



## HW-LUMA-E4211 Specification Sheet

### H.264 and H.265 Networked AV Encoder



## Description

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The HW-LUMA-E4211 is an H.264 and H.265 networked AV encoder for HDMI sources. Designed for high-performance distribution of video, audio, and control over data networks, with emphasis on bandwidth efficiency and scalability. H.265 (HEVC) encoding is ideal for multicast video distribution to HW-LUMA-D4111 decoders, while H.264 encoding is ideal for internet streaming via RTMP. Accepts HDMI input up to 4K/60 4:4:4 and encodes up to 4K/60 4:2:0. Features MJPEG streaming, snapshot capture, Dante® audio encoding, video deinterlacing, audio de-embedding, automated multicast configuration, and image/text overlay.

## Applications

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### Digital Signage

- Retail, hospitality, hotels, sporting venues, casinos, convention centers, and menu boards.

### Bars, Restaurants & Venues

- Streaming television and informational content to displays and video walls.

### Educational Institutions

- K–12 school video and audio announcements to classrooms and common areas.

### Livestreaming

- H.264 RTMP streaming to YouTube, Facebook, and compatible online services.

## Key Features

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- H.264 and H.265 (HEVC) encoder for HDMI sources with HDCP 2.2/1.4 compliance.
- Accepts HDMI source input up to 4K/60 4:4:4; encodes up to 4K/60 4:2:0.
- H.265 encoding enables up to 50 simultaneous 4K streams over a Gigabit Ethernet link.
- HDMI loop-through output ideal for local display or AV switcher connection.
- Supports RTMP (Real-Time Messaging Protocol) streaming to YouTube, Facebook, and Wowza.
- Simplified multicast configuration with pre-assigned multicast IP addresses.
- MJPEG sub-stream preview up to 854×480 @ 30 fps at 2048 kbps.
- Logo overlay, full-screen backup image, and scrolling text overlay.

- Simultaneous LumaStream and Dante® audio streaming from main or Dante LAN port.
- Balanced analog audio input and output (5-pin captive screw,  $\pm 20$  dBu).
- PoE+ (IEEE 802.3at) powered — no local power supply required.
- AES-128 encrypted content distribution with IEEE 802.1X network authentication.
- Front panel LCD display and four-button navigation menu.
- Intuitive web-based GUI; TCP/IP control with open JSON API.
- Velocity™ Device Manager integration; field-updatable firmware.
- Compact fanless enclosure with optional rack mounting.

## Specifications

| Video                      |                                                                                                                                                                                                 |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Signal Input               | HDMI                                                                                                                                                                                            |
| Signal Output              | HDMI (loop-through), Network (encoded)                                                                                                                                                          |
| Copy Protection            | HDCP 1.4 / 2.2                                                                                                                                                                                  |
| Pixel Clock                | 600 MHz                                                                                                                                                                                         |
| Input Resolutions — UHD/HD | 4096×2160 @ 30/29.97/25/24/23.98 Hz; 3840×2160 @ 60/59.94/50/30/29.97/25/24/23.98 Hz; 1920×1080p @ 60/59.94/50/30/29.97/25/24/23.98 Hz; 1920×1080i @ 60/59.94/50 Hz; 1280×720p @ 60/59.94/50 Hz |
| Input Resolutions — SD     | 720×576p/i @ 50 Hz; 720×480p/i @ 59.96 Hz                                                                                                                                                       |
| Input Resolutions — VESA   | 2560×1600, 1920×1200, 1600×1200, 1440×900, 1280×1024, 1280×800, 1024×768, 800×600, 640×480                                                                                                      |
| Chroma Subsampling         | 4:4:4, 4:2:2, 4:2:0                                                                                                                                                                             |
| Encoding                   |                                                                                                                                                                                                 |
| Video Compression          | H.265, H.264 (main stream); MJPEG up to 854×480 @ 30 fps (preview stream)                                                                                                                       |
| Encoded Chroma             | 4:2:0                                                                                                                                                                                           |
| Bit Rate                   | 128 kbps – 60 Mbps (main); 128 – 2048 kbps (preview)                                                                                                                                            |
| Downscale Options          | 1920×1080, 1280×720, 854×480, 640×360                                                                                                                                                           |
| Max Latency                | 150 ms end-to-end                                                                                                                                                                               |
| Audio                      |                                                                                                                                                                                                 |
| Input                      | HDMI, Balanced Analog (5-pin captive screw)                                                                                                                                                     |
| Output                     | HDMI, Balanced Analog (5-pin captive screw), Network                                                                                                                                            |
| HDMI Format                | LPCM 2.0 up to 16-bit, 32/44.1/48 kHz                                                                                                                                                           |
| Analog Level               | +20 dBu max.                                                                                                                                                                                    |
| Analog Frequency Response  | 20 Hz – 20 kHz $\pm 0.5$ dB                                                                                                                                                                     |
| Analog THD+N               | < 0.025% (20 Hz – 20 kHz)                                                                                                                                                                       |

|                         |                                                 |                   |
|-------------------------|-------------------------------------------------|-------------------|
| Network Audio           | 2-channel LPCM or AAC, 8 – 240 kbps             |                   |
| Dante® Audio            | 2-channel on main LAN or Dante LAN port         |                   |
| Network                 |                                                 |                   |
| Port                    | 2 × RJ45, 10/100/1000 Mbps                      |                   |
| Streaming Protocols     | RTP, RTSP, RTMP                                 |                   |
| Addressing              | DHCP, Static                                    |                   |
| Encryption              | AES-128                                         |                   |
| Management              | HTTP, HTTPS, SSH, Telnet, WebSocket, LLDP       |                   |
| Authentication          | IEEE 802.1X (PEAP-MSCHAPv2, EAP-TLS)            |                   |
| IP Multicast            | IGMPv3                                          |                   |
| Control                 |                                                 |                   |
| RS-232/IR Port          | 1 × 4-pin captive screw                         |                   |
| Baud Rates              | 9600, 19200, 38400, 57600, 115200               |                   |
| IR Protocols            | Pronto, Global Cache                            |                   |
| Connectors              |                                                 |                   |
| HDMI IN                 | 1 × Type A, 19-pin female                       |                   |
| HDMI OUT                | 1 × Type A, 19-pin female (loop-through)        |                   |
| LAN                     | 2 × RJ45                                        |                   |
| RS-232/IR               | 1 × 4-pin captive screw                         |                   |
| Audio IN                | 1 × 5-pin captive screw                         |                   |
| Audio OUT               | 1 × 5-pin captive screw                         |                   |
| Power                   | 1 × 2-pin captive screw                         |                   |
| Indicators & Controls   |                                                 |                   |
| Buttons                 | MENU, UP, DOWN, ENTER — 4× momentary, tact-type |                   |
| LEDs                    | PWR, HDMI IN, ENC, ETH, DANTE — 5× red/green    |                   |
| Display                 | OLED, 128×64 matrix                             |                   |
| Power                   |                                                 |                   |
| PoE+                    | IEEE 802.3at                                    |                   |
| Consumption             | Up to 13.5 W                                    | 46.1 BTU/h        |
| Ext. Power Supply       | AT-PS-48083-C (optional)                        |                   |
| Environmental           |                                                 |                   |
| Operating Temperature   | +32° to +104°F                                  | 0° to +40°C       |
| Storage Temperature     | -4° to +140°F                                   | -20° to +60°C     |
| Operating Humidity (RH) | 20% to 90%, non-condensing                      |                   |
| Dimensions (H × W × D)  |                                                 |                   |
| Unit                    | 0.98 × 7.48 × 7.09 in.                          | 25 × 190 × 180 mm |

|               |                                                                                                                |         |
|---------------|----------------------------------------------------------------------------------------------------------------|---------|
| Weight        |                                                                                                                |         |
| Device        | 1.98 lbs                                                                                                       | 0.90 kg |
| Certification |                                                                                                                |         |
| Device        | CE, FCC                                                                                                        |         |
| Compliance    |                                                                                                                |         |
| NDAA-889      | Yes                                                                                                            |         |
| Warranty      |                                                                                                                |         |
| Device        | To view the product warranty, visit: <a href="https://hallresearch.com/warranty">hallresearch.com/warranty</a> |         |

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