LT4670
Sync Pulse & Test Generator

Leader

A Hybrid Sync Pulse Generator compatible with Black Burst/Tri-level sync/PTP signals for both SDI and IP systems

Introduction

The LT4670 is a 1U full rack-sized synchronous signal generator designed for seamless integration into both SDI and IP-based workflows. It delivers a comprehensive range of outputs, including PTP, GNSS, 4K/HD IP, 4K 12G, 3G/HD/SD SDI, analog sync signals, AES/EBU, audio word clock, and LTC, all synchronized to analog video sync signals. Operating as a PTP grandmaster, it features two independent PTP leader and follower functions, ensuring precise timing across complex broadcast environments.

Standard outputs encompass six independent analog sync signals, digital audio, word clock, LTC input/output, and L-SYNC. Optional modules extend functionality with GNSS synchronization, PTP, 4K IP, HD IP, 4K 12G-SDI, 4K Quad, 3G-SDI, HD-SDI, and SD-SDI outputs, providing versatile synchronization management tailored to diverse system requirements.

- 'True-Hybrid' functionality compatible with Black Burst/Tri-level sync/PTP signals for both SDI and IP systems

- Six independent analog sync signal outputs, digital audio output, word clock output, LTC input/output, and L-SYNC as standard

- Optional licenses for GNSS sync, PTP, 4K IP, HD IP, 4K 12G-SDI, 4K Quad, 3G-SDI, HD-SDI, and SD-SDI output in any pattern

- PTP operating as a grand master, with two independent PTP leader and follower functions

- Stay-In-Sync and Slow-Sync Function for an extremely stable IP synchronization system

- Blackburst / Tri-Level Sync, AES and PTP references with automatic 'fail-over', so all your reference sources continue to come from the same LT4670, maintaining network stability and ensuring reliable time distribution

- Hot-swappable redundant power supply and assemble of hot-swappable fans to enable continuous operation and reliability

- The ability to connect a GPS antenna and generate signals and output by locking to the frequency and time obtained from GNSS for a highly accurate timing source.

- 2 x 25G IP and 4 x 12G-SDI Test Signal Generator with Lipsync and user patterns

LT4670 Configuration

Model Number/Options	Description	Feature
LT4670	Sync Generator	Genlock 6 Outputs Analog Reference (BB/3 values) 1 to 6 systems 1 Output Word Clock 1 Output AES/EBU Audio Output Output AES/EBU Silent Audio Output Time Code Output (LTC, VITC) L-SYNC (L-SYNC cable required)
Hardware Options		
LT4670-SER01	GNSS	GPS, GLONASS, GALILEO, BDS compatible
LT4670-SER02	SDI	2 Outputs 3G/HD/SD-SDI pattern outputs (Up to 2 can be mounted)
LT4670-SER03	PTP	PTP Support (Leader, Follower)
LT4670-SER04	25G-IP / 12G TSG	4 Outputs 12G/3G/HD/SD-SDI, IP 25G/10G Pattern Output
LT4670-SER11	POWER	Power supply unit for redundancy (hot-swappable)
Software Options		
LT4670-SER21	4K 3G Quad Link	4K Quad Output (Requires 2 x LT4670-SER02)

Key Features & Advantages

Highly precise sync generation to ensure seamless Hybrid IP/SDI operations

Leader's LT4670 Sync Pulse Generator is designed to meet the demands of modern hybrid SDI/IP networks. The LT4670 supports both PTP (IEEE 1588-2008) for IP-based environments and traditional black burst and tri-level sync for SDI. This ensures seamless timing accuracy between legacy and next-generation workflows. Whether you are synchronizing cameras, routers, switchers, or production servers, the LT4670 provides a rock-solid reference to keep your entire operation in sync.

Unmatched Timing Precision

With a high-stability oscillator, the LT4670 delivers precise synchronization, eliminating drift and ensuring reliable timing across SDI and IP infrastructures. The LT4670 can also act as a PTP Client, receiving PTP from a broadcaster's IT Grandmaster Clock, ensuring that both the IT system and their ST 2110 infrastructures are synchronized. Even in environments with heavy network traffic, the LT4670 maintains microsecond-level accuracy, ensuring no disruption in signal integrity. For broadcasters handling 4K, 8K, and HDR workflows, this level of precision is a vital, reducing the risk of timing discrepancies that could impact high-resolution productions.

Redundant & Reliable for 24/7 Broadcast Operations

For mission-critical applications, the LT4670 offers dual power supply options and automatic failover mechanisms. It can also act as a PTP Grandmaster Clock, ensuring continuous sync even in case of network failures. By offering a redundant power supply and multiple outputs, the LT4670 guarantees uptime and reliability, keeping live events, news broadcasts, and sports productions running smoothly.

Scalable for the Future

Whether you're operating a small studio or a large broadcast facility, the LT4670 scales to meet your needs. It is designed for future-proof flexibility, allowing broadcasters to gradually transition towards full IP workflows without disrupting operations. As new standards emerge and industry expectations evolve, having a scalable SPG like the LT4670 ensures that your investment remains viable for years to come.

Advanced Test & Monitoring Features

The LT4670 includes SMPTE ST 2059-2 compliance, ensuring interoperability with other PTP devices in your network. It also provides various test signals for troubleshooting and validation, making it an essential tool for engineers. Whether you need to verify timing accuracy, check for synchronization issues, or diagnose potential faults, the LT4670 offers the tools necessary for quick and efficient problem-solving. These features make it not just a sync generator, but a comprehensive solution for managing synchronization across a hybrid broadcast network.
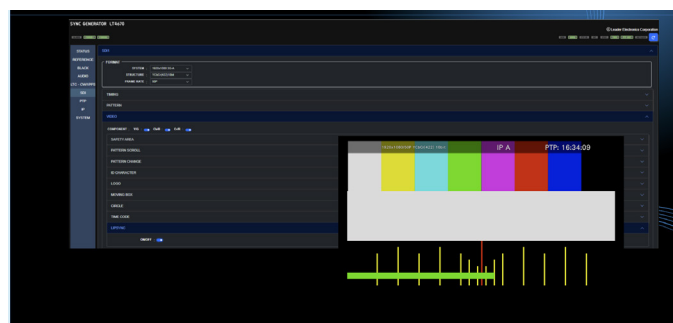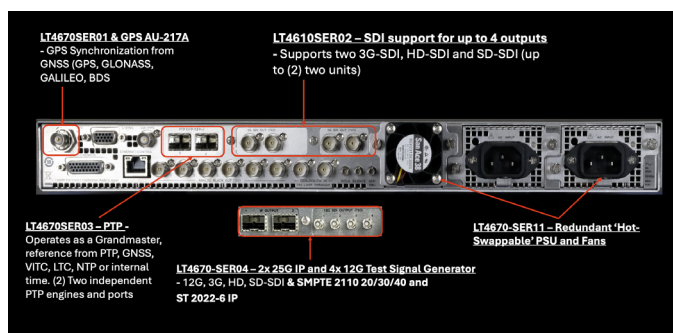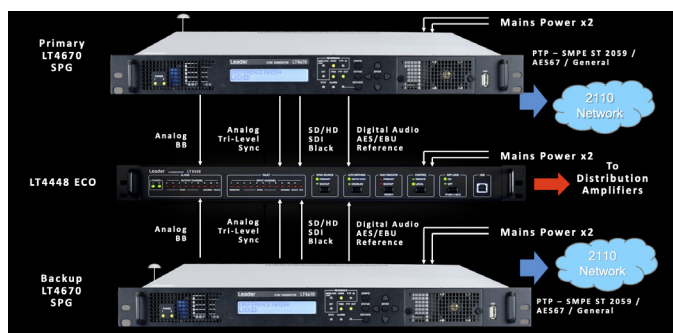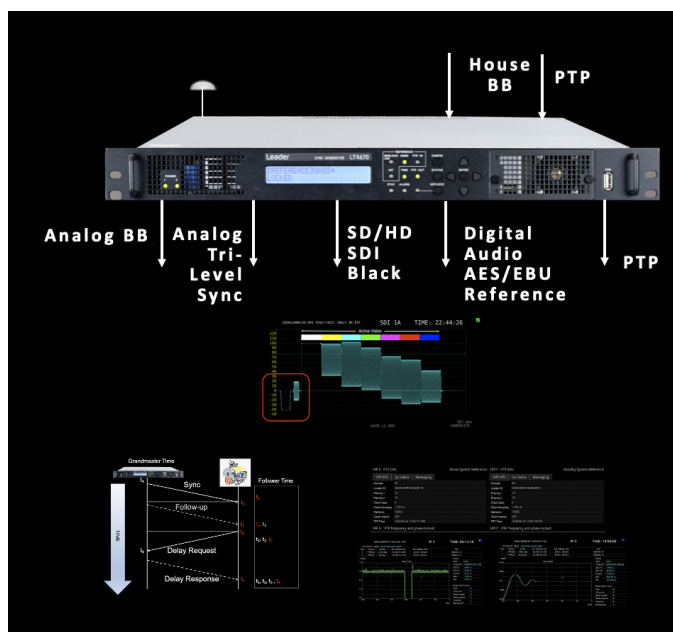
Maintaining network stability with the LT4670's game-changing 'Slow-Sync' technique

Precise time synchronization is critical for all applications in broadcast. Blackburst/Tri-Level Sync, AES, Timecode, Test Patterns and Precision Time Protocol (PTP) are widely used method to distribute accurate time across broadcast facilities, ensuring frame-accurate video switching and synchronization.

The simplest way to ensure that your Blackburst /Tri-Level Sync, AES, Timecode, Test Patterns and PTP remain synchronised is by having all reference sources generated from the same oscillator in your Sync Pulse Generator and that unit is locked to a GPS reference, like the Leader LT4670.

That way, if the Sync Pulse Generator loses its GPS reference, both BB/TLS and PTP references will use the Sync Pulse Generators 'signal oven controlled internal' oscillator and go into 'Stay-in-Sync' mode.
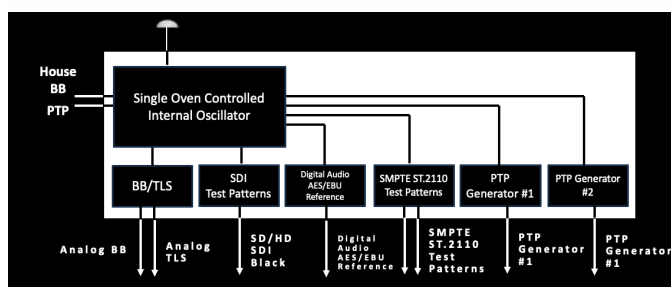
When the GPS reference returns, a 'slow-lock' function is available to eliminate the shock that occurs when genlock is performed again based on 'Stay-in-Sync'.

When SPGs lose their GPS reference, how they recover and maintain time synchronization can significantly impact broadcast system stability. One of the key techniques to mitigate timing disruptions in the LT4670 is slow syncing – a method of gradually adjusting the clock rather than making abrupt corrections.

The risks of fast clock adjustment

A common approach to correcting time discrepancies is to apply sudden adjustments to the system clock. However, this can lead to serious issues:

- Audio/Video Sync Issues: Abrupt time corrections can lead to noticeable lip-sync errors and discontinuities in video playout.

- Broadcast Network Instability: Downstream devices expecting smooth, continuous time updates may struggle to adapt to abrupt changes, resulting in synchronization failures.

- Playout and Frame Drops: Fast corrections can introduce frame drops or jitter, disrupting seamless video and audio playback.

The role of Slow Syncing

To mitigate these risks, slow syncing allows the system clock to adjust gradually, avoiding sudden jumps and maintaining network stability. This method involves:

- Gradual Clock Steering: Instead of instant corrections, the clock frequency is slightly adjusted over time to align with the correct time.

- Filtering and Smoothing: Using algorithms to average time error measurements and apply smooth corrections.

- Holdover Strategies: Leveraging high-stability oscillators and error compensation techniques to maintain accuracy during GPS loss.

The benefits of Slow Syncing

- Minimized Audio/Video Disruptions: Broadcast playout systems experience a seamless transition without abrupt time shifts.

- Increased Resilience: The system remains stable even under prolonged periods of GPS loss, preventing frame drops and jitter.

- Improved Synchronization Accuracy: By avoiding phase jumps, downstream clocks maintain better consistency with the master clock, ensuring seamless content delivery.

Implementing Slow Syncing in Broadcast PTP Systems

To effectively implement slow syncing in a broadcast facility, the Leader LT4670 Sync Pulse Generator utilises the following best practices:

- Use High-Quality Oscillators: A stable oscillator with low drift ensures that the system can maintain accuracy when GPS is unavailable.

- Enable Holdover Mode: Configure the PTP grandmaster to enter holdover mode when GPS is lost, allowing it to rely on its internal timing source.

- Configure Slow Syncing Algorithms: Adjust PTP settings to apply gradual frequency adjustments instead of immediate jumps.

- Monitor and Log Timing Performance: Regularly check synchronization accuracy and adjust settings as needed to optimize performance.

Slow-syncing: A crucial technique for maintaining network stability

Slow syncing Blackburst/Tri-Level Sync, AES, Timecode, Test Patterns and Precision Time Protocol (PTP) during GPS reference loss is a crucial technique for maintaining broadcast network stability and ensuring reliable time distribution. By gradually steering the clock and avoiding abrupt corrections, broadcasters can prevent video and audio disruptions, improve synchronization accuracy, and enhance overall system resilience. Implementing best practices for slow syncing can help safeguard live broadcasts, post-production workflows, and seamless playout operations even in challenging conditions.

LT4670 Standard Toolset [LT4670]

Genlock

Supports NTSC/PAL black burst signals and HDTV tri-level sync signals for synchronizing output signals. Additionally, it accommodates NTSC/PAL black burst signals with field reference pulse and NTSC black burst signals with 10-field ID. A 10 MHz CW lock is supported as standard. Options are also available for PTP and GNSS synchronization.

Stay-in-Sync & Slow Lock

The LT4670 is designed for maximum reliability in mission-critical environments. If the genlock input signal becomes unstable or is lost, the stay-in-sync function maintains the current synchronization state to avoid signal interruptions. Once a stable reference returns, the slow-lock function re-establishes synchronization gradually, minimizing timing disruptions and visual artifacts. These features work with various reference sources, including black burst (BB), tri-level sync, 10 MHz CW, GNSS (with SER01), and PTP (with SER03), ensuring flexible and robust system integration.

Time Code I/O

The LT4670 provides flexible timecode input and output capabilities essential for precise timing coordination across devices. Timecode can be internally generated or received via external LTC input, NTP server, GNSS (SER01), PTP (SER03), or VITC (SER02). The unit supports three simultaneous LTC outputs, while VITC can be embedded within analog sync or SDI outputs. Additionally, SDI outputs can carry ATC (Ancillary Time Code), including LTC and VITC, supporting a wide range of broadcast and post-production timing workflows.

Six independant analog video sync signal outputs

Designed for high versatility, the LT4670 provides six analog video sync outputs that operate independently. Each output can be configured separately, with adjustable phase offsets to meet the unique synchronization demands of multi-device systems. This enables precise alignment of signal timing across various equipment, from cameras to routers and monitors. All outputs support black burst (NTSC/PAL) and tri-level sync formats, making them suitable for a wide range of applications in SD, HD, and UHD workflows.

Synchronous control between devices

In systems requiring redundancy, the L-SYNC function allows the LT4670 to synchronize its internal clock with another unit using the same analog video sync signal. This ensures that a backup unit remains perfectly in sync with the primary unit, allowing for a seamless switchover in the event of failure. Synchronization extends across multiple outputs, including PTP (SER03), LTC, black burst with VITC, SDI ATC (SER02/SER04), AES/EBU, and NTP, making L-SYNC a key component of a fail-safe timing architecture.

Analog video sync signal output

Six analog video sync signal outputs are available. Each output has independently variable phase. NTSC/PAL black burst signals with field reference pulse and NTSC black burst signals with 10 field IDs are also supported.

CW/1PPS Output

A selectable CW/1PPS output is available.

LTC I/O

LTC can output three independent systems for each input. The outputs can be set for frame rate and offset time relative to the reference time, respectively.

World Clock

To ensure accurate audio-video synchronization, the LT4670 offers a dedicated 48 kHz word clock output. This output is aligned with the reference video signal, enabling stable timing for digital audio equipment such as mixers, recorders, and DAWs. By maintaining synchronous timing between audio and video systems, the word clock output is a key component in preventing audio drift and ensuring seamless post-production and live broadcasting operations.

AES/EBU Signal Output

The LT4670 includes two AES/EBU digital audio outputs: one generates a continuous 1 kHz tone (or other selectable test tones), and the second delivers a muted signal. These outputs are synchronized with the main video reference and are ideal for system alignment, audio equipment testing, or silence detection monitoring. This feature ensures audio paths can be verified independently, simplifying troubleshooting and system setup.

User Preset and Memory Functions

The LT4670 streamlines configuration with memory and preset features that enhance operational flexibility. The unit retains its last-used settings even after power cycling, reducing setup time. Users can store up to 10 custom presets that capture complete configuration states, allowing fast recall of complex settings for different production scenarios. This functionality is especially valuable in environments where system profiles change frequently, such as rental houses, OB trucks, or multi-studio facilities.

Redundant power supply and non-stop power supply and fan replacement

Engineered for high availability, the LT4670 supports an optional redundant power supply module (LT4670-SER11). This ensures continuous operation in the event of a power failure. Both the power supply and cooling fans are hot-swappable, allowing for maintenance or replacement without interrupting service. This feature is ideal for 24/7 broadcast and production facilities where downtime is not an option, providing peace of mind and uninterrupted performance.

GPIO Pin

Supports recall of presets and output of up to two alarms.

Realtime Clock

The realtime clock is backed up by a battery. There is no need to reset the date and time when the power is turned on and off.

Ethernet

The instrument can be controlled via HTTPS/HTTP and a REST-API as well as with SNMP. It can connect to an NTP server to set the internal clock time or operate as an NTP server..

Logging

Operational status can be logged to internal or external memory.

Technical Specifications
[LT4670 Standard Toolset]

Supported Standards

Analog Video Synchronous Signal	
NTSC Black Burst Signal	SMPTE ST 170, SMPTE ST 318, SMPTE RP 154
PAL Black Burst Signal	ITU-R BT 1700, EBU N14
HD Tri-level Sync Signals	SMPTE ST 240, SMPTE ST 274, SMPTE ST 296
AES/EBU Signals	ANSI S4.40, AES3-2009, AES11-2009, SMPTE ST 276
LTC Signal	SMPTE 12M-1
Phase Control	SMPTE ST 2059-1

Input-Output Terminal

Genlock Input Terminal		
Connector	BNC Connector 2 Terminals	
Input Signal	Analog Composite Sync Signal	
HD Tri-level Sync Signal	Analog Component Sync Signal	
Format	Loop-through	
Input Impedance	47kΩ	
Maximum Input Voltage	±5V (DC + Peak AC)	
Operating Input Level Range	±6dB	
External Lock Range	±5ppm	
Jitter	1ns (at Genlock)	
10MHz CW Input Terminal		
Connector	BNC Connector 1 Terminal (Used with Genlock Input Terminal)	
Input impedance	47kΩ (Used with 50Ω termination to loop through)	
Input Signal Level	0.5 - 1V rms (at 50Ω termination)	
Input Signal Frequency	10MHz	
Recessed Frequency Range	±5ppm	
10MHz CW /1PPS Output Terminal		
Connector	BNC Connector 1 terminal (10MHz CW and 1PPS used together)	
Output Amplitude Signal Level	10Mhz CW	2Vp-p±20% (1Vrms) at square wave 50 ohm terminated
	1PPS	4.8±0.5V (unterminated, high level) 2.4±0.25V (at 50Ω termination, high level)
Output Impedance	50Ω unbalanced	
Output Signal Frequency	10MHz / 1PPS	
LTC Input/Output Terminal		
Connector	D-SUB 26-pin	
LTC	Number of Inputs	1
	Input Impedance	1kΩ(balanced), 500Ω (unbalanced)
	Input Signal Level	0.5 - 4Vp-p
	Number of Outputs	3
	Output Impedance	24Ω balanced
	Output Signal Level	2Vp-p±0
Analog Video Synchronous Signal Output Terminal		
Connector	BNC Connector 6 terminals 6 systems	
Output Signal	NTSC Black Burst Signal	
	PAL Black Burst Signal	
	HD Tri-Level Synchronous Signal	
Output Impedance	75Ω	
Synchronization Level	NTSC	40±1IRE
	PAL	-300±mV
	HD	±300±mV
	Blanking	0±5hV
AES/ABU Digital Audio Output Terminal		
Connector	DIN 1.0 / 2.3 Connector1 Terminal	
Output Amplitude	1Vp-p±0.1V	
Output Impedance	75Ω unbalanced	
Word Clock Output Terminal		
Connector	DIN 1.0 / 2.3 Connector1 Terminal	
Output Frequence	48kHz	
Output Amplitude	4.8V or more (unterminated, high level) 2.4V or more (75Ω terminated, high level)	

Control Terminal

Ethernet Terminal		
Standard	IEEE 802.3	
Protocol	SNMP v2c/v3	Command Operation, Status Acquisition, Sending Traps
	REST-API	Command Operation, Status Aquisition
	HTTP/HTTPS	Monitoring and Operation via browser
	NTP	Internal clock time alignment and time distribution
Connector	RJ-45. Type 10BASE-T/100BASE-TX/1000BASE-T (Automatic Switching)	

USB Terminal		
Standard	USB2.0	
Supported Media	USB Memory Device	
Supported Formats	FAT32	
Function	Presets, logos, ID Characters	
	Loading user patterns and saving presets and logs	
	Obtaining MIB files	
	Obtaining an Authentication Key	
	Firmware Updates	
Connector	USB Type A	

GPIO Terminal		
Terminal Shape	26-pin D-sub (female)	
Fixing screw for mounting	Inch screw (No.4-40UNC)	
Number of terminals	1	
Control Signal	LV-TTL Level (Preset LOW active)	
	HC-CMOS Level (alarm)	
Input voltage range (preset call)	DC 0-5V	
	All inputs up to +3.3V	
	(Controllable at +5V)	
Output voltage range (alarm output)	DC 0 - 5V	
Function	Preset recall	
	Alarm Output	
	Alarm output when various errors occur, various attentions occur, FAN error, power supply error, or internal temperature error	

Sync terminal between devices (L-SYNC)	
Terminal Shape	D-sub 15-pin (female)
Number of terminals	1
Control signal	LV-CMOS
	6 main-side outputs
	6 backup-side inputs
Input voltage range	DC 0 - 3.3V
Function	Synchronizes the time between two units in redundancy

Liquid Crystal Display

Resolution	24 characters x 2 lines
Backlight	On / Off

Genlock Function

Signal Format	NTSC BB, NTSC BB+REF, NTSC BB+ID, NTSC BB+REF+ID, PAL BB, PAL BB+REF 525/59.94I, 525/59.94P, 625/50I, 625/50P, 1125/60P, 1125/59.94P, 1125/50P, 1125/60I, 1125/59.94I, 1125/30P, 1125/29.97P, 1125/25P, 1125/24P, 1125/24PsF, 1125/23.98PsF, 750/60P, 750/59.94P, 750/50P, 750/30P, 750/29.97P, 750/25P, 750/24P, 750/23.98P	
Timing Variable		
Variable Range	FINE	±100STEP, variable unit is 0.5ns
Genlock Mode		
Internal	Operated by internal reference signal	
External	Operated by external reference signal GL FMT-AUTO/GL FMT-MANUAL/10MHz CW GNSS(SER01)/PTP(SER03)	
Recovery Mode		
AUTO	Resynchronization operation according to auto-setting when external reference signal is stored.	
MANUAL	Holds STAY IN SYNC state when external sync signal is restored	
Auto Setting		
IMMEDIATE	Reset operation when external reference signal is restored	
FAST	Prompt resynchronization operation when external sync signal is restored	
SLOW	Slow resynchronization operation when external sync signal is restored	
Manual Setting		
IMMEDIATE	Reset operation when external reference signal is restored	
FAST	Prompt resynchronization operation when external sync signal is restored	
SLOW	Slow resynchronization operation when external sync signal is restored	
Genlock Reset	Immediate resynchronization operation	
Hold-over Function	When an error occurs in the external reference signal, the frequency (video phase) immediately before the error is held. When 10MHz CW is input, holds the previous frequency when 10MHz CW is interrupted.	

Analog Video Sync Signal Output

Signal Format	6 systems individually configurable NTSC BB, NTSC BB+REF, NTSC BB+ID, NTSC BB+REF+ID, NTSC BB+SETUP, NTSC BB+S+REF, NTSC BB+S+ID, NTSC BB+S+R+ID, PAL BB, PAL BB+REF, 525/59.94I, 525/59.94P, 625/50I, 625/50P, 1125/60P, 1125/59.94P and 1125/50P, 1125/60I, 1125/59.94I, 1125/50I, 1125/30P, 1125/29.97P, 1125/25P, 1125/24P, 1125/23.98P, 1125/24PsF, 1125/23.98 PsF, 750/60P, 750/59.94P, 750/50P, 750/30P, 750/29.97P, 750/25P, 750/24P, 750/23.98P		
Variable Timing	6 systems can be set individually	
Variable Range	NTSC Black Burst Signal	±5 frames
	PAL Black Burst Signal	± 2 frames
	HD Tri-level Sync Signal	1 frame (full frame range)
Variable Unit	NTSC/PAL Black Burst Signal	0.185µs unit (54MHz clock unit)
	HD Tri-level Sync Signal	0.135µs unit (74.25/1.001MHz clock unit or 74.25MHz clock unit)

AES/EBU Digital Audio Output

Timing Variable	Variable Range	±1AES/EBU frame (±511)
	Variable Unit	512fs (24.576MHz) unit
Sampling Frequency	48 kHz samples (synchronized with video signal)	
Resolution	20 bits 24 bits	
Pre-emphasis	OFF / 50/15/CCITT (only CS bit is switched)	
Frequency	SILENCE / 400Hz / 800Hz / 1kHz	
Level	-60 - 0dBFS (1dBFS step)	
Audio Click	OFF/1/2/4 sec	
Lip Sync	SDI-1 and sync	
Sampling Clock Accuracy	Grade 2 (±10ppm)	
*Frequency, level and audio click can be set for each channel		

AES/EBU Silence Output

Timing Variable	Variable Range	±1AES/EBU frame (±511)
	Variable Unit	512fs (24.576MHz) unit
Sampling Frequency	48 kHz samples (synchronized with video signal)	
Resolution	20 bits / 24 bits	
Pre-emphasis	OFF	
Frequency	SILENCE	
Level	MUTE	
Sampling Clock Accuracy	Grade 2 (±10ppm)	
*Supports DARS		
*When EQUAL TO AES/EBU is on, AES/EBU digital output and Output the same signal		

World Clock Output

Timing Variable	Variable Range	±1AES/EBU frame (±511)
	Variable Unit	512fs (24.576MHz) unit

Time Code Function

Reference Time	Internal/NTP/LTC/VITC GNSS(SER01) / PTP(SER03)	
Frame Rate	30/29.97/25/24/23.98(Hz)	
Drop Frame Mode	On/Off	
JAM SYNC	Apply Setting	Timer setting for applicable time
ATS Setting	LTC Insertion Setting	On/Off
LTC Insertion Setting	VITC Insertion Setting	On/Off
LTC Setting	Output Setting	On/Off
Leap Second	Apply Setting	Timer setting for applicable date and time. *PTP does not support timer setting.
Daylight Savings Time	Apply Setting	Timer setting for applicable date and time

Preset Function

Preset	Save preset panel settings*
Number of presets	10
Recall Methods	Front panel, GPIO pins, SNMP, REST-SPI, web browser
Copy Method	Copy from this unit to a USB memory device or from a USB memory device to this unit
	Logo data and device-specific information (IP address, time etc) cannot be saved

Log Function

Saved Items	Genlock status changes, equipment operation, Alarm information, Attention Information
Number of records	Up to 1000
Copy Method	Copy from this unit to USB memory
Display	Panel, browser

FAN Unit

Number of fans	2 (1 front, 1 rear)
Replacement Method	FAN can be stopped from the panel and replaced without turning off the power of the main unit.
Alarm	FAN failure is indicated by LED and LCD and notified by SNMP Trap

Power Supply Unit

Number of built-in units	1 (standard) 2 (max with LT4670-SER11 option installed)
Redundant power supply	Need LT4670-SER11 option installed
Replacement Method	When the LT4670-SER11 option is installed, replacement can be performed without turning off the power to the main unit.
Alarm	Power failure is indicated by LED and LCD, and notified by SNMP Trap

Environmental Conditions

Operating Temperature	0 - 40ºC
Operating Humidity	85%RH or less (non-condensing)
Guaranteed performance temperature range	10-35ºC
Operating Environment	Indoor
Operating Altitude	Up to 2000m
Overvoltage Category	II
Pollution degree	2

Power Supply Conditions

Voltage	AC 100 - 240V
Voltage Fluctuation	±10
Power consumption	150W max (with full options)
Dimensions	482 (W) x 44 (H) x 400 (D) mm. Not Including protruding parts.
Weight	4.15kg (excluding options)
	5.37kg (including options)
Accessories	Power cord, AC cord clamp
Optional Goods	SFP Transceivers (LC 2141/LC 2148/LC 2149)
	GNSS Antenna
	FAN Unit (LP 2184)
	LTC Cable (LC 2185) * for LT4448 connection
	L-SYNC cable (LC 2186)

Hardware Options

LT4670-SER01 (GNSS)

By connecting a GNSS antenna, each signal can be generated and output locked to the frequency and time obtained from GPS, GLONASS, GALILEO and BDS.

A hold-over function is provided to hold the phase and frequency of the output signal upon loss of GNSS signals.

Standard

Input-Output Terminal GNSS Input Terminal		
	Connector	BNC Connector 1 Terminal
	Input impedance	50Ω
Antenna and preamplifier power supply		
	Voltage	5V/3.3V/OFF
	Current	50mA max. (Built in overcurrent protection circuit)
		L-SYNC cable (LC 2186)

GNSS Lock

GNSS Receiver		
Reception Frequency		GPS:1575.42 MHz (L1)
		GLONASS: 1602 MHz + k x 562.5kHz (L1OF) *k= -7,…,5,6
		GALILEO: 1575.42MHz(E1-B/C)
		BDS:1561.098MHz(B1)
Status		NO SIGNAL, TRACKING, LOCKED, STAY IN SYNC
Hold-over Function		When GPS, GLONASS, GALILEO or BDS signal are interrupted, the previous frequency and phase are retained.

LT4670-SER02 (SDI)

Triple-rate SDI support
3G-SDI (Level A, Level B), HD-SDI and SD-SDI. 2 independent SDI signal output terminals are provided, and the pattern and phase can be set for each.

In addition, two SER02s can be installed to output up to four independent SDI signals. Furthermore, by adding the 4K option (SER21), 4K 3G-Quad Link is supported.

User pattern output
In addition to built-in patterns such as color bars, SD and HD (2K) user patterns can be output.

ID Character Superimposition
ID characters can be superimposed at any position on the screen. In addition, horizontal scrolling and blinking display can be used to confirm active status.

Logo Superimposition
24-bit full color bitmap data with a size of 640 (dots) x 480 (lines) (VGA size) can be superimposed as a logo mark at an arbitrary location or the screen.

Safety Area Marker
Safety area markers of 90% and 80% can be superimposed on the screen, as well as 4:3 aspect markers for 3G-SDI and HD-SDI.

Pattern Scroll
Scrolls the pattern in 8 directions. The speed of movement can also be varied.

Moving Box
Boxes that move on the screen can be superimposed. Color, size and speed of movement can be varied.

Circle
90%, 80% and 70% circles can be superimposed on the screen. Brightness can be switched and blinked.

Time Code
Time code can be superimposed at any position on the screen. Font size and brightness can be changed.

Embedded Audio
16 channels (4 channels x 4 groups) of embedded audio can be added. Frequency, level etc can be set for each channel.

Lip-Sync Pattern
Outputs a lip-sync pattern with synchronized video and audio. By using a waveform monitor equipped with a lip-sync measurement function, such as our LV5600W, it is possible to measure the discrepancy between video and audio on SDI signal transmission..

Supported Standards

SDI Embedded Audio	
3G, HD	SMPTE ST 299
SD	SMPTE ST 272
SDI Payload ID	SMPTE ST 352

SDI Formats and Standards

HD and SD Video Signal Formats and Standards				
Color System	Quantization	Image Size	Frame (field) Frequency/ Scanning	Supported Standards
YC C$_{BR}$ 4:2:2	10bit	1280 x 720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 292-1 SMPTE ST 296
		1920 x 1080	60/59.94/50/I	SMPTE ST 292-1 SMPTE ST 274
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	SMPTE ST 29201 SMPTE RP 211
		720 x 487	59.94/I	SMPTE ST 259
		720 x 576	50/I	

3G-A Video Signal Formats and Standards				
Color System	Quantization	Image Size	Frame (field) Frequency/ Scanning	Supported Standards
YC C$_{BR}$ 4:2:2	10bit	1920 x 1080	60/59.94/50P	SMPTE ST 274 SMPTE ST 425-1
	12 bit	1920 x 1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
RGB 4:4:4	10bit	1280 x 720	60/59.94/50/30/29.97/25/24/23.98	SMPTE ST 296 SMPTE ST 425-1
		1920 x 1080	60/59.94/50/I	SMPTE ST 274 SMPTE ST 425-1
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
	12bit	1920 x 1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	

3G-B Video Signal Formats and Standards				
Color System	Quantization	Image Size	Frame (field) Frequency/ Scanning	Supported Standards
YC C$_{BR}$ 4:2:2	10bit	1920 x 1080	60/59.94/50P	SMPTE ST 274 SMPTE ST 372 SMPTE ST 425-1
	12 bit	1920 x 1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
RGB 4:4:4	10bit	1920 x 1080	60/59.94/50/I	SMPTE ST 274 SMPTE ST 425-1
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
	12bit	1920 x 1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	

Output Terminal

SDI Output Terminal	2 terminals with BNC connector	
Output Impedance	75Ω	
Output Amplitude	800mVp-p±10	
Output Return Loss	5MHz - 1.485GHz	15dB min
	1.485GHz - 2.297GHz	10dB min
Overshoot	Less than 10	
Rise and fall time	3G	135ps or less (between 20 - 80%)
	HD	270ps or less (between 20 - 80%)
	SD	0.4ns or more, 1.5ns or less (between 20 - 80%)
DC Offset	0±0.5V	

SDI Video Output

SDI Signal			
Bit rate	3G		2.970Gbps, 2.970/1.001Gbps
	HD		1.485Gbps, 1.485/1.001Gbps
	SD		270Mbps
Timing Variable			
Variable Range	Full frame range		
Variable Unit	V		Line Unit
	H		Clock Unit (148.5MHz, 148.5/1.001MHz, 74.25MHz, 74.25/1.001MHz, 27MHz)
Selection of timing criteria	SD, HD only, 3G only SERIAL		
SERIAL	Output at the timing defined in the SERIAL signal standard		
LEGACY	Output with the same timing as our convential signal generator		
Test Pattern			
3G, HD	100% Color Bar, 75% Color Bar Multi-format color bar (ARIB STD-B28, Pattern 2 portion selectable from 100% white/75% white/+I) Check field, Flat field 100% white, 50% white, 0% black, 100% red, 100% green, 100% blue.		
SD	525/59.94I		100% color bar, 75% color bar, SMPTE color bar, check field, flat field 100% white, 50% white, 0% black, 100% red, 100% green, 100% blue
	625/50I		EBU color bar, BBC color bar, check field, flat field 100% white, 50% white, 0% black, 100% red, 100% green, 100% blue
User Pattern Display	Select from one SD and HD each INT 1 - 4		
File Format	24-bit full color bitmap format (.bmp) 24/48-bit TIFF format (.tif)		
	*Data is transferred from the storage memory after the power is turned on. Data transfer takes approximately 30 seconds per 2K user pattern.		
Automatic Switching Function	Automatic switching of selectable color bar patterns		
Switching Time	1-255 sec		
Pattern Scroll Direction	8 directions (up/down, left/right and combinations thereof)		
Speed Range and Units	Interlaced	V	-256 -256 lines, 1 line increments
		H	-256 -256 dots, 2 dot increments
	Progressive	V	-256 -256 lines, 1 line increments
		H	-256 -256 dots, 2 dot increments
	*Not valid when check field pattern is selected		
Safety Area Marker			
3G, HD	Action safety area (90%) Title safety area (80%) 4:3 aspect (Can be turned on/off individually)		
SD	Action safety area (90%) Title safety area (80%) (Can be turned on/off individually)		
	* Not valid when check field pattern is selected		
ID Character			
Characters	Maximum 20 characters		
Size (dot)	32x32 / 64x64 / 128x128 / 256x256		
Brightness	100% / 75% (black background only)		
Display position	Any position on the screen		
Display position variable unit	V		0-100% (1% step)
	H		0-100% (1% step)
Flashing Display	ON Time		1-9 sec, in 1 sec increments
	OFF Time		1-9 sec, in 1 sec increments
Scroll Function			
Function	Scroll including background of ID character		
Direction	2 directions (left/right)		
Speed and units	Interlaced		Field Unit -256 -256 dots, 2 dot increments
	Progressive		Frame-by-Frame -256 -256 dots, 2 dot increments
	*Not valid when check field pattern is selected 1 Flashing and scrolling function can be set at the same time		

LT4670-SER03 (PTP)

PTP Leader
Precision Time Protocol as specified in IEEE 1588-2008 and operates as a PTP grandmaster. Profiles supported are SMPTE 2059, AES67 and General; the PTP time source is obtained from the built-in clock, NTP server, GNSS, VITS or LTC.

PTP Follower
If there is a higher PTP grandmaster on the system, it can act as a PTP follower and also act as a PTP leader to lower devices.

Two independent PTP ports
Two PTP engines are installed, each of which can be used as an independent grandmaster to build a PTP system. Two systems can be used in a follower configuration. The leader can be selected by the user or automatically. Additionally, can be configured with one follower and the other as leader.

10GbE Support
Compatible with 10GbE SFP+ modules (sold separately)

Local PTP
With the Genlock Function genlocked to an analog video sync signal or HDTV tri-level sync signal, time information can be acquired from an external time source

Supported Standards

Internet Protocol Version	IPv4
PTP Standard	IEEE 1588-2008
Supported Profiles	SMPTE ST 2059/AES67/General

Input-Output Terminal

SFP/SFP+ Pin	
Number of Terminals	2
Terminal Shape	SFP Gauge
Supported Standards	MSA Compliant
Supported modules and Type	
SFP Transceiver RJ-45	100Base-T
SFP + Transceiver optical	10GBase-SR and 10GBase-SW
	*SFP/SFP+ modules are sold serparately

Leader Functions

Number of controllable leaders	2
Communication mode	Multicast/Unicast/MIXED SMPTE/MIXED SMPTE without negotation
Domain Number	0-127 (SMPTE ST 2059) 0-255 (AES67/General)
Announcement Message Rate	0.125s 8Hz/0.25s 4Hz/0.5s 2Hz/1s 1Hz/2s 0.5Hz/4s 0.25Hz/8s 0.125Hz/16s 0.0625Hz
Sink Message Rate	0.0078s 128Hz/0.015s 64Hz/0.0312s 32Hz/0.0625s 16Hz/0.0125s 8Hz/0.025s 4Hz/0.5s 2Hz/1s 1Hz/2s 0.5Hz/4s 0.25Hz/8s 0.125Hz/16s 0.00625Hz
	*The message rate setting differs depending on the profile
Priority 1	0 - 255
Priority 2	0 - 255
Number of connectable	Follower 1000
	*Theoretical value when sync message is 8Hz

Follower Functions

Number of controllable followers	2
Communication mode	Multicast/Unicast/MIXED SMPTE/MIXED SMPTE without negotation
Domain Number	0-127 (SMPTE ST 2059) 0-255 (AES67/General)
Delay Message Rate	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.0125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.00625Hz
Announcement timeout count	2 - 10

LT4670-SER11 (POWER)

Redundant Power Supply

For added security of operation, the LT4670 supports dual power supplies by adding LT4670-SER11(POWER). In the event of a power unit failure, an alarm is displayed on the panel of the main unit, and an alarm can also be output via SNMP.

Details

Redundant Power Supply	Available
Replacement Method	Replacement possible without turning off the power of the main unit.
Alarm	Power failure is indicated by LED and LCD and notified by SNMP Trap.

LT4670-SER21 (4K 3G-Quad Link)

4K 3G-Quad Link Support

Two LT4670-SER02 (SDI) options are required to output 4K 3G-Quad Link when this option is enabled.

4K built-in pattern output

The following patterns can be output in addition to the built-in patterns of LT4670-SER02.

- UHD Color Bars ARIB STD-B66
- HLG CB ITU-R BT.2111 HLG narrow range
- S-LOG3 (Live HDR) Ver1.11 narrow range scale

User Pattern Output

In addition to built-in patterns such as color bars, 4K user patterns can be output.

ID Character Insertion

ID characters can be superimposed at any position on the screen. In addition, horizontal scrolling and blinking display can be used to confirm motion.

Logo Insertion

24-bit full color bitmap data with a size of 640 (dots) x 480 (lines) (VGA size) can be superimposed as a logo mark at an arbitrary location on the screen.

Safe Area Marker

Safe area markers are 90% and 80% can be superimposed on the screen as well as 4:3 aspect markers for 3G-SDI and HD-SDI.

Pattern Scroll

It has the ability to scroll the pattern in 8 directions. The speed of movement can also be varied.

Moving Box

Boxes that move on the screen can be superimposed on the screen. Brightness can be switched and blinked.

Time Code

Time code can be superimposed at any position on the screen. Font size and brightness can be changed.

Superimposed Embedded Audio

16 channels (4 channels x 4 groups) of embedded audio can be superimposed. Frequency, level, etc can be set for each channel.

Lip-sync Pattern

Outputs a lip-sync pattern with synchronized video and audio. By using a waveform monitor equipped with a lip-sync measurement function, such as our LV5600, it is possible to measure the discrepancy between video and audio on SDI signal transmission.

Supported Standards

SDI Embedded Audio	SMPTE ST 299
SDI Payload ID	SMPTE ST 352

SDI Formats and Standards

3G Quad Link video signal format and standard (4K 2-sample interlib only supported.

Division Transmission Method	Color System	Quantization Accuracy	Impression	Frame Frequency/Scanning	Supported Standards
2 sample interleave	YCbCr 4:2:2	10bit	3840 x 2160	60/59.94/50/P	SMPTE ST 425-5 SMPTE ST 2036-1
			4096 x 2160	60/59.94/50/48/47.95	SMPTE ST 425-5 SMPTE ST 2048-1
		12bit	3840 x 2160	30/29.97/25/24/23.98	SMPTE ST 425-5 SMPTE ST 2036-1
			4096 x 2160	30/29.97/25/24/23.98	SMPTE ST 425-5 SMPTE ST 2048-1
	RGB 4:4:4	10bit	3840 x 2160	30/29.97/25/24/23.98	SMPTE ST 425-5 SMPTE ST 2036-1
			4096 x 2160	30/29.97/25/24/23.98	SMPTE ST 425-5 SMPTE ST 2048-1
		12bit	3840 x 2160	30/29.97/25/24/23.98	SMPTE ST 425-5 SMPTE ST 2036-2
			4096 x 2160	30/29.97/25/24/23.98	SMPTE ST 425-5 SMPTE ST 2048-1

SDI Video Output

SDI Signal		
Bit rate	3G(QL)	2.970Gbps, 2.970/1.001Gbps
Timing Variable		
Variable Range	Full frame range	
Variable Unit	V	Line Unit
	H	Clock Unit (148.5MHz, 148.5/1.001MHz)
Test Pattern	100% Color Bar, 75% Color Bar Multi-format color bar (ARIB STD-B28, Pattern 2 part selectable from 100% white/75% white/+I) Check field, Flat field 100% white, 50% white, 0% black, 100% red, 100% green, 100% blue.	
4K Additional Test Pattern	UHDColorBar	ARIB STD-B66 UHDTV MULTIFORMAT COLOR BAR
	HLGColorBar	ARIB STD-B72 Color Bar Test Pattern for HLG HDR-TV System Recommendation ITU-R BT.2111 HLG
	S-log3_LiveHDR_narrow_V11	S-log3(Live HDR) Ver.1.11 narrow range scale
User Pattern Display	4K(2SI) Select one from INT 1-4	
File Format	24-bit full color bitmap format (.bmp) 24/48-bit TIFF format (.tif)	
	*Data is transferred from the storage memory after the power is turned on. Data transfer takes approximately 2 minutes per 4K user pattern.	
Automatic Switching Function	Automatic switching of selectable color bar patterns	
Switching Time	1-255 sec	
Pattern Scroll Direction	8 directions (up/down, left/right and combinations thereof)	
	Progressive	V	-256 -256 lines, 2 line steps
		H	-256 -256 dots, 4 dot steps
	*Not valid when check field pattern is selected		
Safety Area Marker	Action safety area (90%) Title safety area (80%) 4:3 aspect (Can be turned on/off individually)	
	* Not valid when check field pattern is selected	
ID Character		
Characters	Maximum 20 characters	
Size (dot)	32x32 / 64x64 / 128x128 / 256x256	
Brightness	100% / 75% (black background only)	
Display position	Any position on the screen	
Display position variable unit	V	0-100% (1% step)
	H	0-100% (1% step)
Flashing Display	ON Time	1-9 sec, in 1 sec increments
	OFF Time	1-9 sec, in 1 sec increments
Scroll Function		
Function	Scroll including background of ID character	
Direction	2 directions (left/right)	
	Progressive	Frame-by-Frame -256 -256 dots, 4 dot increments
	*Not valid when check field pattern is selected 1 Flashing and scrolling function can be set at the same time	
Logo Mark Data	24-bit full color data	
Maximum Size	640(dot) x 480(line) (VGA Size)	
Number of logos that can be stored in the main unit	Up to 4 types	
Display Position	Any position on the screen	
Display Position Variable Unit	V	0-100% (1% step)
	H	0-100% (1% step)
File Format	24-bit full color bitmap format	
Logo data transfer	Transfer data from USB memory device to the main unit	
	*not valid when check field pattern is selected	

Component on/off (Y/G, Cb/B, Cr/R)	
Function	On/off for Y/G, Cb/B, and Cr/R components independently for each component
	*Not valid when check field pattern is selected
Moving Box	
Box Color	Select from white, yellow, cyan, green, blue, magenta, black
Speed setting V/H	LOW/MIDDLE/HIGH
Size setting V/H	SIZE1-5
	*not valid when check field pattern is selected
Circle	
Flashing Display	On/Off
	ON time	1 - 9 sec, in 1sec increments
	OFF time	1 - 9 sec, in 1sec increments
	*not valid when check field pattern is selected
Time Code	
Display Position	Any position on the screen
Size (dot)	32x32 / 64x64 / 128x128 / 256x256
Brightness	100% / 75% (black background only)
Display position variable unit	V	0-100% (1% step)
	H	0-100% (1% step)
	*not valid when check field pattern is selected
Superimposed Images	
Display Priority	Test patter < Circle < Moving Box < Safety area marker < Logo mark < ID Character < Time Code (The order of display cannot be changed)
Simultaneous Display	ID character, logo mark, safety area marker, moving box, circle, time code and test pattern can be displayed simultaneously
Embedded Audio	
Superimposed channel	On/Off by group 16 ch (4ch x 4 groups)
Sampling Frequency	48 kHz samples (synchronized with video signal)
Resolution	20 bits / 24 bits
Preemphasis	OFF/ 50/15 / CCITT (Only CS bit is switched)
Frequency	SILENCE / 400Hz / 800Hz / 1kHz
Level	-60 - 0dbFS (1dBFS step)
Audio Click	OFF / 1 / 2 / 4sec
	*When a check field pattern is selected, audio (including packets) cannot be superimposed *Frequency, level and audio click can be set for each channel *Audio clocks are asynchronous to digital audio *Not valid when lip-sync is on

Lip-Sync Pattern

Setting	On/Off
	*Synchronizes with AES/EBU *Not valid when check field pattern is selected *Safety area markers, ID characters, logos, moving Boxes, circles and time codes cannot be superimposed *Audio clicks for embedded audio are disabled, audio is output in sync with the lip-sync patttern.

User Payload ID

Setting	On/Off
	*The contents of the user payload ID can be edited with only a web browser.

LT4670-SER04 (25G IP 12G TSG)

25G IP Signal Generation
Test pattern signal generation function for IP, supporting SMPTE ST 2110-21/30/31/40 for IP transmission standards, and capable of generating 2K and 4K (3840 x 2160) test patterns for video signals.

12G-SDI (4K) Support
Supports 12G-SDI, 3G-SDI (Level A, Level B), HD-SDI and SD-SDI. 4 independent SDI signal output terminals are provided, each with its own pattern and phase settings.

User Pattern Output
In addition to built-in patterns such as color bars, arbitrary patterns can be output.

Supported Standards - 25G IP TSG

IP Output terminal	SFP+ / SFP28
Supported	SFP SFP+ / SFP28
Number of Terminals	2 (*1)
Supported Standards	10GBASE-SR / 10GBASE-LR / 25GBASE-SR / 25GBASE-LR
Fiber Type	Multimode / Singlemode
	*1 - The two input/output terminals must match the standard
IP Formats Supported	SMPTE ST 2022-6, SMPTE ST 2110-20/30/31/40
Synchronization Method	PTP (SMPTE ST 2059)
Supported Protocols	IPv4 (Internet Protocol version 4) IGMPv2/v3 (Internet Group Management Protocol) NMOS (IS-04/05)

Supported Standards - 12G TSG

12G TSG - Supported Standards			
SDI Embedded Audio	12G, 3G, HD	SMPTE ST 299
	SD	SMPTE ST 272
	SDI Payload ID	SMPTE ST 352
SDI Output Terminal		
Connector	HD-BNC connector 4 terminals	
12G, 3G, HD, SD	4 systems	
Output impedence	75Ω	
SDI Signal		
Bit rate	12G	11.880Gbps, 11.880/1.001Gbps
	3G	2.970Gbps, 2.970 / 1.001Gbps
	HD	1.485Gbps, 1.485 / 1,001Gbps
	SD	270Mbps
		*HD-BNC is a trademark of Amphenol Corporation

Optional Items

LT 4448 Changeover

The LT 4448 is a changeover unit that automatically switches the signal from the primary signal to the backup signal when problems are detected in the primary signal. Two systems of input signals (primary and backup) are connected to the LT 4448, and the LT 4448 detects errors in the amplitude of the primary input signal.

A single LT 4448 provides 11 pairs of BNC and LTC channels. These channels can receive SDI, NTSC/PAL black burst, HD tri-level sync, AES/EBU digital audio, word-clock, and LTC signals.

SFP Transceiver RJ-45 [LC2141]
Function: 1000BASE-T
Compatible Model: LT4670-SER03

10GE SFP Transceiver Optical (MMF) [LC2148]
For short distance max: 300m
Function: 850nm, 10BASE-SR/SW
Supported model: LT4670-SER03, SER04

10GE SFP Transceiver Optical (SMF) [LC2149]
For long distance up to: 10,000m
Function: 1310nm, 10BASE-LR/LW
Supported model: LT4670-SER03, SER04

25GE SFP28 Transceiver Optical (MMF) [LC2151]
For long distance up to 70m (OM3) up to 100m (OM4)
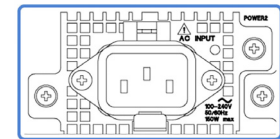Function: 850nm, 25BASE-SR
Compatible model: LT4670-SER04

25GE SFP28 Transceiver Optical (SMF) [LC2152]
For long distance up to 10,000m
Function: 1310nm, 25BASE-LR
Compatible model: LT4670-SER04

POWER [LT4670-SER11]
Power supply unit for redundant applications
Compatible model: LT4670

L-SYNC Cable [LC2186]
Time synchronization of two LT4670 units (when using two units with genlock)

LTC Cable [LC2185]
Conversion cable (1.5m) between 25-pin D-sub LTC connector on LT4448, two 26-pin D-sub LTC connectors for LT4670 PRIMARY and BACKUP, and three XLR connectors for LTC output
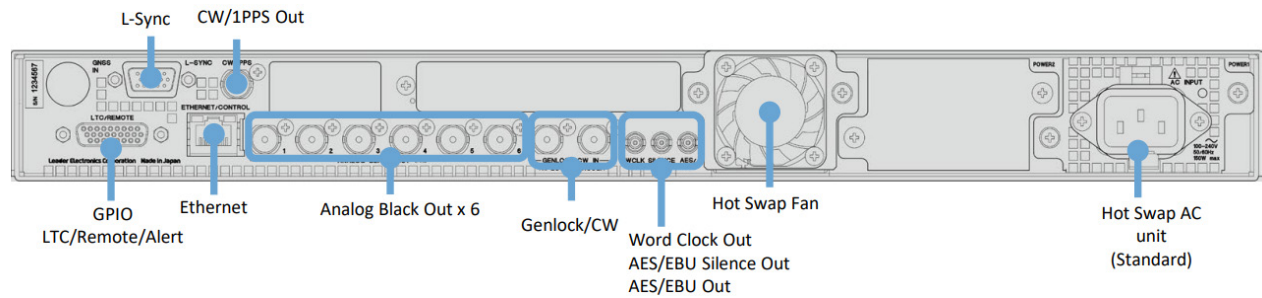Compatible models: LT4670, LT4448

Maintenance Parts - Fan Unit [LP2184]
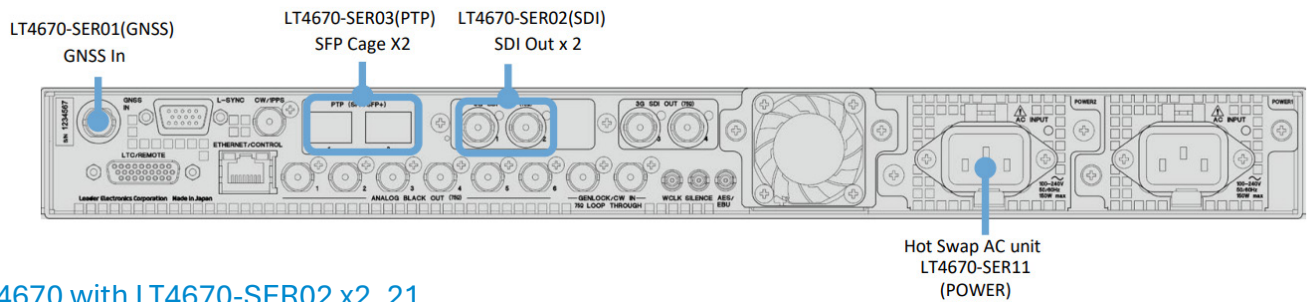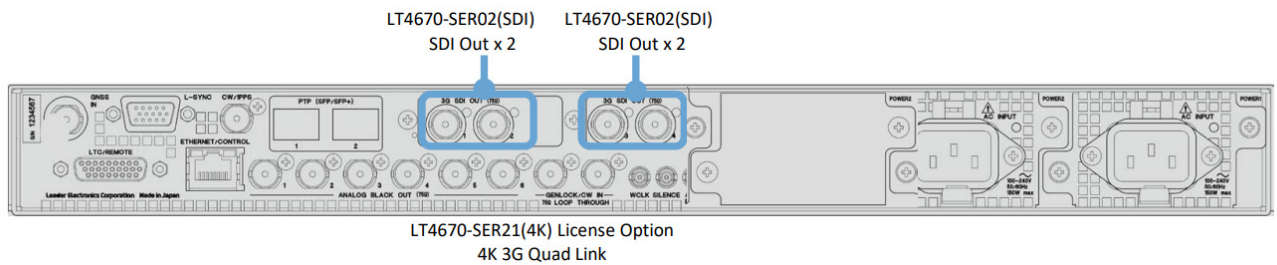Front and rear FAN set for repair.
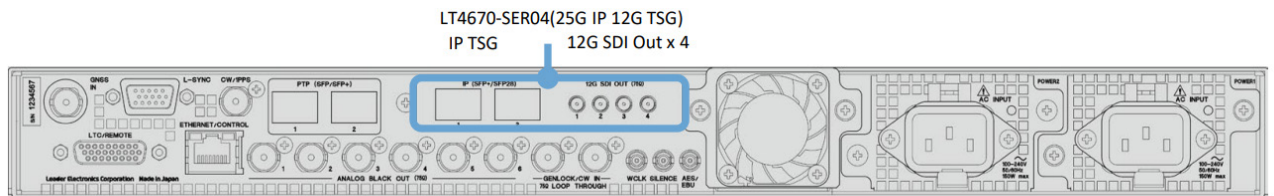
LT4670 Rear Panel

LT4670 Standard

L-Sync
CW/1PPS Out
GPIO LTC/Remote/Alert
Ethernet
Analog Black Out x 6
Genlock/CW
Word Clock Out
AES/EBU Silence Out
AES/EBU Out
Hot Swap Fan
Hot Swap AC unit (Standard)

LT4670 with LT4670-SER01/02/03/11

LT4670-SER01(GNSS) GNSS In
LT4670-SER03(PTP) SFP Cage X2
LT4670-SER02(SDI) SDI Out x 2
Hot Swap AC unit LT4670-SER11 (POWER)

LT4670 with LT4670-SER02 x 2, 21

LT4670-SER02(SDI) SDI Out x 2
LT4670-SER02(SDI) SDI Out x 2
LT4670-SER21(4K) License Option 4K 3G Quad Link

LT4670 with LT4670-SER04

LT4670-SER04(25G IP 12G TSG) IP TSG
12G SDI Out x 4

For more information, please visit

www.leaderphabrix.com

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