

LV 5800/LV 7800 Platform Options

LV 58SER06 3G-SDI INPUT



This 3G-SDI input unit can be installed into an input slot of an LV 5800 (multi monitor) or into an LV 7800 (multi rasterizer).

The LV 58SER06 supports 3G-SDI levels A and B, and it can be used to display information such as 3G-SDI signals' video waveforms, vector waveforms, pictures, and error detection results on an LV 5800 or LV 7800.

Additionally, by combining the LV 58SER06 with the LV 58SER40A, you can display information such as the Lissajous curves and level meters of embedded audio signals. What's more, the LV 58SER06 can generate 3G-SDI signals and test patterns.

FEATURES

Two Serial Digital Inputs

The LV 58SER06 has two switchable 3G-SDI input connectors for monitoring.

Two Serial Digital Outputs

The LV 58SER06 can reclock input signals that are received by the input terminal that has been selected with the input key (3G-SDI A or 3G-SDI B) and generate these reclocked signals from the 3G-SDI A/B output connector.

From the 3G-SDI B output connector, the LV 5800 can transmit a reclocked signal from the 3G-SDI signal that is received through the 3G-SDI B input connector.

Test Pattern Signal Outputs

The LV 58SER06 can operate as a 3G-SDI signal pattern generator to generate a 3G-SDI signal from the two output terminals.

Video Signal Display

The LV 58SER06 can be used to display 3G-SDI signals' video signal waveforms, vector waveforms, and pictures on not only the 1-screen display, but 2- and 4-screen multi displays.

Error Detection

The LV 58SER01A can detect CRC and other 3G-SDI signal errors that are related to embedded audio signals and ancillary data.

Automatic Video Format Setting

The LV 58SER06 automatically sets the video format based on payload ID packets.

5 Bar Display

You can use the 5 bar display to simultaneously monitor component and composite gamut.

Embedded Audio Extraction

By combining the LV 58SER06 with a digital audio unit (the LV 58SER40A), you can perform actions such as displaying level meters and Lissajous curves. You can also generate AES/EBU signals.

SPECIFICATIONS

Video Formats and Corresponding Standards

3G-SDI Video Signal Formats and Corresponding Standards

Color System	Quantization	Format		Corresponding Standard
		Scanning	Frame Frequency	
Y, C _B , C _R 4:2:2	10 bits	1080p	60, 59.94, 50	SMPTE 424M SMPTE 425M

Other Standards

Ancillary Data: SMPTE 291M

Embedded Audio: SMPTE 299M

(Only the audio data of data stream 1 is supported.)

Format Setting:

Manual: Manually set the frame frequency

Automatic: The LV 58SER06 detects the format information within the payload ID (SMPTE 325M) and automatically sets the format.

Output Signal

Depending on your selection, the LV 58SER06 generates a reclocked signal (input loop-through) from the input signal or generates a test pattern signal, and transmits it from the 3G-SDI A/B output connector and the 3G-SDI B output connector.

3G-SDI A/B Output Connector

When Set to Input Reclock: Generates a reclocked signal from the signal received through the selected input channel.

When Set to Test Pattern: Generates a test pattern signal

3G-SDI B Output Connector

When Set to Input Reclock: Generates a reclocked signal from the signal received through input channel B

When Set to Test Pattern: Generates a test pattern signal

Test Pattern Generation

Format: Y, C_B, C_R 4:2:2 1080p/60, 59.94, 50

Corresponding Standard: SMPTE424M and SMPTE425M

Pattern: 100 % color bar (100 % white, 100 % saturation), 75 % color bar (100 % white, 75 % saturation), 100 % white, 50 % white, black, check field, equalizer, and PLL

Embedded Audio: Not supported

Bit Rate: 2.97 Gbps or 2.97/1.001 Gbps

Oscillation Clock: Driven by the internal oscillator

148.5 MHz ± 10 ppm or 148.5/1.001 MHz ± 10 ppm

I/O Connectors

3G-SDI Input Connectors

Input Connectors: 2 BNC connectors
2 connections (channels A and B)

Input Impedance:

75 Ω

Input Return Loss:

15 dB or greater (5 MHz to 1.485 GHz)

10 dB or greater (1.485 to 2.97 GHz)

Maximum Input Voltage: ±2 V (DC + AC peak)

3G-SDI Output Connectors

Function: Generation of reclocked signals from the input signals and generation of test patterns

Output Connectors: 2 BNC connectors

Output Impedance: 75 Ω

Output Return Loss: 15 dB or greater (5 MHz to 1.485 GHz)

10 dB or greater (1.485 to 2.97 GHz)

Output Voltage: 800 mVp-p ± 10 %

Waveform Display

Waveform Operations

Display Modes

Overlay: Overlays component signals

Parade: Displays component signals side by side

Blanking Period: Show or hide

Y, C_B, C_R to GBR Conversion: Converts the Y, C_B, C_R signal to GBR and displays it

Pseudo-Composite Display: Displays component signals artificially as composite signals

Channel Assignment: Displayed in GBR or RGB order (when displaying GBR converted signals)

Line Select: Displays the selected line

Display Adjustment: Brightness adjustment and waveform color selection (white, green, or multi color)
(Multi color is only available on the 1-screen display.)

Vertical Axis	
Sensitivity	
V Scale:	0 to 0.7 V or -0.3 to 0.7 V
% Scale:	0 to 100 % or -50 to 100 %
Gain:	×1, ×5, or variable
Variable Gain:	×0.2 to ×10
Amplitude Accuracy:	±0.5 %
Frequency Response	
Y Signal:	±0.5 % (1 to 60 MHz)
C_B, C_R Signal:	±0.5 % (0.5 to 30 MHz)
Low-Pass Attenuation:	20 dB or greater (at 40 MHz)
Horizontal Axis	
Line Display	
Display Format:	Overlay: 1H, 2H Parade: 1H, 2H, 3H
Magnification:	×1, ×10, ×20, ACTIVE, or BLANK
Field Display	
Display Format:	Overlay: 1V Parade: 1V, 2V, 3V
Magnification:	×1, ×20, ×40
Time Accuracy:	±0.5 %
Cursor Measurement	
Composition	
Horizontal Cursors:	2 (REF and DELTA)
Vertical Cursors:	2 (REF and DELTA)
Amplitude Measurement:	Percentage and voltage displays
Time Measurement:	Second display
Frequency Measurement:	Computes and displays the frequency with the length of one period set to the time between two cursors
Vectorscope Display	
Scale:	75 % or 100 % (color bar)
Gain:	×1, ×5, IQ-MAG, or variable
Variable Gain:	×0.2 to ×10
Amplitude Accuracy:	±0.5 %
IQ Axis:	Show or hide
Pseudo-Composite Display:	Converts component signals into composite signals with artificially added burst and displays the results (The color matrix is converted to SDTV.)
Display Adjustment:	Brightness adjustment and waveform color selection (white or green)
Picture Display	
Display Format:	Samples pixels and displays them (R, G, and B each use 8 bits)
Marker Displays:	Center marker, 4:3 marker, safe action marker, and safe title marker
Gamut Error Display:	Marks the areas of the picture that exhibit gamut errors
Line Select:	Marks the selected line
Display Sizes:	Compressed and full frame
Image Quality Adjustment:	G, B, R level; contrast; and brightness adjustment
Status Display	
3G-SDI Signal Status Display	
Signal Detection:	Detects the presence of a 3G-SDI signal
Format:	Detects from the supported video signal formats (When the LV 58SER06 is configured to automatically set the format, the format is detected from the payload ID.)
Embedded Audio Channel	
	Displays the embedded audio channel number (Only the audio data of data stream 1 is supported.)
3G-SDI Signal Error Detection	
CRC Error:	Detects 3G-SDI signal transmission errors
TRS Error:	Detects TRS position and protection bit errors
Line Number Error:	Detects 3G-SDI signal line number errors
Illegal Code Error:	Detects data within the range of 000h to 003h and 3FC to 3FF in locations other than the TRS and ADF headers
Ancillary Data Error Detection	
Checksum Error:	Detects ancillary data transmission errors
Parity Error:	Detects ancillary data header parity errors
Image Quality Error Detection	
Frequency Response:	Approx. 1 MHz LPF (IEEE STD 205 response) and approx. 2.8 MHz LPF (removes transient composite gamut and gamut errors due to overshoot and other anomalies)
Gamut Error:	Detects time-specified gamut errors
Upper Limit:	90.8 to 109.4 %
Lower Limit:	-7.2 to 6.1 %
Area Specification:	0.1 to 5.0 %
Time Specification:	1 to 60 frames
Composite Gamut Error:	Detects level errors that occur when component signals are converted to composite signals
Upper Limit:	90.0 to 135.0 %
Lower Limit:	-40.0 to 20.0 %
Area Specification:	0.1 to 5.0 %
Time Specification:	1 to 60 frames
Embedded Audio Error Detection	
(Only data stream 1 is supported for 3G-SDI level B.)	

BCH Error:	Detects transmission errors in the audio packets that are embedded in 3G-SDI signals
DBN Error:	Detects audio packet continuity errors
Parity Error:	Detects parity errors in the audio packets that are embedded in 3G-SDI signals
Embedded Position Error:	Detects the presence of audio in lines where it should not be embedded
Event Log	
Recorded Events:	Errors, changes in the input channel, and time stamps
5 Bar Display	
Bar Display:	Displays the Y GBR component and composite gamut (When you are using line select, only the component gamut of the selected line is detected.)
Error Level Setting	
Component Gamut:	The same as the gamut error
Composite Gamut:	The same as the composite gamut error
Frequency Response:	The same as the gamut error
Analysis Features	
Data Dump Display	
Display Format:	Displays data separated by serial data sequence or by channel (The 3G-SDI level B data dump can display data stream 1, data stream 2, and data stream 1 and 2 simultaneously.)
Line Select:	Displays the selected line
Sample Select:	Displays from the selected sample
Jump Feature:	Moves to EAV or SAV with the press of a single button
Data Output:	Data can be saved as text files to USB memory or to a PC over an Ethernet
Audio Control Packet Display (Only data stream 1 is supported for 3G-SDI level B.)	
Display Details:	Displays audio control packet analysis
Display Format:	Text, hexadecimal, and binary
Group Selection:	Select one group from four available groups
Format ID Display	
Corresponding Standard:	SMPTE 352M
Display Details:	Displays payload ID packet analysis
ANC Packet Display (Only data stream 1 is supported for 3G-SDI level B.)	
ANC Specification Method:	DID/SDID
Display Format:	Hexadecimal and binary
Time Code Display (Only data stream 1 is supported for 3G-SDI level B.)	
Supported Time Codes:	LTC and VITC (SMPTE 12M-2)
Display Mode:	The instrument's internal clock or the time code
Embedded Audio Processing	
Clock Generation:	Generated from the video clock
Synchronization:	All audio channels must be synchronized to the video clock.
Phases:	All phases must be in-sync.
Channel Separation:	You may select a maximum of 4 groups of 16 channels each. (Only data stream 1 is supported for 3G-SDI level B.)
* You need an LV 58SER40A unit to display and generate audio.	
Frame Capture Feature	
Function:	Captures frame data
Capture Timing:	Manual and automatic (error capture)
Display:	Displays the captured frame data or superimposes the captured frame data over the input signal
Media:	Internal memory (RAM) and USB memory You can only record one frame of data to the internal memory.
Data Output:	Screen captures can be saved as .dpx files, .tif files, or in a file format that the instrument can load. They can be saved to USB memory or sent to a PC through an Ethernet connection.
Data Input:	Data saved to USB memory can be loaded and displayed on the instrument.*1
Error Capturing:	Automatically captures frame data when an error occurs
*1 Captured data cannot be displayed unless the instrument is receiving a 3G-SDI signal that matches the format of the captured signal.	
Environmental Conditions	
	Conforms to those for the LV 5800 or LV 7800
Power Consumption	
	Supplied by the LV 5800 or LV 7800; 18 W max. (This is the power consumption for a single LV 58SER06 unit installed in an LV 5800 or LV 7800.)
Weight	
	0.24 kg
Accessory	
	Instruction manual 1