Model : ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

The 4K HDMI & USB over IP Extender is a solution for audio, video and USB signal extension via Local Area Network (LAN). It can be used as audio, video and KVM extender over IP and applied to point to point,

point to multi-point, multi-point to multi-point and screen wall broadcast system controlled by USB, RS232, IR and configured the 4K HDMI & USB over IP Extender by web browser. An easy installation system built up with Giga Ethernet switch which has IGMP function and CATx cable for extension or broadcast.

Features:

- 4K UHD HDMI over IP extension
- USB 2.0 over IP extension
- RS232 bi-directional extension and RS232 control
- 4 bits switch for 16 stream channel selection
- Support Dolby True HD, DTS-HD Master Audio
- Support two way Wide Band IR extension (38khz-56khz)
- Transmit over single Cat5e/6 cable up to 120m
- Transmitter over Fiber Optical cable up to 60km (Single Mode)
- Networking environment under Giga Ethernet switch and CAT5e cable
- Point to point extension, Unicast, Multicast and Video Wall system (Max 8x16)
- Output video rotation

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- Output video partial enlargement
- HDCP 1.4 compliant

Specifications:

Performance	
Protocol	TCP, UDP, RTSP, RTP, DHCP, IGMP, Multicast, IPV4
Support Video format	4K@30HZ, 1080P/1080i/720P/576P/576i/480P/480i
Support Audio format	Stereo 192Kbps
HDCP	Compliant
IR Frequency	38 -56 KHZ
RS232 Baud rate	Default 115200bps, total 8 kinds optional
IP setting &Group ID setting	
Default IP	Automatic allocation
Group ID	(Group 00 ~ group 15) by DIP Switch
Request for Switch/Router	Support IGMP, support DHCP
Connectors on Transmitter	
Input	1xHDMI Female port, 1xUSB B type
Output	1x RJ45 output, 1x Fiber output
RS232	Phoenix RS232 port
IR	1x IR TX port; 1x IR RX port Support 38K-56KHz
Connectors on Receiver	
Input	1xRJ45 input, 1x Fiber input
Output	1x HDMI Female port, 2x USB A type
RS232	Phoenix RS232 port
IR	1x IR TX port; 1x IR RX port Support 38K-56KHz
Environmental & Power Requirements	
Operating temperature	-5 to +35 ℃ （+23 to +95℉）
Operating Humidity Range	5 to 90%RH (No Condensation)
Power supply	DC 5V

All specifications are subject to change without prior notice.

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Power consumption	Max 3 watt
Physical	
Dimension	TX: 160x103.2x30mm ; RX: 160x103.2x30mm
Net Weight	TX: 472.8G ; RX:472.3G

Note1: Specifications are subject to change without notice. Mass and dimensions are approximate.
Note2: When transmit over Fiber, 4Kx2K requires 3.125G module.

HARDWARE DESCRIPTION:

Transmitter
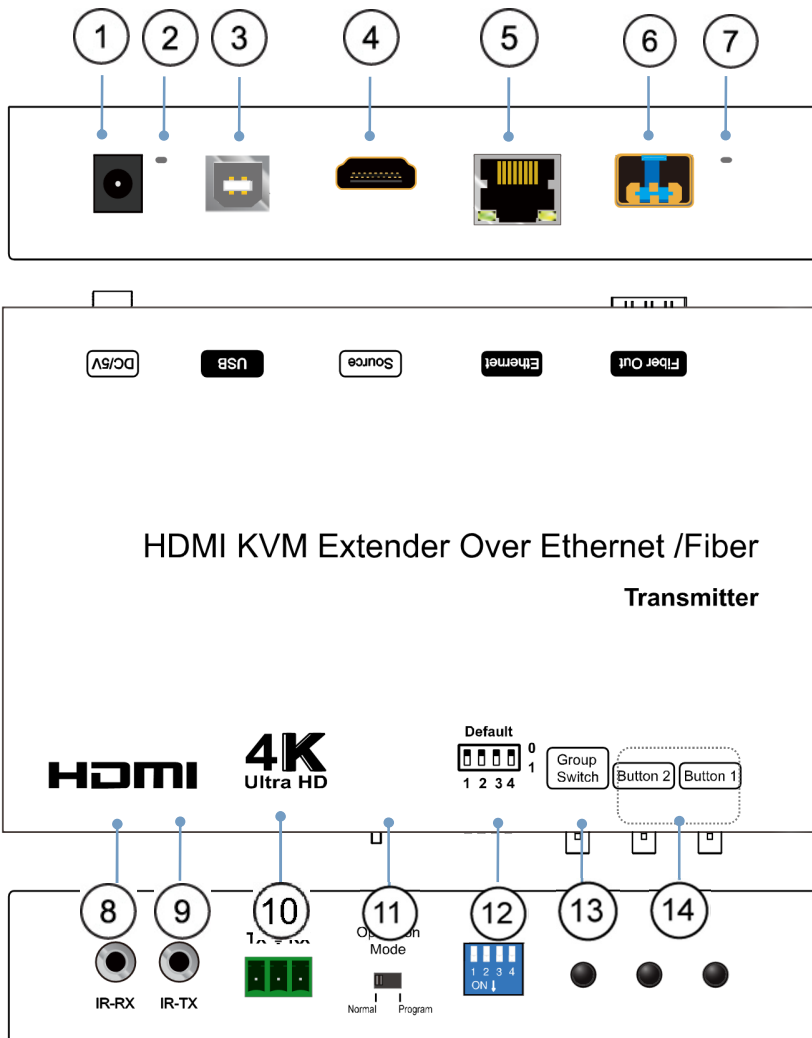
Model   **:** ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

1) Power input port   2) Power input indicator **1**   3) USB
4) HDMI input   5) Ethernet port   6) Fiber Out
7) Indicator of status **2** 8) IR-RX port   9) IR-TX port
10) RS232 port
11) Normal: For serial over IP; Program: For serial control or getting the debug information
12) 4 bit Dip switch   13) Group Switch **3**   14) Button 1 & 2 **4**

1
A. Green LED: Link LED, when the connection has established over Cat5e/6 cable or Fiber cable, the Green LED will illuminate.

B. Yellow LED: When the yellow LED is blinking, it indicates the connection has been established over Cat5e/6 cable.

2 When the green LED illuminates, it indicates the connection has been established between transmitter and receiver over fiber cable.

3 After select the DIP switch, press "Group Switch" button for 1 second.
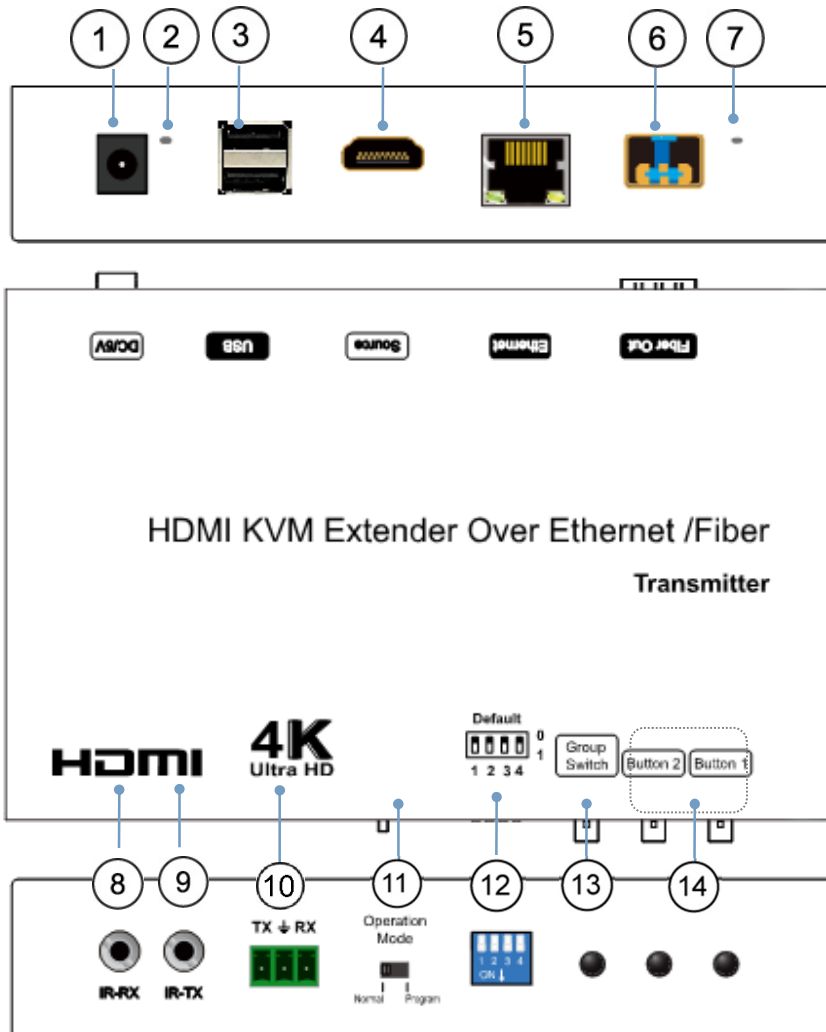
4 Please refer to "Descriptions Button"

4 bits DIP Switch:
Use 4bits DIP switch to select 16 groups ID (such as 0001, 0010, 0101 etc)

Model **:** ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

Receiver

1) Power input port   2) Power input indicator **1**   3) USB
4) HDMI output   5) Ethernet port   6) Fiber In
7) Indicator of status **2**   8) IR-RX port   9) IR-TX port
10) RS232 port
11) Normal: For serial over IP;
    Program: For serial control or getting the debug information
12) 4 bit Dip switch   13) Group Switch **3**   14) Button 1 & 2 **4**

Model   **:** ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

1️⃣
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3️⃣ After select the DIP switch, press "Group Switch" button for 1 second.

4️⃣ Please refer to "Descriptions Button"

4 bits DIP Switch:
Use 4bits DIP switch to select 16 group ID (such as 0001, 0010, 0101 etc)

<u>Descriptions Buttons:</u>

(Host: Transmitter; Client: Receiver)

Button State for Unicast Mode: HDMI Extender:

Default Mode will be highlighted in GREEN

* Item will be described in Descriptions

Unicast Digital	Button State			
	Transmitter		Receiver	
	Button One :	**Button Two :**	**Button One :**	**Button Two :**
Short Press	Remote/ Loopback*	Video Mode/Graphic Mode*	Link on : Link Link off : Unlink	Video Mode/ Graphic Mode*

Model : ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

Long Press(3 sec)	Snoop (on/off)*	Anti-Dither (1/2/off)*	N/A	Anti-Dither (1/2/off)*
Short Press when Ethernet Link is Off	BYPASS	BYPASS	BYPASS	BYPASS
Long Press when Ethernet Link is Off	BYPASS	Ethernet Jumbo Frame (on/off)*	BYPASS	Ethernet Jumbo Frame (on/off)*
Long Press on Boot (Press until Red LED Blinking)	Engineering Mode*	N/A	Engineering Mode*	N/A
Long Press on Boot (Press until both Red LED and Green LED Blinking)	Engineering Mode and Reset to default*	N/A	Engineering Mode and Reset to default*	N/A

Descriptions:

Feature/Button Feature	Descriptions
Remote/Loopback	When System is all setup, short press this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side. Long Press this button will for the local loop back port to be enabled for Snooping feature.
Video Mode/ Graphic Mode	User can select to change between Video Mode / Graphic Mode using this button. The button state will be save to flash, and remember after rebooting. Video Mode: FW will automatically trade-off between bandwidth and video quality to ensure smooth video playing experience.

All specifications are subject to change without prior notice.

Model   **:** ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

	Graphic Mode: FW will fix the trade-off to ensure best graphic/text viewing experience.
Anti-Dither (1/2/off)	Anti-Dithering Mode is design to work with ATI graphic cards that provide dithering output. Dithering output is used to make coloring looks better than it's original color depth. It uses visual transient to create a half-tone effect. However, this presents great difficulty for Video Compression to maintain low bandwidth even if the source display seems static.
	Currently, we only see Dithering Output with ATI graphic cards.
	To resolve this issue, AST1500 provides Anti-dithering for 1 bit, 2 bit, or off.
	If the source content does not generate dithering output and this feature is turn on. It will create a blocking effect because Video Engine are unable to detect pixel changes. User can avoid this issue by turning this feature to off.
Engineering Mode	1. Static IP: 192.168.0.88
	2. User can connect to http://192.168.0.88 webpage for firmware update.
	3. Firmware update file name will be: Host: webfwh.bin Client: webfwc.bin
Reset to Default	1. Reset Any changes in SPI flash setup flag.
	2. Re-generate Random mac to avoid any possible MAC collision. After Reset to Default and reboot cycle, a new random mac will be generated.
Ethernet Jumbo Frame	1. This feature is only available on AST1510 and above. AST1500 will be by pass this event.
	2. Enable/Disable Ethernet jumbo frame.
	3. If link LED is solid then jumbo is enabled. If link LED is blinking then jumbo is disabled.

Buttons that shall not be removed for this setup:

Depending on customer feature needs.

Example: If customer have loopback feature, than button one is required.

Model : ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

Button State for Multicast Mode: HDMI Extender:

Default Mode will be highlighted in GREEN

* Item will be described in Descriptions

Multicast Digital	Button State			
	Transmitter		Receiver	
	Button One:	**Button Two:**	**Button One:**	**Button Two:**
Short Press	Remote/ Loopback*	Video Mode/ Graphic Mode*	Link on: Link Link off: Unlink	Video Mode/ Graphic Mode*
Long Press (3 sec)	Snoop (on/off)*	Anti-Dither (1/2/off)	USB Link (on/off)	Anti-Dither (1/2/off)*
Short Press when Ethernet Link is Off	BYPASS	BYPASS	BYPASS	BYPASS
Long Press when Ethernet Link is Off	BYPASS	Ethernet Jumbo Frame (on/off)*	BYPASS	Ethernet Jumbo Frame (on/off)*
Long Press on Boot (Press until Red LED Blinking)	Engineering Mode*	Use Loopback EDID (>A1.2)*	Engineering Mode*	Update EDID*
Long Press on Boot (Press until Red LED and Green LED Blinking)	Engineering Mode and Reset to default*	N/A	Engineering Mode and Reset to default*	N/A

Model : ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

Descriptions:

| Feature/Button Feature	Descriptions
Remote/Loopback	When System is all setup, short press this button will change between remote / local loopback
Snoop (on/off)	When System is all setup and video is displayed at the client side. Long Press this button will for the local loop back port to be enabled for Snooping feature.
Video Mode/ Graphic Mode	User can select to change between Video Mode / Graphic Mode using this button. The button state will be save to flash, and remember after rebooting. Video Mode: FW will automatically trade-off between bandwidth and video quality to ensure smooth video playing experience. Graphic Mode: FW will fix the trade-off to ensure best graphic/text viewing experience.
Anti-Dither (1/2/off)	Anti-Dithering Mode is design to work with ATI graphic cards that provide dithering output. Dithering output is used to make coloring looks better than it's original color depth. It uses visual transient to create a half-tone effect. However, this presents great difficulty for Video Compression to maintain low bandwidth even if the source display seems static. Currently, we only see Dithering Output with ATI graphic cards. To resolve this issue, AST1500 provides Anti-dithering for 1 bit, 2 bit, or off. If the source content does not generate dithering output and this feature is turn on. It will create a blocking effect because Video Engine are unable to detect pixel changes. User can avoid this issue by turning this feature to off.
Use Loopback EDID(>A1.2)	This feature should be consider with the client side "Update EDID" feature.
Update EDID	"Use Loopback EDID" & "Update EDID" feature is used for Multicast Mode to select which monitor/TV EDID is used for system wide EDID usage. During multicast setup, there maybe monitor/TV that has lower resolution. For example, 1 monitor/TV with 720p resolution with mostly 1080p solutions. Please select the monitor/TV with lowest resolution, to ensure all can be displayed correctly. For customer that are using 1 pair of Host/Client with Multicast mode, the end user must update EDID correctly. If not, it will cause many compatibility issue.

	Operation: Once the button event is triggered correctly at the client side, when system is setup correctly for Multicast. The selected EDID will be update to Host Side EEPROM (HU7). The same operation applies for Loopback EDID. In the system setup, the last EDID updated will stay in the EEPROM. If customer setup this button even many times, the last one triggered will be applied.
USB Link (ON/OFF)	This feature is used for USB with Multicast Mode setup. The selected client can gain control by pressing USB Link, and release control by pressing USB Link again. Other clients can also gain control by pressing USB Link. The control will be transfer to whichever client requests USB Link.
Engineering Mode	1. Static IP: 192.168.0.88 2. User can connect to http://192.168.0.88 webpage for firmware update. 3. Firmware update file name will be: Host : webfwh.bin Client : webfwc.bin
Reset to Default	1. Reset Any changes in SPI flash setup flag. 2. Re-generate Random mac to avoid any possible MAC collision. After Reset to Default and reboot cycle, a new random mac will be generated.
Ethernet Jumbo Frame	1. This feature is only available on AST1510 and above. AST1500 will be by pass this event. 2. Enable/Disable Ethernet jumbo frame. 3. If link LED is solid then jumbo is enabled. If link LED is blinking then jumbo is disabled.

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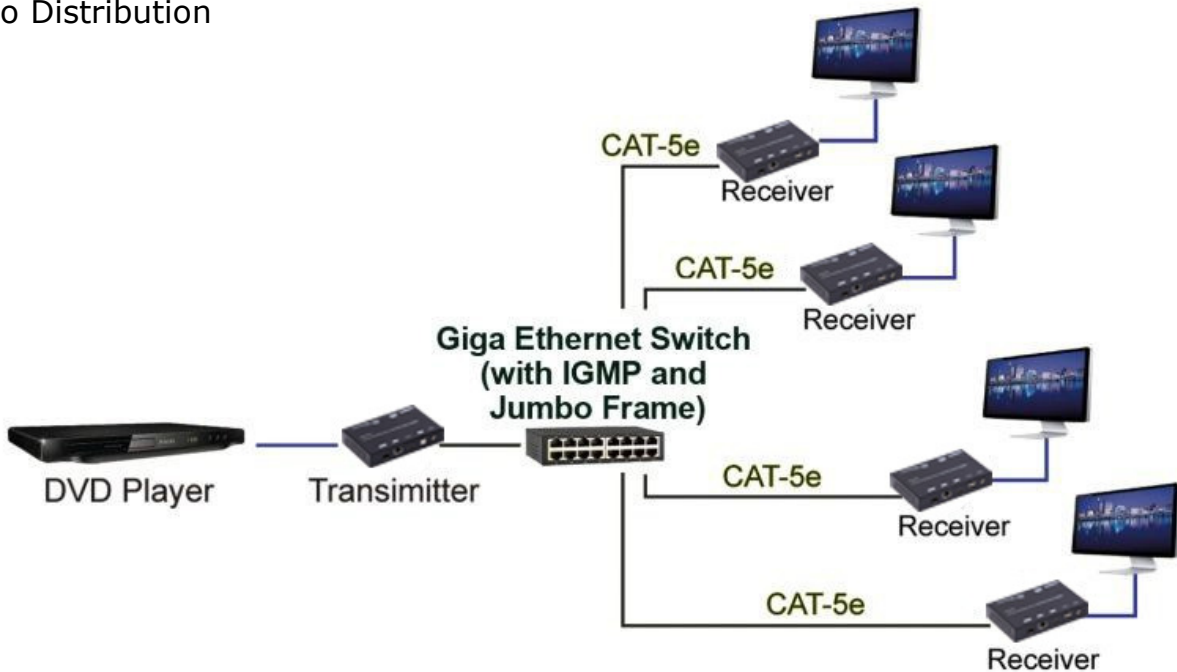**Description :** 4K HDMI+USB KVM Extender over IP / Fiber

Product Diagram:
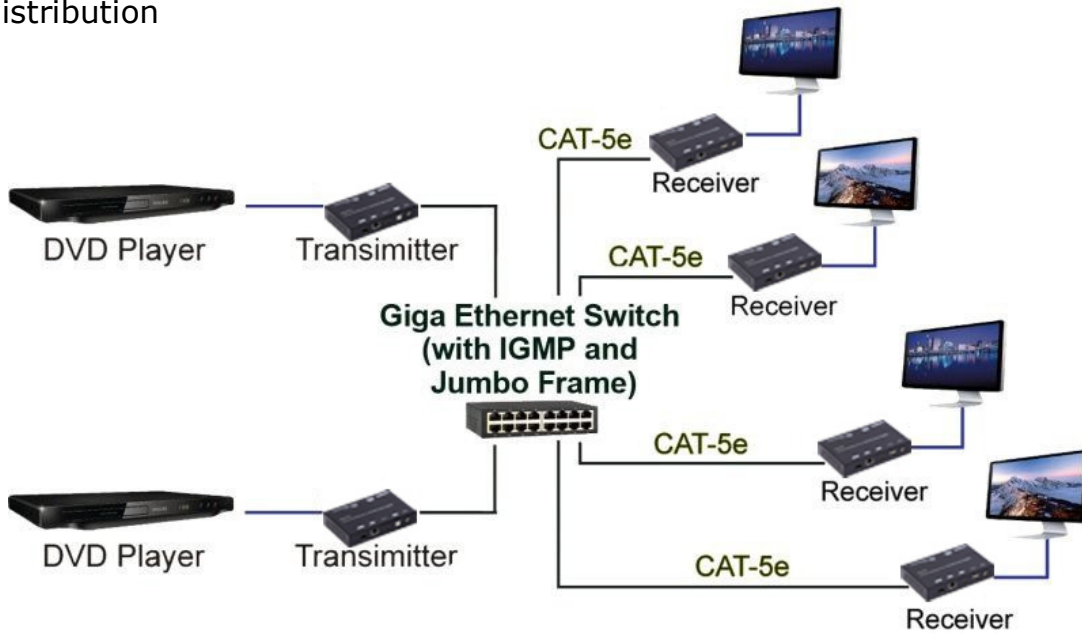
■ Unicast
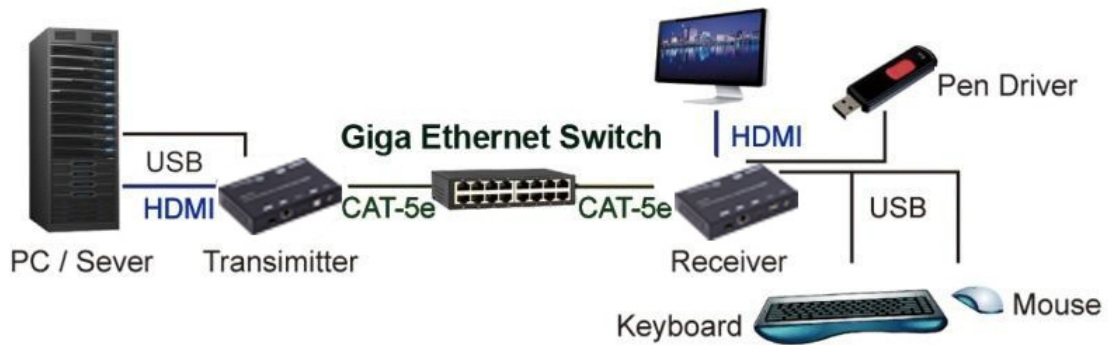
■ Multicast
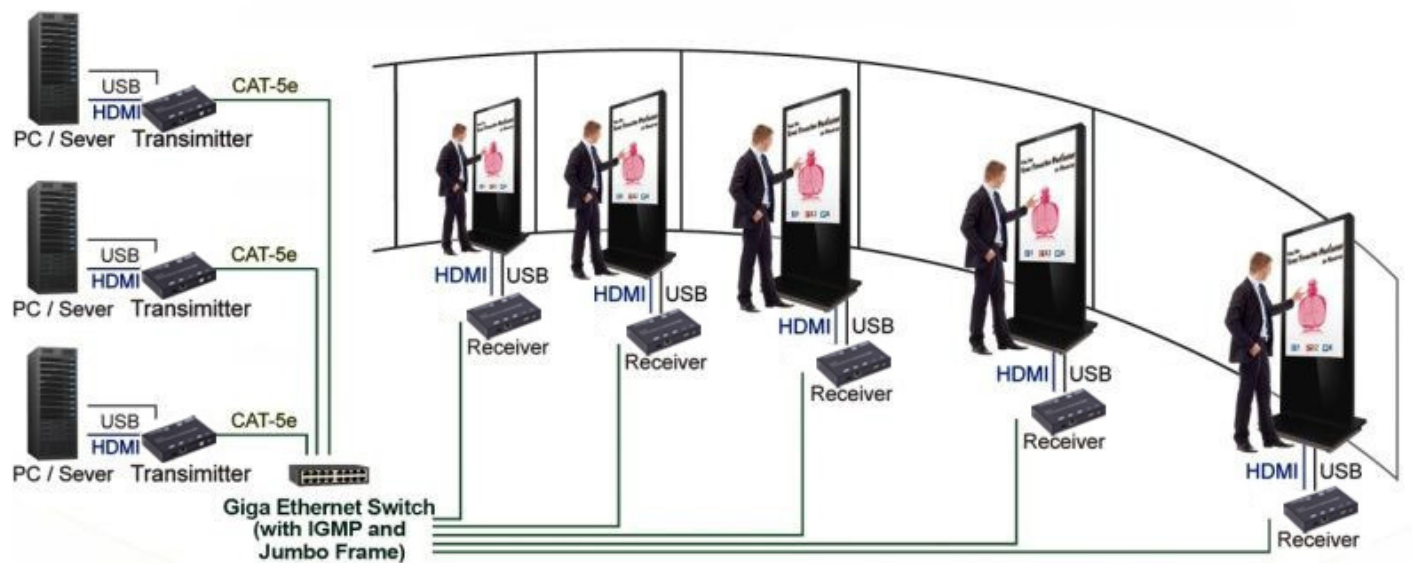
Video Distribution

Model : ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber
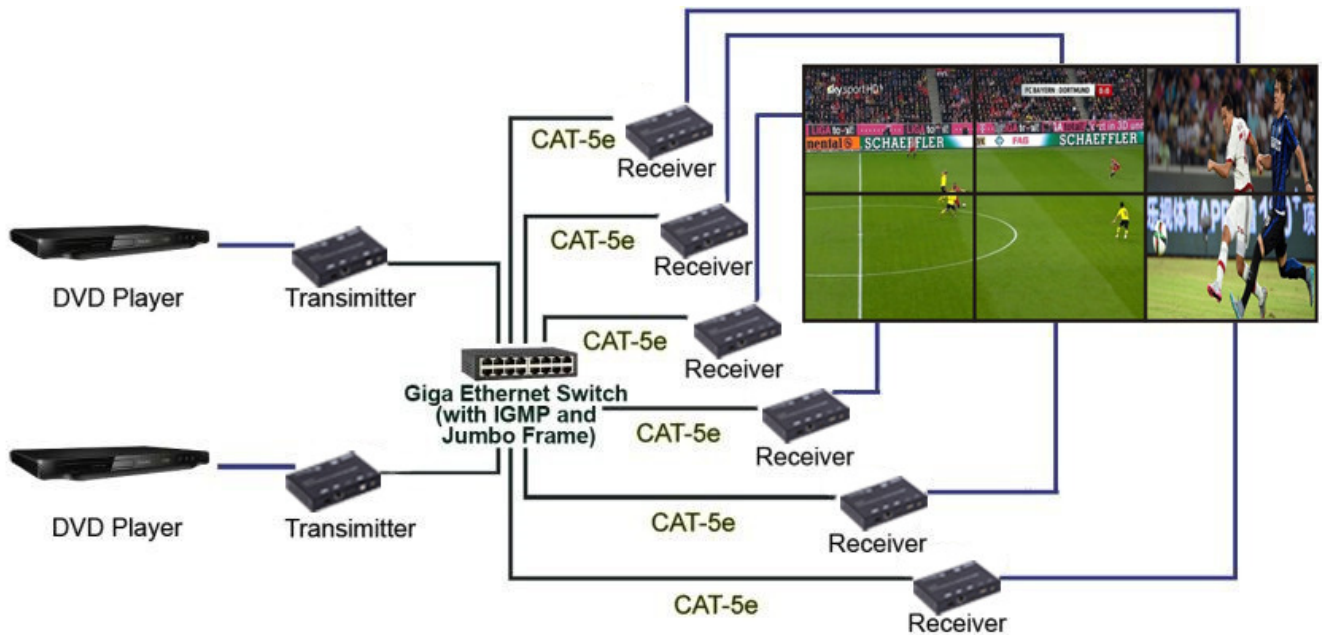
Matrix Distribution

Billboard & Kiosk, PC to HDMI and USB Interactive Monitor

Model : ATZ HDMI4K-EM120TR
Description : 4K HDMI+USB KVM Extender over IP / Fiber

■ Screen Wall

Package contents:

- Main Unit. HDMI Extender (Transmitter or Receiver)
- 2x Power adapter DC 5V
- 2x IR TX cables, 2x IR RX cables
- 2x Phoenix plugs for RS232 cable termination
- 8x screws
- 4x detachable mounting ears
- Operating Instruction manual

Warranty: 2 Years

Warranty is effective from the date of original delivery.
This warranty shall be void if a serial number has been removed from the product.

All specifications are subject to change without prior notice.