HW-OMNI-D4511
Specification Sheet
Networked AV Decoder with USB Hub



Description

The HW-OMNI-D4511 is a networked AV decoder for HDMI/HDCP 2.2 output supporting resolutions up to 4K/60 4:4:4 and HDR, plus audio embedding and de-embedding, RS-232 or IR control pass-through, and integrated USB 2.0 extension with local USB device ports. Powered by the advanced VCx™ codec, it delivers 4K/60 4:4:4 with artifact-free presentation and ultra-low latency of less than one frame. Multiview processing enables up to four streams from HW-OMNI-E4521 encoders to display simultaneously on a single screen. As the USB device end, it extends cameras, speakerphones, keyboards and mice to the host connected at an HW-OMNI-E4521 encoder over the network. The HW-OMNI-D4511 is housed in a half-width rack enclosure and supports PoE powering.

Applications

BYOD Conference Rooms

- Pair with HW-OMNI-E4521 encoders for complete USB-C BYOD connectivity — video, audio, and USB hub — over a single network connection.

Enterprise AV Distribution

- Distribute 4K/60 AV content across corporate networks to any connected display with flexible room-to-room and campus-wide sharing.

Higher Education

- Deploy decoders in classrooms and overflow rooms to receive broadcast lecture content from encoders over standard Gigabit Ethernet.

Control Rooms & Operations Centers

- Use Multiview processing to display up to four encoded streams simultaneously on a single screen for monitoring and situational awareness.

Key Features

- 4K/60 4:4:4 decode with VCx™ codec — artifact-free image quality and ultra-low latency (<1 frame).
- HDR support: HDR10, HLG, and Dolby® Vision™ at 60 Hz.
- USB device end for OmniStream Plus: integrated USB 2.0 transport with local USB device ports for cameras, speakerphones and HID devices.

- Multiview window processing — ingests up to 4 streams simultaneously on one screen (pairs with E4521).
- HDCP 2.2 compliant; AES-128 encrypted content distribution.
- CEC, RS-232, and IR control pass-through over the network.
- PoE or PoE+ (IEEE 802.3af/at) powered — no local AC required; optional 48V external supply.
- IEEE 802.1x network authentication; HTTPS, SSH, Telnet, WebSocket/TLS management.
- AES67-compatible networked audio; LPCM up to 7.1 channels.
- Half-width rack enclosure with front-to-rear temperature-controlled airflow.
- NDAA Section 889 and TAA compliant.

Specifications

Video	
Signal	HDMI
Copy Protection	HDCP 2.2
UHD/HD/SD Resolutions	4K/60/50/30/25/24 Hz; 1080p; 1080i; 720p; 576p/i; 480p/i
VESA Resolutions	2560×1600, 1920×1200, 1920×1080 (and others) @ 60 Hz
Color Space	YUV, RGB
Encoding Density	Single decoding engine
Compression Format	VCx
Chroma Subsampling	4:4:4, 4:2:2, 4:2:0
Color Depth	8-bit, 10-bit, 12-bit
HDR Formats	HDR10, HLG, Dolby® Vision™
Max Bit Rate	Configurable up to 900 Mbps
Latency	<0.5 frame (e.g. < 8ms @ 1080p/60); <1.5 frames in Fast Switching mode
Audio	
Pass-Through Formats	LPCM 2.0/5.1/7.1; Dolby® Digital, TrueHD, Atmos®; DTS®, DTS-HD
Down-Mixing	Multichannel LPCM to 2-channel LPCM
Sample Rate	32 kHz – 192 kHz
Bit Depth	Up to 24-bit
Analog Audio Output	Balanced; +4 dBu nominal, +20 dB headroom; 150 Ω output impedance
AES67	Supported; up to LPCM 7.1 channels
USB	
USB Hub	Integrated USB 2.0 transport; 2 × USB Type-A device ports (USB device end). No USB-C; no device charging.
Network & Protocols	
Video Streaming	RTP
Audio Streaming	RTP (up to 7.1 ch); AES67
Addressing	DHCP, Static
Encryption	AES-128

QoS	RFC 2475
Discovery	Multicast DNS, LLDP, SAP
Management	HTTPS, SSH, Telnet, WebSocket with TLS
Authentication	IEEE 802.1x: PEAP/MSCHAPv2 or EAP-TLS
IP Multicast	IGMPv2 and IGMPv3
Control	
CEC	Supported; triggered from control systems and OmniStream encoders
RS-232	Device control and bidirectional pass-through; 2400–9600 baud
IR	Bidirectional pass-through from/to network
Connections	
HDMI Output	1 × Type A, 19-pin, female, locking
USB	2 × USB Type-A, female (device ports)
Ethernet	1 × RJ45, 10/100/1000 Mbps
RS-232 / IR	1 × Captive screw, 6-pin (RS-232 on port 1, IR on port 2)
Power	1 × Captive screw, 2-pin
Power	
PoE	IEEE 802.3af/at (PoE or PoE+)
Consumption	Up to 12 W (40.9 BTU/h)
External Power Supply (optional)	Input: 110–220V AC, 50/60 Hz; Output: 48V DC, 0.83A
Mechanical	
Dimensions (H × W × D)	1.34" × 8.19" × 4.41" (34mm × 208mm × 112mm)
Weight	1.5 lbs (0.7 kg)
Enclosure	Half-width rack; front-to-rear temperature-controlled airflow
Environmental	
Operating Temperature	14°F to 122°F (-10°C to +50°C)
Storage Temperature	-14°F to 140°F (-10°C to +60°C)
Humidity	20% to 95% RH, non-condensing
Max Operating Altitude	2000 meters
Regulatory	
Certifications	CE, FCC, CB, RoHS
Power Supply Certs	CE, FCC, cULus, CB, RCM, RoHS
NDAA Section 889	Compliant
TAA	Compliant
Warranty	See hallresearch.com/warranty