

17-Inch Display Multi SDI Monitor



3D

HD-SDI

SD-SDI

5 Bar

CINELITE II
INSIDE

Stand sold separately

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.
- **Video Signal Waveform Display**
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 CINELITE 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 sync 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 Memory**

- **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 VESA-compliant 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 Link**

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 Display**

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

Video Signal Formats and Standards

Single Link System Video

Format	Quantization	Scanning	Frame(Field) Frequency	Corresponding Standard
Y, C _B , C _R 4:2:2	10 bit	1080i	60/59.94/50	SMPTE 274M SMPTE 292M
		1080p	30/29.97/25/24/23.98	
		1080PsF		SMPTE RP211 SMPTE 292M
		720p		60/59.94/50/ 30/29.97/25/24/23.98
		525i	59.94	SMPTE 259M
625i	50			

Dual Link System Video

Format	Quantization	Scanning	Frame(Field) Frequency	Corresponding Standard	
GBR 4:4:4	10 bit	1080p	30/29.97/25/24/23.98	SMPTE 372M (1920x1080)	
		1080PsF			
		1080i			
		12 bit	1080p		30/29.97/25/24/23.98
			1080PsF		
Y, C _B , C _R 4:2:2	10 bit	1080p	60/59.94/50		
		12 bit	1080p		30/29.97/25/24/23.98
			1080PsF		
GBR 4:4:4 (2K)	12 bit	1080p	24/23.98		SMPTE 372M (2048x1080)
		1080PsF			

When Set to Single Link

- Format Switching:** Manual, automatic
- When Set to Dual Link (When an LV 5980SER01 is installed)**
- Format Switching:** Manual (only the frame frequency can be 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:** Synchronize

Audio Playback

- Compliant Standards:** SMPTE-299M (HD-SDI)
SMPTE-272M (SD-SDI)
- Quantization:** 24 bits
- Clock Generation:** Generated from the video clock
- Synchronization:** All audio channels must be synchronized to the video clock.

Input/Output Connectors

- SDI Input**
- Input Connectors:** 4 BNC connectors (channels A, B, C, and D)
- SDI Output**
- Output Connectors:** 2 BNC connectors
- Output Signal:** SDI signal selected from channel A or B is reclocked and generated
SDI signal selected from channel C or D is reclocked and generated
- Output Impedance:** 75 Ω
- Output Voltage:** 800 mVp-p ±10 %
- Output Return Loss:** ≥15 dB for 5 MHz to the serial clock frequency
- External Sync Input(*1)**
- Input Signal:** Tri-level sync or NTSC/PAL black burst signal
- Input Connectors:** 2 BNC connectors
- Input Impedance:** 15 kΩ passive loop-through
- Input Return Loss:** ≥30 dB for 50 kHz to 30 MHz into 75 Ω
- Maximum Input Voltage:** ±5 V (DC + peak AC)
- Headphone Output**
- Output Signal:** Extracts and transmits the audio signal embedded in an SDI signal.
- Output Channel:** Specified AES/EBU pair
- Sampling Frequency:** Only 48 kHz is supported.
- Output Connector:** 1 stereo miniature jack
- Volume Adjustment:** Configured from the menu
- Power Output:** 50 mW max. (with 16 Ω load resistance)

*1 If the video signal waveform is displayed using an external sync signal as the reference, inserting 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.

Control Connectors

- USB Port**
- Specification:** USB 2.0
- Media:** Only supports USB memory devices.

LCD

- LCD Type:** 17-inch color TFT
- Display Format:** XGA. The effective resolution is 1024 x 768.
- Backlight Brightness:** 32 levels
- Auto Shutoff:** Time to turn off the LCD can be set.

Screen Capture

- Screen Capture:** Captures the screen to an image file (only one screen capture is stored in internal memory)
- Media:** Internal memory (RAM) and USB memory
- Data Output:** Screen captures can be saved as bitmap files to USB memory.
- Data Input:** Data saved to USB memory can be loaded and displayed on the LV 5980.

Preset Settings

- Preset Mode:** Comprehensive preset, display mode preset
- Preset:** 30

Display Feature

- 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 format simultaneously
- Simultaneous Input Mode Display Format Selection:** Mixed, tiled, aligned
- Mixed Display:** Displays simultaneous input signals in cascaded screens
- Tiled Display:** Displays simultaneous input signals in tiled screens
- Aligned Display:** Displays simultaneous input signals in horizontally 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 display can be turned on and off)
- 2-Screen Display:** 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 simultaneous input mode)

*1 For more information, contact your nearest LEADER agent.

Waveform Display

- Simultaneous Input Mode Display Format:** Mixed, tiled, aligned
- Waveform Operation**
- Display Mode:** Overlay, parade
- Overlay:** Overlays component signals
- Parade:** Displays component signals side by side
- 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 composite signal
- Channel Assignment:** Displayed in GBR or RGB order (selectable when RGB conversion is enabled)
- Line Select:** Displays the selected line
- Gain:** x1, x5
- Variable Gain:** x0.2 to x2.0
- Waveform Display Accuracy**
- Amplitude Accuracy:** ±0.5 %
- HD-SDI**
- Y Signal:** ±0.5 % for 1 to 30 MHz
- C_BC_R Signal:** ±0.5 % for 0.5 to 15 MHz
- Low-Pass Attenuation:** ≥20 dB (at 20 MHz)
- SD-SDI**
- Y Signal:** ±0.5 % for 1 to 5.75 MHz
- C_BC_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 DELTA)
Vertical cursors: 2 cursors (REF and DELTA)
- Amplitude Measurement:** Measured in [%] and [V]
- Time Measurement:** Displayed in [usec] or [msec]
- Frequency Display:** Display the frequency in which the time between
- Scale**
- Type:** % scale, V scale, decimal scale, hexadecimal scale
- Display Color:** 7 colors
- Thumbnail Display:** Picture, audio level meter

Vectorscope Display

- Simultaneous Input Mode Display Format:** Mixed, tiled
- Blanking Interval:** Masked
- Pseudo-Composite Display:** Artificially converts a component signal into a composite signal
- Line Select:** Displays the selected line
- Gain:** x1, x5, IQ-MAG
- Variable Gain:** x0.2 to x2.0
- Amplitude Accuracy:** ±0.5 %
- Scal**
- 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
- Thumbnail Display:** Picture, audio level meter

Embedded Audio Display

- Display Type:** Level meter, level values, Lissajous
- Level Meter Display**
- Displayed Channels:** Two, eight
- Meter:** 60 dB peak level, 90 dB peak level, average (the peak level meter has a hold feature)
- Numeric Display:** Displays volume levels as dB values
- Lissajous Display**
- 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:** One AES/EBU pair per input channel

5 Bar Display

- Simultaneous Input Mode Display Format:** Tiled only
- Bar Display:** Displays the peak levels of Y, R, G, B and composite

Channel Assignment:	RGB, GBR
Scale:	mV, %
Error Level:	Based on the gamut error, composite gamut error, and luminance error thresholds
Picture Display	
Simultaneous Input Mode Display Format:	Mixed, tiled
Color Temperature:	6500 K, 9300 K
Image Quality Adjustment:	Brightness, contrast, chroma gain, RGB gain, RGB bias, aperture
Display Sizes:	Fit, full frame, real, 4:3 full screen
Color:	R, G, B can be turned off separately. Chroma off
Frame Rate:	The frame rate is converted and displayed using the internal sync signal.
Aspect Display Marker	
HD-SDI:	4:3, 13:9, 14:9, 2.39:1
SD-SDI:	13:9, 14:9, 16:9
Line Select:	Marks the selected line
Gamut Error Display:	Displays gamut error locations over the picture
Thumbnail Display:	Video signal waveform, audio level meter
Error Count Display	
Function:	Used to count the video, audio, and gamut errors
Video Error Display:	Counts CRC (HD-SDI) and EDH (SD-SDI) errors
Audio Error Display:	Counts embedded audio BCH (HD-SDI) and channel status bit CRC errors
Gamut Error Display:	Counts gamut, composite gamut, and luminance errors
Upper Limit:	90.8 to 109.4 %
Lower Limit:	-7.2 to 6.1 %
Composite Gamut Error	
Upper Limit:	90.0 to 135.0 %
Lower Limit:	-40.0 to 20.0 %
Luminance Error	
Upper Limit:	90.8 to 109.4 %
Lower Limit:	-7.2 to 6.1 %
Error Count:	Up to 999,999 errors can be counted separately for video, audio, and gamut.
Count Period:	One count per field
Current Time Display:	The time based on the internal clock
Elapsed Time Display:	The elapsed time since the error count was cleared
Status Display	
Error Detection	
SDI:	Detects the presence of an SDI signal
Video	
CRC Error:	Detects HD-SDI signal transmission errors
EDH Error:	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:	Detects CRC errors in channel status bits
BCH Error:	Detects transmission errors in the audio packets that are embedded in HD-SDI signals
Gamut	
Gamut Error:	Detects gamut errors
Composite Gamut Error:	Detects level errors that occur when component signals are converted to composite signals
Luminance Error:	Detects level errors in the luminance component
Event Log	
Recorded Events:	Errors, changes in input type, time stamps, etc.
Recording Capacity:	Up to 1000 events
Operation:	Records all events from start to finish
Data Output:	Saved in text format to a USB memory device
Data Dump	
Operation Mode:	Run, hold
Data Array	
Single Link Mode:	Serial, component
Dual Link Mode:	Link A, link B, link A and B combined
Jump:	EAV, 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 channels A and B or between channels C and D
Reference Phase:	No phase difference when connected directly to a LEADER TSG
Reference Phase Correction:	Sets the reference phase to the current state
3D-Assist Display	
Supported Format:	HD-SDI (single link)
Input Connector(*3)	
Video Signal for the Left Eye:	Channel A or channel B
Video Signal for the Right Eye:	Channel C or channel D
Main Display Type	
Picture Display:	Enlarges the picture to assist in evaluating 3D videos
Video Signal Waveform Display:	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 from the video signal for the right eye. These signals are then combined.
Anaglyph Display (Monochrome):	Green and blue are masked from the mono-

	chrome video signal for the left eye, and red is masked from the monochrome video signal for the right eye. These signals are then combined.
Convergence Display:	A 50 % offset is added to the difference between the monochrome video signal for the left eye 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 checkerboard pattern
Boundary Lines:	Can be moved up, down, left, and right
Wipe Display:	The video signal for the left eye and the video signal for the right eye are divided by boundary lines and displayed.
Boundary Lines:	Can be moved up and down and left and right separately
	Show or hide
Left-Right Boundary Line:	The part to 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 right eye.
Top-Bottom Boundary Line:	The part above the boundary line is the video signal for the left eye. The part below the boundary line is the video signal for the right eye.
Inverted Display	
Horizontal Inversion:	Inverts the picture and video signal waveform(*4)
Vertical Inversion:	Inverts the picture
Inverted Channel:	Inverts each channel separately
Grid Display	
Function:	Displays grid lines on the picture
Grid Type:	Disparity, horizontal, both
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:	The disparity and horizontal grid lines can be moved separately.
Video Signal Waveform Display	
Waveform Display Color	
Video Signal for the Left Eye:	Red
Video Signal for the Right Eye:	Cyan
Display Format:	Side by side, overlaid
Wipe Feature:	L/R wipe
Disparity Measurement Feature	
Function:	Position the cursor at a point in the picture to measure the disparity and luminance level at that point.
Alarm:	If the upper limit is exceeded, "NG" (no good) is displayed.
Measurable Items:	Screen disparity (dots, cm, or %), perceived depth (m), angle of vergence (°)
Time Code Display	
Function:	The time codes for the video signal for the left eye and the video signal for the right eye are displayed at the same time.

*3 Select one of the following pairs: channels A and C or channels B and D.
*4 Horizontal inversion of the video 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	
Input Information Display:	Input channel, ID, OFF
Time Code:	LTC, VITC, OFF
Format Display:	The format can be displayed when an SDI signal 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)
Power Requirements	
	10 to 18 VDC, 60 W max.
Dimensions	
	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
Weight	
	5.2 kg 11.46 lbs
Accessories	
	AC adapter (SPU100-105) 1
	Instruction manual 1
Optional Accessories	
	• Tilt stand (LC 2160)
	• Rack support (LR 2755)
	• LCD protection panel (LC 2132)
	• Battery mount

* CINE-LITE is a registered trademark of LEADER ELECTRONICS CORP. CINEZONE has been patented by LEADER ELECTRONICS CORP.
* Company names included in this catalog are registered trademarks of their respective holders.

