

General Overview

EMUX3000 is intelligent access equipment manufactured by using large scale integrated circuit chips developed by Easy Broadband Technology Co., Ltd., which utilizes standard 2M transmission channel (G.703 standard), adopts PCM30/32 System and provides 4 E1 directions, 120 64K time slot service interfaces. At present, EMUX3000 provides interfaces: FXO interface, FXS interface, EM2/4W interface, audio 2/4 wire interface, hotline telephone interface, magnet telephone interface, magnet 2100Hz signalling carrier telephone interface, magnet 2100Hz signalling carrier telephone interface, 64K unidirectional interface, V.24 interface, RS485 interface, V.35 interface, V.35 outer timing interface, Ethernet interface etc. Comprehensive multiplexing equipment can be widely used in telecommunication data service network and mixed access of voice and data of private network such as power company, bank, public security, military. The detailed application is shown as Figure 1-1 (Application of Telecommunication Access Network).



Main Features

- ❑ 19" 3U chassis, EMUX3000 has totally 18 slots including 14 service panel slots, 2 power supply panel slots and 2 master control panel slots and 4 E1 transmission directions and can provide 108 route service interfaces. EMUX3000A has 19 slots in all including 16 business panel slots, 2 power supply panel slots and 1 master control panel slot and 4 E1 transmission directions and can provide 120 route service interfaces;
- ❑ Master control panel of EMUX3000 is divided into two sorts: 1) CTL_B: provide 4 route E1 multiple connection; 2) CTL_O: provide optical fibre interface transmission. At this time, E1 of 4-route PCM directly connects to optical fibre interface transmission. External 4-route E1 interface of the equipment can provide the users with transparent transmission and provides an Ethernet transmission channel of 100M line speed at the same time;
- ❑ Each service panel can provides 4-route or 8-route service interface. Service panel can select corresponding different E1 and select occupying original telephone channel time slot and occupying time slot quantity etc., or realize 256×256 crossed configuration of 64K time slot through network management;
- ❑ This equipment can mutually interworking with PCM equipment and 2M time slot access equipment produced by other manufacturers;
- ❑ Each route of E1 can provide 30-route audio or data transmission. The equipment can provide 120 64K time slot services at most;
- ❑ There are abundant sorts of service interfaces to meet various application occasions;
- ❑ Data service interface time slot is optional. Bandwidth is option up to 30×64Kbit/s;

ANDA Telecom Pvt. Ltd.

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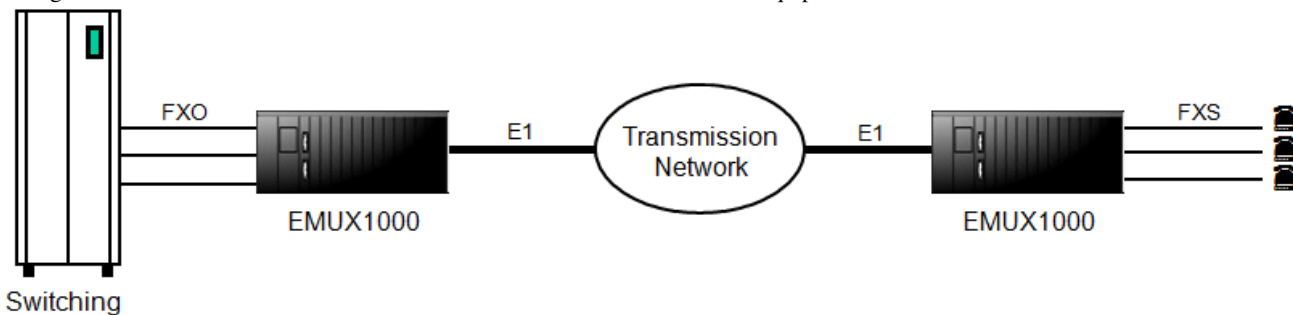
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- ❑ All data interface, audio 2/4W interface can set up local loopback and remote loopback of 64K channel, which has greatly facilitated daily maintenance and fault inspection;
- ❑ The power supply panel can adopt two kinds of input ways, -48V and 220V and provides two-route power supply panel with mutual hot backup function;
- ❑ Each telephone interface panel has independent and stable and reliable ringing current circuits with no mutual interference;
- ❑ The power supply panels and various audios, data business panels have lightning proof function;

Application

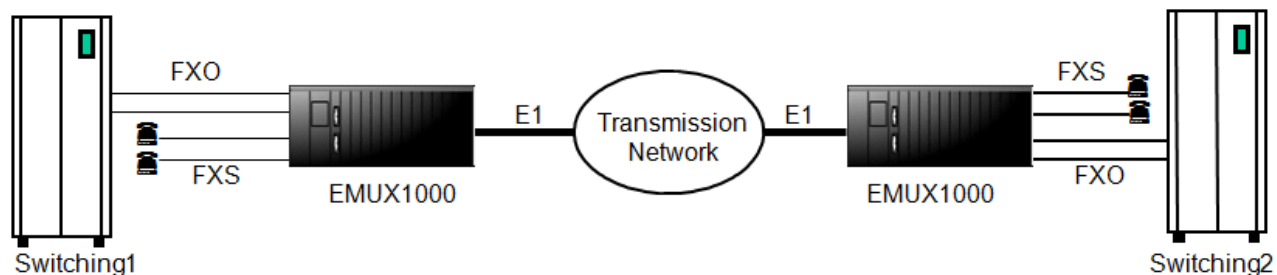
Traditional Voice Service

As shown in Figure 1-3, as being used for traditional voice access, FXO interface card should be installed at the near end of the exchange to connect with the stored program control exchange. The remote end should connect with the telephone through FXS interface card to realize voice access function of traditional PCM equipment.



Functional Service of Opposite Terminal Mutual Number Allocation

As shown in Figure 1-4, different from traditional PCM equipment, ATATEMUX1000 can also realize the function of mutual number allocation between two opposite terminals.



Access of Data and Other Service and Mixed Transmission Functional Service

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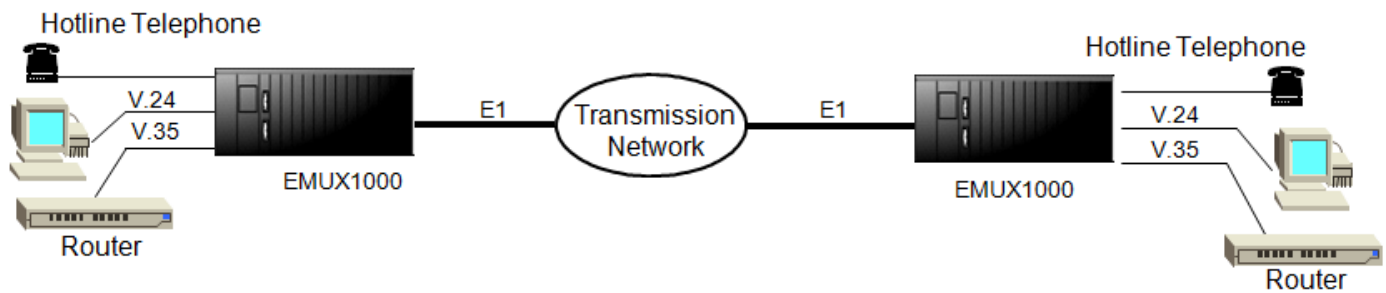
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ATATEMUX1000 has various user interface cards including FXO and FXS for option to realize voice services such as traditional voice, hot line and magnet telephone. According to user's requirement, 64K unidirectional, V.24, V.35 and other data interface cards to realize powerful data communication and its complex service. As shown in Figure 1-5, EMUX equipment supports various services and occupies one or more E1 interfaces to realize mixed transmission data and voice service.



Unblocked Full Digital Crossed Functional Service

ATATEMUX1000 equipment integrates 128x128 digital crossed matrix inside to make ATATEMUX1000 equipment be convenient and flexible as networking.

Technical Specification

E1 Interface

- Standard: ITU-T G.703
- Line Rate: 2048Kbps \pm 50ppm
- Line Code: HDB3
- Frame Structure: PCM 30/32, comply with ITU-T G.704 and G.706
- Line Impedance: 75ohm unbalanced or 120ohm balanced optional
- Signaling: channel associated signaling
- Electrical Characteristic: comply with ITU-T G.703 recommendation
- Jitter Performance: comply with ITU-T G.823 recommendation
- Electrical Level: $\pm 2.37V \pm 10\%$ or $\pm 3.00V \pm 10\%$
- Connector: BNC (75 Ω unbalanced) or RJ-45 (120 Ω balanced)

FXO and FXS Interface

Switching Side Picking up Impedance: < 500 Ω Hang Impedance: > 10K Ω

- User Side Loop Circuit Impedance: $\leq 2000\Omega$ (Including Phone) Idle Circuit Voltage: $\leq 50V$
- Loop Circuit Current: 25mA Picking up Threshold: 8mA
- Polarity Inversion Time Delay: < 50ms Dial: Pulse Dial Monopulse Distortion < 5ms
- General distortion with internal dial satisfies interface features Picking up Time Delay: < 100ms

Audio Scope: 300~3400Hz Audio Compression Rate: ITU G.711A Rhythm

- Two Wire Interface Electrical Level: Two-wire Sends 0dB \pm 0.5dB Two-wire Receives -3.5dB \pm 0.5dB

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- Return Loss: 300~600Hz >12dB 600~3400Hz >15dB
- Frequency Response: 300~3400Hz Comply with Requirement of ITU G.713 Air Noise: $\leq -65\text{dBm0p}$
- Gain: $-45\text{dBm0} \sim +3\text{dBm0}$ (Error Less than $\pm 0.5\text{dB}$)
- Total Signal to Noise Ratio: Comply with Sample of ITU-T G.713.

Audio 2/4 Wire Interface

Compression Ratio: ITU G.711A Rhythm

- Impedance: Balance 600Ω
- Audio Scope: 300~3400Hz
- Frequency response complies with the requirement of ITU G.713.
- Air Noise: $\leq -65\text{dBm0p}$
- Total Signal Noise Ratio: Complies with sample of ITU-T G.713.
- Return loss: Not less than 20 dB 300~600Hz >12dB 600~3400Hz >15dB
- Two Wire Transmission Gain: 0dB (-14dB ~ +17.5dB Adjustable, Step 0.5dB)

Two Wire Reception Transmission Gain: -3.5dB (-27.5dB ~ +4dB Adjustable, Step 0.5dB)

- Four Wire Transmission Gain: -14dB (-14dB ~ +17.5dB Adjustable, Step 0.5dB)
- Four Wire Reception Gain: +4dB (-27.5dB ~ +4dB Adjustable, Step 0.5dB)

Magnet Telephone Interface

Tone index is same as common two-wire audio.

- Ringing Current Testing: Minus 20Vrms, Testing Time 0.5 Second.
- Signaling Mode: Digital Signaling Mode, Simulative Signaling Mode Optional
Of Which, Simulation Mode: 2100Hz Single-tone
- 2100Hz Signal Generator

Amplitude: $-6\text{dBm0} \pm 1\text{dB}$ Frequency: $2100\text{Hz} \pm 5\text{Hz}$

- Signaling Testing

Amplitude Scope: Not Less than -17dBm Frequency Scope: $2100\text{Hz} \pm 50\text{Hz}$

Hotline Telephone Interface

- Interface Impedance: Ternary Compound Impedance $200\Omega + 560\Omega / 0.1\mu\text{F}$
- Audio Scope: 300Hz ~3400Hz

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- Compression Ratio: A Rhythm in ITU G.711
- Loop Current: 25mA/Circuit
- Loop Impedance: 1800Ω

64K Unidirectional Interface

- Comply with G.703 suggestion standard of ITU in the round.
- Code Type: G.703 Standard
- Code Rate: 64K bit/s±100ppm
- Impedance: balance 120Ω

V.24 Interface

- Transmission Rate: Asynchronous≤9600bps

Synchronous 64Kbps

- Electrical Characteristic: complies with CCITT V.28 Agreement
- Suggestion on cable length: When RS232 interface rate≤9600bps, cable length≤15m

When RS485 interface rate≤9600bps, cable length ≤1Km

V.35 Interface

- Transmission Rate: N×64Kbps (N=1~30)
- Electrical Characteristic: complies with ITU-T V.35 recommendation
- Terminal Interface: complies with provisions of ISO2593
- Suggestion on cable length: When rate ≤128Kbit/s, cable length≤500m
When rate≤1920Kbit/s, cable length≤100m

Ethernet Interface

- Interface: 10/100Base-TX
- Interface protocol: compliant with IEEE 802.3
- Data rate: 10/100Mbps auto-negotiation
- WAN Transmission Rate: N64Kbps (N≤30), i.e. 64Kbps to 1.92Mbps adjustable
- Range 100 meters/328 feet on UTP category 5 cable
- Connector: RJ-45 electrical interface

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Management Interface

Ethernet Interface

- Interface: 10/100Base-T Ethernet
- Comply with IEEE802.3 standard
- Connector: RJ-45

CONSOLE (RS232) Interface

- Interface: RS-232 serial port
- Connector: DB25

Power Supply and Dimension

Table 1-2 Power Supply and Dimension Item	Specification
DC Power Supply	-48V DC with range: -36V ~ -72V
AC Power Supply	220V AC with range: 165V ~ 260V
Power Consumption (full config)	≤100W
Dimension (W×H×D)	482.6×132×260mm (19inch×3U)
Weight (full config)	10kg

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