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ALFATRON ELECTRONICS GmbH GERMANY

ALF-TPUK150-RS

18Gbps HDMI over HDBaseT Extender

with Bi-directional IR (150M)



VER 1.0

Preface

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, lightning strikes, etc. The use of surge protection systems is highly recommended to protect and extend the life of your equipment.

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.



Do not dispose of this product with the normal household waste at the end of its life cycle. Return it to a collection point for the recycling of electrical and electronic devices. This is indicated by the symbol on the product, user manual or packaging. The materials are reusable according to their markings. By reusing, recycling or other forms of utilisation of old devices you make an important contribution to the protection of our environment. Please contact your local authorities for details about collection points.

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1. Introduction

This ALF-TPUK150-RS is an 18Gbps HDMI Extender that can extend high-definition video/audio signal, RS-232, and bi-directional IR at distances of up to 492ft / 150 meters between the transmitter and receiver via a single CAT 6 cable. It supports resolution up to 4K2K@60Hz 4:4:4, 18Gbps and HDCP 2.2. One HDMI loop port is available for output and the extender supports de-embedded audio for L/R audio output. In addition, the extender is equipped with a two-way IR pass-through which allows for source and display control.

This ALF-TPUK150-RS set includes a transmitter and receiver. The Transmitter captures HDMI input signal and passes the signal via a single Cat 6 cable whilst transmitting / emitting IR control signals. The Receiver obtains the HDMI signal whilst transmitting / emitting the IR control signal.

The TPUK150-RS offers the most convenient solution for HDMI extension via a single Cat 6 with long-distance capability, and is the perfect solution for any application.

2. Features

- HDCP 2.2 / HDCP 1.4 and DVI 1.0 compliant
- Supports 18Gbps video bandwidth
- The maximum extended transmission distance via a single Cat 6 cable: 328ft / 100 meters for 4K2K signal; 492ft / 150 meters for 1080P signal
- HDMI loop output on the transmitter
- Extract audio to analogue stereo output on the receiver
- Bi-directional IR, RS-232 and CEC pass-through
- HDR, HDR10+, Dolby Vision and HLG function supported
- Supports PoC (Power over Cable) function
- Compact design for easy and flexible installation

3. Package Contents

Qty	Item
1	TPUK150 Transmitter
1	TPUK150 Reciever
1	IR Emitter cable (1.5 meters)
1	20 ~ 60KHz IR Receiver cable (1.5 meters)
4	Mounting Ears
2	3-pin Phoenix connector
1	24V/1A Locking Power adapter
1	User Manual

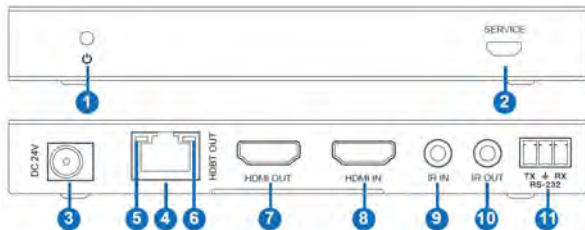
4. Specifications

Technical	
HDCP Compliance	HDCP 2.2 / HDCP 1.4
Video Bandwidth	18Gbps
Video Resolution	4K2K 50/60Hz 4:4:4 4K2K 50/60Hz 4:2:2 4K2K 50/60Hz 4:2:0 4K2K 30Hz 4:4:4 1080p, 1080i, 720p, 720i, 480p, 480i All HDMI 3D TV formats All PC resolutions including 1920 x 1200
Color Space	RGB / YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Colour Depth	8/10/12-bit (1080P60Hz, 4K30Hz, 4K60Hz YCbCr 4:2:2/4:2:0) 8-bit (4K60Hz 4:4:4)
HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus(DD+), DTS-ES, DTSHD Master, DTS HD-HRA, DTS-X
L/R Audio Formats	PCM 2.0
ESD Protection	Human body model — $\pm 8kV$ (Air-gap discharge) & $\pm 4kV$ (Contact discharge)
Connection	
Transmitter	Inputs: 1x HDMI Type A [19-pin female] Outputs: 1x HDMI Type A [19-pin female] 1x HDBT OUT [RJ45, 8-pin female] Control: 1x IR IN [3.5mm Stereo Mini-jack] 1x IR OUT [3.5mm Stereo Mini-jack] 1x RS-232 [Phoenix jack] 1x SERVICE [Mini-USB, Update port]

Receiver	Inputs: 1x HDBT IN [RJ45, 8-pin female] Outputs: 1x HDMI Type A [19-pin female] 1x AUDIO OUT [3.5mm Stereo Mini-jack] Control: 1x IR IN [3.5mm Stereo Mini-jack] 1x IR OUT [3.5mm Stereo Mini-jack] 1x RS-232 [Phoenix jack] 1x SERVICE [Mini-USB, Update port]		
Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	Transmitter / Receiver: 140mm [W] x 65mm [D] x 18mm [H]		
Weight	Transmitter: 160g, Receiver: 155g		
Power Supply	Input: AC 100 - 240V 50/60Hz Output: DC 24V/1A (Locking connector)		
Power Consumption	9.36 W		
Operating Temperature	32 - 104°F / 0 - 40°C		
Storage Temperature	-4 - 140°F / -20 - 60°C		
Relative Humidity	20 - 90% RH (no condensation)		
Resolution / Distance			
4K2K	328ft / 100M		
1080P	492ft / 150M		
Resolution / Cable Length	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M
Use of a high quality HDMI cable is highly recommended.			

5. Operation Controls and Functions

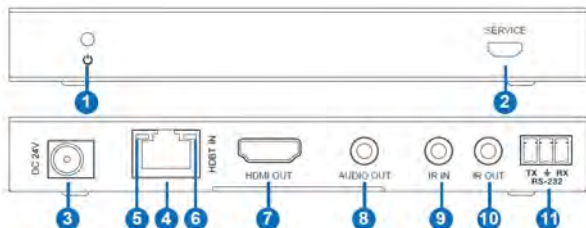
5.1 Transmitter Panel



No.	Name	Function Description
1	Power LED	Red LED indicates that the transmitter is powered.
2	SERVICE port	Firmware update port.
3	DC 24V	DC 24V/1A power supply input port. <i>Note that the extender supports PoC function, which means that either transmitter or receiver is powered on by a 24V/1A power adapter, the other one doesn't need a power supply.</i>
4	HDBT OUT	RJ45 connector for connecting the HDBT IN port of receiver with a CAT 5e/6 cable.
5	Connection Signal Indicator lamp	<ul style="list-style-type: none"> ▪ Illuminating: Transmitter and Receiver are well connected. ▪ Flashing: Transmitter and Receiver are poorly connected. ▪ Dark: Transmitter and Receiver are not connected.
6	Data Signal Indicator lamp	<ul style="list-style-type: none"> ▪ Illuminating: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
7	HDMI OUT	HDMI loop output for display.
8	HDMI IN	HDMI source input.
9	IR IN	IR input port for receiving the signal of IR remote.

10	IR OUT	IR output port for control of source device. This IR output signal is from the IR IN port of the receiver.
11	RS-232	3-pin Phoenix connector for RS-232 command transmission. The RS-232 command will pass through from the transmitter to the receiver or from the receiver to the transmitter.

5.2 Receiver Panel



No.	Name	Function Description
1	Power LED	Red LED indicates that the receiver powered.
2	SERVICE port	Firmware update port.
3	DC 24V	DC 24V/1A power supply input port. Note that the extender supports PoC function, which means that either transmitter or receiver is powered on by a 24V/1A power adapter, the other one doesn't need a power supply.
4	HDBT IN	RJ45 connector for connecting the HDBT OUT port of transmitter with a CAT 6 cable.
5	Connection Signal Indicator lamp	<ul style="list-style-type: none"> ▪ Illuminating: Transmitter and Receiver are well connected. ▪ Flashing: Transmitter and Receiver are poorly connected. ▪ Dark: Transmitter and Receiver are not connected.
6	Data Signal Indicator	<ul style="list-style-type: none"> ▪ Illuminating: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.

7	HDMI OUT	HDMI output for display.
8	AUDIO OUT	3.5mm stereo connector for analogue audio output.
9	IR IN	IR input port for receiving the signal of IR remote.
10	IR OUT	IR output port for control of display device. This IR output signal is from the IR IN port of the transmitter.
11	RS-232	3-pin Phoenix connector for RS-232 command transmission. The RS-232 command will pass through from transmitter to receiver or from receiver to the transmitter.

5.3 IR Pin Definition

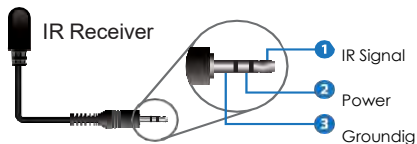
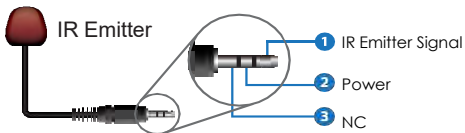
IR Receiver and emitter pin's definition is as below:



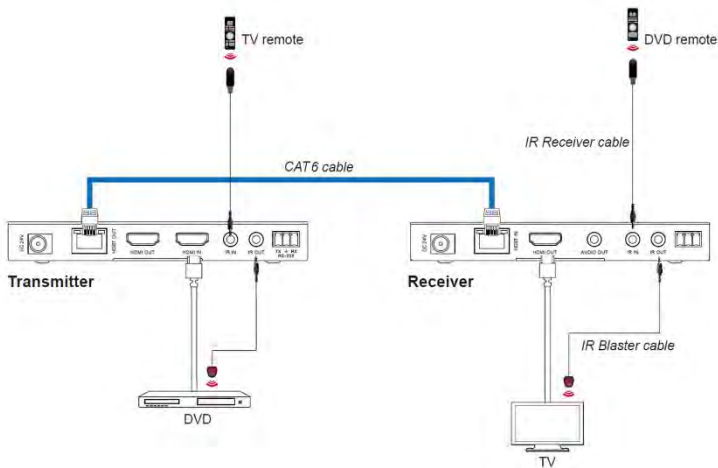
IR RECEIVER



IR Emitter

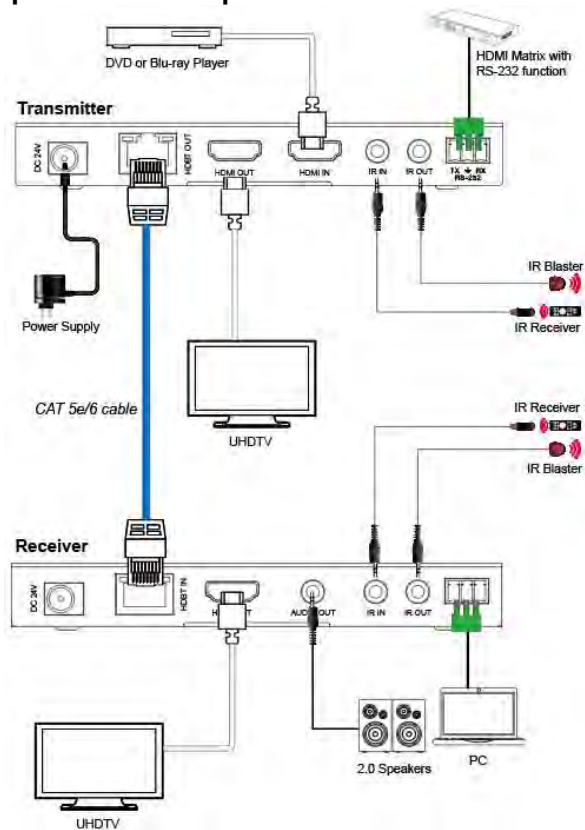


The following is an IR system diagram about the IR cable use method.



Note: When the angle between the IR receiver and the remote control is $\pm 45^\circ$, the transmission distance is 0 - 5 meters; when the angle between the IR receiver and the remote control is $\pm 90^\circ$, the transmission distance is 0-8 meters.

6. Application Example



7. After-sales Service

Should you experience problems using the Alfatron ALF-TPUK150-RS please note that any transport costs of the equipment to the distributor are borne by the user during the warranty.

1) Product Limited Warranty: Alfatron warrants that its products will be free from defects in materials and workmanship for **seven years**, which starts from the first day of purchase.

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the warranty period must be presented to obtain warranty service.

2) What the warranty does not cover (servicing available for a fee):

- Warranty expiration.
- The 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 product specifications.
 - No certificate or invoice as proof of warranty.
- The product model shown on the warranty card does not match with the product or if the product had been altered.
- Damage caused by force majeure.
- Servicing is not authorized by Alfatron.
- Any other causes which do not relate to a product defect.
- Delivery, installation or labour charges for installation or setup of the product.

Technical Support: Contact our after-sales department at www.alfatronelectronics.com

8. Warranty

- 1.1 This limited warranty covers defects in materials and workmanship in this product.
- 1.2 Should warranty service be required, proof of purchase must be presented to the Company. The serial number on the product must be clearly visible and not have been tampered with in any way whatsoever.
- 1.3 This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by the Company to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover equipment enclosures, cables or accessories used in conjunction with this product.

This limited warranty does not cover the cost of normal maintenance. Failure of the product due to insufficient or improper maintenance is not covered.

- 1.4 The Company does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.
- 1.5 Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.
- 1.6 Unless otherwise specified, the goods are warranted in accordance with the manufacturer's product specific warranties against any defect attributable to faulty workmanship or materials, fair wear and tear being excluded.
- 1.7 This limited warranty only covers the cost of faulty goods and does not include the cost of labor and travel to return the goods to the Company's premises.
- 1.8 In the event of any improper maintenance, repair or service being carried out by any third persons during the warranty period without the Company's written authorization, the limited warranty shall be void.

- 1.9 A 7 (seven) year limited warranty is given on the aforesaid product where used correctly according to the Company's instructions, and only with the use of the Company's components.
- 1.10 The Company will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:
- 1.10.1 Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition.; or
- 1.10.2 Replace this product with a direct replacement or with a similar product deemed by the Company to perform substantially the same function as the original product; or
- 1.10.3 Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.
- 1.11 The Company is not obligated to provide the Customer with a substitute unit during the limited warranty period or at any time thereafter.
- 1.12 If this product is returned to the Company this product must be insured during shipment, with the insurance and shipping charges prepaid by the Customer. If this product is returned uninsured, the Customer assumes all risks of loss or damage during shipment. The Company will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. The Company will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.
- 1.13 Please be aware that the Company's products and components have not been tested with competitor's products and therefore the Company cannot warrant products and/or components used in conjunction with competitor's products.
- 1.14 The appropriateness of the goods for the purpose intended is only warranted to the extent that the goods are used in accordance with the Company's installation, classification and usage instructions.
- 1.15 Any claim by the Customer which is based on any defect in the quality or condition of the goods or their failure to correspond with specification shall be notified in writing to the Company within 7 days of delivery or (where the defect or failure was not apparent on reasonable inspection by the Customer) within a reasonable time after discovery of the defect or failure, but, in any event, within 6 months of delivery.

- 1.16 If delivery is not refused, and the Customer does not notify the Company accordingly, the Customer may not reject the goods and the Company shall have no liability and the Customer shall pay the price as if the goods had been delivered in accordance with the Agreement.
- 1.17 THE MAXIMUM LIABILITY OF THE COMPANY UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT