

**1000Base-X to 10/100/1000Base-T  
802.3at PoE Media Converter**

GTP-802 / GTP-802S / GTP-805A

User's Manual

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## **FCC Warning**

This equipment has been tested and found to comply with the regulations 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to 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 his own expense.

## **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.

## **Energy Saving Note of the Device**

This power required device does not support Standby mode operation.

For energy saving, please remove the DC-plug to disconnect the device from the power circuit.

Without removing the DC-plug, the device will still consume power from the power source. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to remove the DC-plug for the device if this device is not intended to be active.

## WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

## Revision

PLANET 1000Base-X to 10/100/1000Base-T 802.3at PoE+ Media Converter User's Manual

For Models: GTP-802 / GTP-802S / GTP-805A

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## 1. Overview

Thank you for purchasing PLANET GTP-80X family 1000Base-X Fiber-optic to 10/100/1000Mbps Ethernet Twisted pair 802.3at PoE Bridge Converter. This converter is used to convert one type media signal to other type equivalent that allows two type segments connect easily, efficiently and inexpensively. The converter provides Power over Ethernet power injector function which is able to drive one IEEE 802.3at / 802.3af compliant powered devices.

### About the Power over Ethernet Injector

The GTP-80X is an IEEE 802.3at / 802.3af Power over Ethernet Injector that provide DC 52V over Ethernet cables. To inserts DC Voltage into Cat.5 / 5e / 6 cables, allowing the cable between the Injector (GTP-80X) and PoE PD (Powered Device) to transfer data and power simultaneously. The maximum distance between the Injector (GTP-80X) and PoE PD is 100 meters. The GTP-80X is combines the Ethernet digital data with power over the twisted pair cables as an IEEE 802.3at / 802.3af Power over Ethernet Injector. And using the Power over Ethernet splitter, it can separate the digital data and the power into two outputs.

The benefits of PLANET GTP-80X are like cost saving, easy for networking planning and higher reliability. What's more, upon any IEEE 802.3at / 802.3af devices installed, the GTP-80X or PD all can make the connection while migrating and the Ethernet digital packets, such as connecting the GTP-80X to an IEEE 802.3at / 802.3af complied devices, wireless AP or IP Camera.

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## 2. Model List

Your 802.3at PoE Media Converter comes with three of the following models.

- **GTP-802:**

Multi-Mode SC interface fiber connector, up to 550m

- **GTP-802S:**

Single Mode SC interface fiber connector, up to 10km

- **GTP-805A:**

Multi / Single Mode LC interface connector, distance is vary on SFP module

In the following sections, the term "**GTP-80X**" indicates the product family above.

### 3. Checklist

Your GTP-80X box should contain the following items:

- 1000Base-X to 10/100/1000Base-T 802.3at PoE Media Converter x 1
- User's Manual x 1
- AC-DC Adapter (Input: 52V~56V DC, 0.58A max.) x 1
- Power Cord x 1

If any of these are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original packing material, and use them against to repack the product in case there is a need to return it to us for repair.



Note

GTP-805A is with one vacant SFP module slot. The mini GBIC SFP module is not bundled with in the package.

## 4. Product Outlook

### Overview

The layout of GTP-802 is the same as for GTP-802S

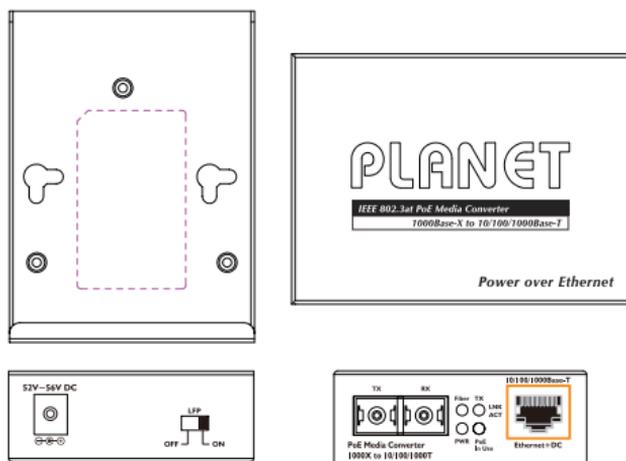


Figure 4-1: Product Outlook of GTP-802/GTP-802S

The layout of GTP-805A

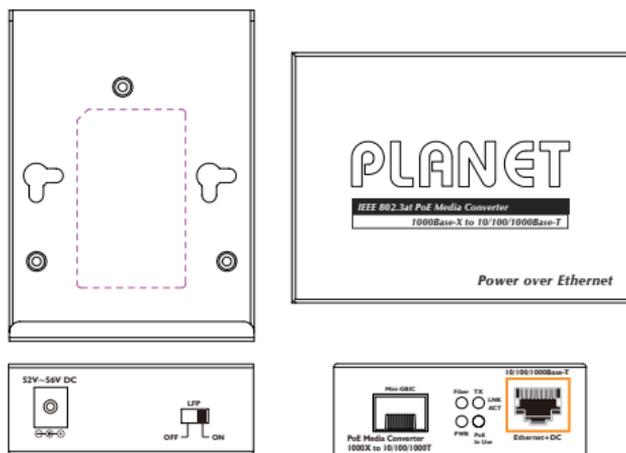


Figure 4-2: Product Outlook of GTP-805A

## Left View

There are one RJ-45 Twisted-Pair jack (Auto-MDI/MDI-X), one fiber-optic connector (vary by model) and four LED indicators.

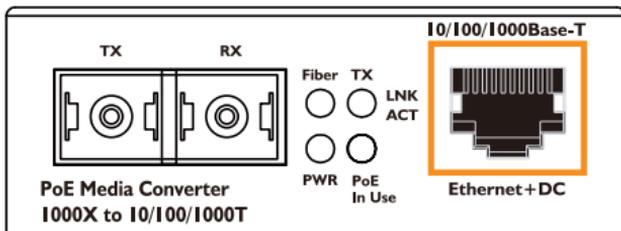


Figure 4-3: Left View of GTP-802 / GTP-802S

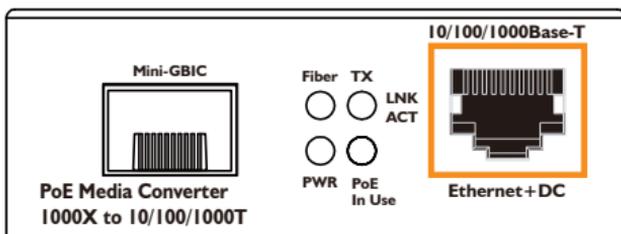


Figure 4-4: Left View of GTP-805A

## Right View

One DIP switch for Link Fault Pass Through (LFP) feature, "ON" to turn-on the LLCF and LLR detection. And "OFF" to turn off this feature. Please refer to the following sections for more. Also one DC 52V ~ 56V power socket for the PoE+ Media Converter.

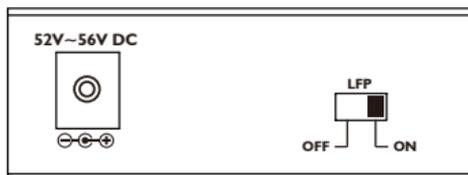


Figure 4-5: Right View of GTP-80X

## 5. Link Fault Pass Through (LFP)

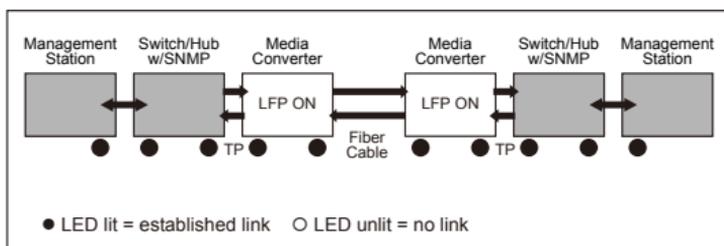
The LFP function includes the Link Fault Pass Through function (LLCF/LLR) and the DIP Switch design. LLCF/LLR can immediately alarm administrators the problem of the link media and provide efficient solution to monitor the net. The DIP Switch provides disable or enable the LFP function.

LLCF (Link Loss Carry Forward) means when a device connected to the converter and the TP line loss the link, the converter's fiber will disconnect the link of transmit. LLR (Link Loss Return) means when a device connected to the converter and the fiber line loss the link, the converter's fiber will disconnect the link of transmit. Both can immediately alarm administrators the problem of the link media and provide efficient solution to monitor the net.

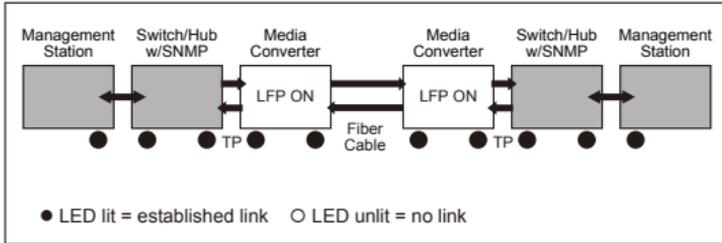
### Link Loss Carry Forward (LLCF)

GTP-80X incorporates an LLCF function for troubleshooting a remote connection. When LFP function is enabled, the FL / TP ports do not transmit a link signal until they receive a link signal from the opposite port.

The diagram below shows a typical network configuration with a good link status using GTP-80X for remote connectivity.



If the connection breaks, GTP-80X that link loss forward to the Switch / Hub that generates a trap to the management station. The administrator can then determine the source of the problem.



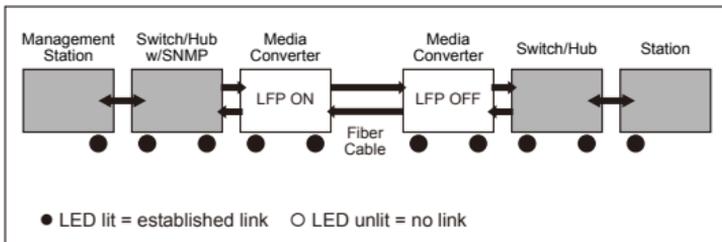
\*Units are shipped with the LFP function disable (OFF).

## Link Loss Return (LLR)

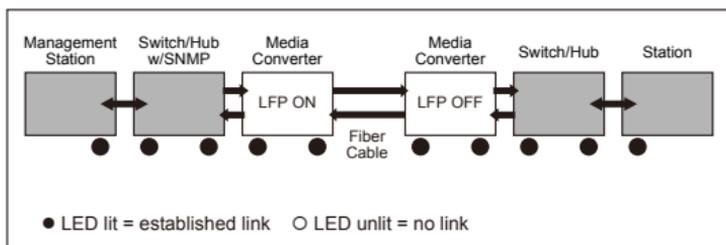
The fiber ports of GTP-80X have been designed with an LLR function for troubleshooting a remote connection. LLR works in conjunction with LLCF.

When LFP function is enabled, the port's transmitter shuts down when its receiver fails to detect a valid receive link. LLR should only be enabled on one end of the link and is typically enabled on either the unmanaged or remote device.

The diagram below shows a typical network configuration with a good link status using GTP-80X for remote connectivity. Note that LLR and LLCF are enabled as indicated in the diagram.



If one of the optical conductors is down (as shown in the diagram box below), the converter with LLR function will return a no-link condition to its link partner. With LLCF function also enabled, the no-link condition is carried forward to the switch/hub where a trap is generated to the management station, and the administrator can then determine the source of the loss.



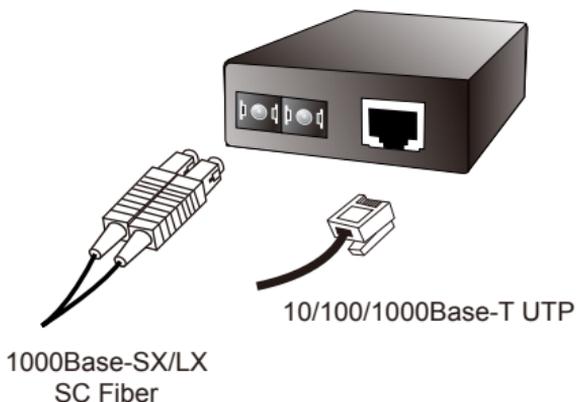
#### Note

LFP function is turn-off in default. This feature can also be turned via the side DIP-switch. If you are not familiar with the network installation and for diagnostic purpose (i.e. check which end is broken), you can turn it on and reset the converter to make it take effect. Otherwise, please remain it in the default position.

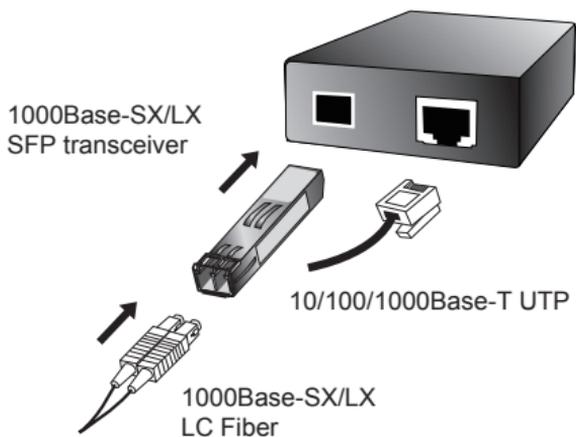
## 6. Installing the Converter

Please follow these steps to install the PoE+ Media converter:

- Turn off the power of the device / station in a network to which the GTP-80X will be attached.
- Ensure that there is no activity in the network.
- Attach fiber cable from the GTP-80X to the fiber network.
- Attach a Cat.5 / 5e / 6 UTP cable from the 10/100/1000Base-T network to the RJ-45 port on the GTP-80X.
- Connect the 52V~56V DC power adapter to the GTP-80X and verify that the Power LED lights up.
- Turn on the power of the device / station, the TX Link and FX Link LEDs should light when all cables are attached.



**Figure 6-1:** GTP-802 / GTP-802S Installation



**Figure 6-2:** GTP-805A Installation



**Note**

RJ-45 / STP, UTP Cat5 / 5e / 6, straight / cross-over cable is accepted.

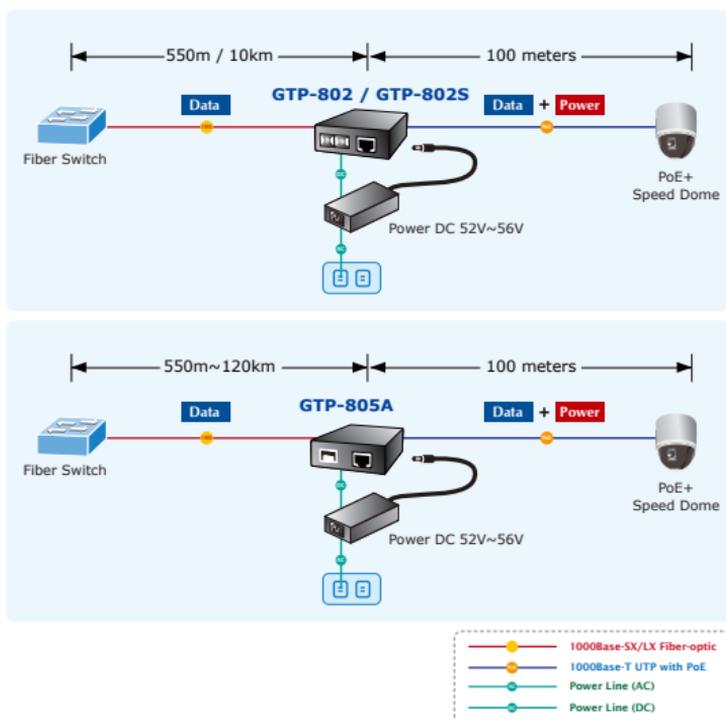
Please refer to section 9 for more about the wiring distance of your TP, Optic-fiber networks.

## 7. PoE Function

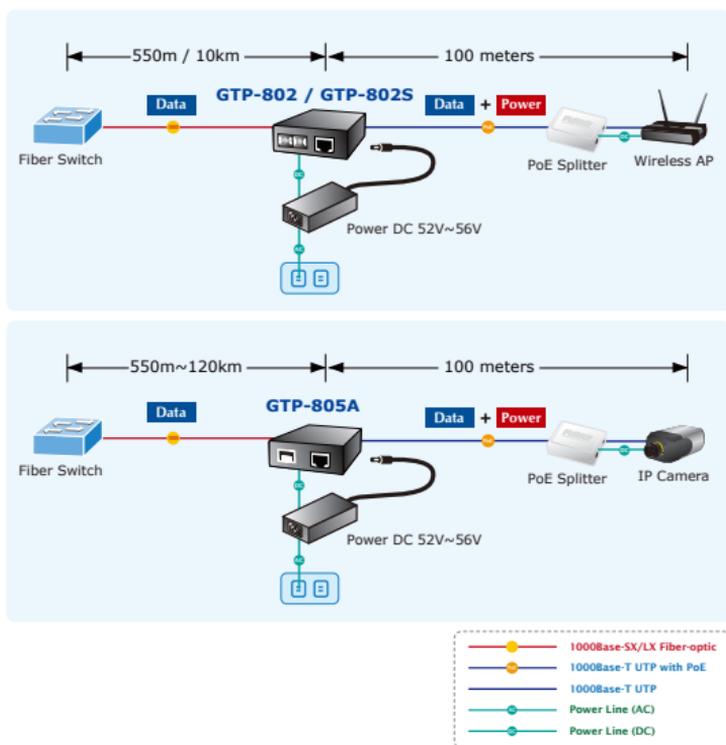
### GTP-80X and the IEEE 802.3at / 802.3af Injector / Splitter equipment installation:

Before your installation, it is recommended to check your network environment. If there is any IEEE 802.3at / 802.3af devices need to power on, the GTP-80X can provide you a way to supply power for this Ethernet device conveniently and easily.

The GTP-80X equips an AC-DC adapter with DC 52V~56V input and it injects the DC power into the pin of the twisted pair cable (Pin 4, 5, 7 and 8).



For the places where are hard to find the power inlet, the GTP-80X provide the easiest way to power your Ethernet devices such as PLANET IEEE 802.3at / 802.3af Power over Ethernet Splitter (POE-151S / 152S / 161S) with Internet Camera or PoE Wireless Access Point installed in the wild rang place.



## 8. LED Indication

### System

LED	Color	Function	
PWR	Green	<b>Light</b>	Indicate the device is powered.

### 10/100/1000Base-T Port

LED	Color	Function	
LNK/ACT	Green	<b>Blink</b>	Indicate that the PoE+ Media Converter is actively sending or receiving data over that port.
		<b>Light</b>	Indicate that the port is link up at 10/100/1000Mbps.
		<b>Off</b>	Indicate that the port is link down.
PoE in Use	Orange	<b>Light</b>	Indicate that the port is providing DC 52V to remote powered device.
		<b>Off</b>	Indicate that the port is not providing DC 52V to remote powered device.

### 1000Base-X Fiber Port

LED	Color	Function	
LNK/ACT	Green	<b>Blink</b>	Indicate that the PoE+ Media Converter is actively sending or receiving data over that port.
		<b>Light</b>	Indicate that the port is link up.
		<b>Off</b>	Indicate that the port is link down.

## 9. Cable Connection Parameter

The limitations are as below:

Duplex	Connection	Limitation (max.)
<b>Twisted Pair</b>		
Half / Full	Node to Node Node to Switch/Hub	100 meters
<b>Multi-Mode Converters</b>		
MM Half	Node to Node Node to Switch	412 meters
MM Full	Node to Node Node to Switch	GTP-802: 220 / 550 meters
<b>Single-Mode Converters</b>		
SM Full	Node to Node Node to Switch	GTP-802S: 10 kilometers
<b>Multi / Single Mode Converters</b>		
Full	Node to Node Node to Switch	GTP-805A: Vary on SFP module

## 10. GTP-80X Technical Specifications

The GTP-80X comes with the following standard features:

- **Standard:** IEEE 802.3 / 802.3u / 802.3ab, 10/100/1000Base-T  
IEEE 802.3at pre-standard / 802.3af Power over Ethernet standard
- **Connectors:**
  - ◆ One RJ-45 (Auto-MDI/MDI-X) Twisted Pair, EIA568 with PoE
  - ◆ One Fiber-optic, connector-type vary with model
- **Data Transfer Rate:** 10/100/1000Mbps (TP), 1000Mbps (Fiber)
- **Duplex mode support:** Full or Half-duplex mode by Auto-Negotiation (TP)
- **LED Indicators:** PWR, FX LNK/ACT, TP LNK/ACT, PoE in Use
- **PoE Power Output:** DC 52V, Max. 30 Watts
- **Power Pin Assignment:** 4/5, 7/8 / Mid-Span
- **Power Supply:** DC 52V, 0.58A, external AC-DC adapter
- **Ambient Temperature:** 0° to 50°C (operating)
- **Humidity:** 5% to 90% (non-condensing)
- **Dimension:** 26 x 70 x 94mm (H x W x D)
- **Cable:**
  - ◆ UTP: Cat 5 / 5e / 6 UTP cable
  - ◆ Fiber: MM: 50/125 μm or 62.5/125 μm optic fiber
  - ◆ Fiber: SM: 9/125 μm optic fiber

Connecting to Router, Bridge, or Switch, Hub, please refer to the device's Technical Manual.

## APPENDIX A

### A.1 Device's RJ-45 Pin Assignments

#### 1000Mbps, 1000Base-T

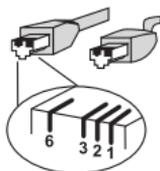
RJ-45 Connector pin assignment		
Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

#### 10/100Mbps, 10/100Base-TX

RJ-45 Connector pin assignment		
Contact	MDI Media Dependant Interface	MDI-X Media Dependant Interface -Cross
1	Tx + (transmit)	Rx + (receive)
2	Tx - (transmit)	Rx - (receive)
3	Rx + (receive)	Tx + (transmit)
4, 5	Not used	
6	Rx - (receive)	Tx - (transmit)
7, 8	Not used	

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

## A.2 RJ-45 Cable Pin Assignment



There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:

<u>Straight Cable</u>		<u>SIDE 1</u>	<u>SIDE 2</u>
1	1	1 = White/Orange	1 = White/Orange
2	2	2 = Orange	2 = Orange
3	3	3 = White/Green	3 = White/Green
4	4	4 = Blue	4 = Blue
5	5	5 = White/Blue	5 = White/Blue
6	6	6 = Green	6 = Green
7	7	7 = White/Brown	7 = White/Brown
8	8	8 = Brown	8 = Brown

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<u>Cross Over Cable</u>		<u>SIDE 1</u>	<u>SIDE 2</u>
1	3	1 = White/Orange	1 = White/Green
2	6	2 = Orange	2 = Green
3	1	3 = White/Green	3 = White/Orange
4	4	4 = Blue	4 = Blue
5	5	5 = White/Blue	5 = White/Blue
6	2	6 = Green	6 = Orange
7	7	7 = White/Brown	7 = White/Brown
8	8	8 = Brown	8 = Brown

**Figure A-1:** Straight-Through and Crossover Cable

Please make sure your connected cables are with same pin assignment and color as above picture before deploying the cables into your network.

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### A.3 Fiber Optical Cable Connection Parameter

The wiring details are as below:

#### Fiber Optical Patch Cables:

Standard	Fiber Type	Cable Specification
1000Base-SX (850nm)	Multi-mode	50/125 $\mu$ m or 62.5/125 $\mu$ m
1000Base-LX (1300nm)	Multi-mode	50/125 $\mu$ m or 62.5/125 $\mu$ m
	Single-mode	9/125 $\mu$ m



## EC Declaration of Conformity

For the following equipment:

\*Type of Product: 1000Base-SX/LX/X to 10/100/1000Base-T PoE Media Converter

\*Model Number: GTP-802、GTP-802S、GTP-805A

\* Produced by:

Manufacturer's Name : **Planet Technology Corp.**

Manufacturer's Address: 10F., No.96, Minquan Rd., Xindian Dist.,  
New Taipei City 231, Taiwan (R.O.C.)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive on (2004/108/EC).

For the evaluation regarding the EMC, the following standards were applied:

EN55022	(2006, CLASS A)
EN 61000-3-2	(2006)
EN 61000-3-3	(1995, A1: 2001, A2: 2005)
EN55024	(1998, A1: 2001, A2: 2003)
IEC 61000-4-2	(2001)
IEC 61000-4-3	(2008)
IEC 61000-4-4	(2004)
IEC 61000-4-5	(2005)
IEC 61000-4-6	(2008)
IEC 61000-4-8	(2001)
IEC 61000-4-11	(2004)

Responsible for marking this declaration if the:

Manufacturer  Authorized representative established within the EU

Authorized representative established within the EU (if applicable):

Company Name: Planet Technology Corp.

Company Address: 10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)

Person responsible for making this declaration

Name, Surname Kent Kang

Position / Title : Product Manager

Taiwan  
Place

27<sup>th</sup> May, 2011  
Date

  
Legal Signature

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