

AERO.enterprise

Linear Acoustic® software television
audio processor for loudness control,
upmixing, encoding, and audience
measurement



Linear Acoustic® AERO.enterprise

DTV Audio Processing Software





Trusted Linear Acoustic[®] DTV processing on your COTS hardware

Overview

High-quality, loudness-compliant, Linear Acoustic television audio processing on your own hardware.

AERO.enterprise takes our award-winning Linear Acoustic television loudness control, upmixing, and downmixing out of a dedicated hardware platform and brings it to your own Windows-equipped COTS server. Select one or several of the three available configurations: AERO.enterprise 5.1 (5.1+2+2), AERO.enterprise 2.0, and AERO.enterprise 5x2.

As with our traditional AERO solutions, support for SAP/DVS, EAS, local emergency audio, local voiceover, CrowdControl™ for increased dialogue intelligibility, and Audio Description (warble tone) are included. Dolby Digital Plus coding and Nielsen or Verance Aspect audience measurement watermark encoding are optional. Fifty5Blue and Numeris watermarking will be available in 2026.

ITU-R BS.1770 and selectable EBU R-128 or ATSC A/85 metering and logging (including True Peak) are provided for all program outputs. NfRemote software is included for remote configuration, control, and metering from either the host system or a different control PC over a standard network connection. A built-in HTTP server enables control of I/O, presets, individual processing parameters, and task macros using simple IP commands.

Standard I/O for AERO.enterprise is Audio over IP (AoIP), using AES67 in support of SMPTE ST 2110-30 (Level A) as well as Livewire+. Telos Alliance xNode2 and the Telos Alliance SDI AoIP Node can be used to convert traditional analog, AES3, and SDI signals to/from AoIP.

Features

- Linear Acoustic[®] AEROMAX[®] loudness and dynamics control
- UPMAX[®]-II automatic 5.1 upmixing and 2.0 downmixing
- Support for SAP/DVS
- Logging of loudness and True Peak data
- CrowdControl for increased dialog intelligibility
- Optional Dolby Digital Plus transcoding for decoding of Dolby Digital/Dolby Digital Plus content to PCM audio for loudness processing and encoding to Dolby Digital/Dolby Digital Plus for transmission

Available Dolby® Digital Plus transcoding and audience measurement watermark encoding.



- Optional Nielsen watermark encoding
- Optional Verance Aspect watermark encoding
- Optional Fifty5Blue watermark encoding (Expected 2026)
- Optional Numeris watermark encoding (Expected 2026)
- AES67, SMPTE ST 2110-30 (Level A), ST2110-31, and Livewire+ support
- SMPTE ST 2022-7 redundancy
- NfRemote for remote configuration and monitoring
- Built-in HTTP server for IP-based control

In Depth

AERO.enterprise brings trusted, award-winning, no-compromise Linear Acoustic television audio processing to the virtual world on customer-provided server-grade hardware.

Everything you love about our hardware processors - loudness control, UPMAX-II upmixing/downmixing, Dolby® coding, Nielsen and Verance® Aspect® watermark encoding, flexible audio routing, and more - is available in AERO.enterprise. Fifty5Blue and Numeris watermarking will be available in 2026.

Variations in host system configuration and resources will affect how many AERO.enterprise processors and options can be installed on a single server. Your Linear Acoustic representative can help determine what is required to meet the needs of your unique facility.

AERO.enterprise processing is offered in three configurations, which can be combined as needed to meet the needs of any 5.1-channel and 2-channel workflows.

AERO.enterprise 5.1 is designed to process and output 5.1-channel content on the main program path. It is a 5.1+2+2 configuration that provides three independent processing paths:

- The primary 5.1-channel program path accepts native 5.1 content or 2.0 content to be upmixed to 5.1
- The secondary 2-channel program path can be used for SAP (secondary audio programming), descriptive video, or as a downmix of the primary 5.1-channel content
- An additional 2-channel program path can be used for local audio insertion (such as EAS or text-to-speech), which can be upmixed to 5.1, or as a downmix of the primary 5.1-channel content



Compliant, viewer-pleasing television audio

Dolby Digital Plus/Dolby Digital 5.1 transcoding is optionally available for the primary 5.1-channel path. 2.0-channel transcoding is optionally available for the secondary 2-channel path. When equipped with optional Nielsen or Verance Aspect watermarking, each program path gets its own unique encoder. Fifty5Blue and Numeris watermarking will be available in 2026.

AERO.enterprise 2.0 is designed for applications where the main program path will deliver 2-channel audio. It is a 2+2+2 configuration that provides three independent processing paths:

- The primary 2-channel path accepts native 2.0 content but can also downmix native 5.1-channel content to stereo
- The secondary 2-channel path can be used for SAP (secondary audio programming), descriptive video, or as a downmix of the primary 5.1-channel content
- An additional 2-channel program path can be used for local audio insertion (such as EAS or text-to-speech), which can be upmixed to 5.1, or as a downmix of the primary 5.1-channel content

Dolby Digital Plus/Dolby Digital 2.0 transcoding is optionally available for the primary 2-channel path and the secondary 2-channel path. When equipped with optional Nielsen or Verance Aspect watermarking, each program path gets its own unique encoder. Fifty5Blue and Numeris watermarking will be available in 2026.

AERO.enterprise 5x2 is optimized for situations where both incoming audio programs and processed output audio are limited to 2 channels, and no downmixing from 5.1-channel audio or upmixing to 5.1 is required. Its 2+2+2+2+2 configuration provides five independent 2-channel processing paths.

Dolby Digital Plus/Dolby Digital 2.0 transcoding is optionally available for each program path. When equipped with optional Nielsen or Verance Aspect watermarking, each program path gets its own unique encoder. Optional Fifty5Blue and Numeris watermark modules will be available in 2026.

All configurations offer ITU-R BS.1770 loudness metering and logging, verifying compliance with worldwide regulations, including ATSC A/85 and EBU R-128. Continuous active logging captures 24-hour, 48-hour, and 7.5-day rolling weekly reports as well as specific time slots controlled by start/stop commands. Loudness measurements with multiple integration times and True Peak measurements, for every output, can be downloaded at any time.

Available Nielsen® and Verance® Aspect® watermark encoding



NfRemote, the primary remote control application, is used to configure, control, and monitor all processing parameters. It can also deliver and record up to 5.1 channels of remote audio, link bandwidth permitting, to the user's workstation so they can audition signal quality anywhere in the audio processing chain. An internal HTTP server is included for simple get/set control of all parameters, retrieval of status and loudness logs information, and configuration of task scripts (macros).

Specifications

Processing

- Multiple AERO.enterprise processors in your choice of the following configurations:
 - AERO.enterprise 5.1 (5.1+2+2)
 - AERO.enterprise 2.0 (2+2+2)
 - AERO.enterprise 5x2 (2+2+2+2+2)
 - UPMAX-II two-channel to 5.1 channel upmixing (part of AERO.enterprise 5.1)
 - 5.1 channel downmix is part of AERO.enterprise 2.0
- Loudness logging, including True Peak measurements, available as 24-hour, 48-hour, and 7.5-day rolling weekly reports
- Optional 5.1-channel and 2.0-channel Dolby® Digital Plus / Dolby Digital transcoding (depending on processor type), or decoding Dolby Digital / Dolby Digital Plus signals to PCM for loudness processing, and encoding/re-encoding to Dolby Digital/Dolby Digital Plus for transmission
- Optional Nielsen watermark encoding, including N2, N6, and CBET
- Optional Verance Aspect watermark encoding
- Optional Fifty5Blue watermark encoding
- Optional Numeris watermark encoding

Sample Rate/Resolution/Frequency Response

- 48kHz, 24-bit
- 20Hz to 20kHz (+/- 0.1 dB below threshold)



AES67 I/O in support of SMPTE ST2110-30

Clock References

- PTP (IEEE-1588)
- Livewire clock
- NTP clock for watermark encoding

I/O

- AES67 in support of SMPTE ST 2110-30 (Level A) and Livewire+
- SMPTE 2022-7 stream redundancy

Remote Control

- NfRemote, a Windows®-compatible TCP/IP remote control application, is included for full setup and control of the AERO.enterprise processors, including return audio for remote signal monitoring and recording (network speed permitting)
- SNMP Monitoring
- Internal HTTP server allows get/set control and task script configuration
- Ember+ control
- Livewire® GPIO protocol

Warranty

- For the latest Telos Alliance warranty, visit <https://telosalliance.com/warranty>

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