



OmniStream[™]

AV Over IP for 4K Video, Audio, and Control





OmniStream: Truly Converged, Networked AV

OmniStream is an AV over IP product family from Atlona for distributing 4K video, audio, and control over a standard Gigabit network. It delivers the performance and dependability of traditional AV distribution, with the virtually unlimited scalability, and cost efficiency of integrating over IP networks.

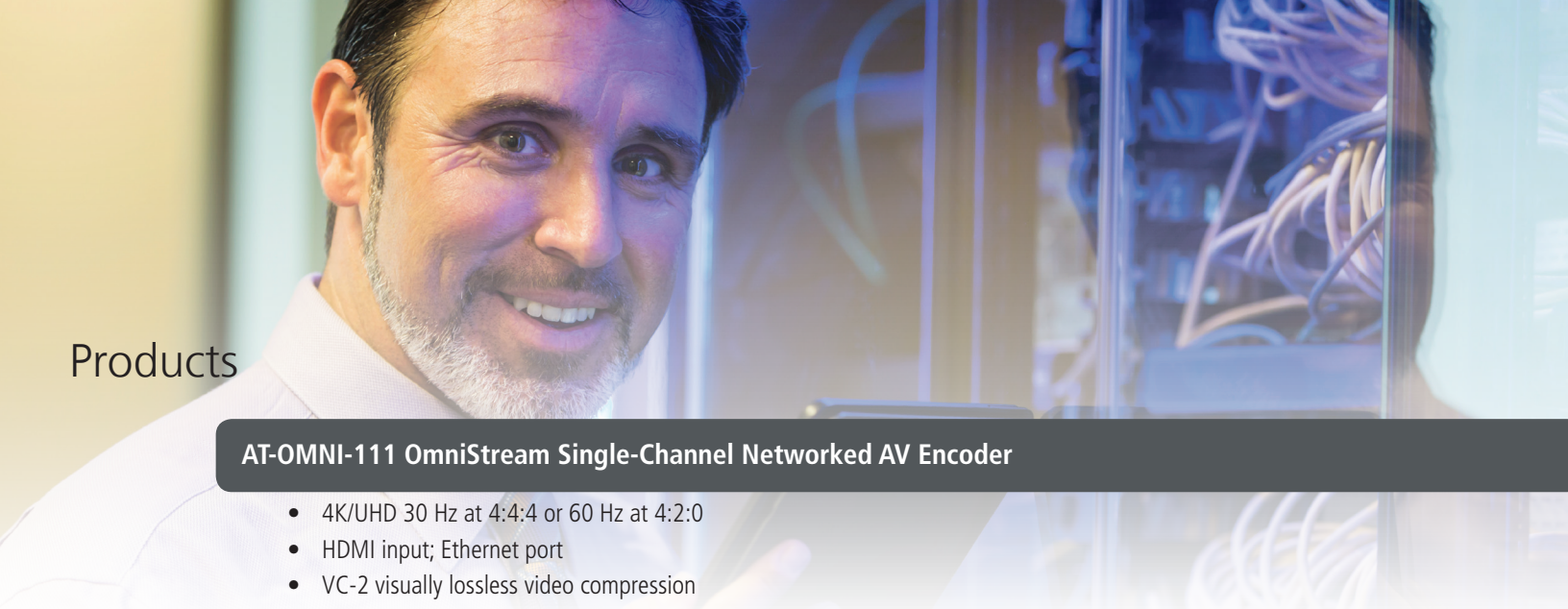
OmniStream was engineered from the ground up at Atlona with several industry-leading capabilities including high density encoding and decoding, redundant AV networks and streams, secure content distribution, network error resilience, critical-quality 4K video compression with extremely low latency, and audio distribution via Dante™ technology.

AV for IT

Enterprises and IT operations are looking forward to the data network as a common medium for data, productivity, and AV communications to maximize efficiency and ROI. Other forms of AV have already converged with IP, including audio, teleconferencing, and telephony. Video is the final hurdle.

Atlona specifically developed OmniStream to address the many technological and practical challenges associated with converging video onto IP networks. OmniStream is designed to integrate easily into a new or existing Gigabit network infrastructure, and deliver the same reliability, performance, and image quality expected of a baseband or HDBase™ video system.





Products

AT-OMNI-111 OmniStream Single-Channel Networked AV Encoder

- 4K/UHD 30 Hz at 4:4:4 or 60 Hz at 4:2:0
- HDMI input; Ethernet port
- VC-2 visually lossless video compression
- Local or PoE powered

AT-OMNI-112 OmniStream Dual-Channel Networked AV Encoder

- 4K/UHD 30 Hz at 4:4:4 or 60 Hz at 4:2:0
- Two HDMI inputs; two Ethernet ports
- Send two independent streams or redundant, identical streams
- VC-2 visually lossless video compression
- Local or PoE powered

AT-OMNI-121 OmniStream Single-Channel Networked AV Decoder

- 4K/UHD 30 Hz at 4:4:4 or 60 Hz at 4:2:0
- Ethernet port; HDMI output
- 4K/UHD 4:4:4 scaling
- Downmixing, audio embedding and de-embedding
- Extremely low latency: 0.5 frame from encoder to decoder
- Local or PoE powered

AT-OMNI-122 OmniStream Dual-Channel Networked AV Decoder

- 4K/UHD 30 Hz at 4:4:4 or 60 Hz at 4:2:0
- Two Ethernet ports; two HDMI outputs
- 4K/UHD 4:4:4 scaling
- Downmixing, audio embedding and de-embedding
- Extremely low latency: 0.5 frame from encoder to decoder
- Local or PoE powered

AT-OMNI-232 OmniStream Dual-Channel Dante™ Networked Audio Interface

- Integrates audio sources into a Dante-equipped DSP system
- Use on same network with OmniStream encoders and decoders
- Two balanced, mic/line inputs; two balanced line level outputs
- Local or PoE powered



Key Features



Supports HDMI video up 4K/UHD, plus audio and RS-232 control over IP

- 4K/UHD at 30 Hz and 4:4:4, or 60 Hz at 4:2:0 color subsampling
- Video, audio, and RS-232 can be routed together or independently



High density video over IP integration

- Dual-channel encoder and decoder process two independent video channels – a pro AV industry first!
- Dramatically reduces encoding and decoding cost per channel



Networked AV redundancy

- Replicate AV over two separate networks and IP streams – a first for the pro AV industry
- Enables primary and redundant networks, as well as delivering primary and redundant AV streams; meets IT requirements



Ideal for applications requiring secure content distribution

- AV presentation content can be encrypted using AES-128 to prevent unauthorized access
- Important for secure facilities in government / military applications
- Separate from HDCP – OmniStream is also HDCP compliant from encoders to decoders



Highly robust and reliable over IP networks

- SMPTE 2022 FEC forward error correction for very high resilience to network errors
- Ensures reliability and dependability of traditional video and audio routing platforms



Extremely low latency

- Broadcast-quality, light video compression with absolutely minimal, sub-frame latency – lowest in the pro AV industry!
- Provides pristine-quality video and graphics presentations, and is ideal for applications requiring interactivity



Power over Ethernet

- PoE-equipped Gigabit switches can remotely power encoders and decoders
- Use AMS or network switch to centrally manage power to all endpoints



Budget Friendly

- Delivers more value compared to traditional AV technology for facility-wide AV distribution
- Cost benefits increase further in large systems versus AV matrix switchers when scaling up I/O capacity

Features, continued

Professional broadcast-grade video compression technology

- SMPTE VC-2 codec, developed by the BBC, originally designed for critical quality broadcast applications
- Low compression; ideal for high-motion video and graphics at 4:4:4 color

Standard Gigabit network infrastructure

- Works with standard, off-the-shelf Gigabit managed switches from Cisco and others
- Can easily be integrated into existing network infrastructures

Design Highly Flexible and Scalable AV Systems

- No theoretical limitations on I/O size, switching capacity, or transmission distance
- “Virtual matrix” – can route any source to any destination, anywhere on the network
- Easily add sources, displays, and additional switches as needed

Flexible audio integration

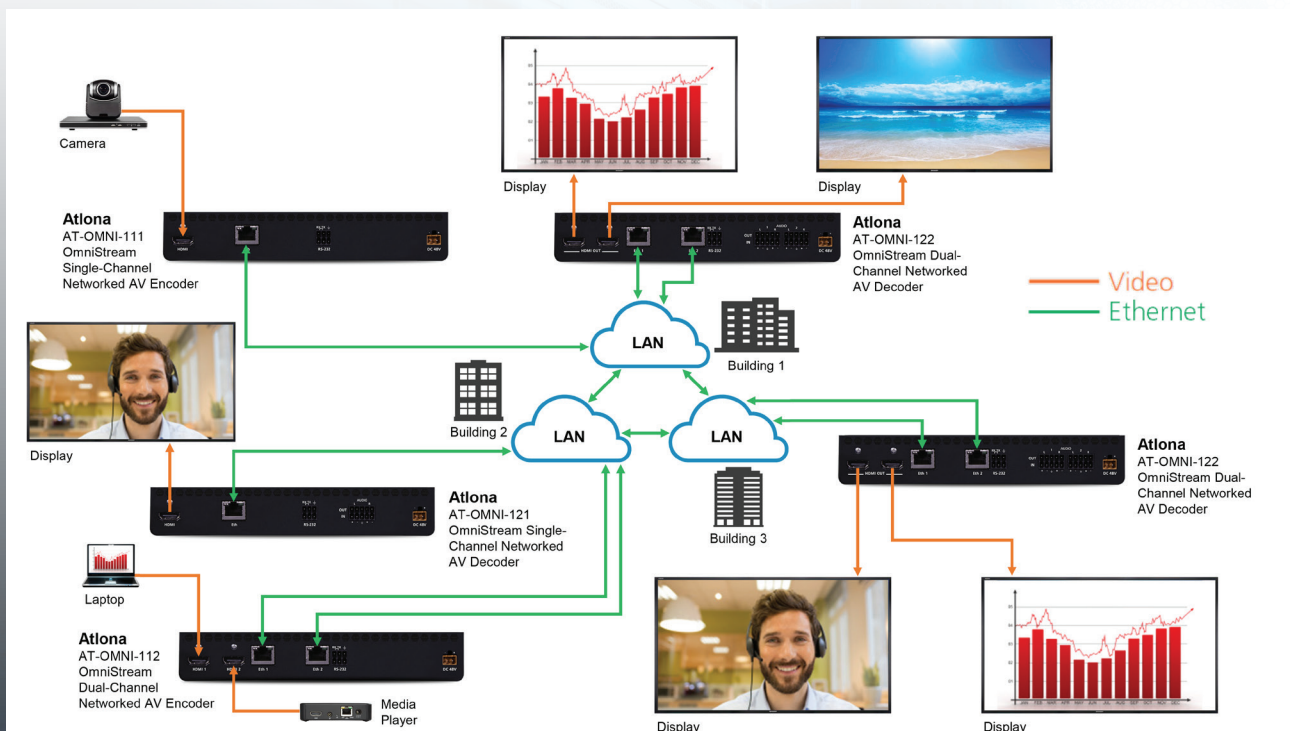
- Encoder streams HDMI video and embedded audio, together or separately
- Decoder supports HDMI embedded audio with network or local audio embedding, plus audio de-embedding and multi-channel audio downmixing
- Enables system design for simple audio needs as well as complex scenarios with audio DSP systems

Dante™ audio network interface integrates audio from sources such as PCs and microphones

- Transmits and receives audio over the network using Dante, a very popular technology for delivering professional-grade audio over IP
- Audio can be conveniently processed and routed in systems with a Dante-equipped DSP

Specifically designed for pro AV integration

- High performance 4K/UHD scaler at decoder with 4:4:4 video processing
- Automatic display control using RS-232 or CEC
- Display user-provided images, slides, and logos
- ...plus many more convenience features for pro AV integration



OmniStream Encoders and Decoders can bring together numerous sources and destinations from many different locations, and distribute content between them in ways that would not be possible with traditional AV matrix switching and distribution.

Designed like no other IP platform to solve your toughest challenges

OmniStream addresses the many challenges to successful implementation of networked AV systems. This is accomplished in ways that are unique to the professional AV industry.

Challenge #1: Deliver native-quality 4K signals over an IP network without latency

4K video requires 10 Gbps or greater bandwidth, which exceeds the practical capability of a data network. This can be addressed by compressing the video, but at the potential cost of introducing visual artifacts or latency.

Solution:

OmniStream uses a technology originally developed for the broadcast industry, that applies a light compression algorithm and meets the critical requirements for very high, production quality images. It also offers very minimal latency – the lowest of any compression technology in the pro AV industry.

Challenge #2: Enable cost-effective networked AV systems

Some AV over IP products run on expensive 10 Gigabit networks that are not widely implemented. Additionally, networked AV systems usually require a separate encoder and decoder for each video channel. This can be expensive for large enterprise systems.

Solution:

Our networked AV products run over Gigabit Ethernet, which is easily accessible, widely deployed, and cost-friendly. Our encoder and decoder are not only compact, which reduces overall rack space, but each device can process two video channels – an industry first. Compared to competing systems, this dramatically reduces the cost per channel in a deployed enterprise system.

Challenge #3: Provide flexible and scalable AV routing over networks

Some networked AV platforms deliver uncompressed video over 10 Gigabit Ethernet. The problem is that only one 4K video stream is possible per network segment, which limits system scalability and the ability to distribute signals between networks.

Solution:

OmniStream can allow 10 or more 4K video streams per 10 Gigabit link between networks, ensuring much greater flexibility and scalability for distributing AV.

Challenge #4: Satisfy the needs of IT integrators and decision makers

AV systems are increasingly procured and maintained by IT departments and management. Two primary requirements for IT adoption are the ability to remotely monitor an entire system, and provide a fully operational backup in the event of network failure.

Solution:

OmniStream will be centrally configured and administered through AMS. We've incorporated technology that allows encoded AV content to be duplicated over two independent IP streams, and also two physically separate networks. This redundancy capability is unique to the pro AV industry.

Challenge #5: Meet the requirement for secure AV communications

Networked AV systems are commonly installed in government, military, and other environments where the nature of the presentation content is sensitive and must be secured.

Solution:

Atlona AV over IP products include the option to engage encryption using the same standards-based technology used worldwide in government, financial, and other applications to secure data.

Works with
AMS[™]

Atlona Management System

Network management and configuration of Atlona IP- controllable products

The Atlona Management System (AMS) is a powerful software resource for select Atlona IP-controllable products in commercial, educational, government and residential environments. It integrates product configuration, management, and updates to reduce installation time and enable remote support.

AMS is the exclusive means to configure OmniStream and unlock all of the advanced capabilities including video configuration, dual or redundant transmission streams, display control, and access to Dante configuration for the Networked Audio Interface.

Features:

- Web-based Graphic User Interface
- Distributed management architecture
- Firmware download management
- Automatic firmware upgrade
- Remote configuration management
- Automatic Atlona device detection

About Atlona

Atlona is a leading global provider of AV and IT distribution and connectivity solutions. In an ever-changing industry, the company has been designing and engineering innovative, award-winning products for a diverse range of residential and commercial AV and IT markets, including education, business, government, entertainment, and healthcare.

Atlona's products and services enable system designers, integrators, consultants, and installers worldwide to simplify installation, minimize maintenance and maximize the versatility of premier automated control solutions. Backed by an industry-exclusive 10-year warranty, Atlona's customer-driven products are designed and developed with the features, performance, and reliability that leaders demand. More information about Atlona is available at atlona.com. Follow Atlona on Twitter at [@Atlona](https://twitter.com/Atlona).



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