

LT4610SER02 12G-SDI Option

For Test / Sync Generator LT4610



The installation of option LT4610SER02, adds four outputs of 12G-SDI/ 3G-SDI/ HD-SDI/ SD-SDI signals to the LT4610 Test / Sync Generator.

In addition to test pattern outputs, which include color bars and Natural Picture, LT4610SER02 is equipped with important features such as pattern scrolling, moving box, ID characters, Logo marks and embedded audio.

■ Features

● Supports 12G-SDI (4K,UHD)

LT4610SER02 includes four SDI outputs. SDI outputs support 4K-12G-SDI, 4K 3G-SDI Quad, 4K HD-SDI Quad, 4K 3G-SDI Dual, 3G-SDI (Level A, Level B), HD-SDI (including Dual Link), and SD-SDI.

Pattern and Phase Timing can be set for each output. (Two channel output is only available for 3G-SDI level B and HD dual link)

● Pattern Scrolling

Equipped with the capability to scroll patterns in eight directions. The speed can also be adjusted.

● Moving BOX

The moving box can be overlaid on any of the patterns in any size on the display.

● ID Character Overlay

The ID characters can be overlaid in any position on the display. In addition, ID characters can be scrolled horizontally or displayed in a blinking state for verifying that the output is not frozen.

● Natural Picture Output Option

This option allows the LT4610 to save eight 4K resolution pictures to internal memory.

● Embedded Audio

16 channels of audio signals (4ch x 4 groups) can be embedded. If 3G-SDI (Level B) is selected, 32 channels of audio signals (link A and Link B - each 4ch x 4 groups) can be embedded.

■ Specifications

● Compliant Standards

SDI embedded audio	SMPTE ST 299
3G, HD, HD(DL)	SMPTE ST 272
SD	SMPTE ST 352
SDI Payload ID	

● Output

SDI OUTPUT	
Connector	4 x BNC connector
12G, 3G-A, HD, SD	4 outputs
3G-B, HD(DL)	2 outputs
Output Impedance	75Ω
Output Amplitude	800mVp-p ± 10%
Output Return Loss	
5MHz ~ 1.485GHz	≥ 15dB
1.485 ~ 2.97GHz	≥ 10dB
2.97 ~ 6GHz	≥ 7dB
6 ~ 12GHz	≥ 4dB
Overshoot	Less than 10%
Rise and Fall times	
3G	≤ 135ps (20 to 80%)
HD, HD(DL)	≤ 270ps (20 to 80%)
SD	≤ 0.4ns to 1.5ns (20 to 80%)
DC Offset	0 ± 0.5V

● SDI Video Output

SDI Electrical Characteristics

Bit rate	11.880Gbps, 11.880/1.001Gbps
12G	2.970Gbps, 2.970/1.001Gbps
3G	1.485Gbps, 1.485/1.001Gbps
HD, HD(DL)	270Mbps
SD	

Timing Adjustment

Adjustment Range Entire frame

Adjustment Unit

V

H

Lines
Clocks (148.5MHz,
148.5/1.001MHz, 74.25MHz,
74.25/1.001MHz, 27MHz)

● Test Pattern

12G	UHDTV Multi format color bar (ARIB STD-B66) ※ Saved as a Natural Picture.
12G, 3G, HD	100% color bars, 75% color bars, multi format color bars (ARIB STD-B28, pattern 2 area can be set to 100% white, 75% white or +I), Flat field white
SD	100%, black 0%, red 100%, green 100%, blue 100%
525i/59.94	100% color bars, 75% color bars, SMPTE color bars, flat field white
625i/50	100% color bars, EBU color bars, BBC color bars, flat field white
Automatic Switching	Automatically switches between available patterns
Switching Time	1~255sec

● Natural Picture

Data Save	Eight 4k/UHD images can be saved
※4k/UHD image data is saved , but the reading time for natural image data occurs when turning on power again.	
※ Moving box and ID character can not be superimposed at the same time.	

● Component On/Off

Function	Each of the Y/G, Cb/B, Cr/R components can be turned on and off for each channel independently.
On	Outputs the specified Y/G,Cb/B or Cr/R signal
Off	
Y/G	040h/040h
Cb/B	200h/040h
Cr/R	200h/040h

※Not Available when the check field pattern is selected.

● Moving Box

ON / OFF

● Embedded Audio

Embedded Channels	Can be turned on and off at the group level
12G, 3G-A, HD, SD	16ch (4ch × 4 groups)
3G-B	32ch (link A, link B 4ch each x 4 groups)
Sampling Frequency	48kHz sampling (synced with the video signal)
Resolution	20 bits / 24 bits
Pre-emphasis	OFF / 50/15 / CCITT (only the CS bit is switched)
Frequency	SILENCE / 400Hz / 800Hz / 1kHz
Level	-60~0dBFS (1dBFS steps)
Audio Click	OFF / 1~4sec

※The frequency, level, and audio click can be set for each channel.

※The following limitations apply for SD (525i/59.94)

• For 16 channel output, the resolution is set to 20bits.

• Up to three groups (12 channels) can be output at 24-bit resolution.

● SDI Formats and Standards

3G(DL)-4K video signal formats and standards

Division Transmission System	Color System	Quantization	Image	Frame (Field) Frequency / Scanning	Compliant Standard
Square	YCbCr 4:2:2	10bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3, 2036-1
			4096 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3, 2048-1
2 sample interleave	YCbCr 4:2:2	10bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3, 2036-1
			4096 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3, 2048-1

HD(Q) video signal formats and standards

Division Transmission System	Color System	Quantization	Image	Frame (Field) Frequency / Scanning	Compliant Standard
Square	YCbCr 4:2:2	10bit	3840 × 2160	30/29.97/25/24/23.98/P	-
			4096 × 2160	30/29.97/25/24/23.98/PsF	-
			4096 × 2160	30/29.97/25/24/23.98/P	-

3G(Q) video signal formats and standards

Division Transmission System	Color System	Quantization	Image	Frame (Field) Frequency / Scanning	Compliant Standard
Square	YCbCr 4:2:2	10bit	3840 × 2160	60/59.94/50/P	SMPTE ST 425-5, 2036-1
			4096 × 2160	60/59.94/50/48/47.95/P	SMPTE ST 425-5, 2048-1
		12bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1
	YCbCr 4:4:4	10bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1
			4096 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2048-1
		12bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1
2 sample interleave	YCbCr 4:2:2	10bit	3840 × 2160	60/59.94/50/P	SMPTE ST 425-5, 2036-1
			4096 × 2160	60/59.94/50/48/47.95/P	SMPTE ST 425-5, 2048-1
		12bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1
	YCbCr 4:4:4	10bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1
			4096 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2048-1
		12bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1
RGB 4:4:4	10bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1	
		4096 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2048-1	
	12bit	3840 × 2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5, 2036-1	

12G video signal formats and standards

Division Transmission System	Color System	Quantization	Image	Frame (Field) Frequency / Scanning	Compliant Standard
2 sample interleave	YCbCr 4:2:2	10bit	3840 × 2160	60/59.94/50/P	SMPTE ST 2082-10, 2036-1
			4096 × 2160	60/59.94/50/48/47.95/P	
		12bit	3840 × 2160	30/29.97/25/24/23.98/P	
	YCbCr 4:4:4	10bit	3840 × 2160	30/29.97/25/24/23.98/P	
			4096 × 2160	30/29.97/25/24/23.98/P	
		12bit	3840 × 2160	30/29.97/25/24/23.98/P	
RGB 4:4:4	10bit	3840 × 2160	30/29.97/25/24/23.98/P		
		4096 × 2160	30/29.97/25/24/23.98/P		
	12bit	3840 × 2160	30/29.97/25/24/23.98/P		

● ID Characters

Number of Characters	Up to 20 Characters
Size [Dots]	32 × 32 / 64 × 64 / 128 × 128 / 256 × 256
Intensity	100% / 75% Black only for the background color
Display Position	Anywhere on the display
Display Position Adjustment	Resolution
V	1 line
H	1 dot
Blinking Display (※1)	OFF / 1~9sec
Scrolling (※1)	
Function	Scroll including the ID character background
Direction	Two directions (left and right)
Speed Range and Unit	
Interlace	In unit of fields
	0 to 256 dots, 2 dot steps
Progressive	In unit of frame
	0 to 256 dots, 2 dot steps

※1 Not available when the check field pattern is selected

● Pattern scrolling

Direction	Eight directions (up, down, left, right, and combinations)
Speed Range and Unit	
Interlace	In unit of fields
V	0 to 256 lines, 1 line steps
H	0 to 256 dots, 2 dots steps
Progressive	In unit of frames
V	0 to 256 lines, 1 line steps
H	0 to 256 dots, 2 dots steps

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※ Product specifications are subject to change without notice.

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