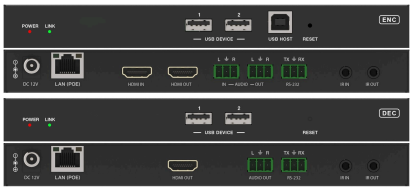
1080P over IP with USB KVM, Bidirectional IR & HDMI Loop Out



Distributes multiple HD sources to multiple HD displays over a 100M/1G managed network. Adds USB KVM (one-to-one & one-to-many), bidirectional IR, and HDMI local loop output to the H.265/H.264 platform. Configurable H.265/H.264 compression up to 1920×1200@60Hz 4:4:4. Transmission up to 328ft/100m. Supports matrix switching, video wall up to 9×9, analog audio, RS-232, and web GUI. Encoder and decoder sold separately.

Surge Protection Recommended — Use surge protection to protect sensitive electrical components.

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2. FEATURES

- ✓ H.265/H.264 codec — 1080P@60Hz 4:4:4, up to 1920×1200@60Hz, HDMI 1.3, HDCP 1.4
- ✓ USB KVM (one-to-one & one-to-many) — USB HOST on encoder, USB DEVICE on encoder & decoder
- ✓ Bidirectional IR — IR IN + IR OUT on both encoder and decoder (12Vp-p, wideband 20K–60KHz)
- ✓ HDMI local loop output on encoder — local signal monitoring
- ✓ Matrix switching, video wall up to 9×9, unicast and multicast over 1G
- ✓ Seamless switching — no black screen, jitter, or tearing
- ✓ Analog audio embedding and extracting — LPCM 2.0CH (32/44.1/48kHz)
- ✓ RS-232 pass-through, guest mode, and IR local control
- ✓ RTSP main stream and sub stream for VLC/third-party preview
- ✓ PoE 802.3af Class 3 PD or DC 12V/1A — Encoder 3.48W / Decoder 2.77W
- ✓ Works with AVO-IPCTL-265HD (CTL100H) controller

3. Package Contents 4. Specifications

Encoder and decoder sold separately. Each unit includes: 1× Unit | 2× 3-pin Phoenix connectors | 2× Mounting ears | 4× Screws | 1× DC 12V/1A locking PSU | User manual

SPECIFICATION	
	Technical
Video Codec	H.265 / H.264 (H.265 default)
HDMI / HDCP	HDMI 1.3 | HDCP 1.4 | 4.95Gbps
Max Resolution	Up to 1920×1200@60Hz 4:4:4 | 1080P@60Hz
Color Depth / Space	Input: 8/10/12-bit | Output: 8-bit | RGB/YCbCr 4:4:4/4:2:2
Audio Formats	LPCM 2.0CH (32/44.1/48kHz) | Audio embedding and extracting
IR Level / Frequency	12Vp-p | Wideband 20K–60KHz
Video Wall	Up to 9×9 (81 displays)
Transmission	Up to 328ft / 100m via CAT5E/6/6A/7
ESD Protection	IEC 61000-4-2: ±8kV (air-gap) / ±4kV (contact)
	Connection — Encoder
Video	1× HDMI IN | 1× HDMI OUT (loop)
Audio	1× Audio IN (3-pin Phoenix) | 1× Audio OUT (3-pin Phoenix)
Network	1× LAN/PoE (RJ45, 100M/1G)
USB	1× USB HOST (Type B) | 2× USB DEVICE (Type A)
IR / Control	1× IR IN (3.5mm, 12V) | 1× IR OUT (3.5mm) | 1× RS-232 (3-pin Phoenix)
	Connection — Decoder
Video / Audio	1× HDMI OUT | 1× Audio OUT (3-pin Phoenix)
Network	1× LAN/PoE (RJ45, 100M/1G)
USB	2× USB DEVICE (Type A)
IR / Control	1× IR IN (3.5mm, 12V) | 1× IR OUT (3.5mm) | 1× RS-232 (3-pin Phoenix)
	Control & Power
Control Methods	IR, RS-232, TCP/IP, Web GUI | Controller: AVO-IPCTL-265HD (sold separately)
Power	PoE 802.3af Class 3 PD or DC 12V/1A
Power Consumption	Encoder: 3.48W | Decoder: 2.77W
	Physical
Dimensions (W×D×H)	8.03″ × 3.74″ × 0.85″ (204 × 95 × 21.5mm)
Net Weight	Encoder: 1.04 lbs (470g) | Decoder: 1.03 lbs (467g)
Power Supply	AC100–240V 50/60Hz, DC 12V/1A output
Operating Temperature	14–113°F (-10–45°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 ENCODER PANEL — FRONT

POWER LED (Red) — flashes 2Hz startup, solid on after. **LINK LED (Green)** — solid: connected + signal; flashes 2Hz: no video; flashes 5Hz: incompatible signal; off: not connected. **USB DEVICE ×2 (Type A)** — connect keyboard/mouse. **USB HOST (Type B)** — connect to PC for KVM. **RESET** — hold 3 sec to restore factory settings.

5.1 ENCODER PANEL — REAR

DC 12V — locking, not needed with PoE. **LAN(PoE)** — 100M/1G, PoE 802.3af PD. **HDMI IN** — connect source. **HDMI OUT** — HDMI local loop output for local display. **Audio IN/OUT** — 3-pin Phoenix, analog stereo. **RS-232** — 3-pin Phoenix, pass-through/guest mode. **IR IN** — 3.5mm 12V, receives IR blaster; transmitted to decoder IR OUT over network. **IR OUT** — 3.5mm, receives IR from decoder IR IN; blasts to local equipment.

5.2 DECODER PANEL — FRONT

POWER LED (Red) — same as encoder. **LINK LED (Green)** — solid: connected + video data; flashes: no video; off: not connected. **USB DEVICE ×2 (Type A)** — connect keyboard/mouse at decoder location. **RESET** — hold 3 sec to restore factory settings.

5.2 DECODER PANEL — REAR

DC 12V — locking, not needed with PoE. **LAN(PoE)** — 100M/1G, PoE 802.3af PD. **HDMI OUT** — connect display. **Audio OUT** — 3-pin Phoenix, follows encoder audio. **RS-232** — pass-through/guest mode. **IR IN / IR OUT** — bidirectional IR, same as encoder.

5.3 IR PIN DEFINITION

Pin	Function
Tip	IR Signal
Ring	Ground
Sleeve	VCC 12V

IR level: 12Vp-p | Wideband frequency: 20K–60KHz

> **Note —** LINK LED flashes at 5Hz when encoder receives an incompatible signal (resolution >1920×1200 or frame rate >60Hz). Verify source output resolution is within spec.

DEFAULT IP ADDRESSES

Unit	Default IP	Notes
Encoder	169.254.100.254	Web GUI: admin/admin. Set PC subnet 255.255.0.0
Decoder	169.254.100.253	Web GUI: admin/admin. Set PC subnet 255.255.0.0

6. Rack Mounting 7. Web GUI

6.1 6U RACK MOUNTING

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

6.2 1U RACK MOUNTING

Step 1: Stack two units, attach two 1U rack panels with included screws. **Step 2:** Repeat for another pair and join the two assemblies. **Step 3:** Fasten screws. Four units per 1U.

> **Note —** 6U rack enclosure sold separately. Contact your KanexPro dealer. Mounting ears and screws are included with each unit.

7. WEB GUI USER GUIDE

Step 1: Connect PC, encoders, and decoders to same 1G managed switch. **Step 2:** Set PC IP to same subnet (e.g. 169.254.3.150, mask 255.255.0.0). **Step 3:** Enter encoder/decoder IP in browser. **Step 4:** Login with **admin / admin**.

Web GUI Page	Key Settings
Information	Firmware, IP address, subnet, gateway, MAC
Video (Encoder)	Main/sub stream codec, bitrate, ID (1–762), audio input (HDMI/Analog), EDID
Video (Decoder)	Transmission protocol, scaler, EDID download, video timeout, ID, picture settings
Settings	Network, HTTPS security, username/password
Update	Firmware update, factory reset, reboot

> **Note —** Changing encoder/decoder ID changes its IP address. Browser redirects automatically — confirm the new IP from the popup before clicking Confirm.

8. VLC Pull Streaming 9. Switch Model

VLC: **Media** → **Open Network Stream**. Enter URL and click Play.

Stream	Network URL
MainStream	`rtsp://169.254.100.254/live/main/av_stream`
SubStream	`rtsp://169.254.100.254/live/sub/av_stream`

Replace 169.254.100.254 with the encoder's current IP. Verify codec: **Tools** → **Codec Information**. Check bitrate: **Tools** → **Statistics**. Bitrate fluctuation is normal for variable bitrate streams.

> **Note —** To find current encoder IP if DHCP is active, use a Bonjour protocol checking tool (e.g. zeroconfServiceBrowser) on PC.

9. SWITCH MODEL

Required switch features: Layer 3 / managed | Gigabit bandwidth | Multicast enabled | IGMP Snooping enabled | Filter/drop unregistered multicast traffic enabled.

Manufacturer	Recommended Model
Huawei	S5720S-28X-PWR-LI-AC
Netgear	S3300

10. Encoder and Decoder Matching Settings

Set encoder/decoder IDs (1–762) via Web GUI Video page. Then match via one of two methods:

Method 1 — RS-232: Send command `!OUT xxx FR yyy` to connect Decoder ID xxx to Encoder ID yyy.

Method 2 — Controller Box: Connect all units to same switch. Use AVO-IPCTL-265HD web GUI to match encoders and decoders.

> **Note —** After changing an encoder/decoder ID, the device IP changes correspondingly. Re-login at the new IP address.

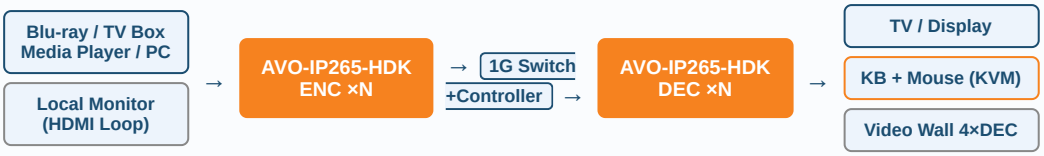
11. 2K60 over IP System Control 12. Classic Application Example

The AVO-IP265-HDK can be controlled by the **AVO-IPCTL-265HD** (CTL100H) Controller Box (sold separately) or third-party controllers via IR, RS-232, or TCP/IP. For complete system control setup, refer to the AVO-IPCTL-265HD user manual.

Connect encoders, decoders, controller, and PC to the same 1G managed switch. Access controller web GUI at its DHCP-assigned IP or **192.168.0.225** (static fallback, no DHCP). Set PC IP to same subnet.

PoE Note — When the switch does not support PoE, power each unit with the included DC 12V/1A adapter. This applies to encoders, decoders, and the controller.

12. CLASSIC APPLICATION EXAMPLE



Classic system: Multiple encoders distribute sources over 1G switch. Multiple decoders output to displays, video walls, and KVM stations. USB KVM enables keyboard/mouse control at each decoder location. Bidirectional IR distributes remote control commands between encoder and decoder rooms. HDMI loop out on each encoder monitors source locally. AVO-IPCTL-265HD manages routing and video wall layout.