



# EF-USB3-D

100m USB3.2 Gen1 Extender over HDBT

User Manual



## Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till November 3, 2023. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

## FCC Statement

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. It 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 commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



## **SAFETY PRECAUTIONS**

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

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheating.
- Keep the module 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 to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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## 1. Product Introduction

Thanks for choosing the 100m USB 3.2 Gen1 extender. The extender is designed to transmit USB signal up to 100m distance. EF-USB3-D is the device port of the extender, it contains four USB ports. Applications include extending USB 3 conferencing cameras, video capture devices, and audio devices for boardrooms and conference rooms. It is also ideal for use with all USB peripherals in addition to USB 3.2 Gen 1 conference cameras including: flash drives, hard drives, keyboards, mice, interactive white boards, touchscreens, audio devices, and other USB 3.2 Gen1 devices.

### 1.1 Features

- USB3.2 Gen1 data transfer rate up to 5Gbps;
- Support extend USB signal up to 100m;
- Support RS232 pass-through/control/upgrade;
- Support USB device power management;
- Bi-directional 24V PoC power supply.

### 1.2 Package List

- 1x EF-USB3-D
- 1x Mounting Kit
- 1x 3-pin Terminal Block
- 4x Rubber feet
- 1x User Manual

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

## 2. Specification

| <b>EF-USB3-D</b>      |   |
|-----------------------|---|
| Devices Connector     | (3) Type-A USB (1) Type-C USB   |
| Devices Power         | Devices share 3A current limit;<br>Single port power supply maximum limit 1.7A.     |
| USB Version           | USB 3.2 Gen1  |
| <b>Control Part</b>   |   |
| Control               | (1) RS232 (1) DIP switch  |
| Control Connector     | (1) 3-pin terminal block (1) 2-pinDIP switch  |
| <b>General</b>        |   |
| Transmit distance     | Up to 100m with CAT6A cable<br>(The current version only reaches the 70m extension) |
| Data Rate             | 5Gbps   |
| Operation Temperature | -10°C ~ +55°C   |
| Storage Temperature   | -25°C ~ +70°C   |
| Relative Humidity     | 10% ~ 90%   |
| External Power Supply | DC 24V 1.5A   |
| Power Consumption     | 19W (Max)   |
| Dimension (W*H*D)     | 133.0mm x 21.5mm x 105.0mm  |
| Net Weight            | 340g  |

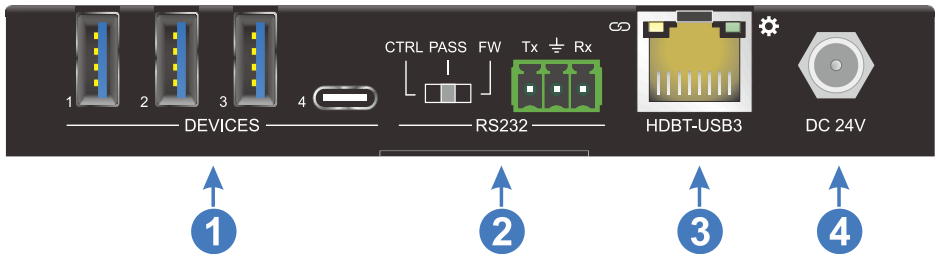
## 3. Panel Description

### 3.1 Front Panel



- ① **Power LED:** The LED illuminates green when the unit is power on.
- ② **PoC:** 1x DIP switch, turn on/off the PoC.

### 3.2 Rear Panel



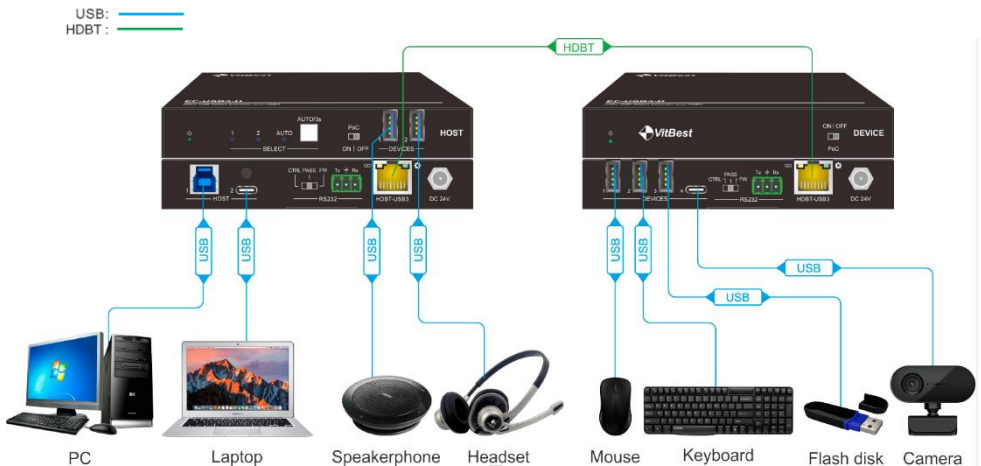
- ① **Devices:** 3x USB-A and 1x USB-C 3.2 gen1 for connecting KVM devices, cameras or other USB devices.  
Devices share 3A current limit, single port power supply maximum limit 1.7A.
- ② **RS232:** 1x 3-pin DIP switch for select the RS232 port function.  
**CTRL:** Control the unit via sending the RS232 commands.  
**PASS:** RS232 pass-through.  
**FW:** Firmware upgrade.
- ③ **HDBT-USB3:** 1x RJ45 port for connecting with the device unit of the extender.  
The yellow light indicates the connection status of the HDBT, and the green LED is the data light.
- ④ **DC 24V:** DC barrel port for DC24V 1.5A power adapter connection.

## 4. System Connection

### 4.1 Usage Precaution

- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

### 4.2 System Diagram





## 5. RS232 Control

Connect the RS232 port to control device (e.g. PC) with RS232 cable. The switcher can be controlled by sending RS232 commands.

### 5.1 RS232 Control Software

- **Installation:** Copy the control software file to the control PC.
- **Uninstallation:** Delete all the control software files in corresponding file path.

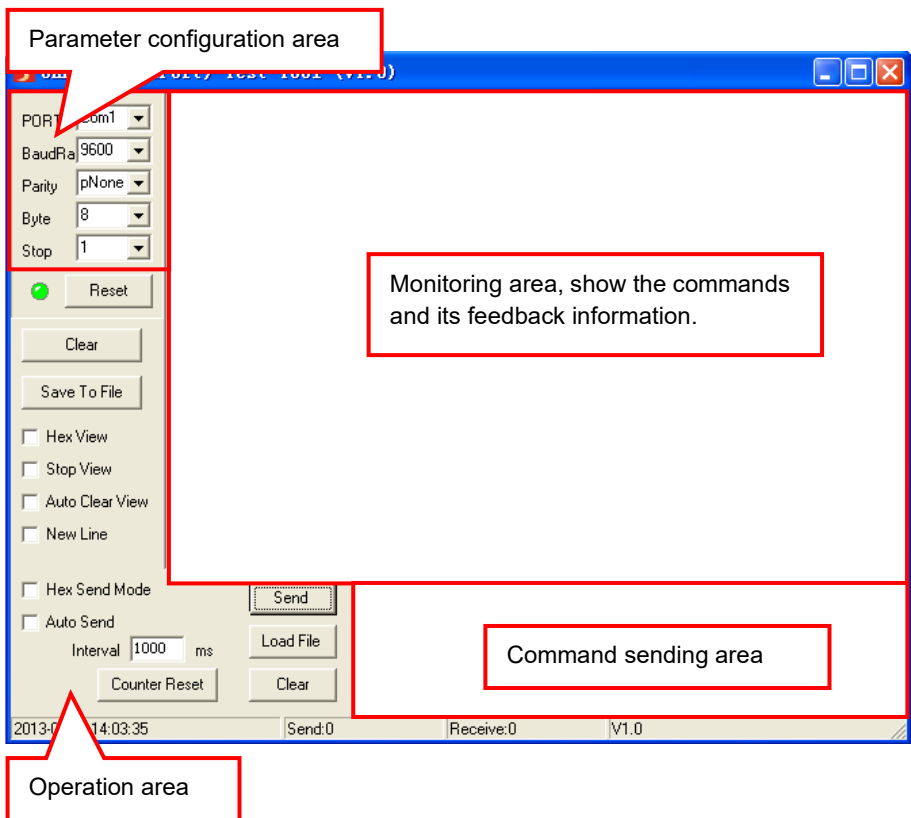
#### Basic Setting:

Connect the switcher with all input devices and output devices needed, then to connect it with a PC which is installed with RS232 control software. Double-click the software icon to run this software.

Here takes the software **CommWatch.exe** as an example:



The main view is shown as below:



Please set the parameters of COM number, baud rate, data bit, stop bit and the parity bit correctly, and then you will be able to send command in command sending area.

## 5.2 RS232 Command

**Communication protocol:** RS232 Communication Protocol

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

### Note:

- All commands need to be ended with "<CR><LF>".

### 5.2.1 System Control

| Command       | Description              | Example & Command Feedback  |
|---------------|--------------------------|---|
| >Help         | Query commands           | >Help   |
|               |                          | -----   |
| >GetStatus    | Query status             | >GetStatus  |
|               |                          | <EF-USB3-D<br><FW Version: V1.0.0a<br><POC Off<br><AutoSwitch Mode Off<br><USB 01<br><Device Power Follow Host<br>Mode Off<br><Device1 Power On<br><Device2 Power On<br><Device3 Power Off<br><Device4 Power Off<br><SetRS232Baud: 9600 |
| >Reboot       | Restart the unit         | >Reboot   |
|               |                          | <Reboot   |
| >FactoryReset | Factory default the unit | >FactoryReset   |

|   |  |                                       |
|---|--|---------------------------------------|
|   |  | <FactoryReset                         |
| <b>&gt;SetDeviceFollow [Param1]</b>         | Set the devices power mode:<br>Param = On<br>(Follow mode, turn off the power when no host connect)<br>Param = Off<br>(Always on, always provide the power to devices) | >SetDeviceFollow On                   |
|   |  | <Set Device Power Follow Host Mode On |
| <b>&gt;GetDeviceFollow</b>                  | Query devices power mode   | >GetDeviceFollow                      |
|   |  | <Device Power Follow Host Mode On     |
| <b>&gt;SetRS232Baud</b>                     | Set the baud rate of the unit.<br>Param = 9600(default),<br>19200, 38400, 57600,<br>115200   | >SetRS232Baud 9600                    |
|   |  | <SetRS232Baud: 9600                   |
| <b>&gt;SetDevicePower [param1] [param2]</b> | Control the devices power supply on/off<br>Param1 = 00~04<br>00: All devices<br>01~04: Device1~ Device4<br>Param2 = On/Off   | >SetDevicePower 0 Off                 |
|   |  | <Set All Device Power Off             |
| <b>&gt;GetDevicePower</b>                   | Query devices power status   | >GetDevicePower                       |
|   |  | <Device1 Power On                     |
|   |  | <Device2 Power On                     |
|   |  | <Device3 Power Off                    |
|   |  | <Device4 Power Off                    |

## 6. Panel Drawing

