4K HDBaseT™ 1x4 Splitter Extender with Receivers

User's Manual

CONTENTS

SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This device is intended for indoor use only.

- Do not expose this device to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the device. If moisture does get in or on the device, immediately unplug it from the power outlet and allow it to fully dry before reapplying power.

- Do not touch the device, the power cord, or any other connected cables with wet hands.

- Do not expose this device to excessively high temperatures. Do not place it in, on, or near heat sources, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight.

- Prior to operation, check the unit and power cord for physical damage. Do not use if physical damage has occurred.

- Unplug this device from the power source when not in use.

- Take care to prevent damage to the power cord. Do not allow it to become crimped, pinched, walked on, or become tangled with other cords. Ensure that the power cord does not present a tripping hazard.

- Never unplug the unit by pulling on the power cord. Always grasp the connector head or adapter body.

- Ensure that power is turned off and disconnected before making any electrical connections.

- Clean using a soft, dry cloth only. Do not use chemical cleaners, solvents, or detergents. For stubborn deposits, moisten the cloth with warm water.

- This device has no user serviceable parts. Do not attempt to open, service, or modify this device.

INTRODUCTION

Thank you for purchasing this 4K HDBaseT™ 1x4 Splitter Extender! This device accepts a single HDMI® input and splits it into four HDBaseT outputs. It features an HDMI loop out, which allows up to three additional devices to be cascaded. It supports video resolutions up to 4K@60Hz and all HDMI audio formats. It can extend 1080p signals on each output to distances up to 196 feet (60 meters) and 4K signals to distances up to 131 feet (40 meters) over a single Cat6 Ethernet cable. It supports the Power over Cable (PoC) feature, which allows the receivers to be powered from the transmitter over the Ethernet cables. It supports bidirectional IR and RS232 pass-through and loop output.

FEATURES

- Splits a single HDMI® input to four HDBaseT™ outputs
- Supports video resolutions up to 4K@60Hz
- Extends 1080p signals on each output to distances up to 196 feet (60 meters) and 4K signals to distances up to 131 feet (40 meters) over a single Cat6 Ethernet cable
- Supports the Power over Cable feature, allowing the receivers to be powered by the transmitter over the Ethernet cables
- Supports bidirectional IR and RS232 pass-through and loop out
- Supports RS232 computer control
- Supports up to 5 types of EDID configurations
- Fully compliant with the HDMI 1.4 specification

PACKAGE CONTENTS

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact Customer Service for a replacement.

1x 4K HDBaseT™ 1x4 Splitter Extender

4x HDBaseT Receiver

2x Transmitter Mounting Ears

8x Receiver Mounting Ears

18x Screws

1x 3.5mm Audio Cable (for IR loop out cascading)

1x 3-pin to 3-pin RS232 Cable (for RS232 loop out cascading)

5x 3-pin to DB9 RS232 Cable

20x Plastic Feet

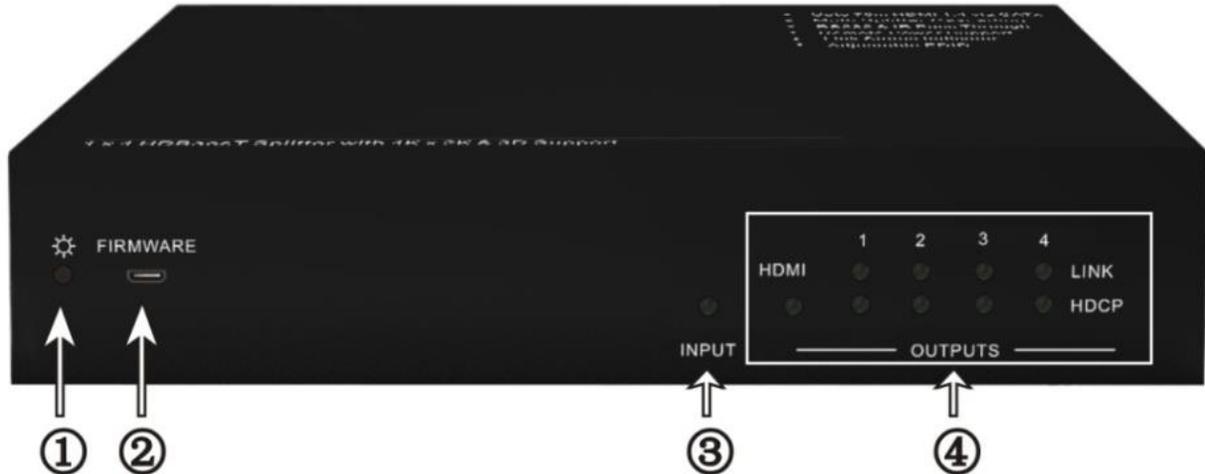1x AC Power Cable (NEMA 5-15 to IEC 60320 C13)

1x Transmitter AC Power Adapter (24 VDC, 2.71A)

4x Receiver AC Power Adapter (24 VDC, 1.25A)

1x User's Manual

PRODUCT OVERVIEW

Transmitter Front Panel

1. **POWER LED:** The LED illuminates red when power is applied.

2. **FIRMWARE:** USB port for connecting a flash drive to perform a firmware update.

3. **INPUT LED:** The LED illuminates green when there is an input signal present.

4. **OUTPUT LED:** A block of LEDs to indicate the condition of the input and output signals:

    HDMI: The single **HDMI LED** illuminates green when the HDMI® source signal contains HDCP data. It blinks green when the HDMI source signal does not contain HDCP data and is off when there is no HDMI source signal present.

    LINK: Each **LINK LED** illuminates green when there is a valid connection between the transmitter 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.

Transmitter Rear Panel
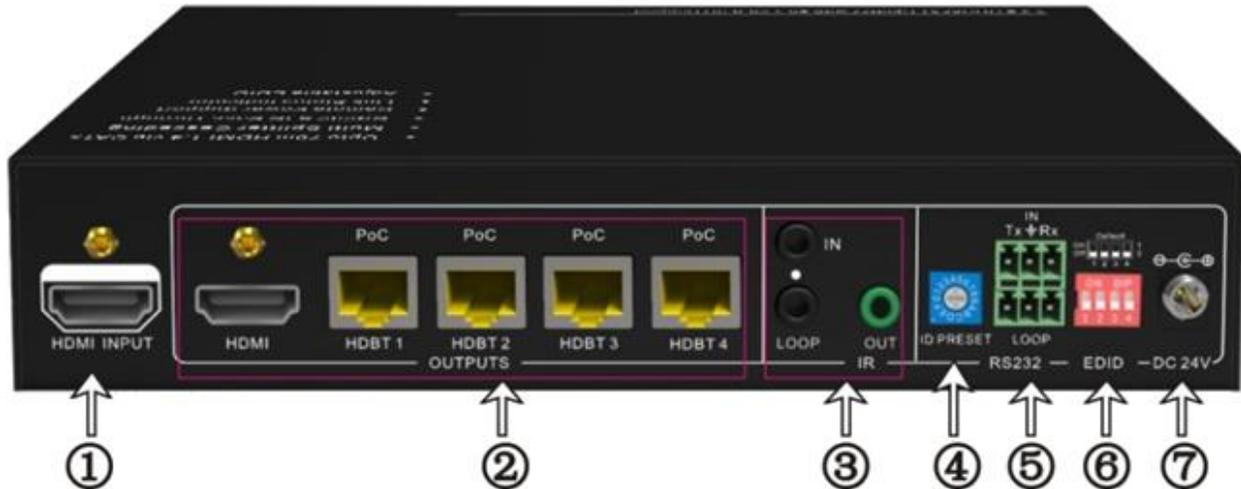
1. **HDMI INPUT:** HDMI® port for connecting the HDMI source device.

2. **OUTPUTS:** The **OUTPUTS** section contains an HDMI loop output and four HDBaseT™ RJ45 jacks with PoC support.

3. **IR:** A 3.5mm **IR IN** jack for connecting an IR receiver (not included), a 3.5mm **IR LOOP** output jack for cascading to another device, and a 3.5mm **IR OUT** jack for connecting an IR transmitter (not included).

4. **ID PRESET:** Assigns a single digit ID to the transmitter. When cascading multiple transmitters and using RS232 control, each transmitter 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 **15** at the fully clockwise position. After setting the ID, the device must be restarted for the new ID to take effect.

5. **RS232:** Two 3-pin RS232 connectors. Connect the included 3-pin to DB9 cable to the **IN** connector, then connect the other end to your PC. If cascading multiple units, use the included 3-pin RS232 cable to connect the **LOOP** output to the RS232 IN on the next device in the chain.

6. **EDID:** Four DIP switches for setting the Extended Display Identification Data (EDID) value.

7. **DC 24V:** DC barrel connector for connecting the included AC power adapter.

Receiver Front Panel

1. **LINK LED:** The LED illuminates green when there is a successful link between the transmitter and the receiver. It blinks green when there is a problem with the link and is off when there is no link.

2. **HDCP LED:** The LED illuminates green when there is valid HDMI® traffic with HDCP content. It blinks green when there is video traffic without HDCP and is off when there is no traffic.

3. **POWER LED:** The LED illuminates green when power is applied.

Transmitter Rear Panel
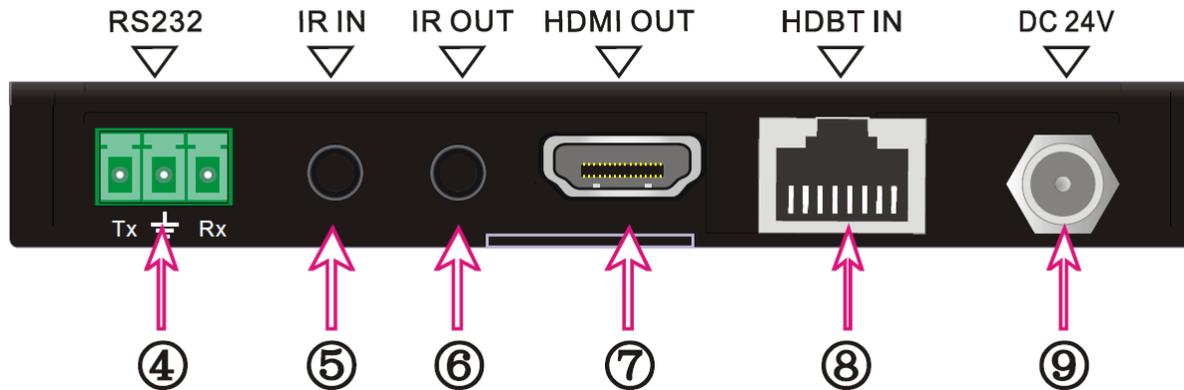
4. **RS232:** A 3-pin RS232 connector. Connect the included 3-pin to DB9 cable to the **RS232** connector, then connect the other end to your PC.

5. **IR IN:** 3.5mm jack for connecting an IR receiver (not included).

6. **IR OUT:** 3.5mm jack for connecting an IR transmitter (not included).

7. **HDMI OUT:** HDMI® connector for connecting a video display.

8. **HDBT IN:** RJ45 jack for connecting the Cat6 cable from the transmitter.

9. **DC 24V:** DC barrel connector for connecting the included AC power adapter.

SAMPLE CONNECTION DIAGRAM

Use the following sample connection diagram as a guide for connecting the 4K HDBaseT™ 1x4 Splitter Extender with up to four HDBaseT PoC Receivers (not included).
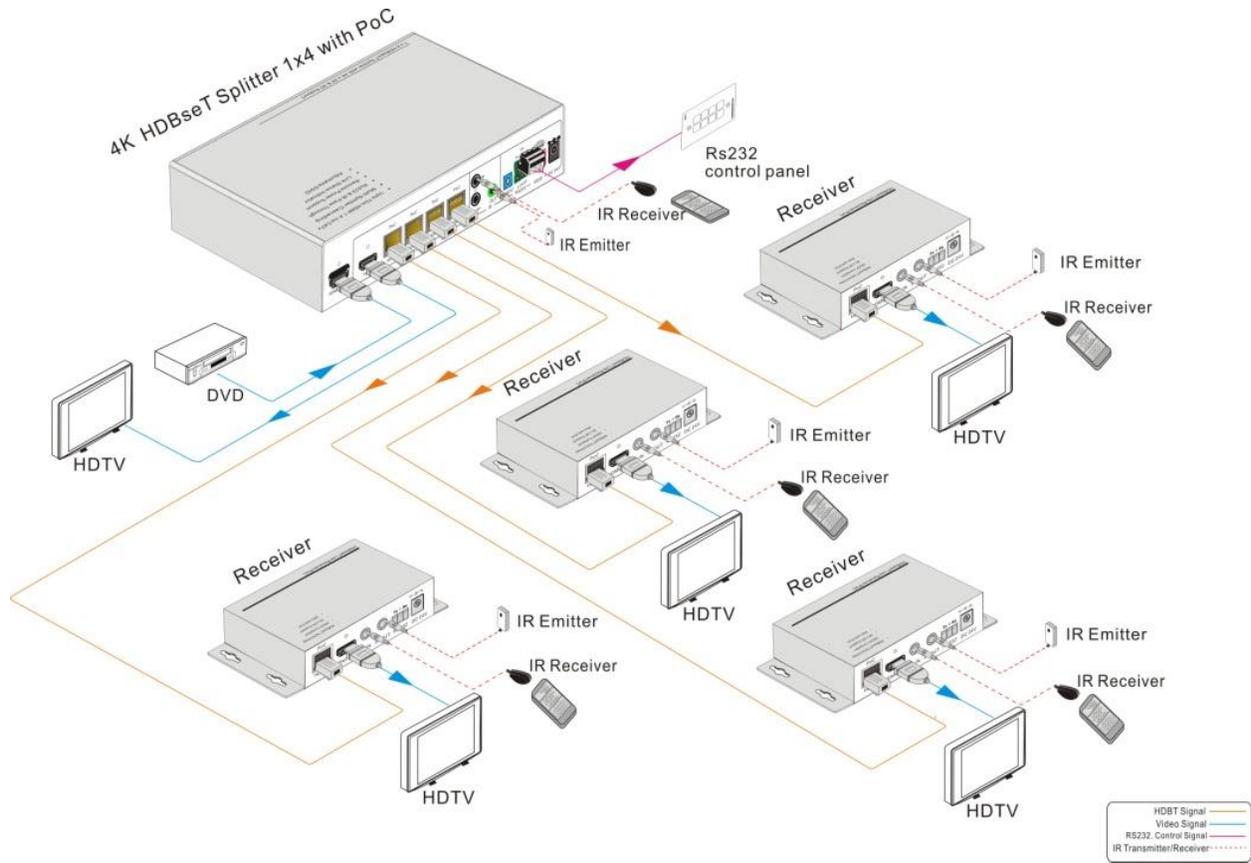
CASCADING

In addition to the main unit, you can cascade up to three additional units to distribute the video signal to up to sixteen 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.
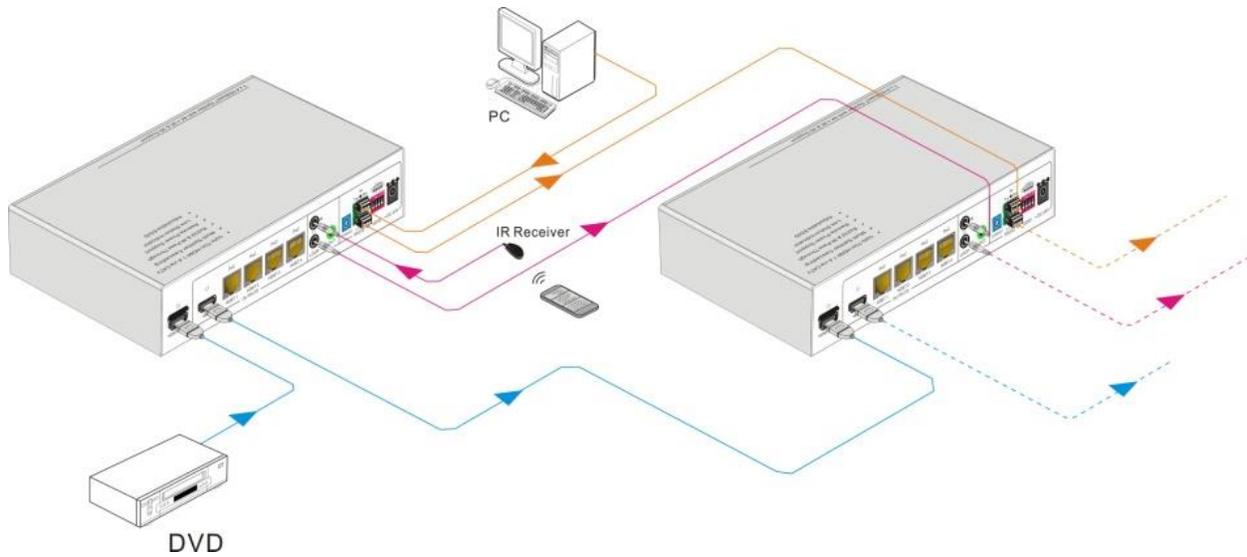
IR CONTROL

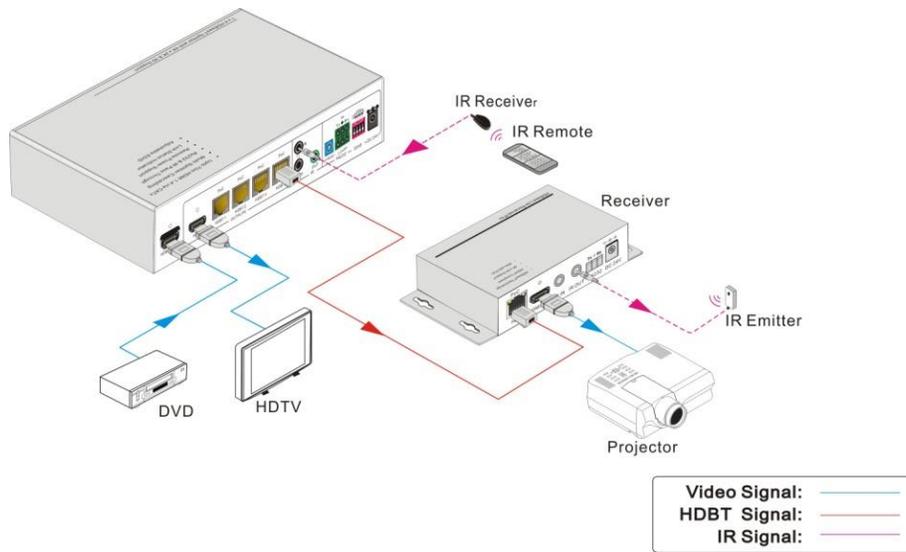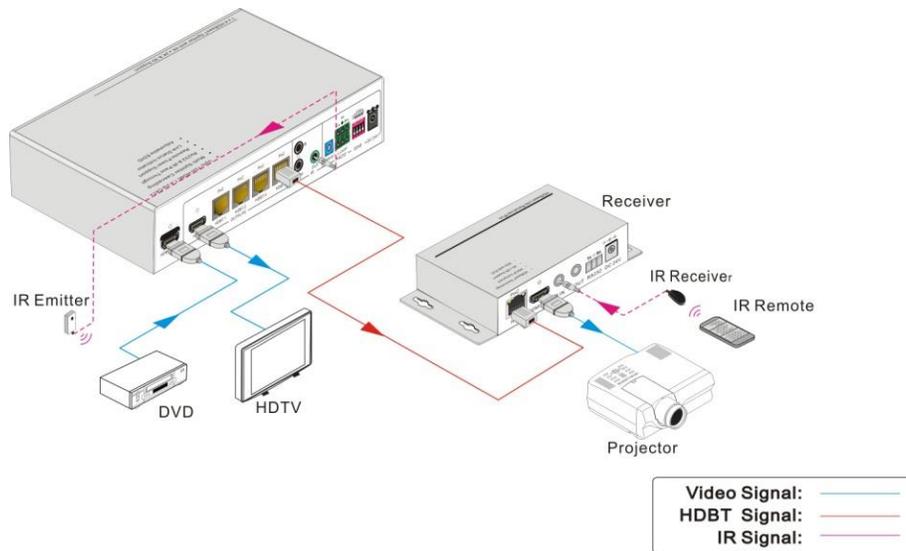You can connect an IR receiver and transmitter to the system to allow for IR control of remote devices. The IR feature is bidirectional, so you can control either the source or display device(s). Use the following sample connection diagrams to connect for IR remote control.

Controlling the Display Device

Controlling the Source Device

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 displays with different capabilities can be connected to the splitter, the EDID DIP switches can be used used to set the EDID to a fixed value. Note that the default setting is the only way to distribute 4K video.

Switch Settings (1-4)	EDID Setting
0000	Default, automatically gets EDID from first connected display
0001	1080p 2D
0010	1080p 3D
0011	720p 2D
0100	720p 3D
0101	DVI 1920x1080

SUPPORTED VIDEO FORMATS

HDMI®

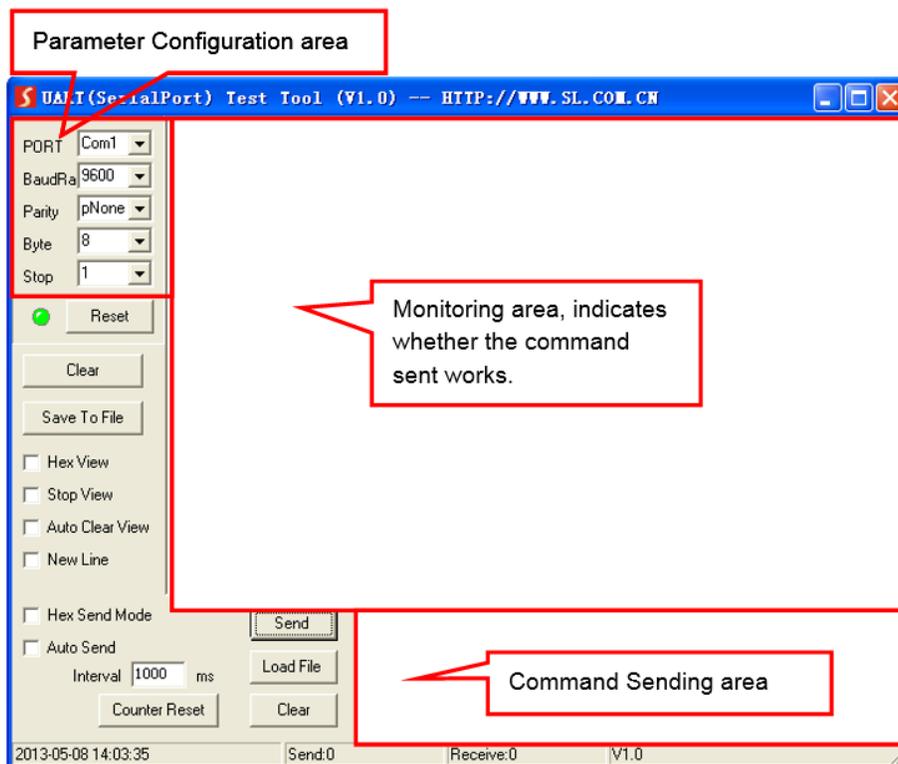| 720 x 480 @ 60Hz	1280 x 720 @ 60Hz	1920 x 1080i @ 30Hz
720 x 480i @ 30Hz	1920 x 1080 @ 25Hz	3840 x 2160 @ 25Hz
720 x 576 @ 50Hz	1920 x 1080 @ 50Hz	3840 x 2160 @ 30Hz
720 x 576i @ 25Hz	1920 x 1080 @ 60Hz	3840 x 2160 @ 60Hz
1280 x 720 @ 50Hz	1920 x 1080i @ 25Hz	1080p 3D @ 60Hz

DVI

720 x 480 @ 60Hz	1280 x 720 @ 50Hz	1920 x 1080 @ 60Hz
720 x 480i @ 30Hz	1280 x 720 @ 60Hz	1920 x 1080i @ 25Hz
720 x 576 @ 50Hz	1920 x 1080 @ 25Hz	1920 x 1080i @ 30Hz
720 x 576i @ 25Hz	1920 x 1080 @ 50Hz	

RS232 CONTROL

The Splitter Extender and compatible receivers (not included) can be controlled from a computer using the included 3-pin to DB9 RS232 cable and a third party RS232 control software, such as CommWatch. Compatible receivers must be able to communicate at 2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud. The Splitter Extender requires the following communication protocol parameters:

9600 baud rate, 8 data bits, 1 stop bit, no parity bits

This device can respond to the following RS232 commands.

Command	Function	Feedback Example
EDIDUpgrade[x][y].	Upgrades the EDID data. [x]: Unit ID, varies from 00~15 [y]: serial number of the embedded EDID, varies from 0~4 (corresponding with EDID 1~5) Connect the input source and keep energized before sending this command	WAIT FOR EDID FILE
[X][Y] [Q1],[Q2]$[Z]	Send command to several HDBaseT output ports synchronously. [X]: unit ID, varies from 00~15 [Y]: serial number of third party's baud rate, varies from 1~7 [Q]: serial number of the HDBaseT output port, varies from 1~4 [Z]: command to be sent	
[X][Y][0]$[Z]	Send command to several HDBaseT output ports synchronously. [X]: unit ID, varies from 00~15 [Y[: serial number of the third party's baud rate, varies from 1~7 [Z]: command to be sent	
OFF[X][Y1] ,[Y2],[Y3].	Switch off several outputs of the splitter. [X]: unit ID, varies from 00~15 [Y]: serial number of the output port, varies from 1~5 (1 corresponds to the HDMI® output, 2~5	OFF Y1, Y2, Y3 Y = 1~5

	correspond to the HDBaseT outputs 1~4)	
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 the splitter. [X]: unit ID, varies from 00~15 [Y]: serial number of the output port, varies from 1~5 (1 corresponds to the HDMI® output, 2~5 correspond to the HDBaseT outputs 1~4)	On Y1, Y2, Y3 Y = 1~5
ON[X][0].	Switch on all the outputs of a splitter. [X]: unit ID, varies from 00~15	On All

Notes:

1. In the above commands, the braces [and] are used to make the command easier to read. They are not part of the actual command.

2. Type in the complete command, including any embedded spaces and trailing periods.

3. When the unit ID is changed, reboot the unit before sending commands.

4. Load the desired EDID file to the RS232 control software after sending the command **EDIDUpgrade[x][y].**, then the screen will show "EDIDUpgrade success" after the upgrade is completed.

5. To control the third party devices via RS232 commands, type in the correct serial number for the device's baud rate in the command. Following is a list of the baud rates and corresponding serial numbers:

Serial Number	Baud Rate
1	2400
2	4800
3	9600
4	19200
5	38400
6	57600
7	115200

SPECIFICATIONS

Transmitter

Model	21793
Maximum Video Resolution	4K@60Hz, including 1080p 3D@60Hz
Maximum Transmission Distance	1080p: 196 feet (60 meters) 4K: 131 feet (40 meters)
Transmission Standard	HDBaseT™
HDMI® Standard	1.4
Input Power	24 VDC, 2.71A
AC Adapter Input Power	100 ~ 240 VAC, 50/60 Hz
Dimensions	8.7" x 5.8" x 1.7" (220 x 148 x 44 mm)

Receivers

Maximum Video Resolution	4K@60Hz, including 1080p 3D@60Hz
Maximum Transmission Distance	1080p: 229 feet (70 meters) 4K: 131 feet (40 meters)
Transmission Standard	HDBaseT™
HDMI® Standard	2.0 with HDCP 2.2
Bandwidth	10.2 Gbps
Input Power	24 VDC, 1.25A or Power over Cable (PoC)
AC Adapter Input Power	100 ~ 240 VAC, 50/60 Hz
Power Consumption	11 watts
Operating Temperature	-4 ~ +158°F (-20 ~ +70°C)
Operating Humidity	10 ~ 90& RH, non-condensing
Dimensions	4.5" x 3.3" x 0.6" (115 x 84 x 16 mm)
Weight	5.3 oz. (150g)

REGULATORY COMPLIANCE

Notice for FCC

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.