



## Compact, Slim & Lightweight Multi-SDI Test Monitor

The LV 5330 is a compact and lightweight multi-SDI test monitor specifically designed for oncamera 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

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 C<sub>B</sub> C<sub>R</sub>, 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 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)\*1

#### • BATTERY MOUNT ANTON (AntonBauer)

\*1 To be supported in the future

<b>Video Formats and Corresponding Standards</b>	<table border="1"> <thead> <tr> <th>Format</th> <th>Corresponding Standard</th> </tr> </thead> <tbody> <tr><td>1 1080i/60</td><td rowspan="8">SMPT E 274M, 292M</td></tr> <tr><td>2 1080i/59.94</td></tr> <tr><td>3 1080i/50</td></tr> <tr><td>4 1080p/30</td></tr> <tr><td>5 1080p/29.97</td></tr> <tr><td>6 1080p/25</td></tr> <tr><td>7 1080p/24</td></tr> <tr><td>8 1080p/23.98</td></tr> <tr><td>9 1080PsF/30</td><td rowspan="5">SMPT E RP211, 292M</td></tr> <tr><td>10 1080PsF/29.97</td></tr> <tr><td>11 1080PsF/25</td></tr> <tr><td>12 1080PsF/24</td></tr> <tr><td>13 1080PsF/23.98</td></tr> <tr><td>14 720p/60</td><td rowspan="10">SMPT E 296M, 292M</td></tr> <tr><td>15 720p/59.94</td></tr> <tr><td>16 720p/50</td></tr> <tr><td>17 720p/30</td></tr> <tr><td>18 720p/29.97</td></tr> <tr><td>19 720p/25</td></tr> <tr><td>20 720p/24</td></tr> <tr><td>21 720p/23.98</td></tr> <tr><td>22 525i/59.94</td><td rowspan="2">SMPT E 259M</td></tr> <tr><td>23 625i/50</td></tr> </tbody> </table>	Format	Corresponding Standard	1 1080i/60	SMPT E 274M, 292M	2 1080i/59.94	3 1080i/50	4 1080p/30	5 1080p/29.97	6 1080p/25	7 1080p/24	8 1080p/23.98	9 1080PsF/30	SMPT E RP211, 292M	10 1080PsF/29.97	11 1080PsF/25	12 1080PsF/24	13 1080PsF/23.98	14 720p/60	SMPT E 296M, 292M	15 720p/59.94	16 720p/50	17 720p/30	18 720p/29.97	19 720p/25	20 720p/24	21 720p/23.98	22 525i/59.94	SMPT E 259M	23 625i/50
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<b>Other Standards</b> <b>Ancillary Data Standard</b> <b>Embedded Audio Standard</b> <b>Format Setting</b> <b>Format Setting</b> <b>Sampling Frequency</b> <b>External Synchronization</b>	SMPT E 291M SMPT E 299M (HD-SDI), SMPT E 272M (SD-SDI) Auto or manual setting from the supported formats 74.25 MHz (HDTV), 74.25/1.001 MHz (HDTV), 13.5 MHz (SDTV) Auto setting from supported formats																													
<b>Input/Output Connectors</b> <b>SDI Input</b> <b>Input Connector</b> <b>External Reference Input</b> <b>Input Signal</b> <b>Input Connector</b>  <b>SDI Output</b> <b>Output Connector</b>  <b>Output Voltage</b> <b>Headphone Output</b> <b>Output Signal</b> <b>Sampling Frequency</b>  <b>Output Connector</b> <b>USB Memory</b> <b>Function</b>  <b>Remote Control</b> <b>Function</b> <b>Connector</b> <b>Ethernet</b> <b>Function</b>  <b>Type:</b> <b>Viewfinder Input</b> <b>Function</b> <b>Input Signal</b> <b>Input Connector</b>	Two BNC connectors (switching between A and B) Tri-level sync or NTSC/PAL black burst One pair of BNC connectors (15 k $\Omega$ passive loop-through) *Phase difference accuracy between external reference and internal signal is $\pm 1$ clock cycle. One BNC connector (reclocks and transmits the selected SDI input signal) 800 mVp-p $\pm 10$ % outputs (75 $\Omega$ ) Extracts and outputs the embedded audio signal. Supports 48 kHz (must be synchronized to the video signal) One stereo miniature jack, 32 $\Omega$ (16 to 600 $\Omega$ ) Stores screen captures, error logs, preset data, and data dumps. Also used for Firmware update. Recalls presets, transmits errors, controls the tally indicator D-sub 15-pin female Enables remote control from an external computer and data transmission 10BASE-T/100BASE-TX auto switching, one RJ-45 jack Monitors composite video signals, picture only. NTSC/PAL VBS signal One BNC connector																													
<b>Picture Display</b> <b>HDTV Display</b> <b>SDTV Display</b> <b>Display</b> <b>Frame Rate</b>  <b>Marker Display</b>  <b>Adjustment:</b>	Displays by sampling pixels Displays by interpolating pixels Color or black and white selectable Displays by converting the frame rate using the internal sync signal Center marker, aspect marker, safe title marker, safe action marker Brightness, contrast, chroma, aperture																													
<b>Cinelite Display</b> <b>f-STOP:</b> <b>Measurement points</b> <b>Reference</b> <b>%DISPLAY</b>  <b>Measurement points</b> <b>Measurement areas</b> <b>GAMMA</b> <b>0.45</b> <b>USER 1-3</b> <b>USER A-E</b> <b>On Picture Level Indicator</b>	Measures relative brightness in f-stops Three points specified using the cursor Uses an object with an 18 % reflectance as reference Displays luminance percentage (LEVEL%), RGB per- centage (RGB%), and RGB numeric values Three points specified using the cursor 1x1, 3x3, 9x9 Reference gamma User-defined gamma Gamma downloaded from USB memory Switches the screen to black and white and displays the set luminance level in green																													
<b>Cinezone Display</b> <b>Screen</b>  <b>UPPER</b>  <b>LOWER</b>	Maps colors based on luminance levels. Linear or step selectable. Can be set from -6.3 % to 109.4 %. Displays white when the level is above the set level. Can be set from -7.3 % to 108.4 %. Displays Black when the level is below the set level.																													
<b>Display Form</b> <b>Display Size</b> <b>1 Screen Display</b>  <b>2 Screen Display</b>	6.5-inch color XGA. Effective area 1024 x 768 dots Picture display, Cinelite display, Cinezone display, waveform display, vectorscope display, status dis- play, viewfinder display Picture and waveform displays, waveform and vec- torscope 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> <b>Waveform Operation</b> <b>Display Modes</b> <b>Timing Display</b>  <b>EAV-SAV period</b> <b>G, B, R Conversion</b>  <b>Pseudo-Composite Display</b>  <b>Channel Assignments</b>  <b>Vertical Axis</b> <b>Gain</b> <b>Variable Gain</b>  <b>Amplitude Accuracy</b> <b>Frequency Characteristics HDTV</b> <b>Y Signal</b> <b>C<sub>B</sub>, C<sub>R</sub> signals</b> <b>Frequency Characteristics SDTV</b> <b>Y Signal</b> <b>C<sub>B</sub>, C<sub>R</sub> signals</b> <b>Horizontal Axis</b> <b>Line Magnification</b> <b>Field Magnification</b> <b>Cursor Measurement</b> <b>Horizontal Cursors</b> <b>Vertical Cursors</b> <b>Amplitude Measurement</b> <b>Time Measurement</b> <b>Frequency Display</b>  <b>Marker Display</b> <b>75 % Marker</b>	Overlay and parade Displays by calculating Y-C <sub>B</sub> and Y-C <sub>R</sub> Uses bowtie signals (authorized by Tektronix, Inc.) Show or hide selectable Converts Y, C <sub>B</sub> , C <sub>R</sub> signals into G, B, R and displays the result Digitally converts component signals into composite signals and displays the result The G, B, R order or R, G, B order selectable for G, B, R conversion display x1, x5, or variable selectable x0.2 to x2.0 at the x1 setting, x1.0 to x10.0 at the x5 setting $\leq \pm 0.5$ % $\leq \pm 0.5$ % 1 to 30 MHz $\leq \pm 0.5$ % 0.5 to 15 MHz $\leq \pm 0.5$ % 1 to 5.75 MHz $\leq \pm 0.5$ % 0.5 to 2.75 MHz x1 or x10 selectable x1, x20, or x40 selectable 2 (REF and DELTA) 2 (REF and DELTA) Measures in % or V Measures in usec or msec Displays the frequency by assuming the interval between the cursors to be one period Indicates the value corresponding to the peak chromi- nance signal of the 75 % color bar.
<b>Vectorscope Display</b> <b>Scale</b> <b>Gain</b> <b>Variable Gain</b>  <b>Amplitude Accuracy</b> <b>IQ Axis</b> <b>Pseudo-Composite Display</b>	75 % or 100 % selectable x1, x5, IQ-MAG, or variable selectable x0.2 to x2.0 at the x1 setting, x1.0 to x10.0 at the x5 setting $\leq \pm 0.5$ % Show or hide selectable 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>Embedded Audio Display</b> <b>Display Channels</b> <b>Meter</b> <b>Group Selection</b> <b>Channel Mapping</b>	8-channel simultaneous display 60 dB peak level or 90 dB peak level Select any two groups from groups 1, 2, 3, and 4 Mapping to L, R, SL(S), SR, C, LFE, RL, RR
<b>Viewfinder</b> <b>Display Size</b> <b>Adjustment</b>	Full-screen display Brightness, contrast, chroma, aperture
<b>Status</b> <b>Data Dump Display</b> <b>Event log</b> <b>Data output</b>	Dumps data by serial data sequence or by channel Stores up to 1,000 events To USB memory or over an Ethernet network
<b>Screen Capture</b> <b>Waveform Comparison</b>	Captures the displayed screen Superimposes the input signal over an image from memory.
<b>Presets</b>	30
<b>Other Display Features</b> <b>LCD</b> <b>Backlight brightness</b> <b>Screen Display</b> <b>Panel LED Illumination</b>	6.5-inch color LCD High or low selectable Format, color system, date, time Illuminates all keys
<b>Environmental Conditions</b> <b>Operating Temperature</b> <b>Operating Humidity Range</b> <b>Operating Environment</b> <b>Overvoltage Category</b> <b>Pollution Degree</b>	0 to 40 $^{\circ}$ C $\leq 85$ %RH (no condensation) Indoors, or outdoors with no rain 1 2
<b>Power Requirements</b>	12 VDC (10 to 18 V), 18 Wmax.
<b>Dimensions and Weight</b>	215 (W) x 128 (H) x 63 (D) mm (excluding projections), 1.3 kg 8 1/2 (W) x 5 3/64 (H) x 2 31/64 (D) in. 2.9 lbs
<b>Accessory</b>	Instruction manual ..... 1
<b>Option Sold Separately</b>	AC adapter LP 1960

## ■ Cinelite II



Cinelite



Cinezone