

ZEN Series

LV5300A/LV5350/LV7300

Compact Waveform Monitors and Rasterizer specialized for 4K/HD/SD-SDI video signals



Leader

Compact T&M designed for SDI video signals

The Leader LV5300A, LV5350, and LV7300 are compact broadcast-quality waveform monitors and rasterizers designed for precise analysis of SDI signals from SD to 12G-SDI, including 4K/UHD formats. All three share a common platform that delivers core measurement tools - waveform, vectorscope, picture display, audio monitoring, and error analysis, while offering a wide range of configurable options such as HDR monitoring, eye/jitter analysis, embedded audio tools, closed captions, and customizable screen layouts. The LV5300A is a versatile, portable model with Eye Pattern and Jitter analysis, a built-in touchscreen and optional battery power, making it ideal for field and mobile use. The LV5350 offers the same measurement capabilities in a slimmer, lightweight chassis with enhanced HDR, LUT, and focus-assist functions tailored for on-set and production workflows. The LV7300, by contrast, is a 1U rasterizer without a built-in display, intended for space-efficient integration in control rooms or engineering racks where external monitors are preferred. Together, they provide scalable, professional solutions for video engineers across production, post, and broadcast environments.

LV5300A Waveform Monitor - SD to 12G-SDI with Physical Layer Analysis



The LV5300A Waveform Monitor is compact and portable without sacrificing performance, supporting SDI signals from SD to 12G, and also includes physical layer analysis. The LV5300A is 3U half-rack with a short-depth and features a built-in 7-inch touch screen display and a full array of buttons and control knobs.

The LV5300A has a DC power input, which enables it to be used in locations where AC power supplies are not available. The LV5300A can also be battery-operated by installing a battery mount option. With its combination of touch screen, dedicated buttons and knobs, and user-defined screen layouts the LV5300A allows complex measurement and monitoring tasks to be quickly completed in almost any environment.

LV5350 Waveform Monitor - SD to 12G-SDI



The LV5350 portable waveform monitor supports SDI signals from SD to 12G, with the same measurement capabilities as the LV5300A, just without Eye Pattern and Jitter analysis. The LV5350 is a 3U half-rack, short-depth waveform monitor with a built-in 7-inch touch screen display and a full array of buttons and control knobs.

The LV5350 has a DC power input, which enables it to be used in locations where AC power supplies are not available. Additionally, the LV5350 can be battery-operated by installing a battery mount option, ideal for onset work or any location where power is a challenge. With its combination of touch screen, dedicated buttons and knobs, and user-defined screen layouts the LV5350 allows complex measurement and monitoring tasks to be quickly completed.

LV7300 Rasterizer - SD to 12G-SDI



The LV7300 is a 1U half-rack rasterizer, supporting SDI signals from SD to 12G.

The LV7300 has a DC power input, which enables it to be used in locations where AC power is not available.

Fully Flexible Configuration Options

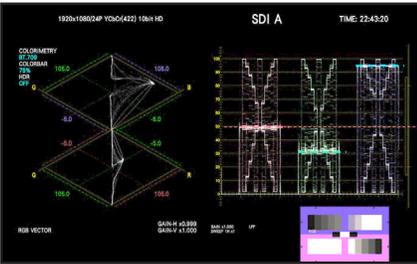
All three models share a modular option system, with base units providing core video analysis tools. Advanced features are available via optional licenses, including HDR measurement, 4K format support, extended vector, test signal generation, embedded audio analysis and closed captions.

Key Features



Universal SDI Support - SD to 12G, UHD/4K Ready

The LV5300A, LV5350, and LV7300 are designed to cover the complete range of broadcast and production SDI signal formats. From SD-SDI and HD-SDI to 3G-SDI, 6G-SDI, and up to single-link 12G-SDI, the instruments also support UHD and 4K workflows via single and dual-link configurations, ensuring readiness for current and future production formats without requiring separate tools.



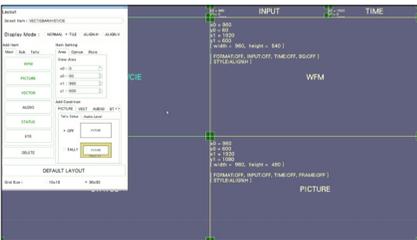
Comprehensive Measurement Toolset

At the core of these instruments is a powerful suite of measurement and monitoring tools trusted by customers worldwide. Standard features include waveform and vectorscope displays for precise signal evaluation, picture monitoring for visual QC, eye pattern and jitter measurement for physical layer analysis (LV5300A), and error/event logging for compliance and troubleshooting. Audio capabilities include level meters, surround displays and phase and Lissajous with the SER20 license, making these units equally useful for both video and audio teams.



Advanced HDR Analysis Tools

As HDR becomes increasingly important in broadcast and cinema production, these models are equipped with a full range of HDR analysis tools. Support for HLG, PQ, C-Log, Log-C and S-Log3 allows monitoring across multiple HDR workflows, while tools such as CineZone™ (false color mapping), chromaticity diagrams, and 3D LUT import enable colorists and engineers to evaluate and adjust content with accuracy. Additional features like focus assist [SER25] and HDR/SDR [SER23] comparison functions make them practical for live production and post environments alike.



Flexible User Interface and Layouts

Every facility and engineer has unique workflow needs, so these instruments are designed for flexibility. Users can fully customize screen layouts, displaying multiple tools at once in up to four independent tiles. Operation is intuitive thanks to a built-in high-resolution touchscreen (LV5300A and LV5350), supplemented by traditional buttons and knobs for precise control. They also support USB mouse input, plus remote operation via standard web browsers, making them ideal for shared or remote-controlled workflows.



Portable and Rackmount Options

Leader offers three distinct form factors to match different production environments. The LV5300A is a portable 3U half-rack model with a built-in touchscreen and optional battery power, perfect for field production, OB trucks, and mobile setups. The LV5350 offers the same powerful feature set in an ultra-compact 85 mm-deep chassis, ideal for on-set monitoring and tight technical spaces. The LV7300 is a 1U half-rack rasterizer with no internal screen, designed to connect directly to external displays for space-saving integrations.



Upgradeable, Future Proof Design

Rather than forcing facilities to invest in every feature upfront, these models use a modular licensing structure that allows options to be enabled as needed. Users can add advanced HDR monitoring, SDI signal generation, embedded audio tools, closed caption/subtitle analysis, or other specialized functions at any time. This ensures that the investment remains adaptable to evolving standards, making the LV5300A, LV5350, and LV7300 cost-effective, future-proof solutions.

Applications



On-set Production

Leader's ZEN Series is popular among DITs for on-set production due to its advanced monitoring and analysis tools with support for accurate exposure, color, and HDR management. Features including CINEZONE®, CINELITE®, and CINELITE® Advanced provide detailed exposure evaluation, while CINESEARCH® and CINEZONE HDR® offer visual tools for assessing luminance and HDR levels. The histogram and false color displays for ARRI, RED, and Sony cameras give DITs precise control over dynamic range and exposure. Integration of ARRI metadata ensures seamless camera data management, and 3D-LUT import and analysis allows on-set color workflows to match post-production looks, maintaining consistency from capture to delivery.



Camera Shading

The ZEN Series is favored by camera shaders for its precision, reliability, and live workflow integration. Physical buttons allow quick, tactile control, while customizable layouts adapt to individual workflows. The diamond pattern display visualizes RGB balance and color alignment, and the overlay display combines image and signal views for intuitive analysis. With 3D-LUT import, Sony SR Live metadata support, and focus assist, shaders can ensure accurate color and sharpness across cameras. Real-time ID, iris, and tally displays further enhance control, making Leader monitors essential tools for achieving consistent, high-quality images in live and studio production.



Post Production

The ZEN Series is highly valued in postproduction for its precision, compatibility, and advanced monitoring features. With 6G-SDI support, they handle high-resolution, high-bandwidth video signals essential for modern workflows. Their continuity with on-set production ensures consistent color and signal integrity from capture through post. A CIE Colour Chart provides accurate color gamut visualization, while frame-accurate gamut error logging ensures that color and brightness levels remain within broadcast standards. Real-time MAXFALL and MAXCLL error logging supports HDR compliance, and SDR screening allows accurate evaluation of standard dynamic range deliverables, all vital for maintaining creative and technical consistency.



Broadcast QC/MCR

The ZEN Series combines precision, versatility, and ease of use in one compact unit, ideal for post production workflows. It supports a wide range of signal formats, including 4K/UHD, HDR, and SDR and its intuitive touch-screen interface, customizable display layouts, and advanced tools like HDR measurement, CIE color chart, and vector/waveform help colorists, editors, and QC teams ensure accurate signal integrity and color consistency. The instrument's ability to provide detailed, real-time analysis helps streamline post-production processes and maintain high-quality output.



Outside Broadcast

EMG (now Gravity Media), a globally active provider of broadcast services for sports and live events chose Leader multiscreen rasterizing waveform monitors for integration into three new OB vehicles. A total of 16 LV7300 rasterizers are being used for master reference during live transmissions and related post-production.

"Leader test instruments have been our preferred choice for nearly 10 years," says Paul Francis, Director of Engineering. "They have proved consistently reliable, accurate and operator friendly."

Unmatched ease of use

Familiar, versatile front panel

The LV5350/LV5300A front panels offer familiar, dedicated physical buttons and knobs for simple operation and training. Additionally, the units can be controlled via a USB mouse. Both the LV5300A and LV5350 adopt a 7-inch touchscreen display and can be operated and set intuitively by touch operation by connecting an external touch-enabled LCD monitor with a USB cable.

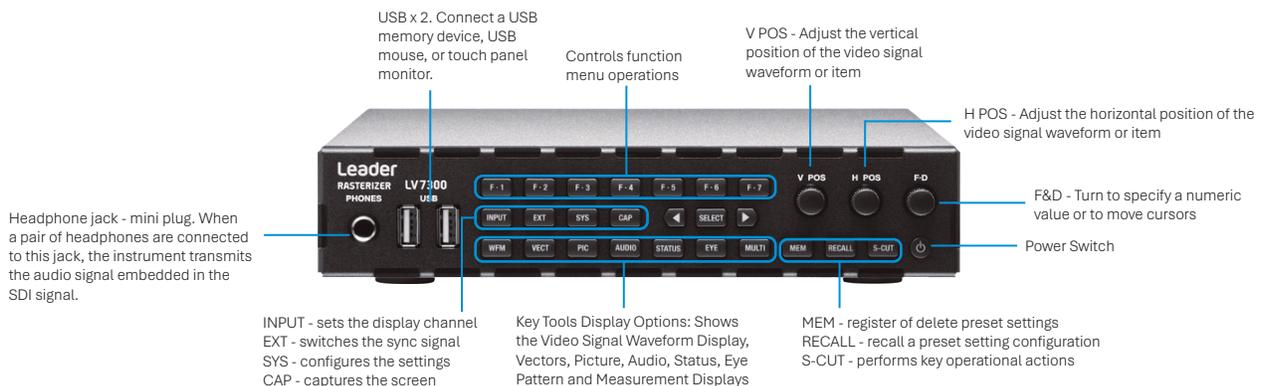
100% free-form customizable layout

The ZEN Series features a fully user-configurable 100% freeform layout, allowing multiple analysis tools to be displayed and positioned according to the operator's preference. Custom layouts can be quickly saved and recalled as presets for fast, efficient workflow changes.

LV5350 & LV5300A Panel Description



LV7300 Panel Description



Advanced Creative Picture Monitoring Tools

CINELITE and CINEZONE, available as standard on the Leader ZEN Series, are essential exposure and signal measurement tools, used throughout the production chain; from camera setup to live broadcast QC. CINELITE gives precise, reliable pixel-level readings, complementing CINEZONE's broad false-color exposure view. While CINEZONE offers an intuitive, visual "at a glance" overview, CINELITE provides exact numeric validation. Both tools can be used simultaneously to form a complete exposure assessment system.

CINELITE

CINELITE is a precision exposure analysis tool that comes as standard on the ZEN Series. It acts as a built-in light meter, that measures exact light levels recorded by the camera sensor and provides pixel-accurate luminance and RGB level readouts by placing a cursor over any part of the image, helping broadcast professionals make precise lighting and exposure decisions. CINELITE displays;

- Luminance (Y) value in either nits or IRE units
- RGB component levels; for checking white balance or color clipping
- Precise measurements for single pixels or averaged areas of the video image
- Supports SDR and HDR formats (PQ, HLG, Log formats like S-Log3, Log-C, etc.)



Key Applications

- 1. Camera setup / shading:** Camera shaders and vision engineers use CINELITE to match exposure between cameras, especially in multicam OB or studio setups. It helps to determine middle gray (18%) and reference white levels accurately.
- 2. Lighting & exposure on set:** Cinematographers and DITs use CINELITE for confirming skin tone luminance levels, matching scenes across multiple setups and ensuring legal broadcast levels
- 3. HDR monitoring:** In HDR workflows, CINELITE can show luminance in nits, allowing teams to ensure highlights don't exceed desired limits and maintain consistent look across PQ and HLG grading curves
- 4. Live broadcast QC:** Technical teams can inspect any part of the image for overexposure, underexposure, or gamut violations in realtime.

CINEZONE

CINEZONE a tool included as standard in the ZEN Series, allows lighting and exposure settings to be controlled accurately during preshot alignment and in the live shoot itself. Familiar to many camera crews, editors and colorists, CINEZONE offers realtime pixel accuracy across the entire image. It allows quick and easy confirmation of luminance levels without need for time consuming waveform representations.

Levels over a preset or user-adjustable maximum are displayed in white, highlights in red, mid-grays in green, shadows in blue, and levels under the adjustable minimum in black. Unlike traditional waveform monitors that only sample one scan line, CINEZONE analyzes every pixel across the frame in realtime. It supports ARRI Log C-curves, RED and Sony and matches in-camera false-color tools making it familiar to cinematographers.

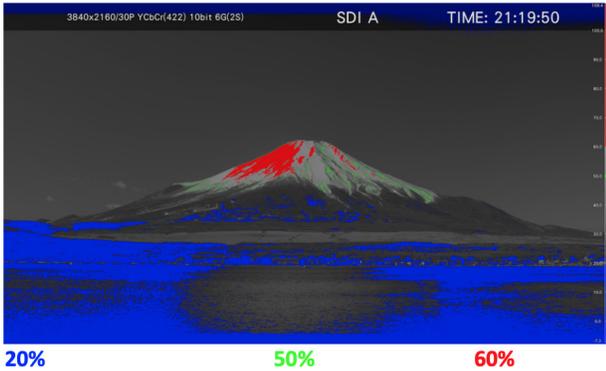


Key Applications

- 1. Pre-shoot alignment / exposure setup:** Offers an instant, visual check of exposure ranges right before rolling, making it easy to spot blown highlights or crushed shadows
- 2. Live monitoring:** Shading and exposure adjustments during live camera feeds become simpler and more accurate, with immediate visual feedback
- 3. Multiscreen workflows:** It can display alongside waveforms, vectorscopes, histograms, and picture, all on one screen. Great for DITs, colorists, and camera teams to supervise signal quality
- 4. On-set creative collaboration:** Provides a shared reference tool for directors, DPs, DITs, and camera operators to talk about exposure in a common visual language, especially when using Log curves
- 5. Quality control & post production:** Used as a master reference in grading suites/payout QC to confirm that image levels meet broadcast tolerances and HDR/SDR specs

CINEZONE Search Display Mode

Leader's CINEZONE Search Display Mode is a realtime false color exposure analysis tool designed to assist camera operators in achieving accurate exposure and consistent image quality, especially in HDR and SDR workflows. Available as standard, CINEZONE Search overlays false color directly onto the incoming image. This display maps specific exposure levels to color-coded regions, allowing users to visually assess luminance values at a glance, without needing to interpret waveform data.



Key Features

- Realtime feedback during camera setup, live production, or post
- Customisable false color scale aligned to industry standards (e.g., 18% grey, skin tone, clipping points)
- Supports both SDR and HDR formats, including PQ and HLG
- Ideal for use onset or in live broadcast environments where exposure accuracy is critical

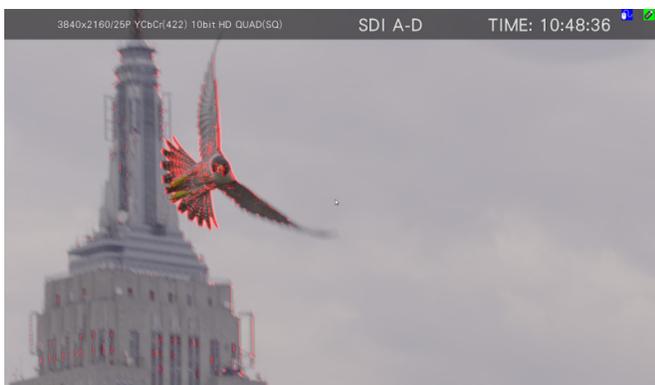
This tool complements traditional waveform monitors by providing an intuitive, image-based representation of exposure, streamlining workflows and reducing setup time.

CINELITE Advanced



CINELITE Advanced is a sophisticated enhancement to CINELITE, that also comes as standard with the Leader ZEN Series. It expands upon the original CINELITE tools to deliver precision pixel-level exposure and color analysis directly on the image and displays them as markers on the waveform display, vector display and CIE Color Chart display.

Focus Assist [Software option: SER25]



The ZEN Series' Focus Assist function (SER25) is a powerful software licence option designed to simplify and improve focus accuracy during live production workflows. It provides both camera operators and OB engineers with a fast, visual method to confirm critical focus, even in difficult low-contrast environments.

For OB engineers, Focus Assist offers a quick and efficient means of verifying back focus adjustments on zoom lenses directly on-site, helping ensure that every camera is correctly set up before going live. This capability has become increasingly important with the widespread adoption of cinema-style Super 35mm global shutter CMOS sensor cameras, where the inherently shallow depth of field makes focusing errors far more noticeable.

Using advanced non-linear super-resolution algorithms, Focus Assist employs image-based edge detection to identify and highlight areas of highest sharpness in the video image. These areas are overlaid in realtime using a false color display, making it easy to confirm focus even when conventional focus indicators fail or are difficult to interpret. Whether for setup or on-the-fly focus confirmation, Focus Assist provides a reliable, intuitive tool for getting the most out of modern high-resolution optics and shallow Depth of Field camera systems.

3D LUT Bidirectional Conversion Tool [requires SER23]

The ZEN Series offers direct 3D LUT cube file import and display integration across multiple analysis tools along with a 3D-LUT converted SDI output, allowing HDR content to be viewed in SDR and vice versa, as part of the SER23 HDR Analysis software licence.

Processing is based on the desired 3D color lookup table as Cube file which can be imported via plug-in USB memory. These new 3D LUT capabilities simplify live production workflows by integrating HDR/SDR conversion for applications such as camera shading and HDR supervision. On-set DITs will be able to integrate 3D LUTs instead of relying on external LUT boxes, and Post Production colorists can view the 3D LUTs for OTT and OTA deliverables prior to creating the final master.

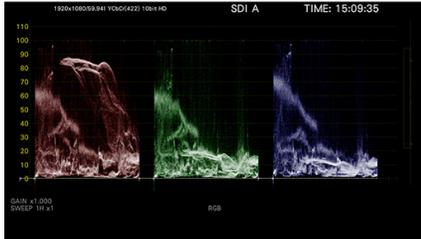


Key Features

- It supports picture display, waveform display, vector scope, CIE chart, and histogram.
- 2K (HD) supports up to 4 channels and 4K (UHD) supports 1 channel.
- A maximum of 10 Cube files can be registered.
- In HDR/SDR simultaneous production, simplified workflow without external box can be realized.
- Interpolation method uses 33-point tetrahedral interpolation
- SDI output after 3D-LUT conversion
- Input/output conversion Gamma SDR/HDR (HLG, PQ, S-LOG3, LOG-C, C-LOG), Colorimetry BT2020/BT709/DCI compatible
- Full Range/Narrow Range support
- Cube file information, header information display
- 3D-LUT function requires SER23 (HDR option).

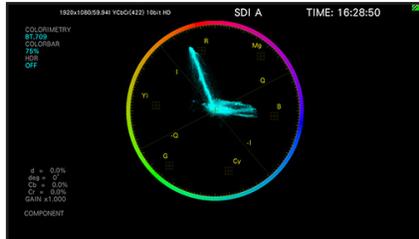
Standard Toolset

The Leader ZEN Series provides a robust standard toolset for professional broadcast and production environments. Out of the box, it includes essential features such as waveform and vectorscope displays, picture monitoring with false color and histograms, embedded audio analysis, SDI test signal generation, and error/status logging.



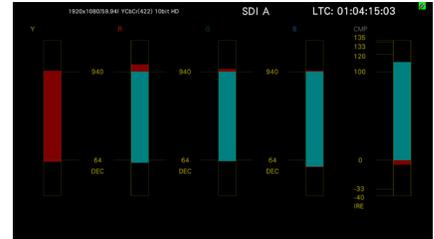
Waveform Monitor

- RGB and YCbCr display modes
- Overlay: Overlays component signals
- Parade: Displays component signals side by side
- Blanking Interval: H & V blanking periods can be masked
- Line Select: Displays the selected line
- Variable Gain: Gain x1 x0.2 to x2.0, Gain x5 x1.0 to x10.0, Gain x10 x2.0 to x10.0



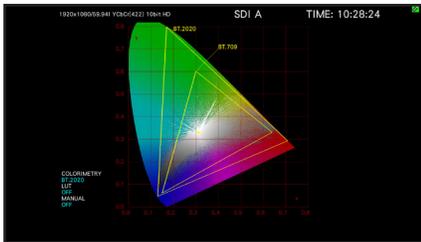
Vectorscope

- Gain: x1, x5, IQ-MAG
- Scale: Type AUTO, ITU-R BT.709, DCI, ITU-R BT.2020
- Color Bar Saturation: 75%, 100%
- IQ Axis: Show or Hide
- Vector Marker Display



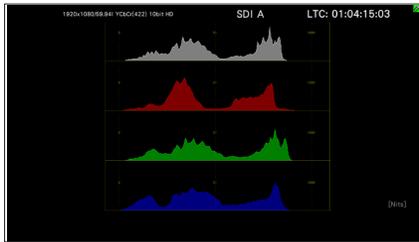
5BAR RGB Gamut Error

- Converts an SDI signal into Y, R, G, B and composite values, and then displays the five peak levels
- Error Level: Based on the gamut error, composite gamut error and luminance error thresholds
- On screen error indication - displays markers in the gamut error and level error areas



CIE Color Chart

- Display Standard: CIE1931 (xy display), CIE1976 (u'v' display)
- Display Type: Chromaticity diagram display, color temperature display
- Display Mode: Chromaticity diagram display, luminance display, color display
- Color Temperature Display Luminance Display: Colorimetry ITU-R BT.601 (525), ITU-R BT.601 (625), BT.709, DCI, ITU-R BT.2020



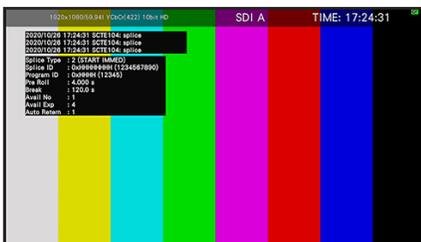
Histogram

- The only hardware based waveforms / rasterizers to still support Histogram display
- Displays the Y, R, G and B Histogram
- Supports Single, Tile, Align-H and Align-V display
- Supports HDR display [SER23]



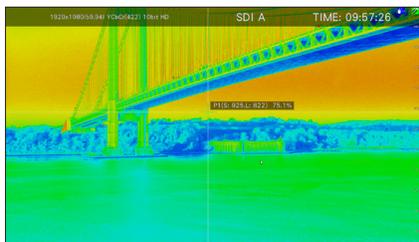
Picture View

- Level Mapping: Maps the black level to 0 (8bit), SDI code value (when receiving 10-bit RGB) 1024 to 255 (8bit)
- Display sizes: Reduced, actual size, x2 (4K not supported), full frame (4K not supported)
- Quality adjustment and color selection: Brightness, contrast, RGB gain, RGB bias, chroma gain not valid



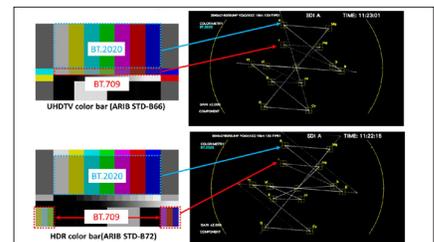
SCITE-104

- SCTE-104 message monitoring
- Supported: Standard SMPTE 2010, ANSI/SCITE-104



Cinelite/Cinezone

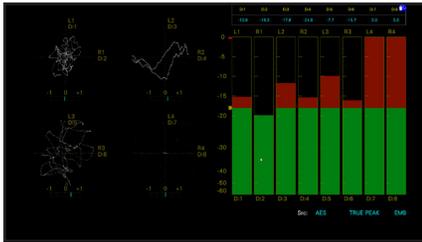
- Video levels are displayed numerically
- f Stop (not supported on SER23) displays f Stop values relative to a reference point
- Set in reference to an object with an 18% reflectance
- f Stop gamma correction
- HDR Display [SER23]



BT.2020 Compatible Vectorscope

- BT.2020/BT.709 compatible vectorscope scale simultaneous display

Standard Toolset



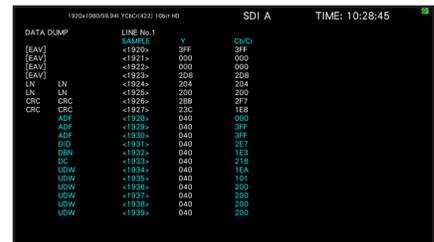
Audio Display

- Input signal: SDI embedded audio
- 8 channels meter display as standard
- 16 channels meter display
- Lissajous Display, Surround Display, Status Display and Loudness Display [SER20]



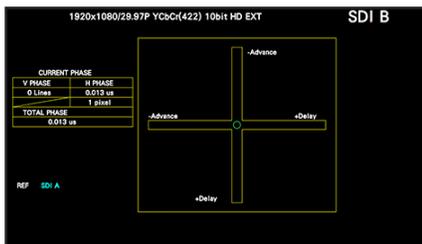
Payload ID

- Decode and display SMPT ST 352 the SMPT standard that defines the payload identification (PID) in the ancillary (ANC) data space of SDI signals - both HD-SDI and 3G-SDI. It's commonly referred to as the "Payload ID" standard.



Data Dump

- Display Format: Displays serial data sequence or displays each color component separately
- Line Select: Displays the selected line
- Sample Select: Displays from the selected sample
- Jump Feature: Jumps to an EAV or SAV
- Data Output: Text output to USB memory



Phase & Timing Difference

- Displays the phase difference between a reference signal and an SDI signal numerically and graphically
- Reference Signal: SDI/External sync signal, External sync signal (BB)



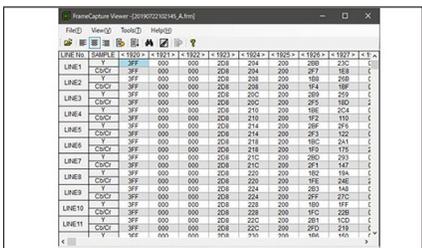
Status Indication

- Signal detection
- Displays the video signal format
- Frequency deviation display
- Equivalent cable length display
- Error count display
- Video error detection



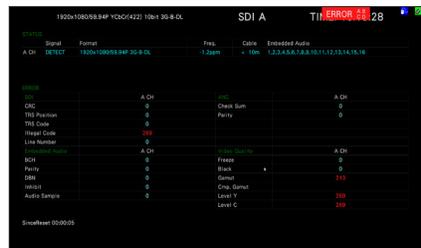
SR Live Packet Display

- SR Live Metadata analysis display



Screen & Frame Capture

- Screen Capture: Captures the display screen as still image data
- Frame Capture: Captures 16 frames of the SDI signal. Two methods for capture: one to import manually and the other to take them automaticall when the error occurs
- Only one frame is captured when an error occurs



SDI Signal Data Analysis

- The status display has an error detection function for :
- SDI Errors - CRC, TRS Position, TRS Code, Illegal Code,& Line Number
- Embedded Audio – BCH, Parity, DBN, Inhibit & Audio Sample
- ANC – Check Sum & Parity
- Video Quality – Freeze, Black, Gamut, Cmp. Gamut. Level Y & Level C

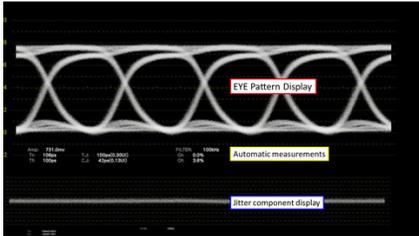


Event Log

- Event log records and displays events by the time of their occurrence
- The top half of the display reports the error event, the bottom half reports more detailed information for the entry highlighted in the top half of the display

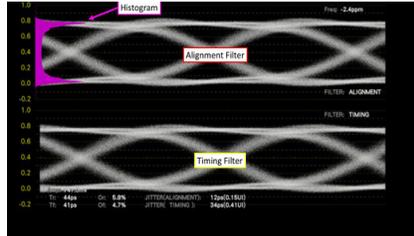
SD, HD, 3G-SDI Input and EYE Pattern Display [LV5300A Only]

Included as standard in the LV5300A, this function displays SDI signal eye pattern waveforms and jitter waveforms, and parameter measurements. Only SDI input 1 supports the eye pattern display. A histogram view is also available. This function allows the eye pattern obtained with a 100kHz or higher filter (alignment jitter) and the eye pattern obtained with a 10Hz or higher filter (timing jitter) to be displayed together.



EYE Pattern Display

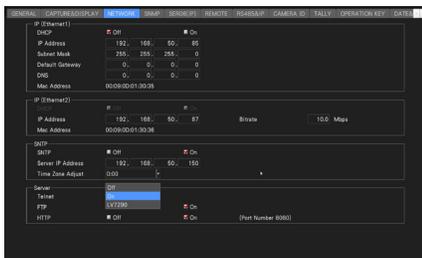
- The eye pattern waveform, jitter waveform of SDI signal, and the measurement result of each parameter can be displayed.
- Only BNC input 1 supports eye pattern display.



Dual EYE Pattern

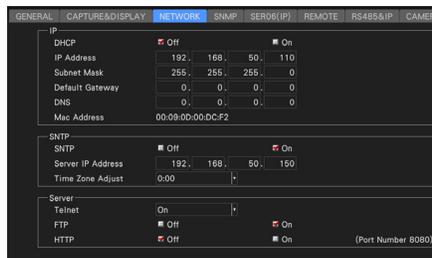
Realtime Remote Connectivity

Various methods are provided to enable you to establish a remote connection with your LV5300A, LV5350, LV7300, depending on your requirements.



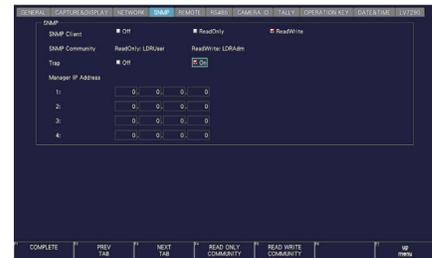
TELNET

The ZEN Series supports automatic and remote control via Telnet over Ethernet. You can establish a Telnet session from any networked PC to issue commands that automate operations, perform measurements, initiate captures, retrieve logs, and more.



File Transfer via FTP

Using FTP over the Ethernet port, the ZEN Series allows you to remotely transfer a variety of files, including, Screen captures: PNG or JPEG stills from the device's GUI, Frame captures (SDI frame sequences, typically up to 16 frames), Event logs and Configuration files.



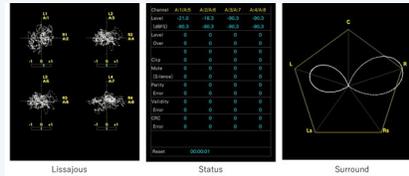
Remote Control & Alarm Generation via SNMP

By using SNMP (Simple Network Management Protocol), you can control the instrument from SNMP managers. Additionally, you can notify the SNMP managers of errors that the instrument generates.

Software Options

Embedded Audio Analysis [SER20]

The SER20 option is a software option that adds advanced embedded audio analysis tools. It supports up to 8 audio channels from one SDI source (or 4 each from two inputs), with visualization modes such as Lissajous, surround display, and lip-sync (AV delay) measurement. It also provides error detection for issues like muting and clipping, plus event logging for troubleshooting. Compatible with SMPTE ST 299 (HD/3G/6G/12G-SDI, with SER28 for 6G/12G) and ST 272 (SD-SDI), it processes 48 kHz, 24-bit L-PCM audio synchronized to the video clock. This makes it especially useful for broadcast engineers needing precise monitoring of embedded audio within SDI workflows.



Lip Sync (AV Delay)

- Measures the time difference between the SDI signal and digital audio signal with a Leader TSG that supports lip syncing. Displays the results numerically and graphically.
- TSG patterns not made by Leader may be supportable by specifying the video signal setting and audio signal setting.

Multi-lissajous, Status & Surround Display

- Lissajous display, surround display, mute, clip error detection, etc. are now available. Various analysis display is also possible, and simultaneous display of 8 channels from one SDI signal and 4 channels from 2 SDI signals is possible.
- Embedded audio. SMPTE ST 299, SMPTE ST 272, 48 kHz/24 bit/L-PCM. Synchronization condition Must be synchronized to the video clock. All SDI signals must be synchronized.

Closed Caption - Japanese, EIA-608, 708, and TELETEXT closed caption display function [SER21]

The SER21 is a software option that enables closed caption and subtitle display capabilities on the LV5350. It supports CEA-608 and CEA-708 closed captions, Teletext subtitles and OP47 subtitle streams. These captions and subtitles are decoded and superimposed directly onto the video feed for easy review. Additionally, the SER21 includes a specialized feature for Japanese subtitle rendering, compliant with ARIB STD-B37. This includes support for both Language 1 and Language 2 subtitle tracks across HD, SD, analog, and portable subtitle formats.



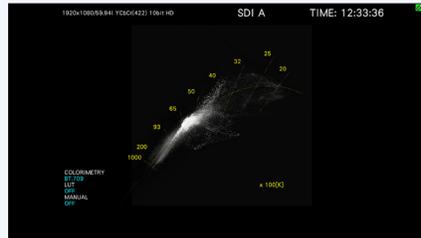
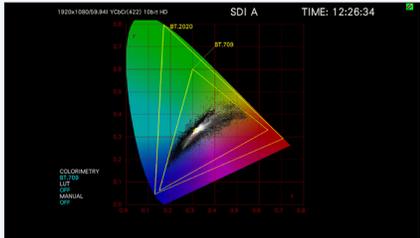
Closed Caption Display

- CEA-608, CEA-708 closed caption, Teletext, OP47 subtitle superimposed on SDI signal can be decoded and displayed

Software Options

CIE Chromaticity Diagram Display Function [SER22]

SER22 is a software option that enables chromaticity diagram displays. Color accuracy is critical in workflows that demand precise gamut management, like HDR grading, broadcast QC, or content destined for multiple delivery formats. It supports multiple colorimetry standards - including ITU-R BT.601, BT.709, and BT.2020 and offers flexibility in how color data is visualized. It displays include both CIE 1931 (xy) and CIE 1976 (u'v') formats, helping you accurately assess color reproduction quality.

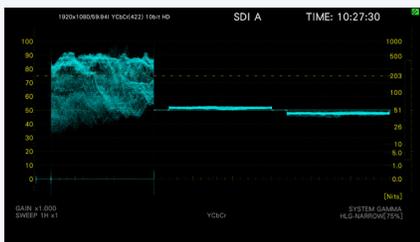


CIE Display Function

- Chromaticity diagram display function corresponding to colorimetry ITU-R BT 601, ITU-R BT 709, ITU-RBT 2020
- Display mode corresponds to CIE 1931 (xy display)/CIE 1976 (uv display)
- Display of 2 color gamuts allows for suppressing BT.709 color gamut using equipment compatible with BT.2020, confirming content that exceeds BT.709 color gamut
- Chromaticity point displayed using color on picture within video signal
- Chromaticity point can be measured at point with cursor

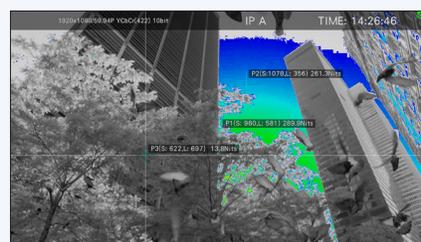
HDR Measurement [SER23]

In addition to HLG and PQ per ITU-R BT.2100, this HDR software option also supports level monitoring of S-Log3, C-Log and Log-C HDR signals. Level management can be made using the assumed luminance (cd/m2) in a display considering OOTF. The video waveform includes the HDR scale added to the IRE scale. In the CINEZONE™ display, the luminance distribution of the HDR area can be easily confirmed with the SDR area shown in monochrome, and the HDR content with a color according to the brightness.



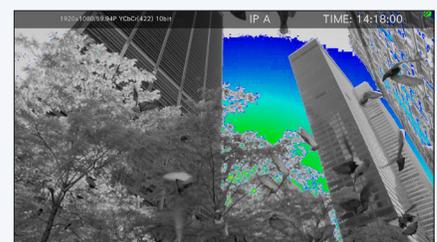
HDR Waveform Display

- ITU-R BT.2100 (HLG, PQ), SLog-3, C-Log, Log-C. Does not include SD input of SDI.



HDR CINELITE Display

- The crosshairs can be freely moved
- Up to 3 points can be measured simultaneously



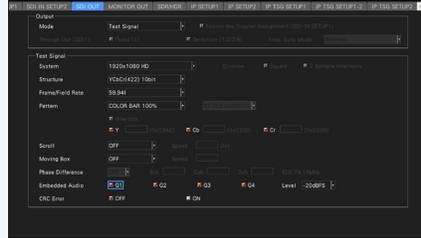
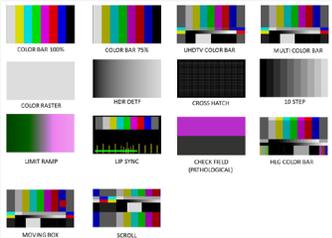
HDR CINEZONE Display

- The luminance distribution of the HDR area can be easily confirmed by coloring the SDR area with monochrome and the HDR with a color according to brightness
- ITU-R BT.2100 (HLG, PQ), SLog-3, C-Log, Log-C. Does not include SD input of SDI.
- Setting values can be user-defined for easy grading to a particular luminance

Software Options

SDI Generation [SER24]

This optional generation toolset provides SDI test signals, useful for device or network troubleshooting. The generator supports HD-SDI through 12G-SDI with HD multi format color bar and patterns, multiple overlays of moving boxes and embedded audio, flat field at any level, and a 4K multi format color bar. With the 4K pattern of 3G-SDI quad link, the phase of each link can be shifted to confirm the recovery margin of the receiving device.



SDI Video Generation

- 100% color bar, 75% color bar, HD multiformat color bar *1, 4K multiformat color bar *1, color raster, gamma, cross hatch, 10 step, limit lamp, check field, lip sync pattern(LV5600/LV7600-SER03 is required), HDR color bar (LV5600/LV7600-SER23 is required)
- Scrolling Function: On/Off Eight directions (up, down, left, right, and their combinations), Speed: Range and Unit Per frame (field) 4 to 124 dots, in 4 dot steps
- Moving Box: On/Off. White, yellow, cyan, green, magenta, red, blue, black. Speed 1-3

SDI Audio Generation

- Number of Embedded Channels: 16 channels maximum
- Embedding: On/Off at the audio group level
- Audio Level: -20d BFS, -18dBFS, mute
- Audio Frequency: 1kHz
- CRC Error Addition: An incorrect CRC is inserted into the Y component of the first line

Focus Assist [SER25]

The ZEN Series' Focus Assist function is a powerful software licence option designed to simplify and improve focus accuracy during live production workflows. It provides both camera operators and OB engineers with a fast, visual method to confirm critical focus, even in difficult low-contrast environments.

For OB engineers, Focus Assist offers a quick and efficient means of verifying back focus adjustments on zoom lenses directly on-site, helping ensure that every camera is correctly set up before going live. This capability has become increasingly important with the widespread adoption of cinema-style Super 35mm global shutter CMOS sensor cameras, where the inherently shallow depth of field makes focusing errors far more noticeable.

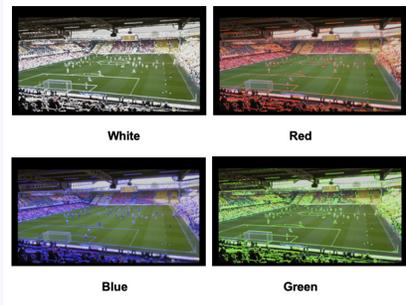
Using advanced non-linear super-resolution algorithms, Focus Assist employs image-based edge detection to identify and highlight areas of highest sharpness in the video image. These areas are overlaid in real time using a false color display, making it easy to confirm focus even when conventional focus indicators fail or are difficult to interpret.

Whether for setup or on-the-fly focus confirmation, Focus Assist provides a reliable, intuitive tool for getting the most out of modern high-resolution optics and shallow Depth of Field camera systems.



Automated Focus Assist

- This is a focus detection realizing a new algorithm based on nonlinear super resolution technology
- Sensitivity can be selected from 5 levels according to the video scene



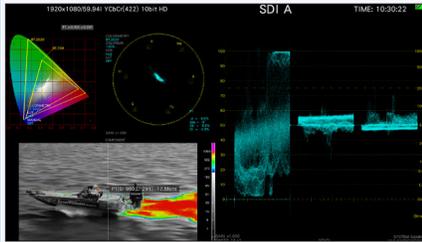
Sensitive Mode

- The waveform monitor includes a PICTURE MODE that can adjust the image to FIT / REAL / X2
- The waveform monitor includes the ability to adjust the sensitivity of the edge detection and features (5) five different levels of sensitivity
- The waveform monitor also includes the ability to adjust the colour of the false colour display to best suit optimum focus adjustment depending on the picture.

Software Options

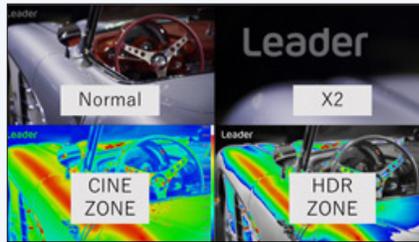
Customized Layout Function [SER26]

Users can size and position all video displays, waveforms, vectorscopes, gamut views, audio tools, etc. as desired to optimize the screen for any specific workflow or user. Multiple input signals for up to 4 inputs can be displayed simultaneously, or one input signal can be displayed on multiple screens.



Customizable Layout

- Various items such as video signal waveforms display, vector display waveforms, and images of input signals can be laid out in any position with your user's preferred size.
- Multiple input signals up to 4 inputs can be displayed simultaneously, or one input signal can be displayed on multiple screens



Display Assignment

- SDI input signals from the four rear inputs can be assigned to A to D display channels.
- For example, displaying the signal input to SDI input 1 as component video waveform can be displayed on display channel A and the composite video waveform can be displayed on display channel B



Enhanced Layout

- Enhanced layout is an extended function that enables the measurement screens of up to four channels, to be laid out on a single screen simultaneously in simul mode.

ID, Iris, TALLY Display Function [SER27]

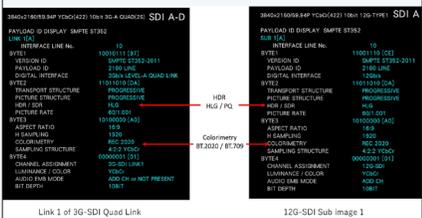
Enable remote tally display. in the ZEN Series. Camera ID, iris and tally are available via RS - 422/485 connectors.



- TALLY-EXT (EXTENDED) shows the tally display with a comment of up to eight characters and it's not uncommon for the camera operators names to be entered into this field, so the camera shader knows which camera operator the technical director is speaking to if they are referred to them by their name instead of the camera ID.
- LABEL-1, LABEL-2 & IRIS shows the camera ID set on the RS485 tab, CAMERA ID tab or through RS-422/485. The default values are CAM A to CAM D and vary depending on the channel.
- The SER27 Tally Interface software licence is an invaluable option, that significantly assists in the streamlining of communications in a Live production.

4K/UHD Video Signal Compatible Function [SER28]

SER28 is a software option that enables 4K/12G-SDI/6G-SDI/4K dual link on the Leader ZEN Series.

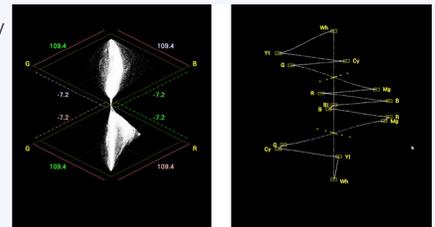


4K Payload ID

- Display 4K Payload ID status such as 12G/6G/3G

Extended Vectorscope Display [SER40]

The Extended Vectorscope Display option enhances the standard vectorscope functionality by offering advanced color space analysis in RGB and YCbCr formats. Designed for precision in live production, broadcast compliance, and color grading,



it allows users to monitor color balance, saturation, and gamut violations with greater clarity. Features include user-adjustable gain and scale, customizable target markers, and overlay capability within the multiview layout, enabling real-time comparisons alongside picture displays. This tool is especially valuable in multi-camera workflows and HDR environments where accurate color matching and fast, informed decisions are critical.

Specifications



LV5350



LV5300A



LV7300

Formats supported (Generation, Analysis & Monitoring)			
SDI IO	●	●	●
270M / 1.5G / 3G-SDI HD / SD Analysis	●	●	●
1.5G / 3G / 6G / 12G-SDI Generation (SER24 and SER28 for 6G-12G-SDI)	○	○	○
1.5G / 3G / 6G / 12G-SDI UHD Over SDI	○	○	○
Hardware and Software Options Supported			
SDI Input - 3G, HD, 3G-SDI	●	●	●
SDI & EYE Input - 3G, HD, 3G-SDI and EYE Pattern Display	-	●	-
Embedded Audio Analysis adds Lissajous, Surround & Status Display [SER20]	○	○	○
Japanese, EIA-608, 708, and TELETEXT closed caption display function [SER21]	○	○	○
CIE chromaticity diagram display function [SER22]	○	○	○
HDR Measurement [SER23]	○	○	○
SDI Signal Generation [SER24] (Requires SER28 for 4K pattern output)	○	○	○
Focus Assist [SER25]	○	○	○
Customized Layout/Display Assignment [SER26]	○	○	○
TALLY Display [SER27]	○	○	○
4K Signal Support (3G-Quad, 3G-Dual, HD-Quad) [SER28]	○	○	○
RGB Vector (including Diamond Display), YCbCr Vector (including Lightning Display) [SER40]	○	○	○
User interface			
Integrated 1920 x 1080 7 inch LCD touchscreen	●	●	-
Support for external 3rd party touch screen display	-	-	●
HDMI output, 1920 x 1080	-	-	●
SDI 3Gbit instrument out, 1920 x 1080, 4:2:2 YCbCr	●	●	●
HTTP Remote Browser GUI	●	●	●
Reference			
1 x 75 ohm BNC reference input, tri-level or B&B with a loop-through connector	●	●	●
Networking & control			
1/0/100/1000 BASE-T. Supports TELNET, FTP, SNMP, HTTP and SNTP	●	●	●
Remote Interface (15-pin D-Sub remote connector)	●	●	●
Monitoring			
Headphone Socket	3.5 mm mini jack (Stereo)	3.5 mm mini jack (Stereo)	Mini-Plug headphone jack
Form factor			
Size (Width x Height x Depth - excluding protrusions)	215(W) x 132(H) x 85(D) mm (excluding protrusions)	215(W) x 132(H) x 132(D) mm (excluding protrusions)	213(W) x 44(H) x 300(D) mm (excluding protrusions)
Base Unit Weight	2.95 kg max. (excluding accessories and battery option)	2.5 kg max. (excluding accessories and battery option)	2.25 kg max. (including options, excluding accessories)
Electrical			
Power Requirements	DC 10 to 19V - 80W max.	DC 10 to 19V - 80W max.	DC 10-19V - 80W max.
Accessories	AC adaptor (GST90A-12)	AC adaptor (GST90A-12)	AC adaptor (GST90A-12)
Warranty			
Warranty (1 year)	●	●	●
Extended Warranty Package (2 - 5 years)	○	○	○

● Standard

○ Optional

Rear Panels

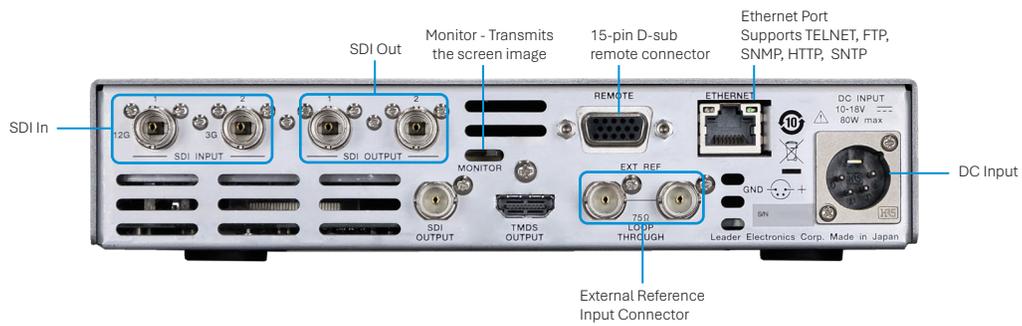
LV5350



LV5300A



LV537300



Ordering LV5300A

LV5300A Base Units

LV5300A	Waveform Monitor - SD, HD, 3G-SDI input and eye pattern display <i>Includes SER26</i> (GST90A12 AC adapter not included)
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LV5300A Hardware Options

LV5300-SER11	LV5300A Battery Adapter: V-Mount
LV5300-SER12	LV5300A Battery Adapter: QR-Gold

SER11 and SER12 are factory options. SER11 and SER12 cannot be installed in the instrument at the same time.

LV5300A Software Options

LV5300-SER20	Embedded Audio Analysis
LV5300-SER21	Closed Caption: Japanese, EIA-608, 708 and TELETEXT display function
LV5300-SER22	CIE chromaticity diagram display function
LV5300-SER23	HDR Measurement Function
LV5300-SER24	SDI Signal Generation Function <i>SER28 is required to output 4K patterns on SER24.</i>
LV5300-SER25	Focus Assist Display Function
LV5300-SER26	Customized Layout Function
LV5300-SER27	Tally Display Function
LV5300-SER28	4K Format Support (12G-SDI/6G-SDI/3G-SDI Dual)
LV5300-SER40	Extended Vector - RGB Vector, YCbCr Vector

LV5300A Accessories

Rack-mount Adapter	LR2530	Dual rack mount adapter for the LV5300A/LV5350.
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*Two LV5300 / LV5350 can be mounted in an EIA 19-inch rack.
(Two options of LV5300 + LV5350 need separately option compatibility.)*

Blank Panel	LC2535	Blank panel for the LR2530
AC Adapter	GST90A12	AC adapter for LV5300A/LV5350 (not included as standard)
Remote Controller	LV7290	Enables long distance operation through Ethernet

Ordering LV5350

LV5350 Base Units

LV5350	Waveform Monitor - SD, HD, 3G-SDI input <i>Includes SER26</i> (GST90A12 AC adapter not included)
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LV5350 Hardware Options

LV5350-SER11	LV5350 Battery Adapter: V-Mount
LV5350-SER12	LV5350 Battery Adapter: QR-Gold

SER11 and SER12 are factory options. SER11 and SER12 cannot be installed in the instrument at the same time.

LV5350 Software Options

LV5350-SER20	Embedded Audio Analysis
LV5350-SER21	Closed Caption: Japanese, EIA-608, 708 and TELETEXT display function
LV5350-SER22	CIE chromaticity diagram display function
LV5350-SER23	HDR Measurement Function
LV5350-SER24	SDI Signal Generation Function <i>SER28 is required to output 4K patterns on SER24.</i>
LV5350-SER25	Focus Assist Display Function
LV5350-SER26	Customized Layout Function
LV5350-SER27	Tally Display Function
LV5350-SER28	4K Format Support (12G-SDI/6G-SDI/3G-SDI Dual)
LV5350-SER40	Extended Vector - RGB Vector, YCbCr Vector

LV5300A & LV5350 Accessories

Rack-mount Adapter	LR2530	Dual rack mount adapter for the LV5300A/LV5350.
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*Two LV5300 / LV5350 can be mounted in an EIA 19-inch rack.
(Two options of LV5300 + LV5350 need separately option compatibility.)*

Blank Panel	LC2535	Blank panel for the LR2530
AC Adapter	GST90A12	AC adapter for LV5300A/LV5350 (not included as standard)
Remote Controller	LV7290	Enables long distance operation through Ethernet

Ordering LV7300

LV7300 Base Units

LV7300 Rasterizer - Mainframe only
*Requires LV7300-SER01
 Includes SER26.*

LV7300 Hardware Options

LV7300-SER01 SD, HD, 3G-SDI Input

LV7300 Software Options

LV7300-SER20 Embedded Audio Analysis
 LV7300-SER21 Closed Caption: Japanese, EIA-608, 708 and
 TELETEXT display function
 LV7300-SER22 CIE chromaticity diagram display function
 LV7300-SER23 HDR Measurement Function
 LV7300-SER24 SDI Signal Generation Function
SER28 is required to output 4K patterns on SER24.
 LV7300-SER25 Focus Assist Display Function
 LV7300-SER26 Customized Layout Function
 LV7300-SER27 Tally Display Function
 LV7300-SER28 4K Format Support (12G-SDI/6G-SDI/3G-SDI Dual)
 LV7300-SER40 Extended Vector - RGB Vector, YCbCr Vector

LV7300 Accessories

Rack-mount Adapter LR2731 Single rack mount adapter to install in
 a 19-inch EIA standard rack. One side
 is a blank panel.
 Rack-mount Adapter LR2732 Dual rack mount adapter to install in
 a 19-inch EIA standard rack. It allows
 two sets of LV7300 to be installed side
 by side.
 AC Adapter GST90A12 AC adapter for LV5300/LV5350/
 LV7300. Included as a standard
 accessory for the LV7300.
 Remote Controller LV7290 Enables long distance operation
 through Ethernet

Supported SDI Formats and Standards

The following SDI formats are available as standard on the LV5300A/LV5350/LV7300.

SD Video Signal Formats and Standards

Color System	Quantization	Image	Field Frequency/Scanning	Supported Standard
4:2:2 (YCbCr)	10bit	720 x 487	59.94i	ST 259
		720 x 576	50i	

HD Video Signal Formats and Standards

Color System	Quantization	Image	Field Frequency/Scanning	Supported Standard
4:2:2 (YCbCr)	10bit	1280 x 720	60p, 59.94p, 50p, 30p, 29.97p, 25p, 24p, 23.98p	ST 292-1 ST 296
		1920 x 1080	60i, 59.94i, 50i 30p, 29.97p, 25p, 24p, 23.98p 30psF, 29.97PsF, 25psF, 24PsF, 23.98PsF	ST 292-1 ST 274

3G-A Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Supported Standard
4:2:2 (YCbCr)	10bit	1920 x 1080	60p, 59.94p, 50p	ST 274 ST 425-1
			48/47.95p	-
	12bit	1920 x 1080	60p, 59.94p, 50p, 48p, 47.95p	ST 425-1 ST 2048-2
			2048 x 1080	60i, 59.94i, 50i 30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF
4:4:4 (YCbCr)	10bit	1280 x 720	60p, 59.94p, 50p, 30p, 29.29p, 25p, 24p, 23.98p	ST 296 ST 425-1
			1920 x 1080	60i, 59.94i, 50i 30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF
	12bit	1920 x 1080	30p, 29.97p, 25p, 24p, 23.98p	ST425-1 ST2048-2
			2048 x 1080	30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF
4:4:4 (RGB)	10bit	1280 x 720	60p, 59.94p, 50p, 30p, 29.29p, 25p, 24p, 23.98p	ST 296 ST 425-1
			1920 x 1080	60i, 59.94i, 50i 30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF
	12bit	1920 x 1080	30p, 29.97p, 25p, 24p, 23.98p	ST425-1 ST2048-2
			2048 x 1080	30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF
4:4:4 (XYZ)	12bit	2048 x 1080	60i, 59.94i, 50i 30p, 29.97p, 25p, 24p, 23.98p	ST 274 ST 425-1
			30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	ST425-1 ST2048-2
4:4:4 (XYZ)	12bit	2048 x 1080	30p, 25p, 24p	ST 425-1
			30PsF, 25PsF, 24PsF	ST 428

3G-B-DL, HD(DL) Video Signal Formats and Standards

Color System	Quantization	Image	Frame Frequency/Scanning	Supported Standard
4:2:2 (YCbCr)	10bit	1920 x 1080	60p, 59.94p, 50p	ST 274 ST 372 ST 425-1
			48p, 47.92p	-
	12bit	2048 x 1080	60i, 59.94i, 50i	ST 274 ST 372 ST 425-1
			30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	ST 274 ST 372 ST 425-1
4:4:4 (YCbCr)	10bit	1920 x 1080	60i, 59.94i, 50i	ST 274 ST 372 ST 425-1
			30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	ST 274 ST 372 ST 425-1
	12bit	2048 x 1080	30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	ST 372 ST 425-1 ST 2048-2
			60i, 59.94i, 50i	ST 274 ST 372 ST 425-1
4:4:4 (RGB)	10bit	1920 x 1080	60i, 59.94i, 50i	ST 274 ST 372 ST 425-1
			30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	ST 372 ST 425-1 ST 2048-2
	12bit	2048 x 1080	30p, 29.97p, 25p, 24p, 23.98p 30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	ST 372 ST 425-1 ST 2048-2
			60i, 59.94i, 50i	ST 274 ST 372 ST 425-1
4:4:4 (XYZ)	12bit	2048 x 1080	30p, 25p, 24p 30PsF, 25PsF, 24PsF	ST 372 ST 425-1 ST 428

The following SDI formats are available as with license option SER28.

3G(DL)-4K Video Signal Formats and Standards [requires option SER28]

Division Transmission System	Color System	Quantization	Image	Frame Frequency/Scanning	Supported Standard
Square	4:2:2 (YCbCr)	10bit	3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 425-3 ST 2036-1
				30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	-
				30p, 29.97p, 25p, 24p, 23.98p	ST 425-3 ST 2048-1
2 sample interleave	4:2:2 (YCbCr)	10bit	3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 425-3 ST 2036-1
				30PsF, 29.97PsF, 25PsF, 24PsF, 23.98PsF	-
				30p, 29.97p, 25p, 24p, 23.98p	ST 425-3 ST 2048-1

- When these signals are displayed, phase differences of up to 100 clocks (approx. 0.67µs) between links are automatically corrected.
- 3G-B DS links are supported

6G Video Signal Formats and Standards [requires option SER28]

Division Transmission System	Color System	Quantization	Image	Frame Frequency/Scanning	Supported Standard
2 sample interleave	4:2:2 (YCbCr)	10bit	3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2036-1 ST 2081-10
			4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2081-10

- If you input 6G-SDI signal without the sync bit insertion, the instrument displays "NO SIGNAL" and cannot receive the signal

12G Video Signal Formats and Standards [requires option SER28]

Division Transmission System	Color System	Quantization	Image	Frame Frequency/Scanning	Supported Standard
2 sample interleave	4:2:2 (YCbCr)	10bit	3840 x 2160	60p, 59.94p, 50p	ST 2036-1 ST 2082-10
				48p, 47.95p	-
			4096 x 2160	60p, 59.94p, 50p, 48p, 47.95p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p
		12bit	4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p
			4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p
	4:4:4 (YCbCr)	10bit	4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p
			4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p
		12bit	4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p
			4096 x 2160	30p, 29.97p, 25p, 24p, 23.98p	ST 2048-1 ST 2082-10
				3840 x 2160	30p, 29.97p, 25p, 24p, 23.98p

- 12G-SDI TYPE 1 is supported
- If you input 12G-SDI signal without the Sync Bit Insertion, the instrument displays "NO SIGNAL" and cannot receive the signal.

Please see separate Specification Document for:

- SDI Audio Formats and Standards
- SDI Input/Output Connectors
- TSG Formats and Standards

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