

# The Professional Video SourceBook



## Section 10

### TEST & MEASUREMENT

Astro .....	831
Compuvideo .....	832-835
Leader .....	836-847

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**WM-3014****6" HD/SD Portable Waveform & Vectorscope LCD Monitor**

The WM-3014 is a portable waveform monitor that is optimal equipment for filming in locations where transportation of equipment is difficult such as in the recesses of a mountain or an overseas location. Multiple functions like image confirmation monitoring, waveform monitoring and vectorscoping are provided in a single unit. This monitor also features a Quad Display function in which the Waveform, Vectorscope, Sound Detail and Picture can be displayed simultaneously in split screen display. The WM-3014 also offers a freeze frame feature, which can be used to compare a live shot to a previously recorded frame (image and waveform), without the need of any external equipment. 5 buttons on the front panel allow for quick and easy access to the user's preferred settings. The WM-3014 supports battery powered setups and comes with a standard battery mount (IDX or Anton Bauer).



- ◆ Picture modes include marker identification (center, frame, 4:3, 13:9, 14:9, 2.35:1, 1.75:1, 1.66:1).
- ◆ Adjustment functions include contrast, brightness, chroma level. Chroma ON/OFF.
- ◆ Split screen display includes Waveform, Vector Scope, Sound Detail and Picture.
- ◆ Five front panel reset buttons allow for easy access to user's preferred settings.
- ◆ Waveform mode: Parade identification overlay display line select function GAIN (x1, x2, x4) MAG (x1, x2, x4).
- ◆ Vectorscope mode: Color bar scale (100%, 75%), IQ axis identification, Line select function, Enlargement identification (x1 x2 x4).
- ◆ Freeze frame feature allows for comparison between live shot and recorded frame (display and waveform).
- ◆ Fanless configuration for ultra quiet operation during sound sensitive shoots.
- ◆ Status mode: Digital value from an arbitrary line sample is displayed. Moves to EAV / SAV by one touch; Audio status identification.
- ◆ Input format and input signal overlap identification; Freeze function; CRCC error search function (when HD-SDI input); embedded audio output ; tally signal identification.

**WM-3014:** Portable Waveform/Vectorscope (Mfr # WM3014 • B&H # ASWM3014).....**8124.95**

**WM-3208 • WM-3215****8" and 15" Dual Link HD/SD Portable Waveform and Vectorscope LCD Monitors**

The WM-3208 (8") and WM-3215 (15") provide powerful measurement tools in very portable packages. Multiple functions like image confirmation monitoring, waveform monitoring and vectorscoping are provided in a single unit. The troubles of a demanding environment are greatly reduced because they accept full HDTV and SDTV input signals and they can power off camera batteries. Optimal equipment for monitoring signals during relay, at location sites and inside studio.

- ◆ Picture modes include marker identification (center, frame, 4:3, 13:9, 14:9, 2.35:1, 1.75:1, 1.66:1).
- ◆ Waveform mode: Parade identification overlay display line select function GAIN (x1, x2, x4) MAG (x1, x2, x4).
- ◆ Vectorscope mode: Color bar scale (100%, 75%), IQ axis identification, Line select function, Enlargement identification (x1 x2 x4).
- ◆ Status mode: Digital value from an arbitrary line sample is displayed. Moves to EAV / SAV by one touch; Audio status identification.
- ◆ Adjustment functions include contrast, brightness, chroma level. Chroma ON/OFF.
- ◆ Input format and input signal overlap identification; Freeze function; CRCC error search function (when HD-SDI input); embedded audio output ; tally signal identification.

**WM-3208:** 8-inch Dual Link HD/SD Waveform/Vectorscope (Mfr # WM-3208 • B&H # ASWM3208).....**11,039.95**

**WM-3215:** 15-inch Dual Link HD/SD Waveform/Vectorscope (Mfr # WM-3215 • B&H # ASWM3215).....**13,499.95**

### SVR-1700HDSD

## HD/SD-SDI Waveform Monitor Vectorscope

*The SVR-1700HDSD is an HD-SDI, SD-SDI and Analog HD/SD Component Waveform Monitor Vectorscope providing digital and analog multiformat display video waveform monitoring with built in HD-SDI, SD-SDI Digital Encoder and HD-SDI, SD-SDI Distribution Amplifier. The SVR-1700HDSD also includes HD-SDI, SD-SDI Digital Signal Data Alarm lock ID and Safe Area video display.*

- ◆ HD-SDI and SD-SDI inputs and buffered outputs
- ◆ HD and SD analog component inputs
- ◆ Built-in HD-SDI/SD-SDI encoder
- ◆ Connect to low cost WXGA multiformat analog LCD monitor
- ◆ CRT displays include:
  - Component Parade
  - Component Parade and Vector
  - Component Vector
  - Component Luma and Vector
  - Component Luma / Vector / Pr Overlay
  - Component Luma Mag / Vector Overlay
  - Component 3-Input Luma Parade
  - Component External Reference Overlay



### SVR-1700HDSD Specifications

HDTV Format 720: 60p / 50p / 30p / 29.97p / 25p / 24p / 23.98p  
 HDTV Format 1035: 60i / 59.94i  
 HDTV Format 1080: 60i/59.94i/50i/48i/60p/50p/30p/29.97p/25p/24p/23.98p/24sf/23.98sf  
 SDTV Format 480/575: NTSC - 480, PAL - 575 (Y, Pb, Pr)  
 SDTV Component: (Cr)(R-Y)(R) (Cb)(B-Y)(B) (Y)(Gs) 525/60 & 625/50  
 HD-SDI / 4:2:2 SDI: Universal Input with 2 Active Digital D/A Outputs  
 Active Digital D/A: 2 Outputs  
 Monitor Picture: Y, Pb, Pr Output (SMPTE 292M, 259M Digital Encoder)  
 External Reference: HD, Composite (Blackburst. / Video), Component (Y, Gs)  
 Measurements: 6.5 x 11.5 x 15.5" (HxWD), weighs 19 lbs  
 AC Power, Universal: 100v - 240v 50/60 Hz, 25W

**SVR-1700HDSD** (Mfr # SVR1700HDSD • B&H # COSVR1700HDS) .....**5799.95**

### SVR-1394

## DV (IEEE1394) Waveform Monitor/Vectorscope

*Specially designed by Compuvideo for IEEE1394 (DV / FireWire) as well as composite and S-Video, this unit features a digital to analog (composite) encoder as standard. Choose from desktop or rack mount units, they all provide rear panel simultaneous input connections with overlaid waveform/vector displays and worldwide power supply. Smart master control provides user-friendly operation by automatically displaying proper video levels to corresponding digital or analog inputs.*

- ◆ IEEE1394 / DV / FireWire / iLINK \ loop thru input
- ◆ Two composite, one S-Video and one external reference loop thru inputs
- ◆ Digital to analog encoder ( to Composite )
- ◆ User selectable—Overlaid Waveform / Vectorscope / External Reference
- ◆ Waveform: Flat, IRE, CHR, 1-H, 2-H, DC Restorer
- ◆ Vectorscope: Phase Rotation 360°, Subcarrier Capture ± 50Hz



**SVR-1394**  
 (Mfr # SVR1394 • B&H # COSVR1394) .....**3934.95**

**SVR-1394 PAL**  
 (Mfr # SVR1394PAL • B&H # COSVR1394P).....**3219.95**

## SVR-1100DV • SVR-1100SDI

### SD-SDI and Analog Waveform Monitor Vectorscopes

Compuvideo's SVR-1100DV and SVR-1100SDI offer digital and analog display monitoring in desktop or in optional rack mount configuration. They feature SD-SDI digital encoder, 1:2 distribution amplifier and a front panel SD-SDI Digital Signal Data Alarm lock ID that continuously monitors the integrity of the SDI signal and alarms users if there is a problem.

#### SVR-1100DV

##### Waveform Monitor / Vectorscope / Vector with SDI Lock ID

- One SD-SDI, two (2) composite, two (2) S-Video, one analog component and one external reference loop thru inputs
- Digital Encoder SDI to Composite
- 1:2 Digital D/A
- User selectable— overlaid Waveform / Vectorscope / external reference and parade with vector.
- Analog component Y/Cb/Cr, RGB 525/60 and 625/50
- Composite Waveform: Flat, IRE, CHR, 1-H, 2-H, DC Restorer
- Vectorscope: Phase Rotation 360°, Subcarrier Capture  $\pm$  50Hz

**SVR-1100DV** (Mfr # SVR1100DV • B&H # COSVR1100DV).....**4426.95**

#### SVR-1100SDI

##### Waveform Monitor / Vector with SDI Lock ID

- One SD-SDI, one analog component and one external reference loop thru inputs
- Digital Encoder SDI to Composite
- 1:2 Digital D/A
- User selectable— Parade, Vector, Parade/Vector overlays
- Analog component Y/Cb/Cr, RGB 525/60 and 625/50



**SVR-1100DV** (MMfr # SVR1100SDI • B&H # COSVR1100SDI) .....**3399.95**

## ANALOG WAVEFORM MONITOR VECTORSCOPES

Designed for multi-format editing studios, TV and cable stations, and ENG/EPG operations, Compuvideo's analog waveform monitor/vectorscopes are self-contained with rear-panel simultaneous input connections, and worldwide power-supply. User-friendly operation requires no menu settings for different formats—all switching is done automatically.

- ◆ You can connect all your input cables at the same time and choose the desired mode on the front panel without switching cables in the back of the unit.
- ◆ High resolution 6-inch CRT offers superb quality for digital and analog formats.
- ◆ 2-, 3- or 4-channel external reference overlay eliminates the need for special timing generators. This allows you to view directly on-screen, interchannel timing for all inputs — for genlock operation and component timing.
- ◆ Mix and match single or overlaid displays
- ◆ World-wide power supply 120-240v, 50/60 Hz
- ◆ They measure 6.5 x 11.5 x 15.5" (H x W x D), weigh 19 lbs.
- ◆ Optional rackmount kit available
- ◆ Two year warranty parts and labor

**SVR-1100A:** One composite loop thru input, selectable overlaid Waveform (Flat, IRE, CHR, 1-H, 2-H, DC Restorer) / Vectorscope (Phase Rotation 360°, Subcarrier Capture  $\pm$  50Hz)

**SVR-1100B:** Same as above, except two composite and external reference loop thru inputs; and user selectable overlaid Waveform / Vectorscope / External Reference

**SVR-1100S8B:** Same as above, except it adds one Y/C loop thru input

**SVR-1100CB:** Two (2) composite, one Y/C, one analog component, one external reference loop thru inputs. User selectable Waveform (Flat, IRE, CHR, 1-H, 2-H, DC Restorer) / Vectorscope (Phase Rotation 360°, Subcarrier Capture  $\pm$  50Hz) / External Reference and Parade with Vector. Analog component Y/Cb/Cr, RGB 525/60 and 625/50.

**SVR-1100CBA:** Same as above, except with two (2) Y/C and two (2) analog component loop thru inputs.

**SVR-1100CA:** Two analog component, and one external reference loop thru inputs. User selectable Parade, Vector, Parade/Vector overlays. Analog component Y/Cb/Cr, RGB 525/60 and 625/50.

**SVR-3000A:** Same as above, except only one analog component loop thru input

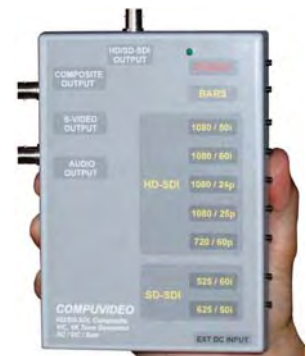
### SVR-9100HDSD

#### Multiformat HD/SD-SDI Video Generator

Compuvideo's SVR-9100HDSD is a low-cost, precision color bar digital video test signal generator. Designed for broadcast video applications, it supports HD standards (SMPTE 274M, 296M) and SD standards (SMPTE 125M and ITU-R BT 601). AC/DC power is standard as well as 10 hours of internal 9v battery operation. Performs a comprehensive go/no-go test of HD/SD systems.

- ◆ HD-SDI Video Formats: 720/60p, 1080 / 24p, 25p, 50i, 60i
- ◆ SD-SDI Video Formats: 525/60i (4x3) (NTSC) 625/50i (4X3) (PAL)
- ◆ Color bars are available for HD and SD formats, NTSC and PAL standards. The test patterns are: 75%, full field color bars. The color bar pattern offers limiting coding in the chroma and luma data transitions between bars.

- ◆ One SDI Output BNC Connector
- ◆ Includes HD/SD-SDI (BNC) cable
- ◆ Powered by included AC Adapter, External 6-9v DC input, or internal 9v battery
- ◆ Measures 4.8 x 1.5 x 6.8" (WxDxL), weighs 8 oz.



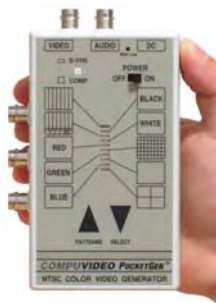
**SVR-9100HDSD** (Mfr # SVR9100HDSD • B&H # COSVR9100) .....**924.95**

### POCKETGEN

#### Audio/Video Generators

The PocketGen Series is a perfect solution for advanced multi format signal source, where small size (only 7 oz.) and long battery life are required. Supplied AC adapter transforms them into full time designated units for studio operation.

- ◆ All video and audio outputs can be used at the same time without any complex menu set-ups
- ◆ Power light and low battery indicators
- ◆ Front panel with Up-Down controls for easy selection of desired video test pattern
- ◆ Run on 4-AA batteries (up to 90 hrs)
- ◆ Test patterns include • SMPTE Bars • Black Burst • Full Field Bars • Crosshatch • Center Cross • Red • Green • Blue • White • Dots



**PocketGen-5:** Composite and S-Video output, 1 kHz audio tone (Mfr # PG5 • B&H # COPG5) .....**459.95**

**PocketGen-6XLR:** Same as above, plus analog component output and 2-channel XLR balanced audio (Mfr # PG6XLR • B&H # COPG6XLR) .....**689.95**

**PocketGen-8:** Same as above, plus RGBS (component RGB and sync) (Mfr # PG8 • B&H # COPG8) .....**1249.95**

### SVR-7000 • SVR-9000

#### Desktop Video Generators

Powerful enough to run entire studio, yet small enough to carry in your briefcase, the SVR-7000 and SVR-9000 are designed to meet the most demanding requirements of video professionals.



- ◆ Front panel with rotary selector of all 12 test patterns for easy selection
- ◆ NTSC (RS-170A) or PAL (B,C,D,G,H,I,K,L or M)
- ◆ All outputs can be used at the same time without any complex menu set-ups
- ◆ They measure 2.5 x 8 x 6.5" (H x W x D) and weigh only 2 lbs
- ◆ Test Patterns include: SMPTE Bars, Black Burst, Full Field Bars, EIA Bars, Crosshatch, Center Cross, Red, Green, Blue, White, Dots, Gray Scale

**SVR-7000A:** Composite, S-Video 6-output blackburst generator with 1KHz audio tone (Mfr # SVR7000A • B&H # COSVR7000A) .....**676.95**

**SVR-7000C:** Same as above, plus component and Subcarrier (SC) output (Mfr # SVR7000C • B&H # COSVR7000C) .....**1127.95**

**SVR-9000RM:** Same as above, plus RGBS and 2-channel XLR balanced audio. Includes rackmount (Mfr # SVR9000RM • B&H # COSVR9000RM) .....**2458.95**

## SVR-7200SD • SVR-9200SD

### Rackmount Analog Video Generators

Compuvideo's precision analog generators are designed for broadcast video applications. Master sync black reference generator to genlock broadcast



HD and SD video systems is one of many applications supported by these units. They feature composite, S-Video, component (Y/Cb/Cr and RGB) video outputs. Rackmount and portable configuration is standard. AC/DC power is standard as well as 100 hours of internal battery operation. 10 test patterns are available for composite, S-Video, Y/Cb/Cr, and RGB video outputs including SMPTE full field bars and blackburst in PAL or NTSC. Compuvideo generators perform a comprehensive go/no-go test of the SD systems and provide black reference to genlock professional video systems. For those on a budget, Compuvideo also offers the SVR-8200A which is a composite and S-Video blackburst generator only.

<b>SVR-7200SD(RM)</b> (Mfr # SVR-7200SD(RM) • B&H # COSVR7200SDR): Composite, Y/C, Y/Cb/Cr, 1K-Tone .....	<b>1374.99</b>
<b>SVR-9200SD(RM)</b> (Mfr # SVR-9200SD(RM) • B&H # COSVR9200SDR): Composite, Y/C, Y/Cb/Cr, RGBHV, 2-CH XLR Bal. Audio, 1K-Tone.....	<b>1974.99</b>
<b>SVR-8200A(RM)</b> (Mfr # SVR-8200A(RM) • B&H # COSVR8200ARM): Composite, Y/C Blackburst Generator Only.....	<b>774.00</b>

## SVR-9000SDI • SVR-9250HDSD • SVR-9270HDSD

### HD/SD-SDI Multiformat & Analog Video Generators



Precision digital and analog generators designed for broadcast video applications, the SVR-9250/9270HDSD support HD standards: SMPTE 260M, 274M, 292M, 295M, 296M, and all three support SD standards: SMPTE 125M, SMPTE 259M, 267M, 344M, ITU-R BT 601. Master sync black reference generator to Genlock broadcast HD and SD video systems is one of many applications supported by these units. Rackmount

and portable configuration is standard. AC/DC power is standard as well as 100 hours of internal battery operation.

Test patterns are available for all data rates HD/SD-SDI formats 4:3 and 16:9 NTSC and PAL. Additionally, the SVR-9270HDSD and SVR-9000SDI(RM) offer analog composite, Y/C and component output in NTSC or PAL. Compuvideo generators perform a comprehensive go/no-go test of the HD/SD systems, testing for errors using either EDH system for SD or CRC system for HD. The functions may run using any of the HD color bar test patterns or one of two SD test patterns, either a 270 Mb/s NTSC full-field color bar or a PAL PLL pathological as the test data pattern.

<b>SVR-9270HDSD (NTSC)</b> (Mfr # SVR9270HDSD • B&H # COSVR9270) .....	<b>3899.95</b>
<b>SVR-9270HDSD (PAL)</b> (Mfr # SVR-9270 HDSD PAL • B&H # COSVR9270HDP) .....	<b>3966.95</b>
<b>SVR-9250HDSD (NTSC)</b> (Mfr # SVR9250HDSD • B&H # COSVR9250) .....	<b>2699.95</b>
<b>SVR-9250HDSD (PAL)</b> (Mfr # SVR-9250 HDSD PAL • B&H # COSVR9250HD) .....	<b>2819.95</b>
<b>SVR-9000SDI (NTSC)</b> (Mfr # SVR9000SDIRM • B&H # COSVR9000SDIRM) .....	<b>3384.95</b>
<b>SVR-9000SDI (PAL)</b> (Mfr # SVR-9000 SDI (RM)PAL • B&H # COSVR9000SDP) .....	<b>3384.95</b>

#### HDTV-2 Multimedia Generator

Just imagine... You can make your Plasma, LCD and Projection video adjustments from proper distance by using remote control without going back and forth to change test pattern, video format, or to reconnect cables.

- ◆ Test patterns include Full Field Bars, SMPTE Bars, Black Grayscale, Red, Green, Blue, White Crosshatch, Center Cross and Dots
- ◆ Outputs include analog HD and SD component, composite and S-Video. Also has RF and stereo audio outputs as well as PC output which handles up to SXGA.
- ◆ Includes wireless remote control

## LV5800

### Multi-Monitor Platform

*The LV5800 is an SDI Monitor for HD/SD-SDI signals with an XGA color LCD in an adjustable tilt front panel. It provides all of the functions you need for professional HD/SD-SDI test and monitoring while adding features never before available in a waveform monitor.*

*Inputs supported and auto-detected by the LV5800 include twenty-three standard SDI formats. There are additional accommodations for 10-bit and 12-bit systems, which include handling of Y,Cb,Cr 4:2:2 and GRB 4:4:4 standards (Dual Link). The LV5800 can display input signals in Waveform, Vector, 5-Bar, Picture, Audio, Data, and Status modes in various combinations. The multi-screen setup allows you to select the input and format you want displayed in each quadrant, giving you real control of the display.*

*The LV5800 comes with four slots for input options and two slots for output options. This allows you to freely configure or construct a versatile system by combining dedicated input and output units. In particular, simultaneous display and error monitoring of multiple SDI inputs are possible, and four-waveform parade display on the waveform monitor is also supported. In addition, the modules are field installable and replaceable, so you can add additional functions as your needs grow. The upgrade modules include: SDI Input, Composite Video input, Eye Pattern, DVI-I Output, and AES/EBU input/output.*



(Mfr # LV5800 • B&H # LELV5800)

#### FEATURES

- ◆ When properly equipped, it can monitor and display up to four sources simultaneously. Each optional input unit operates independently. Autonomous monitoring and detection/alarm for audio silence and video freeze/video black
- ◆ Up to two output units can be inserted. Each output unit operates independently.
- ◆ Employs a color TFT LCD monitor with XGA resolution (1024 x 768).
- ◆ Total flexibility with multi-screen setup. The display function of each unit can be displayed on a full screen or 4 screen multi display. The 4 screen display allows arbitrary combination of signals of different input units to be displayed.
- ◆ Store screen captures, records of data, and presets by connecting a USB storage device to the front panel USB connector. Also allows firmware updates to be downloaded
- ◆ Detects and reports errors in timecode continuity
- ◆ Remote control through TELNET or FTP, error monitoring, and file transfer are possible by connecting a PC to the Ethernet connector on the rear panel.

- ◆ Equipped with a low noise fan for cooling. Fan speed controlled using a temperature sensor. If the fan stops due to a malfunction, an alarm can be displayed on the screen through the revolution sensor.

- ◆ The remote connector on the rear panel allows recalling of presets, detection of errors, and switching of inputs.
- ◆ Sound can be monitored when the LV 58SER40 board is installed.

#### LV58SER01A—SDI and HD-SDI Module Card (Input)

*The LV58SER01A allows waveform display, picture display, and error detection of the SDI signal on the LV 5800. Combination with other optional units allows various displays such as the eye pattern display of the SDI signal (LV 58SER02) and the Lissajous and level displays of the embedded audio (LV 58SER40).*

- ◆ Contains two channels of SDI input connectors. The two connectors can also function as a dual link input of a single channel.
- ◆ In addition to displaying the video waveforms, vectors, and pictures of the SDI signal on a full screen, 2- and 4-screen multi display can be shown. The multi display allows arbitrary combination of a single or multiple input signals to be displayed. (Multi display in which link A and link B are separated during dual link operation is not allowed.)
- ◆ Error detection function detects various errors related to the SDI, embedded audio, and ancillary data including CRC errors and EDH errors.
- ◆ Supports various types of ancillary data for analysis display. In particular, closed caption data can be displayed overlapped on the picture.
- ◆ Simultaneous monitoring of component and composite gamut using the Five Bar Displays
- ◆ External sync allows tri-level sync signals or black burst signals of NTSC and PAL to be input.

## LV 5800

### LV58SER02

#### Eye Pattern Module Card (Input)

Installed in a LV 5800 input slot, the LV 58SER02 allows eye pattern waveforms of SDI signals to be monitored. Automatic measurement of parameters such as amplitude, rise time, and fall time is also possible.

- ◆ HD-SDI, SD-SDI, and DVB-ASI Format Support
- ◆ Displays the SDI signal eye pattern or measures the jitter of one system among up to six systems by combining three SDI input units and selecting A or B among the three modules. (Two EYE units cannot be installed simultaneously.)
- ◆ Displays the eye pattern of the timing jitter or alignment jitter by switching the filter.
- ◆ The eye pattern display allows automatic measurement of the eye pattern amplitude, rise time, and fall time. The jitter display allows automatic measurement of the timing jitter and alignment jitter values.
- ◆ Jitter display allows V sweep and H sweep displays.
- ◆ The multi display allows the eye pattern waveform and jitter waveform to be displayed simultaneously. In addition, the eye pattern display screen automatically measures the eye pattern amplitude, rise time, and fall time, while the jitter display screen automatically measures the timing jitter and alignment jitter.



### LV58SER03

#### Composite Video Card (Input)

Two input connections for NTSC or PAL composite video signals. Only one composite video input can be monitored at a time. One connection is available for a switched output.

### LV58SER04

#### MPEG Decoder Card (Input)

The module has a single input that decodes MPEG-2 TS (DVB-ASI) signals and displays video/audio information on the monitor when selected. All of the available LV5800 features (Vectorscope, Waveform Monitor, Picture, Eye Pattern and Audio) can be used to monitor the TS being fed to the module.

Additional displays available with this card include a PID Tree Display and BIT Rate Display. In addition, extra error detection categories are included.



### LV58SER20

#### DVI-I Module Card (Output)

This unit allows the screen displayed on the LV 5800 to be shown on an external monitor. The DVI output provides both digital and analog output allowing the signal to be used on a wide variety of XGA-compatible monitors. This signal can be connected to a display via a DVI or VGA connection. The video output is 1024x768 in display resolution.

### LV58SER40A

#### Digital Audio Module Card (Input/Output)

This unit operates as a digital audio I/O unit when installed in a LV 5800 input slot or a digital audio output unit when installed in an output slot. For the 16-channel data of AES/EBU 8 system, Lissajous, sound image, level meter, signal status displays can be shown. If an SDI input unit is installed in the LV 5800, this unit can process the AES/EBU signal that is separated from the SDI signal.

The LV58SER40 can monitor 16 channels of embedded audio. By installing an optional external I/O connector board, the connector can be expanded to monitor/output 16 external channels of 8 AES/EBU systems.

#### Various Display Functions:

- ◆ Displays the following items on the input AES/EBU signal. Single Lissajous display between two arbitrary channels, multi Lissajous display that shows 4 or 8 single Lissajous displays between two arbitrary channels, sound image display, and level meter display.
- ◆ AES/EBU status bits displayed include channel status, user, validity, and parity bits. The various display and detection functions of this unit cannot be assigned simultaneously to the LV 5800 multi screen.



### LV58SER40A-16

#### AES/EBU Expansion Card (Input/Output)

Works in conjunction with the LV58SER40A card by providing four additional connectors. A total of sixteen AES/EBU channels are made available. Audio information from this card is locked to the directionality of the LV58SER40A. This expansion card can be installed in the Input or Output Slot, depending on where the LV58SER40A card is installed.

### LV58SER40D

#### Digital Audio Module Card with Dolby E/AC-3 Daughtercard (Input)

Works in conjunction with the LV58SER40A card by providing four additional connectors. A total of sixteen AES/EBU channels are made available. Audio information from this card is locked to the directionality of the LV58SER40A. This expansion card can be installed in the input or output Slot, depending on where the LV58SER40A card is installed.

<b>SD/HD-SDI Input Card</b> (Mfr # LV58SER01 • B&H # LELV58SER01) .....	<b>3799.95</b>
<b>Eye Pattern Unit</b> (Mfr # LV5800-OP02 • B&H # LEEPILV5800) .....	<b>4794.95</b>
<b>Composite Video Card</b> (LELV5800OP03) .....	<b>2849.95</b>
<b>MPEG Decoder Card</b> .....	<b>Call</b>
<b>DVI-I Output Card</b> .....	<b>Call</b>
<b>Digital Audio Module Card</b> (Mfr # LV5800-OP40 • B&H # LE8AILV5800) ...	<b>Call</b>
<b>AES/EBU Expansion Card</b> .....	<b>Call</b>
<b>Digital Audio Module Card with Dolby E</b> (Mfr # LV5800-OP40D • B&H # LE8AILV5800W) .....	<b>5514.95</b>

## LV 5700A

### Multi-SDI Monitor

Equipped with an XGA color LCD in an adjustable tilt front panel, the LV-5700A tests 14 HD-SDI and SD-SDI formats with total digital processing compliant to SMPTE 259M, SMPTE 292M and SMPTE 296M. Input format, colorimetry and tri-level or black burst external reference inputs are automatically detected. Extensive monitoring functions include waveform (YCbCr, YRGB, YGBR, RGB or GBR), vector (75% or 100% graticules), picture and surround sound monitoring modes. The first SDI module accepts two SDI inputs switchable from the front panel providing buffered SDI output(s) of the selected feed. Parade, overlay and timing modes facilitate characterization of component waveform levels and timing. Freeze mode allows comparisons of different SDI input signals. Multi-display operating modes include a thumbnail picture display.

Digital audio from HD/SD groups (1 & 2) or (3 & 4) are disembedded and output as four pairs of AES/EBU. Digital audio is also displayed as 3:1, 3:2, or 3:2:2 surround images, multi-lissajous and 8-Ch bargraphs. The peak bargraphs have selectable dynamic ranges as well as average ballistics. Users can also create custom displays. High Resolution decoded pix-monitor outputs may be set to feed monitor requirements as either YPbPr or GBR. Digital line-select, precision digital cursors, menu control of storage of 100 front-panel setups, flash card, USB and Ethernet round out the operating features.



#### FEATURES

- ◆ Inputs can accept either HD-SDI signals or SD-SDI signals. Supports multiformat, automatic and manual setting of input formats.
- ◆ Provides HD-SDI/SD-SDI switching with a reclocked output as well as analog picture monitor output and AES/EBU outputs. In addition, an analog XGA output connector is provided enabling information to be displayed on a large external monitor.
- ◆ Waveform, vector, picture, embedded audio, and status display can be placed side by side or in quad display on the monitor. Depending on the selected combination, bowtie, data dump and optional AES/EBU digital audio or eye pattern can also be displayed. Pseudo waveform and vectorscope modes represent NTSC or PAL modes. Waveform and vector screens have user selectable graticule colors.
- ◆ The LV 5700A can be controlled through the panel and remotely controlled through a computer via the Ethernet network. In addition, 100 custom presets can be backed up to CompactFlash cards and recalled from the front panel or via rear remote connectors.
- ◆ The LV 5700A can be used as an analyzer to detect and log multiple types of digital protocol transmission errors. Screens show gamut errors, data dumps, EDH codes, analysis of voice control packets, equivalent cable length and cable warning measurements, and so on. Frame capture of any screen allows email of bmp files or logs for verification of errors.
- ◆ The HD/SD status screens list detection of input format, TRS, CRC checks for chroma and luma, video, audio ID, ancillary parity and check sum errors. User adjustable alarm error thresholds are provided for digital component level ranges. Ethernet allows full remote control operation and monitoring of operating conditions including alarms.
- ◆ The standard AC power supply allows for universal (90 V to 250 V) operation. Optional 12v DC power supply is available.

#### CINELITE OPTION

Offering additional measurement functionality on the 5800/5700A and LV5750, the CINELITE option provides on picture measurements of video levels in both percentage and f-stop readings, bridging the gap between film and HD production professionals. With CINELITE operators can now review and evaluate their set, after the camera has processed the image. Point a cursor to any position on the picture to get instant measurements in f-stops (or percentage) and review the material that actually being recorded. Final adjustments of lighting conditions, filtering and iris adjustments can be made using familiar "f-stop" based evaluation techniques.

The resulting measurement is digitally accurate and represents the material as it is actually recorded. This ensures scientifically accurate communication with the post-production and color correction process while enhancing the understanding of film and video experts alike.

CINELITE f-stop measurements allow DPs and cinematographers to evaluate their HD or SD production using the same measurement techniques that have produced excellence with film over decades. Essentially, the CINELITE option allows HD production professionals to evaluate their lighting and exposure in real time and helps create a set evaluation and exposure determination workflow environment similar to working with film.

**LV-5700A** (Mfr # LV5700A • B&H # LELV5700A).....CALL

## LV 5750

### Portable Multiformat SDI Monitor

The standard for portable digital testing, the LV 5750 is a multiformat HD-SDI and SD-SDI monitor featuring a color XGA (1024x768) LCD screen waveform monitor for signals. SDI inputs support auto detection of twenty standard formats. Selected SDI input signals are reclocked and output to an active serial output. Complete digital processing of SDI signals enables highly accurate measurements.

Test modes include waveform, vector, picture, audio, and status displays with time code. Displays and sub-displays can be viewed in various combinations side by side or as a four in one multi-display. A composite signal conversion converts SDI component signals into pseudo-composite waveform or vector for NTSC or PAL. Vector shows chrominance difference signals in vector format with the amplitude settable as variable, IQ-MAG, or x5 times. Line selection with strobe of the same line can be displayed in picture, waveform, vector, and data dump with values in hex or binary notation which eases analysis. Complete protocol test and analysis functions are provided. Variable vector gain includes on-screen readout for optimizing digital camera CCU set up with Chroma Du Monde chip charts.



#### FEATURES

- ◆ Frame capture lets users save screens to a CompactFlash (CF) memory card as BMP and/or BSX for continuity. Frame capture to internal memory allows display of super-imposed held vs. live waveforms to match cameras and for exact timing adjustments.
- ◆ Status screen shows error detection of digital protocols for CRC, EDH, BCH, checksum, parity, GBR gamut, and pseudo-composite gamut errors. etc.
- ◆ Monitors surround sound, bargraphs displaying up to eight channels at a time. Reference levels or digital noise floors can be displayed as numerical values to confirm system conditions.
- ◆ Monitoring of selected audio channels output to the headphone output connector.
- ◆ Create an event log of selected/detected errors and events that are then stored to a compact flash memory card. The log can be transferred as text data to a PC via the network by using FTP.
- ◆ Displays in hexadecimal or binary notation. This can be stored to a compact flash memory card and transferred as text data to a PC via the network by using FTP.
- ◆ Displays voice control packets, channel status, and other packets in the AES/EBU signal.
- ◆ Operation of the LV 5750 can be from the front panel and remotely controlled with a computer via the optional Ethernet or Remote modules.
- ◆ Presets allow storage and recall of 30 frequently used front panel settings.
- ◆ External synchronization loop-through auto detects tri-level sync signals or blackburst signals of NTSC and PAL.
- ◆ Front panel buttons are illuminated with LEDs—ideal when operating in the dark.
- ◆ Equipped with a standard (1/4- 20) tripod stand mount allowing the 5 lb., 6 oz. monitor to be attached to a tripod or camera.
- ◆ Standard CompactFlash (CF) card module can be replaced with optional Ethernet or Remote Control plug-in modules.
- ◆ Can be powered via 12v DC (battery) or 120v AC with optional AC adapter

#### PRICING

**LV-5750 Portable HD/SD SDI Signal Monitor**  
(Mfr # LV5750 • B&H # LELV5750) .....**CALL**

**Ethernet Board for the LV-5750**  
(Mfr # LV5750-01 • B&H # LELV575001).....**849.95**

**Remote Control Board for the LV-5750**  
(Mfr # LV5750-02 • B&H # LELV575002).....**664.95**

**Rackmount**  
(Mfr # LR-2750-I • B&H # LELR2750I) .....**239.95**

**AC Adapter**  
(Mfr # LP-1960 • B&H # LELP1960) .....**129.95**

**Dual Link Modification for the LV-5750** (Mfr # DUAL LINK - LV5750 • B&H # LEDMLV5750) .....**2315.95**

**Front Cover**  
(Mfr # LC-2128 • B&H # LELC2128) .....**144.95**

**Viewing Hood**  
(Mfr # LH2139 • B&H # LELH2139) .....**39.95**

**Fan Silencer**  
(Mfr # LV5750-03U • B&H # LELV575003U).....**285.95**

**Metal Cabinet**  
(Mfr # LC-2126U • B&H # LELC2126U) .....**144.95**

**Carrying Case**  
(Mfr # LC-2249U • B&H # LELC2249U) ..... **69.95**

## LV 5152

## Multiformat Waveform Monitor

The LV 5152 displays analog component signals of multiformat DTV. It features two analog component signal input systems. In addition to the waveform monitor function, vector, timing, and audio signal display functions are provided. Moreover, the full line selector function and control setting menus are provided.

Applications include production testing of multiformat HD/SD products, off-air transmitter monitoring of 1080/720/480 signals when used with a set top box and a color monitor. Post production and telecine rooms are supporting the increase in demand for multiformat testing including the increasingly common use of 1080/23.98p and 24p standard formats.

- ◆ Analog component YPbPr/GBR monitoring, overlay and parade
- ◆ Supports 1080/60i, 1080/50i, 1080/48i, 720/60p, 480-60p/60i, 576-50p/50i
- ◆ Precision cursor measurements for level and time/frequency. Cursor level, time and frequency measurements have a 0.5% accuracy.
- ◆ Conversion matrix for YPbPr to GBR simplifies signal level monitoring.
- ◆ Full Line Select for all formats
- ◆ Timing (Bowtie) measurements
- ◆ Stereo Phase/Amplitude monitoring
- ◆ Picture monitor output is provided in the selected format required by the monitor.
- ◆ Vectorscope function (SMPTE 274M, 296M) displays color difference signal of component signals in vector format. The analog GBR signal is converted into color difference signals with a matrix and displayed in vector format.
- ◆ Stores/recalls up to 10 front panel settings and frequently used measurement conditions for one button recall.



LV5152 (Mfr # LV5152 • B&H # LELV5152) .....CALL

LV5152DA (Mfr # LV5152DA • B&H # LELV5152DA) .....CALL

## LV 5152DA

## HDTV Digital Waveform Monitor

The LV 5152DA can display 720p, 1080i and 1035i-line formats of serial digital and component analog signal inputs. It features two SDI input systems and one analog component signal input system. In addition the waveform monitoring, vectorscope, timing with bowtie, and audio signal display functions are provided. Digital input signals can be analyzed for transmission error monitoring, equivalent cable length measurement and digital video data dump functions are provided. Stores/recalls up to 10 front-panel settings.



- ◆ Two SDI digital inputs and active SDI output to resend the selected SDI input.
- ◆ Analog input (Y, PB, PR or GBR) enables the monitoring and then the comparison of the analog to digital signals in waveform, vector and picture modes. Full bandwidth Y, PB, PR may be transcoded and output as GBR.
- ◆ Equivalent cable length measurement indicates the serial digital signal level applied to the input connector as the coaxial cable length instead of the actual level.
- ◆ Stores/recalls up to 10 panel settings
- ◆ Digital audio signals are separated from the SDI input and output as four AES/EBU pairs.
- ◆ Error logger and contents display functions for HD-SDI. Monitors incorrect level of signals converted from Y, PB, PR into GBR format.
- ◆ Displays color difference signals in vector format. The HD-SDI signal is decoded to analog GBR, converted into color difference signals with a matrix and displayed in vector format.
- ◆ For picture monitor output, SDI signals are converted to component (Y/PB/PR or GBR) which is then output to the picture monitor.
- ◆ Selectable waveform format of Y, PB, PR to GBR simplifies signal level monitoring. Also, GBR parade order is selectable as RGB.
- ◆ Full-line selector enables selection and display of video lines from field 1/2 or both.
- ◆ Level, time and frequency measurements are accomplished with 0.5% accuracy.
- ◆ Analog stereo audio signals can be displayed in standard X-Y lissajous format.
- ◆ The timing display mode can monitor time and amplitude differences between channels in analog and digital modes.

## 5222

### NTSC/PAL/SECAM Waveform Monitor

A powerful component/composite waveform monitor, the 5222 handles 8 channels in A/B groups of 4 with the ability to overlay parades of 3 x 3 component signals. A picture display of the selected channel shows program material with a line-select strobe. The 5222 sets up automatically to 525/60 or 625/50 (or menu select) and a TIMING mode sets up bowtie observations. Full line selection is provided with line number notation applicable to NTSC or PAL and a 1-10 line window. Extensive operating options available under menu control include level and time/frequency cursors that read in volts, IRE units, % or dB and time/frequency units. Components are handled in GBR or YCbCr form. Calibration is menu controlled as well as DC restorer speed and sample point.



- ◆ Eight video inputs and one external reference input channel. Y/C input connectors.
- ◆ Precision cursors permit signal level measurements and time with 0.5% accuracy. Level cursors read in volts, IRE, % and dB.
- ◆ Display video signals as a picture monitor on the CRT. In line select mode, selected line is highlighted for identification on the picture.
- ◆ RGB/YRGB display function
- ◆ Up to four waveforms, including the external reference can be simultaneously displayed Parade (side-by-side) or ALT (overlaid).
- ◆ One or two lines of a video signal can be displayed for convenient observation of VITS, VIR, or teletext signals. Line select is also useful to test video camera characteristics. .
- ◆ The component signal can be displayed in the bowtie configuration
- ◆ FLAT and LUM (low-pass filter) filtered characteristics can be displayed simultaneously.
- ◆ Up to 10 settings, including vertical and horizontal positioning, can be stored in memory, and recalled from the front panel or via the remote control connector on the rear panel.

**5222** (Mfr # 5222 • B&H # LE5222) ..... **CALL**      **5212** (Mfr # 5212 • B&H # LE5212A) ..... **4674.95**

### 5212 NTSC/PAL Vectorscope

Operating automatically in NTSC or PAL, the 5212 overlays vector displays for 4 signals (3 input channels plus an external reference.) A touch on AUTO PHASE automatically zeros burst to the -B-Y (-U) axis using the reference chosen from any channel or an external reference. Digital phase readout makes it easy to measure precise phase differences between channels. Of particular value is semi-automatic setup for high-resolution measurements of differential phase and gain. Other features include menu selected calibration for signals with or without setup and for 75% or 100% color bars. A +V key inverts -V signals for a less cluttered PAL display. Up to 10 front panel setups may be stored for instant recall and remote control with line select strobe is provided via connection to a 5222 waveform monitor.



- ◆ Three video inputs and one external reference input channel
- ◆ Up to four waveforms, including the external reference, can be displayed simultaneously.
- ◆ Automatic NTSC/PAL system detection
- ◆ Digital phase control ensures a phase measurement accuracy of within 1% and display resolution, of within 0.1% with alphanumeric readout.
- ◆ Accurate measurement of differential gain DG and differential phase DP with alphanumeric readout.
- ◆ The level and phase of stereo audio signals can be measured (X-Y display function).
- ◆ Storage/recall of 10 front panel setups including vertical and horizontal positioning from the front panel or via the remote control connector on the rear panel.
- ◆ Y/C input allows the C signal vector to be displayed by respectively applying the Y signal and C-signal to the CH1 and CH2 input connectors.
- ◆ Can be remotely controlled when combined with the 5222. The line selected by the waveform monitor is displayed automatically.
- ◆ Runs on universal power supply (90-250v AC, 48-440 Hz)

## 5860V

### NTSC Waveform Monitor

The standard workhorse of studio monitoring, the 5860V offers quick and accurate monitoring of amplitude, time and frequency response characteristics of composite TV signals. The monitor is equipped with sweep modes and trigger functions that are optimized for monitoring video signals. For example, sweep modes 2H, 1H, 1 $\mu$ s/div, 2V, 1V, and 2V MAG can be selected for the horizontal axis. Optimized filters such as FLAT, IRE, CHROMA, DIF GAIN and DIF'D STEP can be switched in to observe various characteristics of video signals. The unit syncs to the selected A or B feed or accepts black burst or composite sync as an external reference. An output jack drives a picture monitor with the selected A or B video feed.

- ◆ Horizontal sweep mode selection from 1H, 2H, 1 $\mu$ s/div, 1V, 2V and 2V MAG.
- ◆ Built-in line selector function for monitoring VITS and VIR signals, a blanking output and a video output.

- ◆ Differentiated-step filters easily display the differential of staircase signals to measure the linearity of luminance components for transmission systems.

- ◆ The frequency response of the vertical axis is switchable between FLAT, IRE, CHROMA, DIF GAIN, and DIF'D STEP filters.
- ◆ K factor scale is provided onscreen for checking frequency characteristics.



**5860V** (Mfr # 5860V • B&H # LE5860V) .....Call

**5850V** (Mfr # 5850V • B&H # LE5850V) .....Call

## 5850V

### NTSC Vectorscope with Electronic Graticule

The perfect mate for the 5860V Waveform Monitor, the 5850V extends monitoring and timing adjustments into chroma aspects. Accepts a phase reference from either input (A or B) or from an external reference. The latter may be composite video, black burst or CW subcarrier. A unique feature of the 5850V is an electronically-generated scale of coarse and fine error limits for either 75% or 100% color bars. These targets allow precise adjustments from relatively large viewing distances and eliminate the need for fussy centering adjustments. The illuminated internal graticule facilitates differential gain and phase measurements. An unblanking input jack on the rear panel accepts a strobe signal from waveform monitors equipped for line-select operation for vector display of selected lines.



- ◆ 150mm rectangular CRT with internal graticule can measure without parallax reading error.
- ◆ The 5850V simultaneously measures the amplitude and phase of chrominance components contained in a composite video signal. To measure phase and amplitude in vector format, the chrominance components containing color information of the video signal are first demodulated, and then displayed on the CRT.

- ◆ VITS and VIR can also be displayed in vector format by applying blanking signal output from the waveform monitor to the Z INPUT of the vectorscope.
- ◆ DP and DG measurements are made using the modulated staircase.
- ◆ Optional rackmount adapter enables a vectorscope, waveform monitor, pattern generator, and color monitor to be integrated in a system

## 5870 • 5872A

### Combination Waveform and Vectorscope Monitors

The 5870 and 5872A combine a waveform monitor with a vectorscope in one half-rack chassis. Waveforms and vectors can be independently or simultaneously displayed on a single CRT. For example, both Channel A and B waveform and vectorscope displays can be shown at the same time. Phase variations of jitter are also displayed with the waveform. Furthermore, a full-line selector function is installed for reading the field and line number on the CRT. As a result, the 5870 and 5872A are very useful not only in observing the blanking time intervals for VITS, VIR, character broadcasting and ITS, but also in checking the various characteristics of video camera resolution.

The 5870 steps up with a SCH phase measuring function for video editing. The SCH phase can be displayed on the CRT with a numerical readout.



#### FEATURES

##### Waveform/Vectorscope Combo

- ◆ Combining the standard features of a waveform monitor and vectorscope in a single half-rack package, the 5870/5872A offer a number of powerful measuring advantages:
- The ability to overlay waveform and vector displays from two input signals for precise level, timing and phase matching.
- Use of the decoded R-Y signal facilitates easy high-resolution measurements of differential phase and gain. Chroma and IRE filters may be inserted on a full-time or line-shared basis.
- Dual-channel display shows A and B inputs concurrently.

##### Line Select

- ◆ Full raster line select is offered with lines chosen from Fields 1/3, 2/4 or ALL.
- ◆ Field and line numbers selected by the full line selector are displayed on the CRT for confirmation during waveform observation.
- ◆ Full waveform and vector manipulation is available in the line-select mode.
- ◆ The full-line selector function used to select optional lines, also vertical interval test signals can be monitored (VITS).
- ◆ Memory storage of up to 9 resettable field/line numbers provides instant recall for routine tests. Provision is made for remote control including recall of line presets.

##### Additional Features

- ◆ 150 mm rectangular CRT with internal graticule. The 16.5 kV high-accelerating potential facilitates legible, clearly defined display.
- ◆ All front-panel switches can be externally remote-controlled.
- ◆ Differential gain (DG) and differential phase (DP) can be displayed through single key operations.
- ◆ RGB/YRGB with parade display function.
- ◆ Switching mode power supply accepts 90-250v AC, 48-440 Hz, so it can operate anywhere where AC power is available.
- ◆ In addition, they have 4-pin DC power input as standard, allowing vehicle or battery power at 11-20v DC to be accepted.

### 5835 Stereo Audio Monitor

The 5835 is a Stereo Audio Monitor that provides a lissajous pattern display of stereo audio signal on a CRT screen, enabling monitoring of the phase and level of the signal. The lissajous pattern display of the stereo signal is provided with the left and right axes inclined at 45° enabling a good visual presentation of audio effects such as broadening and apparent position. The 5835 features a stereo polarity discrimination function, a spot killer, and two Canon-type inputs, making it ideal for use in not only program editing, but in checking of transmission equipment as well. All this makes the 5835 a useful stereo audio monitor for broadcast studio, production studio and recording studio or remote pickup applications as well. Both balanced (XLR) and single-ended (phono-type connector) inputs are provided. A -20 dB, 0 dB, +10 dB range switch includes a CAL setting and is augmented with a VARIABLE control.

**5835 Stereo Audio Monitor (Mfr # 5835 • B&H # LE5835).....1959.95**

##### 5870 Only

The 5870 offers an on-screen digital readout of SCH in degrees of error referenced to the signal observed or an external reference for color framing checks. CRT displays of SCH measurements enable correct monitoring without reading errors. Phase variations of jitter are also displayed with the waveform.

**5872 (Mfr # 5872A • B&H # LE5872A) .....Call**

**5870 (Mfr # 5870 • B&H # LE5870).....Call**

## LV 7700 • LV 7720

## HD/SD-SDI and SD-SDI Rasterizers

Born of the success of the LV 5800 and the LV 5750 Multi-SDI Test Monitors, the LV 7700 and LV 7720 bring all of the test features of the award winning LV 7750 in a rasterizer (on-screen monitor) package. Waveform, vector, picture, audio and status/protocol screens are available individually or in several screen combinations. Test results and test screens are output via a DVI-I connector and can drive VGA/XGA monitors. They are controlled via front panel or remotely via Ethernet. Fitting in a half 1RU, they are the ideal solution for locations where a computer monitor already exists (i.e. non-linear edit bays) or for remote monitoring locations. Compatible with 17 SD/HD standards, the LV 7700 provides for 2 auto-sensing SD/HD inputs. Otherwise identical, the LV 7720 is an SD-only version of the LV 7700. The selected input is reclocked and can be fed to a downstream process. For external reference, the LV 7700 accepts trilevel sync or NTSC or PAL black burst, the LV 7720 accepts NTSC/PAL black burst only.



## FEATURES

- ◆ Waveform, vector, audio, picture and data monitoring functions can be displayed individually or in several screen combinations.
- ◆ All screens can be captured and stored; the captured image can be superimposed on live for comparative purposes; an ideal feature for production, camera shading and level matching applications.
- ◆ Captured screens can be stored to a CF (CompactFlash) card as .BMP files for documentation purposes; the same feature on the LV 5750, has been used in production for set documentation purposes and in system integration and maintenance for proof-of-performance documentation purposes.
- ◆ Waveform monitor and vectorscope functions include cursor measurements, filters, gain and timing control for all your pro-video measurement needs. Full line select capabilities aid in detailed signal examination; a data dump showing the actual data for each line can be reviewed in detail and with various data layout options.
- ◆ Embedded audio monitoring features include sound image monitoring (surround sound application), multi-lissajous image monitoring, bar graphs with settable hold and value displays. They can monitor and display 8 channels at a time and can be set to work with either group 1 (CH. 1-8) or group 2 (CH. 9-16).
- ◆ Digital analysis screens include Data Dump as well as equivalent cable length readings:
  - Since parallel digital video data can be displayed in hexadecimal format, the trigger on error is convenient to troubleshoot with.
  - Equivalent cable length measurement indicates the serial digital signal level applied to the input connector as the coaxial cable length instead of the actual level.
- ◆ They also include a virtual converter and converts Y, Cb, Cr to a Y, R, G, B and NTSC display to aid in gamut monitoring and assist in the color correction process. Y, R, G, B is shown as a waveform and also as a Delta display. The Delta display provides a graphical representation of gamut violations and aids in the error correction and color correction process.
- ◆ The Picture monitor includes various markers for safe action and safe title; as well, aspect ratio markers are available to aid in the production process. The Picture monitor also allows a pixel-by-pixel examination of the picture (zoom function).
- ◆ Operation of the LV 7700/LV 7720 can be from the front panel and remotely controlled with a computer via the Ethernet connector.
- ◆ Storage/recall of 30 front panel setups including vertical and horizontal positioning from the front panel or via the remote control connector on the rear panel.
- ◆ XGA output provides for excellent clarity and resolution
- ◆ A variety of protocol parameter monitoring is available and error detection can be turned on and off for individual parameters. Gamut and video level error monitoring is also available and the error levels are user settable. Protocol, gamut and level error logs are maintained; logs can be viewed on the attached monitor (not included), downloaded on the flash card or through the Ethernet (SNMP).
- ◆ Presets allow storage and recall of 30 frequently used front panel settings.
- ◆ External synchronization loop-through auto detects tri-level sync signals or B.B signals of NTSC and PAL.
- ◆ Front panel illuminated LED button— useful feature when operating in the dark.
- ◆ They are 12v DC powered via an XLR input connector for ease of use in the field . A universal 100 - 240v AC adapter is also included.

<b>7700</b> (Mfr # LV7700 • B&H # LELV7700) .....	<b>6995.00</b>
<b>7720</b> (Mfr # LV7720 • B&H # LELV7720) .....	<b>5499.95</b>
Rackmount Adapter for the 7700/7720 (Mfr # LR-2480U • B&H # LELR2480U).....	<b>249.95</b>

## LT 4400

### Multiformat Video Generator

*Designed for use as a master sync generator for small facilities or sub-systems, the 1U half-rack sized LT4400 is ideal for non-linear editing systems and applications where multi-format sync signals are needed. It can provide NTSC/PAL black and HDTV tri-level sync simultaneously out of 3 pairs of independently timed black outputs. It also provides SD/HD-SDI test signals. Genlock facilities are available along with a number of genlock recovery options to suit specific system requirements. Test patterns include color bars and check field and are moveable. A 16-character source identifier can be added to the test outputs and it allows for the addition of a logo bug. 16 channels of embedded audio are available along with settable tones and audio click.*



- ◆ Selectable HDTV (18 formats) and SDTV (525i/59.94, 625i/50) systems.
- ◆ ID characters can be superimposed at the arbitrary position on the screen. The character blinks to indicate the freeze status.
- ◆ Logomark up to 320 x 240 can be superimposed at an arbitrary position on the screen.
- ◆ 90% and 80 % safety-area markers can be superimposed on the screen. The 4:3 marker can also be superimposed in HDTV format.
- ◆ The 16 channels of embedded audio signals can be superimposed. The frequency and level can be respectively set to each channel.
- ◆ Simple Motion Picture Mode is provided to scroll the pattern.
- ◆ Offers three independent analog black signal outputs. The black burst signal with the same format as the SDI output, or HDTV tri-level sync signal with the same format of clock frequency can be selected to vary the timing.
- ◆ Genlockable NTSC/PAL black burst signals and HDTV tri-level sync signal for variable timing. BB signals with field reference pulse signal and with 10-field ID are also applicable.
- ◆ 48 kHz word clock output is provided to synchronize the audio signal.
- ◆ Stay-In sync function ensures stable operation in genlock mode even when the external reference signal is accidentally intermitted.

**LT 4400** (Mfr # LT4400 • B&H # LELT4400) .....**5299.95**

### LT 416 NTSC/PAL/SECAM Pattern Generator

*The LT 416 is a precision test-signal source which provides four color systems of NTSC, PAL, SECAM, and NTSC-4.43 for testing and adjusting all kinds of video products such as TV, VCR, etc. The generator provides composite, Y/C plus component signal outputs (except in SECAM mode) for Y/B-Y/R-Y and RGB formats. This makes it very suitable for testing products with component video capabilities on production lines. Selection from extensive pre-programmed country charts and then stepping through channels easily accomplishes RF output channel testing. There are 15 test patterns including color bars, raster, convergence and circle to satisfy the most demanding applications.*



- ◆ Conforms to NTSC, PAL, SECAM and NTSC4.43
- ◆ Interlaced and progressive scans
- ◆ Composite and S-Video outputs
- ◆ Component GBR and Y, B-Y, R-Y outputs
- ◆ 15 test patterns selected for TV, monitor and VCR use
- ◆ Flat field of 8 colors with on-off control of GBR
- ◆ RF output for VHF/UHF broadcast by channel number
- ◆ Worldwide channel coverage in 28 channel assignment plans covering 165 countries
- ◆ 1 kHz test tone for modulation and audio output
- ◆ Operation is simple and straight forward assuring efficient application

**LT416** (Mfr # LT416 • B&H # LELT416) .....**Call**

## LT 450

### Multiformat Pattern Generator

The LT 450 is a DTV-compatible multiformat pattern signal generator equipped with analog component and composite outputs and digital outputs. It generates monoscope, color bar, ramp, crosshatch, multiburst, character, and other test patterns. You can add additional digital outputs such as DVI-I and HDMI and analog outputs such as a SCART connector by ordering option units.



- ◆ Test most video displays, including television sets, PC monitors, and projectors. The LT 450 supports 19 component and composite output formats, and 5 PC monitor formats.
- ◆ Equipped with an S connector for Y/C separation signal output. An ID signal is superimposed on the C signal.
- ◆ Analog and digital component outputs can be switched between RGB and Y/PB/PR.
- ◆ Has a mini D-sub 15-pin connector (analog), and a DVI-I connector (digital), to interface with PC monitors. DVI-I can be used to check HDCP-compliant copyright protection functions and make checks on the DDC function.
- ◆ Equipped with HDMI (1.3a) connector, which can be used to check HDCP-compliant copyright protection functions and to make simple checks on the CEC and DDC functions (pass/fail results can be displayed on screen). Checks can be made simultaneously on up to seven outputs (with option boards installed).
- ◆ Sync signal connectors transmit CS (trilevel or binary), HD, and VD signals.
- ◆ Equipped with a JEITA CP-4120 D5 output. Supports ID signals (lines 1, 2, and 3).
- ◆ Make any test pattern into a simple motion picture pattern by scrolling it vertically, horizontally, or diagonally.
- ◆ Up to 100 panel settings can be stored and recalled
- ◆ Analog audio output with 400 Hz or 1 kHz frequency can be set and the output can be turned off separately for left /right channels.
- ◆ Video and analog sync signal level can be adjusted separately in the range of 0 to 100%.
- ◆ RS-232C port allows remote control from a PC

**LT450 Pattern Generator (LELT450) .....6399.95**  
**DVI-I Output Module (LELTOP01) .....999.95**  
**HDMI Output Module (LELTOP02) .....1299.95**  
**SCART Output Module (LELTOP03) .....1099.95**

## LT 444 Auto Changeover

The LT 444 is a changeover unit that automatically switches from primary signals to the backup system signal when errors are detected. Primary and backup system input signals are connected to each channel for detection of errors based on the specific amplitude of the primary input signal. Multiformat operation is facilitated through the setting of the internal configuration DIP switches. One changeover provides eleven multiformat channels covering HD-SDI (channels 1 to 6 only), SD-SDI, AES/EBU digital audio, analog black burst signal (PAL or NTSC), and tri-level sync signals. The delay for starting the error monitor at power up can be set to FAST or SLOW depending on the rise time of the system signal source being monitored. If a switch occurs from the primary signal to the backup signal, the channel that caused the problem is indicated on the front panel LED.



(Mfr # LT444 • B&H # LELT444)

- ◆ 11 user configurable Channels
- ◆ Fault channel 1-11 LED indicators
- ◆ Selectable delay time for monitor start
- ◆ Sync Source primary or backup
- ◆ Selectable determination criteria of the signal level
- ◆ Auto switching on fault or manual
- ◆ Fault indicators and reset for primary and backup
- ◆ Supports HD-SDI, SD-SDI, AES/EBU Digital Audio, HD Analog Tri-Level Sync, NTSC or PAL analog black burst
- ◆ Keylock automatic operation after 60 seconds

## LT 443D

### Multiformat Video Generator Main Frame

The LT443D is ideal where multiformat digital broadcast systems are the norm. With plug-and-play modules available for HD-SDI and SD-SDI generators, genlock,



(Mfr # LT443D • B&H # LELT443D)

analog black, genlock, digital audio, analog audio and analog composite NTSC/PAL formats, users can customize this signal generator as desired. Create custom systems that simultaneously output multiple formats. The mainframe/ front panel includes power supply and ethernet control. Four plug-in slots allow for addition of generators with embedded digital audio, genlock module and a sync generator for tri-level and or black burst outputs. Plug and play operation ensures each of the modules are automatically recognized.

#### FEATURES

- ◆ For the SDI signals, a 20 format HDTV module and a 525 line/625 line SDTV module are provided. The NTSC/PAL composite analog video signal generator is available with the 10-field ID signal. Since each module is capable of simultaneous outputs, a multiformat system can be constructed to include both 74.25 MHz and 74.25/1.001 MHz outputs as the system grows.
- ◆ For today's digital TV systems, BB (NTSC/PAL) and HDTV tri-level sync signals can be generated simultaneously. Timing is set in intervals of frame, line, pixels or clock.
- ◆ A 20-character ID display function is provided with selectable blink on/off times to verify live program channel. A natural picture pattern and logo can be superimposed with a compact flash card (containing user bit map data) installed to optional internal RAM.
- ◆ With the SDI module installed, monoscope, natural picture, and basic color patterns can be output. High-speed pattern switching while scrolling at selectable directions and rates stress tests systems for digital motion artifacts.
- ◆ All digital black outputs for SDB and HDB modules can set the raster to 0%/40%/50% flat field, embedded audio has same capabilities as SDI outputs plus separately timeable in frame, line, pixel or clock intervals.
- ◆ User-friendly operation includes significantly reduced power-on initialization time required in a high-performance instrument.
- ◆ Embedded audio in all SDI modules have capabilities to set separate channel level, frequency, click ID, or silence. Setting individual channel levels in 1 dB steps (0 to -60dBfs) allows confirmation of system channel parade order. Choosing from 30 discrete frequencies allows confirmation of Lfe encode/decoders.

#### Optional Plug-in Modules

- ◆ The LT 443D-HD (Mfr # LT443DHD • B&H # LELT443DHD) and LT443D-SD (Mfr # LT443DSD • B&H # LELT443DSD) SDI generators include monoscope, colorbars, ramps, pathological and still picture test patterns with simple scrolling and high-speed pattern switching for stress testing MPEG encoded systems for compression artifacts. Digital audio in the SDI generators is selectively embedded as two groups of four channels. Each channel is separately configurable for frequency, level and click ID.
- ◆ The LT 443D-HDB (Mfr # LT443DHDB • B&H # LELT443DHDB) and LT443D-SDB (Mfr # LT443DSDB • B&H # LELT443DSDB) are the same as above, plus offer the option of 2 separate blackburst outputs.
- ◆ The LT 443D-GL genlock module has a loop through and also outputs 3 separately configurable and timeable trilevel or bi-level sync outputs. Timing is adjustable in increments of samples, lines or frames up to  $\pm 5$  frames maximum. (Mfr # LT443DGLA • B&H # LELT443DGLA)
- ◆ The LT443D-BL sync module outputs three separately configurable and timeable pairs of black burst or tri-level sync signals to be advanced or delayed up to five frames max. Timing can be incremented in frames, lines or samples. (Mfr # LT443DBL • B&H # LELT443DBL)
- ◆ LT443D-DA module outputs four pairs of AES/EBU digital audio. (Mfr # LT443DDA • B&H # LELT443DDA)
- ◆ The LT 443D-CS module outputs analog composite NTSC/PAL formats.
- ◆ The LT 443D-AA is an analog audio generator with low distortion convenient for generating and distributing system reference levels. (Mfr # LT443DAA • B&H # LELT443DAA)
- ◆ LT-443DOP70 is a Natural Picture Module for the LT-443D. Natural Picture data can be loaded into the LT-443D via the Memory Card Slot; it then can be accessed, output and displayed through video outputs of the LT-443D. (Mfr # LT443DOP70 • B&H # LELT443DOP70)
- ◆ LT-443DCS is a composite test signal module producing 23 test patterns, NTSC/PAL black burst and H and V Drive for system timing. It fits into the LT-443D Main Frame deriving power and control for signal generation. (Mfr # LT443DCS • B&H # LELT443DCS)