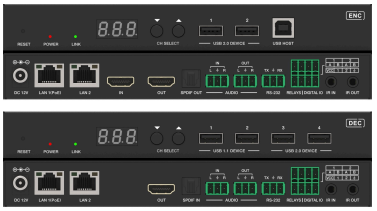
4K60 JPEG2000 AV over IP Encoder/Decoder — Dante Dual LAN



The KanexPro AVO-IPJP2KD distributes visually lossless 4K60 4:4:4 JPEG2000 video over standard 1G managed networks. Its dedicated dual copper LAN architecture keeps Dante AV-A audio isolated on LAN 2, eliminating QoS conflicts without VLAN configuration or fiber. Supports ARC/eARC/S/PDIF audio return, USB 2.0 KVM, relay/digital I/O, and 9×9 video wall. Ships as matched encoder/decoder pair.

Surge Protection Recommended — This product contains sensitive electrical components. Use of surge protection systems is highly recommended.

TABLE OF CONTENTS

2. FEATURES

- ✓ JPEG2000 visually lossless 4K60 4:4:4 over 1G managed networks — no 10G required
- ✓ Dual copper LAN — LAN 2 dedicated to Dante AV-A, isolated from JPEG2000 video on LAN 1
- ✓ Optional Dante AV-A (license activated) — LAN Mode 1 (shared) or LAN Mode 2 (dedicated, default)
- ✓ ARC, eARC, S/PDIF, analog audio return — C2C and A2A modes
- ✓ LPCM 2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-96/24, DTS-EX, DSD, DTS High Res, DTS-HD Master, DTS:X
- ✓ USB 2.0 KVM with two-way IR and RS-232 — centralized source control
- ✓ HDMI 2.0b, HDCP 2.2, HDR10 input and output, 18Gbps bandwidth
- ✓ Unicast, multicast, matrix switching, video wall up to 9×9 (81 displays)
- ✓ PoE (802.3af PD) or DC 12V/2.5A — single-cable deployment
- ✓ MJPEG sub-stream preview, 24 EDID modes, 14 output scaling presets
- ✓ Web GUI, Telnet, SSH, RS-232, TCP/IP, CEC, IR — works with AVO-IPCTL-JP2K controller
- ✓ 6U V2 or 1U V2 rack mountable (rack accessories required)

3. PACKAGE CONTENTS

1× AVO-IPJP2KD Encoder | 1× AVO-IPJP2KD Decoder | 2× DC 12V/2.5A power adapters | 1× Quick start guide

4. Specifications

SPECIFICATION	
	Technical
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Compression	JPEG2000
Max Resolution	4K@60Hz 4:4:4
Color Depth	Input: 8/10/12-bit — Output: 8-bit
Color Space	RGB, YCbCr 4:4:4 / 4:2:2, YUV 4:2:0
HDR Support	HDR10 (input and output)
HDMI Audio Formats	LPCM 2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-96/24, DTS-EX, DSD, DTS High Res, DTS-HD Master, DTS:X
Audio Sample Rate	44.1–192KHz
Audio Return	ARC, eARC, S/PDIF, Analog
Dante	Optional AV-A (license activated)
Video Wall	Up to 9×9 (81 displays)
Preview Stream	MJPEG sub-stream
Transmission Distance	Up to 328ft / 100m via CAT6/6A/7
IR Level	Default 12V, optional 5V
IR Frequency	Wideband 20K–60KHz
ESD Protection	IEC 61000-4-2: ±15kV (air-gap) / ±8kV (contact)
	Connection — Encoder
Input	1× HDMI IN (Type A) | 1× L/R Audio IN (3-pin Phoenix, max 2Vrms)
Output	1× HDMI OUT loop | 1× L/R Audio OUT | 1× SPDIF OUT (optical)
Network	1× LAN 1/PoE (RJ45) | 1× LAN 2 (RJ45)
USB	1× USB 2.0 HOST (Type B) | 2× USB 2.0 DEVICE (Type A)
Control	1× RS-232 | 2× Relay | 2× Digital I/O | 1× IR IN | 1× IR OUT
	Connection — Decoder
Input	1× SPDIF IN (optical) | 1× L/R Audio IN (3-pin Phoenix, max 2Vrms)
Output	1× HDMI OUT (Type A) | 1× L/R Audio OUT
Network	1× LAN 1/PoE (RJ45) | 1× LAN 2 (RJ45)
USB	2× USB 1.1 DEVICE (Type A) | 2× USB 2.0 DEVICE (Type A)
Control	1× RS-232 | 2× Relay | 2× Digital I/O | 1× IR IN | 1× IR OUT
	Physical
Housing	Metal enclosure, Black
Dimensions (W×D×H)	8.03″ × 5.35″ × 1.00″ (204 × 136 × 25.5mm)
Net Weight	Encoder: 1.39 lbs (631g) | Decoder: 1.38 lbs (626g)
Power Supply	AC100–240V 50/60Hz, Output: DC 12V/2.5A
Power Consumption	Encoder: 9.12W | Decoder: 7.8W (max)
Operating Temperature	32–104°F (0–40°C)
Storage Temperature	-4–140°F (-20–60°C)
Humidity	20–90% RH (non-condensing)
	Certifications
Power Supply	CE / FCC / UL

5. Operation Controls and Functions

5.1 ENCODER PANEL

Front Panel

#	Name	Function
1	**RESET**	Hold until POWER + LINK LEDs flash simultaneously to reset to factory defaults.
2	**POWER LED (Red)**	On: powered via PoE or DC. Off: no power.
3	**LINK LED (Green)**	On: connected with active video. Flashing: connected, no video. Off: not connected.
4	**LED Screen**	Shows Encoder ID by default. Displays configuration options during setup. Hold UP 5s to show IP address sequence.
5	**CH SELECT (▲▼)**	UP/DOWN buttons for Encoder ID and configuration. Hold UP+DOWN 5s to enter Config Mode (CFN).
6	**USB 2.0 DEVICE ×2**	Connect USB 2.0 peripherals (keyboard, mouse, flash drive).
7	**USB HOST**	USB Type B — connect to PC for KVM host functionality.

Rear Panel

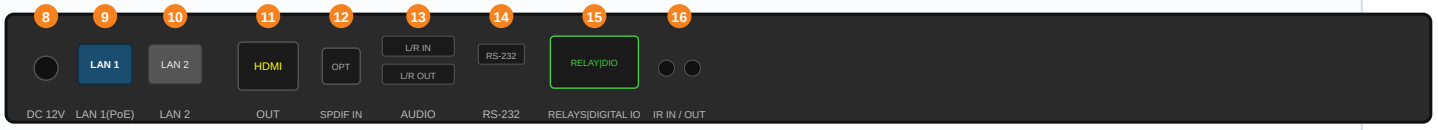
#	Name	Function
8	**DC 12V**	DC 12V/2.5A input. Not required when PoE switch is used.
9	**LAN 1 (PoE)**	1G RJ45 — JPEG2000 video stream. Supports PoE 802.3af PD. In LAN Mode 1 also carries Dante.
10	**LAN 2**	1G RJ45 — dedicated Dante AV-A stream (LAN Mode 2 default). Inactive in LAN Mode 1.
11	**HDMI IN**	HDMI 2.0b input — connect HDMI source device.
12	**HDMI OUT**	HDMI local loop output — connect local display.
13	**SPDIF OUT**	Optical — outputs ARC/S/PDIF audio returned from decoder in C2C mode.
14	**AUDIO IN / OUT**	L/R IN: analog audio embedded into HDMI. L/R OUT: de-embedded LPCM audio output.
15	**RS-232**	3-pin Phoenix — RS-232 pass-through and local control.
16	**RELAYS | DIGITAL I/O**	2× relay (1A 30VDC) + 2× GPIO with configurable VCC (5V/12V) for contact control.
17	**IR IN / IR OUT**	3.5mm — default 12V, configurable 5V. Wideband 20K–60KHz.

5.2 DECODER PANEL

Front Panel

#	Name	Function
1	**RESET**	Hold until POWER + LINK LEDs flash simultaneously to reset to factory defaults.
2	**POWER LED (Red)**	On: powered via PoE or DC. Off: no power.
3	**LINK LED (Green)**	On: connected with active video. Flashing: connected, no video. Off: not connected.
4	**LED Screen**	Shows selected Encoder ID. Directly press UP/DOWN to select encoder channel to connect (000–762).
5	**CH SELECT (▲▼)**	UP/DOWN to select Encoder ID or enter configuration. Hold UP+DOWN 5s for Config Mode (CFN).
6	**USB 1.1 DEVICE ×2**	Connect USB 1.1 peripherals — keyboard and mouse for KVM.
7	**USB 2.0 DEVICE ×2**	Connect USB 2.0 peripherals — flash drive or USB camera.

Rear Panel



#	Name	Function
8	**DC 12V**	DC 12V/2.5A input. Not required when PoE switch is used.
9	**LAN 1 (PoE)**	1G RJ45 — receives JPEG2000 video stream. Supports PoE 802.3af PD.
10	**LAN 2**	1G RJ45 — dedicated Dante AV-A stream (LAN Mode 2 default). Inactive in LAN Mode 1.
11	**HDMI OUT**	HDMI 2.0b output — connect display device.
12	**SPDIF IN**	Optical — S/PDIF audio return path to encoder.
13	**AUDIO IN / OUT**	L/R IN: analog input to encoder in unicast. L/R OUT: LPCM audio from HDMI OUT.
14	**RS-232**	3-pin Phoenix — RS-232 pass-through and local control.
15	**RELAYS | DIGITAL I/O**	2× relay (1A 30VDC) + 2× GPIO with configurable VCC (5V/12V).
16	**IR IN / IR OUT**	3.5mm — default 12V, configurable 5V. Wideband 20K–60KHz.

5.3 IR PIN DEFINITION

The IR IN and IR OUT ports use a 3.5mm audio jack connector. Pin assignment: **Tip** = IR signal, **Ring** = VCC (5V or 12V selectable), **Sleeve** = GND. Default IR level is 12V; configurable to 5V via front panel buttons or web GUI.

6. Rack Mounting Instruction

6.1 6U V2 RACK MOUNTING

This product can be mounted in a standard 6U V2 rack (contact your supplier for 6U V2 rack availability). Up to 6, 8, or 10 units can be installed vertically.

Step 1: Use included screws to fix two mounting ears on the product sides.

Step 2: Insert the product with mounting ears into the 6U V2 rack vertically.

Step 3: Use screws to secure the mounting ears to the rack rails.

6.2 1U V2 RACK MOUNTING

This product can also be mounted in a standard 1U V2 rack (2 units installed horizontally per 1U).

Step 1: Use included screws to fix two 1U V2 rack brackets on two products respectively.

Step 2: Use screws to join the two 1U V2 rack brackets together.

Step 3: Fasten screws between the brackets so that both products are secured as a 1U assembly.

> **Note —** 6U V2 and 1U V2 rack accessories are sold separately. Contact your KanexPro dealer.

Front Panel Configuration Reference

Enter Config Mode: hold UP+DOWN 5 seconds (LED shows **CFN**). Navigate pages with UP/DOWN. Edit: hold UP+DOWN 5s (value flashes), select with UP/DOWN, confirm with UP+DOWN 5s. Device reboots where noted.

Encoder Configuration Pages

Page	Setting	Options	Default
1	**Device ID**	000–762 (reboot)	000
2	**EDID**	E00–E23 (see EDID table in source manual)	E15
3	**IR Mode**	IR1=5V / IR2=12V	IR2
4	**Audio Embedding**	HDI=HDMI audio / ANA=Analog audio	HDI
5	**IP Mode**	IP1=Static (169.254.100.254) / IP2=DHCP / IP3=Auto	IP3
6	**Multicast Mode**	CA1=Unicast / CA2=Multicast (reboot)	CA1
7	**Audio Return Mode**	C2C=eARC/ARC/SPDIF return / A2A=Analog return (reboot)	C2C
8	**LAN Mode**	L01=Single LAN / L02=Dual LAN (reboot)	L02

Decoder Configuration Pages

Page	Setting	Options	Default
1	**Device ID**	000–762 (reboot)	000
2	**Output Scaling**	S00=Bypass, S01–S13: 1080P50/60, 720P, 4K24/30/50/60, custom	S00
3	**IR Mode**	IR1=5V / IR2=12V	IR2
4	**Audio Return**	ARC=eARC/ARC return / SPD=S/PDIF return	ARC
5	**IP Mode**	IP1=Static (169.254.100.253) / IP2=DHCP / IP3=Auto	IP3
6	**Multicast Mode**	CA1=Unicast / CA2=Multicast (reboot)	CA1
7	**Audio Return Mode**	C2C=eARC/ARC/SPDIF / A2A=Analog (reboot)	C2C
8	**LAN Mode**	L01=Single LAN / L02=Dual LAN (reboot)	L02

> **Note —** Device ID and IP Mode cannot be modified via front panel in Controller Box mode. Audio return mode cannot be changed via front panel in Controller Box or Multicast mode.

7. Web GUI Operation Guide

7.1 PREPARATION BEFORE ENTERING THE SYSTEM

The product can be controlled by the built-in Web GUI:

Step 1: Connect the Encoder, Decoder, and PC to the same network switch. Connect HDMI source, display, and power supply.

Step 2: Hold the UP button on the front panel of Encoder/Decoder for 5 seconds to display the current IP address sequence.

Step 3: Set the PC's IP address to the same network segment as the Encoder/Decoder IP found in Step 2.

Step 4: Enter the IP address of the Encoder/Decoder into a web browser on the PC to access the Web GUI.

7.2 FUNCTIONS AND OPERATION

Section	Description
System	View software version, update firmware, upload standby/logo image, restore factory defaults, reboot, set EDID mode, run console API commands, view device statistics.
Video Wall	Basic Setup: configure bezel, gap, size, position, stretch type, rotate, flip. Advanced Setup: additional video wall parameters for complex multi-display configurations up to 9×9.
Network	Set IP mode (Auto IP / DHCP / Static IP) and casting mode (unicast or multicast).
Functions	Configure video mode, USB mode, serial port mode, and audio embedding/return modes.
802.1X	Enable 802.1X network authentication and validate server certificate for secure network access.
Sub-Streaming	Configure and preview MJPEG sub-stream. View the encoder video signal in real time from the web interface.

Note — When the network switch does not support PoE, power the Encoder and Decoder using their included DC 12V/2.5A adapters before accessing the Web GUI.

8. MJPEG Substream Operation Introduction

8.1 MJPEG SUBSTREAM PREVIEW/CONFIGURATION VIA WEB PAGE

The AVO-IPJP2KD supports playing MJPEG Substream on a computer through software such as VLC media player. You can also configure the sub-stream via the Web GUI Sub-Streaming page.

Step 1: Connect Encoder, Decoder, and PC to the same switch with HDMI source, display, and power.

Step 2: Install a Bonjour protocol tool (e.g., zeroconfServiceBrowser) to find the Encoder/Decoder IP address. Encoder host names begin with **AST-ENC**; Decoder host names begin with **AST-DEC**.

Step 3: Set PC IP to the same subnet as the Encoder/Decoder.

Step 4: In a web browser, enter: `http://[IP]:PORT/?action=stream`

The MJPEG sub-stream displays at default resolution (640×360, 30fps, 8Mbps).

Step 5: Customize the stream with URL parameters:

```
http://[IP]:PORT/?action=stream&w=[width]&h=[height]&fps=[fps]&bw=[Kbps]&as=[0|1]&mq=[10–100]
```

Parameter	Description
w / h	Image width / height in pixels. Default: 640 × 360.
fps	Frame rate (frames per second). Default: 30.
bw	Max bandwidth in Kbps. Default: 8000 (8Mbps).
as	Aspect ratio: 0=stretch to w×h, 1=maintain original with letterboxing.
mq	Minimum quality (10–100). Higher = better quality. Default: 10.

8.2 VLC MEDIA PLAYER INSTRUCTION

Complete Steps 1–3 above, then open VLC on the PC:

Step 1: Click **Media** → **Open Network Stream**.

Step 2: Enter the MJPEG Substream URL and click **Play**.

Step 3: Go to **Tools** → **Codec Information** to view stream details. Go to **Tools** → **Codec Information** → **Statistics** to monitor bitrate.

> **Note —** Bitrate values float up and down during playback. This is normal behavior for the MJPEG sub-stream encoder.

9. Switch Model

A network switch used to set up the system should support the following features:

- ✓ Layer 3 / managed network switch (unmanaged switches are not supported)
- ✓ Gigabit (1G) bandwidth on all ports used for AV over IP endpoints
- ✓ 8K Jumbo Frame capability (8192-byte MTU or higher)
- ✓ IGMP Snooping enabled on all VLANs carrying AV traffic

The following switch models are highly recommended:

Manufacturer	Model Number
Cisco	SG500 Series
Cisco	Catalyst Series
Huawei	S5720S-28X-PWR-LI-AC
ZyXEL	GS2210 Series
Luxul	AMS-4424P

Note — When the network switch does not support PoE, the Encoder, Decoder, and AVO-IPCTL-JP2K Controller Box must each be powered by their included DC power adapters.

10. 4K over IP System Control

The AVO-IPJP2KD can be controlled by the **AVO-IPCTL-JP2K IP Controller** (sold separately) or a third-party control system. For details of 4K over IP system control, please refer to the AVO-IPCTL-JP2K User Manual.

CONNECTION

Connect the AVO-IPCTL-JP2K to the same 1G managed switch as the encoders and decoders. Use the **Control LAN** port for the web GUI connection. The **Video LAN** port is managed automatically.

ACCESSING THE CONTROLLER WEB GUI

Scenario	Steps
DHCP available (default)	Connect Control LAN to network. Set PC to "Obtain IP automatically." Navigate to **http://controller.local** or DHCP-assigned IP.
No DHCP server	Controller defaults to **192.168.0.225**. Set PC IP to same subnet (e.g., 192.168.0.88). Navigate to **http://192.168.0.225**.
Video LAN port	No manual configuration needed — managed automatically by controller.
No PoE switch	Power Encoder, Decoder, and Controller Box via included DC 12V/2.5A adapters.

CONTROLLER CAPABILITIES

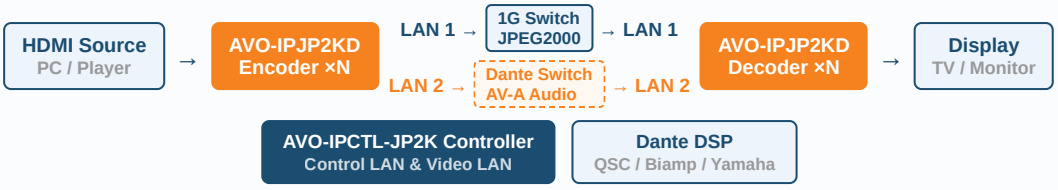
- ✓ Matrix switching — route any encoder to any decoder via web GUI or API
- ✓ Video wall configuration — up to 9×9 (81 displays) with bezel compensation
- ✓ KVM roaming — move keyboard/mouse control between encoder zones
- ✓ Third-party control — RS-232, TCP/IP, API (Crestron, AMX, QSC compatible)
- ✓ MJPEG sub-stream preview — view all encoder feeds in web GUI before switching
- ✓ Dante AV-A management — configure audio routing alongside video (license required)

Note — Device ID and IP Mode on encoders/decoders cannot be modified via front panel buttons when operating in Controller Box mode. All routing and configuration is managed through the AVO-IPCTL-JP2K web GUI or API commands.

11. Application Example

LAN MODE 2 — DEFAULT

JPEG2000 Video on LAN 1 (PoE) | Dante AV-A Audio on Dedicated LAN 2



LAN Mode 2 (default): JPEG2000 video on LAN 1 (PoE). Dante AV-A on dedicated LAN 2 — fully isolated from video traffic. The AVO-IPCTL-JP2K manages matrix switching, 9×9 video wall, and KVM roaming. Set LAN mode via front panel (L01/L02) or Controller web GUI.

LAN MODE 1 — SINGLE LAN

Both JPEG2000 Video and Dante Audio on LAN 1 (PoE) — LAN 2 Inactive

LAN Mode 1: Both video and Dante on LAN 1 only. LAN 2 inactive. Set L01 via front panel (page 8) or Controller web GUI.