VIDEO MULTI SDI MONITOR

17-Inch Display Multi SDI Monitor



LV 5980 MULTI SDI MONITOR

GENERAL

The LV 5980 is a waveform monitor with a 17-inch TFT display that can be used to monitor up to four SDI signals simultaneously. It is optimized for the level adjustment of the outputs of multiple installed cameras. In the video signal waveform display, vector display, and picture display, multiple input signals can be displayed on top of each other or lined up next to each other. It is also full of useful features such as a level meter display for embedded audio, an error display that indicates transmission errors, and a 5-bar display that shows video signal peak levels using five bars. Furthermore, the LV 5980 can show different combinations of these displays in its multi-screen display.

FEATURES

- **Simultaneous Monitoring of Four Inputs**
- It can display up to four SDI input signals of the same format simultaneously.
- **3D-Assist Display**
- Displays such as anaglyph, convergence, overlay, and wipe can be used to evaluate 3D video signals.
- **Rich Assortment of Display Features**
- Not only does the LV 5980 have essential displays for video signal quality monitoring, such as a video signal waveform display and a vector display, it also has a rich assortment of other display features such as a picture display, audio level meter display, 5-bar display, transmission error detection, and gamut error detection.
- Wide Variety of Display Formats

In the video signal waveform display, vector display, and picture display, the LV 5980 can display up to four input SDI signals on top of each other or side by side. This makes it suitable for adjusting the gain and black balance values of multiple cameras. In the video signal waveform and vector displays, the LV 5980 can make different waveforms easier to see by using a different waveform color for each input channel. Extremely Flexible Display Layouts

Each of the different displays can be shown on a single screen, or the multi-screen display feature can be used to divide the screen into four areas with a different display shown in each area. The video signal waveform display, picture display, and audio level meter display can be shown as a thumbnail display on the one-screen display.

 $\label{eq:Video Signal Waveform Display} \end{tabular} The input Y C_B C_R signal can be converted to an RGB or pseudo$ composite signal and shown on the video signal waveform display. The video signal waveform display has a rich assortment of features such as waveform magnification and line selection.

Picture Display

The picture display has a wide variety of picture monitoring features, such as color temperature specification; brightness, contrast, and aperture adjustment; and the display of gamut error locations.

Standard-Equipped CINELITE II

The CINELITE feature makes it easy to manage the levels of specific points on the picture display. This is useful for adjusting the gain of multiple cameras through the use of the same reference point. The CIN-EZONE feature makes it possible to check the luminance distribution of the whole picture display at a glance.

Screen Capture Feature

The display can be captured and stored as image data. The captured data can be displayed on the LV 5980. Additionally, it can be saved as bitmap files to USB memory, which makes it possible to view the data on a PC.

External Sync Signal Input

The LV 5980 can receive a tri-level sync signal or an NTSC or PAL black burst signal as its external sync signal and then display video signal waveforms with this svnc signal as its reference.

- Presets
- Stores up to 30 front panel presets.
- Key LEDs
 - All the panel keys have LEDs. This makes it easy to find the keys even in dark environments.
- Last Memor
- 75 mm and 100 mm VESA Compliant Mounting Holes There are 75 mm and 100 mm VESA compliant mounting holes on the back of the LV 5980, so it can be mounted on an arm or stand.
- **Battery Mount (Sold separately)**
- A battery adapter can be attached to the back of the LV 5980, so the same battery that is being used for a video camera or similar device can also be used to power the LV 5980. In addition, the A-E241E battery adapter made by IDX Company, Ltd. can be used to attach two battery packs. This makes it possible to supply a large amount of power.

When a battery mount is attached, the 75 mm and 100 mm VESAcompliant mounting holes cannot be used. ID Display

- IDs can be assigned to input channels. IDs are entered from the LV 5980 panel.
- Stereo Headphone Output

The LV 5980 can deliver the embedded audio of an SDI signal in stereo through the headphone output jacks.

Dual Li

- The LV 5980 can monitor a pair of dual link signals simultaneously.
- Audio Lissajous Display Lissajous curves and level values can be displayed for the audio that is embedded in an SDI signal.
- Status Displa The LV 5980 can show analysis displays such as the data dump, phase difference, and event log displays.

Sold Separately

Tilt stand, rack support, LCD protection panel, light shielding hood, and battery mount.

SPECIFICATIONS

LV 5980

Single Link Sy	/stem Vid	deo	irus		
Format	Quantization	Scanning	Frame(Field) Frequency	Corresponding	
l'onnat	Quantization	1080i	60/59 94/50	Standard	
		1080p	00/00.04/00	SMPTE 274M SMPTE 292M	
X Ca Ca		1080PsF	30/29.97/25/24/23.98	SMPTE RP211	
4:2:2	10 bit	720p	60/59.94/50/	SMPTE 296M	
		525i	59.94		
		625i	50	SMPTE 259M	
Dual Link Sys	tem Vide	90			
Format	Quantization	Scanning	Frame(Field) Frequency	Corresponding Standard	
	10 6#	1080p	30/29.97/25/24/23.98		
GBR	IU DIt	1080PSF 1080i	60/59.94/50		
4:4:4	10 53	1080p	30/29.97/25/24/23.98		
	12 DIT	1080PSF 1080i	60/59.94/50	(1920x1080)	
	10 bit	1080p	60/59.94/50		
Y, C _B , C _R 4:2:2	12 bit	1080p 1080PsF	30/29.97/25/24/23.98		
		1080i	60/59.94/50		
GBR 4:4:4 (2K)	12 bit	1080p 1080PsF	24/23.98	SMPTE 372M (2048x1080)	
Format Switching: Manual, automatic When Set to Dual Link (When an LV 5980SER01is installed Format Switching: Manual (only the frame frequency can b switched automatically) Permissible Phase Difference between Links A and B: Automatic correction up to 100 clocks (approx. 1.4 us) Synchronization between Links A and B: Stnchronize					
Audio Playbacl	k	OMPT			
Compliant Sta	andards:	SMPT	E-299M (HD-SDI) E-272M (SD-SDI)		
Quantization:		24 bits	S		
Clock Genera Synchronizati	tion: on:	Gener All au	Generated from the video clock All audio channels must be synchronized to		
0,	••••	the vic	the video clock.		
Input/Output Connectors SDI Input Input Connectors: SDI Output Output Connectors: Output Signal: Output Impedance: Output Voltage: Output Return Loss: External Sync Input(*1) Input Signal: Input Connectors: Input Impedance: Input Return Loss: Maximum Input Voltage: Headphone Output Output Signal: Output Channel: Sampling Frequency: Output Connector: Volume Adjustment: Power Output: Control Connectors		rs 4 BNC 2 BNC SDI si recloc SDI si recloc 75 Ω 800 m ≥15 df) Tri-lev. 2 BNC 15 kΩ ≥30 df pe: ±5 V (f Extrac bedde Specif Y: Only 4 1 stere So mV *1 lf th an e ing dev off b	4 BNC connectors (channels A, B, C, and D) 2 BNC connectors SDI signal selected from channel A or B is reclocked and generated SDI signal selected from channel C or D is reclocked and generated 75 Ω 800 mVp-p ±10 % ≥15 dB for 5 MHz to the serial clock frequency Tri-level sync or NTSC/PAL black burst signal 2 BNC connectors 15 kΩ passive loop-through ≥30 dB for 50 kHz to 30 MHz into 75 Ω ±5 V (DC + peak AC) Extracts and transmits the audio signal em- bedded in an SDI signal. Specified AES/EBU pair Only 48 kHz is supported. 1 stereo miniature jack Configured from the menu 50 mW max. (with 16 Ω load resistance) *1 If the video signal as the reference, insert- ing or removing an SDI signal or restarting the device may cause the waveform phase to be off by one clock. This feature does not function when the video format is 1080p/60, 59.94, or 50.		
Specificatio Media:	on:	USB 2 Only s	.0 upports USB memor	y devices.	
		47.			
LCD Type: Display Format: Backlight Brightness: Auto Shutoff:		17-inc XGA. ⁻ 32 lev Time t	h color TFT The effective resoluti els o turn off the LCD ca	on is 1024 x 768. an be set.	
Screen Capture Screen Capture	re:	Captu	res the screen to an i	image file (only one	
		screer	screen capture is stored in internal memory)		
Media: Data Output:		Interna Screer to USI	Internal memory (RAM) and USB memory Screen captures can be saved as bitmap files to USB memory.		
Data Input:		Data s and di	saved to USB memory splayed on the LV 59	ory can be loaded 980.	

Preset Settings	
Preset Mode:	Comprehensive preset, display mode preset
Preset: Display Feature	30
Input Mode Selection:	Single input mode, simultaneous input mode
Single Input Mode:	Displays a single input signal
Simultaneous Input Mode:	Displays up to four input signals of the same
Simultaneous Input Med	format simultaneously
Sinutaneous input wou	Mixed tiled aligned
Mixed Display:	Displays simultaneous input signals in cas-
	caded screens
Tiled Display:	Displays simultaneous input signals in tiled
Aligned Display:	screens Displays simultaneous input signals in horizon
Alighed Display.	tally aligned screens
Display Size Selection:	1-screen display, 2-screen display, 4-screen
	display, user layout
1-Screen Display:	Displays a single, large screen (the thumbnail
2-Screen Display:	display can be turned on and on) Splits the display into left and right screens
4-Screen Display:	Splits the display into four screens
User Layout*2	
User Layout:	Displays the user-defined layout
Number of User Layouts:	Four (two for single input mode and two for
*1 For more information, cont	simuitaneous input mode) act vour pearest LEADER agent
Waveform Display	
Simultaneous Input Mode Display Format:	Mixed, tiled, aligned
Waveform Operation	
Display Mode:	Overlay, parade
Parade:	Displays component signals
Blanking Period:	H and V blanking periods can be displayed or hidden.
RGB Conversion:	Converts a Y, C_B, C_R signal into an RGB signal
	and displays the result
Pseudo-Composite Display:	Artificially converts a component signal into a
Channel Assignment	Displayed in GBB or BGB order (selectable
endinier Assignment.	when RGB conversion is enabled)
Line Select:	Displays the selected line
Gain:	x1, x5
Variable Gain:	x0.2 to x2.0
Amplitude Accuracy:	+0.5 %
HD-SDI	10.0 /0
Y Signal:	±0.5 % for 1 to 30 MHz
C _B C _R Signal:	±0.5 % for 0.5 to 15 MHz
Low-Pass Attenuation:	≥20 dB (at 20 MHz)
Y Signal:	+0.5 % for 1 to 5.75 MHz
$C_B C_R$ Signal:	±0.5 % for 0.5 to 2.75 MHz
Low-Pass Attenuation:	≥ 20 dB (at 3.8 MHz)
Cursor Measurement	
Configuration:	Horizontal cursors: 2 cursors (REF and DELIA)
Amplitude Measurement	Measured in [%] and [V]
Time Measurement:	Displayed in [usec] or [msec]
Frequency Display:	Display the frequency in which the time between
Scale	~
lype: Display Color:	% scale, V scale, decimal scale, hexadecimal scale
Thumbnail Display:	Picture, audio level meter
Vectorscope Display	
Simultaneous Input Mode Display Format:	Mixed, tiled
Blanking Interval:	Masked
rseudo-composité Display	composite signal
Line Select:	Displays the selected line
Gain:	x1, x5, IQ-MAG
Variable Gain:	x0.2 to x2.0
Amplitude Accuracy:	±0.5 %
Type:	ITU-R BT.601, ITU-R BT.709, AUTO
Setting the Color Bar Saturation:	75 %, 100 %
IQ Axis:	Show, hide
Display Color:	7 colors
I numphall Display:	Picture, audio level meter
Display Type:	Level meter, level values. Lissaious
Level Meter Display	
Displayed Channels:	Two, eight
Meter:	60 dB peak level, 90 dB peak level, average
Numorie Dianteur	(the peak level meter has a hold feature)
Lissajous Display:	Displays volume levels as dB values
Displayed Channels:	Two (single), eight (multi)
Display Mode:	X-Y, MATRIX
Channel Selection	
Single Input Mode:	Any two groups from groups 1, 2, 3, and 4
Simultaneous Input Mode:	Une AES/EBU pair per input channel
Simultaneous Input Mode Display Format	Tiled only

Channel Assignment:	RGB, GBR
Error Level:	Based on the gamut error, composite gamut
Picture Display	error, and luminance error thresholds
Simultaneous Input Mode Display Format Color Temperature: Image Quality Adjustment:	:Mixed, tiled 6500 K, 9300 K Brightness, contrast, chroma gain, RGB gain, PCP biog operture
Display Sizes: Color: Frame Rate:	Fit, full frame, real, 4:3 full screen R, G, B can be turned off separately. Chroma off The frame rate is converted and displayed
Aspect Display Marker	using the internal sync signal.
HD-SDI: SD-SDI:	4:3, 13:9, 14:9, 2.39:1 13:9, 14:9, 16:9
Line Select: Gamut Error Display: Thumbnail Display:	Marks the selected line Displays gamut error locations over the picture Video signal waveform, audio level meter
Error Count Display Function:	Used to count the video, audio, and gamut errors
Video Error Display: Audio Error Display:	Counts CRC (HD-SDI) and EDH (SD-SDI) errors Counts embedded audio BCH (HD-SDI) and channel status bit CBC errors
Gamut Error Display:	Counts gamut, composite gamut, and lumi- nance errors
Upper Limit: Lower Limit: Composite Gamut Error	90.8 to 109.4 % -7.2 to 6.1 %
Upper Limit: Lower Limit:	90.0 to 135.0 % -40.0 to 20.0 %
Upper Limit:	90.8 to 109.4 %
Error Count:	Up to 999,999 errors can be counted sepa- rately for video, audio, and gamut.
Count Period: Current Time Display:	One count per field The time based on the internal clock
Elapsed Time Display:	The elapsed time since the error count was cleared
Error Detection	
SDI: Video	Detects the presence of an SDI signal
CRC Error: EDH Error:	Detects HD-SDI signal transmission errors Detects SD-SDI signal transmission errors
Phase Difference Error:	When the link format is set to dual, the LV 5980 detects phase difference errors between link A and link B (a difference greater than or equal to 100 clocks).
Audio CRC Error: BCH Error:	Detects CRC errors in channel status bits Detects transmission errors in the audio pack- ets that are embedded in HD-SDI signals
Gamut Gamut Error: Composite Gamut Error:	Detects gamut errors Detects level errors that occur when component signals are converted to composite signals
Event Log	Errors, changes in input type, time stamps, etc.
Recording Capacity: Operation: Data Output:	Up to 1000 events Records all events from start to finish Saved in text format to a USB memory device
Data Dump Operation Mode:	Run, hold
Single Link Mode: Dual Link Mode: Jump:	Serial, component Link A, link B, link A and B combined FAV SAV line sample
Phase Difference Display Function:	Displays the phase difference between the external sync signal and the SDI signal (does not function when the video format is 1080p/60, 59.94, or 50) Displays the phase difference between chan-
Reference Phase:	No phase difference when connected directly to a LEADER TSG
3D-Assist Display	Sets the reference phase to the current state
Supported Format: Input Connector(*3) Video Signal for the Left Eve	HD-SDI (single link) :Channel A or channel B
Video Signal for the Right Eye Main Display Type	Channel C or channel D
Picture Display: Video Signal Waveform Display:	Enlarges the picture to assist in evaluating 3D videos Enlarges the video signal waveform to assist in evaluating 3D videos
Picture Display Anaglyph Display (Color):	Green and blue are masked from the video signal for the left eye, and red is masked
Anaglyph Display (Monochrome)	signals are then combined. Green and blue are masked from the mono-

	chrome video signal for the left eye, and red is			
Convergence Display:	masked from the monochrome video signal for the right eye. These signals are then combined. A 50 % offset is added to the difference be-			
	tween the monochrome video signal for the left eve and the monochrome video signal for			
	the right eye.			
Overlay Display:	The levels of the video signal for the left eye and the video signal for the right eye are halved. These signals are then combined.			
Checkerboard Display:	Displays the video signal for the left eye and the video signal for the right eye in a checker- board pattern			
Boundary Lines: Wine Display:	Can be moved up, down, left, and right			
тре Бізріаў.	signal for the right eye are divided by bound-			
Dermedener Lineau	ary lines and displayed.			
Boundary Lines:	can be moved up and down and left and right separately			
Left Disht Doundon: Lines	Show or hide			
Left-Right Boundary Line:	video signal for the left of the boundary line is the video signal for the left eye. The part to the right of the boundary line is the video signal for the dict of the boundary line is the video signal			
Top-Bottom Boundary Line:	The part above the boundary line is the video signal for the left eye. The part below the bound-			
Inverted Display	ary line is the video signal for the right eye.			
Horizontal Inversion:	Inverts the picture and video signal waveform(*4)			
Vertical Inversion: Inverted Channel:	Inverts the picture Inverts each channel separately			
Grid Display	Diaplaya grid lines on the sist			
Function: Grid Type:	Displays grid lines on the picture			
Disparity Grid Cell Width:	6 to 192 pixels (0.3 to 10.0 %)(*5)			
Horizontal Grid Cell Width:	6 to 108 lines (0.6 to 10.0 %)(*5)			
Grid Line Movement:	moved separately.			
Video Signal Waveform D	isplay			
Video Signal for the Left Eye:	Red			
Video Signal for the Right Eye:	Cyan			
Display Format:	Side by side, overlaid			
Disparity Measurement	E Feature			
Function:	Position the cursor at a point in the picture to mea- sure the disparity and luminance level at that point. If the upper limit is exceeded "NG" (no good)			
Meesuveble Herrer	is displayed.			
Measurable iterris.	perceived depth (m), angle of vergence (°)			
Time Code Display	The time codes for the video signal for the left			
*0.0-lt	eye and the video signal for the right eye are displayed at the same time.			
*4 Horizontal inversion of the vide	o signal waveform occurs only during the video period.			
*5 The pixel and line ranges vary depending on the input signal. The values shown here are for a 1080i/59.94 input signal.				
Other Display Settings				
Time Code:	LTC, VITC, OFF			
Format Display:	The format can be displayed when an SDI sig- nal is detected.			
Front Panel Electronic Power Switch	Stores whether the instrument is on or off			
Last Memory Feature:	Backs up the panel settings			
Environmental Conditions Operating Temperature Range: 0 to 40 °C Operating Humidity Range: < 85 %RH (without condensation)				
operating number name.	\leq 85 %RH (without condensation)			
Power Requirements	\leq 85 %RH (without condensation) 10 to 18 VDC, 60 W max.			
Power Requirements Dimensions	\leq 85 %RH (without condensation) 10 to 18 VDC, 60 W max.			
Power Requirements Dimensions Weight	≤ 85 %RH (without condensation) 10 to 18 VDC, 60 W max. 425 (W) x 352 (H) x 95.0 (D) mm (excluding projections) 16 3/4(w) x 13 7/8(H) x 3 3/4(D) inch			
Power Requirements Dimensions Weight	≤ 85 %RH (without condensation) 10 to 18 VDC, 60 W max. 425 (W) x 352 (H) x 95.0 (D) mm (excluding projections) 16 3/4(w) x 13 7/8(H) x 3 3/4(D) inch 5.2 kg 11.46 lbs			
Power Requirements Dimensions Weight Accessories	$ \le 85 \ \% RH \ (without \ condensation) $ $ 10 \ to \ 18 \ VDC, \ 60 \ W \ max. $ $ 425 \ (W) \ x \ 352 \ (H) \ x \ 95.0 \ (D) \ mm \ (excluding \ projections) $ $ 16 \ 3/4(w) \ x \ 13 \ 7/8(H) \ x \ 3 \ 3/4(D) \ inch $ $ 5.2 \ kg \ 11.46 \ lbs $ $ AC \ adapter \ (SPU100-105) \1 \ lnstruction \ manual \$			
Power Requirements Dimensions Weight Accessories Optional Accessories	$ \le 85 \ \% RH \ (without \ condensation) $ $ 10 \ to \ 18 \ VDC, \ 60 \ W \ max. $ $ 425 \ (W) \ x \ 352 \ (H) \ x \ 95.0 \ (D) \ mm \ (excluding \ projections) $ $ 16 \ 3/4(w) \ x \ 13 \ 7/8(H) \ x \ 3 \ 3/4(D) \ inch $ $ 5.2 \ kg \ 11.46 \ lbs $ $ AC \ adapter \ (SPU100-105) \1 \ Instruction \ manual \1 $			
Power Requirements Dimensions Weight Accessories Optional Accessories				
Power Requirements Dimensions Weight Accessories Optional Accessories * CINFLITE is a registered trade	$ sis is 6 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $			



Display Examples



Multi-Screen Display







Audio Lissajous Display



Cinelite







Convergence



Cinezone







Overlay & Histogram

3D video signals can be evaluated by applying the video signal for the left eye to channel A and the video signal for the right eye to channel B. The available picture display formats are anaglyph, convergence, overlay, and wipe.

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