Introduction

The Atlona OmniStream™ 111 (AT-OMNI-111) is a single-channel networked AV encoder for HDMI 2.0 sources up to UHD @ 60 Hz and HDR (High Dynamic Range), plus embedded audio and RS-232 or IR control pass-through. It is part of the OmniStream Series, designed for high performance, flexible distribution of AV over standard off-the-shelf Gigabit Ethernet switches in commercial audio visual applications. The OmniStream 111 is HDCP 2.2 compliant and ideal for the latest Ultra High-Definition and HDR sources. It features advanced high-quality VC-2 visually lossless video compression technology for computer-generated imaging, or motion video content. The Atlona OmniStream™ 111 achieves extremely low, sub-frame latency when paired with OmniStream Decoders. This single-channel encoder is housed in a half-width rack with front-to-back air flow enclosure, and is ideal for high-density, compact installation in a centralized equipment location.

Applications

- Enterprises and other large organizations
  Maximize AV application flexibility by enabling content sharing within single meeting rooms, or corporate-wide broadcasting to every connected screen.

- Corporate and university campuses with the need to distribute AV between buildings
  OmniStream allows virtually unlimited AV system scope and scale, desirable for enterprise local area networks. SMPTE-standard FEC (Forward Error Correction) ensures robust, reliable image presentation at every endpoint.

- Applications in which any AV content or resource can be shared anywhere in the system
  AV over IP technology removes the restrictions associated with interconnecting sources and displays through standard matrix switching architecture.
**Key Features**

**AV encoder for HDMI up to 4K/UHD, plus embedded audio and RS-232 or IR control pass-through**
- Streams video, audio, and control, with the flexibility of transmitting them together or to separate network destinations.
- Allows wide-ranging versatility for integrators to design systems to specific requirements.

**Networked AV redundancy**
- Maximizes system reliability and meets IT requirements for system redundancy and failover.

**Supports UHD @ 60 Hz plus HDR formats**
- Ideal for new and emerging UHD and HDR-capable sources and displays.
- Supports HDR10 @ 60 Hz and 10-bit color, as well as HLG (Hybrid Log-Gamma) for current 60p HDR broadcast services.
- Supports Dolby® Vision™ @ 60 Hz and 12-bit, delivering best-in-class dynamic HDR experience. Included as of firmware version 1.2.5.

**High performance, visually lossless video compression**
- SMPTE 2042 VC-2 light video compression with absolutely minimal, sub-frame latency from encode to decode.
- Ensures optimal, pristine-quality graphics and motion video presentations, and is ideal for applications requiring interactivity.

**HDCP Compliance**
- Adheres to the latest HDCP 2.2 specification for High-bandwidth Digital Content Protection.
- Allows protected content streams to pass between authenticated devices.
- HDCP can be disabled through AMS, allowing content to pass to non-compliant displays and teleconference systems. Protected content is not transmitted.

**Network error resilience with FEC (forward error correction)**
- Compensates for the possibility of AV packet losses in large systems spanning several networks.
- Enables consistent, reliable performance in enterprise-wide networked AV implementations.

**Simplify integration with plug-and-play network switch compatibility**
- Streamline system setup by using Atlona Certified Switch configurations for popular models from Cisco, Pakedge, and many others.
- Saves installation time and costs without the need to manually configure a network switch.

**Local or PoE (Power over Ethernet) powering**
- With PoE, encoders can conveniently be powered over the network from a PoE-equipped network switch.
- PoE simplifies integration without the need for local AC power, and allows centralized power monitoring and management.
- Optional AT-PS-48083-C power supply available.
Key Features (continued)

Secure content distribution with AES-128 encryption
- Any AV presentation content can be secured by scrambling IP streams.
- Ideal for government, military, and enterprise applications, as well as meeting IT security requirements.

Supports industry-standard, network security features and protocols
- HTTPS, Telnet, SSH, WebSockets with TLS, and AES-128 encryption.
- Features IEEE 802.1x which meets IT authentication requirements for improved network security.

AES67-compatible audio over IP streaming
- OmniStream features industry standard, AES67-compatible networked audio streaming between encoders, decoders, and audio interfaces.
- Streams multi-channel PCM up to 7.1 channels.
- Simultaneously stream AES67 and native RTP.

Simultaneous OmniStream and AES67 audio streaming
- OmniStream encoders can deliver native OmniStream RTP networked audio alongside an AES67-compatible audio stream.
- RTP audio streaming supports multi-channel audio formats and PCM up to 7.1 channels.
- Encoders also can provide multi-channel PCM audio downmixing.
- Use simultaneous AES and RTP audio streaming to send multi-channel PCM to OmniStream decoders, and downmixed PCM audio to an OmniStream 238 audio bridge.

Enhance AV presentations with visual enhancements
- Provide corporate or institutional branding by overlaying a logo.
- Display a full-screen image as a backup in an event of an interruption in an AV stream, or between presentations.
- Identify and label presentation content with static or scrolling text.

EDID management
- Manages EDID communications between source and encoder; allows integrators to force a source to a preferred resolution.
- Ensures desired audio formats and video resolutions are provided to the AV system.
- EDID can be assigned from a display connected to an OmniStream decoder.

Encoder grouping
- Assign several encoders to a logical group.
- Allows a decoder to automatically switch between encoders in the group upon input detection.
- Create scalable, flexible switching systems with encoders placed wherever AV sources may be located.

Audio processing and pass-through
- Supports multichannel PCM audio downmixing to two-channel PCM.
Key Features (continued)

Integrated Ethernet link testing
• Tests integrity of the network infrastructure between encoders and decoders (cabling, terminations, switch, bandwidth).
• Allows quick, easy verification or troubleshooting from the encoder and decoder web GUI – no need to visually check each display location.
• Encoder delivers a full-bandwidth stream (900 Mbps) of test data packets to decoders joined to a multicast group.
• Reports percentage of packets successfully received at each decoder.

System Management
• Intuitive standalone web GUI.
• Atlona Management System (AMS). Web-based interface for configuration and management of OmniStream systems, including endpoints, AV, and data cross-connections.

Compact enclosure
• Installs side-by-side in a rack with the optional AT-OMNI-1XX-RACK-1RU rack mount shelf.

Award-winning 10-year limited product warranty
• Ensures long-term product reliability and performance in residential and commercial systems.
• Specify, purchase, and install with confidence.
## Specifications

### Video

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDMI Specification</td>
<td>HDMI, HDCP 2.2</td>
</tr>
<tr>
<td>UHD/HD/SD</td>
<td>4096×2160 (DCI) @ 30/24 Hz, 3840×2160 (UHD) @ 60/50/24/25/30 Hz, 1920x1080p @ 23.98/24/25/29.97/30/50 Hz/59.94/60 Hz, 1920x1080p @ 25/29.97/30 Hz, 1280x720p @ 30/50/59.94/60 Hz</td>
</tr>
<tr>
<td>VESA®</td>
<td>2560x1600, 1920x1200, 1680x1050, 1600x1200, 1600x900, 1440x900, 1400x1050</td>
</tr>
<tr>
<td>Virtual Reality</td>
<td>2160x1200 @ 90Hz (HTC® Vive)</td>
</tr>
<tr>
<td>Color Space</td>
<td>YUV, RGB</td>
</tr>
</tbody>
</table>

### Encoding

<table>
<thead>
<tr>
<th>Density</th>
<th>Single encoding engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression Format</td>
<td>VC-2 (SMPTE-2042)</td>
</tr>
<tr>
<td>Video Quality Optimization</td>
<td>User-selectable: PC Application or Video mode</td>
</tr>
<tr>
<td>Chroma Subsampling</td>
<td>4:4:4</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Color Depth</td>
<td>8-bit, 10-bit, 12-bit</td>
</tr>
<tr>
<td>HDR</td>
<td>HDR10, HLG, Dolby® Vision™</td>
</tr>
<tr>
<td>Bit Rate</td>
<td>Configurable up to 900 Mbps</td>
</tr>
<tr>
<td>Latency</td>
<td>0.5 frame (e.g. 1080p @ 60 Hz latency is &lt; 8 ms between encoder and decoder)</td>
</tr>
<tr>
<td></td>
<td>1.5 frames in Fast Switching mode (e.g. 1080p @ 60 Hz latency is &lt; 24 ms between encoder and decoder)</td>
</tr>
<tr>
<td></td>
<td>Note: Unusual network configurations may increase overall latency</td>
</tr>
</tbody>
</table>

### Audio

<table>
<thead>
<tr>
<th>Pass-through</th>
<th>LPCM 2.0</th>
<th>Dolby® Digital</th>
<th>Dolby Atmos®</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LPCM 5.1</td>
<td>Dolby Digital Plus</td>
<td>DTS®</td>
</tr>
<tr>
<td></td>
<td>LPCM 7.1</td>
<td>Dolby TrueHD</td>
<td>DTS-HD Master Audio™</td>
</tr>
<tr>
<td>Down-mixing</td>
<td>Multichannel LPCM to two-channel LPCM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample Rate</td>
<td>32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bit Depth</td>
<td>Up to 24-bit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Single-Channel Networked AV Encoder

<table>
<thead>
<tr>
<th>Protocols</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Streaming</strong></td>
<td>RTP</td>
</tr>
<tr>
<td><strong>Audio Streaming</strong></td>
<td>RTP, up to 7.1 channels</td>
</tr>
<tr>
<td></td>
<td>AES67, up to LPCM 7.1 channels</td>
</tr>
<tr>
<td><strong>Addressing</strong></td>
<td>DHCP, static</td>
</tr>
<tr>
<td><strong>Encryption</strong></td>
<td>AES-128</td>
</tr>
<tr>
<td><strong>QoS Tagging</strong></td>
<td>RFC 2475</td>
</tr>
<tr>
<td><strong>Discovery</strong></td>
<td>Multicast DNS, LLDP, SAP</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>HTTPS, SSH, Telnet, and WebSockets with TLS</td>
</tr>
<tr>
<td><strong>Authentication</strong></td>
<td>IEEE 802.1x: PEAP/MSCHAPv2 or EAP-TLS</td>
</tr>
<tr>
<td><strong>IP Multicast</strong></td>
<td>IGMPv2 and IGMPv3 support</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphics Features</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Text Insertion</strong></td>
<td>Adjustable height/width, scrolling (speed, direction, or static), iterations (up to infinite), positioning, and adjustable color and alpha (transparency) channels.</td>
</tr>
<tr>
<td><strong>Slate / Logo Insertion</strong></td>
<td>PNG file format, adjustable aspect ratio (keep or stretch), horizontal/vertical size, screen position; slate mode can be set to off, manual (image always displayed, superimposed on the source signal, and will remain if source signal is lost), auto (image will only be displayed when source signal is lost).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RS-232</strong></td>
<td>Device control and configuration; supports baud rates from 2400 to 115200</td>
</tr>
<tr>
<td></td>
<td>Bidirectional pass-through from control system to network</td>
</tr>
<tr>
<td><strong>IR</strong></td>
<td>Pass-through from control system to network</td>
</tr>
<tr>
<td></td>
<td>Pass-through from network to control system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connectors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HDMI</strong></td>
<td>1 - Type A, 19-pin, female, locking</td>
</tr>
<tr>
<td><strong>ETHERNET</strong>(4)</td>
<td>1 - RJ45, 10/100/1000 Mbps</td>
</tr>
<tr>
<td><strong>RS-232 / IR</strong></td>
<td>1 - Euroblock, 6-pin (2 ports); RS-232 on port 1, IR on port 2</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>1 - Euroblock, 2-pin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicators and Controls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PWR</strong></td>
<td>1 - LED, tricolor (red, amber, green)</td>
</tr>
<tr>
<td><strong>HDMI</strong></td>
<td>1 - LED, bicolor (red, green)</td>
</tr>
<tr>
<td><strong>LINK</strong></td>
<td>1 - LED, bicolor (red, green)</td>
</tr>
<tr>
<td><strong>ID</strong></td>
<td>1 - Momentary, tact type</td>
</tr>
<tr>
<td></td>
<td>Provides two separate functions:</td>
</tr>
<tr>
<td></td>
<td>(1) Sends an identification broadcast message over the network to any listening devices.</td>
</tr>
<tr>
<td></td>
<td>(2) Reset the unit to factory-default settings.</td>
</tr>
<tr>
<td><strong>Reboot</strong></td>
<td>1 - momentary, tact-type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PoE</strong></td>
<td>IEEE 802.3af</td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>Up to 12 W</td>
</tr>
<tr>
<td><strong>External Power Supply</strong> (optional)</td>
<td>Input: 110 - 220 V AC, 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>Output: 48 V DC, 0.83 A</td>
</tr>
</tbody>
</table>
## Environmental

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling System</td>
<td>Front-to-rear airflow, temperature-controlled fans</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>+14 to +122 °F, -10 to +50 °C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>+14 to +140 °F, -10 to +60 °C</td>
</tr>
<tr>
<td>Operating Humidity (RH)</td>
<td>20% to 95%, non-condensing</td>
</tr>
</tbody>
</table>

## Chassis

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (H x W x D)</td>
<td>1.34 in x 8.19 in x 4.41 in</td>
</tr>
<tr>
<td></td>
<td>34 mm x 208 mm x 112 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.5 lbs</td>
</tr>
<tr>
<td></td>
<td>0.7 kg</td>
</tr>
</tbody>
</table>

## Certification

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device</td>
<td>CE, FCC, CB, RoHS</td>
</tr>
<tr>
<td>Supply</td>
<td>CE, FCC, cULus, CB, RCM, RoHS</td>
</tr>
</tbody>
</table>

## Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 Volt 0.83 Amp Power Supply</td>
<td>AT-PS-48083-C</td>
</tr>
<tr>
<td>Rack Mount Shelf for OmniStream</td>
<td>AT-OMNI-1XX-RACK-1RU</td>
</tr>
<tr>
<td>IR Emitter Cable for OmniStream Systems</td>
<td>AT-OMNI-IR-TX</td>
</tr>
<tr>
<td>IR Receiver Cable for PoE Extenders</td>
<td>AT-IR-SC-RX</td>
</tr>
<tr>
<td>LinkConnect™ HDMI to HDMI Cable</td>
<td>AT-LC-H2H</td>
</tr>
</tbody>
</table>

## Footnotes

1. Only supported when Video Quality Optimization is set to Video mode.
2. Scaling and deinterlacing are not supported at 1080i.
3. All VESA resolutions are 60 Hz.
4. Maximum distance per hop is 330 feet (100 meters), depending upon network configuration.
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