

## TSM-32E16N8-ISO: 32\*Voice +16\*E1+ 8\*GE (physical isolation) + 4\*Serial (option) Port Optical Fiber Multiplexer Specifications

### Overview

#### Model : TSM-32E16N8-ISO

This series of products is point-to-point optical transmission equipment developed based on the dedicated very large scale integrated circuit developed by our company. This product provides 32 Voice interfaces; 1-16 E1 interfaces; 8 Gigabit Ethernet interfaces; each Ethernet electrical port has its own independent Gigabit bandwidth; the total bandwidth of all 8 Ethernet channels is 8000M(8G), through one optical fiber transmits, 8 channels of Gigabit Ethernet signals are completely independent, do not affect and interfere with each other, that is, physically isolated; and have 4 channels of RS232/422/485 interfaces(option); 2 optical interfaces (1+1 optical backup)(option) etc.; the internal circuit part of the equipment adopts all-digital circuits. The whole machine works reliably and stably, with low power consumption, high integration, small size and easy installation and maintenance.

### Photo



### Features

- 19-inch 1U rack-mounted, all-aluminum alloy, anodized casing, fanless heat dissipation design, IP40 protection grade;
- Based on integrated circuits with independent intellectual property rights, the total bandwidth of optical fiber lines is 10G;
- The optical port's non-relay transmission distance can reach 2 to 120 kilometers; it provides 1+1 optical port backup function and dual optical port backup function to ensure uninterrupted business;
- The E1 interface complies with G.703 recommendations and adopts fully digital clock recovery and smooth phase locking technology;
- 8-channel Gigabit Ethernet is 10/100/1000M, full/half duplex and fully adaptive. Each Ethernet electrical port has its own independent Gigabit bandwidth physical isolation;
- Each Ethernet port supports Auto-MDIX (cross/direct line adaptive);
- Gigabit Ethernet supports the transmission of VLAN ultra-long data packets and can be used with switch products that support the IEEE802.1Q protocol. It can support jumbo frame Ethernet packets with a maximum packet length of 10240;
- 32-channel voice access, supports caller ID function/reverse polarity billing/fax function; the phone supports

mutual number allocation function for both sites;

- The voice port supports FXO/FXS/24-line EM/24-line audio/magnet telephone interface. The FXO port is connected to the program-controlled switch, and the FXS port is connected to the user's telephone;
- The device has a power-down detection function, which can detect when the optical signal is lost, indicating that the peer device has lost power or the optical fiber is unavailable;
- 1 Console management interface (optional); 1 SNMP management interface (optional);
- Multiple power supply modes are available: AC220V, DC-48V/DC24V, etc.; supports AC+DC; AC+AC; DC+DC and other dual power supply modes;

## Parameters

### Fiber

**Optical port:** 1, 2 (1+1 optical backup)  
**Optical port rate:** 10G  
**Optical fiber:** single fiber and double fiber  
**Fiber Interface:** FC/SC/ST/LC (SFP)  
**Wavelength:** 1310nm/1550nm single mode  
**No relay transmission distance:** 20~120Km  
**Typical transmit power:**  
**Single mode 1310/1550nm:**  $\geq -9\text{dBm}$   
**Acceptable sensitivity range:**  $-28\text{dBm} \sim -40\text{dBm}$

### ◆ E1 Interface

**Device interface:** complies with G.703  
**Rate:** 2048Kb/s  $\pm$  50ppm  
**Code:** HDB3  
**Impedance:** Unbalanced 75/balanced 120  
(Unbalanced type with coaxial interface adapter, can be adapted to 75-2/3 coaxial cable)  
**Jitter characteristics:** in accordance with G.742, G.823  
**Allowed attenuation:** 0~6dBm

### ◆ E&M 2/4 Line Interface

**E&M type:** TYPE V  
**E line maximum current:** 22mA;  
**Saturation voltage:** 3V  
**M line constant current:** 7mA;  
**Minimum detection current:** 5mA  
**AD gain:** 0dB; **DA gain:** 0dB  
**2/4 line input impedance:** 600 $\Omega$

### ◆ FXS user phone port / business

#### phone port

**Ring voltage:** 75V;  
**Ring frequency:** 25Hz  
**Two-wire input impedance:** 600 $\Omega$  (off-hook)  
**Return loss:** 20dB

### ◆ FXO Trunk Interface

**Ring detection voltage:** 35V  
**Ring detection frequency:** 17Hz-60Hz  
**Two-wire input impedance:** 600 $\Omega$  (off-hook)  
**Return loss:** 20 dB

### ◆ 10/100/1000M Ethernet Interface

**Protocol:** IEEE 802.3az compliant, IEEE 802.1Q (VLAN)  
**Rate:** 10/100M adaptive, full/half duplex fully adaptive  
**MAC address table:** Can learn 4096 MAC addresses  
**Physical interface:** RJ45 seat, support Auto-MDIX

### ◆ Magnet Phone Interface

**Ring voltage:** 75V  
**Ring frequency:** 25Hz  
**Second-line input impedance:** 600 $\Omega$  (off-hook)  
**Return loss:** 20dB

### ◆ Electrical and mechanical

#### properties

**System power supply:** AC180V ~ 260V; DC-48V; DC+24V  
(Supports dual power supply redundant backup)  
**Power consumption:**  $\leq 20\text{W}$   
**Appearance structure:**  
485(length)X200(width)X45(height)mm 19 inches 1U rack type  
**Weight:** 3.8Kg/set

### ◆ Working environment

**Working temperature:**  $-10^{\circ}\text{C} - +60^{\circ}\text{C}$   
**Storage temperature:**  $-40^{\circ}\text{C} - +85^{\circ}\text{C}$   
**Working humidity:** 0% - 95% (no condensation)  
**MTBF:** >100,000 hour

## Specifications

Product Number	TSM-32E16N8-ISO
Product Function Description	Simultaneously transmits 32 physically isolated voice channels + 8 physically isolated GE channels + 16 E1 channels on the 1+1 optical fiber
Service Port Description	2 optical fiber interfaces; 32 voice interfaces, 16 E1 interfaces, 8 GE Ethernet; 4 serial ports
Power Supply	AC220V / DC-48V / DC+24V (power supply optional)
Product Size	485mm (length) x 138mm (width) x 45mm (height); 19inch 1U rack mount type
Weight	3.8kg/set

## Application

