EX-57EM

HDMI2.0 over IP Multicast System with video support

User Manual

4K 60HZ UltraHD · HDMI 2.0 · x.v.Color · 7.1 CH AUDIO · RoHS Compliance · FC · CE

⚠️

Safety and Notice

The **EX-57EM** **HDMI2.0 over IP Multicast System with video support** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **EX-57EM** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.

- Do not attempt to service this unit yourself, except where explained in this manual.

- Provide proper ventilation and air circulation and do not use near water.

- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.

- Use only the power adapter and power cords and connection cables designed for this unit.

- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

ESD CAUTION

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INTRODUCTION

The **EX-57EM** **HDMI2.0 over IP Multicast System with video support** boosts up your video/audio transmission distance up to 120m(396ft) in UHD 4K2K format. With cost effective Ethernet cable, users can readily extend UHD sources from DVD players, Blu-ray Disc player, PS3, PC, and any other HDMI sources broadcasting to distant display monitors including HDMI or DVI enabled TV sets or LCD PC monitors. In addition, EX-57EM is HDCP compliant, and supports IR and RS-232 pass-through path.

With broadcasting management software and Gigabit Ethernet network switch (supporting IGMP, Jumbo frame), EX-57EM is a complete UHD video broadcasting solution for digital signage. It can transmit Full HD 4K2K60 HDMI video broadcasting over IP network. The broadcasting format can be Point to Point, Point to Many, and Multi-Casting. Multi-casting is based on Managed Gigabit Switch with 802.1Q VLAN function which provides control remotely and so multi video and sources are allowed and supported.

FEATURES

- Supports HDMI input up to 4K2K@60 4:4:4 8bits
- Supports HDMI output up to 4K2K@30 RGB
- Supports High Dynamic Range (HDR)
- HDMI 2.0a compliant
- HDCP 2.2 compliant
- Flexible and scalable UHD Video Broadcasting by Gigabit Ethernet LAN/Switch
- one to one, one to many & multi-casting broadcasting architecture
- Each transmitter can be multicast up to an unlimited number of displays in video wall applications or unlimited displays in multicast applications
- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path
- Full Duplex RS-232 control up to 115,200 bps through connector
- Up to 1,023 Groups Multi-Casting
- Easy Dip Switch matching for multi-casting group configuration
- Latency: 1080P60: 23ms
- Supports Video Wall function
- Supports 180 and 270 clockwise image rotation
- Supports USB2.0
- Wall mounting housing design for easy and robust installation

PACKAGE CONTENTS

EX-57EM-TX

- 1x EX-57EM-TX
- 1x IR blaster cable
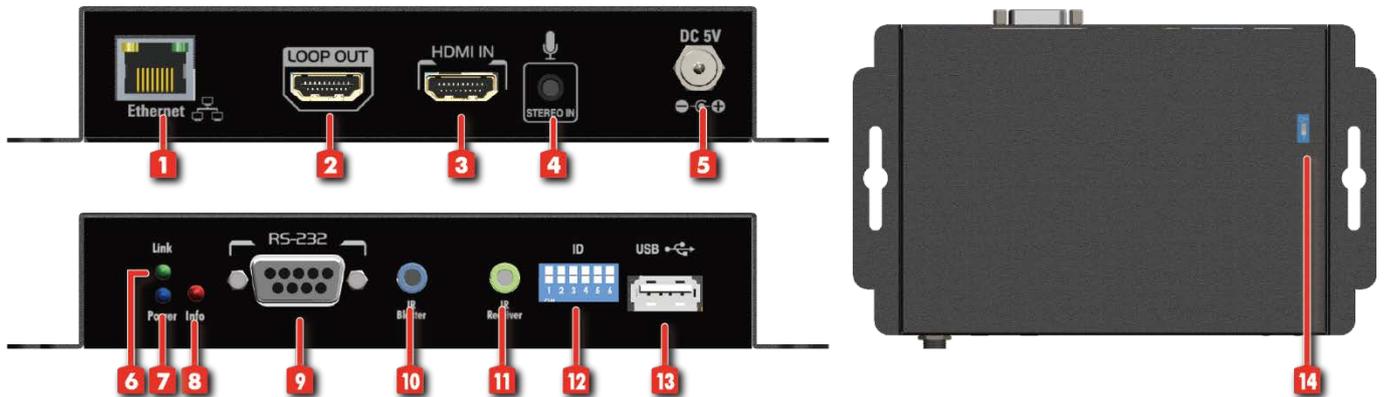- 1x 5V2A Power adaptor
- 1x User Manual

EX-57EM-RX

- 1x EX-57EM-RX
- 1x IR receiver cable
- 1x 5V2A Power adaptor
- 1x User Manual

SPECIFICATIONS

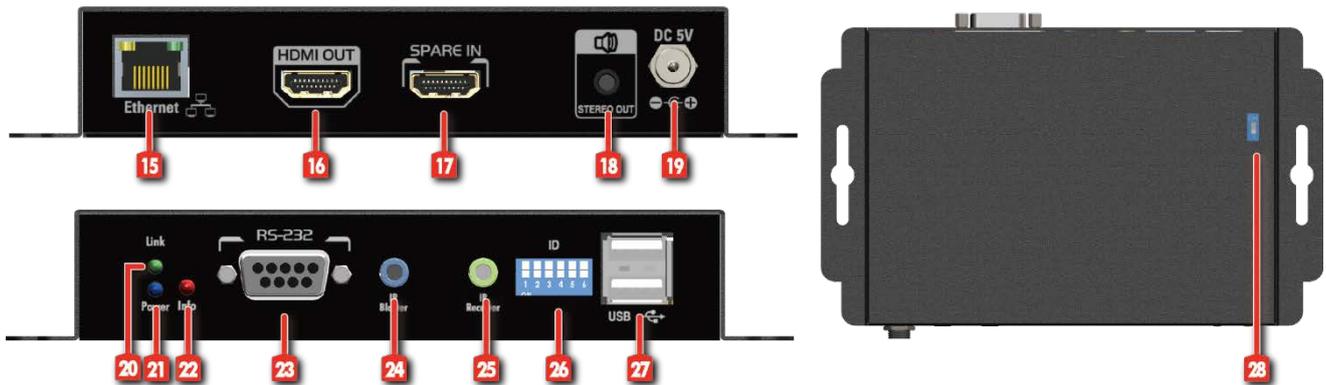| Model Name	EX-57EM	
Technical	**EX-57EM [Tx]**	**EX-57EM [Rx]**
Role of usage	Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI	
HDCP compliance	Yes	
Input Video support	HDR 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits)	
Output Video support	4K2K@30 (RGB)	
Latency	2 frames (33 ms) maximum	
HDMI over UTP transmission [24-bit]	Ultra HD (4K2K60)-120m (396ft) [CAT.X]	
Audio support	Surround sound (up to 7.1ch) or stereo digital audio	
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]	
IR pass-thru	Full-duplex bi-directional	
RS-232 support	Yes	
Input	1x HDMI + 2x 3.5mm + 1x USB	1x RJ45 + 1x HDMI + 1x 3.5mm
Output	1x RJ45 + 1x HDMI + 1x 3.5mm	1x HDMI + 2x 3.5mm + 2x USB
In/ Out	1x DIN9	1x DIN9
HDMI source control	Controllable via IR pass-through from RX to TX and from TX to RX with IR extenders	
IR remote control	Electro-optical characteristics: τ = 25° / Carrier frequency: 20-60kHz	
HDMI connector	Type A [19-pin female]	
Min DIN connector	DIN-9	
RJ45 connector	WE/SS 8P8C with 2 LED indicators	
3.5mm connector	IR blaster & IR receiver	
Mechanical		
Housing	Metal enclosure	
Dimensions [L x W x H] — Model	142 x 102 x 28.7mm [5.6" x 4" x 1.1"]	142 x 102 x 28.7mm [5.6" x 4" x 1.1"]
Dimensions [L x W x H] — Package	264 x 170 x 77mm[10.3" x 6.7" x 3"]	
Dimensions [L x W x H] — Carton	430 x 358 x 291mm[1'4" x 1'2" x 11.5"]	
Weight — Model	451g [16 oz]	451g [16 oz]
Weight — Package	786g [1.7 lbs]	786g [1.7 lbs]
Fixedness	Wall-mounting case with screws	
Power supply	5V 2A DC	
Power consumption	6 Watts	5 Watts
Operation temperature	0~40°C [32~104°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

Transmitting unit ▶ EX-57EM-TX

1. **RJ-45:** Gigabit Ethernet port

2. **HDMI loopout:** Connect to a HDMI display with a HDMI male-male cable.

3. **HDMI IN:** Connects to a HDMI source with a HDMI male-male cable

4. **Analog audio line in:** Connect to upstream speaker output

5. **+5V DC:** Connect to 5V DC power supply

6. **Power LED indicator**

7. **Link LED indicator**

8. **Alarm LED indicator**

9. **RS-232:** Connect to PC serial port with a DSUB-9 male-male cable here

10. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster

11. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver

12. **Dip Switch:** Video channel selection

13. **USB:** Connect to upstream USB host

14. **Dip Switch:** RS-232 mode selection, [ON] debug mode; [OFF] bypass mode

Receiving unit ► EX-57EM-RX

15. RJ-45: Gigabit Ethernet port

16. HDMI OUT: Connect to a HDMI display with a HDMI male-male cable.

17. HDMI IN: Connects to a HDMI source with a HDMI male-male cable

18. Analog audio line out: Connect to downstream headphone output

19. +5V DC: Connect to 5V DC power supply

20. Power LED indicator

21. Link LED indicator

22. Alarm LED indicator

23. RS-232: Connect to PC serial port with a DSUB-9 male-male cable here

24. IR Blaster: Infrared 3.5mm socket for plugging in the extension cable of IR blaster

25. IR Receiver: Infrared 3.5mm socket for plugging in the extension cable of IR receiver

26. Dip Switch: Video channel selection

27. USB(USB 2.0 downstream port**):** Connect to USB flash driver or other USB devices

28. Dip Switch: RS-232 mode selection, [ON] debug mode; [OFF] bypass mode
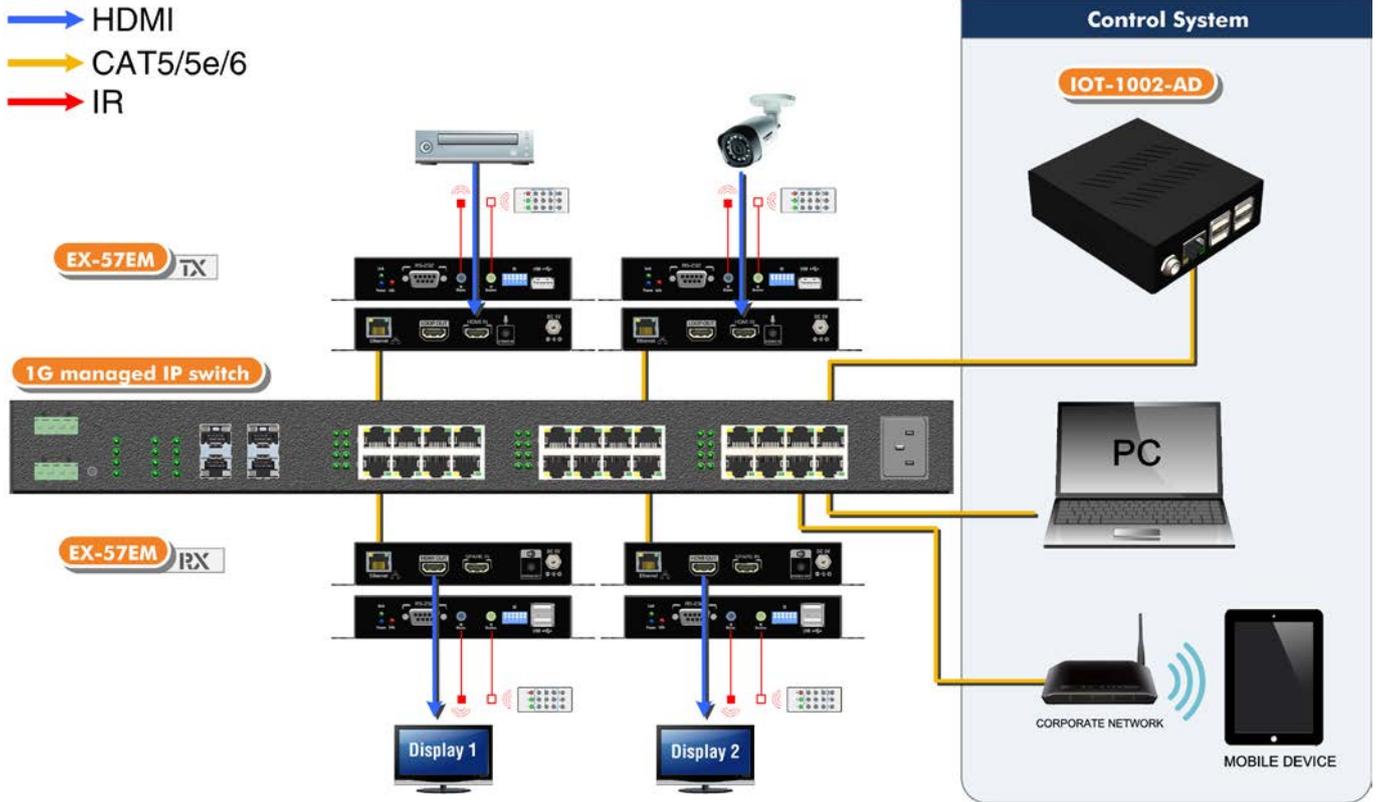
Notes: TX/RX group ID dip-switch setting

1. For ID=1~63, please refer the table below to set up (Hardware control)
2. For ID=64~1023, please adjust the DIP switch to ID=0, and the real ID can be decided by the external software (Software control)

ID	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6
0	↓	↓	↓	↓	↓	↓
1	↑	↓	↓	↓	↓	↓
2	↓	↑	↓	↓	↓	↓
3	↑	↑	↓	↓	↓	↓
4	↓	↓	↑	↓	↓	↓
5	↑	↓	↑	↓	↓	↓
6	↓	↑	↑	↓	↓	↓
7	↑	↑	↑	↓	↓	↓
8	↓	↓	↓	↑	↓	↓
9	↑	↓	↓	↑	↓	↓
10	↓	↑	↓	↑	↓	↓
11	↑	↑	↓	↑	↓	↓
12	↓	↓	↑	↑	↓	↓
13	↑	↓	↑	↑	↓	↓
14	↓	↑	↑	↑	↓	↓
15	↑	↑	↑	↑	↓	↓
16	↓	↓	↓	↓	↑	↓
17	↑	↓	↓	↓	↑	↓
18	↓	↑	↓	↓	↑	↓
19	↑	↑	↓	↓	↑	↓
20	↓	↓	↑	↓	↑	↓
21	↑	↓	↑	↓	↑	↓
22	↓	↑	↑	↓	↑	↓
23	↑	↑	↑	↓	↑	↓
24	↓	↓	↓	↑	↑	↓
25	↑	↓	↓	↑	↑	↓
26	↓	↑	↓	↑	↑	↓
27	↑	↑	↓	↑	↑	↓
28	↓	↓	↑	↑	↑	↓
29	↑	↓	↑	↑	↑	↓
30	↓	↑	↑	↑	↑	↓
31	↑	↑	↑	↑	↑	↓

ID	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6
32	↓	↓	↓	↓	↓	↑
33	↑	↓	↓	↓	↓	↑
34	↓	↑	↓	↓	↓	↑
35	↑	↑	↓	↓	↓	↑
36	↓	↓	↑	↓	↓	↑
37	↑	↓	↑	↓	↓	↑
38	↓	↑	↑	↓	↓	↑
39	↑	↑	↑	↓	↓	↑
40	↓	↓	↓	↑	↓	↑
41	↑	↓	↓	↑	↓	↑
42	↓	↑	↓	↑	↓	↑
43	↑	↑	↓	↑	↓	↑
44	↓	↓	↑	↑	↓	↑
45	↑	↓	↑	↑	↓	↑
46	↓	↑	↑	↑	↓	↑
47	↑	↑	↑	↑	↓	↑
48	↓	↓	↓	↓	↑	↑
49	↑	↓	↓	↓	↑	↑
50	↓	↑	↓	↓	↑	↑
51	↑	↑	↓	↓	↑	↑
52	↓	↓	↑	↓	↑	↑
53	↑	↓	↑	↓	↑	↑
54	↓	↑	↑	↓	↑	↑
55	↑	↑	↑	↓	↑	↑
56	↓	↓	↓	↑	↑	↑
57	↑	↓	↓	↑	↑	↑
58	↓	↑	↓	↑	↑	↑
59	↑	↑	↓	↑	↑	↑
60	↓	↓	↑	↑	↑	↑
61	↑	↓	↑	↑	↑	↑
62	↓	↑	↑	↑	↑	↑
63	↑	↑	↑	↑	↑	↑

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

1. IR Signal
2. Grounding

1. IR Signal [20-60 kHz]
2. Grounding
3. Power

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

WARRANTY

The SELLER warrants the **EX-57EM HDMI2.0 over IP Multicast System with video 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-57EM features and specifications is subject to change without further notice.**