

# MULTI SDI MONITOR

## LV 5330

**LEADER****HD-SDI****SD-SDI****Dual Link  
2K**  
1920x1080 only**6.5 Inches****1.4 kg****CINELITE II**  
INSIDE

Upon request

## Multi SDI Monitor

The LV 5330 is a compact and lightweight multi-SDI test monitor specifically designed for on, camera and portable applications. Picture, waveform, vector, audio and status screens can be displayed individually or in multi-screen representations. The instrument is also equipped with on-picture measurement functions, Cinelite and Cinezone, and helps facilitate measurements that are easily understood by both technical and operations personnel. High-accuracy measurement and monitoring facilities also include settable error level monitoring and alarms as well as extensive data analysis. A screen capture function facilitates communication between production and post production personnel and aids in project documentation.

### FEATURES

#### • Two Serial Digital Inputs and Output

Two SDI input connectors (channels A and B) support HD-SDI and SD-SDI signals. The selected SDI input is passed through an SDI output connector to facilitate switched monitor output operation.

#### • Display

A built-in 6.5-inch XGA TFT LCD (1,024x768) provides brilliant and clear representations of waveforms, vectors, pictures, audio level meters, status, etc. The multi-screen feature allows these displays to be shown simultaneously in tiled windows.

#### • Picture display

Brightness, contrast, and saturation is adjustable and aspect ratio, safe action and safe title markers can be displayed. The edge enhancement feature provides visual assistance with focus.

#### • Cinelite II (Cinelite and Cinezone)

The Cinelite on-picture measurement feature displays the luminance of any three user definable points and provides luminance measurements in %, RGB levels (or %) as well as in f-stops. The Cinezone feature uses false-colors to represent luminance values on the display enabling quick confirmation of the luminance distribution levels on the display.

#### • Waveform Monitoring

Parade, overlay, Y CB CR, RGB, and pseudo-composite displays are available.

#### • Vectorscope

Vectorscope display is available and accommodates both 75 % and 100 % saturation levels; pseudo-composite vectorscope display is also available.

#### • 5 Bar Display

The 5 Bar display enables simultaneous monitoring of component and composite gamut.

#### • Line Selector

Selects any line of the video signal to be displayed and provides waveform, vector and 5-bar representations of the selected line. A line marker on the picture facilitates visual selection of the appropriate line.

#### • Audio Level Meter

Up to 8 channels of embedded audio signals can be displayed using audio bar level meters.

\*The SD-SDI audio quantization precision is up to 20 bits.

#### • Viewfinder

The camera's composite video output (in NTSC or PAL) can be shown on the picture display. The edge enhancement feature assists you in focusing the camera.

#### • Screen Capture

The displayed screen can be captured and saved to internal memory or USB memory.

#### • Extensive Analysis Features

- Various types of error detection
- SDI signal event log
- Digital data dump

#### • Flexible Control

- Instrument can be remote controlled from a PC over an Ethernet network.
- Internal memory holds up to 30 presets allowing quick access to your favorite instrument setups. Personalize your LV 5330 by loading your own custom presets via USB thumb-drive.

#### • External Synchronization

Accepts tri-level sync or NTSC/PAL black burst signals.

#### • Stereo Headphone Output

Extracts embedded audio signals and sends 2 user selectable audio channels to the headphone jack.

#### • Panel LED Illumination

You can illuminate all of the panel keys; a useful feature when working in a dark environment.

#### • Power Supply

XLR DC input connector is provided; accepts 12Vdc- 18Vdc.

A V-mount battery adapter is also available as a factory option.

#### • Tripod Mounting

A screw(1/4 in.) hole for attaching a camera tripod is provided on the bottom panel of the LV 5330

#### Battery Mount (Factory Option)

A battery adapter can be installed on the rear panel as a factory option.

- BATTERY MOUNT IDX (V-Mount)
- BATTERY MOUNT ANTON (AntonBauer)

#### LV 5330SER01 HISTOGRAM & USER GAMMA DISPLAY (Option)

This software option enables you to show video signals on the LV 5330 histogram display. It also enables you to convert the user-defined gamma to ITU-R BT709 gamma and show the converted signal on the LV 5330 picture display.

#### LV 5330SER02 GAMUT & LEVEL ERROR(Option)

This GAMUT & LEVEL ERROR option adds the following features to the LV 5330

- Area and time specification in gamut error detection
- Detection of luminance and chrominance signal level errors

Video Formats and Corresponding Standards Single Link System Video				
Color System	Quantization	Format		Corresponding Standard
		Scanning	Frame (Field) Rates	
Y, C <sub>B</sub> , C <sub>R</sub> 4:2:2	10 bit	1080i	60/59.94/50	SMPTE 274M
		1080p	30/29.97/25/24/23.98	SMPTE 292M
		1080PsF	30/29.97/25/24/23.98	SMPTE RP 211 SMPTE 292M
		720p	60/59.94/50/ 30/29.97/25/24/23.98	SMPTE 296M SMPTE 292M
		525i	59.94	
		625i	50	SMPTE 259M
Dual Link System Video				
Color System	Quantization	Format		Corresponding Standard
		Scanning	Frame (Field) Rates	
GBR 4:4:4	10 bit	1080i	60/59.94/50	SMPTE 372M (1920X1080)
		1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
Other Standards		SMPTE 291M		
Ancillary Data Standard		SMPTE 299M (HD-SDI), SMPTE 272M (SD-SDI)		
Embedded Audio Standard				
Format Setting		Auto or manual setting from the supported formats		
Format Setting		74.25 MHz (HDTV), 74.25/1.001 MHz (HDTV), 13.5 MHz (SDTV)		
Sampling Frequency		Auto setting from supported formats		
External Synchronization				
Input/Output Connectors				
SDI Input		2 BNC connectors (switching between A and B)		
Input Connector				
External Reference Input		Tri-level sync or NTSC/PAL black burst		
Input Signal		1 pair of BNC connectors (15 kΩ passive loop-through)		
Input Connector		*Phase difference accuracy between external reference and internal signal is ±1 clock cycle.		
SDI Output		1 BNC connector (reclocks and transmits the selected SDI input signal)		
Output Connector				
Headphone Output		Extracts and outputs the embedded audio signal. Supports 48 kHz (must be synchronized to the video signal)		
Output Signal		1 stereo miniature jack, 32 Ω (16 to 600 Ω)		
Sampling Frequency				
Output Connector				
USB Memory		Stores screen captures, error logs, preset data, and data dumps. Also used for Firmware update.		
Function				
Remote Control		Recalls presets, transmits errors, controls the tally indicator		
Function		D-sub 15-pin female		
Connector				
Ethernet		Enables remote control from an external computer and data transmission		
Function		10BASE-T/100BASE-TX auto switching, one RJ-45 jack		
Type				
Viewfinder Input		Monitors composite video signals, picture only.		
Function		NTSC/PAL VBS signal		
Input Signal		1 BNC connector		
Input Connector				
Picture Display		Displays by sampling pixels		
HDTV Display		Displays by interpolating pixels		
SDTV Display		Color or black and white selectable		
Display		Center marker, aspect marker, safe title marker, safe action marker		
Marker Display		3200 K, 6500 K, 9300 K or THROUGH		
Color Temperature				
Cinelite Display		Measures relative brightness in f-stops		
f-STOP		Three points specified using the cursor		
Measurement points		Uses an object with an 18 % reflectance as reference		
Reference		Displays luminance percentage (LEVEL%), RGB percentage (RGB%), and RGB numeric values		
%DISPLAY		Three points specified using the cursor		
Measurement points		1x1, 3x3, 9x9		
Measurement areas		Reference gamma		
GAMMA		User-defined gamma		
0.45		Gamma downloaded from USB memory		
USER 1-3		Switches the screen to black and white and displays the set luminance level in green		
USER A-E				
On Picture Level Indicator				
Cinezone Display		Maps colors based on luminance levels. Linear or step selectable.		
Screen		Can be set from -6.3 % to 109.4 %. Displays white when the level is above the set level.		
UPPER		Can be set from -7.3 % to 108.4 %. Displays Black when the level is below the set level.		
LOWER				
Display Form		6.5-inch color XGA. Effective area 1024 x 768 dots		
Display Size		Picture display, Cinelite display, Cinezone display, waveform display, vectorscope display, status display,		
1 Screen Display				

<b>2 Screen Display</b>	viewfinder display Picture and waveform displays, waveform and vectorscope displays, waveform and picture displays, waveform and audio level displays, audio numeric and bar displays
<b>4 Screen Display</b>	Audio level display or status display selectable in addition to waveform display, vectorscope display, and picture display
<b>Waveform Display</b>	Overlay and parade
<b>Waveform Operation</b>	Displays by calculating Y-C <sub>B</sub> and Y-C <sub>R</sub>
<b>Display Modes</b>	Uses bowtie signals (authorized by Tektronix, Inc.)
<b>Timing Display</b>	Show or hide selectable
<b>EAV-SAV period</b>	Converts Y, C <sub>B</sub> , C <sub>R</sub> signals into G, B, R and displays the result
<b>GBR Conversion</b>	Digitally converts component signals into composite signals and displays the result
<b>Pseudo-Composite Display</b>	
<b>Vertical Axis</b>	
<b>Gain</b>	x1, x5, or variable selectable
<b>Variable Gain</b>	x0.2 to x2.0 at the x1 setting, x1.0 to x10.0 at the x5 setting ≤ ±0.5 %
<b>Amplitude Accuracy</b>	
<b>Horizontal Axis</b>	
<b>Line Magnification</b>	x1, x10, x20, ACTIVE, or BLANK
<b>Field Magnification</b>	x1, x20, or x40 selectable
<b>Cursor Measurement</b>	% , mV, R%, 3FF or 1023
<b>Amplitude Measurement</b>	Measures in usec or msec
<b>Time Measurement</b>	Displays the frequency by assuming the interval between the cursors to be one period
<b>Frequency Display</b>	
<b>Vectorscope Display</b>	
<b>Gain</b>	x1, x5, IQ-MAG, or variable selectable
<b>Variable Gain</b>	x0.2 to x2.0
<b>Amplitude Accuracy</b>	≤ ±0.5 %
<b>IQ Axis</b>	Show or hide selectable
<b>Display Colors</b>	7 colors to choose from
<b>Pseudo-Composite Display</b>	Digitally converts component signals into composite signals and displays the result
<b>5 Bar Display</b>	
<b>Bar Display</b>	Displays the peak levels of Y, R, G, B, and composite
<b>Phase Difference Display</b>	
<b>Display</b>	Displays the phase difference between an SDI signal and the external sync signal both numerically and graphically
<b>Embedded Audio Display</b>	
<b>Display Channels</b>	8-channel simultaneous display
<b>Meter</b>	60 dB peak level or 90 dB peak level
<b>Group Selection</b>	Select any two groups from groups 1, 2, 3, and 4
<b>Channel Mapping</b>	Mapping to L, R, SL(S), SR, C, LFE, RL, RR
<b>Viewfinder</b>	
<b>Display Size</b>	Full-screen display
<b>Status</b>	
<b>Data Dump Display</b>	Dumps data by serial data sequence or by channel
<b>Event log</b>	Stores up to 1,000 events
<b>Data output</b>	To USB memory or over an Ethernet network
<b>Error Detection</b>	CRC Error, EDH Error, Gamut Error, Composite Gamut Error, BCH Errors
<b>Screen Capture</b>	Captures the displayed screen
<b>Waveform Comparison</b>	Superimposes the input signal over an image from memory.
<b>Data Output</b>	Screen captures can be saved as bitmap files to USB memory or to a PC over the Ethernet.
<b>Data Input</b>	Data Saved to USB memory can be loaded and displayed on the LV 5330
<b>Presets</b>	30
<b>Other Display Features</b>	
<b>LCD</b>	6.5-inch color LCD
<b>Backlight brightness</b>	High or low selectable
<b>Screen Display</b>	Format, color system, date, time
<b>Panel LED Illumination</b>	Illuminates all keys
<b>Environmental Conditions</b>	
<b>Operating Temperature</b>	0 to 40 °C
<b>Operating Humidity Range</b>	≤ 85 %RH (no condensation)
<b>Operating Environment</b>	Indoors, or outdoors with no rain
<b>Overvoltage Category</b>	1
<b>Pollution Degree</b>	2
<b>Power Requirements</b>	12 VDC (10 to 18 V), 18 Wmax.
<b>Dimensions and Weight</b>	215 (W) x128 (H) x 63 (D) mm (excluding projections), 1.4 kg 8 1/2 (W) x 5 3/64 (H) x 2 31/64(D) Inch, 2.9 lbs.
<b>Accessories</b>	Instruction manual .....1 15-pin D-sub connector .....1 15-pin D-sub connector .....1 VESAs spacer .....1 Ferrite core .....1
<b>Option Sold Separately</b>	AC adapter SPU40-105 Rackmount Adapter LR 2752 Blank Panel LC 2130 Tripod Mounting Plate LC 2127

## OPTION

### LV 5330SER01 HISTOGRAM & USER GAMMA DISPLAY (Option)

This software option enables you to show video signals on the LV 5330 histogram display. It also enables you to convert the user-defined gamma to ITU-R BT709 gamma and show the converted signal on the LV 5330 picture display.

<b>Histogram Display</b> <b>Display Modes</b> <b>YGBR, YRGB</b> <b>Y1023</b> <b>Error Display</b>  <b>Error Display Colors</b> <b>Y</b> <b>GBR</b> <b>Histogram Brightness</b> <b>Scale Brightness</b> <b>Scale Unit</b> <b>Scale Color</b>	YGBR, YRGB, Y1023 8-bit data processing 10-bit data processing Values that are less than 0 % or greater than or equal to 100.1 % are displayed as errors.  Red Yellow -128 to 127 -8 to 7 %, 3FF, 1023 White, yellow, cyan, green, magenta, red, blue
<b>Picture Display with User-Defined Gamma</b> <b>User-Defined Gamma</b>	Acquired with CAL in the CINELITE display. Selected with GAMMA (USER-A, USER-B, USER-C, USER-D, USER-E).
<b>General Specifications</b> <b>Environmental Conditions</b> <b>Contents</b>	Same as the LV 5330 License key .....1 Instruction manual .....1



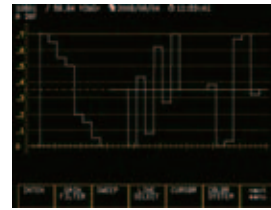

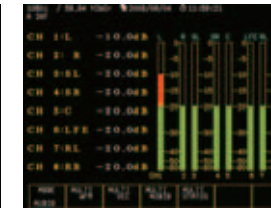
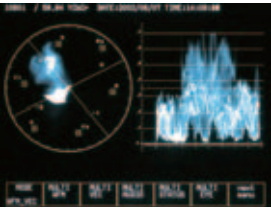
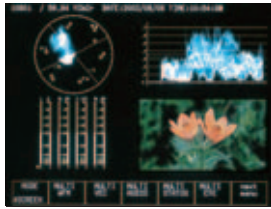
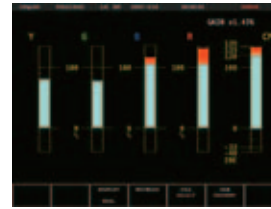



### LV 5330SER02 GAMUT & LEVEL ERROR (Option)

This GAMUT & LEVEL ERROR option adds the following features to the LV 5330

- Area and time specification in gamut error detection
- Detection of luminance and chrominance signal level errors

<b>Gamut Error</b> <b>Error Detection</b> <b>Area Specification</b>  <b>Time Specification</b>	Detect by specifying area and time 0.0 to 5.0 % (specifying 0.0 % is equivalent to not specifying an area) 1 to 50 consecutive frames
<b>Level Error</b> <b>Error Detection</b>  <b>Detection Level</b> <b>Luminance Signal</b>  <b>Chrominance Signal</b>	Level errors in the luminance and chrominance signals are detected (not available in dual link mode)  -7.2 to 109.4 %, -50.4 to 765.8 mV (for both upper and lower limits) -57.0 to 57.0 %, -399.0 to 399.0 mV (for both upper and lower limits)
<b>General Specifications</b> <b>Environmental Conditions</b> <b>Contents</b>	Same as the LV 5330 License key .....1 Instruction manual .....1

## LV 5330 DISPLAY

<b>Cinelite</b> 	<b>Cinezone</b> 	<b>Waveforms</b> 	<b>Vector</b> 	<b>Audio Display</b> 
<b>Multi-Screen Display</b> 	<b>5 Bar/Gamut</b> 	<b>Picture/Waveform</b> 	<b>Waveform/Picture</b> 	
<b>Phase Difference Display</b> 	<b>LV 5330 REAR PANEL</b> 			

### Camera Mounting



### Rack Mounting



LR 2752  
LV 5330 dual mount example