level one

FVT-5001 / FVT-5301 / GVT-5000

Copper to Fiber
Media Converter Module

User Manual

Part No.	Model No.	Description
532502	FVT-5001	10/100Base-TX to 100Base-FX SC, Multi-mode 2km (TS-1000)
532530	FVT-5301	10/100Base-TX to 100Base-FX SC, Single-mode 30km (TS-1000)
532500	GVT-5000	1000BaseT to SFP mini-GBIC Converter Module

FCC Warning

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

CE Mark Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Table of Contents

1.   Introduction

These converter modules are for FVT-5000 16 slot Converter Chassis with TS-1000 supported. By this converter module, user can get higher bandwidth from your network infrastructure and extend network available link distance by fiber cable

1.1.   Fast Ethernet Expansion Module

- Comply with IEEE 802.3, 802.3u standards
- Convert between UTP cabling and Fiber-optic cabling
- One RJ-45 connector, Auto-MDI/MDIX for UTP port
- Support 10/100 Mbps Auto-negotiation for UTP port
- Support TS-1000, Loop Back Test
- Built in Link Lose Forwarding Technology
- Remote Monitor/Control for Terminal side
- Hot swappable

1.2.   Gigabit Expansion Module

- Comply with IEEE 802.3, 802.3u, 802.3ab, 802.3z standards
- Convert between UTP cabling and Fiber-optic cabling
- One SFP slot for mini-GBIC module
- One RJ-45 connector, Auto-MDI/MDIX for UTP port
- Support 10/100/1000 Mbps Auto-negotiation for UTP port
- Built in Link Lose Forwarding Technology
- Remote Monitor/Control for Terminal side
- Hot swappable

Note:
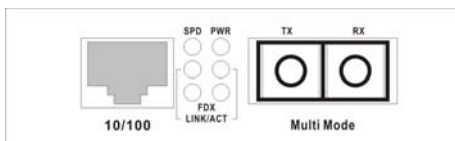Gigabit Module does not support TS-1000

1.3. Package Contents
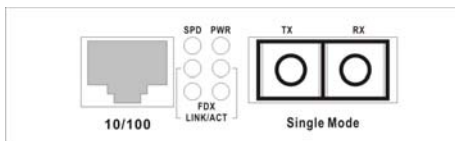
- Media Converter Module
- User manual

If any item is damaged or missing, please contact your local dealer for service.
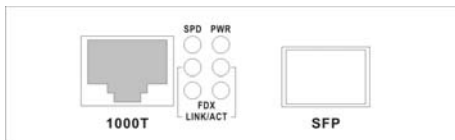
2. Hardware Description

2.1. Front Panel

FVT-5001

FVT-5301

GVT-5000

2.2. Fast Ethernet LED Indicators

LED	Status	Meaning
PWR	Green	Power on
SPD (UTP)	Green	Link on 100Mbps Speed
	OFF	Link on 10Mbps Speed
LK/ACT (UTP)	Green	The unit is linking with it's link partner.
	Blinks	The unit is transmitting or receiving packets
	Off	No device attached
LK/ACT (Fiber)	Green	The unit is linking with it's link partner.
	Blinks	The unit is transmitting or receiving packets
	Off	No device attached
FDX/COL (UTP)	Orange	The UTP port is operating in full-duplex mode.
	Blinks	Collision of Packets occurs in the port.
	Off	Half-duplex mode or no device attached
FDX/COL (Fiber)	Orange	The fiber port is operating in full-duplex mode.
	Blinks	Collision of Packets occurs in the port.
	Off	Half-duplex mode or no device attached

Link Lost Forwarding:
When LLF is enable, allow UTP link failures to be reported to the fiber side and also allow Fiber link failure to be reported to the UTP side. Therefore, A link loss forward feature is provided in both UTP and Fiber side.

2.3. Gigabit LED Indicators

LED	Status	Meaning
PWR	Green	Power on
SPD (UTP)	Green	Link on 1000Mbps Speed
	Orange	Link on 100Mbps Speed
	OFF	Link on 10Mbps Speed
LK/ACT (UTP)	Green	The unit is linking with it's link partner.
	Blinks	The unit is transmitting or receiving packets
	Off	No device attached
LK/ACT (Fiber)	Green	The unit is linking with it's link partner.
	Blinks	The unit is transmitting or receiving packets
	Off	No device attached
FDX/COL (UTP)	Orange	The UTP port is operating in full-duplex mode.
	Blinks	Collision of Packets occurs in the port.
	Off	Half-duplex mode or no device attached
FDX/COL (Fiber)	Orange	The fiber port is operating in full-duplex mode.
	Blinks	Collision of Packets occurs in the port.
	Off	Half-duplex mode or no device attached

3.   Installation

3.1.   Chassis

This installation is only for mounting in converter chassis converter module. You can follow the steps below to install modular converters.
Remove the module slot cover from the converter chassis.
Install the modular converter by inserting it into the guides and sliding it in, and then, press it firmly until the power plug in the chassis plugs into the modular converter receptacle property.
Push the thumbscrews in and turn clockwise to tighten.
Do not over tighten the thumbscrews.

Front Panel with all modules installed

3.2. Fiber

For the Fast Ethernet Fiber Port: We provide SC connectors
(multi/single mode). Please follow the below figure to connect it.
Wrong connection will cause the port cannot work properly.

SC Connector

Cable Wiring(SC to SC)

Tx A ————————— A Rx
Tx B ————————— B Rx
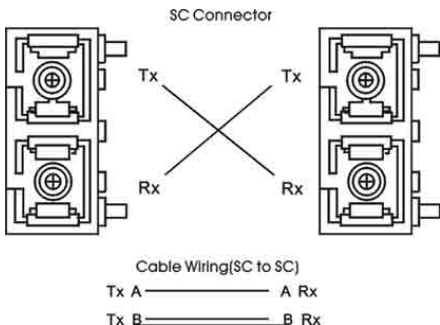
| ATTENTION | This is a Class 1 Laser/LED product
Do not stare into the Laser/LED beam |

4.   Specification

4.1.   Optical Fiber

Model No.	Wavelength (nm)	Avg. Launch Power (dB)	Avg. Sensitivity (dB)
FVT-5001 SC, Multi-mode	1310 (nm)	-18 (dB)	-30 (dB)
FVT-5301 SC, Single-mode	1310 (nm)	-6 (dB)	-34 (dB)

Model No.	Avg. Power Loss Budget (dBm)	Max. FDX Fiber Distance (Km)	Fiber Size (um)
FVT-5001 SC, Multi-mode	12 (dBm)	2 (Km)	62.5/125 50/125
FVT-5301 SC, Single-mode	28 (dBm)	30(Km)	10/125 8/125

4.2.   Optional SFP Modules

GVT-5000 supports 3.3V mini-GBIC module

Part No.	Model No.	Description
570622	GVT-0300	Mini-GBIC SFP transceiver Multi-Mode, 550m
551071	GVT-0301	Mini-GBIC SFP transceiver Single-Mode, 10km
551072	GVT-0302	Mini-GBIC SFP transceiver Single-Mode, 70km

4.3. Technical Specification

Fast Ethernet Module

Standard	IEEE802.3 10Base-T IEEE802.3u 100Base-TX/100Base-FX IEEE802.3x Flow Control and Back pressure TS-1000 Supported
Connector	Fiber: Duplex SC RJ-45 Socket: 10/100Mbps Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation
Switch architecture	Store and Forward

Fiber parameters	Fiber Core: Multi-Mode (62.5/125um, 50/125um)
	                 Single-Mode (8/125um, 10/125um)
	Wavelength: 1310nm(Multi-mode)
	                 1310nm(Single-mode)
	Fiber Distance: Multi-Mode Fiber 2KM
	                 Single-Mode Fiber 30KM

Transparent packet	68 to 1522Bytes

Link Lost Forward	UTP➔Fiber: If UTP port link down, then converter will
	                 forced fiber to link down.
	Fiber ➔ UTP: If Fiber port link down, the media converter
	                 will force UTP port to link down.

LED	Power, UTP (SPD, LK/ACT, FDX/COL) Fiber (LK/ACT, FDX/COL)
Operation Temp.	0℃ to 45℃ (32℉ to 113℉)
Storage Temp.	-10℃ to 70℃
Operation Humidity	10% to 90% (Non-condensing)
EMI & safety	CE, FCC Class A

Gigabit Ethernet Module

Standard	IEEE802.3ab 1000Base-T IEEE802.3z 1000Base-SX/LX IEEE802.3x Flow Control and Back pressure
Connector	Fiber: SFP Slot, 3.3V RJ-45 Socket: 10/100/1000Mbps Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation
Switch architecture	Store and Forward
Fiber parameters	Fiber Core: Multi-Mode (62.5/125um, 50/125um) Single-Mode (8/125um, 10/125um) Wavelength: 850nm(Multi-mode) 1310nm(Single-mode) Fiber Distance: Depend on mini-GBIC transceiver type
Transparent packet	68 to 1522Bytes
LED	Power, UTP (SPD, LK/ACT, FDX/COL) Fiber (LK/ACT, FDX/COL)
Operation Temp.	0℃ to 45℃ (32℉ to 113℉)
Storage Temp.	-10℃ to 70℃
Operation Humidity	10% to 90% (Non-condensing)
EMI & safety	CE, FCC Class A