User Manual

WOXCON

TPUH703

HDMI 2.0 Extender

Statement

Thanks for choosing this product, please read this user manual carefully before using this product. The functions described in this version are updated till September, 2019. In the constant effort to improve our product, we reserve the right to make functions or parameters changes without notice or obligation.

Safety Precaution

- Do not dismantle the housing or modify the module to avoid electrical shock or burn.
- Using supplies not meeting the products' specifications may cause damage, deterioration or malfunction.
- Do not expose the unit to rain, moisture or install this product near water.
- Install the device in a place with fine ventilation.
- 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 when not used for a long period of time.
- Refer all servicing to qualified service personnel.

After-sales Service

We provide limited warranty for the product within three years.

Product Introduction

Thanks for choosing the 18G HDMI Extender which consists of a transmitter and a receiver. The extender adopts PoC technology to extend 4K@60Hz 4:4:4 HDMI video to distance up to 40 meters (131 feet) and 1080p@60Hz video to distances up to 70 meters (230 feet) over a single CATx cable. It supports bi-directional RS232 and IR pass-through to control source or display devices remotely. It also supports CEC pass-through. Moreover, HDBaseT (PoC) feature allows the transmitter to be powered by the receiver over the CATx cable.

Features

- An one-gang decora wallplate and a receiver.
- Support HDMI 2.0, HDR, HDCP 2.2 compliant.
- Transmission distance up to 4K/40m or 1080p/70m.
- Toslink output for audio de-embedded.
- Supports video resolution down-scaling, the 4K input can be automatically degraded to 1080p output for compatibility with 1080p display.
- Bi-directional RS232 control and IR pass-through.
- Tx is powered by Rx via 24V PoC.

Packing List

Transmitter	● 1x TPUH703T
	● 2x 2-pin Terminal Blocks
	● 1x RS232 Cable (3-pin to DB9)
Receiver	● 1x TPUH703R
	● 2x Mounting Ears with 2 Screws
	● 4x Plastic Cushions
	● 1x 3-pin Terminal Block
	● 1x Power Adapter (DC 24V 1.25A)
	● 1x User Manual

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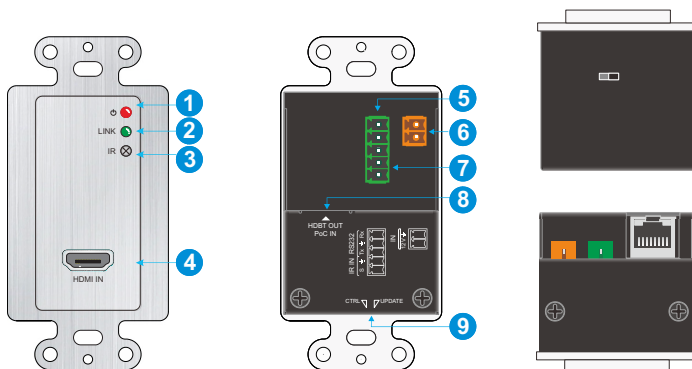
Technical Specification

TPUH703T	
Input	(1) HDMI
Input Connector	(1) Type-A female HDMI
Output	(1) HDBT
Output Connector	(1) RJ45
Control	(1) RS232, (1) IR In (1) Built-in IR Receiver
Control Connector	(1) 3-pin terminal block, (1) 2-pin terminal block
TPUH703R	
Input	(1) HDBT
Input Connector	(1) RJ45
Output	(1) HDMI
Output Connector	(1) Type-A female HDMI
Control	(1) RS232, (1) IR In (1) IR Out
Control Connector	(1) 3-pin terminal block, (2) 3.5mm mini jacks
Audio Output	(1) AUDIO Out
Audio Output Connector	(1) SPDIF
Output level	$\pm$0.05dBFS
Frequency Response	20 Hz to 20 kHz, ±1dB
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0 dBFS level (or max level)
SNR	> 90dB, 20Hz-20 kHz bandwidth
Noise	-90dB
General	
Video Resolution	Up to 4K@60Hz 4:4:4, HDR
HDMI Audio Format	LPCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through.
Bandwidth	18Gbps
Color Space	Supports RGB, Rec. 601, and rec. 709 BT2020
HDMI Standard	2.0
HDCP Version	2.2, 1.4 compliant, follows the display.
CEC	Pass-through
EDID	Pass-through
Transmission Standard	HDBaseT
Transmission Distance	4K@60Hz 4:4:4 ≤ 40 meters (131 feet), 1080p@60Hz ≤ 70 meters (230 feet)

HDMI 2.0 Extender

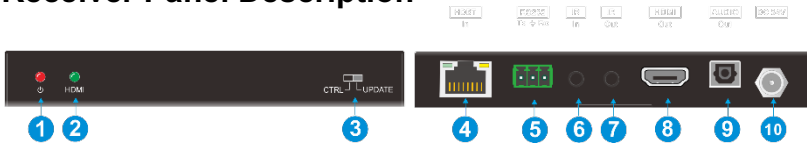|	
Operation Temperature	0~ +55℃
Storage Temperature	-25 ~ +70℃
Relative Humidity	10%-90%
Power Supply	Input:100V~240V AC; Output: 24V DC 1.25A
Power Consumption	TX&RX 11.5W (Max)
Dimension (W*H*D)	TX: 50mm x 103.44mm x 53.3mm RX: 130mm x 18mm x 84.4mm
Net weight	TX: 180g RX: 255g

Transmitter Panel Description

1. **Power LED:** The LED illuminates red when power is applied and is off when no power is present.

2. **Link LED:** The LED illuminates green when there is a valid HDBaseT connection with the receiver. The LED flashes when there is no invalid link.

3. Built-in IR sensor, receive IR signal sent from IR remote.

4. **HDMI In:** Type-A female HDMI input port to connect an HDMI source device.

5. **RS232:** 3-pin terminal block to connect the RS232 control device (e.g. PC) or a third-party device to be controlled by RS232 commands.

6. **DC IN**: 2-Pin terminal block, connect with the device needed to be powered.

7. **IR In:** 2-pin terminal block to connect IR receiver or IR system for IR pass-through.

8. **HDBT (PoC):** RJ45 HDBaseT output port to connect to the **HDBT IN** port of the receiver by a CATx cable. It supports 12V-48V PoC and compatible with 48V PoH.
    Note: It need to use STP cable when Transmitter is powered from the Receiver by PoH.

9. **Switch for determining the behavior of the RS232 connection:**

    *   **RS232:** When in the position, it serves as an RS232 serial extension.

    *   **FW Update:** When in the position, it allows you to update the firmware by connecting to a PC and running the batch file.

Receiver Panel Description

1. **Power LED:** The LED illuminates red when power is applied and is off when no power is present.
2. **HDMI Out LED:** The LED illuminates green when there is HDMI video output.
3. **Switch for determining the behavior of the RS232 connection:**
   - **RS232:** When in the position, it serves as an RS232 serial extension.
   - **FW Update:** When in the position, it allows you to update the firmware by connecting to a PC and running the batch file.
4. **HDBT In:** RJ45 port to connect the **HDBT Out** port of transmitter by CATx cable. The left HDCP LED illuminates green when the video contains HDCP content. The right Link LED illuminates yellow when there is a valid HDBaseT link between the transmitter and the receiver.

   Note: It Supports 12V-48V PoC input and compatible with 48V PoH, and 24V PoC output. Moreover, it need to use STP cable when Transmitter or Receiver is powered from other devices by PoH.
5. **RS232:** 3-pin terminal block to connect the RS232 control device (e.g. PC) or a third-party device to be controlled by RS232 commands.
6. **IR In:** 3.5mm mini jack to connect IR receiver or IR system for IR pass-through.
7. **IR Out:** 3.5mm mini jack to connect IR emitter for IR pass-through.
8. **HDMI Out:** Type-A female HDMI output port to connect an HDMI display device.
9. **AUDIO OUT:** Toslink digital audio output port to audio amplifier or mixer.
10. **DC 24V:** Locking power port for 24V DC power adapter connection.
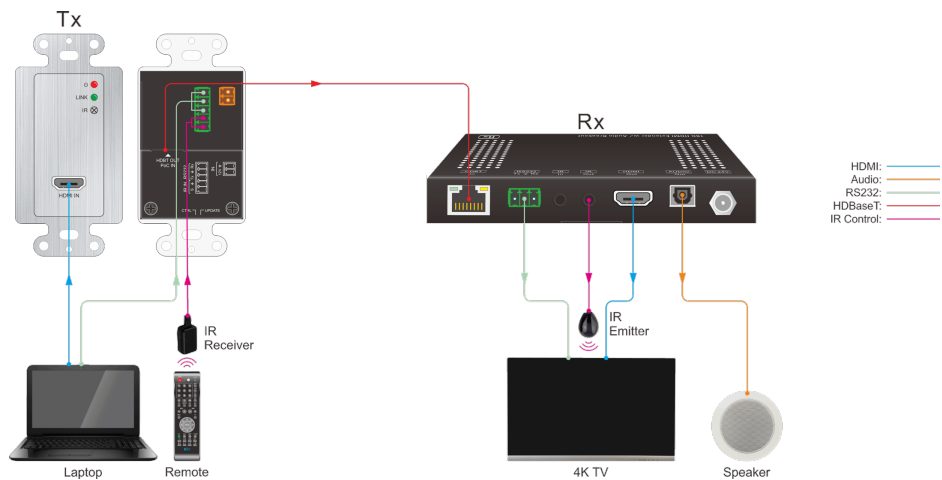
Video Resolution Down-scaling

The product supports video resolution down-scaling, the 4K input can be automatically degraded to 1080p output for compatibility with 1080p display, shown in the below chart.

#	Input			Output	
	Resolution	**Refresh**	**Color Space**	**Downscale**	**1080p Specs**
1	3840x2160	60	4:4:4	Support	1080p@60Hz 4:4:4
2	3840x2160	30	4:4:4	Support	1080p@30Hz 4:4:4
3	3840x2160	24	4:4:4	Support	1080p@24Hz 4:4:4
4	3840x2160	60	4:2:0	Support	1080p@60Hz 4:4:4
5	3840x2160	30	4:2:0	Support	1080p@30Hz 4:4:4
6	3840x2160	24	4:2:0	Support	1080p@24Hz 4:4:4
7	3840x2160	60	4:2:2	Not Support	N/A
8	3840x2160	30	4:2:2	Not Support	N/A
9	3840x2160	24	4:2:2	Not Support	N/A

System Connection

The following diagram illustrates the typical input and output connection of the extender:
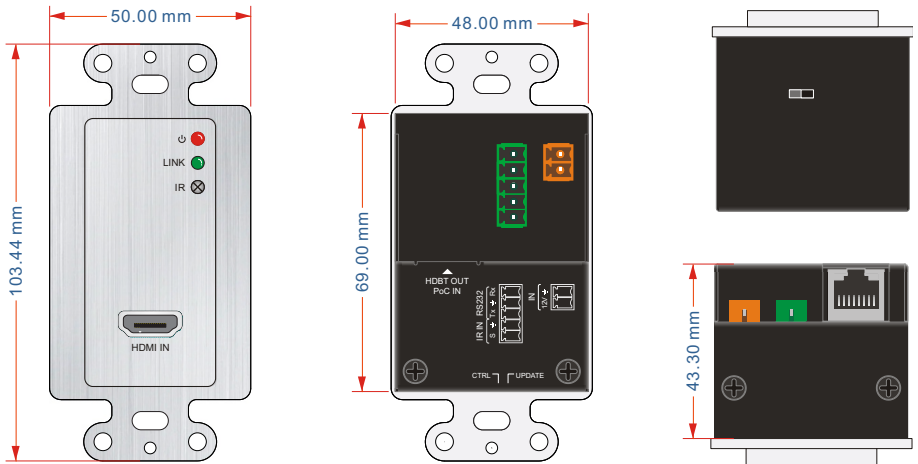
Firmware Upgrade

Note: Switch the DIP switcher to UPDATE direction.

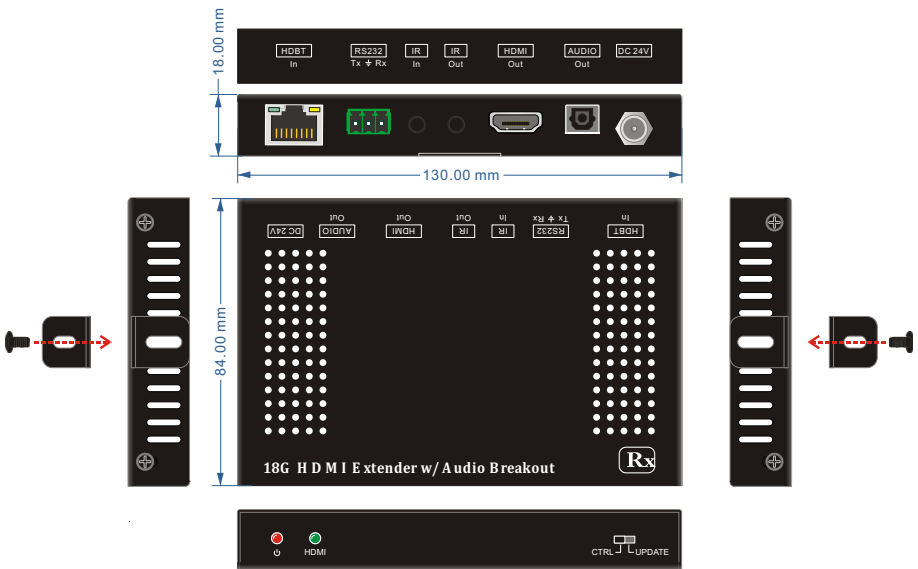Please follow the below steps to upgrade firmware by 3-pin terminal block port:

1) Connect the splitter to the PC with RS232 Cable.

2) Open the stm32-upgrade software→ Select serial port number→ Click Open key→ Click Connect key.

3) After connecting with PC, and then Click OpenFile key→ Select Z_TPUH703_V1.0.1_STM32F030CC_08004000.APP → Click Upgrade key to upgrade.

4) The PC will show "Flash Success" and Update button will illuminate green, if the firmware was upgraded successfully.

5) Remove the RS232 cable after firmware upgrade.

Panel Drawing

Transmitter

Receiver

Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) **Warranty**

   The limited warranty period of the product is fixed three years.

2) **Scope**

   These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) **Warranty Exclusions**

   - Warranty expiration.

   - Factory applied serial number has been altered or removed from the product.

   - Damage, deterioration or malfunction caused by:

     - ✓ Normal wear and tear.

     - ✓ Use of supplies or parts not meeting our specifications.

     - ✓ No certificate or invoice as the proof of warranty.

     - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.

     - ✓ Damage caused by force majeure.

     - ✓ Servicing not authorized by distributor.

     - ✓ Any other causes which does not relate to a product defect.

   - Shipping fees, installation or labor charges for installation or setup of the product.

4) **Documentation**

   Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributor.