User Manual

TL-TP70-HD2ARC

70m Extender with ARC, IR, & RS232

Version: TL-TP70-HD2ARC_220609

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage.

Trademarks

Product model and logo are trademarks. 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 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 overheat.

- 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.

1. Introduction

1.1 Introduction to TL-TP70-HDARC

The TL-TP70-HDARC is an ultra thin design extender set consisting of a transmitter and a receiver. The set transmits a 1080p signal to the receiver up to 70m via a shielded Cat5e/Cat6 cable; 4k up to 40m. Bi-directional RS232 and IR communication is included to allow control of an RS232 or IR source or display. PoE power allows you to connect the power supply at either the transmitter or the receiver to power both units. The set also supports ARC, which enables audio up streaming from display to an audio system using either HDMI or the coax digital output.

1.2 Features

- HDMI 2.0 compliant, supports resolutions up to 4Kx2K
- Maximum transmission distance is 70m for 1080p and 40m for 4Kx2K over a single shielded CAT5e/CAT6 cable
- High Bandwidth: 18Gps.
- Compliant with HDCP 2.2
- Supports bi-directional PoC
- Supports ARC on HDMI or coax digital output
- Bi-directional IR control
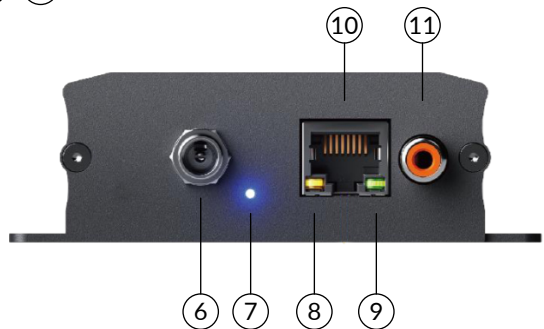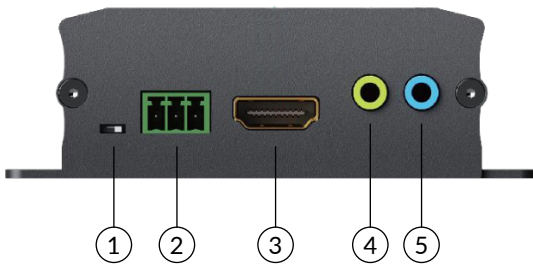- Bi-directional RS232 control

1.3 Package List

- ✧ 1 x TL-TP70-HD2ARC (including TX and RX)
- ✧ 4 x Screws
- ✧ 1 x Power Adapter (DC 24V 1A) with power cable
- ✧ 1x IR Emitter (5V)
- ✧ 1 x IR Receiver (5V, with carrier)
- ✧ 2 x Removable 3-pin terminal blocks

📖 Please confirm if the product and the accessories are all included. If not, please contact your dealer.
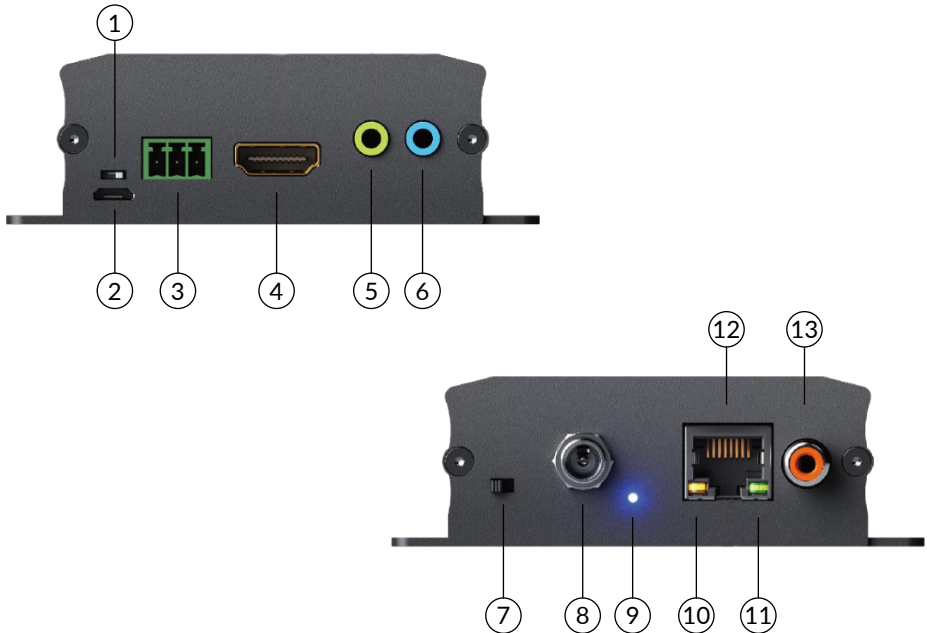
2. Panel Description

2.1 Transmitter

1	Firmware Update Switch	6	DC Power In
2	RS232 port (TX - RX - GND)	7	Signal Status LED
3	HDMI In	8	Power LED
4	IR Receiver Port	9	Link LED
5	IR Emitter Port	10	Twisted Pair Out
		11	Coaxial ARC Port

2.2 Receiver

1	Firmware Update Switch	7	AV On/Off Switch
2	Firmware Update Port	8	DC Power In
3	RS232 port (TX - RX - GND)	9	Signal Status LED
4	HDMI In	10	Power LED
5	IR Receiver Port	11	Link LED
6	IR Emitter Port	12	Twisted Pair Out
		13	Coaxial ARC Port

3. System Connection Procedures

Step 1. Connect an HDMI source (such as a Blu-ray player) to the **HDMI IN** port of the transmitter with an HDMI cable.

Step 2. Connect the **TP OUT** port of the transmitter to **TP IN** port of the receiver via a shielded CAT5e/CAT6 cable.

Step 3. Connect an HDMI display (such as an HDTV) to the **HDMI OUT** port of the receiver with an HDMI cable.

Step 4. When using the bi-directional IR control, do the following.

    a) Connect the included IR receiver to the **IR IN** port at either the transmitter or the receiver.

    b) Connect the included IR Emitter to the **IR OUT** port at the other end.

Step 5. Connect the included DC 24V power adaptor to the power port of the Transmitter or the receiver.
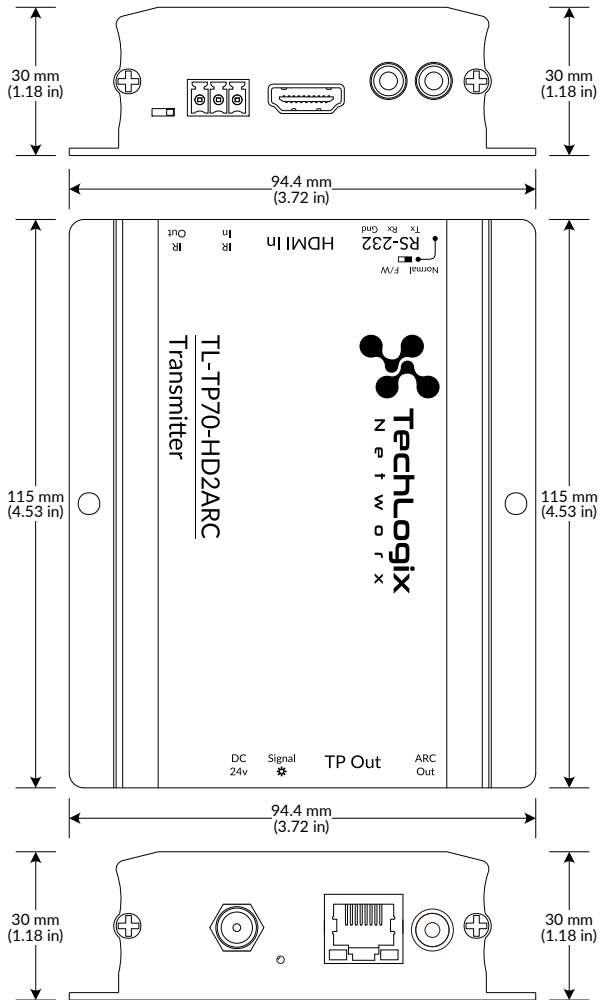
4. Specifications

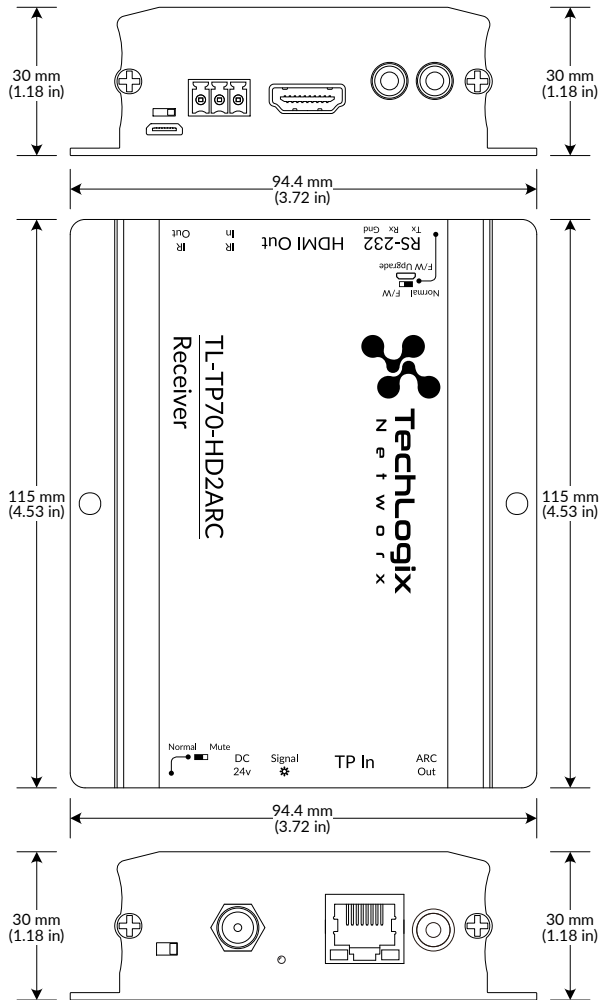| I/O Connections - Transmitter	
RS232	3-pin removable screw terminal
HDMI In	HDMI type A connector
IR In	3.5mm stereo jack
IR Out	3.5mm mono jack
DC 24V	Barrel connector with locking screw
TP Out	8P8C (RJ45-style) connector
ARC Out	Coaxial RCA connector
I/O Connections - Receiver	
Firmware Update	Micro USB type B
RS232	3-pin removable screw terminal
HDMI In	HDMI type A connector
IR In	3.5mm stereo jack
IR Out	3.5mm mono jack
DC 24V	Barrel connector with locking screw
TP Out	8P8C (RJ45-style) connector
ARC Out	Coaxial RCA connector
Switches and Indicators - Transmitter	
Firmware Update	2-position tactile sliding switch
Power LED	Amber LED on 8P8C connector
Link LED	Green LED on 8P8C connector
Signal	Blue LED
Switches and Indicators - Receiver	
Firmware Update	2-position tactile sliding switch
Power LED	Amber LED on 8P8C connector
Link LED	Green LED on 8P8C connector
Signal	Blue LED
AV Mute	2-position tactile sliding switch
Supported Video, Audio, and Control	
Maximum Distances	1080p/720p: 70m (230 ft.) 4K@30/10G: 40m (130 ft.) 4K@60/18G: 40m 130 ft.)
Maximum Video Compatibility	4K@60Hz 4:4:4 HDR supported
Video Compliance	HDMI 2.0, HDCP 2.2, and CEC (Consumer Electronics Control)

HDCP Compatibility	HDCP 2.2 Conversion – output version matches sink (display) version
Embedded Audio (HDMI)	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
Input DDC Signal	5.0 volts p-p (TTL)
Input Video Signal	0 to 1.2 volts p-p
IR Carrier Frequency Range	20-60kHz at 5 volts
RS232 Supported Data Rate	Full-duplex up to 115200 baud
Twisted Pair Signal Characteristics	
Maximum Distance 1080p (4K)	70m (230 ft.), (40m [130 ft.])
Cable Requirements	Solid core shielded Category 5e, Category 6 or greater with TIA/EIA-568B crimp pattern
Bandwidth	Up to 18 Gbps
Compression Signal Characteristics	
Compression ratio	Up to 2:1 (adaptive for signals above 10.2gbps)
Compression type	Color Space Conversion (VLC)
Chassis and Environmental	
Enclosure	Painted aluminum
Dimensions	115mm x 94.4mm x 30mm
Operating Temperature (Environment)	0° to +40° C
Operating Humidity (Environment)	20% to 90% (non-condensing)
Storage Temperature (Environment)	-20° to +60° C
Storage Humidity (Environment)	20% to 90% (non-condensing)
Power, ESD, Regulatory	
Maximum Power Consumption	15W (max)
Power Supply	24V DC, 1 A
ESD Protection	Human body model — ±15kV (air-gap discharge) & ±8kV (contact discharge)
Regulatory	CE, FCC
Other	
Standard Warranty	3 Year
Diagnostic Indicators	Signal LED
Network Indicators	Link Speed and Activity
Included Items	Power Supply, IR Transmitter, IR Receiver, 3-pin Terminal Block Connector (2 ea)

5. Panel Drawing

Transmitter

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 Cat5e/Cat6 cable has not been damaged and that it has been terminated correctly with T568B on both ends. A temporary length of Cat5e/Cat6 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 of your local distributor 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, seek further help from authorized dealer or our technical support.

7. After-sales Service

If some problems occur when using the device, please check the troubleshooting section referenced in this user manual.

1) **Product Limited Warranty:** We warrant that our products will be free from defects in materials and workmanship for **three years.** Please see warranty page posted on www.tlnetworx.com for more info.

2) **What the warranty does not cover:**
   - 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.
     - Non-authorized service
     - Other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product

3) **Technical Support:** Email or call our after-sales department, please prepare the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - Date and place of purchase.

Remarks: For any questions or problems, please try to get help from your local distributor.