SUH141T

HDBaseT 1x4 Splitter Kit

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Version: SUH141T_2019V1.0

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1. Product Introduction

Thanks for choosing this HDBaseT 1x4 Splitter Kit! This device accepts a single HDMI input and splits it into four HDBaseT outputs. The splitter is designed with an HDMI loop out which is intended to cascade to additional units. It supports video resolutions up to 4K@60Hz and all HDMI audio formats. It can extend 1080p signals on each output to distance up to 229 feet (70 meters) and 4K signals to distance up to 131 feet (40 meters) over a single CATx Ethernet cable. It supports the Power over HDBaseT (PoH) feature, which allows the receivers to be powered from the splitter over the Ethernet cables. It supports bidirectional IR and RS232 pass-through and loop output.

1.1 Features

- Splits a single HDMI input to four HDBaseT outputs and one HDMI loop output.

- Supports video resolutions up to 4K@60Hz 4:2:0.

- Extends 1080p signals on each output to distance up to 229 feet (70 meters) and 4K signals to distance up to 131 feet (40 meters) over a CATx Ethernet cable.

- Supports the Power over HDBaseT (PoH) feature, allowing the HDBaseT receivers to be powered by the splitter over the Ethernet cables.

- Supports bidirectional IR and RS232 pass-through and loop out.

- Smart EDID management. Features DIP switch to select the output resolution to match the connected displays.

- Fully compliant with the HDMI 1.4 specification.

- Supports HDCP pass-through management.

- Supports firmware update.

- Intuitive indicator for connection status.

1.2 Package List

HDBaseT Splitter	● 1x HDBaseT 1x4 Splitter
	● 2x Mounting Ears with 4 Screws
	● 4x Circular Plastic Cushions
	● 1x 3-pin to 3-pin RS232 Cable (for RS232 loop out cascading)
	● 1x 3-pin to DB9 RS232 Cable
	● 1x 3.5mm Audio Cable (for IR loop out cascading)
	● 4x IR Receivers
	● 1x IR Emitter
	● 1x Power Adaptor (24V DC 2.71A)
HDBaseT Receivers	● 4x TPUH412R HDBaseT Receivers
	● 8x Mounting Ears with 8 Screws
	● 16x Plastic Cushions
	● 4 x RS232 Cable (3-pin to DB9)
Others	● 4x IR Emitters
	● 1x User Manual

Note: Please contact your distributor immediately if any damage or defect in the components is found.

2. Technical Specification

2.1 HDBaseT Splitter

Video Input	
Input	(1) HDMI
Input Connector	(1) Female type A HDMI
Input Video Signal	HDMI
HDMI Input Resolution	Up to 4K@60Hz 4:2:0
Video Output	
Output	(1) HDMI, (4) HDBT
Output Connector	(1) Female type A HDMI, (4) RJ45
Output Video Signal	HDMI, HDBaseT
HDMI Output Resolution	Up to 4K@60Hz 4:2:0
HDBT Output Resolution	Up to 4K@60Hz 4:2:0
Control	
Control port	(1) EDID, (1) ID PRESET, (1) IR ALL IN/LOOP IN, (1) IR OUT, (1) IR LOOP OUT, (1) RS232 IN, (1) RS232 OUT
Control Connector	(1) 3-pin DIP switch, (1) DIP switch, (3) 3.5mm mini jacks, (2) 3-pin phoenix connectors
General	
HDMI Standard	HDMI 1.4 with HDCP 2.2
Transmission Mode	HDBaseT
Transmission Distance	1080p ≤229 feet (70 meters) 4K ≤131 feet (40 meters)
Operation Temperature	-10 ~ +55℃
Storage Temperature	-25~ +70℃
Relative Humidity	10% ~ 90%
AC Adapter Input Power	100V~240V AC, 50/60Hz
Input Power	24V DC 2.71A
Power Consumption	45W (Max)
Dimension (W*H*D)	220mm x 44mm x 148mm
Net Weight	725g

2.2 HDBaseT Receiver

Video	
Input	(1) HDBaseT
Input Connector	(1) RJ-45
Output	(1) HDMI
Output Connector	(1) Type-A female HDMI
Control	
Control	(1) IR IN, (1) IR OUT, (1) RS232
Control Connector	(2) 3.5mm mini jack, (1) 3-pin terminal block
General	
Resolution Range	Up to 4K@30Hz
Transmission Mode	HD Base T
Transmission Distance	1080p ≤ 70m; 4K ≤ 40m
Bandwidth	10.2Gbps
HDMI Standard	1.4
HDCP Version	2.2
Impedance	75Ω
Operation Temperature	-10℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humidity	10%-90%
Power Supply	Input: 100VAC~240VAC, 50/60Hz; Output: DC 24V, 1.25A
Dimension (W*H*D)	115mm x 16.2mm x 109mm
Net Weight	196g

Note: Please adopt quality CAT Ethernet cable compliant with CAT6e or higher standard for reliable transmission.

3. Panel Description

3.1 Splitter Front Panel

| No.	Name	Description
①	Power LED	The LED illuminates red when power is applied.
②	Input LED	The LED illuminates green when there is HDMI source input.
③	OUTPUT LEDs	● HDMI: The LED illuminates green when there is a HDMI output. ● LINK: Each LINK LED illuminates green when there is a valid connection between the splitter and each of the four receivers. ● HDCP: Each HDCP LED illuminates green when the corresponding receiver supports HDCP and blinks green when the corresponding receiver does not support HDCP. Each LED is off when there is no connected corresponding receiver.
④	EDID	DIP switch for the Extended Display Identification Data (EDID) value setting.
⑤	FIRMWARE	Mircro-USB port for firmware updating by using EP upgrade tool. Please contact our sevice engineer for more details.

3.2 Splitter Rear Panel

No.	Name	Description
①	HDMI IN	HDMI port for connecting the HDMI source device (Blu-ray Disc™ or DVD player, gaming console, etc.).
②	OUTPUTS	● HDMI: HDMI loop output port for connecting a local display. ● HDBT1~4: Four HDBaseT RJ45 jacks with PoH support for connecting the four HDBaseT receivers. ● IR IN: Four 3.5mm IR input jacks for connecting the four IR receivers.
③	IR Control	● IR ALL IN/LOOP IN: 3.5mm IR IN jack for connecting an IR receiver or cascading to previous device. ● IR OUT: 3.5mm IR OUT jack for connecting an IR emitter. ● IR LOOP OUT: A 3.5mm IR LOOP output jack for cascading to next device.
④	RS232 Control	● RS232 IN: 3-pin RS232 connector. Connect to the PC by a 3-pin to DB9 cable. ● RS232 OUT: If cascading multiple units, use the 3-pin to 3-pin cable to connect the output to the RS232 IN on the next device in the chain.
⑤	ID PRESET	Assigns a single digit ID to the splitter when cascading multiple splitters and using RS232 control, each splitter must have a unique ID. Use a small, flathead screwdriver to set the ID. There are sixteen positions, with **0** at the fully counterclockwise position and **F** at the fully clockwise position. After setting the ID, the device must be restarted for the new ID to take effect.
⑥	DC 24V	DC barrel connector for the included AC power adapter.

3.3 Receiver Front and Rear Panel
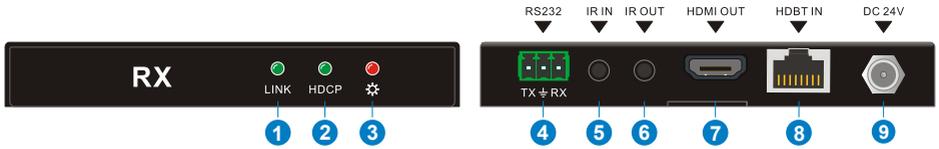
| No.	Name	Description
①	LINK LED	Illuminates green when there is a valid HDBaseT link between the transmitter and the receiver.
②	HDCP LED	Illuminates green when the video contains HDCP content. Blinking green when the video without HDCP.
③	POWER LED	Illuminates red when power is applied.
④	RS232	Connects to RS232 control device (e.g. PC) or a third-party device to be controlled.
⑤	IR IN	Connects to IR receiver for IR pass-through.
⑥	IR OUT	Connects to IR emitter for IR pass-through.
⑦	HDMI OUT	Connects to HDMI display.
⑧	HDBT IN	Connects to the HDBT output port of switcher by CATx cable.
⑨	DC 24V	DC port for power adapter connection.

4. System Connection
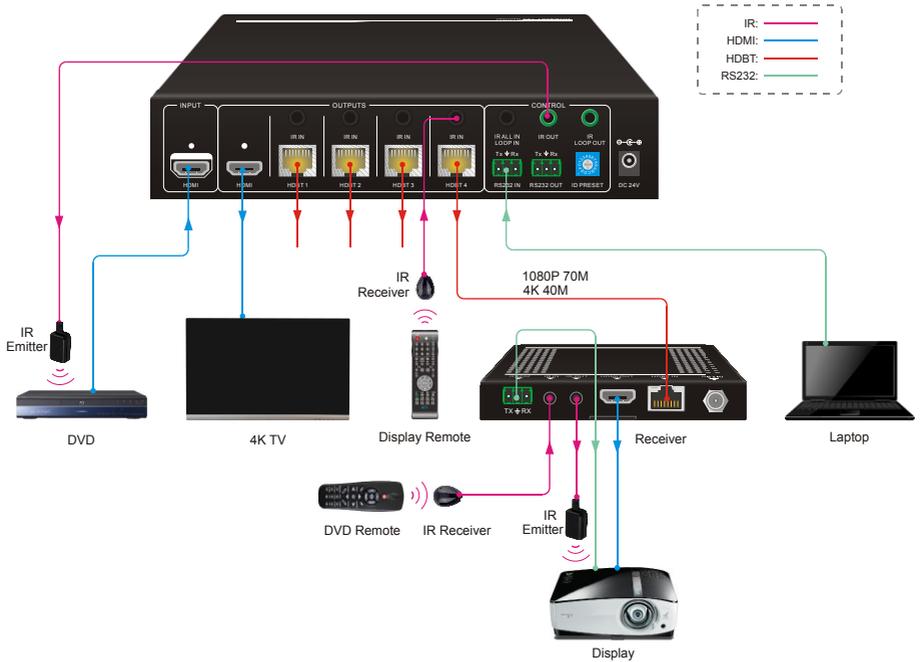
Note: The HDBaseT receivers have no need of power adaptors, they can be powered by the splitter with PoH support.

Cascade Connection:

The splitter supports cascade connection to distribute video signal to multiple video displays. Use the following connection diagram as a guide for cascading multiple units. Note that each unit must have a unique ID if using RS232 control.
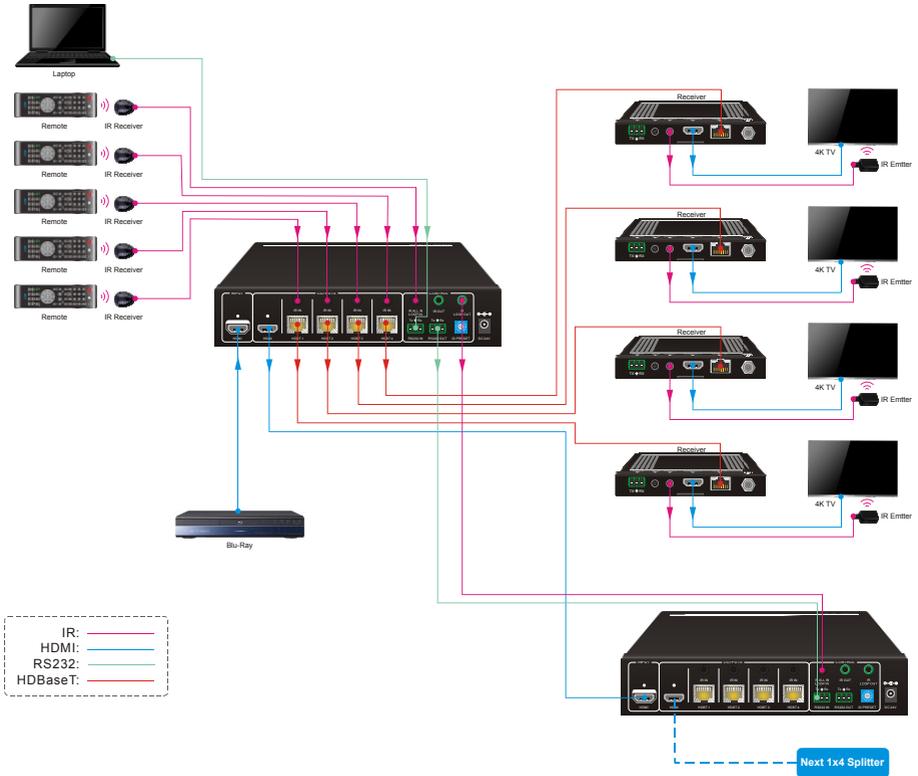
5. IR Control

The IR receivers and emitters can be connected to the system to allow for IR control of remote devices. The bidirectional IR feature provides the two-way control either for the source or display device(s). Use the following sample connection diagrams to connect for IR remote control.

5.1 Controlling the Display Device by IR IN

The four **IR IN** ports of the splitter can receive IR signals from remotes to send to control displays. Connect four IR receiver to **IR IN** ports of the splitter, and then connect four IR emitters to **IR OUT** ports on HDBaseT receivers.
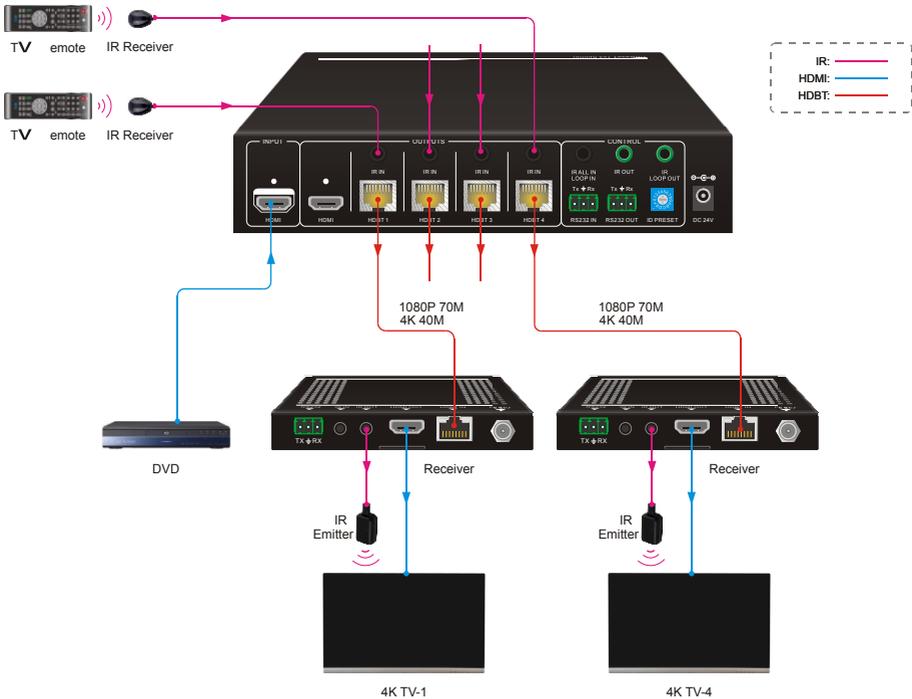
5.2 Controlling the Display Device by IR ALL IN

The **IR ALL IN** port of the splitter can receive all IR signals from remotes to send to control displays. Connect an IR receiver to **IR ALL IN** port of the splitter, and then connect four IR emitters to **IR OUT** port on HDBaseT receivers.
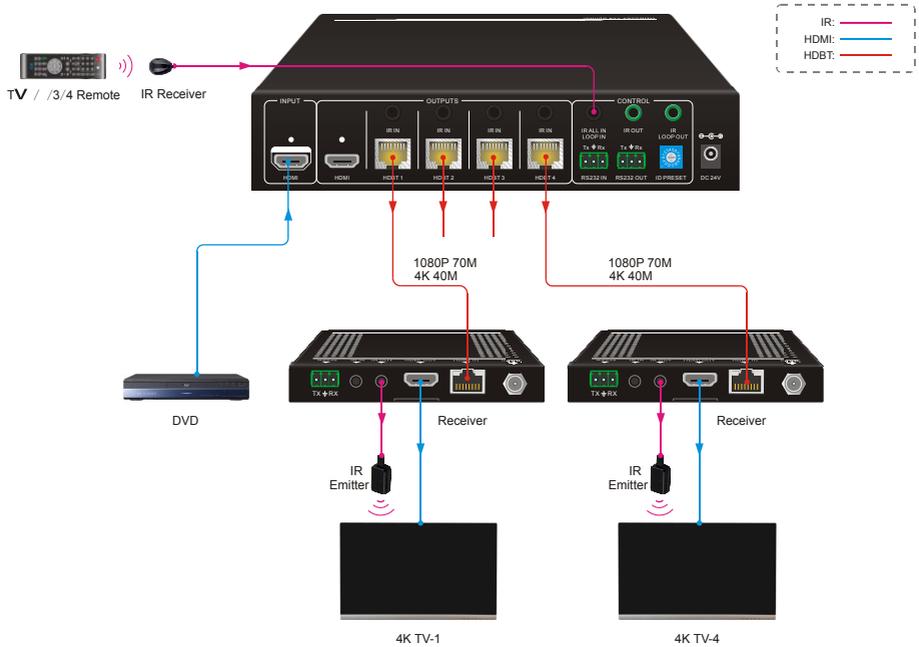
5.3 Controlling the Source Device

The **IR OUT** port of the splitter can send all IR signals to control source device. Connect four IR receivers to **IR IN** ports on HDBaseT receivers, and then connect an IR emitter to **IR OUT** port of the splitter.
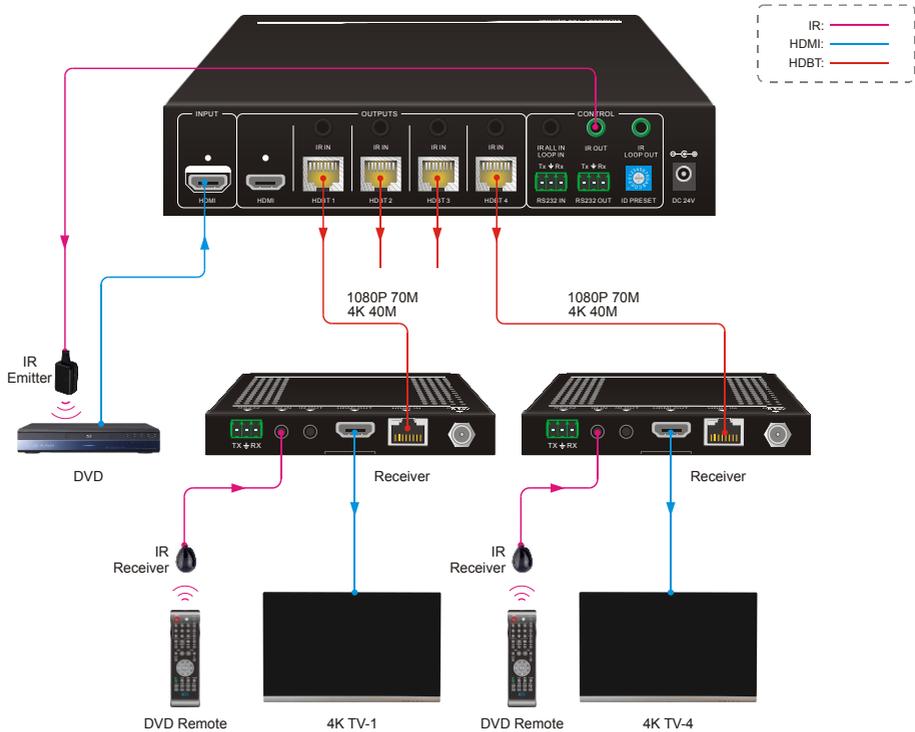
6. RS232 Control

The splitter and compatible receivers features RS232 ports to transmit RS232 signals from computer to control far-end third-party devices by using 3-pin to DB9 cable and a RS232 control software, such as **docklight**. After installing the RS232 control software, please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly. Compatible receivers must be able to communicate at 2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud. The splitter requires the following communication protocol parameters:

Baud rate: 9600 (default)

Data bit: 8

Stop bit: 1

Parity bit: none

RS232 Command Format:

Each unit in cascading system must have a unique ID if using RS232 control. Through the DIP switch **ID PRESET** to set their ID for distinguishing. For example, the unit ID of the first splitter is set as 0, and then the second is set as 1 and so on.

The system supports RS232 pass-through control; if the **RS232 IN** port is connected to PC, and the others are connected to the third-party devices, these third-party devices can be controlled by following these steps:

1) First, according to the below format to send the command to select the unit to receive commands

F5 BB 6F X0
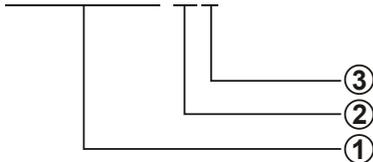
① Fixed value.

② The unit ID of splitter, x=0~9/A~F

③ Fixed value.

2) Second, send the specific control command data (HEX) to control the select third-party devices. For specific commands, please refer to the user manual of the devices which are needed to be control. For example, send **A5 A5 A5 5A 01 VV 02 0A 01 00 RR** to mute the third-party devices.

● **Switching on/off HDBaseT Outputs**

The HDBaseT outputs can be controlled by sending commands. Connect the PC to the **RS232 IN** port, and then according to the below steps to switch on/off HDBaseT outputs.

Take the unit ID of 2 for example.

1) First, send **F5 BB 6F 20** to select the unit to receive commands.

2) Second, according to the below format to send the command to switch on/off HDBaseT outputs.
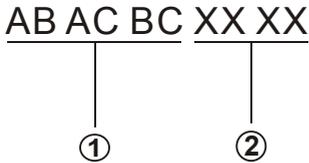
① Fixed value.

② The four **X** represent four HDBaseT outputs.

X=0, OFF

X=1, ON

If the HDBT 1 port need to be turned on, other ports are closed, the command **AB AC BC 10 00** should be sent.

7. EDID Management

The Extended Display Identification Data (EDID) is used by the source device to match its video resolution with that of the connected display. By default, the source device obtains its EDID from the first connected display. However, since the displays with different capabilities can be connected to the splitter, the EDID DIP switch can be used to set the EDID to a fixed value.
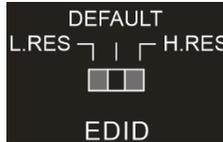
Switch Status	Description
L.RES	The splitter reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the lowest resolution.
DEFAULT	Reset to the default EDID to distribute 4K@30Hz video.
H.RES	The splitter reads EDID from all connected displays, and then the source device will automatically obtain the EDID which contain the highest resolution.

Note: When the four displays have the same resolution parameter, the source device will obtain the EDID with priority from HDBT 1 to HDBT 4.