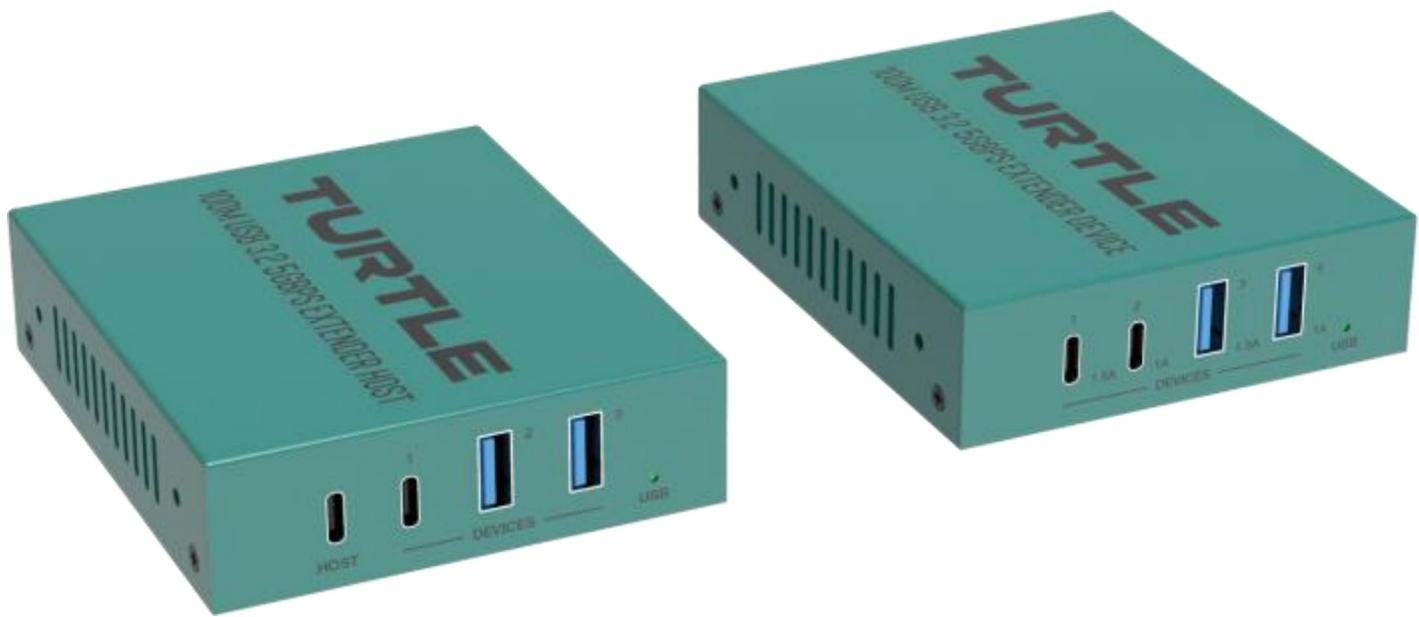


# TURTLE

## 100M USB 3.2 5Gbps EXTENDER KIT



### User Manual

VER 1.0

# Thank you for purchasing TURTLE product

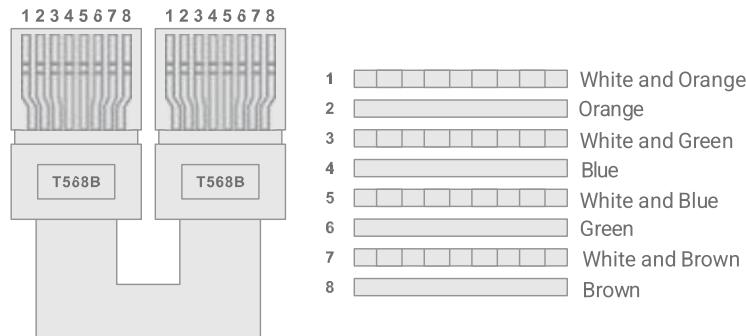
For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

## 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.

## Caution

The product requires the use of UTP connectors. Please connect in direct interconnection method and do not cross connect.



Direct Interconnection Method

## Table of Contents

1. Introduction .....	1
2. Features .....	1
3. Package Contents .....	1
4. Specifications .....	2
5. Operation Controls and Functions .....	3
5.1 Transmitter Panel .....	3
5.2 Receiver Panel .....	4
6. Application Example .....	5

## 1. Introduction

The Turtle AV USB Extender Kit delivers high-speed USB 3.2 performance over distances up to 100 Metres / 328 Feet using a single CAT cable, with data rates up to 5Gbps. Plug-and-play simplicity, universal device compatibility, and reliable low-latency performance make it the perfect solution for professional AV, conferencing, and live production environments.

## 2. Features

- Extension of USB 3.2 Gen 1 up to 100m/328ft via CAT6a cable
- USB 3.2 Gen 1 connectivity with data transfer rate up to 5Gbps
- Backwards compatible with USB 2.0 and 1.1
- Hardware acceleration for isochronous and bulk transfer
- TX features 1x USB-C host port, 1x USB-C and 2x USB-A device ports
- RX features 2x USB-C (1x 5V@1A and 1x 5V@1.5A) and 2x USB-A device ports (1x 5V@1A and 1x 5V@1.5A)
- Support firmware upgrade via USB-C service port
- Support FSYNC GPIO pass-through for industry camera use
- Support bi-directional 24V PoC (Power over Cable), when TX or RX gets power, the other end does not need an external power supply
- Plug-and-play with no drivers, downloads, or software required

## 3. Package Contents

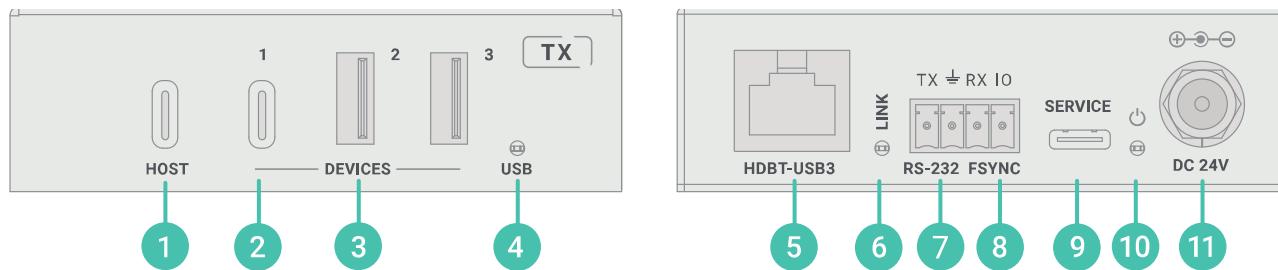
- 1x USB 3.2 Gen 1 Extender (Transmitter)
- 1x USB 3.2 Gen 1 Extender (Receiver)
- 1x 24V/3.75A Locking Power Supply
- 2x 4pin-3.5mm Phoenix Connector (Male)
- 4x Mounting Ear
- 8x Machine Screw (KM3\*4)

## 4. Specifications

Technical	
<b>USB Protocol</b>	USB 3.2 Gen 1
<b>Transmission Rate</b>	Up to 5Gbps
<b>Transmission Distance</b>	100m/328ft via CAT6a (F/FTP) cable 1.5m/4.9ft via USB cable
<b>ESD Protection</b>	IEC 61000-4-2: $\pm 8\text{kV}$ (Air-gap discharge), $\pm 4\text{kV}$ (Contact discharge)
Connections	
<b>Transmitter</b>	Input: 1 × HOST [USB Type C, 24-pin female] Output: 1× USB-C DEVICE [USB Type C, 24-pin female] 2 × USB-A DEVICE [USB Type A, 9-pin female] 1 × HDBT-USB3 [RJ45 connector, 24V PoC] Control: 1× RS-232 [ 3pin-3.5mm phoenix connector] 1 × FSYNC [ 1pin-3.5mm phoenix connector] 1× SERVICE [USB Type C, firmware update port]
<b>Receiver</b>	Input: 1× HDBT-USB3 [RJ45 connector, 24V PoC] Output: 2× USB-A DEVICE [USB Type A, 9-pin female] 2 × USB-C DEVICE [USB Type C, 24-pin female] Control: 1× RS-232 [ 3pin-3.5mm phoenix connector] 1 × FSYNC [ 1pin-3.5mm phoenix connector] 1× SERVICE [USB Type C, firmware update port]
Mechanical	
<b>Housing</b>	Metal Enclosure
<b>Color</b>	Turtle Aqua
<b>Dimensions</b>	TX / RX: 100mm [W] × 85mm [D] × 25.5mm [H]
<b>Weight</b>	TX: 265g; RX: 275g
<b>Power Supply</b>	Input: AC 100~240V 50/60Hz Output: DC 24V/3.75A
<b>Power Consumption</b>	TX: 23W (Max); RX: 35W (Max); TX+RX: 68W (Max, including line loss)
<b>Operating Temperature</b>	0°C ~ 40°C / 32°F ~ 104°F
<b>Storage Temperature</b>	-20°C ~ 60°C / -4°F ~ 140°F
<b>Operating Humidity</b>	20%~80% relative humidity, non-condensing
<b>Storage Humidity</b>	10%~90% relative humidity, non-condensing

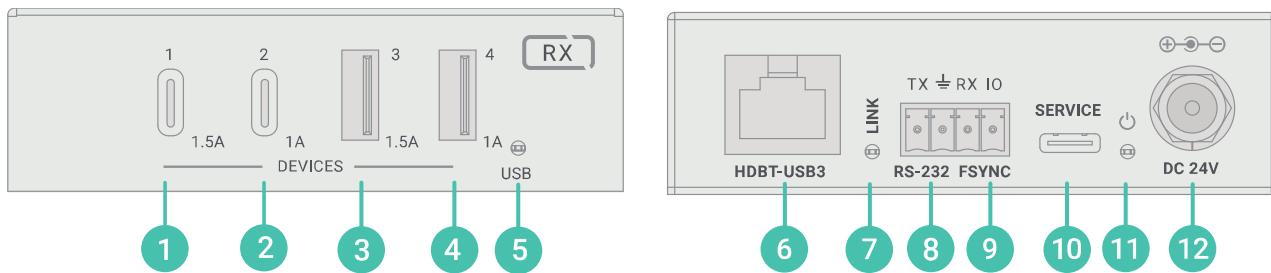
## 5. Operation Controls and Functions

### 5.1 Transmitter Panel



No.	Name	Function Description
1	<b>HOST</b>	Uplink USB-C port, connected to PC or host. It can be used for HUB firmware update.
2	<b>USB DEVICES (1)</b>	Downlink USB-C port, connected to USB devices such as U disk or hard disk. Its output power is up to 5V/1A.
3	<b>USB DEVICES (2~3)</b>	Downlink USB-A port, connected to USB devices such as U disk or hard disk. Its output power is up to 5V/1A.
4	<b>USB LED</b>	USB signal indicator. <ul style="list-style-type: none"><li>▪ On: USB 3.0 signal is detected.</li><li>▪ Blinking: USB 2.0 signal is detected.</li><li>▪ Off: USB signal is not detected.</li></ul>
5	<b>HDBT-USB3</b>	Connects to the HDBT-USB3 port on Receiver with CAT6a cable. It can also be used for 24V PoC power supply.
6	<b>LINK LED</b>	Connection signal indicator. <ul style="list-style-type: none"><li>▪ On: Transmitter and Receiver are connected and linked.</li><li>▪ Off: Transmitter and Receiver are not connected.</li></ul>
7	<b>RS-232</b>	3pin phoenix connector, connected to a PC or control system for RS-232 command pass-through.
8	<b>FSYNC</b>	FSYNC port, the level pass through from Transmitter to Receiver, to synchronize the external devices. Default level range is 0~5V.
9	<b>SERVICE</b>	USB-C port for firmware update, supporting USB 2.0.
10	<b>Power LED</b>	The LED will be on when the transmitter is powered on.
11	<b>DC 24V</b>	DC 24V/3.75A power input port.

## 5.2 Receiver Panel



No.	Name	Function Description
1	<b>USB DEVICES 1</b>	Downlink USB-C port, connected to USB devices such as U disk or hard disk. Its output power is up to 5V/1.5A.
2	<b>USB DEVICES 2</b>	Downlink USB-C port, connected to USB devices such as U disk or hard disk. Its output power is up to 5V/1A.
3	<b>USB DEVICES 3</b>	Downlink USB-A port, connected to USB devices such as U disk or hard disk. Its output power is up to 5V/1.5A.
4	<b>USB DEVICES 4</b>	Downlink USB-A port, connected to USB devices such as U disk or hard disk. Its output power is up to 5V/1A.
5	<b>USB LED</b>	USB signal indicator. ▪ On: USB 3.0 signal is detected. ▪ Blinking: USB 2.0 signal is detected. ▪ Off: USB signal is not detected .
6	<b>HDBT-USB3</b>	Connects to the HDBT-USB3 port on Transmitter with CAT6a cable. It can also be used for 24V PoC power supply.
7	<b>LINK LED</b>	Connection signal indicator. ▪ On: Transmitter and Receiver are connected and linked. ▪ Off: Transmitter and Receiver are not connected.
8	<b>RS-232</b>	3pin phoenix connector, connected to a PC or control system for RS-232 command pass-through.
9	<b>FSYNC</b>	FSYNC port, the level pass through from Transmitter to Receiver, to synchronize the external devices. Default level range is 0~5V.
10	<b>SERVICE</b>	USB-C port for firmware update, supporting USB 2.0.
11	<b>Power LED</b>	The LED will be on when the receiver is powered on.
12	<b>DC 24V</b>	DC 24V/3.75A power input port.

## 6. Application Example

