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Preface

Version Description

The Manual Version: V1.20

Copyright Statement

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Disclaimer

This manual is written under current knowledge and may be improved or changed in future without further notice. The best work had been done to ensure the manual is accurate and reliable, thus our Company does not responsible for any loss or damage caused by contents missing, inaccuracy or errors.

Abstract

This manual describes installation and use of the GE-STM1 Optical Network Bridge Server. Please be sure to read all the information carefully and follow the manual instruction to install the product before you first use our device. It may avoid any damages occurred by mis-operation. Thanks for choosing our products.

Environmental Protection

This product meets the design requirements on environmental protection. Any use, storage and disposal of the product shall be conducted under relevant national laws and regulations.

You are most welcome to put forward advices and suggestions for our work and it will be viewed as the greatest support for our company.

Chapter 1 Introduction

Brief

Chapter 1 introduces the main features of GE-STM1 Optical Network Bridge Server . It lists technical characteristics and parameters of the device.

1.1 Introduction

GE-STM1 acts as a bridge in a SDH/SONET environment, enabling service providers to achieve a seam less interconnection between customers using the TDM network and customers using the packet network, maintaining the same service level attributes.

By configuring the E1 bundled, it can be used in communication with the Multiple E1 binding protocol converter of our Company. Increase the Ethernet transmission bandwidth.

1.2 Main Features

GE-STM1 has following features:

1. Provides a friendly interactive WEB management and SNMP management.
- Supports WEB status checking, configuration modifying, OS and FPGA upgrade. Automatically recognize file type

for upgrading to avoid the occurrence of misuse. The operability of the device significantly superior to the traditional PC serial port command line model.

- SNMP enables you build the whole device network topology to accomplish network management, monitor network usage and diagnose the network failure.
- 2. Provides 2 STM-1 ports (1+1) to achieve 63 E1 channels back up protection.
- 3. Provides 2 Gigabit Ethernet Combo ports and supports trunk function.
- 4. Built-in 8K entry MAC addresses lookup table plus 64-entry CAM to eliminate hash collision problems.
- 5. When device under E1 framing mode, it supports $N * 64K$ sub-rate accessing. Also E1 framing format supports FAS (no CRC4 PCM31 format), FAS + CRC4 (CRC4 PCM31 format), FAS + CAS (no CRC4 PCM30 format), FAS + CRC4 + CAS (CRC4 PCM30 format).
- 6. E1 channel management functions.
 - Supports E1 channel local and remote loop back.
 - Supports E1 channel Pseudo-random code test function.
 - Supports E1 channel packets statistic functions.
 - Supports E1 channel loop back detection.
 - Supports E1 automatic loopback function.

- Supports E1 bundled with GFP transmission function
7. Supports VLAN and QinQ

1.3 Technical parameters

GE-STM1's technical properties and parameters are shown on Table 1.3-1.

Table 1.3-1 GE-STM1's technical properties and parameters

Technical characteristics	Parameters
STM-1 / OC3 Interface	Interface Standard: G.707 Fiber Optic Interface Type: FC/SC Speed rate: 155.52 Mb/s Line Code: NRZ Jitter: meet G.825 specification Support Fiber Type: G.652, G.654 Can work in TM 1 +1 mode, support for VC12 low-level channel protection.
GE Electrical Interface	Interface type: RJ-45 Interface Standard: IEEE802.3ab Supports 10/100/1000Mbps, half / full duplex, supports PAUSE function
GE Optical Interface	Interface Standard: IEEE802.3z Connector type: LC (SFP-based) Supports 1000Mbps
SNMP Network Management Interface	Interface Standard: IEEE 802.3 Connector Type: RJ45 Supports 10/100/1000M, half / full duplex
CONSOLE Interface	Interface Standard: PC serial interface

Technical characteristics		Parameters
		Connector Type: RJ45 Interface baud rate: 115200 bps
Power Supply		Input voltage: AC 220V / DC-48V Voltage fluctuations: 165VAC~265VAC 或-36VDC~-72VDC
Power Consumption		≤18W
Work Environment	Temperature	0℃~+50℃
	Humidity	10%~95%
	Atmospheric pressure	70~106kpa
Storage Temperature		-20℃~+60℃
Device Physical		430*385*43.5mm
Installation		Standard 1U chassis
Weight		Approx. 4.5kg
MTBF		MTBF≥100000h
MTTR		MTTR≤30min
Life		≥15 years

Chapter 2 Use and Operation

Brief

This chapter describes the indications of GE-STM1 optical bridge server's switches, panel lights and interfaces.

2.1 Device shape

The shape of GE-STM1 optical bridge server is shown in Figure 2.1.



Figure 2.1-1 GE-STM1 device shape

2.2 Power on/Power off

GE-STM1 has dual power modes which including DC48V and AC220V. The power switch adopts double throw switch, two power switches are located on the rear panel, as shown in Figure 2.2-1.

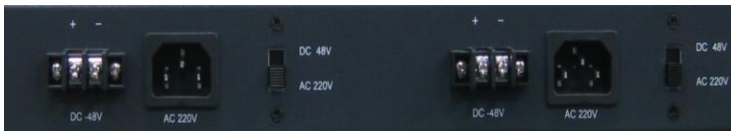


Figure 2.2-1 GE-STM1 rear panel

Only one type of power mode can be selected:

1. When DC 48V power supply is selected, switch to AC220V to power off the device and it only powers on the device after switch to DC48V. The PWR LED indicator on after power up and the SYS LED will flash for 15 seconds to indicate the equipment working well.
2. When AC220V power mode is selected, switch to DC48V will power off the device and it will power on the device after switch to AC220V. The PWR indicator will on after power on and the SYS LED will flash for 15 seconds to indicate the equipment working well.



Note:

The power must be turned off before the maintenance of GE-STM1

2.3 LED Description

There are 18 LED indicators on the front panel of GE-STM1 which is shown on Figure 2.3-1. The meaning of each indicators are shown in Table 2.3 1.



Figure 2.3-1 GE-STM1 Front Panel

Table 2.3-1 GE-STM1 LED Indicators

Num	Name	Color	LED Status	Functions
1	SYS	Yellow	on	System operating instruction
	ERR	Red	on	System Alarm Instruction
	PWR	Green	on	power supply normal
2	LOS1	Red	on	WEST STM-1 Interface signal loss alarm
	AIS1	Red	on	WEST STM-1 Interface signal loss all "1" alarm
	LOF1	Red	on	WEST STM-1 Interface loss frame alarm
3	LOS2	Red	on	EAST STM-1 Interface signal loss alarm
	AIS2	Red	on	EAST STM-1 Interface signal loss all "1" alarm
	LOF2	Red	on	WEST STM-1 Interface loss frame alarm
4	1G	Green	on	1000M Ethernet mode
			Flash	Device is transmitting data.
	100M	Green	on	100M Ethernet mode.
			flash	Device is transmitting data
	DUP	Green	on	Full duplex mode
			off	Half-duplex mode
5	1G	Green	on	1000M(1G) Ethernet mode
			flash	Device is transmitting data
	100M	Green	on	100M Ethernet mode
			flash	Device is transmitting data

Num	Name	Color	LED Status	Functions
	DUP	Green	on	Full duplex mode, off means
			off	Half-duplex mode
6	DUP	Green	on	SNMP Network Management Interface full-duplex mode,
			off	Half-duplex mode
	SPD	Green	on	100M Ethernet mode
			off	10M mode.
	ACT	Green	on	Network is established
			flash	Device transmitting data.

2.4 Interface Description

GE-STM1 power interface is located on rear panel and communication interfaces are on the front panel.

2.4.1 Power Interface

The device power supply remains main power and backup power supply.

If device is powered by AC220V, please connect to the power interface which is marked "AC220V".

If device is powered by DC48V, Please connect the power "+" "-" polarity correctly.

2.4.2 STM-1/OC3 Interface

The front panel has two SDH optical interfaces: EAST and WEST interface, as shown in Figure 2.4 1



Figure 2.4-1 GE-STM1 STM Interface

SDH optical interface provides a SC / FC interface optional.

2.4.3 GE Interface

The device front panel has two sets of Gigabit Ethernet interfaces. Each set of Ethernet interface has two electric and optical transmission interface.

1000Base-T is the electrical interface with RJ45 port;

1000Base-X is the optical interface, with SFP interface module output, as shown in Figure 2.4 2.

The orders of making gigabit cable are shown in Table 2.4-1 and Figure 2.4-3.

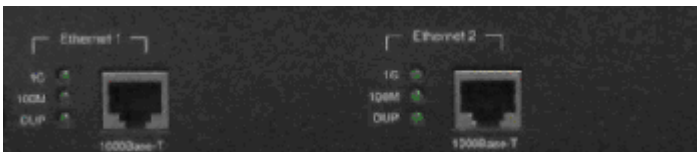


Figure 2.4-2 GE-STM1 Gigabit Ethernet interfaces

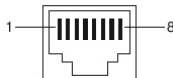


Figure 2.4-3 RJ45 Connector

Table2.4-1 Gigabit Cable Making

Num	1	2	3	4	5	6	7	8
SI DE 1	White- Orange	Ora nge	White- Green	Blu e	Whi te- Blu e	Gree n	Whi te- Bro wn	Brown
SI DE 2	White- Green	Gree n	White-O range	Whi te- Bro wn	Bro wn	Ora nge	Blu e	White- Blue

2.4.4 SNMP Management Interface

Simple Network Management Protocol (SNMP) interface is for device management through WEB. It is located on the front panel as shown in Figure 2.4 4.

SNMP cable uses RJ45 ports. Table 2.4-2 shows the orders of SNMP cable (Straight-through cable:).



Figure2.4-4 SNMP Interface

Table 0-2 SNMP Cable making

NUM	1	2	3	4	5	6	7	8
Defini tion	TXD+	TX D-	RXD+			RX D-		
Color	white-or ange	ora nge	white-g reen	bl ue	white- blue	gre en	white-b rown	bro wn

2.4.5 Console Interface

Connect one side of CONSOLE cable (RJ45) to CONSOLE port and connect another head of CONSOLE cable (DB9) to PC.
 Open HyperTerminal tool on PC and set parameters as shown on Figure 2.4-5.

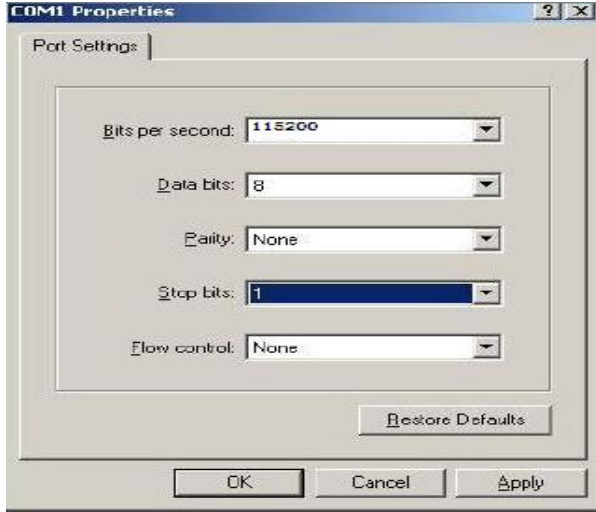


Figure 2.4-5 COM1 properties

Table 2.4-3 shows the method of Console cable making.



Figure 2.4-6 Console Interface

Table 2.4-3 Console cable making

RJ45	DB9
PIN1 (RXD)	Pin 3 (TXD)
PIN3 (TXD)	Pin 2 (RXD)
PIN4 (GND)	Pin 5 (GND)

Chapter 3 Notes

Brief

This chapter describes maintenance testing, and failure & alarm handling of the GE-STM1 optical bridge.

3.1 Maintenance Test

It can access the GE-STM1 WEB page and network management system software for routine maintenance and review the device alarm conditions.

3.2 Maintenance

Routine Maintenance includes:

Check GE-STM1's operating environment meets requirements;

Check box's moistureproof, waterproof and dustproof meet requirements;

Regular test whether all of the external interfaces have loose, protective earth changed situation.

3.3 Failure & Alarm Handling

It requires to disable the STP functions of two/three layer switch when the device is connected to it.

It should be kept 1U distance between two devices safety concern.

GE-STM1's normal device failure, failure causes and treatment methods, please see Table 3.3 1

Table 3.3-1 Common treatment of failures

Failure Phenomenon	Failure Cause	Treatment
Light is not lit after the device powered up	DC48V power connection error; AC220V power supply not plugged properly.	Properly connected in accordance with user's manual; Seated AC220V power plug.
LOS alarm after STM-1 ports are connected to fiber.	Optical transceivers are reversed; Optical channel problems.	Swap the order of optical fibers; Check the STM-1/OC3 ports.
Ethernet is connected, but 1G and 100M LED indicators are off	Wrong cable; It is not over Category 5 standard network cable; Cable is not connected to 100/1000M Switches.	Make a new line; Changes to a Category 5 standard cable; connect the cable to 100/1000M switches.
SNMP cable is connected and the light is on. But it can not open the device WEB page	The PC subnet may not the same with device;	Re-allocate the device and PC IP to ensure they are under the same subnet;

Appendix A: Packaging, Transportation and Storage

Brief

This chapter describes GE-STM1's intelligent packaging, transportation and storage.

Packaging

The box is come with shockproof foam within a moisture-proof plastic bag.

Product packaging should ensure that products are not damaged in the transportation and storage process and it should moisture and rain free.

Transportation

Products should be transported in packaging intact manner, if it is necessary, packages should be covered with canvas to prevent moisture and rain during transport.

Stacked on the truck should be neat and orderly, compact, reasonable, safe and reliable, It should capable to prevent products damaging caused by shaking during the transportation.

Flammable, explosive, corrosive items are not allowed during transportation. The product components are not allowed to contact with rain, snow or liquid or any mechanical damage.

Storage

Storage temperature $-20\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$.

Storage period should not be exceeded over one year.

Device warehouse is recommended to have air-conditioning and lighting equipments. It also should have moistureproof, dustproof, shockproof, anti-corrosion measures.

Product components should be placed within the original package.

Appendix B: Warranty Card

The Company guarantees:

1、 Warranty

- (1) In free warranty period (12 months from the date of purchase), upon Company recognized normal use circumstances, the Company will responsible for replace or repair any component that was damaged under free of charge.
- (2) In charged warranty(out of 12 months free warranty and beyond or less than 36 months), under recognized normal use circumstances, the Company will charge for the replacement component, but shall keep the maintenance services free.

2、 The Warranty does not cover the follows, and the maintenance services will be charged:

- (1) Over 36 months from the date of purchase.
- (2) User fails to provide certificate of purchase date and the product ' s serial number indicates the date of manufacture is more than 39 months.
- (3) Including but not limited to damages caused by severe impact, extrusion, drops, liquid immersion and other abnormal conditions.
- (4) The frangibility label is damaged.
- (5) Unauthorized disassembling product behavior.
- (6) Force majeure results in product damage, such as earthquakes, floods, lightning, etc.

3、 After product been repaired, the new replacement parts will

enjoy 12 months free warranty start from the date of replacement.

- 4、 If there is any failure of the product, user may choose to send the product back to the Company or mail the product to service agencies of the Company throughout the country.
- 5、 For any damage caused due to improper operations, the company does not assume any responsibility. If indeed the product itself causes damages, the company only assume responsibilities within the product price range and does not including but not limited to all direct or indirect losses caused by data loss

Product repair and maintenance records

Name: GE-STM1		Device serial number:
Maintenance Date		Service bill number
1		
2		
3		
4		
5		