18Gbps HDMI over HDBaseT Extender with ARC/Bi-directional IR (70M)

User Manual

VER 1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

This HDMI 18Gbps Extender can extend high definition video / audio signal, bi-directional IR and RS-232 signal. The supported transmission distance is up to 131ft / 40 meters for 4K2K@60Hz 4:4:4 resolution and 230ft / 70 meters for 1080P60Hz resolution between transmitter and reciever via a single CAT 5e/6 cable. The transmitter supports ARC function and local audio extract. In addition, the extender is equipped with bi-directional IR pass-through which allows for source and display control. It also supports PoC function.

The extender includes two units: transmitter and receiver. The transmitter unit is responsible for capturing HDMI input signal and carrying the signal via one cost effective Cat5e/6 cable. The receiver unit is responsible for receiving the HDMI signal to output.

This extender offers the most convenient solution for HDMI extension via a single Cat5e/6 with long distance capability, and is the perfect solution for any application.

2. Features

☆ HDCP 2.2 / HDCP 1.x and DVI 1.0 compliant
☆ Support 18Gbps video bandwidth
☆ Video resolution is up to 4k2k@60Hz YUV 4:4:4
☆ The maximum transmission distance via a single CAT6a/7 cable:
   230ft / 70 meters for 1080P60Hz resolution;
   164ft / 40 meters for 4K2K@60Hz 4:4:4 resolution
☆ Support ARC (Audio Return Channel) function
☆ With bi-directional IR, RS-232 and CEC pass-through
☆ HDR and Dolby Vision supported
☆ Support PoC (Power over Cable) function
☆ Compact design for easy and flexible installation

3. Package Contents

Qty	Item
1	4K HDMI Over HDBaseT Extender (Transmitter)
1	4K HDMI Over HDBaseT Extender (Receiver)
1	IR Blaster cable (1.5 meters)
1	20~60KHz IR Receiver cable (1.5 meters)
1	24V/1A Locking Power adapter
2	3-pin Phoenix connector
4	Mounting Ear
1	User Manual

4. Specifications

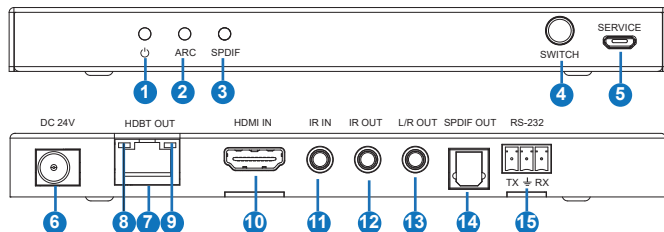| Technical	
HDCP Compliance	HDCP 2.2 / HDCP 1.x
Video Bandwidth	18Gbps
HDMI Input / Output Video Resolution	4K2K 50/60Hz 4:4:4 4K2K 50/60Hz 4:2:0 4K2K 30Hz 4:4:4 1080p, 1080i, 720p, 720i, 480p, 480i All PC resolutions including 1920 x 1200
Extended Distance	70 meters (resolution is up to 1080P60Hz) 40 meters (resolution is up to 4K60Hz 4:4:4)
Color Space	RGB, YCbCr4:4:4, YCbCr4:2:2, YCbCr 4:2:0
Color Depth	8-bit, 10-bit, 12-bit [1080P, 4K30Hz, 4K60Hz (YCbCr 4:2:0)] 8-bit [4K60Hz (YCbCr4:4:4)]
HDMI Audio Formats	PCM2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX,DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD

HDR formats	HDR10, HDR10+, Dolby Vision
L/R Audio Formats	PCM2.0CH *Note that If ARC function is on, the audio port will mute.)*
Optical Audio Formats	LPCM2.0, Dolby Digital / Plus, DTS
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Connection	
Transmitter	Input: 1×HDMI (IN) TypeA [19-pin female] Output: 1×HDBT [RJ45] 　　　　1×L/R Stereo (OUT) [3.5mm Stereo Mini-jack] 　　　　1×SPDIF (OUT) [S/PDIF] Control: 1×IR IN [3.5mm Stereo Mini-jack] 　　　　1×IR OUT [3.5mm Stereo Mini-jack] 　　　　1×RS-232 (OUT) [Phoenix jack] 　　　　1×Service [Micro-USB jack]
Receiver	Input: 1×HDBT [RJ45] 　　　　1×SPDIF (IN) [S/PDIF] Output: 1×HDMI (OUT) TypeA [19-pin female] Control: 1×IR IN [3.5mm Stereo Mini-jack] 　　　　1×IR OUT [3.5mm Stereo Mini-jack] 　　　　1×RS-232 (OUT) [Phoenix jack] 　　　　1×Service [Micro-USB jack]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Transmitter / Receiver:165mm (W)×88.3mm (D)×20mm (H)
Weight	Transmitter: 170g, Receiver: 165g
Power Supply	Input: AC100~240V 50/60Hz Output: DC 24V/1A (Locking connector)
Power Consumption	13W (max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (non-condensing)

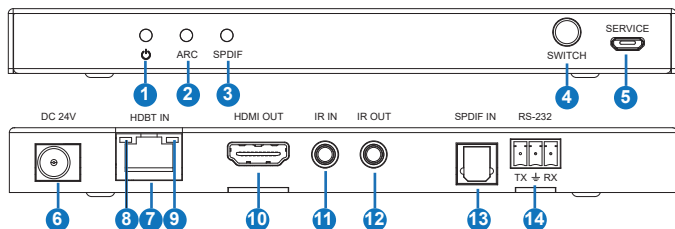| Resolution / Cable Length	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M
The use of "Premium High Speed HDMI" cable is highly recommended.			

5. Operation Controls and Functions

5.1 Transmitter Panel

No.	Name	Function Description
1	Power LED	The LED is on when the unit is powered on.
2	ARC LED	The LED is on when the ARC function is enabled.
3	SPDIF LED	The LED is on when SPDIF OUT port outputs the audio signal returned from SPDIF IN on receiver.
4	SWITCH button	Press the button to switch the output audio signal source for SPDIF OUT port and L/R OUT port.
5	SERVICE port	Firmware update port.
6	DC 24V	DC 24V input port for 24V 1A power supply. *Note that the extender supports PoC function, it means that either transmitter or receiver is connected to 24V/1A power supply, the other doesn't need power supply.*
7	HDBT OUT	RJ45 connector for connecting the HDBT IN port of receiver with CAT 5e/6 cable.

No.	Name	Function Description
8	Connection Signal Indicator lamp	▪ Illuminate: Transmitter and Receiver are in good connection status. ▪ Flash: Transmitter and Receiver are in poor connection status. ▪ Dark: Transmitter and Receiver are not connected.
9	Data Signal Indicator lamp	▪ Illuminate: HDMI signal with HDCP. ▪ Flash: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
10	HDMI (IN)	HDMI source input.
11	IR IN	IR input port for receiving the signal of IR remote.
12	IR OUT	IR output port for control of source device. This IR output signal is from IR IN port of receiver.
13	L/R OUT	3.5mm stereo connector for stereo audio output.
14	SPDIF OUT	SPDIF connector for optical audio output.
15	RS-232	3-pin Phoenix connector for RS232 command transmission. The RS-232 command will pass-through from transmitter to receiver or receiver to transmitter.

5.2 Receiver Panel

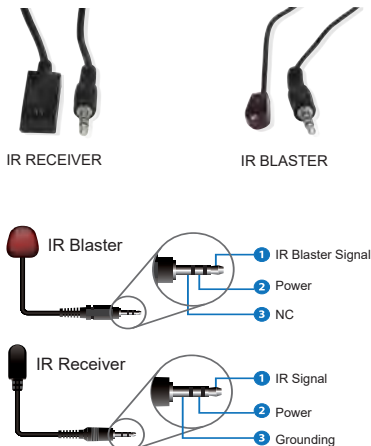| No.	Name	Function Description
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3	SPDIF LED	The LED is on when SPDIF OUT port outputs the audio signal returned from SPDIF IN on receiver.
4	SWITCH button	Press the button to switch the output audio signal source for SPDIF OUT and L/R OUT port.
5	SERVICE port	Firmware update port.
6	DC 24V	DC 24V input port for 24V 1A power supply. *Note that the extender supports PoC function, it means that either transmitter or receiver is connected to 24V/1A power supply, the other doesn't need power supply.*
7	HDBT IN	RJ45 connector for connecting the HDBT OUT port of transmitter with CAT 5e/6 cable.
8	Connection Signal Indicator lamp	▪ Illuminate: Transmitter and Receiver are in good connection status. ▪ Flash: Transmitter and Receiver are in poor connection status. ▪ Dark: Transmitter and Receiver are not connected.
9	Data Signal Indicator lamp	▪ Illuminate: HDMI signal with HDCP. ▪ Flash: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
10	HDMI OUT	HDMI output for display.
11	IR IN	IR input port for receiving the signal of IR remote.
12	IR OUT	IR output port for control of display device. This IR output signal is from IR IN port of transmitter.
13	SPDIF IN	SPDIF connector for optical audio output.
14	RS-232	3-pin Phoenix connector for RS-232 command transmission. The RS-232 command will pass-through from transmitter to receiver or receiver to transmitter.

5.3 Audio Signal Output Switching

Switch the output audio signal source for SPDIF OUT and L/R OUT port via the "SWITCH" button on the panel (the corresponding LED will illuminate). The states of ARC LED and SPDIF LED indicate the specific output audio signal source, as shown in the table below:

ARC LED State	SPDIF LED State	Output Audio Signal Source for SPDIF OUT and L/R OUT port
On	Off	The audio signal returned from HDMI (display device) on receiver
Off	On	The audio signal returned from SPDIF IN on receiver
Off	Off	The audio signal extracted from the transmitter

5.4 IR Pin Definition

IR Receiver and Blaster pin's definition as below:

IR RECEIVER   IR BLASTER

IR Blaster
1 IR Blaster Signal
2 Power
3 NC

IR Receiver
1 IR Signal
2 Power
3 Grounding

Note that IR remote sends signal at the distance of 0~5 meters / 0~8 meters with the angle of ± 45° in vertical direction.

6. Application Example

Transmitter

Power Supply

CAT 5e/6 cable

DVD or Blu-ray Player

IR Blaster

IR Receiver

2.0 Speakers

Audio Amplifier

PC

IR Receiver

IR Blaster

Receiver

UHDTV

HDMI Matrix with
RS-232 function