User Manual

TL-TP40-HDC2

70m Twisted Pair Extender Set for HDMI, RS232 & IR

Version: TL-TP40-HDC2 _180619

Preface

Read this user manual carefully before using this product. Pictures shown in this manual are for reference only; the actual product may vary.

This manual is only for operation instruction only and not for any maintenance or repair.

Trademarks

Product model and logo are trademarked. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without prior written consent.

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 A 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 insure proper operation, 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 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 adequate ventilation to avoid damage caused by overheating.
- Keep the device 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 device immediately.
- 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.
- If disposing of the unit, do not burn or mix with general household waste. The device must be disposed of per local regulations for electronic recycling.

Table of Contents

1. Introduction

1.1 Introduction to TL-TP40-HDC2

The TL-TP40-HDC2 is an ultra-thin extender set consisting of a transmitter (TL-TP40-HDC2-T) and a receiver (TL-TP40-HDC2-R). The set transmits a 1080p HDMI signal to the receiver up to 70m via a Cat5e/Cat6 cable. This extender set transmits 4K video, including 4K/60 at 4:4:4 (18 Gbps), up to 40m via a Cat5e/Cat6A cable; signals whose bandwidth exceeds 9 Gbps will be scaled with a visually lossless compression algorithm and output at the original bandwidth on the output. Featuring bi-directional IR and RS232, you can control your display or source using included accessories. With bi-directional PoE power, you only need to connect the power supply on one end.

1.2 Features

- EDID pass through
- HDCP 2.2 compliant
- 4K over Cat 5e/6 up to 40m
- 1080p over Cat 5e/6 up to 70m
- Bi-directional IR, RS232

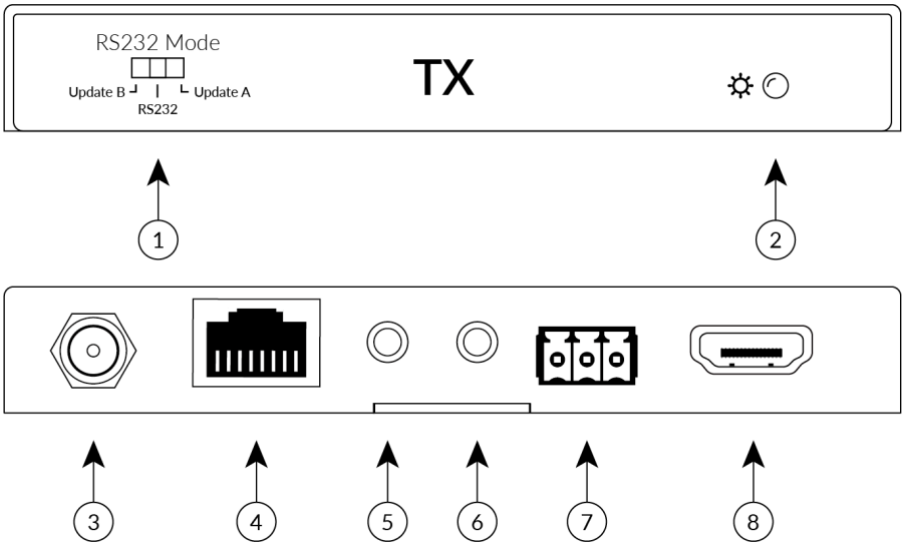
Note: Shielded twisted pair cable with shielded connectors are recommended.

1.3 Package Contents

- 1 x Transmitter (TX)
- 1 x Receiver (RX)
- 4 x Mounting ears
- 8 x Screws
- 8 x Plastic cushions
- 1 x Power adapter (DC 24V 1.25A)
- 2 x RS232 cables
- 1 x User manual

2. Panel Description

2.1 Transmitter

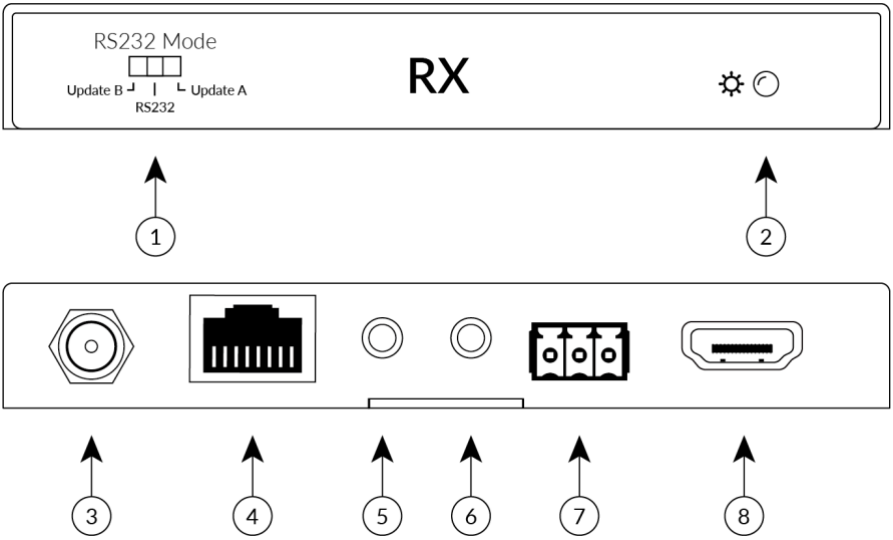


No.	Name	Description
①	RS232 Mode Switch	➢ Update B: Scaler firmware update mode ➢ RS232: RS232 pass-through mode ➢ Update A: Extender chipset firmware update mode
②	Power	➢ OFF: No power ➢ RED: DC power present
③	DC 24V	Connect to the power supply (Note: power is only required on the transmitter *or* receiver)
④	TP OUT	Connect to the TP IN socket on the receiver via a twisted pair cable; supports bi-directional PoC
⑤	IR IN	Connects to a 5V IR receiver (with carrier); signals tranmitted to the remote receiver
⑥	IR OUT	Connects to a 5V IR emitter (with carrier); signals tranmitted from the remote receiver

⑦	RS232	RS232 control connector
⑧	HDMI IN	Connect to an HDMI source

🕮 Pictures shown in this manual are only for reference.

2.2 Receiver



No.	Name	Description
①	RS232 Mode Switch	➢ Update B: Scaler firmware update mode ➢ RS232: RS232 pass-through mode ➢ Update A: Extender chipset firmware update mode
②	Power	➢ OFF: No power ➢ RED: DC power present

③	DC 24V	Connect to the power supply (Note: power is only required on the transmitter *or* receiver)
④	TP IN	Connect to the TP OUT socket on the transmitter via a twisted pair cable; supports bi-directional PoC
⑤	IR IN	Connects to a 5V IR receiver (with carrier); signals tranmitted to the remote transmitter
⑥	IR OUT	Connects to a 5V IR emitter (with carrier); signals tranmitted from the remote transmitter
⑦	RS232	RS232 control connector
⑧	HDMI OUT	Connect to an HDMI display

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3. System Connection

3.1 Usage Precautions

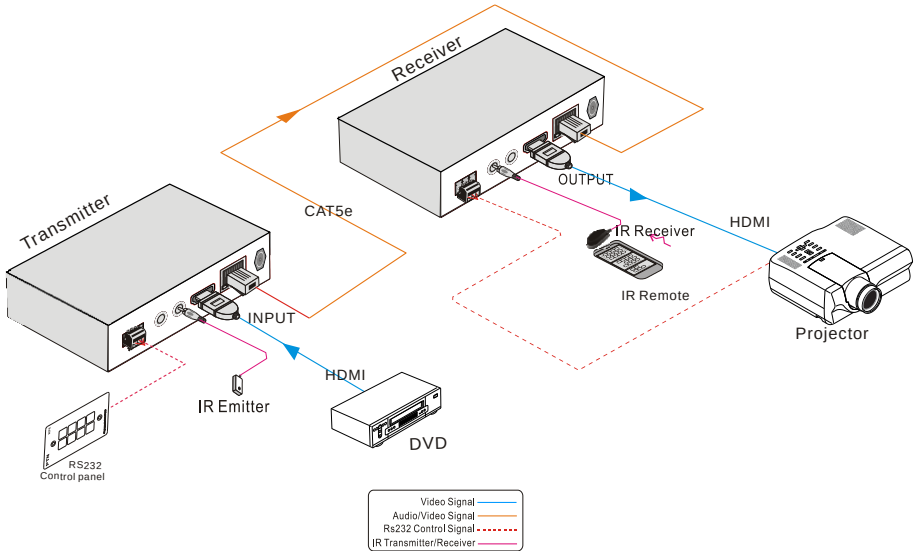
1) System should be installed in a clean environment that has a proper temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be installed properly.

3) All devices should be connected before powering on the devices.

4) The twisted pair terminations for the devices should be a straight-thru conforming to the TIA/EIA T568B standard.

3.2 System Diagram



3.3 Connection Procedure

Step1. Connect an HDMI source (such as a set top box) to the **HDMI IN** port of the transmitter with an HDMI cable.

Step2. Connect **TP OUT** port of the transmitter to **TP IN** port of the receiver using a twisted pair cable.

Step3. Connect an HDMI display to **HDMI OUT** port of the receiver with an HDMI cable.

Step4. If IR control is required, perform the following:

a) Connect the IR emitter to the **IR OUT** port on either the transmitter or

receiver.

b) Connect the IR receiver to the **IR IN** port on either the transmitter or receiver.

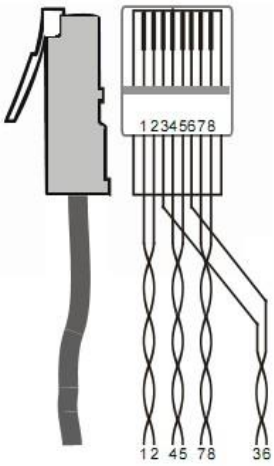
Step5. If RS232 control is required, connect the RS232 port of the devices to be controlled to the receiver or the transmitter.

Step6. Connect the DC24V power adaptor to either the transmitter or receiver. Power will be transmitter to the remote extender via the twisted pair cable.

3.4 Twisted Pair Cable Connection

The Cat5e/Cat6 terminations for extender devices should be a straight thru connection conforming to the TIA/EIAT568B standard. The TIA/EIA T568A standard is NOT recommended.

TIA/EIA T568B	
Pin	Cable color
1	orange white
2	orange
3	green white
4	blue
5	blue white
6	green
7	brown white
8	brown
1st Group	4--5
2nd Group	1--2
3rd Group	3--6
4th Group	7--8



Note: For best operation, the twisted pair cable should be shielded and the cable connectors should be metallic. The shielded layer of cable MUST be connected to the connector's metal shell.

4. Specification

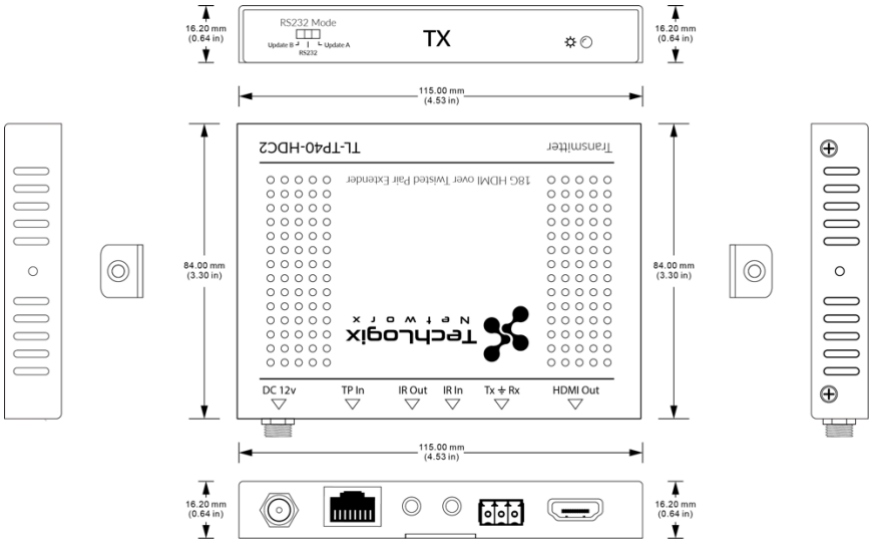
Model / Spec	Transmitter	Receiver
Input		
Input Signal	1 HDMI,1 IR & 1 RS232	1 IR, 1 RJ-45 & 1 RS232
Input Connector	HDMI female, 3.5mm mini jack, 3p captive screw connector	3.5mm mini jack, RJ45, 3p captive screw connector
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 RJ45, 1 IR, 1 RS232	1 HDMI, 1 IR, 1 RS232
Output Connector	RJ45, 3.5mm mini jack, 3p captive screw connector	HDMI female, 3.5mm mini jack, 3p captive screw connector
General		
Resolution Range	640x480@60Hz~4K×2K@60Hz	
Transmission Distance	1080p ≤ 70m 4Kx2K ≤ 40m	
Bandwidth	10.2Gbps	
HDMI Standard	Support HDMI 1.4/2.0 and HDCP 1.4/2.2	
Impedance	75Ω	
Temperature	0~ 50℃	
Humidity	10% ~ 90%	
Power Supply	Input: 100VAC~240VAC, 50/60Hz Output: DC 24V, 1.25A	
Power Consumption	14W	
Dimension (W*H*D)	115mmx16.2mm x84mm	115mmx16.2mm x84mm
Net Weight	193g	196g

NOTE: All nominal levels are at ±10%.

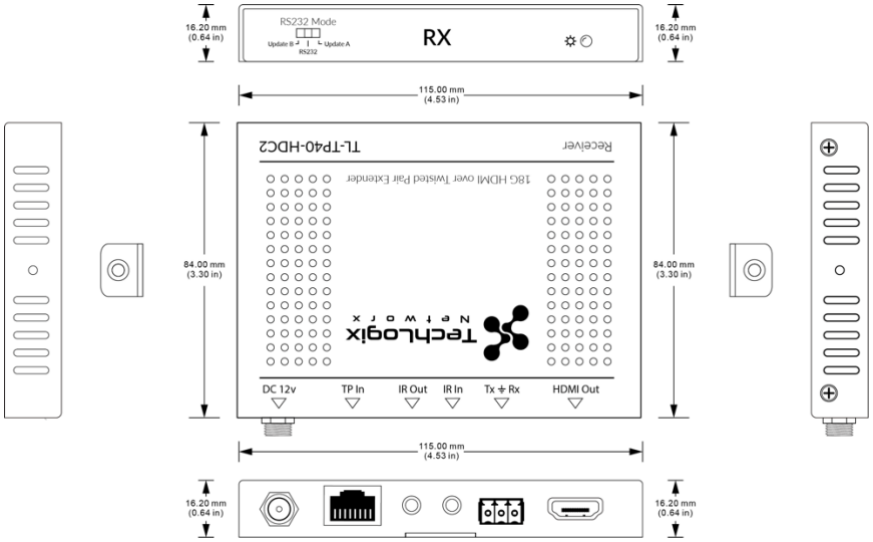
4.1 Supported Resolution

Aspect Ratio	Resolution	Refresh Rate
4Kx 2K	4096x2160	24/25/30/50/60Hz
	3840x2160	24/25/30/50/60Hz
16:9	1920x1080	60Hz
	1600x900	60Hz
	1366x768	60Hz
	1280x720	60Hz
	1024x576	60Hz
16:10	1920x1200	60Hz
	1680x1050	60Hz
	1360x768	60Hz
	1280x800	60Hz
4:3	1600x1200	60/65/70/75/85Hz
	1280x1024	60/75/85/96Hz
	1024x768	60/70/75/85Hz
	800x600	56/60/72/75/85Hz
	640x480	60/72/75Hz

5. Panel Drawing



5-1 Transmitter



5-2 Receiver

6. Troubleshooting & Maintenance

- **No image on display:**
  - Ensure that the display device has been set to the correct input.
  - Ensure that the HDMI cables used for both the source/transmitter and the receiver/display are properly connected and are working. Test the HDMI cables directly from a source to display and ensure their operation.
  - Ensure that the twisted pair cable has not been damaged and that it has been terminated correctly with T568B on both ends. A temporary length of twisted pair cable can be used for testing to ensure that the devices are all compatible and working properly.
  - Ensure proper grounding of the power supply.
  - Known issues with HDMI 1.2 source devices:

    Older compatibility (HDMI 1.2) may result in transmission issues. Please contact Technical Support for a solution to these issues.
- **Color loss or poor picture quality:**
  - Ensure that the HDMI cables used for both the source and transmitter and the receiver and display are properly connected and are of good quality. Test the HDMI cables directly from a source to display and ensure their picture quality.
  - Ensure proper grounding of the power supply.
  - If the static becomes stronger or picture quality becomes worse when connecting the video connectors, this may be due to improper grounding.
  - Check the grounding and make sure all the components are properly grounded to a common ground. Improper grounding may cause damage to the receiver.

If your problem persists after following the above troubleshooting steps, please contact your authorized reseller or TechLogix technical support.

7. After-sales Service

1) **Product Limited Warranty:** We warrant that our products will be free from defects in materials and workmanship for **three years.**
2) **Warranty coverage may be voided when:**
   - The warranty period has expired
   - The factory applied serial number has been altered or removed from the product
   - There is damage, deterioration or malfunction caused by:
     - Atypical wear and tear
     - Use of supplies or parts not meeting the specifications
     - No certificate or invoice as the proof of warranty
     - Damage caused by force majeure
     - Non-authorized service
3) **Technical Support:** When contacting TechLogix support, please have the following information available:
   - Product part number
   - Installation and sale date
   - Detailed failure information