User Manual

MP-HT-4T

4K HDBaseT Splitter 1x4

Version: MP-HT-4T_2016V1.0

SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Contents

1. Introduction

1.1 Introduction to MP-HT-4T

MP-HT-4T is an HDBT Splitter accepting 1 HDMI input and distributing to 4 HDBT outputs, plus 1 HDMI local output. The HDMI output socket can be used to monitor local devices or cascade with additional splitter.

MP-HT-4T allows uncompressed 4K (max) HDMI, IR, and RS232 signals to be transmitted over a single CAT5e/6/7 cable. It supports transmission of 4k signal up to 40m and 1080p signal up to 60m. If required, use the HDMI local output to cascade the HDMI signal up to 4 times with additional MP-HT-4T. MP-HT-4T is also capable of bi-directional IR control, RS232 control, EDID management and PoC.

HDMI Twisted Pair PoC Receiver is recommended to utilize the full function of the HDBT outputs of this device.

1.2 Features

- Compliant with HDMI 1.4& 3D
- Transmit 4k x 2k signal up to 40m and 1080p signal up to 60m
- Support PoC
- Support bi-directional IR control and cascade control
- Support RS232 control and cascade control
- Real-time display of working status via LED indicators
- Support EDID configuration, 5 types in total
- Support cascading via HDMI OUT, IR Loop and RS232 Loop

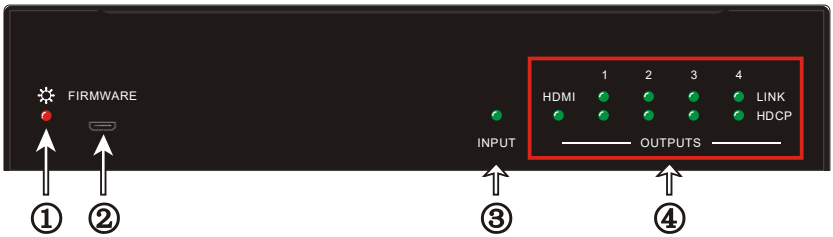
1.3 Package List

- 1 x MP-HT-4T
- 2 x Mounting ears (separate from MP-HT-4T)
- 8 x Screws
- 1 x 3.5mm Male-male Audio cable (used for IR signal cascade)
- 1 x RS232 cable (3-pin captive connector to DB9)
- 1 x RS232 cable (connect 2 3-pin captive connectors for cascading)
- 4 x Plastic cushions
- 1 x Power Cord
- 1 x Power Adapter (DC 24V 2.5A)
- 1 x User Manual

Notes：Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Panel Description

2.1 Front Panel

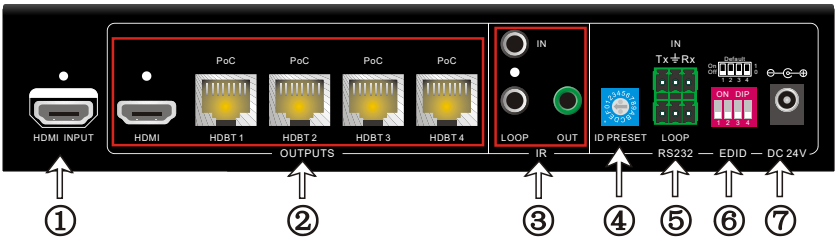


No.	Name	Description
①	Power indicator	Illuminate red once powered on
②	FIRMWARE	USB port, used for firmware update.
③	INPUT	Iluminate green when there is input signal, remain off when there is no input signal
④	OUTPUTS	HDMI: ➢ illuminate green when the HDMI source signal is with HDCP ➢ blink green when the HDMI source signal is without HDCP ➢ turn off when there is no input HDMI signal
		LINK: indicate linking status of the four HDBT sockets, corresponding to the four HDBT sockets separately ➢ illuminate green when the corresponding HDBT socket is connected to HDMI Twisted Pair PoC Receiver successfully ➢ turn off when there is no HDMI Twisted Pair PoC Receiver connected to the correspongding socket.
		HDCP: HDCP compliance indicator, correspondence with the receivers connected to the four HDBT ports ➢ illuminate green when the corresponding receiver is with HDCP ➢ blink green when the corresponding receiver is without HDCP ➢ remain off when there is no receiver connected to the corresponding port

Note: Pictures shown in this manual are for reference only, different model and

specifications are subject to real product.

2.2 Rear Panel



No.	Name	Description
①	HDMI INPUT	Connect with HDMI source device such as DVD/ Blue-ray
②	OUTPUTS	➢ HDMI: Connect to a HDMI display or cascade HDMI AV signal to other displayers by connecting to the HDMI INPUT port of the other MP-HT-4T ➢ HDBT: HDBT output ports with PoC, 4 in total, connect with IR receivers to transmit HDMI signal
③	IR	➢ IN: Connect with IR Receiver to receive IR signal from IR Emitter. ➢ LOOP: Cascade IR control signal to another HDBT Splitter by connecting to its IR IN socket ➢ OUT: Connect with IR emitter to emit the IR signal received from the receiver side.
④	ID PRESET	Assign ID for MP-HT-4T to identify every unit, the value may vary from 0~F. After assigning ID, restart MP-HT-4T for stable performance.
⑤	RS232	➢ IN: connect with control device through 3-pin captive cable ➢ LOOP: cascade RS232 control signal to another splitter by connecting to its RS232 IN port Note: Please set the communication protocol parameters correctly, and send RS232 commands referring to instructions in *3.6 RS232 Control.*
⑥	EDID DIP Switchers	4-pin EDID DIP switchers, “1” stands for “On”, “0” stands for “Off”. Dial the switches to change EDID data refering to the explainations in 4.3 EDID Management.
⑦	DC 24V	Plug a 24V DC power adapter into this socket and tighten the screw.

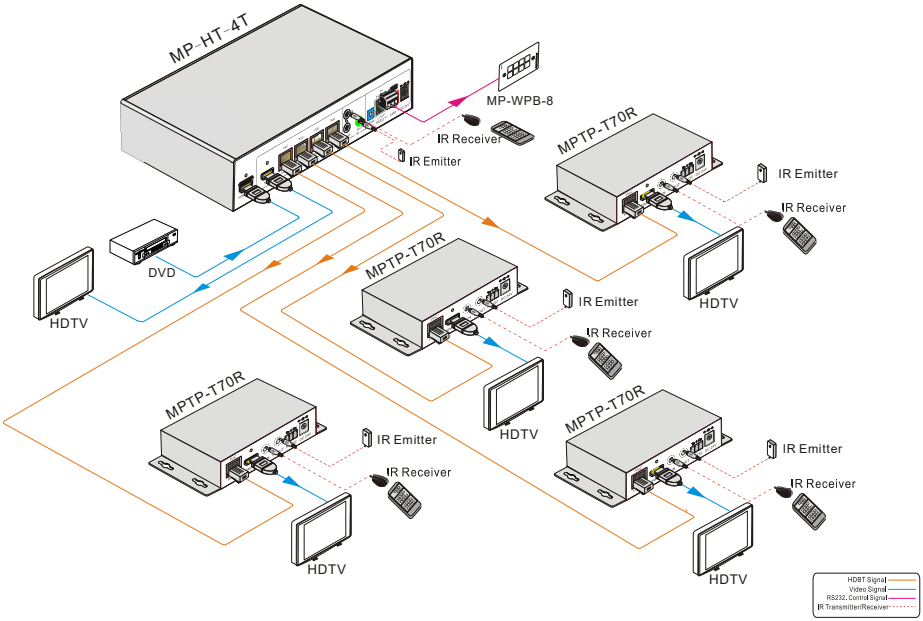
Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

3. System Connection

3.1 Usage Precautions

1) System should be installed in a clean environment and has a prop temperature and humidity.
2) All of the power switches, plugs, sockets and power cords should be insulated and safe.
3) All devices should be connected before power on.

3.2 System Diagram



3.3 Connection Procedure

Step1. Connect a HDMI source device (e.g. Blue-ray DVD) to the **HDMI INPUT** socket of MP-HT-4T with HDMI cable.

Step2. Connect a HDMI display to **HDMI OUTPUT** socket of MP-HT-4T with HDMI cable.

Step3. Connect HDMI Twisted Pair PoC Receiver(s) (such as MPTP-T70R) to HDBT output port(s) of MP-HT-4T with twisted pair.

Step4. Connect control device (e.g. PC) to the **RS232 IN** port of MP-HT-4T.

If you want to cascade RS232 signal among several MP-HT-4T through RS232 LOOP, connect the **RS232 LOOP** socket of one of them and the **RS232 IN** socket of the next until all MP-HT-4T have been connected.

Step5. Connect an IR Receiver to the **IR IN** port, and an IR Emitter to the **IR OUT** port. The IR signal can be transmitted bi-directionally between MP-HT-4T and HDMI Twisted Pair PoC Receiver(s).

If you want to cascade IR signal among several MP-HT-4T, connect the **IR LOOP** socket of one of them and the **IR IN** socket of the next until all MP-HT-4T have been connected.

Step6. Connect a DC 24V power adapter to the power port of MP-HT-4T, HDMI Twisted Pair PoC Receiver is able to be energized by MP-HT-4T with PoC solution.

3.4 Cascade Connection

3.4.1 Cascade AV Signal

HDMI source signal can be cascaded to several displayers via HDMI OUT/ IN.

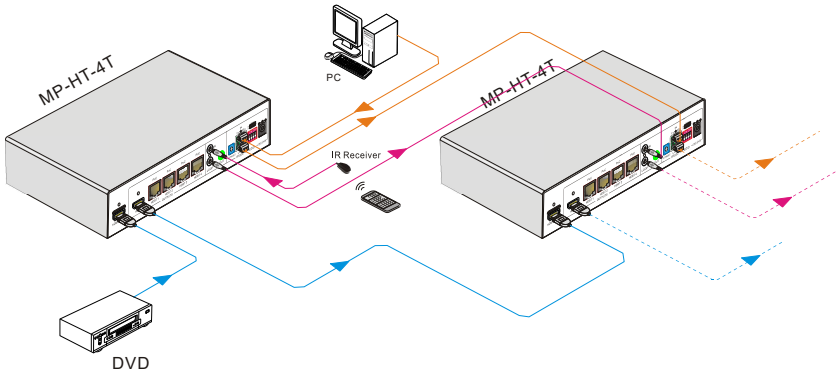
Connect the **HDMI OUT** socket of the first MP-HT-4T to **HDMI IN** socket of the next until all MP-HT-4T have been connected.

HDMI signals delivered within the first MP-HT-4T are able to be outputted to other connected MP-HT-4T too.

3.4.2 Cascade Control Signal

MP-HT-4T supports control cascading via IR LOOP/ RS232 LOOP to enable signal loop output. Users can choose one or multiple cascade methods according to their specified needs.

Here is the cascade connection diagram:



➢ **Cascade through IR Loop**

Connect the **IR LOOP** socket of the first MP-HT-4T and the **IR IN** socket of the next until all MP-HT-4T have been connected.

Sending IR signals to the IR Receiver connected to the first MP-HT-4T will control all cascaded MP-HT-4T.

- **Cascade through RS232 Loop**

  Connect the **RS232 LOOP** socket of the first MP-HT-4T and the **RS232 IN** socket of the next until all MP-HT-4T have been connected.

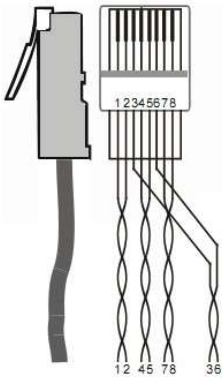
  Sending RS232 commands will control all cascaded MP-HT-4T synchronously.

Note: To identify MP-HT-4T in cascading, please set a unique ID for each unit when the cascade connection is done.

3.5 Twisted Pair Cable Connection

The twisted pair used in HDMI Twisted Pair PoC Receiver MUST be a straight-through cable. The connectors can be T568A or T568B, but both sides must be the same.

TIA/EIA T568A			TIA/EIA T568B	
Pin	Cable color		Pin	Cable color
1	green white		1	orange white
2	green		2	orange
3	orange white		3	green white
4	blue		4	blue
5	blue white		5	blue white
6	orange		6	green
7	brown white		7	brown white
8	brown		8	brown



Note: Every pin in pure color groups with its half white pin.

4. Control Modes

MP-HT-4T has a good application in various occasions, such as computer realm, monitoring, conference room, big screen displaying, television education, command & control center and smart home etc.

MP-HT-4T can be controlled via IR, RS232 commands and EDID management.

4.1 IR Control

MP-HT-4T provides with an IR IN port, the port support bi-directional transmission. Connect an IR receiver to the IR IN port, users can control MP-HT-4T/ far-end device from local or control local devices from remote via corresponding IR remote.

4.1.1 Control far-end device from local

Control MP-HT-4T or far-end display device from local through corresponding IR remote.

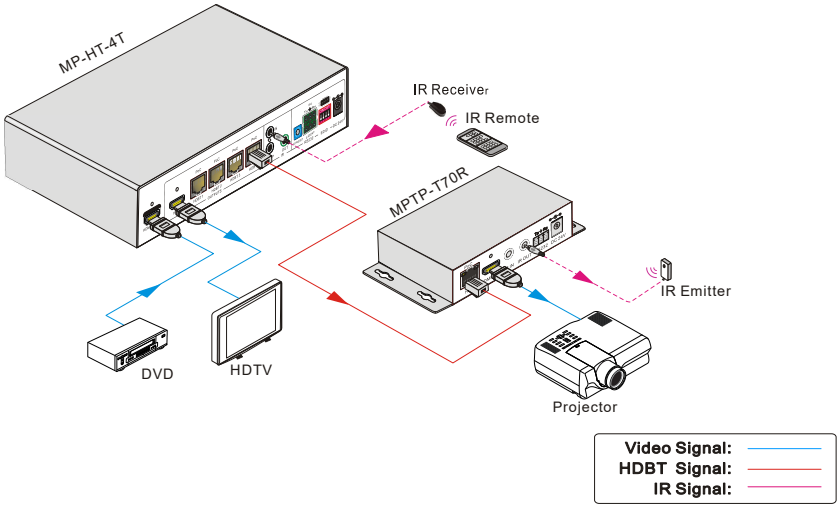


Figure 4- 1 Control far-end device from local

4.1.2 Control local device from remote

Control MP-HT-4T or local displayer from remote via corresponding IR remote.

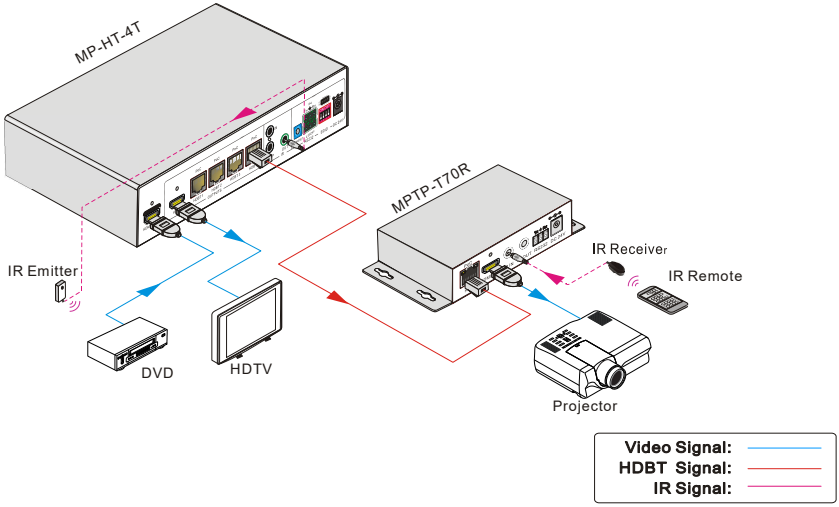


Figure 4- 2 Control local device from remote

4.2 RS232 Control

Connect the RS232 ports of MP-HT-4T and HDMI Twisted Pair PoC Receiver, MP-HT-4T is capable to control the third party (RS232 device) connected to HDMI Twisted Pair PoC Receiver from local.

Note: MP-HT-4T can only control third parties with designed baud rates, including 2400, 4800, 9600, 19200, 38400, 57600 and 115200.

4.2.1 Installation/uninstallation of RS232 Control Software

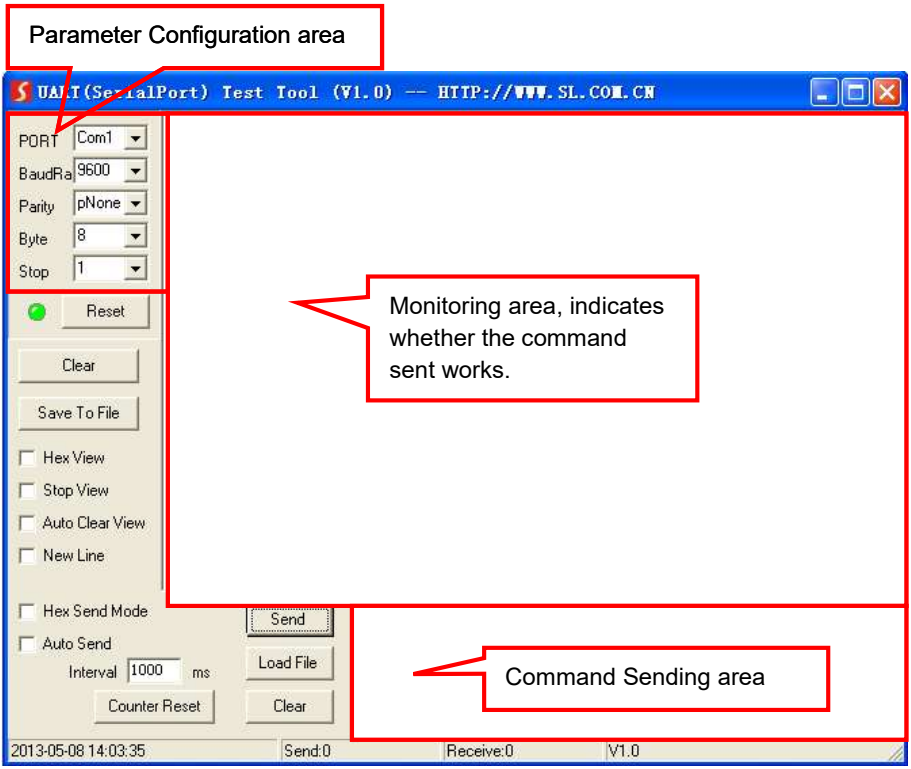
- **Installation** Copy the control software file to the computer connected with MP-HT-4T.
- **Uninstallation** Delete all the control software files in corresponding file path.

4.2.2 Basic Settings

Firstly, connect MP-HT-4T with an input device and an output device. Then, connect it with a computer which is installed with RS232 control software. Double-click the software icon to run this software.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:

The interface of the control software is showed as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, only then will you be able to send command in Command Sending Area.

Note: To control MP-HT-4T via RS232 port, the communication protocol parameters should be configured in the right manner: Baud rate: 9600; Data bit: 8; Stop bit: 1; Parity bit: none.

4.2.3 RS232 Communication Commands

Command	Function	Feedback Example
EDIDUpgrade[x][y].	Upgrade EDID data via serial port; **[X]**: unit ID, varies from 00~15; **[Y]**: serial number of embedded EDID, varies from 0~4 (correspond to embedded EDID 1~5 separately). Connect input source and keep energized before sending this command.	WAIT FOR EDID FILE
[X][Y] [Q1],[Q2]$[Z]	Send command to several HDBT	

Command	Function	Feedback Example
	outputs port synchronously **[X]**: unit ID, varies from 00~15; **[Y]**: serial number of third party's baud rate, varies from 1~7; **[Q]**: serial number of the HDBT output port, varies from 1~4; **[Z]**: command to be sent.	
[X][Y][0]$[Z]	Send command to several HDBT output synchronously; **[X]**: unit ID, varies from 00~15; **[Y]**: serial number of third party's baud rate, varies from 1~7; **[Z]**: command to be sent.	
OFF[X][Y1] ,[Y2],[Y3].	Switch off several outputs of a splitter; **[X]**: unit ID, varies from 00~15; **[Y]**: serial number of output port, the value can be 1~5 (1 corresponds to the HDMI output port, 2~5 correspond to HDBT OUT 1~4 separately.)	OFF Y1, Y2, Y3 Y=1~5
OFF[X][0].	Switch off all the outputs of a splitter; **[X]**: unit ID, varies from 00~15.	OFF All
ON[X][Y1],[Y2],[Y3].	Switch on several outputs of a splitter; **[X]**: unit ID, varies from 00~15; **[Y]**: serial number of output port, the value can be 1~5 (1 corresponds to the HDMI output port, 2~5 correspond to HDBT OUT 1~4 separately.)	On Y1, Y2, Y3 Y=1~5
ON[X][0].	Switch on all outputs of a splitter; **[X]**: unit ID, varies from 00~15.	On All

Note:

1. In above commands, “[”and “]” are symbols for easy reading and do not need to be typed in actual operation.
2. Type in the complete commands including ending symbol “.”.
3. When the unit ID is changed, please reboot the unit before sending commands.
4. Load the desired EDID file to the RS232 control software after sending command **EDIDUpgrade[x][y].** , it will show “EDIDUpgrade success” after the upgrade is completed.
5. To control the third party via RS232 commands, users should type in the correct serial number for the device’s baud rate in the command. Here is a list of the baud rates and their serial numbers:

No.	Baud Rate
1	2400
2	4800
3	9600
4	19200
5	38400
6	57600
7	115200

4.3 EDID Management

MP-HT-4T provides with a 4-pin EDID DIP switcher, “1” stands for “On”, “0” stands for “Off”. Dial the switches to change EDID data refering to the following explainations:

Switcher Status	EDID information
0001	1080P 2D
0010	1080P 3D
0011	720P 2D
0100	720P 3D
0101	DVI 1920x1080

In factory default status (Status: 0000), MP-HT-4T pass through the signals directly, input& output device process the signal automatically.

EDID data supports upgrade via serial port. Send command **EDIDUpgrade[x][y].** to upgrade the 5 embedded EDID data separately.

5. Specification

Items	Description
Video Input/output	VESA and SMPTE 480p to 2160p(4K) With 3D Bit depth: 16, 20, 24
Audio Input/output	All HDMI audio formats including Dolby D (TrueHD)/ DTS (HD-Master Audio)/ PCM Channel count: from 2-8 (2.0 to 7.1) Sample rates: 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz and 192 kHz
Power Supply	DC 24V 2.5A
HDBT	60m (196feet) with HDMI video, RS232 & IR control, PoC supports HDMI Twisted Pair PoC Receiver / MPTP-T00SR / MPTP-T100PLSR
Control	RS232 & IR Full function pass though; RS232 port ID selectable for cascading;
Dimensions	220 x 148 x 44mm (half rack wide)
Raw Materials	Aluminum chassis
Installation	Standard Rack size, provide removable ears for mounting under table, or on wall

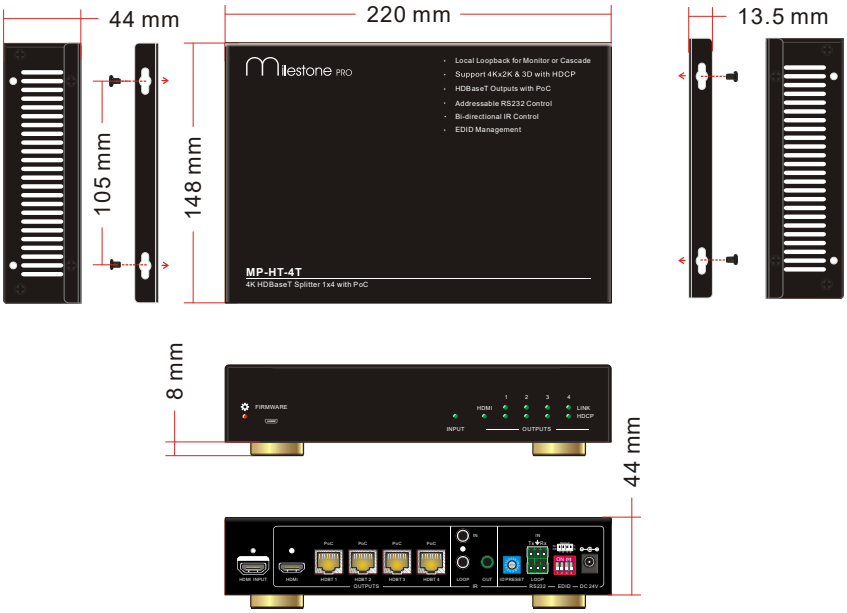
5.1 Supported Input Video Formats

Input Resolution	HDMI	DVI
720 x 480@60Hz	☑	☑
720 x 480I@30Hz	☑	☑
720 x 576@50Hz	☑	☑
720 x 576I@25Hz	☑	☑
1280 x720@50Hz	☑	☑
1280 x720@60Hz	☑	☑
1920 x 1080@25Hz	☑	☑
1920 x 1080@50Hz	☑	☑
1920 x 1080@60Hz	☑	☑
1920 x 1080I@25Hz	☑	☑
1920 x 1080I@30Hz	☑	☑
3840 x 2160@25Hz	☑	

3840 x 2160@30Hz	☑	
3840 x 2160@60Hz	☑	
1080P 3D@60Hz	☑	

Note: MP-HT-4T supports 4k& 3D HDMI signals, please adopt quality HDMI cables compliant with HDMI1.4 for better transmission when connecting 4K or 3D sources.

6. Panel Drawing



7. Troubleshooting & Maintenance

Problems	Causes	Solutions
Color losing or no video signal output in HDMI display	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
No HDMI signal output in MP-HT-4T while local HDMI input is in normal working state		
Cannot control MP-HT-4T by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Make sure the RS232 communication parameters are correct.
	MP-HT-4T is broken	Send it to authorized dealer for repairing.
Static becomes stronger when connecting the video connectors	Bad grounding	Check the grounding and make sure it is connected well.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

8. After-sales Service

If there appear some problems when running the device, please check and deal with the problems referring to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** It is warranted that the product will be free from defects in materials and workmanship for **three years,** which starts from the first day you buy this product (The purchase invoice shall prevail).
   Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
2) **What the warranty does not cover (servicing available for a fee):**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear
     - Use of supplies or parts not meeting our specifications
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Servicing not authorized.
     - Any other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor.