

Multi-Input HDMI® over HDBaseT Extender with Built-In Switch



Actual product may vary from photos

User Manual

SKU#: VS321HDBTK

For the latest information and specifications visit
www.startech.com/VS321HDBTK

Compliance Statements

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- 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

Industry Canada Statement

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.

CAN ICES-3 (B)/NMB-3(B)

Use of Trademarks, Registered Trademarks, and other Protected Names and Symbols

This manual may make reference to trademarks, registered trademarks, and other protected names and/or symbols of third-party companies not related in any way to StarTech.com. Where they occur these references are for illustrative purposes only and do not represent an endorsement of a product or service by StarTech.com, or an endorsement of the product(s) to which this manual applies by the third-party company in question. Regardless of any direct acknowledgement elsewhere in the body of this document, StarTech.com hereby acknowledges that all trademarks, registered trademarks, service marks, and other protected names and/or symbols contained in this manual and related documents are the property of their respective holders.

PHILLIPS[®] is a registered trademark of Phillips Screw Company in the United States or other countries.

Safety Statements

Safety Measures

- Wiring terminations should not be made with the product and/or electric lines under power.
- Cables (including power and charging cables) should be placed and routed to avoid creating electric, tripping or safety hazards.

Mesures de sécurité

- Les terminaisons de câblage ne doivent pas être effectuées lorsque le produit et/ou les câbles électriques sont sous tension.
- Les câbles (y compris les câbles d'alimentation et de chargement) doivent être placés et acheminés de façon à éviter tout risque électrique, de chute ou de sécurité

安全対策

- 電源が入っている状態の製品または電線の終端処理を行わないでください。
- ケーブル(電源ケーブルと充電ケーブルを含む)は、適切な配置と引き回しを行い、電気障害やつまづきの危険性など、安全上のリスクを回避するようにしてください。

Misure di sicurezza

- I terminali dei fili elettrici non devono essere realizzate con il prodotto e/o le linee elettriche sotto tensione.
- I cavi (inclusi i cavi di alimentazione e di ricarica) devono essere posizionati e stesi in modo da evitare pericoli di inciampo, rischi di scosse elettriche o pericoli per la sicurezza.

Säkerhetsåtgärder

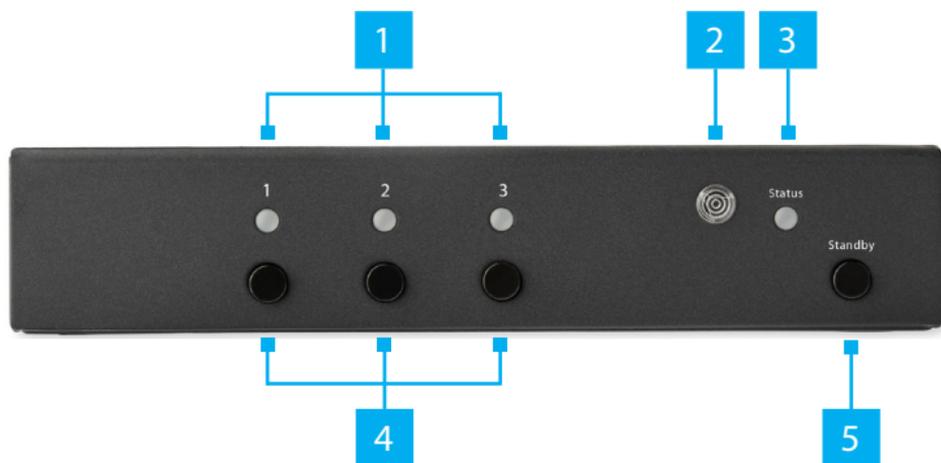
- Montering av kabelavslutningar får inte göras när produkten och/eller elledningarna är strömförda.
- Kablar (inklusive elkablar och laddningskablar) ska dras och placeras på så sätt att risk för snubblingsolyckor och andra olyckor kan undvikas.

Table of Contents

Compliance Statements.....	i
Safety Statements.....	iii
Product Diagram	1
Transmitter Front View	1
Transmitter Rear View.....	2
Receiver Front View	3
Receiver Rear View.....	4
Requirements	5
Installation	5
(Optional) Mounting.....	7
Operation.....	8
LED Indicators.....	8
Mode Switch	9
EDID Settings.....	9
Standby Mode.....	10
Remote Control.....	11
Input Selection Buttons.....	12
Manual Operation with Serial Control Port	12

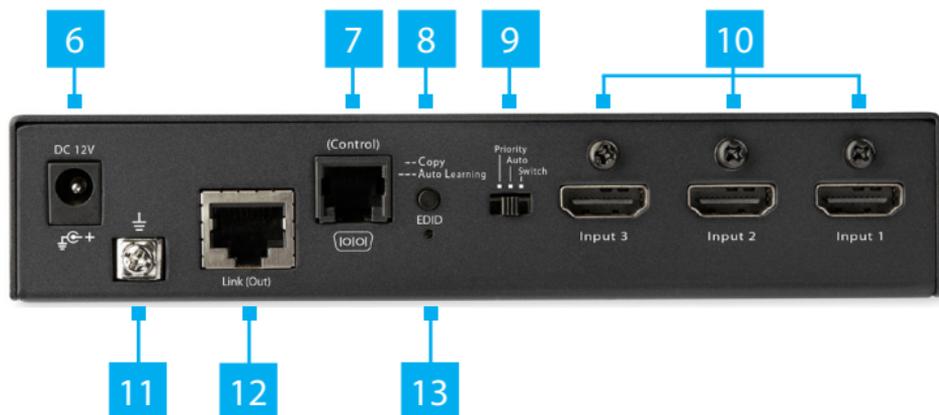
Product Diagram

Transmitter Front View



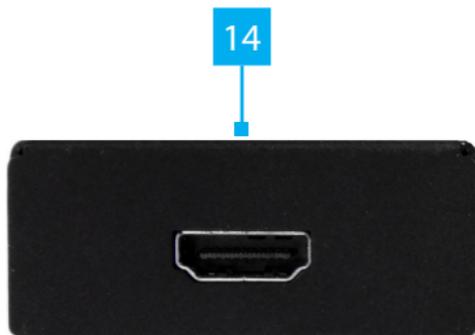
Port	Function
1	Port LED Indicators <ul style="list-style-type: none">Indicates the selected HDMI Input Port
2	Infrared Sensor <ul style="list-style-type: none">Receives infrared signals for remote control of the Extender
3	Status LED Indicator <ul style="list-style-type: none">Indicates the status of the Transmitter
4	Input Selection Buttons <ul style="list-style-type: none">Select an active HDMI Input Port
5	Standby Button <ul style="list-style-type: none">Enter or exit Standby Mode

Transmitter Rear View



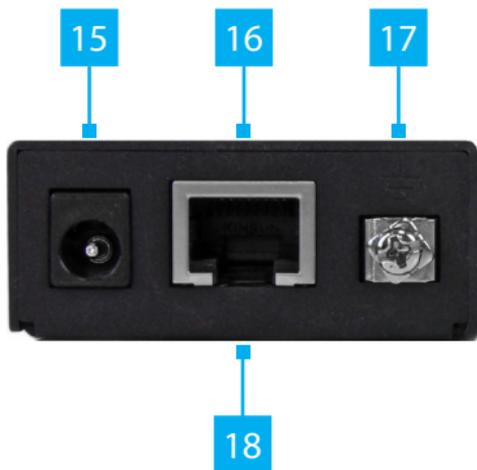
Port	Function
6	DC 12V Power Port <ul style="list-style-type: none"> Connect a Power Source
7	Serial Control Port <ul style="list-style-type: none"> Connect to a Computer using an RJ11 to RS232 Adapter for Serial Control
8	EDID Copy Button <ul style="list-style-type: none"> Copy EDID Settings from the HDMI Source Device
9	Mode Switch <ul style="list-style-type: none"> Switch between Manual, Automatic and Priority HDMI Source selection
10	HDMI Input Ports <ul style="list-style-type: none"> Connect HDMI Source Devices
11	System Ground <ul style="list-style-type: none"> Connect a Grounding Wire to prevent a ground loop.
12	Video Link Output Port <ul style="list-style-type: none"> Connect the Receiver via CAT5e/6 Cable
13	EDID LED Indicator <ul style="list-style-type: none"> Indicates the EDID Copy status

Receiver Front View



	Port	Function
14	HDMI Output Source	• Connect an HDMI Display Device

Receiver Rear View



	Port	Function
15	DC 12V Power Port	<ul style="list-style-type: none">Connect a Power Source
16	Status LED Indicator	<ul style="list-style-type: none">Indicates the status of the Receiver (located on the top of the Receiver)
17	System Ground	<ul style="list-style-type: none">Connect a Grounding Wire to prevent a ground loop.
18	Video Link Input Port	<ul style="list-style-type: none">Connect the Transmitter via CAT5e/6 Cable

Requirements

- HDMI Source Devices (up to 4K @ 30 Hz) x 3
- HDMI M/M Cables (sold separately) x 4
- HDMI Display Device x 1
- CAT5e/6 Cable x 1
- (Optional) Grounding Wires x 2
- (Optional) Hex Tool x 1

For the latest requirements and to view the full User Manual, please visit www.startech.com/VS321HDBTK.

Installation

Note: Ensure the **HDMI Display Device** and the **HDMI Source Devices** are powered off before you begin the installation.

1. Peel and stick the **Rubber Feet** onto the bottom of the **Transmitter** and **Receiver**.
2. (Optional - grounding) Turn the **Screws** of the **System Grounds** counterclockwise using a **Phillips Head Screwdriver**.
 - For applications using loose **Electrical Cable**:
 - Do not loosen the **Screw(s)** all the way. Wrap the **Electrical Cable** around the **Screw(s)** before retightening the **Screw(s)**.
 - For applications using specialized **Grounding Wires**:
 - Loosen the **Screw(s)** all the way and insert the **Screw(s)** through the **Grounding Wire** ends before retightening into the **Transmitter** and **Receiver**.

3. (Optional - grounding) Connect one end of your **Grounding Wires** to the **System Ground** on the **Transmitter** and **Receiver** and the other end to the **Earth Grounds** in your **Building**.
4. Connect an **HDMI Cable** (sold separately) to an **Output Port** on the **HDMI Source Device** and to one of the **HDMI IN Ports** on the **Transmitter**.
5. Repeat step #4 for each of your remaining **HDMI Source Devices**.

***Note:** Each **HDMI Input Port** is numbered, please take note of which number is assigned to each **HDMI Source Device**.*

6. Connect a **CAT5e/6 Cable** to the **Video Link Output Port** on the **Transmitter** and to the **Video Link Input Port** on the **Receiver**.
7. Connect an **HDMI Cable** to the **HDMI Output Port** on the **Receiver** and to an **HDMI Input Port** on the **HDMI Display Device**.
8. Connect the **Universal Power Adapter** to an available **Power Source** and to the **Power Adapter Port** on either the **Transmitter** or the **Receiver**.

***Note:** VS321HDBTK uses Power over Cable (PoC) to provide power to both units when the **Universal Power Adapter** is connected to either the **Transmitter** or **Receiver**.*

9. Power on your **HDMI Display**, followed by each of your **HDMI Source Devices**.
10. (Optional - for [Serial Control](#)) Connect the **RJ11 to RS232 Adapter** to the **Serial Control Port** on the **Transmitter** and to a **Serial Port** on your **Computer**.

(Optional) Mounting

Mounting the Transmitter

1. Determine the **Mounting Surface** for the **Transmitter**.
2. Place the **Mounting Brackets** on either side of the **Transmitter**. Align the **Holes** in the **Mounting Brackets** with the **Holes** in the **Transmitter**.
3. Insert two **Screws** through each **Mounting Bracket** and into the **Transmitter**. Tighten each **Screw** using a **Phillips Head Screwdriver**.
4. Mount the **Transmitter** to the desired **Mounting Surface** using the appropriate **Mounting Hardware** (e.g. **Wood Screws**).

Mounting the Receiver

1. Determine the **Mounting Surface** for the **Receiver**.
2. Remove the **Rubber Feet** on the bottom of the **Receiver**.
3. Flip the **Receiver** upside down and place it on a clean and flat **Surface**.
4. Place one **Mounting Bracket** on the bottom of the **Receiver**. Align the **Holes** in the **Mounting Bracket** with the **Holes** in the bottom of the **Receiver**.
5. Insert two **Screws** through the **Mounting Bracket** and into the **Receiver**.
6. Mount the **Receiver** to the desired **Mounting Surface** using the appropriate **Mounting Hardware** (ex. **Wood Screws**).

Operation

LED Indicators

Port LED Indicators	
LED Behavior	Status
Solid blue	Non-HDCP HDMI Source selected
Flashing blue	Non-HDCP HDMI Source not selected
Solid purple	HDCP HDMI Source selected
Flashing purple	HDCP HDMI Source not selected
Solid red	No HDMI Source selected

Status LED Indicator	
LED Behavior	Status
Solid green	Device is powered & HDBaseT is not linked
Solid blue	HDBaseT is linked

EDID LED Indicator	
LED Behavior	Status
Flashing two times	EDID copy
Flashing three times (long flash - short flash - short flash)	Auto EDID

Mode Switch

The **Mode Switch**, located on the rear of the **Transmitter**, is used to determine how the current **Source** is selected. Toggle the **Mode Switch** to one of the following three settings.

Setting	Function
Priority	Auto select a priority HDMI Source (HDMI Input 1, 2, then 3)
Auto	Auto select the last connected HDMI Source
Switch	Select the HDMI Source using the Input Selection Buttons

EDID Settings

Function	Action	Status LED Indicator (While Holding Button)	Status LED Indicator (During Playback)
Copy and store	Press and Hold EDID Copy Button for 3 Seconds	Flashing green rapidly	Flashes twice
Auto migration	Press and Hold EDID Copy Button for 6 Seconds	Flashing green slowly	Flashes three times
Restore 1080p preset EDID setting and enable auto migration	Press and Hold EDID Copy Button for 12 Seconds	Flashing green rapidly	Flashes three times

Standby Mode

In **Standby Mode** the video transmission is disabled and the **Transmitter** and **Receiver** go into a low power mode.

- To enter **Standby Mode: Press and Hold the Standby Button** for 3 seconds.
- To exit **Standby Mode: Press and Release the Standby Button.**

Remote Control

The **Remote Control** can be used to remotely select your **HDMI Source Device** and to change the **Standby Mode** settings. The **Remote Control** operates through line-of-sight. Always point the **Remote Control** directly at the infrared sensor on the **Transmitter**, with no objects obstructing the signal path.

- To enter or exit **Standby Mode**: Click the **x10 Button** once.
- To select an **HDMI Source Device**: Click **M1, M2, or M3** for **HDMI Sources 1 to 3**.

***Note:** All other buttons are not functional.*



Input Selection Buttons

Press and release the **Input Selection Button**, located on the front of the **Transmitter**, to select the desired **HDMI Source Device**. The **LED Indicator** for the selected **HDMI Input Port** will light up and the selected **HDMI Source Signal** will display on the **HDMI Display Device**.

Manual Operation with Serial Control Port

1. Configure the settings using the **Serial Control Port** with the values shown below.

Baud Rate: 38400 bps

Data Bits: 8

Parity: None

Stop Bits: 1

Flow control: None

2. Open a third-party **Terminal Software** to communicate through the **Serial Control Port** and use the on-screen commands, displayed on the next page, to operate and configure the **Transmitter** and **Receiver**.

On-Screen Commands

Command	Description
CE=n.a1.a2	<p>Copy EDID (Inventory) to all input ports n: Method. a1 . a2: Options</p> <ol style="list-style-type: none">1. Copy from specified monitor a12. Copy from corresponding monitor (1 on 1)3. Make 1024 x 768 EDID4. Make 1280 x 800 EDID5. Make 1280 x 1024 EDID6. Make 1360 x 768 EDID7. Make 1400 x 1050 EDID8. Make 1440 x 900 EDID9. Make 1600 x 900 EDID10. Make 1600 x 1200 EDID11. Make 1680 x 1050 EDID12. Make 1920 x 1080 EDID13. Make 1920 x 1200 EDID14. Make 1920 x 1440 EDID15. Make 2048 x 1152 EDID <p>when n = 1: a1: monitor index (1~2). a2: not required when n = 2: a1.a2: not required when n = 3~15: a1: video options</p> <ol style="list-style-type: none">1. DVI2. HDMI(2D)3. HDMI(3D) <p>a2: audio options</p> <ol style="list-style-type: none">1. LPCM 2 ch2. LPCM 5.1 ch3. LPCM 7.1 ch4. Dolby AC3 5.1 ch5. Dolby TrueHD 5.1 ch6. Dolby TrueHD 7.1 ch7. Dolby E-AC3 7.1 ch8. DTS 5.1 ch9. DTS HD 5.1 ch10. DTS HD 7.1 ch11. MPEG4 AAC 5.1 ch12. 5.1 ch combination13. 7.1 ch combination

AVI=n	Select input port n as the source of all output ports
AV0EN=n	Enable output port n n : 1~max - output port n.- All ports
VS	View current settings
Eq=n	Set EQ level as n (1~8)
FACTORY	Reset as factory default setting
REBOOT	Reboot the device
RCID=n	Set Remote Control ID as n n: 0- Reset as null(Always on) 1~16 - Valid ID
IT=n	Set terminal interface n: 0 - Human 167 - Machine
LCK=n	Lock / Unlock device n: 0 - Unlock 167 - Lock

Warranty Information

This product is backed by a two-year warranty.

For further information on product warranty terms and conditions, please refer to www.startech.com/warranty.

Limitation of Liability

In no event shall the liability of StarTech.com Ltd. and StarTech.com USA LLP (or their officers, directors, employees or agents) for any damages (whether direct or indirect, special, punitive, incidental, consequential, or otherwise), loss of profits, loss of business, or any pecuniary loss, arising out of or related to the use of the product exceed the actual price paid for the product.

Some states do not allow the exclusion or limitation of incidental or consequential damages. If such laws apply, the limitations or exclusions contained in this statement may not apply to you.

Hard-to-find made easy. At StarTech.com, that isn't a slogan. It's a promise.

StarTech.com is your one-stop source for every connectivity part you need. From the latest technology to legacy products — and all the parts that bridge the old and new — we can help you find the parts that connect your solutions.

We make it easy to locate the parts, and we quickly deliver them wherever they need to go. Just talk to one of our tech advisors or visit our website. You'll be connected to the products you need in no time.

Visit www.startech.com for complete information on all StarTech.com products and to access exclusive resources and time-saving tools.

StarTech.com is an ISO 9001 Registered manufacturer of connectivity and technology parts. StarTech.com was founded in 1985 and has operations in the United States, Canada, the United Kingdom and Taiwan servicing a worldwide market.

Reviews

Share your experiences using StarTech.com products, including product applications and setup, what you love about the products, and areas for improvement.

StarTech.com Ltd.

45 Artisans Cres.
London, Ontario
N5V 5E9
Canada

FR: startech.com/fr
DE: startech.com/de

StarTech.com LLP

2500 Creekside Pkwy.
Lockbourne, Ohio
43137
U.S.A.

ES: startech.com/es
NL: startech.com/nl

StarTech.com Ltd.

Unit B, Pinnacle
15 Gowerton Rd.,
Brackmills
Northampton
NN4 7BW
United Kingdom

IT: startech.com/it
JP: startech.com/jp