THE TELOS ALLIANCE

Z/IP ONE IP Codec

The IP Codec that Drops Jaws. Not Audio.

OVERVIEW

Z/IP ONE is a 1 RU rack-mount IP codec for remote broadcasting. It's a single-space rack unit perfect for studios, TOCs and remote kits. Z/IP ONE Includes a full range of codecs including AAC-ELD, AAC-HE, AAC-LD, MPEG 4 AAC, MPEG 2 AAC, MPEG Layer 2, G.711, G.722 codecs, plus linear audio and optional aptX® Enhanced coding. Z/IP ONE supports SIP 2.0 protocol and conforms to N/ACIP standards; it also works with VoIP devices and connects to compatible SIP PBXs. A full complement of I/O, including Livewire® AoIP, analog and AES/EBU, is standard.

FEATURES

- Works with wired and wireless IP connections including WiFi, WLAN and UMTS/EVDO networks.
- Exclusive Agile Connection Technology (ACT) automatically senses network conditions and adapts codec performance to provide the best possible audio.
- Largest choice of high-performance codecs: AAC-ELD, AAC-HE, AAC-LD, MPEG Layer-2, MPEG-4 AAC-LC, MPEG-2 AAC-LC, G.711, G.722, and linear PCM. Enhanced aptX coding optional.
- Dual Ethernet ports for separate streaming and control, LAN for local control with Livewire audio and GPIO; separate WAN for secure connection to wide area networks.
- Livewire, analog and AES/EBU I/O standard.
- Easy browser setup via built-in Web server.
- "Push Mode" for one-way network transmission.
- "Multiple Push Mode" for audio distribution to multiple destinations.
- Distributed Z/IP Server directory service, with multiple geolocations, lets you easily connect to other Z/IP ONE devices without the need for an IP address and also provides sophisticated NAT traversal support.
- Transparent, time-aligned RS-232 channel for remote control or metadata, e.g., RDS.
- Time-aligned 8-bit parallel GPIO port for signaling and control.
- Slim 1RU form factor is perfect for studio racks, remote kits or road cases.

IN DEPTH

Z/IP ONE: It's The Zephyr® for IP

These days, you can get broadband Internet just about everywhere, which makes it ideal for live remotes. But public Internet can also be erratic. You could be lucky enough to get a good connection, but it might deteriorate during your broadcast. What to do? Cross your fingers and hope for the best? Or reduce your bit rate, sacrificing audio quality in hopes of making it through your show?

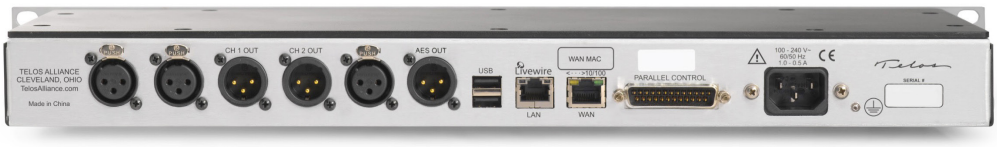
With Z/IP ONE (the "Z/IP" stands for "Zephyr IP"), you don't have to compromise audio quality for a solid connection. Z/IP ONE helps you get the best possible quality from public IP networks and mobile data services — even from connections behind NATs and firewalls. Telos® collaborated with Fraunhofer (the developers of MP3 and many AAC breakthroughs) to develop a unique coding control algorithm that adapts to changing Internet conditions on the fly, helping you maintain quality and stability.

We call it ACT, short for Agile Connection Technology, and only Telos has it. Using ACT to sense and adapt to the condition of your IP link, Z/IP ONE delivers superb performance on real-world networks. ACT adapts dynamically to minimize the effects of packet loss and jitter. When the bits are flowing smoothly, you'll benefit from the lowest possible delay and the highest possible fidelity. If congestion starts to occur, Z/IP ONE automatically lowers bit rate and increases buffer length to keep audio flowing at maximum quality. You'll get reliable audio even when network conditions are unpredictable — and you won't need to fiddle with settings or codecs to do it.

To make certain your remote broadcast has excellent audio quality even when IP connections are not-so-excellent, Telos engineers employed AAC-ELD (Advanced Audio Coding-Enhanced Low Delay) to produce excellent fidelity at low bitrates, with nearly inaudible loss concealment and very little delay. Standard high-performance codecs are a part of the Z/IP ONE toolkit as well, such as AAC-HE, AAC-LD, MPEG4 AAC-LC, MPEG2 AAC-LC, G.711, G.722 and even linear PCM. And if apt-X is part of your codec cache, you can add it to your Z/IP ONE as a small extra-cost option.

It's from Telos, so of course you expect that Z/IP ONE will be easy to set up and easy to use. And it is — the front panel controls are intuitive and friendly, and the built-in Web server makes short work of configuration or remote control via any PC with a Web browser. And our exclusive worldwide Z/IP Server service, free to Z/IP owners, lets you easily get around NATs and network firewalls for fast connections to your favorite locations. For even more flexibility, Z/IP ONE can connect to third-party apps such as LUCI LIVE and LUCI LIVE Lite to receive on-the-go reports from smartphones and tablets.

Around back, you'll find analog and AES3 XLR ins and outs, a Livewire LAN port for quick connection to Axia® networks, and a separate WAN port for safe connection to "the outside world."



Z/IP ONE is also wireless-capable and connects natively to IP networks via Wi-Fi. A parallel port is provided for end-to-end, time-aligned GPIO contact closures; Z/IP ONE can also transport RS-232 serial data (using an inexpensive USB-to-Serial adaptor cable), synchronized with audio delivery — useful for RDS/RBDS data, as well as other serial data, at up to 9600 bps.

SPECIFICATIONS

Conformance and Compatibility

- Conforms to N/ACIP (Open) Standards. Fully supports Session Initiation Protocol 2.0 (SIP). Compatible with TCP, UDP, DNS, Zephyr Xstream®, Uncompressed PCM and other Internet Protocols.

Codecs

- SIP: G.711, G.722, MPEG Layer2, MPEG AAC, MPEG 4 AAC LC, MPEG 2 AAC LC, Linear PCM, MPEG AAC-Enhanced Low Delay (ELD), High Efficiency AAC.
- Optional: apt-X Enhanced ® from CSR.

Connections

Analog

- 1x Stereo input, presented on two XLR-F connections
- 1x Stereo output, presented on two XLR-M connections

Livewire

- 1x 100BASE-T connections, presented on RJ-45

AES/EBU

- 1x Stereo Input, presented on one XLR-F connection
- 1x Stereo Output, presented on one XLR-M connection

Network

- 2x 100BASE-T connections, presented on RJ-45 (1x LAN, 1x WAN)

USB

- 2x A-Type, Female

Parallel (GPIO)

- 1x DB25, Male

Audio:

Analog Line Inputs:

- Input Impedance: 6K Ohm differential
- Input Range: Selectable, Line (+4 dBu nominal), Microphone (-50dBu nominal)
- Selectable Phantom power

Analog Line Outputs:

- Output Impedance: 50 Ohm differential
- Output Clipping: +22dBu

Digital Audio Inputs And Outputs

- Reference Level: +4 dBu (-20 dB FSD)
- Impedance: 110 Ohm, balanced
- Signal Format: AES3 (AES/EBU)
- AES3 Input Compliance: 24-bit with sample rate conversion
- AES3 Output Compliance: 24-bit
- Digital Reference: Internal (network timebase) or external reference 48 kHz, +/- 2 ppm
- Internal Sampling Rate: 48 kHz
- Input Sample Rate: 32 kHz to 192 kHz
- Output Sample Rate: 48, 44.1 or 32 kHz, or "sync to input" (auto-matches rate and clock from AES/EBU input)
- A/D Conversions: 24-bit, Delta-Sigma, 256x oversampling
- D/A Conversions: 24-bit, Delta-Sigma, 256x oversampling

Frequency Response

- Any input to any output: +/- 1dB 25– 20 kHz

Headroom
- 18 dB

Dynamic Range
- 87dB Unweighted
- 90 dB "A" Weighted

Total Harmonic Distortion + Noise
- < 0.03% @ +12dBu, 1 kHz Sine

Crosstalk Isolation
- > 80 dB

Power Supply AC Input
- Auto-ranging supply, 90VAC to 240VAC, 50 Hz to 60 Hz, IEC receptacle, internal fuse
- Power consumption: 14.2 Watts

Operating Temperatures
- 0-40 degrees C (32-104 degrees F), stirred air

Dimensions
- 19" (48.3 cm) standard rack mounting front panel
- 1.75" (4.5 cm) height, 6.5" (16.51 cm) depth
- Shipping Weight: 8 lbs. (3.62 kg)
- Shipping Dimensions: 24" x 14" x 6" (61 cm x 35.6 cm x 15.25 cm)

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