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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 Fast Ethernet Redundant Media Converter
User's Manual

FOR MODELS: FT-1105A / FT-1205A

REVISION: 1.0 (MARCH.2007)

Part No.: 2010-AA3520-000

Table of Contents

CHAPTER 1 OVERVIEW	1
CHAPTER 2 PRODUCT FEATURES	3
CHAPTER 3 CHECKLIST	5
CHAPTER 4 PRODUCT OUTLOOK	6
CHAPTER 5 DIP SWITCH	8
CHAPTER 6 INSTALLING THE CONVERTER	10
CHAPTER 7 REDUNDANCY	14
CHAPTER 8 LOOP BACK REPLY	16
CHAPTER 9 LED INDICATORS	17
CHAPTER 10 PRODUCT SPECIFICATION	20
APPENDIX A	21

Chapter 1

OVERVIEW

Thank you for choosing the Smart 10/100Base-TX to 100Base-FX Media Converter, The Media Converter introduced here provides one channel media conversion between 10/100Base-TX and 100Base-FX.

About the Redundant Media Converter

The FT-1105A and FT-1205A are 3-Port Redundant Media Converters which support conversion between 10/100Base-TX and 100Base-FX network. Different with the other one-port channel media converter, the Redundant Media Converters are designed for critical networks that require fiber or copper link auto recover less than 10ms, such as ISP, telecom, hospital, banking and enterprise. The two models of PLANET Redundant Media converter as following:

- FT-1105A: 100Base-FX to two 10/100Base-TX copper link redundancy
- FT-1205A: 10/100Base-TX copper to two 100Base-FX fiber link redundancy

Via the build-in DIP-switches, the two models can be configured as 3-Port Ethernet switch or 2-Port Redundant media converter. With the 3-Port Switch mode, they work in high performance Store and Forward mechanism, also can prevent packet loss with IEEE 802.3x Flow Control (Full-Duplex) and Back Pressure (Half-Duplex).

With 2-Port redundant Mode, it provides less than 10ms link redundancy 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 **Redundant** Media Converters - **FT-1105A** and **FT-1205A**, support conversion between 10/100Base-TX and 100Base-FX network. The SFP slot supports single-mode, multi-mode and WDM small-form factory type transceiver modules for your needs. With 100Base-FX SFP ports, the FT-1105A and FT-1205A are with high reliability and flexibility to extend the distance up to 2km, 20km, or longer. It depends on the 100Base-FX SFP transceiver modules.

Ethernet signal that allows two type segments connect easily, efficiently and inexpensively.

The converters can be used as a stand-alone unit or as a slide-in module to the PLANET Media Converter Chassis (**MC-700**, **MC-1000R** and **MC-1500**). As the other PLANET FT-Series media converters, they're hot swappable in MC-Chassis.

Chapter 2

PRODUCT FEATURES

■ Standard

- Complies with IEEE 802.3, IEEE 802.3u 10/100Base-TX, 100Base-FX
- IEEE 802.3x Full-Duplex Flow-Control, Back-Pressure in Half-Duplex eliminate packets loss

■ Interface

- FT-1105A : Dual 10/100Base-TX Copper, One 100Base-FX SFP Fiber optic
- FT-1205A : Dual 100Base-FX SFP Fiber optic, One 10/100Base-TX Copper
- Auto-Negotiation for 100Base-TX Half-Duplex or 100Base-Full-Duplex
- Supports Auto MDI/MDI-X function
- Supports Maximum frame size up to 2046Kbytes.

■ 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 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.
- Hardware redundant swap less then 10 ms.

■ Mechanical

- External 5V/2A DC power supply
- LED indicators for easy network diagnose
- DIP Switch for 3-Port operation with Fast Ethernet Switch mode or Redundant mode
- DIP switch for LBR (Loop Back Reply) on / off selection
- Compact size, easy installation
- Co-work with PLANET MC family Media Chassis (**MC-700 / 1000R / 1500**)

Chapter 3

CHECKLIST

Your FT-1105A / FT-1205A carton should contain the following items:

- ⇒ The Redundant Fast Ethernet Converter
- ⇒ AC-DC Power Adapter (Output: 5VDC, 2A max.)
- ⇒ This user's manual

If any item is missing or damaged, please consult the dealer from whom you purchased your Redundant Fast Ethernet Converter.

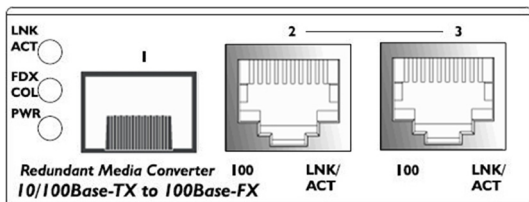
🔔 Notice:

FT-1105A / FT-1205A is with one vacant SFP module slot. The 100Base-FX SFP module is not bundled with in the package

Chapter 4

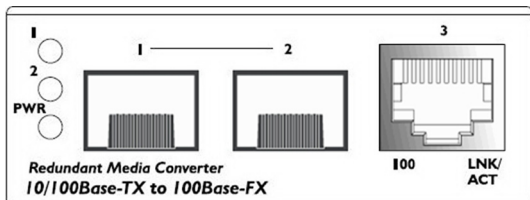
PRODUCT OUTLOOK

► FT-1105A Front Panel



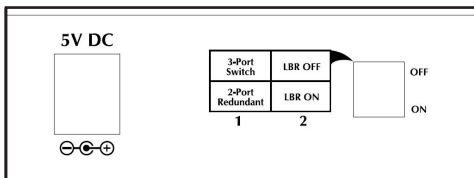
- Port-1 100Base SFP slot
- Port-2 TP connector (Primary Port)
- Port-3 TP connector (Backup Port)

➤ FT-1205A Front Panel



- Port-1 100Base SFP slot (Primary Port)
- Port-2 100Base SFP slot (Backup Port)
- Port-3 TP connector

➤ FT-1105A / FT-1205A Rear Panel

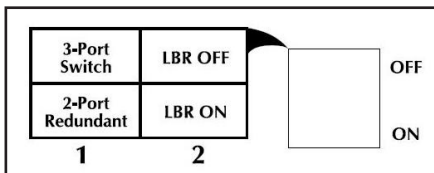


One DC jack for DC power input and DIP switch to set 3-Port switch mode / 2-Port Redundant and Loop Back Reply enable/disable function.

Chapter 5

DIP SWITCH

There is a DIP switch for the setting on converter mode of copper and fiber port. Refer to the table below for more details.



■ FT-1105A

Switch 1	On	2-Port Redundant (TP)
	Off	3-Port Switch (default)
Switch 2	On	LBR ON
	Off	LBR OFF (default)

■ 2-Port Redundant (FT-1105A)

When TP Redundancy is enabled, TP Port-2 and TP Port-3 are configured as either forwarding or disabled. At any given time, one port will be disabled and one port will be forwarding.

■ 3-Port Switch

When TP Redundancy is disabled, all ports (Port-1, Port-2 and Port-3) act as normal bridging ports.

■ LBR (Loop Back Reply)

Enable/Disable the converter to reply for Loop Back Test.

Chapter 6

INSTALLING THE CONVERTER

6.1 Stand-alone Installation

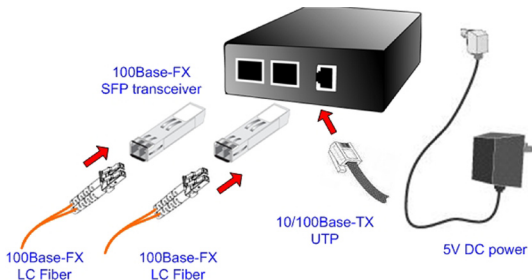
FT-1105A/FT-1205A is with high reliability and flexibility to extend the distance up to 2Km, 20Km, or longer. It depends on the 100Base-FX SFP transceiver modules. The SFP transceivers are hot-plugable and hot-swappable. You can plug-in and out the transceiver to/from any SFP port without having to power down the converter.

To install a FT-1105A/FT-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 FT-1105A / FT-1205A will be attached.

Step 2: Ensure that there is no activity in the network.

Step 3: Slot in the 100Base-FX SFP. Make sure both side of the SFP transfer are with the same media type, for example: 100Base-FX/2km to 100Base-FX/2km, 100Bas-FX/20km to 100Base-FX/20km.



 NOTE:

It recommends using PLANET MFB-FX series 100Base-FX SFP on the converter. If you insert a SFP transceiver that is not supported, the converter will not recognize it.

- 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 FT-1105A/FT-1205A to the fiber network. TX, RX must be paired at both ends.
- Step 6: Connect the 5VDC power adapter to the FT-1105A/FT-1205A and verify that the Power LED lights up.
- Step 7: Turn on the power of the device/station; the PWR LEDs should light when all cables are attached.

 NOTE:

Please refer to APPENDIX-A for detailed wiring information of the FT-1105A/FT-1205A.

To prevent from optic acceptor malfunction, check the both wires / transmitter before power on the converter.

6.2 Chassis Installation and Rack Mounting

To install the media converter in a 10-inch or 19-inch with standard rack, follow the instructions described below.

- Step 1: Place your FT-1105A/FT-1205A 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.

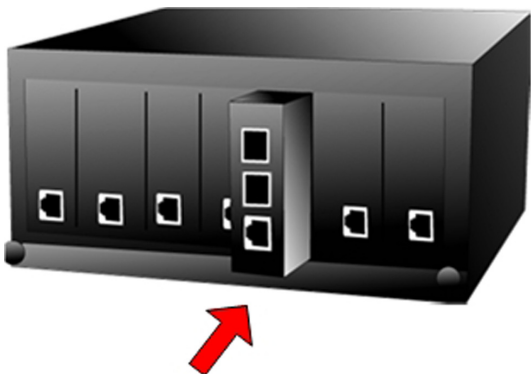


Figure 6-2: Insert a media converter into an available slot

Step 3: Attach a rack-mount bracket to each side of the Chassis with supplied screws attached to the package.

Step 4: After the brackets are attached to the chassis, use suitable screws to securely attach the brackets to the rack, as shown in Figure 6-2.

Step 5: Proceed with the steps 4 and steps 5 of session 6.1 Stand-alone Installation to connect the network cabling and supply power to your switch.



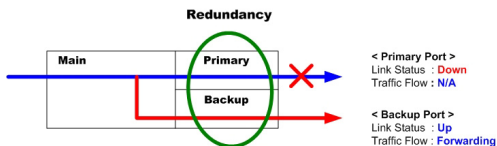
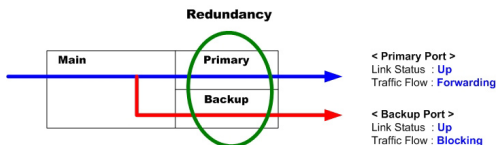
Caution:

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

Chapter 7

Redundancy

The FT-1105A / FT-1205A provide less than 10 ms link redundancy 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.



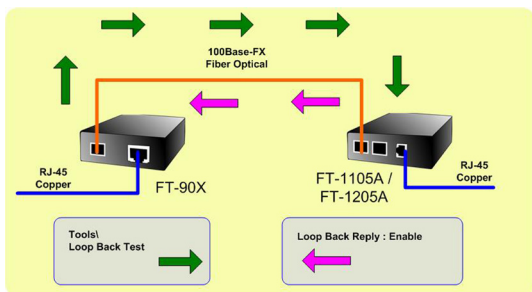
Traffic is changed from Primary-Port to Backup-Port


- 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.

Chapter 8

Loop Back Reply

The FT-1105A / FT-1205A supports auto loop back reply while receive loop back test packets on fiber port. Enable this function to tell the converter to reply fiber signals request from Web Smart media converter, such as PLANET FT-90x. You can use this to check whether the converter can communicate with partner converter. Please refer to the following figure.



 Notice: For FT-1105A only, while enable the Loop Back Reply function, the Port-2 (TP) must be link up.

Chapter 9

LED INDICATORS

The LED indicators give you instant feedback on status of the converter:

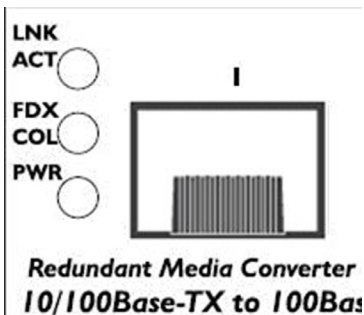
■ **System**

LED	Color	Description
PWR	Green	Lit: Power on.

■ **FT-1105A / FT-1205A -10/100Base-TX Port**

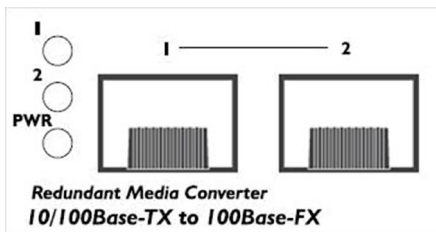
LED	Color	Function	
LNK/ ACT	Orange	Lit:	Indicate that the port is link up.
		Blink:	Indicate that the converter is actively sending or receiving data over that port.
		Off:	Indicate that the port is link down.
100	Green	Lit:	Indicate that the port is operating at 100Mbps.
		Off:	Indicate that the port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

■ FT-1105A -100Base-FX SFP Port



LED	Color	Function	
LNK/ ACT	Green	Lit:	Indicate that the port is link up.
		Blink:	Indicate that the converter is actively sending or receiving data over that port
		Off:	Indicate that the port is link down
FDX/ COL	Green	Lit:	Indicate that the connection made through the corresponding port is running in Full-Duplex mode.
		Off:	Indicate that the connection made through the corresponding port is running in Half-Duplex mode.

■ FT-1205A -100Base-FX SFP Port



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

Chapter 10

PRODUCT SPECIFICATION

Model		FT-1105A	FT-1205A
Ports	Copper	2 x 10/100Base-TX port	1 x 10/100Base-TX port
	Fiber	1 x 100Base-FX port	2 x 100Base-FX port
Optic Interface		SFP	SFP
Redundant Link		Port 2 (Primary) Port 3 (Backup)	Port 1 (Primary) Port 2 (Backup)
Cable	Twisted-pair	10Base-T : 2-Pair UTP Cat. 3,4,5, up to 100m 100Base-TX : 2-Pair UTP Cat. 5, 5e up to 100m	
	Fiber-optic cable	<ul style="list-style-type: none">• 50/125μm or 62.5/125μm multi-mode fiber cable, up to 2km.• 9/125μm single-mode cable, provide long distance for 20/40/60km or longer (very on SFP module)	
Speed	Twisted-pair	10/20Mbps for Half/Full-Duplex 100/200Mbps for Half/Full Duplex	
	Fiber-optic	200Mbps for Full-Duplex	

LED indicator	System: One Power LED, TP Port : • One Speed • One LNK/ACT Fiber Port: • One Link/Act, • One FDX/Col	System: One Power LED, TP Port : • One Speed • One LNK/ACT Fiber Port: • One Link/Act
DIP Switches	DIP 1: On 3-Port Switch Mode Off 2-Port Redundant DIP 2: On Loop Back Reply Enable Off Loop Back Reply Disable	
Standards	IEEE 802.3, 10Base-T IEEE 802.3u, 100Base-TX, 100Base-FX IEEE 802.3x Flow Control	

APPENDIX A

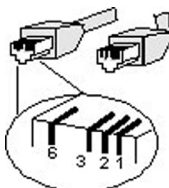
A.1 Device's RJ-45 Pin Assignments

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

Contact	MDI	MDI-X
1	1 (TX +)	3
2	2 (TX -)	6
3	3 (RX +)	1
6	6 (RX -)	2
4, 5, 7, 8	Not used	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:

Straight Cable		SIDE 1	SIDE 2
1 2 3 4 5 6 7 8	SIDE 1	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
1 2 3 4 5 6 7 8	SIDE 2	6 = Green	6 = Green
		7 = White/Brown	7 = White/Brown
		8 = Brown	8 = Brown

Cross Over Cable		SIDE 1	SIDE 2
1 2 3 4 5 6 7 8	SIDE 1	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
1 2 3 4 5 6 7 8	SIDE 2	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 Optical Cable Connection Parameter

The wiring details are as below:

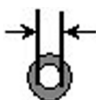
■ Fiber Optical patch Cables:

Standard	Fiber Type	Cable Specification
100Base-FX (1310nm)	Multi-mode	50/125 μ m or 62.5/125 μ m
100Base-FX (1310nm)	Multi-mode	50/125 μ m or 62.5/125 μ m
	Single-mode	9/125 μ m
100Base-BX-U (TX :1310/RX :1550) 100Base-BX-D (TX :1550/RX :1310)	Single-mode	9/125 μ m

A.4 Power Information

The power jack of FT-1105A / FT-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 problem to make the power connection, please contact your local sales representative.

Please keep the AC-DC adapter as spare parts when your FT-1105A / FT-1205A is installed to a Media Chassis.



2.5mm

DC Receptacle 2.5mm

+5V for each slot



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

A.5 Available Modules

The following list the available Modules for FT-1105A / FT-1205A

MFB-FX	SFP-Port	100Base-FX	Transceiver
	(1310nm)	-2km	
MFB-F20	SFP-Port	100Base-FX	Transceiver
	(1310nm)	- 20km	
MFB-FA20	SFP-Port	100Base-BX	Transceiver
	(WDM,TX:1310nm)	-20km	
MFB-FB20	SFP-Port	100Base-BX	Transceiver
	(WDM,TX:1550nm)	-20km	

2010-AA3520-000



