

# Linear Acoustic® LA-5300

## The Complete Audio Processor for ATSC 3.0



## OVERVIEW

The Linear Acoustic LA-5300 Broadcast Audio Processor provides everything broadcasters need to be ready for NEXTGEN TV/ATSC 3.0 audio in a single, compact, integrated package, including loudness control, upmixing, encoding, transcoding, audience measurement watermarking, bitstream analysis for up to four simultaneous real-time program streams, and a confidence monitor output.

## FEATURES

- Dolby® AC-4 encoding from PCM
- Transcoding from Dolby Digital and Dolby Digital Plus to AC-4
- AC-4 decoding for watermarking and bitstream analysis and monitoring
- Linear Acoustic UPMAX® ISC upmixing
- Optional Verance or Nielsen watermarking
- Dolby Real-Time Loudness Leveler when encoding to AC-4
- Dual 3Gb/s HD/SD-SDI, 5 pairs of AES-3 I/O, and AES67 I/O in support of SMPTE ST 2110-30 and -31 workflows
- Optional Quad-Link 3Gb/s SDI I/O for supporting 4K workflows or MADI I/O (mutually exclusive)
- Dual 1000BaseT Ethernet connections (AES67 and control)
- SNMP alarm and status reporting
- Web-based user interface provides comprehensive setup, configuration, routing, control, and metering

## IN DEPTH

### A Complete ATSC 3.0/NEXTGEN TV Audio Solution

The roll-out of ATSC 3.0 - better known to consumers as NEXTGEN TV - brings with it a unique set of requirements, challenges, and opportunities for television broadcasters. The Linear Acoustic LA-5300 provides a single solution for loudness control, upmixing, decoding AC-4 for audience measurement watermark insertion, bitstream analysis, and monitoring, transcoding of Dolby Digital and Dolby Digital Plus to AC-4, and Dolby AC-4 encoding. The ability to handle up to 4 programs means one LA-5300 can provide unique encoded streams for the main program audio, SAP, and video descriptive services—all in a single 1RU solution. A decode and monitor-only version is also available which omits upmixing, watermarking, and AC-4 encoding.

### I/O for Any Facility

The LA-5300 comes standard with 5 pairs of AES-3 I/O, dual 3G SDI I/O, and AES67 I/O to support SMPTE ST 2110-30 and -31 workflows. Options include Quad-Link 3G SDI for facilities utilizing 4K workflows, or MADI I/O. Two Gigabit Ethernet ports are provided, one for AES67, and one for remote control via the web-based GUI.

## Ready for Today, Ready for Tomorrow

The LA-5300 meets the immediate requirements for NEXTGEN TV/ATSC 3.0 audio right out of the box, with channel-based AC-4 encoding, loudness control, and upmixing for multiple programs. As ATSC 3.0 adoption grows, support for its additional features and benefits such as immersive and object-based audio, interactive consumer control, personalized audio, and multiple presentations within a single stream will be incorporated into the LA-5300 via software updates.

## SPECIFICATIONS

### Processing

- Processing for up to 4 independent program streams
- Linear Acoustic UPMAX ISC upmixing
- Dolby Real-Time Loudness Leveler (RTLL) when encoding to AC-4
- Optional Nielsen and Verance audience measurement watermarking

### Decoding

- Decodes Dolby AC-4 at the input for watermarking and monitoring with AC-4 passthrough ability

### Transcoding

- Transcodes Dolby Digital and Dolby Digital Plus to Dolby AC-4

### Encoding

- Encodes to Dolby AC-4

### Watermarking

- Optional Nielsen and Verance audience measurement watermarking

### Bitstream Analysis and Monitoring

- Bitstream analysis of all streams simultaneously plus a confidence monitoring output for one stream at a time

### HD/SD-SDI I/O

- Two independent auto-sensing 3Gb/s HD/SD-SDI inputs (SMPTE ST 425-1, 292M, and 259M) up to 1080p/60/59.94/50Hz, each with de-embedding/re-embedding for up to 8 audio pairs
- Optional Quad-Link 3Gb/s SDI for 4k workflows (mutually exclusive with MADI option)

## AES-3 I/O

- 5 inputs/outputs via 75 Ohm BNC unbalanced female connectors, internally terminated; signal levels per SMPTE 276M/AES-3ID-2001

## AES67 I/O

- 16 channels of bi-directional AES67 I/O in support of SMPTE ST 2110-30 and -31 workflows

## MADI I/O

- Optional MADI I/O supports up to 32 channels for processing (mutually exclusive with Quad-Link SDI option)
- Passthrough and shuffling for up to 64 channels
- I/O via coax or optical SFP socket (SFP sold separately)

## Reference

- 48kHz reference via SDI, PTP, AES-3, internal clock (standalone use only), or MADI (when MADI option is installed)
- Vref

## Sample Rate/Resolution/Frequency Response

- 48kHz, 24-bit, 20Hz – 20kHz

## Ethernet

- Two Gigabit RJ-45 connections – one for AES67, one for networked remote control

## Parallel GPI/O Control Port

- 15-pin female D connector, 0-5V TTL levels, 5 GPI/O inputs, 5 GPI/O outputs.

## Power

- Dual internal redundant auto-ranging power supplies
- 95-240 VAC, 50/60 Hz, 100W maximum total

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### Dimensions and Weight

- 19" W x 15.5" D x 1.75" H (approximately 48.2 x 39.4 x 4.5 cm)
- Net weight: Approximately 9.0 lbs (4.08 kg)
- Shipping weight: Approximately 12.0 lbs (5.44 kg)

### Regulatory

- North America – FCC and CE tested and compliant with UL-approved power supplies
- Europe – Complies with European Union Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

### Warranty

- Standard Telos Alliance 2-year limited parts and labor