A Network Systems Solution

UNICOM™

For full coverage of your warranty, be sure to register your product using the enclosed registration card.

VELOCITY series

10/100/1000Base-T
1000Base-SX/LX
Gigabit Ethernet Converter

GEP-5300TF-C   1000Base-T/SX (SC/MM/550m)
GEP-5400TF-C   1000Base-T/LX (SC/SM/10km)

Rev. 2.0

A Network Systems Solution

UNICOM™

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USER'S MANUAL

Package Contents

Package contents include the following:

- 10/100/1000Base-T to 1000Base-SX/LX Converter (Multi-Mode or Single Mode)
- DC Power Adapter
- User's Manual
- Rack Mount Brackets
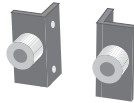- Warranty card (not shown)

| **Gigabit Converter** | **User's Manual** | **Power Adapter** | **Rack Mount Brackets** |

(Multi-Mode or Single Mode)

IMPORTANT: If any piece is missing or damaged, please contact your local dealer or reseller for service.

For Your Records

Product Name: _____

_____

Serial Number: _____

Date of Purchase: _____

Purchased from: _____

Notes: _____

_____

_____

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Product Specifications

Standard Compliance:	IEEE 802.3 10/100/1000Base-T Gigabit Ethernet
	IEEE 802.3 1000Base-SX/LX Gigabit Ethernet
Protocol:	CSMA/CD
Interface:	(1) 10/100/1000Base-T, Shielded RJ-45 Jack
	(1) 1000Base-SX/LX, Dual SC connector
Cable distance:	10/100/1000Base-T
	Cat. 5e or 6: up to 100m.
	1000Base-SX: Multi-mode fiber
	50/125µm (550m)
	62.5/125µm (550m)
	1000Base-LX: Single Mode fiber
	9/125µm (10Km)
LED Indicators:	Power, Speed, Link/Activity (copper and fiber),
	Full-Duplex (copper), Full-Duplex/collision (fiber)
Power Supply:	External power adapter 9V DC/700mA (min.)
Operating Temperature:	0˚C to 45˚C
Operating Humidity:	10% - 90% RH
EMI:	FCC Class A, CE Mark
Enclosure:	Metal
Dimensions:	120mm x 85mm x 26mm (L x W x H)
Warranty:	Limited Lifetime

FCC Statement

This equipment has been tested and found to comply with the limits for a class B device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at the user's expense.

Introduction

Congratulations on purchasing a quality UNICOM product.

Unicom's *VELOCITY Series* represents the newest, most advanced generation of signal conversion technology.

Unicom's Giga Fiber Converter is a cost- effective solution for the conversion of 10/100/1000Base-T (Auto MDI/MDIX) and pure 1000 Base-T to 1000Base-SX/LX cabling. It can be slotted into a multi-converter chassis that enhances your network flexibility. It can also be used as a stand-alone converter.

The Giga Fiber Converter will allow you to extend the cabling distance of your 10/100/1000Base-T (Auto MDI/MDIX) or pure 1000 Base-T network up to 550m for multi-mode fiber or 10 kilometers for single-mode fiber. This Converter uses the most popular fiber cabling connectors: SC multi- mode fiber connector and SC single-mode fiber connector.

The Modular Giga Fiber Converters provides one Fiber connector for fiber optic cable and one Ethernet RJ-45 port (Auto MDI/MDIX) for 10/100/1000Base-T copper cable or pure 1000 Base-T copper cable connections. There are DIP- switches to set the operation mode for UTP, Fiber ports and link lost forwarding function.

Key Features

Standards: 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 / 10Mbps
Lnk/Act: UTP /FIBER
FDX: UTP: Full-Duplex mode / Half-Duplex or Link down
FIBER: Full-Duplex mode / Link down

Connector: *Fiber:* Duplex SC
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)

Fiber Distance: 550m (Multi-Mode Fiber)
10km (Single-Mode Fiber)

Link Loss Forward:

Copper to Fiber: If copper port link down, then media
converter will forced fiber to link down.

Fiber to Copper: If Fiber port link down, the media
converter will forced copper port to link down.

Cabling

- Twisted-pair segments can be Unshielded Twisted Pair (UTP) or Shielded Twisted Pair (STP) cabling. The cable must comply with the IEEE 802.3 10/100/1000Base-T standard for Category 5e/6. The cable between the converter and the link partner (switch, hub, workstation, etc.) must be 100 meters (328 ft.) or less in length.

- Fiber segments using **Single Mode** connectors must use 9/125µm Single Mode fiber cable. The maximum link distance in full duplex operation is 10 Kilometers (6.2 miles). The maximum link distance in half duplex operation is 412 meters (1352 ft).

- The maximum distance of fiber segments using **Multi-Mode** connectors measures 550 meters (1804 ft.) with 50/125µm or 62.5/125µm Multi-Mode fiber cable.

Network Connection

A. Select the appropriate length Category 5e or 6 twisted pair cable. Connect one end of the twisted pair cable to the RJ-45 connector on the converter and the other end of twisted pair cable to the RJ-45 connector on any 10/100/1000Base-T device.

B. Connect one end of a fiber jumper to the SC connector on this converter and the other end of the fiber jumper to the SC connector on the other 1000Base-SX/LX device.

C. Attach the power adapter DC jack to the converter. Verify that the Power LED is on.

D. Verify that the UTP "LK/ACT" LEDs light when cable connection is installed correctly. Verify that Fiber "LK/ACT" LED blinks to indicate network activity.

Troubleshooting

- Verify that you are using the right power adapter, DC 5V, 2A (minimum). Using a power adapter with DC output greater than 5V could result in damage to the unit and/or personal injury.

- Confirm the proper UTP/Fiber cable is being used. The Single Mode converter must use Single Mode fiber optic cable.

Installing Converters into Chassis

Follow the steps below to install modular converters into the 10 space Converter Chassis (pn: FEP-593110).

A. Remove the blank bracket from the chassis by rotating screw counterclockwise. Put the blank bracket aside.

B. Open the rack mount bracket kit. The kit contains two rack mount brackets and four screws.

C. Use a screwdriver to attach the rack mount ears to both sides of the modular converter.
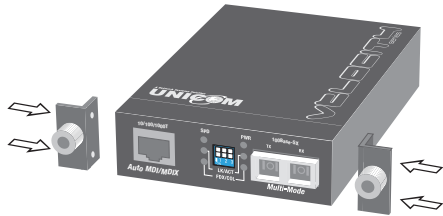
D. Install the modular converter by inserting it into the chassis guides and sliding it in until it stops. Press it firmly to seat the chassis power plug into the modular converter receptacle.
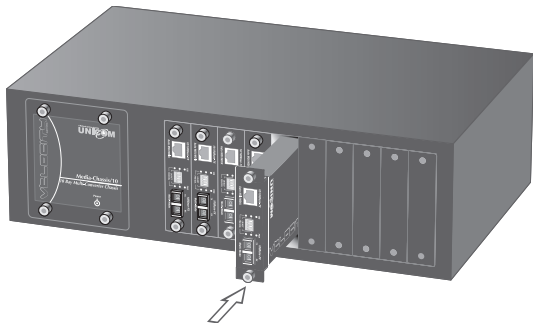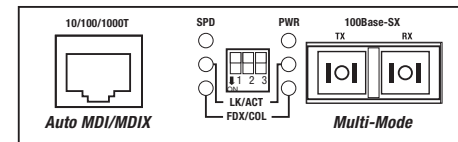

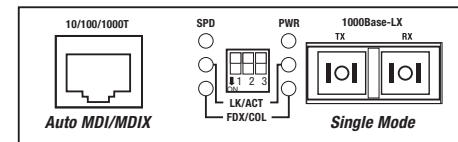E. Gently push the thumbscrews in and turn clockwise to tighten. *Do not over tighten.*

Hardware Description
The Front Panel

The Front Panel of the 10/100/1000T to 1000SX/LX converters consists of one RJ-45 Port (Auto MDI/MDIX) one fiber 1000Base-SX/LX Port and 6 LED Indicators (SPD, LK/ACT, FDX, Fiber LK/ACT, FDX/COL and PWR).

GEP-5300TF-C   550m

GEP-5400TF-C   10km

Ports

• **Copper Port:** RJ-45 Port (Auto MDI/MDIX), the Ethernet RJ-45 will features Auto-Sensing for 10/100/1000Base-T connections and Auto MDI/MDIX which is basically an auto crossover feature. This means you can connect to another Switch or workstation without changing to a crossover cable.

• **Fiber Port:** This port is for the 1000Base-SX/LX connection and is available in the SC format in Multi- and Single mode.This fiber port does not support auto-negotiation.

The Rear Panel

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

LED Indicators

There are six diagnostic LEDs located on the front panel of these converters. The LEDs provide real-time information on system status. The indicators include SPD, LK/ACT, FDX, Fiber LK/ACT, FDX/COL and PWR. The following table provides describes these LEDs:

LED	Status	Color	Description
PWR	On	Green	• The converter is supplied with suitable power.
SPD (speed)	On On	Green Amber Off	• Current UTP Speed is **1000**Mbps • Current UTP Speed is **100**Mbps - • Current UTP Speed is **10**Mbps
LK/ACT (UTP)	On Blinking Off	Green - -	• Unit is connected with a link • Unit is transmitting data • No device attached
FDX (UTP)	On Off	Orange -	• The UTP port is in full-duplex mode. • Half-duplex mode/no device attached
LK/ACT (Fiber)	On Blinking Off	Green - -	• Unit is connected with a link • Unit is transmitting data • No device attached
FDX/COL (Fiber)	On Off	Amber -	• The UTP port is in full-duplex mode • No device attached

DIP Switch Description

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

10/100/1000Base-T to 1000Base-FX converter module

No.	Status	Description
1	Off On	LLF enabled LLF disabled
2	Off On	Switch Coverter Mode Pure Converter Mode
3	Off On	Reserved Reserved

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

Pure Converter mode: When Pure Converter mode is enabled (ON), the switch operates with the minimum latency. The transmission flow does not wait until an entire frame is ready but instead forwards the received data immediately after being received. The TP should be forced at 1000M in this application.

When the DIP-Switch is in Switch Converter mode (OFF), the converter function is the same as a Switch Hub.

[Note]
1) Do not change the DIP-switch setting when the copper or fiber port is transmitting or receiving data. It may cause data error.
2) Power off, then power on when changing the DIP-switch setting.

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