

Kudos

Single Channel Motion Adaptive Standards Converters



LC300 and LC350 are highly cost-effective, linear motion adaptive standards converters for many applications.

The LC300 and LC350 single channel linear framerate converters from Grass Valley, a Belden Brand, offer legendary motion-adaptive conversion quality at a very affordable price

The LC300 is ideal for a wide range of applications, including high-density international program distribution and back-up channels. Its low price point also brings the LC300 within reach of AV, prosumer, college and house of worship users, delivering conversion quality and feature levels previously only achievable with significantly more expensive technology.

Features of the LC300 and LC350 include: linear motion-adaptive SD/HD/3G-SDI framerate conversion, up, down and cross format conversion, frame synchronization, 16-channel embedded audio processing, closed-caption/timcode handling, preset/signaling ARC modes, dual PSUs and continuous output when input switches. The LC300 also offers easy control direct from its front panel as well as remote control using RollCall via a standard web interface.

The LC350 also adds composite I/O, balanced AES and analog audio I/O and optional unbalanced AES I/O.

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KEY FEATURES

- Linear motion adaptive SD/HD/3G-SDI frame rate conversion
- SD/HD/3G-SDI up, down and cross conversion
- Synchronization, legalization and color correction
- 16-channel embedded audio processing for each video channel
- Continuous output when input standard switches
- Closed caption, WST and timecode handling
- Automatic aspect ratio conversion (AFD, VI, L23) with user line choice for SMPTE ST 2016
- Powerful picture enhancement tools
- HDMI monitor output
- Support for fiber input and output
- Dual PSU as standard
- Front panel and remote control via web interface and RollCall
- Front panel control lock
- GPI/O support
- SMPTE ST 2020 metadata support
- Dolby delay compensation
- Optional logo inserter, sidebar keyer and noise reduction
- Clean cut

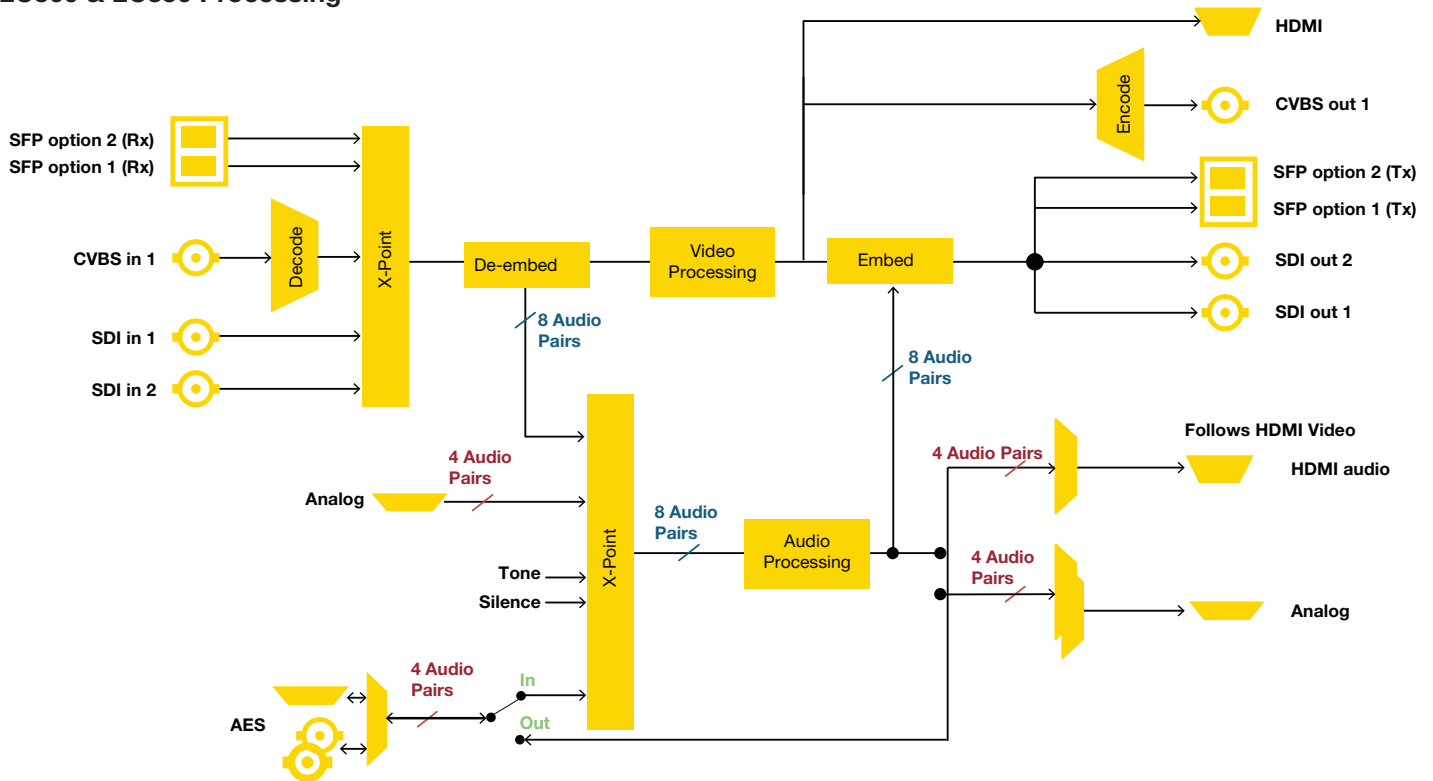
LC350 Additional Features

- Composite input/output
- Balanced AES and analog audio I/O
- Optional unbalanced AES I/O

Applications

- Fast news integration — any frame rate, any format
- Corporate AV — international business conferences
- Campus TV — educational and informational
- House of worship — management of multiple different sources

LC300 & LC350 Processing



Rear panel shows LC350 with unbalanced AES option fitted.

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SPECIFICATIONS

Signal Inputs

Serial digital 2x 75Ω SD/HD/3G serial digital with embedded audio

Input standards:

- 3 Gb/s HD-SDI, SMPTE ST 425 level A, dual-link level B
- 1.5 Gb/s HD-SDI SMPTE ST 292/SMPTE ST 299
- 270 Mb/s SD-SDI SMPTE ST 259

Composite PAL, NTSC, NTSC-J, PAL-M, PAL-N, N4.4, SECAM

12-bit ADCs (LC350)

Analog component (LC350) YC

Reference: 1x loop-through HDTV Trisync/SD Bi-sync (black & burst) SMPTE ST 240/SMPTE ST 274

Audio AES (LC350):

- Up to 8x balanced AES inputs – via 25-way D-Type
- Up to 8x unbalanced AES inputs – via 8x BNC (LC350 option)

Analog audio (LC350): 2x stereo analog inputs via 25-way D-Type

Signal Outputs

Serial digital 2x 75Ω SD/HD/3G serial digital with embedded audio

Output standards:

- 3 Gb/s HD-SDI, SMPTE ST 425 level A, dual-link level B
- 1.5 Gb/s HD-SDI SMPTE ST 292/SMPTE ST 299
- 270 Mb/s SD-SDI SMPTE ST 259

Composite PAL, NTSC, NTSC-J, PAL-M, PAL-N

12-bit DACs (LC350)

Audio AES (LC350):

- Up to 8x balanced AES outputs – via 25-way D-Type
- Up to 8x unbalanced AES outputs – via 8x BNC (LC350 option)

Analog audio (LC350): 2x stereo analog outputs via 25-way D-Type

Input Standards

(auto detect) 525, 625
720 50/59.94/60p
1080 50/59.94/60i
1080 50/59.94/60p (Levels A and B)
720/1080 23/24/25/29/30p
1080 23/24/25/29psf, with film detection and processing

Output Standards

525, 625
720 50/59.94/60p
1080 50/59.94/60i
1080 50/59.94/60p (Levels A and B)
720/1080 23/24/25/29/30p
1080 23/24/25/29psf, with film detection and processing

Conversion Functions

Modes: SD/HD/3G Linear Standards Conversion
Upconversion, Downconversion, Crossconversion

Manual or Automatic ARC

AFD: (SMPTE ST 2016), VI (RP186), WSS (L23)
SD input format: Normal 4:3, Anamorphic 16:9, Letterbox 14:9, Letterbox 16:9
SD output format: Normal 4:3, Anamorphic 16:9, Letterbox 14:9, Letterbox 16:9

Auto zoom: On/Off

Manual zoom: Zoom ±20%

Safe area marker: Off, 16:9, 4:3

Manual controls: size, aspect, pan, tilt
Wide range of ARC presets including 702 sample line mode

Metadata

Closed caption CEA608 <> CEA708
Timecode conversions
WST/RDD8 conversion
SMPTE ST 2020 embed/de-embed

Audio Functions

Analog Audio (LC350):

Two pairs of analog inputs and two pairs of analog output are available individually to the processing channel

Headroom +24 dBu; balanced connection

AES Audio (LC350):

AES audio is accessible via 8 bidirectional ports which can be configured as inputs or outputs

AES input is auto-detected as PCM (32-96 kHz) or non-PCM (48 kHz locked to relevant video input)

Embedded Audio:

16-channel embedded audio processing

PCM audio processing includes channel level gain and delay compensation, as well as channel level routing/shuffle with audio phase inversion

Non-PCM processing features pair level routing and delay compensation

Dolby-E data is passed with a delay to match the video and with co-timed audio frame drop or repeat

System

Pattern Off, Black, Ramp, Bars
Proc amp

Black Level: +100 to -100 mV (0) in 0.8 mV steps

Contrast: -6 dB to +6 dB (0) in 0.2 dB steps

Saturation: -6 dB to +6 dB (0) in 0.2 dB steps

Y Gamma: 0.4 to 1.7 (1) in 0.1 steps

Freeze: On/Off

Genlock: Reference lock, Input lock (same format), Follow input (same frame rate), Free run

Memories: 16 user memories

Adjustable Legalizer and color correction support
EDH support

Communications

Remote control via web interface and RollCall network (IP)

Power (Primary and Secondary)

Input voltage range: 100 – 240 VAC, 50/60 Hz
1.5A (Max) via three-pin IEC power socket

Mechanical

Temperature range: 0 to 45° C (32° to 113° F) operating

Cooling: Internal fan, side venting

Weight: Approximately 2.4 kg (5.3 lbs.)

Case type: 1 RU, rack mounting

Dimensions: 44 x 430 x 170 mm (1.7 x 16.9 x 6.7 in.) (HxWxD)

GPI: 8 available

Throughput Delay

Video processing delay:

field = 16.7 or 20 ms

frame = 33.3 or 40 ms

With scaling active in same frame rate:

Ref lock/Free run – between 3 and 5 fields + ~200 µs

Input lock (SDI) – 3 fields + 1 ms

With scaling active in 525/59i output:*

Ref lock/Free run – between 2 and 4 fields + ~200 µs

Input lock (SDI) – 2 fields + 1 ms

With same standard in & out and Sync mode = Enabled:

Ref lock/Free run – between ~200 µs and 1 frame + ~200 µs

Input lock (SDI) – ~1 ms

Frame rate conversion:

Any lock mode – 110 ms typical

Audio processing delay:

Automatically tracks the video processing delay

* Throughput delay increases with low frame rate (≤30 Hz) inputs or outputs

ORDERING

6163000

LC300 Single-channel video & audio processing unit, including frame rate/format conversion, frame synchronization, ARC control, CC, WST and timecode handling, picture enhancement tools, 16-channel audio processing inc gain, delay & shuffling. SDI (BNC or Fiber) and GPI I/O. HDMI monitor output & Dual PSUs.

6163001

LC300 + Option pack. Standard LC300 features plus noise reduction, side-bar keyer & logo inserter.

6163500

LC350 Single-channel video & audio processing unit with SDI (BNC or Fiber), CVBS, GPI, AES and analog audio I/O. HDMI monitor output & Dual PSUs.

6163501

LC350 + Option pack. Standard LC350 features plus noise reduction, side-bar keyer, logo inserter & unbalanced AES audio I/O.



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