H.265 AV over IP System Controller — 100M

The KanexPro AVO-IPCTL-265HD is a cost-effective H.264/H.265 AV over IP system controller for managing distributed video systems over 100M networks. It provides drag-and-drop matrix switching, video wall configuration (up to 9 walls with 9 presets each), and dual-network isolation from a browser-based web GUI. Compatible with AVO-IP265-4K, AVO-IP265-HD, and AVO-IP265-HDK H.265 AV over IP endpoints.

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

TABLE OF CONTENTS

1. FEATURES

- ✓ Centralized web GUI control of H.264/H.265 AV over IP encoders and decoders
- ✓ Matrix switching — drag-and-drop one-to-one, one-to-many, one-to-all routing
- ✓ Video wall — up to 9 walls, 9 Class Presets per wall
- ✓ Dual 100M network ports — VIDEO LAN (PoE) + CONTROL LAN for AV/IT isolation
- ✓ RS-232 port with MCU/Normal DIP switch (serial control or firmware upgrade mode)
- ✓ 4-channel GPIO + IR IN (12V) — HTTPS/SSH security, 6–8 digit password
- ✓ Three Video LAN IP modes — Auto, DHCP, Static
- ✓ PoE 802.3af PD via VIDEO LAN — DC 12V/1A adapter included
- ✓ Compatible with 1U/6U V2 rack — 7×24 reliable operation
- ✓ Works with AVO-IP265-4K, AVO-IP265-HD, AVO-IP265-HDK H.265 AV over IP endpoints

2. PACKAGE CONTENTS

1× AVO-IPCTL-265HD Controller • 1× IR Receiver Cable 20kHz–60kHz 12V 1.5m • 1× 3-pin 3.81mm Phoenix Connector • 1× 6-pin 3.81mm Phoenix Connector • 2× Mounting Ears • 4× Machine Screws KM3×6 • 1× DC 12V/1A Locking Power Adapter • 1× User Manual

3. Specifications

TECHNICAL	
Network Bandwidth	100M
Transmission Distance	Up to 100m via CAT5E/6/6A/7
Control Methods	Web GUI, TCP/IP, RS-232, IR, SSH, HTTPS
Supported Systems	H.264/H.265 AV over IP encoders and decoders
Compatible Endpoints	AVO-IP265-4K, AVO-IP265-HD, AVO-IP265-HDK
IP Modes (Video LAN)	Auto (controller-managed), DHCP, Static
Default Control LAN IP	192.168.6.100 (DHCP fallback) • http://controller.local
Default Video LAN IP	169.254.8.100 (auto-managed)
Password	6–8 alphanumeric characters (no special characters)

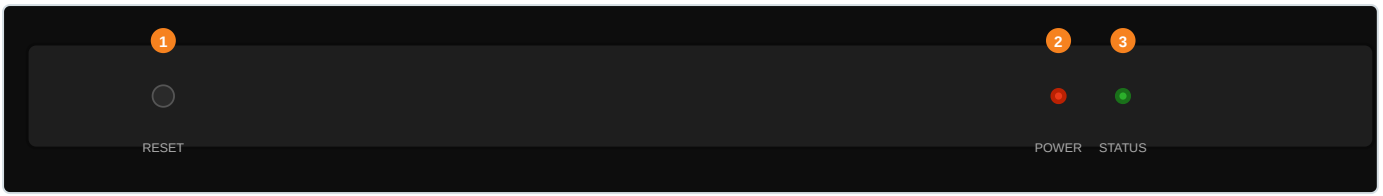
CONNECTION	
LAN Ports	2× 100M RJ45 — VIDEO LAN (PoE PD) + CONTROL LAN
RS-232	1× 3-pin 3.81mm Phoenix connector
MCU/Normal DIP Switch	Normal (default): RS-232 for serial control. MCU: RS-232 for firmware upgrade.
Digital I/O	1× 6-pin 3.81mm Phoenix — 4-ch GPIO, GND, VOUT 5V or 12V/0.5A (DIP)
IR IN	1× 3.5mm jack (12V level, 20kHz–60kHz wideband)

PHYSICAL	
Housing	Metal enclosure, Black
Dimensions (W×D×H)	8.03″ × 3.88″ × 0.85″ (204 × 98.5 × 21.5mm)
Net Weight	1.12 lbs (509g)
Power Supply	DC 12V/1A (locking adapter) or PoE via VIDEO LAN
Power Consumption	4.5W max
Operating Temperature	32–104°F (0–40°C)
Storage Temperature	−4–140°F (−20–60°C)
Humidity	20–90% RH (non-condensing)

VS. AVO-IPCTL-265 (ADVANCED 1G CONTROLLER)	
AVO-IPCTL-265HD	100M • Basic matrix & video wall • 1×RS-232 • No IR OUT • 4.5W • Lower cost
AVO-IPCTL-265	1G • Window roaming • Seamless switching • Mouse collaboration • IP camera • 2×RS-232 • IR OUT (5V)

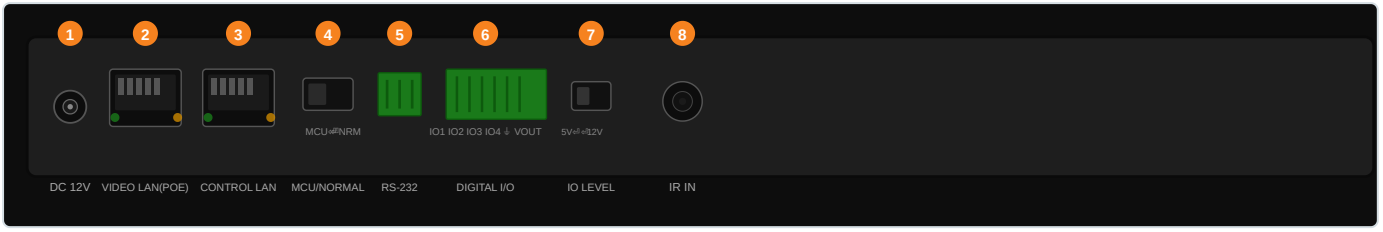
4. Operation Controls and Functions

4.1 FRONT PANEL



#	Name	Function Description
1	**RESET Button**	Press and hold approximately 10 seconds until STATUS LED starts flashing. Controller resets to factory defaults automatically.
2	**POWER LED (Red)**	On: powered via DC 12V or PoE. Off: no power.
3	**STATUS LED (Yellow-Green)**	Flashes every 1 second during boot. Solid when Control LAN is ready and controller has fully booted.

4.2 REAR PANEL



#	Name	Function Description
1	**DC 12V**	DC 12V/1A locking barrel input. Also powered via PoE through VIDEO LAN port.
2	**VIDEO LAN (PoE)**	100M RJ45. Connect to managed switch with H.265 encoders/decoders. PoE PD supported. Default: 169.254.8.100 (auto-managed).
3	**CONTROL LAN**	100M RJ45. TCP/IP control port. Default: DHCP, fallback 192.168.6.100. Web GUI: http://controller.local.
4	**MCU/Normal DIP Switch**	**Normal (default):** RS-232 for serial control. **MCU:** RS-232 for firmware upgrade. Keep in Normal during standard operation.
5	**RS-232 (3-pin Phoenix)**	Serial control port. Set MCU/Normal DIP to Normal for use.
6	**Digital I/O (6-pin Phoenix)**	IO1–IO4 (4-ch GPIO), GND, VOUT (5V or 12V/0.5A). For relay triggers and automation.
7	**IO LEVEL DIP Switch**	Left = 5V I/O & VOUT. Right = 12V (default).
8	**IR IN**	3.5mm jack (12V level, 20kHz–60kHz). Connect included IR receiver cable.

4.3 IR PIN DEFINITION

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

5. Rack Mounting Instruction

5.1 6U V2 RACK MOUNTING

The AVO-IPCTL-265HD mounts in a standard 6U V2 rack. Up to 10 units can be installed vertically.

Step	Instruction
Step 1	Attach the two mounting ears to the sides of the controller using included machine screws.
Step 2	Insert controller with mounting ears into a 6U V2 rack slot (vertical orientation).
Step 3	Secure mounting ears to rack frame with screws.

5.2 1U V2 RACK MOUNTING

Two AVO-IPCTL-265HD units can be mounted side-by-side horizontally in one 1U space using optional 1U V2 rack brackets.

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

Note — Ensure adequate ventilation. Operating temperature: 32–104°F (0–40°C). When powered via PoE, verify the switch PoE budget supports all connected units.

6. Web GUI Operation Guide

6.1 PREPARATION BEFORE ENTERING THE SYSTEM

Step	Instruction
Step 1 — Access	Navigate to **http://controller.local** or the Control LAN IP (192.168.6.100 if no DHCP, or DHCP-assigned). Select language, enter username **admin** and password **admin**. Click Login.
Step 2 — Set Password	On first login, set a new 6–8 alphanumeric character password. Special characters not supported. Use the new password for all subsequent logins.
Step 3 — System Setup	Click **Close** to load existing system, or **Next** to run setup wizard. Wizard sets Video LAN IP mode and discovers endpoints.
Step 4 — Add Devices	Select **Automatically add Encoders and Decoders** to auto-discover all devices, or **List all discovered** to manually select. Click Add or Add All Into System.
Re-run Wizard	Click **Search Device Via Wizard** on the Device page to change Video LAN IP mode.

6.2 VIDEO LAN IP MODES

Mode	Description
Mode 1 — Auto	Controller automatically assigns IPs to VIDEO LAN port and all endpoints. Recommended. No manual IP configuration required.
Mode 2 — DHCP	Router automatically assigns IPs to VIDEO LAN port and all endpoints. Requires DHCP server on the AV network.
Mode 3 — Static	User manually sets VIDEO LAN IP, subnet mask, gateway, and endpoint IP range. **Note:** VIDEO LAN subnet must differ from CONTROL LAN subnet.

Note — VIDEO LAN settings are managed automatically in Auto/DHCP modes. CONTROL LAN connected while VIDEO LAN is floating is not supported.

7. Functions and Operation

The web GUI consists of seven sections: **Device, Matrix, Video Wall, User, Controller Settings, Firmware Update, Password**.

7.1 DEVICE

Displays all encoders and decoders with ID, type, name, MAC, IP, firmware version, online/offline status, and uptime. Click the drop-down icon next to a device ID to configure it.

Setting Group	Key Options
Basic Settings	Name (max 16 chars, no special chars), Change ID (1–762, no duplicates), Preview thumbnail
A/V Settings	EDID selection, Copy EDID from a decoder, Audio source (HDMI/Analog)
Network Settings	IP Mode (Static/DHCP), IP Address, Subnet Mask, Gateway
RS-232 Settings	Command Relay On/Off, Parity, Baud Rate, Data Bits, Stop Bits → click Apply
Device Actions	Reboot, Replace (swap offline unit with online unit), Remove from system

7.2 MATRIX

Function	Operation
One-to-One Switch	Left-click an encoder preview and drag to a decoder. Release to route.
One-to-All Switch	Drag encoder preview to All Decoders zone. Routes to every decoder simultaneously.
One-to-Many Switch	Drag encoder preview to multiple decoders in sequence.
Disconnect Signal	Drag “No Source” to a decoder to disconnect. Drag to All Decoders + type YES to disconnect all (use with caution).
Relationship Query	Double-click a decoder preview to inspect Video/Audio/IR/RS-232/USB routing relationship with its encoder.

7.3 VIDEO WALL

Step / Feature	Description
Create Video Wall	Click Create → Set Video Wall ID, Name, Row Number, Column Number → Click Go. Up to 9 video walls can be created.
Assign Decoders	Select the wall → Click Assign Decoder → Click each cell to assign the decoder → Click Apply. A decoder can only be in one video wall.
Class Preset	Click Class Preset → Click each screen to assign a class (same class name = one tile) → Click Apply. Up to 9 class presets per wall. Rename (max 16 chars). Create, clear, or delete presets as needed.
Preset Management	Use drop-down behind preset name to switch presets. Supports regular and irregular video wall layouts.

7.4 USER

Step / Option	Description
Create User	Click Create → Enter username (6–12 chars, no special chars) and password (6–8 chars) → Confirm Password → Click Go.
Assign Devices	After creating a user, check encoders/decoders individually or click Select All → Click Apply to grant access.
Manage Users	Click Password to change a user's password. Click Remove to delete the user. Log out and log in with new credentials to activate.

7.5 CONTROLLER SETTINGS

Setting	Description
System Config	Save: export config as JSON. Load: import JSON and replace current config (back up first). Clear: wipe all config and restart setup.
General	View Controller/GUI version, Telnet/SSH port, domain name. Set IR Control, RS-232 BaudRate, Web Control, HTTPS, Telnet, SSH.
GPIO	Set GPIO 1–4 output level independently via drop-down menus.
Control Network	DHCP On: auto IP from router. DHCP Off: manually set Control LAN IP, subnet, gateway → Apply. PC must be in same subnet.
Video Network	DHCP On: auto IP. DHCP Off: manually set Video LAN IP, subnet. Encoder/decoder IPs must match Video LAN subnet.
Controller Reset	Settings Reset: reset all settings except network. Network Reset: reset network only. Reset All: full factory reset.

7.6 FIRMWARE UPDATE

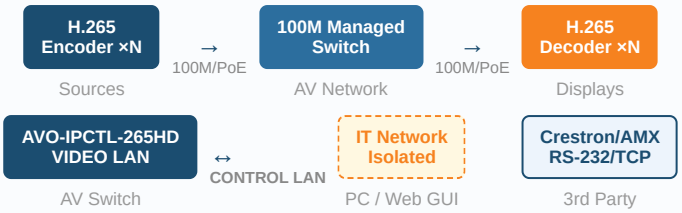
Item	Description
Upload User EDID 1/2	Upload binary EDID file to User EDID slot 1 or 2.
Upload Decoder Logo	Upload JPG logo for decoder display. Requirements: 4KB–512KB, resolution ≤1920×1080. Click Update All or Update per device.
Upload Controller Firmware	Upload controller firmware update file.
Upload Encoder/Decoder Firmware	Upload encoder/decoder firmware. Click Update All or Update per device. Incompatible models will have Update button greyed out.

7.7 PASSWORD

Item	Description
Change Password	Enter New Password and Confirm Password → Click Apply. Requirements: 6–8 alphanumeric characters, no special characters, passwords must match. System returns to login page after change.
Logout	Click the logout icon in the upper right corner of any page to exit the web GUI.

8. Application Example

H.265 AV over IP with Dual 100M Network Isolation



Dual-Network Isolation: VIDEO LAN connects to the AV switch shared with all H.265 encoders and decoders. CONTROL LAN connects to the IT network or PC. AV multicast stays isolated from IT traffic. Controls from CONTROL LAN are bridged by the controller to the AV network.

IP Address Notes: Default Control LAN is DHCP; fallback to **192.168.6.100** (no router). Access web GUI at **http://controller.local**. Video LAN is auto-managed — no manual IP configuration needed in Auto mode. When the switch has no PoE, power all units via included DC adapters.

Compatible Endpoints: AVO-IP265-4K (H.265 4K encoder/decoder), AVO-IP265-HD (H.265 HD encoder/decoder), AVO-IP265-HDK (H.265 HD encoder/decoder kit).

9. Troubleshooting

Q: Encoders and decoders are not discovered after initial setup?
A: Verify the VIDEO LAN port is connected to the same managed switch as all encoders and decoders. Confirm IGMP Snooping is enabled on the switch. Use **Search Device Via Wizard** on the Device page to re-scan. In Static IP mode, confirm endpoint IP ranges are within the configured VIDEO LAN subnet.

Q: STATUS LED is not becoming solid after boot?
A: STATUS LED flashes every 1 second during boot and becomes solid when CONTROL LAN is ready. If it continues flashing, verify CONTROL LAN has an active network connection and is receiving a valid DHCP address or set to the correct static IP.

Q: Cannot access the Web GUI?
A: With DHCP: set PC to auto-IP and navigate to **http://controller.local**. Without DHCP: controller defaults to **192.168.6.100** — set PC to the same subnet (e.g. 192.168.6.88). Verify CONTROL LAN is connected to the same network as the PC.

Q: RS-232 commands are not working?
A: Verify the **MCU/Normal DIP switch** on the rear panel is set to **Normal**. In MCU mode, RS-232 is reserved for firmware upgrade and will not pass control commands. Also verify RS-232 settings in Device page match the target device (baud rate, parity, data bits, stop bits).

Q: How do I reset to factory defaults?
A: Press and hold the **RESET** button on the front panel for approximately 10 seconds until the STATUS LED starts flashing. Release — the controller resets and reboots automatically. All device lists, routing presets, and user accounts will be cleared.

Q: Video wall is not displaying correctly?
A: Confirm all decoders in the wall are online and assigned in the Assign Decoder interface. Verify the correct Class Preset is applied. Ensure the managed switch has IGMP Snooping enabled. If screens show “No Source,” re-assign the encoder source from the Matrix page.

Q: GPIO outputs are not triggering?
A: Verify the **IO LEVEL DIP switch** is set to the correct voltage (5V or 12V) for the target device. Confirm the 6-pin Phoenix connector wiring is correct: IO1–IO4, GND, VOUT. VOUT max output is 12V/0.5A.