

HDTV Digital /Analog Waveform Monitor



LV5152DA



99 Washington Street
Melrose, MA 02176
Fax 781-665-0780
TestEquipmentDepot.com

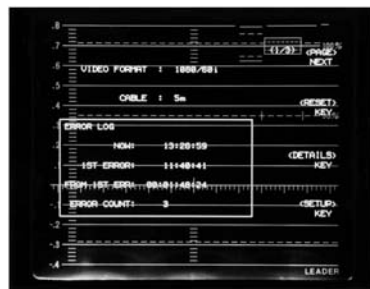
- Full Monitoring Facilities for 1035/60i, 1080/60i, 1080/50i, 1080/30p, 1080/25p, 1080/24p, 1080/24sF, 720/60p
- Separates and Outputs 8 Channels of Embedded Audio
- Color Gamut Error Detection with Error Logging
- Auto and Manual Format Selection
- Color Matrix Selection Follows Selected Format
- Two SDI Inputs (A&B) with Switched Active SDI Output
- Handles Component 3-Wire Analog Inputs
- YPbPr or GBR Waveforms in Overlay or Parade
- YPbPr or GBR Analog Outputs
- Choice of Electronic or External Vector Scale
- Full Error Reporting in Video (Y&C) ANC and Audio
- Hex Readout of All Data Points
- Precision Cursor Measurements of Level and Time
- Full Line Select, all Formats
- Ten Presets with One-Touch and Remote Recall
- Picture Display from Y or G
- GBR Waveform Sequence May be Set to RGB
- White Phosphor Standard

The LV5152DA builds on the NAB 98 Broadcast Engineering "Pick Hit" award winner, LV5152D, to add the following features: extended HDTV format coverage, automatic colorimetry selection to match the selected format, separation and delivery of eight channels of embedded audio, detection and logging of color-gamut errors, hex readout of all data points on a line selected manually or by error, and a refinement of the preset system that allows one-touch recall of stored observation setups. Features retained from the LV5152D include analog component as well as two digital inputs with an active digital output from the selected input. Waveforms may be viewed as YPbPr or GBR in both overlay and parade forms.

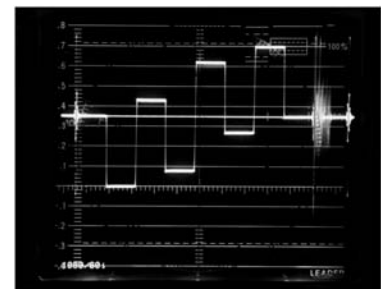
Extensive menu-operations afford far reaching control of sweep, response, timing, DC clamp parameters, vector setup, preset assignment and naming, clock/calendar setup, cursor units, line-select properties and instrument calibration. EAV/SAV may be blanked or shown and the latter also shows the presence of data codes and embedded audio. An extensive error detection system captures the time of first data error, total errors since that time and time elapsed since the first error. Error details are spotted in Y or C, ANC and embedded audio.



Component Data



Error Status



Cb EAV/SAV Pass Showing Embedded Audio



LV5152DA Rear Panel

key specifications LV5152DA

APPLICABLE STANDARDS

BTA S-004B, S-005B, S-006B
SMPTE 274M, 291M, 292M, 296M, 299M

SERIAL DIGITAL INPUTS

Number of Inputs
2 BNC
Impedance
75 Ω , internally terminated

Return Loss
 ≥ 15 dB 5 MHz to 742.5 MHz
 ≥ 10 dB 742.5 MHz to 1.485 GHz

Max Input
 ± 2 V dc or ac peak

ANALOG INPUTS

1 set 3 BNC inputs, passive loop-through
CH1 Y/G, CH2 Pb/B, CH3 Pr/R
1 loop-through set BNC EXT REF

Return Loss
 ≥ 30 dB (50 kHz to 30 MHz)

Max Input
 ± 12 V dc or ac peak

Impedance
 ≥ 15 k Ω

External Reference Sensitivity
0.3 V p-p ± 6 dB

OUTPUTS

SDI Active Output
Selected A or B Input
Output Level
800 mV p-p $\pm 10\%$

Analog Picture Monitor Outputs
YPbPr or GBR selectable

Output Level
1 V p-p $\pm 5\%$

Frequency Response
25 Hz to 30 MHz within $\pm 5\%$

AES/EBU OUTPUTS

Output Signals
CH 1/2, CH 3/4, CH 5/6, CH 7/8

Output Impedance
75 Ω

Output Connectors
4 BNC

Amplitude
1.0 V $\pm 10\%$

Sampling Frequency
48 kHz

Quantizing Accuracy
Selected from 16, 18, 20, 24 bits

VERTICAL SECTION

Deflection Accuracy
Within $\pm 1\%$, GAIN x1
Within $\pm 3\%$, GAIN x5

GBR Matrix
Within $\pm 1\%$, GAIN x1

Frequency Response, Analog
Flat: Within 1% 25 Hz to 30 MHz
Low Pass: ≥ 20 dB at 20 MHz
DIF'D Step: ≥ 20 dB at 30 kHz
 ≥ 20 dB at 7 MHz

DC Restorer Speed
Slow: $\leq 20\%$ at 60 Hz
Fast: $\geq 80\%$ at 60 Hz

Transient Response (2T Pulse & Bar)
Pulse-bar Ratio, Overshoot, Pre-shoot,
Ringing, Sag: Within $\pm 1\%$

DC Restorer Clamp Timing
Fixed: Back porch
Variable: 0.5 to 12 μ s relative to sync
rising edge

Field: 1V, 2V, 3V (Parade)
1V MAG, 2V MAG, 3V MAG (Parade)

HORIZONTAL SECTION

Modes
Overlay, Parade, Timing (for use with
Bowtie signal). Use of the Bowtie
authorized by Tektronix, Inc.

Sweep Displays
Line: 1H, 2H, 3H (Parade)
1H MAG, 2H MAG, 3H MAG
(Parade)

Time Base Accuracy
Within $\pm 3\%$

VECTOR MODE

Amplitude Accuracy
 $\pm 2\%$ (YPbPr and GBR inputs)

PICTURE MODE

Displays Y or G signal with line-select
strobe

AUDIO MODE

Input
Direct coupled balanced

Input Impedance
 ≥ 20 k Ω

Full Scale Reading
0, 2, 4 dBm (menu selectable)

Accuracy
 ± 0.5 dB

X-Y Phase Accuracy
Within 1° at 20 kHz

CALIBRATION SIGNAL

1 V $\pm 0.5\%$

DIGITAL FUNCTIONS

Error Display
Time of first error
Total error count from first error
Elapsed time from first error
Error Details: Video Y/C, ANC, AUDIO
Settable Alarms: Video, ANC, AUDIO
Alarm Display: Front panel LED, remote

Data Dump Function
10 bit data converted to Hex

Equivalent Cable Length
Based on cable LS-5CFB

LINE SELECT

Trigger
Field 1, Field 2, All (interlaced signal)
frame for progressive

Selectable Lines
1 to 1125 or 1 to 750

Line Window
1 to 15 lines

PRESET FUNCTION

Number of Presets
10 front panel settings
Controls Covered
All controls and mode selections
including DIGITAL, CURSORS, LINE
SELECT
Control settings not stored: INTEN,
READOUT INTEN, ROTATION, FOCUS,
scale ILLUM, POWER ON/OFF
On-screen display of preset identifiers
for single keystroke recall

REMOTE CONTROL

Remote Preset Selection
8 presets
Control Signal
TTL low active

Control Input
D-sub 25-pin (REMOTE), rear panel
CURSOR MEASUREMENTS

Configuration
2 horizontal REF, Δ
2 vertical REF, Δ

Vertical Measurement Range
0-2000 mV, 0-280.0 %

Accuracy
 $\pm 0.5\%$

Resolution
1 mV or 0.1%

Ratio Measurement
X% with respect to 100% REF

Time Measurement Range
At least ± 6 div from screen center

Accuracy
 $\pm 3\%$

Resolution
1/80 div

Time Ratio
X% with respect to 100% REF

Frequency Measurement
Calculated from cursor span of 1 period

CRT

Effective Display Area
80 x 100 mm

Graticule
Internal and External (vector)
Electronic (vector and audio)

Phosphor
White standard

POWER REQUIREMENTS

90 V - 250 V ac, 48 to 440 Hz, 130 VA max

PHYSICAL

Size (W x H x D)
8³/₈ x 5¹/₄ x 17 in.

215 x 132 x 429 mm

Weight
12 lbs., 5.5 kg

ENVIRONMENTAL

Guaranteed Accuracy
10 to 35° C, 10 to 80% RH

Operating Temperature
0 to 40° C, 10 to 90% RH

SUPPLIED ACCESSORIES

5 Spare Illumination Lamps
1 Spare Fuse

1 25-pin D-Sub Connector
1 25-pin D-Sub Connector Shell

1 Power Cord Retainer

OPTIONAL OPTIONS

Carrying Case with Handle & Feet
(LR-24271-U)
CH1, 2 & 3 Level p-p Readouts (NS-323)
NTSC Analog Composite Waveform
(NS-325)
525/60 & 625/50 Analog Component
Waveform (NS-333)
Continuous Overlaid Error Display
(NS-334)
RS-232C Data Dump (NS-335)