Industrial 10/100/1000BASE-T to 100/1000BASE-X SFP Media Converter

IGT-805AT

Industrial 10/100/1000BASE-T to 2 100/1000BASE-X SFP Media Converter

IGT-1205AT

User's Manual

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Revision

PLANET Industrial 10/100/1000BASE-T to 1/2 100/1000BASE-X SFP Media Converter User's Manual

FOR MODELS: IGT-805AT / IGT-1205AT

REVISION: 1.0 (MARCH, 2015)

Part No: EM-IGT_805AT_1205AT_v1.0 (2350-AH1210-001)

Table of Contents

1. Introduction

1.1 Package Contents

The term **"Industrial Gigabit Media Converter"** mentioned in this user's manual also means the IGT-805AT / IGT-1205AT.

Check the contents of your package for the following parts:

- Industrial Gigabit Media Converter x 1
- User's Manual x 1
- DIN Rail Kit x 1
- Wall Mount Kit 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 again to repack the product in case there is a need to return it to us for repair.

1.2 Product Overview

Flexibility and Network Distance Extension Solution

The IGT-805AT / IGT-1205AT Industrial Gigabit Media Converter is equipped with one 10/100/1000BASE-T auto-negotiation port and one / two 100/1000X SFP slots. The SFP slots are compatible with 1000BASE-X or 100BASE-FX through SFP (Small Form Factor Pluggable) fiber-optic transceiver. The IGT-805AT SFP slot automatically detects the 100BASE-FX or 1000BASE-X SFP transceiver while the IGT-1205AT's two SFP slots allow changing the operation speed mode with its built-in DIP switch. The fiber optical uplink capability guarantees the throughput to all nodes hooked into the network and the Gigabit Ethernet distance can be extended from 550 meters (multi-mode fiber cable) up to 10/20/30/40/50/60/70/120 kilometers (single-mode fiber cable). Also, the Fast Ethernet distance can be extended from 2km (multi-mode fiber cable) up to 20/40/60 kilometers (single-mode fiber cable). They are well suited for applications within the factory data centers and distributions.

Environmentally Hardened Design

With IP30 industrial metal case, the Industrial Gigabit Media Converter provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curbside traffic control cabinets. It also possesses an integrated power supply source with a wide range of voltages (12 to 48V DC or 24V AC) for worldwide high availability applications requiring dual or backup power inputs. Being able to operate under the temperature range from -40 to 75 degrees C, the Industrial Gigabit Media Converter can be placed in almost any difficult environment. The compact IP30 standard metal case of Industrial Gigabit Media Converter allows either DIN rail or wall mounting for efficient use of cabinet space.

Robust Gigabit Media Converter Performance

The IGT-805AT / IGT-1205AT offers wire-speed packets transfer performance without risk of packet loss. The high data throughput of the device makes it ideal for most Gigabit environments. With a 4/6Gbps internal fabric and featuring auto negotiation support in its Gigabit port, the IGT-805AT / IGT-1205AT Industrial Gigabit Media Converter can handle large amounts of data in a secure topology linking to a backbone or high capacity servers.

Adjustable 3-Port Switch Mode or 2 Fiber Port Redundant Mode (IGT-1205AT only)

Via the built-in DIP-switch, the two SFP fiber interfaces of IGT-1205AT can be configured as Ethernet switch mode or fiber redundant mode. With the Ethernet switch mode, it can operate Store-and-Forward mechanism with high performance; with the 2-port fiber redundant mode, it provides redundancy of link for highly critical Ethernet applications. The redundant mode supports auto-recover function. If the destination port of a packet is link-down, it forwards the packet to the other port of the backup pair.

1.3 Product Features

IGT-805AT Physical Port

- 1-port 10/100/1000BASE-T RJ45 with auto MDI / MDI-X function
- 1 SFP interface, 100/1000BASE-X dual mode (auto detection)

IGT-1205AT Physical Port

- 1-port 10/100/1000BASE-T RJ45 with auto MDI / MDI-X function
- 2 SFP interfaces, 100/1000BASE-X dual mode (DIP switch control)

Layer 2 Features

- IEEE 802.3 / 802.3u / 802.3ab / 802.3z Ethernet standard compliant
- Supports auto-negotiation and 10/100Mbps half / full duplex and 1000Mbps full duplex mode
- Prevents packet loss with back pressure (hjalf-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- 9K jumbo frame size support
- Automatic address learning and address aging

Industrial Case / Installation

- Slim type IP30 metal case
- DIN rail and wall-mount design
- Redundant power design
  - 12 to 48V DC, redundant power with polarity reverse protect function
  - AC 24V power adapter acceptable
- Supports EFT protection for 6000 VDC for power line
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

Fiber Port Redundancy (IGT-1205AT only)

- Link status auto-detect and redundant on dual ports with the same connector type
- Only when primary port is activated, the backup port is blocked.
- When primary port link fails, the traffic will swap to backup port automatically.
- Once the primary port status is back to link up, the traffic will swap from backup port to primary port.

1.4 Product Specifications

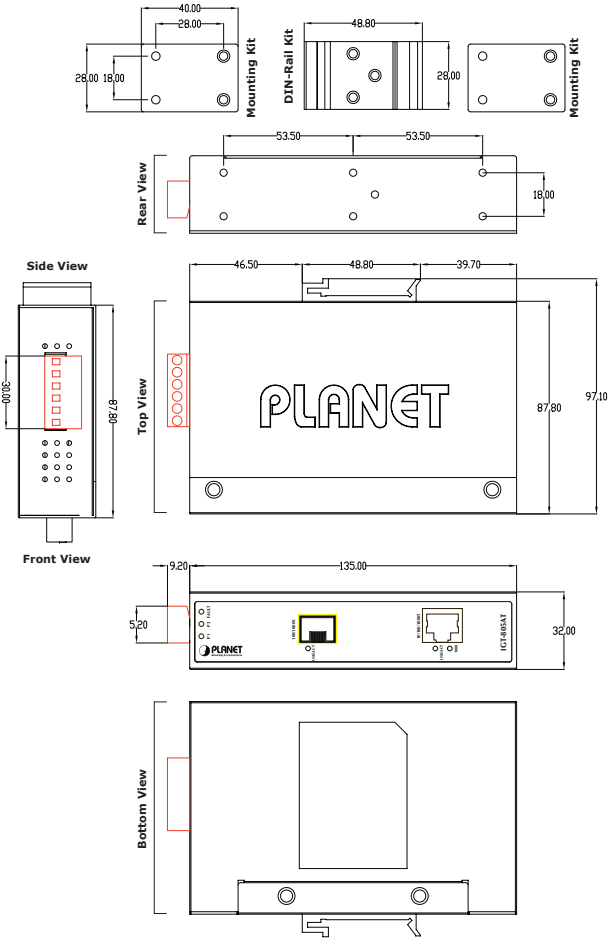
Model	IGT-805AT	IGT-1205AT
Hardware Specifications		
Copper Interface	1 x 10/100/1000BASE-T RJ45	1 x 10/100/1000BASE-T RJ45
Fiber Optic Interfaces	1 x 1000BASE-SX/LX/BX SFP interface. Compatible with 100BASE-FX SFP	2 x 1000BASE-SX/LX/BX SFP interfaces (Port-1 and Port-2) Compatible with 100BASE-FX SFP
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2	
Alarm	Provides one relay output for power failure Alarm Relay current carry ability: 1A @ DC 24V	
Power Requirements	DC 12~48V, Redundant power with polarity reverse protection function. AC 24V Power Adapter	
Power Consumption / Dissipation	3.3 watts/11BTU	4.8 watts/16BTU
Dimensions (W x D x H)	32 x 87 x 135mm	32 x 87 x 135mm
Weight	458g	505g
Enclosure	IP30 type metal case	
Installation	DIN rail kit and wall-mount ear	
ESD Protection	6KV DC	
EFT Protection	6KV DC	

Converter Specifications		
Processing Scheme	Store-and-Forward	
Fabric	4Gbps	6Gbps
Throughput (packet per second)	2.97Mpps	4.46Mpps
Flow Control	Back pressure for half duplex. IEEE 802.3x pause frame for full duplex	
Maximum Transmission Unit	9216bytes	
Standards Conformance		
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3z Gigabit Ethernet IEEE 802.3x full-duplex flow control	
Regulation Compliance	FCC Part 15 Class A, CE	
Stability Testing	IEC60068-2-32 (free fall) IEC60068-2-27 (shock) IEC60068-2-6 (vibration)	
Environment		
Temperature	Operating: -40~75 degrees C Storage: -40~75 degrees C	
Humidity	Operating: 5~95% (Non-condensing) Storage: 5~95% (Non-condensing)	

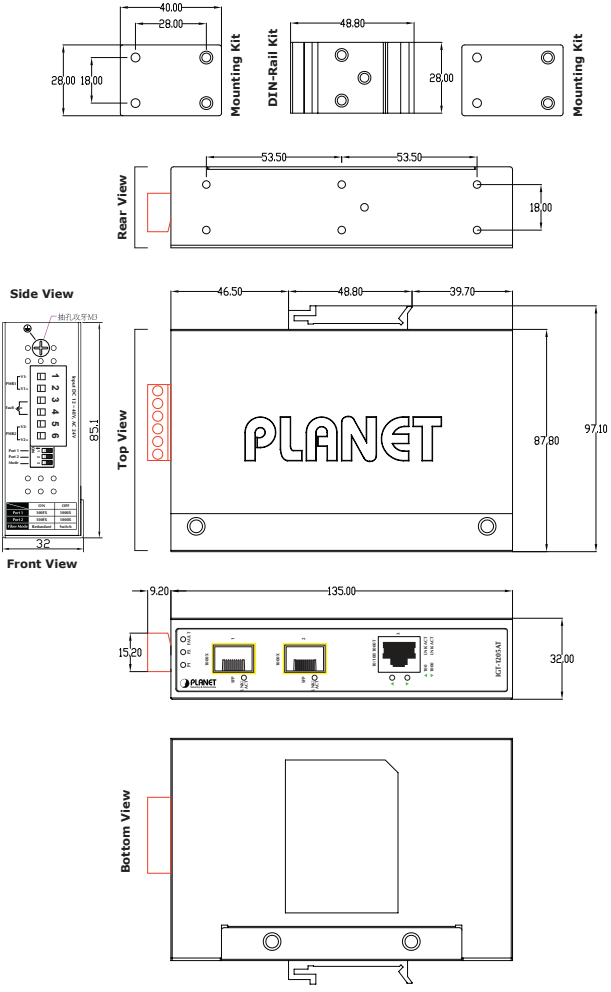
2. Hardware Description

2.1 Physical Dimensions

■ **IGT-805AT dimensions (W x D x H): 32 x 87 x 135mm**



■ IGT-1205AT dimensions (W x D x H): 32 x 87 x 135mm



2.2 Converter Front Panel

Figures 2-1 and 2-2 show the front panels of the Industrial Gigabit Media Converter.

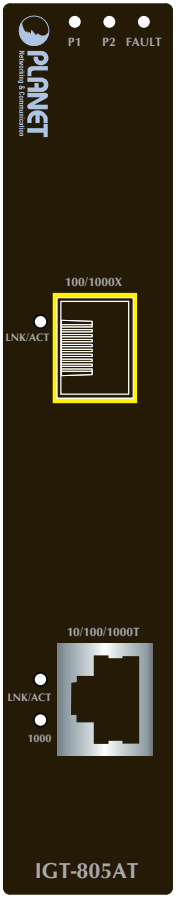


Figure 2-1: IGT-805AT Front Panel

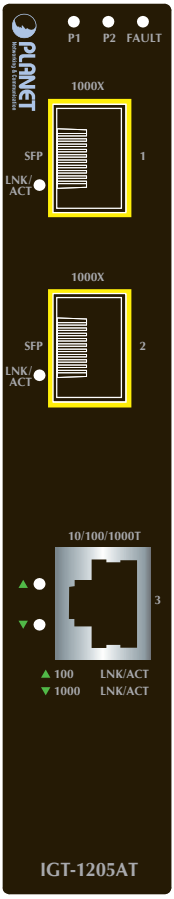


Figure 2-2: IGT-1205AT Front Panel

2.3 LED Indicators

System

LED	Color	Function
P1	Green	**Lit:** indicates power 1 has power.
P2	Green	**Lit:** indicates power 2 has power.
FAULT	Green	**Lit:** indicates either power 1 or power 2 has no power.

Per 10/100/1000BASE-T Port (IGT-805AT)

LED	Color	Function
LNK/ACT	Green	**Lit:** indicates that the Gigabit Ethernet Port is successfully connecting to the network at 10/100/1000Mbps.
		Blinking: indicates that the Gigabit Ethernet Port is actively sending or receiving data over that port.
1000	Green	**Lit:** indicates the link through that port is successfully established at 1000Mbps.
		Off: indicates the link through that port is successfully established at 10/100Mbps.

Per 10/100/1000BASE-T Port (IGT-1205AT)

LED	Color	Function
100 LNK/ACT	Orange	**Lit:** indicates the link through that port is successfully established at 100Mbps or 10Mbps.
		Blinking: indicate that the Switch is actively sending or receiving data over that port.
		Off: indicates the link through that port is successfully established at 1000Mbps.
1000 LNK/ACT	Green	**Lit:** indicates the link through that port is successfully established at 1000Mbps.
		Blinking: indicates that the Switch is actively sending or receiving data over that port.
		Off: indicates the link through that port is successfully established at 10/100Mbps.

Per 100 / 1000BASE-X SFP Slot

LED	Color	Function
LNK/ACT	Green	**Lit:** indicates the link through that port is successfully established at 100Mbps or 1000Mbps.
		Blinking: indicates that the Converter is actively sending or receiving data over that port.

2.4 Converter Upper Panel

The upper panel of the IGT-805AT and IGT-1205AT consist of one terminal block connector within two DC power inputs, and the IGT-1205AT also provides 3 DIP Switches for 100/1000X fiber support on two SFP slots and fiber redundant function. Figure 2-3 shows the upper panel of the IGT-1205AT

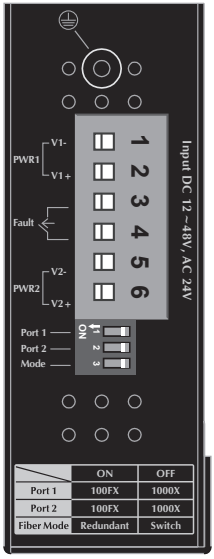


Figure 2-3: IGT-1205AT Upper Panel

The 3 DIP switch settings and descriptions

	ON	OFF
Port 1 (DIP 1)	100FX	1000X
Port 2 (DIP 2)	100FX	1000X
Fiber Mode (DIP 3)	Fiber Redundant	Switch

The fiber redundancy function explains in chapter 3.6 Redundancy Overview.

3. INSTALLATION

This section describes the functionalities of the Industrial Gigabit Media Converter's components and guides you to how to install it on the desktop. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

3.1 Quick Installation Steps

Step 1: Unpack the Industrial Gigabit Media Converter.

Step 2: Check whether the DIN-rail is screwed on the Industrial Gigabit Media Converter. (Please refer to DIN-rail Mounting section for DIN-rail installation if the DIN-rail is not screwed on the Industrial Gigabit Media Converter). If you want to wall-mount the Industrial Gigabit Media Converter, then please refer to the Wall-mount Plate Mounting section for wall-mount plate installation.

Step 3: To hang the Industrial Gigabit Media Converter on the DIN-rail track or wall, please refer to the Mounting Installation section.

Step 4: Power on the Industrial Gigabit Media Converter. (Please refer to the Wiring of the Power Inputs section for power input) The power LED on the Industrial Gigabit Media Converter will light up. Please refer to the LED Indicators section for the functions of LED lights.

Step 5: Prepare the twisted-pair, straight-through Category 5 cable for Ethernet connection.

Step 6: Insert one side of Category 5 cable into the Industrial Gigabit Media Converter Ethernet port (RJ45 port) while the other side of Category 5 cable into the network devices' Ethernet port (RJ45 port), e.g., switch, PC or server. The UTP port (RJ45) LED on the Industrial Gigabit Media Converter will light up when the cable is connected with the network device. Please refer to the LED Indicators section for the functions of LED lights.

Step 7: When all the connections are all set and LED lights all show normally, the installation is complete.

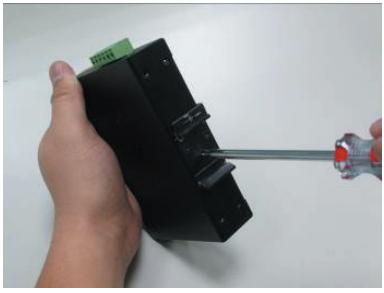
3.2 Mounting Installation

This section describes how to install the Industrial Gigabit Media Converter and makes connections to it. Please read the following topics and perform the procedures in the order being presented.

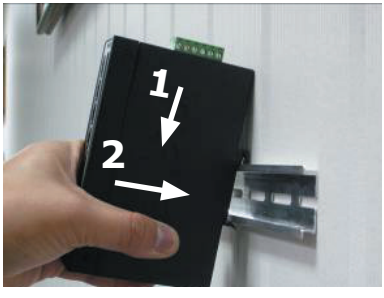
Note	In the installation steps below, this Manual uses IGS-801 (PLANET 8-port Industrial Gigabit Switch) as the example. However, the steps for PLANET Industrial Switch and Industrial Media Converter are similar.

3.2.1 DIN-rail Mounting

The DIN-rail is screwed on the Industrial Gigabit Media Converter when is out of factory. When replacing the wall-mount application with DIN-rail application on Industrial Gigabit Media Converter, please refer to the following figures to screw the DIN-rail on the Industrial Gigabit Media Converter. To hang the Industrial Gigabit Media Converter, follow the following steps:



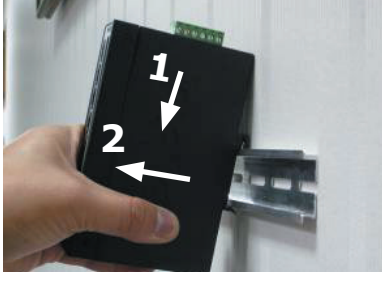
Step 1: Screw the DIN-rail on the Industrial Gigabit Media Converter.



Step 2: Lightly insert the DIN-rail into the track.

Step 3: Make sure the DIN-rail is tightly secured on the track.

Step 4: Please refer to the following procedures to remove the Industrial Gigabit Media Converter from the track.



Step 5: Lightly pull out the bottom of the DIN-Rail from the track to remove.

3.2.2 Wall-mount Plate Mounting

To install the Industrial Gigabit Media Converter on the wall, please follow the instructions described below.

Step 1: Remove the DIN-Rail from the Industrial Gigabit Media Converter; loosen the screws to remove the DIN-rail.

Step 2: Place the wall-mount plate on the rear panel of the Industrial Gigabit Media Converter.

Step 3: Use the screws to screw the wall-mount plate on the Industrial Gigabit Media Converter.

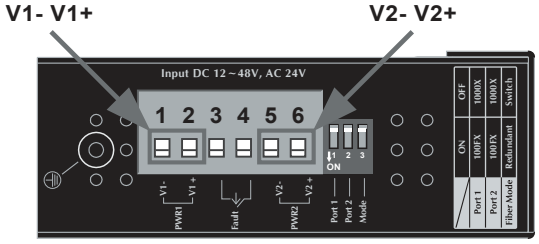
Step 4: Use the hook holes at the corners of the wall-mount plate to hang the Industrial Gigabit Media Converter on the wall.

Step 5: To remove the wall-mount plate, reverse the steps above.

3.3 Wiring the Power Inputs

The 6-contact terminal block connector on the top panel of Industrial Gigabit Media Converter is used for two DC redundant power inputs. Please follow the steps below to insert the power wire.

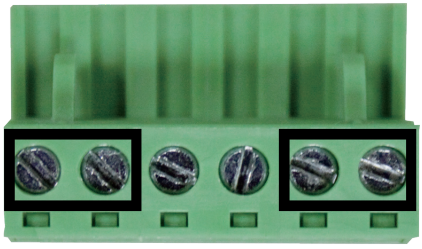
1. Insert positive / negative DC power wires into contacts 1 and 2 for POWER 1, or 5 and 6 for POWER 2.




Note

The above top panel is based on IGT-1205AT. The 6-contact terminal block connector is the same as that of IGT-805AT. But the IGT-805AT does not provide 3 DIP switches.

2. Tighten the wire-clamp screws for preventing the wires from loosening.

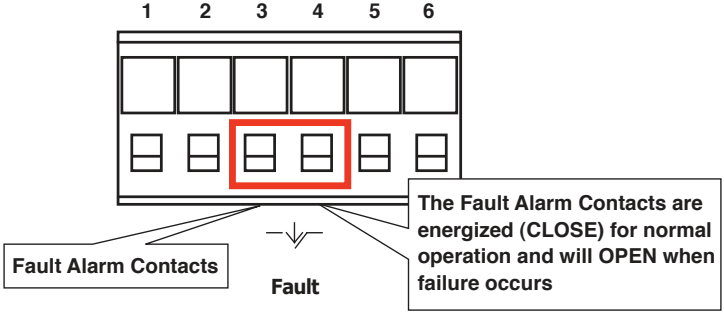


Note

The wire gauge for the terminal block should be in the range between 12 and 24 AWG.

3.4 Wiring the Fault Alarm Contact

The fault alarm contacts are in the middle of the terminal block connector as the picture shows below. When inserting the wires, the Industrial Gigabit Media Converter will detect the fault status of the power failure and then forms an open circuit. The following illustration shows an application example for wiring the fault alarm contacts.



Insert the wires into the fault alarm contacts

Note

The wire gauge for the terminal block should be in the range between 12 and 24 AWG.

3.5 Cable Connection

■ Installing the SFP Transceiver

The sections describe how to insert an SFP transceiver into an SFP slot.

The SFP transceivers are hot-pluggable and hot-swappable. You can plug in and out the transceiver to/from any SFP port without having to power down the Industrial Gigabit Media Converter as Figure 3-1 shows

Figure 3-1: Plug in the SFP Transceiver

Note	It is recommended to use PLANET SFPs on the Industrial Gigabit Media Converter. If you insert an SFP transceiver that is not supported, the Industrial Gigabit Media Converter will not recognize it.

■ 1000BASE-SX/LX:

Before connecting the other switches, workstation or Media Converter, please do the following:

1. On IGT-1205AT, set the DIP Switch of SFP Port 1 or Port 2 to the **"OFF"** position with fiber speed 1000BASE-X.

	ON	**OFF**
Port 1 (DIP 1)	100FX	1000X
Port 2 (DIP 2)	100FX	1000X

2. Make sure both sides of the SFP transceiver are with the same media type; for example, 1000BASE-SX to 1000BASE-SX, 1000BASE-LX to 1000BASE-LX.
3. Check whether the fiber-optic cable type matches the SFP transceiver model.
   - To connect to 1000BASE-SX SFP transceiver, use the multi-mode fiber cable with one side being the male duplex LC connector type.
   - To connect to 1000BASE-LX SFP transceiver, use the single-mode fiber cable with one side being the male duplex LC connector type.

Connecting the fiber cable

1. Attach the duplex LC connector on the network cable to the SFP transceiver.
2. Connect the other end of the cable to a device, switches with SFP installed, to fiber NIC on a workstation or a Media Converter.
3. Check the LNK/ACT LED of the SFP slot on the front of the Industrial Gigabit Media Converter. Make sure that the SFP transceiver is operating correctly.

■ 100BASE-FX:

Before connecting the other switches, workstation or Media Converter, please do the following:

1. On IGT-1205AT, set the DIP Switch of SFP Port 1 or Port 2 to the **"ON"** position with fiber speed "100FX".

	ON	**OFF**
Port 1 (DIP 1)	100FX	1000X
Port 2 (DIP 2)	100FX	1000X

2. Make sure both sides of the SFP transceiver are with the same media type or WDM pair; for example, 100BASE-FX to 100BASE-FX, 100BASE-BX20-U to 100BASE-BX20-D.
3. Check the fiber-optic cable type match the SFP transceiver model.
   - To connect to MFB-FX SFP transceiver, use the multi-mode fiber cable with one side being the male duplex LC connector type.
   - To connect to MFB-F20/F40/F60/FA20/FB20 SFP transceiver, use the single-mode fiber cable with one side being the male duplex LC connector type.

Connecting the fiber cable

1. Attach the duplex LC connector on the network cable to the SFP transceiver.
2. Connect the other end of the cable to a device, switches with SFP installed, to fiber NIC on a workstation or a Media Converter.
3. Check the LNK/ACT LED of the SFP slot of the switch / converter. Make sure that the SFP transceiver is operating correctly.

■ Removing the Transceiver Module

1. Make sure there is no network activity by consulting or checking with the network administrator. Or through the management interface of the switch/converter (if available) to disable the port in advance.
2. Remove the Fiber Optic Cable gently.
3. Turn the lever of the MGB/MFB module to a horizontal position.
4. Pull out the module gently through the lever.

Figure 3-2: Pulling Out from the Transceiver

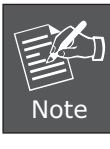
Note	Never pull out the module without pulling the lever or the push bolts on the module. Directly pulling out the module with effort could damage the module and SFP module slot of the Industrial Gigabit Media Converter.

■ 10/100/1000BASE-T

The 10/100/1000BASE-T port comes with auto-negotiation capability. It automatically supports 1000BASE-T, 100BASE-TX and 10BASE-T networks. Users only need to plug a working network device into the 10/100/1000BASE-T port, and then turn on the Industrial Gigabit Media Converter. The port will automatically runs in 10Mbps, 20Mbps, 100Mbps or 200Mbps and 1000Mbps or 2000Mbps after the negotiation with the connected device.

Connecting the UTP cable

The 10/100/1000BASE-T port uses RJ45 socket -- similar to phone jack -- for connection of unshielded twisted-pair cable (UTP). The IEEE 802.3 / 802.3u / 802.3ab Fast / Gigabit Ethernet standard requires Category 5 UTP for 100Mbps 100BASE-TX. 10BASE-T networks can use Cat3, 4, 5 or 1000BASE-T uses Cat5/5e/6 UTP (see table below). Maximum distance is 100 meters (328 feet).



Be sure the connected network devices support MDI/MDI-X. If it does not support, then use the crossover Category 5 cable.

3.6 Redundancy Overview (IGT-1205AT only)

The IGT-1205AT provides rapid fiber redundancy of link for highly critical Ethernet applications. The redundant-mode supports auto-recover function. If the destination port of a packet is link down, it will forward the packet to the other port of the backup pair. The following figure shows the redundant function.

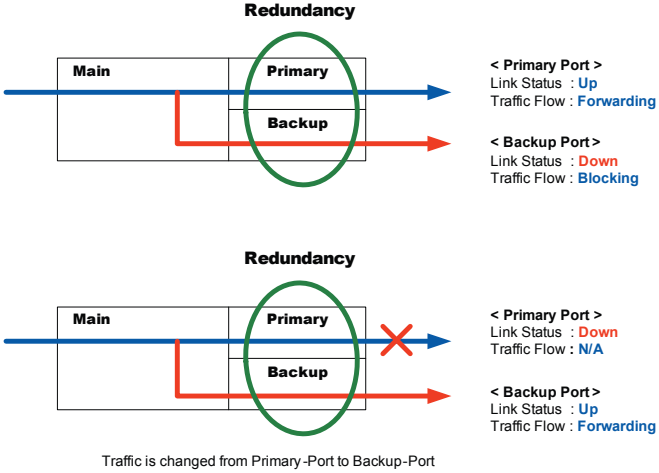


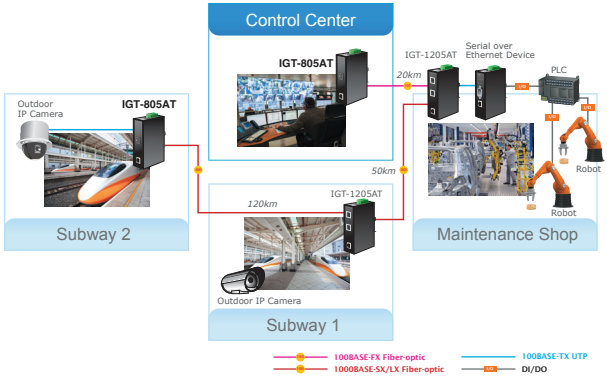
Figure 3-3: Redundancy Behavior Topology

- Link status auto detect and redundant on dual ports with the same connector type.
- Only when primary port is activated, the backup port is blocked.
- When primary port link failure occurs, the traffic will swap to backup port automatically.
- Once the primary port status is back to link up, the traffic will swap from backup port to primary port.

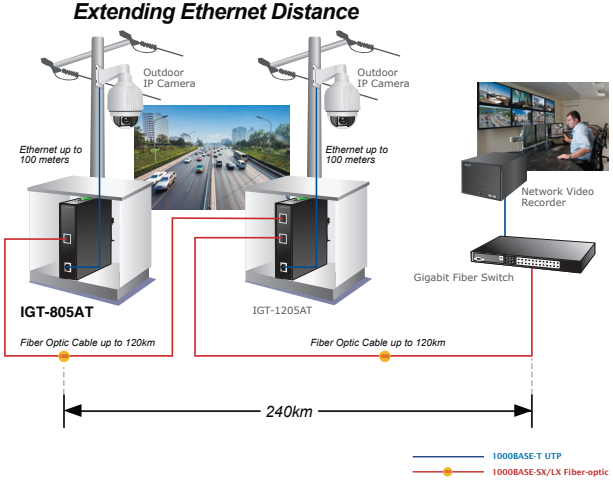
4. Applications

In this paragraph, we will describe how to install the Industrial Gigabit Media Converter.

Transportation Networking



Industrial Operating Environment



5. Troubleshooting

This chapter contains information to help you solve issues. If the Industrial Gigabit Media Converter is not functioning properly, make sure the Industrial Gigabit Media Converter is set up according to instructions in this manual.

The per port LED is not lit

Solution:

Check the cable connection of the Industrial Gigabit Media Converter.

Performance is bad

Solution:

Check the speed duplex mode of the partner device. The Industrial Gigabit Media Converter is run at auto-negotiation mode and if the partner is set to half duplex, then the performance will be poor.

Per port LED is lit, but the traffic is irregular

Solution:

Check that the attached device is not set to dedicate full duplex. Some devices use a physical or software switch to change duplex modes. Auto-negotiation may not recognize this type of full-duplex setting.

Why the Industrial Gigabit Media Converter doesn't connect to the network

Solution:

Check per port LED on the Industrial Gigabit Media Converter. Make sure the cable is installed properly. Make sure the cable is the right type. Turn off the power. After a while, turn on power again.

Can I install MGB-SX or the other SFP module with non wide temperature feature into the SFP slot of Industrial Gigabit Media Converter?

Solution:

Yes, you can. However, the MGB-SX and the other SFP module with non wide temperature feature cannot operate under -40 to 75 degrees C.

6. Cable Connection Parameters

The wiring details are shown below:

100FX Fiber Optic Cables:

Standard	Fiber Type	Cable Specifications
100BASE-FX (1300nm)	Multi-mode	50/125μm or 62.5/125μm
100BASE-FX (1310nm)	Multi-mode	50/125μm or 62.5/125μm
	Single-mode	9/125μm
100BASE-BX-U (TX :1310/RX :1550) 100BASE-BX-D (TX :1550/RX :1310)	Single-mode	9/125μm

1000X Fiber Optic Cables:

Standard	Fiber Type	Cable Specifications
1000BASE-SX (850nm)	Multi-mode	50/125μm or 62.5/125μm
1000BASE-LX (1300nm)	Multi-mode	50/125μm or 62.5/125μm
	Single-mode	9/125μm

Wiring Distances:

Standard	Fiber	Diameter (micron)	Modal Bandwidth (MHz * km)	Max. Distance (meters)
1000BASE- SX	MM	62.5	100	220
		62.5	200	275
		50	400	500
		50	500	550
1000BASE- LX	MM	62.5	5	550
		50	4	
		50	5	
	SM	9	N/A	5000*

The single-mode port (1000BASE-LX port) of IGT-805AT / IGT-1205AT complies with LX 5 kilometers and provides an additional margin allowing for a 10/20/30/40/50/60/70/120 kilometer Gigabit Ethernet link on single mode fiber.

Appendix A: Approved Planet SFP Transceivers

PLANET Industrial Gigabit Media Converter supports 100/1000 dual mode with both single mode and multi-mode SFP transceivers. The following list of approved PLANET SFP transceivers is correct at the time of publication:

Gigabit SFP Transceiver Modules

MGB-GT	SFP-Port 1000BASE-T module - 100m
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 550m
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 10km
MGB-L30	SFP-Port 1000BASE-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000BASE-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000BASE-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km
MGB-TSX	SFP-Port 1000BASE-LX mini-GBIC module - 550m (-40~75°C)

MGB-TLX	SFP-Port 1000BASE-LX mini-GBIC module - 10km (-40~75°C)
MGB-TL30	SFP-Port 1000BASE-LX mini-GBIC module - 30km (-40~75°C)
MGB-TL70	SFP-Port 1000BASE-LX mini-GBIC module - 70km (-40~75°C)

Fast Ethernet SFP Transceiver Modules

MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40km
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) - 20km
MFB-TFX	SFP-Port 100BASE-FX Transceiver (1310nm) - 2km (-40~75°C)
MFB-TF20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km (-40~75°C)

Appendix B: Networking Connection

B.1 Converter's RJ45 Pin Assignments

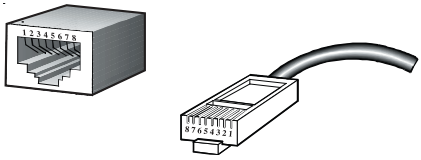
1000Mbps, 1000BASE-T

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

RJ45 Connector pin assignment		
Contact	MDI Media Dependent Interface	MDI-X Media Dependent 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	

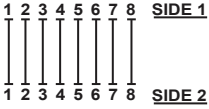
B.2 RJ45 Cable Pin Assignments



The standard RJ45 receptacle/connector

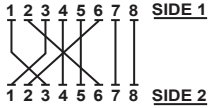
There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:

Straight Cable



SIDE 1	SIDE 2
1 = White/Orange	1 = White/Orange
2 = Orange	2 = Orange
3 = White/Green	3 = White/Green
4 = Blue	4 = Blue
5 = White/Blue	5 = White/Blue
6 = Green	6 = Green
7 = White/Brown	7 = White/Brown
8 = Brown	8 = Brown

Cross Over Cable



SIDE 1	SIDE 2
1 = White/Orange	1 = White/Green
2 = Orange	2 = Green
3 = White/Green	3 = White/Orange
4 = Blue	4 = Blue
5 = White/Blue	5 = White/Blue
6 = Green	6 = Orange
7 = White/Brown	7 = White/Brown
8 = Brown	8 = Brown

Figure B-1: Straight-through and Crossover Cable

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

EC Declaration of Conformity

For the following equipment:

*Type of Product	:	Industrial 10/100/1000BASE-T to 2 100/1000BASE-X SFP Media Converter (-40~75 degrees C)
*Model Number	:	IGT-1205AT
* Produced by:		
Manufacturer Name	:	**Planet Technology Corp.**
Manufacturer 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:

EN 55022	(Class A: 2010)
EN 61000-3-2	(2006 + A1:2009 + A2:2009)
EN 61000-3-3	(2008)
EN 55024	(2010)
EN 61000-4-2	(2009)
EN 61000-4-3	(2006 + A1:2008 + A2 :2010)
EN 61000-4-4	(2004 + A1:2010)
EN 61000-4-5	(2006)
EN 61000-4-6	(2009)
EN 61000-4-8	(2010)
EN 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 : **Product Manager**

Taiwan	**3, June, 2013**	Kent Kang
Place	*Date*	*Legal Signature*

EC Declaration of Conformity

For the following equipment:

*Type of Product: Industrial 10/100/1000BASE-T to 100/1000BASE-X SFP Media Converter (-40~75 degrees C)
*Model Number: IGT-805AT

* 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		(CLASS A: 2010+AC:2011)
EN 61000-3-2		(2006+A1:2009+A2:2009)
EN 61000-3-3		(2008)
EN55024		(2010)
	IEC 61000-4-2	(2008)
	IEC 61000-4-3	(2006+A1:2007+A2:2010)
	IEC 61000-4-4	(2012)
	IEC 61000-4-5	(2005)
	IEC 61000-4-6	(2013)
	IEC 61000-4-8	(2009)
	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	**2 April, 2015**	Kent Kang
Place	*Date*	*Legal Signature*