

LT 4100

SYNC GENERATOR
INSTRUCTION MANUAL

LEADER

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

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.

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

GENERAL SAFETY SUMMARY

Display Description

	Indicate serious danger to personnel or damage to the instrument.
	Indicates information that if ignored could lead to death or serious injury.
	Indicates information that if ignored could lead to personal injury or damage to the instrument.

Warnings



- Do not remove the product case.
- Do not use this instrument in an environment where flammable gasses, explosive gasses, or steam is emitted or stored.
- Do not insert foreign materials, such as metal and flammable objects, through the vents or allow liquid to enter the instrument.
- If you notice smoke, fire, a strange smell, or something else that is wrong with the product while you are operating it, stop operation immediately.
- If you notice smoke, fire, a strange smell, or something else that is wrong with the product while you are operating it, stop operation immediately.
- Do not use a power source with a voltage other than the rated power source voltage for the instrument.
- If the power fuse blows, remove the power plug from the outlet, and replace the fuse with the identical rated fuse.
- Ground the ground terminal before use.

Notes



- Do not short or apply external voltage to the output connectors.
- If you will not use the instrument for an extended period of time, remove the power plug from the outlet.

Operating Precautions

- The product may be damaged if it is dropped or otherwise exposed to a strong shock.
- Electronic components can be damaged by static discharge.
- If you are mounting this instrument on a rack, be sure to provide additional support for the instrument. If you only use the included rack supports to mount the instrument, the instrument case may be deformed, or the instrument may fall.
- 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.

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 instrument. If liquid or a metal object enters into the instrument, fire or electric shock may result.

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.

Chinese RoHS

Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码: LT 4100

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。

产品中有毒有害物质或元素的名称及含量							
部件名称 Parts	有毒有害物质或元素 Hazardous Substances in each Part						
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)	
安装基板	×	○	○	○	○	○	○
主体部	×	○	○	○	○	○	○
开关电源	×	○	○	○	○	○	○
外筐	○	○	○	○	○	○	○
线材料一套	×	○	○	○	○	○	○
附件	○	○	○	○	○	○	○
包装材	○	○	○	○	○	○	○

(备注)
○: 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

SPECIFICATIONS

General

The LT 4100 is a signal generator that outputs HD or SD SDI signals and six analog black signals.

Features

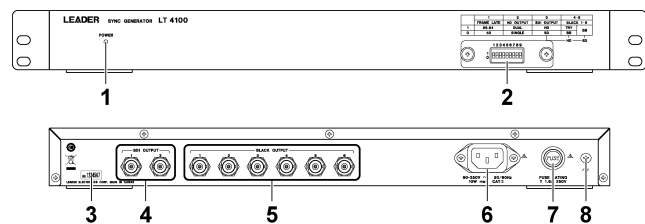
- Both HD (four formats) and SD (two formats) are supported.
- The LT 4100 can embed eight channels (four channel × two groups) of audio signals.
- Equipped with six black signal outputs. The LT 4100 can output black burst signals at the same frame frequency as the SDI output signal or tri-level sync signals.

Specifications

SDI Video Output Specifications	HD	SMPTE ST 274, ST 292, ST 352, ST 372
	SD	ITU-R BT.601, SMPTE ST 125, ST 259
Output Signal	HD	1080i/59.94, 1080i/50, 1080p/59.94 (4:2:2 DUAL LINK), 1080p/50 (4:2:2 DUAL LINK)
	SD	525i/59.94, 625i/50
Outputs		2 outputs (HD/SD switching)
Output Impedance		75 Ω
Output Connector		BNC
Output Pattern	1080i, 1080p	ARIB STD-B28 color bar
	525i	SMPTE EG 1:1990 color bar
	625i	ITU-R BT.471 color bar
Embedded Audio		
Number of Channels		8 channels (4 channels × 2 groups)
Sampling Frequency		48 kHz sampling (synced with the video signal)
Resolution	HD	24 bits
	SD	20 bits
Pre-emphasis		OFF
Frequency		1 kHz sine wave
Level		-20 dB
SDI Signal		
Bit Rate		1.485 Gbps, 1.485/1.001 Gbps, 270 Mbps
Output Amplitude		800 mVp-p ± 10%
Overshoot		≤ 10%
Rise and Fall Times	HD	≤ 270 ps (20 to 80%)
	SD	0.4 to 1.5 ns (20 to 80%)
Return Loss		≥ 15 dB (5 M to 1.485GHz)
Alignment Jitter	HD	≤ 134.8 ps
	SD	≤ 0.74 ns
Timing Jitter	HD	≤ 674 ps
	SD	≤ 0.74 ns
• Analog Black Output Specifications		
NTSC, PAL Black Burst Signal		ITU-R BT.470-6
Tri-Level Sync Signal		SMPTE ST 274, ITU-R BT.709
Output Signal		Black burst signal, tri-level sync signal
Outputs		6
Output Impedance		75 Ω
Output Connector		BNC
Sync Signal		
Amplitude	Tri-level, PAL	300 ± 20 mV
	NTSC	286 ± 20 mV
Blanking interval		0 ± 30 mV
Setup		0%

Rise and Fall Times		
Tri-level		54 ± 20 ns
NTSC		140 ± 50 ns
PAL		200 ± 50 ns
Burst Amplitude		
NTSC		286 mVp-p ± 20 mV
PAL		300 mVp-p ± 20 mV
SCH		0 ± 10 °
Sync Jitter		≤ 8 ns
• Internal Clock		
Internal Reference Frequency		27 MHz
Frequency Accuracy		±2.5 ppm (20 to 30 °C)
• General Specifications		
Environmental Conditions		
Operating Temperature		0 to 40 °C
Operating Humidity Range		90 %RH or less (no condensation)
Optimal Temperature		10 to 35 °C
Optimal Humidity		85 %RH or less (no condensation)
Operating Environment		Indoors
Elevation		Up to 2,000 m
Overvoltage Category		II
Pollution Degree		2
Power Supply		90 to 250 VAC, 50/60 Hz, 10 W max.
Dimensions		426 (W) × 44 (H) × 400 (D) mm (excluding protrusions)
Weight		4.2 kg (excluding accessories)
Accessories		Power cord..... 1 Rack supports 2 Rack support mounting screws 6 Instruction manual..... 1

PANEL DESCRIPTION



No.	Name	Description
1	POWER	Lights when the power is turned on.
2	DIP switch	Sets the output signals.
3	Serial number label	The serial number is printed on this label.
4	SDI OUTPUT 1, 2	SDI signal output connectors.
5	BLACK OUTPUT 1 to 6	Tri-level sync and BB signal output connectors.
6	AC inlet	-
7	FUSE	Contains the fuse.
8	Ground terminal	Connect to ground.

DIP SWITCH DESCRIPTION

Pin	Description	1	0
1	Select the frame frequency.	59.94	50
2	Select the link format of HD-SDI output.	DUAL	SINGLE
3	Select the SDI output format.	HD	SD
4	Select the signal format for black output 1 to 6 for when the SDI output is HD.	TRI	BB
9	When the SDI output is SD, the format is fixed to BB.		

