

# Z/IPStream R/1

## The professional, one-box streaming appliance



## OVERVIEW

Z/IPStream combines audio processing with MP3 and AAC encoding in one convenient, single-rack unit. The AAC encoder supports AAC-LC, HE-AAC and HE-AAC v2 formats, and is fully managed and configured remotely with any standard Web browser. Z/IPStream features a wideband AGC, 3-band compressor/limiter, EQ, low-pass filter and a precision look-ahead final limiter; processed audio can then be encoded directly to MP3 or AAC streams to feed a remote replication server at your ISP. Streams can be “tagged” with “now-playing” information received from automation systems. Analog and Livewire® I/O are standard.

## FEATURES

- On-card audio processing includes wideband AGC, 4-band EQ and tone effects
- Includes a stereo enhancer, 3-band AGC with Fidelity control and SIS™ (Sound Impact System) to manage spectral balance
- 4-band limiter and brick-wall final limiter.
- Bit-reduced encoding is handled by host PC CPU.
- Supports MP3, AAC, and HE-AAC v1/v2 encoding, plus 3GP-compatible encoding for mobile phones.
- Compatible with all standard streaming server platforms including Darwin, Flash, Helix, Icecast 2, Red5, Shoutcast and Wowza using HTTP/ICY, RTSP/RTP Unicast, and RTMP protocols.
- Accepts audio input via Axia Livewire® connection or PCI (WDM driver).
- Four and eight channel models.

## Additional Features

- Audio pre-processing, stream encoding and delivery to remote replication server, all in a professional 1RU appliance.
- Pro-grade 24-bit A/D converter for studio-reference quality audio.
- Choice of MP3 or AAC-LC, HE-AAC, HE-AAC v2 stream coding, with output bit rates from 16 kbps to 320 kbps (dependent upon active codec).
- Omnia audio processing includes wideband AGC, 3-band compressor/limiter, EQ, low-pass filter and precision look-ahead final limiter.
- Metadata support for all popular playout platforms allows streams to be dynamically tagged with “now-playing” information from automation systems.
- Studio-grade analog and Livewire IP-Audio I/O, with separate LAN & WAN Ethernet ports.
- Directly supports ICEcast, SHOUTcast, SHOUTcast v2, Adobe Flash Media Server as well as Adobe RTMP, RTP streams (including RTP multicast), as well as LimeLight, Akamai and other popular streaming servers.
- Dual encoder support can be used to provide high and low bitrate streams, or MP3 and AAC at the same time.
- Can accept metadata over RS-232 (using USB to RS232 adapter).

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# IN DEPTH

## Plug. Play. Stream.

For years, the way to stream audio to Internet listeners included unbalanced mini-jacks, poor-quality sound cards, one or more PCs to maintain, and a collection of software that didn't always play nicely together. Broadcasters asked for a professional, PC-free Web streaming solution — and Telos delivers.

Z/IPStream R/1 takes the hassle out of streaming. There's no PC needed; Z/IPStream R/1 takes just 1RU of rack space. Slide it in and it's ready to gostreaming. Just send audio to Z/IPStream R/1, make a few setup selections and, within minutes, you'll be streaming your programming to your favorite stream server or streaming service for worldwide distribution.

Broadcasters know that Telos is the codec expert, and Omnia is the processing authority. Z/IPStream R/1 puts all of our expertise into one integrated streaming appliance. First, incoming audio gets treated to pre-processing from Omnia, using algorithms that work hand-in-glove with Z/IPStream R/1's codecs to shape and optimize audio prior to encoding. Then, genuine MPEG encoding algorithms from FhG, the inventors of MP3, ensure the most artifact-free sound quality at whatever bit rate you choose. Encode directly to an MP3 or MPEG-AAC stream, then send it to a Shoutcast, Wowza, Icecast, LimeLight, Akamai, Adobe Flash Media server, or other popular streaming server for distribution to your waiting listeners.

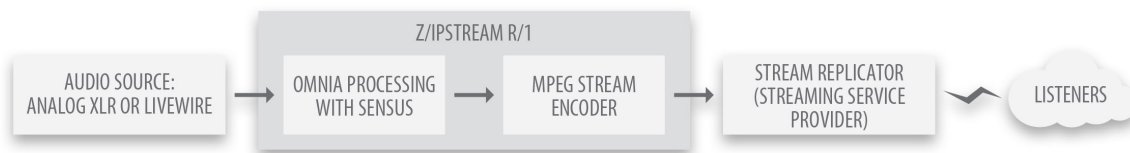
Setup is a breeze. Log in with a laptop and Web browser for easy setup or remote control, or tweak the front-panel controls. There's also a convenient built-in headphone amp with 1/4" jack and volume control for last minute in-the-rack fine tuning.



Z/IPStream R/1 comes with studio-grade analog inputs and outputs, plus Livewire Audio over IP. On the output side, Z/IPStream R/1 delivers fully processed, unencoded audio as well as encoded audio, providing your studio with another source for processed sound. Full network connectivity is provided via two Ethernet jacks, one for the LAN (including Livewire) and the other for the WAN and streaming.

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### The Professional Choice for Streaming Audio.



Optimizing sound quality is as essential on the web as it is on traditional formats. Z/IPStream R/1 has a built-in processing section that works together with the streaming encoder, optimizing your audio for stunning sound — even after bit-reduction. This isn't just some cheap leveler – it's real processing by Omnia, complete with wideband AGC, a 3-band combined compressor/limiter, high-frequency EQ, an adjustable-bandwidth low-pass filter, and Omnia's famous anti-aliasing final Look-Ahead limiter. There are even a selection of presets, tailored to specific formats and bit rates, to help you get up and running quickly.

Of course, the foundation for high fidelity audio distribution rests on professional encoding technology. The quality of the encoder directly affects the quality of the output. Telos has a long history of partnership with Germany's Fraunhofer Gesellschaft Laboratory (FhG), the world leader in audio compression research and the inventors of MP3; Z/IPStream R/1 uses genuine MP3 and MPEG-AAC encoding algorithms to ensure the most artifact-free sound quality at any bit rate you choose, from 16 kbps all the way to 320 kbps. No other encoder has this pedigree, or achieves this level of quality and performance. Generic "mp3" encoders can't come close.

Z/IPStream R/1 gives you a wide choice of genuine Fraunhofer encoding algorithms, which include MP3, the Standard for digital audio. It's the safest codec choice for compatibility with the widest variety of listening devices. Or choose AAC-LC, a high performance codec for excellent audio quality at lower bitrates. AAC-LC is in widespread use, most notably in Apple's iTunes. And then there's High Efficiency Advanced Audio Coding, or HE-AAC, a newer AAC codec which incorporates Spectral Band Replication (SBR) bandwidth expansion to improve audio at very low bitrates. HE-AAC v2 applies a Parametric Stereo feature to HE-AAC codec allowing for even further reduction in bandwidth.

When you're done processing and encoding, select your metadata source and feed your stream to any SHOUTcast or SHOUTcast v2-compatible media server, or a Wowza server for streaming to Flash clients. Z/IPStream R/1 works with ICECast and Adobe Flash Media and Adobe RTMP servers too, as well as popular streaming services from LimeLight, Akamai, and other popular streaming service providers. You can feed directly to a streaming server on your LAN, to an Internet streaming relay service via the WAN port, or take processed audio from the rear-panel XLR outputs. No matter what your audio source or how you stream, Z/IPStream R/1 delivers flawlessly optimized audio that sounds terrific.

# SPECIFICATIONS

## Audio Coding

### Codec Choices:

- MP3: 16 to 320 kbps
- AAC-LC: 24 to 320 kbps
- HE-AAC: 24-96 kbps
- HE-AAC v2 (aacPlus): 24-96 kbps

### AAC Transport Modes:

- ADTS
- ADTS-CRC
- ADIF
- RAW

### Metadata Formats:

- Character Parser Sample
- Line Parser Sample
- Nexgen Audio Sense
- Simian Template 1
- XML Parser Sample
- XML-Jazler
- XML-Jazler2
- XML-MediaTouch
- XML-MediaTouch2
- XML-Sample2
- XML-Zetta
- User-definable

## Input

- Analog: Balanced XLR, +4 dBu
- Input Impedance: 6K Ohm differential
- Analog to Digital Converter: 24bits
- Digital: Livewire AoIP, via LAN port

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### Output

- Analog: Balanced XLR
- Output Clipping: + 22dBu
- Output Impedance: 50 Ohm differential
- Digital to Analog Converter: 24bits
- Digital: Livewire AoIP, via LAN or WAN port

### Audio Performance

- THD+N: < 0.03% @ +12dBu, 1 kHz Sine
- Frequency Response: +/- 1dB 25– 20 kHz
- Headroom: 18dB
- Dynamic Range: > 87dB Unweighted > 90 dB "A" Weighted
- Crosstalk: > 80 db

### Remote Control

- LAN via built-in Webserver

### Power

- Internal supply, 85–250 VAC auto-switching, 50–60 Hz
- Power consumption: 14.2 Watts

### Regulatory

**North America:** FCC and CE tested and compliant, power supply is UL approved.

**Europe:** Complies with the European Union Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended by Commission Decisions 2005/618/EC, 2005/717/ EC, 2005/747/EC (RoHS Directive), and WEEE.

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