# EX-5701

HDMI 2.1 over IP Multicast Transceiver System
with Bi-directional IR, RS-232, Audio Extender/Extractor,
USB 3.1, KVM & Video Wall Support

User Manual

rev: 250220
Made in Taiwan

**TABLE OF CONTENTS**

## INTRODUCTION

The **EX-5701 HDMI 2.1 over IP Multicast Transceiver System with Bi-directional IR, RS-232, Audio Extender/Extractor, USB 3.1, KVM, and Video Wall Support** extends your video and audio transmission distance up to 100 meters (330 feet) over copper, delivering Ultra-HD 4K@144Hz 4:4:4 / 8K@60Hz 4:2:2 DSC format. Users can easily extend Ultra-HD sources from devices like Apple TV, PlayStation, Xbox, PC, or any other HDMI sources to remote displays or monitors, including HDMI or DVI-enabled TVs and LCD PC monitors. Additionally, the EX-5701 is HDCP compliant and supports IR and RS-232 pass-through, audio extension/extraction, video walls, and multi-view setups.

With broadcasting management software and a 1 Gigabit Ethernet network switch (with IGMP Snooping support), the EX-5701 offers a complete Ultra-HD 4K@144Hz 4:4:4 / 8K@60Hz 4:2:2 DSC video broadcasting solution for a variety of 4K applications, including healthcare, digital signage, and more. It can transmit Ultra-HD 4K@144Hz 4:4:4 / 8K@60Hz 4:2:2 DSC HDMI video over an IP network. The broadcasting format options include Point-to-Point, Point-to-Many, and Multicasting. Multicasting operates via a managed 1 Gigabit switch with 802.1Q VLAN functionality, allowing remote control of multiple devices.

## FEATURES

- Supports HDMI 2.1 & HDCP 2.3
- Supports resolution up to 4K@144 4:4:4/ 8K@60 4:2:2 DSC
- Supports USB-C (Alt Mode DP 1.4) and simultaneous HDMI/DisplayPort input
- Supports VRR(Variable Refresh Rate) & ALLM(Auto Low Latency Mode)
- Extends the transmission over cat.6A cable up to 100m (330ft) from the HDMI source at Ultra-HD 4K@144 4:4:4/ 8K@60 4:2:2 DSC
- Supports Multi-Encode & Decode capability (proprietary codecs)
- Latency: <1 frame
- HDCP & CEC Bypass
- Supports EDID management
- Can be configured as a full duplex transmitter and receiver when 4K@120 4:4:4
- Auto equalization
- Pure unaltered uncompressed 7.1ch digital HDMI over cat.6A transmission
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support
- Supports bi-directional full frequency IR signal from 20KHz to 60KHz
- Bi-directional Analog audio path-through
- Supports eARC/ARC
- Full duplex RS-232 control up to 115,200 bps
- Supports seamless switching
- Supports video wall function and image rotation/flip

- Supports PiP (Picture-in-Picture), PbP (Picture-by-Picture), and PoP (Chroma Key)
- Supports custom scaling to display
- Supports USB 3.1 Gen1 host mode for UVC webcam and USB 3.1 Gen2 UVC device mode
- Supports KVM (mouse roaming) function
- Integrated port for 1G LAN/ network device
- Cat.6A extension and connection to a 1GbE Ethernet Switch (supported IGMP Snooping)
- Supports software to configure & upgrade device and to control the switching operation of the various signal types
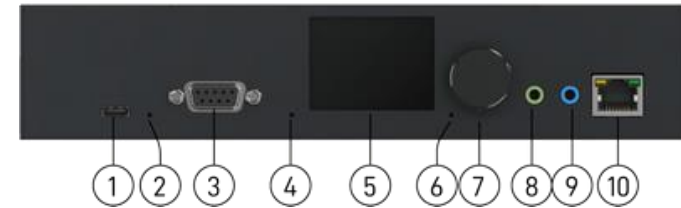
## PACKAGE CONTENTS

- 1x EX-5701
- 1x IR blaster
- 1x IR receiver
- 1x DC 12V
- 1x User Manual

## SPECIFICATIONS

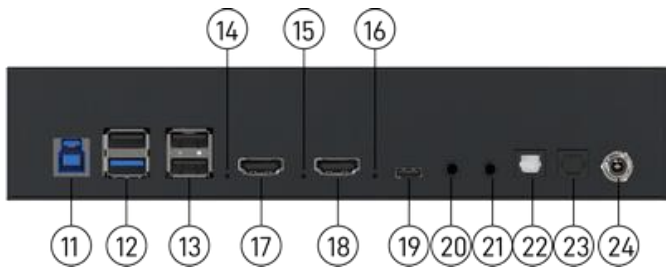| Model Name | EX-5701 |
|---|---|
| **Technical** | |
| Role of usage | Transceiver |
| HDMI compliance | HDMI 2.1 |
| HDCP compliance | HDCP 2.3 |
| Video bandwidth | up to FRL 6 (48G) |
| Video support | up to 4K@144 4:4:4/ 8K@60 4:2:2 DSC |
| HDMI over UTP | 4K@144 4:4:4/ 8K@60 4:2:2 DSC 100m (330ft) [CAT.6A] |
| Audio support | Surround sound [up to 7.1ch] or stereo digital audio |
| Equalization | Auto |
| 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 |
| I/O connector | 2x HDMI + 4x 3.5mm + 4x USB + 2x USB-C + 2x TOSLINK + 1x RJ-45 + 1x RS-232 |
| HDMI source control | Controllable via IR pass-through from RX to TX or TX to RX with IR extenders |
| HDMI connector | Type A [19-pin female] |
| RJ-45 connector | WE/SS 8P8C |
| USB connector | Type A/ Type B/ USB-C |
| 3.5mm connector | IR receiver / IR blaster / Stereo |
| **Mechanical** | |
| Housing | Metal enclosure |
| Fixedness | Wall-mounting case with screws |
| Power supply | 12V DC |
| Power consumption | Watt [max] |
| 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

**Front Panel**



1. **USB-C Power Port:** Connect to a USB-C power supply unit
2. **Indicator LED:** Power indicator LED
3. **RS-232:** Connect to serial port device with a DSUB-9 cable
4. **Indicator LED:** Selected USB-C source status LED
5. **LCD:** 2.0" LCD monitor
6. **Indicator LED:** Selected HDMI source status LED
7. **Knob:** Control OSD menu on the LCD panel
8. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
9. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
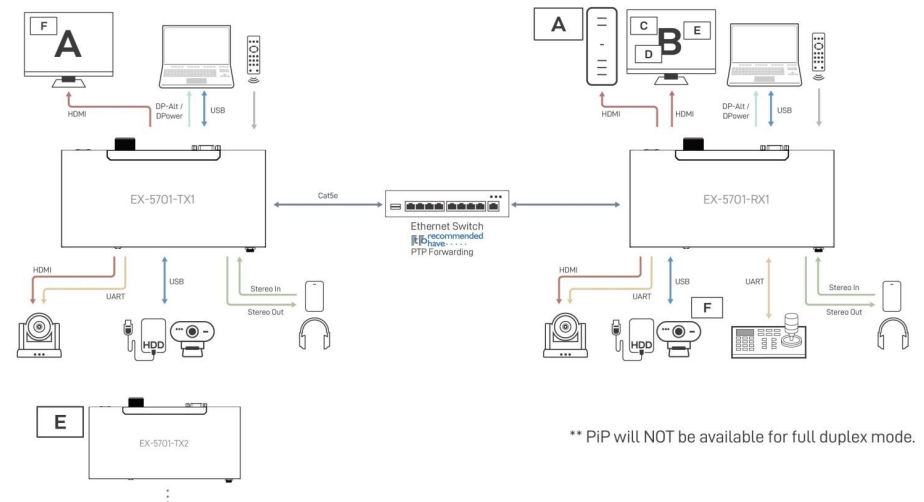10. **1G Copper IN/OUT:** Plug in Cat.6A cable that needs to be linked to the other unit

**Rear Panel**



11. **USB 3.1 Gen 2(Type B):** Connect the USB cable to PC

12. **USB 3.1 Gen 1/USB 2.0 Hub:** Connect to USB devices

    [Top USB] USB 2.0

    [Bottom USB] USB 3.1 Gen1

13. **USB 2.0:** Connect to keyboard, mouse or USB 2.0 device

14. **Indicator LED:** HDMI out signal LED

15. **Indicator LED:** HDMI in signal LED

16. **Indicator LED:** USB-C in signal LED

17. **HDMI OUT:** Connect to a HDMI display

18. **HDMI IN:** Connect to a HDMI source

19. **USB-C(DP Alt Mode) IN:** Connect to a USB-C(DP) source

20. **Stereo OUT:** Connect to analog stereo audio speaker

21. **Stereo IN:** Connect to analog stereo audio source

22. **TOSLINK OUT:** S/PDIF output

23. **TOSLINK IN:** S/PDIF input

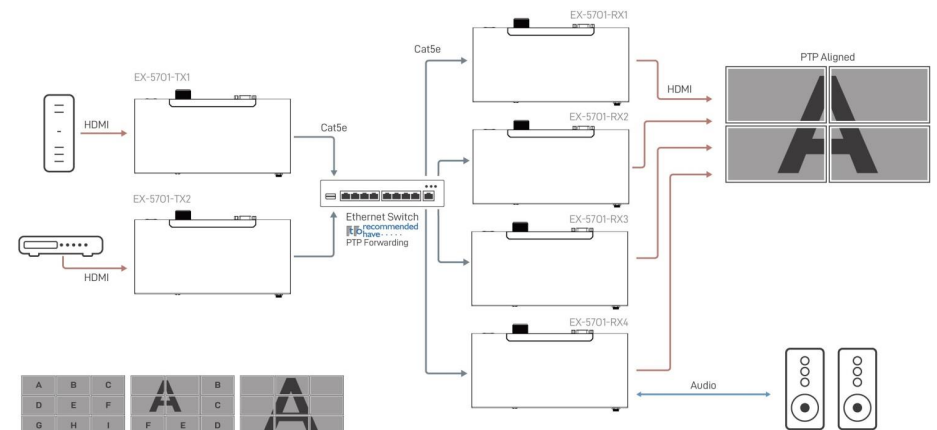24. **+12V DC:** Connect to a 12V power supply unit

## CONNECTION DIAGRAM

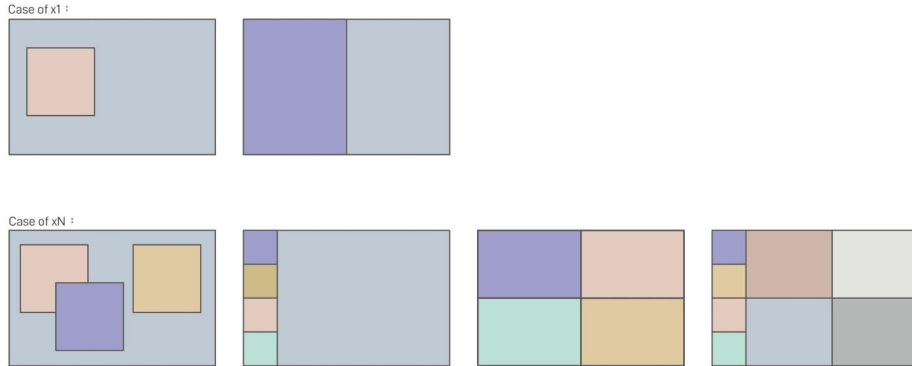### Commercial Conference Extender/Transceiver



** PiP will NOT be available for full duplex mode.

### Commercial TV Wall

## Supported PiP layout

Case of x1 :



Case of xN :



## 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.
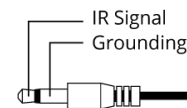
**IR RECEIVER:** plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.
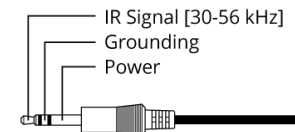
**CAUTION!** ➔ Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

### 【Definition of IR Earphone Jack】

**IR Blaster**                    **IR Receiver**

IR Signal
Grounding

IR Signal [30-56 kHz]
Grounding
Power
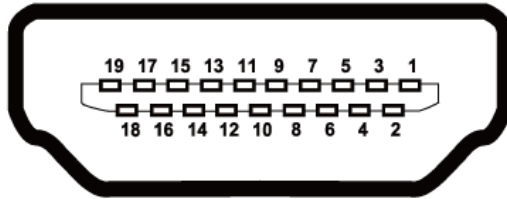


📖 You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the extender if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.
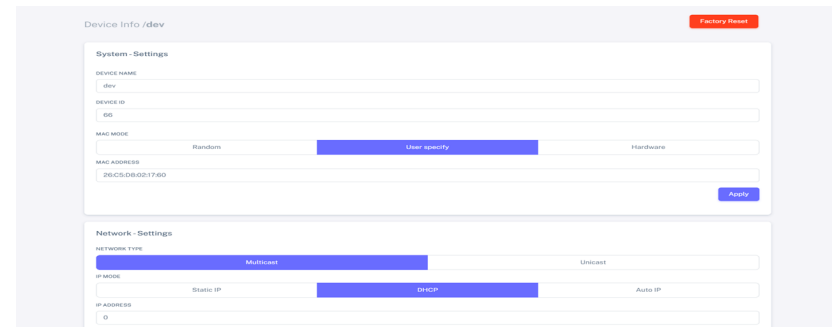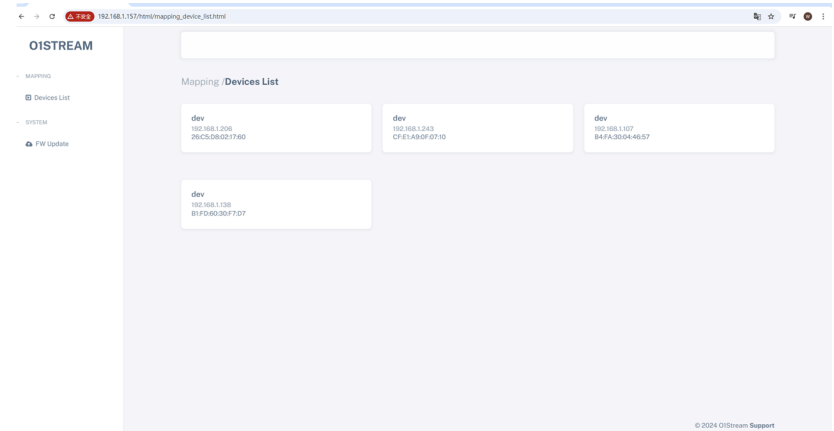
## HDMI PIN DEFINITION



**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+ | | | |

## OPERATION APPROACH

### Web Control

The web control interface in the following image is a schematic, and the official web control interface is **TBD**

## WARRANTY

The SELLER warrants the **EX-5701 HDMI 2.1 over IP Multicast Transceiver System with Bi-directional IR, RS-232, Audio Extender/Extractor, USB 3.1, KVM, and Video Wall 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-5701 features and specifications is subject to change without further notice.**