SDVoE Transceiver — 4K60 Uncompressed Zero-Frame Latency · Copper & Fiber

An SDVoE-compliant All-In-One AV over IP transceiver delivering uncompressed 4K60 4:4:4 with zero-frame latency over a standard 10G copper or fiber network switch. Flexible switchable encoder/decoder design (one box, front-panel MODE button or API). Supports instant switching, video wall up to 9×9, multiview up to 25 windows, full Dolby/DTS audio, USB KVM, bidirectional IR, RS-232, CEC, and analog audio bidirectional transmission. Built-in H.264/H.265 secondary stream for portable device preview.

Surge Protection Recommended — Use surge protection to protect sensitive electrical components. Premium High Speed HDMI cable is required for 4K60 signals.

TABLE OF CONTENTS

2. FEATURES

- ✓ SDVoE uncompressed 4K@60Hz 4:4:4 — HDMI 2.0b, HDCP 2.2, 18Gbps, zero-frame latency
- ✓ Switchable ENC/DEC — front-panel MODE button (hold 5s) or API/controller
- ✓ 10G BASE-T copper + 10G SFP+ fiber — both active, priority configurable
- ✓ Dedicated 1G LAN for H.264/H.265 secondary stream preview
- ✓ HDR10, Dolby Vision, HLG, 3D — full HDMI audio: Dolby TrueHD, Atmos, DTS:X, DTS-HD, LPCM, DSD
- ✓ Bidirectional analog audio (3.5mm IN+OUT) | Video wall 9×9 | Multiview 25 windows
- ✓ USB 2.0 KVM | Bidirectional IR | RS-232 | CEC routing
- ✓ HDMI loop out (ENC mode) | Secondary stream VLAN tagging
- ✓ PoE 802.3at PD or DC 12V/2.5A — ~13.5W
- ✓ Works with AVO-IPCTL-SDV (CTL100D) — Dante audio add-on available

3. Package Contents 4. Specifications

1× AVO-IPSDV-4K Transceiver | 1× 12V IR receiver cable (1.5m) | 1× IR blaster cable (1.5m) | 1× 4-pin 3.81mm Phoenix | 1× DC 12V/2.5A locking PSU | 2× Mounting ears | 4× Screws (KM3×6) | User manual

SPECIFICATION	
	Technical
Protocol	SDVoE (Software Defined Video over Ethernet) — uncompressed
HDMI / HDCP	HDMI 2.0b | HDCP 2.2 | 18Gbps video bandwidth
Network Bandwidth	10G
Max Resolution	4K@60Hz 4:4:4 (uncompressed)
Color Space	RGB, YCbCr 4:4:4 / 4:2:2 / 4:2:0
Color Depth	Full color-depth
Latency	Zero-Frame latency operating mode
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG, 3D
HDMI Audio	LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master, DSD, DTS:X
Analog Audio	Stereo 3.5mm IN + OUT — bidirectional between ENC and DEC
Secondary Stream	H.264/H.265 — VLAN tagging — via dedicated 1G LAN port
Video Wall	Up to 9×9 (81 displays) | Multiview: up to 25 windows
Transmission	100m CAT6A/7 | 90m CAT6
ESD Protection	Human body model: ±8kV (air-gap) / ±4kV (contact)
	Connection
Video Input/Output	1× HDMI IN | 1× HDMI OUT (loop ENC / decoded DEC)
Audio	1× Audio IN (3.5mm) | 1× Audio OUT (3.5mm)
Network	1× 10G BASE-T (RJ45) | 1× 10G SFP+ | 1× 1G LAN (secondary stream)
USB	1× USB 2.0 HOST (Type B) | 2× USB 2.0 DEVICE (Type A)
IR / Control	1× IR IN (3.5mm) | 1× IR OUT (3.5mm) | 1× RS-232 (4-pin Phoenix, 12V supply) | CEC
	Control & Power
Mode Switch	Hold front-panel MODE button 5 seconds, or via API/AVO-IPCTL-SDV
Controller	AVO-IPCTL-SDV / CTL100D (sold separately)
Power	PoE 802.3at PD or DC 12V/2.5A locking (CE/FCC/UL)
Power Consumption	~13.5W
	Physical
Dimensions (W×D×H)	8.03″ × 5.28″ × 0.85″ (204 × 134 × 21.5mm)
Net Weight	1.53 lbs (693g)
Operating Temperature	32–104°F (0–40°C)
Storage Temperature	-4–140°F (-20–60°C)
Humidity	20–90% RH (non-condensing)
Rack Mounting	6U rack: up to 10 units | 1U rack: up to 4 units

5. Operation Controls and Functions

5.1 FRONT PANEL

RESET (1) — Hold 5 seconds (powered on) to restore factory defaults. **POWER LED (2, Red)** — on when powered. **STATUS LED (3, Green)** — on: normal; flashing/off: firmware/hardware fault. **LINK LED (4, Green)** — on: 10G connected. **VIDEO LED (5, Green)** — ENC: video input detected; DEC: video output active. **USB LED (6, Green)** — flashing: USB device connected with data transfer. **ENC LED (7, Green)** — on in ENC mode; flashes ~15s on power-on, ~30s during mode switch. **DEC LED (8, Green)** — on in DEC mode; same flash behavior. **MODE Button (9)** — hold 5s to switch ENC/DEC; or set via API/controller. **USB DEVICES ×2 (10)** — Type A, connect KB/mouse/U Disk in DEC mode. **USB HOST (11)** — Type B, connect to PC in ENC mode.

SHOW ME mode — The AVO-IPCTL-SDV controller can activate SHOW ME mode — the ENC/DEC LED of the selected device flashes to help physically locate it in a rack installation.

5.2 REAR PANEL

DC 12V (1) — locking 12V/2.5A, not required with PoE. **RS-232 (2)** — 4-pin Phoenix, pass-through; 12V terminal provides external power. **IR IN (3)** — 3.5mm, connect included 12V IR receiver cable. **IR OUT (4)** — 3.5mm, connect included IR blaster. **HDMI IN (5)** — HDMI 2.0b source input. **HDMI OUT (6)** — loop out (ENC) or decoded output (DEC). **10G BASE-T (7)** — RJ45, primary 10G SDVoE transmission. **SFP+ (8)** — 10G fiber, SFP+ module sold separately. **1G LAN (9)** — secondary stream and secondary data; also used for web GUI discovery. **AUDIO IN (10)** — 3.5mm stereo analog input, bidirectional. **AUDIO OUT (11)** — 3.5mm stereo analog output, bidirectional.

5.3 IR PIN DEFINITION

Pin	Function
Tip	IR Signal
Ring	Ground
Sleeve	VCC 12V

HDMI Cable Note — Use of "Premium High Speed HDMI" cable is highly recommended for 4K60 signals. Maximum HDMI cable length: 16ft/5M at 4K60 · 32ft/10M at 4K30 · 50ft/15M at 1080P60.

6. Rack Mounting 7. Preview Stream Introduction

6.1 6U RACK MOUNTING

Step 1: Attach mounting ears with included screws. **Step 2:** Insert vertically into 6U rack — up to 10 units. **Step 3:** Secure ears to rack rails.

6.2 1U RACK MOUNTING

Step 1: Stack two units, attach 1U rack panels. **Step 2:** Repeat for second pair and join. **Step 3:** Fasten — 4 units per 1U. Contact your KanexPro dealer for 6U rack enclosures.

7.1 CONNECTING WEB FOR CONTROL

The 1G LAN port carries the secondary stream (SS) module. Use Bonjour discovery to find the SS IP address:

Step 1: Connect encoder, PC to same network. **Step 2:** Set PC IP to 169.254.100.100, subnet 255.255.0.0. **Step 3:** Install a Bonjour browser (e.g. zeroconfServiceBrowser). Select "Workgroup Manager" — encoder host names start with `AVP-ENC`, decoders with `AVP-DEC`. **Step 4:** Set PC IP to same subnet as found SS IP. **Step 5:** Enter SS IP in browser. Login: **admin / admin**.

Web GUI Page	Content
Status	Firmware version, network settings
Video	Secondary stream codec (H.264/H.265), resolution, bitrate, VLAN tagging
Audio	Secondary stream audio settings
Network	IP address, subnet, gateway settings for 1G LAN port
System	Firmware update, factory reset, reboot

Note — The 1G LAN port is used exclusively for the secondary stream and secondary data. Do NOT connect the 10G BASE-T port to the 1G LAN port — they serve different purposes.

7.2 VLC Media Player 8. Switch Model

After connecting via the secondary stream web GUI, use VLC to preview the secondary stream:

Step 1: Ensure encoder is in ENC mode and HDMI source is connected. **Step 2:** Open VLC → **Media** → **Open Network Stream**. **Step 3:** Enter the secondary stream RTSP URL found in the web GUI and click Play. **Step 4:** Verify with **Tools** → **Codec Information**.

> **Note —** The secondary stream RTSP URL is found in the Video page of the 1G LAN web GUI (not the 10G BASE-T port). Use the IP address of the 1G LAN port (discovered via Bonjour).

8. SWITCH MODEL

The AVO-IPSDV-4K requires a **10G managed network switch**. Required features:

- ✓ 10G bandwidth on SDVoE ports
- ✓ Layer 2/Layer 3 managed
- ✓ Multicast enabled (IGMP Snooping)
- ✓ Filter/drop unregistered multicast traffic
- ✓ Jumbo frames recommended

> **Critical —** A 1G switch is NOT sufficient for SDVoE uncompressed 4K60. All transceivers must connect to the same 10G managed switch. The 1G LAN port connects to a separate 1G switch or network for secondary stream — do not mix with the 10G SDVoE network on the same switch port.

9. SDVoE System Control

The AVO-IPSDV-4K is managed by the **AVO-IPCTL-SDV** (CTL100D) Controller Box (sold separately). Connect all transceivers and the controller to the same 10G managed switch.

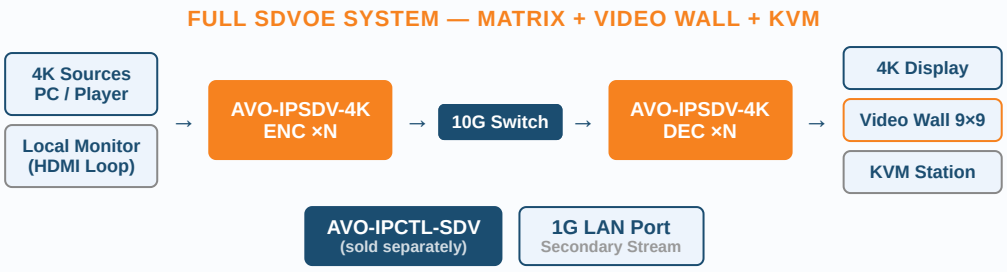
The controller provides: matrix routing | video wall configuration | multiview layout | USB KVM management | SHOW ME device location | ENC/DEC mode switching | system-wide management

Access controller web GUI at DHCP-assigned IP, or **192.168.0.225** (no DHCP). Set PC IP to same subnet. Full control also available via RS-232, TCP/IP, and third-party control systems.

Dante Add-On — Dante audio integration can be added as a factory option to the AVO-IPSDV-4K. Contact KanexPro sales for configuration details.

MAC Address Labels — Three MAC addresses are labeled on the back of the unit: MAC 1 = SDVoE MAC address · MAC 2 = USB 2.0 MAC address · MAC 3 = Secondary Stream module MAC address.

10. Application Example



System: All transceivers connect to 10G managed switch. AVO-IPCTL-SDV manages all routing, video wall layout, KVM, and mode assignments. Each encoder runs HDMI loop out to a local monitor. Secondary stream flows over the 1G LAN port to a separate 1G network for mobile preview. Bidirectional analog audio, USB KVM, bidirectional IR, RS-232, and CEC all transmit simultaneously on the same 10G infrastructure.