4K60 JPEG2000 AV over IP Encoder/Decoder — Slim

The KanexPro AVO-IPJP2KS is a compact JPEG2000 AV over IP encoder/decoder delivering visually lossless 4K60 4:4:4 over standard 1G copper networks. It supports unicast, multicast, matrix switching, and 9×9 video wall — with bidirectional IR, RS-232, and optional Dante AV-A. Managed by the AVO-IPCTL-JP2K system controller.

Surge Protection Recommended — Use surge protection systems to protect sensitive electrical components from spikes, surges, and lightning strikes.

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2. FEATURES

✓ 4K60 4:4:4 JPEG2000 visually lossless video over 1G copper network

✓ HDMI 2.0b, HDCP 2.2 compliant • 18Gbps video bandwidth

✓ HDR10, Dolby Vision, HLG support

✓ HDMI audio: LPCM 7.1ch, Dolby TrueHD, DTS-HD Master Audio

✓ Analog audio IN/OUT (L/R 3-pin Phoenix) — LPCM 2.0 at 192kHz

✓ Encoder HDMI loop output for local display monitoring

✓ Bidirectional IR (5V/12V selectable, 20kHz–60kHz) + RS-232 pass-through

✓ Unicast and multicast — point-to-point, matrix, 9×9 video wall

✓ MJPEG substream for real-time video preview on portable devices

✓ Optional Dante AV-A (license activation)

✓ PoE 802.3af PD — DC 12V/2.5A adapter included (optional)

✓ Works with AVO-IPCTL-JP2K • compatible with AVO-IPJP2K in mixed deployments

3. Package Contents

Encoder: 1× Encoder   1× IR Receiver Cable 1.5m   1× IR Blaster Cable 1.5m   3× 3-pin Phoenix Connectors   2× Mounting Ears   4× Machine Screws KM3×4   1× DC 12V/2.5A Adapter (optional)   1× User Manual

Decoder: 1× Decoder   1× IR Receiver Cable 1.5m   1× IR Blaster Cable 1.5m   3× 3-pin Phoenix Connectors   2× Mounting Ears   4× Machine Screws KM3×4   1× DC 12V/2.5A Adapter (optional)   1× User Manual

4. Specifications

| TECHNICAL	
HDMI Compliant	HDMI 2.0b • HDCP 2.2
Video Bandwidth	18Gbps
Video Compression	JPEG2000
Network Bandwidth	1G Copper only
Video Resolution	Up to 4K@60Hz 4:4:4
Color Depth	Input: 8/10/12-bit (1080p@60Hz) • Output: 8-bit
Color Space	RGB, YCbCr 4:4:4 / 4:2:2 / 4:2:0
HDR	HDR10, Dolby Vision, HLG
Audio (HDMI)	LPCM 2.0/5.1/7.1, Dolby Digital/Plus/EX, Dolby TrueHD, DTS-HD Master Audio
Audio (Analog)	LPCM 2.0, 192kHz (L/R IN & OUT)
Dante AV-A	Optional — license activation required
Transmission Distance	Up to 100m via CAT6/6A/7
IR Level	5V or 12V (default), selectable via Web UI
IR Frequency	20kHz–60kHz wideband
ESD Protection	IEC 61000-4-2: ±15kV air-gap • ±8kV contact
CONNECTION — ENCODER	
HDMI IN / HDMI OUT	1× HDMI Type A input • 1× HDMI Type A loop output
Audio IN / Audio OUT	2× 3-pin 3.81mm Phoenix (analog L/R)
RS-232 / LAN / IR	3-pin Phoenix • 1G RJ45 PoE • IR IN + IR OUT (3.5mm)
CONNECTION — DECODER	
HDMI OUT / Audio OUT	1× HDMI Type A • 1× 3-pin 3.81mm Phoenix (analog L/R)
RS-232 / LAN / IR	3-pin Phoenix • 1G RJ45 PoE • IR IN + IR OUT (3.5mm)
PHYSICAL	
Dimensions (W×D×H)	8.03″ × 5.35″ × 1.00″ (204 × 136 × 25.5mm)
Weight	Encoder: 616g • Decoder: 609g
Power Supply	DC 12V/2.5A (optional) or PoE 802.3af PD
Power Consumption	Encoder: 7.68W • Decoder: 6.36W max
Operating Temperature	14–113°F (−10–45°C)
Storage Temperature	−4–140°F (−20–60°C)
Humidity	20–90% RH (non-condensing)

5. Operation Controls and Functions

5.1 ENCODER PANEL — FRONT
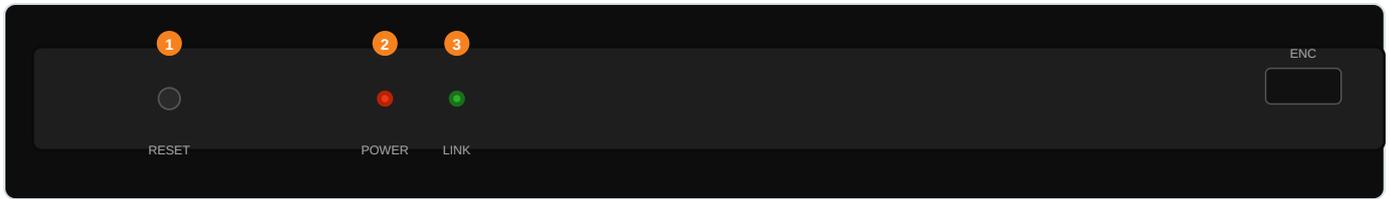
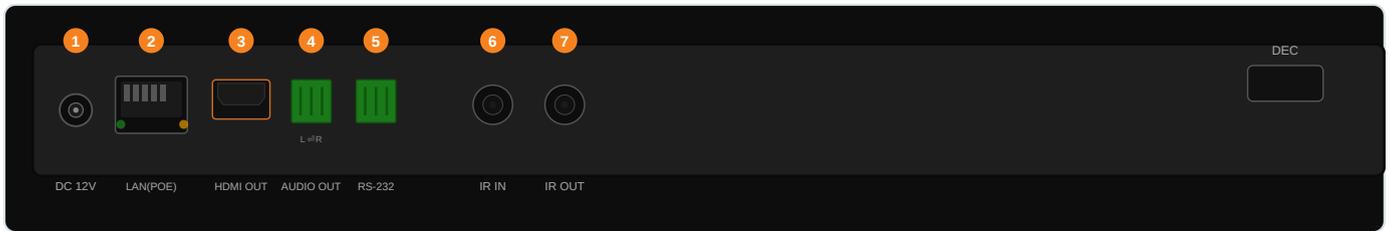| #	Name	Function Description
1	RESET Button	After powering on, press and hold until POWER LED and LINK LED flash simultaneously. Release to reset to factory settings.
2	POWER LED (Red)	On: powered via DC 12V or PoE. Off: no power.
3	LINK LED (Green)	On: encoder and decoder connected, A/V signal transmitting. Flashing: connected but no A/V signal. Off: not connected.

5.1 ENCODER PANEL — REAR
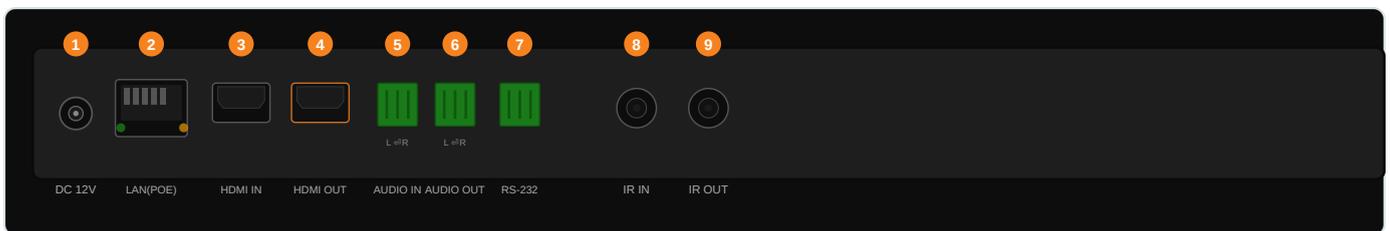
#	Name	Function Description
1	DC 12V	DC 12V/2.5A locking adapter input. Unit can also be powered via PoE through the LAN(PoE) port.
2	LAN (PoE)	1G RJ45. Connect to managed switch. PoE 802.3af PD — no DC adapter needed when PoE is available. Green LED: link OK. Yellow LED: data transmitting.
3	HDMI IN	HDMI 2.0b source input. Connect Blu-ray player, PC, set-top box, or other HDMI source.
4	HDMI OUT	HDMI loop output — mirrors HDMI IN to a local monitor for source monitoring without a splitter.
5	AUDIO IN (L/R)	3-pin 3.81mm Phoenix. Analog audio input. Audio can be embedded into HDMI stream or looped to AUDIO OUT.
6	AUDIO OUT (L/R)	3-pin 3.81mm Phoenix. Outputs audio extracted from HDMI IN (LPCM), or audio from Decoder AUDIO IN in unicast mode.
7	RS-232	3-pin 3.81mm Phoenix. RS-232 command pass-through and local serial port control.
8	IR IN	3.5mm jack. IR signal input. Level: 5V or 12V (default), selectable via Web UI.
9	IR OUT	3.5mm jack. IR signal output. Level: 5V or 12V (default), selectable via Web UI.

5.2 DECODER PANEL — FRONT

Same layout as Encoder front panel: RESET (1) • POWER LED red (2) • LINK LED green (3).

5.2 DECODER PANEL — REAR

#	Name	Function Description
1	DC 12V	DC 12V/2.5A locking adapter input.
2	LAN (PoE)	1G RJ45. Connect to same managed switch as encoder(s). PoE PD supported.
3	HDMI OUT	4K60 4:4:4 decoded video output to display.
4	AUDIO OUT (L/R)	3-pin 3.81mm Phoenix. Analog audio output — outputs the same audio as HDMI OUT when format is LPCM.
5	RS-232	3-pin 3.81mm Phoenix. RS-232 command pass-through and local control.
6	IR IN	3.5mm jack. IR input — 5V/12V selectable via Web UI.
7	IR OUT	3.5mm jack. IR output — 5V/12V selectable via Web UI.

5.3 IR PIN DEFINITION

PIN	SIGNAL	DESCRIPTION
Tip (T)	Signal	IR carrier signal (20kHz–60kHz)
Ring (R)	GND	Ground reference
Sleeve (S)	GND	Shield / Ground

Note — IR level (5V or 12V) is selectable per device via the Web UI. Default is 12V. The included IR receiver cable operates at 12V, 20kHz–60kHz.

6. Rack Mounting Instruction

6.1 6U V2 RACK MOUNTING

The AVO-IPJP2KS Encoder and Decoder can each be mounted in a standard 6U V2 rack. Up to 6/8/10 units can be installed vertically per rack.

Step	Instruction
Step 1	Use included machine screws (KM3×4) to attach the two mounting ears to the sides of the unit.
Step 2	Insert the unit with mounting ears into a 6U V2 rack slot (vertical orientation, up to 10 units per rack).
Step 3	Secure mounting ears to the rack frame using rack screws.

6.2 1U V2 RACK MOUNTING

Two units (Encoder+Decoder or two Encoders) can be mounted side-by-side horizontally in a single 1U space using optional 1U V2 rack brackets.

Step	Instruction
Step 1	Attach 1U V2 rack brackets to each of the two units using included screws.
Step 2	Fasten the two brackets together so both units sit side-by-side.
Step 3	Insert the combined assembly into a 1U rack slot and secure to the rack frame.

Note — Ensure adequate ventilation. Operating temperature: −10–45°C (14–113°F). When powered via PoE, verify the switch PoE budget supports all connected units. When PoE is not available, power each unit via the included DC 12V/2.5A adapter.

7. MJPEG Substream Operation

The AVO-IPJP2KS encoder generates a real-time MJPEG sub-stream that can be viewed in a web browser or media player for live preview of encoder video feeds — without affecting the main JPEG2000 stream.

7.1 WEB PAGE PREVIEW

Step	Instruction
Step 1	Connect encoder, decoder, and PC to the same managed switch. Connect an HDMI source and apply power.
Step 2	Install a Bonjour protocol tool (e.g., zeroconfServiceBrowser) on the PC to discover the encoder/decoder IP address. Encoder host names start with **AST-ENC**, decoder host names with **AST-DEC**.
Step 3	Set PC IP to the same subnet as the encoder/decoder (default range: 169.254.xxx.xxx).
Step 4	Open a web browser and enter: **http://<IP>:8080/?action=stream** Default: 640×360 @ 30fps, 8Mbps bandwidth.
Step 5	To change resolution/quality, use URL parameters: **http://IP:8080/?action=stream&w=1280&h=720&fps=30&bw=8000&as=0&mq=10**

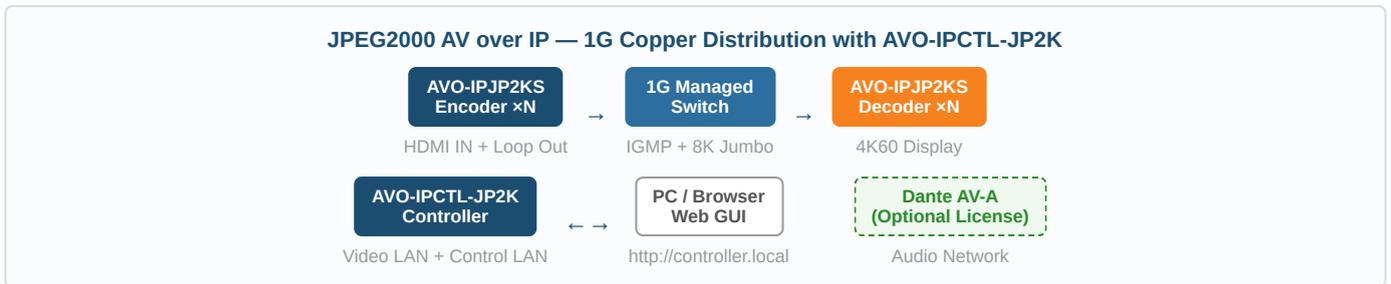| MJPEG STREAM URL PARAMETERS	
w / h	Image width / height in pixels (default: 640 / 360)
fps	Frame rate in fps (default: 30)
bw	Max bandwidth in Kbps (default: 8000 = 8Mbps)
as	Aspect ratio: 0 = stretch to w×h; 1 = letterbox/pillarbox
mq	Minimum quality: 10–100 (higher = better; default: 10)
PORT	Always 8080 for MJPEG sub-stream web CGI server

7.2 VLC MEDIA PLAYER

Step	Instruction
Step 1–3	Complete Steps 1–3 from Section 7.1 above.
Step 3	Open VLC media player. Click **Media → Open Network Stream**.
Step 4	Enter the MJPEG stream URL in the Network URL field: **http://<IP>:8080/?action=stream** Click **Play** to start preview.
Check stats	Tools → Codec Information → Statistics to verify bitrate. Note: bitrate fluctuates naturally.

Note — The MJPEG sub-stream is generated independently of the main JPEG2000 stream and does not affect 4K60 distribution performance. It is useful for previewing encoder feeds from the AVO-IPCTL-JP2K controller web GUI or third-party apps.

8. Application Example

JPEG2000 AV over IP — 1G Copper Distribution with AVO-IPCTL-JP2K

AVO-IPJP2KS **Encoder ×N**	→	**1G Managed** **Switch**	→	**AVO-IPJP2KS** **Decoder ×N**
HDMI IN + Loop Out		IGMP + 8K Jumbo		4K60 Display

AVO-IPCTL-JP2K **Controller**	← →	**PC / Browser** **Web GUI**		**Dante AV-A** **(Optional License)**
Video LAN + Control LAN		http://controller.local		Audio Network

Dual-Network Isolation: Connect the AVO-IPCTL-JP2K Video LAN port and all encoders/decoders to the AV switch. Connect the Control LAN port to the IT LAN or PC separately. AV multicast traffic is isolated from the control network.

Simple Setup: For deployments without network isolation requirements, connect all encoders, decoders, and PC to a single 1G switch. Leave Control LAN floating. Video LAN supports web GUI, Telnet, and API control in this mode.

PoE Note: When the switch does not support PoE, power Encoder, Decoder, and Controller Box with their included DC 12V adapters.

Mixed Deployment: AVO-IPJP2KS and AVO-IPJP2K can operate together on the same 1G switch, managed by AVO-IPCTL-JP2K. Use AVO-IPJP2KS at endpoints where USB KVM, fiber, and ARC/eARC are not required — and AVO-IPJP2K where full feature density is needed.

9. Switch Requirements

The AVO-IPJP2KS requires a 1G managed network switch. The following features must be enabled on the switch:

✓ 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 verified compatible and recommended:

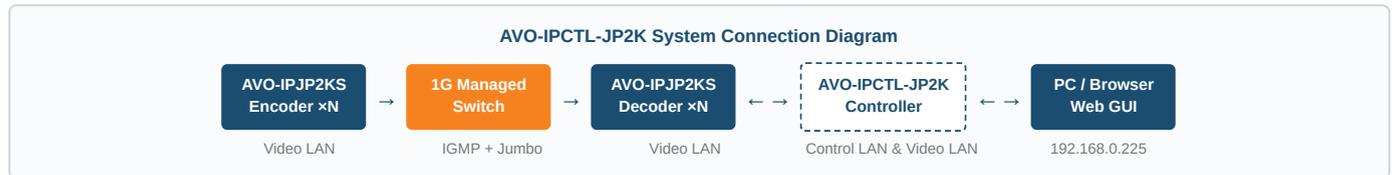| MANUFACTURER	MODEL
Cisco	SG500 Series
Cisco	Catalyst Series
Huawei	S5720S-28X-PWR-LI-AC
ZyXEL	GS2210 Series
Luxul	AMS-4424P

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. System Control — AVO-IPCTL-JP2K IP Controller

The AVO-IPJP2KS can be controlled by the **AVO-IPCTL-JP2K IP Controller** (sold separately) or a third-party control system. The AVO-IPCTL-JP2K provides a web-based GUI for matrix switching, 9×9 video wall configuration, and full system management. For complete system control setup, 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 of the Controller Box for the web GUI connection. The **Video LAN** port is managed automatically by the controller and does not require manual configuration.

AVO-IPCTL-JP2K System Connection Diagram

AVO-IPJP2KS Encoder ×N	→	1G Managed Switch	→	AVO-IPJP2KS Decoder ×N	← →	AVO-IPCTL-JP2K Controller	← →	PC / Browser Web GUI
Video LAN		IGMP + Jumbo		Video LAN		Control LAN & Video LAN		192.168.0.225

ACCESSING THE CONTROLLER WEB GUI

Scenario	Steps
DHCP available (default)	Connect Controller Box Control LAN port to network. Set PC to "Obtain IP automatically." Open browser and navigate to **http://controller.local** or the DHCP-assigned IP address.
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** in browser.
Video LAN port	No manual configuration needed. The Controller manages Video LAN port settings automatically.
No PoE switch	Power Encoder, Decoder, and Controller Box via included DC 12V/2.5A power 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

✓ Third-party control — RS-232, TCP/IP, and API command support (Crestron, AMX, QSC compatible)

✓ MJPEG sub-stream preview — view all encoder feeds in the 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 when the system is operating in Controller Box mode. All routing and configuration is managed through the AVO-IPCTL-JP2K web GUI or API.

11. Troubleshooting

Q: Encoder and decoder are not connecting (LINK LED off)?
A: Verify both units are connected to the same 1G managed switch. Confirm IGMP Snooping and 8K Jumbo Frames are enabled on the switch. Check cable connections at both ends. Confirm the switch port link speed is 1G (not 100M).

Q: LINK LED is flashing but no video on the decoder display?
A: LINK LED flashing means the devices are connected but no A/V signal is being transmitted. Verify the HDMI source is powered on and connected to the encoder HDMI IN. Confirm the source is outputting a supported resolution (up to 4K@60Hz). Check the HDMI cable between source and encoder.

Q: How do I reset to factory defaults?
A: Power on the device. Press and hold the RESET button until the POWER LED and LINK LED flash simultaneously. Release the button — the device will reset and reboot automatically. All settings including IP mode will return to factory defaults.

Q: How do I find the encoder/decoder IP address?
A: Install a Bonjour protocol discovery tool (e.g., zeroconfServiceBrowser) on the PC. Encoder host names begin with **AST-ENC**, decoder host names with **AST-DEC**. The default IP range is 169.254.xxx.xxx when no DHCP server is present.

Q: Can I use an unmanaged switch?
A: No — an unmanaged switch is not supported. A Layer 3 managed switch with IGMP Snooping and 8K Jumbo Frame support is required. See Section 9 for recommended switch models.

Q: The HDMI loop output on the encoder shows no image?
A: The HDMI OUT port on the encoder mirrors the HDMI IN signal. Confirm the HDMI IN source is active and outputting video. Connect a known-good HDMI cable and display directly to the encoder HDMI OUT port to verify.

Q: How do I enable Dante AV-A?
A: Dante AV-A requires license activation. Contact KanexPro sales or support for license acquisition and activation instructions: **support@kanexpro.com • 888.975.1368**.

Q: Can AVO-IPJP2KS work alongside AVO-IPJP2K in the same system?
A: Yes — both are compatible on the same 1G switch, managed by AVO-IPCTL-JP2K. Use AVO-IPJP2KS at endpoints not requiring USB KVM, fiber, or ARC/eARC. Use AVO-IPJP2K for full-feature endpoints in the same system.