

EX-5601-3T

HDMI 2.1 over Fiber Extender with Bi-directional IR, RS-232, 1G Ethernet, USB 3.1 & KVM Support

User Manual

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Transmitter



Receiver

INTRODUCTION

The **EX-5601-3T HDMI 2.1 over Fiber Extender with Bi-directional IR, RS-232, 1G Ethernet, USB 3.1 & KVM Support** is a high-performance AV transmission solution tailored for modern multimedia applications. It supports video resolutions up to 8K30 4:4:4 and 4K144 4:4:4 with HDMI 2.1, delivering exceptional image quality and zero-frame latency, making it ideal for gaming and professional AV setups. Leveraging single-mode fiber technology, this extender enables video and audio transmission over distances ranging from 2km to an impressive 10km. Additionally, it features eARC/ARC, USB 3.0 for modern peripherals, 1Gb Ethernet, and bidirectional IR/RS-232, providing seamless connectivity and versatile control for demanding AV environments.

FEATURES

- Supports HDMI 2.1 & HDCP 2.3
- Supports uncompressed resolution up to 4K@60 4:4:4 and visually lossless compression up to 4K144 4:4:4 DSC
- Extend signals over single-mode fiber for distances exceeding 2 km and up to 10 km.
- Supports USB-C (Alt Mode DP 1.4) and simultaneous HDMI/DisplayPort input
- Supports VRR(Variable Refresh Rate) & ALLM(Auto Low Latency Mode)
- Extend HDMI signals up to 10km (6.25miles) over single mode fiber optic cables
- HDCP, EDID & CEC Bypass
- Pure unaltered uncompressed 7.1ch digital HDMI over fiber transmission
- Bypasses eARC, line audio, MIC, HPOUT, SPDIF, DTS-HD Master audio, and Dolby TrueHD
- Supports bi-directional full frequency IR signal from 20KHz to 60KHz
- Full duplex RS-232 control up to 115,200 bps
- Supports USB 3.1 Gen1 host mode for UVC webcam and USB 3.1 Gen2 UVC device mode
- Supports KVM function
- Integrated 1G Ethernet for seamless AV and data transmission

PACKAGE CONTENTS

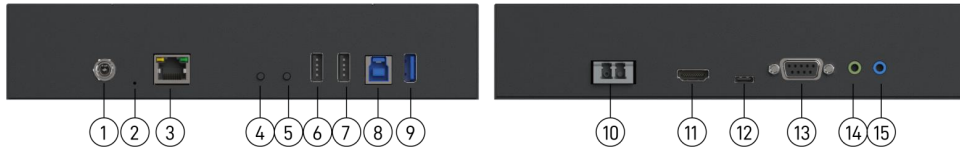
- 1x EX-5601-3T [TX & RX]
- 1x IR blaster
- 1x IR receiver
- 2x DC 12V
- 2x Single Mode Module
- 1x User Manual

SPECIFICATIONS

Model Name	EX-5601-3T	
Technical		
Role of usage	Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI 2.1	
HDCP compliance	HDCP 2.3	
Video bandwidth	Up to FRL 6 (48G)	
Video support	up to 4K@60 4:4:4/ 4K144 4:4:4 DSC	
HDMI over fiber	4K@60 4:4:4/ 4K@144 4:4:4 DSC up to 10km (6.25miles) [single mode fiber optic cable]	
Audio support	Surround sound [up to 7.1ch]	
Input TMDS signal	1.2 Volts [peak-to-peak]	
Input DDC signal	5 Volts [peak-to-peak, TTL]	
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]	
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]	
IR pass-thru	Bi-directional	
RS-232 support	Yes	
Input	1x HDMI, 1x USB-C, 1x 3.5mm	1x fiber, 1x 3.5mm
Output	1x fiber, 1x 3.5mm	1x HDMI, 1x 3.5mm
In / Out	1x RS-232, 4x USB, 1x RJ-45	1x RS-232, 5xUSB, 1xRJ-45
HDMI source control	Controllable via IR pass-through from RX to TX with IR extenders	
HDMI connector	Type A [19-pin female]	
RJ-45 connector	WE/SS 8P8C	
USB connector	Type A/ Type B/ Type C	
3.5mm connector	IR receiver / IR blaster	IR receiver / IR blaster
Mechanical		
Housing	Metal enclosure	
Fixedness	Wall-mounting case with screws	
Power supply	12V	
Power consumption	Max W	
Operation temperature	0~40°C [32~104°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

PANEL DESCRIPTIONS

Transmitting unit ► EX-5601-3T-TX



1. **+12V DC:** Connect to a 12V power supply unit
2. **Indicator LED:** Power indicator LED
3. **Ethernet port for LAN:** Connect to network device
4. **Input Selected Push Button:** Select HDMI/USB-C(DP) input
5. **Push Button:** Reserved
6. **USB 2.0:** Connect to USB 2.0 device
7. **USB 2.0:** Connect to USB 2.0 device
8. **USB 3.1 Gen 2(Type B):** Connect the USB cable to PC
9. **USB 3.1 Gen 2:** Connect to USB 3.1 Gen 2 devices
10. **10G SFP (3 Transmitter & 1 Receiver):**
Plug in single mode fiber optic cables that needs to be linked to the receiving unit
11. **HDMI IN:** Connect to a HDMI source
12. **USB-C(DP Alt Mode) IN:** Connect to a USB-C(DP) source
13. **RS-232:** Connect to serial port device with a DSUB-9 cable
14. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
15. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster

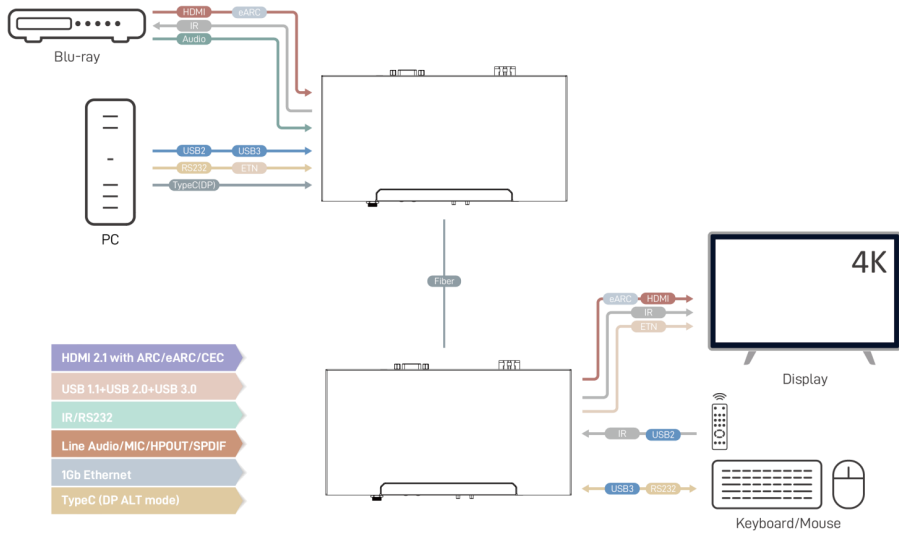
Receiving unit ► EX-5601-3T-RX



1. **+12V DC:** Connect to a 12V power supply unit
2. **Indicator LED:** Power indicator LED
3. **Ethernet port for LAN:** Connect to network device
4. **Input Selected Push Button:** Select HDMI/USB-C(DP) input
5. **Push Button:** Reserved
6. **USB 2.0:** Connect to keyboard, mouse or USB 2.0 device
7. **USB 3.1 Gen 1/USB 2.0 Hub:** Connect to USB devices
[Top USB] USB 2.0
[Bottom USB] USB 3.1 Gen1
8. **USB 2.0:** Connect to keyboard, mouse or USB 2.0 device
9. **10G SFP (3 Receiver & 1 Transmitter)**
Plug in single mode fiber optic cables that needs to be linked to the transmitting unit
10. **HDMI OUT:** Connect to a HDMI display
11. **RS-232:** Connect to serial port device with a DSUB-9 male-male or male-female cable here
12. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
13. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster

CONNECTION DIAGRAM

EX-5601-3T

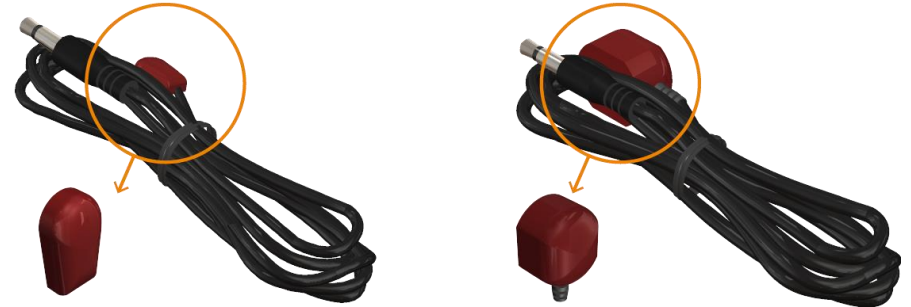


IR PASS-THROUGH

[IR Extenders]

IR Blaster

IR Receiver



[IR Sockets]

IR BLASTER: plug in the IR blaster to emit all IR command signals received from the IR receiver from the other end to control the devices corresponding to the IR signals.

IR RECEIVER: plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.

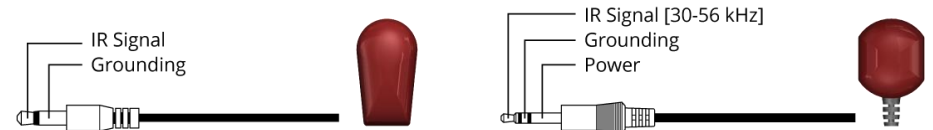
CAUTION!

Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

[Definition of IR Earphone Jack]

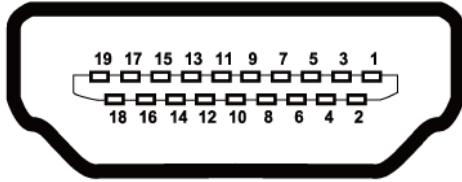
IR Blaster

IR Receiver



You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the extender if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

HDMI PIN DEFINITION



Type A (Receptacle) HDMI

Pin 1	TMDS Data2+	Pin 11	TMDS Clock Shield
Pin 2	TMDS Data2 Shield	Pin 12	TMDS Clock-
Pin 3	TMDS Data2-	Pin 13	CEC
Pin 4	TMDS Data1+	Pin 14	Reserved (N.C. on device)
Pin 5	TMDS Data1 Shield	Pin 15	SCL
Pin 6	TMDS Data1-	Pin 16	SDA
Pin 7	TMDS Data0+	Pin 17	DDC/CEC Ground
Pin 8	TMDS Data0 Shield	Pin 18	+5V Power
Pin 9	TMDS Data0-	Pin 19	Hot Plug Detect
Pin 10	TMDS Clock+		

WARRANTY

The SELLER warrants the **EX-5601-3T HDMI 2.1 over Fiber Extender with Bi-directional IR, RS-232, 1G Ethernet, USB 3.1 & KVM Support** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the EX-5601-3T features and specifications is subject to change without further notice.**