



Introduction

The Atlona **OmniStream™ R-Type 512 (AT-OMNI-512)** is a networked AV encoder with two independent channels of encoding for two HDMI 2.0 sources up to 4K @ 60 Hz and HDR (High Dynamic Range), plus embedded audio and RS-232 or IR control pass-through. It is part of the OmniStream R-Type Series, designed for high performance, flexible distribution of AV over standard off-the-shelf Gigabit Ethernet switches in residential and light commercial audio visual applications. The OmniStream 512 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, optimized for motion video content. The Atlona OmniStream™ 512 achieves extremely low, sub-frame latency when paired with OmniStream Decoders. This dual-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

- **Multi-room or whole-house AV systems**
OmniStream R-Type enables cost-effective system design, allowing the connection of any number of sources to any number of displays, throughout a residence.
- **Bars, restaurants, offices, meeting spaces, and other commercial environments**
Expand the system by adding encoders and decoders, making video wall, digital signage, and many other applications simple and easy.
- **Home theater and gaming**
OmniStream™ R-Type delivers the uncompromising performance of traditional baseband video systems, making it ideal for applications where both image quality and low latency are crucial.

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.

Dual-channel AV encoding

- Two independent channels of encoding in a single box, with dedicated processing for each channel.
- Allows high-density rack installations and reduces box count for locations with limited space for equipment.

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.

Simplify integration with plug-and-play network switch compatibility

- Streamline system setup by using Atlona Certified Switch configurations for popular models from Cisco, Luxul, Pagedge, 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.

Secure content distribution with AES-128 encryption

- Any AV presentation content can be secured by scrambling IP streams.

Supports industry-standard, network security features and protocols

- HTTPS, Telnet, SSH, WebSockets with TLS, and AES-128 encryption.

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.

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.

Key Features (continued)

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.

Audio processing and pass-through

- Streams PCM, Dolby® Digital, Dolby Digital Plus™, Dolby TrueHD, Dolby Atmos®, DTS® Digital Surround™, DTS-HD Master Audio™, and DTS:X®.
- Supports multichannel PCM audio downmixing to two-channel PCM.

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 | | |
|---------------------|---|---|
| HDMI Specification | HDMI, HDCP 2.2 | |
| UHD/HD | 4096×2160 (DCI) @ 60/30/24 Hz 3840×2160 (UHD) @ 60/50/24/25/30 Hz 1080p @ 23.98/24/25/29.97/30/50/59.94/60 Hz | 1080i ⁽¹⁾ @ 25/29.97/30 Hz 720p @ 30/50/59.94/60 Hz |
| VESA ⁽²⁾ | 2560×1600 1920×1200 1680×1050 1600×1200 1600×900 1440×900 1400×1050 | 1366×768 1360×768 1280×1024 1280×800 1280×768 1152×768 1024×768 |
| Color Space | YUV, RGB | |

| Encoding | |
|----------------------------|--|
| Density | Dual encoding engines |
| Compression Format | VC-2 (SMPTE-2042) |
| Chroma Subsampling | 4:2:0 |
| Video Quality Optimization | Video mode |
| Color Depth | 8-bit, 10-bit, 12-bit |
| HDR | HDR10, HLG, Dolby® Vision™ |
| Bit Rate | 900 Mbps |
| Latency | 0.5 frame (e.g. 1080p @ 60 Hz latency is < 8 ms between encoder and decoder) 1.5 frames in Fast Switching mode (e.g. 1080p @ 60 Hz latency is < 24 ms between encoder and decoder) Note: Unusual network configurations may increase overall latency |

| Audio | |
|--------------|--|
| Pass-through | LPCM 2.0 LPCM 5.1 LPCM 7.1 Dolby® Digital Dolby Digital Plus Dolby TrueHD Dolby Atmos® DTS® DTS-HD Master Audio™ |
| Down-mixing | Multichannel LPCM to two-channel LPCM |
| Sample Rate | 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz |
| Bit Depth | Up to 24-bit |

| Protocols | |
|-----------------|---|
| Video Streaming | RTP |
| Audio Streaming | RTP, up to 7.1 channels AES67, up to LPCM 7.1 channels |
| Addressing | DHCP, static |
| Encryption | AES-128 |
| QoS Tagging | RFC 2475 |
| Discovery | mDNS, LLDP, SAP |
| Management | HTTPS, SSH, Telnet, and WebSockets with TLS |
| IP Multicast | IGMPv2 and IGMPv3 support |

| Graphics Features | |
|------------------------|--|
| Text Insertion | Adjustable height/width, scrolling (speed, direction, or static), iterations (up to infinite), positioning, and adjustable color and alpha (transparency) channels. |
| Slate / Logo Insertion | 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). |

| Control | |
|---------|--|
| RS-232 | Device control and configuration; supports baud rates from 2400 to 115200 Bidirectional pass-through from control system to network |
| IR | Pass-through from control system to network Pass-through from network to control system |

| Connectors | |
|-------------------------|---|
| HDMI | 2 - Type A, 19-pin, female, locking |
| ETHERNET ⁽³⁾ | 2 - RJ45, 10/100/1000 Mbps |
| RS-232 / IR | 1 - Euroblock, 6-pin (2 ports); RS-232 or IR on ports 1 and 2 |
| Power | 1 - Euroblock, 2-pin |

| Indicators and controls | |
|-------------------------|--|
| PWR | 1 - LED, tricolor (red, amber, green) |
| HDMI | 2 - LED, bicolor (red, green) |
| LINK | 2 - LED, bicolor (red, green) |
| ID | 1 - Momentary, tact-type, backlit (blue); sends an identification broadcast message over the network to any listening devices. |
| Reboot | 1 - Momentary, tact-type |

| Power | |
|----------------------------------|--|
| PoE | IEEE 802.3af |
| Consumption | Up to 12 W |
| External Power Supply (optional) | Input: 110 - 220 V AC, 50/60 Hz Output: 48 V DC, 0.83 A |

| Environmental | |
|-------------------------|--|
| Cooling System | Front-to-rear airflow, temperature-controlled fans |
| Operating Temperature | +14 to +122 °F -10 to +50 °C |
| Storage Temperature | -14 to +140 °F -10 to +60 °C |
| Operating Humidity (RH) | 20% to 95%, non-condensing |

| Chassis | |
|------------------------|--|
| Dimensions (H x W x D) | 1.34 in x 8.19 in x 4.41 in 34 mm x 208 mm x 112 mm |
| Weight | 1.5 lbs / 0.7 kg |

| Certification | |
|---------------|-------------------------------|
| Device | CE, FCC, CB, RoHS |
| Supply | CE, FCC, cULus, CB, RCM, RoHS |

Accessories

| Description | SKU |
|---|----------------------|
| 48 Volt 0.83 Amp Power Supply | AT-PS-48083-C |
| Rack Mount Shelf for OmniStream | AT-OMNI-1XX-RACK-1RU |
| IR Emitter Cable for OmniStream Systems | AT-OMNI-IR-TX |
| IR Receiver Cable for PoE Extenders | AT-IR-SC-RX |
| LinkConnect™ HDMI to HDMI Cable | AT-LC-H2H |

Footnotes

- (1) Scaling and deinterlacing are not supported at 1080i.
- (2) All VESA resolutions are 60 Hz.
- (3) Maximum distance per hop is 330 feet (100 meters), depending upon network configuration.

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