Copper to Fiber

Stand-Alone Media Converter

User Manual

Part No.	Model No.	Description
531404	GVT-4000	10/100/1000Base-T to SFP mini-GBIC
531402	GVT-4001	10/100/1000Base-T to 1000SX SC, Multi-mode 550m

Content

Introduce

- **The Giga Fiber Converter** has two types of module package; one is stand alone converter module. And another one is mounted in converter chassis converter module.

- **The Giga Fiber Converter** is a cost- effective solution for the converting 10/100/1000Base-Tx (Auto MDI/MDIX) and pure 1000 Base-T to 1000Base-SX/ SFP.   It can be slotted in Multi-Converter Chassis on up to 10 optional modular converter units, which allows your network connectivity to be more flexible. It also can use stand-alone without slot in Multi-Converter Chassis.

- **The Giga Fiber Converter** will allow you to extend the cabling distance of your 10/100/1000BaseTX (Auto MDI/MDIX) or pure 1000 Base-T network up to 550m for multi-mode fiber or 80 kilometers for single-mode fiber. The Giga Fiber Converter gives you the option to choose from the most popular fiber cabling connectors: SC multi- mode fiber connector   The Modular Giga Fiber Converters provides you with one Fiber connector for your fiber optic cable and one Ethernet RJ-45 port (Auto MDI/MDIX) for your 10/100/1000BaseTX copper cable or pure 1000 Base-T copper cable connection. There are DIP- switches to set the operation mode for UTP, Fiber ports and link loss forwarding function.

Features

Standard	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BaseT, IEEE 802.3z 1000BaseSX/LX standards IEEE 802.3x Flow Control and Back pressure
LED Indicators	**Power** (Green) **UTP SPD**: 1000Mbps /100Mbps **Lnk/Act**: UTP /FIBER **FDX**: UTP: Full-Duplex mode / Half-Duplex or Link down FIBER: Full-Duplex mode / Link down
Connector	**Fiber**: Duplex SC/MINI GBIC 3.3V/ WDM **RJ-45** Socket: CAT-5e (10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support

Fiber parameters	**Fiber Core**: Multi-Mode (62.5/125um, 50/125um)
	      Single-Mode (9/125um)
	
	Wavelength: 850nm(Multi-mode),
	      1310nm(Single-mode)/1310nm(WDM, TX)
	      1550nm(WDM, RX)
	
	Fiber Distance: 550M (Multi-Mode Fiber)
	      80 KM (Single-Mode Fiber)
	      WDM (Single-mode) 10KM, 20KM

Link Loss Forward	**Copper➔Fiber**: If copper port link down, then media converter will forced fiber to link down. **Fiber➔Copper**: If Fiber port link down, the media converter will forced copper port to link down.

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Switch architecture	Store and Forward
Jumbo Frame	16Kbyte(Pure converter mode)/ 2Kbyte(Switch converter mode)
Power	Stand-alone (external adapter):DC 9V / 0.7A
Power Consumption	4.3 Watts(max)
Operating Temperature	O℃ to 45℃ (32℉ to 113℉)
Operating Humidity	10% to 90%
Storage environment	-40℃~70℃
Storage Humidity	10% to 90%
Dimensions	120mm x 85mm x 26mm
EMI	FCC Class A, CE

Package Contents

Beware of which type of converter module that you have purchased. And, please refer to the package content list below to verify them against the checklist.

- ◼ Stand-alone converter module package contains following items.
  - ➢ The Giga Fiber Converter (GVT-4000 or GVT-4001)
  - ➢ AC-DC Power Adapter
  - ➢ User Guide

Compare the contents of your Converter with the standard checklist above. If any item is damaged or missing, please contact your local dealer for service.
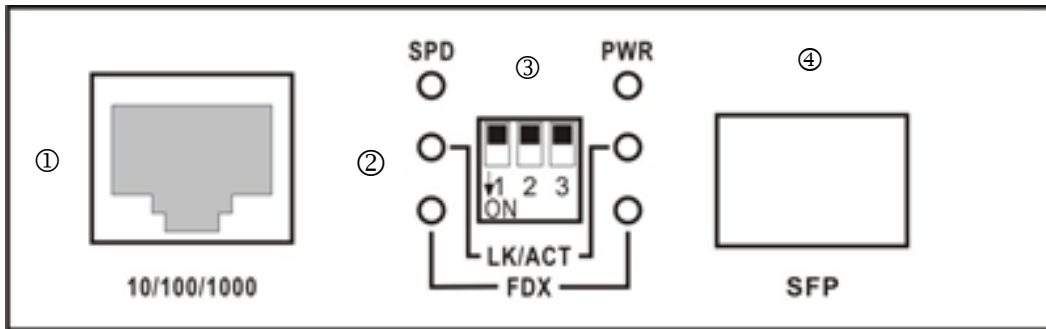
Hardware Description

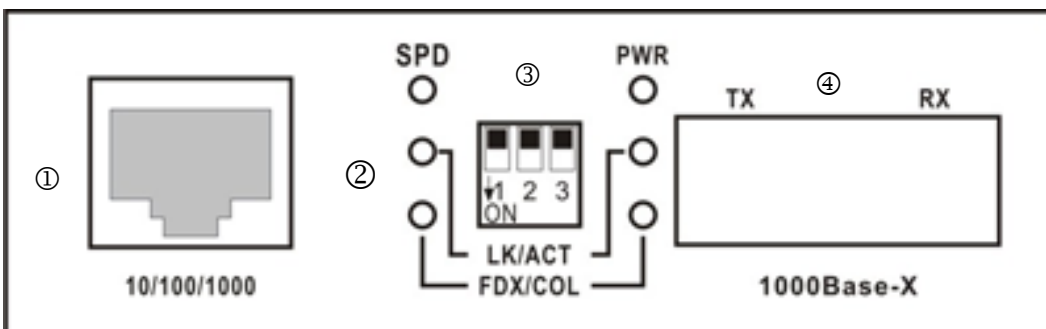The Giga Fiber Converter dimension (L x W x H): 120mm x 85mm x 26mm
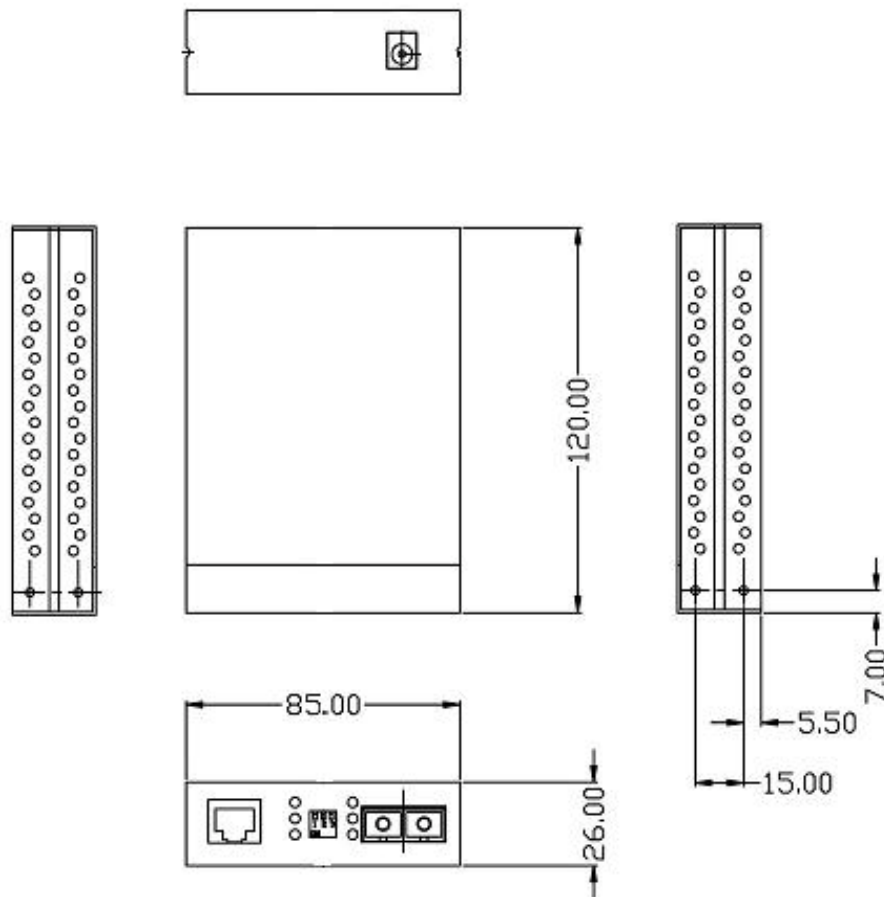
Front Panel

- **10/100/1000Base-T to 1000Base-LX/SX converter module**
- The Front Panel of the **10/100/1000Base-T to 1000Base-LX/SX converter module** consists of one Giga Fiber port, one copper Port (Auto MDI/MDIX), and 6 LED Indicators (SPD, LK/ACT, FDX, Fiber LK/ACT, FDX/COL, and PWR).

GVT-4000

GVT-4001

(1) RJ-45 Port   (3) DIP-Switch

(2) LED   (4) Fiber Connector

Rear Panel

The rear panel contains a power socket. This power socket accepts DC9V voltage and minimum 0.7A supplied current.

Ports

■ **Copper Port (Auto MDI/MDIX) of 10/100/1000Base-T to 1000Base-LX/SX converter module:** The Ethernet ports will auto-sense for 10Base-T, 100Base-TX, or 1000Base-T connections. Auto MDI/MDIX means that you can connect to another Switch or workstation without changing non-crossover or crossover cabling.

■ **Fiber Port:** This port is for 1000Base-SX with SC connections.

LED Indicators

There are 6 diagnostic LEDs located on the Front panel of converter module. They provide real-time information of system and optional status. The following table provides description of the LED status and their meanings for Modular Giga Fiber Converter.

■ **10/100/1000Base-T to 1000Base-LX/SX converter module**

LED	Status	Meaning
PWR	Green	Power on
SPD	Green	1000Mbps UTP Speed
	Amber	100Mbps UTP Speed
	OFF	10Mbps UTP Speed
LNK/ACT (UTP)	Green	Link up
	Blinks	Transmitting
	Off	Link down

FDX (UTP)	Amber	Full-duplex mode
	Off	Half-duplex mode or link down
LNK/ACT (Fiber)	Green	Link up
	Blinks	Transmitting
	Off	Link down
FDX/COL (Fiber)	Amber	Full-duplex mode
	Off	Link down

DIP-switch

The DIP-switch is used to configure operation mode for LLF (**Link Loss Forwarding)** and operation mode for Copper/Fiber port. The default value of Dipswitch is **OFF**.

- ■ **10/100/1000Base-T to 1000Base-LX/SX converter module**

S/W No	Status	Description
1	ON	LLF Enable
	OFF	LLF Disable
2	ON	Pure converter mode
	OFF	Switch converter mode
3	ON	Reserved
	OFF	Reserved

Link Loss Forwarding: When LLF is enabled, it will allow copper port link failure to be reported to the Fiber side and also allow Fiber link failure to be reported to the copper side. Therefore, a link loss forward feature is provided in both copper and Fiber side.

Pure Converter mode: When pure converter mode is enabling (on), it operates with the minimum latency. The transmission flow does not wait until entire frame is ready,

but instead it forwards the received data immediately after the data being received. And TP port should be forced at 1000M in this application. When DIP-Switch is in Switch Converter mode (off), the converter function is same as Switch Hub.

[Note]

a) Please don't change the DIP-switch setting when copper or fiber port is transmitting or receiving data. It may cause some data error.

b) Please power off then power on when you change the DIP-switch setting.

Converters module Installation

This installation is only for mounted in converter chassis converter module. You can follow the steps below to install modular converters.

A. Remove the blank bracket by rotating thumbscrew counterclockwise. Put the blank bracket aside, but don't discard blanket bracket.

B. Open the rack mount ear kit. The kit contains two-rack mount ear (with thumbscrew) and four screws.

C. Attach rack mount ear on both sides of the modular converter by using a screwdriver to secure the rack mount ears.
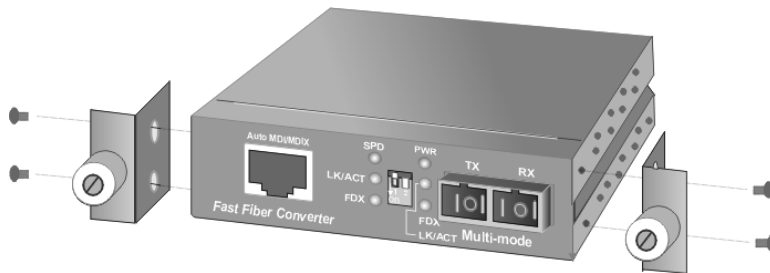
D. Install the modular converter by inserting it into the guides and sliding it in until it stops. Press it firmly until the power plug in the chassis plugs into the modular converter receptacle. Slide the modular converter in smoothly.
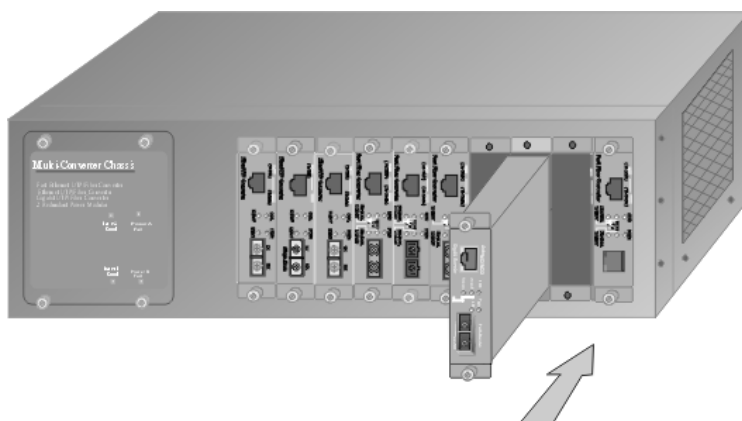
E. Gently push the thumbscrews in and turn clockwise to tighten. Do not over tighten the thumbscrews.

Cabling

- Using four twisted-pair, Category 5e cabling for copper port connection. The cable between the converter and the link partner (switch, hub, workstation, etc.) must be less than 100 meters (328 ft.) long.

- Fiber segment using **single-mode** connector type must use 9/125 µm single-mode fiber cable. You can connect two devices in the distance of **10 Kilometers** in full duplex operation. For half-duplex operation, the recommended maximum distance is 412 meters (1,352 ft.)

- Fiber segment using **multi-mode** connector type must use 50 or 62.5/125 um multi-mode fiber cable. You can connect two devices up to **550m** distances.

Troubles shooting

- Check the configuration DIP-switch. It must be setting in the same operation mode with the link partner.
- Select the proper Copper/Fiber cable to construct your network. The single-mode converter must use single-mode fiber cable. Please check that you are using the right cable.
- Don't both use multi-mode and single mode.
- Link loss Forwarding problem :
  When using a mixture of GVT-4000 / 4001 Hardware versions 1 and 2, please note the differences in the dip switches.
  (1) GVT-4000/4001 Hardware version 1

S/W No	Status	Description
1	ON	Fiber in 1000Mbps Full Duplex
1	OFF	Fiber Auto-Negotiation
2	ON	UTP LLF Enable
2	OFF	UTP LLF Disable
3	ON	Fiber LLF Enable
3	OFF	Fiber LLF Disable

(2) GVT-4000/4001 Hardware version 2

S/W No	Status	Description
1	ON	LLF Enable
1	OFF	LLF Disable
2	ON	Pure converter mode
2	OFF	Switch converter mode
3	ON	Reserved
3	OFF	Reserved

For GVT-4000 / 4001 Hardware version 1, please ensure that either dip 2, or dip 3 are set to ON, and not both at the same time.