

EX-5801

HDMI 2.1 over IP Multicast System
with Bi-directional IR, RS-232 & USB 3.1 Support

User Manual



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INTRODUCTION

The **EX-5801 HDMI 2.1 over IP Multicast System with Bi-directional IR, RS-232 & USB 3.1 Support** extends your video and audio transmission distance up to 100 meters (330 feet) over copper, delivering Ultra-HD 4K@120Hz 4:4:4 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-5801 is HDCP compliant and supports IR and RS-232 pass-through and USB 3.1.

With broadcasting management software and a 1 Gigabit Ethernet network switch (with IGMP Snooping support), the EX-5801 offers a complete Ultra-HD 4K@120Hz 4:4:4 video broadcasting solution for a variety of 4K applications, including healthcare, digital signage, and more. It can transmit Ultra-HD 4K@120Hz 4:4:4 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@120 4:4:4
- Supports VRR(Variable Refresh Rate) & ALLM(Auto Low Latency Mode)
- Extends the transmission over cat.5e cable up to 100m (330ft) from the HDMI source at Ultra-HD 4K@120 4:4:4
- Supports Multi-Encode & Decode capability (proprietary codecs)
- Latency: <1 frame
- HDCP & CEC Bypass
- Supports EDID management
- Auto equalization
- Pure unaltered uncompressed 7.1ch digital HDMI over cat.5e transmission
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support
- Supports bi-directional full frequency IR signal from 20KHz to 60KHz
- Supports eARC/ARC
- Full duplex RS-232 control up to 115,200 bps
- Supports seamless switching
- 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
- Integrated port for 1G LAN/ network device
- Cat.5e 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

SPECIFICATIONS

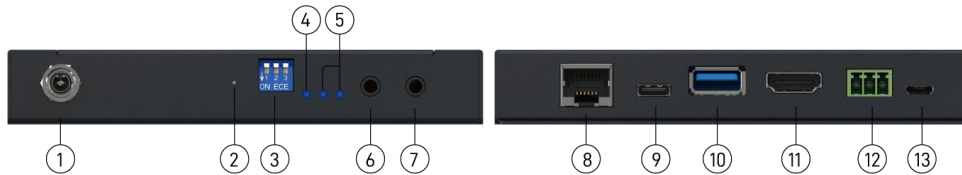
Model Name	EX-5801	
Technical		
Role of usage	Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI 2.1	
HDCP compliance	HDCP 2.3	
Video bandwidth	up to FRL 5 (40G)	
Video support	up to 4K@120 4:4:4	
HDMI over UTP	4K@120 4:4:4 100m (330ft) [CAT.5E]	
Audio support	Surround sound [up to 7.1ch]	
Equalization	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	6-layer board [impedance control — differential 100Ω; single 50Ω]	
IR pass-thru	Bi-directional	
RS-232 support	Yes	
Input	1x HDMI, 1x 3.5mm, 1x USB, 1x USB-C	1x 3.5mm, 1x USB, 1x USB-C 1x RJ-45
Output	1x 3.5mm, 1x RJ-45	1x HDMI, 1x 3.5mm
I/O	1x terminal block(RS-232)	1x terminal block(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(Reverse Mode)	
USB connector	Type A/ USB-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 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]	

PACKAGE CONTENTS

- 1x EX-5801 [TX & RX]
- 1x IR blaster
- 1x IR receiver
- 2x DC 12V
- 1x User Manual
- 2x 3-pin Power Terminal Block Connector

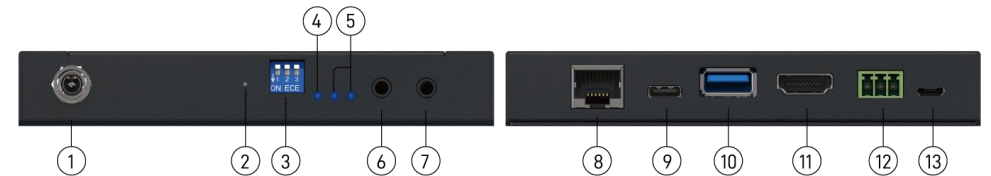
PANEL DESCRIPTIONS

Transmitting unit ► EX-5801-TX



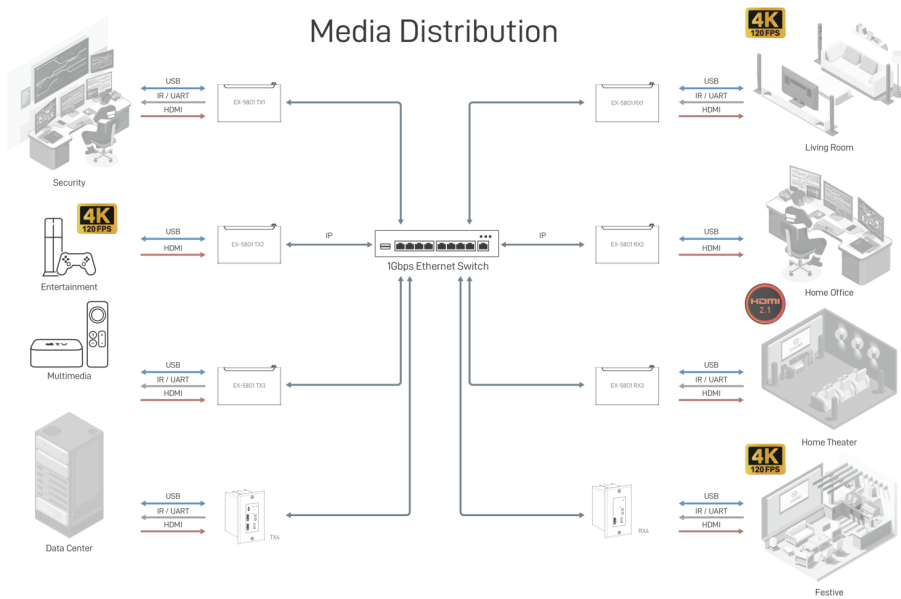
1. **+12V DC:** Interlocking power jack for 12V DC power supply unit
2. **Reset Button:** Factory reset
3. **Mode:** for USB host/device mode and FW update mode
4. **Indicator LED:** Power indicator LED
5. **Indicator LED:** Link indicator LED
6. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver
7. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster
8. **1G Copper OUT:** Plug in Cat.5e cable that needs to be linked to the other unit
9. **USB 3.1 Gen 2(USB-C):** Connect the USB cable to PC
10. **USB 3.1 Gen 1:** Connect to USB devices
11. **HDMI IN:** Connect to a HDMI source
12. **RS-232(terminal block format):** The order of RS-232 pin are TX, RX, GND (from the left side to the right)
13. **Micro-USB:** debug port

Receiving unit ► EX-5801-RX

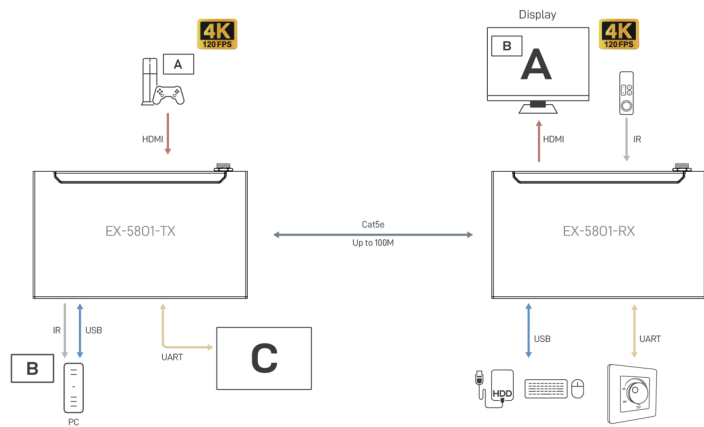


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CONNECTION DIAGRAM



HDMI 2.1 Extender



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.

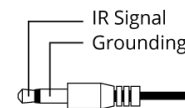
IR RECEIVER: plug in the IR receiver to receive all IR command signals from the IR remote controls of the corresponding devices.

CAUTION!

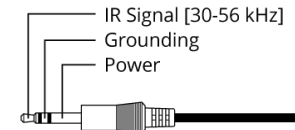
Incorrect placement of IR Blaster and Receiver may result in the failure of the IR extenders. Please check carefully before plugging in the IR extender to the respective IR sockets. Warranty will not cover the damage.

[Definition of IR Earphone Jack]

IR Blaster

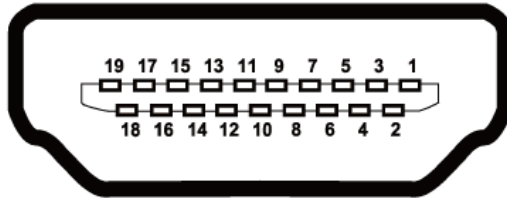


IR Receiver



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



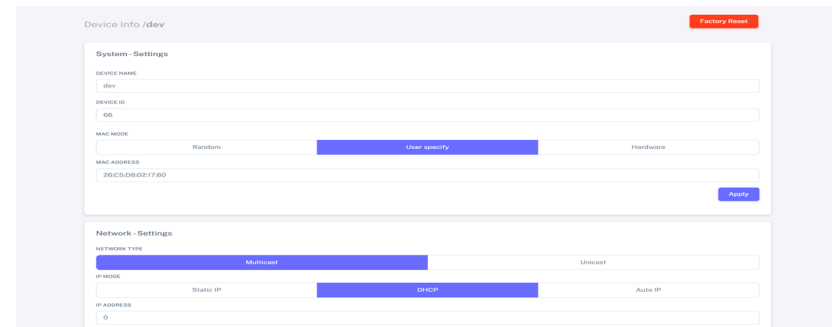
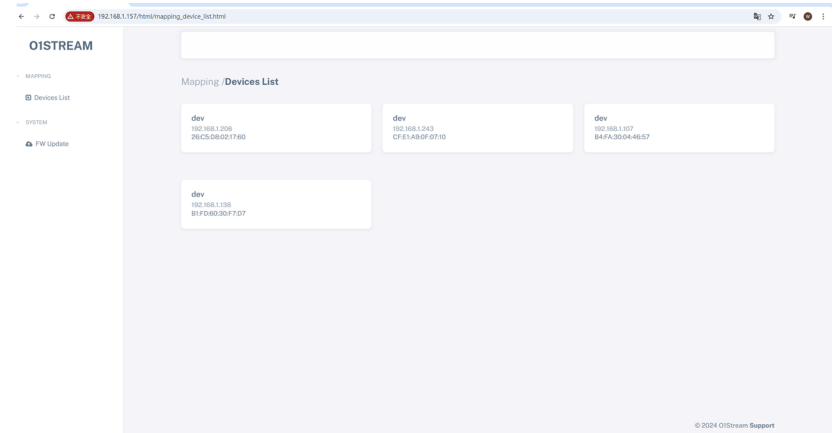
Type A (Receptacle) HDMI

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+		

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-5801 HDMI 2.1 over IP Multicast System with Bi-directional IR, RS-232 & USB 3.1 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-5801 features and specifications is subject to change without further notice.**