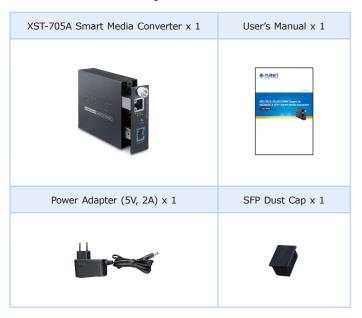# 1. Package Contents

Thank you for purchasing PLANET 10G Smart Media Converter. In the following sections, unless specified, the term "Smart Media Converter" mentioned in this manual refers to the XST-705A.

Open the box of the Smart Media Converter and carefully unpack it. The box should contain the following items:

XST-705A Smart Media Converter x 1	User's Manual x 1
Power Adapter (5V, 2A) x 1	SFP Dust Cap 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.

2. Product Features

XST-705A Physical Port

➢ One 10G/5G/2.5G/1G/100BASE-T RJ45 interface with auto MDI/MDI-X function

➢ One 10GBASE-X SFP+ slot

Layer 2 Features

➢ IEEE 802.3u/802.3ab/802.3bz/802.3ae Ethernet standard compliant

➢ Supports auto-negotiation and 100Mbps half/full duplex and 1/2.5/5/10Gbps full duplex mode

➢ Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)

➢ 16K jumbo frame size support

➢ Automatic address learning and address aging

Case and Installation

➢ External 5V DC, 2A power supply

➢ Wall-mount design

➢ Supports 6000 VDC Ethernet ESD protection

➢ 100 meters over Cat 6A/Cat7 at 10Gbps

➢ 0 to 50 degrees C operating temperature

➢ Co-works with PLANET's 19" Managed Media Converter Chassis series (MC-1610MR/MC-1610MR48)
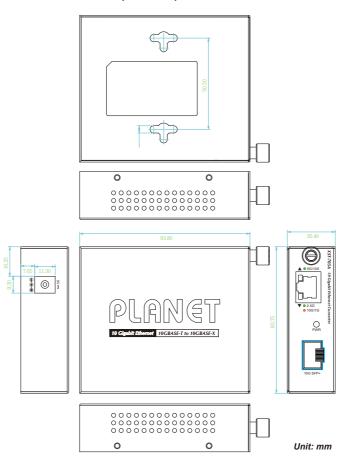
➢ Plug and Play installation

3. Product Specifications

Model	XST-705A
Hardware Specifications	
Copper Interface	1 x 10G/5G/2.5G/1G/100BASE-T RJ45 Auto-MDI/MDI-X, auto-negotiation
Fiber Optic Interface	1 x 10GBASE-X R SFP+ slot
LED	**System:** PWR (Green) **10G/5G/2.5G/1G/100 BASE-T RJ45 Interfaces:** 1G/10G LNK (Amber) 5G/2.5G/100M LNK (Green)
ESD Protection	6KV DC
Enclosure	Compact-sized metal case
Installation	Desktop or wall mounting
Dimensions (W x D x H)	93.8 x 80.75 x 26.4mm
Weight	182g (device only)
Power Requirements	5V DC, 2A max.
Power Consumption	3.8 watts/13 BTU per hour (max.)
Converter Specifications	
Switch Processing Scheme	Store and Forward
Flow Control	Copper Interface: Back pressure for half duplex IEEE 802.3x pause frame for full duplex
Fabric	20Gbps
Jumbo Frame	16K
Network Cables	**10G/5G/2.5G/1G/100M BASE-T:** 10G--Cat 6A/Cat 7 5G--Cat 6/Cat 6A/Cat 7 1G/2.5G--Cat 5e/Cat 6/Cat 6A/Cat 7 100M--Cat 5/Cat 5e/Cat 6/Cat 6A/Cat 7 Cat 5/5e/6/6A/7 UTP cable (100 meters, max.) EIA/TIA-568 100-ohm STP (100 meters, max.) **10GBASE-LR/SR/BX:** 50/125µm or 62.5/125µm multi-mode fiber optic cable, up to 300m 9/125µm single-mode fiber optic cable, up to 60km
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Operating environment	0 ~ 50 degrees C
Storage Environment	-10 ~ 70 degrees C
Operating Humidity	5 ~ 95%, relative humidity (non-condensing)
Storage Humidity	5 ~ 95%, relative humidity (non-condensing)
Standards Compliance	IEEE 802.3u 100BASE-TX IEEE 802.3ab 1000BASE-T IEEE 802.3bz 2.5G/5GBASE-T IEEE 802.3an 10GBASE-T IEEE 802.3ae 10Gbps Ethernet IEEE 802.3x full-duplex flow control (Copper Port)

4. Hardware Description

4.1 Physical Dimensions

■ **XST-705A** dimensions (W x D x H): 93.8 x 80.75 x 26.4mm

Unit: mm

4.2 Converter Front Panel and LED Indicators

The front panel of the Smart Media Converter shows below:

System

LED	Color	Function
PWR	Green	**Lit:** Power is active
		Off: Power is inactive

Per 10G/5G/2.5G/1G/100BASE-T Port

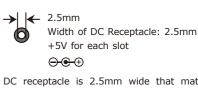| LED	Color	Function
10/2.5/1G	Green	**Lit:** To indicate that the port is operating at **2.5Gbps**.
	Amber	**Lit:** To indicate that the port is operating at **10/1Gbps**.
5G/100M	Green	**Lit:** To indicate that the port is operating at **5Gbps/100Mbps**.

4.3 Rear Panel

The rear panel of the XST-705A consists of one DC jack, which accepts input power with 5V DC, 2A.

4.4 Power Information:

The central pole of the Smart Media Converter's power jacks measures 2.5mm wide that requires +5VDC power input. It conforms to the bundled AC-DC adapter and PLANET's media chassis. Should you have the issue of power connection, please contact your local sales representative.

Please keep the AC-DC adapter as a spare part when the XST-705A is installed in a media chassis.

2.5mm
Width of DC Receptacle: 2.5mm
+5V for each slot

DC receptacle is 2.5mm wide that matches the central pole; the width of the Smart Media Converter DC jack also measures 2.5mm.

Warning: Do not install any improper unit.

The device is a power-required device, meaning it will not work till it is powered. If your networks should be 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 areas, installing a surge suppression device may also help to protect your Smart Media Converter from being damaged by unregulated surge or current to the converter or the power adapter.

5. Installation

This section describes the functionalities of the Smart 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.

5.1 Stand-alone Installation

Step 1: Unpack the Smart Media Converter.

Step 2: Connect the 5V DC power adapter to the XST-705A and verify that the Power LED lights up.

(Please refer to the **4.4 Power Information** section for power input.)

Step 3: 3-1: Prepare a twisted-pair, straight-through **Category 5e/6/7 UTP cable** for Ethernet connection.

3-2: Prepare a fiber cable for connection to the 10GBASE-T SFP+ slot, and make sure both sides of the SFP transceiver are with the same media type.

(Please refer to the **3.5 Cable Connection** section for the type of connection.)

Step 4: 4-1: Insert one side of **Category 5e/6/7 cable** into the Smart Media Converter Ethernet port (RJ45) while the other side of Category 5e/6/7 cable into the network devices' Ethernet port (RJ45), e.g., switch, PC or server.

The UTP port (RJ45) LED on the Smart Media Converter will light up when the cable is connected with the network device. (Please refer to the **4.2 LED Indicators** section for the functions of LED lights.)
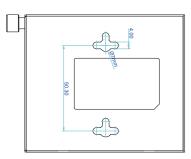
4-2: Connect the **fiber cable**. Attach the duplex LC connector on the network cable to the SFP+ transceiver. Attach the fiber cable from the XST-705A to the fiber network. TX, RX must be paired at both ends.

Step 5: When all the connections are all set and all the LED lights show normal, the installation is complete.

5.2 Wall-mount Installation

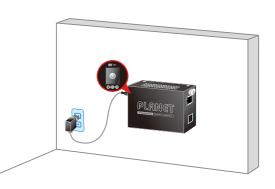**Step 1:** Please find the wall that can mount the Smart Media Converter

Step 2: Screw two screws on the wall.

XST-705A Switch Bottom Side

Step 3: Hang the Smart Media Converter on the screws from the wall.

Step 4: Refer to Chapter **4.4 Power Information** on power supply to the Smart Media Converter.

> **Note:** Before mounting the device to the wall, please check the location of the electrical outlet and the length of the Ethernet cable.

5.3 Slide Media Converter Module into MC-1610MR/MC-1610MR48 Chassis installation

To install the Smart Media Converter in a **19-inch** standard rack, follow the instructions described below.

Step 1: Unscrew and pull out the Smart Media Converter board.

Step 2: Remove a blank faceplate from an empty expansion slot on the front of the chassis. The Smart Media Converter board can be installed in any expansion slot.

Step 3: Slide the Smart Media Converter board into the expansion slot, aligning it with the guide rails, until it firmly connects to the chassis' backplane.

Step 4: Secure the Smart Media Converter board to the chassis by tightening the thumbscrew.

> **Caution:**
> 1. Never push the converter into the slot with force; it could damage the chassis.
> 2. The Smart Media Converter Chassis supports hot-swap; there is no need to turn off the whole chassis before sliding in the new converter.

5.4 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 Smart Media Converter.

MTB Series Transceiver

Figure 5-1: Plug in the SFP+ Transceiver

> **Note:** It is recommended to use PLANET SFP+s on the Smart Media Converter. If you insert an SFP+ transceiver that is not supported, the Smart Media Converter will not recognize it.

10GBASE-X SR/LR:

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

1. Make sure both sides of the SFP+ transceiver are with the same media type; for example, 10GBASE-SR to 10GBASE-SR, 10GBASE-LR to 10GBASE-LR.

2. Check whether the fiber-optic cable type matches the SFP+ transceiver model.
   ➢ To connect to 10GBASE-SR SFP+ transceiver, use the multi-mode fiber cable with one side being the male duplex LC connector type.
   ➢ To connect to 10GBASE-LR 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 of the network cable to the SFP+ transceiver.

2. Connect the other end of the cable to a device like a switch with SFP+ installed, fiber NIC on a workstation or a Smart Media Converter.

■ 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), disable the port in advance.

2. Remove the fiber optic cable gently.

3. Turn the lever of the MTB module to a horizontal position.

4. Pull out the module gently through the lever.

MTB Series Transceiver

Figure 5-2: Pulling Out the Transceiver from the Slot

10G/5G/2.5G/1G/100M Copper to 10GBASE-X SFP+ Smart Media Converter

▶ XST-705A

> **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 Smart Media Converter.

10G/5G/2.5G/1G/100BASE-T

The 10G/5G/2.5G/1G/100BASE-T port comes with auto-negotiation capability. It automatically supports 100BASE-TX, 1GBASE-T, 2.5GBASE-T, 5GBASE-T and 10GBASE-T networks. Users only need to plug a working network device into the 10G/5G/2.5G/1G/100BASE-T port, and then turn on the Smart Media Converter. The port will automatically run at 100Mbps, 1000Mbps, 2500Mbps or 5000Mbps and 10000Mbps after the negotiation with the connected device.

Connecting the UTP Cable

The 10G/5G/2.5G/1G/100BASE-T port uses RJ45 socket -- similar to phone jack -- for connection of unshielded twisted-pair cable (UTP). The 802.3u/802.3ab/802.3bz/802.3ae Ethernet standard requires Category 5 UTP for 100Mbps 100BASE-TX. 10G/5G/2.5G/1G/100BASE-T uses Cat5e/6/6A/7 UTP (see table below). Maximum distance is 100 meters (328 feet).

Standard	Transfer Speed	Cable Requirement (100M)
10GBASE-T	10000Mbit/s	Cat 6A/7
5GBASE-T	5000Mbit/s	Cat 6/6A/7
2.5GBASE-T	2500Mbit/s	Cat 5e/6/6A/7
1000BASET	1000Mbit/s	Cat 5e/6/6A/7
100BASE-TX	100Mbit/s	Cat 5/5e/6/6A/7

> **Note:** Be sure the connected network devices support MDI/MDI-X. If it does not support, then use the crossover Category 5e6/6A/7 cable.