

# User Manual



AVP-EN6K-101



AVP-DE6K-101



## AVP-4K60 Series

4K UHD Video over IP Encoders and Decoders

## User Manual

Version: V1.0.2



# Important Safety Instructions



**1.** Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



**6.** Clean this apparatus only with dry cloth.



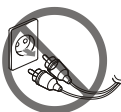
**2.** Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



**7.** Unplug this apparatus during lightning storms or when unused for long periods of time.



**3.** To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



**8.** Protect the power cord from being walked on or pinched particularly at plugs.



**4.** Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



**9.** Only use attachments / accessories specified by the manufacturer.



**5.** Do not place sources of naked flames, such as lighted candles, on the unit.



**10.** Refer all servicing to qualified service personnel.

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# Introduction

## Overview

AVP-4K60 series encoders and decoders provide the flexible, powerful, and scalable solution at resolutions up to 3840 x 2160@60Hz 4:4:4. They allow 4K UHD media to be switched and distributed over standard gigabit Ethernet networks, providing complete end-to-end streaming systems. Audio, video together with IR, and USB signals can be routed separately or as a whole throughout the matrix system. Encoders can be used with decoders to function video wall up to the dimensions of 16 x 16. Both of them have the capacity to handle and output up to 7.1 channel audio, allowing you to enjoy the finest sound.

HDCP 2.2/2.3 specifications are employed. A local area network is covered with a range up to 100m (330ft) over a single Cat 5e cable or above. Standard features like, bi-directional serial, bi-directional IR, and independent analog audio input/output are included. The codecs allow roaming/USB extension to take place to control a keyboard and a mouse. Flexible control options are offered -- Windows PC configurator (HDMloverIPConsole), AGS-i TOUCH on iPad and AVP-CBS2K-101 (AVP-CBS2K-101). They are the perfect solution for any low latency and signal routing applications. Common applications include homes, classrooms, conference rooms and broadcasts.

## Features

- Selects between either the 1G Optical port or 1G BASE-T port automatically for IP stream stable transmission.
- Distributes and switches 4K UHD AV signals via standard gigabit Ethernet networks, providing complete end-to-end streaming systems.
- Supports HDMI input and output resolutions up to 3840 x 2160@60Hz 4:4:4.
- Supports streaming resolutions up to 3840 x 2160@60Hz 4:4:4.
- Features video wall up to the dimensions of 16 x 16.
- Supports HDR10 and Dolby Vision.
- Supports CEC one-touch-play and standby commands to power on and off the display, as well as CEC Frame.
- Supports multi-channel audio up to PCM 7.1, Dolby Atmos, DTS HD Master and DTS:X.
- Analog audio embedding and de-embedding.
- S/PDIF audio return from decoder to encoder.
- HDMI ARC audio return (FW Will be ready for Q2E).
- HDCP 2.2/2.3 compliant.
- Flexible routing policies, allowing audio, video, USB, IR and RS232 signals to be routed separately or as a whole throughout the matrix system.
- Allows AV, USB, IR, RS232 and power signals to be delivered up to 100m/328ft over a single Cat 5e cable or above.
- 1 frame latency.
- Supports bi-directional serial communication, allowing control of remote RS232 devices between encoders/decoders and AVP-CBS2K-101 (AVP-CBS2K-101), or between encoders and

decoders.

- Supports bi-directional IR pass-through, allowing control of remote source and display devices between encoders and decoders.
- Supports IR generation – send IR codes through API.
- Dual USB engine, USB Device2 for high performance USB 2.0 over IP with improved support for cameras, USB Device1 for KM over IP seamless switching and roaming.
- Supports point-to-point, point-to-multipoint, multipoint-to-point, multipoint-to-multipoint applications.
- Supports PoE to be remotely powered by compatible power source equipment such as a PoE-enabled Ethernet switch, eliminating the need for a nearby power outlet.
- Supports user-selectable output HDCP configuration via PC configurator or AVP-CBS2K-101 (AVP-CBS2K-101).
- Fit in/stretch out video wall, and rotate video management -- Decoded video can fill a video wall, maintain aspect ratio in a video wall, or can be rotated 180° and 270° clockwise, presenting imagery that meets customer expectations.
- Supports DHCP by default, and will fall back to AutoIP if there's no DHCP server in the system.
- Flexible control options - AGS-i TOUCH app on iPad and AVP-CBS2K-101.
- Supports communications protocols of Telnet, SSH, HTTP, HTTPS.

## **Package Contents**

### **AVP-EN6K-101 (Encoder)**

- 1 x Encoder
- 1 x DC 12V Power Adapter with US Pins
- 1 x 3.5mm 3-Pin Phoenix Male Connector
- 1 x IR Emitter (1.2m /3.9ft)
- 1 x Broadband IR Receiver (1.2m /3.9ft, 30 kHz ~ 50 kHz)
- 2 x Wall Brackets

### **AVP-DE6K-101 (Decoder)**

- 1 x Decoder
- 1 x DC 12V Power Adapter with US Pins
- 1 x 3.5mm 3-Pin Phoenix Male Connector
- 1 x IR Emitter (1.2m /3.9ft)
- 1 x Broadband IR Receiver (1.2m /3.9ft, 30 kHz ~ 50 kHz)
- 2 x Wall Brackets

# Specifications

## AVP-EN6K-101 (Encoder)

Video	
Input Video Port	1 x female HDMI type A (19 pins)
Input Video Type	HDMI 2.0, HDCP 2.2/2.3
Input Resolutions	3840 x 2160p@24Hz 4:4:4, 3840 x 2160p@30Hz 4:4:4, 3840 x 2160p@50Hz 4:4:4, 3840 x 2160p@60Hz 4:4:4, 640 x 480p@60Hz, 720 x 480p@60Hz 1280 x 720p@60Hz, 1920 x 1080i@60Hz, 1920 x 1080p@60Hz, 720 x 576p@50Hz 1280 x 720p@50Hz, 1920 x 1080i@50Hz 1920 x 1080p@50Hz, 1920 x 1080p@24Hz 1920 x 1080p@25Hz, 640 x 480@60Hz, 800 x 600@60Hz  1024 x 768@60Hz, 1280 x 720@60Hz 1280 x 768@60Hz, 1280 x 800@60Hz 1280 x 960@60Hz, 1280 x 1024@60Hz 1360 x 768@60Hz, 1366 x 768@60Hz 1400 x 1050@60Hz, 1440 x 900@60Hz 1600 x 900@60Hz, 1600 x 1200@60Hz 1680 x 1050@60Hz, 1920 x 1080@60Hz 1920 x 1200@60Hz
Output Video Port	1 x female RJ-45, 1 x Optical
Output Video Type	IP Stream
Output Resolutions	Up to 3840 x 2160p@60Hz 4:4:4
Average Encoding Data Rate	3840 x 2160@60Hz: 650Mbps (avg) / 900Mbps (max)
End-to-End Time Latency	1 frame
Input/Output Video Signal	0.5~1.2 V p-p
Input/Output DDC Signal	5 V p-p (TTL)
Video Impedence	100 $\Omega$
Maximum Data Rate	18 Gbps (6 Gbps per channel)
Maximum Pixel Clock	600 MHz



<b>Audio</b>	
Input Audio Port	1 x HDMI; 1 x 3.5 mm stereo jack
Input Audio Signal	<ul style="list-style-type: none"> <li>HDMI: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X;</li> <li>Audio In: analog</li> </ul>
Output Audio Port	1 x 3.5 mm stereo jack; 1 x S/PDIF Out; 1 x LAN/Optical
Output Audio Signal	<ul style="list-style-type: none"> <li>Audio Out: analog</li> <li>S/PDIF Out: digital audio</li> <li>LAN/Optical: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X</li> </ul>

<b>Control</b>	
Control Method	<ol style="list-style-type: none"> <li>HDMI Console (HDMIoverIPConsole) °</li> <li>Aegis AGS i-Touch on iPad °</li> <li>Web GUI (AVP-CBS2K-101) °</li> </ol>

<b>General</b>	
Operating Temperature/ Humidity	0°C ~ +45°C (+32°F ~ +113°F) 10% ~ 90%, non-condensing
Storage Temperature/ Humidity	-20°C ~ +70°C (-4°F ~ +158°F) 10% ~ 90%, non-condensing
Power	12 VDC 2 A; PoE
Power Consumption	7W (Max)
ESD Protection	Human body model: <ul style="list-style-type: none"> <li>±8 kV (air-gap discharge)</li> <li>±4 kV (contact discharge)</li> </ul>
Dimensions (W x H x D)	215 mm x 25 mm x 120 mm (8.46" x 0.98" x 4.72")
Net Weight	0.74 kg (1.63 lbs)

## AVP-DE6K-101 (Decoder)

Video	
Input Video Port	1 x female RJ-45, 1 x Optical
Input Video Type	IP Stream
Input Resolutions	3840 x 2160p@24Hz 4:4:4, 3840 x 2160p@30Hz 4:4:4, 3840 x 2160p@50Hz 4:4:4, 3840 x 2160p@60Hz 4:4:4, 640 x 480p@60Hz, 720 x 480p@60Hz 1280 x 720p@60Hz, 1920 x 1080i@60Hz, 1920 x 1080p@60Hz, 720 x 576p@50Hz 1280 x 720p@50Hz, 1920 x 1080i@50Hz 1920 x 1080p@50Hz, 1920 x 1080p@24Hz 1920 x 1080p@25Hz, 640 x 480@60Hz, 800 x 600@60Hz  1024 x 768@60Hz, 1280 x 720@60Hz 1280 x 768@60Hz, 1280 x 800@60Hz 1280 x 960@60Hz, 1280 x 1024@60Hz 1360 x 768@60Hz, 1366 x 768@60Hz 1400 x 1050@60Hz, 1440 x 900@60Hz 1600 x 900@60Hz, 1600 x 1200@60Hz 1680 x 1050@60Hz, 1920 x 1080@60Hz 1920 x 1200@60Hz
Output Video Port	1 x female HDMI type A (19 pins)
Output Video Type	HDMI 2.0, HDCP 2.2/2.3
Output Resolutions	Up to 3840 x 2160p@60Hz 4:4:4
Average Encoding Data Rate	3840 x 2160@60Hz: 650Mbps (avg) / 900Mbps (max)
End-to-End Time Latency	1 frame
Input/Output Video Signal	0.5~1.2 V p-p
Input/Output DDC Signal	5 V p-p (TTL)
Video Impedence	100 Ω
Maximum Data Rate	18 Gbps (6 Gbps per channel)
Maximum Pixel Clock	600 MHz

Audio	
Input Audio Port	1 x S/PDIF IN; 1 x LAN/Optical
Input Audio Signal	<ul style="list-style-type: none"> <li>S/PDIF In: digital audio</li> <li>LAN/Optical: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby</li> </ul>

<b>Audio</b>	
	TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X
Output Audio Port	1 x HDMI; 1 x 3.5 mm stereo jack
Output Audio Signal	<ul style="list-style-type: none"> <li>HDMI: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X;</li> <li>Audio Out: Analog</li> </ul>

<b>Control</b>	
Control Method	4. HDMI Console (HDMIoverIPConsole) ° 5. Aegis AGS i-Touch for iPad ° 6. Web GUI (AVP-CBS2K-101) °

<b>General</b>	
Operating Temperature/ Humidity	0°C ~ +45°C (+32°F ~ +113°F) 10% ~ 90%, non-condensing
Storage Temperature/ Humidity	-20°C ~ +70°C (-4°F ~ +158°F) 10% ~ 90%, non-condensing
Power	12 VDC 2 A; PoE
Power Consumption	8.5W (Max)
ESD Protection	Human body model: <ul style="list-style-type: none"> <li>±8 kV (air-gap discharge)</li> <li>±4 kV (contact discharge)</li> </ul>
Dimensions (W x H x D)	215 mm x 25 mm x 120 mm (8.46" x 0.98" x 4.72")
Net Weight	0.74 kg (1.63 lbs)

# Panel Description

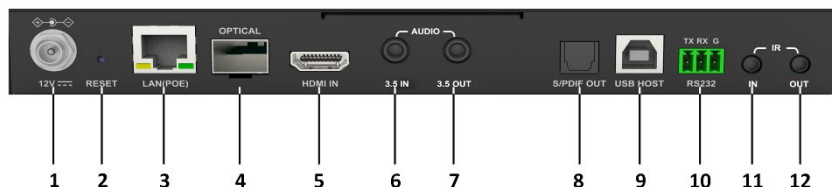
## AVP-EN6K-101 (Encoder)

### Front Panel



No.	Name	Description	
1	POWER LED	On	The device is powered on.
		Blinking	The device is booting.
		Off	The device is powered off.
2	STATUS LED	Solid On	The device is connected to an active video source.
		Blinking	The device is not connected to an active video source.
		Off	<ul style="list-style-type: none"><li>• The device is powered off.</li><li>• The device is booting.</li><li>• Network is down.</li></ul>

### Rear Panel



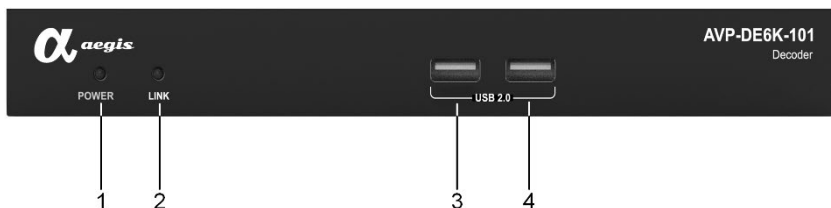
No.	Name	Description
1	12V	Connect this port to the 12 V 2 A power adapter.
2	RESET	When the device is powered on, use a pointed stylus to hold down the RESET button for five or

No.	Name	Description
		<p>more seconds, and then release it, it will reboot and restore to its factory defaults.</p> <p><b>Note:</b> When the settings are restored, your custom data is lost. Therefore, exercise caution when using the RESET button.</p>
3	LAN (POE)	<p>Connect either the LAN (POE) port or Optical port to a gigabit Ethernet switch for IP stream output and device control (the device can be powered by a PoE-enabled switch through LAN (POE) port). Default IP Mode: DHCP</p>
4	OPTICAL	<p><b>Note:</b></p> <ol style="list-style-type: none"> <li>1) Connect the Optical port to the Ethernet switch using a single-mode or multi-mode SFP module (not included in package). The transmission distance may vary depending on the specific SFP module used.</li> <li>2) DO NOT connect both the LAN (POE) port and Optical port to the Ethernet switch simultaneously, or device exceptions may occur.</li> </ol>
5	HDMI IN	Connect this port to an HDMI source device.
6	AUDIO IN	Connect this 3.5 mm stereo tip-ring-sleeve port to an audio source such as a computer for unbalanced stereo audio input.
7	AUDIO OUT	Connect this 3.5 mm stereo tip-ring-sleeve port to an audio receiver for unbalanced stereo audio output.
8	S/PDIF OUT	Connect this optical S/PDIF connector for digital audio output.
9	USB Host	Connect a type A male to type B male USB cable between this port and the USB port of a computer for transmitting USB 2.0 data, or for KMoIP HID seamless switching and roaming.
10	RS-232	RS232 serial port for bidirectional serial communication.

No.	Name	Description
11	IR IN	Connect this port to an IR receiver for IR communication with an IR emitter at the decoder side on the network.
12	IR OUT	Connect this port to an IR emitter for IR communication with an IR receiver at the decoder side on the network.

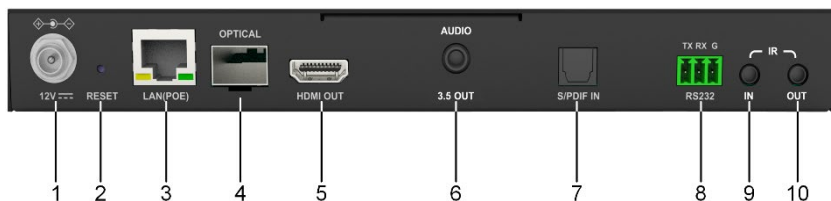
## AVP-DE6K-101 (Decoder)

### Front Panel



No.	Name	Description
1	POWER LED	On
		The device is powered on.
		Blinking
2	STATUS LED	Off
		The device is powered off.
		Solid On
3	USB DEVICE 1	The device is connected to an encoder and the video is displayed.
		Blinking
		The device is not connected to an encoder or the connected encoder has no active video source input.
4	USB DEVICE 2	Off
		<ul style="list-style-type: none"> <li>The device is powered off.</li> <li>The device is booting.</li> <li>Network is down.</li> </ul>
		Connect to USB devices like a mouse and a keyboard for KMoIP HID seamless switching and roaming.
4	USB DEVICE 2	Connect to a USB device for transmitting USB 2.0 data.

## Rear Panel



No.	Name	Description
1	12V	Connect this port to the 12 V 2 A power adapter.
2	RESET	When the device is powered on, use a pointed stylus to hold down the RESET button for five or more seconds, and then release it, it will reboot and restore to its factory defaults. <b>Note:</b> When the settings are restored, your custom data is lost. Therefore, exercise caution when using the RESET button.
3	LAN (POE)	Connect either the LAN (POE) port or Optical port to a gigabit Ethernet switch for IP stream output and device control (the device can be powered by a PoE-enabled switch through LAN (POE) port). Default IP Mode: DHCP
4	Optical	<b>Note:</b> 1) Connect the Optical port to the Ethernet switch using a single-mode or multi-mode SFP module (not included in package). The transmission distance may vary depending on the specific SFP module used. 2) DO NOT connect both the LAN (POE) port and the Optical port to the Ethernet switch simultaneously, or device exceptions may occur.
5	HDMI OUT	Connect this port to an HDMI display device.
6	AUDIO OUT	Connect this 3.5 mm stereo tip-ring-sleeve port to an audio receiver for unbalanced stereo audio output.
7	S/PDIF IN	Optical S/PDIF connector for digital audio input (for

No.	Name	Description
		S/PDIF audio return from decoder to encoder).
8	RS232	RS232 serial port for bidirectional serial communication.
9	IR IN	Connect this port to an IR receiver for IR communication with an IR emitter at the decoder side on the network.
10	IR OUT	Connect this port to an IR emitter for IR communication with an IR receiver at the decoder side on the network.



# Warranty

For the following cases, if the product is still repairable and the warranty becomes unenforceable or inapplicable, Aegis Inc. will charge for the service of the defective product.

1. The original serial number (assigned by Aegis Multimedia Inc.) marked on the product has been removed, erased, replaced, defaced or illegible.
2. The warranty period has expired.
3. The failure is caused by any maintenance personnel who are not authorized service partners of Aegis Multimedia Inc., dismantling or modifying the product. Malfunctions are the result of misuse or handling of the product, carelessly, or failure to follow the instructions in the appropriate user guide.
4. The fault is caused by any force majeure, including but not limited to accident, fire, earthquake, lightning, tsunami and war.
5. The services, settings and gifts promised by the salesman are not within the scope of the normal contract.
6. Aegis Multimedia Inc. reserves the right to interpret the above cases and has the right to modify them without prior notice.