximate operating range up to 2km (using 22AWG). The FRM220A-iMux5 fully meets E1 specifications including ITU-T G.703 and G.823. The FRM220A-iMux5 features diagnostic capabilities for performing remote loopback. The operator at either end of the line may test both the FRM220A-iMux5 and the line in the digital loopback mode. The Ethernet copper interface supports auto-negotiation and auto MDI/MDIX, allowing plug-and-play Ethernet connection without any additional configuration.

Features

- ◆ Connects one Fast Ethernet over 1-5 E1 links (1.984 ~ 9.92Mbps)
- ◆ Built-in GFP bridge operates at WAN rate
- ◆ Auto-Negotiation
- ◆ Unbalanced E1/BNC or balanced E1/RJ45
- ◆ Fully compatible with FRM220A chassis
- ◆ SNMP management with FRM220A chassis
- ◆ LED Alarm indication
- ◆ Standalone RS232 console management via CH01M

Specifications

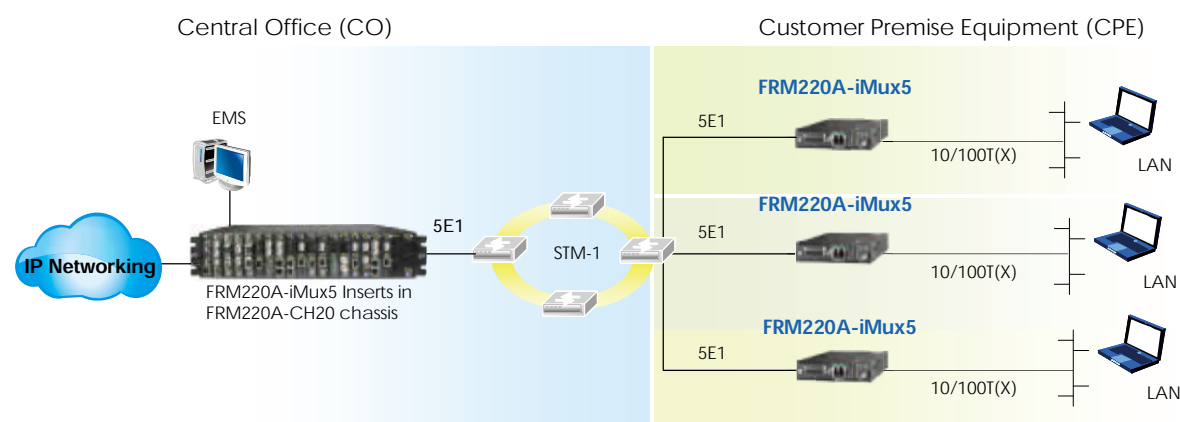
E1 Interface	Framing	CCS+CRC
	Standard	ITU-T G.703/G.704/G.706 & G.732, G.823
	Bit rate	2.048Mbps± 50ppm (up to 5E1)
	Line code	HDB3
	Clock setting	Internal OSC or recovery clock
	Receive level	-43dB
	Line impedance	75 ohm (BNC) / 120 ohm (RJ45)
	Jitter Performance	Complies with ITU-T G.823
	Pulse Mask	Complies with ITU-T G.703
	Pulse amplitude	Nominal 2.37V ± 10%
	Delay Variance	220ms
	Connector	RJ45, BNC
	Diagnostics	Digital remote loopback
Ethernet Interface	Standards	IEEE 802.3, 802.3u
	Data rate	10/100Base-T(X), Half/Full duplex 100Base-FX

Ethernet Interface	Connector	RJ45 10/100Base-T(X) SFP-LC 100Base-FX
	Indications	Power, ALM, E1 signal loss, E1 Alarm (AIS, LOF, RAI, LOMF), LAN link / ACT, 10/100M, SD(100Base-FX)
Power Input	AC adapter : 100~240VAC to 12VDC AC 100 ~ 240V, DC -18 ~ 75V	
Power Consumption	< 6W	
Dimensions	DC12 : 160 x 88 x 24 (D x W x H)mm AC/DC48/AD : 201 x 135 x 35 (D x W x H)mm	
Weight	130g	
Temperature	0 ~ 60°C (Operating), -10 ~ 70°C (Storage)	
Humidity	10 ~ 90% RH (non-condensing)	
Certifications	CE, FCC, RoHS	
MTBF	75,000 hrs	

Application

Managed E1 Bridge

Delivering point-to-point Fast Ethernet service across E1 circuits



Ordering Information

Model Name	Description
FRM220A-iMux5T-R	10/100Base-T(X) to 5 E1 mux card with 5E1 RJ45 cable
FRM220A-iMux5T-B	10/100Base-T(X) to 5 E1 mux card with 5E1 BNC cable

Note: The card is suitable for use in CH01M standalone chassis.

FRM220A – iMux5T – ☐
Example: FRM220A – iMux5T – R

FRM220A-iMux8

8E1 Inverse Multiplexer



The FRM220A-iMux8 is an E1 inverse multiplexer capable of bundling up to 8 E1 lines for cost-effective connection of 10/100Base-T(X) or 100Base-FX LANs over multiple E1 transports. The FRM220A-iMux8 inverse multiplexer transmits up to a 15.87Mbps Ethernet bridge channel (GFP-F encapsulated) over 8 E1 links. The FRM220A-iMux8 bridges the gap between E1 and E3, allowing bridges to operate at faster rates. It also provides high speed access to SDH/SONET backbones where the only access services available are E1 lines. The FRM220A-iMux8 supports an E1 attenuation of up to 43 dB on twisted pair or coax cable. This provides an approximate operating range up to 2km (using 22AWG). The FRM220A-iMux8 fully meets E1 specifications including ITU-T G.703 and G.823. The FRM220A-iMux8 features diagnostic capabilities for performing remote loopback. The operator at either end of the line may test both the FRM220A-iMux8 and the line in the digital loopback mode. The Ethernet copper interface supports auto-negotiation and auto MDI/MDIX, allowing plug-and-play Ethernet connection without any additional configuration.

Features

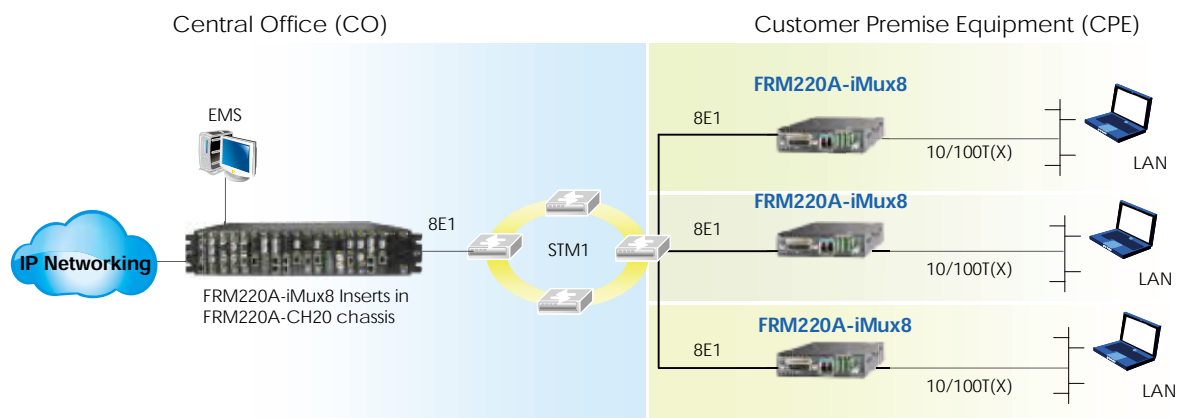
- Connects one Fast Ethernet over 1-8 E1 links (1.984Mbps to 15.87Mbps)
- Built-in GFP bridge operates at WAN rate
- Auto-Negotiation
- Maximum 220ms delay variance between E1 link
- Unbalanced E1/BNC or balanced E1/RJ45
- Fully compatible with FRM220A chassis
- SNMP management with FRM220A chassis
- LED Alarm indication
- Standalone RS232 console management via CH01M

Specifications

E1 Interface	Framing	CCS+CRC
	Standard	ITU-T G.703/G.704/G.706 & G.732, G.823
	Bit rate	2.048Mbps± 50ppm (up to 5E1)
	Line code	HDB3
	Clock setting	Internal OSC or recovery clock
	Receive level	-43dB
	Line impedance	75 ohm (BNC) / 120 ohm (RJ45)
	Jitter Performance	Complies with ITU-T G.823
	Pulse Mask	Complies with ITU-T G.703
	Pulse amplitude	Nominal 2.37V ± 10%
	Delay Variance	220ms
	Connector	RJ45, BNC
	Diagnostics	Digital remote loopback
Ethernet Interface	Standards	IEEE 802.3, 802.3u
	Data rate	10/100Base-T(X), Half/Full duplex

Ethernet Interface	Connector	RJ45 10/100Base-TX
		Power, ALM, E1 signal loss,
Indications		Power, ALM, E1 signal loss, E1 Alarm(AIS, LOF, RAI, LOMF), LAN link /ACT, 10/100M, SD(100Base-FX)
Power Input		AC adapter : 100~240VAC to 12VDC AC 100 ~ 240V, DC -18 ~ 75V
Power Consumption		< 12W
Dimensions	DC12	: 160 x 88 x 24mm (D x W x H) AC/DC48/AD : 201 x 135 x 35mm (D x W x H)
Weight		130g
Temperature		0 ~ 60°C (Operating), -10 ~ 70°C (Storage)
Humidity		10 ~ 90% RH (non-condensing)
Certifications		CE, FCC, RoHS
MTBF		65,000 hrs

Application



Ordering Information

Model Name	Description
FRM220A-iMux8T-R	10/100Base-T(X) to 8 E1 mux card with 8 E1 RJ45 cable
FRM220A-iMux8T-B	10/100Base-T(X) to 8 E1 mux card with 8 E1 BNC cable

Note: The card is suitable for use in CH01M standalone chassis.

FRM220A – iMux8T – ☐
Example: FRM220A – iMux8T – R