Leader

LT 4610 / LT 4611 SYNC GENERATOR

LT 4610SER01	GPS/TC
LT 4610SER02	12G-SDI
LT 4610SER03	PTP
LT 4610SER24	8K
LT 4611SER21	SYNC 3 OUT ADD
LT 4611SER22	SDI OUTPUT
LT 4611SER23	AUDIO OUTPUT
LT 4611SER24	8K

Instruction Manual

Thank you for purchasing.

Please carefully read this instruction manual and the included "GENERAL SAFETY SUMMARY." Please use the product safely.

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■ Read This before Using the Instrument

This instrument should only be used by persons with sufficient knowledge of electronics who thoroughly understand the contents of this manual.

This instrument is not designed or manufactured for households or ordinary consumers. If unqualified personnel are to use the instrument, be sure the instrument is handled under the supervision of qualified personnel (those who have electrical knowledge). This is to prevent the possibility of personal injury or damage to the instrument.

■ Note about Reading This Manual

The contents of this manual contain specialized terminology and may be difficult to understand. If you have any questions about the contents of this manual, please contact your local LEADER agent.

Symbols and Terms

The following symbols and terms are used in this instruction manual and on the instrument to indicate important warnings and notes.

<symbol></symbol>	This symbol appears in this instruction manual and on the instrument to indicate an area where improper handling could result in personal injury, damage to the instrument, or malfunction of the instrument or devices connected to it. When you encounter this symbol on the instrument, be sure to refer to the information in this instruction manual that corresponds to the area that the symbol marks.
<term></term>	Ignoring the precautions that this term indicates could lead to death or serious injury.
<term></term>	Ignoring the precautions that this term indicates could lead to personal injury or damage to the instrument.

Read the warnings and information below thoroughly to avoid death, personal injury, and damage and deterioration of the instrument.



Warnings Concerning the Case and Panels

Do not remove the instrument's case or panels for any reason. Touching the internal components of the instrument could lead to fire or electric shock.

Also, do not allow foreign materials, such as liquids, combustible matter, and metal, to enter the instrument. Turning the instrument on when such materials are inside it could lead to fire, electric shock, damage to the instrument, or some other accident.

Installation Environment

• Operating Temperature Range

Use this instrument in a 0 to 40 °C environment. Using the instrument with its vents blocked or in a high temperature environment could lead to fire.

Drastic changes in temperature, such as might be caused by moving the instrument between two rooms with different temperatures, can damage the instrument by causing condensation to form within it. If there is a possibility that the instrument has condensation within it, wait for approximately 30 minutes before turning on the power.

• Operating Humidity Range

Use this instrument in an environment whose relative humidity is 85 % or less where there is no threat of condensation forming.

Also, do not operate this instrument with wet hands. Doing so could lead to electric shock or fire.

• Do Not Operate in an Explosive Atmosphere

Using this instrument in an environment where flammable gases, explosive gazes, or steam is emitted or stored could lead to an explosion or fire. Do not use the instrument in such an environment.

- Do Not Insert Foreign Materials Do not insert foreign materials, such as metal and flammable objects, through the vents or allow liquid to enter the instrument. Such acts can lead to fire, electric shock, damage to the instrument, or some other accident.
- If You Notice Something Wrong during Operation

If you notice smoke, fire, a strange smell, or something else that is wrong with the instrument while you are operating it, stop operation immediately. Failing to do so could lead to fire. Turn OFF the power switch, and remove the power cord from the outlet. After making sure that fire has not spread anywhere, contact your local LEADER agent.



■ Warnings Concerning the Power Source

Do not use a power source with a voltage other than the rated power source voltage for the instrument. Doing so could lead to fire.

Confirm the voltage of the power source before you connect the power cord to it. Only use a power source whose frequency is 50/60 Hz.

Use a power cord that is appropriate for the voltage of the power source. Also, use a power cord that meets the safety standards of the country that you are using it in.

Using a power cord that does not meet the standards could lead to fire. If the power cord is damaged, stop using it, and contact your local LEADER agent. Using a damaged power cord could lead to electrical shock or fire.

When removing the power cord from the power outlet, do not pull on the cord. Pull from the plug.

■ Warnings Concerning Grounding

The instrument has a ground terminal to protect the user and the instrument from electric shock. Ensure that the product is properly grounded for safe operation.

■ Warnings Concerning the Panel

Sections of the panel are made out of glass. If the glass breaks, the broken glass may lead to injury. Do not apply a strong shock to the panel, cut it with sharp metal, or damage it in any similar manner.



■ Cautions Concerning the Input and Output Connectors

To avoid damaging the instrument, only apply signals to the input connectors that conform to the specifications in this instruction manual. Do not short or apply external voltage to the output connectors.

Doing so could damage the instrument.

■ If You Will Not Use the Instrument for an Extended Period of Time

If you will not use the instrument for an extended period of time, remove the power plug from the outlet.

■ Cautions Concerning the Ethernet Port

When you are connecting the instrument to the communication provider's equipment, connect to the Ethernet port through a hub that is authorized for use in the country that you are using the instrument in.

Calibration and Repairs

This instrument has been carefully examined at the factory to ensure that its performance is in accordance with the standards. However, because of factors such as parts wearing out over time, the performance of the instrument may degrade. To ensure stable performance, we recommend that you have the instrument calibrated regularly. Also, if the instrument malfunctions, repairs are necessary. For repairs and calibration, contact your local LEADER agent.

Routine Maintenance

When you clean the instrument, remove the power plug from the outlet.

Do not use thinner or benzene when you clean the instrument's case, panels, or knobs. Doing so could lead to paint chipping and the corrosion of plastic components. To clean the case, panels, and knobs, use a soft cloth with mild detergent, and wipe gently. While cleaning, make sure that foreign materials, such as water and detergent, do not enter the product. If liquid or a metal object enters into the instrument, fire or electric shock may result.

About the European WEEE Directive



This instrument and its accessories are subject to the European WEEE Directive. Follow the applicable regulations of your country or region when discarding this instrument or its accessories. Follow the EU Battery Directive when discarding the batteries that you removed from this instrument.

(WEEE stands for Waste Electrical and Electronic Equipment.)

Follow the warnings and precautions that have been listed in this section to use the instrument correctly and safely. Precautions are also contained in various other sections of this instruction manual. To use the instrument correctly, be sure to follow those precautions as well.

If you have any questions or comments about this instruction manual, please contact your local LEADER agent.

1. INTRODUCTION

Thank you for purchasing this LEADER instrument. To use this instrument safely, read this instruction manual thoroughly, and make sure that you know how to use the instrument properly.

If some point about the operation of this instrument is still unclear after you have read this instruction manual, refer to the contact information on the back cover of the manual to contact LEADER, or contact your local LEADER agent.

After you have finished reading this manual, keep it in a convenient place so that you can refer to it when necessary.

1.1 Scope of Warranty

This LEADER instrument has been manufactured under the strictest quality control guidelines.

LEADER shall not be obligated to furnish the following free services during the warranty period.

- 1. Repair of malfunction or damages resulting from fire, natural calamity, or improper voltage applied by the user.
- 2. Repair of a product that has been improperly repaired, adjusted, or modified by personnel other than a factory-trained LEADER representative.
- 3. Repair of malfunctions or damages resulting from improper use.
- 4. Repair of malfunctions caused by devices other than this instrument.
- 5. Repair of malfunctions or damages without the presentation of a proof of purchase or receipt bill for the instrument.

1.2 Trademarks

The company and product names in this document are trademarks or registered trademarks of their respective holders.

1.3 Operating Precautions

1.3.1 Power Supply Voltage



Confirm the voltage of the power source before you connect the power cord to it. The power requirements and fuse rating of this product are indicated on the rear panel. Only use a power source that supplies a voltage within the operating voltage range and has a frequency of 50/60 Hz.

1.3.2 Maximum Allowable Input Voltage

The maximum signal voltage that can be applied to the input connectors is indicated below. Do not apply excessive voltage to the connectors. Doing so may damage the device or lead to injury.

Input Connector	Maximum Allowable Voltage
GENLOCK IN	±5 V (DC + peak AC)
GPS IN (SER01)	3.3 Vp-p
CW IN/OUT (SER01)	2 Vp-p
LTC IN/OUT (SER01)	4 Vp-p

1.3.3 Mechanical Shock

This instrument contains sensitive components, so it may be damaged if it is dropped or otherwise exposed to a strong shock.

1.3.4 Electrostatic Damage

Electronic components can be damaged by static discharge. Static electricity can build up in the core wire of a coaxial cable. Before connecting a coaxial cable to an I/O connector of the instrument, short the core wire of the cable with the external conductor.

1.3.5 Warming Up

To ensure more accurate measurements, turn ON the instrument approximately 30 minutes before you intend to use it to allow its internal temperature to stabilize.

1.4 Terminology Used in This Manual

• When using the LT 4611

If you are using the LT 4611, replace the LT 4610 with the LT 4611 and read unless otherwise stated.

• SER**

LT 4610SER** and LT 4611SER** are referred to as SER**.

• Underlining (_)

Underlined options indicate the default values.

• Logo App

Logo App refers to a software application for converting bitmap data (*.bmp) into 4-level monochrome data (*.lg) that can be used on the LT 4610 and LT 4611. It is included in the CD-ROM.

• Input Format

The following names are used for the SDI signal input formats.

Name	Description		
SD	SD-SDI		
HD	HD-SDI		
HD(DL)	HD-SDI dual link		
3G-A	3G-SDI level A		
3G-B	3G-SDI level B		
3G	Collective name for 3G-A and 3G-B		
12G	12G-SDI		
4K(SQD)	4K square division		
4K(2SI)	4K 2-sample interleave		

2. PRODUCT CONFIGURATION

2.1 Main Unit

LT 4610 SYNC GENERATOR	GENLOCK function, 6 analog sync signal outputs, WCLK
	output, 2 SDI signal outputs, and AES/EBU audio outputs
	are standard features.
LT4611 SYNC GENERATOR	GENLOCK function, 3 analog sync signal outputs, WCLK
	output are standard features.
	3 additional analog sync signal outputs, 2 SDI signal
	outputs, and AES/EBU audio outputs are software options.

2.2 Hardware Options

The following hardware options are common to the LT 4610 and LT 4611. To replace or add hardware options, contact your local LEADER agent. You cannot install or uninstall units.

Model name	Model number		Main functions
	LT 4610	LT 4611	
GPS/TC	LT 4610SER01		GPS synchronization, 10 MHz CW I/O, LTC I/O
12G-SDI	LT 4610SER02		12G-SDI (4K) pattern output
			Natural picture support with 3G-SDI quad link
РТР	LT 4610SER03		PTP grand master, slave function

Table 2-1 Hardware options

2.3 Software Options

The following software options (sold separately) can be installed in the LT 4610. If you want to obtain a software option, provide your local LEADER agent with the LT 4611's MAC address (see the LICENSE tab) and serial number (see the rear panel). We will issue a license key.

When you receive the license key, install the option by referring to 20.13.2, "Installing Software Options." Each LT 4610 requires a unique license key. You cannot use the same key for multiple instruments.

Model name	Model number		Main functions	
	LT 4610 LT 4611			
SYNC 3 OUT ADD	Standard feature LT 4611SER21		3 additional analog sync signal output connectors	
			with independent phase adjustment function	
SDI OUTPUT	Standard feature	LT 4611SER22	2 SD-SDI, HD-SDI, 3G-SDI output connectors	
AUDIO OUTPUT	Standard feature LT 4611SER23		2 AES/EBU output connectors	
8K	LT 4610SER24 LT 4611SER24		8K SDI pattern output (*1)	

Table 2-2 Software options

*1 You need the LT 4610SER02 to install the LT 4610SER24 in the LT 4610. You need the LT 4610SER02 to install the LT 4611SER24 in the LT 4611. The 8K patterns are output from the 12G-SDI output connectors.

3. GENERAL

This product is a 1U full-rack size sync signal generator that outputs analog video sync signals and audio word-clock signals from broadcast stations. The external sync signal genlock function allows synchronized operation with input signals.

The genlock function has a stay-in-sync function that maintains the phase when an error occurs in the input analog video sync signal. The dual power supply unit provides redundant operation. These features make it possible to configure a highly reliable system.

Further, numerous options are available to allow GPS synchronization and PTP synchronization as well as arbitrary pattern output and digital audio output using 12G-SDI, 3G-SDI, HD-SDI, and SD-SDI. These options are designed to enable the management of the optimal synchronization system for your application.

4. FEATURES

4.1 LT 4610 Main Unit

Genlock Function

Various output signals can be synchronized by applying NTSC/PAL black burst signals, which are analog video sync signals, and HDTV tri-level sync signals. NTSC/PAL black burst signal with field reference pulse and NTSC black burst signal with 10 field IDs are also supported.

• Stay-in-Sync and Slow Lock Functions

A Stay-in-Sync function is available in case errors occur at the genlock input. In addition, a slow lock function is available to reduce the shock that occurs when genlock is performed again based on stay-in-sync. This makes it possible to construct an extremely reliable synchronization system.

• Analog Video Sync Signal Output

Six analog video sync signals can be output. The phase of each output can be adjusted independently.

NTSC/PAL black burst signal with field reference pulse and NTSC black burst signal with 10 field IDs are also supported.

• Word-Clock Signal Output

The LT 4610 can output a 48 kHz word-clock signal synchronized with video signals.

Real Time Clock

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

• Ethernet

SNMP is supported. When an error is detected, a TRAP is issued. Further, the LT 4610 can be controlled through HTTP.

• Preset Memory Function

Up to 10 presets can be saved. Convenient registered presets can be recalled during operation. The LT 4610 can be started with the same settings every time.

• External Memory Support

Logo data and preset data can be written and saved from the front panel using USB memory devices.

• Redundant Power Supply

Two power supplies are built in to provide redundancy. When errors occur in power supply units, alarms are indicated on the LT 4610 panel. Errors can also be output as alarms using SNMP.

• Triple-rate SDI Ready

SDI signal output supports 3G-SDI (level A and level B), HD-SDI (including dual link), and SD-SDI. There are two independent outputs of SDI signal output terminals. The pattern and phase can be set separately for each. (However, only a single output is available for 3G-SDI level B and HD dual link.)

• ID Character Overlay

ID characters can be overlaid at any position on the display. In addition, ID characters can be scrolled horizontally and displayed in a blinking state for checking whether the display has frozen.

• Logo Mark Overlay

A logo mark that is 320 (dot) \times 240 (line) in size (QVGA size) can be overlaid at any position on the display. Logo marks are 4-level monochrome data converted from bitmap data.

• Safety Area Markers

90% and 80% safety area markers can be overlaid on the display. For 3G-SDI and HD-SDI, a 4:3 aspect marker can be overlaid.

• Pattern Scrolling

Equipped with a function for scrolling patterns in eight directions. The speed can also be adjusted.

Audio Embedding

The LT 4610 can embed 32 channels (stream 1 (*1), stream 2 (*1), 4 channels each \times 4 groups) of audio signals for 3G-SDI level B and 16 channels (4 channels \times 4 groups) of audio signals for 3G-SDI level A, HD-SDI, and SD-HDI. The frequency, level, and the like can be set for each channel.

• Lip Sync Patterns

The LT 4610 can output lip sync patterns in which the video and audio are synchronized. In combination with a waveform monitor that features a lip sync function, such as the Leader's LV 5770A, it possible to accurately measure the offset between the video and audio in SDI signal transmissions.

• AES/EBU Signal Output

The LT 4610 can output a 48 kHz AES/EBU signal synchronized with video signals. It is also equipped with a muted AES/EBU signal output.

*1 On the menu, stream 1 and stream 2 are displayed as LINK-A and LINK-B, respectively.

4.2 LT 4611 Main Unit

Genlock Function

Various output signals can be synchronized by applying NTSC/PAL black burst signals, which are analog video sync signals, and HDTV tri-level sync signals.

NTSC/PAL black burst signal with field reference pulse and NTSC black burst signal with 10 field IDs are also supported.

• Stay-in-Sync and Slow Lock Functions

A Stay-in-Sync function is available in case errors occur at the genlock input. In addition, a slow lock function is available to reduce the shock that occurs when genlock is performed again based on stay-in-sync. This makes it possible to construct an extremely reliable synchronization system.

Analog Video Sync Signal Output

Three analog video sync signals can be output (up to six using an option). The phase of each output can be adjusted independently.

NTSC/PAL black burst signal with field reference pulse and NTSC black burst signal with 10 field IDs are also supported.

• Word-Clock Signal Output

The LT 4611 can output a 48 kHz word-clock signal synchronized with video signals.

• Real Time Clock

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

• Ethernet

SNMP is supported. When an error is detected, a TRAP is issued. Further, the LT 4611 can be controlled through HTTP.

• Preset Memory Function

Up to 10 presets can be saved. Convenient registered presets can be recalled during operation. The LT 4611 can be started with the same settings every time.

• External Memory Support

Logo data and preset data can be written and saved from the front panel using USB memory devices.

• Redundant Power Supply

Two power supplies are built in to provide redundancy. When errors occur in power supply units, alarms are indicated on the LT 4611 panel. Errors can also be output as alarms using SNMP.

4.3 LT 4610SER01 (GPS/TC)

• GPS Synchronization

A GPS antenna can be connected to generate and output signals by locking to the frequency and clock obtained from the GPS.

• Time Code I/O

The time code generator can run in free run mode based on internal time information. It can also embed ATC (LTC) in SDI signal output or VITC in analog video sync signal output based on a GPS, LTC, or VITC time information.

It also features a holdover function, which retains the phase and frequency of the output signal when GPS signals or CW signals are lost. Further, when GPS lock is in effect, the LT 4610 can also be used as an NTP server.

• CW I/O

The CW I/O connector not only receives 10 MHz CW but also outputs 10 MHz CW or 1PPS, whichever is selected.

• LTC I/O

The LTC I/O connector receives LTC1, outputs LTC 3, and outputs two separate alarms.

4.4 LT 4610SER02 (12G-SDI)

• 12G-SDI (4K) Support

Four output connectors supporting 12G-SDI, 3G-SDI (level A, level B), HD-SDI (including dual link), and SD-SDI are available to accommodate the 4K video format. The format is the same for all four outputs, but you can set different patterns and phases for each. Only two outputs are available for 3G-SDI level B and HD dual link.

• User Pattern Generation

In addition to internal patterns such as the color bar, SD, HD (2K), and 4K user patterns can be output.

• ID Character Overlay

ID characters can be overlaid at any position on the display. In addition, ID characters can be scrolled horizontally or displayed in a blinking state for checking whether the display has frozen.

• Safety Area Markers

90% and 80% safety area markers can be overlaid on the display. For 12G-SDI, 3G-SDI and HD-SDI, a 4:3 aspect marker can be overlaid.

• Pattern Scrolling

This option is equipped with a function for scrolling patterns in eight directions. The moving speed can be varied.

• Moving Box

A moving box can be overlaid on the display. Its color, size, and moving speed can be varied.

• Audio Embedding

This option can embed 32 channels (stream 1 (*1), stream 2 (*1), 4 channels each \times 4 groups) of audio signals for 3G-SDI level B and 16 channels (4 channels \times 4 groups) of audio signals for 3G-SDI level A, HD-SDI, and SD-HDI. The frequency, level, and the like can be set for each channel.

• Lip Sync Patterns

This option can output lip sync patterns in which the video and audio are synchronized. In combination with a waveform monitor that features a lip sync function, such as the Leader's LV 5770A, it possible to measure the offset between the video and audio in SDI signal transmissions.

*1 On the menu, stream 1 and stream 2 are displayed as LINK-A and LINK-B, respectively.

4.5 LT 4610SER03 (PTP)

• PTP Grand Master Function

This option supports the Precision Time Protocol defined in IEEE1588-2008 and operates as a PTP grand master. SMPTE ST 2059, AES67, and General profiles are supported. The PTP time source is obtained from the internal clock or GPS.

• PTP Slave Function

When a host PTP grand master is present in the system, this option operates as a PTP slave and can operate as a master to even lower devices.

• 10GbE Ready

In addition to the RJ-45 port, a 10GbE SFP+ module, sold separately, can be used.

4.6 LT 4610SER24 (8K)

The LT 4610SER24 is a software option for the LT 4610 that adds the ability to output the 8K patterns from the 12G-SDI connectors, when the LT 4610 is equipped with the hardware option LT 4610SER02.

• 12G-SDI 8K

QUAD LINK 12G-SDI 8K (7680 x 4320) can be output.

•User Pattern Output

User pattern can be output in addition to built-in patterns such as color bars.

• Safety Area Markers

90% and 80% safety area markers can be overlaid on the display. For 12G-SDI, a 4:3 aspect marker can be overlaid.

• Pattern Scrolling

Equipped with a function for scrolling patterns in eight directions. The moving speed can be varied.

• Moving Box

A moving box can be overlaid on the display. Its color, size, and moving speed can be varied.

Audio Embedding

The LT 4610SER24 can embed 16 channels (4 channels \times 4 groups) of audio signals for 12G-SDI. The frequency, level, and the like can be set for each channel.

• Lip Sync Patterns

The LT 4610SER24 can output lip sync patterns in which the video and audio are synchronized.

4.7 LT 4611SER21 (SYNC 3 OUT ADD)

Software option for the LT 4611 only. It is a standard feature on the LT 4610.

• Three Additional Analog Sync Signal Outputs

In addition to the three outputs on the standard LT 4611, three analog video sync signal outputs can be added. NTSC/PAL black burst signal with field reference pulse and NTSC black burst signal with 10 field IDs are also supported.

• Independent Phase Adjustment

The phases of all analog video sync signal outputs can be adjusted.

4.8 LT 4611SER22 (SDI OUTPUT)

Software option for the LT 4611 only. It is a standard feature on the LT 4610.

• Triple-rate SDI Ready

SDI signal output supports 3G-SDI (level A and level B), HD-SDI (including dual link), and SD-SDI. There are two independent outputs of SDI signal output terminals. The pattern and phase can be set separately for each. (However, only a single output is available for 3G-SDI level B and HD dual link.)

• ID Character Overlay

ID characters can be overlaid at any position on the display. In addition, ID characters can be scrolled horizontally and displayed in a blinking state for checking whether the display has frozen.

• Logo Mark Overlay

A logo mark that is 320 (dot) \times 240 (line) in size (QVGA size) can be overlaid at any position on the display. Logo marks are 4-level monochrome data converted from bitmap data.

• Safety Area Markers

90% and 80% safety area markers can be overlaid on the display. For 3G-SDI and HD-SDI, a 4:3 aspect marker can be overlaid.

• Pattern Scrolling

This option is equipped with a function for scrolling patterns in eight directions. The moving speed can be varied.

Audio Embedding

This option can embed 32 channels (stream 1 (*1), stream 2 (*1), 4 channels each \times 4 groups) of audio signals for 3G-SDI level B and 16 channels (4 channels \times 4 groups) of audio signals for 3G-SDI level A, HD-SDI, and SD-HDI. The frequency, level, and the like can be set for each channel.

• Lip Sync Patterns

This option can output lip sync patterns in which the video and audio are synchronized. In combination with a waveform monitor that features a lip sync function, such as the Leader's LV 5770A, it possible to measure the offset between the video and audio in SDI signal transmissions.

*1 On the menu, stream 1 and stream 2 are displayed as LINK-A and LINK-B, respectively.

4.9 LT 4611SER23 (AUDIO OUTPUT)

Software option for the LT 4611 only. It is a standard feature on the LT 4610.

• AES/EBU Signal Output

This option can output a 48 kHz AES/EBU signal synchronized with video signals. It is also equipped with a muted AES/EBU signal output.

4.10 LT 4611SER24 (8K)

The LT 4611SER24 is a software option for the LT 4611 that adds the ability to output the 8K patterns from the 12G-SDI connectors, when the LT 4611 is equipped with the hardware option LT 4610SER02.

• 12G-SDI 8K

QUAD LINK 12G-SDI 8K (7680 x 4320) can be output.

•User Pattern Output

User pattern can be output in addition to built-in patterns such as color bars.

• Safety Area Markers

90% and 80% safety area markers can be overlaid on the display. For 12G-SDI, a 4:3 aspect marker can be overlaid.

• Pattern Scrolling

Equipped with a function for scrolling patterns in eight directions. The moving speed can be varied.

• Moving Box

A moving box can be overlaid on the display. Its color, size, and moving speed can be varied.

Audio Embedding

The LT 4611SER24 can embed 16 channels (4 channels \times 4 groups) of audio signals for 12G-SDI. The frequency, level, and the like can be set for each channel.

• Lip Sync Patterns

The LT 4611SER24 can output lip sync patterns in which the video and audio are synchronized.

5. SPECIFICATIONS

- 5.1 LT 4610 Main Unit
- 5.1.1 Compliant Standards

SDI Embedded Audio	
3G, HD, HD(DL)	SMPTE ST 299
SD	SMPTE ST 272
SDI Payload ID	SMPTE ST 352
Analog Video Sync 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 Signal	SMPTE ST 240, SMPTE ST 274, SMPTE ST 296
AES/EBU	ANSI S4.40, AES3-2009, AES11-2009,
	SMPTE ST 276

5.1.2 SDI Formats and Standards

Color System	Quantizati	Image	Frame (Field) Frequency/Scanning	Compliant
	on			Standards
YC _B C _R 4:2:2	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 292
				SMPTE ST 296
		1920×1080	60/59.94/50/I	SMPTE ST 292
			30/29.97/25/24/23.98/P	SMPTE ST 274
			24/23.98/PsF	SMPTE ST 292
				SMPTE RP 211
		720×487	59.94/I	SMPTE ST 259
		720×576	50/I	SMPTE ST 125

HD(DL) Video Signal Formats and Standards

Color System	Quantizati	Image	Frame (Field) Frequency/Scanning	Compliant
	on			Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 372
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
YC _B C _R 4:4:4	10 bit	1920×1080	60/59.94/50/I	
	12 bit		30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
RGB 4:4:4	10 bit	1920×1080	60/59.94/50/I	
	12 bit		30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	1

5. SPECIFICATIONS

3G-A Video Signal Formats and Standards

Color System	Quantizati	Image	Frame (Field) Frequency/Scanning	Compliant
YC C 4:2:2		1020-1020		
YC_BC_R 4:2:2	TO DIC	1920×1080	60/59.94/50/P	SMPTE ST 274
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 425
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
YC _B C _R 4:4:4	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 296
				SMPTE ST 425
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
RGB 4:4:4	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 296
				SMPTE ST 425
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	

3G-B Video Signal Formats and Standards

Color System	Quantizati	Image	Frame (Field) Frequency/Scanning	Compliant
	on			Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 372
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
YC _B C _R 4:4:4	10 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
RGB 4:4:4	10 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	

5.1.3	I/O Connectors
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SDI Output Connector 2 BNC connectors Connector 3G-A, HD, SD 2 3G-B, HD(DL) 1 75 Ω Output Impedance Output Amplitude 800 mVp-p±10% **Output Return Loss** 5 MHz to 1.485 GHz 15 dB or more 1.485 to 2.97 GHz 10 dB or more Less than 10% Overshoot Rise and Fall Times \leq 135 ps (20 to 80%) 3G HD, HD(DL) ≤ 270 ps (20 to 80%) SD 0.4 ns to 1.5 ns (20 to 80%) DC Offset 0±0.5 V Genlock Input Connector Connector 2 BNC connectors Input Signal Analog composite sync signal Analog component sync signal Format Loop-through Input Impedance 15 kΩ Maximum Input Voltage $\pm 5 V (DC + peak AC)$ Operating Input Level Range ±6 dB External Lock Range ±5 ppm Jitter 1 ns (when genlock is in use) Analog Video Sync Signal Output Connector Connector 6 BNC connectors, 6 outputs **Output Signal** NTSC black burst signal PAL black burst signal HD tri-level sync signal **Output Impedance** 75 Ω Sync Level NTSC 40±1 IRE PAL -300±6 mV HD ±300±6 mV Blanking 0±15 mV AES/EBU Digital Audio Output Connector Connector 1 BNC connector Output Amplitude 1 Vp-p±0.1 V **Output Impedance** 75 Ω unbalanced AES/EBU Silence Output Connector Connector 1 BNC connector **Output Amplitude** 1 Vp-p±0.1 V **Output Impedance** 75 Ω unbalanced

5. SPECIFICATIONS

	Word-Clock Output Connector	
	Connector	1 BNC connector
	Output Frequency	48 kHz
	Output Amplitude	3.5 V or more (into 75 Ω , high level)
5.1.4	Control Connectors	
	Ethernet Port	
	Specifications	IEEE 802.3
	Protocol	
	SNMP v2c	Command operation and trap transmission
		Transmission of operation status (e.g., genlock
		synchronization status)
	HTTP	Remote monitoring and control from a Web browser
	Connector	RJ-45
	Туре	10BASE-T/100BASE-TX auto switching
	USB Port	
	Specifications	USB 2.0
	Supported Media	USB memory device
	Function	Saving and recalling presets, genlock log, logo, and
		ID characters
		Updating firmware
		Retrieving MIB files
	Connector	USB Type A
5.1.5	LCD	
	Number of Characters	20 characters \times 2 lines

On / Off

Backlight
5.1.6	SDI Video Output	
	SDI Signal	
	Bit Rate	
	3G	2.970Gbps, 2.970/1.001Gbps
	HD, HD(DL)	1.485Gbps, 1.485/1.001Gbps
	SD	270 Mbps
	Timing Adjustment	
	Adjustment Range	Entire frame
	Adjustment Unit	
	V	Lines
	н	Clocks (148.5 MHz, 148.5/1.001 MHz,
		74.25 MHz, 74.25/1.001 MHz, 27 MHz)
	Test Patterns	
	3G, HD	100% color bar, 75% color bar,
		multiformat color bar (ARIB STD-B28, pattern 2
		area can be set to 100% white, 75% white, or +I),
		check field,
		flat field white 100%, black 0%, red 100%,
		green 100%, blue 100%
	SD	
	525/59.94I	100% color bar, 75% color bar,
		SMPTE color bar, check field,
		flat field white 100%, black 0%, red 100%,
		green 100%, blue 100%
	625/501	100% color bar, EBU color bar,
		BBC color bar, check field,
		flat field white 100%, black 0%, red 100%,
		green 100%, blue 100%
	Automatic Switching	Automatically switches between selectable color bar
		patterns
	Switch Time	1 to 255 sec
	Pattern Scrolling	
	Direction	Eight directions (up, down, left, right, and their
		combinations)
	Speed Range and Unit	
	Interlace	In unit of fields
	V	0 to 256 lines, in 1 line steps
	н	0 to 256 dots, in 2 dot steps
	Progressive	In unit of frames
	v	0 to 256 lines, in 1 line steps
	Н	0 to 256 dots, in 2 dot steps
		· · ·

* Not available when the check field pattern is selected.

Safety Area Markers		
3G, HD	Action safe area (90%)	
	Title safe area (80%)	
	4:3 aspect ratio	
	(can be turned on and off separately)	
SD	Action safe area (90%)	
	Title safe area (80%)	
	(can be turned on and off separately)	
* Not available when the chec	k field pattern is selected.	
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	
н	1 dot	
Blinking Display (*1)	ON / OFF	
ON TIME	1 to 9 sec, in 1 sec step	
OFF TIME	1 to 9 sec, in 1 sec step	
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, in 2 dot steps	
Progressive	In unit of frames	
	0 to 256 dots, in 2 dot steps	

* Not available when the check field pattern is selected.

*1 The blinking display and scrolling can be used simultaneously.

Logo Mark	
Logo Mark Data	4-level monochrome data from level 0 to 3
Maximum Size	320 (dots) × 240 (lines) (QVGA size)
Number of Logo Marks That Can Be Saved in the LT 4610	
	Up to 4
Display Position	Anywhere on the display
Display Position Adjustment Resoluti	on
V	1 line
Н	1 dot
Display Level	Any level from 0 to 3
File Format	
Before Conversion	24-bit full color bitmap format (.bmp)
After Conversion	Original format (.lg)
Conversion Color Matrix	$Y = (0.212 \times R) + (0.701 \times G) + (0.087 \times B)$
	Converts 256-level monochrome data (Y) to 4 levels
	(levels 0 to 3) using specified thresholds
Conversion Method	Using the logo application
Logo Mark Data Transfer	Save the data to a USB memory device and transfer
	to the LT 4610.

* Not available when the check field pattern is selected.

Component On/Off Function

Each of the Y/G, Cb/B, and Cr/R components can be turned on and off independently.

* Not available when the check field pattern is selected.

Image Overlay	
Display Precedence	ID characters > logo mark > safety area markers >
	test pattern
	(The display order cannot be changed.)
Simultaneous Display	ID characters, logo mark, safety area markers, and
	test pattern can be displayed simultaneously.

Embedded Audio

Embedded Channels	Can be turned on and off at the group level
3G-A, HD, SD	16 channels (4 channels \times 4 groups)
3G-B	32 channels (stream 1, stream 2, 4 channels each
	× 4 groups)
Sampling Frequency	48 kHz 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 to 0 dBFS (1 dBFS steps)
Audio Click	OFF, 1 / 2 / 4 sec

- * Audio (including packets) cannot be embedded when the check field pattern is selected.
- * The frequency, level, and audio click can be set for each channel.
- * The following limitations apply for SD (525/59.94I).
 - For 16 channel output, the resolution is set to 20 bits.
 - Up to three groups (12 channels) can be output at 24-bit resolution.

5.1.7 Genlock Function

Signal Formats	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,
	1125/60I, 1125/59.94I, 1125/50I, 1125/30P,
	1125/29.97P, 1125/25P, 1125/24P,
	1125/23.98P, 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 Adjustment	
Adjustment Range	
NTSC Black Burst Signal	±5 frames
PAL Black Burst Signal	±2 frames
HD Tri-Level Sync Signal	1 frame (entire frame)
FINE	Covers 1 adjustment unit
	(adjustment unit: 13.5 MHz, clock width: 74.1 nsec)
Genlock Mode	
INTERNAL	Operates using the internal reference signal
EXTERNAL	Operates using an external reference signal
	GL FMT-AUTO / GL FMT-MANUAL / GPS(SER01) /
	10MHz CW(SER01) / PTP(SER03)
Recovery Mode	
AUTO	Resynchronizes according to the auto setting when
	the external reference signal recovers
MANUAL	Retains the STAY IN SYNC state when the external
	reference signal recovers

Auto Setting	
IMMEDIATE	Resets the lock when the external reference signal recovers
FAST	Quickly resynchronizes when the external reference
	signal recovers
SLOW	Slowly resynchronizes when the external reference signal recovers
Manual Setting	
IMMEDIATE	Resets the lock when the external reference signal recovers
FAST	Quickly resynchronizes when the external reference signal recovers
SLOW	Slowly resynchronizes when the external reference signal recovers
Genlock Reset	Resynchronizes immediately.
Analog Video Sync Signal Output	
Signal Formats	Each of the 6 outputs can be set separately.
	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,
	1125/60I, 1125/59.94I, 1125/50I, 1125/30P,
	1125/29.97P, 1125/25P, 1125/24P,
	1125/23.98P, 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 Adjustment	Can be set separately for each of the 6 outputs
Adjustment Range	
NTSC Black Burst Signal	±5 frames
PAL Black Burst Signal	±2 frames
HD Tri-Level Sync Signal	1 frame (entire frame)

5.1.8

Adjustment UnitNTSC/PAL Black Burst SignalIn units of 0.0185 µs (54 MHz clock unit)HD Tri-Level Sync SignalIn units of 0.0135 µs (74.25/1.001 MHz clock unit)or 74.25 MHz clock unit)

5.1.9 AES/EBU Digital Audio Output

Timing Adjustment	
Adjustment Range	±1 AES/EBU frame
Adjustment Unit	512 fs (24.576 MHz)
Sampling Frequency	48 kHz 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 to 0 dBFS (1 dBFS steps)
Audio Click	OFF, 1 / 2 / 4 sec
Lip Sync	Synchronization with SDI1
Sampling Clock Accuracy	Grade 2 (±10 ppm)

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

* Turn off all channels to output a digital audio reference signal (DARS).

5.1.10 AES/EBU Silence Output

Timing Adjustment	
Adjustment Range	±1 AES/EBU frame
Adjustment Unit	512 fs (24.576 MHz)
Sampling Frequency	48 kHz sampling (synced with the video signal)
Resolution	20 bits / 24 bits
Pre-emphasis	OFF
Frequency	SILENCE
Level	MUTE
Sampling Clock Accuracy	Grade 2 (±10 ppm)

5.1.11 Word-Clock Output

Timing Adjustment	
Adjustment Range	±1 AES/EBU frame
Adjustment Unit	512 fs (24.576 MHz)

5.1.12 Lip Sync Patterns

Setting

SDI1+AES/EBU and SDI2 can be set separately.

- * Not available when the check field pattern is selected.
- * Safety area markers, ID characters, and logo mark cannot be overlaid.
- * The audio click setting of embedded audio is disabled, and audio synchronized to the lip sync pattern is output.

5.1.13 Preset Settings

	Preset Number of Presets Recall Method Copy Method	Saves the panel settings (*1) 10 Front panel Copy from the LT 4610 to a USB memory device or copy from the USB memory device to the LT 4610	
	*1 Logo data and device-specific infor	mation (e.g., IP address, time) cannot be saved.	
5.1.14	Logging Feature		
	Saved Items Copy Method	Genlock status change Copy from the LT 4610 to a USB memory device	
5.1.15	Internal Reference Generator		
	Reference Frequency	13.5 MHz	
5.1.16	Internal Clock		
	Power Supply Battery Operation Period	Primary lithium battery Approx. 3 years (depending on the storage and operating environments)	
5.1.17	General Specifications		
	Environmental Conditions Operating Temperature Operating Humidity Range Optimal Temperature Operating Environment Elevation Overvoltage Category Pollution Degree	0 to 40 °C 85 %RH or less (no condensation) 10 to 35 °C Indoors Up to 2,000 m II 2	
	Voltage	90 to 250 VAC	
	Power Consumption Dimensions	80 W max. 482 (W) \times 44 (H) \times 400 (D) mm (excluding protrusions)	
	Weight	3.6 kg (excluding SER01, SER02, and SER03) 3.8 kg (including SER01, SER02, and SER03)	
	Accessories	Power cord	

5.2 LT 4611 Main Unit

5.2.1	Compliant Standards	
	Analog Video Sync Signal NTSC Black Burst Signal PAL Black Burst Signal HD Tri-Level Sync Signal	SMPTE ST 170, SMPTE ST 318, SMPTE RP 154 ITU-R BT 1700, EBU N14 SMPTE ST 240, SMPTE ST 274, SMPTE ST 296
5.2.2	I/O Connectors	
	Genlock Input Connector	
	Connector	2 BNC connectors
	Input Signal	Analog composite sync signal
		Analog component sync signal
	Format	Loop-through
	Input Impedance	15 kΩ
	Maximum Input Voltage	±5 V (DC + peak AC)
	Operating Input Level Range	±6 dB
	External Lock Range	±5 ppm
	Jitter	1 ns (when genlock is in use)
	Analog Video Sync Signal Output Con	nector
	Connector	3 BNC connectors, 3 outputs
	Output Signal	NTSC black burst signal
		PAL black burst signal
		HD tri-level sync signal
	Output Impedance	75 Ω
	Sync Level	
	NTSC	40±1 IRE
	PAL	-300±6 mV
	HD	±300±6 mV
	Blanking	0±15 mV
	Word-Clock Output Connector	
	Connector	1 BNC connector
	Output Frequency	48 kHz
	Output Amplitude	3.5 V or more (into 75 Ω , high level)

5.2.3 Control Connectors

5.2.4

Ethernet Port	
Specifications	IEEE 802.3
Protocol	
SNMP v2c	Command operation and trap transmission
	Transmission of operation status (e.g., genlock
	synchronization status)
HTTP	Remote monitoring and control from a Web browser
Connector	RJ-45
Туре	10BASE-T/100BASE-TX auto switching
USB Port	
Specifications	USB 2.0
Supported Media	USB memory device
Function	Saving and recalling presets, genlock log, logo, and
	ID characters
	Updating firmware
	Retrieving MIB files
Connector	USB Type A
Number of Characters	20 characters × 2 lines
Backlight	On / Off

5.2.5	Genlock Function	
	Signal Formats	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, 1125/60I, 1125/59.94I, 1125/50I, 1125/30P, 1125/29.97P, 1125/25P, 1125/24P, 1125/23.98P, 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 Adjustment	, , , , , , ,
	Adjustment Range	
	NTSC Black Burst Signal	±5 frames
	PAL Black Burst Signal	±2 frames
	HD Tri-Level Sync Signal	1 frame (entire frame)
	FINE	Covers 1 adjustment unit
		(adjustment unit: 13.5 MHz, clock width: 74.1 nsec)
	Genlock Mode	(,
	INTERNAL	Operates using the internal reference signal
	EXTERNAL	Operates using an external reference signal
		GL FMT-AUTO / GL FMT-MANUAL / GPS(SER01) /
		10MHz CW(SER01) / PTP(SER03)
	Recovery Mode	
	AUTO	Resynchronizes according to the auto setting when
		the external reference signal recovers
	MANUAL	Retains the STAY IN SYNC state when the external reference signal recovers
	Auto Setting	
	IMMEDIATE	Resets the lock when the external reference signal recovers
	FAST	Quickly resynchronizes when the external reference signal recovers
	SLOW	Slowly resynchronizes when the external reference signal recovers
	Manual Setting	5
	IMMEDIATE	Resets the lock when the external reference signal
		recovers
	FAST	Quickly resynchronizes when the external reference
		signal recovers
	SLOW	- Slowly resynchronizes when the external reference
		signal recovers
	Genlock Reset	Resynchronizes immediately.

5.2.6 Analog Video Sync Signal Output

	Signal Formats Timing Adjustment Adjustment Range NTSC Black Burst Signal PAL Black Burst Signal HD Tri-Level Sync Signal Adjustment Unit NTSC/PAL Black Burst Signal HD Tri-Level Sync Signal	Each of the 3 outputs can be set separately. 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, 1125/60I, 1125/59.94I, 1125/20I, 1125/30P, 1125/29.97P, 1125/25P, 1125/24P, 1125/23.98P, 1125/24PsF, 1125/23.98PsF, 750/60P, 750/59.94P, 750/50P, 750/30P, 750/29.97P, 750/25P, 750/24P, 750/23.98P Can be set separately for each of the 3 outputs \pm 5 frames \pm 2 frames 1 frame (entire frame) In units of 0.0185 µs (54 MHz clock unit) In units of 0.0135 µs (74.25/1.001 MHz clock unit or 74.25 MHz clock unit)		
5.2.7	Word-Clock Output			
	Timing Adjustment			
	Adjustment Range	+1 ΔES/EBU frame		
	Adjustment Unit	512 fs (24.576 MHz)		
5.2.8	Preset Settings			
	Preset	Saves the panel settings (*1)		
	Number of Presets	10		
	Recall Method	Front panel		
	Copy Method	Copy from the LT 4611 to a USB memory device or copy from the USB memory device to the LT 4611		
	*1 Logo data and device-specific inform	mation (e.g., IP address, time) cannot be saved.		
5.2.9	Logging Feature			
	Saved Items	Genlock status change		
	Copy Method	Copy from the LT 4611 to a USB memory device		
5.2.10	Internal Reference Generator			
	Reference Frequency	13.5 MHz		

5.2.11	Internal Clock			
	Power Supply Battery Operation Period	Primary lithium battery Approx. 3 years (depending on the storage and operating environments)		
5.2.12	General Specifications			
	Environmental Conditions Operating Temperature Operating Humidity Range Optimal Temperature Operating Environment Elevation Overvoltage Category Pollution Degree Power Requirements Voltage Power Consumption Dimensions Weight Accessories	0 to 40 °C 85 %RH or less (no condensation) 10 to 35 °C Indoors Up to 2,000 m II 2 90 to 250 VAC 80 W max. 482 (W) \times 44 (H) \times 400 (D) mm (excluding protrusions) 3.6 kg (excluding SER01, SER02, and SER03) 3.8 kg (including SER01, SER02, and SER03) Power cord		

5.3 LT 4610SER01 (GPS/TC)

5.3.1 GPS Lock

Compliant Phase Control Standard	SMPTE ST 2059-1
GPS Input Connector	
Connector	1 BNC connector
Input Impedance	50 Ω
Antenna, Pre-amp Power Supply	
Voltage	5 V / 3.3 V / OFF
Current	50 mA max. (built-in overcurrent protection circuit)
GPS Receiver	
Receive Frequency	1575.42 MHz (L1)
Receive Code	C/A code
Receive Sensitivity	-130 dBm or more (input level to the antenna)
Status	NO SIGNAL, TRACKING, LOCKED, STAY IN SYNC
Holdover Function	Retains the previous frequency and phase when the
	GPS signal is interrupted

* The GPS function has been tested to work with a Furuno Electric AU-117A GPS antenna.

5.3.2 CW I/O

CW I/O Connector	
Connector	1 BNC connector (shared input and output)
Input Impedance	50 Ω
Input Signal Level	0.5 to 2 Vp-p
Input Signal Frequency	10 MHz
Locking Frequency Range	±5 ppm
Output Signal Level	3.3 V LVCMOS
Output Signal Frequency	10 MHz / 1 PPS
Holdover Function	Retains the previous frequency when the 10 MHz
	CW signal is interrupted

5.3.3 LTC I/O

Compliant Standards	SMPTE 12M-1
I/O Connectors	
Connector	D-SUB 15 pin (shared input and output)
LTC	
Number of Inputs	1
Input Impedance	10 kΩ balanced
Input Signal Level	0.5 to 4 Vp-p
Number of Outputs	3
Output Impedance	600 Ω balanced
Output Signal Level	2 Vp-p±10%
Alarm	
Number of Outputs	2
Output Signal Level	5 V CMOS

5.3.4 Time Code

Internal / GPS / LTC / VITC
Synchronizes to ANALOG BLACK 1 (LTC OUT)
On / Off
On / Off
On / Off
On / Off
Set the application date/time with a timer
Set the application date/time with a timer

5.4 LT 4610SER02 (12G-SDI)

5.4.1 Compliant Standards

SDI Embedded Audio	
12G, 3G, HD, HD (DL)	SMPTE ST 299
SD	SMPTE ST 272
SDI Payload ID	SMPTE ST 352

5.4.2 SDI Formats and Standards

The SDI format is the same for all four outputs.

SD Video Signal Formats and Standards

Color System	Quantization	Image	Field Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	720×487	59.94/I	SMPTE ST 259
		720×576	50/I	

HD Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 292-1
				SMPTE ST 296
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 292-1
			30/29.97/25/24/23.98/PsF	

3G-A	Video	Signal	Formats	and	Standards
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r		r		
Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC_BC_R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 425-1
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 425-1
				SMPTE ST 2048-2
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	SMPTE ST 2048-2
YC _B C _R 4:4:4	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 296
				SMPTE ST 425-1
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	SMPTE ST 2048-2
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425-1
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	SMPTE ST 2048-2
RGB 4:4:4	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 296
				SMPTE ST 425-1
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	SMPTE ST 2048-2
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	SMPTE ST 2048-2

3G-B-DL,	HD (DL)	Video	Signal	Formats	and	Standards
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Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 372
				SMPTE ST 425-1
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 372
				SMPTE ST 425-1
				SMPTE ST 2048-2
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
				SMPTE ST 2048-2
YC _B C _R 4:4:4	10 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
				SMPTE ST 2048-2
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
				SMPTE ST 2048-2
RGB 4:4:4	10 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
				SMPTE ST 2048-2
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425
		2048×1080	30/29.97/25/24/23.98/P	SMPTE ST 372
			30/29.97/25/24/23.98/PsF	SMPTE ST 425-1
				SMPTE ST 2048-2

* For 3G-B-DL, SDI1 settings apply to SDI1 and SDI2, and SDI3 settings apply to SDI3 and SDI4.

3G-B-DS Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425-1
			30/29.97/25/24/23.98/PsF	
		1280×720	60/59.94/50/30/29.97/P	SMPTE ST 296
				SMPTE ST 425-1

* Only SDI1 and SDI3 are supported.

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36((UL)-	-2K	video	Signai	Formats	anu	Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
		_		Standards
YC _B C _R 4:2:2	12 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 425-3
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 2048-2
				SMPTE ST 425-3
YC _B C _R 4:4:4	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 425-3
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 2048-2
				SMPTE ST 425-3
	12 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 425-3
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 2048-2
				SMPTE ST 425-3
RGB 4:4:4	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 425-3
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 2048-2
				SMPTE ST 425-3
	12 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
				SMPTE ST 425-3
		2048×1080	60/59.94/50/48/47.95/P	SMPTE ST 2048-2
				SMPTE ST 425-3

3G(DL)-4K Video Signal Formats and Standards

Division Transmission System	Color System	Quantization	Image	Frame Frequency/Scanning	Compliant Standards
Square	YC _B C _R 4:2:2	10 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3 SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3 SMPTE ST 2048-1
2 sample interleave	YC _B C _R 4:2:2	10 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3 SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-3 SMPTE ST 2048-1

HD (QL) Video Signal Formats and Standards

Division Transmission System	Color System	Quantization	Image	Frame Frequency/Scanning	Compliant Standards
Square	YC _B C _R 4:2:2	10 bit	3840×2160	30/29.97/25/24/23.98/P	-
				30/29.97/25/24/23.98/PsF	-
			4096×2160	30/29.97/25/24/23.98/P	-
				30/29.97/25/24/23.98/PsF	-

3G (QL) Video Signal Formats and Standards

Division Transmission	Color System	Quantization	Image	Frame Frequency/Scanning	Compliant Standards
System	VC C 4:2:2	10 hit	2940~2160		
Square	1CBCR 4.2.2	TO DIC	3040×2100	00/39.94/30/P	SMPTE ST 2036-1
			4096×2160	60/59 94/50/48/47 95/P	SMPTE ST 2050 1
			4050/2100	00/00/10/1/00/10/1/	SMPTE ST 2048-1
		12 hit	3840×2160	30/29 97/25/24/23 98/P	SMPTE ST 425-5
		12 510	5010/2100	50/25.57/25/21/25.50/1	SMPTE ST 2036-1
			4096×2160	30/29 97/25/24/23 98/P	SMPTE ST 425-5
			1050//2100	50,25157,25,21,25150,1	SMPTE ST 2048-1
	YC _B C _R 4:4:4	10 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
	- 5 - 10				SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2048-1
		12 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2048-1
	RGB 4:4:4	10 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2048-1
		12 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2048-1
2 sample	YC_BC_R 4:2:2	10 bit	3840×2160	60/59.94/50/P	SMPTE ST 425-5
interleave					SMPTE ST 2036-1
			4096×2160	60/59.94/50/48/47.95/P	SMPTE ST 425-5
					SMPTE ST 2048-1
		12 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
				20/20.07/25/24/22.00/2	SMPTE ST 2048-1
	$YC_{B}C_{R}$ 4:4:4	10 DIT	3840×2160	30/29.9//25/24/23.98/P	SMPTE ST 425-5
			40062160	20/20 07/25/24/22 00/5	SMPTE ST 2036-1
			4096×2160	30/29.9//25/24/23.98/P	SMPTE ST 425-5
		12 hit	2940~2160	20/20 07/25/24/22 08/0	SMPTE ST 2040-1
		12 DIL	3640×2160	30/29.97/23/24/23.98/P	SMPTE ST 425-5
			4006 × 2160	20/20 07/25/24/22 08/0	
			4090×2100	30/29.97/23/24/23.98/P	SMPTE ST 425-5
	PCB 4:4:4	10 hit	3840 × 2160	30/29 97/25/24/23 98/P	SMPTE ST 425-5
			3010/2100	55/25.57/25/27/25.50/1	SMPTE ST 2036-1
			4096×2160	30/29 97/25/24/23 98/P	SMPTE ST 425-5
					SMPTE ST 2048-1
		12 bit	3840×2160	30/29,97/25/24/23.98/P	SMPTE ST 425-5
				,,,,,,,	SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 425-5
				, , , .	SMPTE ST 2048-1

Division Transmission	Color System	Quantization	Image	Frame Frequency/Scanning	Compliant Standards
System					
2 sample	YC_BC_R 4:2:2	10 bit	3840×2160	60/59.94/50/P	SMPTE ST 2082-10
interleave					SMPTE ST 2036-1
			4096×2160	60/59.94/50/48/47.95/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
		12 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
	YC _B C _R 4:4:4	10 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
		12 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
	RGB 4:4:4	10 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
		12 bit	3840×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
					SMPTE ST 2036-1
			4096×2160	30/29.97/25/24/23.98/P	SMPTE ST 2082-10
				. , , , , , ,	SMPTE ST 2036-1

12G Video Signal Formats and Standards

5.4.3 SDI Output Connector

Connector	4 BNC connectors
12G, 3G-A, HD, SD	4 outputs
3G-B, HD (DL)	2 outputs
Output Impedance	75 Ω
Output Amplitude	800 mVp-p ± 10%
Output Return Loss	
5 MHz to 1.485 GHz	15 dB or more
1.485 to 2.97 GHz	10 dB or more
2.97 to 6 GHz	7 dB or more
6 to 12 GHz	4 dB or more
Rise and Fall Times	
12G	≤ 45 ps (20 to 80%)
3G	≤ 135 ps (20 to 80%)
HD, HD (DL)	≤ 270 ps (20 to 80%)
SD	0.4 ns to 1.5 ns (20 to 80%)
DC Offset	0±0.5 V

5.4.4 SDI Pattern Generation

The SDI pattern generation settings can be set separately for each output. But the fixed pattern and user pattern cannot be generated simultaneously.

SDI Signal	
Bit Rate	
12G	11.880 Gbps, 11.880/1.001 Gbps
3G	2.970 Gbps, 2.970/1.001 Gbps
HD, HD (DL)	1.485Gbps, 1.485/1.001Gbps
SD	270Mbps
Timing Adjustment	
Adjustment Range	Entire frame
Adjustment Unit	
V	Lines
Н	Clocks (148.5 MHz, 148.5/1.001 MHz, 74.25 MHz,
	74.25/1.001 MHz, 27 MHz)

Test Patterns	
12G, 3G, HD	100% color bar, 75% color bar, multiformat color bar (ARIB STD-B28, pattern 2 area can be set to 100% white, 75% white, or +I), ARIB STD-B66-2 color bar, check field, flat field white 100%, black 0%, red 100%, green 100%, blue 100%
SD	
525/59.94I	100% color bar, 75% color bar, SMPTE color bar, check field, flat field white 100%, black 0%, red 100%, green 100%, blue 100%
625/50I	100% color bar, EBU color bar, BBC color bar, check field, flat field white 100%, black 0%, red 100%, green 100%, blue 100%
Automatic Switching	Automatically switches between selectable color bar patterns
Switch Time	1 to 255 sec

* The selectable patterns depend on the SDI format.

* In ARIB STD-B66-2 color bar display, the color system is 422(YCbCr) 10 bit.

User Pattern Display	Select one from INT-1 to 8.
Storage Memory	SD, HD (2K), 4K, up to 25 patterns each
Display Memory (INT_1 to 8)	Transfer the SD, HD (2K), 4K (2SI), 4K (SQD)
	pattern data (up to 8 patterns each) from the
	storage memory to the display memory
File Format	24-bit full color bitmap format (.bmp)
	TIFF format (.tif), IMG format (.img)
Archiver Pattern	IMG format (.img)
UHDColorBar	ARIB STD-B66 UHDTV MULTIFORMAT COLOR BAR
HLGCB	ARIB STD-B72 Colour Bar Test Pattern for HLG
	HDR-TV System
	Recommendation ITU-R BT.2111 HLG
SLog3_LiveHDR_narrow_V11	S-Log3(Live HDR) Ver1.11 narrow range scale

- * After turning on the power, transfer the data from the storage memory to the display memory. It takes about 5 minutes to transfer the data of a 4K user pattern. If the power is cut off after a memory transfer, the data in the display memory will be cleared. The data in the storage memory will be retained even when the power is turned off, so after turning on the power, perform a memory transfer operation again.
- * If the power is cut off while data is being accessed, the data may become corrupted. Do not turn off the power while data is being accessed.
- * In the user pattern display, the color system is 422(YCbCr) 10 bit.

Component On/Off	
Function	Each of the Y/G, Cb/B, and Cr/R components can be turned on and off independently.
* Not available when the check field	pattern is selected.
Safety Area Markers	
12G, 3G, HD	Action safe area (90%)
	Title safe area (80%)
	4:3 aspect ratio
	(can be turned on and off separately)
SD	Action safe area (90%)
	Title safe area (80%)
	(can be turned on and off separately)
* Not available when the check field	pattern or user pattern is selected.
Moving Box	
Box Color	Select from white, yellow, cyan, green, blue, red,
	magenta, black
Speed Setting V/H	LOW / MIDDLE / HIGH
Size Setting V/H	SIZE 1 to 5
* Not available when the check field	pattern is selected.
Pattern Scrolling	
Direction	Eight directions (up, down, left, right, and their combinations)
Speed Range and Unit	
Interlace	In unit of fields
V	0 to 256 lines, in 1 line steps
Н	0 to 256 dots, in 2 dot steps
Progressive	In unit of frames
V	0 to 256 lines, in 1 line steps
Н	0 to 256 dots, in 2 dot steps

* Not available when the check field pattern is selected.

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 Reso	plution
V	1 line
Н	1 dot
Blinking Display (*1)	ON / OFF
ON TIME	1 to 9 sec, in 1 sec step
OFF TIME	1 to 9 sec, in 1 sec step
Blinking Display (*1)	OFF, 1 to 9 sec
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, in 2 dot steps
Progressive	In unit of frames
	0 to 256 dots, in 2 dot steps
 Not available when the check fives *1 The blinking display and scrolling 	eld pattern is selected. Ig can be used simultaneously.
Logo Mark Data	4-level monochrome data from level 0 to 3
Maximum Size	$320 \text{ (dots)} \times 240 \text{ (lines)} (OVGA size)$
Number of Logo Marks That Can	Be Saved in the LT 4610
Number of Logo Hurks Hut can	Un to 4
Display Position	Anywhere on the display
Display Position Adjustment Res	sultion
V	1 line
Н	1 dot
Display Level	Any level from 0 to 3
File Format	
Before Conversion	24-bit full color bitmap format (.bmp)
After Conversion	Original format (.lg)
Conversion Color Matrix	$Y = (0.212 \times R) + (0.701 \times G) + (0.087 \times R)$
	Converts 256-level monochrome data (Y) to 4 levels
	(levels 0 to 3) using specified thresholds
Conversion Method	Using the logo application
Logo Mark Data Transfer	Save the data to a USB memory device and transfer
5	to the LT 4610.

* Not available when the check field pattern is selected.

Image Overlay	
Display Precedence	ID characters > safety area markers > logo mark > test pattern
	(The display order cannot be changed.)
Simultaneous Display	ID characters, logo mark, safety area markers, and test pattern can be displayed simultaneously.
Embedded Audio	
Embedded Channels	Can be turned on and off at the group level
3G-A, HD, SD	16 channels (4 channels \times 4 groups)
3G-B	32 channels (stream 1, stream 2, 4 channels each × 4 groups)
Sampling Frequency	48 kHz 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 to 0 dBFS (1 dBFS steps)
Audio Click	OFF, 1 / 2 / 4 sec

- * Audio (including packets) cannot be embedded when the check field pattern is selected.
- * The frequency, level, and audio click can be set for each channel.
- * The following limitations apply for SD (525/59.94I).
 - For 16 channel output, the resolution is set to 20 bits.
 - Up to three groups (12 channels) can be output at 24-bit resolution.

5.4.5 Lip Sync Patterns

Setting

SDI1, SDI2, SDI3, and SDI4 can be set separately.

- * Not available when the check field pattern is selected.
- * The audio click setting of embedded audio is disabled, and audio synchronized to the lip sync pattern is output.
- 5.4.6 User Payload ID

Setting

ON / OFF

* You can edit the user payload ID only in a web browser.

5.5 LT 4610SER03 (PTP)

5.5.1	Compliant Standards	
	Internet Protocol Version PTP Standard Supported Profile	IPv4 IEEE 1588-2008 SMPTE ST 2059 / AES67 / General
5.5.2	RJ-45 Port	
	Number of Ports Port Type Compliant Standards Type	1 RJ-45 IEEE 802.3 10Base-T / 100Base-TX / 1000Base-T
5.5.3	SFP / SFP+ Port	
	Number of Ports Port Type Compliant Standards Supported Modules and Types SFP transceiver RJ-45 SFP+ optical transceiver * The SFP/SFP+ module is optional.	1 SFP cage MSA 1000BASE-T 10GBASE-SR and 10GBASE-SW
5.5.4	Master Function	
	Number of Controllable Master Device	s 2
	Communication Mode	Multicast / Unicast / MIXED SMPTE / MIXED SMPTE without negotiation
	Domain Number	0 to 127 (SMPTE ST 2059) 0 to 255 (AES67 / General)
	Announce 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
	Sync Message Rate	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz
	* The message rate setting range varie	s depending on the profile.
	Priority 1	0 to 255

* When the sync message rate is 8Hz in theoretical value.

Priority 2

Number of Connectable Slaves

0 to 255

1000

5.5.5 Slave Function

Communication Mode	Multicast / Unicast / MIXED SMPTE /
	MIXED SMPTE without negotiation
Domain Number	0 to 127 (SMPTE ST 2059)
	0 to 255 (AES67 / General)
Delay Message Rate	0.0078s 128Hz / 0.015s 64Hz /
	0.0312s 32Hz / 0.0625s 16Hz /
	0.125s 8Hz / 0.25s 4Hz /
	0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /
	4s 0.25Hz / 8s 0.125Hz /
	16s 0.0625Hz
Announce Timeout Count	2 to 10

5.6 LT 4611SER21 (SYNC 3 OUT ADD)

Software option for the LT 4611 only. It is a standard feature on the LT 4610.

5.6.1 Compliant Standards

Analog Video Sync 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 Signal	SMPTE ST 240, SMPTE ST 274, SMPTE ST 296

5.6.2 Output Connectors

Analog Video Sync Signal Output Connector

Connector	3 BNC connectors, 3 outputs
Output Signal	NTSC black burst signal, PAL black burst signal, HD
	tri-level sync signal
Output Impedance	75Ω
Sync Level	
NTSC	40±1 IRE
PAL	-300±6mV
HD	±300±6mV
Blanking	0±15mV

5.6.3 Analog Video Sync Signal Output

Signal Formats	Each of the 3 outputs can be set separately.
	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,
	1125/60I, 1125/59.94I, 1125/50I, 1125/30P,
	1125/29.97P, 1125/25P, 1125/24P,
	1125/23.98P, 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 Adjustment	Can be set separately for each of the 3 outputs
Adjustment Range	
NTSC Black Burst Signal	±5 frames
PAL Black Burst Signal	±2 frames
HD Tri-Level Sync Signal	1 frame (entire frame)
Adjustment Unit	
NTSC/PAL Black Burst Signal	In units of 0.0185 µs (54 MHz clock unit)
HD Tri-Level Sync Signal	In units of 0.0135 μs (74.25/1.001 MHz clock unit or 74.25 MHz clock unit)

5.7 LT 4611SER22 (SDI OUTPUT)

Software option for the LT 4611 only. It is a standard feature on the LT 4610.

5.7.1 Compliant Standards

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

5.7.2 SDI Formats and Standards

HD, SD Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 292
				SMPTE ST 296
		1920×1080	60/59.94/50/I	SMPTE ST 292
			30/29.97/25/24/23.98/P	SMPTE ST 274
			24/23.98/PsF	SMPTE ST 292
				SMPTE RP 211
		720×487	59.94/I	SMPTE ST 259
		720×576	50/I	SMPTE ST 125

HD (DL) Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 372
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
YC _B C _R 4:4:4	10 bit	1920×1080	60/59.94/50/I	
	12 bit		30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
RGB 4:4:4	10 bit	1920×1080	60/59.94/50/I	
	12 bit		30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	

3G-A Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
- 5 - 10	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 425
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
YC _B C _R 4:4:4	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 296
				SMPTE ST 425
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
RGB 4:4:4	10 bit	1280×720	60/59.94/50/30/29.97/25/24/23.98/P	SMPTE ST 296
				SMPTE ST 425
		1920×1080	60/59.94/50/I	SMPTE ST 274
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I]
			30/29.97/25/24/23.98/P	

3G-B Video Signal Formats and Standards

Color System	Quantization	Image	Frame (Field) Frequency/Scanning	Compliant
				Standards
YC _B C _R 4:2:2	10 bit	1920×1080	60/59.94/50/P	SMPTE ST 274
	12 bit	1920×1080	60/59.94/50/I	SMPTE ST 372
			30/29.97/25/24/23.98/P	SMPTE ST 425
			30/29.97/25/24/23.98/PsF	
YC _B C _R 4:4:4	10 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
RGB 4:4:4	10 bit	1920×1080	60/59.94/50/I	
			30/29.97/25/24/23.98/P	
			30/29.97/25/24/23.98/PsF	
	12 bit	1920×1080	60/59.94/50/I]
			30/29.97/25/24/23.98/P	

5.7.3	Output Connectors	
	SDI Output Connector Connector 3G-A, HD, SD 3G-B, HD (DL) Output Impedance Output Amplitude Output Return Loss 5 MHz to 1.485 GHz 1.485 to 2.97 GHz Overshoot Rise and Fall Times 3G HD, HD (DL) SD DC Offset	2 BNC connectors 2 outputs 1 outputs 75Ω $800mVp-p\pm10\%$ 15 dB or more 10 dB or more Less than 10% $\leq 135 \text{ ps} (20 \text{ to } 80\%)$ $\leq 270 \text{ ps} (20 \text{ to } 80\%)$ 0.4 ns to 1.5 ns (20 to 80%) $0\pm0.5V$
5.7.4	SDI Video Output	
	SDI Signal Bit Rate 3G HD, HD (DL) SD Timing Adjustment Adjustment Range Adjustment Unit V H Test Patterns 3G, HD	2.970Gbps, 2.970/1.001Gbps 1.485Gbps, 1.485/1.001Gbps 270Mbps Entire frame Lines Clocks (148.5 MHz, 148.5/1.001 MHz, 74.25 MHz, 74.25/1.001 MHz, 27 MHz) 100% color bar, 75% color bar, multiformat color bar (ARIB STD-B28, pattern 2 area can be set to 100% white, 75% white, or +I), check field, flat field white 100%, black 0%, red 100%, green 100%, blue 100%
	SD 525/59.94I	100% color bar, 75% color bar, SMPTE color bar, check field,
	625/50I	flat field white 100%, black 0%, red 100%, green 100%, blue 100% 100% color bar, EBU color bar, BBC color bar, check field, flat field white 100%, black 0%, red 100%, green 100%, blue 100%

Automatic Switching	Automatically switches between selectable color bar patterns
Switch Time	1 to 255 sec
Pattern Scrolling	
Direction	Eight directions (up, down, left, right, and their combinations)
Speed Range and Unit	
Interlace	In unit of fields
V	0 to 256 lines, in 1 line steps
Н	0 to 256 dots, in 2 dot steps
Progressive	In unit of frames
V	0 to 256 lines, in 1 line steps
Н	0 to 256 dots, in 2 dot steps
* Not available when the check field	pattern is selected.
Safaty Area Markers	
3G HD	Δ ction safe area (90%)
56,110	Title safe area (80%)
	4:3 aspect ratio
	(can be turned on and off separately)
SD	Action safe area (90%)
02	Title safe area (80%)
	(can be turned on and off separately)
* Not available when the check field	nattern is selected
ID Characters	Up to 20 characters
Size [Dete]	
	$32 \times 32 / 04 \times 04 / 120 \times 120 / 230 \times 230$
Display Position	Anywhere on the display
Display Position Adjustment Resolut	ion
	1 line
↓ H	1 dot
Blinking Display (*1)	ON / OFF
ON TIME	1 to 9 sec. in 1 sec step
OFE TIME	1 to 9 sec. in 1 sec step
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, in 2 dot steps
Progressive	In unit of frames
	0 to 256 dots, in 2 dot steps

* Not available when the check field pattern is selected.

*1 The blinking display and scrolling can be used simultaneously.

Logo Mark	
Logo Mark Data	4-level monochrome data from level 0 to 3
Maximum Size	320 (dots) × 240 (lines) (QVGA size)
Number of Logo Marks That Can Be	Saved in the LT 4611
	Up to 4
Display Position	Anywhere on the display
Display Position Adjustment Resolut	ion
V	1 line
Н	1 dot
Display Level	Any level from 0 to 3
File Format	
Before Conversion	24-bit full color bitmap format (.bmp)
After Conversion	Original format (.lg)
Conversion Color Matrix	$Y = (0.212 \times R) + (0.701 \times G) + (0.087 \times B)$
	Converts 256-level monochrome data (Y) to 4 levels
	(levels 0 to 3) using specified thresholds
Conversion Method	Using the logo application
Logo Mark Data Transfer	Save the data to a USB memory device and transfer
	to the LT 4611.

* Not available when the check field pattern is selected.

Component On/Off

Function	Each of the Y/G, Cb/B, and Cr/R components can be
	turned on and off independently.

* Not available when the check field pattern is selected.

Image Overlay	
Display Precedence	ID characters > logo mark > safety area markers >
	test pattern
	(The display order cannot be changed.)
Simultaneous Display	ID characters, logo mark, safety area markers, and
	test pattern can be displayed simultaneously.

Embedded Audio

Embedded Channels	Can be turned on and off at the group level
3G-A, HD, SD	16 channels (4 channels \times 4 groups)
3G-B	32 channels (stream 1, stream 2, 4 channels each
	× 4 groups)
Sampling Frequency	48 kHz 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 to 0 dBFS (1 dBFS steps)
Audio Click	OFF, 1 / 2 / 4 sec

- * Audio (including packets) cannot be embedded when the check field pattern is selected.
- * The frequency, level, and audio click can be set for each channel.
- * The following limitations apply for SD (525/59.94I).
 - For 16 channel output, the resolution is set to 20 bits.
 - Up to three groups (12 channels) can be output at 24-bit resolution.

5.7.5 Lip Sync Patterns

Setting

SDI1+AES/EBU and SDI2 can be set separately.

- * Not available when the check field pattern is selected.
- * Safety area markers, ID characters, and logo mark cannot be overlaid.
- * The audio click setting of embedded audio is disabled, and audio synchronized to the lip sync pattern is output.

5.8 LT 4611SER23 (AUDIO OUTPUT)

Software option for the LT 4611 only. It is a standard feature on the LT 4610.

5.8.1 Compliant Standards

AES/EBU

ANSI S4.40, AES3-2009, AES11-2009, SMPTE ST 276

5.8.2 Output Connectors

AES/EBU Digital Audio Output Connector

Connector	1 BNC connector
Output Amplitude	1Vp-p±0.1V
Output Impedance	75 Ω unbalanced

AES/EBU Silence Output Connector	
Connector	1 BNC connector
Output Amplitude	1Vp-p±0.1V
Output Impedance	75 Ω unbalanced

5.8.3 AES/EBU Digital Audio Output

Timing Adjustment	
Adjustment Range	±1 AES/EBU frame
Adjustment Unit	512 fs (24.576 MHz)
Sampling Frequency	48 kHz 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 to 0 dBFS (1 dBFS steps)
Audio Click	OFF, 1 / 2 / 4 sec
Lip Sync	Synchronization with SDI1
Sampling Clock Accuracy	Grade 2 (±10 ppm)

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

* Turn off all channels to output a digital audio reference signal (DARS).

5.8.4 AES/EBU Silence Output

Timing Adjustment	
Adjustment Range	±1 AES/EBU frame
Adjustment Unit	512 fs (24.576 MHz)
Sampling Frequency	48 kHz sampling (synced with the video signal)
Resolution	20 bits, 24 bits
Pre-emphasis	OFF
Frequency	SILENCE
Level	MUTE
Sampling Clock Accuracy	Grade 2 (±10 ppm)

5.9 LT 4610SER24 / LT 4611SER24 (8K)

The LT 4610SER24 is a software option for the LT 4610 that adds the ability to output the 8K patterns from the 12G-SDI connectors, when the LT 4610 is equipped with the hardware option LT 4610SER02.

The LT 4611SER24 is a software option for the LT 4611 that adds the ability to output the 8K patterns from the 12G-SDI connectors, when the LT 4611 is equipped with the hardware option LT 4610SER02.

5.9.1 Compliant Standard

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

5.9.2 SDI Formats and Standards

Division	Color System	Quantization	Image	Frame Frequency/Scanning	Compliant
Transmission					Standards
System					
2 sample	YC _B C _R 4:2:2	10bit	7680×4320	60/59.94/50/48/47.95/P	SMPTE ST 2082-12
interleave					SMPTE ST 2036-1
		12bit	7680×4320	30/29.97/25/24/23.98/P	SMPTE ST 2082-12
					SMPTE ST 2036-1
	YC _B C _R 4:4:4	10bit	7680×4320	30/29.97/25/24/23.98/P	SMPTE ST 2082-12
					SMPTE ST 2036-1
		12bit	7680×4320	30/29.97/25/24/23.98/P	SMPTE ST 2082-12
					SMPTE ST 2036-1
	RGB 4:4:4	10bit	7680×4320	30/29.97/25/24/23.98/P	SMPTE ST 2082-12
					SMPTE ST 2036-1
		12bit	7680×4320	30/29.97/25/24/23.98/P	SMPTE ST 2082-12
					SMPTE ST 2036-1

12G(QL) 8K Video Signal Formats and Standards
5.9.3 8K SDI Pattern Generation

SDI Signal	11.880 Gbps, 11.880/1.001 Gbps
Test Patterns	100% color bar, 75% color bar,
	flat field white 100%, black 0%, red 100%, green
	100%, blue 100%
Automatic Switching	Automatically switches between selectable color bar
	patterns
Switch Time	1 to 255 sec
User Pattern Display	Select one from INT-1 to 8.
Storage Memory	Up to 25 patterns
Display Memory (INT_1 to 8)	Transfer the pattern data (up to 8 patterns) from
	the storage memory to the display memory
File Format	24-bit full color bitmap format (.bmp)
	TIFF format (.tif), IMG format (.img)

- * After turning on the power, transfer the data from the storage memory to the display memory. It takes about 2 minutes to transfer the data of an 8K user pattern. If the power is cut off after a memory transfer, the data in the display memory will be cleared. The data in the storage memory will be retained even when the power is turned off, so after turning on the power, perform a memory transfer operation again.
- * If the power is cut off while data is being accessed, the data may become corrupted. Do not turn off the power while data is being accessed.
- * In the user pattern display, the color system is 422(YCbCr) 10 bit.

Component On/Off

Function	Each of the Y/G, Cb/B, and Cr/R components can be turned on and off independently.
Safety Area Markers	Action safe area (90%) Title safe area (80%) 4:3 aspect ratio (can be turned on and off separately)
Moving Box	
Box Color	Select from white, yellow, cyan, green, blue, red, magenta, black
Speed Setting V/H	LOW / MIDDLE / HIGH
Size Setting V/H	SIZE 1 to 5

* Not available when the user pattern is selected.

5. SPECIFICATIONS

	Pattern Scrolling Direction	Eight directions (up, down, left, right, and their combinations)
	Speed Range and Unit	
	Progressive	In unit of fields
	V	0 to 256 lines, in 4 line steps
	Н	0 to 256 dots, in 8 dot steps
	Embedded Audio	
	Embedded Channels	Can be turned on and off at the group level 16 channels (4 channels × 4 groups)
	Sampling Frequency	48 kHz 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 to 0 dBFS (1 dBFS steps)
	Audio Click	OFF, 1 / 2 / 4 sec
	* The frequency, level, and audio c	lick can be set for each channel.
5.9.4	Lip Sync Patterns	
	Setting	Set by SDI1
5.9.5	User Payload ID	
	Setting	ON / OFF
	* You can edit the user payload ID on	ly in a web browser.
5.10	Items Sold Separately	
	SFP transceiver RJ-45 LC2141 SFP RJ-45 SFP+ ontical transceiver	SFP module for 1GbE RJ-45 type

5.10

SFP+ optical transceiver SFP+ module for 10GbE multi-mode fibers 300 m LC2144 SFP+ MULTI-MODE LC2145 SFP+ SINGLE MODE SFP+ module for 10GbE single-mode fibers 10 km

* Modules that you purchase on the market are not supported.

6. PANEL DESCRIPTION

6.1 Front Panel

LT 4610



6.2 Rear Panel



No.	Name	Description
1	LTC IN/OUT (SER01)	Time code I/O connector. It also outputs alarms.
2	GPS IN (SER01)	GPS antenna input connector.
3	CW IN/OUT (SER01)	CW I/O connector. This connector is used by switching between
		input and output.
		When set to input, it receives 10 MHz CW signals.
		When set to output, it outputs 10 MHz CW or 1PPS signals.
4	12G-SDI (SER02)	SDI output connectors. They output SD, HD, 3G, and 12G signals.
5	AES/EBU (SER23) (*1)	AES/EBU signal output connector.
6	SILENCE (SER23) (*1)	Muted AES/EBU signal output connector.
7	WCLK	48 kHz word-clock output connector.
8	Ground terminal	Connect to an external ground.
9	ETHERNET/CONTROL	Ethernet port. Supports SNMP and HTTP.
10	GENLOCK IN	Genlock input connectors. They are loop-through connectors.
		They receive HD tri-level sync or NTSC/PAL black burst signals.
11	ANALOG BLACK OUT	Black output connectors.
	1 to 3	They output HD tri-level sync or NTSC/PAL black burst signals.
12	ANALOG BLACK OUT	Black output connectors.
	4 to 6 (SER21) (*1)	They output HD tri-level sync or NTSC/PAL black burst signals.
13	SDI OUT (SER22) (*1)	SDI output connectors. Outputs SD, HD, and 3G signals.
14	SFP/SFP+ Port (SER03)	A PTP-compatible Ethernet SFP/SFP+ port.
		Connect an SFP or SFP+ module for use.
		[See also] 5.10, "Items Sold Separately"
15	RJ45 port (SER03)	A PTP-compatible Ethernet RJ45 port.
16	Serial label	The serial number is printed on this label.
17	Fan	Cooling fan for the instrument.
18	AC INPUT 2	AC inlet for the second power supply.
19	AC INPUT 1	AC inlet for the first power supply.

*1 The LT 4611 can be output the signal when each of the software options is installed. It is a standard feature on the LT 4610.

7. BASIC OPERATION

7.1 Turning the Power On

• Turning the Power On

This instrument does not have a power switch. Connect the included power cords to DC INPUT 1 and DC INPUT 2 on the rear panel. Since the power supply is redundant, even if one of the power supplies fail, operation can continue with the other power supply.

POWER 1 and POWER 2 on the front panel light in green when the power is on and in red when it is not. When one of the power supplies is not on, an alarm is indicated in ALARM SYSTEM of the STATUS menu.

Starting

When the power is turned on, this instrument starts to initialize. During initialization, you cannot use the keys.





LT 4611

LEADER LT4611 INITIALIZING				
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• Startup Complete

When the following menu appears, the startup is complete.



• Power-on Settings

The settings vary depending on the POWER ON RECALL setting on the SYSTEM menu as follows:

(Y: Settings that were used when the power was turned off previously, P: Preset settings, N: Factor default settings)

		POW	ER ON RECALL
		OFF	NUMBER 0 to 9
GENLOCK menu		Y	Р
	LOG LIST (00 to 99)	N	N
BLACK menu (including SER21)		Y	Р
SDI menu (SER22)		Y	Р
	ID CHARACTER (INT_1 to INT_4)	Y	Y
	LOGO (INT_1 to INT_4)	Y	Y
AES/EBU menu (SER23)		Y	Р
WCLK menu		Y	Р
ETC menu		Y	Р
GPS OPTION menu (SER01)		Y	Р
	CW IN/OUT	N	Р
12G OPTION menu (SER02)		Y	Р
	USER PATTERN (INT1 to INT8)	Y (*1)	Y (*1)
	ID CHARACTER (INT_1 to INT_4)	Y	Y
	LOGO (INT_1 to INT_4)	Y	Y
PTP OPTION menu (SER03)		Y	Р
SYSTEM menu		Y	Y

*1 SER02 user pattern specifies whether power on load will be performed when the user pattern is transferred from the storage memory to the display memory. If power on load is not specified, a fixed pattern (100% color bar) is output.

7.2 Attaching the Cover Inlet Stopper

A cover/inlet stopper is included with the LT 4610. Use this device to prevent the power cord from being pulled free of the AC inlet. To attach the cover/inlet stopper, follow the procedure below.

- Installation
 - 1. Cover the power cord with the cover/inlet stopper.



2. Push the cover/inlet stopper, until you hear a click, to attach it to the AC inlet.



- 3. Check that the cover/inlet stopper is securely attached to the AC inlet.
- Removing the Cover/Inlet Stopper
 - 1. Release the lock by using two fingers to press the cover/inlet stopper levers.



2. Pull the cover/inlet stopper away from the AC inlet.



7.3 Alarm Indications

If an alarm occurs, the ALARM indicator on the front panel blinks in red. If an attention state occurs, the ALARM indicator on the front panel blinks in orange. (If an alarm and attention state occur simultaneously, the alarm takes precedence, and the indicator blinks in red.)



You can check the alarm details with ALARM SYSTEM or ALARM SIGNAL(SER01) on the STATUS menu. See 8.3, "Alarm Display."

```
[ALARM SYSTEM]
FAN
```

[ALARM SIGNAL] GPS

You can check the attention details with ATTENTION GPS SAT(SER01) or ATTENTION(SER01) on the STATUS menu. See 8.4, "Attention Display (SER01)."

[ATTENTI	ΟN	GPS	SAT]
SAT-NUM	2,	CN 1	5 d B

LEAP-SECOND

7.4 Connecting a USB Memory Device

To write and read various types of data, you can use a USB memory device. You can connect and disconnect a USB memory device with the power turned on.

When you connect a USB memory device, the following message appears. Do not turn the power off or remove the USB memory device while it is being accessed.

USB	STORAGE DEVICE	
*	INSERT *	

When you remove the USB memory device, the following message appears.



7.5 Installing the SFP / SFP+ Transceiver Module (SER03)

If the SER03 is installed, the rear panel has an SFP/SFP+ Port. Install SFP or SFP+ modules sold separately.

You can connect and disconnect an SFP/SFP+ transceiver module with the power turned on. To install it, follow the procedure below.

- Installation
 - 1. Pay attention to the orientation of the SFP/SFP+ module, and insert the module into SFP/SFP+ Port.
 - 2. Push it in until a click is heard.



• Uninstallation

Pinch the SFP/SFP+ transceiver module with your fingers, and pull it out. Do not pull the cable.

- 7.6 Signal I/O
- 7.6.1 Analog Video Sync Signal Output



• LT 4610

Six analog video sync signals synchronized to the reference signal are output from the ANALOG BLACK OUT 1 to 6 connectors on the rear panel.

You can set the output signals on the BLACK menu.

[See also] 11, "BLACK Menu"

• LT 4611

Three analog video sync signals synchronized to the reference signal are output from the ANALOG BLACK OUT 1 to 3 connectors on the rear panel. If the SER21 is installed, three analog video sync signals synchronized to the reference signal are also output from the ANALOG BLACK OUT 4 to 6 connectors.

You can set the output signals on the BLACK menu. [See also] 11, "BLACK Menu

7.6.2 SDI Signal Output



• LT 4610

Two SDI signals synchronized to the reference signal are output from the SDI OUT connectors on the rear panel.

You can set the output signals on the SDI menu. [See also] 12, "SDI Menu"

• LT 4611

If the SER22 is installed, two SDI signals synchronized to the reference signal are output from the SDI OUT connectors on the rear panel.

You can set the output signals on the SDI menu.

[See also] 12, "SDI Menu"

7.6.3 AES/EBU Signal Output



• LT 4610

An AES/EBU signal synchronized to the reference signal is output from the AES/EBU connector on the rear panel. In addition, a muted AES/EBU signal is output from the SILENCE connector.

You can set the output signals on the AES/EBU menu. [See also] 13, "AES/EBU Menu"

• LT 4611

If the SER23 is installed, an AES/EBU signal synchronized to the reference signal is output from the AES/EBU connector on the rear panel. In addition, a muted AES/EBU signal is output from the SILENCE connector.

You can set the output signals on the AES/EBU menu. [See also] 13, "AES/EBU Menu"

7.6.4 Word-Clock Signal Output



A word-clock signal synchronized to the reference signal is output from the WCLK connector on the rear panel.

You can set the output signals on the WCLK menu.

[See also] 14, "WCLK MENU"





The GENLOCK IN connector on the rear panel receives HD tri-level sync or NTSC/PAL black burst signals as a genlock reference signal.

You can set the genlock on the GENLOCK menu.

In addition, it is possible to retrieve VITC from the genlock signal.

[See also] 10, "GENLOCK MENU"

Apply the genlock signal using one of the following methods.



7.6.6 GPS Signal Input (SER01)



The GPS IN connector on the rear panel receives GPS antenna signals as a genlock reference signal.

You can set the genlock on the GENLOCK menu.

In addition, it is possible to insert time codes acquired from the GPS signal into black, SDI, or AES/EBU signals and output the time codes from the LTC IN/OUT connector on the rear panel.

[See also] 10, "GENLOCK MENU"

7.6.7 CW Signal I/O (SER01)



CW IN/OUT on the rear panel is used by switching between input and output according to 16.1.7, "Selecting Input or Output."

When set to input, the connector receives 10 MHz CW signals as a genlock reference signal.

You can set the genlock on the GENLOCK menu. [See also] 10, "GENLOCK MENU"

When set to output, the connector outputs 10 MHz CW or 1PPS signals.[See also]16.1.8, "Selecting the Output Frequency"

7.6.8 LTC Signal I/O (SER01)



Pin No.	Pin Name	I/O
1	LTC0+	Ι
2	LTC1+	0
3	LTC2+	0
4	LTC3+	0
5	GND	-

Pin No.	Pin Name	I/O
6	GND	-
7	LTC0-	Ι
8	LTC1-	0
9	LTC2-	0
10	LTC3-	0

Pin No.	Pin Name	I/O
11	SHIELD GND	-
12	ALARM1	0
13	ALARM2	0
14	OPEN	-
15	SHIELD GND	-

The LTC IN/OUT connector on the rear panel sends and receives time codes and outputs alarms. On the LT 4610, input time codes are called LTC0 and output time codes LTC1 to LTC3.

• Time Code I/O

It is possible to insert time codes received through LTC0 into black, SDI, or AES/EBU signals and output the time codes from the LTC1 to LTC3 connectors on the rear panel. The time code input to LTC0 must be synchronized with the clock selected in the genlock mode on the LT 4610.

The LTC1 to LTC3 connectors output time codes synchronized to analog black signal 1. For the time code, you can select internal time, time codes retrieved from the GPS signal, time codes received through LTC0, or VITC retrieved from the genlock signal. [See also] 16, "GPS OPTION MENU (SER01)"

• Alarm output

If any of the alarms that are enabled according to 20.9.2, "Turing Alarm Output On and Off" occur, a 5 V CMOS signal is output from ALARM1 or ALARM2. (The polarity can be inverted.)

Alarm	Alarm condition
POWER1	When power to AC INPUT 2 is on but power to AC INPUT 1 is off.
POWER2	When power to AC INPUT 1 is on but power to AC INPUT 2 is off.
FAN	When a fan error occurs
GENLOCK NO SIGNAL	When the genlock status becomes NO SIGNAL
GENLOCK ST IN SYNC	When the genlock status becomes STAY IN SYNC
GPS ANNTENA	When ANTENNA POWER is set to 3.3V or 5V and a short circuit occurs
GPS PLL	When the genlock mode is set to GPS and the internal PLL is unlocked
GPS SIGNAL	When the LT 4610 is configured to use GPS signals, (*1) but GPS signals are not being
	received
CW SIGNAL	When the genlock mode is set to 10MHzCW and CW signals are not being received.
LTC0 SIGNAL	When TIMECODE SOURCE is set to LTC0 but LTC signals are not being received
VITC SIGNAL	When TIMECODE SOURCE is set to VITC but VITC signals are not being received
PTP1 PORT STATUS	When not locked in PTP master settings. (*2)
PTP2 PORT STATUS	When not locked in PTP master settings. (*2)
PTP1 LOCK	When not locked to the master PTP in PTP slave settings. (*2)
PTP2 LOCK	When not locked to the master PTP in PTP slave settings. (*2)
ATTENTION	When a GPS or time code attention occurs

*1 This signifies the setting in which any of the following is set to GPS.

- GENLOCK MODE on the GENLOCK menu
- DATE&TIME SOURCE on the SYSTEM menu
- TIMECODE SOURCE on the SYSTEM menu
- *2 When the SER03 is installed.

7.6.9 12G-SDI Signal Output (SER02)



Four SDI signals are output from the rear panel.

This option supports 12G-SDI, 3G-SDI (level A and level B), HD-SDI (including dual link), and SD-SDI.

You can set the output signals on the 12G OPTION menu.

[See also] 17, "12G OPTION Menu (SER02)"

7.6.10 PTP port (SER03)



This port supports PTP (IEEE 1588).

It provides an RJ-45 port and SFP/SFP+ port. The SFP/SFP+ port is used by connecting a separately sold LC2141 SFP RJ-45, LC2144 SFP+ MULTI-MODE, or LC2145 SFP+ SINGLE MODE.

You can set PTP settings on the PTP OPTION menu.

[See also] 19, "PTP OPTION MENU (SER03)"

7.7 Menu Operations

There are 12 main types (including options) of menus. The menu switches in order each time you press the MENU key and in reverse order each time you press the \blacktriangleleft key. (When the menu level is zero)

No.	Menu	Description	Reference
1	STATUS menu	Displays the LT 4610 status.	Chapter 8
	[STATUS] ▼GENLOCK →		
2	INFO menu	Displays the settings entered in the LT 4610.	Chapter 9
	[INFO] ▼GENLOCK →		
3	GENLOCK menu	Set the genlock.	Chapter 10
	O. GENLOCK ▼MODE →		
4	BLACK menu	Set the black signal.	Chapter 11
	0. BLACK ▼BLK1 J		
5	SDI menu	Set the SDI signal.	Chapter 12
	0. SDI ▼SDI1 →		
6	AES/EBU menu	Set the AES/EBU signal.	Chapter 13
	0. AES∕EBU ▼AES∕EBU →		
7	WCLK menu	Set the word-clock signal.	Chapter 14
	O.WCLK TIMING →		
8	ETC menu	Set the lip sync function.	Chapter 15
	0. ETC LIPSYNC →		
9	GPS OPTION menu	Set the GPS signal.	Chapter 16
	O. GPS OPTION ▼LTC →		
10	PTP OPTION menu	Configure the PTP settings.	Chapter 18
	0. PTP OPTION ▼PTP1		
11	12G OPTION menu	Set the 12G-SDI signal.	Chapter 17
	0. 12G OPTION ▼SDI 1 →		
12	SYSTEM menu	Configure the LT 4610 settings.	Chapter 20
	O. SYSTEM ▼LCD BACKLIGHT →		

• Menu Levels

With some exceptions, the setting menus show a number in the upper left of the screen. This number indicates the menu level. The larger the number, the deeper the level. To enter a lower level menu, press ENTER. To return to a higher level menu, press MENU or CANCEL. Pressing MENU once causes the menu to return to a higher level. In contrast, pressing CANCEL once causes the top menu item in the same level to be selected, and pressing it again causes the menu to return to a higher level.



Specifying Values

To specify values, use the \blacktriangleleft and \blacktriangleright keys to move the cursor and the \blacktriangle and \blacktriangledown keys to change the value. Hold down a key to change the value quickly.

Value modifications are applied immediately, but the value is not confirmed until you press the ENTER key.

1.	WCLK	TIMING			
			0	[FS]	

• Selecting Items

To select an item, use the \blacksquare and \blacktriangleright keys. An asterisk is attached to the currently selected value.

1. LCD BACKLIGHT ■ON □AUTO OFF □OFF 1. GENLOCK MODE ▶*INTERNAL

If a cursor (*) is displayed, use the \blacktriangleleft and \blacktriangleright keys to move the cursor, the \blacktriangle key to select on, and the \blacktriangledown key to select off.

3. SDI1 AUDIO ON∕OFF *■G1 ■G2 ■G3 ■G4

To select a setting from multiple menus, use the \blacktriangle and \blacktriangledown keys to select the menu, and then the \blacktriangleleft and \blacktriangleright keys to select the item.

2. SDI1 COLOR BAR
▼ ▶* 100%
SDIT MONITOR ► FLAT FIELD 100%
2. SDI1 SDI
 CHECK FIELD

• Confirming and Canceling Settings

On a setting menu, press ENTER to confirm the setting. Pressing MENU cancels the setting and returns to the higher level menu. Pressing CANCEL returns the setting to its original value.

7.8 Genlock Operation

Genlock refers to the act of establishing synchronization using an external reference signal. Here, the procedure is explained separately for six different modes.

Genlock mode	Reference signal	Description
Internal mode	Internal	The internal reference signal is used.
		The factory default setting is this mode.
Auto format mode	External	An external reference signal received through GENLOCK
	(HD tri-level sync signal or	IN on the rear panel is used. The LT 4610 automatically
	NTSC/PAL black burst signal)	selects the reference signal format.
Manual format	External	An external reference signal received through GENLOCK
mode	(HD tri-level sync signal or	IN on the rear panel is used. Set the reference signal
	NTSC/PAL black burst signal)	format manually.
GPS mode (SER01)	External	A GPS reference signal received through GPS IN on the
	(GPS signal)	rear panel is used.
CW mode (SER01)	External	An external reference signal received through CW IN/OUT
	(10 MHz CW signal)	on the rear panel is used.
PTP mode (SER03)	External	An external reference signal received through PTP on the
	(PTP signal)	rear panel is used.

7.8.1 Internal Mode

1. On the GENLOCK menu, set GENLOCK MODE to INTERNAL.

[See also] 10.1, "Selecting the Genlock Mode"



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Under GENLOCK on the STATUS menu, INTERNAL appears, and INT on the front panel lights in green. In this state, you can begin using the instrument.

						(
[GENLOCK INTERNAL]					
		-	0	0	Ö	/

7.8.2 Auto Format Mode

1. On the GENLOCK menu, set GENLOCK MODE to GL FMT-AUTO.

[See also] 10.1, "Selecting the Genlock Mode"



2. Apply a reference signal to GENLOCK IN on the rear panel.

Apply an HD tri-level sync or NTSC/PAL black burst signal. [See also] 7.6.5, "Genlock Signal Input"



When you apply the reference signal, TRACKING appears under GENLOCK on the STATUS menu, and EXT on the front panel blinks slowly in green. This indicates that the reference signal is being drawn in.

[GENLOCK] GL-FMT- (A) TRACKING	
<u>/</u>	

₽

When the LT4610 locks onto the signal, LOCKED appears under GENLOCK on the STATUS menu, and EXT on the front panel lights in green. In this state, you can begin using the instrument.

	[GENLOCK] GL-FMT- (A) LOCKED	MENU FUNCTION	ALARM C REF INT C EXT O)
<u> </u>				,

7. BASIC OPERATION

If an error occurs in the reference signal, the frequency that was in use immediately before the error occurred is maintained (stay-in-sync function).

Under GENLOCK on the STATUS menu, STAY IN SYNC appears, and EXT on the front panel blinks in red.



₽

The operation that takes place when the reference signal recovers varies depending on the RECOVERY MODE setting on the GENLOCK menu.

If RECOVERY MODE is set to AUTO, the LT 4610 automatically locks when the reference signal recovers.

If RECOVERY MODE is set to MANUAL, the LT 4610 does not lock automatically even when the reference signal recovers. In this situation, you can lock onto the signal by setting GENLOCK RESET on the GENLOCK menu to OK. While relocking, all output signals are output.

[See also] 10.4, "Setting the Recovery Operation"



7.8.3 Manual Format Mode

1. On the GENLOCK menu, set GENLOCK MODE to GL FMT-MANUAL.

[See also] 10.1, "Selecting the Genlock Mode"



2. Set FORMAT on the GENLOCK menu.

Select the format of the reference signal that will be applied to GENLOCK IN on the rear panel.

[See also] 10.2, "Selecting the Genlock Format"



3. Apply a reference signal to GENLOCK IN on the rear panel.

Apply an HD tri-level sync or NTSC/PAL black burst signal.

[See also] 7.6.5, "Genlock Signal Input"



J

When you apply the reference signal, TRACKING appears under GENLOCK on the STATUS menu, and EXT on the front panel blinks slowly in green. The procedure from this point is the same as in 7.8.2, "Auto Format Mode."



7.8.4 GPS Mode (SER01)

1. On the GENLOCK menu, set GENLOCK MODE to GPS.

If a GPS alarm, PLL alarm, GPS attention, or leap second attention state occurs, the ALARM indicator on the front panel blinks in red.

[See also] 10.1, "Selecting the Genlock Mode"



2. Apply a GPS antenna signal to GPS IN on the rear panel.



₽

When you apply the GPS antenna signal, the GPS alarm and attention disappear, and under GENLOCK on the STATUS menu, an asterisk appears next to GPS.

ALARM indicator on the front panel keeps blinking in red or orange until the PLL alarm and leap second attention disappear. (It may take up to 12 minutes for the leap second attention to disappear after applying the GPS signal.)

[GENLOCK] GPS* NO SIGNAL	MENU FUNCTION ALARM

₽

When the PLL alarm and leap second attention disappear, TRACKING appears under GENLOCK on the STATUS menu, and EXT on the front panel blinks slowly in green. The procedure from this point is the same as in 7.8.2, "Auto Format Mode."



7.8.5 CW Mode (SER01)

1. On the GENLOCK menu, set GENLOCK MODE to 10MHzCW.

A 10MHzCW alarm occurs, and the ALARM indicator on the front panel blinks in red. [See also] 10.1, "Selecting the Genlock Mode"



2. Set CW IN/OUT on the GPS OPTION menu to INPUT.

[See also] 16.1.7, "Selecting Input or Output"



3. Apply a 10MHz CW signal to CW IN/OUT on the rear panel.

To avoid damaging the instrument, do not apply a 10 MHz CW signal when OUTPUT is selected in step 2.



When you apply the 10 MHz CW signal, TRACKING appears under GENLOCK on the STATUS menu, and EXT on the front panel blinks slowly in green. The procedure from this point is the same as in 7.8.2, "Auto Format Mode."



7.8.6 PTP Mode (SER03)

1. On the GENLOCK menu, set GENLOCK MODE to PTP.

The ALARM indicator on the front panel blinks in red. [See also] 10.1, "Selecting the Genlock Mode"

1. GENLOCK MODE •*PTP	MENU FUNCTION ALARM	
--------------------------	---------------------	--

2. Attach an SFP or SFP+ transceiver to the PTP RJ45 port or the SFP/SFP+ port on the rear panel, and receive PTP packets.

When PTP packets are received, frequency adjustment is performed followed by phase adjustment. During this period, the ALARM indicator on the front panel blinks in red.



3. After the phase adjustment, time information is received. During this period, the ALARM indicator on the front panel blinks in orange.



4. When time information is successfully received, TRACKING appears under GENLOCK on the STATUS menu, and EXT on the front panel blinks slowly in green. The procedure from this point is the same as in 7.8.2, "Auto Format Mode."

[GENLOCK] PTP TRACKING		
---------------------------	--	--

8. STATUS MENU

The STATUS menu shows the LT 4610 status. This menu is only for viewing; you cannot change the settings.

To display the STATUS menu, press MENU several times until the following menu appears.

[STATUS] ▼GENLOCK ↓

On the STATUS menu, you can use the \blacktriangle and \blacktriangledown keys to switch the menu even when you are in a lower level menu.



8.1 Genlock Status Display

The GENLOCK item displays the genlock status. This section will explain the display details in conjunction with the front panel REF display.

Genlock mode	Menu example	Reference display	Description
INTERNAL	[GENLOCK] INTERNAL	INT [INT] EXT Lit in green	-
GL FMT-AUTO GL FMT-MANUAL GPS (SER01) 10MHzCW (SER01)	[GENLOCK] GL-FMT- (A) NO SIGNAL	REF INT ○ EXT Blinking green (fast)	When the input signal cannot be detected
	[GENLOCK] GL-FMT- (A) TRACKING	REF INT O EXT INT Blinking green (slow)	Tracking
	[GENLOCK] GL-FMT- (A) LOCKED	REF INT INT [EXT] O Lit in green	Locked
	[GENLOCK] GL-FMT- (A) STAY IN SYNC	REF INT O EXT € Blinking red	When the reference signal cannot be detected correctly (Stay-in-sync)
PTP (SER03)	[GENLOCK] PTP NO SIGNAL	REF INT INT [EXT] O Blinking ↓ green (fast)	When there is no input signal
	[GENLOCK] PTP TRACKING	REF INT O EXT ·∳· green (slow)	Tracking
	[GENLOCK] PTP LOCKED	REF INT INT [EXT] O Lit in green	Locked
	[GENLOCK] PTP STAY IN SYNC	REF INT ○ EXT ★ Blinking red	When an error occurs in the reference signal (Stay-in-sync)

8. STATUS MENU

When the genlock mode is set to GPS, an asterisk is displayed when a GPS signal is received. This is synchronized to the GPS alarm. When the asterisk is hidden, the GPS alarm is indicated, and vice versa.

[See also] 8.3, "Alarm Display"

[GENLOCK] GPS* LOCKED

8.2 Genlock Format Display

The GENLOCK FORMAT item displays the genlock format when the genlock mode is not INTERNAL.

When the genlock mode is set to GL FMT-AUTO or GL FMT-MANUAL, the format of the signal received through GENLOCK IN on the rear panel is displayed.

In either mode, if the signal is being tracked or the input signal cannot be recognized, "UNKNOWN" is displayed.

When the genlock mode is set to GPS(SER01) or 10MHzCW(SER01), the format of Black 1 selected in 11.1, "Selecting the Black Format," is displayed.

```
[GENLOCK FORMAT]
NTSC BB
```

8.3 Alarm Display

There are two types of alarm displays: one dealing with the LT 4610 and the other dealing with the signal. If an alarm occurs, the ALARM indicator on the front panel blinks in red. However, if a PWR1 or PWR2 alarm occurs, the ALARM indicator does not turn on. Instead POWER 1 or POWER 2 lights in red.

• Alarm display related to the LT 4610

ALARM SYSTEM shows alarms related to the LT 4610.

[ALARM SYSTEM] FAN

The following table lists the alarms related to the LT 4610.

Alarm	Display condition	Corrective action	
FAN	When a fan error occurs	Contact your nearest LEADER agent.	
PWR1	When power to AC INPUT 2 is on but	If this alarm appears even when power to AC INPUT	
	power to AC INPUT 1 is off.	1 is turned on, contact your nearest LEADER agent.	
PWR2	When power to AC INPUT 1 is on but	If this alarm appears even when power to AC INPUT	
	power to AC INPUT 2 is off.	2 is turned on, contact your nearest LEADER agent.	
ANT.	When ANTENNA POWER on the SYSTEM	Check the GPS antenna.	
	menu is set to 3.3V or 5V and a short		
	circuit occurs (SER01)		

• Alarm display related to signals (SER01, SER03)

ALARM SIGNAL shows alarms related to signals.

[ALARM SIGNAL] GPS

The following table lists the alarms related to the LT signals.

Alarm	Display condition	Corrective action
PLL	When the genlock mode is set to GPS	Contact your nearest LEADER agent.
	and the internal PLL is unlocked	
GPS	When the LT 4610 is configured to use	Check that GPS signals are being applied to
	GPS signals,(*1) but GPS signals are not	GPS IN on the rear panel.
	being received	
10MHzCW	When the genlock mode is set to	Check that 10 MHz CW signals are being
	10MHzCW and CW signals are not being	applied to CW IN/OUT on the rear panel.
	received.	
LTC0	When TIMECODE SOURCE on the	Check that LTC signals are being applied to
	SYSTEM menu is set to LTC0 but LTC	LTC IN/OUT on the rear panel.
	signals are not being received	
VITC	When TIMECODE SOURCE on the	Check that VITC signals are being applied to
	SYSTEM menu is set to VITC but VITC	GENLOCK IN on the rear panel.
	signals are not being received	
PTPx PLL measuring	When PTP is adjusting the frequency	When the adjustment is completed, it
(SER03)	and phase with the time source.	disappears automatically.
ADJUST FREQ	When the genlock mode is PTP and the	If it continues to be displayed, check the
(SER03)	frequency is adjusting to the received	settings for each message interval with the
	PTP packet.	PTP master.
ADJUST PHASE	When the genlock mode is PTP and the	If it continues to be displayed, check the
(SER03)	phase is adjusting to the received PTP	settings for each message interval with the
	packet.	PTP master.

*1 This signifies the setting in which any of the following is set to GPS.

- GENLOCK MODE on the GENLOCK menu
- DATE&TIME SOURCE on the SYSTEM menu
- TIMECODE SOURCE on the SYSTEM menu

8.4 Attention Display (SER01)

There are two types of attention displays: one dealing with the GPS and the other dealing with the time code. If an attention state occurs, the ALARM indicator on the front panel blinks in orange.

• Attention display related to GPS

The ATTENTION GPS SAT menu appears when the LT 4610 is configured to use GPS signals, (*1), and the number of used satellites is 2 or less or if the maximum CN value is 15 dB or less.

```
[ATTENTION GPS SAT]
SAT-NUM 2, CN 15dB
```

• Attention display related to time codes

The ATTENTION item displays attention states related to time codes.

```
[ATTENTION]
LEAP—SECOND
```

The following table lists the attention states related to time codes.

Attention	Display condition	
LEAP-SECOND	When the LT 4610 is configured to use GPS signals,(*1) but leap second	
	information cannot be received	
	(It may take up to 12 minutes for the leap second information to be received	
	after applying the GPS signal.)	
CLOCK	While settings are being changed when TIMECODE SOURCE is set to INTERNAL	
	and DATE&TIME SOURCE is set to GPS	
	(It will take some time for the LT 4610 to be able to use the time codes	
	retrieved from the GPS signal after the settings have been changed.)	

*1 This signifies the setting in which any of the following is set to GPS.

- GENLOCK MODE on the GENLOCK menu
- DATE&TIME SOURCE on the SYSTEM menu
- TIMECODE SOURCE on the SYSTEM menu

8.5 Satellite Count Display (SER01)

The SATELLITE NUMBER item displays the number of GPS satellites.

The numerator indicates the number of satellites in the line of view, and the denominator the number of satellite that the LT 4610 can use.

```
[SATELLITE NUMBER]
8 / 11
```

8.6 CN Display (SER01)

The GPS CN item displays the CN of the GPS signal.

Of the satellites that the LT 4610 can use, MIN shows the minimum CN value and MAX the maximum value.

```
[GPS CN]
MIN:15 MAX:35 [dB]
```

8.7 PTP Attention Display (SER03)

When PTP1 or PTP2 is set to MASTER, the attentions states are displayed. If a PTP attention state occurs, the ALARM indicator on the front panel blinks in orange.

Display example	ALARM LED display	Description
[ATTENTION PTPx] PTP PLL ADJUST	Blinking orange	PLL adjustment in progress
[ATTENTION PTPx] TIME SETTING	Blinking orange	Time setting in progress

* PTPx in the display examples is either PTP1 or PTP2.

8.8 PTP PHASE Display (SER03)

When the GENOCK mode is PTP, the time difference from the PTP master is displayed when locked to PTP master.

[PTP PHASE] — 15. 278 n s

8.9 UTC Display (SER01)

The UTC TIME item displays the Coordinated Universal Time retrieved from the GPS signal.

```
[UTC TIME]
2018∕04∕01 12:34:56
```

8.10 Local Time Display (SER01)

The LOCAL TIME item displays the time code selected in 20.7.1, "Selecting the Time Code."

```
[LOCAL TIME]
2018/04/01 12:34:56
```

8.11 Internal Clock Display (SER01)

The INTERNAL CLOCK item displays the internal clock selected in 20.6.1, "Selecting the Date and Time."

[INTERNAL CLOCK] 2018/04/01 12:34:56

8. STATUS MENU

9. INFO MENU

The INFO item displays the settings entered in the LT 4610. This menu is only for viewing; you cannot change the settings.

To display the INFO menu, press MENU several times until the following menu appears.



On the INFO menu, you can use the \blacktriangle and \blacktriangledown keys to switch after you enter a lower level menu.



9.1 Genlock Setting Display

The GENLOCK item displays the items set on the GENLOCK menu.

```
[INFO]
▼GENLOCK J
```

• GENLOCK MODE

The genlock mode selected in 10.1, "Selecting the Genlock Mode," is displayed.

[GENLOCK MODE] INTERNAL

• GENLOCK RECOVERY

When the genlock mode is not set to INTERNAL, the recovery mode selected in 10.4.2, "Selecting the Auto Setting," is displayed.

```
[GENLOCK RECOVERY]
FAST
```

• GENLOCK FORMAT

When the genlock mode is set to GL FMT-AUTO or GL FMT-MANUAL, the genlock format of the signal input to GENLOCK IN is displayed. When the signal format cannot be detected, UNKNOWN is displayed.

When the genlock mode is set to GPS or PTP, the format of the signal output to ANALOG BLACK OUT 1 is displayed.

[GENLOCK FORMAT] NTSC BB

• GENLOCK TIMING

When the genlock mode is set to GL FMT-AUTO, GL FMT-MANUAL, GPS(SER01), or PTP(SER03), the timing selected in 11.2, "Adjusting the Timing," is displayed.

```
[GENLOCK TIMING] OF
OL OD OFN
```

9.2 Black Setting Display

The BLACK item displays the items set on the BLACK menu.

[INFO]	
♣ B L A C K	ب ا

• BLK1 FORMAT

The Black 1 format selected in 11.1, "Selecting the Black Format," is displayed. The same holds true for BLK2 FORMAT to BLK6 FORMAT.

For the LT 4611, BLK4 FORMAT to BLK6 FORMAT is displayed when SER21 is installed.

```
[BLK1 FORMAT]
NTSC BB
```

• BLK1 TIMING

The Black 1 timing selected in 11.2, "Adjusting the Timing," is displayed. The same holds true for BLK2 TIMING to BLK6 TIMING.

For the LT 4611, BLK4 TIMING to BLK6 TIMING is displayed when SER21 is installed.

[BLK1 TIMING] OF OL OD

9.3 SDI Setting Display

The SDI item displays the items set on the SDI menu. For the LT 4611, it is displayed when SER22 is installed.

[INFO] \$SDI ...

• SDI1 FORMAT

The SDI1 format selected in 12.1, "Setting the SDI Format," is displayed. The same hold true for SDI2 FORMAT.

[SDI1 FORMAT] 1080:HD /59.94I

• SDI1 TIMING

The SDI1 timing selected in 11.2, "Adjusting the Timing," is displayed. The same hold true for SDI2 TIMING.

```
[SDI1 TIMING]
OL OD
```

9.4 GPS Setting Display (SER01)

The GPS item displays the voltage supplied to the GPS antenna selected in 20.8.2, "Setting the Power Supply."

[INFO]	[GPS ANTENNA]
▲ G P S →	OFF

9.5 12G Setting Display (SER02)

The 12G item displays the items set on the 12G OPTION menu.

[INFO]		
▲ 1 2 G	ب ا	

• 12G 1 FORMAT

The SDI1 format is displayed.

The same applies to 12G 2 FORMAT, 12G 3 FORMAT, and 12G 4 FORMAT.

[12G 1 FORMAT] 2160 12G∕59.94P

• 12G 1 TIMING

The SDI1 timing is displayed.

The same applies to 12G 2 TIMING, 12G 3 TIMING, and 12G 4 TIMING.

[12G 1 TIMING] OL OD
10. GENLOCK MENU

The GENLOCK item displays settings related to genlock operation. To display the GENLOCK menu, press MENU several times until the following menu appears.

0.	GENLOCK	
▼ M	ODE	Ļ

10.1 Selecting the Genlock Mode

To select the genlock mode, follow the procedure below.

1. GENLOCK MODE ▶*INTERNAL

Procedure

 $\mathsf{GENLOCK} \to \mathsf{MODE}$

Parameters	
INTERNAL:	The internal reference signal is used.
GL FMT-AUTO:	An external reference signal received through GENLOCK IN on the rear panel
	is used. The LT 4610 automatically selects the format.
GL FMT-MANUAL: An external reference signal received through GENLOCK IN on the rear	
	panel is used. The format must be set manually.
GPS:	An external reference signal received through GPS IN on the rear panel is
	used. You can select this option when SER01 is installed.
10MHzCW:	An external reference signal received through CW IN/OUT on the rear panel
	is used. You can select this option when SER01 is installed.
PTP:	PTP1 is set to PTP slave. You can select this option when SER03 is installed.

10.2 Selecting the Genlock Format

When the genlock mode is set to GL FMT-MANUAL, to select the genlock format, follow the procedure below. To select items use the \blacktriangle , \blacktriangledown , \triangleleft , and \blacktriangleright keys.

The genlock formats are expressed in terms of the total number of lines, not the number of effective lines.

1. GENLOCK NTSC ▼ ▶*NTSC BB

Procedure

 $\mathsf{GENLOCK} \to \mathsf{FORMAT}$

Parameters

NTSC:	NTSC BB / NTSC BB+REF / NTSC BB+ID / NTSC BB+REF+ID
PAL:	PAL BB / PAL BB+REF
COMPONENT:	525/59.94I / 525/59.94P / 625/50I / 625/50P
1125:HD:	1125/60I / 1125/59.94I / 1125/50I / 1125/30P / 1125/29.97P /
	1125/25P / 1125/24P / 1125/23.98P / 1125/24PsF / 1125/23.98PsF
750:HD:	750/60P / 750/59.94P / 750/50P / 750/30P / 750/29.97P / 750/25P /
	750/24P / 750/23.98P

* REF represents the field reference pulse, and ID represents the field ID.

10.3 Adjusting the Timing

Under GENLOCK \rightarrow TIMING, you can collectively adjust the timing of the output signals (ANALOG BLACK, SDI, AES/EBU, SILENCE, WCLK) relative to the reference signal. (You can also adjust them individually.)

This menu appears when the genlock mode is set to GL FMT-AUTO, GL FMT-MANUAL, GPS(SER01) or PTP(SER03).

0. GENLOCK	
≑ ⊤IMING	ل م

10.3.1 Adjusting the Timing (Frame)

To adjust the output signals relative to the reference signal at the frame level, follow the procedure below.

This menu is displayed in the following situations.

- When the genlock mode is set to GL FMT-AUTO and the format of the signal applied to GENLOCK IN on the rear panel is NTSC or PAL
- When the genlock mode is set to GL FMT-MANUAL and the format selected in 10.2, "Selecting the Genlock Format," is NTSC or PAL
- When the genlock mode is set to GPS or PTP and the Black 1 format selected in 11.1, "Selecting the Black Format," is NTSC or PAL

2. GENLOCK TIMING F <u>O</u>FRAME

Procedure

 $\mathsf{GENLOCK} \to \mathsf{TIMING} \to \mathsf{FRAME}$

Parameters

NTSC:	-5 to 0 to +5
PAL:	-2 to $\frac{1}{0}$ to +2

10.3.2 Adjusting the Timing (Line)

To adjust the output signals relative to the reference signal at the line level, follow the procedure below.

The variable range varies depending on the format.

2. GENLOCK TIMING V <u>O</u> LINE

Procedure

 $\mathsf{GENLOCK} \to \mathsf{TIMING} \to \mathsf{VERTICAL}$

Parameters

-1125 to 0 to +1125

10.3.3 Adjusting the Timing (Dot)

To adjust the output signals relative to the reference signal at the dot level, follow the procedure below. To the right of DOT, the value obtained by converting dots into time is displayed.

The variable range varies depending on the format.

2. GENLOCK TIMING H <u>0</u> DOT 0. 0000μs

Procedure

 $\mathsf{GENLOCK} \to \mathsf{TIMING} \to \mathsf{HORIZONTAL}$

Parameters

-432 to 0 to +432

10.3.4 Finely Adjusting the Timing

To finely adjust the output signals relative to the reference signal, follow the procedure below.

One step is approximately 0.5 ns and covers one dot period.

```
2. GENLOCK TIMING FN
FINE: <u>O</u>
```

Procedure

 $\mathsf{GENLOCK} \to \mathsf{TIMING} \to \mathsf{FINE}$

Parameters

-100 to 0 to +100

10.4 Setting the Recovery Operation

Under GENLOCK \rightarrow RECOVERY, you can set the recovery operation that takes place when the reference signal is lost during genlock operation.

This menu appears when the genlock mode is not set to INTERNAL.

1. GENLOCK RECOVERY ▼MODE J

10.4.1 Selecting the Recovery Mode

To select the relock operation to perform when the reference signal recovers after it is lost during genlock operation, follow the procedure below.

2. RECOVERY MODE ■AUTO □MANUAL

Procedure

 $\mathsf{GENLOCK} \to \mathsf{RECOVERY} \to \mathsf{MODE}$

Parameters

AUTO:	The LT 4610 quickly relocks onto the reference signal.
MANUAL:	Stay-in-sync operation is held.

10.4.2 Selecting the Auto Setting

To select the relock operation to perform when the recovery mode is set to AUTO, follow the procedure below.

When the genlock mode is GPS (SER01), you cannot select IMMEDIATE.

2. AUTO SETTING ▶*FAST

Procedure

 $\mathsf{GENLOCK} \to \mathsf{RECOVERY} \to \mathsf{AUTO}\ \mathsf{SETTING}$

Parameters

IMMEDIATE:	The LT 4610 immediately relocks onto the reference signal.
FAST:	The LT 4610 quickly relocks onto the reference signal.
SLOW:	The LT 4610 slowly relocks onto the reference signal.

10.4.3 Selecting the Manual Setting

To select the relock operation to perform when the recovery mode is set to MANUAL, follow the procedure below.

2. MANUAL SETTING ▶*IMMEDIATE

Procedure

 $\mathsf{GENLOCK} \to \mathsf{RECOVERY} \to \mathsf{MANUAL}\ \mathsf{SETTING}$

Parameters

rarameters	
IMMEDIATE:	The LT 4610 immediately relocks onto the reference signal.
FAST:	The LT 4610 quickly relocks onto the reference signal.
SLOW:	The LT 4610 slowly relocks onto the reference signal.

10.4.4 Setting the Relock

To manually relock when the reference signal recovers after it is lost during genlock operation, select OK by following the procedure below. This setting is used when RECOVERY MODE is set to MANUAL.

2. GENLOCK RESET □OK ■CANCEL

Procedure

 $\mathsf{GENLOCK} \to \mathsf{RECOVERY} \to \mathsf{GENLOCK} \; \mathsf{RESET}$

10.5 Setting the Genlock Log

Under GENLOCK \rightarrow LOG, you can set the genlock log. The genlock log automatically records the changes in the genlock state in chronological order.

0. GENLOCK ▲LOG →

10.5.1 Viewing the Log

To view the genlock log, follow the procedure below.

Press \blacksquare to view newer log entries, \blacksquare to view older log entries, and ENTER to view the details of log entries.

You can view up to 100 entries from 00 to 99. Subsequent entries that occur overwrite the oldest entries.

The date and time will be those selected in 20.6.1, "Selecting the Date and Time."

The genlock log is not cleared when the settings are initialized but is cleared when the power is turned off.

Procedure

```
\mathsf{GENLOCK} \to \mathsf{LOG} \to \mathsf{LIST}
```

10.5.2 Adding DETAIL and ALARM

To turn on and off DETAIL and ALARM additions to the genlock log separately, follow the procedure below. By default, both DETAIL and ALARM are turned off.

When DETAIL is turned on, FORMAT NOT DETECT is valid, when the genlock format is analog video sync signal (NTSC BB, PAL BB, Tri-Level SYNC), such as the interruption of the analog video sync signal are detected.

When ALARM is turned on, FAN, POWER1 and POWER2 are valid, and power failure and fan stop are detected.

When the DETAIL and ALARM settings are changed, the genlock log disappears.

Procedure

 $\mathsf{GENLOCK} \to \mathsf{LOG} \to \mathsf{SELECT} \ \mathsf{LOG}$

Parameters

ON / OFF

10.5.3 Copying the Log to USB

To copy the genlock log in text format from the LT 4610 to a USB memory device, follow the procedure below.

This setting appears when a USB memory device is connected.

2. COPY LOG INT→USB ■OK □CANCEL

Procedure



• USB Memory Device File Structure

The genlock log is copied to the LOG folder in the USB memory device. The date and time of the file will be those selected in 20.6.1, "Selecting the Date and Time."

- USB memory device
- LT 4610_USER

🗆 🗋 YYYYMMDDhhmmss.txt

• Example of YYYYMMDDhhmmss.txt

```
00:2016/04/07 13:33:01 MODE[INTERNAL]
01:2016/04/07 13:33:01 FORMAT[NTSC BB]
02:2016/04/07 13:33:01 EPOCH[SMPTE]
03:2016/04/07 13:33:01 LOCK(NO SIGNAL)
04:2016/04/07 13:33:02 LOCK(INTERNAL)
05:2016/04/07 13:33:23 MODE[GENLOCK-FMT-
AUTO]
06:2016/04/07 13:33:23 LOCK(NO SIGNAL)
07:2016/04/07 13:33:37 LOCK(TRACKING)
08:2016/04/07 13:33:46
LOCK(EXT.)[1125/59.94I]
09:2016/04/07 13:34:13 LOCK(STAY IN SYNC)
10:2016/04/07 13:34:51
LOCK(EXT.)[1125/59.94I]
```

10.5.4 Clearing the Log

To clear the genlock log, select OK by following the procedure below.

```
2. DELETE LOG
∎ok ⊡cancel
```

```
Procedure
```

```
\mathsf{GENLOCK} \to \mathsf{LOG} \to \mathsf{DELETE}
```

11. BLACK MENU

The BLACK menu is used to specify settings related to black output. For the LT 4611, you can select Black 4 to 6 when SER21 is installed. To display the BLACK menu, press MENU several times until the following menu appears.



On the BLACK menu, you can set Black 1 to 6 separately. The procedure below is for Black 1, but the same procedure can be applied to Black 2 to 6.

11.1 Selecting the Black Format

To select the black signal format, follow the procedure below. To select items use the \blacktriangle , \blacktriangledown , \blacksquare , and \triangleright keys.

The black formats are expressed in terms of the total number of lines, not the number of effective lines.

2. BLK1 NTSC ▼ ▶*NTSC BB

When the genlock mode is set to GPS(SER01) or 10MHzCW(SER01), for Black 1 only, the following message will appear if the value is changed. If OK is selected, the LT 4610 unlocks from the signal if it is locked and switches to tracking operation.

CHANGE	BLK1	FORMAT ?
∎ок		

Procedure

 $\mathsf{BLACK} \to \mathsf{BLK1} \to \mathsf{FORMAT}$

Parameters	
NTSC:	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:	PAL BB / PAL BB+REF
COMPONENT:	525/59.94I / 525/59.94P / 625/50I / 625/50P
1125:HD:	1125/60I / 1125/59.94I / 1125/50I / 1125/30P / 1125/29.97P /
	1125/25P / 1125/24P / 1125/23.98P / 1125/24PsF / 1125/23.98PsF
750:HD:	750/60P / 750/59.94P / 750/50P / 750/30P / 750/29.97P / 750/25P /
	750/24P / 750/23.98P

* REF and R represent the field reference pulse, ID represents the field ID, and S represents setup.

* The default value is NTSC BB when FORMAT SETTING is NTSC and PAL BB when FORMAT SETTING is PAL.

11.2 Adjusting the Timing

Under BLACK \rightarrow BLK1 \rightarrow TIMING, you can adjust the black signal relative to the reference signal.

1. BLACK BLK1 ▲TIMING J

11.2.1 Adjusting the Timing (Frame)

When the black format is set to NTSC or PAL, to adjust the black signal relative to the reference signal at the frame level, follow the procedure below.

3. BLK1 TIMING F <u>O</u> FRAME

Procedure

```
\mathsf{BLACK} \to \mathsf{BLK1} \to \mathsf{TIMING} \to \mathsf{FRAME}
```

Parameters

NTSC:	-5 to 0 to +5
PAL:	-2 to 0 to +2

11.2.2 Adjusting the Timing (Line)

To adjust the black signal relative to the reference signal at the line level, follow the procedure below.

The variable range varies depending on the format.

```
3. BLK1 TIMING V
<u>O</u>LINE
```

Procedure

 $\mathsf{BLACK} \to \mathsf{BLK1} \to \mathsf{TIMING} \to \mathsf{VERTICAL}$

Parameters

-1124 to 0 to +1124

11.2.3 Adjusting the Timing (Dot)

To adjust the black signal relative to the reference signal at the dot level, follow the procedure below. To the right of DOT, the value obtained by converting dots into time is displayed.

The variable range varies depending on the format.

3. BLK1 TIMING H <u>0</u> DOT 0. 0000μs

Procedure

 $\mathsf{BLACK} \to \mathsf{BLK1} \to \mathsf{TIMING} \to \mathsf{HORIZONTAL}$

Parameters

-4124 to 0 to +4124

11.3 Turing the Time Code On and Off (SER01)

When the black format is NTSC or PAL, to turn on or off the time code insertion selected in 20.7.1, "Selecting the Time Code," follow the procedure below.

Black 2 to 6 can be turned on or off when the format is the same type as Black 1 (NTSC or PAL).

2. BLK1 VITC □ON ■OFF

Procedure

 $\mathsf{BLACK} \to \mathsf{BLK1} \to \mathsf{VITC}$

Parameters ON / OFF

11.4 Common Black Signal Settings

You can synchronize the Black 2 settings to the Black 1 settings by following the procedure below to select ON. If you synchronize the settings, you cannot set the format or timing of Black 2 separately.

Likewise, Black 3 to 6 settings can also be synchronized to the Black 1 settings.



Procedure

```
\mathsf{BLACK} \to \mathsf{BLK2} \to \mathsf{EQUAL} \text{ TO } \mathsf{BLK1}
```

Parameters

ON / OFF

12. SDI MENU

The SDI menu is used to specify settings related to SDI output. For the LT 4611, you can select this option when SER22 is installed. To display the SDI menu, press MENU several times until the following menu appears.

O. SDI	
▼SDI1	ب ا

On the SDI menu, you can set SDI1 and SDI2 separately. The procedure below is for SDI1, but the same procedure can be applied to SDI2.

Note that for 3G-B or HD(DL), SDI2 cannot be set because only one output is available.

12.1 Setting the SDI Format

Under SDI \rightarrow SDI1 \rightarrow FORMAT, you can set the SDI signal format. For the available combinations of IMAGE, STRUCTURE, and RATE, see 5.1.2, "SDI Formats and Standards."

1. SDI1	
▼ F O R M A T	-J

12.1.1 Selecting the Image

To select the SDI signal image, follow the procedure below. For SDI2, you cannot select 1920x1080:3G-B-DL or 1920x1080:HD-DL. Changing this setting also changes the STRUCTURE And RATE settings.

```
3. SDI1 IMAGE
+→ * 1920 x 1080 : HD
```

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{FORMAT} \to \mathsf{IMAGE}$

Parameters

```
720x487:SD / 720x576:SD / 1280x720:HD / <u>1920x1080:HD</u> / 
1280x720:3G-A / 1920x1080:3G-A / 1920x1080:3G-B-DL / 1920x1080:HD-DL
```

12.1.2 Selecting the Color System

To select the SDI signal color system and quantization accuracy, follow the procedure below.

Changing this setting also changes the RATE settings.

3. SDI1 STRUCTURE ↔ * 4 2 2 (YCbCr) 10 - b i t

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{FORMAT} \to \mathsf{STRUCTURE}$

Parameters

<u>422(YCbCr)10-bit</u> / 422(YCbCr)12-bit / 444(YCbCr)10-bit / 444(YCbCr)12-bit / 444(RGB)10-bit / 444(RGB)12-bit

12.1.3 Selecting the Frame Frequency

To select the SDI signal frame (field) frequency, follow the procedure below.

З.	S D	I	1		R	A	т	Е
◆	59	•	9	4	I			

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{FORMAT} \to \mathsf{RATE}$

Parameters

60I / <u>59.94I</u> / 50I / 60P / 59.94P / 50P / 30P / 29.97P / 25P / 24P / 23.98P / 30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF

* The default value is 59.94I when FORMAT SETTING is NTSC and 50I when FORMAT SETTING is PAL.

12.2 Adjusting the Timing

Under SDI \rightarrow SDI1 \rightarrow TIMING, you can adjust the SDI signal relative to the reference signal.

1. SDI1	
≑ TIMING	Ļ

12.2.1 Selecting the Timing Reference

To select the output timing used as a reference for the SDI and black signals, follow the procedure below.

When the output signal is 3G, this menu item is not displayed. If is fixed at SERIAL.

3. SDI1 OH TIMING ■SERIAL □LEGACY

Procedure

$SDI \to SDI1 \to TIMING \to OH \ TIMING$	
---	--

Parameters

SERIAL:	Signals are output at the timing defined in the signal standard.
LEGACY:	Signals are output at the same timing as LEADER's conventional signal
	generators.

12.2.2 Adjusting the Timing (Line)

To adjust the SDI signal relative to the reference signal at the line level, follow the procedure below.

The variable range varies depending on the format.

3. SDI1 TIMING V <u>O</u>LINE

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{TIMING} \to \mathsf{VERTICAL}$

Parameters

-1124 to 0 to +1124

12.2.3 Adjusting the Timing (Dot)

To adjust the SDI signal relative to the reference signal at the dot level, follow the procedure below. To the right of DOT, the value obtained by converting dots into time is displayed.

The variable range varies depending on the format.

When IMAGE is 1920x1080 3G-B-DL and STRUCTURE is 422(YCbCr)10bit, you can set the value in 2-dot steps.

3. SDI1 TIMING H <u>0</u> DOT 0. 0000µs

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{TIMING} \to \mathsf{HORIZONTAL}$

Parameters

-4124 to 0 to +4124

Selecting the Pattern 12.3

To select the output pattern, follow the procedure below. To select items use the \blacktriangle , \blacktriangledown , \triangleleft , and ▶ keys.

2. SDI1 COLOR BAR ▼ ▶* 100%

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{PATTERN}$

Parameters	
COLOR BAR:	100% / 75% / MULTI 100% / MULTI 75% / MULTI (+I) /
	SMPTE / EBU / BBC
MONITOR:	FLAT FIELD 100% / FLAT FIELD 0% / RED FIELD 100% /
	GREEN FILED 100% / BLUE FIELD 100%
SDI:	CHECK FIELD

The selectable patterns depend on the SDI format as shown below.

		SDI format				
		Other than				
Pat	llem	those on the	720x487:SD	720x576:SD		
		right				
COLOR BAR	100%	Yes	Yes	Yes		
	75%	Yes	Yes	No		
	MULTI 100%	Yes	No	No		
	MULTI 75%	Yes	No	No		
	MULTI (+I)	Yes	No	No		
	SMPTE	No	Yes	No		
	EBU	No	No	Yes		
	BBC	No	No	Yes		
MONITOR	-	Yes	Yes	Yes		
SDI	-	Yes	Yes	Yes		

(Yes: Can be selected No: Cannot be selected)







MULTI (+I)



SMPTE



BBC





102

12. SDI MENU



FLAT FIELD 0%



RED FIELD 100%





BLUE FIELD 100%

CHECK FIELD



12.4 Turning YCbCr On and Off

To turn individual components in a YCbCr or GBR signal on and off, follow the procedure below.

This is invalid when the pattern is check field.

3. SDI1 COMPONENT * **■** Y ∕ G ■Cb/B ■Cr/R (SDI OUTPUT option) 3. SDI COMPONENT * **■** Y ∕ G ■Cb/B ■Cr/R (12G option) Procedure (SDI OUTPUT option) $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{COMPONENT}$ Procedure (12G option) 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow COMPONENT Parameters ON / OFF

12.5 Turning Safety Area Markers On and Off

To turn on and off the 90% marker, 80% marker, and 4:3 marker separately, follow the procedure below.

If the 4:3 marker is off, the 90% marker and 80% marker are displayed at the outer frame of the picture. If it is on, the 4:3 marker is assumed to be 100%.

For SD, you cannot set the 4:3 marker. Moreover, this is invalid when the pattern is check field or when LIPSYNC is set to ON on the SDI OUTPUT option.



Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SAFETY AREA

Parameters

ON / OFF

90%, 80%

90%, 80%, 4:3



12.6 Configuring the Pattern Scroll Feature

With the SDI OUTPUT option, you can configure pattern scrolling under SDI \rightarrow SDI1 \rightarrow VIDEO \rightarrow SCROLL. With the 12G option, you can configure it under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SCROLL.

This is invalid when the pattern is check field.

 2. SDI1 VIDEO

 \$SCROLL
 J

 (SDI OUTPUT option)

 2. SDI VIDEO

 \$SCROLL
 J

 (12G option)

12.6.1 Turning Scrolling On and Off

To turn scrolling on and off, follow the procedure shown below.

```
4. SCROLL
□ON  ■OFF
```

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{SCROLL} \to \mathsf{ON/OFF}$

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SCROLL \rightarrow ON/OFF
```

Parameters

ON / OFF

12.6.2 Setting the Vertical Scroll Speed

To select the pattern scroll speed and direction, follow the procedure below. The unit is line/field (frame). Setting a positive value scrolls upward and a negative value downward. You can set the value in 2-dot steps for 4K and 4-dot steps for 8K.

```
4. SCROLL V-SPEED
<u>O</u> [LINE]
```

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{SCROLL} \to \mathsf{V}\text{-}\mathsf{SPEED}
```

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SCROLL \rightarrow V-SPEED

Parameters

-256 to 0 to +256

12.6.3 Setting the Horizontal Scroll Speed

To select the pattern scroll speed and direction, follow the procedure below. The unit is dot/field (frame). Setting a positive value scrolls to the right and a negative value to the left. You can set the value in 2-dot steps. You can set the value in 4-dot steps for 4K and 8-dot steps for 8K.

4. SCROLL H-SPEED <u>0</u> [DOT]

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{SCROLL} \to \mathsf{H}\text{-}\mathsf{SPEED}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SCROLL \rightarrow H-SPEED

Parameters

-256 to 0 to +256

12.7 Setting the Pattern Change

With the SDI OUTPUT option, you can configure pattern change under SDI \rightarrow SDI1 \rightarrow VIDEO \rightarrow PATTERN CHANGE. With the 12G option, you can configure it under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow PATTERN CHANGE.

This is invalid when the pattern is check field.



12.7.1 Turning Pattern Change On and Off

To turn pattern change on and off, follow the procedure shown below. If set to ON, the pattern is switched automatically between the available color bar patterns for the current format.

4. PATTERN CHANGE □ON ■OFF

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{PATTERN} \ \mathsf{CHANGE} \to \mathsf{ON}/\mathsf{OFF}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow PATTERN CHANGE \rightarrow ON/OFF

Parameters

ON / OFF

12.7.2 Setting the Pattern Change Speed

To select the pattern change interval, follow the procedure below.

4. PATTERN CHG SPEED +<u>1</u> [SEC]

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{PATTERN} \ \mathsf{CHANGE} \to \mathsf{SPEED}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow PATTERN CHANGE \rightarrow SPEED

Parameters

+1 to +255

12.8 Setting ID Characters

With the SDI OUTPUT option, you can configure the ID character under SDI \rightarrow SDI1 \rightarrow VIDEO \rightarrow ID CHARACTER. With the 12G option, you can configure it under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER.

A character string that you created on the LT 4610 can be displayed in a pattern. This is invalid when the pattern is check field or when LIPSYNC is set to ON on the SDI OUTPUT option.



12.8.1 Turning ID Characters On and Off

To turn ID characters on and off, follow the procedure below.

4. ID CHARACTER □ON ■OFF

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{ON/OFF}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow ON/OFF

Parameters

ON / OFF

12.8.2 Recalling ID Characters

To recall ID characters that have been saved in the LT 4610 using the STORE menu, follow the procedure below.

4. ID RECALL ▶ LT4610.id INT_1

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{RECALL}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow RECALL

Parameters

INT_1 to INT_4

12.8.3 Creating ID Characters

To create ID characters, follow the procedure below. You can enter up to 20 characters.

The ID character background is displayed in black for 20 characters worth. If you enter " \blacktriangleleft " at the end of the ID character string, only the background of the entered characters will be displayed in black. (" \blacktriangleleft " will not appear.)

If you enter " \blacktriangleleft " in the middle of the ID character string, characters after this character will disappear, and you will not be able to edit them.

```
4. ID SET
<u>L</u>T4610∢
```

 $\frac{\text{Procedure (SDI OUTPUT option)}}{\text{SDI} \rightarrow \text{SDI1} \rightarrow \text{VIDEO} \rightarrow \text{ID CHARACTER} \rightarrow \text{SET}}$

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow SET
```

Parameters

```
▲ !"# $%&'()*+,-./ 0123456789:;<=>?@
ABCDEFGHIJKLMNOPQRSTUVWXYZ[¥]^\rightarrow+(Default value: LT4610 ◀ )
```

ID SET = LT4610 \triangleleft



ID SET = LT4610



12.8.4 Setting the Vertical Position of ID Characters

To set the vertical position of the ID characters, follow the procedure below. You can set the value in 2-dot steps for 4K and 8K.

The value represents the coordinate at the top of the ID characters. The top of the pattern is 0.

4. ID V-POSI <u>0</u> [LINE]

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{V}\text{-}\mathsf{POSI}
```

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow V-POSI
```

Parameters

0 to 4319

12.8.5 Setting the Horizontal Position of ID Characters

To set the horizontal position of the ID characters, follow the procedure below. You can set the value in 4-dot steps for 4K and 8-dot steps for 8K.

The value represents the coordinate at the left end of the ID characters. The left end of the pattern is 0.

```
4. ID H-POSI
<u>0</u> [DOT]
```

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{H}\text{-}\mathsf{POSI}$

```
Procedure (12G option)
```

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow H-POSI

Parameters

0 to 7679

12.8.6 Selecting the Size of ID Characters

To set the size of ID characters, follow the procedure below. The size of x1 is 32×32 dot/character.

4. ID SIZE ■x1 □x2 □x4 □x8

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{SIZE}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow SIZE

Parameters

x1 / x2 / x4 / x8

12.8.7 Selecting the Level of ID Characters

To set the intensity level of ID characters, follow the procedure below.

```
4. ID LEVEL
■100% □75%
```

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{LEVEL}
```

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow LEVEL
```

Parameters

100% / 75%

ID LEVEL = 100%

ID LEVEL = 75%



12.8.8 Turning ID Character Blinking On and Off

To turn ID character blinking on and off, follow the procedure below.

5. ID BLINK □ON ■OFF

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{BLINK} \to \mathsf{ON/OFF}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow BLINK \rightarrow ON/OFF

Parameters

ON / OFF

12.8.9 Setting the ID Character On-Time

To set the on-time of ID character blinking, follow the procedure below.

5. ID BLINK ON TIME <u>1</u> [SEC]

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{BLINK} \to \mathsf{ON}\ \mathsf{TIME}
```

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow BLINK \rightarrow ON TIME

Parameters

1/2/3/4/5/6/7/8/9

12.8.10 Setting the ID Character Off-Time

To set the off-time of ID character blinking, follow the procedure below.

5. ID BLINK OFF TIME <u>1</u> [SEC]

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{BLINK} \to \mathsf{OFF}\ \mathsf{TIME}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow BLINK \rightarrow OFF TIME

Parameters

1/2/3/4/5/6/7/8/9

12.8.11 Turning ID Character Scrolling On and Off

To turn ID character scrolling on and off, follow the procedure below. If set to ON, the ID characters scroll horizontally over the pattern.

```
5. ID SCROLL
□ON ■OFF
```

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{SCROLL} \to \mathsf{ON}/\mathsf{OFF}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow SCROLL \rightarrow ON/OFF

Parameters

ON / OFF

12.8.12 Setting ID Character Scroll Speed

To set the ID character scroll speed and direction, follow the procedure below. The unit is dot/field (frame). Setting a positive value scrolls to the right and a negative value to the left. You can set the value in 2-dot steps. You can set the value in 4-dot steps for 4K and 8-dot steps for 8K.

5. ID SCROLL SPEED <u>0</u> [DOT]

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID} \ \mathsf{CHARACTER} \to \mathsf{SCROLL} \to \mathsf{SPEED}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow SCROLL \rightarrow SPEED

Parameters

-256 to 0 to +256

12.8.13 Saving ID Characters

To store up to four sets of ID characters that you create on the SET menu, follow the procedure below.

Only the characters are saved. Position, size, and the like are not saved.

Procedure (SDI OUTPUT option)

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow STORE

To save ID characters, follow the procedure below.

1. Enter a file name.

Select STORE. The file name input menu appears. This is the name assigned to the ID characters and is also the file name when the ID characters are copied to a USB memory device.

The characters that you can use are as follows. Up to eight characters can be entered. ▲0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ_

Enter " \blacktriangle " to clear characters that follow it. " \bigstar " is not entered in the file name.

```
4. ID STORE
<u>L</u>T4610◀
```

2. Select the save destination in the LT 4610.

Select from INT_1 to INT_4. If there are already ID characters stored at the destination, they are overwritten.

5. ID STORE ▶NO DATA INT_1

3. Select the OK.

6. ID STORE ■OK □CANCEL 12.8.14 Copying ID Characters to the LT 4610

To copy up to four sets of ID characters from a USB memory device to the LT 4610, follow the procedure below. This feature is useful when you want to use multiple LT 4610s with the same settings. (Copy the ID characters to the USB memory device in advance by using the COPY INT \rightarrow USB menu.)

This setting appears when a USB memory device is connected.

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{COPY}\ \mathsf{USB} {\to} \mathsf{INT}
```

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow COPY USB \rightarrow INT

To copy ID characters, follow the procedure below.

1. Select the copy destination in the LT 4610.

Select from INT_1 to INT_4. If there are already ID characters stored in the LT 4610, they are overwritten.

4. ID COPY USB→INT ▶NO DATA INT_1

2. Select the copy source in the USB memory device.

The id file in the ID folder of the USB memory device (with the SDI OUTPUT option) or the id file in the 12G_ID folder (with the 12G option) is displayed here.

5. ID COPY USB→INT ▶LT4610. id 1/ 1

3. Select the OK.

6. ID COPY USB→INT ■OK □CANCEL

• USB memory configuration (SDI OUTPUT option)

ID characters are copied from the ID folder of the USB memory device.

D USB memory device

└ D LT4610_USER └ D ID └ *******.id

• USB memory configuration (12G option)

ID characters are copied from the 12G_ID folder of the USB memory device.

Ü USB memory device

└ D LT4610_USER └ D 12G_ID └ D *******.id 12.8.15 Copying ID Characters to a USB Memory Device

To copy ID characters in id format (dedicated format) from the LT 4610 to a USB memory device, follow the procedure below. This feature is useful when you want to use multiple LT 4610s with the same settings. (Save the ID characters in the LT 4610 in advance by using the STORE menu.)

This setting appears when a USB memory device is connected.

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{COPY}\ \mathsf{INT} {\to} \mathsf{USB}
```

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow COPY INT \rightarrow USB

To copy ID characters, follow the procedure below.

1. Select the copy source in the LT 4610.

Select ALL or from INT_1 to INT_4.

4. ID COPY INT→USB ▶ALL

2. Select the OK.

If there are already ID characters with the same file names stored in the USB memory device, they will be overwritten. If ALL is selected and ID characters with the same file name are saved in INT_1 to INT_4, only a single set with the largest number (INT_*) is saved.

5. ID COPY INT→USB ■OK □CANCEL

• USB memory configuration (SDI OUTPUT option)

ID characters are copied to the ID folder of the USB memory device. (See 12.8.14, "Copying ID Characters to the LT 4610.")

The date and time of the file will be those selected in 20.6.1, "Selecting the Date and Time."

• USB memory configuration (12G option)

ID characters are copied to the 12G_ID folder of the USB memory device. (See 12.8.14, "Copying ID Characters to the LT 4610.")

The date and time of the file will be those selected in 20.6.1, "Selecting the Date and Time."

• "******.id" example

LT4610

12.8.16 Clearing ID Characters

To clear ID characters that have been saved in the LT 4610 using the STORE menu, follow the procedure below.

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{ID}\ \mathsf{CHARACTER} \to \mathsf{DELETE}
```

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER \rightarrow DELETE

To clear ID characters, follow the procedure below.

1. Select the ID characters you want to clear.

Select ALL or from INT_1 to INT_4.

4. ID DELETE ►ALL

2. Select the OK.

5. ID DELETE ∎ok ⊡cancel

12.9 Setting Logos

With the SDI OUTPUT option, you can set the logo under SDI \rightarrow SDI1 \rightarrow VIDEO \rightarrow LOGO. With the 12G option, you can set it under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO. A 4-level monochrome image that you created on your PC can be displayed in a pattern.

This is invalid when the pattern is check field or when LIPSYNC is set to ON on the SDI OUTPUT option.

2. SDI1 VIDEO ▲LOGO	Ļ	(SDI OUTPUT option)
2. SDI VIDEO ≑LOGO	۲	(12G option)
Leader		

12.9.1 Display procedure

This describes the procedure from creating a logo to displaying it in a pattern. In this example, the logo file name is "LEADER.bmp."

1. Create a logo on your PC.

Create an image in bmp format according to the following conditions. File name: Up to eight characters (excluding the extension) consisting of alphanumeric characters or underscore. File format: 24 bits, 256 colors or 16 colors File size: Up to 320 dots × 240 lines (width × height)

LEADER.bmp



2. Using the accompanying Logo App, convert it to lg format.

The image is converted into 4-level monochrome data. [See also] 21, "LOGO APP"

LEADER.lg



- 3. Place the converted logo in the USB memory device.
 - SDI OUTPUT option
 - D USB memory device
 - └ 🗍 LT 4610_USER
 - - LEADER.lg
 - 12G option
 - D USB memory device
 - └ 🗍 LT 4610_USER
 - └ 🗍 12G_LOGO
 - LEADER.lg

4. On the COPY USB \rightarrow INT menu, import the logo into the LT 4610.

In this example, the file is imported into INT_1 of the LT 4610. [See also] 12.9.8, "Copying Logos to the LT 4610"

4. LOGO	СОРҮ	U S B → I N T
▶NO DAT	А	I N T _ 1
	4	
5. LOGO	COPY	USB→INT
►LEADER	. Ig	1 ∕ 1

5. On the SELECT menu, select the logo.

[See also] 12.9.3, "Selecting a Logo"

4. LOGO SELECT ▶*LEADER. Ig INT_1

6. On the ON/OFF menu, select ON.

[See also] 12.9.2, "Turning the Logo On and Off"

4. LOGO	
■ O N	DOFF

12.9.2 Turning the Logo On and Off

To turn the logo on and off, follow the procedure below.

```
4. LOGO
□ON ■OFF
```

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{ON/OFF}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow ON/OFF

Parameters

ON / OFF
12.9.3 Selecting a Logo

To select the logo to be displayed, follow the procedure below. A logo must be copied to INT_1 to INT_4 in advance using the COPY USB \rightarrow INT menu.

4. LOGO SELECT ▶*LEADER. Ig INT_1

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{SELECT}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow SELECT

Parameters

INT_1 to INT_4

12.9.4 Setting the Vertical Logo Position

To set the vertical logo position, follow the procedure below.

The value represents the coordinate at the top of the logo. The top of the pattern is 0. You can set the value in 2-dot steps for 4K and 8K.

4. LOGO V-POSI <u>O</u> [LINE]

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{V}\text{-}\mathsf{POSI}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow V-POSI

Parameters

0 to 4319

12.9.5 Setting the Horizontal Logo Position

To set the horizontal logo position, follow the procedure below.

The value represents the coordinate at the left end of the logo. The left end of the pattern is 0. You can set the value in 4-dot steps for 4K and 8-dot steps for 8K.

4. LOGO H-POSI <u>O</u> [DOT]

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{H}\text{-}\mathsf{POSI}$

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow H-POSI
```

Parameters

0 to 7679

12.9.6 Setting the Logo Level

To set the logo intensity level, follow the procedure below.

Logos are made of 4-level monochrome data (LEVEL0, LEVEL1, LEVEL2, LEVEL3). You can set the display intensity level for each level.

When LOGO BACKGND is set to ON, LEVEL0 is invalid.

5.	LOGO	L E V E L 0 1 0 <u>0</u> h	(0%)	
5.	LOGO	LEVEL2			

A 2 <u>0</u> h

5. LOGO	LEVEL1 59 <u>0</u> h	(33%)
5. LOGO	L E V E L 3 E B <u>0</u> h	(100%)

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{LEVEL} \to \mathsf{LEVEL0} \ / \ \mathsf{LEVEL1} \ / \ \mathsf{LEVEL2} \ / \ \mathsf{LEVEL3}
```

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow LEVEL \rightarrow LEVEL0 / LEVEL1 / LEVEL2 / LEVEL3

Parameters

100h(0%) to EB0h(100%)

(LEVEL0 default value: 100h(0%), LEVEL1 default value: 590h(33%),

(66%)

LEVEL2 default value: A20h(66%), LEVEL3 default value: EB0h(100%))

12.9.7 Setting the Logo Transparency

To select whether to make the area set to LEVEL0 transparent, follow the procedure below.

4. LOGO BACKGND □ON ■OFF

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{BACKGND}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow BACKGND

Parameters

Leader

ON:	The area is made transparent.
OFF:	The area is not made transparent.

LOGO BACH	(GND = ON	

LOGO BACKGND = OFF

12.9.8 Copying Logos to the LT 4610

To copy up to four logos from a USB memory device to the LT 4610, follow the procedure below. (Copy the logos to the USB memory device or place the logos created on your PC in advance by using the COPY INT→USB menu.)

This setting appears when a USB memory device is connected.

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{COPY} \; \mathsf{USB} {\to} \mathsf{INT}
```

```
Procedure (12G option)
```

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow COPY USB\rightarrowINT
```

To copy logos, follow the procedure below.

1. Select the copy destination in the LT 4610.

Select from INT_1 to INT_4. If there are already logos stored at the destination, they are overwritten.

4.	LΟ	GΟ	СОРҮ	$U S B \rightarrow I N T$
►N	0	DAT	A	I N T _ 1

2. Select the copy source in the USB memory device.

The lg file in the LOGO folder of the USB memory device (with the SDI OUTPUT option) or the id file in the 12G_LOGO folder (with the 12G option) is displayed here.

5. LOGO COPY USB→INT ▶LEADER. Ig 1 ⁄ 1

3. Select the OK.



• USB memory configuration (SDI OUTPUT option)

Logos are copied from the LOGO folder of the USB memory device.

USB memory device

└ 🗍 LT4610_USER

l 🗋 logo

- ∟ 🗋 *******.lg
- USB memory configuration (12G option)

Logos are copied from the 12G_LOGO folder of the USB memory device.

D USB memory device

└ 🗍 LT4610_USER

- L 🗋 12G_LOGO
 - ∟ 🕒 *******.lg

12.9.9 Copying Logos to a USB Memory Device

To copy logos in Ig format (dedicated format) from the LT 4610 to a USB memory device, follow the procedure below. Copy a logo to the LT 4610 in advance using the COPY USB \rightarrow INT menu.

This setting appears when a USB memory device is connected.

Procedure (SDI OUTPUT option)

```
\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{COPY} \ \mathsf{INT} {\to} \mathsf{USB}
```

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow COPY INT \rightarrow USB
```

To copy logos, follow the procedure below.

1. Select the copy source in the LT 4610.

Select ALL or from INT_1 to INT_4.

```
4. LOGO COPY INT→USB
▶ALL
```

2. Select the OK.

If there are already logos with the same file names stored in the USB memory device, they will be overwritten. If ALL is selected and logos with the same file name are saved in INT_1 to INT_4, only a single set with the largest number (INT_*) is saved.

• USB memory configuration (SDI OUTPUT option)

Logos are copied to the LOGO folder of the USB memory device. (See 12.9.8, "Copying Logos to the LT 4610.")

The date and time of the file will be those selected in 20.6.1, "Selecting the Date and Time."

• USB memory configuration (12G option)

Logos are copied to the 12G_LOGO folder of the USB memory device. (See 12.9.8, "Copying Logos to the LT 4610.")

The date and time of the file will be those selected in 20.6.1, "Selecting the Date and Time."

12.9.10 Clearing a Logo

To clear the logos that you copied to the LT 4610 using the COPY USB \rightarrow INT menu, follow the procedure below.

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{VIDEO} \to \mathsf{LOGO} \to \mathsf{DELETE}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO \rightarrow DELETE

To clear logos, follow the procedure below.

1. Select the logos you want to clear.

Select ALL or from INT_1 to INT_4.

4. LOGO DELETE ▶ALL

2. Select the OK.

5. LOGO DELETE Bok DCANCEL

12.10 Configuring Embedded Audio

16 (HD(DL)) audio channels (32 channels for 3G-B) can be embedded in an SDI signal. (Embedding is not possible when the pattern is a check field.)

Channels 1 to 4, 5 to 8, 9 to 12, and 13 to 16 are called group 1, 2, 3, and 4, respectively. The frequency, level, and the like can be set for each channel separately.

In addition, if you link the group 2 settings to the group 1 settings, you only need to set group 1, and the group 2 settings will automatically be set to the same values as group 1.

			1ch
			Ch2 (Ch1 also possible)
		Group 1	Ch3 (Ch1 also possible)
			Ch4 (Ch1 also possible)
	Link A (HD(DL), 3G-B only)	Group 2 (can also be set equal to group 1)	5ch
			Ch6 (Ch5 also possible)
			Ch7 (Ch5 also possible)
			Ch8 (Ch5 also possible)
		Group 3 (can also be set equal to group 1)	9ch
			Ch10 (Ch9 also possible)
SDI			Ch11 (Ch9 also possible)
Signal			Ch12 (Ch9 also possible)
Signal			13ch
			Ch14 (Ch13 also
		Group 4	possible)
		(can also be set equal to group	Ch15 (Ch13 also
		3)	possible)
			Ch16 (Ch13 also
			possible)
	Link B		
	(HD(DL), 3G-B only)	Same as link A	
	(can also be set to link		
	A)		

12.10.1 Turning the Audio On and Off

To turn the audio on or off at the group level, follow the procedure below.

3. SDI1 AUDIO ON/OFF * G1 G2 G3 G4 (SDI OUTPUT option) 3. SDI AUDIO ON/OFF * G1 G2 G3 G4 (12G option)

Procedure (SDI OUTPUT option)

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{AUDIO} \ (\to \mathsf{LINK}\text{-}\mathsf{A} \ / \ \mathsf{LINK}\text{-}\mathsf{B}) \to \mathsf{ON} \ / \mathsf{OFF}$

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B) \rightarrow ON/OFF
```

Parameters

ON / OFF

12.10.2 Selecting the Resolution

To select the resolution for the selected group, follow the procedure below. If the output signal is 525/59.94I, not all groups can be set to 24BIT. Up to three groups can be set to 24BIT.

```
4. G1 RESOLUTION
■20BIT □24BIT
```

Procedure (SDI OUTPUT option)

SDI \rightarrow SDI1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B) \rightarrow G1 / G2 / G3 / G4 \rightarrow RESOLUTION

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow AUDIO ( \rightarrow LINK-A / LINK-B) \rightarrow G1 / G2 / G3 / G4 \rightarrow RESOLUTION
```

Parameters

20BIT / 24BIT

12.10.3 Selecting the Pre-emphasis Mode

To select the pre-emphasis mode for the selected group, follow the procedure below.

4. G1 EMPHASIS □50/15 □CCITT ■OFF

Procedure (SDI OUTPUT option)

 $SDI \rightarrow SDI1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B) \rightarrow G1 / G2 / G3 / G4 \rightarrow EMPHASIS$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B) \rightarrow G1 / G2 / G3 / G4 \rightarrow EMPHASIS

Parameters

50/15 / CCITT / OFF

12.10.4 Selecting the Frequency

To select the frequency of the selected channel, follow the procedure below.

5. G1∕CH1 FREQ • *1kHz

```
\begin{array}{l} \hline Procedure (SDI OUTPUT option) \\ \hline SDI \rightarrow SDI1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B) \\ \rightarrow G1 \rightarrow CH1 / CH2 / CH3 / CH4 \rightarrow FREQ \\ \rightarrow G2 \rightarrow CH5 / CH6 / CH7 / CH8 \rightarrow FREQ \\ \rightarrow G3 \rightarrow CH9 / CH10 / CH11 / CH12 \rightarrow FREQ \\ \rightarrow G4 \rightarrow CH13 / CH14 / CH15 / CH16 \rightarrow FREQ \end{array}
```

```
Procedure (12G option)
```

```
\begin{array}{l} 12\text{G OPTION} \rightarrow \text{SDI } 1 \rightarrow \text{AUDIO} (\rightarrow \text{LINK-A / LINK-B}) \\ \rightarrow \text{G1} \rightarrow \text{CH1} / \text{CH2} / \text{CH3} / \text{CH4} \rightarrow \text{FREQ} \\ \rightarrow \text{G2} \rightarrow \text{CH5} / \text{CH6} / \text{CH7} / \text{CH8} \rightarrow \text{FREQ} \\ \rightarrow \text{G3} \rightarrow \text{CH9} / \text{CH10} / \text{CH11} / \text{CH12} \rightarrow \text{FREQ} \\ \rightarrow \text{G4} \rightarrow \text{CH13} / \text{CH14} / \text{CH15} / \text{CH16} \rightarrow \text{FREQ} \end{array}
```

Parameters

SILENCE / 400Hz / 800Hz / 1kHz

12.10.5 Setting the Level

To set the level of the selected channel, follow the procedure below.

```
5.G1∕CH1 LEVEL
−2<u>0</u> [dBFS]
```

Procedure (SDI OUTPUT option)

$$\begin{split} &\text{SDI} \rightarrow \text{SDI1} \rightarrow \text{AUDIO} \ (\rightarrow \text{LINK-A} \ / \ \text{LINK-B}) \\ &\rightarrow \text{G1} \rightarrow \text{CH1} \ / \ \text{CH2} \ / \ \text{CH3} \ / \ \text{CH4} \rightarrow \text{LEVEL} \\ &\rightarrow \text{G2} \rightarrow \text{CH5} \ / \ \text{CH6} \ / \ \text{CH7} \ / \ \text{CH8} \rightarrow \text{LEVEL} \\ &\rightarrow \text{G3} \rightarrow \text{CH9} \ / \ \text{CH10} \ / \ \text{CH11} \ / \ \text{CH12} \rightarrow \text{LEVEL} \\ &\rightarrow \text{G4} \rightarrow \text{CH13} \ / \ \text{CH14} \ / \ \text{CH15} \ / \ \text{CH16} \rightarrow \text{LEVEL} \end{split}$$

Procedure (12G option)

 $\begin{array}{l} 12\text{G OPTION} \rightarrow \text{SDI } 1 \rightarrow \text{AUDIO} (\rightarrow \text{LINK-A / LINK-B}) \\ \rightarrow \text{G1} \rightarrow \text{CH1} / \text{CH2} / \text{CH3} / \text{CH4} \rightarrow \text{LEVEL} \\ \rightarrow \text{G2} \rightarrow \text{CH5} / \text{CH6} / \text{CH7} / \text{CH8} \rightarrow \text{LEVEL} \\ \rightarrow \text{G3} \rightarrow \text{CH9} / \text{CH10} / \text{CH11} / \text{CH12} \rightarrow \text{LEVEL} \\ \rightarrow \text{G4} \rightarrow \text{CH13} / \text{CH14} / \text{CH15} / \text{CH16} \rightarrow \text{LEVEL} \end{array}$

Parameters

-60 to -20 to 0

12.10.6 Setting Clicks

You can insert click sounds into the selected channel. Follow the procedure below to set the insertion interval to a value other than OFF.

This is invalid when LIPSYNC is set to ON.

```
5. G1∕CH1 CLICK
▶*OFF
```

```
Procedure (SDI OUTPUT option)
```

$$\begin{split} \text{SDI} &\rightarrow \text{SDI1} \rightarrow \text{AUDIO} (\rightarrow \text{LINK-A} / \text{LINK-B}) \\ &\rightarrow \text{G1} \rightarrow \text{CH1} / \text{CH2} / \text{CH3} / \text{CH4} \rightarrow \text{CLICK} \\ &\rightarrow \text{G2} \rightarrow \text{CH5} / \text{CH6} / \text{CH7} / \text{CH8} \rightarrow \text{CLICK} \\ &\rightarrow \text{G3} \rightarrow \text{CH9} / \text{CH10} / \text{CH11} / \text{CH12} \rightarrow \text{CLICK} \\ &\rightarrow \text{G4} \rightarrow \text{CH13} / \text{CH14} / \text{CH15} / \text{CH16} \rightarrow \text{CLICK} \end{split}$$

Procedure (12G option)

```
12G OPTION \rightarrow SDI 1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B)

\rightarrow G1 \rightarrow CH1 / CH2 / CH3 / CH4 \rightarrow CLICK

\rightarrow G2 \rightarrow CH5 / CH6 / CH7 / CH8 \rightarrow CLICK

\rightarrow G3 \rightarrow CH9 / CH10 / CH11 / CH12 \rightarrow CLICK

\rightarrow G4 \rightarrow CH13 / CH14 / CH15 / CH16 \rightarrow CLICK
```

Parameters

OFF / 1sec / 2sec / 4sec

12.10.7 Settings Shared by Links

If the output signal is HD(DL) or 3G-B, the link B settings can be linked to link A settings by following the procedure below to select ON. In this situation, link B cannot be set.

4. SDI1 L−B EQUAL L−A ■ON □OFF

Procedure (SDI OUTPUT option)

 $\text{SDI} \rightarrow \text{SDI1} \rightarrow \text{AUDIO} \rightarrow \text{LINK-B} \rightarrow \text{EQUAL TO LINK-A}$

Procedure (12G option)

12G OPTION \rightarrow SDI 1 \rightarrow AUDIO \rightarrow LINK-B \rightarrow EQUAL TO LINK-A

Parameters

ON / OFF

12.10.8 Settings Shared by Groups

You can link the group 2 settings to the group 1 settings by following the procedure below to set G2 EQUAL TO G1 to ON. In this situation, group 2 cannot be set.

The same holds true for G3 EQUAL TO G1 and G4 EQUAL TO G3.

4. G2 EQUAL TO G1	4. G3 EQUAL TO G1
■ON □OFF	■ON □OFF
4. G4 EQUAL TO G3 ■ON □OFF	

Procedure (SDI OUTPUT option)

 $\begin{array}{l} \text{SDI} \rightarrow \text{SD11} \rightarrow \text{AUDIO} \ (\rightarrow \text{LINK-A} \ / \ \text{LINK-B}) \\ \rightarrow \text{G2} \rightarrow \text{EQUAL TO G1} \\ \rightarrow \text{G3} \rightarrow \text{EQUAL TO G1} \\ \rightarrow \text{G4} \rightarrow \text{EQUAL TO G3} \end{array}$

Procedure (12G option) 12G OPTION → SDI 1 → AUDIO (→ LINK-A / LINK-B) → G2 → EQUAL TO G1 → G3 → EQUAL TO G1 → G4 → EQUAL TO G3

```
Parameters
```

12.10.9 Settings Shared by Channels

You can link the channel 2 setting to the channel 1 setting by following the procedure below to set G1/CH2 EQUAL CH1 to ON. In this situation, channel 2 cannot be set. The same holds true for the other similar settings.

5. G1∕CH2 EQUAL CH1 ■ON □OFF	5.G2∕CH6 EQUAL CH5 ■ON □OFF			
5. G3∕CH10 EQUAL CH9 ■ON □OFF	5. G4∕CH14 EQUAL CH13 ■ON □OFF			
Procedure (SDI OUTPUT option)				
$SDI \rightarrow SDI1 \rightarrow AUDIO (\rightarrow LINK-A / LINK-B)$				
\rightarrow G1 \rightarrow CH2 / CH3 / CH4 \rightarrow EQUAL TO CH1				
\rightarrow G2 \rightarrow CH6 / CH7 / CH8 \rightarrow EQUAL TO CH5	5			
\rightarrow G3 \rightarrow CH10 / CH11 / CH12 \rightarrow EQUAL TO CH9				
\rightarrow G4 \rightarrow CH14 / CH15 / CH16 \rightarrow EQUAL TO CH13				
Procedure (12G option)				
12G OPTION \rightarrow SDI 1 \rightarrow AUDIO (\rightarrow LINK-A	/ LINK-B)			
\rightarrow G1 \rightarrow CH2 / CH3 / CH4 \rightarrow EQUAL TO CH1				
\rightarrow G2 \rightarrow CH6 / CH7 / CH8 \rightarrow EQUAL TO CH5				
\rightarrow G3 \rightarrow CH10 / CH11 / CH12 \rightarrow EQUAL TO CH9				
\rightarrow G4 \rightarrow CH14 / CH15 / CH16 \rightarrow EQUAL TO	CH13			

Parameters

12.11 Turing the Time Code On and Off (SER01)

To turn on or off the time code insertion selected in 20.7.1, "Selecting the Time Code," follow the procedure below.

3. ANC ATC-LTC □ON ■OFF

Procedure

 $\mathsf{SDI} \to \mathsf{SDI1} \to \mathsf{ANC} \to \mathsf{ATC}\text{-}\mathsf{LTC}\ \mathsf{ON}/\mathsf{OFF}$

Parameters

ON / OFF

12.12 Common SDI Signal Settings

You can link the SDI2 setting to the SDI1 setting by following the procedure below to select ON.

In this situation, SDI2 cannot be set.

2.	SDI2	EQUAL	то	SDI1	
	■ O N	C] O F F	-	

Procedure

 $\text{SDI} \rightarrow \text{SDI2} \rightarrow \text{EQUAL TO SDI1}$

Parameters

13. AES/EBU MENU

The AES/EBU menu is used to specify settings related to AES/EBU output and silence output. For the LT 4611, you can select this option when SER23 is installed.

To display the AES/EBU menu, press MENU several times until the following menu appears.

13.1 Setting the AES/EBU Output

Under AES/EBU \rightarrow AES/EBU, you can set the AES/EBU output.

O. AES∕EBU ▼AES∕EBU ↓

13.1.1 Turning the Audio Output On and Off

To turn the audio output on or off, follow the procedure below.

2. AES∕EBU	
■ O N	DOFF

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{ON}/\mathsf{OFF}$

Parameters

ON / OFF

13.1.2 Selecting the Frequency

To select the frequency of the selected channel, follow the procedure below.

```
4. AES∕EBU CH1 FREQ
∢ *1kHz
```

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{SETTING} \to \mathsf{CH1} \ / \ \mathsf{CH2} \to \mathsf{FREQ}$

Parameters

SILENCE / 400Hz / 800Hz / 1kHz

13.1.3 Setting the Level

To set the level of the selected channel, follow the procedure below.

```
4. AES∕EBU CH1 LEVEL
-2<u>0</u> [dBFS]
```

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{SETTING} \to \mathsf{CH1} \ / \ \mathsf{CH2} \to \mathsf{LEVEL}$

Parameters

-60 to -20 to 0

13.1.4 Setting Clicks

You can insert click sounds into the selected channel. Follow the procedure below to set the insertion interval to a value other than OFF.

This is invalid when LIPSYNC SDI1+AES on the ETC menu is set to ON.

4. AES∕EBU CH1 CLICK ▶*OFF

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{SETTING} \to \mathsf{CH1} \ / \ \mathsf{CH2} \to \mathsf{CLICK}$

Parameters

OFF / 1sec / 2sec / 4sec

13.1.5 Settings Shared by Channels

You can link the channel 2 setting to the channel 1 setting by following the procedure below to select ON. In this situation, channel 2 cannot be set.

4. CH2 EQUAL TO CH1 ■ON □OFF

Procedure

 $\mathsf{AES/EBU} \to \mathsf{AES/EBU} \to \mathsf{SETTING} \to \mathsf{CH2} \to \mathsf{EQUAL} \ \mathsf{TO} \ \mathsf{CH1}$

Parameters

13.1.6 Selecting the Resolution

To select the resolution, follow the procedure below.

3. AES∕EBU RESOLUTION ■20BIT □24BIT

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{SETTING} \to \mathsf{RESOLUTION}$

Parameters

20BIT / 24BIT

13.1.7 Selecting the Pre-emphasis Mode

To select the pre-emphasis mode, follow the procedure below.

3. AES∕EBU EMPHASIS □50⁄15 □CCITT ∎OFF

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{SETTING} \to \mathsf{EMPHASIS}$

Parameters

50/15 / CCITT / OFF

13.1.8 Turing the Time Code On and Off

To turn on or off the time code insertion selected in 20.7.1, "Selecting the Time Code," follow the procedure below.

3. AES∕EBU TIMECODE □ON ■OFF

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{AES}/\mathsf{EBU} \to \mathsf{SETTING} \to \mathsf{TIMECODE}$

Parameters

13.1.9 Adjusting the Timing

To adjust the AES/EBU signal timing relative to the reference signal in the range of ± 1 AES/EBU frame, follow the procedure below.

2. AES∕EBU TIMING <u>O</u> [FS]

Procedure

 $AES/EBU \rightarrow AES/EBU \rightarrow TIMING$

Parameters

-511 to 0 to +511

13.2 Setting the Silence Output

Under AES/EBU \rightarrow SILENCE, you can set the silence output.

O. AES∕EBU ▲SILENCE →

13.2.1 Selecting the Resolution

To select the resolution, follow the procedure below.

3. SILENCE RESOLUTION ■20BIT □24BIT

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{SILENCE} \to \mathsf{SETTING} \to \mathsf{RESOLUTION}$

Parameters

20BIT / 24BIT

13.2.2 Adjusting the Timing

To adjust the silence signal timing relative to the reference signal in the range of ± 1 AES/EBU frame, follow the procedure below.

2. SILENCE TIMING <u>0</u> [FS]

Procedure

 $\mathsf{AES}/\mathsf{EBU} \to \mathsf{SILENCE} \to \mathsf{TIMING}$

Parameters

-511 to 0 to +511

14. WCLK MENU

The WCLK menu is used to specify settings related to WCLK output. To display the WCLK menu, press MENU several times until the following menu appears.

O.WCLK TIMING J

14.1 Adjusting the Timing

To adjust the word-clock signal relative to the reference signal in the range of ± 1 AES/EBU frame, follow the procedure below.

1. WCLK TIMING <u>o</u> [fs]

Procedure

 $\mathsf{WCK}\to\mathsf{TIMING}$

Parameters

-511 to 0 to +511

15. ETC MENU

The ETC menu is used to specify settings related to lip sync. To display the ETC menu, press MENU several times until the following menu appears. For the LT 4611, you can select this option when SER22 is installed.



15.1 Turning Lip Sync On and Off

To turn lip sync pattern on and off, follow the procedure below. It can be turned on and off separately for SDI1+AES/EBU signals and SDI2 signals.

When turned on, the LT 4610 outputs lip sync patterns. Combining this with our lip-synccompatible waveform monitor makes it possible to measure the offset between the video signal and the audio signal that occurs in the transfer route for each channel. For details, see the instruction manual of the waveform monitor.

This is invalid when the SDI signal pattern is check field.

|--|

Procedure

 $\mathsf{ETC} \to \mathsf{LIPSYNC} \to \mathsf{SDI1} + \mathsf{AES} \ / \ \mathsf{SDI2}$

Parameters

ON / OFF

If set to ON, set all audio channels as follows on the SDI menu (SER22) and the AES/EBU menu (SER23) for AES/EBU signals.

These settings are factory default settings.

	Item	Setting
SDI menu	AUDIO ON/OFF	ON
	FREQ	1kHz
	LEVEL	-20
	RESOLUTION	20BIT
	EMPHASIS	OFF
AES/EBU menu	AES/EBU ON/OFF	ON
	FREQ	1kHz
	LEVEL	-20
	RESOLUTION	20BIT
	EMPHASIS	OFF

15.2 Description of Lip Sync Patterns

A lip sync pattern is divided into three areas. From the top, they are the pattern, raster, and scale areas. Audio is turned on or muted in sync with the image signal.

• Pattern

The pattern specified by PATTERN on the SDI menu is displayed.

Safety area markers, ID characters, and logo are not displayed even if they are set to ON.

• Raster

If the scale slide bar is between 0 and +15 [frames], a white raster is displayed. If not, a black raster is displayed.



• Scale

A green slide bar scrolls from left to right (approximately 6 seconds for 1080/59.94I). The center scale turns red when the slide bar is between 0 and +15 [frames].



• Audio

If the scale slide bar is between 0 and +15 [frames], audio turns on. If not, audio is muted. The click setting is invalid.

16. GPS OPTION MENU (SER01)

The GPS OPTION menu is used to specify settings related to LTC output and CW I/O. You can select this option when SER01 is installed.

To display the GPS OPTION menu, press MENU several times until the following menu appears.

O.GPS OPTION ▼LTC →

16.1 Setting the LTC Output

Under GPS OPTION \rightarrow LTC, you can set the LTC output.

O.GPS OPTION ▼LTC →

16.1.1 Turing the Time Code Output On and Off

To turn the time code outputs (LTC1 to LTC3) on and off, follow the procedure below. The time code selected in 20.7.1, "Selecting the Time Code," is output from LTC IN/OUT on the rear panel.

2. LTC □ON ■OFF

Procedure

 $\mathsf{GPS}\;\mathsf{OPTION}\to\mathsf{LTC}\to\mathsf{ON}/\mathsf{OFF}$

Parameters ON / OFF

16.1.2 Adjusting the Time Code Output Timing (Frame)

To adjust the time code outputs (LTC1 to LTC3) at the frame level, follow the procedure below.

3. LTC TIMING FRAME <u>O</u> FRAME

Procedure

 $\mathsf{GPS}\ \mathsf{OPTION} \to \mathsf{LTC} \to \mathsf{TIMING} \to \mathsf{FRAME}$

Parameters

-23 to 0 to 23

16.1.3 Adjusting the Time Code Output Timing (Bit)

To adjust the time code outputs (LTC1 to LTC3) at the bit level, follow the procedure below. To the right of BIT, the value obtained by converting bits into time is displayed.

3. LTC TIMING BIT <u>0</u> BIT 0. 000ms

Procedure

 $\mathsf{GPS} \; \mathsf{OPTION} \to \mathsf{LTC} \to \mathsf{TIMING} \to \mathsf{BIT}$

Parameters

-39 to 0 to 39

16.1.4 Adjusting the LTC2 Offset

To adjust the LTC2 offset relative to LTC1, follow the procedure below.

```
2. LTC2 OFFSET
+00:00:0<u>0</u> [HH:MM:SS]
```

Procedure

 $\mathsf{GPS}\;\mathsf{OPTION}\to\mathsf{LTC}\to\mathsf{LTC2}\;\mathsf{OFFSET}$

Parameters

-23:59:59 to +00:00:00 to +23:59:59

16.1.5 Adjusting the LTC3 Offset

To adjust the LTC3 offset relative to LTC1, follow the procedure below.

```
2. LTC3 OFFSET
+00:00:0<u>0</u> [HH:MM:SS]
```

Procedure

```
\mathsf{GPS}\;\mathsf{OPTION}\to\mathsf{LTC}\to\mathsf{LTC3}\;\mathsf{OFFSET}
```

Parameters

-23:59:59 to +00:00:00 to +23:59:59

16. GPS OPTION MENU (SER01)

16.1.6 Setting the CW I/O

Under GPS OPTION \rightarrow CW SETTING, you can set the CW I/O.

O. GPS OPTION ▲CW SETTING 니

16.1.7 Selecting Input or Output

To select whether to use CW IN/OUT on the rear panel as an input connector or output connector, follow the procedure below.

This setting is not saved in the last memory. Even if output is selected, it will be set to input the next time you start the LT 4610. (When POWER ON RECALL on the SYSTEM menu is set to OFF)

```
2. CW IN∕OUT
■INPUT □OUTPUT
```

Procedure

 $\mathsf{GPS}\ \mathsf{OPTION} \to \mathsf{CW}\ \mathsf{SETTING} \to \mathsf{CW}\ \mathsf{IN}/\mathsf{OUT}$

Parameters

INPUT / OUTPUT

16.1.8 Selecting the Output Frequency

When CW IN/OUT is set to OUTPUT, to select the output frequency, follow the procedure below.

```
2. OUTPUT FREQ
■CW □1PPS
```

Procedure

 $\mathsf{GPS}\;\mathsf{OPTION}\to\mathsf{CW}\;\mathsf{SETTING}\to\mathsf{OUTPUT}\;\mathsf{FREQ}$

Parameters

CW / 1PPS

17. 12G OPTION MENU (SER02)

The 12G OPTION menu is used to specify settings related to SDI output. You can select this option when SER02 is installed.

To display the 12G OPTION menu, press MENU several times until the following menu appears.

```
0. 12G OPTION
▼SDI 1 J
```

On the 12G OPTION menu, you can set SDI1 to SDI4. Common settings can be specified on SDI1. On SDI2 to SDI4, different settings can be specified for groups of channels.

Note that for DUAL LINK, SDI2 and SDI4 cannot be set because only two outputs will be available. For QUAD LINK, SDI2 to SDI4 cannot be set because only one output will be available.

17.1 Setting the SDI Format

Under 12G OPTION \rightarrow SDI 1 \rightarrow FORMAT, you can set the SDI signal format. For the available combinations of SYSTEM, STRUCTURE, and RATE, see 5.4.2, "SDI Formats and Standards."

1. SDI 1	
▼ F O R M A T	ب

17.1.1 Selecting the System

To select the SDI signal system, follow the procedure below. You cannot select this for SDI2 to SDI4. Changing this setting also changes the STRUCTURE And RATE settings.

4. SDI 12G ▼*3840×2160 12G

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow FORMAT \rightarrow SYSTEM

Ρ	ar	ar	n	et	te	rs	

SD	720x 487 SD / 720x 576 SD
HD	1280x 720 HD / 1920x1080 HD
HD (DL)	1920x1080 HD (DL) / 2048x1080 HD (DL)
HD(QL)	3840x2160 Square / 4096x2160 Square
3G-A	1280x 720 3G-A / 1920x1080 3G-A / 2048x1080 3G-A
3G-B-DL	1920x1080 3G-B-DL / 2048x1080 3G-B-DL
3G-B-DS Dual	1280x 720 3G-B-DS / 1920x1080 3G-B-DS
3G(DL)-A	1920x1080 3G-2K-A / 2048x1080 3G-2K-A
3G(DL)-B-DL	1920x1080 3G-2K-B / 2048x1080 3G-2K-B
3G(DL)-B-DS	3840x2160 Square / 3840x2160 2Sample / 4096x2160 Square /
	4096x2160 2Sample
3G(QL)-A	3840x2160 Square / 3840x2160 2Sample / 4096x2160 Square /
	4096x2160 2Sample
3G(QL)-B-DL	3840x2160 Square / 3840x2160 2Sample / 4096x2160 Square /
	4096x2160 2Sample
12G	3840x2160 12G / 4096x2160 12G

17.1.2 Selecting the Color System

To select the SDI signal color system and quantization accuracy, follow the procedure below.

Changing this setting also changes the RATE settings.

3. SDI STRUCTURE ++ + 4 2 2 (YCbCr) 10−bit

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow FORMAT \rightarrow STRUCTURE

Parameters

```
<u>422(YCbCr)10-bit</u> / 422(YCbCr)12-bit / 444(YCbCr)10-bit /
444(YCbCr)12-bit / 444(RGB)10-bit / 444(RGB)12-bit
```

17.1.3 Selecting the Frame Frequency

To select the SDI signal frame (field) frequency, follow the procedure below.

```
3. SDI RATE
◆ * 5 9. 9 4 I
```

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow FORMAT \rightarrow RATE

Parameters

60P / <u>59.94P</u> / 50P / 48P / 47.95P / 30P / 29.97P / 25P / 24P / <u>23.98P</u> /30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF / 60I / 59.94I / 50I

17.2 Adjusting the Timing

Under 12G OPTION \rightarrow SDI 1 \rightarrow TIMING, you can adjust the SDI signal relative to the reference signal.

You can also set SDI2 to SDI4 separately.

1. SDI 1 ◆TIMING →

17.2.1 Adjusting the Timing (Line)

To adjust the SDI signal relative to the reference signal at the line level, follow the procedure below.

The variable range depends on the format.

3. SDI 1 TIMING V <u>O</u> LINE

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow TIMING \rightarrow VERTICAL

Parameters

```
-1124 to 0 to +1124
```

17.2.2 Adjusting the Timing (Dot)

To adjust the SDI signal relative to the reference signal at the dot level, follow the procedure below. To the right of DOT, the value obtained by converting dots into time is displayed.

The variable range depends on the format.

3. SDI 1 TIMING H <u>0</u> DOT 0. 0000μs

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow TIMING \rightarrow HORIZONTAL

Parameters

-4124 to 0 to +4124

17.3 Selecting the Pattern

To select a fixed pattern or a user pattern created on a PC, follow the procedure below. To select items use the \blacktriangle , \blacktriangledown , \triangleleft , and \triangleright keys. The SDI pattern generation settings can be set separately for each output. But the fixed pattern and user pattern cannot be generated simultaneously.

17.3.1 Switching between Fixed Pattern and User Pattern

To switch between fixed pattern and user pattern, follow the procedure below.

```
3. PATTERN SELECT
▼* FIX PATTERN IJ
```

Procedure

```
12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT
```

Parameters

FIX PATTERN / USER PATTERN

17.3.2 Selecting the Fixed Pattern

To select the fixed pattern, follow the procedure below.

4. SDI1 COLOR BAR ▼ ▶* 100%

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT \rightarrow FIX PATTERN

Parameters

COLOR BAR 100% / 75% / MULTI 100% / MULTI 75% / MULTI (+I) /			
	SMPTE / EBU / BBC / ARIB STD-B66-2		
MONITOR	FLAT FIELD 100% / FLAT FIELD 0% / RED FIELD 100% /		
	GREEN FILED 100% / BLUE FIELD 100%		
SDI	CHECK FIELD		

The selectable patterns depend on the SDI format as shown below.

Pattern		SDI format					
		Other than those on the right	720x487:SD	720x576:SD	3840x2160	4096x2160	
COLOR	100%	Y	Y	Y	Y	Y	
BAR	75%	Y	Y	Ν	Y	Y	
	MULTI 100%	Y	N	N	Y	Y	
	MULTI 75%	Y	N	N	Y	Y	
	MULTI (+I)	Y	N	N	Y	Y	
	SMPTE	N	Y	N	N	N	
	EBU	N	N	Y	N	N	
	BBC	Ν	N	Y	N	N	
	ARIB STD-	N	N	N	Y (*1)	L (*1, 2)	
	B66-2						
MONITOR	-	Y	Y	Y	Y	Y	
SDI	-	Y	Y	Y	N	N	

(Y: Can be selected, N: Cannot be selected, L: Can be selected but a portion of the area will not display anything)

*1 In ARIB STD-B66-2, the color system is 422(YCbCr) 10 bit.

*2 Because ARIB STD-B66-2 is a fixed pattern that is 3840x2160 in size, 256 dots on the right side will display black if the pattern is displayed in the 4096x2160 size.

17. 12G OPTION MENU (SER02)





MULTI 100%





MULTI (+I)



SMPTE



BBC





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17. 12G OPTION MENU (SER02)



FLAT FIELD 0%



RED FIELD 100%





BLUE FIELD 100%

CHECK FIELD



17.3.3 Operating procedure a user pattern

The following figure shows the procedure for operating a user pattern.



17.3.4 Displaying a User Pattern

This section describes the procedure for displaying a user pattern from the LT 4610 storage memory.

In this example, the user pattern file name is "LEADER.bmp," and the format is 4K.

1. Select the display memory from INT_1 to INT_8.

If a user pattern has already been transferred to the display memory, the selected user pattern is displayed. If no user pattern has been transferred, you need to transfer a pattern from the storage memory to the display memory.

How to save the user pattern to the storage memory, see 17.3.7, "Copying a User Pattern to the LT 4610" and 17.3.9, "Copying Patterns from the Archive."

The format is automatically set to SD, HD (2K), 4K (2SI), or 4K (SQD) according to the selected SDI format. The format is displayed as SD, 2K, 2SI, or SQD at the upper right of the USER PATTERN menu.

Therefore you need to select the SDI format before you select the user pattern.

[See also] 17.3.5, "Selecting a User Pattern", 17.3.7, "Copying a User Pattern to the LT 4610", 17.3.9, "Copying Patterns from the Archive"

4. USER PATTERN 1 2SI ▼*INT1 LEADER. bmp

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT \rightarrow USER PATTERN

2. Select the storage memory from 001 to 025.

When the file in the selected display memory matches that in the storage memory, see step 3.

When the file in the selected display memory does not match that in the storage memory, see step 4.

The format is automatically set to SD, HD (2K), 4K(2SI), or 4K(SQD) according to the selected SDI format. The format is displayed as SD, 2K, 4K(2SI), or 4K(SQD) at the upper right of the USER PATTERN menu.

5. USER PATTERN 1 2SI ▼001 LEADER. bmp

- 3. When the file in the selected display memory matches that in the storage memory
 - Select whether to display it as it is.

If you select CANCEL, you will return to selecting the storage memory.

SELECT FILE IS SAME. YES □CANCEL

• Set whether to automatically transfer the selected user pattern on the next startup.

An asterisk appears in front of the file name for the user pattern with power on load set to on.



(When power on load is set to on)

- 4. When the file in the selected display memory does not match that in the storage memory
 - Set whether to automatically transfer the selected user pattern on the next startup.

An asterisk appears in front of the file name for the user pattern with power on load set to on.

Example

4. USER PATTERN 1 2SI ▼*INT1 *LEADER.bmp

(When power on load is set to on)

• File transfer begins. Do not turn off the power while the transfer is in progress.

In the case of a 4K user pattern, it takes about 5 minutes.



• When the transfer is complete, the user pattern is displayed.

17.3.5 Selecting a User Pattern

To select a user pattern stored in the LT 4610's internal display memory, follow the procedure below. User patterns are stored in separate folders (SD, HD(2K), 4K(2SI) and 4K(SQD)) according to the SDI format.

The data in the folder corresponding to the selected SDI format is automatically displayed.

To display a user pattern, the pattern must first be transferred from the storage memory to the display memory.

Procedure

```
12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT \rightarrow USER PATTERN
```

The power on load function is available for automatically transferring a user pattern of your choice at startup. You can set this function in the procedure for transferring user patterns to memory. An asterisk appears in front of the file name for the user pattern to be transferred using power on load.

Example

4. USER PATTERN 1 2SI ▼*INT1 *LEADER.bmp

(When power on load is set to on)

17.3.6 Deleting a User Pattern

To delete user pattern data from the LT 4610's storage memory, follow the procedure below. You can select any of the folders, regardless of the current SDI format. In this example, the user pattern file name is "LEADER.bmp," and the format is 4K.

```
Procedure
```

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow DELETE

To clear a user pattern, follow the procedure below.

1. Select the format.

Select SD, HD (2K), or 4K.

3. DELETE PATTERN ▲ 4K

2. Select the user patterns you want to delete from 001 to 025.

4. DELETE PATTERN ▼001 LEADER. bmp

3. Select the OK.

5.	DELETE	PATTERN
	■OK	
17.3.7 Copying a User Pattern to the LT 4610

To copy up to 25 user patterns each for SD, HD(2K), and 4K from a USB memory device to the LT 4610's storage memory, follow the procedure below. (Copy the user pattern data that you created on a PC to the USB memory device in advance.) In this example, the user pattern file name is "LEADER.bmp," and the format is 4K.

The following menu appears when a USB memory device with the following folder structure is connected.

USB memory device

- └ 🗋 LT4610_USER
 - L 🗋 USER_PATTERN
 - ∟ 🗋 4K
 - ∟ 🗋 но
 - ∟ 🗋 sd

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow COPY USB \rightarrow INT

To copy a user pattern, follow the procedure below.

1. Select the format.

Select SD, HD(2K), or 4K.

3. COPY USB→INT ▲ 4K

2. Select the copy source in the USB memory device.

Here, BMP, TIFF, and IMG files in the folder corresponding to the selected format in the USB memory device are displayed.

```
4. COPY USB→INT
▼LEADER. bmp 1/ 1
```

3. Select the copy destination in the LT 4610's storage memory from 001 to 025.

If there is already a user pattern stored there, it will be overwritten.

5. COPY USB→INT ▼001 4K_2SI_UHDColor

4. If a user pattern is in IMG format, copying begins.

In the case of a 4K user pattern, copying takes about 7 minutes. Do not turn the power off or remove the USB memory device while copying.

COPY USER PATTERN

5. If the user pattern is BMP or TIFF format, set the COLORIMETRY and RANGE. Select any values of your choice.



6. If the user pattern is 4K, select the division.

8. DIVISION		
□ 2 S I	SQD	

7. Copying begins.

In the case of a 4K user pattern, copying takes about 7 minutes. Do not turn the power off or remove the USB memory device while copying.

СОРҮ	USER	ΡΑΤΤ	ERN
			25%

• USB Memory Device File Structure

User patterns are copied from the USER_PATTERN folder of the USB memory device.

USB memory device
 □ LT4610_USER
 □ USER_PATTERN
 □ 4K
 □ □ *******.bmp
 □ HD
 □ □ SD
 □ ******.bmp

4K folder: Save image files that are 3840×2160 or 4096×2160.

HD folder: Save image files that are 1280×720, 1920×1080, or 2048×1080.

SD folder: Save image files that are 720×487 or 720×576.

17.3.8 Copying a User Pattern to a USB Memory Device

To copy user pattern data from the LT 4610's storage memory to a USB memory device, follow the procedure below.

In this example, the user pattern file name is "LEADER.bmp," and the format is 4K.

The following menu appears when a USB memory device with the following folder structure is connected.

USB memory device

└ 🗍 LT4610_USER

L 🗍 USER_PATTERN

∟ 🗋 4K

– 🗋 нр

∟ 🗋 sd

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow COPY INT \rightarrow USB

To copy a user pattern, follow the procedure below.

1. Select the format.

Select SD, HD (2K), or 4K.

```
3. COPY INT→USB
▲ 4K
```

2. Select the copy source in the LT 4610's storage memory from 001 to 025.

4. COPY INT→USB \$001 LEADER. bmp

3. Select the OK.

5. COPY INT→USB ■OK □CANCEL

4. Copying begins.

In the case of a 4K user pattern, copying takes about 7 minutes. Do not turn the power off or remove the USB memory device while copying.



• USB Memory Device File Structure

User patterns are stored in the USER_PATTERN folder of the USB memory device.

USB memory device
 □ LT4610_USER
 □ USER_PATTERN
 □ 4K
 | □ □ +******. bmp
 □ HD
 | □ □ ******. bmp
 □ SD
 □ ******.bmp

4K folder:Image files that are 3840×2160 or 4096×2160 are stored.HD folder:Image files that are 1280×720, 1920×1080, or 2048×1080 are stored.SD folder:Image files that are 720×487 or 720×576 are stored.

17.3.9 Copying Patterns from the Archive

To copy archived patterns to the LT 4610's storage memory, follow the procedure below. You cannot write to the archive.

In this example, the archive pattern file name is "UHDColorBar.img," and the format is 4K.

This menu appears when there are patterns in the archive.

Procedure

```
12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow ARCHIVE\rightarrowINT
```

To copy an archived pattern, follow the procedure below.

1. Select the format.

Select SD, HD (2K), or 4K.

2. Select the archive copy source.

Here, IMG files in the folder corresponding to the selected format in the archive are displayed.

4. ARCHIVE→INT ▲UHDColorBar.i 4/ 4

3. Select the copy destination in the LT 4610's storage memory from 001 to 025.

If there is already a user pattern stored there, it will be overwritten.

5. ARCHIVE→INT ▼001 LEADER.bmp 4. Copying begins.

In the case of a 4K user pattern, copying takes about 7 minutes. Do not turn the power off or remove the USB memory device while copying.

СОРҮ	USER	РАТТ	ERN
			25%

The following patterns can be selected in the archive.

Detterre	SDI format					
Pattern	SD	HD(2K)	4K(SQD)	4K(2SI)	8K	
UHDColorBar	N	N	N	V	V	
HLGCB	N	N	\checkmark	V	N	
SLog3_LiveHDR_narrow_v11	N	\checkmark	N	V	V	

(\lor : Can be selected, N: Cannot be selected)





SLog3_LiveHDR_narrow_v111



17.4 Turning YCbCr On and Off

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow COMPONENT, you can turn individual components in a YCbCr or GBR signal on and off.

For the setting procedure, see 12.4, "Turning YCbCr On and Off."

17.5 Turning Safety Area Markers On and Off

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SAFETY AREA, you can turn on and off the 90% marker, 80% marker, and 4:3 marker separately.

For the setting procedure, see 12.5, "Turning Safety Area Markers On and Off."

17.6 Configuring the Pattern Scroll Feature

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SCROLL, you can configure pattern scrolling.

For the setting procedure, see 12.6, "Configuring the Pattern Scroll Feature."

17.7 Setting the Pattern Change

Under 12G OPTION→SDI 1→VIDEO→PATTERN CHANGE, you can set the pattern change.

For the setting procedure, see 12.7, "Setting the Pattern Change."

17.8 Setting ID Characters

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow ID CHARACTER, set the ID characters. You can also set SDI2 to SDI4 separately.

For the setting procedure, see 12.8, "Setting ID Characters."

17.9 Setting Logos

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LOGO, you can set the logo. You can also set SDI2 to SDI4 separately.

For the setting procedure, see 12.9, "Setting Logos."

17.10 Setting the Moving Box

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX, you can set the moving box. This is invalid when the pattern is the user pattern or check field.

2. SDI VIDEO ♦MOVING BOX →

17.10.1 Turning the Moving Box On and Off

To turn moving box on and off, follow the procedure below.

4. MOVING BOX □ON ■OFF

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX \rightarrow ON/OFF

Parameters

ON / OFF

17.10.2 Setting the Box Color

To set the moving box color, follow the procedure below.

4. BOX COLOR ▶* WHITE

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX \rightarrow BOX COLOR

Parameters

WHITE / YELLOW / CYAN / GREEN / BLUE / RED / MAGENTA / BLACK

17.10.3 Setting the Vertical Moving Speed

To set the moving speed, follow the procedure below.

4. MOVING BOX V-SPEED ↔* MIDDLE

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX \rightarrow V-SPEED

Parameters

LOW / MIDDLE / HIGH

17.10.4 Setting the Horizontal Moving Speed

To set the moving speed, follow the procedure below.

4. MOVING BOX H−SPEED ++* MIDDLE

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX \rightarrow H-SPEED

Parameters

LOW / MIDDLE / HIGH

17.10.5 Setting the Vertical Box Size

To set the vertical size of the box, follow the procedure below. When the image size is 1280x720, you cannot select SIZE4 and SIZE5.

```
4. MOVING BOX V-SIZE
↔* SIZE2
```

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX \rightarrow V-SIZE

Parameters

SIZE1 / SIZE2 / SIZE3 / SIZE4 / SIZE5

17.10.6 Setting the Horizontal Box Size

To set the horizontal size of the box, follow the procedure below. When the image size is 1280x720, you cannot select SIZE4 and SIZE5.

```
4. MOVING BOX H-SIZE
↔* SIZE2
```

Procedure

```
12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX \rightarrow H-SIZE
```

Parameters

SIZE1 / SIZE2 / SIZE3 / SIZE4 / SIZE5

17.11 Turning Lip Sync On and Off

To turn lip sync pattern on and off, follow the procedure below.

When turned on, the LT 4610 outputs lip sync patterns. Combining this with our lip-synccompatible waveform monitor makes it possible to measure the offset between the video signal and the audio signal that occurs in the transfer route for each channel. For details, see the instruction manual of the waveform monitor.

For details on lip sync patterns, see 15.2, "Description of Lip Sync Patterns."

This is invalid when the SDI signal pattern is check field.

4. SDI 1 LIPSYNC □ON ■OFF

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow LIPSYNC \rightarrow ON/OFF

Parameters

ON / OFF

If set to ON, set all audio channels as follows under 12G OPTION \rightarrow SDI 1 \rightarrow AUDIO for SDI signals.

These settings are factory default settings.

	Item	Setting
SDI menu	AUDIO ON/OFF	ON
	FREQ	1kHz
	LEVEL	-20
	RESOLUTION	20BIT
	EMPHASIS	OFF

17.12 Turning User Payload ID On and Off

To turn user payload ID on and off, follow the procedure below.

When the user pattern is selected, turning it ON outputs the user payload ID information. You can edit the user payload ID only in a web browser. How to edit, see 22.2.11 "Editing User Payload ID."

4. SDI USER PAYLOAD □ON ■OFF

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow USER PAYLAD \rightarrow ON/OFF

Parameters

ON / OFF

17.13 Configuring Embedded Audio

16 (HD(DL)) audio channels (32 channels for 3G-B) can be embedded in an SDI signal.

For the setting procedure, see 12.10, "Configuring Embedded Audio."

17.14 Common SDI Signal Settings

You can link the SDI2 and SDI3 settings to the SDI1 setting and the SDI4 setting to the SDI3 setting by following the procedure below to select ON. When linked, SDI2 to SDI4 cannot be set.

|--|

Procedure

12G OPTION \rightarrow SDI 2 \rightarrow EQUAL TO SDI 1 12G OPTION \rightarrow SDI 3 \rightarrow EQUAL TO SDI 1 12G OPTION \rightarrow SDI 4 \rightarrow EQUAL TO SDI 3

Parameters

ON / OFF

18. 8K OPTION MENU (SER24)

When 8K OPTION is installed, the item are added to the 12G OPTION(SER02) menu. For the basic operation, See 17, "12G OPTION Menu (SER02)."

To display the 12G OPTION menu, press MENU several times until the following menu appears.



The 8K settings can be set with SDI1. When 8K is enable, SDI2 to 4 cannot be set.

18.1 Setting the SDI Format

Under 12G OPTION \rightarrow SDI 1 \rightarrow FORMAT, you can set the SDI signal format. For the available combinations of SYSTEM, STRUCTURE, and RATE, see 5.9.2, "SDI Formats and Standards."

```
1. SDI 1
▼FORMAT J
```

18.1.1 Selecting the System

To select the 8K 12G-SDI signal system, follow the procedure below. Changing this setting also changes the STRUCTURE And RATE settings.

4. SDI 12G (QL) −A ▲ * 7680×4320 12G

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow FORMAT \rightarrow SYSTEM \rightarrow 12G

Parameters

3840x2160 12G / 4096x2160 12G / 7680x4320 12G

18.1.2 Selecting the Color System

To select the SDI signal color system and quantization accuracy, follow the procedure below.

Changing this setting also changes the RATE settings.

3. SDI STRUCTURE ◆ * 4 2 2 (YCbCr) 10 - b i t

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow FORMAT \rightarrow STRUCTURE

Parameters

```
<u>422(YCbCr)10-bit</u> / 422(YCbCr)12-bit / 444(YCbCr)10-bit /
444(YCbCr)12-bit / 444(RGB)10-bit / 444(RGB)12-bit
```

18.1.3 Selecting the Frame Frequency

To select the SDI signal frame (field) frequency, follow the procedure below.

3. SDI RATE ◆ * 5 9. 9 4 I

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow FORMAT \rightarrow RATE

Parameters

60P / 59.94P / 50P / 48P / 47.95P / 30P / 29.97P / 25P / 24P / 23.98P

18.2 Adjusting the Timing

Under 12G OPTION \rightarrow SDI 1 \rightarrow TIMING, you can adjust the SDI signal relative to the reference signal.

How to set, see 17.2, "Adjusting the Timing."

18.3 Selecting the Pattern

To select a fixed pattern or a user pattern created on a PC, follow the procedure below. To select items use the \blacktriangle , \blacktriangledown , \triangleleft , and \triangleright keys. The fixed pattern and user pattern cannot be generated simultaneously.

18.3.1 Switching between Fixed Pattern and User Pattern

To switch between fixed pattern and user pattern, follow the procedure below.

3. PATTERN SELECT ▼* FIX PATTERN ↓

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT

Parameters

FIX PATTERN / USER PATTERN

18.3.2 Selecting the Fixed Pattern

To select the fixed pattern, follow the procedure below.

4. SDI1 COLOR BAR ▼ ▶* 100%

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT \rightarrow FIX PATTERN

Parameters

COLOR BAR 100% / 75%

MONITOR FLAT FIELD 100% / FLAT FIELD 0% / RED FIELD 100% / GREEN FILED 100% / BLUE FIELD 100%

18. 8K OPTION MENU (SER24)



FLAT FIELD 100%



RED FIELD 100%

GREEN FILED 100%



BLUE FIELD 100%



18.3.3 Operating procedure a user pattern

The following figure shows the procedure for operating a user pattern.



18.3.4 Displaying a User Pattern

This section describes the procedure for displaying a user pattern from the LT 4610 storage memory.

In this example, the user pattern file name is "LEADER.bmp," and the format is 4K.

1. Select the display memory from INT_1 to INT_8.

If a user pattern has already been transferred to the display memory, the selected user pattern is displayed. If no user pattern has been transferred, you need to transfer a pattern from the storage memory to the display memory.

How to save the user pattern to the storage memory, see 18.3.7, "Copying a User Pattern to the LT 4610" and 18.3.9, "Copying Patterns from the Archive ."

The format is automatically set to SD, HD (2K), 4K(2SI), 4K(SQD) or 8K according to the selected SDI format. The format is displayed as SD, 2K, 2SI, SQD, or 8K at the upper right of the USER PATTERN menu.

You need to select the SDI format before you select the user pattern.

[See also] 18.3.5, "Selecting a User Pattern", 18.3.7, "Copying a User Pattern to the LT 4610", 18.3.9, "Copying Patterns from the Archive"

4. USER PATTERN 1 8K ▼ *INT1 LEADER.bmp

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT \rightarrow USER PATTERN

2. Select the storage memory from 001 to 025.

When the file in the selected display memory matches that in the storage memory, see step 3.

When the file in the selected display memory does not match that in the storage memory, see step 4.

The format is automatically set to SD, HD (2K), 4K(2SI), 4K(SQD), 8K according to the selected SDI format. The format is displayed as SD, 2K, 4K(2SI), 4K(SQD) or 8K at the upper right of the USER PATTERN menu.

```
5. USER PATTERN 1 8K
▼001 LEADER. bmp
```

- 3. When the file in the selected display memory matches that in the storage memory
 - Select whether to display it as it is.

If you select CANCEL, you will return to selecting the storage memory.

SELECT FIL	EI	s	SAME.
■YES		СA	NCEL

• Set whether to automatically transfer the selected user pattern on the next startup.

An asterisk appears in front of the file name for the user pattern with power on load set to on.

6. POWER ON LOAD □YES ■NO

Example

4. USER PATTERN 1 8K ▼*INT1 *LEADER. bmp

(When power on load is set to on)

- 4. When the file in the selected display memory does not match that in the storage memory
 - Set whether to automatically transfer the selected user pattern on the next startup. An asterisk appears in front of the file name for the user pattern with power on load set to on.

6.	POWER	ΟN	LOAD	
I	ΠYES	3	■ N O	

Example

4. USER PATTERN 1 8K ▼*INT1 *LEADER.bmp

(When power on load is set to on)

• File transfer begins. Do not turn off the power while the transfer is in progress.

In the case of a 4K user pattern, it takes about 2 minutes.

СОРҮ	USER	РАТТ	ERN
			25%

• When the transfer is complete, the user pattern is displayed.

18.3.5 Selecting a User Pattern

To select a user pattern stored in the LT 4610's internal display memory, follow the procedure below. User patterns are stored in separate folders (SD, HD(2K), 4K(2SI) 4K(SQD), and 8K) according to the SDI format.

The data in the folder corresponding to the selected SDI format is automatically displayed.

To display a user pattern, the pattern must first be transferred from the storage memory to the display memory.

4. USER PATTERN 1 8K ▼*INT1 LEADER. bmp

Procedure

```
12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow PATTERN SELECT \rightarrow USER PATTERN
```

The power on load function is available for automatically transferring a user pattern of your choice at startup. You can set this function in the procedure for transferring user patterns to memory. An asterisk appears in front of the file name for the user pattern to be transferred using power on load.

Example

4. USER PATTERN 1 8K ▼*INT1 *LEADER.bmp

(When power on load is set to on)

18.3.6 Deleting a User Pattern

To delete user pattern data from the LT 4610's storage memory, follow the procedure below. You can select any of the folders, regardless of the current SDI format. In this example, the user pattern file name is "LEADER.bmp," and the format is 8K.

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow DELETE

To clear a user pattern, follow the procedure below.

1. Select the format.

Select SD, HD (2K), 4K, or 8K.

3. DELETE PATTERN ▲ 8K →

2. Select the user patterns you want to delete from 001 to 025.

4. DELETE PATTERN ▼001 LEADER. bmp

3. Select the OK.

5.	DELETE	PATTERN
	■OK	

18.3.7 Copying a User Pattern to the LT 4610

To copy up to 25 user patterns each for SD, HD(2K), 4K, and 8K from a USB memory device to the LT 4610's storage memory, follow the procedure below. (Copy the user pattern data that you created on a PC to the USB memory device in advance.) In this example, the user pattern file name is "LEADER.bmp," and the format is 8K.

The following menu appears when a USB memory device with the following folder structure is connected.

USB memory device

└ 🗋 LT4610_USER

L DUSER_PATTERN

∟ 🗋 8к

- ∟ 🗋 4K
- 🗋 нр
- L 🗋 SD

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow COPY USB \rightarrow INT

To copy a user pattern, follow the procedure below.

1. Select the format.

Select SD, HD(2K), 4K, or 8K.

3. COPY USB→INT ▲ 8K ↓

2. Select the copy source in the USB memory device.

Here, BMP, TIFF, and IMG files in the folder corresponding to the selected format in the USB memory device are displayed.

4. COPY USB→INT ▼LEADER. bmp 1 ∕ 1

3. Select the copy destination in the LT 4610's storage memory from 001 to 025.

If there is already a user pattern stored there, it will be overwritten.

5. COPY USB→INT ▼001 4K_2SI_UHDColor

4. If a user pattern is in IMG format, copying begins.

In the case of a 8K user pattern, copying takes about 15 minutes. Do not turn the power off or remove the USB memory device while copying.

СОРҮ	USER	ΡΑΤ	TERN	
			25%	

5. If the user pattern is BMP or TIFF format, set the COLORIMETRY, RANGE, and HDR/SDR. Select any values of your choice.



6. Copying begins.

In the case of an 8K user pattern, copying takes about 15 minutes. Do not turn the power off or remove the USB memory device while copying.

СОРҮ	USER	РАТ	TERN	
			25%	

• USB Memory Device File Structure

User patterns are copied from the USER_PATTERN folder of the USB memory device.

- USB memory device └ 🗍 LT4610_USER └ 🗍 USER_PATTERN ∟ 🗋 8к ∟ 🗋 4K – 🗋 нр | └ 🗋 ******.bmp L 🗋 SD └ 🗋 ******.bmp 8K folder:
- Save image files that are 7680×4320.
- 4K folder: Save image files that are 3840×2160 or 4096×2160.
- Save image files that are 1280×720, 1920×1080, or 2048×1080. HD folder:
- SD folder: Save image files that are 720×487 or 720×576.

18.3.8 Copying a User Pattern to a USB Memory Device

To copy user pattern data from the LT 4610's storage memory to a USB memory device, follow the procedure below. However, the data converted to an IMG file is copied to a USB memory device.

In this example, the user pattern file name is "LEADER.bmp," and the format is 4K.

The following menu appears when a USB memory device with the following folder structure is connected.

USB memory device

- └ 🗋 LT4610_USER
 - └ 🗍 USER_PATTERN
 - ∟ 🗋 8к
 - ∟ 🗋 4K
 - 🗋 нр
 - ∟ 🗋 sd

Procedure

12G OPTION \rightarrow SDI 1 \rightarrow PATTERN \rightarrow COPY INT \rightarrow USB

To copy a user pattern, follow the procedure below.

1. Select the format.

Select SD, HD (2K), 4K, or 8K.

3. COPY INT→USB ▲ 8K ျ

2. Select the copy source in the LT 4610's storage memory from 001 to 025.

```
4. COPY INT→USB
◆001 LEADER. bmp
```

3. Select the OK.

5. COPY INT→USB ■OK □CANCEL

4. Copying begins.

In the case of an 8K user pattern, copying takes about 15 minutes. Do not turn the power off or remove the USB memory device while copying.



• USB Memory Device File Structure

User patterns are stored in the USER_PATTERN folder of the USB memory device.

USB memory device
 LT4610_USER
 USER_PATTERN
 8K
 L
 ********.img
 4K
 L
 *******.bmp
 HD
 L
 SD
 *******.bmp

8K folder:	Image files that are 3840×2160 or 4096×2160 are stored.
4K folder:	Image files that are 3840×2160 or 4096×2160 are stored.
HD folder:	Image files that are 1280×720, 1920×1080, or 2048×1080 are stored.
SD folder:	Image files that are 720×487 or 720×576 are stored.

18.3.9 Copying Patterns from the Archive

To copy archived patterns to the LT 4610's storage memory, follow the procedure below. You cannot write to the archive.

In this example, the archive pattern file name is "UHDColorBar.img," and the format is 8K.

This menu appears when there are patterns in the archive.

Procedure

To copy an archived pattern, follow the procedure below.

1. Select the format.

Select SD, HD (2K), 4K, or 8K.

3. ARCHIVE→INT ▲ 8K →

2. Select the archive copy source.

Here, BMP, TIFF, and IMG files in the folder corresponding to the selected format in the archive are displayed.

4. ARCHIVE→INT ▼8K_2SI_UHDCoI 1∕2

3. Select the copy destination in the LT 4610's storage memory from 001 to 025.

If there is already a user pattern stored there, it will be overwritten.

5. ARCHIVE→INT ▼001 LEADER.bmp 4. If a user pattern is in IMG format, Copying begins.

In the case of an 8K user pattern, copying takes about 15 minutes. Do not turn the power off or remove the USB memory device while copying.

СОРҮ	USER	РАТТ	FERN	
			25%	

18.4 Turning YCbCr On and Off

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow COMPONENT, you can turn individual components in a YCbCr or GBR signal on and off.

For the setting procedure, see 12.4, "Turning YCbCr On and Off."

18.5 Turning Safety Area Markers On and Off

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SAFETY AREA, you can turn on and off the 90% marker, 80% marker, and 4:3 marker separately.

For the setting procedure, see 12.5, "Turning Safety Area Markers On and Off."

18.6 Configuring the Pattern Scroll Feature

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow SCROLL, you can configure pattern scrolling.

For the setting procedure, see 12.6, "Configuring the Pattern Scroll Feature."

18.7 Setting the Pattern Change

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow PATTERN CHANGE, you can set the pattern change.

For the setting procedure, see 12.7, "Setting the Pattern Change."

18.8 Setting the Moving Box

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow MOVING BOX, you can set the moving box. For the setting procedure, see 17.10, "Setting the Moving Box." 18.9 Turning Lip Sync On and Off

Under 12G OPTION→SDI 1→VIDEO→LIPSYNC, you can turn the lip sync pattern on and off. For the setting procedure, see 17.11, "Turning Lip Sync On and Off."

18.10 Turning User Payload ID On and Off

Under 12G OPTION \rightarrow SDI 1 \rightarrow VIDEO \rightarrow USER PAYLAD, you can turn the user payload ID on and off.

For the setting procedure, see 17.12, "Turning User Payload ID On and Off."

18.11 Configuring Embedded Audio

16 audio channels can be embedded in an SDI signal.

For the setting procedure, see 12.10, "Configuring Embedded Audio."

19. PTP OPTION MENU (SER03)

The PTP OPTION menu is used to specify PTP settings. You can select this option when SER03 is installed.

To display the PTP OPTION menu, press MENU several times until the following menu appears.

O. PTP OPTION ▼PTP1 ↓

19.1 PTP Master

To enable PTP master mode, set the genlock mode to a value other than PTP. [See also] 10, "GENLOCK MENU"

When configuring PTP2, for parameters without descriptions for PTP2, set them the same as PTP1.

19.1.1 Setting the Mode

Under PTP OPTION \rightarrow PTP1 \rightarrow MODE, you can enable or disable the PTP master.

```
2. PTP1 MODE
*ENABLE MASTER
```

```
Procedure
```

 $\texttt{PTP} \; \texttt{OPTION} \to \texttt{PTP1} \to \texttt{MODE}$

Parameters (for PTP1)

ENABLE MASTER / DISABLE MASTER

Parameters (for PTP2)

ENABLE MASTER / DISABLE MASTER

19.1.2 Setting the BMCA

Under PTP OPTION \rightarrow PTP1 \rightarrow BMCA, you can enable or disable the BMCA.

```
2. PTP1 BMCA
↔*ENABLE J
```

Procedure

```
\texttt{PTP OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{BMCA}
```

Parameters

ENABLE / DISABLE

19. PTP OPTION MENU (SER03)

19.1.3 Setting the Profile Type

Under PTP OPTION→PTP1→PROFILE TYPE, you can select the profile.

2. PTP1 PROFILE TYPE ▼*ST2059 ↓

Procedure

 $\mathsf{PTP} \; \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{PROFILE} \; \mathsf{TYPE}$

Parameters

ST2059 / AES67 / GENERAL

19.1.4 Profile Default Settings

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow PROFILE SET DEFAULT can be used to reset the settings to the default values of the selected profile.

```
3. PTP1 PROFILE
ENTER TO DEFAULT
```

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{PROFILE} \ \texttt{SET} \ \texttt{DEFAULT}$

19.1.5 Setting the Domain

Under PTP OPTION→PTP1→DETAIL SETTING→DOMAIN, you can set the domain number.

```
3. PTP1 DOMAIN
127
```

Procedure

 $\mathsf{PTP}\ \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL}\ \mathsf{SETTING} \to \mathsf{DOMAIN}$

Parameters (when configuring PTP1 and PROFILE TYPE is ST2059)

0 to 127

Parameters (when configuring PTP2 and PROFILE TYPE is ST2059)

0 to 126 to 127

Parameters (when PROFILE TYPE is AES67)

0 to 255

Parameters (when PROFILE TYPE is GENERAL)

0 to 255

19.1.6 Setting the Communication Mode

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow COMMUNICATION MODE, you can set the communication mode.

3. PTP1 COMMUNICATION ↔ * MIXED SMPTE w⁄o NE

Procedure

 $\texttt{PTP} \text{ OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \text{ SETTING} \rightarrow \texttt{COMMUNICATION} \text{ MODE}$

Parameters (when PROFILE TYPE is ST2059)

MIXED SMPTE / MIXED SMPTE w/o NE / UNICAST / MULTICAST

Parameters (when PROFILE TYPE is AES67)

UNICAST / MULTICAST

Parameters (when PROFILE TYPE is GENERAL)

UNICAST / MULTICAST

19.1.7 Setting the Announce Interval

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ANNOUNCE INTERVAL, you can set the transmission interval of announce messages.

3. PTP1 ANNOUNCE INT ↓ ★ 0. 25 s 4 Hz

Procedure

 $\mathsf{PTP} \; \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL} \; \mathsf{SETTING} \to \mathsf{ANNOUNCE} \; \mathsf{INTERVAL}$

Parameters (when PROFILE TYPE is ST2059)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz

Parameters (when PROFILE TYPE is AES67)

1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

Parameters (when PROFILE TYPE is GENERAL)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / <u>2s 0.5Hz</u> / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

19.1.8 Setting the Sync Interval

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow SYNC INTERVAL, you can set the transmission interval of sync messages.

3. PTP1 SYNC INTERVAL ◆◆*0. 125s 8Hz

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{SYNC} \ \texttt{INTERVAL}$

Parameters (when PROFILE TYPE is ST2059)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / <u>0.125s 8Hz</u> / 0.25s 4Hz / 0.5s 2Hz

Parameters (when PROFILE TYPE is AES67)

0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz

Parameters (when PROFILE TYPE is GENERAL)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / <u>1s 1Hz</u> / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

19.1.9 Setting Priority 1

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow PRIORITY1, you can set the master priority 1.

3. PTP1 PRIORITY1 128

Procedure

 $\mathsf{PTP} \; \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL} \; \mathsf{SETTING} \to \mathsf{PRIORITY1}$

Parameters

0 to 128 to 255

19.1.10 Setting Priority 2

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow PRIORITY2, you can set the master priority 2.

3. PTP1 PRIORITY2 128

Procedure

 $\mathsf{PTP}\ \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL}\ \mathsf{SETTING} \to \mathsf{PRIORITY2}$

Parameters

0 to 128 to 255

19.1.11 Setting the Step

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow STEP, you can set the step.

3. PTP1 STEP ◆◆*ONE STEP

Procedure

 $\texttt{PTP} ~ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} ~ \texttt{SETTING} \rightarrow \texttt{STEP}$

Parameters

ONE STEP:Timestamps are included in sync messages.TWO STEP:Timestamps are sent in follow-up messages, separate from sync
messages.

19.1.12 Setting ST2059 (PROFILE: ST2059 only)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ST2059, you can set the details when the profile is set to ST2059.

• Setting the Default Frame

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ST2059 \rightarrow DEFAULT FRAME, you can set the default frame.

4. PTP1 ST2059 ◆ * FRAME: 29. 97 ↓

Procedure

```
\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{ST2059} \rightarrow \texttt{DEFAULT} \ \texttt{FRAME}
```

Parameters

```
23.98 / 24 / 25 / 29.97 / 30 / 47.95 / 48 / 50 / 59.94 / 60 / 71.92 / 72 / 100 / 119.9 / 120
```

• Setting the Dropped Frame Flag

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ST2059 \rightarrow DROP FRAME FLAG, you can set the dropped frame flag.

```
4. PTP1 ST2059
↔*DROP FRAME:ENABLEJ
```

Procedure

```
\mathsf{PTP}\ \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL}\ \mathsf{SETTING} \to \mathsf{ST2059} \to \mathsf{DROP}\ \mathsf{FRAME}\ \mathsf{FLAG}
```

Parameters

ENABLE / DISABLE / AUTO

• Setting the Color Frame ID

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ST2059 \rightarrow COLOR FRAME ID, you can set the color frame ID.

Procedure

```
\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{ST2059} \rightarrow \texttt{COLOR} \ \texttt{FRAME} \ \texttt{ID}
```

Parameters

ENABLE / DISABLE

19.1.13 Setting the Announce Timeout

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ANNOUNCE TIMEOUT can be used to set the announce message count for deciding timeouts. If the number of messages not received consecutively at the interval specified by the master reaches this count, a timeout occurs.

3. PTP1 ANNOUNCE TIMEOUT COUNT: 3

Procedure

 $\texttt{PTP OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL SETTING} \rightarrow \texttt{ANNOUNCE TIMEOUT}$

Parameters

2 to 3 to 10

19.1.14 Setting the Propagation Time Measurement Method

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow DELAY MECHANISM, you can set the propagation time measurement method.

3. PTP1 DELAY MECH ↔*END TO END .J

Procedure

 $\mathsf{PTP}\ \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL}\ \mathsf{SETTING} \to \mathsf{DELAY}\ \mathsf{MECHANISM}$

Parameters

END TO END / PEER TO PEER

19.2 PTP Slave

To enable PTP slave mode, set the genlock mode to PTP. [See also] 10, "GENLOCK MENU"

PTP2 cannot be set to PTP slave.

19.2.1 Setting the Mode

PTP OPTION \rightarrow PTP1 \rightarrow MODE is fixed to PTP slave.

2. PTP1 MODE ◆◆★SLAVE↓

Procedure

```
\texttt{PTP} \; \texttt{OPTION} \to \texttt{PTP1} \to \texttt{MODE}
```

Parameters (when the genlock mode is PTP)

SLAVE

19.2.2 Setting the Profile Type

Under PTP OPTION→PTP1→PROFILE TYPE, you can select the profile.

```
2. PTP1 PROFILE TYPE
▼*ST2059 ↓
```

Procedure

```
\mathsf{PTP} \ \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{PROFILE} \ \mathsf{TYPE}
```

Parameters

ST2059 / AES67 / GENERAL

19.2.3 Profile Default Settings

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow PROFILE SET DEFAULT can be used to reset the settings to the default values of the selected profile.

```
3. PTP1 PROFILE
ENTER TO DEFAULT
```

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{PROFILE} \ \texttt{SET} \ \texttt{DEFAULT}$

19.2.4 Setting the Domain

Under PTP OPTION→PTP1→DETAIL SETTING→DOMAIN, you can set the domain number.

3. PTP1 DOMAIN 127

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{DOMAIN}$

Parameters (when PROFILE TYPE is ST2059)

0 to <u>127</u>

Parameters (when PROFILE TYPE is AES67)

0 to 255

Parameters (when PROFILE TYPE is GENERAL)

0 to 255

19.2.5 Setting the Communication Mode

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow COMMUNICATION MODE, you can set the communication mode.

3. PTP1 COMMUNICATION ↔ * MULTICAST

Procedure

 $\mathsf{PTP} \; \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL} \; \mathsf{SETTING} \to \mathsf{COMMUNICATION} \; \mathsf{MODE}$

Parameters (when PROFILE TYPE is ST2059)

MIXED SMPTE / MIXED SMPTE w/o NE / UNICAST / MULTICAST

Parameters (when PROFILE TYPE is AES67)

UNICAST / MULTICAST

Parameters (when PROFILE TYPE is GENERAL)

UNICAST / MULTICAST

19.2.6 Setting the Desired Announce Message Transmission Interval (UNICAST only)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ANNOUNCE DESIR INT can be used to set the desired interval of announce messages sent from the connected master.

3. PTP1 ANC DESIR INT +→* 0. 25s 4Hz

Procedure

 $\mathsf{PTP} \; \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL} \; \mathsf{SETTING} \to \mathsf{ANNOUNCE} \; \mathsf{DESIR} \; \mathsf{INT}$

Parameters (when PROFILE TYPE is ST2059)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz

Parameters (when PROFILE TYPE is AES67)

1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

Parameters (when PROFILE TYPE is GENERAL)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / <u>2s 0.5Hz</u> / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

* Set a shorter interval than ANC REQD INT (19.2.7).

19.2.7 Setting the Minimum Interval for Receiving Announce Messages (UNICAST only)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ANNOUNCE REQD INT can be used to set the minimum interval that the slave side can receive announce messages.

3. PTP1 ANC REQD INT ↔* 2s 0.5Hz

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{ANNOUNCE} \ \texttt{REQD} \ \texttt{INT}$

Parameters (when PROFILE TYPE is ST2059)

 $0.125s\;8\text{Hz}$ / $0.25s\;4\text{Hz}$ / $0.5s\;2\text{Hz}$ / $1s\;1\text{Hz}$ / $2s\;0.5\text{Hz}$

Parameters (when PROFILE TYPE is AES67)

1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

Parameters (when PROFILE TYPE is GENERAL)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

19.2.8 Setting the Desired Sync Message Transmission Interval (UNICAST only)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow SYNC DESIR INT can be used to set the desired interval of sync messages sent from the connected master.

3. PTP1 SYN DESIR INT +→* 0. 125 s 8 Hz

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{SYNC} \ \texttt{DESIR} \ \texttt{INT}$

Parameters (when PROFILE TYPE is ST2059)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / <u>0.125s 8Hz</u> / 0.25s 4Hz / 0.5s 2Hz

Parameters (when PROFILE TYPE is AES67)

0.0625s 16Hz /0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz

Parameters (when PROFILE TYPE is GENERAL)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz

- * Set a shorter interval than SYNC REQD INT (19.2.9).
- 19.2.9 Setting the Minimum Interval for Receiving Sync Messages (UNICAST only)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow SYNC REQD INT can be used to set the minimum interval that the slave side can receive sync messages.

3. PTP1 SYN REQD INT ••* 0.5s 2Hz

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{SYNC} \ \texttt{REQD} \ \texttt{INT}$

Parameters (when PROFILE TYPE is ST2059)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz

Parameters (when PROFILE TYPE is AES67)

0.0625s 16Hz /0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz

Parameters (when PROFILE TYPE is GENERAL)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz

19.2.10 Setting the Delay Message Interval (MULTICAST, MIXED SMPTE w/o NEGOTTIATION)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow DELAY MSG INTERVAL can be used to set the transmission interval of delay messages.

3. PTP1 DELAY MSG INT ↔* 0. 125s 8Hz

Procedure

 $\texttt{PTP} \text{ } \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \text{ } \texttt{SETTING} \rightarrow \texttt{DELAY} \text{ } \texttt{MSG} \text{ } \texttt{INTERVAL}$

Parameters (when PROFILE TYPE is ST2059)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / <u>0.125s 8Hz</u> / 0.25s 4Hz / 0.5s 2Hz

Parameters (when PROFILE TYPE is AES67)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / <u>1s 1Hz</u> / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

Parameters (when PROFILE TYPE is GENERAL)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

19.2.11 Setting the Desired Delay Response Transmission Interval (Mixed SMPTE, UNICAST)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow DLY MSG DESIRED INT can be used to set the desired interval of delay messages sent from the connected master.

3. PTP1 DLY DESIR INT +→* 0. 125s 8Hz

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{DLY} \ \texttt{MSG} \ \texttt{DESIRED} \ \texttt{INT}$

Parameters (when PROFILE TYPE is ST2059)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / <u>0.125s 8Hz</u> / 0.25s 4Hz / 0.5s 2Hz

Parameters (when PROFILE TYPE is AES67)

<u>0.125s 8Hz</u> / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz</u>

Parameters (when PROFILE TYPE is GENERAL)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz /0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz
19.2.12 Setting the Minimum Interval for Receiving Delay Responses (Mixed SMPTE, UNICAST)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow DLY MSG REQD INT can be used to set the minimum interval that the slave side can receive delay responses.

3. PTP1 DLY REQD INT ↔* 0.5s 2Hz

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{DLY} \ \texttt{MSG} \ \texttt{REQD} \ \texttt{INT}$

Parameters (when PROFILE TYPE is ST2059)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz

Parameters (when PROFILE TYPE is AES67)

0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / <u>2s 0.5Hz</u> / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

Parameters (when PROFILE TYPE is GENERAL)

0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz

19.2.13 Setting the Announce Timeout

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ANNOUNCE TIMEOUT can be used to set the announce message count for deciding timeouts. If the number of consecutive messages not received at the interval specified by the master reaches the specified value, a timeout occurs.

3. PTP1 ANNOUNCE TIMEOUT COUNT: 3

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{ANNOUNCE} \ \texttt{TIMEOUT}$

Parameters

2 to 3 to 10

19.2.14 Setting the Propagation Time Measurement Method

Under PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow DELAY MECHANISM, you can set the propagation time measurement method.

3. PTP1 DELAY MECH ↔*END TO END ↓

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{DELAY} \ \texttt{MECHANISM}$

Parameters

END TO END / PEER TO PEER

19.2.15 Setting the IP Address of the Master to Connect To (Mixed SMPTE w/o Negotiation, UNICAST)

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow AMT CONFIGURATION can be used to set the IP address of the master to connect to.

Procedure

 $\texttt{PTP} \ \texttt{OPTION} \rightarrow \texttt{PTP1} \rightarrow \texttt{DETAIL} \ \texttt{SETTING} \rightarrow \texttt{AMT} \ \texttt{CONFIGURATION}$

Parameters

000.000.000 to 255.255.255.255

19.2.16 Setting the Asymmetric Delay

PTP OPTION \rightarrow PTP1 \rightarrow DETAIL SETTING \rightarrow ASSYMMETRIC DELAY can be used to adjust the phase.

3. PTP1 ASYM DELAY 00. 000 usec

Procedure

 $\mathsf{PTP} \; \mathsf{OPTION} \to \mathsf{PTP1} \to \mathsf{DETAIL} \; \mathsf{SETTING} \to \mathsf{ASSYMMETRIC} \; \mathsf{DELAY}$

Parameters

-20.000 to 00.000 to 20.000 usec

20. SYSTEM MENU

The SYSTEM menu is used to configure the LT 4610. To display the SYSTEM menu, press MENU several times until the following menu appears. These settings are not stored to presets.

O. SYSTEM ▼LCD BACKLIGHT IJ

20.1 Setting the Backlight

To set the backlight, follow the procedure below.

1. LCD BACKLIGHT ∎ON □AUTO OFF □OFF

Procedure

SYSTEM \rightarrow LCD BACKLIGHT

The backlight is on at all times.
The backlight turns off if none of the keys are used for 30 seconds. It turns
back on when a key is used.
The backlight is off at all times.

20.2 Turning Key Lock On and Off

To turn key lock on and off, follow the procedure below.

SYSTEM \rightarrow KEY LOCK

Parameters

ON:	The LT 4610 locks its keys after 30 seconds of inactivity (no key operations).
	When key lock is enabled, you can temporarily disable key lock by holding
	down FUNCTION for 3 seconds.
OFF:	Key lock is disabled.

20.3 Configuring Presets

Under SYSTEM \rightarrow PRESET, you can set presets.

A preset is a collection of LT 4610 settings that are registered. It can be recalled automatically at startup.

O. SYSTEM ◆PRESET →

The following settings are stored in a preset. (Y: Saved, N: Not saved)

GENLOCK Menu		Y
	LOG LIST (00 to 99)	Ν
BLACK menu		Y
SDI menu		Y
	ID CHARACTER (INT_1 to INT_4)	Ν
	LOGO (INT_1 to INT_4)	Ν
AES/EBU menu		Y
WCLK menu		Y
ETC Menu		Y
GPS OPTION menu (SER01)		Y
12G OPTION menu (SER02)		Y
	USER PATTERN (INT1 to INT8)	N (*1)
	ID CHARACTER (INT_1 to INT_4)	Ν
	LOGO (INT_1 to INT_4)	Ν
PTP OPTION menu (SER03)		Y
SYSTEM menu		N

*1 If you move a user pattern to the display memory beforehand, you can recall the user pattern as a preset.

For the setting of display memory, see 18.3.4, "Displaying a User Pattern."

20.3.1 Loading Presets

To recall a preset that you saved according to the procedure in 20.3.2, "Saving Presets," follow the procedure below.



→ ^{3. RECALL NUMBER 0} ■ OK □ CANCEL

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PRESET} \to \mathsf{RECALL}$

Parameters

NUMBER 0 to NUMBER 9

20.3.2 Saving Presets

You can save up to 10 presets by following the procedure below.

2. STORE	_	3. STORE	NUMBER 0
►NUMBER 0	7	□ок	■ C A N C E L

Procedure

SYSTEM \rightarrow PRESET \rightarrow STORE

Parameters

NUMBER 0 to NUMBER 9

20.3.3 Power-on Settings

To select the preset to use for starting the LT 4610, follow the procedure below. For details, see 7.1, "Turning the Power On."

2. POWER ON RECALL ▶*OFF

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PRESET} \to \mathsf{POWER} \text{ ON RECALL}$

Parameters

OFF: The LT 4610 starts with the same settings that were set when it was last turned OFF.

NUMBER 0 to NUMBER 9: The LT 4610 starts with the selected preset.

20.3.4 Copying Presets to the LT 4610

To copy presets from a USB memory device to the LT 4610, follow the procedure below. This feature is useful when you want to use multiple LT 4610s with the same settings. (Copy the presets to the USB memory device in advance by using the COPY INT \rightarrow USB menu.)

→

If there is already a preset stored in the LT 4610, it will be overwritten. This setting appears when a USB memory device is connected.

2. COPY USB→INT ▲ A L L

3. COPY	USB→INT ALL
∎ок	

Procedure

```
\mathsf{SYSTEM} \to \mathsf{PRESET} \to \mathsf{COPY} \; \mathsf{USB} {\to} \mathsf{INT}
```

Parameters

ALL / NUMBER 0 to NUMBER 9

• USB Memory Device File Structure

Presets are copied from the PSET folder of the USB memory device.

- USB memory device
- └ 🗍 LT4610_USER

20.3.5 Copying Presets to a USB Memory Device

To copy presets in pre format (dedicated format) from the LT 4610 to a USB memory device, follow the procedure below. This feature is useful when you want to use multiple LT 4610s with the same settings. (Save the presets in the LT 4610 in advance by using the STORE menu.)

→

If there is already a preset stored in the USB memory device, it will be overwritten. This setting appears when a USB memory device is connected.

2. COPY INT→USB • ALL

З.	СОРҮ	INT→USB ALL
	∎ o k	

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PRESET} \to \mathsf{COPY} \ \mathsf{INT} {\to} \mathsf{USB}$

Parameters

ALL / NUMBER 0 to NUMBER 9

• USB Memory Device File Structure

Presets are copied from the PSET folder of the USB memory device. (See 20.3.4, "Copying Presets to the LT 4610.")

The date and time of the file will be those selected in 20.6.1, "Selecting the Date and Time."

→

20.3.6 Clearing Presets

To clear presets stored in the LT 4610, follow the procedure below.

2. PRESET DELETE • ALL 3. DELETE ALL BOK

DCANCEL

Procedure

SYSTEM \rightarrow PRESET \rightarrow DELETE

Parameters

ALL / NUMBER 0 to NUMBER 9

20.4 Configuring Ethernet Settings

Under SYSTEM \rightarrow ETHERNET, you can set Ethernet parameters.

O. SYSTEM ♦ETHERNET →

20.4.1 Setting the IP Address

To set the IP address, subnet mask, and default gateway, follow the procedure below.

2. IP ADDRESS 192. 168. 000. 00<u>1</u> → 2. SUBNET MASK 255. 255. 255. 00<u>0</u> → 2. DEFAULT GATEWAY 000. 000. 000. 00<u>0</u> → 3. CONFIRM ■OK □CANCEL

Procedure

 $\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{IP} \; \mathsf{ADDRESS}$

Parameters

000.000.000 to 255.255.255.255

(IP ADDRESS default value: 192.168.000.001, SUBNET MASK default value:

255.255.255.000,

DEFAULT GATEWAY default value: 000.000.000.000)

20.4.2 Viewing the MAC Address

To view the MAC address of the LT 4110, follow the procedure below.

2. MAC ADDRESS **:**:**:**:**

Procedure

```
\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{MAC} \; \mathsf{ADDRESS}
```

20.4.3 Turning TRAP Transmission On and Off

To turn the SNMP TRAP transmission on and off, follow the procedure below.

2. SNMP TRAP □ON ■OFF

Procedure

 $\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{SNMP} \; \mathsf{TRAP}$

Parameters

ON / OFF

20.4.4 Setting the Trap Transmission Destination

To set the IP address of the SNMP manager to send SNMP traps to, follow the procedure below.

2. SNMP MANAGER IP 000. 000. 000. 00<u>0</u>

Procedure

 $\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{SNMP} \; \mathsf{MANAGER} \; \mathsf{IP}$

Parameters

000.000.000 to 255.255.255.255

20.4.5 Copying MIB Files to a USB Memory Device

To copy an MIB file, which is used for SNMP, from the LT 4610 to a USB memory device, select OK by following the procedure below.

If there is already a MIB file stored in the USB memory device, it will be overwritten. This setting appears when a USB memory device is connected.

2. COPY MIB INT→USB ■OK □CANCEL

Procedure

```
\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{COPY} \; \mathsf{MIB} \; \mathsf{INT} {\to} \mathsf{USB}
```

• USB Memory Device File Structure

The MIB file is saved in the MIB folder of the USB memory device.

- D USB memory device
- LT4610 LT4610
 - L 🗋 MIB
 - └ 🗋 lt4610.my

20.4.6 Setting READ COMMUNITY

To change the SNMP READ COMMUNITY name, follow the procedure below.

3. READ COMMUNITY LDRUser◀

Procedure

SYSTEM \rightarrow ETHERNET \rightarrow SNMP COMMUNITY \rightarrow READ COMMUNITY

Parameters

▲0123456789

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

(Default value: LDRUser▲)

* Changes to COMMUNITY is applied when SNMP is restarted or the next time the power is turned on.

20.4.7 Setting WRITE COMMUNITY

To change the SNMP WRITE COMMUNITY name, follow the procedure below.

```
3. WRITE COMMUNITY
<u>L</u>DRAdm∢
```

Procedure

 $\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{SNMP} \ \mathsf{COMMUNITY} \to \mathsf{WRITE} \ \mathsf{COMMUNITY}$

Parameters

▲0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz (Default value: LDRAdm▲)

* Changes to COMMUNITY is applied when SNMP is restarted or the next time the power is turned on.

20.4.8 Setting TRAP COMMUNITY

To change the SNMP TRAP COMMUNITY name, follow the procedure below.

3. TRAP COMMUNITY <u>L</u>DRUser∢

Procedure

SYSTEM \rightarrow ETHERNET \rightarrow SNMP COMMUNITY \rightarrow TRAP COMMUNITY

Parameters

▲0123456789 ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz (Default value: LDRUser▲)

* Changes to COMMUNITY is applied when SNMP is restarted or the next time the power is turned on.

20.4.9 Restarting SNMP

To restart SNMP, follow the procedure below.

3. SNMP RESTART □ON ■OFF

Procedure

 $\mathsf{SYSTEM} \to \mathsf{ETHERNET} \to \mathsf{SNMP} \; \mathsf{COMMUNITY} \to \mathsf{SNMP} \; \mathsf{RESTART}$

20.5 Setting the PTP Ethernet Parameters (SER03)

Under SYSTEM \rightarrow PTP ETHERNET, you can set PTP Ethernet parameters.

O. SYSTEM ♦PTP ETHERNET ↓

20.5.1 Setting the PTP IP Address

To set the IP address, follow the procedure below.

2. PTP IP ADDRESS 192. 168. 000. 00<u>1</u>

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PTP} \; \mathsf{ETHERNET} \to \mathsf{IP} \; \mathsf{ADDRESS}$

Parameters

000.000.000 to 192.168.000.001 to 255.255.255.255

20.5.2 Setting the PTP Subnet Mask

To set the subnet mask, follow the procedure below.

2. PTP SUBNET MASK 255. 255. 255. 00<u>0</u>

Procedure

SYSTEM \rightarrow PTP ETHERNET \rightarrow PTP SUBNET MASK

Parameters

000.000.000 to 255.255.255.000 to 255.255.255

20.5.3 Setting the PTP Gateway

To set the IP address, follow the procedure below.

2. PTP GATEWAY 000. 000. 000. 000

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PTP} \; \mathsf{ETHERNET} \to \mathsf{PTP} \; \mathsf{GATEWAY}$

Parameters

000.000.000 to 255.255.255.255

20.5.4 Viewing the PTP MAC Address

To view the PTP MAC address of the LT 4610, follow the procedure below.

2. MAC ADDRESS 00:09:0D:XX:XX:XX

Procedure

SYSTEM \rightarrow PTP ETHERNET \rightarrow MAC ADDRESS

20.5.5 Viewing the PTP CLOCK IDENTITY

To view the PTP CLOCK IDENTITY of the LT 4610, follow the procedure below.

2. CLOCK IDENTITY 0 x 0 0 0 9 0 D F F F E X X X X X X

Procedure

SYSTEM \rightarrow PTP ETHERNET \rightarrow CLOCK IDENTITY

20.5.6 Setting SFP/SFP+

To select between SFP and SFP+, follow the procedure below.

```
2. PTP SFP∕SFP+
▶*SFP
```

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PTP} \; \mathsf{ETHERNET} \to \mathsf{SFP}/\mathsf{SFP} +$

Parameters

SFP / SFP+

Make the selection with the module connected with a cable.
 Connection may not be established if the module is inserted or the cable is connected after making the selection.

20.5.7 Setting PORT RELATION

To configure the RJ45 and SFP/SFP+ connections, follow the procedure below.

2. PTP PORT RELATION ▶*ISOLATED

Procedure

 $\mathsf{SYSTEM} \to \mathsf{PTP} \ \mathsf{ETHERNET} \to \mathsf{PORT} \ \mathsf{RELATION}$

Parameters

FULLY CROSS-LINK:There is packet communication between RJ45 and SFP.ISOLATED:There is no packet communication between RJ45 and SFP.MIRROR RJ45 TO SFP:Packets passing through RJ45 can be monitored on the SFP side.









Packets passing through RJ45 can be monitored on the SFP side.

There is packet communication between RJ45 and SFP.

There is no packet communication between RJ45 and SFP.

Figure 20-1 PORT RELATION

20. SYSTEM MENU

20.6 Date and time settings

Under SYSTEM \rightarrow DATE&TIME, you can set the internal time.

```
O. SYSTEM
◆DATE&TIME J
```

20.6.1 Selecting the Date and Time

To select the internal time type, follow the procedure below.

The internal time can be saved to a USB memory device. The time is used in the genlock log.

2. DATE&TIME SOURCE ▶*INTERNAL

Procedure

 $\mathsf{SYSTEM} \to \mathsf{DATA}\&\mathsf{TIME} \to \mathsf{SOURCE}$

Parameters

INTERNAL:	The date and time adjusted using the ADJUST menu are used.
GPS:	The date and time in the GPS signal received through GPS IN on the rear
	panel are used. You can select this option when SER01 is installed.
PTP:	The date and time in the PTP signal received through PTP on the rear
	panel are used. You can select this option when SER03 is installed.

* If the SER03 is installed, the internal time is fixed depending on the genlock mode setting. For details on the genlock mode settings, see 10.1, "Selecting the Genlock Mode."

The following table shows the relationship between the genlock mode setting and the internal time type for when the SER03 is installed.

Genlock mode	DATA&TIME SOURCE
INTERNAL	INTERNAL
GL FMT-AUTO	
GL FMT-MANUAL	
10MHzCW (SER01)	
GPS (SER01)	GPS
PTP (SER03)	РТР

20.6.2 Adjusting the Date and Time

When DATE&TIME SOURCE is set to INTERNAL, to adjust the date and time, follow the procedure below.

2. DATE&TIME ADJUST 2018/04/01 12:34:5<u>6</u>

Procedure

 $\mathsf{SYSTEM} \to \mathsf{DATA}\&\mathsf{TIME} \to \mathsf{ADJUST}$

Parameters

2000/01/01 00:00:00 to 2099/12/31 23:59:59

20.7 Setting the Time Code (SER01/SER03)

Under SYSTEM \rightarrow TIMECODE, you can set the time code.

O. SYSTEM ♦TIMECODE J

20.7.1 Selecting the Time Code

To select the time code type, follow the procedure below. The time code selected here can be inserted into the black signal (VITC), SDI signal (ATC-

LTC), and AES/EBU signal.

You can also output from LTC IN / OUT on the rear panel.

2. TIMECODE SOURCE ↔ * INTERNAL

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{TIMECODE} \text{ SOURCE}$

Parameters	
GPS:	The date and time in the GPS signal received through GPS IN on the rear panel are used. (SER01)
INTERNAL:	The date and time selected in 20.6.1, "Selecting the Date and Time," are used.
LTC0:	The date and time in the LTC signal received through LTC IN/OUT on the rear panel are used. (SER01)
VITC:	The time in the VITC signal received through GENLOCK IN on the rear panel are used. The date in the INTERNAL are used.
SMPTE ST309:	The date and time in the SMPTE ST309 received through GENLOCK IN on the rear panel are used
PTP:	The date and time received through PTP slave are used. (SER03)

* If the SER03 is installed, the selectable settings are limited depending on the genlock mode setting. For details on the genlock mode settings, see 10.1, "Selecting the Genlock Mode."

20. SYSTEM MENU

The following table shows the relationship between the genlock mode setting and the internal time type for when the SER03 is installed.

Genlock mode	TIMECODE SOURCE
INTERNAL	INTERNAL, LTC0
10MHzCW (SER01)	
GL FMT-AUTO	INTERNAL, LTC0 (*1), VITC (*2), SMPTE ST309 (*2), PTP (SER03)
GL FMT-MANUAL	
GPS (SER01)	GPS
PTP (SER03)	РТР

*1 PTP does not support LTC0.

*2 Only valid when the external reference signal is PAL. For NTSC, the INTERNAL time code is output.

20.7.2 Setting Dropped Frames

To select the dropped frame setting, follow the procedure below.

For time codes inserted into SDI signals, this setting is valid when the SDI signal frame (field) frequency is 59.94 or 29.97. For LTC output, this setting is valid when the Black 1 format is NTSC, 59.94, or 29.97.

2. DROP FRAME ■ON □OFF

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{DROP} \; \mathsf{FRAME}$

Parameters

ON:	Dropped frame time code is used.
OFF:	Non-dropped frame time code is used.

20.7.3 Turning Jam Sync On and Off

To turn the jam sync function on and off, follow the procedure below. When set to ON, the time code is reset once a day at the time set on the ADJUST menu.

3. JAM SYNC ■ON □OFF

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{JAM} \ \mathsf{SYNC} \to \mathsf{ON/OFF}$

Parameters

ON / OFF

20.7.4 Setting the Jam Sync Time

To set when to reset the time code using the jam sync function, follow the procedure below.

This setting is valid when JAM SYNC is set to ON.

3. JAM SYNC ADJUST 00:00:0<u>0</u> [HH:MM:SS]

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{JAM} \ \mathsf{SYNC} \to \mathsf{ADJUST}$

Parameters

00:00:00 to 23:59:59

20.7.5 Turning the Daylight Savings Time On and Off

When TIMECODE SOURCE is set to GPS, to set whether to apply Daylight Savings Time, follow the procedure below.

3. DAYLIGHT SAVING □ON ■OFF

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{DAYLIGHT} \ \mathsf{SAVING} \to \mathsf{ON/OFF}$

Parameters

ON / OFF

20.7.6 Setting the Daylight Savings Time Start Date

When TIMECODE SOURCE is set to GPS, to set the Daylight Saving Time start date, follow the procedure below. (You cannot set seconds.)

3. CHANGE DAY 01∕01 00:0<u>0</u>:00

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{DAYLIGHT} \ \mathsf{SAVING} \to \mathsf{CHANGE} \ \mathsf{DAY}$

Parameters

01/01 00:00:00 to 12/31 23:59:00

20.7.7 Setting the Daylight Saving Time Offset

When TIMECODE SOURCE is set to GPS, to set the Daylight Saving Time offset, follow the procedure below.

3. TIMECODE OFFSET +00:00:0<u>0</u> [HH:MM:SS]

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{DAYLIGHT} \ \mathsf{SAVING} \to \mathsf{TIMECODE} \ \mathsf{OFFSET}$

Parameters

-23:59:59 to +00:00:00 to +23:59:59

20.7.8 Setting the Daylight Savings Time End Date

When TIMECODE SOURCE is set to GPS, to set the Daylight Saving Time end date, follow the procedure below. (You cannot set seconds.)

3. RETURN DAY 01∕01 00:0<u>0</u>:00

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{DAYLIGHT} \ \mathsf{SAVING} \to \mathsf{RETURN} \ \mathsf{DAY}$

Parameters

01/01 00:00:00 to 12/31 23:59:00

20.7.9 Setting the Leap Second

When TIMECODE SOURCE is set to GPS, to set when to insert leap seconds, follow the procedure below. (You cannot set seconds.)

A leap second is inserted automatically when the specified time elapses from a predetermined execution time.

```
2. SCHEDULED TIME
00:0<u>0</u>:00 [HH:MM:SS]
```

Procedure

 $\mathsf{SYSTEM} \to \mathsf{TIMECODE} \to \mathsf{LEAP} \; \mathsf{SECOND}$

Parameters

00:00:00 to 11:59:00 PM

* This feature does not apply to PTP.

20.8 Setting GPS/PTP (applies to both SER01 and SER03)

Under SYSTEM \rightarrow GPS/PTP, you can set the GPS and PTP.

When SER01 is installed

O. SYSTEM ♦GPS OPTION J

When SER03 is installed

0. SYSTEM	
◆PTP OPTION	Ļ

When SER01 and SER03 are installed

O. SYSTEM ♦GPS/PTP OPTION →

20.8.1 Selecting the Time Zone

To select the time zone, follow the procedure below. Select it according to your region.

2. TIMEZONE OFFSET +→*UTC+09:00

Procedure

 $\mathsf{SYSTEM} \to \mathsf{GPS}/\mathsf{PTP} \to \mathsf{TIMEZONE}\ \mathsf{OFFSET}$

Parameters

UTC-12:00 to UTC+09:00 to UTC+12:00

20.8.2 Setting the Power Supply

To select the supply voltage to apply to the GPS antenna, follow the procedure below. Select OFF to not supply power.

2. ANTENNA POWER ■OFF □3. 3V □5V

Procedure

 $\mathsf{SYSTEM} \to \mathsf{GPS}/\mathsf{PTP} \to \mathsf{ANTENNA} \; \mathsf{POWER}$

Parameters

OFF / 3.3V / 5V

20.8.3 Selecting the Operating Environment

To select the operating environment of the GPS antenna, follow the procedure below.

2. PLATFORM MODE ▶*STATIONARY

Procedure

SYSTEM \rightarrow GPS/PTP \rightarrow PLATFORM MODE

Parameters

STATIONARY:Stationary environment such as in a roomAUTOMOTIVE:Mobile environment such as in an outside broadcast van

20.8.4 Selecting the Epoch

To select the starting date and time, follow the procedure below.

2.	ЕРОСН		
	■ S M P T E	DTAI	

Procedure

 $\mathsf{SYSTEM} \to \mathsf{GPS/PTP} \to \mathsf{EPOCH}$

Parameters

SMPTE:	Conforms to PTP 1970 (SMPTE Epoch)
TAI:	Conforms to TAI 1958

20.9 Setting the Alarm (SER01)

Under SYSTEM \rightarrow ALARM, you can set the alarms output from LTC IN/OUT on the rear panel. INDICATOR 1 and INDICATOR 2 correspond to alarm output 1 and alarm output 2, respectively.

[See also] 7.6.8, "LTC Signal I/O (SER01)"

0. SYSTEM ◆ALARM J

20.9.1 Selecting the Polarity

To select the polarity of the alarm output from the selected connector, follow the procedure below.

3. ALARM POLARITY ■POSITIVE □NEGATIVE

Procedure

 $\mathsf{SYSTEM} \to \mathsf{ALARM} \to \mathsf{INDICATOR} \ 1 \ / \ \mathsf{INDICATOR} \ 2 \to \mathsf{ALARM} \ \mathsf{POLARITY}$

Parameters

POSITIVE / NEGATIVE

20.9.2 Turning the Alarm Output On and Off

To turn on or off the alarm output from the selected connector, follow the procedure below. If any of the alarms that are enabled occurs, an alarm is output.

4. POWER1 ■ENABLE □DISABLE

Procedure

Troccutic	
SYSTEM \rightarrow ALA	RM \rightarrow INDICATOR 1 / INDICATOR 2 \rightarrow ALARM OPTION
\rightarrow POWER1	
\rightarrow POWER2	
\rightarrow FAN	
\rightarrow GENLOCK NO) SIGNAL
\rightarrow GENLOCK ST	IN SYNC
\rightarrow GPS ANNTER	IA
\rightarrow GPS PLL	
\rightarrow GPS SIGNAL	
\rightarrow CW SIGNAL	
\rightarrow LTC0 SIGNAL	-
\rightarrow VITC SIGNAL	-
\rightarrow PTP1 PORT S	STATUS
\rightarrow PTP2 PORT S	STATUS
\rightarrow PTP1 LOCK	
\rightarrow PTP2 LOCK	
\rightarrow ATTENTION	
Parameters	
ENABLE:	An alarm is output when an alarm occurs.
DISABLE:	Alarms are not output.

20.10 Turning the Web Browser On and Off

To turn the Web browser on and off, follow the procedure below.

Procedure

SYSTEM \rightarrow WEB BROWSER

Parameters

ON:	The Web browser is turned on.
OFF:	The Web browser is turned off.

 \ast The displayed screen may be cached depending on the PC web browser settings.

* The web browser's refresh interval is 3 seconds.

20.11 Initialization

Under SYSTEM \rightarrow INITIALIZE, you can initialize the settings.

```
O. SYSTEM
◆INITIALIZE →
```

There are two types of initialization: CLEAR SETTING and DEFAULT SETTING. They differ in the settings that are initialized as follows. (Yes: initialized, No: not initialized) Note that the black signal format and SDI signal frame frequency are fixed to the values selected with FORMAT SETTING.

		CLEAR SETTING	DEFAULT SETTING		
GENLOCK Menu		Yes	Yes		
	LOG LIST (00 to 99)	No	No		
BLACK menu (including SER21)		Yes	Yes		
SDI menu (SER22)		Yes	Yes		
	ID CHARACTER (INT_1 to INT_4)	No	Yes		
	LOGO (INT_1 to INT_4)	No	Yes		
AES/EBU menu (SER23)		Yes	Yes		
WCLK menu		Yes	Yes		
ETC Menu		Yes	Yes		
GPS OPTION menu (SER01)		Yes	Yes		
12G OPTION menu (SER02)		Yes	Yes		
	USER PATTERN (INT1 to INT8)	No	No		
	ID CHARACTER (INT_1 to INT_4)	No	Yes		
	LOGO (INT_1 to INT_4)	No	Yes		
PTP OPTION menu (SER03)		Yes	Yes		
SYSTEM menu		No	Yes		
	DATE&TIME ADJUST	No	No		

20.11.1 Initializing Settings

To initialize the settings (except for some settings such as those on the SYSTEM menu), select OK by following the procedure below.

2. CLEAR SETTING ∎OK □CANCEL

Procedure

 $\mathsf{SYSTEM} \to \mathsf{INITIALIZE} \to \mathsf{CLEAR}\ \mathsf{SETTING}$

20.11.2 Factory Default Initialization

To initialize the settings (except for some settings), select OK by following the procedure below.

Procedure

 $\mathsf{SYSTEM} \to \mathsf{INITIALIZE} \to \mathsf{DEFAULT}\ \mathsf{SETTING}$

20.11.3 Selecting the Format

To select the format that is applied when CLEAR SETTING or DEFAULT SETTING is used to initialize the instrument, follow the procedure below.

```
2. FORMAT SETTING
■NTSC □PAL
```

Procedure

The black signal format is set to NTSC BB, and the SDI signal frame
frequency is set to 59.94I.
The black signal format is set to PAL BB, and the SDI signal frame
frequency is set to 50I.

20.12 Viewing the Serial Numbers

To view the serial numbers of the main unit and SER01 to SER03, follow the procedure below.

To switch menus, use the \blacktriangle and \blacktriangledown keys.

You can also view the serial number of the main unit on the rear panel. The serial number is displayed when it is installed and "0000000" when it is not.

1		s	Е	R	I	A	L		Ν	υ	М	в	Е	R			
•	Μ	A	I	Ν		:	*	*	*	*	*	*	*				
1		s	Е	R	I	A	L		Ν	U	М	в	Е	R			
\$	s	Е	R	0	1	:	*	*	*	*	*	*	*				
1		s	Е	R	I	A	L		Ν	U	М	в	Е	R			
\$	s	Е	R	0	2	:	*	*	*	*	*	*	*				
1		s	Е	R	I	A	L		Ν	U	М	в	Е	R			
\$	s	Е	R	0	3	:	*	*	*	*	*	*	*				
1		s	Е	R	I	A	L		N	U	М	в	Е	R			
•	s	Е	R	0	4	:	0	0	0	0	0	0	0				

Procedure

 $\mathsf{SYSTEM} \to \mathsf{SERIAL}\ \mathsf{NUMBER}$

20.13 Viewing and Installing Software Options

Under SYSTEM→LICENSE INFO., you can view and install software options.

O. SYSTEM ◆LICENSE INFO. J

20.13.1 Viewing Software Options

To view the software options that are installed, follow the procedure below. Only the software options that are installed are displayed. For the LT 4610, SER21, SER22 and SER23 are not displayed.



Procedure

SYSTEM \rightarrow LICENSE INFO.

20.13.2 Installing Software Options

To install software options, follow the procedure below. Enter the issued license key.

When the installation is complete, "Accept" is displayed. If "failed." is displayed, try entering the license key again.

```
2. LICENSE KEY INPUT
<u>0</u>000000000
```

Procedure

 $\mathsf{SYSTEM} \to \mathsf{LICENSE} \text{ INFO.} \to \mathsf{LICENSE} \text{ KEY INPUT}$

20.14 Viewing the Version Information

To view the firmware version and FPGA version, follow the procedure below. To switch menus, use the \blacktriangle and \blacksquare keys.

1		V	Е	R	s	I	0	Ν											
•	F	I	R	M	W	A	R	Е	:	*	•	*							
1		V	Е	R	s	I	0	Ν											
\$	Μ	A	I	Ν		I	D	:	*	*	,	R	Е	V	:	* :	*		
1		V	Е	R	s	I	0	Ν											
\$	F	Ρ	G	A		1	:	*	*	*	*								
																			_
1		V	Е	R	s	I	0	Ν											
\$	F	Ρ	G	A		2	:	*	*	*	*								
1		V	Е	R	s	I	0	Ν											
\$	F	Ρ	G	A		3	:	*	*	*	*								
1		V	Е	R	s	I	0	Ν											
	F	Ρ	G	А		4	:	*	*	*	*								
1		V	Е	R	s	I	0	Ν											
	F	Ρ	G	A		5	:	*	*	*	*								
 																			-

Procedure

 $\mathsf{SYSTEM} \to \mathsf{VERSION} \ \mathsf{DISPLAY}$

21. LOGO APP

Logo App is a software for converting bitmap data (*.bmp) into 4-level monochrome data (*.lg) that can be used on the LT 4610. It is used to overlay logos created on the PC on SDI signals. If necessary, install the application from the accompanying CD-ROM.

Note that the model name indicated on the Logo App is LT 4600, but the application can be used with the LT 4610 and LT 4611 without any problems.

[See also] 12.9, "Setting Logos," and 17.9, "Setting Logos."

21.1 Installation

Follow the procedure below to install Logo App in your PC. The required PC operating environment is as follows.

- Microsoft Windows 7 / Vista
- Microsoft .Net Framework 3.5 or later must be installed.
- 1. Load the CD-ROM supplied with the LT 4610, and run LT4600_LOGO_Application_Installer.msi.

O CD-ROM

- ⊢ ☐ Instruction_Manual_for_LT4610_LT4611
- └ 🗍 LOGO_Application_v1.0
 - LT4600_LOGO_Application_Installer.msi
- 2. When the following window appears, click Next.

闄 LT4600 LOGO Application	- • -
Welcome to the LT4600 LOGO Application Setu Wizard	Ф 🔶
The installer will guide you through the steps required to install LT4600 LOGO Ap computer.	plication on your
WARNING: This computer program is protected by copyright law and internation Unauthorized duplication or distribution of this program, or any portion of it, may re or criminal penalties, and will be prosecuted to the maximum extent possible under	al treaties. esult in severe civil er the law.
Cancel < <u>B</u> ack	Next >

3. When the following window appears, select the installation folder, and click Next.



4. When the following window appears, click Next.

😸 LT4600 LOGO Application	- • •
Confirm Installation	~
The installer is ready to install LT4600 LOGO Application on your computer.	
Click "Next" to start the installation.	
Cancel < <u>B</u> ack	<u>N</u> ext >

5. When the following window appears, the installation is complete. Click Close.

岃 LT4600 LOGO Application	
Installation Complete	~
LT4600 LOGO Application has been successfully installed. Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Fram	ework.
Cancel < <u>B</u> ack	<u>Close</u>

21.2 Uninstallation

To uninstall the software, select "LT4600 LOGO Application" in Programs and Features of Control Panel, and click Uninstall.

(○) (図 → コントロール パネル → すべてのコントロール パネル項目 → プログラムと機能			
	コントロール パネル ホーム	プログラムのアンインストールまたは変更	
	インストールされた更新プロ グラムを表示	プログラムをアンインストールするには、一覧からプログラムを選択	して [アンインストール]、[変更]、
6	 Windows の機能の有効化また は無効化 	整理 ▼ アンインストール 変更 修復	
	ネットワークからプログラム	名前	発行元
	をインストール	FS8681_VER2.0	Leader
		FrameCaptureViewer	LEADER
		LT4600 LOGO Application	LEADER ELECTRONICS CORP.
		5 Microsoft .NET Framework 4 Client Profile	Microsoft Corporation
		Microsoft .NET Framework 4 Extended	Microsoft Corporation
		👿 Microsoft Office IME 2010 (Japanese)	Microsoft Corporation
		Microsoft Visual C++ 2005 Redistributable (x64)	Microsoft Corporation
		📾 Windows XP Mode	Microsoft Corporation

21.3 How to Use

To convert bitmap data (*.bmp) into 4-level monochrome data (*.lg), follow the procedure below.

1. Start "LT4600 LOGO Application" on the PC desktop.

LT4600 LOGO Application

2. Click Select File.

🔶 LEADER LT4600 L	OGO Application - Ver.1.0	
View BMP(Color)	Select File	Convert and Cave
© LOGO	Threshold Settings	Convert and Save

3. Select a bitmap file (*.bmp).

Select a file that meets the following conditions. You cannot select a file (*.lg) that has already been converted.

File name: Up to eight characters (excluding the extension) consisting of alphanumeric characters or underscore.

File format:24 bits, 256 colors or 16 colorsFile size:Up to 320 dots × 240 lines (width × height)



4. Click LOGO to view the data after conversion.

If the data after the conversion appears okay, save the data. Proceed to step 7. Here, only check that the colors have been separated into four grayscale levels. The intensity used to display the data on the actual LT 4610 can be adjusted from the menu, so it will be different from what appears here.

 ◆ LEADER LT4600 L View ○ BMP(Color) ○ LOGO 	OGO Application - Ver.1.0 Select File Convert and Save Threshold Settings
	LEVEL 0
	LEVEL 1
	LEVEL 2
	LEVEL 3

Click Threshold Settings to set the conversion thresholds.
 Use the sliders to set the thresholds.

Main Window		
🔶 LEADER LT4600	LOGO Application - Ver.1.0	
View BMP(Color)	Select File	Convert and Save
LOGO	Threshold Settings	Convert and Save
	LEVEL 0	
	LEVEL 1	

Level Threshold Settings Dialog Box

🔶 Level Threshold Settings	
· · · · · · · · · · · · · · · · · · ·	Level 3 192 ~ 255
· · · · · · · · · · · ·	Level 2 128 ~ 191
· · · · · · · ·	Level 1 64 ~ 127
Default	Level 0 0 ~ 63
Refresh	Apply Cancel

• Threshold

The threshold represents the intensity (Y). If we assume R, G, and B to take on values between 0 and 255, it can be derived from the following formula. Y = 0.212*R + 0.701*G + 0.087*B

For example, if the thresholds are set as shown in the above figure, Logo App converts data according to the following rules.

- Intensities 0 to 63 are converted to level 0 and displayed at intensity 63.
- Intensities 64 to 127 are converted to level 1 and displayed at intensity 127.
- Intensities 128 to 191 are converted to level 2 and displayed at intensity 191.
- Intensities 192 to 255 are converted to level 3 and displayed at intensity 255.

Conversion Example



• Description of the Level Threshold Settings Dialog Box

Item	Description	
Default	The thresholds are reset to the following values.	
	Level 3: 192 to 255	
	Level 2: 128 to 191	
	Level 1: 64 to 127	
	Level 0: 0 to 63	
Refresh	The result of the conversion by applying the specified thresholds is	
	displayed in the main window.	
	The values are not applied until you click Apply.	
Apply	The values are applied, and the Level Threshold Settings dialog box	
	closes.	
Cancel	The values are canceled, and the Level Threshold Settings dialog box	
	closes.	

6. Click Apply to apply the settings.

7. Click Convert and Save to covert and save the data.

The data saved in the same location as the original data with the same name but with a different extension.

Example: test.bmp \rightarrow test.lg



8. When the following confirmation message appears, click OK.


22. HTTP

You can use this feature to control the instrument from a web browser.

- * The Ethernet features of the LT 4610 have only been confirmed to work in a local network environment. LEADER does not guarantee that they will work in any network environment.
- 22.1 Operating Environment

The following web browsers have been confirmed to work.

- Google Chrome Ver.46
- 22.2 How to Use
 - 1. On the LT 4610, set the IP address.

Set it under SYSTEM→ETHERNET→IP ADDRESS. [See also] 20.4.1, "Setting the IP Address."

2. On the LT 4610, set HTTP to ON.

Set it under SYSTEM→WEB BROWSER. [See also] 20.10, "Turning the Web Browser On and Off."

- 3. Connect the LT 4610's ETHERNET/CONTROL connector to the external network device.
- 4. Start the web browser on your PC.
- 5. In the address box, enter "http://(the IP address that you set in step 1)."



Figure 22-1 Entering the IP address

6. The SYNC GENERATOR LT 4610 window (*1) will be displayed.

Leader ₁	© Leader	2 C
STATUS GENLOCK BLACK SD	I AES/EBU WCLK ETC SYSTEM GPS 12G SDI PTP	
Genlock Status : NO SIGNAL	Firmware Version : 4.556	•]
Fan Status : NORMAL	LCD BACKLIGHT: ON	
Power1 Status : NORMAL	KEY LOCK : OFF	
Power2 Status : ERROR	Power On Recall : OFF	



- * Even if the LT 4611 is displayed as the LT 4610.
- 1. Tabs

Left-click on the tab you want to select. The name of the selected tab will be green. The settings may not be reflected due to other settings and options.

2. Reload

Left-click to reload.

22.2.1 STATUS tab

The STATUS tab shows the LT 4610 status. This tab is only for viewing; you cannot change the settings.

For the display content, see 8, "STATUS MENU," and 9, "INFO MENU."

22.2.2 GENLOCK tab

The GENLOCK tab is used to specify settings related to genlock operation. For the settings, see 10, "GENLOCK MENU."

22.2.3 BLACK tab

The BLACK tab is used to specify settings related to black output. For the LT 4611, the black 4 to 6 settings are reflected when SER21 is installed. For the settings, see 11, "BLACK MENU."

22.2.4 SDI tab

The SDI tab is used to specify settings related to SDI output. For the LT 4611, the settings are reflected when SER22 is installed. For the settings, see 12, "SDI MENU."

22.2.5 AES/EBU tab

The AES/EBU tab is used to specify settings related to AES/EBU output and silence output. For the LT 4611, the settings are reflected when SER23 is installed. For the settings, see 13, "AES/EBU MENU."

22.2.6 WCLK tab

The WCLK tab is used to specify settings related to WCLK output. For the settings, see 14, "WCLK MENU."

22.2.7 ETC tab

The ETC tab is used to specify settings related to lip sync. For the LT 4611, the settings are reflected when SER22 is installed. For the settings, see 15, "ETC MENU."

22.2.8 SYSTEM tab

The SYSTEM tab is used to configure the LT 4610. For the settings, see 20, "SYSTEM MENU."

22.2.9 GPS tab

The GPS tab is used to specify settings related to LTC output and CW I/O. When SER01 is installed, the settings are reflected. For the settings, see 16, "GPS OPTION MENU (SER01)."

22.2.10 12G SDI tab

The 12G SDI tab is used to specify settings related to SDI output. When SER01 is installed, the settings are reflected. When SER24 is installed, the 8K setting also are reflected.

For editing the user payload ID, see 22.2.11, "Editing User Payload ID." For other settings, see 17, "12G OPTION MENU (SER02)" and 18, "8K OPTION MENU (SER24)."

22.2.11 Editing User Payload ID

Edit the user payload ID in the USER PAYLOAD window on the 12G SDI tab. To display the USER PAYLOAD window, left-click \square on the USER PAYLOAD bar.

You can edit the LINK1 to 4 payload IDs separately.

USER PAYLOAD		
USER PAYLOAD : ON O LINK1 INTERFACE LINE No. 2 10 [DEC] 572 [DEC]	OFF 1 BYTE1 3 BYTE2 4 BYTE3 5 BYTE4 6a [00 [HEX] [00 [HEX] [00 [HEX] 6a 6b [00 [HEX] set 7	
-LINK2		_
INTERFACE LINE NO.	BYTE1 BYTE2 BYTE3 BYTE4	
10 [DEC]	00 [HEX] 00 [HEX] 00 [HEX]	
572 [DEC]	00 [HEX] SET	
-LINK3		_
INTERFACE LINE No.	BYTE1 BYTE2 BYTE3 BYTE4	
10 [DEC]	00 [HEX] 00 [HEX] 00 [HEX]	
572 [DEC]	00 [HEX] SET	
-LINK4		_
INTERFACE LINE No.	BYTE1 BYTE2 BYTE3 BYTE4	
10 [DEC]	00 [HEX] 00 [HEX] 00 [HEX]	
572 [DEC]	00 [HEX] SET	

Figure 22-3 USER PAYLOAD window

1. USER PAYLOAD:

If you select ON, you can edit the user payload ID.

Parameters	
ON / OFF	

2. INTERFACE LINE NO.

Set the interface line number. In case of interlace, set the line number of the second field in the field below.

3. BYTE1

Set the byte 1.

4. BYTE2

Set the byte 2.

5. BYTE3

Set the byte 3.

6. BYTE4

Set the byte 4 to 6a. For 3G-B-DL or 3G-B-DS, set LINK A to 6a and LINK B to 6b.

7. SET

Left-click to set the LINK1 payload ID.

You can edit LINK2 to 4 in the same way.

22.2.12 Uploading User Pattern

Upload the user pattern in the DATA UPLOAD (under 100MByte) window on the 12G SDI tab.



Figure 22-4 DATA UPLOAD (under 100MByte) window

1. SYSTEM

Select the SYSTEM.

Parameters

SD / HD / 4K / 8K

2. SECTION

Select the SECTION.

Parameters

001 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
002 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
003 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
004 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
005 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
006 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
007 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
008 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
009 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
010 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
011 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
012 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
013 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
014 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
015 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
016 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
017 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
018 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
019 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
020 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
021 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
022 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
023 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
024 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	
025 NO_DATA UNKNOWN UNKNOWN UNKNOWN 0 0 SDR /	

3. RANGE

Select the RANGE.

Parameters

NARROW RANGE / FULL RANGE

4. COLORIMETRY

Select the COLORIMETRY.

Parameters

ITU-R BT.601 / ITU-R BT.709 / ITU-R BT.2020

5. DIVISION

Select the DIVISION. You can select when SYSTEM is 4K.

Parameters	
SQD:	Square
2SI:	2 sample interleave

6. HDR/SDR

Select the HDR mode.

Parameters

i ulumeter 5	
SDR-TV:	Set to SDR (OFF).
HLG:	Set to HLG (HDR).
PQ:	Set to PQ (HDR).
Unspcified	Set to Unspcified.

7. Select the file

Select the user pattern file.

8. UPLOAD

Upload the user pattern to the LT 4610.

9. Progress

Shows the upload progress.

22.2.13 PTP tab

The PTP tab is used to specify settings related to PTP. When SER03 is installed, the settings are reflected. For the settings, see 19, "PTP OPTION MENU (SER03)."

23. SNMP

By using SNMP (Simple Network Management Protocol), you can control an LT 4610 from SNMP managers. In addition, when the fan stops or other errors occur, traps can be sent from the LT 4610 to an SNMP manager.

- * The Ethernet features of the LT 4610 have only been confirmed to work in a local network environment. LEADER does not guarantee that they will work in any network environment.
- * DHCP client and DNS resolver features are not supported.
- 23.1 SNMP Version

SNMPv2c

23.2 SMI Definitions

IMPORTS MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE, enterprises FROM SNMPv2-SMI DisplayString FROM SNMPv2-TC OBJECT-GROUP, MODULE-COMPLIANCE FROM SNMPv2-CONF;

- 23.3 How to Use
 - On the LT 4610, set the IP address.
 Set it under SYSTEM→ETHERNET→IP ADDRESS.
 - 2. Connect the LT 4610's ETHERNET/CONTROL port to the network device. Connect to a network with an SNMP manager.
 - 3. On the PC, start an SNMP manager.

An SNMP manager is not supplied with the LT 4610. You will need to provide it yourself. For details on how to use the SNMP manager, see its instruction manual.

The community names are shown below. (default setting) Read Community: LDRUser Write Community: LDRAdm

On the SNMP manager, set the IP address of the trap transmission destination.
 You can also set it from the LT 4610 menu.

OID: 1.3.6.1.4.1.leader(20111).lt4610(36).trap(100).target(1). trapManagerIp(1).0 5. On the SNMP manager, enable the TRAP transmission destinations.

OID: 1.3.6.1.4.1.leader(20111). lt4610(36).trap(100).target(1).trapAction(2).0 You can also set it from the LT 4610 menu.

- 6. Restart the LT 4610.
- 7. When the LT 4610 restarts, check that the standard trap "ColdStart" is received by the SNMP manager.

23.4 Enterprise MIB

• Retrieving the MIB File

Copy the file from the LT 4610 to a USB memory device. Connect a USB memory device to the LT 4610, and from the menu, select SYSTEM > ETHERNET > COPY MIB INT > USB > OK. The file lt4610.my will be copied to the USB memory device.

For details on how to use the MIB file, see the instruction manual for the SNMP manager.[See also]20.4.5, "Copying MIB Files to a USB Memory Device"

• Enterprise Number

Leader's enterprise number is 20111. iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).leader(20111)

MIB Structure

lt4610	OBJECT IDENTIFIER ::= { leader 36 }
notification	OBJECT IDENTIFIER ::= { lt4610 0 }
trapContent	OBJECT IDENTIFIER ::= { notification 1 }
error	OBJECT IDENTIFIER ::= { trapContent 1 }
normal	OBJECT IDENTIFIER ::= { trapContent 2 }
trapStr	OBJECT IDENTIFIER ::= { notification 2 }
standard	OBJECT IDENTIFIER ::= { lt4610 1 }
status	OBJECT IDENTIFIER ::= { standard 1 }
reference	OBJECT IDENTIFIER ::= { standard 2 }
genlockRef	OBJECT IDENTIFIER ::= { reference 1 }
blackRef	OBJECT IDENTIFIER ::= { reference 2 }
black1Ref	OBJECT IDENTIFIER ::= { blackRef 1 }
black2Ref	OBJECT IDENTIFIER ::= { blackRef 2 }
black3Ref	OBJECT IDENTIFIER ::= { blackRef 3 }
black4Ref	OBJECT IDENTIFIER ::= { blackRef 4 }
black5Ref	OBJECT IDENTIFIER ::= { blackRef 5 }
black6Ref	OBJECT IDENTIFIER ::= { blackRef 6 }
sdiRef	OBJECT IDENTIFIER ::= { reference 3 }
sdi1Ref	OBJECT IDENTIFIER ::= { sdiRef 1 }
sdi1Format	OBJECT IDENTIFIER ::= { sdi1Ref 1 }
sdi1Timing	OBJECT IDENTIFIER ::= { sdi1Ref 2 }
sdi1Pattern	OBJECT IDENTIFIER ::= { sdi1Ref 3 }
sdi1Component	OBJECT IDENTIFIER ::= { sdi1Ref 4 }
sdi1SafetyArea	OBJECT IDENTIFIER ::= { sdi1Ref 5 }

sdi1Scroll	OBJECT IDENTIFIER ::= { sdi1Ref 6 }
sdi1PatternChange	OBJECT IDENTIFIER ::= { sdi1Ref 7 }
sdi1Id	OBJECT IDENTIFIER ::= { sdi1Ref 8 }
sdi1Logo	OBJECT IDENTIFIER ::= { sdi1Ref 9 }
sdi1Audio	OBJECT IDENTIFIER ::= { sdi1Ref 10 }
sdi2Ref	OBJECT IDENTIFIER ::= { sdiRef 2 }
sdi2Format	OBJECT IDENTIFIER ::= { sdi2Ref 1 }
sdi2Timing	OBJECT IDENTIFIER ::= { sdi2Ref 2 }
sdi2Pattern	OBJECT IDENTIFIER ::= { sdi2Ref 3 }
sdi2Component	OBJECT IDENTIFIER ::= { sdi2Ref 4 }
sdi2SafetyArea	OBJECT IDENTIFIER ::= { sdi2Ref 5 }
sdi2Scroll	OBJECT IDENTIFIER ::= { sdi2Ref 6 }
sdi2PatternChange	OBJECT IDENTIFIER ::= { sdi2Ref 7 }
sdi2Id	OBJECT IDENTIFIER ::= { sdi2Ref 8 }
sdi2Logo	OBJECT IDENTIFIER ::= { sdi2Ref 9 }
sdi2Audio	OBJECT IDENTIFIER ::= { sdi2Ref 10 }
lipsync	OBJECT IDENTIFIER ::= { reference 4 }
gps	OBJECT IDENTIFIER ::= { It4610 2 }
gpsStat	OBJECT IDENTIFIER ::= { gps 1 }
gpsRef	OBJECT IDENTIFIER ::= { gps 2 }
system	OBJECT IDENTIFIER ::= { lt4610 3 }
presetRef	OBJECT IDENTIFIER ::= { system 1 }
sdi12q	OBJECT IDENTIFIER ::= { lt4610 4 }
sdi12g	OBJECT IDENTIFIER ::= { lt4610 4 }
sdi12g sdi12g1Ref	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 }
sdi12g sdi12g1Ref sdi12g1Format	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1Sarell sdi12g1PatternChange sdi12g1Id	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1Id sdi12g1Logo	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1MvBox	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1MvBox sdi12g1Audio	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1Logo sdi12g1Audio sdi12g1Lipsync	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1PatternChange sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1MvBox sdi12g1MvBox sdi12g1Audio sdi12g1Lipsync sdi12g2Ref	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g 2 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1Logo sdi12g1Logo sdi12g1Audio sdi12g1Lipsync sdi12g2Ref sdi12g2Timing	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 2 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1Component sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1Logo sdi12g1MvBox sdi12g1MvBox sdi12g1Lipsync sdi12g2Ref sdi12g2Ref sdi12g2Timing sdi12g2Pattern	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 2 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1Logo sdi12g1MvBox sdi12g1Audio sdi12g1Lipsync sdi12g2Ref sdi12g2Ref sdi12g2Pattern sdi12g2Pattern sdi12g2Id	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 2 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1Logo sdi12g1MvBox sdi12g1Lipsync sdi12g2Ref sdi12g2Ref sdi12g2Ref sdi12g2Pattern sdi12g2Dattern sdi12g2Id sdi12g2Logo	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 2 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 8 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1Id sdi12g1Id sdi12g1Logo sdi12g1MvBox sdi12g1MvBox sdi12g1Lipsync sdi12g1Lipsync sdi12g2Ref sdi12g2Ref sdi12g2Pattern sdi12g2Id sdi12g2Id sdi12g2Logo sdi12g2Logo	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g2Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 8 } OBJECT IDENTIFIER ::= { sdi12g2Ref 8 } OBJECT IDENTIFIER ::= { sdi12g2Ref 9 } OBJECT IDENTIFIER ::= { sdi12g2Ref 11 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Component sdi12g1Component sdi12g1SafetyArea sdi12g1Scroll sdi12g1PatternChange sdi12g1Id sdi12g1Logo sdi12g1Logo sdi12g1Lupsync sdi12g2Ref sdi12g2Ref sdi12g2Ref sdi12g2Pattern sdi12g2Pattern sdi12g2Id sdi12g2Logo sdi12g2Logo	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g1 Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 2 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 8 } OBJECT IDENTIFIER ::= { sdi12g2Ref 8 } OBJECT IDENTIFIER ::= { sdi12g2Ref 8 } OBJECT IDENTIFIER ::= { sdi12g2Ref 11 }
sdi12g sdi12g1Ref sdi12g1Format sdi12g1Timing sdi12g1Pattern sdi12g1Pattern sdi12g1Component sdi12g1SafetyArea sdi12g1SafetyArea sdi12g1PatternChange sdi12g1PatternChange sdi12g1Logo sdi12g1Logo sdi12g1MvBox sdi12g1MvBox sdi12g1Lipsync sdi12g2Ref sdi12g2Ref sdi12g2Ref sdi12g2Pattern sdi12g2Id sdi12g2Id sdi12g2Id sdi12g2Logo sdi12g2Logo sdi12g2Logo sdi12g2Lipsync	OBJECT IDENTIFIER ::= { lt4610 4 } OBJECT IDENTIFIER ::= { sdi12g1Ref 1 } OBJECT IDENTIFIER ::= { sdi12g1Ref 2 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 3 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 5 } OBJECT IDENTIFIER ::= { sdi12g1Ref 6 } OBJECT IDENTIFIER ::= { sdi12g1Ref 7 } OBJECT IDENTIFIER ::= { sdi12g1Ref 8 } OBJECT IDENTIFIER ::= { sdi12g1Ref 9 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 10 } OBJECT IDENTIFIER ::= { sdi12g1Ref 11 } OBJECT IDENTIFIER ::= { sdi12g1Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 12 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 3 } OBJECT IDENTIFIER ::= { sdi12g2Ref 11 } OBJECT IDENTIFIER ::= { sdi12g2Ref 12 }

sdi12g3Pattern	OBJECT IDENTIFIER ::= { sdi12g3Ref 3 }
sdi12g3Id	OBJECT IDENTIFIER ::= { sdi12g3Ref 8 }
sdi12g3Logo	OBJECT IDENTIFIER ::= { sdi12g3Ref 9 }
sdi12g3Audio	OBJECT IDENTIFIER ::= { sdi12g3Ref 11 }
sdi12g3Lipsync	OBJECT IDENTIFIER ::= { sdi12g3Ref 12 }
sdi12g4Ref	OBJECT IDENTIFIER ::= { sdi12g 4 }
sdi12g4Timing	OBJECT IDENTIFIER ::= { sdi12g4Ref 2 }
sdi12g4Pattern	OBJECT IDENTIFIER ::= { sdi12g4Ref 3 }
sdi12g4Id	OBJECT IDENTIFIER ::= { sdi12g4Ref 8 }
sdi12g4Logo	OBJECT IDENTIFIER ::= { sdi12g4Ref 9 }
sdi12g4Audio	OBJECT IDENTIFIER ::= { sdi12g4Ref 11 }
sdi12g4Lipsync	OBJECT IDENTIFIER ::= { sdi12g4Ref 12 }
ptp	OBJECT IDENTIFIER ::= { lt4610 5 }
ptp1Ref	OBJECT IDENTIFIER ::= { ptp 1 }
ptp1Mode	OBJECT IDENTIFIER ::= { ptp1Ref 1 }
ptp1ProfileType	OBJECT IDENTIFIER ::= { ptp1Ref 2 }
ptp1ProfileDefault	OBJECT IDENTIFIER ::= { ptp1Ref 3 }
ptp1Domain	OBJECT IDENTIFIER ::= { ptp1Ref 4 }
ptp1ComminucationMode	OBJECT IDENTIFIER ::= { ptp1Ref 5 }
ptp1AnnounceInterval	OBJECT IDENTIFIER ::= { ptp1Ref 6 }
ptp1SyncInterval	OBJECT IDENTIFIER ::= { ptp1Ref 7 }
ptp1AnnounceTimeout	OBJECT IDENTIFIER ::= { ptp1Ref 8 }
ptp1Priority1	OBJECT IDENTIFIER ::= { ptp1Ref 9 }
ptp1Priority2	OBJECT IDENTIFIER ::= { ptp1Ref 10 }
ptp1Step	OBJECT IDENTIFIER ::= { ptp1Ref 11 }
ptp1DefaultFrame	OBJECT IDENTIFIER ::= { ptp1Ref 12 }
ptp1DropFrameFlag	OBJECT IDENTIFIER ::= { ptp1Ref 13 }
ptp1ColorFrameId	OBJECT IDENTIFIER ::= { ptp1Ref 14 }
ptp1DelayMechanism	OBJECT IDENTIFIER ::= { ptp1Ref 15 }
ptp1AmtConfigration1	OBJECT IDENTIFIER ::= { ptp1Ref 16 }
ptp1AmtConfigration2	OBJECT IDENTIFIER ::= { ptp1Ref 17 }
ptp1AmtConfigration3	OBJECT IDENTIFIER ::= { ptp1Ref 18 }
ptp1AmtConfigration4	OBJECT IDENTIFIER ::= { ptp1Ref 19 }
ptp1AmtConfigration5	OBJECT IDENTIFIER ::= { ptp1Ref 20 }
ptp1AmtConfigration6	OBJECT IDENTIFIER ::= { ptp1Ref 21 }
ptp1AmtConfigration7	OBJECT IDENTIFIER ::= { ptp1Ref 22 }
ptp1AmtConfigration8	OBJECT IDENTIFIER ::= { ptp1Ref 23 }
ptp1AsymmetricDelay	OBJECT IDENTIFIER ::= { ptp1Ref 24 }
ptp1DelayMsgInterval	OBJECT IDENTIFIER ::= { ptp1Ref 25 }
ptp1AnnounceDesirInt	OBJECT IDENTIFIER ::= { ptp1Ref 26 }
ptp1AnnounceReqdInt	OBJECT IDENTIFIER ::= { ptp1Ref 27 }
ptp1SyncDesirInt	OBJECT IDENTIFIER ::= { ptp1Ref 28 }
ptp1SyncReqdInt	OBJECT IDENTIFIER ::= { ptp1Ref 29 }
ptp1DlyMsgDesirInt	OBJECT IDENTIFIER ::= { ptp1Ref 30 }
ptp1DlyMsgReqdInt	OBJECT IDENTIFIER ::= { ptp1Ref 31 }
ptp1Bmca	OBJECT IDENTIFIER ::= { ptp1Ref 32 }

ptp2Ref	OBJECT IDENTIFIER ::= { ptp 2 }
ptp2Mode	OBJECT IDENTIFIER ::= { ptp2Ref 1 }
ptp2ProfileType	OBJECT IDENTIFIER ::= { ptp2Ref 2 }
ptp2ProfileDefault	OBJECT IDENTIFIER ::= { ptp2Ref 3 }
ptp2Domain	OBJECT IDENTIFIER ::= { ptp2Ref 4 }
ptp2ComminucationMode	OBJECT IDENTIFIER ::= { ptp2Ref 5 }
ptp2AnnounceInterval	OBJECT IDENTIFIER ::= { ptp2Ref 6 }
ptp2SyncInterval	OBJECT IDENTIFIER ::= { ptp2Ref 7 }
ptp2AnnounceTimeout	OBJECT IDENTIFIER ::= { ptp2Ref 8 }
ptp2Priority1	OBJECT IDENTIFIER ::= { ptp2Ref 9 }
ptp2Priority2	OBJECT IDENTIFIER ::= { ptp2Ref 10 }
ptp2Step	OBJECT IDENTIFIER ::= { ptp2Ref 11 }
ptp2DefaultFrame	OBJECT IDENTIFIER ::= { ptp2Ref 12 }
ptp2DropFrameFlag	OBJECT IDENTIFIER ::= { ptp2Ref 13 }
ptp2ColorFrameId	OBJECT IDENTIFIER ::= { ptp2Ref 14 }
ptp2DelayMechanism	OBJECT IDENTIFIER ::= { ptp2Ref 15 }
ptp2Bmca	OBJECT IDENTIFIER ::= { ptp2Ref 32 }
ptpSystem	OBJECT IDENTIFIER ::= { lt4610 6 }
ptpSystemIpAddress	OBJECT IDENTIFIER ::= { ptpSystem 1 }
ptpSystemSubnetMask	OBJECT IDENTIFIER ::= { ptpSystem 2 }
ptpSystemGateway	OBJECT IDENTIFIER ::= { ptpSystem 3 }
ptpSystemSwitch	OBJECT IDENTIFIER ::= { ptpSystem 4 }
ptpSystemSfpSfpp	OBJECT IDENTIFIER ::= { ptpSystem 5 }
trap	OBJECT IDENTIFIER ::= { lt4610 100 }
target	OBJECT IDENTIFIER ::= { trap 1 }

ACCESS

ACCESS	Description	
R/O	Read only	
R/W	Read and write	

23.4.1 status Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
fanStat	status.1	INTEGER	R/O	1	OPERATION
				2	STOP
genlockStat	status.2	INTEGER	R/O	1	INTERNAL
				2	NO SIGNAL
				3	TRACKING
				4	LOCKED
				5	STAY IN SYNC
power1	status.3	INTEGER	R/O	1	OFF
				2	ON
power2	status.4	INTEGER	R/O	1	OFF
				2	ON
genlockFormatStat	status.5	INTEGER	R/O	1	1125/60I
				2	1125/59.94I
				3	1125/50I
				7	1125/30P
				8	1125/29.97P
				9	1125/25P
				10	1125/24P
				11	1125/23.98P
				15	1125/24PsF
				16	1125/23.98PsF
				21	750/60P
				22	750/59.94P
				23	750/50P
				24	750/30P
				25	750/29.97P
				26	750/25P
				27	750/24P
				28	750/23.98P
				41	NTSC BB
				42	NTSC BB+REF
				43	NTSC BB+ID
				44	NTSC BB+REF+ID
				45	NTSC BB+SETUP
				46	NTSC BB+S+REF
				47	NTSC BB+S+ID
				48	NTSC BB+S+R+ID
				49	525/59.94I
				50	525/59.94P
				61	PAL BB
				62	PAL BB+REF
				63	625/50I
				64	625/50P
				100	UNKNOWN

23.4.2 genlockRef Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
genlockModeRef	genlockRef.1	INTEGER	R/W	1	INTERNAL
				2	GL FMT-AUTO
				3	GL FMT-MANUAL
				4	GPS
				5	10MHzCW
				6	PTP
genlockFormatRef	genlockRef.2	INTEGER	R/W	1	1125/60I
				2	1125/59.94I
				3	1125/50I
				7	1125/30P
				8	1125/29.97P
				9	1125/25P
				10	1125/24P
				11	1125/23.98P
				15	1125/24PsF
				16	1125/23.98PsF
				21	750/60P
				22	750/59.94P
				23	750/50P
				24	750/30P
				25	750/29.97P
				26	750/25P
				27	750/24P
				28	750/23.98P
				41	NTSC BB
				42	NTSC BB+REF
				43	NTSC BB+ID
				44	NTSC BB+REF+ID
				49	525/59.94I
				50	525/59.94P
				61	PAL BB
				62	PAL BB+REF
				63	625/50I
				64	625/50P

23.4.3 black*Ref Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
black1FormatRef	black1Ref.1	INTEGER	R/W	1	1125/60I
black2FormatRef	black2Ref.1			2	1125/59.94I
black3FormatRef	black3Ref.1			3	1125/50I
black4FormatRef	black4Ref.1			7	1125/30P
black5FormatRef	black5Ref.1			8	1125/29.97P
black6FormatRef	black6Ref.1			9	1125/25P
				10	1125/24P
				11	1125/23.98P
				15	1125/24PsF
				16	1125/23.98PsF
				21	750/60P
				22	750/59.94P
				23	750/50P
				24	750/30P
				25	750/29.97P
				26	750/25P
				27	750/24P
				28	750/23.98P
				41	NTSC BB
				42	NTSC BB+REF
				43	NTSC BB+ID
				44	NTSC BB+REF+ID
				45	NTSC BB+SETUP
				46	NTSC BB+S+REF
				47	NTSC BB+S+ID
				48	NTSC BB+S+R+ID
				49	525/59.94I
				50	525/59.94P
				61	PAL BB
				62	PAL BB+REF
				63	625/50I
				64	625/50P
black1VitcRef	black1Ref.2	INTEGER	R/W	1	OFF
black2VitcRef	black2Ref.2			2	ON
black3VitcRef	black3Ref.2				
black4VitcRef	black4Ref.2				
black5VitcRef	black5Ref.2				
black6VitcRef	black6Ref.2				

23.4.4 sdi*Format Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1ImageRef	sdi1Format.1	INTEGER	R/W	1	720x487:SD
sdi2ImageRef	sdi2Format.1			2	720x576:SD
				3	1280x720:HD
				4	1920x1080:HD
				5	1280x720:3G-A
				6	1920x1080:3G-A
				7 (*1)	1920x1080:3G-B-DL
				8 (*1)	1920x1080:HD-DL
sdi1StructureRef	sdi1Format.2	INTEGER	R/W	1	422(YCbCr)10-bit
sdi2StructureRef	sdi2Format.2			2	422(YCbCr)12-bit
				3	444(YCbCr)10-bit
				4	444(YCbCr)12-bit
				5	444(RGB)10-bit
				6	444(RGB)12-bit
sdi1FramerateRef	sdi1Format.3	INTEGER	R/W	1	1080/60I
sdi2FramerateRef	sdi2Format.3			2	1080/59.94I
				3	1080/50I
				4	1080/60P
				5	1080/59.94P
				6	1080/50P
				7	1080/30P
				8	1080/29.97P
				9	1080/25P
				10	1080/24P
				11	1080/23.98P
				12	1080/30PsF
				13	1080/29.97PsF
				14	1080/25PsF
				15	1080/24PsF
				16	1080/23.98PsF
				21	720/60P
				22	720/59.94P
				23	720/50P
				24	720/30P
				25	720/29.97P
				26	720/25P
				27	720/24P
				28	720/23.98P
				49	525/59.94I
				63	625/50I

*1 Cannot be set.

23.4.5 sdi*Timing Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1TimingVRef	sdi1Timing.2	INTEGER	R/W	±1124	-
sdi2TimingVRef	sdi2Timing.2				
sdi1TimingHRef	sdi1Timing.3	INTEGER	R/W	±4124	-
sdi2TimingHRef	sdi2Timing.3				

23.4.6 sdi*Pattern Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1PatternRef	sdi1Pattern.1	INTEGER	R/W	1	COLOR BAR 100%
sdi2PatternRef	sdi2Pattern.1			2	COLOR BAR 75%
				3	COLOR BAR MULTI 100%
				4	COLOR BAR MULTI 75%
				5	COLOR BAR MULTI (+I)
				7	COLOR BAR SMPTE
				8	COLOR BAR EBU
				9	COLOR BAR BBC
				15	FLAT FIELD 100%
				17	FLAT FIELD 0%
				18	RED FIELD 100%
				19	GREEN FIELD 100%
				20	BLUE FIELD 100%
				23	CHECK FIELD
				27	OTHER1 (*1)
				28	OTHER2 (*1)
				29	OTHER3 (*1)
				30	OTHER4 (*1)
				31	OTHER5 (*1)

*1 Cannot be set because it is reserved.

23.4.7 sdi*Component Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1ComponentRef	sdi1Component.1	INTEGER	R/W	1	□Y/G □Cb/B □Cr/R
sdi2ComponentRef	sdi2Component.1			2	■Y/G □Cb/B □Cr/R
				3	□Y/G ■Cb/B □Cr/R
				4	■Y/G ■Cb/B □Cr/R
				5	□Y/G □Cb/B ■Cr/R
				6	■Y/G □Cb/B ■Cr/R
				7	□Y/G ■Cb/B ■Cr/R
				8	■Y/G ■Cb/B ■Cr/R

23.4.8 sdi*SafetyArea Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1Safety90AreaRef	sdi1SafetyArea.1	INTEGER	R/W	1	OFF
sdi2Safety90AreaRef	sdi2SafetyArea.1			2	ON
sdi1Safety80AreaRef	sdi1SafetyArea.2	INTEGER	R/W	1	OFF
sdi2Safety80AreaRef	sdi2SafetyArea.2			2	ON
sdi1Safety43AreaRef	sdi1SafetyArea.3	INTEGER	R/W	1	OFF
sdi2Safety43AreaRef	sdi2SafetyArea.3			2	ON

23.4.9 sdi*Scroll Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1ScrollRef	sdi1Scroll.1	INTEGER	R/W	1	OFF
sdi2ScrollRef	sdi2Scroll.1			2	ON

23.4.10 sdi*PatternChange Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1PatternChangeRef	sdi1PatternChange.1	INTEGER	R/W	1	OFF
sdi2PatternChangeRef	sdi2PatternChange.1			2	ON

23.4.11 sdi*Id Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1IdRef	sdi1Id.1	INTEGER	R/W	1	OFF
sdi2IdRef	sdi2Id.1			2	ON

23.4.12 sdi*Logo Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1LogoRef	sdi1Logo.1	INTEGER	R/W	1	OFF
sdi2LogoRef	sdi2Logo.1			2	ON

23.4.13 sdi*Audio Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1AudioG1Ref	sdi1Audio.1	INTEGER	R/W	1	OFF
sdi2AudioG1Ref	sdi2Audio.1			2	ON
sdi1AudioG2Ref	sdi1Audio.2	INTEGER	R/W	1	OFF
sdi2AudioG2Ref	sdi2Audio.2			2	ON
sdi1AudioG3Ref	sdi1Audio.3	INTEGER	R/W	1	OFF
sdi2AudioG3Ref	sdi2Audio.3			2	ON
sdi1AudioG4Ref	sdi1Audio.4	INTEGER	R/W	1	OFF
sdi2AudioG4Ref	sdi2Audio.4			2	ON
sdi1AudioG5Ref	sdi1Audio.5	INTEGER	R/W	1	OFF
				2	ON
sdi1AudioG6Ref	sdi1Audio.6	INTEGER	R/W	1	OFF
				2	ON
sdi1AudioG7Ref	sdi1Audio.7	INTEGER	R/W	1	OFF
				2	ON
sdi1AudioG8Ref	sdi1Audio.8	INTEGER	R/W	1	OFF
				2	ON

23.4.14 Lipsync Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi1LipsyncRef	Lipsync.1	INTEGER	R/W	1	OFF
				2	ON
sdi2LipsyncRef	Lipsync.2	INTEGER	R/W	1	OFF
				2	ON

23.4.15 gpsStat Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
antennaAlarm	gpsStat.1	INTEGER	R/O	1	NORMAL
				2	ALARM
gpsSignalAlarm	gpsStat.2	INTEGER	R/O	1	NORMAL
				2	ALARM
ltcSignalAlarm	gpsStat.3	INTEGER	R/O	1	NORMAL
				2	ALARM
cwSignalAlarm	gpsStat.4	INTEGER	R/O	1	NORMAL
				2	ALARM
satNumAlarm	gpsStat.5	INTEGER	R/O	1	NORMAL
				2	ALARM
satCnAlarm	gpsStat.6	INTEGER	R/O	1	NORMAL
				2	ALARM
vitcSignalAlarm	gpsStat.7	INTEGER	R/O	1	NORMAL
				2	ALARM

23.4.16 gpsRef Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
satNumber	gpsRef.1	DisplayString	R/O	*/*	Number of used
					satellites/number of
					satellites in the line of
					view
satCnValue	gpsRef.2	DisplayString	R/O	*,*	MAX CN, MIN CN
gpsAntennaPower	gpsRef.3	INTEGER	R/W	1	OFF
				2	3.3V
				3	5V
gpsPlatformMode	gpsRef.4	INTEGER	R/W	1	STATIONARY
				2	AUTOMOTIVE
gpsCwInout	gpsRef.5	INTEGER	R/W	1	INPUT
				2	OUTPUT
gpsCwOutputFreq	gpsRef.6	INTEGER	R/W	1	CW
				2	1PPS

23.4.17 presetRef Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
powerOnRecall	presetRef.1	INTEGER	R/W	-1	OFF
				0 to 9	-
presetRecall	presetRef.2	INTEGER	R/W	0 to 9	-
presetStore	presetRef.3	INTEGER	R/W	0 to 9	-

23.4.18 target Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
trapManagerIp	target.1	IpAddress	R/W	* * * *	Trap transmission destination
trapAction	target.2	INTEGER	R/W	1	disable
				2	enable

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1ImageRef	sdi12g1Format.1	INTEGER	R/W	1	720x487:SD
	_			2	720x576:SD
				3	1280x720:HD
				4	1920x1080:HD
				5	1280x720:3G-A
				6	1920x1080:3G-A
				7	2048x1080:3G-A
				8	1920x1080:3G-B-DL
				9	2048x1080:3G-B-DL
				10	1920x1080:HD-DL
				11	2048x1080:HD-DL
				12	1280x720:3G-B-DS
				13	1920x1080:3G-B-DS
				14	1920x1080:3G-2K-A
				15	2048x1080:3G-2K-A
				16	1920x1080:3G-2K-B
				17	2048x1080:3G-2K-B
				18	3840x2160:3G-4K-DS-SOD
				19	3840x2160:3G-4K-DS-2SI
				20	4096x2160:3G-4K-DS-SOD
				20	4096x2160:3G-4K-DS-2SI
				21	3840×2160:HD-0L-SOD
				22	4096x2160:HD-OL-SOD
				24	3840×2160:36-01-4-500
				20	3840×2160:3C-0L-A-2SI
				27	4096×2160:3G-0L-A-SOD
				20	4096×2160:3C-0L-A-2SI
				29	3840×2160:3C-0L-B-DL-
				50	SQD
				31	3840x2160:3G-QL-B-DL-2SI
				32	4096x2160:3G-QL-B-DL-
					SQD
				33	4096x2160:3G-QL-B-DL-2SI
				34	3840x2160:12G-A
				35	4096x2160:12G-A
				38	7680x4320:12G-QL-A
sdi12g1StructureRef	sdi12g1Format.2	INTEGER	R/W	1	422(YCbCr)10-bit
				2	422(YCbCr)12-bit
				3	444(YCbCr)10-bit
				4	444(YCbCr)12-bit
				5	444(RGB)10-bit
				6	444(RGB)12-bit
sdi12g1FramerateRef	sdi12g1Format.3	INTEGER	R/W	1	601
				2	59.94I
				3	501
				4	60P
				5	59.94P
				6	50P
				7	30P
				8	29.97P
				9	25P
				10	24P
				11	23.98P
				12	30PsF

MIB	OID	SYNTAX	ACCESS	VALUE	Description
				13	29.97PsF
				14	25PsF
				15	24PsF
				16	23.98PsF
				17	48P
				18	47.95P

23.4.20 sdi12g*Timing Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1TimingVRef	sdi12g1Timing.2	INTEGER	R/W	±1124	-
sdi12g2TimingVRef	sdi12g2Timing.2				
sdi12g3TimingVRef	sdi12g3Timing.2				
sdi12g4TimingVRef	sdi12g4Timing.2				
sdi12g1TimingHRef	sdi12g1Timing.3	INTEGER	R/W	±4124	-
sdi12g2TimingHRef	sdi12g2Timing.3				
sdi12g3TimingHRef	sdi12g3Timing.3				
sdi12g4TimingHRef	sdi12g4Timing.3				

23.4.21 sdi12g*Pattern Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1PtnFixRef	sdi12g1Pattern.1	INTEGER	R/W	1	COLOR BAR 100%
sdi12g2PtnFixRef	sdi12g2Pattern.1			2	COLOR BAR 75%
sdi12g3PtnFixRef	sdi12g3Pattern.1			3	COLOR BAR MULTI 100%
sdi12g4PtnFixRef	sdi12g4Pattern.1			4	COLOR BAR MULTI 75%
				5	COLOR BAR MULTI (+I)
				6	COLOR BAR SMPTE
				7	COLOR BAR EBU
				8	COLOR BAR BBC
				9	FLAT FIELD 100%
				10	FLAT FIELD 0%
				11	RED FIELD 100%
				12	GREEN FIELD 100%
				13	BLUE FIELD 100%
				14	CHECK FIELD
				15	COLOR BAR UHDTV STD-B66-
					2

23.4.22 sdi12g*Component Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1ComponentRef	sdi12g1Component.1	INTEGER	R/W	1	□Y/G □Cb/B □Cr/R
				2	■Y/G □Cb/B □Cr/R
				3	□Y/G ■Cb/B □Cr/R
				4	■Y/G ■Cb/B □Cr/R
				5	□Y/G □Cb/B ■Cr/R
				6	■Y/G □Cb/B ■Cr/R
				7	□Y/G ■Cb/B ■Cr/R
				8	■Y/G ■Cb/B ■Cr/R

23.4.23 sdi12g*SafetyArea Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1Safety90AreaRef	sdi12g1SafetyArea.1	INTEGER	R/W	1	OFF
				2	ON
sdi12g1Safety80AreaRef	sdi12g1SafetyArea.2	INTEGER	R/W	1	OFF
				2	ON
sdi12g1Safety43AreaRef	sdi12g1SafetyArea.3	INTEGER	R/W	1	OFF
				2	ON

23.4.24 sdi12g*Scroll Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1ScrollRef	sdi12g1Scroll.1	INTEGER	R/W	1	OFF
				2	ON
Sdi12g1ScrollVspdRef	sdi12g1Scroll.2	INTEGER	R/W	±256	
Sdi12g1ScrollHspdRef	sdi12g1Scroll.3	INTEGER	R/W	±256	

23.4.25 sdi12g*PatternChange Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
Sdi12g1PtnChangeRef	sdi12g1PatternChange.1	INTEGER	R/W	1	OFF
				2	ON
sdi12g1PtnChangeSpdRef	sdi12g1PatternChange.2	INTEGER	R/W	+255	

23.4.26 sdi12g*Id Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12q1IdRef	sdi12q1Id.1	INTEGER	R/W	1	OFF
sdi12g2IdRef	sdi12g2Id.1		,	2	
sdi12g3IdRef	sdi12g3Id.1			2	ON
sdi12g4IdRef	sdi12g4Id.1				
sdi12g1IdVposiRef	sdi12g1Id.2	INTEGER	R/W	+4319	
sdi12g2IdVposiRef	sdi12q2Id.2		,		
sdi12g3IdVposiRef	sdi12q3Id.2				
sdi12g4IdVposiRef	sdi12g4Id.2				
sdi12g1IdHposiRef	sdi12g1Id.3	INTEGER	R/W	+7679	
sdi12g2IdHposiRef	sdi12g2Id.3				
sdi12g3IdHposiRef	sdi12g3Id.3				
sdi12g4IdHposiRef	sdi12g4Id.3				
sdi12q1IdSizeRef	sdi12q1Id.4	INTEGER	R/W	1	x1
sdi12q2IdSizeRef	sdi12q2Id.4		,	2	x2
sdi12q3IdSizeRef	sdi12q3Id.4			3	×4
sdi12q4IdSizeRef	sdi12q4Id.4			5	x 4
			5 /11/	4	X8
sdi12g11dLevelRef	sdi12g1Id.5	INTEGER	R/W	1	100%
sdi12g2IdLevelRef	sdi12g2Id.5			2	75%
sdi12g3IdLevelRef	sdi12g3Id.5				
sdi12g4IdLevelRef	sdi12g4Id.5				
sdi12g11dBlink	sdi12g1Id.6	Aggregate			
sdi12g2IdBlink	sdi12g2Id.6				
sdi12g3IdBlink	sdi12g3Id.6				
sdi12g4IdBlink	sdi12g4Id.6				
sdi12g1BlinkRef	sdi12g1IdBlink.1	INTEGER	R/W	1	OFF
sdi12g2BlinkRef	sdi12g2IdBlink.1			2	ON
sdi12g3BlinkRef	sdi12g3IdBlink.1				
sdi12g4BlinkRef	sdi12g4IdBlink.1				
sdi12g1BlinkOntimeRef	sdi12g1IdBlink.2	INTEGER	R/W	+9	
sdi12g2BlinkOntimeRef	sdi12g2IdBlink.2				
sdi12g3BlinkOntimeRef	sdi12g3IdBlink.2				
sdi12g4BlinkOntimeRef	sdi12g4IdBlink.2				
sdi12g1BlinkOfftimeRef	sdi12g1IdBlink.3	INTEGER	R/W	+9	
sdi12g2BlinkOfftimeRef	sdi12g2IdBlink.3				
sdi12g3BlinkOfftimeRef	sdi12g3IdBlink.3				
sdi12g4BlinkOfftimeRef	sdi12g4IdBlink.3				
sdi12g1IdScroll	sdi12g1Id.7	Aggregate			
sdi12g2IdScroll	sdi12g2Id.7				
sdi12g3IdScroll	sdi12g3Id.7				
sdi12g4IdScroll	sdi12g4Id.7				
sdi12g1IdScrollRef	sdi12g1IdScroll.1	INTEGER	R/W	1	OFF
sdi12g2IdScrollRef	sdi12g2IdScroll.1			2	ON
sdi12g3IdScrollRef	sdi12g3IdScroll.1				
sdi12g4IdScrollRef	sdi12g4IdScroll.1	<u> </u>			
sdi12g1IdScrollSpdRef	sdi12g1IdScroll.2	INTEGER	R/W	±256	
sdi12g2IdScrollSpdRef	sdi12g2IdScroll.2				
sdi12g3IdScrollSpdRef	sdi12g3IdScroll.2				
sdi12g4IdScrollSpdRef	sdi12q4IdScroll.2				

23.4.27 sdi12g*Logo Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1LogoRef	sdi12g1Logo.1	INTEGER	R/W	1	OFF
sdi12g2LogoRef	sdi12g2Logo.1			2	ON
sdi12g3LogoRef	sdi12g3Logo.1				
sdi12g4LogoRef	sdi12g4Logo.1				
sdi12g1LogoSelRef	sdi12g1Logo.2	INTEGER	R/W	14	
sdi12g2LogoSelRef	sdi12g2Logo.2				
sdi12g3LogoSelRef	sdi12g3Logo.2				
sdi12g4LogoSelRef	sdi12g4Logo.2				
sdi12g1LogoVposiRef	sdi12g1Logo.3	INTEGER	R/W	+4319	
sdi12g2LogoVposiRef	sdi12g2Logo.3				
sdi12g3LogoVposiRef	sdi12g3Logo.3				
sdi12g4LogoVposiRef	sdi12g4Logo.3				
sdi12g1LogoHposiRef	sdi12g1Logo.4	INTEGER	R/W	+7679	
sdi12g2LogoHposiRef	sdi12g2Logo.4				
sdi12g3LogoHposiRef	sdi12g3Logo.4				
sdi12g4LogoHposiRef	sdi12g4Logo.4				
sdi12g1LogoLevel	sdi12g1Logo.5	Aggregate			
sdi12g2LogoLevel	sdi12g2Logo.5				
sdi12g3LogoLevel	sdi12g3Logo.5				
sdi12g4LogoLevel	sdi12g4Logo.5				
sdi12g1LogoLevelLv0Ref	sdi12g1LogoLevel.1	INTEGER	R/W	100h	
sdi12g2LogoLevelLv0Ref	sdi12g2LogoLevel.1			•	
sdi12g3LogoLevelLv0Ref	sdi12g3LogoLevel.1			EB0h	
sdi12g4LogoLevelLv0Ref	sdi12g4LogoLevel.1				
sdi12g1LogoLevelLv1Ref	sdi12g1LogoLevel.2	INTEGER	R/W	100h	
sdi12g2LogoLevelLv1Ref	sdi12g2LogoLevel.2				
sdi12g3LogoLevelLv1Ref	sdi12g3LogoLevel.2			EB0h	
sdi12g4LogoLevelLv1Ref	sdi12g4LogoLevel.2	INTEGED	D (M)	100	
sdil2glLogoLevelLv2Ref	sdi12g1LogoLevel.3	INTEGER	R/W	100h	
sdi12g2LogoLevelLv2Ref	sdi12g2LogoLevel.3			EROb	
sdi12g3LogoLevelLv2Rel	sdi12g3LogoLevel.3			EDUII	
sdi12g4LogoLevelLv2Rel	sdi12g4LogoLevel.3	INTECED	D /\\/	100h	
sdi12g1LogoLevelLv3Rel	sdi12g1LogoLevel.4	INTEGER	R/ W	1000	
sdi12g2LogoLevelLv3Rel	sdi12g2LogoLevel.4			EROb	
sdi12g3L0g0LevelLv3Ref	sdi12g3LogoLevel.4			EDUII	
sdi12g1LogoBa	sdi12g1Logo 6	Aggregate			
sdi12g1Log0Bg	sdi12g1Log0.0	Aggregate			
sdi12g2LogoBg	sdi12g2L0g0.0				
sdi12g9LogoBg	sdi12g920g0.0				
sdi12a1BaRef	sdi12a1LogoBa 1	INTEGER	R/W	1	OFF
sdi12g2BgRef	sdi12g120g0Bg.1	INTEGER	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	2	ON
sdi12a3BaRef	sdi12g3LogoBg.1			2	
sdi12q4BqRef	sdi12a4LoaoBa.1				
sdi12q1BqYLevelRef	sdi12a1LoaoBa.2	INTEGER	R/W	100h	Cannot be set.
sdi12g2BgYLevelRef	sdi12g2LogoBg.2		,		
sdi12g3BgYLevelRef	sdi12g3LogoBg.2			EB0h	
sdi12g4BgYLevelRef	sdi12g4LogoBg.2				
sdi12g1BgCbLevelRef	sdi12g1LogoBg.3	INTEGER	R/W	100h	Cannot be set.
sdi12g2BgCbLevelRef	sdi12g2LogoBg.3				
sdi12g3BgCbLevelRef	sdi12g3LogoBg.3			EB0h	
sdi12g4BgCbLevelRef	sdi12g4LogoBg.3				
sdi12g1BgCrLevelRef	sdi12g1LogoBg.4	INTEGER	R/W	100h	Cannot be set.
sdi12g2BgCrLevelRef	sdi12g2LogoBg.4				
sdi12g3BgCrLevelRef	sdi12g3LogoBg.4			EB0h	
sdi12g4BgCrLevelRef	sdi12g4LogoBg.4				

23.4.28 sdi12g*MvBox Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1MvBoxRef	sdi12g1MvBox.1	INTEGER	R/W	1	OFF
				2	ON
sdi12g1MvBoxColorRef	sdi12g1MvBox.2	INTEGER	R/W	1	WHITE
				2	YELLOW
		3	CYAN		
				4	GREEN
				5	BLUE
				6	RED
				7	MAGENTA
				8	BLACK
sdi12g1MvBoxVspdRef	.2g1MvBoxVspdRef sdi12g1MvBox.3 INTEGER R/W	R/W	1	LOW	
				2	MIDDLE
				3	HIGH
sdi12g1MvBoxHspdRef	spdRef sdi12g1MvBox.4 INTEGER R/	INTEGER R/W	R/W	1	LOW
				2	MIDDLE
				3	HIGH
sdi12g1MvBoxVsizeRef	sdi12g1MvBox.5	INTEGER	R/W	1	SIZE 1
				2	SIZE 2
				3	SIZE 3
				4	SIZE 4
				5	SIZE 5
sdi12g1MvBoxHsizeRef	sdi12g1MvBox.6	INTEGER	R/W	1	SIZE 1
				2	SIZE 2
				3	SIZE 3
				4	SIZE 4
				5	SIZE 5

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1AudioG1Ref	sdi12g1Audio.1	INTEGER	R/W	1	OFF
sdi12g2AudioG1Ref	sdi12g2Audio.1			2	ON
sdi12g3AudioG1Ref	sdi12g3Audio.1			-	
sdi12g4AudioG1Ref	sdi12g4Audio.1				
sdi12g1AudioG2Ref	sdi12g1Audio.2	INTEGER	R/W	1	OFF
sdi12g2AudioG2Ref	sdi12g2Audio.2			2	ON
sdi12g3AudioG2Ref	sdi12g3Audio.2			-	
sdi12g4AudioG2Ref	sdi12g4Audio.2				
sdi12g1AudioG3Ref	sdi12g1Audio.3	INTEGER	R/W	1	OFF
sdi12g2AudioG3Ref	sdi12g2Audio.3			2	ON
sdi12g3AudioG3Ref	sdi12g3Audio.3			_	
sdi12g4AudioG3Ref	sdi12g4Audio.3				
sdi12g1AudioG4Ref	sdi12g1Audio.4	INTEGER	R/W	1	OFF
sdi12g2AudioG4Ref	sdi12g2Audio.4			2	ON
sdi12g3AudioG4Ref	sdi12g3Audio.4				
sdi12g4AudioG4Ref	sdi12g4Audio.4				
sdi12g1AudioG5Ref	sdi12g1Audio.5	INTEGER	R/W	1	OFF
sdi12g3AudioG5Ref	sdi12g3Audio.5			2	ON
sdi12g1AudioG6Ref	sdi12g1Audio.6	INTEGER	R/W	1	OFF
sdi12g3AudioG6Ref	sdi12g3Audio.6			2	ON
sdi12g1AudioG7Ref	sdi12g1Audio.7	INTEGER	R/W	1	OFF
sdi12g3AudioG7Ref	sdi12g3Audio.7			2	ON
sdi12g1AudioG8Ref	sdi12g1Audio.8	INTEGER	R/W	1	OFF
sdi12g3AudioG8Ref	sdi12g3Audio.8			2	ON

23.4.29 sdi12g *Audio Group

23.4.30 sdi12g*Lipsync Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
sdi12g1LipsyncRef	sdi12g1Lipsync.1	INTEGER	R/W	1	OFF
sdi12g2LipsyncRef	sdi12g2Lipsync.1			2	ON
sdi12g3LipsyncRef	sdi12g3Lipsync.1				
sdi12g4LipsyncRef	sdi12g4Lipsync.1				

23.4.31 ptp*Mode Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1ModeRef	ptp1Mode.1	INTEGER	R/W	1	ENABLE MASTER
ptp2ModeRef	ptp2Mode.1			2	DISABLE MASTER
				3	SLAVE

23.4.32 ptp*ProfileType Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1ProfileTypeRef	ptp1ProfileType.1	INTEGER	R/W	1	ST2059
ptp2ProfileTypeRef	ptp2ProfileType.1			2	AES67
				3	GENERAL

23.4.33 ptp*ProfileDefault Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1ProfileDefaultRef	ptp1ProfileDefault.1	INTEGER	R/W	0	Set default according to
ptp2ProfileDefaultRef	ptp2ProfileDefault.1				ProfileType.

23.4.34 ptp*Domain Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1DomainRef	ptp1Domain.1	INTEGER	R/W	0 to	
ptp2DomainRef	ptp2Domain.1			255	

23.4.35 ptp*ComminucationMode Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1ComminucationMode	ptp1ComminucationMod	INTEGER	R/W	1	MIXED SMPTE
Ref	e.1			2	MIXED SMPTE w/o NE
ptp2ComminucationMode	ptp2ComminucationMod			3	UNICAST
Ref	e.1			4	MULTICAST

23.4.36 ptp*AnnoumceInterval Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AnnoumceIntervalRef	ptp1AnnoumceInterval.	INTEGER	R/W	1	0.125s 8Hz
ptp2AnnoumceIntervalRef	1			2	0.25s 4Hz
	ptp2AnnoumceInterval.			3	0.5s 2Hz
	1			4	1s 1Hz
				5	2s 0.5Hz
				6	4s 0.25Hz
				7	8s 0.125Hz
				8	16s 0.0625Hz

23.4.37 ptp*SyncInterval Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1SyncIntervalRef	ptp1SyncInterval.1	INTEGER	R/W	1	0.0078s 128Hz
ptp2SyncIntervalRef	ptp2SyncInterval.1			2	0.015s 64Hz
				3	0.0312s 32Hz
				4	0.0625s 16Hz
				5	0.125s 8Hz
				6	0.25s 4Hz
				7	0.5s 2Hz
				8	1s 1Hz
				9	2s 0.5Hz
				10	4s 0.25Hz
				11	8s 0.125Hz
				12	16s 0.0625Hz

23.4.38 ptp*AnnounceTimeout Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AnnounceTimeoutRef	ptp1AnnounceTimeout.	INTEGER	R/W	2 to 10	
ptp2AnnounceTimeoutRef	1				
	ptp2AnnounceTimeout.				
	1				

23.4.39 ptp*Priority1 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1Priority1Ref	ptp1Priority1.1	INTEGER	R/W	0 to	
ptp2Priority1Ref	ptp2Priority1.1			255	

23.4.40 ptp*Priority2 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1Priority2Ref	ptp1Priority2.1	INTEGER	R/W	0 to	
ptp2Priority2Ref	ptp2Priority2.1			255	

23.4.41 ptp*Step Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1StepRef	ptp1Step.1	INTEGER	R/W	1	ONE STEP
ptp2StepRef	ptp2Step.1			2	TWO STEP

23.4.42 ptp*DefaultFrame Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
tp1DefaultFrameRef	ptp1DefaultFrame.1	INTEGER	R/W	2	23.98
ptp2DefaultFrameRef	ptp2DefaultFrame.1			3	24
				4	25
				5	29.97
				6	30
				7	47.95
				8	48
				9	50
				10	59.94
				11	60
				12	71.92
				13	72
				14	100
				15	119.9
				16	120

23.4.43 ptp*DropFrameFlag Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
p1DropFrameFlagRef	ptp1DropFrameFlag.1	INTEGER	R/W	1	ENABLE
ptp2DropFrameFlagRef	ptp2DropFrameFlag.1			2	DISABLE

23.4.44 ptp*ColorFrameId Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1ColorFrameIdRef	ptp1ColorFrameId.1	INTEGER	R/W	1	ENABLE
ptp2ColorFrameIdRef	ptp2ColorFrameId.1			2	DISABLE

23.4.45 ptp*DelayMechanism Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1DelayMechanismRef	ptp1DelayMechanism.1	INTEGER	R/W	1	END TO END
ptp2DelayMechanismRef	ptp2DelayMechanism.1			2	PEER TO PEER

23.4.46 ptp*AmtConfigration1 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration1Ip	ptp1AmtConfigration1.1	IpAddress	R/W	* * * *	Setting the Address

23.4.47 ptp*AmtConfigration2 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration2Ip	ptp1AmtConfigration2.1	IpAddress	R/W	* * * *	Setting the Address

23.4.48 ptp*AmtConfigration3 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration3Ip	ptp1AmtConfigration3.1	IpAddress	R/W	* * * *	Setting the Address

23.4.49 ptp*AmtConfigration4 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration4Ip	ptp1AmtConfigration4.1	IpAddress	R/W	* * * *	Setting the Address

23.4.50 ptp*AmtConfigration5 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration5Ip	ptp1AmtConfigration5.1	IpAddress	R/W	* * * *	Setting the Address

23.4.51 ptp*AmtConfigration6 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration6Ip	ptp1AmtConfigration6.1	IpAddress	R/W	* * * *	Setting the Address

23.4.52 ptp*AmtConfigration7 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration7Ip	ptp1AmtConfigration7.1	IpAddress	R/W	* * * *	Setting the Address

23.4.53 ptp*AmtConfigration8 Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AmtConfigration8Ip	ptp1AmtConfigration8.1	IpAddress	R/W	* * * *	Setting the Address

23.4.54 ptp*AsymmetricDelay Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AsymmetricDelayRef	ptp1AsymmetricDelay.1	INTEGER	R/W	-20000	Delay value (nsec)
				to	
				20000	

23.4.55 ptp*DelayMsgInterval Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1DelayMsgIntervalRef	ptp1DelayMsgInterval.1	INTEGER	R/W	1	0.0078s 128Hz
				2	0.015s 64Hz
				3	0.0312s 32Hz
				4	0.0625s 16Hz
				5	0.125s 8Hz
				6	0.25s 4Hz
				7	0.5s 2Hz
				8	1s 1Hz
				9	2s 0.5Hz
				10	4s 0.25Hz
				11	8s 0.125Hz
				12	16s 0.0625Hz

23.4.56 ptp*AnnounceDesirInt Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AnnounceDesirIntRef	ptp1AnnounceDesirInt.1	INTEGER	R/W	1	0.125s 8Hz
				2	0.25s 4Hz
				3	0.5s 2Hz
				4	1s 1Hz
				5	2s 0.5Hz
				6	4s 0.25Hz
				7	8s 0.125Hz
				8	16s 0.0625Hz

23.4.57 ptp*AnnounceReqdInt Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1AnnounceReqdIntRef	ptp1AnnounceReqdInt.1	INTEGER	R/W	1	0.125s 8Hz
				2	0.25s 4Hz
				3	0.5s 2Hz
				4	1s 1Hz
				5	2s 0.5Hz
				6	4s 0.25Hz
				7	8s 0.125Hz
				8	16s 0.0625Hz

23.4.58 ptp*SyncDesirInt Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1SyncDesirIntRef	ptp1SyncDesirInt.1	INTEGER	R/W	1	0.0078s 128Hz
				2	0.015s 64Hz
				3	0.0312s 32Hz
				4	0.0625s 16Hz
				5	0.125s 8Hz
				6	0.25s 4Hz
				7	0.5s 2Hz
				8	1s 1Hz
				9	2s 0.5Hz
				10	4s 0.25Hz
				11	8s 0.125Hz

23.4.59 ptp*SyncReqdInt Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1SyncReqdIntRef	ptp1SyncReqdInt.1	INTEGER	R/W	1	0.0078s 128Hz
				2	0.015s 64Hz
				3	0.0312s 32Hz
				4	0.0625s 16Hz
				5	0.125s 8Hz
				6	0.25s 4Hz
				7	0.5s 2Hz
				8	1s 1Hz
				9	2s 0.5Hz
				10	4s 0.25Hz
				11	8s 0.125Hz

23.4.60 ptp*DlyMsgDesirInt Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1DlyMsgDesirIntRef	ptp1DlyMsgDesirInt.1	INTEGER	R/W	1	0.0078s 128Hz
				2	0.015s 64Hz
				3	0.0312s 32Hz
				4	0.0625s 16Hz
				5	0.125s 8Hz
				6	0.25s 4Hz
				7	0.5s 2Hz
				8	1s 1Hz
				9	2s 0.5Hz
				10	4s 0.25Hz
				11	8s 0.125Hz
				12	16s 0.0625Hz

23.4.61 ptp*DlyMsgReqdInt Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1DlyMsgReqdIntRef	ptp1DlyMsgReqdInt.1	INTEGER	R/W	1	0.0078s 128Hz
				2	0.015s 64Hz
				3	0.0312s 32Hz
				4	0.0625s 16Hz
				5	0.125s 8Hz
				6	0.25s 4Hz
				7	0.5s 2Hz
				8	1s 1Hz
				9	2s 0.5Hz
				10	4s 0.25Hz
				11	8s 0.125Hz
				12	16s 0.0625Hz

23.4.62 ptp*Bmca Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptp1BmcaRef	ptp1Bmca.1	INTEGER	R/W	1	ENABLE
ptp2BmcaRef	ptp2Bmca.1			2	DISABLE

23.4.63 ptpSystemIpAddress Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptpSystemIpAddressRef	ptpSystemIpAddress.1	IpAddress	R/W	* * * *	PTP ETHERNET IP
					address

23.4.64 ptpSystemSubnetMask Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptpSystemSubnetMaskRef	ptpSystemSubnetMask.	IpAddress	R/W	*.*.*.*	PTP ETHERNET subnet
	1				mask

23.4.65 ptpSystemGateway Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptpSystemGatewayRef	ptpSystemGateway.1	IpAddress	R/W	* * * *	PTP ETHERNET gateway

23.4.66 ptpSystemSwitch Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptpSystemSwitchRef	ptpSystemSwitch.1	INTEGER	R/W	1	FULLY CROSS-LINK
				2	ISOLATED
				3	MIRROR RJ45 TO SFP

23.4.67 ptpSystemSfpSfpp Group

MIB	OID	SYNTAX	ACCESS	VALUE	Description
ptpSystemSfpSfppRef	ptpSystemSfpSfpp.1	INTEGER	R/W	1	SFP
				2	SFP+

23.5 Extended TRAP

• index 1

```
OID : iso(1).org(3).dod(6).internet(1).mib-2(1).system(1).sysUpTime(1).0
Syntax : TimeTicks
Range: 1 to 4294967295 (overflow occurs if this range is exceeded)
Description: Elapsed time after starting the SNMP agent
```

• index 2

```
OID: iso(1).org(3).dod(6).internet(1).snmpV2(6).snmpModules(3).
snmpMIB(1).snmpMIBObjects(1).snmpTrap(4).snmpTrapOID(1).0
Syntax: Object Identifier
Description: Trap identification field
```

• index 3

```
OID :leader(20111).lt4610(36).notification(0).trapStr(2).trapCounter(1).0Syntax :Counter32Range:1 to 4294967295Description:The total number of enterprise traps sent after starting up
```

• index 4

```
OID : leader(20111).lt4610(36).notification(0).trapStr(2).
trapIntTimestamp(2).0
```

```
Syntax : DisplayString(1..20)
```

Range: Up to 20 characters

Description: Date and time of error occurrence

• index 5

OID :	<pre>leader(20111).lt4610(36).notification(0).trapContent(1).error(1).X</pre>
	leader(20111).lt4610(36).notification(0).trapContent(1).normal(2).X

Syntax : STRING

Range: Up to 16 characters

Description: Error information character string

The OID or trapContent(1).error(1).X and error information character string when an error occurs or

the OID of trapContent(1).normal(2).X and error information character string when the error recovers

are sent.

Error Number (*1)	Error Information Character String	Description
1	FAN_STATUS	Fan status error detection
2	GENLOCK_STATUS	Genlock status error detection
3	POWER1_STATUS	Power supply 1 error detection
4	POWER2_STATUS	Power supply 2 error detection
5	GPS_ANTENNA_STATUS	GPS antenna error detection
6	GPS_SIGNAL_STATUS	GPS signal error detection

*1 OID number of error(1) and that of normal(2) of trapContent(1).

24. APPENDIX

24.1 List of Settings

Settings may not be displayed depending on other settings or options. In addition, the available values that you can select and the variable range may vary depending on other settings or options. For details, see the LT 4610 / LT 4611 instruction manual.

24.1.1 GENLOCK Menu

		Factory
Setting	Value	Default
		Value
GENLOCK MODE	INTERNAL / GL FMT-AUTO / GL FMT-MANUAL / GPS / 10MHzCW / PTP	INTERNAL
GENLOCK NTSC	NTSC BB / NTSC BB+REF / NTSC BB+ID / NTSC BB+REF+ID	NTSC BB
GENLOCK PAL	PAL BB / PAL BB+REF	
GENLOCK COMPONENT	525/59.94I / 525/59.94P / 625/50I / 625/50P	
GENLOCK 1125:HD	1125/60I / 1125/59.94I / 1125/50I / 1125/30P / 1125/29.97P /	
	1125/25P / 1125/24P / 1125/23.98P / 1125/24PsF / 1125/23.98PsF	
GENLOCK 750:HD	750/60P / 750/59.94P / 750/50P / 750/30P / 750/29.97P /	
	750/25P / 750/24P / 750/23.98P	
GENLOCK TIMING F	±5	0
GENLOCK TIMING V	±1125	0
GENLOCK TIMING H	±432	0
GENLOCK TIMING FN	±100	0
RECOVERY MODE	AUTO / MANUAL	AUTO
AUTO SETTING	IMMEDIATE / FAST / SLOW	FAST
MANUAL SETTING	IMMEDIATE / FAST /SLOW	IMMEDIATE

24.1.2 BLACK menu

Setting	Value	Factory Default Value
BLK1 NTSC	NTSC BB / NTSC BB+REF / NTSC BB+ID / NTSC BB+REF+ID /	NTSC BB
	NTSC BB+SETUP / NTSC BB+S+REF / NTSC BB+S+ID /	
	NTSC BB+S+R+ID	
BLK1 PAL	PAL BB / PAL BB+REF	
BLK1 COMPONENT	525/59.94I / 525/59.94P / 625/50I / 625/50P	
BLK1 1125:HD	1125/60I / 1125/59.94I / 1125/50I / 1125/30P / 1125/29.97P /	
	1125/25P / 1125/24P / 1125/23.98P / 1125/24PsF / 1125/23.98PsF	
BLK1 750:HD	750/60P / 750/59.94P / 750/50P / 750/30P / 750/29.97P / 750/25P	
	/	
	750/24P / 750/23.98P	
BLK1 TIMING F	±5	0
BLK1 TIMING V	±1124	0
BLK1 TIMING H	±4124	0
BLK1 VITC	ON / OFF	OFF
BLK2 EQUAL TO BLK1	ON / OFF	OFF
BLK3 EQUAL TO BLK1	ON / OFF	OFF
BLK4 EQUAL TO BLK1	ON / OFF	OFF
BLK5 EQUAL TO BLK1	ON / OFF	OFF
BLK6 EQUAL TO BLK1	ON / OFF	OFF

* BLK2, BLK3, and BLK4 to BLK6 (SER21) settings are the same as BLK1 settings.

24.1.3 SDI menu

Setting	Value	Factory Default Value
SDI1 IMAGE	720x487:SD / 720x576:SD / 1280x720:HD / 1920x1080:HD /	1920x1080:HD
	1280x720:3G-A / 1920x1080:3G-A / 1920x1080:3G-B-DL /	
	1920x1080:HD-DL	
SDI1 STRUCTURE	422(YCbCr)10-bit / 422(YCbCr)12-bit / 444(YCbCr)10-bit /	422(YCbCr)10-bit
	444(YCbCr)12-bit / 444(RGB)10-bit / 444(RGB)12-bit	
SDI1 RATE	60I / 59.94I / 50I / 60P / 59.94P / 50P / 30P / 29.97P / 25P /	59.94I
	24P / 23.98P / 30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF	
SDI1 0H TIMING	SERIAL / LEGACY	SERIAL
SDI1 TIMING V	±1124	0
SDI1 TIMING H	±4124	0
SDI1 COLOR BAR	100% / 75% / MULTI 100% / MULTI 75% / MULTI (+I) /	COLOR BAR 100%
	SMPTE / EBU / BBC	
SDI1 MONITOR	FALT FIELD 100% / FLAT FIELD 0% / RED FIELD 100% /	
	GREEN FIELD 100% / BLUE FIELD 100%	
SDI1 SDI	CHECK FIELD	
SDI1 COMPONENT	ON / OFF	All ON
SDI1 SAFETY AREA	ON / OFF	All OFF
SCROLL	ON / OFF	OFF
SCROLL V-SPEED	±256	0
SCROLL H-SPEED	+256	0
PATTERN CHANGE	ON / OFF	OFF
PATTERN CHG SPEED	+1 to +255	+1
	ON / OFF	OFF
	$(1)^{(1)}$	
ID SET	■ : #\$%& () *+, / 0123430789., <=/p> 2@ABCDEECHIIKIMNODODESTIKWYYZ [¥] ^	L14010
	→←	
ID V-POSI	0 to 1079	0
ID H-POSI	0 to 1919	0
ID SIZE	x1 / x2 / x4 / x8	x1
ID LEVEL	100% / 75%	100%
ID BLINK	ON / OFF	OFF
ID BLINK ON TIME	1 to 9	1
ID BLINK OFF TIME	1 to 9	1
ID SCROLL	ON / OFF	OFF
ID SCROLL SPEED	±256	0
LOGO	ON / OFF	OFF
LOGO SELECT	INT 1 to INT 4	INT 1
LOGO V-POSI	0 to 1079	0
LOGO H-POSI	0 to 1919	0
	100 to EB0	100
	100 to EB0	590
	100 to EB0	A20
	100 to EB0	FBO
		OFF
G*/CH* FRFO		
		-20
	-60 to 0	-20
		-20 OFF
GI/CH EQUAL CHI		ULL

24. APPENDIX

Setting	Value	Factory Default Value
G2/CH* EQUAL CH5	ON / OFF	OFF
G3/CH* EQUAL CH9	ON / OFF	OFF
G4/CH* EQUAL CH13	ON / OFF	OFF
G* RESOLUTION	20BIT / 24BIT	20BIT
L-* G* RESOLUTION	20BIT / 24BIT	20BIT
G* EMPHASIS	50/15 / CCITT / OFF	OFF
L-* G* EMPHASIS	50/15 / CCITT / OFF	OFF
G2 EQUAL TO G1	ON / OFF	OFF
G3 EQUAL TO G1	ON / OFF	OFF
G4 EQUAL TO G3	ON / OFF	OFF
SDI1 L-B EQUAL L-A	ON / OFF	OFF
ANC ATC-LTC	ON / OFF	OFF
SDI2 EQUAL TO SDI1	ON / OFF	OFF

* SDI2 settings are similar to the SDI1 settings.

24.1.4 AES/EBU menu

Setting	Value	Factory Default Value
AES/EBU	ON / OFF	ON
AES/EBU CH* FREQ	SILENCE / 400Hz / 800Hz / 1kHz	1kHz
AES/EBU CH* LEVEL	-60 to 0	-20
AES/EBU CH* CLICK	OFF / 1sec / 2sec / 4sec	OFF
CH2 EQUAL TO CH1	ON / OFF	OFF
AES/EBU RESOLUTION	20BIT / 24BIT	20BIT
AES/EBU EMPHASIS	50/15 / CCITT / OFF	OFF
AES/EBU TIMECODE	ON / OFF	OFF
AES/EBU TIMING	±511	0
SILENCE RESOLUTION	20BIT / 24BIT	20BIT
SILENCE TIMING	±511	0

24.1.5 WCLK Menu

Setting	Value	Factory Default Value
WCLK TIMING	±511	0

24.1.6 ETC Menu

Setting	Value	Factory Default Value
LIPSYNC SDI1+AES	ON / OFF	OFF
LIPSYNC SDI2	ON / OFF	OFF
24.1.7 GPS OPTION Menu

Setting	Value	Factory Default Value
LTC	ON / OFF	OFF
FRAME	-23 to 23	0
BIT	-39 to 39	0
LTC2 OFFSET	±23:59:59	+00:00:00
LTC3 OFFSET	±23:59:59	+00:00:00
CW IN/OUT	INPUT / OUTPUT	INPUT
OUTPUT FREQ	CW / 1PPS	CW

24.1.8 12G OPTION menu

Setting		Factory Default	
SDI SYSTEM	126	3840x2160 12G / 4096x2160 12G /	3840x2160 12G
301 3131EM	120	7680x4320 12G(0L)-A (*1)	504072100 120
	3G-A	1280x 720 3G-A / 1920x1080 3G-A /	
		2048x1080 3G-A	
	3G-B-DL	1920x1080 3G-B-DL / 2048x1080 3G-B-DL	
	3G-B-DS Dual	1280x 720 3G-B-DS / 1920x1080 3G-B-DS	
	3G(DL)-A	1920x1080 3G-2K-A / 2048x1080 3G-2K-A	
	3G(DL)-B-DL	1920x1080 3G-2K-B / 2084x1080 3G-2K-B	
	3G(DL)-B-DS	3840x2160 Square / 3840x2160 2Sample /	
		4096x2160 Square / 4096x2160 2Sample	
	3G(QL)-A	3840x2160 Square / 3840x2160 2Sample /	
		4096x2160 Square / 4096x2160 2Sample	
	3G(QL)-B-DL	3840x2160 Square / 3840x2160 2Sample /	
		4096x2160 Square / 4096x2160 2Sample	
	HD	1280x 720 HD / 1920x1080 HD	
	HD (DL)	1920x1080 HD / 2048x1080 HD	-
	HD(QL)	3840x2160 Square / 4096x2160 Square	-
	SD	720x 487 SD / 720x 576 SD	
SDI STRUCTURE	422(YCbCr)10-I	422(YCbCr)10-bit / 422(YCbCr)12-bit / 444(YCbCr)10-bit /	
	444(YCbCr)12-I	bit / 444(RGB)10-bit / 444(RGB)12-bit	
SDI RATE	60P / 59.94P /	60P / 59.94P / 50P / 48P / 47.95P / 30P / 29.97P / 25P /	
	24P / 23.98P /3	24P / 23.98P /30PsF / 29.97PsF / 25PsF / 24PsF / 23.98PsF / 60I /	
	59.94I / 50I		
SDI 1 TIMING V	±1124		0
SDI 1 TIMING H	±4124		0
SDI1 COLOR BAR	100% / 75% / I	MULTI 100% / MULTI 75% / MULTI (+I) /	COLOR BAR 100%
	SMPTE / EBU /	BBC / ARIB STD-B66-2	
SDI1 MONITOR	FLAT FIELD 100	9% / FLAT FIELD 0% / RED FIELD 100% /	
	GREEN FILED 1	00% / BLUE FIELD 100%	
SDI1 SDI	CHECK FIELD		
USER PATTERN 1	POWER ON LOA	AD YES / NO	NO
SDI COMPONENT	ON / OFF		All ON
SDI SAFETY AREA	ON / OFF		All OFF
SCROLL	ON / OFF		OFF
SCROLL V-SPEED	±256		0
SCROLL H-SPEED	±256	±256	
PATTERN CHANGE	ON / OFF		OFF
PATTERN CHG SPEED	+1 to +255		+1
ID CHARACTER	ON / OFF		OFF
ID SET		&' () *+, /0123456789:; <=>	LT4610 ◀
	? @ A B C D E F	GHIJKLMNOPQRSTUVWXYZ[¥]^	
	_→←		

Setting	Value	Factory Default
		Value
ID V-POSI	0 to 4319	0
ID H-POSI	0 to 7679	0
ID SIZE	x1 / x2 / x4 / x8	x1
ID LEVEL	100% / 75%	100%
ID BLINK	ON / OFF	OFF
ID BLINK ON TIME	1 to 9	1
ID BLINK OFF TIME	1 to 9	1
ID SCROLL	ON / OFF	OFF
ID SCROLL SPEED	±256	0
LOGO	ON / OFF	OFF
LOGO SELECT	INT_1 to INT_4	INT_1
LOGO V-POSI	0 to 4319	0
LOGO H-POSI	0 to 7679	0
LOGO LEVEL0	100 to EB0	100
LOGO LEVEL1	100 to EB0	590
LOGO LEVEL2	100 to EB0	A20
LOGO LEVEL3	100 to EB0	EB0
LOGO BACKGND	ON / OFF	OFF
MOVING BOX	ON / OFF	OFF
BOX COLOR	WHITE / YELLOW / CYAN / GREEN / BLUE / RED / MAGENTA /	WHITE
MOVING BOX V-SPEED	LOW / MIDDLE / HIGH	MIDDI F
MOVING BOX H-SPEED		
MOVING BOX V-SIZE	SIZE1 / SIZE2 / SIZE3 / SIZE4 / SIZE5	SI7E2
MOVING BOX H-SIZE	SIZE1 / SIZE2 / SIZE3 / SIZE4 / SIZE5	SIZE2
	ON / OFF	OFF
		OFF
		20011
		OFF
		1kHz
	SILENCE / 400HZ / 800HZ / IKHZ	1KHZ
		-20
	OFF / 1sec / 2sec / 4sec	OFF
	OFF / Isec / 2sec / 4sec	OFF
L-* G*/CH* LEVEL		-20
SDI L-B EQUAL L-A	ON / OFF	OFF
G2 EQUAL TO G1	ON / OFF	OFF
G3 EQUAL TO G1	ON / OFF	OFF
G4 EQUAL TO G3	ON / OFF	OFF
G1/CH* EQUAL CH1	ON / OFF	OFF
G2/CH* EQUAL CH5	ON / OFF	OFF
G3/CH* EQUAL CH9	ON / OFF	OFF
G4/CH* EQUAL CH13	ON / OFF	OFF
12G EQUAL TO SDI 1	ON / OFF	ON
12G EQUAL TO SDI 3	ON / OFF	ON

* SDI2 to SDI4 settings are similar to the SDI1 settings.

*1 7680x4320 12G(QL)-A is displayed when SER24 is installed.

24.1.9 PTP OPTION Menu

• PTP master

Setting		Value		
MODE	ENABLE	ENABLE MASTER / DISABLE MASTER		
			MASTER	
PROFILE TYPE	ST2059 /	AES67 / GENERAL	ST2059	
PROFILE SET DEFAULT	ENTER TO	D DEFAULT	ENTER TO DEFAULT	
DOMAIN	ST2059	0 to 127	PTP1:127	
			PTP2:126	
	AES67	0 to 255	PTP1:0	
			PTP2:0	
	GENER	0 to 255	PTP1:0	
	AL		PTP2:0	
COMMUNICATION	MIXED SI	MPTE / MIXED SMPTE w/o NE / UNICAST / MULTICAST	MIXED SMPTE w/o	
MODE			NE	
ANNOUNCE INTERVAL	ST2059	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz	0.25s 4Hz	
	AES67	1s 1Hz / 2s 0.5Hz /4s 0.25Hz/ 8s 0.125Hz / 16s 0.0625Hz	2s 0.5Hz	
	GENER	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /4s	2s 0.5Hz	
	AL	0.25Hz/ 8s 0.125Hz / 16s 0.0625Hz		
SYNC INTERVAL	ST2059	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	0.125s 8Hz	
		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz		
	AES67	0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz /	0.125s 8Hz	
		1s 1Hz		
	GENER	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /4s	1s 1Hz	
	AL	0.25Hz/ 8s 0.125Hz / 16s 0.0625Hz		
PRIORITY1	0 to 255		128	
PRIORITY2	0 to 255	0 to 255		
STEP	ONE STE	P / TWO STEP	ONE STEP	
DEFAULT FORMAT	23.98 / 2	4 / 25 / 29.97 / 30 / 47.95 / 48 / 50 / 59.94 /	29.97	
	60 / 71.9	60 / 71.92 / 72 / 100 / 119.9 / 120		
DROP FRAME FLAG	ENABLE /	DISABLE	ENABLE	
COLOR FRAME ID	ENABLE /	DISABLE	ENABLE	
DELAY MECHANISM	END TO E	ND / PEER TO PEER	END TO END	

• PTP slave

Setting		Factory Default Value		
MODE				
HODE	DTD2: ENIA			
			MASTER	
PROFILE TYPE	ST2059 / A	ST2059 / AES67 / CENEDAL		
	ENTER TO		ENTER TO DEFAULT	
	ST2059	0 to 127	PTP1·127	
	012000		PTP2:126	
	AES67	0 to 255	PTP1:0	
			PTP2:0	
	GENERAL	0 to 255	PTP1:0	
			PTP2:0	
COMMUNICATION	MIXED SM	PTE / MIXED SMPTE w/o NE / UNICAST / MULTICAST	MULTICAST	
MODE				
ANNOUNCE DESIR INT	ST2059	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz	0.25s 4Hz	
(UNICAST)	AES67	1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s	2s 0.5Hz	
		0.0625Hz		
	GENERAL	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /	2s 0.5Hz	
		4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz		
ANNOUNCE REQD INT	ST2059	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz	2s 0.5Hz	
(UNICAST)	AES67	1s 1Hz / 2s 0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s	16s 0.0625Hz	
		0.0625Hz		
	GENERAL	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /	16s 0.0625Hz	
		4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz		
SYNC DESIR INT	ST2059	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	0.125s 8Hz	
(UNICAST)		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz		
	AES67	0.0625s 16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s	1s 1Hz	
		1Hz / 2s 0.5Hz		
	GENERAL	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	2s 0.5Hz	
		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s		
	070050	0.5Hz / 4s 0.25Hz / 8s 0.125Hz		
SYNC REQUINT	512059	0.00/85 128HZ / 0.0155 64HZ / 0.03125 32HZ / 0.06255	0.55 2Hz	
(UNICAST)	45007			
	AES07	0.06255 16HZ / 0.1255 8HZ / 0.255 4HZ / 0.55 2HZ / 15	25 0.5H	
	GENERAL	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	8c 0 125Hz	
	OLINLIAL	$16H_{7} / 0.125s 8H_{7} / 0.25s 4H_{7} / 0.5s 2H_{7} / 1s 1H_{7} / 2s$	05 0.125112	
		0.5Hz / 4s 0.25Hz / 8s 0.125Hz		
DELAY MSG INTERVAL	ST2059	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	0.125s 8Hz	
(MULTICAST,		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz		
MIXED SMPTE w/o	AES67	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /	1s 1Hz	
NEGTIATION)		4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz		
	GENERAL	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	1s 1Hz	
		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s		
		0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz		
DLY MSG DESIRED INT	ST2059	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	0.125s 8Hz	
(UNICAST,		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz		
MIXED SMPTE)	AES67	0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s 0.5Hz /	0.125s 8Hz	
		4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz		
	GENERAL	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	2s 0.5Hz	
		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s		
	070670	0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz		
DLY MSG REQD INT	512059	U.UU/85 128HZ / U.U155 64HZ / U.U312S 32HZ / 0.0625S	0.5s 2Hz	
(UNICASI,	45007	10ΠZ / U.1255 8HZ / U.255 4HZ / U.55 2HZ	25.0 5115	
ITILAED SPIPTE)	AESO/	0.1235 0HZ / 0.235 4HZ / 0.35 2HZ / 15 1HZ / 25 0.5HZ /	25 0.3112	

Setting	Value		Factory Default Value
		4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz	
	GENERAL	0.0078s 128Hz / 0.015s 64Hz / 0.0312s 32Hz / 0.0625s	8s 0.125Hz
		16Hz / 0.125s 8Hz / 0.25s 4Hz / 0.5s 2Hz / 1s 1Hz / 2s	
		0.5Hz / 4s 0.25Hz / 8s 0.125Hz / 16s 0.0625Hz	
ANNOUNCE TIMEOUT	2 to 10		3
DELAY MECHANISM	END TO END / PEER TO PEER		END TO END
AMT CONFIGURATION	000.000.000 to 255.255.255		000.000.000.000
ASSYMMETRIC DELAY	-20.000 to	-20.000 to 20.000 usec	

24.1.10 SYSTEM Menu

Setting	Value	Factory Default Value
LCD BACKLIGHT	ON / AUTO OFF / OFF	ON
KEY LOCK	ON / OFF	OFF
POWER ON RECALL	OFF / NUMBER 0 to NUMBER 9	OFF
IP ADDRESS	000.000.000 to 255.255.255.255	192.168.000.001
SUBNET MASK	000.000.000 to 255.255.255	255.255.255.000
DEFAULT GATEWAY	000.000.000 to 255.255.255	000.000.000.000
SNMP TRAP	ON / OFF	OFF
SNMP MANAGER IP	000.000.000 to 255.255.255	000.000.000.000
READ COMMUNITY	▲ 0123456789	LDRUser ▲
WRITE COMMUNITY	ABCDEFGHIJKLMNOPQRSTUVWXYZ	LDRAdm ▲
TRAP COMMUNITY	abcdefghijklmnopqrstuvwxyz	LDRUser ▲
PTP IP ADDRESS	000.000.000 to 255.255.255	192.168.000.001
PTP SUBNET MASK	000.000.000 to 255.255.255.255	255.255.255.000
PTP GATEWAY	000.000.000.000 to 255.255.255.255	000.000.000.000
PTP SFP/SFP+	SFP / SFP+	SFP+
PTP PORT RELATION	FULLY CROSS-LINK / ISOLATED / MIRROR RJ45 TO SFP	ISOLATED
DATE&TIME SOURCE	INTERNAL / GPS	INTERNAL
DATE&TIME ADJUST	2000/01/01 00:00:00 to 2099/12/31 23:59:59	Current time
TIMECODE SOURCE	GPS / INTERNAL / LTC0 / VITC / SMPTE ST309 / PTP	INTERNAL
DROP FRAME	ON / OFF	ON
JAM SYNC	ON / OFF	ON
JAM SYNC ADJUST	00:00:00 to 23:59:59	00:00:00
DAYLIGHT SAVING	ON / OFF	OFF
CHANGE DAY	01/01 00:00:00 to 12/31 23:59:00	01/01 00:00:00
TIMECODE OFFSET	±23:59:59	+00:00:00
RETURN DAY	01/01 00:00:00 to 12/31 23:59:00	01/01 00:00:00
SCHEDULED TIME	00:00:00 to 11:59:00 PM	00:00:00
TIMEZONE OFFSET	UTC-12:00 to UTC+12:00	UTC+09:00
ANTENNA POWER	OFF / 3.3V / 5V	OFF
PLATFORM MODE	STATIONARY / AUTOMOTIVE	STATIONARY
EPOCH	SMPTE / TAI	SMPTE
ALARM POLARITY	POSITIVE / NEGATIVE	POSITIVE
POWER1	ENABLE / DISABLE	ENABLE
POWER2	ENABLE / DISABLE	ENABLE
FAN	ENABLE / DISABLE	ENABLE
GENLOCK NO SIGNAL	ENABLE / DISABLE	ENABLE
GENLOCK ST IN SYNC	ENABLE / DISABLE	ENABLE
GPS ANNTENA	ENABLE / DISABLE	ENABLE
GPS PLL	ENABLE / DISABLE	ENABLE
GPS SIGNAL	ENABLE / DISABLE	ENABLE
CW SIGNAL	ENABLE / DISABLE	ENABLE
LTC0 SIGNAL	ENABLE / DISABLE	ENABLE
VITC SIGNAL	ENABLE / DISABLE	ENABLE
PTP1 PORT ATAUS	ENABLE / DISABLE	ENABLE
PTP2 PORT ATAUS	ENABLE / DISABLE	ENABLE
PTP1 LOCK	ENABLE / DISABLE	ENABLE
PTP2 LOCK	ENABLE / DISABLE	ENABLE
ATTENTION	ENABLE / DISABLE	ENABLE
WEB BROWSER	ON / OFF	OFF
FORMAT SETTING	NTSC / PAL	NTSC

24.2 Menu Tree

Menus may not be displayed depending on other settings or options. For details, see the LT 4610 / LT 4611 instruction manual.

24.2.1 STATUS Menu

[STATUS] ▼GENLOCK	L	[GENLOCK] INTERNAL
[STATUS] ¢genlock format	L	[GENLOCK FORMAT] NTSC BB
[STATUS] ¢alarm system	L	[ALARM SYSTEM] FAN
[STATUS] ¢alarm signal	L	[ALARM SIGNAL] GPS
[STATUS] \$ATTENTION GPS SAT	L	[ATTENTION GPS SAT] SAT-NUM 2, CN 15dB
[STATUS] ♦ATTENTION	L	[ATTENTION] LEAP-SECOND
[STATUS] ♦SATELLITE NUMBER	L	[SATELLITE NUMBER] 8 / 11
[STATUS] ¢gps cn	L	[GPS CN] MIN:15 MAX:35 [dB]
[STATUS] ♦ATTENTION PTP1	L	[ATTENTION PTP1] PTP PLL ADJUST
[STATUS] \$ATTENTION PTP2	L	[ATTENTION PTP2] PTP PLL measuring
[STATUS] ¢UTC TIME	L	[UTC TIME] 2018/04/01 12:34:56
[STATUS] ¢local time	L	[LOCAL TIME] 2018/04/01 12:34:56
[STATUS] ^INTERNAL CLOCK	L	[INTERNAL CLOCK] 2018/04/01 12:34:56

24.2.2 INFO Menu



[INF0]	[SDI1 FORMAT]
	[SDI2 FORMAT]
	[SDI2 TIMING] OL OD
[INFO]	[GPS ANTENNA]
[[I N F O] ▲ 1 2 G	[12G 1 FORMAT] 2160 12G/59.94P
	[12G 1 TIMING] 0L 0D
	[12G 2 FORMAT] 2160 12G/59.94P
	[12G 2 TIMING] 0L 0D
	[12G 3 FORMAT] 2160 12G/59.94P
	[12G 3 TIMING] 0L 0D
	[12G 4 FORMAT] 2160 12G/59.94P
	[12G 4 TIMING] OL OD

24.2.3 GENLOCK Menu



24.2.4 BLACK Menu



24.2.5 SDI Menu

0. SDI ▼SDI1 J	1. SDI1 FORMAT J	2. SDI1 FORMAT TIMAGE J	3. SDI1 IMAGE ••*1920x1080:HD
		2. SDI1 FORMAT \$STRUCTURE J	3. SDI1 STRUCTURE ••• 4 2 2 (YCbCr) 10-b i t
		2. SDI1 FORMAT *RATE	3. SD11 RATE +**59. 941
	1. SDI1 TIMING J	2. SDI1 TIMING •OH TIMING	3. SDI1 OH TIMING ■SERIAL □LEGACY
		2. SDI1 TIMING VERTICAL	3. SDI1 TIMING V <u>O</u> LINE
		2. SDI1 TIMING *HORIZONTAL	3. SD11 TIMING H <u>0</u> DOT 0. 0000µs
	1. SDI1 PATTERN J	2. SDI1 COLOR BAR ▼ ▶*100%	
		2. SDI1 MONITOR ♥ ► FLAT FIELD 100%	
		2. SDI1 SDI	
	1. SDI 1	2. SDI1 VIDEO *COMPONENT J	3. SDI1 COMPONENT *■Y/G ■Cb/B ■Cr/R
		2. SDI1 VIDEO \$SAFETY AREA J	3. SD11 SAFETY AREA + 090% 080% 04:3
		2. SDI1 VIDEO \$SCROLL	3. SDI1 SCROLL 4. SCROLL ▼ON/OFF J □ON ■OFF
			3. SDI1 SCROLL 4. SCROLL V-SPEED ♦V-SPEED J <u>0</u> [LINE]
			3. SDI1 SCROLL 4. SCROLL H-SPEED +H-SPEED J <u>0</u> [DOT]
		2. SDI1 VIDEO PATTERN CHANGE J	3. SDI1 PATTERN CHG 4. PATTERN CHANGE
			3. SDI1 PATTERN CHG 4. PATTERN CHG SPEED +SPEED J +1 [SEC]
		2. SDI1 VIDEO • ID CHARACTER J	3. SDI1 ID CHARACTER *ON/OFFON OFF
			3. SDI1 ID CHARACTER 4. ID RECALL PRECALL J + NO DATA INT_1
			3. SDI1 ID CHARACTER 4. ID SET \$SET
			3. SDI1 ID CHARACTER 4. ID V-POSI \$V-POSI
			3. SDI1 ID CHARACTER 4. ID H-POSI +H-POSI <u>0</u> [DOT]
			3. SDI1 ID CHARACTER 4. ID SIZE ♦SIZE J ■x1 □x2 □x4 □x8
			3. SDI1 ID CHARACTER 4. ID LEVEL ♦ LEVEL J ■100% □75%
			3. SDI1 ID CHARACTER 4. ID BLINK 5. ID BLINK ♦BLINK J ▼ON/OFF J □ON ■OFF
			4. ID BLINK ON TIME J 5. ID BLINK ON TIME 1 [SEC]
			4. ID BLINK 5. ID BLINK OFF TIME ^OFF TIME J 1 [SEC]





24.2.6 AES/EBU Menu



24.2.7 WCLK Menu



24.2.8 ETC Menu



24.2.9 GPS OPTION Menu



24.2.10 12G OPTION Menu

0. 12G OPTION *SDI 1	1. SD I 1	2. SDI FORMAT	3. SDI SYSTEM • 12G	4. SDI 12G • * 3840×2160 12G
				4. SDI 12G
				4. SDI 12G (QL) -A • 7680×4320 12G
			3. SDI SYSTEM ♦ 3G J	4. SDI 3G-A •*1280× 720 3G-A
				4. SDI 3G-A • 1920×1080 3G-A
				4. SDI 3G-A ¢ 2048×1080 3G-A
				4. SDI 3G-B-DL 4 1920×1080 3G-B-DL
				4. SDI 3G-B-DL
				4. SDI 3G-B-DS Dual ◆ 1280× 720 3G-B-DS
				4. SDI 3G−B−DS Duai
				4. SDI 3G (DL) - A • 1920×1080 3G-2K-A
				4. SDI 3G (DL) - A • 2048×1080 3G-2K-A
				4. SDI 3G (DL) - B-DL 4 1920×1080 3G-2K-B
				4. SDI 3G (DL) - B-DL 4. 2048×1080 3G-2K-B
				4. SDI 3G (DL) - B-DS 4. 3840×2160 Square
				4. SDI 3G (DL) - B - DS 4. 3840×2160 2Sample
				4. SDI 3G (DL) -B-DS 4. SDI 2G (DL) -B-DS 4. SDI 2G (DL) -B-DS
				4. SD1 3G (DL) = B = DS
LT				
				 4096×2160 Square 4, SDI 3G (QL) – A
				 4096×2160 2Sample 4. SDI 3G (QL) - B-DL
				▲ 4096×2160 2Sample





2. SDI VIDEO ¢LOGO J	3. SDI LOGO ▼ON∕OFF J	4. LOGO □ON ■OFF]	
	3. SDI LOGO ¢SELECT J	4. LOGO SELECT **NO DATA INT_1	_	
	3. SDI LOGO \$V-POSI	4. LOGO V-POSI <u>0</u> [LINE]]	
	3. SDI LOGO ¢H-POSI J	4. LOGO H-POSI <u>0</u> [DOT]]	
	3. SDI LOGO ¢LEVEL J	4. LOGO LEVEL •LEVELO J	5. LOGO LEVELO 10 <u>0</u> h (0%)	
		4. LOGO LEVEL ¢LEVEL1 J	5. LOGO LEVEL1 59 <u>0</u> h (33%)	
		4. LOGO LEVEL ¢LEVEL2 J	5. LOGO LEVEL2 A 2 <u>0</u> h (66%)	-
		4. LOGO LEVEL ALEVEL3	5. LOGO LEVEL3 EB <u>O</u> h (100%)	
	3. SDI LOGO \$BACKGND J	4. LOGO BACKGND ON/OFF	5. LOGO BACKGND DON DOFF	
	3. SDI LOGO ♦COPY USB→INT J	4. LOGO COPY USB→INT NO DATA INT_1	5. LOGO COPY USB→INT →LEADER. Ig 1/1	6. LOGO COPY USB→INT □OK ■CANCEL
	3. SDI LOGO ¢COPY INT→USB J	4. LOGO COPY INT→USB →ALL	5. LOGO COPY INT→USB □OK ■CANCEL	-
	3. SDI LOGO *DELETE J	4. LOGO DELETE →ALL	5. LOGO DELETE DOK CANCEL	-
2. SDI VIDEO ¢MOVING BOX J	3. SDI MOVING BOX ▼ON∕OFF J	4. MOVING BOX		
	3. SDI MOVING BOX \$BOX COLOR	4. BOX COLOR ** WHITE		
	3. SDI MOVING BOX V-SPEED J	4. MOVING BOX V-SPEED *** MIDDLE		
	3. SDI MOVING BOX +H-SPEED J	4. MOVING BOX H-SPEED *** MIDDLE		
	3. SDI MOVING BOX \$V-SIZE	4. MOVING BOX V-SIZE *** SIZE2		
	3. SDI MOVING BOX +H-SIZE	4. MOVING BOX H-SIZE *** SIZE2		
2. SDI VIDEO ¢LIPSYNC J	3. SDI LIPSYNC ON/OFF J	4. SDI 1 LIPSYNC		
2. SDI VIDEO •USER PAYLOAD J	3. SDI USER PAYLOAD ON∕OFF J	4. SDI USER PAYLOAD		



0. 12 G OPTION	1. SDI 2	2. 12G EQUAL TO SDI 1
\$SDI 2	*EQUAL TO SDI 1 J	□ON ■OFF
0. 12G OPTION	1. SDI 3	2.12G EQUAL TO SDI 1
\$SDI 3	*EQUAL TO SDI 1 J	□ON ■OFF
0. 12G OPTION	1. SDI 4	2. 12G EQUAL TO SDI 3
*SDI 4 J	•EQUAL TO SDI 3 J	□ON ■OFF

24.2.11 PTP OPTION Menu

• PTP master



• PTP slave (MIXED SMPTE)



• PTP slave (MIXED SMPTE WITHOUT NEGOTIATION)



• PTP slave (UNICAST)

0. PTP OPTION 1. PTP1 • PTP1 J • MODE	2. PTP1 MODE ↓ ◆ * \$ LAVE↓	
1. PTP1 \$PROFILE TYP	2. PTP1 PROFILE TYPE PE J ↔*ST2059J	
1. PTP1 *DETAIL SET	2. PTP1 DETAIL TING J PROFILE SET DEFAULT	3. PTP1 PROFILE ENTER TO DEFAULT
	2. PTP1 DETAIL \$DOMAIN	3. PTP1 DOMAIN 127
	2. PTP1 DETAIL COMMUNICATION MODEJ	3. PTP1 COMMUNICATION ++*UNICAST
	2. PTP1 DETAIL	3. PTP1 ANC DESIR INT ++* 0. 25s 4Hz
	2. PTP1 DETAIL \$ANNOUNCE REQD INT J	3. PTP1 ANC REQD INT *** 2 s 0. 5Hz
	2. PTP1 DETAIL \$SYNC DESIR INTJ	3. PTP1 SYN DESIR INT ++* 0. 125 s 8 Hz
	2. PTP1 DETAIL \$SYNC REQD INTJ	3. PTP1 SYN REQD INT *** 0. 5 s 2 Hz
	2. PTP1 DETAIL ¢DLY MSG DESIRED INT	3. PTP1 DLY DESIR INT *** 0. 125 s 8 Hz
	2. PTP1 DETAIL ¢DLY MSG REQD INTJ	3. PTP1 DLY REQD INT *** 0.5s 2Hz
	2. PTP1 DETAIL \$ANNOUNCE TIMEOUT _]	3. PTP1 ANNOUNCE TIMEOUT COUNT: 3
	2. PTP1 DETAIL	3. PTP1 DELAY MECH ↔ * END TO END,J
	2. PTP1 DETAIL \$AMT CONFIGURATION.]	3. PTP1 AMT ADDRESS1 4. PTP1 AMT ADDRESS1 \$ 000.000.000 \$ 000.000.000
	2. PTP1 DETAIL \$ASYMMETRIC DELAYJ	3. PTP1 ASYM DELAY 00.000 usec
0. PTP OPTION 1. PTP2 *PTP2 J *MODE	2. PTP2 MODE 	1

• PTP slave (MULTICAST)



24.2.12 SYSTEM menu

0. SYSTEM ▼LCD BACKLIGHT →	1. LCD BACKLIGHT ■ON □AUTO OFF □OFF		
0. SYSTEM ¢key lock	1. KEY LOCK DON DOFF		
0. SYSTEM	1. PRESET	2. RECALL	3. RECALL NUMBER 0
∳PRESET .J	VRECALL	►NUMBER 0	DOK ■CANCEL
	1. PRESET	2. STORE	3. STORE NUMBER 0
	♦STORE J	•NUMBER 0	□OK ■CANCEL
			NUMBER 0 OVER WRITE? Dok E cancel
	1. PRESET ◆POWER ON RECALL →	2. POWER ON RECALL ▶*OFF	
	1. PRESET	2. COPY USB→INT	3. COPY USB→INT ALL
	¢COPY USB→INT ↓	• ALL	□OK ■CANCEL
	1. PRESET	2. COPY INT→USB	3. COPY INT→USB ALL
	◆COPY INT→USB →	• ALL	□OK ■CANCEL
	1. PRESET	2. PRESET DELETE	3. DELETE ALL
	▲DELETE J	• All	DOK CANCEL









24.3 Firmware Update History

This manual is written for the following firmware versions.

LT 4610 : Ver. 4.7 LT 4611 : Ver. 2.2

To view the firmware version, select SYSTEM→VERSION DISPLAY→FIRMWARE.

LT 4610 • Ver. 4.6 [LT 4610] A function to record power failure, fan stop, and a function to record such as interruption of analog video sync signal when the genlock format is analog video sync signal were added to the genlock log item. [LT 4610] Alarm and attention were added to the status item of the web browser. [SER02] S-LOG3 Live HDR Multiformat Color Bar in the archive was changed to Ver1.11. • Ver. 4.4 [SER03] BMCA Enable/Disable function was added. [SER03] When the genlock mode is analog video sync signal, the function to select PTP as the time code source was added. • Ver. 3.9 [SER02] HDR/SDR selection and USER PAYLOAD function were added to the 12G **OPTION** menu. [SER24] LT 4610SER24 (8K) is now supported. • Ver. 3.7 [SER02] For 12G, it was changed to able to set a natural picture to a pattern for each channel. • Ver. 3.6 [SER02] For 12G, it was changed to able to select the pattern for each channel. • Ver. 3.5 [SER03] The function to import PTP time code from VITC (hours, minutes and seconds only) or VITC+SMPTE ST 309 (year, month, day) was added. [SER03] The function to display CLOCK IDENTITY on the panel and web browser was added. • Ver. 3.0 [LT 4610] The web browser software was changed to support LT 4610SER03 (PTP). • Ver. 2.9 [SER02] The transfer speed of a natural picture was increased. • Ver. 2.8 [SER03] LT 4610SER03 (PTP) is now supported. • Ver. 2.3

[LT 4610] The Web browser function was added.

- [LT 4610] An SNMP community name setup function was added.
- [LT 4610] SNMP TRAP OID status was changed.
- [SER02] LT 4610SER02 (12G-SDI) is now supported.
- Ver. 1.3
 - [LT 4610] Output timing switching on the SDI menu was added.
 - [LT 4610] The silence signal resolution and output timing settings on the AES/EBU menu was added.
 - [LT 4610] The default audio output setting on the AES/EBU menu was changed to ON.
 - [LT 4610] The behavior of the instrument when POWER ON RECALL on the SYSTEM menu is set to OFF was changed so that Last Memory is applied.
 - [LT 4610] The serial number display and main version display on the SYSTEM menu is now supported.
 - [SER01] CW output and 1PPS output is now supported.
 - [SER01] The alarms output from LTC IN/OUT is now supported.
 - [SER01] VITC is now supported.

LT 4611

- Ver. 2.1
 - [LT 4611] A function to record power failure, fan stop, and a function to record such as interruption of analog video sync signal when the genlock format is analog video sync signal were added to the genlock log item.
 - [LT 4611] Alarm and attention were added to the status item of the web browser.
 - [SER02] S-LOG3 Live HDR Multiformat Color Bar in the archive was changed to Ver1.11.
 - [SER03] BMCA Enable/Disable function was added.
 - [SER03] When the genlock mode is analog video sync signal, the function to select PTP as the time code source was added.
- Ver. 1.5
 - [SER02] HDR/SDR selection and USER PAYLOAD function were added to the 12G OPTION menu.
 - [SER24] LT 4611SER24 (8K) is now supported.

Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码: LT 4610



此标志适用于在中国销售的电子信息产品,依据2006年2月28日公布的 《电子信息产品污染控制管理办法》以及SJ/T11364-2006《电子信息产品污染 控制标识要求》,表示该产品在使用完结后可再利用。数字表示的是环境保护使 用期限,只要遵守与本产品有关的安全和使用上的注意事项,从制造日算起在数 字所表示的年限内,产品不会产生环境污染和对人体、财产的影响。 产品适当使用后报废的方法请遵从电子信息产品的回收、再利用相关法令。 详细请咨询各级政府主管部门。

部件名称	有毒有害物质或元素 Hazardous Substances in each Part					
Parts	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
实装基板	×	0	0	0	0	0
主体部	×	0	0	0	0	0
液晶显示模组	0	0	0	0	0	0
开关电源	×	0	0	0	0	0
风扇	×	0	0	0	0	0
外筐	×	0	0	0	0	0
线材料一套	×	0	0	0	0	0
附件	×	0	0	0	0	0
包装材	0	0	0	0	0	0
电池	0	0	0	0	0	0
选件						
4610SER01	×	0	0	0	0	0

产品中有毒有害物质或元素的名称及含量

备注)

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 规定的限量要求以下。

×:表示该有毒有害物质或元素至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。

Ver.1

Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码: LT 4611



此标志适用于在中国销售的电子信息产品,依据2006年2月28日公布的 《电子信息产品污染控制管理办法》以及SJ/T11364-2006《电子信息产品污染 控制标识要求》,表示该产品在使用完结后可再利用。数字表示的是环境保护使 用期限,只要遵守与本产品有关的安全和使用上的注意事项,从制造日算起在数 字所表示的年限内,产品不会产生环境污染和对人体、财产的影响。 产品适当使用后报废的方法请遵从电子信息产品的回收、再利用相关法令。 详细请咨询各级政府主管部门。

部件名称	有毒有害物质或元素 Hazardous Substances in each Part					
Parts	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
实装基板	×	0	0	0	0	0
主体部	×	0	0	0	0	0
液晶显示模组	0	0	0	0	0	0
开关电源	×	0	0	0	0	0
风扇	×	0	0	0	0	0
外筐	×	0	0	0	0	0
线材料一套	×	0	0	0	0	0
附件	×	0	0	0	0	0
包装材	0	0	0	0	0	0
电池	0	0	0	0	0	0
选件						
4610SER01	×	0	0	0	0	0
4610SER02	×	0	0	0	0	0
4610SER03	×	0	0	0	0	0

产品中有毒有害物质或元素的名称及含量

备注)

〇:表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 规定的限量要求以下。

×:表示该有毒有害物质或元素至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。

Ver.2
Contact Us

Head office Sales Department Tel 81-45-541-2123 Email **sales@leader.co.jp**

Fax 81-45-541-2823

Leader Electronics Corporation

2-6-33 Tsunashimahigashi , Kohoku-ku , Yokohama-shi , Kanagawa , 223-8505 , Japan

www.leader.co.jp