

# LA-5300



LA-5300 makes it easy to capitalize on all the added benefits of Next Generation Audio, including immersive audio utilizing Dolby® AC-4 audio, with the option of backwards compatibility with existing HD services. LA-5300 is your complete solution for Next Generation Audio.



## Linear Acoustic® LA-5300

The Complete Solution for Next Generation Audio

**INTERNATIONAL VERSION**





# Next Generation Audio Workflows, Today

## Next-Generation TV Made Easy

Watching TV today is a very different experience than it was just a decade ago. Viewers can watch broadcast TV off the air, from cable and satellite providers, or via streaming services. Media consumption continues to evolve rapidly to match our on-demand lifestyle. Add the new capabilities of next generation TV services, and now broadcasters can deliver a truly cinematic experience to audiences, whether they are watching on a big-screen TV or on a mobile device.

The Linear Acoustic® LA-5300 Broadcast Audio Processor provides everything broadcasters need to be ready for next-generation TV services utilizing Dolby® AC-4 audio, with the option of backward compatibility for existing HD services.

LA-5300 offers a single, compact, integrated package that includes loudness control, upmixing, encoding, transcoding, audience measurement watermarking, and bitstream analysis for up to four simultaneous real-time program streams along with a confidence monitor output.

...provides everything broadcasters  
need to be ready for next-  
generation TV services utilizing  
Dolby AC-4 audio, with optional  
backward compatibility for existing  
HD services.

# Backwards Compatible with Existing HD Services



## Features

- Dolby® AC-4 encoding from PCM for stereo, 5.1, and Dolby Atmos® services
- Transcoding from Dolby Digital and Dolby Digital Plus to AC-4
- Optional encoding / transcoding into Dolby Digital and Dolby Digital Plus
- AC-4 / Dolby Digital / Dolby Digital Plus 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
- Linear Acoustic APTO™ loudness control when encoding to Dolby Digital / Dolby Digital Plus
- 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



## Get Ready for Immersive Audio

# The Complete Solution for Next Generation Audio Services (NGA)

The roll-out of next generation TV services offer great benefits for both the broadcaster and the viewer alike. Not only does the viewer benefit from video features like UHD and HDR, but new audio features such as personalization, dialog enhancement, and Dolby Atmos (immersive audio) all bring a more enriching experience to your audience.

The Linear Acoustic LA-5300 provides a single solution for loudness control, upmixing, audience measurement watermark insertion, bitstream analysis and monitoring, encoding of PCM audio into Dolby AC-4, and transcoding of Dolby Digital or Dolby Digital Plus to AC-4.

...personalization, dialog enhancement, and Dolby Atmos all bring a more enriching experience to your audience.

The LA-5300 can also handle all of your audio processing needs for today's HD services and feeds to cable, satellite, and OTT providers with a software option that uses the same processing techniques available for NGA paths with the final encoded signal being Dolby Digital or Dolby Digital Plus instead of Dolby AC-4.

The ability to handle up to four audio programs means one LA-5300 can provide unique encoded streams for the main program audio, additional language audio programs, 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 MAD I/O. Two Gigabit Ethernet ports are provided, one for AES67, and one for remote control via the web-based GUI.

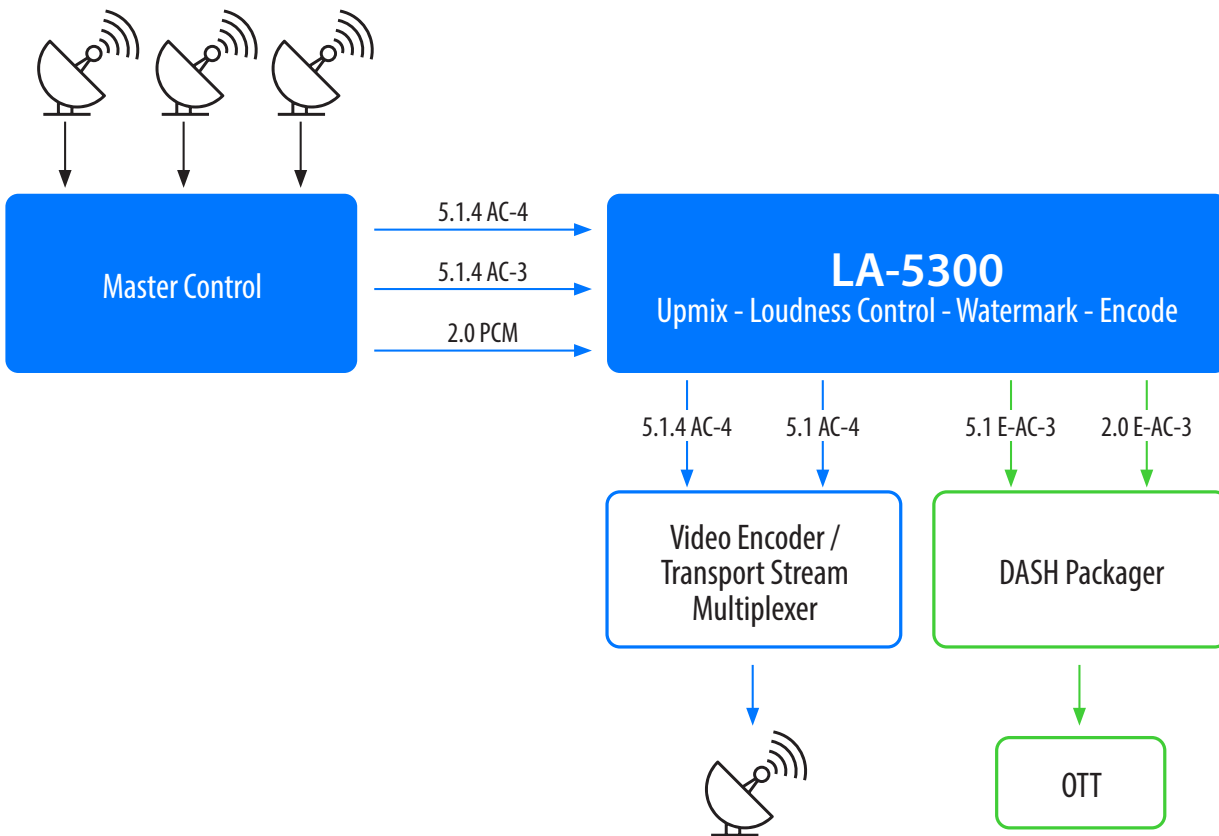
# Ready for Today, Ready for Tomorrow



## Ready for Today, Ready for Tomorrow

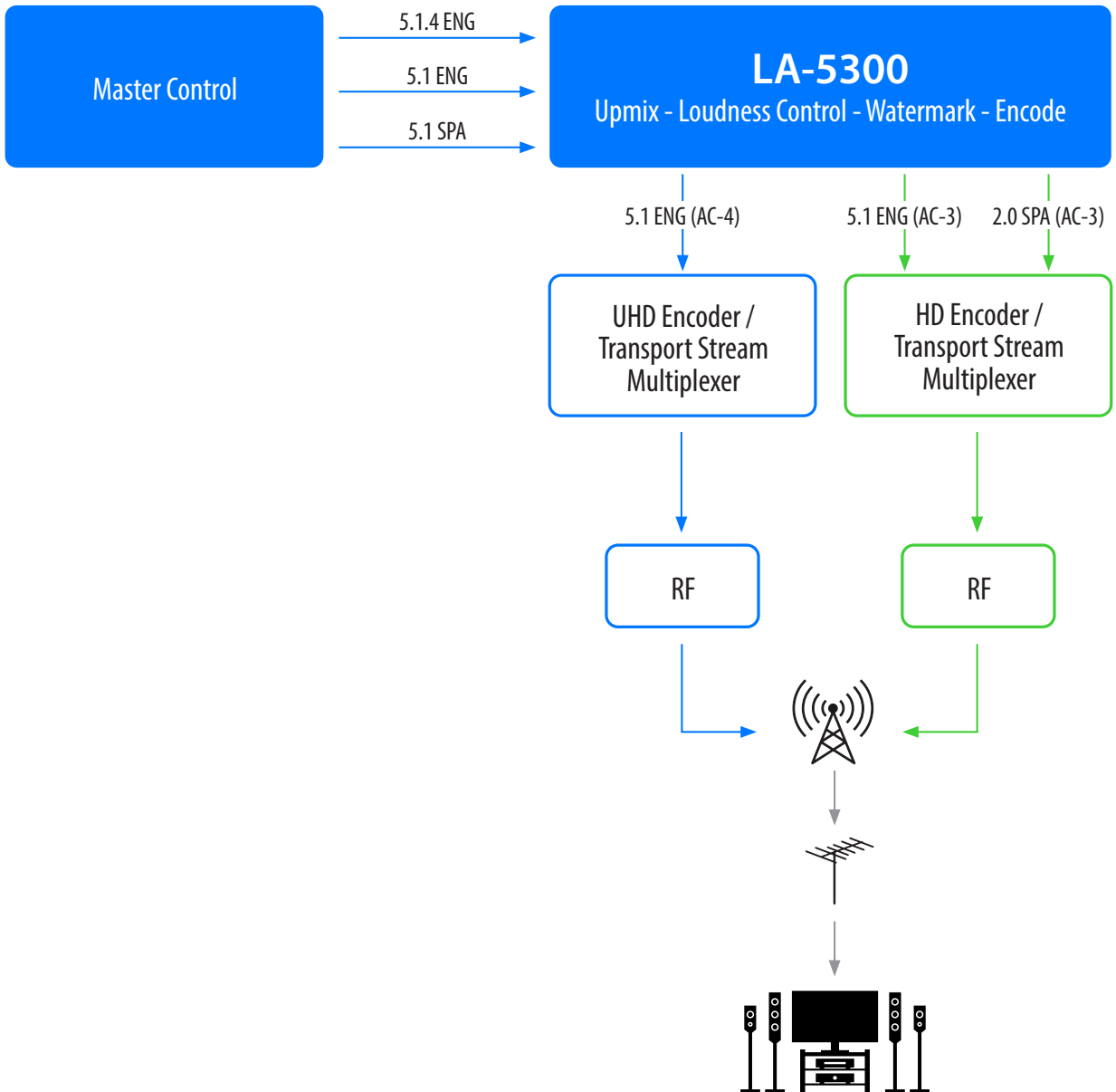
The LA-5300 meets the immediate requirements for next generation audio services, with channel-based Dolby AC-4 encoding, loudness control, and upmixing to either 5.1 or Dolby Atmos (immersive audio) configurations for multiple programs. As NGA adoption grows, support for its additional features and benefits such as 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.

## Cable / Satellite Facility Workflow



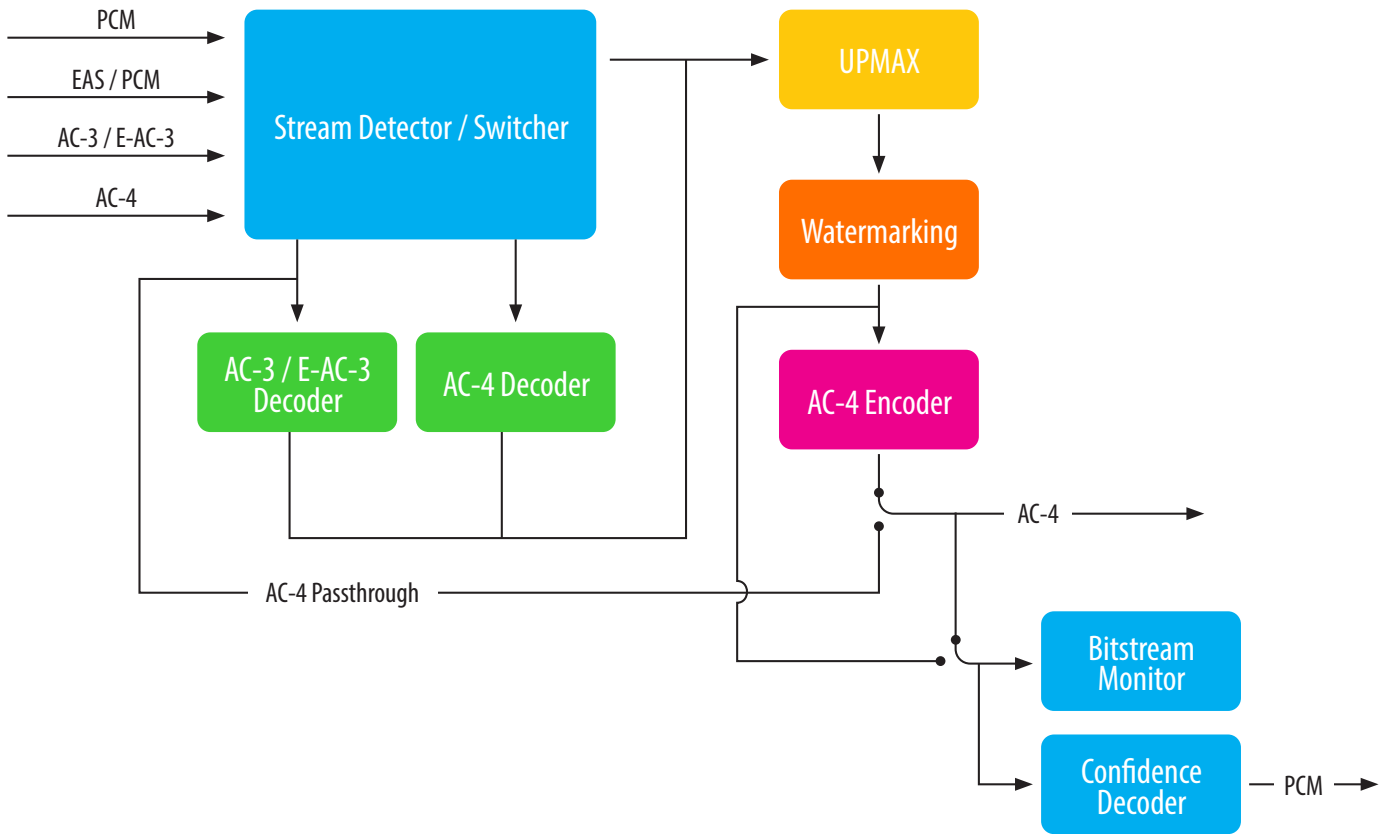


## UHD / HD Broadcast





## AC-4 Encoder Block Diagram





# Processing for Up to Four Independent Program Streams

## Specifications

### Processing

- Processing for up to four independent program streams
- Linear Acoustic UPMAX ISC® upmixing to 5.1 or immersive configurations
- Dolby® Real-Time Loudness Leveler (RTLL) when encoding to AC-4
- Linear Acoustic APTO™ Loudness Control when encoding to Dolby Digital / Dolby Digital Plus
- Optional Nielsen and Verance audience measurement watermarking

### Decoding

- Decodes Dolby AC-4, Dolby Digital, or Dolby Digital Plus at the input for watermarking and monitoring with AC-4 passthrough ability

### Transcoding

- Transcodes Dolby Digital and Dolby Digital Plus to Dolby AC-4
- Optional transcoding of Dolby AC-4 to Dolby Digital / Dolby Digital Plus

### Encoding

- Encodes to Dolby AC-4
- Optional encoding to Dolby Digital (AC-3) / Dolby Digital Plus (E-AC-3)

### 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



# Legendary UPMAX ISC for Upmixing to 5.1 or Immersive



## 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 MAD I 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)

## Clock 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



# Decodes AC-4, Dolby Digital, Dolby Digital Plus

## 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

## 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)
- Compliant with the CE EN 62368-1:2018 requirements

## Warranty

- Standard Telos Alliance 2-year limited parts and labor

# Available with Nielsen & Verance Watermarking



Dolby®, Dolby Atmos®, Dolby Audio, and the double-D symbol are trademarks of Dolby Laboratories.