

LV 5152DA HD-SDI Monitor Conforming to 720p, 1080i, and 1035i Standards Digital Data Dump Function, Gamut Error Monitoring Function

CE
Upon request



The cabinet is sold separately.

LV 5152DA HD DIGITAL WAVEFORM MONITOR

● GENERAL

The LV 5152DA HD Digital Waveform Monitor is designed to display 720p, 1080i, 1035i-line serials digital signal and analog signals. This instrument features two serial digital input systems and one analog component signal input system. In addition to the waveform monitor function, vector, bowtie, and audio signal display functions are provided.

Digital input signal can be analyzed since transmission error monitoring function, equivalent cable length measurement function, and digital video data dump function are provided.

Option 70: Waveform monitor function for NTSC component and composite signal is optionally equipped as factory option (No vector display)

● FEATURES

- **Two serial digital input systems and one output system**
Serial digital signal input systems conforming to BTA S-004B standards; active output system to resend the input signal.
- **Analog signal input system (Y, P_B, P_R or GBR)**
This input system enables the monitoring of both analog and digital signals since the analog input is provided.
- **Digital data dump function**
Since parallel digital video data can be displayed in hexadecimal format, this instrument is convenient to trace troubles.
- **Equivalent cable length measurement**
Indicates the serial digital signal level applied to the input connector as the coaxial cable (LS-5CFB) length instead of the actual level.
- **Digital audio output conforming to SMPTE 276M**
Digital audio signal separated from the serial digital signal can be output.

■ Digital input error monitoring function

Error logger function and contents display function of HD-SDI are provided.

■ Vectorscope function (SMPTE 240M, 274M)

Displays color difference signal in vector format. The analog GBR signal is converted into color difference signal with a matrix and displayed in vector format.

■ Picture monitor output

A D/A converter converts a serial digital signal into an analog signal, which is then output to the picture monitor.

Y, P_B, P_R or G, B, R format can be selected.

Input analog signals are directly output in analog mode.

■ Conversion matrix, Y, P_B, P_R into GBR (SMPTE 240M, 274M)

Simplifies signal level monitoring.

■ Full-line selector mode

Enables the selection and display of arbitrary video signal lines in each field. Since up to 15 lines can be continuously displayed, waveform is displayed with sufficient intensity.

■ Measurements using cursor

Ensures level measurement with 0.5% accuracy.

■ Lissajous display for stereo audio signal

Analog stereo audio signal can be displayed in lissajous format.

■ Preset memory function

Stores/recalls up to 10 panel settings to reduce setup time by presetting frequently used measurement conditions.

■ Timing display

Time difference and amplitude difference between channels can be monitored by using the timing display mode.

● SPECIFICATIONS

LV 5152DA

Standards

Digital/Analog•Video Format

	Video-System	standards
1	1920 x 1035 / 60i	BTA S-001B, 002B
2	1920 x 1035 / 59.94i	SMPTE 240M, 260M
3	1920 x 1080 / 60i, 30sF	
4	1920 x 1080 / 59.94i, 29.97sF	
5	1920 x 1080 / 50i, 25sF	
6	1920 x 1080 / 30p	
7	1920 x 1080 / 29.97p	
8	1920 x 1080 / 25p	
9	1920 x 1080 / 24p	
10	1920 x 1080 / 23.98p	
11	1920 x 1080 / 24sF	
12	1920 x 1080 / 23.98sF	
13	1280 x 720 / 60p	
14	1280 x 720 / 59.94p	
15	*NTSC (ANALOG ONLY)	

Serial Digital Format: BTA S-004B, SMPTE 292M *OPTION 70
 Subsidiary Data Format: BTA S-005B, SMPTE 291M
 Embedded Audio Format: BTA S-006B, SMPTE 299M

Input

Serial Digital Input

Input Connector: 75 Ω BNC, 2-system
 Return Loss: ≥ 15 dB, 5 MHz to 742.5 MHz

≥ 10 dB, 742.5 MHz to 1.485 GHz
 Impedance: 75 Ω , terminated

Analog Input

Input Channel: CH1 (Y/ G), CH2 (P_B/ B), CH3 (P_R/ R),
 passive loop-through, 1-system
 Return Loss: ≥ 30 dB, 50 kHz to 30 MHz (both power on/ off)
 Impedance: 75 Ω passive loop-through

Analog EXT REF Input

Input Channel: EXT REF, passive loop-through, 1-system
 Return Loss: ≥ 30 dB, 50 kHz to 30 MHz (both power on/ off)
 Impedance: 75 Ω passive loop-through

Sync (Analog)

Sync Amplitude: 0.3 V_{p-p} ± 6 dB

Output

Serial Digital Active Output

Output Signal: Reoutput the selected input signal out of 2 systems
 Output Level: 800 mV_{p-p} ± 10 %

Analog Picture Monitor Output

Y, P_B, P_R or GBR (Digital input, selectable)
 Amplitude: 1 V ± 5 %
 Frequency Response: 25 Hz to 30 MHz, within ± 5 %
 Output Connector: BNC, 3-connectors, 1-system

Digital Output

Output Signal: CH1/ 2, CH3/ 4, CH5/ 6, CH7/ 8, AES/EBU Format
 The relative phase of the output signal of the
 sound group 1(CH 1 to 4) and the sound group
 2(CH 5 to 8) has not been guaranteed. Within
 the same sound group the phase are matched.

Output Impedance: 75 Ω
 Output Connector: 4-BNC
 Amplitude: 1.0 V ± 10 %
 Sampling Frequency: 48 kHz
 Quantization Accuracy: 16, 18, 20, 24 bits

Vertical Axis

Deflection Sensitivity: Within ± 1 %, GAIN $\times 1$
 Within ± 3 %, GAIN $\times 5$

Frequency Response (GAIN $\times 1$, Analog)
 FLAT: Within ± 1 %, 25 Hz to 30 MHz
 (15 to 35 °C, 50 kHz ref.)

LOWPASS
 Attenuation: ≥ 20 dB, at 20 MHz (50 kHz ref.)

DIF'D STEP
 Attenuation: ≥ 20 dB, at 30 kHz (1.6 MHz ref.)
 ≥ 20 dB, at 7 MHz (1.6 MHz ref.)

DC Restorer

Frequency Response

Slow Mode: ≤ 20 %, attenuation at 60 Hz input
 Fast Mode: ≥ 80 %, attenuation at 60 Hz input

Clamp

Point: Back porch
 Variable Range: 0.5 to 2 μ s, relative to sync pulse raising edge
 Blanking Level Shift: ≤ 1 % (10 to 90 % of APL Variation)

Horizontal Axis

Operation Mode: Overlay: Displays waveforms overlaid
 Parade: Displays waveforms side-by-side
 Timing: For bowtie signal* measurement
 * Authorized by Tektronix, Inc.

Display Method

Line: 1H, 2H, 3H
 Line Magnified: 1H MAG, 2H MAG, 3H MAG

Field: 1V, 2V, 3V
 Field Magnified: 1V MAG, 2V MAG, 3V MAG
 Time Base Accuracy: Within ± 3 % (0.1 μ s/ div)
 Linearity: Within ± 3 %

Vector Mode

Amplitude Accuracy: ± 2 % (Y, P_B, P_R input), ± 2 % (G, B, R input)
 Sync Blanking: Blanks sync dot
 Picture Mode: Displays picture using Y or G signal

Audio Mode

Calibration Accuracy: ± 0.5 dB of full scale
 Full Scale: 0, 2, 4 dBm (menu selectable)
 Bandwidth: Within 3 dB at 20 kHz
 X-Y Phase Accuracy: Within 1 ° at 20 kHz
 Calibration Signal: 1 V ± 0.5 %

Digital Function

Error Display: LED on the front panel, Menu shows detail
 Data Dump Function: Displays 10 bits digital data in hexadecimal
 (only LV 5152DA): notation after parallel conversion is made.
 Equivalent Cable Length Meter Function: Compares serial digital signal level with
 reference signal (800 mV_{p-p}) and displays
 level as the cable length.

Display Accuracy: ± 20 m

Gamut Error Display:

LED on the front panel. Menu shows detail
 Error Detection Range: Exceeding -35 mV and 735 mV
 Detector Setting Accuracy: $\leq \pm 5$ mV

Line Selector:

Operation Field: Intensifies a selected line
 FLD1, FLD2, ALL (at Interlace)
 Selectable Line: Line 1 to 750, 1 to 1125
 Line 1 to 525 (Option 70)

Line Window

Window Range: Intensifies selected line and displays multiple lines
 1 to 15 lines

Preset Function

Preset/ Recall: Up to 10 front panel controls
 Controls: All front panel controls (except INTEN, READOUT
 INTEN, ROTATION, FOCUS, ILLUM, POWER)

Remote Control

Control Signal: TTL (low active)
 Control Input: D-sub, 25-pin (REMOTE), rear panel

Cursor Measurement

Configuration: Two horizontal cursors (REF, Δ)
 Two vertical cursors (REF, Δ)
 Amplitude Measurement: Voltage (V or %) between the REF and Δ cursors
 Measurement Range: 0 to 2000 mV, 0 to 280.0 %
 Accuracy: ± 0.5 %
 Resolution: 1 mV or 0.1 %

Amplitude Ratio Measurement: Amplitude between the REF and Δ cursors
 relative to 100 % REF is displayed in R%.

Time Measurement: Measures time between the REF and Δ cursors
 Measurement Range: At least ± 6 div from graticule center

Accuracy: ± 3 %
 Resolution: 1/ 80 div

Time Ratio Measurement: When [R%] is selected with the menu, time
 between the REF and Δ cursors relative to
 100 % REF is displayed in R%.

Frequency Measurement: Frequency of one cycle between the REF
 and Δ cursors

CRT

Effective Display Area: 80 x 100 mm
 Graticule: Internal (waveform)
 External (vector)
 Electronically-generated (vector, audio)

Environmental Conditions

Operating Temperature: 0 to 40 °C
 Operating Humidity: ≤ 90 % RH (without condensation)
 Operating Environment: Indoor use
 Operating Altitude: up to 2000 m
 Overvoltage Category: II
 Pollution Degree: 2

Power Requirements:

90 to 250 VAC, 48 to 440 Hz, 100 W max.

Dimensions and Weight:

215 (W) \times 132 (H) \times 429 (D) mm, 5.5 kg
 Accessories:
 Illumination lamp 5
 25-pin D-sub connector 1
 25-pin D-sub connector cover 1
 Screw, rack mounting (inch size) 2
 Cover, inlet stopper 1
 Power cord 1
 Instruction manual 1

Optional Accessories:

Cabinet: LR-2427B (with handle),
 LR-2404A (without handle)