

**10/100/1000Base-T to Dual 1000Base-X SFP
Media Converter**

GT-1205A

User's Manual

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This is a Class B 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 or push the hardware Power Switch to OFF position to disconnect the device from the power circuit.

Without remove the DC-plug or switch off the device, 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 power off or 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

User's Manual for PLANET Gigabit Ethernet Redundant Media Converter

For Model: GT-1205A

Rev 2.0 (Febauary. 2013)

Part No: 2350-AA4530-001

Table Of Contents

1. Introduction.....	6
1.1 Checklist.....	6
1.2 Product Description.....	6
1.3 Product Features.....	7
1.4 Product Specification.....	9
2. Hardware Description.....	11
2.1 Product Outlook.....	11
2.2 Front Panel.....	12
2.2.1 LED Indicators.....	12
2.3 Rear Panel.....	13
2.4 Side View.....	14
2.5 Install the Media Converter.....	16
2.5.1 Stand-alone Installation.....	16
2.5.2 Media Chassis Installation.....	18
2.5.3 Optional DIN-Rail Installation.....	19
Appendix A Networking Connection.....	21
A.1 Data RJ-45 Pin Assignments - 1000Mbps, 1000Base-T.....	21
A.2 10/100Mbps, 10/100Base-TX.....	21
A.3 Fiber-Optic Cable Connection Parameter.....	23

1. Introduction

1.1 Checklist

Check the contents of your package for following parts:

- GT-1205A x 1
- User's Manual x 1
- 5V / 2.5A AC-DC Power Adapter x 1

If any of these pieces 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

GT-1205A is with two vacant SFP module slots. The 1000Base-X SFP module is not bundled with in the package

1.2 Product Description

The GT-1205A is 3-Port Gigabit, one TP and dual SFP Media Converter which supports conversion between 10/100/1000Base-T and 1000Base-SX/LX network, which is SFP connector with single-mode or multi-mode media as required. The Ethernet signal allows different types of SFP transceiver to connect easily, efficiently and inexpensively.

The GT-1205A Gigabit Media Converter can be used as a stand-alone unit or as a slide-in module to the PLANET Media Converter Chassis (**MC-700** and **MC-1500** series chassis). These media chassis can assist in providing DC power for GT-1205A Gigabit Media Converter to maintain the fiber-optic network at one centralized location. With the 3-Port Switch mode, they work in high performance Store and Forward mechanism, and can prevent packet loss with IEEE 802.3x Flow Control (Full-Duplex) and Back Pressure (Half-Duplex).

Via the build-in DIP-switch, the GT-1205A can be configured as 3-Port Ethernet switch or 2-Port Redundant media converter. With the 3-Port Switch mode, it can operate Store-and-Forward mechanism with high performance, with the 2-Port redundant mode, it 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 forwards the packet to the other port of the backup pair.

As the GT-1205A Media Converter fully complies with IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX, IEEE 802.3ab 1000Base-T and IEEE 802.3z 1000Base-LX / SX, the Gigabit media conversion installation is quite quick and easy by simple plugging and playing feature.

With 1000Base-SX / LX SFP ports, the GT-1205A is with high reliability and flexibility to extend the distance up to 550m, 10km, or longer. It depends on the 1000Base-SX / LX SFP transceiver modules.

1.3 Product Features

■ Standard

- Comply with IEEE 802.3 10Base-T
- Comply with IEEE 802.3u 100Base-TX
- Comply with IEEE 802.3ab 1000Base-T
- Comply with IEEE 802.3z 1000Base-SX / LX
- IEEE 802.3x Full-Duplex Flow-Control, Back-Pressure in Half-Duplex eliminate packets loss

■ Interface

- Dual 1000Base-SX / LX SFP Fiber-Optic Slots
- One 10/100/1000Base-T Copper, auto MDI/MDIX function
- Auto-Negotiation for 10/100/1000Base-T; Half-duplex or Full-

duplex for 10Mbps and 100Mbps, full-duplex for 1000Mbps

- Supports maximum frame size up to 1522 bytes
- IEEE 802.1Q Tag VLAN Transparent, Multicast pass through
- Redundancy
 - Link status auto-detect and redundant on Dual ports with same connector type
 - Only Primary-Port is active at a time, the Backup-Port is blocked
 - While Primary-Port link fail occurrences, the traffic swaps to Backup-Port automatically
 - Once the Primary-Port status backs to link up, the traffic swaps from Backup-Port to Primary-Port
 - Hardware fiber port redundant
- Mechanical
 - External 5V / 2A DC power supply
 - LED indicators for easy network diagnose
 - DIP Switch for 3-Port operation with Gigabit Switch mode or Redundant mode
 - Compact in size, easy installation
 - Can be installed on PLANET's 10"/19" Media Converter Chassis **(MC-700/1500/1500R/1500R48)**
 - Wall mounting and DIN-Rail Supported

1.4 Product Specification

Model		GT-1205A
Hardware Specification		
Hardware Version		2
Ports	Copper	1 x 10/100/1000Base-T port
	Fiber	2 x 1000Base-X SFP slots
Cable	Twisted-Pair	10Base-T: 2-Pair UTP CAT. 3,4,5, up to 100 meters 100Base-TX: 2-Pair UTP CAT. 5, 5e up to 100 meters 1000Base-T: 4-Pair UTP CAT. 5e,6 up to 100 meters
	Fiber-Optic Cable	50/125µm or 62.5/125µm multi-mode fiber cable, up to 220 & 550 meters 9/125µm single-mode cable, provide long distance for 10/15/20/30/40/50/60/70/120km or longer (vary on SFP module)
LED Display		System: One Power LED (Green) Fiber Port: Two LNK/ACT LED (Green) TP Port : One Speed LED (Green), One LNK/ACT LED (Orange)
Switch Processing Scheme		Store and Forward
Fabric		6Gbps
Throughput (packet per second)		4.4pps

Maximum Packet Size	1522 Bytes
Flow Control	Back pressure for Half-Duplex. IEEE 802.3x Pause Frame for Full-Duplex
Power Requirement	5V DC, 2A max.
Power Consumption	5.4 Watts / 18.5 BTU per hour max.
Dimension (W x D x H)	94 x 70 x 26mm
Weight	191g (device only)
Standard Conformance	
EMI Safety	FCC Class B, CE
Operating environment	0 ~ 50 Degree C
Storage environment	-10 ~ 70 Degree C
Operating Humidity	5 ~ 95%, Relative Humidity, non-condensing
Storage Humidity	5 ~ 95%, Relative Humidity, non-condensing
Standard Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3ab 1000Base-T IEEE 802.3z 1000Base-SX/LX IEEE 802.3x Flow Control

2. Hardware Description

This product provides three different running speeds – 10Mbps, 100Mbps and 1000Mbps in the same Gigabit Media Converter and automatically distinguishes the speed of incoming connection.

This section describes the functionalities of GT-1205A's components and guides how to install it on the desktop or shelf. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

2.1 Product Outlook

The GT-1205A overview showed as below:

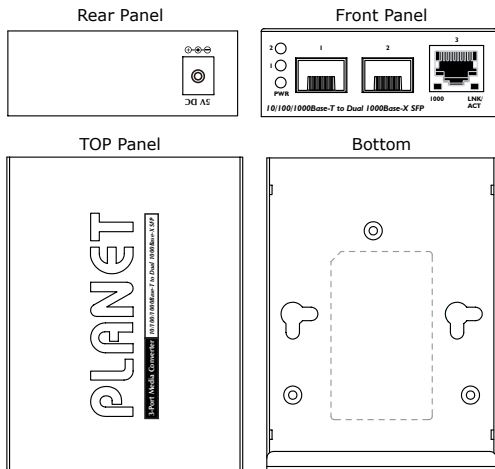


Figure 2-1-1: GT-1205A Overview

2.2 Front Panel

The Front Panel of the Gigabit Media Converter consists of two 1000Base-X SFP slots and one Auto-Sensing 10/100/1000Mbps Ethernet RJ-45 Port. Figure 2-2-1 shows a front panel of Gigabit Media Converter.

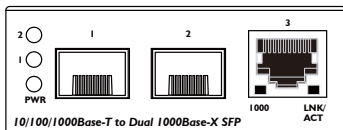


Figure 2-2-1: GT-1205A Front Panel

2.2.1 LED Indicators

System

LED	Color	Function
PWR	Green	Lit: Power on.

1000Base-SX/LX SFP Slots

LED	Color	Function	
1	Green	Lit	Indicate that the fiber optical port is link up.
		Blink	Indicate that the converter is actively sending or receiving data over that port.
		Off	Indicate that the fiber optical port is link down.
2	Green	Lit	Indicate that the fiber optical port is link up.
		Blink	Indicate that the converter is actively sending or receiving data over that port.
		Off	Indicate that the fiber optical port is link down.

10/100/1000Base-T Port

LED	Color	Function	
LNK/ACT	Orange	Lit	Indicate that the copper port is link up.
		Blink	Indicate that the converter is actively sending or receiving data over that port.
		Off	Indicate that the copper port is link down.
1000	Green	Lit	Indicate that the copper port is operating at 1000Mbps .
		Off	Indicate that the copper port is link down or 10/100Mbps .

2.3 Rear Panel

The rear panel of the Gigabit Media Converter indicates one DC jack, which accepts input power with 5V DC 2A.

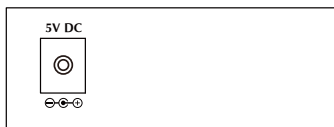
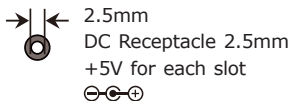


Figure 2-3-1: One DC jack for DC power input

Power Notice:

Power Information: the power jack of GT-1205A is with 2.5mm in the central post and required +5VDC power input. It will conform to the bundled AC-DC adapter and Planet's Media Chassis. Should you have the issue to make the power connection, please contact your local sales representative.

Please keep the AC-DC adapter as spare parts when your GT-1205A is installed to a Media Chassis.



DC receptacle is 2.5mm wide that conforms to and matches the Gigabit Media Converter 2.5mm DC jack's central post. Do not install any improper unit, model of the Gigabit Media Converter.

The device is a power-required device, it means, it will not work till it is powered. If your networks should active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

In some area, installing a surge suppression device may also help to protect your Gigabit Media Converter from being damaged by unregulated surge or current to the converter or the power adapter.

2.4 Side View

The side panel of the Gigabit Media Converter indicates One DIP switch for set 3-Port switch mode or 2-Port Redundant mode, "ON" for operate at 2-Port Redundant mode. And "OFF" to operate at 3-Port switch mode.

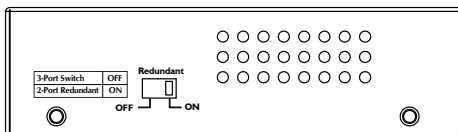


Figure 2-4-1: GT-1205A Side Panel

Redundancy Overview

The GT-1205A 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 forwards the packet to the other port of the backup pair. The following figure shows the redundant function.

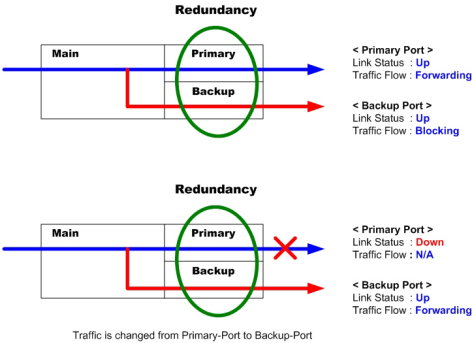


Figure 2-4-2: Redundancy Behavior Topology

- Link status auto detect and redundant on Dual ports with same connector type.
- Only Primary-Port is active at a time, the Backup-Port is blocked.
- While Primary-Port link fail occur, the traffic swap to Backup-Port automatically.
- Once the Primary-Port status back to link up, the traffic swap from Backup-Port to Primary-Port.

2.5 Install the Media Converter

This section describes how to install your Gigabit Media Converter and make connections to the Gigabit Media Converter. Please read the following topics and perform the procedures in the order being presented. The hardware installation of Gigabit Media Converter do not need software configuration. To install your Gigabit Media Converter on a desktop or shelf, simply complete the following steps.

2.5.1 Stand-alone Installation

The GT-1205A is with high reliability and flexibility to extend the distance up to 550m and 10/15/20/30/40/50/60/70/120km. It depends on the 1000Base-SX / LX SFP transceiver modules, the SFP transceiver is hot-pluggable and hot-swappable. You can plug-in and out the transceiver to / from any SFP port without having to power down the Gigabit Media Converter.

To install a GT-1205A stand-alone, on a desktop or shelf, simply complete the following steps:

- Step 1:** Turn off the power of the device/station in a network to which the GT-1205A will be attached.
- Step 2:** Ensure that there is no activity in the network.
- Step 3:** Slot in the 1000Base-X SFP module. Make sure both side of the SFP transceiver are with the same media type, for example: 1000Base-SX / 550m multi-mode to 1000Base-SX / 550m multi-mode, 1000Bas-LX / 10km single mode to 1000Base-LX / 10km single mode.

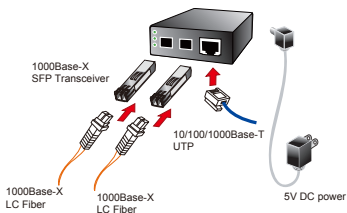


Figure 2-5-1: GT-1205A Gigabit Media Converter Stand Alone Installation

- Step 4:** Connect the fiber cable. Attach the duplex LC connector on the network cable into the SFP transceiver.
- Step 5:** Attach fiber cable from the GT-1205A to the fiber network. TX, RX must be paired at both ends.
- Step 6:** Connect the 5V DC power adapter to the GT-1205A and verify that the Power LED lights up.
- Step 7:** Turn on the power of the device/station; the LINK LED should light when all cables are well attached.



Note

1. It is recommends using PLANET **MGB** series SFP modules for the Gigabit Media Converter. If you insert a SFP transceiver that is not supported, the Gigabit Media Converter will not recognize it. Please check appendix or go visit our WEB site for details specification information. <http://www.planet.com.tw>
2. To prevent from optic acceptor malfunction, check the both wires / transmitter before power on the converter.
3. To remove the SFP module, please remove the fiber connectors in advanced and push the belt or letch of the module. Pull out the module with violent may damage the module and the Gigabit Media Converter.

■ Approved PLANET SFP Transceivers

The GT-1205A Gigabit Media Converter supports both Single mode and Multi-mode SFP transceiver. 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
- MGB-SX SFP-Port 1000Base-SX mini-GBIC module
- MGB-LX SFP-Port 1000Base-LX mini-GBIC module
- 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) -10KM
- MGB-LB10 SFP-Port 1000Base-LX (WDM, TX:1550nm) -10KM
- MGB-LA20 SFP-Port 1000Base-LX (WDM, TX:1310nm) -20KM
- MGB-LB20 SFP-Port 1000Base-LX (WDM, TX:1550nm) -20KM
- MGB-LA40 SFP-Port 1000Base-LX (WDM, TX:1310nm) -40KM
- MGB-LB40 SFP-Port 1000Base-LX (WDM, TX:1550nm) -40KM

2.5.2 Media Chassis Installation

To install the Gigabit Media Converter in a **10-inch** or **19-inch** with standard rack, follow the instructions described below.

- Step 1:** Place your Gigabit Media Converter on a hard flat surface, with the front panel positioned towards your front side.
- Step 2:** Carefully slide in the module until it is fully and firmly fitted into the slot of the chassis, the Power LED of the Gigabit Media Converter will turns ON.

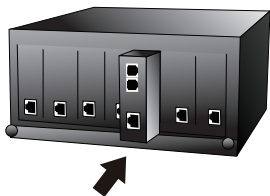


Figure 2-5-2: Insert a Gigabit Media Converter into an available slot



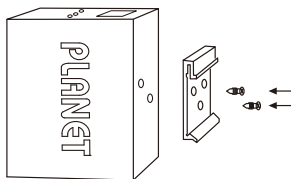
Caution

1. Never push the converter into the slot with violent, it could damage the chassis.
2. The Media Converter Chassis supports hot-swap; there is no need to turn off the whole chassis before slide in the new converter.

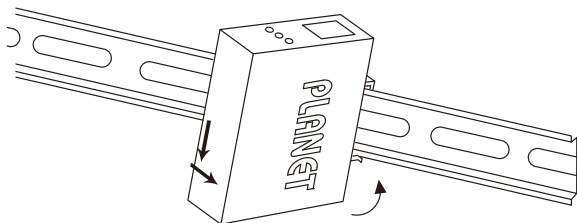
2.5.3 Optional DIN-Rail Installation

There are two DIN-Rail holes on the left side of the GT-1205A that allows it can be easily installed with DIN-Rail mounting. The PLANET optional DIN-Rail mounting Kit – RKE-DIN can be order separately. When need to replace the wall mount application with DIN-Rail application on the GT-1205A, please refer to following figures to screw the DIN-Rail on the GT-1205A. To hang the GT-1205A, follow the below steps:

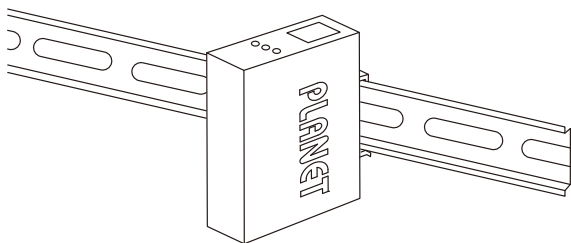
Step 1: screw the DIN-Rail on the GT-1205A



Step 2: Lightly press push the DIN-Rail into the track.



Step 3: Check the DIN-Rail is tightly on the track.



You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

Appendix A Networking Connection

A.1 Data RJ-45 Pin Assignments - 1000Mbps, 1000Base-T

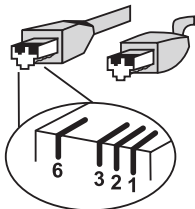
PIN NO	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

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 10/100Mbps, 10/100Base-TX

RJ-45 Connector pin assignment		
PIN NO	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	

The standard cable, RJ-45 pin assignment



The standard RJ-45 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:

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

A.3 Fiber-Optic Cable Connection Parameter

The wiring details are as below:

Cables:

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

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*



EC Declaration of Conformity

For the following equipment:

*Type of Product : 10/100/1000Base-T to Dual 1000Base-X SFP Media Converter
(1 TP, 2 SFP)
*Model Number : **GT-1205A**

* 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:

EN 55022	(2006 + A1:2007 + A2:2010)
EN 61000-3-2	(2006 + A1:2009 + A2:2009)
EN 61000-3-3	(2008)
EN 55024	(2010)
IEC 61000-4-2	(2008)
IEC 61000-4-3	(2006 + A1 :2007 +A2 :2010)
IEC 61000-4-4	(2004 + A1 :2010)
IEC 61000-4-5	(2005)
IEC 61000-4-6	(2008)
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
Place

19th April, 2013
Date


Legal Signature

PLANET TECHNOLOGY CORPORATION

e-mail: sales@planet.com.tw http://www.planet.com.tw

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