HDMI 2.0 KVM HDBT Extender Kit, 100m

User Manual

500449

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1. Safety Precautions

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

- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burns.
- Do not open or remove the housing of the device as you may be exposed to dangerous voltage or other hazards.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture and do not install this product near water. Keep the product 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 the housing, unplug the module immediately.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Using supplies or parts not meeting the product specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- Install the device in a place with adequate ventilation to avoid damage caused by overheat.
- Unplug the power when left unused for a long period of time.
- Information on disposal of devices: do not burn or mix with general household waste, please treat them as normal electrical waste.

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2. Introduction

The MuxLab HDMI 2.0 KVM HDBT Extender Kit, 100m (model: 500449) allows one HDMI channel, one USB2.0 signal, one RS232 signal and one bi-directional IR signal to be transmitted over distances of up to 328ft (100m) at 4K/60Hz (4:4:4) resolution via one (1) Cat 6a/7 unshielded twisted pair cable in a point-to-point configuration.
The MuxLab HDMI 2.0 KVM HDBT Extender Kit, 100m includes one (1) transmitter and one (1) receiver. The Extender supports EDID management, bi-directional PoC function and can switch between HDBT Standard Mode (as factory default) and HDBT Long Reach Mode. The extender features, in both the Transmitter and Receiver, a 1x2 USB hub for transferring USB data transmissions and analog audio port, used for audio de-embedding output.

3. Features

- HDMI 2.0b and HDCP 2.2 compliant
- Supports 18Gbps video bandwidth
- Supports video resolution up to 4K/60Hz (YUV 4:4:4)
- Supports HDR, HDR10, HDR10+, Dolby Vision LLM and HLG pass through
- Supports LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio and DSD pass through
- Supports 4K transmission distance up to 328ft/100m via a single CAT 6A/7 cable
- Supports 1080P transmission distance up to 492ft/150m via a single CAT 6/6A/7 cable
- Supports bidirectional POC (Power over Cable), when TX or RX gets power, the other end does not need an external power supply
- Supports 3.5mm analog audio de-embedding at TX and RX
- Supports bi-directional RS-232 signal pass-through, bi-directional IR signal control, and USB2.0 signal transmission
- EDID management

4. Package Contents

- One (1) HDBaseT 3.0 Extender (Transmitter)
- One (1) HDBaseT 3.0 Extender (Receiver)
- One (1) IR Blaster Cable (1.5 meters)
- One (1) IR Receiver Cable (1.5 meters)
- Two (2) 3pin-3.81mm Phoenix Connectors (Male)
- Four (4) Mounting Ears
- Eight (8) Machine Screws (KM3*4)
- One (1) 24V/1A LockingPower Adapter
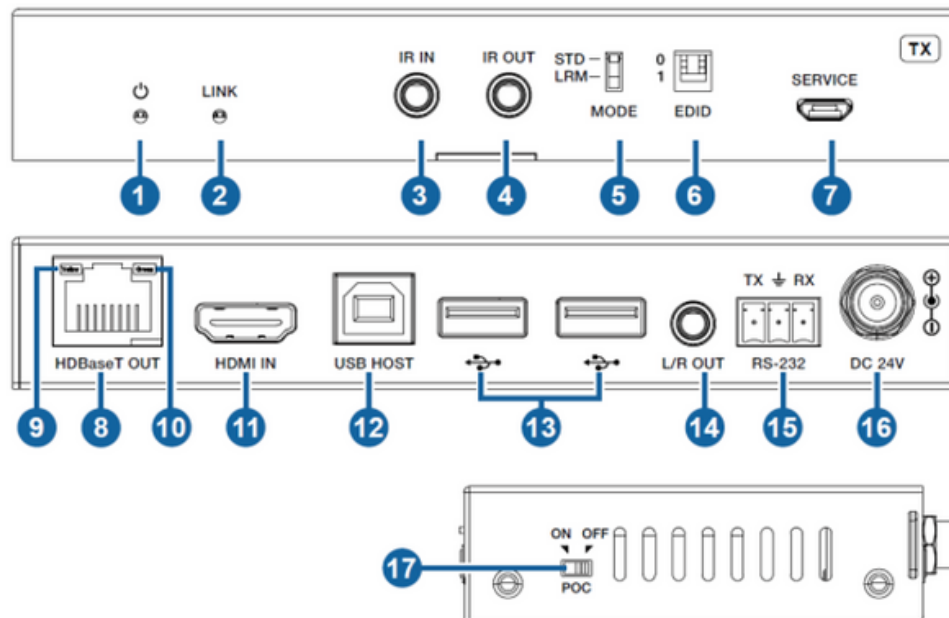- One (1) User manual (available via download)

Notes： Confirm that the product and accessories are all included. If not, please contact the supplier from   which you purchased the unit.

5. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution	Up to 4K/60Hz
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit
Audio Formats	LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
IR Level	12Vp-p
Transmission Distance	HDBT Standard Mode: 4K60/100m; 1080P/100m (CAT6A/7 cable) HDBT Long Reach Mode: 1080P/150m (CAT6/6A/7 cable)

Connection	
Transmitter	Input: 1 x HDMI Input [Type A, 19-pin female] Outputs: 1 x HDBaseT Output [RJ45 connector] 1 x L/R Output [3.5mm Stereo Mini-jack] Controls 1 x IR Input [3.5mm Stereo Mini-jack] : 1 x IR Output [3.5mm Stereo Mini-jack] 1 x RS-232 [3pin-3.81mm Phoenix jack] 1 x SERVICE [Micro USB, 5-pin female] 1 x USB HOST [USB Type B] 2 x USB DEVICES [USB Type A]
Receiver	Inputs: 1 x HDBaseT Input [RJ45, 8-pin female] Outputs: 1 x HDMI Output [Type A, 19-pin female] 1 x L/R Output [3.5mm Stereo Mini-jack] Controls: 1 x IR Input [3.5mm Stereo Mini-jack] 1 x IR Output [3.5mm Stereo Mini-jack] 1 x RS-232 [3pin-3.81mm Phoenix jack] 1 x SERVICE [Micro USB, 5-pin female] 2 x USB DEVICES [USB Type A]

Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions (WxDxH)	Transmitter/Receiver: 144mm x 78mm x 23mm
Weight	Transmitter: 323g, Receiver: 319g
Power Supply	Input: AC 100 - 240V 50/60Hz Output: DC 24V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	14.28W (POC)
Operating Temperature	32 - 104°F / 0 - 40°C
Storage Temperature	-4 - 140°F / -20 - 60°C
Relative Humidity	20~90% RH (non-condensing)

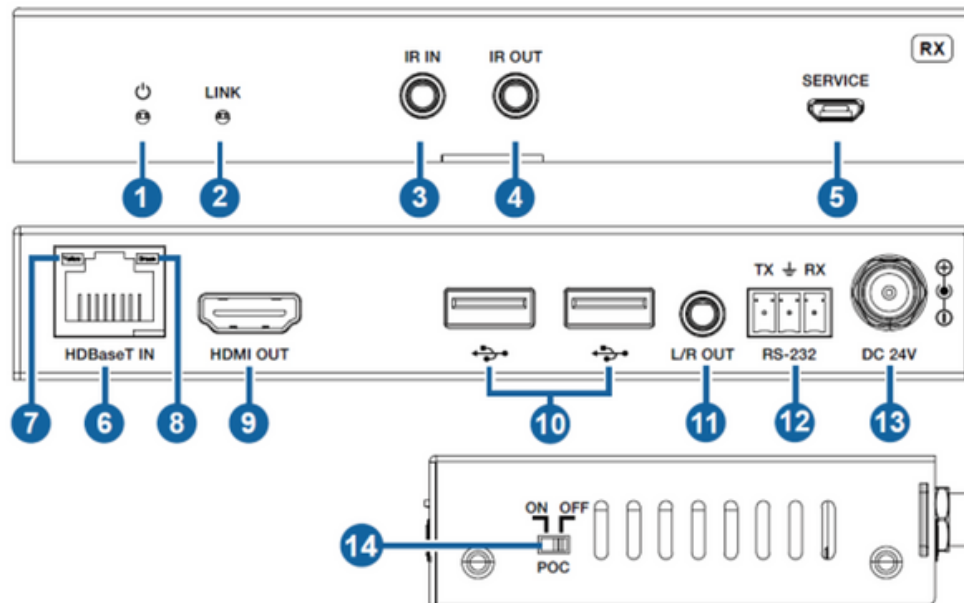| Generic Specification	
Compliance	Regulatory: FCC, CE, RoHS
Warranty	2 years
Order Information	500449 HDMI 2.0 KVM HDBT Extender Kit 100m (UPC:62769004494)

6. Operation Controls and Functions

6.1 Transmitter Panel

No	Name	Function Description
1	Power LED	Red LED indicates that the Transmitter is powered on.
2	LINK LED	• Light on: Transmitter and Receiver are in good connection status. • Light flashing: Transmitter and Receiver are in poor connection status or connected to the same device. • Light off: Transmitter and Receiver are not connected.
3	IR IN	IR signal input port, connected to IR Receiver cable.
4	IR OUT	IR signal output port, connected to IR Blaster cable.
5	MODE Switch	Used to switch HDBT mode. Switch to "STD": The HDBT Standard Mode (as factory default) is enabled, it can extend 4K/60 signal between the transmitter and the receiver up to 100m via a single CAT 6A/7 cable. Switch to "LRM": The HDBT Long Reach Mode is enabled, it can extend 1080p signal between the transmitter and the receiver up to 150m via a single CAT6/6A/7 cable.
6	EDID DIP Switch	Used for EDID setting: 00: Copy display's EDID (as factory default) 01: 4K30 4:4:4 10: 1080p/60 4:4:4 11: 1200p/60 4:4:4
7	SERVICE	Firmware update port.
8	HDBaseT OUT	HDBaseT output port, connected to the HDBaseT IN port of Receiver with a CAT6A/7 cable. It is used for various signals pass-through.
9	Data Signal Indicator (Yellow)	• Illuminating: HDMI signal with HDCP. • Flashing: HDMI signal without HDCP. • Dark: No HDMI signal.

| 10	Link Signal Indicator (Green)	• Illuminating: Transmitter and Receiver are in good connection status. • Flashing: Transmitter and Receiver are in poor connection status or connected to the same device. • Dark: Transmitter and Receiver are not connected.
11	HDMI IN	HDMI signal input port, connected to signal source device.
12	USB HOST	USB extension host port, connected to PC.
13	USB DEVICES	Two USB device ports, connected to USB disk, mouse or keyboard.
14	L/R OUT	Analog audio output port, used for audio de-embedding output.
15	RS-232	RS-232 serial port, used for serial port command transmission.
16	DC 24V	DC 24V/1A power supply input port. Note that the extender supports POC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply.
17	POC Switch	Use the switch to turn on/off POC function.

6.2 Receiver Panel

No	Name	Function Description
1	Power LED	Red LED indicates that the Receiver is powered on.
2	LINK LED	• Light on: Transmitter and Receiver are in good connection status. • Light flashing: Transmitter and Receiver are in poor connection status or connected to the same device. • Light off: Transmitter and Receiver are not connected.
3	IR IN	IR signal input port, connected to IR Receiver cable.
4	IR OUT	IR signal output port, connected to IR Blaster cable.
5	SERVICE	Firmware update port.
6	HDBaseT IN	HDBaseT input port, connected to the HDBaseT OUT port of Transmitter with a CAT 6A/7 cable. It is used for various signals pass-through.
7	Data Signal Indicator (Yellow)	• Illuminating: HDMI signal with HDCP. • Flashing: HDMI signal without HDCP. • Dark: No HDMI signal.

8	Link Signal Indicator (Green)	• Illuminating: Transmitter and Receiver are in good connection status. • Flashing: Transmitter and Receiver are in poor connection status or connected to the same device. • Dark: Transmitter and Receiver are not connected.
9	HDMI OUT	HDMI signal output port, connected to HDMI display device.
10	USB DEVICES	Two USB device ports, connected to USB disk, mouse or keyboard.
11	L/R OUT	Analog audio output port, used for audio de-embedding output.
12	RS-232	RS-232 serial port, used for serial port command transmission.
13	DC 24V	DC 24V/1A power supply input port. Note that the extender supports POC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply.
14	POC Switch	Use the switch to turn on/off POC function.

7. IR Pin Definition

IR Receiver and Blaster pin's definition as below:
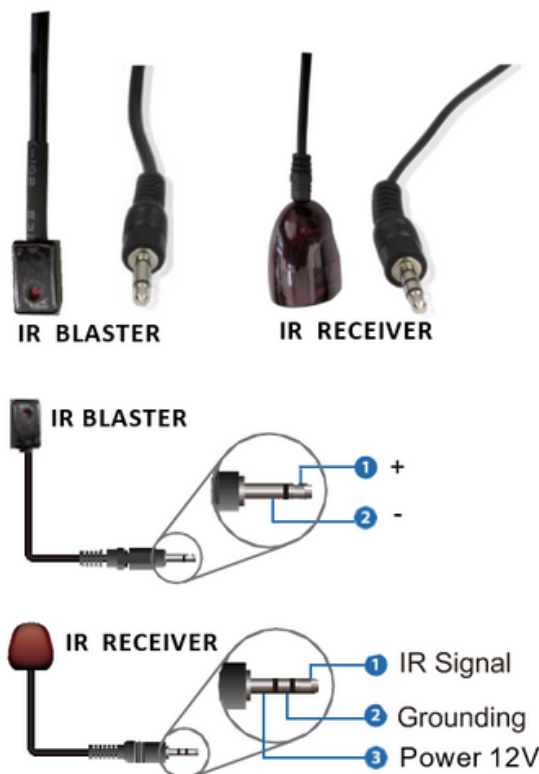
Note: When the angle between the IR receiver and the remote control is ± 45°, the transmission distance is 0-5 meters; when the angle between the IR receiver and the remote control is ± 90°, the transmission distance is 0-8 meters.

8. Application Diagram

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HDMI 2.0 KVM HDBT Extender Kit, 100m
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