LEADER

LV 7380 MULTI SDI RASTERIZER

LV 7380SER01 3D ASSIST

INSTRUCTION MANUAL

LEADER
ELECTRONIC MEASURING INSTRUMENTS

TABLE OF CONTENTS

GENERAL SAFETY SUMMARY

■ 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 a person without sufficient knowledge of electronics uses this instrument, it may be damaged, and the user may be injured. Such a person should not use this instrument unless they are supervised by a person who does possess such knowledge.

■ 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> 	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> 	Ignoring the precautions that this term indicates could lead to death or serious injury.
<Term> 	Ignoring the precautions that this term indicates could lead to personal injury or damage to the instrument.

GENERAL SAFETY SUMMARY

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.

■ Warnings Concerning the Power Source

Because the instrument runs off of a DC supply, use the included AC adapter.
Using a non-specified type of adapter could damage the instrument and lead to fire.

■ 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 gasses, explosive gasses, 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
  If foreign materials, such as metal, flammable objects, or liquid are allowed into the instrument (through the vents for example), fire, electric shock, damage to the instrument, or some other accident may result.

GENERAL SAFETY SUMMARY

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

■ 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 AC adapter from the instrument. After making sure that fire has not spread anywhere, contact your local LEADER agent.

■ 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.
Also, do not apply signals 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 AC adapter from the instrument and the power plug from the outlet.

GENERAL SAFETY SUMMARY

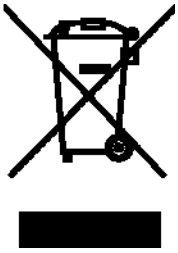
- Calibration and Repairs

  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.
  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.

- 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. (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 an instrument 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 Operating Precautions

1.2.1 Maximum Allowable Input Voltage

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

Table 1-1 Maximum allowable input voltage

Input Connector	Maximum Allowable Input Voltage
SDI INPUT A, SDI INPUT B	±2V (DC + peak AC)
AES/EBU INPUT	±5V (DC + peak AC)
EXT REF	±5V (DC + peak AC)
REMOTE	0 to +5 V

1.2.2 Shorting and Applying External Input to the Output Connectors

Do not short the output connectors. Doing so may damage the instrument.
Do not apply an external signal to the output connectors. Doing so may damage the instrument and devices that are connected to it.

1.2.3 Backup Battery

If the backup battery runs out, the LV 7380 exhibits the following behavior. If this happens, contact your local LEADER agent.
• The last memory feature is disabled.
• The clock is initialized.
• The contents of all presets are deleted.

To continually use these features, we recommend that you replace the backup battery with a new one every five years after you purchase the LV 7380. Also, save the presets to USB memory.
You cannot replace the backup battery yourself. Contact your local LEADER agent.

1.2.4 Mechanical Shock

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

1.2.5 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 the instrument, short the core wire of the cable with the external conductor.

1.2.6 Rack Mounting

If you are mounting this instrument on a rack, be sure to provide additional support for the instrument. If you only use the flanges on the front panel to mount the instrument, the instrument case may be deformed, or the instrument may fall.
This instrument can be mounted on an EIA 19-inch rack.

1.2.7 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.

2. SPECIFICATIONS

2.1 General

The LV 7380 is a 1U, full rack rasterizer that displays video signal waveforms, vectors, and pictures of HD-SDI and SD-SDI signals on an external LCD monitor. The LV 7380 has a variety of useful features such as audio signal displays that include the Lissajous and level meter displays of embedded audio, simultaneous display of two SDI signals, and screen captures that can be saved to USB memory. In addition, gamut errors can be displayed over the picture.
SDI signals that are received through channels A and B can be reclocked and transmitted from the OUTPUT A/B and OUTPUT B connectors with a press of one of the INPUT keys.
There is also a factory option that enables the display of eye patterns of SDI signals.
All these features are packed in a small unit that is only 250 mm deep. This small size makes the LV 7380 useful in any video production or monitoring site, especially those in which the space available for video monitoring is limited.

2.2 Features

- **Two Serial Digital Inputs and Outputs**

  The LV 7380 is equipped with two SDI inputs. This enables the LV 7380 to receive two different SDI signals and to receive a single signal in dual link mode. The LV 7380 can also generate a serial reclocked SDI signal for each SDI signal that it receives.
  SDI signals that are received through channels A and B can be reclocked and transmitted from the OUTPUT A/B and OUTPUT B connectors with a press of one of the INPUT keys.

- **Waveform Display**

  The video signal waveform display has gain, sweep, and cursor measurement features, along with RGB and pseudo-composite display features. In addition to video signal waveforms, the LV 7380 can also display vectors and display the Lissajous curves of embedded audio.

- **5 Bar Display**

  The 5 bar display enables the simultaneous monitoring of component and composite gamut.

- **Versatile Picture Display**

  The LV 7380 uses fully digital waveform display processing to achieve high precision and versatility. The display has a number of adjustment features such as brightness adjustment, contrast adjustment, gain adjustment, bias adjustment, and aperture adjustment. It also has monochrome, chroma-up, gamut-error, and safety-marker display features. The LV 7380 is also standard equipped with CINELITE II, a convenient tool for adjusting the lighting during filming.

- **DVI-I**

  The screen image is displayed in XGA resolution (the effective resolution is 1024x768). The supported DVI-I output signals are single-link TMDS and analog RGB.

- **Multi-Screen Display and 2-Channel Simultaneous Display**

  The LV 7380 has a multi-screen display that can display a video signal waveform and a picture at the same time and a multi-screen display that can display vectors and an audio level meter in addition to the waveform and picture. It also has a multi-screen display that can display two SDI signals simultaneously.

- **Histogram Display**

  The Y, R, G, and B histograms can be displayed side by side or on top of each other. When the 3D assist display (option) is in use, the video signal for the left eye and the video signal for the right eye can be displayed on top of each other.

- **Screen Capture**

  The display can be captured and stored as still-image data. Not only can captured data be displayed by the LV 7380, but it can also be compared with an input signal or saved to USB memory as bitmap data. The saved bitmap data can then be viewed on a PC.

- **Status Display**

  The status display can display the SDI signal's error count and error log, a data dump, and the phase difference between an external sync signal (a tri-level sync signal or an NTSC or PAL black burst signal) and the SDI signal.

- **Error Detection**

  SDI signal errors, such as HD-SDI signal CRC errors and SD-SDI signal EDH errors, and various errors related to embedded audio signals and ancillary data can be detected.

- **ANC Data Analysis**

  Various types of ancillary data are supported, and their analyses can be displayed.

- **Time Code Display**

  LTC or VITC time codes can be displayed.

- **ID Display**

  IDs can be assigned to input channels. IDs are entered from the LV 7380 panel.

- **Equivalent Cable Length Measurement Feature**

  The LV 7380 converts the SDI signal attenuation to a cable length and displays the result.

- **Closed Caption Data Display**

  The LV 7380 can display the closed caption data embedded in an SDI signal in one of the following formats over the picture display. It can analyze and display status and control information.
  • CEA/EIA-608-B closed caption data in CDP packets that are defined by EIA-708-B
  • CEA/EIA-608-B closed caption data
  • VBI (CEA/EIA-608-B line 21) closed caption data

- **Display Mode Switch Keys**

  Keys are assigned to the different displays, such as the video signal waveform display, the vector display, and the picture display, and this makes it easy to quickly switch between different displays. Also, because all the keys are back-lit, it's easy to operate the LV 7380 in extremely dark locations.

- **Audio Display**

  An embedded audio signal can be separated from the SDI signal that it is embedded in, and level meters, Lissajous curves, and surround displays for the audio signal can be displayed. Level meters can also be shown on the loudness display. Additionally, the LV 7380 has four AES/EBU I/O connectors (for a total of eight channels). The audio data from these connectors can be output in stereo from the headphone jack.

- **Preset Feature**

  The LV 7380 can remember up to 30 frequently used setting configurations. It can also remember up to five setting configurations each for the video-signal-waveform, vector, picture, audio, status, and eye-pattern displays (the eye-pattern display is optional). When you use an individual setting configuration for a particular display, the settings for the other displays are not affected.

- **Last Memory**

  The LV 7380 backs up the current settings so that you can use the same settings that were previously in use immediately after powering the instrument up.

- **External Remote Control Connector**

  Presets can be loaded from the external remote control connector. A part of the connector can be made to support tallying, which makes it possible to display tally indications on the screen.

- **Key Lock**

  The key lock feature is useful in preventing mistaken changes to the settings and accidental operations on the LV 7380.

- **SHORT CUT Key**

  The front panel SHORT CUT key can be used to switch, with a single key press, to a screen that has been configured in advance. This key can also be set to enable the saving of the screen capture to USB memory with a single key press.

- **Ethernet Port**

  The LV 7380 can be controlled remotely from a PC or other device, and error notifications can be sent over an Ethernet connection.

- **Eye Pattern Display Option (LV 58SER02, factory option)**

  As a factory option, the LV 58SER02 Eye Pattern Unit for the LV 5800 series can be installed in the LV 7380. This enables the LV 7380 to display eye patterns and perform jitter measurements. For the eye pattern display, either input channel A or B can be used. (The jitter output connector cannot be used.)

- **3D Assist Option (LV 7380SER01, requires a license key)**

  The LV 7380 makes it possible to perform 3D video signal evaluation on the signals that it receives: the video signal for the left eye and the video signal for the right eye separately as well as side-by-side signals or top-and-bottom signals, which contain the video signals for both eyes. The available picture display formats include anaglyph, convergence, overlay, checker, wipe, and flicker.

2.3 Specifications

2.3.1 Video Signal Formats and Standards

Supported Formats of Dual Link System Video Signals and Corresponding Standards (*1)

Color System	Quantization (*2)	Scanning	Frame (Field) Rates	Corresponding Standard
GBR (4:4:4)	10 bit	1080p	30/29.97/25/24/23.98	SMPTE 372 (1920x1080)
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
	12 bit	1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
YC_BC_R (4:2:2)	10 bit	1080p	60/59.94/50	
	12 bit	1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
GBR (4:4:4; 2K)	12 bit	1080p	24/23.98	(2048x1080)
		1080PsF	24/23.98	

Supported Formats of Single Link System Video Signals and Corresponding Standards

Color System	Quantization (*2)	Scanning	Frame (Field) Rates	Corresponding Standards
YC_BC_R (4:2:2)	10 bit	1080i	60/59.94/50	SMPTE 274M SMPTE 292
		1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		720p	60/59.94/50/ 30/29.97/25/24/23.98	SMPTE 296M SMPTE 292
		525i	59.94	SMPTE 259M
		625i	50	

Supported Formats of 3D Assist System Video Signals

Color System	Quantization (*2)	Scanning	Frame (Field) Rates
YC_BC_R (4:2:2)	10 bit	1080i	60/59.94/50
		1080p	30/29.97/25/24/23.98
		1080PsF	30/29.97/25/24/23.98
		720p	60/59.94/50/ 30/29.97/25/24/23.98

Format Settings	
Link Format Switching	Manually switched between single and dual link
Format Setting	
Single Link	Automatic or manual switching
Dual Link	Manual switching. Only frame and field rates can be set automatically.

*1 When these signals are displayed, phase differences of up to 100 clocks (approx. 1.4 µs) between links A and B are automatically corrected.
If links A and B are not synchronized, the various error detection features that are shown on the status display do not operate correctly.

*2 The picture display bit depth is 8 bits.

2.3.2 Audio Playback

Compliant Standards	
HD-SDI	SMPTE-299
SD-SDI	SMPTE-272M
Quantization	24 bits
Clock Generation	Generated from the video clock
Synchronization	All audio channels must be synchronized to the video clock.
Channel Separation	2 groups (from the same SDI input signal) of 8 channels are selectable.

2.3.3 Input/Output Connectors

SDI Input	
Input Connector	2 BNC connectors
Single Link	2 connections (channels A and B)
Dual Link	1 connection (link A or B)
Input Impedance	75 Ω
Input Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency
Maximum Input Voltage	±2V (DC + peak AC)
SDI Output	
Output Connector	2 BNC connectors Reclocks and transmits the input signal
Single Link	1 connection (channel A or B) + 1 connection (fixed to channel B)
Dual Link	1 connection (link A or B)
Output Impedance	75 Ω
Output Voltage	800 mVp-p ± 10 %
Output Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency
External Sync Input(*1)	
Input Signal	Tri-level sync or NTSC/PAL black burst signal
Input Connector	1 pair of BNC connectors
Input Impedance	15 kΩ passive loop-through
Input Return Loss	≥ 30 dB for 50 kHz to 30 MHz
Maximum Input Voltage	±5V (DC + peak AC)

Audio Input/Output

Input/Output Connectors	4 BNC connectors (8 channels)
I/O Impedance	75 Ω
Maximum Input Voltage	±5V (DC + peak AC)
Output Voltage	1.0 Vp-p ± 10 % (into 75 Ω)
Supported Format	AES/EBU
Sampling Frequency	Only 48 kHz is supported.
Input/Output Switching	Use the menu to select whether the connectors are used as AES/EBU input connectors or as AES/EBU output connectors that are separated from the SDI signal.

Headphone Output

Output Signal	Separate any two channels of audio signals that are embedded in the SDI signal and output them (in sync with the video signal) or output the audio that is being received through the audio input connector.
Sampling Frequency	Only 48 kHz is supported.
Output Connector	One stereo jack (6.3 mm in diameter)
Volume Adjustment	VOLUME knob
Power Output	Maximum 100 mW (into 8 Ω load resistance)

DVI-I Connector

Signal Format	Single-link TMDS, analog RGB
Display Format	XGA. The effective resolution is 1024 x 768.
DDC	Not supported
HOT PLUG Detection	Not supported
Output Connector	One DVI-I connector

*1 If the video signal waveform is displayed using an external sync signal as reference, inserting or removing an SDI signal or restarting the device may cause the waveform phase to be off by one clock.
1080p/60, 1080p/59.94, and 1080p/50 signals cannot be displayed using an external signal.

2.3.4 Control Connectors

USB Port

Standard	USB 2.0
Media	Only USB memory devices are supported.
Function	Used to save screen captures, event logs, preset data, and data dumps

Ethernet Port

Compliant Standard	IEEE 802.3
Supported Protocols	TELNET, FTP, SNMP
Input/Output Connector	RJ-45
Function	Used to control the LV 7380 from a PC and monitor errors and other events
Type	10Base-T/100Base-TX

Remote Control Connector	
Function	Used to recall preset settings, display tally indications, switch input channels, and transmit the alarm signal.
Control Signal	LV-TTL level (low active)
Input Voltage Range	0 to 5 VDC
Control Connector	25-pin D-sub (female)

2.3.5 Screen Capture

Function	Captures the screen
Display	Displays the captured image or superimposes the captured image over the input signal
Media	Internal memory (RAM) and USB memory You can only record one screen capture to the internal memory.
Data Output	Screen captures can be saved as bitmap files to USB memory, or they can be saved in a file format that the LV 7380 can load.
Data Input	Data saved to USB memory can be loaded and displayed on the LV 7380.

2.3.6 Preset Settings

Comprehensive Presets	Saves all panel operation configurations to memory
Display Mode Presets	Only saves the configuration of a particular display mode to memory
Target	Picture, video signal waveform, vector, audio, status, eye pattern (optional)
Number of Presets	
Comprehensive Presets	30
Display Mode Presets	Five for each display mode
Recall Method	Front panel, remote control connector,(*1) Ethernet command
Copying	Copies all preset configurations to or from USB memory

*1 The number of presets recalled from the remote control connector can be 8 or 30. (All presets are recalled at once.)

2.3.7 Display Formats

Display Format	XGA (effective resolution: 1024 × 768). In 16:9 and 16:10 modes, the LV 7380 output can be displayed on 16:9 and 16:10 LCD panels, respectively. (Only if the LCD panel has a resolution conversion feature).
Display Screen	
Single-Screen Display	Video-signal-waveform, vector, picture, audio, status, and eye-pattern displays (the eye pattern display is optional).
Multi-Screen Display	Video signal waveform display + picture display, video signal waveform display + picture display + vector display, video signal waveform display + picture display + vector display + audio display
Quad-Screen Display	Video-signal-waveform, picture, vector, audio, status, and eye-pattern (optional) modes can be selected for each of the four areas of the display
2-Channel Simultaneous Display	Video signal waveform display + picture display, video signal waveform display + vector display
Thumbnail Display	Picture, audio-meter, and video-signal-waveform(*1) displays (with a display on/off feature)

*1 The video signal waveforms can only be displayed when the display mode is set to picture.

2.3.8 Video Signal Waveform Display

Waveform Operations	
Display Modes	
Overlay	Overlays component signals
Parade	Displays component signals side by side
Blanking Interval	H and V blanking periods can be masked
RGB Conversion	Converts a Y,C_B,C_R signal into an RGB signal and displays the result YRGB and RGB signals can be displayed side by side
Pseudo-Composite Display	Artificially converts component signals into composite signals and displays the result Composite signals and RGB signals can be displayed side by side
Channel Assignment	On the RGB conversion display, the order can be set to GBR order or RGB order.
Line Select	Displays the selected line
Sweep Modes	H, V(*1)
Vertical Axis	
Gain	×1, ×5
Variable Gain	×0.2 to ×2.0
Amplitude Accuracy	≤ ±0.5 %

HD Frequency Characteristics	
Y Signal	≤ ±0.5 % for 1 to 30 MHz
C_B,C_R Signals	≤ ±0.5 % for 0.5 to 15 MHz
Low-Pass Attenuation	≥ 20 dB (at 20 MHz)
SD Frequency Characteristics	
Y Signal	≤ ±0.5 % for 1 to 5.75 MHz
C_B,C_R Signals	≤ ±0.5 % for 0.5 to 2.75 MHz
Low-Pass Attenuation	≥ 20 dB (at 3.8 MHz)
Horizontal Axis	
Line Display	×1, ×10, ×20, ACTIVE, BLANK
Field Display	×1, ×20, ×40
Cursor Measurement	
Composition	
Horizontal Cursors	2 (REF and DELTA)
Vertical Cursors	2 (REF and DELTA)
Amplitude Measurement	%, V, R%
Time Measurement	sec
Frequency Display	Computes and displays the frequency with the length of one period set to the time between two cursors
Scale	
Type	% scale, V scale, digital scale
Display Color	7 colors to choose from
Marker	
75% Color Bar Marker	Displays a marker that indicates the C_BC_R signal peak when a 75 % intensity color bar signal is applied
User Marker	Displays up to two markers at the specified locations
Thumbnail Display	Displays the picture and the audio meter

*1 When the 2-channel simultaneous display is in use, the V sweep cannot be displayed.

2.3.9 Vector Display

Gain	×1, ×5, IQ-MAG
Variable Gain	×0.2 to ×2.0
Amplitude Accuracy	≤ ±0.5 %
Blanking Interval	Masked (*1)
Scale	
Type	75 %, 100 % (color bar)
IQ Axis	Show or hide
Display Color	7 colors to choose from
Line Select	Displays the selected line
Pseudo-Composite Display	Artificially converts component signals into composite signals and displays the result
Thumbnail Display	Displays the picture and the audio meter

*1 On the multi-screen display, the blanking period depends on the video signal waveform display's blanking display settings.

2.3.10 5 Bar Display

Function	Displays the peak levels of Y, R, G, B and composite
Channel Assignment	RGB, GBR
Scale	mV, %
Error Level	Based on gamut error level, composite gamut error level and luminance error level settings
Line Select	Displays the selected line
Filter	1 MHz, 2.8 MHz, OFF (removes transient errors)
Thumbnail Display	Displays the picture and the audio meter

2.3.11 Picture Display

Image Quality Adjustment	Brightness, contrast, gain, bias, aperture
Display Sizes	Fit, full frame, real, 4:3 full screen
Color Selection	R, G, and B can be turned off separately. Chroma gain and monochrome displays are available.
Frame Rate	The frame rate is converted and displayed using the internal sync signal.
Aspect Marker	4:3, 13:9, 14:9, 16:9, 2.39:1
Aspect Marker Format	Line, shadow (99 levels), black
Safety Marker Size	ARIB TR-B4, SMPTE RP-218, user-defined
Line Select	Marks the selected line
AFD Display	Displays abbreviations for SMPTE 2016-1-2007 standard AFD codes
Gamut Error Display	Displays gamut error locations over the picture
Superimpose	Displays EIA-608 closed captions over the picture
Compliant Standards	SMPTE 334M and CIA/EIA-608-B
CINELITE Display	Displays the luminance information on the picture screen
Thumbnail Display	Displays video signal waveforms and the audio meter

2.3.12 Audio Display

Monitored Source	The audio signal received through an AES/EBU input on the rear panel or the embedded audio in an SDI signal
Lissajous Display	
Displayed Channels	Two (single), eight (multi)
Display Mode	X-Y, MATRIX
Surround Display	
Channel Mapping	L, R, C, LFE, Ls, Rs, Lt, Rt
Surround Formats	NORMAL, PHANTOM C

Level Meter Display(*1)	
Displayed Channels	Two, eight
Dynamic Range	-60 dBFS, -90 dBFS
Meter Response Model	TRUE PEAK, PPM type I, PPM type II, VU, LOUDNESS
Peak Hold Response Model	TRUE PEAK, PPM type I, PPM type II
Peak Hold Time	0.5 to 5.0 s (in 0.5 s steps), HOLD
Level Setting	Standard level, warning level, over level (-40.0 to 0.0 dBFS for each level)
Correlation Meter	Displays the correlation between two channels as a value from -1 to 1
Status Display	
Channel Status Bit Display	Dump display, text display
User Data Bit Display	Dump display
Error Detection(*2)	Counts the number of errors that occur for each channel
Level-Over Detection	Counts the number of times that the level of the input signal exceeds the set value
Detection Setting	-40.0 to 0.0 dBFS
Clipping Detection	Counts the number of times that a received signal exceeds the maximum signal value for the specified number of consecutive samples
Detection Setting	1 to 100 samples
Mute Detection	Counts the number of times that the length of a received mute signal exceeds the specified period
Detection Setting	1 to 5000 ms
Parity Error Detection	Counts the number of times that the input signal's parity bit and the parity bit recalculated by the LV 7380 differ
Validity Error Detection	Counts the number of times that the input signal's validity bit is 1
CRC Error Detection	Counts the number of times that the input signal's CRC value and the CRC value recalculated by the LV 7380 differ
Code Violation Detection	Counts the number of times that the state of the input signal's biphase modulation is abnormal
Channel	
Group Selection	Any two groups (from the same SDI input signal) from groups 1, 2, 3, and 4 can be selected.
Sampling Frequency	48 kHz (embedded audio must be synchronized to the video)
Thumbnail Display	Displays the picture

*1 The peak hold is only displayed when the meter's response model is VU.

*2 Error detection is performed on the AES/EBU data.

2.3.13 Status Display

Signal Detection	Detects the presence of an SDI signal
Format Display	Detected using the supported video format signals (Only the frame rate is detected when the link format is set to dual.)
Embedded Audio Channel	Displays the embedded audio channel number (Only link A is supported when the link format is set to dual.)
Event Log Display	
Recording Capacity	Up to 1000 events
Operation	Records all events from start to finish
Recorded Events	Events, changes in input type, time stamps, etc.
Data Output	Data is saved as text files to USB memory or to a PC over an Ethernet
Data Dump Display	
Display Formats	Displays data separated by serial data sequence or by channel
Line Select	Displays the selected line
Sample Select	Displays from the selected sample
Jump Feature	Jumps to an EAV or SAV
Data Output	Data is saved as text files to USB memory or to a PC over an Ethernet
Phase Difference Display	
Display	Displays the phase difference between an SDI signal and the external sync signal both numerically and graphically The phase difference between links A and B can also be measured when the link format is set to dual.
Display Range	
Vertical	Approx. ±1/2 frame
Horizontal	±1 line
Equivalent Cable Length Measurement	
	Converts the SDI signal attenuation to a cable length and displays the result
Supported Cables	
HD-SDI	LS-5CFB, 1694A, L-7CHD
SD-SDI	LS-5C2V, 8281, 1505A
Precision	±20 m
Resolution	5 m (10 m for the L-7CHD)
Thumbnail Display	Displays the picture and the audio meter

2.3.14 Error Detection

Error Count	Up to 999999 errors for each error type
Count Period	All errors that occur in one field are counted as one error
Video Errors	
CRC Error	Detects HD-SDI signal transmission errors
EDH Error	Detects SD-SDI signal transmission errors
TRS Error	Detects TRS location and protection bit errors
Line Number Error	Detects HD-SDI signal line number errors
Illegal Code Error	Detects data within the range of 000h to 003h and 3FCh to 3FFh in locations other than TRS and ADF
Embedded Position Error	Detects the presence of audio in lines where it should not be embedded (Only link A is supported when the link format is set to dual.)
Cable Length Measurement Error	Detects the attenuation of the signal to detect cable length measurement errors
Detection Range	
HD-SDI	5 to 200 m (in 5 m steps)
SD-SDI	50 to 300 m (in 5 m steps)
Gamut Errors	
Filter	1 MHz, 2.8 MHz, OFF (removes transient errors)
Gamut Error	Detects gamut errors
Detection Range	
Upper Limit	90.8 to 109.4 %
Lower Limit	-7.2 to 6.1 %
Composite Gamut Error	Detects level errors that occur when component signals are converted to composite signals
Detection Range	
Upper Limit	90.0 to 135.0 %
Lower Limit	-40 to 20 %
Luminance Error	Detects level errors in the luminance component
Detection Range	
Upper Limit	90.8 to 109.4 %
Lower Limit	-7.2 to 6.1 %
Audio Errors(*1)	
BCH Error	Detects transmission errors in the audio packets that are embedded in HD-SDI signals
DBN Error	Detects audio packet continuity errors
Parity Error	Detects parity errors in the audio packets that are embedded in HD-SDI signals
Ancillary Data Error Detection	
Checksum Error	Detects ancillary data transmission errors
Parity Error	Detects ancillary data header parity errors

*1 Error detection is performed on the following data that accompanies the audio data packets, which are SDI ancillary data packets.

2.3.15 Ancillary Data Analysis

Audio Control Packet (Only for link A when the link format is set to dual)

Display Details	Displays audio control packet analysis
Display Formats	Text, hexadecimal, binary
Group Selection	Select one group from four available groups.

EDH Display (Only for SD-SDI)

Compliant Standard	SMPTE RP-165
Display Details	Analyzes and displays EDH packets and displays received CRC errors
Display Formats	Text, hexadecimal, binary

Format ID Display

Compliant Standards	SMPTE 352M, ARIB STD-B39 (Only SMPTE 352M is supported when the link format is set to dual.)
Display Details	Analyzes and displays the format ID
Display Format	Text

Closed Caption Analysis Display (Not supported when the link format is set to dual)

Compliant Standards	ARIB STD-B37, EIA-708-B, EIA/CEA-608-B
Display Details	Analyzes and displays the closed caption signal
Display Formats	Text, hexadecimal, binary

Inter-Stationary Control Signal (NET-Q) Display (Not supported when the link format is set to dual)

Compliant Standard	ARIB STD-B39
Display Details	Analyzes and displays inter-stationary control signals
Display Formats	Text, hexadecimal, binary
Logging Feature	Q-signal logging

Data Broadcast Trigger Signals (Not supported when the link format is set to dual)

Compliant Standard	ARIB STD-B35
Display Formats	Text, hexadecimal, binary

V-ANC User Data Display (Not supported when the link format is set to dual)

Compliant Standard	ARIB TR-B23
Display Formats	Hexadecimal, binary

ANC Packet Display (Only for link A when the link format is set to dual)

ANC Specification Method:	DID, SDID
Display Formats	Hexadecimal, binary

AFD Packet Display (Not supported when the link format is set to dual)

Compliant Standard	SMPTE 2016-1-2007
Display Formats	Text, hexadecimal, binary

2.3.16 Ancillary Data List Display

Display Details	Presence or absence of each ancillary data type, embedded line number, and number of packets per frame
Dump display	The selected ancillary data is displayed in hexadecimal or binary.

* This feature is not supported when the link format is set to dual.

2.3.17 Histogram Display

Description	Displays the Y, R, G, and B histograms
Display Screen	The PIC+WFM1, PIC+WFM2, and 3D assist displays (option) of the multi-screen display
Display Format	Side by side, overlayed
3D Assist Support	Displays the video signal for the left eye and the video signal for the right eye on top of each other

2.3.18 Time Display

Current Time Display	The time based on the internal clock
Elapsed Time	The elapsed time since the error count was cleared
Time Code	LTC, VITC
Compliant Standard	SMPTE 12M-2

2.3.19 Alarm Output

Display Indication	If the fan stops working, the fan alarm is displayed (on the external LCD).
Remote Control Connector Output	When a video or audio error or a fan alarm occurs, a signal is transmitted from the remote control connector to notify the user.

2.3.20 Other Display Features

ID Display	An ID can be assigned to each input channel.
Tally Indication	Part of the remote control connector can be assigned to tally indication in order to display tallies on the screen.

2.3.21 Front Panel

Key LEDs	All the keys are dimly back-lit, and the selected key is lit more brightly
Power Switch	Electronic switch (which remembers whether the instrument is on or off)
Last Memory	Backs up the panel settings.
Key Lock	Use the key lock feature to prevent accidental operations on the LV 7380.
SHORT CUT Key	Press this key to recall preset settings with a single

	key press (you can only recall settings for one display). This key can also be used to take screen captures and save captures to USB memory with a single key press.

2.3.22 Options

Eye Pattern Display Option	LV 58SER02 (factory option) (Eye pattern and jitter displays; the displayed channel is selectable)
3D Assist Option	LV 7380SER01 (requires a license key)
Supported Format	HD-SDI (Single link)
Input Connectors	
L/R Dual	
Video Signal for the Left Eye	Channel A
Video Signal for the Right Eye	Channel B
Side-by-Side, Top-and-Bottom	Channel A, Channel B
Picture Display	
Anaglyph Display (Color)	Green and blue are masked from the video signal for the left eye, and red is masked from the video signal for the right eye. These signals are then combined
Anaglyph Display (Monochrome)	Green and blue are masked from the monochrome video signal for the left eye, and red is masked from the monochrome video signal for the right eye. These signals are then combined
Convergence Display	A 50 % offset is added to the difference between the monochrome video signal for the left eye and the monochrome video signal for the right eye
Overlay Display	The levels of the video signal for the left eye and the video signal for the right eye are halved. These signals are then combined
Checker Display	Displays the video signal for the left eye and the video signal for the right eye in a checkerboard pattern
Boundary Lines	Can be moved up, down, left, and right
Wipe Display	The video signal for the left eye and the video signal for the right eye are divided by boundary lines and displayed
Boundary Lines	The boundary lines can be moved up and down and left and right separately Show, hide
Left-Right Boundary Line	The part to the left of the boundary line is the video signal for the left eye. The part to the right of the boundary line is the video signal for the right eye
Top-Bottom Boundary Line	The part above the boundary line is the video signal for the left eye. The part below the boundary line is

	the video signal for the right eye
Flicker Display	Displays the video signal for the left eye and the video signal for the right eye on a time sharing display
Inverted Display	
Horizontal Inversion	Inverts the picture and video signal waveform (*1)
Vertical Inversion	Inverts the picture
Inverted Channel	Inverts video signal for the left eye and video signal for the right eye separately
Grid Display	
Description	Displays grid lines on the picture
Grid Type	Disparity, horizontal, both
Disparity Grid Width	6 to 192 pix (0.3 to 10.0 %) (*2)
Horizontal Grid Width	6 to 108 line (0.6 to 10.0 %) (*2)
Grid Movement	The disparity and horizontal grid lines can be moved separately
Video Signal Waveform Display	
Waveform Display Color	
Video Signal for the Left Eye	Red
Video Signal for the Right Eye	Syan
Display Format	Side by side, overlayed
Wipe Feature	L/R wipe
Disparity Measurement Feature	
Description	Position the cursor at a point in the picture to measure the disparity and luminance level at that point.
Alarm	If the upper limit is exceeded, “NG” (no good) is displayed.
Measurable Items	Screen disparity (dots, cm, %), perceived depth (m), angle of vergence (°)
Time Code	
Description	The time codes for the video signal for the left eye and the video signal for the right eye are displayed at the same time.

*1 Horizontal inversion of the video signal waveform occurs only during the video period. Inversion cannot be performed on side-by-side or top-and-bottom signals.

*2 The pixel and line ranges vary depending on the input signal. The values shown here are for a 1080i/59.94 input signal.

2.3.23 General Specifications

Environmental Conditions	
Operating Temperature Range	0 to 40 °C
Operating Humidity Range	85 %RH or less (no condensation)
Optimal Temperature	10 to 30 °C
Power Requirements	
Voltage	10 to 18 VDC
Power Consumption	50 W max.
Dimensions	426 (W) × 44 (H) × 250 (D) mm (excluding protruding parts)
Weight	Approx. 2.6 kg (excluding options and accessories)
Accessories	AC adapter (SPU63-105) ..... 1 25-pin D-sub connector ..... 1 25-pin D-sub connector cover ..... 1 Instruction manual 1

2.3.24 AC Adapter (SPU63-105)

Input	100 to 240 VAC, 50/60 Hz, 1.6 A
Output	12 VDC, 4.75 A max.
Dimensions	52 (W) × 34.5 (H) × 118 (D) mm (without power cord)
Weight	0.35 kg (without power cord)

3. NAMES AND FUNCTIONS OF PARTS

3.1 Front Panel

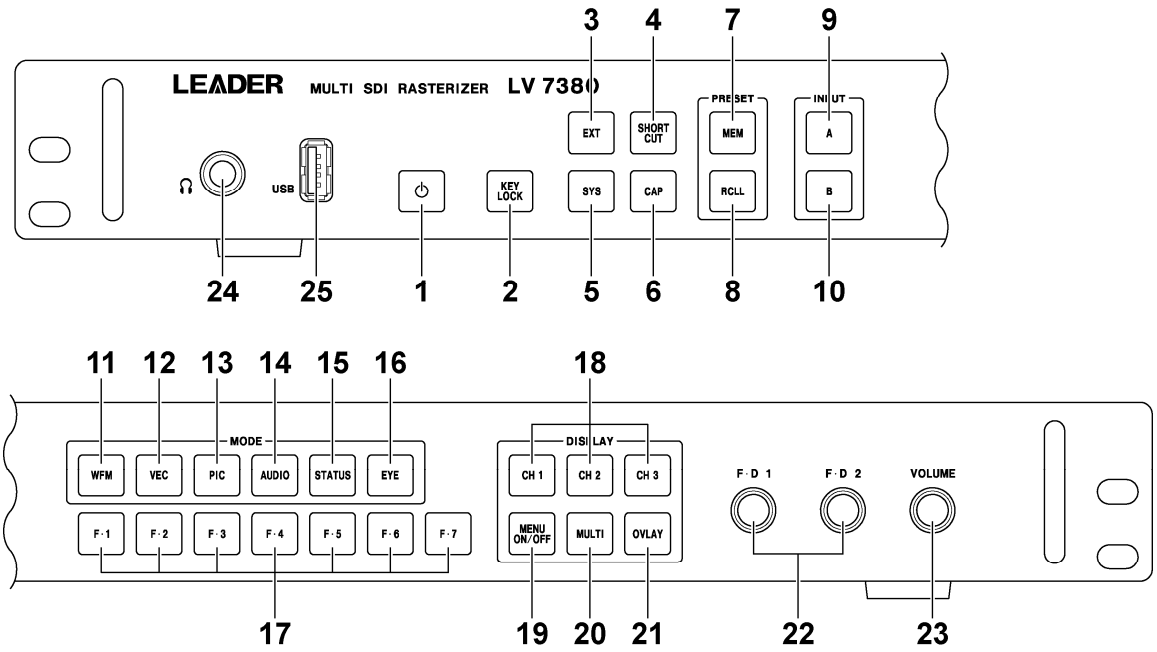


Figure 3-1 Front panel

Table 3-1 Front panel items and functions

No.	Name	Function
1	Power switch	A quick push switches the power from off to on. Holding the switch switches the power from on to off. See section 4.1, “About the Power Supply.”
2	KEY LOCK	Holding the key locks the keys or releases the key lock. See section 4.7, “Enabling and Releasing the Key Lock.”
3	EXT	Switches between the internal sync signal and an external sync signal. See section 4.6, “External Sync Signal Input.”
4	SHORT CUT	Performs the operation that has been set in advance (takes a screen capture or loads presets). See section 4.8, “Setting the Short Cut.”
5	SYS	Press this key to make system settings. See chapter 5, “SYSTEM SETTINGS.”
6	CAP	Takes a screen capture of the display. See chapter 9, “SCREEN CAPTURE FEATURE.”
7	MEM	Press this key to save or delete preset settings. See chapter 8, “PRESET FEATURE.”
8	RCLL	Press this key to load a preset setting configuration. See chapter 8, “PRESET FEATURE.”
9	A	Sets the input channel to channel A. See section 4.3, “SDI Signal Input.”
10	B	Sets the input channel to channel B. See section 4.3, “SDI Signal Input.”

No.	Name	Function
11	WFM	Switches to the video signal waveform display. See chapter 10, “VIDEO SIGNAL WAVEFORM DISPLAY.”
12	VEC	Switches to the vector display. See chapter 11, “VECTOR DISPLAY.”
13	PIC	Switches to the picture display. See chapter 12, “PICTURE DISPLAY.”
14	AUDIO	Switches to the audio display. See chapter 13, “AUDIO DISPLAY.”
15	STATUS	Switches to the status display. See chapter 14, “STATUS DISPLAY.”
16	EYE	Switches to the eye-pattern and jitter display (option).
17	F•1 to F•7	Used to select menu items and pop-up commands.
18	CH 1 to CH 3	Used to turn the display of channels on and off on the video signal waveform display.
19	MENU ON/OFF	Shows and hides the menu display. See section 4.10.1, “Menu Operations.”
20	MULTI	Shows multiple displays at the same time. See chapter 6, “MULTI-SCREEN DISPLAY FEATURE.”
21	OVLAY	Switches between the overlay and parade displays on the video signal waveform display. See section 10.4, “Setting the Display Mode.”
22	F•D 1 F•D 2	Mostly used to set values. Generally, pressing this knob will return the setting being adjusted to its default value. See section 4.10.1, “Menu Operations.”
23	VOLUME	Adjusts the headphone volume. See section 13.9.2, “Adjusting the Volume.”
24	Headphone jack	6.3-mm (1/4 in.) stereo jack for connecting headphones. See section 13.9, “Headphone Settings.”
25	USB port	Used to connect USB memory. USB memory is used to load and save various kinds of data.

3.2 Rear Panel

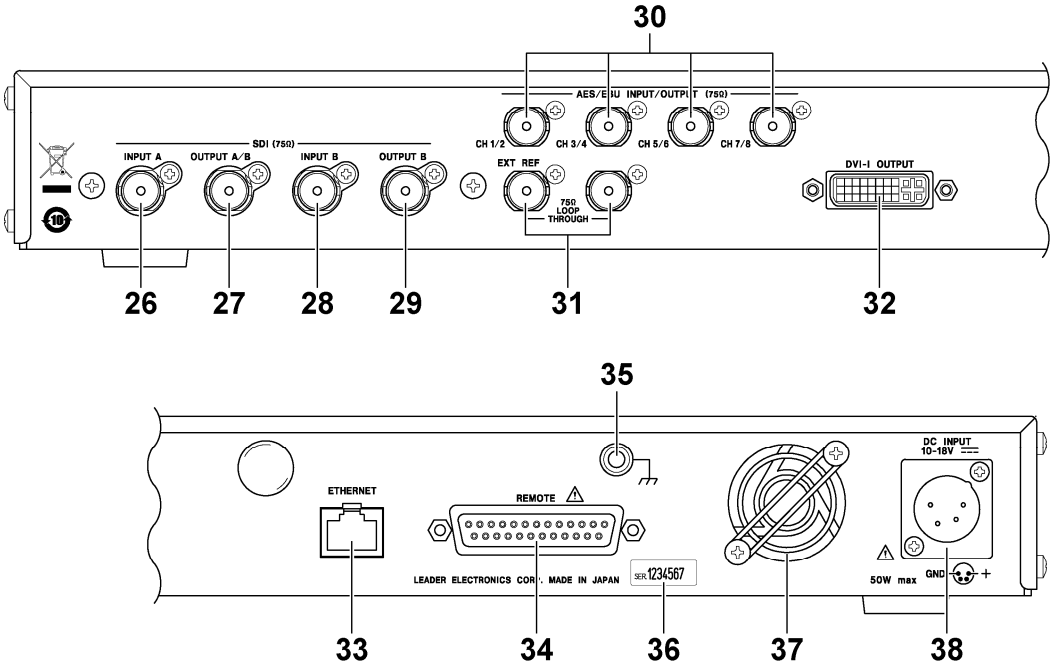


Figure 3-2 Rear panel

Table 3-2 Rear panel items and functions

No.	Name	Function
26	INPUT A	SDI signal input connector. See section 4.3, “SDI Signal Input.”
27	OUTPUT A/B	Output connector that transmits a reclocked version of the SDI signal received through the INPUT A connector or INPUT B connector. See section 4.4, “SDI Signal Output.”
28	INPUT B	SDI signal input connector. See section 4.3, “SDI Signal Input.”
29	OUTPUT B	Output connector that transmits a reclocked version of the SDI signal received through the INPUT B connector. See section 4.4, “SDI Signal Output.”
30	AES/EBU INPUT/OUTPUT	AES/EBU signal I/O connectors. See section 4.5, “AES/EBU Signal I/O.”
31	EXT REF	Loop-through external sync signal input connectors See section 4.6, “External Sync Signal Input.”
32	DVI-I OUTPUT	DVI-I connector for connecting a display.
33	ETHERNET	Ethernet connector for controlling the LV 7380 panel operations over TELNET, FTP, or SNMP. See section 15.2, “TELNET” and section 15.3, “SNMP.”
34	REMOTE	Remote control connector used to perform operations such as loading presets. See section 15.1, “Remote Control Feature.”
35	Protective ground connector	Connector for connecting to external ground.
36	Serial number label	The serial number is printed here.
37	Fan	Cooling fan.
38	DC INPUT	DC inlet. See section 4.1.1, “Applying DC Power.”

4. BEFORE YOU BEGIN MEASURING

4.1 About the Power Supply

4.1.1 Applying DC Power

The LV 7380 operates on DC power. Connect the supplied AC adapter to the DC inlet.

When the LV 7380 is connected to the DC power supply, the internal microcomputer is in standby mode, and some power is consumed even if the power switch is turned off. If you do not intend to use the LV 7380 for an extended period of time, disconnect the DC power supply.

4.1.2 Turning the Power On

To turn on the power, press the power switch on the front panel. The power switch LED lights, and the instrument turns on.

When you turn on the power, the LV 7380 starts up with the same panel settings that were set when it was last turned off. However, the error counter and event log on the status display are cleared.

4.1.3 Turning the Power Off

To turn off the power, hold the power switch on the front panel for one second or more. The power switch LED and the instrument turn off.

4.2 Connecting to a Display

By connecting a display to the DVI-I output connector, you can display a variety of screens. Using a DVI-I cable, connect the LV 7380 to an XGA (1024 × 768) display. (The display and the cable are not included with the LV 7380.)

The DVI-I output connector supports both serial digital output (Single Link TMDS) and RGB analog output. The default value of the aspect ratio is 4:3, but you can use the system settings to change it to 16:9 or 16:10. (The display must have a resolution conversion feature.)
Hot plug detection and DDC are not supported.
See section 5.3, “Setting the Aspect Ratio.”

The DVI-I output connector and its pinout are shown below.

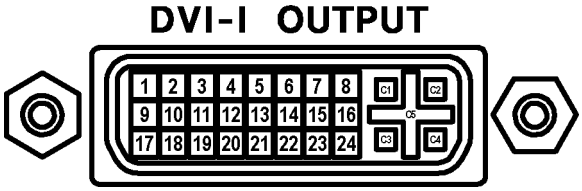


Figure 4-1 DVI-I output connector

Table 4-1 DVI-I output connector pinout

Pin No.	Function	Pin No.	Function
1	TMDS Data2-	16	NC
2	TMDS Data2+	17	TMDS Data0-
3	TMDS Data2 Shield	18	TMDS Data0+
4	NC	19	TMDS Data0 Shield
5	NC	20	NC
6	DDC Clock	21	NC
7	DDC Data	22	TMDS Clock Shield
8	Analog Vertical Sync	23	TMDS Clock+
9	TMDS Data1-	24	TMDS Clock-
10	TMDS Data1+	C1	Analog Red
11	TMDS Data1 Shield	C2	Analog Green
12	NC	C3	Analog Blue
13	NC	C4	Analog Horizontal Sync
14	+5V DC POWER	C5	Analog Ground (RGB return)
15	Ground (return for +5, Hsync, Vsync)		

4.3 SDI Signal Input

The following figure shows the SDI signal input connectors.

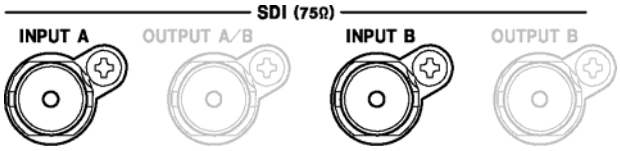


Figure 4-2 SDI input connectors

The input connectors are designed for component SDI (serial digital video) signals. Do not apply analog video signals, composite SDI signals, or any other kind of signal besides component SDI.

The input connectors are terminated internally at 75 Ω, so there is no need to connect terminators to them. Connect cables with a characteristic impedance of 75 Ω to the input connectors.

Make sure that the input signal is 800 mVp-p±10 % at the signal source's BNC output connector. An SDI signal that is outside of this range may not be received properly.

With the default values, you cannot display the signal that is received through INPUT A and the signal that is received through INPUT B at the same time. Press A and B on the front panel to switch between the input channels.
You can display the signal that is received through INPUT A and the signal that is received through INPUT B at the same time on the multi-screen display.

For the different formats that the LV 7380 supports, see section 2.3.1, “Video Signal Formats and Standards.” You can switch between single link and dual link in the system settings.
For single link, the LV 7380, by default, automatically detects the input format. For dual link or to set the input format manually, use the system settings.
See section 5.1, “Setting the Input Format.”

4.4 SDI Signal Output

The following figure shows the SDI signal output connectors.

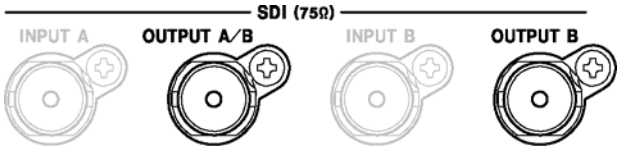


Figure 4-3 SDI output connectors

The signal that the SDI output connectors transmit is a reclocked version of the SDI signal that is received through INPUT A or INPUT B. Use the output connectors to transmit the signal to a picture monitor or other device that supports SDI signals. The output impedance of the connectors is 75 Ω. Terminate the other end at 75 Ω.

The signal that is transmitted from OUTPUT A/B or OUTPUT B varies depending on the FORMAT setting in the system settings and the front panel INPUT setting as shown below.

Table 4-2 Output signals

System Setting	Front Panel	OUTPUT A/B	OUTPUT B
SDI Select Output	INPUT		
Ach/Bch	A	Reclocked version of the signal received through INPUT A.	Reclocked version of the signal received through INPUT B.
	B	Reclocked version of the signal received through INPUT B.	Reclocked version of the signal received through INPUT B.
Ach	A/B	Reclocked version of the signal received through INPUT A.	Reclocked version of the signal received through INPUT B.

4.5 AES/EBU Signal I/O

The following figure shows the AES/EBU signal I/O connectors.

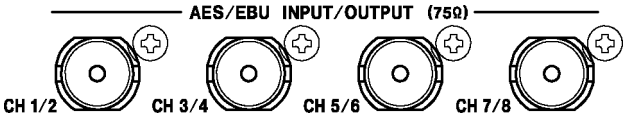


Figure 4-4 AES/EBU I/O connectors

The AES/EBU I/O connectors can be used as both input and output connectors. Use the EXT AES MODE setting on the audio menu to switch the connector functions.

By setting EXT AES MODE to INPUT and MONITOR SELECT to EXT AES, you can use the LV 7380 to measure the AES/EBU signals that are received through the AES/EBU I/O connectors.

If you set EXT AES MODE to OUTPUT, the AES/EBU signal that is separated from the SDI signal is transmitted from the AES/EBU I/O connectors.

The AES/EBU I/O connectors are terminated internally at 75 Ω, so there is no need to connect terminators to them when they are not in use. Connect cables with a characteristic impedance of 75 Ω to the I/O connectors.

4.6 External Sync Signal Input

On the video-signal-waveform and vector displays, you can apply an external sync signal to display waveforms. Apply a tri-level sync signal or an NTSC/PAL black burst signal to the external reference input connectors. The LV 7380 determines the sync signal format automatically.

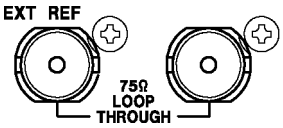


Figure 4-5 External sync signal input connectors

As shown in the figure below, the external sync signal input connectors are loop-through. Apply the input signal to one of the two connectors, and terminate the other connector at 75 Ω, or connect it to another 75 Ω device. If you connect to another device, be sure to terminate the other device's connector at 75 Ω. Connect cables with a characteristic impedance of 75 Ω to the external reference input connectors.

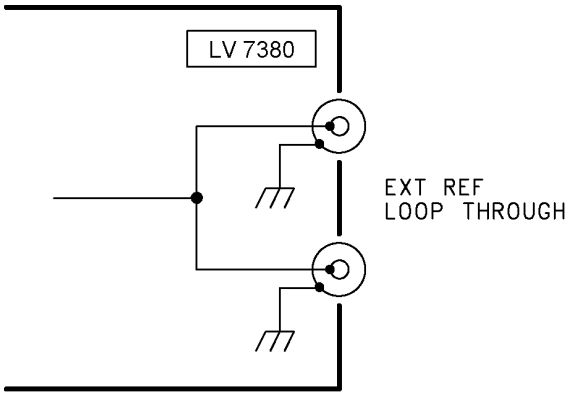


Figure 4-6 Loop-through

To use an external sync signal, press EXT on the front panel to select EXT.
Regardless of this setting, the picture, audio, and status displays all use the internal sync signal.

If the video signal waveform or phase difference is displayed using an external sync signal as the reference, inserting or removing an SDI signal or restarting the device may cause the waveform phase to be off by one clock.

If you are going to apply a tri-level sync signal, be sure to use one that has the same frame and line rates as the HD signal.

The formats in which waveforms can be displayed while using a black burst signal as the sync signal are listed below. If the external sync signal is an NTSC black burst signal with an embedded 10-field ID and the SDI signal is 1080PsF/23.98 or 1080p/23.98, the LV 7380 automatically recognizes the 10-field ID.

525i/59.94 black burst signal
- 1080i/59.94
- 1080p/29.97
- 1080p/23.98 (The black burst signal must have a 10-field ID.)
- 1080PsF/29.97
- 1080PsF/23.98 (The black burst signal must have a 10-field ID.)
- 720p/59.94
- 525i/59.94

625i/50 black burst signal
- 1080i/50
- 1080p/25
- 1080PsF/25
- 625i/50

4.7 Enabling and Releasing the Key Lock

You can prevent accidental operations on the LV 7380 by enabling the key lock.
The key lock disables all LV 7380 keys except for the power switch. Remote control and Ethernet control are not affected.

- **Enabling the Key Lock**

  Hold down KEY LOCK on the front panel. Release KEY LOCK after the message “Keylock Press 'KEYLOCK' for 0.5sec” appears in red in the center of the display.
  While the key lock is enabled, a key symbol appears in the upper right of the screen.

- **Releasing the Key Lock**

  Hold down KEY LOCK. Release KEY LOCK after the message “Keylock Canceled” appears in green in the center of the screen.

4.8 Setting the Short Cut

Press SHORT CUT on the front panel to perform the operation that is specified by the SHORTCUT KEY SET setting in the system settings. The functions that can be assigned to this key are shown below.
See section 5.7, “Setting the Short Cut Key.”

- **CAP USB**

  A screen capture will be taken and saved to USB memory. If a USB memory device is not connected, the error message “USB MEMORY has not been inserted” is displayed, and the screen is not captured.

- **DIRECT_K**

  The previously registered preset will be loaded. You can only register one preset. You cannot register display mode presets.

  To register a preset, follow this procedure:
  1. Set the LV 7380 to the settings that you want to register.
  2. Press MEM.
  3. Press SHORT CUT. The SHORT CUT key LED blinks twice, and the preset is registered.

4.9 General Display Explanation

This section explains the common elements in all measurement displays.

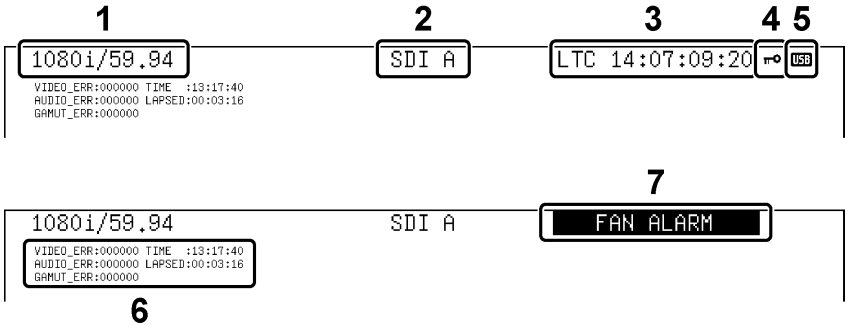


Figure 4-7 General display explanation

1 Input format

The input signal format appears here. For dual link signals, the color system and quantization are also displayed.
You can use the system settings to hide this information.

2 Input channel

The input channel (channel name or ID) appears here.
You can use the system settings to make an ID for each input channel. You can also choose to hide this information.

3 Time Code

The time code embedded in the input signal appears here.
You can use the system settings to select the type of time code. You can also choose to hide this information.

4 Key Lock Indication

This symbol appears when the key lock is enabled. Hold down KEY LOCK to enable or release the key lock.

5 USB Indication

This symbol appears when USB memory is connected to the LV 7380.

6 Error Counter

The error counter, the current time, and the elapsed time appear here. (This does not appear on some screens, such as the status-display and eye-pattern-display screens.) You can use the system settings to hide this information.

- **VIDEO_ERR**

  The sum of the status display's SDI and ANC error counts appears here.
  The text here is typically displayed in white, but it is displayed in red when errors are being counted.
  The error count returns to zero when the settings are initialized, when an ERROR CLEAR command is executed, or when the power is turned off.

- **AUDIO_ERR**

  The sum of the status display's embedded audio error counts appears here.
  The text here is typically displayed in white, but it is displayed in red when errors are being counted.
  The error count returns to zero when the settings are initialized, when an ERROR CLEAR command is executed, or when the power is turned off.

- **GAMUT_ERR**

  The sum of the status display's video quality error counts appears here.
  The text here is typically displayed in white, but it is displayed in red when errors are being counted.
  The error count returns to zero when the settings are initialized, when an ERROR CLEAR command is executed, or when the power is turned off.

- **TIME**

  The time that you set using TIME in the system settings appears here.

- **LAPSED**

  The amount of elapsed time appears here. The timer is reset to 00:00:00 when the date and time are set, the settings are initialized, an ERROR CLEAR command is executed, or the power is turned off. This display is the same for channels A and B.

7 Alarm Indications

The following alarms may appear here.

- **FAN ALARM**

  This alarm appears when the fan is not functioning. If “FAN ALARM” appears, immediately turn the power off, and then contact your local LEADER agent.

- **OVER HEAT**

  This alarm appears when the internal temperature has exceeded the specified limits. If “OVER HEAT” appears, immediately turn the power off, and then check the operating environment. If “OVER HEAT” appears even though there are no problems with the operating environment, contact your local LEADER agent.

4.10 Explanation of Key Operations

4.10.1 Menu Operations

Use the function menu at the bottom of the screen to change the settings. Use the F•1 to F•7 keys and the F•D 1, F•D 2, and VOLUME knobs on the front panel to operate the function menu. You can use the MENU ON/OFF key to show and hide the menu. (The capture, system, and preset menus as well as a portion of other menus cannot be hidden.)

This section explains how to operate the function menu, using the function menu on the vector display as an example.

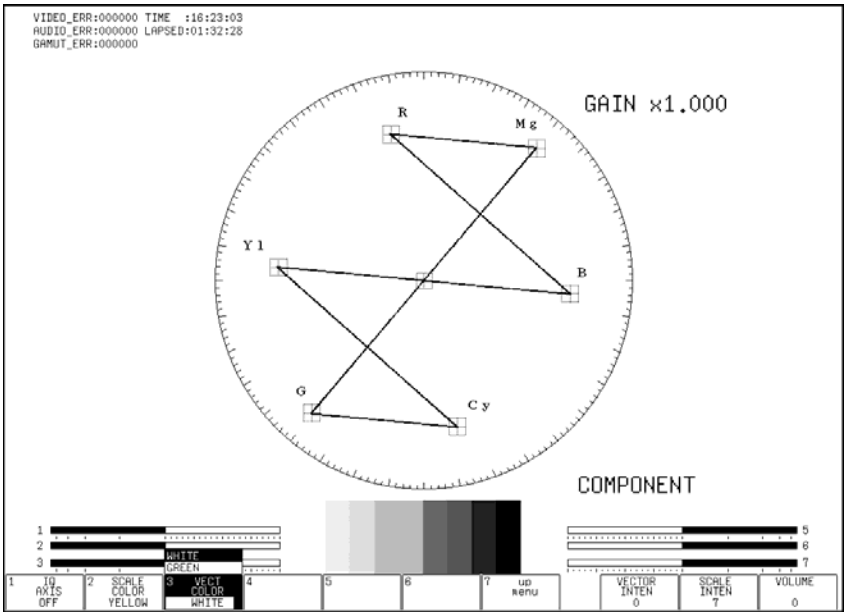


Figure 4-8 Menu operations

- **Selecting a Setting**

  To select a setting from a list like the one shown in the figure above for F•3 VECT COLOR, press F•3 repeatedly to select the setting you want.
  The setting changes each time you press F•3. After you stop pressing F•3, the setting is confirmed and the pop-up menu disappears.

- **Changing a Value**

  To change a value like F•D 1 VECTOR INTEN shown in the figure above, turn F•D 1. Generally, pressing F•D 1 (or F•D 2) will return the setting being adjusted to its default value.

4.10.2 Tab Menu Operations

You can usually use the function menu to change the settings, but some settings appear on tab menus.

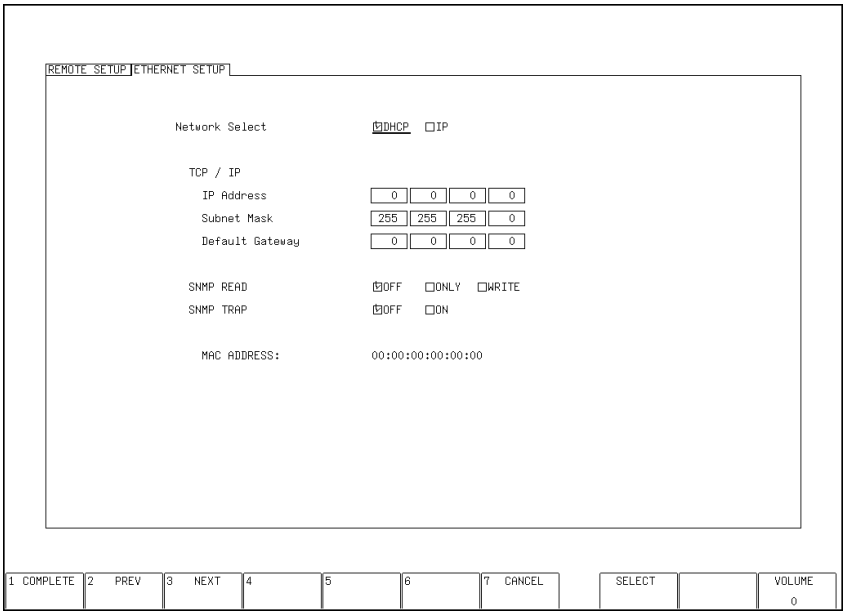


Figure 4-9 Tab menu

The list below explains how to perform different operations on the tab menu.

- **To Move the Cursor**

  Turn F•D 1 SELECT. Depending on what you are setting, you may not be able to move the cursor.

- **To Change the Tab**

  Press F•2 PREV or F•3 NEXT. Even if you switch to another tab, the settings are not confirmed until you press F•1 COMPLETE.

- **To Select a Checkbox**

  Press F•D 1 SELECT.

- **To Enter a Value**

  Press F•D 1 SELECT. The color of the cursor changes from light blue to yellow, and you can now set the value. Turn F•D 1 SELECT to set the value. To confirm the value, press F•D 1 SELECT again.

- **To Confirm the Tab Settings**

  Press F•1 COMPLETE. All the tab settings are applied, and the previous menu is displayed.

- **To Cancel the Tab Settings**

  Press F•7 CANCEL. All the tab settings are cancelled, and the previous menu is displayed.

5. SYSTEM SETTINGS

You can configure general LV 7380 settings on the system menu.
To display the system menu, press SYS. Regardless of the setting that you have specified with the MENU ON/OFF key, the system menu is always displayed.

5.1 Setting the Input Format

To set the input format, follow the procedure below. This section will explain how to set the input for single link and dual link signals separately.
It takes approximately 20 seconds to switch between the dual link and single link formats. While the LV 7380 is switching from one link format to the other, it displays the message, “System reconfiguration.”

Procedure

SYS → F•1 FORMAT

5.1.1 Configuring Single Link Settings

To set the input signal format to single link, set Link Format to Single.
(The default value is Single.)

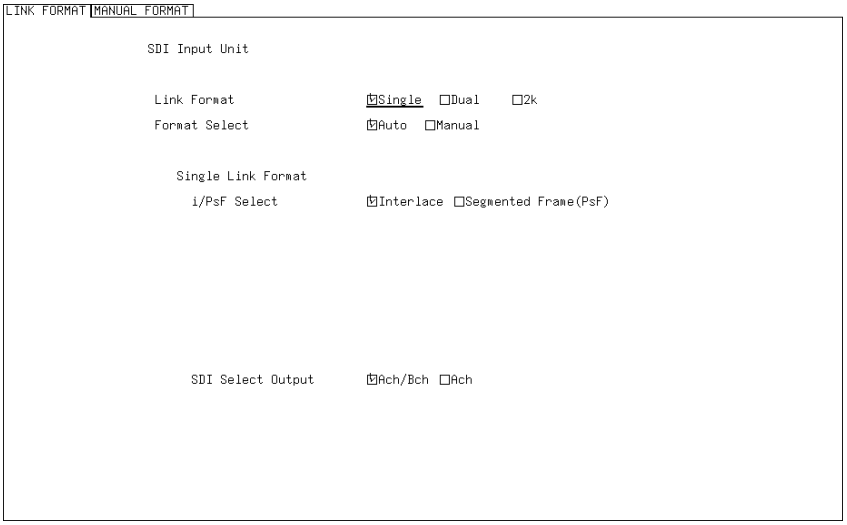


Figure 5-1 Single link settings

- **Format Select**

  Select whether to automatically detect the input format or to set the input format manually.

  Settings

Auto:	The input format is detected automatically (this is the default value).
Manual:	Use the MANUAL FORMAT tab to set the input format manually.

- **i/PsF Select**

  Select whether the following input format names are displayed as interlaced or as segmented frame when Format Select is set to Auto.

  • 1080i/60 and 1080PsF/30
  • 1080i/59.94 and 1080PsF/29.97
  • 1080i/50 and 1080PsF/25

Settings	
Interlace:	The input format name is displayed as interlaced (this is the default value).
Segmented Frame:	The input format name is displayed as segmented frame.

- **SDI Select Output**

  Select the signal that is generated from SDI OUTPUT A/B.
  This setting can not be registered to presets.

Settings	
Ach/Bch:	The reclocked signal of the channel that you select with INPUT is generated (this is the default value).
Ach:	The reclocked signal of the SDI signal received through INPUT A is generated.

- **MANUAL FORMAT**

  When Format Select is set to Manual, use the MANUAL FORMAT tab to manually set the input format.

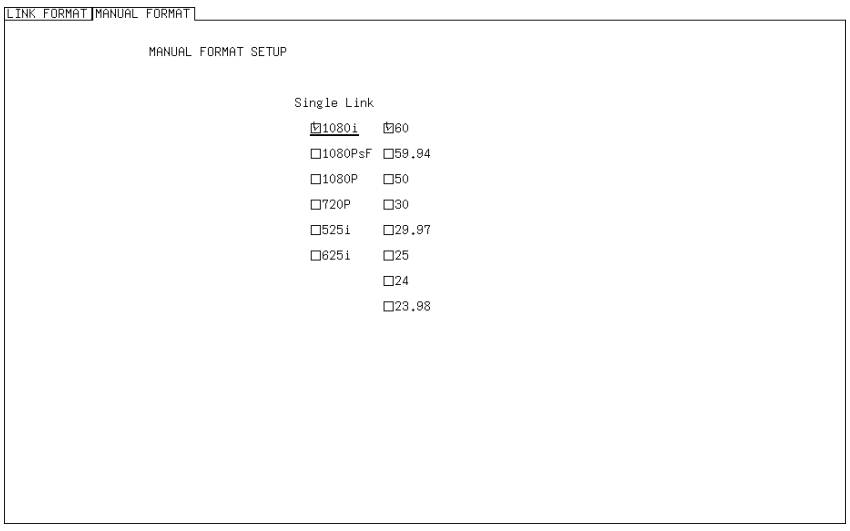


Figure 5-2 MANUAL FORMAT tab

Select the scanning, and then select the frame (field) rate. The formats that you can select are shown in the table below.

Table 5-1 Manual settings for single link format

Scanning	Frame (Field) Rates
1080i	60 / 59.94 / 50
1080PsF	30 / 29.97 / 25 / 24 / 23.98
1080P	30 / 29.97 / 25 / 24 / 23.98
720P	60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98
525i	59.94
625i	50

5.1.2 Configuring Dual Link Settings

To set the input signal format to dual link, set Link Format to Dual (1920×1080) or 2k (2048×1080).

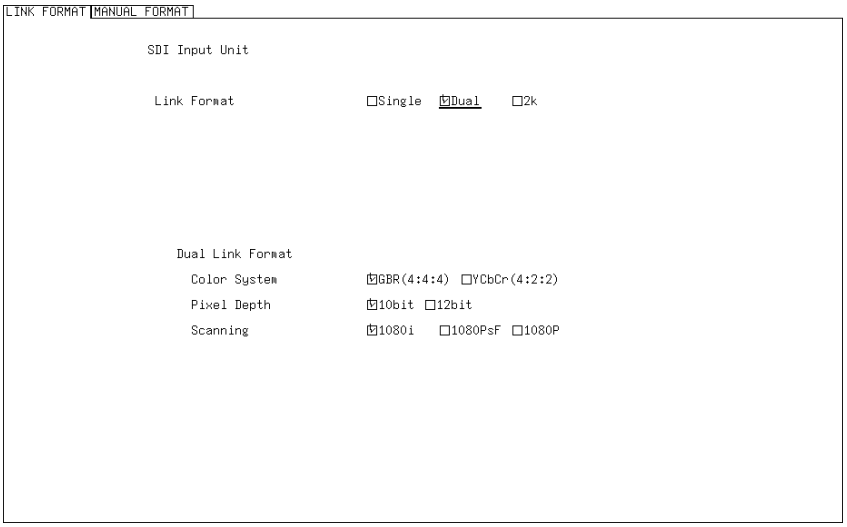


Figure 5-3 Dual link settings

- **Dual Link Format**

  For dual link signals, you have to manually set the input format. However, the field (frame) rate is detected automatically.

  The formats that you can select are shown in the table below. If you specify a combination of settings that is not shown in this table, the “ILLEGAL FORMAT” error message is displayed. Re-specify the format correctly.

Table 5-2 Manual settings for dual link format

Link Format	Color System	Pixel Depth	Scanning
Dual	GBR(4:4:4)	10bit / 12bit	1080i / 1080PsF / 1080P
	YCbCr(4:2:2)	10bit	1080P
		12bit	1080i / 1080PsF / 1080P
2k	GBR(4:4:4)	12bit	1080PsF / 1080P

5.2 Configuring the External Interface

To configure the remote control connector and the Ethernet port, follow the procedure below. These settings can not be registered to presets.

Procedure

SYS → F•2 INTERFACE

5.2.1 Configuring the Remote Control Connector

To configure the remote control connector, use the REMOTE SETUP tab.

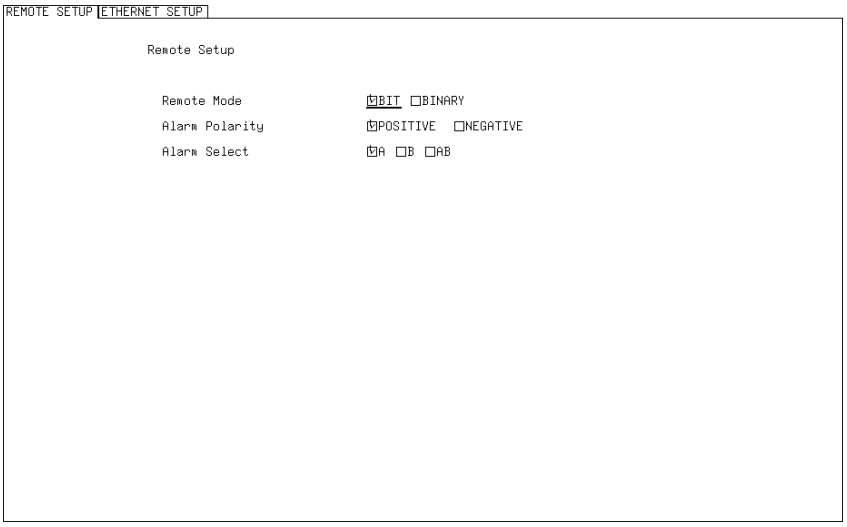


Figure 5-4 REMOTE SETUP tab

- **Remote Mode**

  Select the method for loading presets.

Settings	
BIT:	Use pin 17 (/P1) to pin 24 (/P8) to load presets 1 to 8 (this is the default value).
BINARY:	Set pin 17 (/P1) as the least significant bit and pin 21 (/P5) as the most significant bit, and use binary code to load presets 1 to 30.

- **Alarm Polarity**

  Select the polarity of the alarm signal that is generated when an error is detected.

Settings	
POSITIVE:	A high signal is transmitted when an error is detected (this is the default value).
NEGATIVE:	A low signal is transmitted when an error is detected.

- **Alarm Select**

  Select the channel that errors are detected on for transmitting alarms.

Settings	
A:	An alarm signal is generated when an error is detected on channel A (this is the default value).
B:	An alarm signal is generated when an error is detected on channel B.
AB:	An alarm signal is generated when an error is detected on channel A or B.

5.2.2 Configuring the Ethernet Port

To configure the Ethernet port, use the ETHERNET SETUP tab. The settings that you specify here will not be initialized even if you initialize the LV 7380.

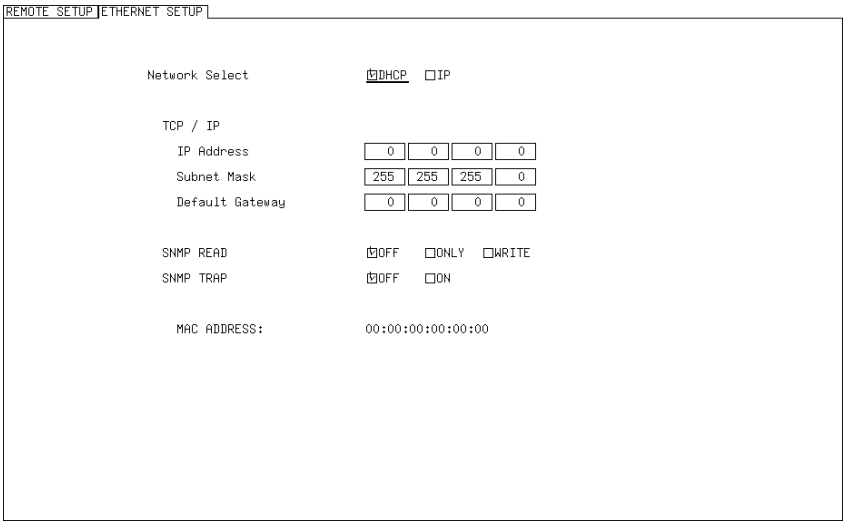


Figure 5-5 ETHERNET SETUP tab

- **Network Select**

  Select the method that you want to use to connect the LV 7380 to an Ethernet. This setting is enabled after you restart the LV 7380.

Settings	
DHCP:	DHCP is used to automatically configure the TCP / IP settings (this is the default value).
IP:	Configure the TCP / IP settings manually.

- **TCP / IP**

  When Network Select is set to IP, set the IP address, subnet mask, and default gateway. These settings are enabled after you restart the LV 7380.

- **SNMP READ**

  Select the SNMP access mode.

Settings	
OFF:	Settings cannot be read or written (this is the default value).
ONLY:	Settings can be read, but they cannot be written.
WRITE:	Settings can be read and written.

- **SNMP TRAP**

  Select whether SNMP traps are generated.

Settings	
OFF:	Traps are not generated (this is the default value).
ON:	Traps are generated.

- **MAC ADDRESS**

  Displays the MAC address of the LV 7380.

5.3 Setting the Aspect Ratio

To select the aspect ratio of the signal that will be generated, follow the procedure below. This setting can not be registered to presets.

Procedure
SYS → F•3 DISPLAY → F•1 ASPECT SELECT

Settings	
4:3:	The LV 7380 produces a signal for a 4:3 display (this is the default value).
16:9:	For vectors, pictures, and audio waveforms, the LV 7380 generates a signal for a 16:9 display.
16:10:	For vectors, pictures, and audio waveforms, the LV 7380 generates a signal for a 16:10 display.

5.4 Setting IDs

The LV 7380 can display user-defined IDs for the input channels.
To display IDs, follow the procedure below.

1. SYS → F•3 DISPLAY → F•3 ID NAME → F•1 SDI Ach or F•2 SDI Bch

The following screen, for creating the ID, appears.

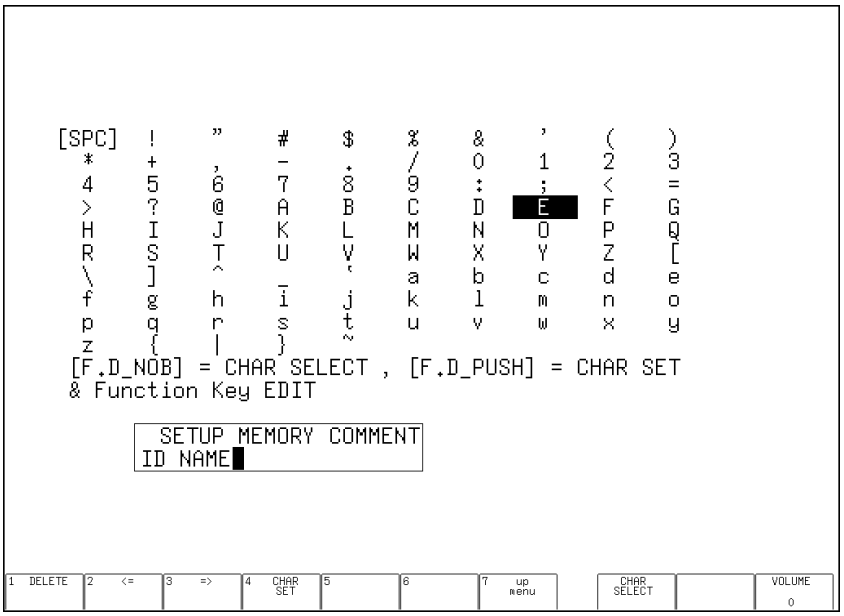


Figure 5-6 ID creation screen

2. Enter the ID.

IDs can be up to 10 characters long. The key operations that you can perform on the ID creation screen are as follows:

F•1 DELETE:	Deletes the character at the cursor
F•2 <=:	Moves the cursor to the left
F•3 =>:	Moves the cursor to the right
F•4 CHAR SET:	Enters the character
F•D 1 CHAR SELECT:	Turn to select a character, and press to enter the character.

3. Press F•7 up menu twice.

The DISPLAY menu appears.

4. Press F•4 INFORMATION.

5. Set F•4 INPUT INFO to ID.

The ID that you have created for the input channel is displayed.

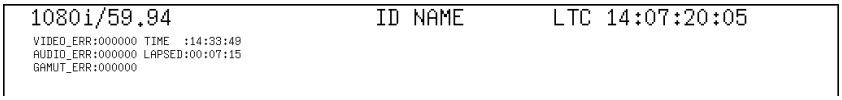


Figure 5-7 ID display

5.5 Configuring the Display

To configure the display, access F•4 INFORMATION on the system menu. You can use this menu to set the display format of the timecode, error counter, input format, and input signal.

5.5.1 Setting the Timecode Display Format

To select the display format for the timecode that is embedded in the input signal, follow the procedure below.
On the event log display, the timecode selected here will be used for the timestamps. (If you select OFF, the current date and time are used.)
For dual link signals, only the timecode that is embedded in link A is displayed.

Procedure

SYS → F•3 DISPLAY → F•4 INFORMATION → F•1 TIME CODE

Settings

LTC:	The LTC timecode embedded in the input signal is displayed (this is the default value).
VITC:	The VITC timecode embedded in the input signal is displayed.
OFF:	No timecodes are displayed.

5.5.2 Displaying the Error Counter

To select whether to display the error counter (VIDEO_ERR, AUDIO_ERR, and GAMUT_ERR) and time (TIME and LAPSED), follow the procedure below.

Procedure

SYS → F•3 DISPLAY → F•4 INFORMATION → F•2 ERROR COUNTER

Settings

ON:	The error counter and the time are displayed (this is the default value).
OFF:	The error counter and the time are not displayed.

5.5.3 Displaying the Input Format

To select whether to display the input format, follow the procedure below.

Procedure

SYS → F•3 DISPLAY → F•4 INFORMATION → F•3 FORMAT

Settings

ON:	The input format is displayed (this is the default value).
OFF:	The input format is not displayed.

5.5.4 Setting the Input Channel Display Format

To select the input channel display format, follow the procedure below.
You can set a user-defined ID for each input channel by following the procedure in section 5.4, “Setting IDs.”

Procedure

SYS → F•3 DISPLAY → F•4 INFORMATION → F•4 INPUT INFO

Settings

ID:	The ID for the input channel is displayed. For dual link signals, the ID for channel A is displayed.
CHANNEL:	The input channel is displayed as SDI A, SDI B, or SDI AB (this is the default value).
OFF:	The input channel is not displayed.

5.6 Setting the Date and Time

To set the date and time, follow the procedure below.
The settings that you specify here will not be initialized even if you initialize the LV 7380.

To set the date, select the appropriate item, and then turn F•D 1 DATE SET.
To set the time, select the appropriate item, and then turn F•D 1 TIME SET.
For both settings, press F•4 COMPLETE to confirm the value.

Procedure

SYS → F•4 DATE&TIME → F•1 DATE
→ F•2 TIME

5.7 Setting the Short Cut Key

To assign a function to the SHORT CUT key, follow the procedure below.
This setting can not be registered to presets.

Procedure

SYS → F•4 SHORTCUT KEY SET

Settings

CAP USB:	A screen capture will be taken and saved to USB memory (this is the default value).
DIRECT_K:	The previously registered preset will be loaded. You can only register one preset. You cannot register display mode presets. To register a preset, follow this procedure: 1. Set the LV 7380 to the settings that you want to register. 2. Press MEM. 3. Press SHORT CUT. The SHORT CUT key LED blinks twice, and the preset is registered.

5.8 Configuring License Settings

5.8.1 Installing Options

To use an option that requires a license, you must enter the appropriate license key.

A license key is a key code that activates an option on the LV 7380. LEADER will send you a license key when you purchase an option. Before purchasing an option, prepare the MAC address(*1) and the serial number(*2) of your LV 7380. Each LV 7380 requires a unique license key. You cannot use the same key for multiple instruments.

To install an option, follow the procedure below.

*1 You can view the MAC address on the license or Ethernet displays.
*2 The serial number is printed on a label on the rear panel.

1. Press SYS.

The system menu appears.

2. Press F • 6 LICENSE SETUP.

The license display appears.
On the license display, you can check the MAC address and the option registration condition.

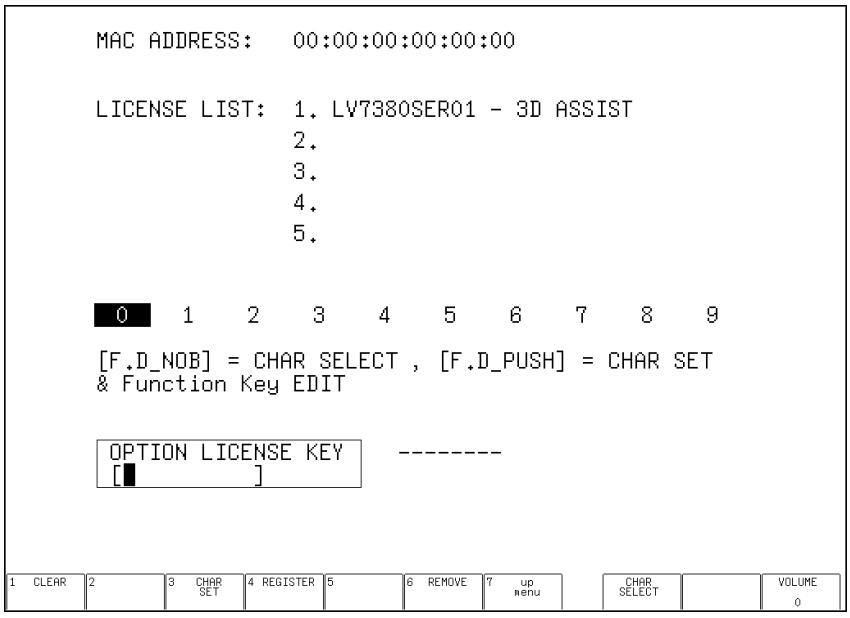


Figure 5-8 License display

3. Enter the 10-digit license key number for the option that you want to install.

The key operations that you can perform on the license display are as follows:

F•1 CLEAR: Deletes the license key that you are currently entering
F•3 CHAR SET: Enters the selected number
F•D 1 CHAR SELECT: Turn to select a number, and press to enter the number.

4. Press F • 4 REGISTER.

"ACCEPTED" appears after a license key has been entered correctly, and its corresponding option becomes usable. The name of the option that has been added appears in the LICENSE LIST.
"FAILED" appears if the license key is not correct. Reenter the license key correctly.

To remove an installed option, enter the license key, and then press F•6 REMOVE.

5.8.2 Viewing the MAC Address and Options

On the license display shown above, you can view the MAC address and the options that are installed on the LV 7380.

5.9 Initialization

5.9.1 Initializing Settings

To initialize the settings to their default values, follow the procedure below. For information about the default values, see section 16.1, "Menu Tree." The default values are underlined. To cancel the initialization of the settings, press F•3 INIT CANCEL.

The Ethernet settings, the time and date, the presets, and user-defined CINELITE correction tables are not initialized.

Procedure

SYS → F•7 INIT → F•1 INIT YES

5.9.2 Restoring the Factory Default Settings

To initialize all the settings other than the date and time and license to their default values, follow the procedure below.
The message "SRAM INITIALISED" will appear, and after a few seconds, the measurement display will appear.

Procedure

Turn on the power while holding F•D 1 and VOLUME.

6. MULTI-SCREEN DISPLAY FEATURE

The LV 7380 has six display modes: picture display, video signal waveform display, vector display, audio display, status display, and eye pattern display (optional). The display that only shows one mode at a time is referred to as the single-screen display.(*1) The display that shows combinations of different modes at the same time is referred to as the multi-screen display.

The multi-screen display has a 1-channel display, a 2-channel display, and a 3D assist display (option). The 1-channel display shows the channel that you have selected using INPUT, the 2-channel display and the 3D assist display (L/R DUAL) show channels A and B simultaneously.

*1 The single-screen display can show the audio meter, a picture, and other information as thumbnails. The simultaneous viewing of these displays is not referred to as “multi-screen display.”

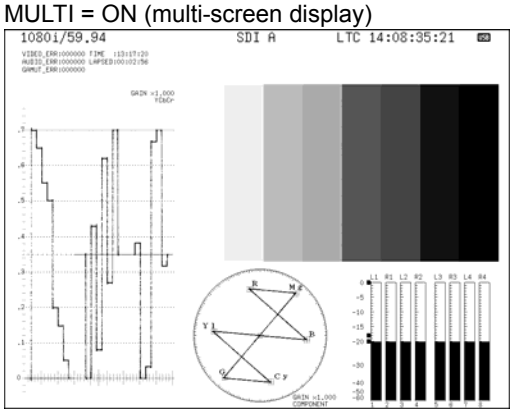
6.1 Switching between the Single-Screen and Multi-Screen Displays

To switch from the single-screen display to the multi-screen display, press MULTI. The key LED lights, and the multi-screen display appears. To change the display format, see the procedure in section 6.3, “Selecting the Multi-Screen Display Format.”
To switch from the multi-screen display to a single-screen display, press the key that corresponds to the display mode. The MULTI key LED turns off.

Notes regarding the multi-screen display are shown below.

- Changing the WFM COLOR setting will also change the VECT COLOR setting.
- Changing the WFM INTEN setting will also change the VECTOR INTEN setting.
- Cursor measurements cannot be performed on the video signal waveform display.
- The vector display's blanking and setup displays use the settings that have been made on the video signal waveform display.
- On the picture display, the display size cannot be changed, and closed captions and CINELITE II cannot be displayed.

MULTI = ON (multi-screen display)



MULTI = OFF (single-screen display)

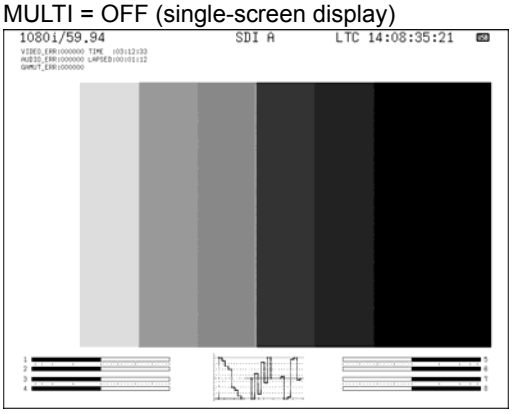


Figure 6-1 Multi-screen display and single-screen display

6.2 Selecting the Display Mode

To select the display mode, follow the procedure below.
The 3D assist display is an option. You can select 3D ASSIST if you install the LV 7380SER01, which is sold separately. For details, see chapter 7, "3D ASSIST DISPLAY FEATURE (OPTION)."

Procedure

MULTI → F•1 INPUT MODE

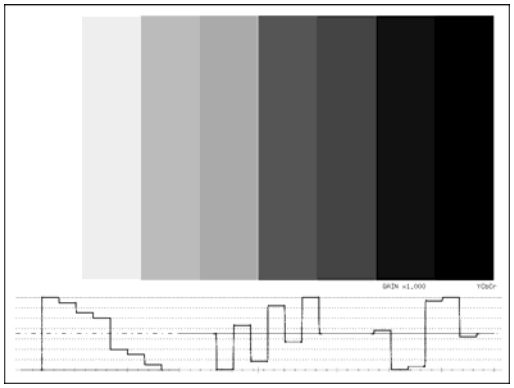
Settings

SINGLE: The channel that you selected using INPUT is displayed (this is the default value).

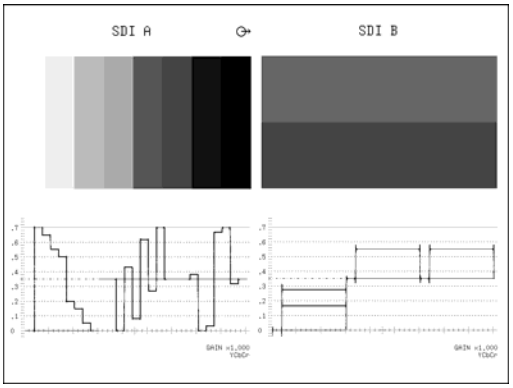
DUAL: Channels A and B are displayed simultaneously. This option cannot be selected when the link format is set to dual.
The line selection feature, the field or frame display on the video signal waveform display, and the marker feature on the picture display cannot be used.
The signal of the channel that you selected using INPUT is transmitted from the SDI output connectors. On the display, ⊖→ indicates the selected channel. (This mark is not displayed when SDI Select Output in the system settings is set to Ach.)

3D ASSIST: The Video signal for the left eye and the video signal for the right eye are displayed simultaneously. You cannot select this setting when the LV 7380 is in dual link mode or when the input is SD.
The line selection feature and the field or frame display on the video signal waveform display cannot be used.
The signal of the channel that you selected using INPUT is transmitted from the SDI output connectors.

INPUT MODE = SINGLE



INPUT MODE = DUAL



INPUT MODE = 3D ASSIST (option)

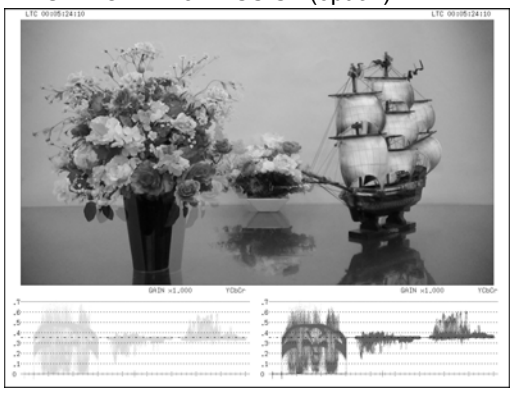


Figure 6-2 Selecting the display mode

6.3 Selecting the Multi-Screen Display Format

When F•1 INPUT MODE is set to SINGLE or DUAL, follow the procedure below to select the display format of the multi-screen display.

Procedure

MULTI → F•2 DISPLAY MODE

- **1-Channel Display (SINGLE)**

Settings

PIC+WFM1: The picture and video-signal-waveform displays are arranged vertically. The video signal waveform can be changed to the histogram display (this is the default value).

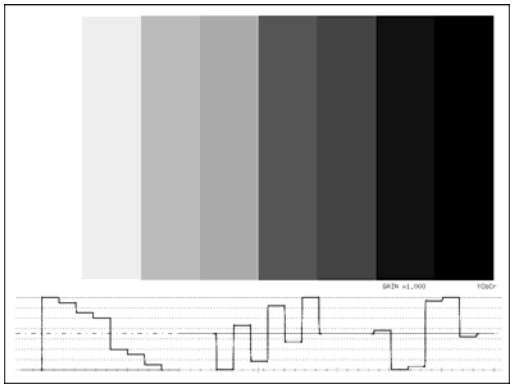
PIC+WFM2: The picture and video-signal-waveform displays are arranged vertically. The video signal waveform can be changed to the histogram display.

P+W+V: The picture, video-signal-waveform, and vector displays are displayed at the same time.

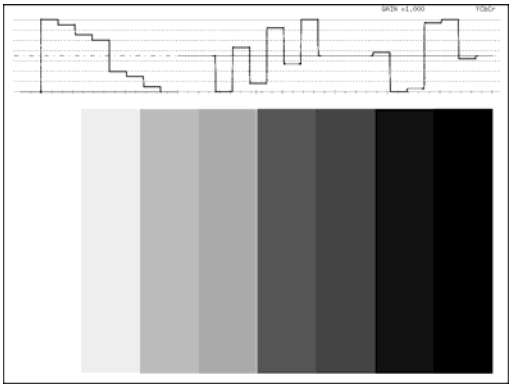
P+W+V+A: The picture, video-signal-waveform, vector, and audio-meter displays are displayed at the same time.

QUAD: The display modes that have been assigned to the four quarters of the display with F•4 AREA1 to F•7 AREA4 are displayed.

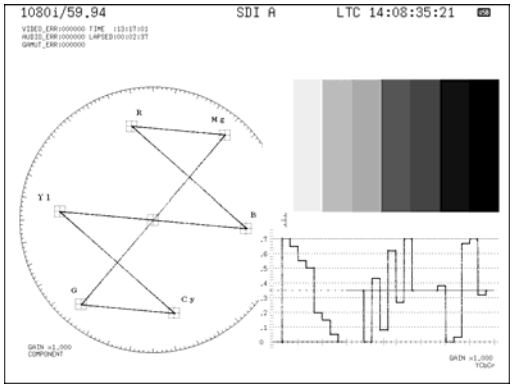
DISPLAY MODE = PIC+WFM1



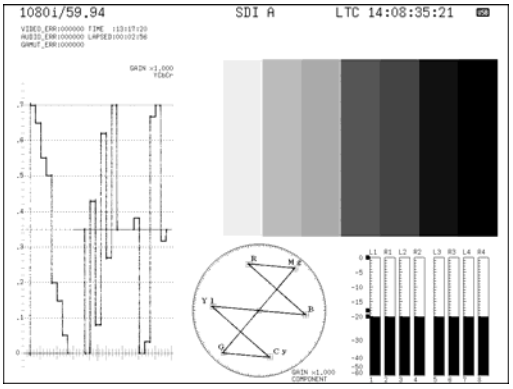
DISPLAY MODE = PIC+WFM2



DISPLAY MODE = P+W+V



DISPLAY MODE = P+W+V+A



DISPLAY MODE = QUAD

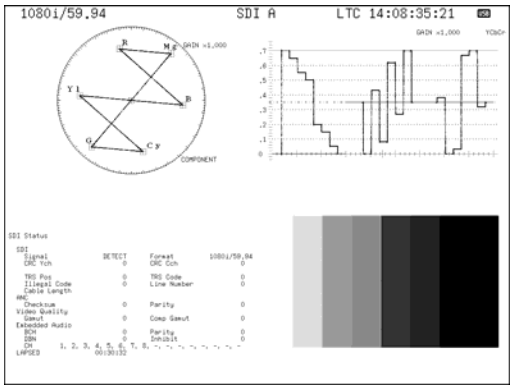
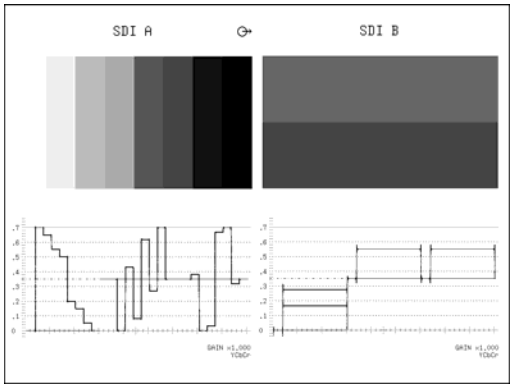


Figure 6-3 Multi-display formats (1-channel display)

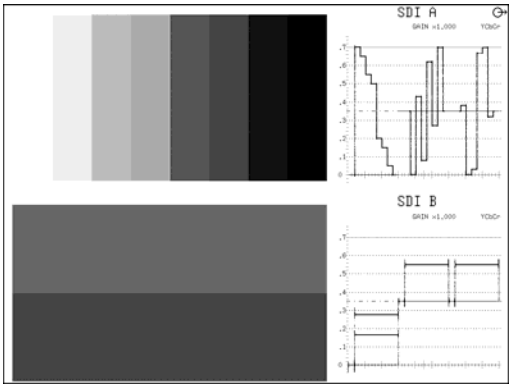
- **2-Channel Display (DUAL)**

Settings	
P+W:H:	The picture and video-signal-waveform displays of channels A and B are arranged horizontally (this is the default value).
P+W:V:	The picture and video-signal-waveform displays of channels A and B are arranged vertically.
W+V:V:	The video-signal-waveform and vector displays of channels A and B are arranged vertically.
WFM+PIC:	This setting can be selected when the 3D assist option is enabled. The pictures of channels A and B are displayed with channel A on the left and channel B on the right. The channel A video signal waveform is displayed in red, and the channel B video signal waveform is displayed in cyan. The waveforms are overlaid on top of each other. You can also display the video signal waveforms of channels A and B separately.
VEC+PIC:	This setting can be selected when the 3D assist option is enabled. The pictures of channels A and B are displayed with channel A on the left and channel B on the right. The channel A vector is displayed in red, and the channel B vector is displayed in cyan. The waveforms are overlaid on top of each other.

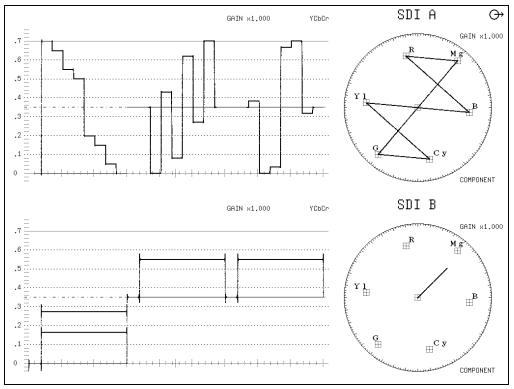
DISPLAY MODE = P+W:H



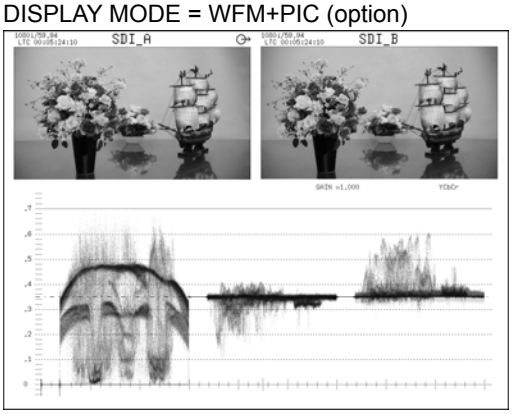
DISPLAY MODE = P+W:V



DISPLAY MODE = W+V:V



DISPLAY MODE = WFM+PIC (option)



DISPLAY MODE = VEC+PIC (option)

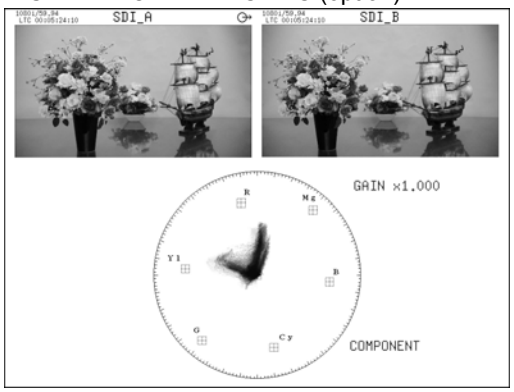


Figure 6-4 Multi-display formats (2-channel display)

6.4 Setting the Quad-Screen Display

In the single input display, when F•2 DISPLAY MODE is set to QUAD, to assign display modes to the different areas of the screen, follow the procedure below.
If you assign the same display mode to multiple areas, all the areas except for the one with the smallest area number will have their display modes cleared. However, the VECT and EYE display modes can each be assigned to two areas.

Procedure

MULTI → F•4 AREA1 (upper left)
→ F•5 AREA2 (upper right)
→ F•6 AREA3 (lower left)
→ F•7 AREA4 (lower right)

Settings

PIC:	The picture display is shown (this is the default value for AREA4).
WFM:	The video signal waveform display is shown (this is the default value for AREA2).
VECT:	The vector display is shown (this is the default value for AREA1). If the vector display is assigned to two areas, one area shows the vector display, and the other shows the 5 bar display.
AUDIO:	The audio display is shown.
STATUS:	The status display is shown (this is the default value for AREA3).
EYE:	The eye pattern display is shown. If the eye pattern display is assigned to two areas, one area shows the eye pattern display, and the other shows the jitter display. This option cannot be selected if an eye pattern option is not installed.

6.5 Configuring Wipe Display Settings (Option)

When F•2 DISPLAY MODE is set to WFM+PIC in the 2-channel display, to display the video signal waveforms separately on the left and right sides of the screen, follow the procedure below.

You can use F•D 1 WFM WIPE VARIABLE to move the boundary line. Press F•D 1 to move the boundary line to the center of the screen.

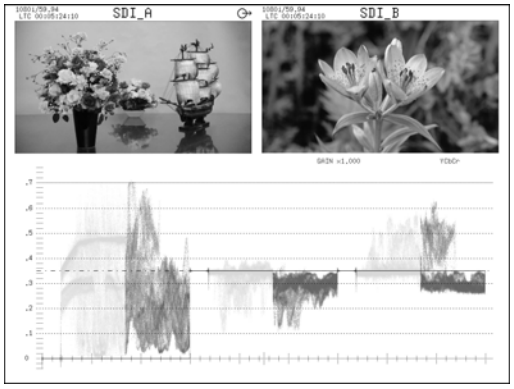
Procedure

MULTI → F•4 WFM WIPE

Settings

ON:	Channels A and B are divided by the boundary line and displayed. Channel A is displayed on the left side of the screen, and channel B is displayed on the right side of the screen.
OFF:	Channel A and channel B are displayed on top of each other (this is the default value).

WFM WIPE = ON



WFM WIPE = OFF

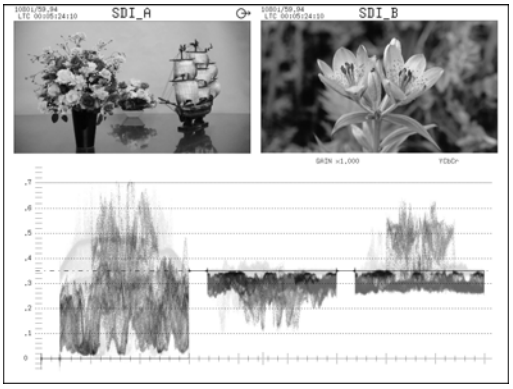


Figure 6-5 Wipe display

6.6 Switching between the Video Signal Waveform and Histogram Sub Items

In the single input display, when F•2 DISPLAY MODE is set to PIC+WFM1 or PIC+WFM2 or in the 3D assist display (option), when F•3 MEASURE SELECT is not set to DISPRTY, to switch the video signal waveform to a histogram, follow the procedure below.

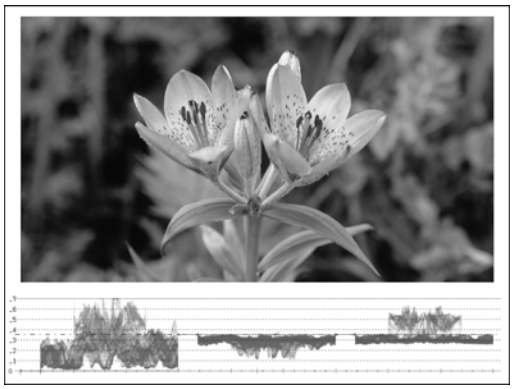
Procedure

MULTI → F•4 SUB-ITEM

Settings

WFM:	The video signal waveform display appears (this is the default value).
HISTOGRAM:	The histogram display appears.

SUB-ITEM = WFM



SUB-ITEM = HISTOGRAM

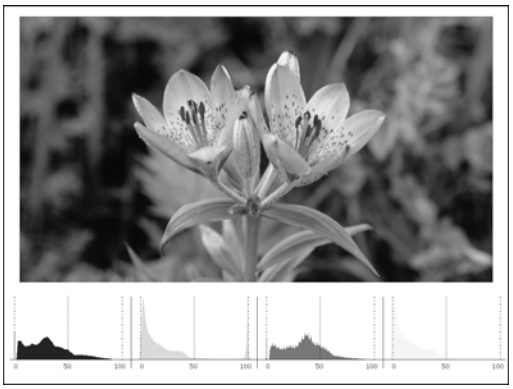


Figure 6-6 Switching between the video signal waveform and histogram sub items

6.7 Setting the Histogram

When F•4 SUB-ITEM is set to HISTOGRAM, press F•5 HISTOGRAM SETUP to configure the histogram settings.

6.7.1 Selecting the Display Format

To select the histogram display format, follow the procedure below.

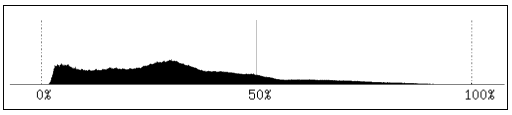
Procedure

MULTI → F•5 HISTOGRAM SETUP → F•1 HISTOGRAM FORM

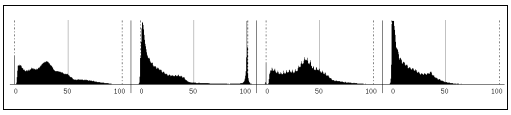
Settings

LUMA:	The histogram of the Y (luminance) signal is displayed.
PARADE:	The histograms of the Y, R, G, and B signals (in this order) are displayed side by side (this is the default value).
OVERLAY:	The histograms of the Y, R, G, and B signals are displayed on top of each other as lines. Signals Y, R, G, and B can be turned on and off separately.

HISTOGRAM FORM = LUMA



HISTOGRAM FORM = PARADE



HISTOGRAM FORM = OVERLAY

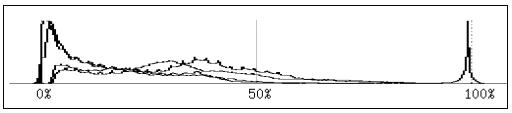


Figure 6-7 Selecting the display format

6.7.2 Turning Y, R, G, and B On and Off

When F•1 HISTGRM FORM is set to OVERLAY, follow the procedure below to turn Y, R, G, and B on and off separately. You cannot turn all channels off.

Procedure

MULTI → F•5 HISTOGRAM SETUP → F•3 Y
→ F•4 R
→ F•5 G
→ F•6 B

Settings

ON:	The Y, R, G, or B signal is displayed (this is the default value).
OFF:	The Y, R, G, or B signal is not displayed.

6.8 Setting the Measurement Mode

To set a measurement mode from the multi-screen display, follow the procedure below. For details about a particular measurement mode's menu, see the appropriate measurement mode explanation (the explanations start at chapter 10).
Generally, changing the settings here will also change the single-screen display settings.

From F•1 PIC to F•6 EYE, the only measurement modes that you can select are those whose displays are currently being displayed.
If F•2 DISPLAY MODE is set to P+W+V+A, F•4 AUDIO is not displayed.

Procedure

MULTI → F•3 MULTI MENU → F•1 PIC
→ F•2 WFM
→ F•3 VECT
→ F•4 AUDIO
→ F•5 STATUS
→ F•6 EYE (option)

7. 3D ASSIST DISPLAY FEATURE (OPTION)

This chapter explains the 3D assist display feature, which is activated when you set F•1 INPUT MODE to 3D ASSIST in the multi-screen display feature. The 3D assist display is an option. To use it, you need the LV 7380SER01, which is sold separately.

In the 3D assist display, you can evaluate 3D video signals by applying the video signal for the left eye and the video signal for the right eye. The supported format is HD-SDI (single link).

You can configure most of the 3D assist display settings by using F•2 3D FUNCTION on the multi-screen display menu. This setting is available when F•1 INPUT MODE is set to 3D ASSIST.

7.1 Selecting the Input Signal

To select the input signal, follow the procedure below.

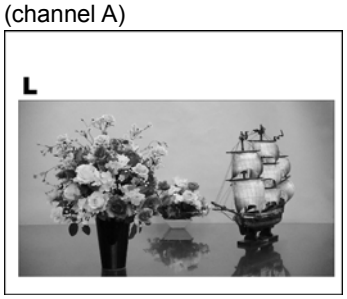
Procedure

MULTI → F•7 3D INPUT FORMAT

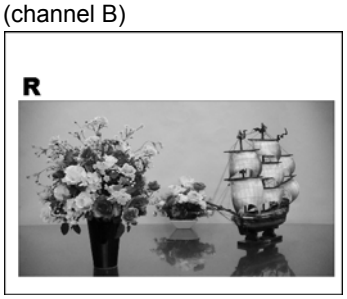
Settings

L/R DUAL:	The video signal for the left eye applied to channel A and the video signal for the right eye applied to channel B are combined and measured. Apply signals that are the same format to channels A and B (this is the default value).
HF SbyS:	The side-by-side signal applied to channel A or channel B is measured.
TOP&BOTM:	The top-and-bottom signal applied to channel A or channel B is measured.

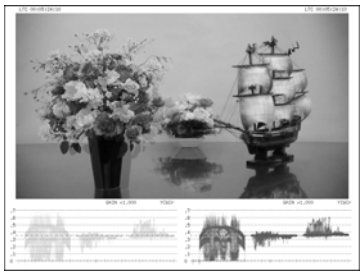
The video signal for the left eye (channel A)



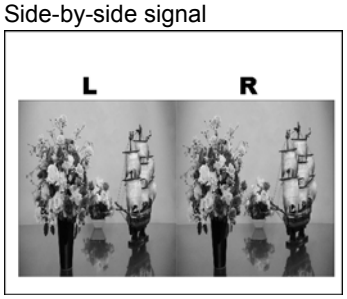
The video signal for the right eye (channel B)



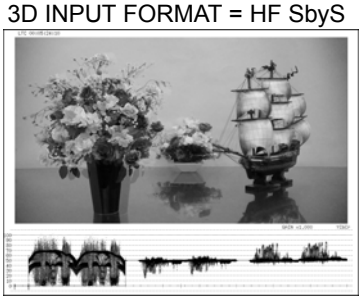
3D INPUT FORMAT = L/R DUAL



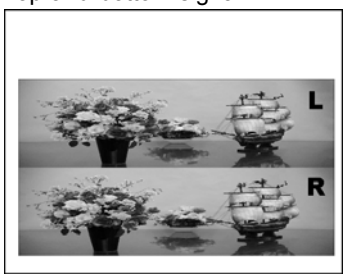
Side-by-side signal



3D INPUT FORMAT = HF SbyS



Top-and-bottom signal



3D INPUT FORMAT = TOP&BOTM

Figure 7-1 Selecting the input signal

7.2 Selecting the Display Format

To select the picture display format, follow the procedure below.
By using anaglyph glasses with the anaglyph displays (AGLPH CL and AGLPH MO), you can easily check 3D video signals.

Procedure

MULTI → F•2 3D FUNCTION → F•1 PICTURE FORM

Settings

AGLPH CL: Green and blue are masked from the video signal for the left eye, and red is masked from the video signal for the right eye. These signals are then combined and displayed (this is the default value).

AGLPH MO: Green and blue are masked from the monochrome video signal for the left eye, and red is masked from the monochrome video signal for the right eye. These signals are then combined and displayed. This is useful when you are measuring the amount of disparity because only the parts of the video that have disparity are colored.

CNVRGNCE: A 50 % offset is added to the difference between the monochrome the video signal for the left eye and the monochrome video signal for the right eye. The signals are then displayed. This is useful when you are performing convergence adjustment of two cameras.

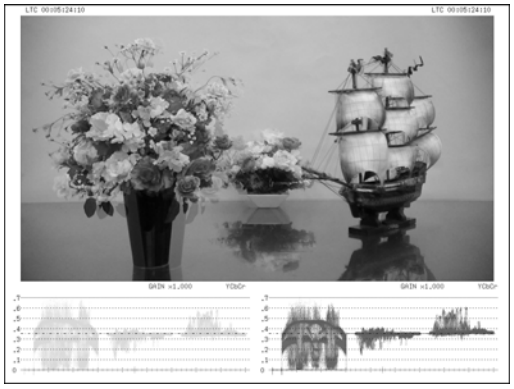
OVERLAY: The levels of the video signal for the left eye and the video signal for the right eye are halved. These signals are then combined and displayed.

CHECKER: The video signal for the left eye and the video signal for the right eye are displayed in a checkerboard pattern. You can set the positions of the boundary lines. This is useful when you are matching the video level of two cameras.

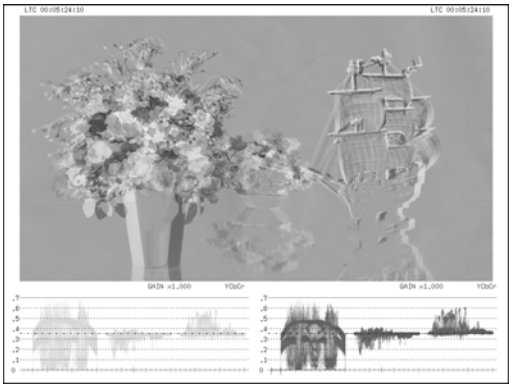
WIPE: The video signal for the left eye and the video signal for the right eye are divided by boundary lines and displayed. You can set the positions of the boundary lines. This is useful when you are matching the video level of two cameras.

FLICKER: Displays the video signal for the left eye and the video signal for the right eye on a time sharing display.

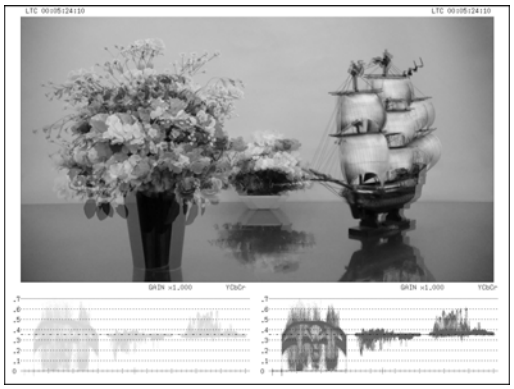
PICTURE FORM = AGLPH CL / AGLPH MO



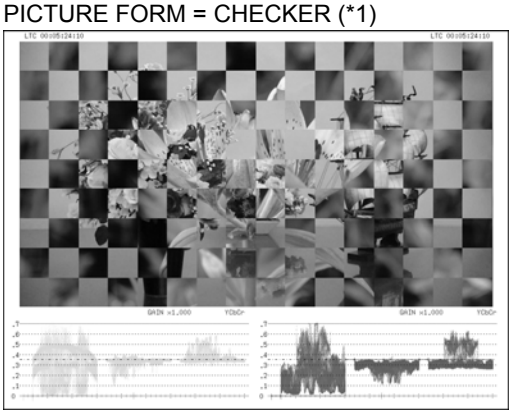
PICTURE FORM = CNVRGNCE



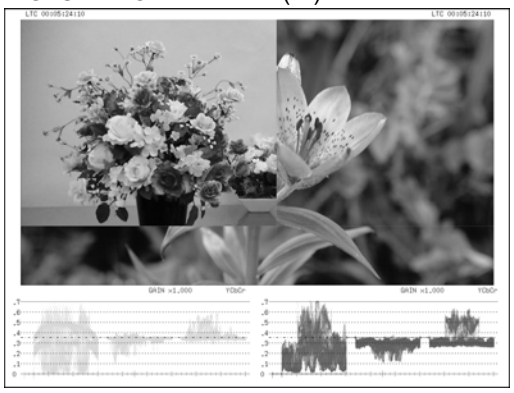
PICTURE FORM = OVERLAY



PICTURE FORM = CHECKER (*1)



PICTURE FORM = WIPE (*1)



PICTURE FORM = FLICKER

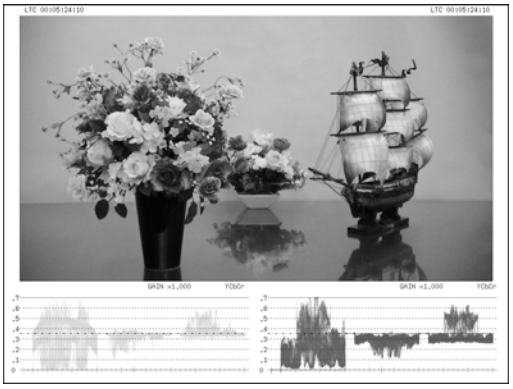


Figure 7-2 Selecting the display format

*1 To make this explanation clearer, the video signal for the right eye has been replaced with a different signal.

7.3 Configuring Checkerboard Display Settings

When F•1 PICTURE FORM is set to CHECKER, use the 3D FUNCTION menu to move the boundary lines.
Press F•D 1 to move the left-right boundary lines and F•D 2 to move the top-bottom boundary lines in a way that makes each square the same size in the checkerboard pattern.

Procedure

MULTI → F•2 3D FUNCTION → F•D 1 H VARIABLE (Left-right boundary line)
→ F•D 2 V VARIABLE (Top-bottom boundary line)

7.4 Configuring Wipe Display Settings

When F•1 PICTURE FORM is set to WIPE, use the 3D FUNCTION menu to configure the boundary line settings.

7.4.1 Turning the Boundary Lines On and Off

To turn the boundary lines on and off, follow the procedure below.

Procedure

MULTI → F•2 3D FUNCTION → F•3 WIPE MARKER

Settings

OFF:	Boundary lines are not displayed (this is the default value).
ON:	Boundary lines are displayed.

7.4.2 Moving Boundary Lines

To move the boundary lines, follow the procedure below. Press F•D 1 to move the left-right boundary line to the middle of the screen. Press F•D 2 to move the top-bottom boundary line to the bottom of the screen.
When WFM FORM is set to MIX, you can display the video signal waveforms separately on the left and right sides of the screen by turning F•D 1.
For information on the WFM FORM setting, see section 7.9.1, “Selecting the Display Format.”

Procedure

MULTI → F•2 3D FUNCTION → F•D 1 H WIPE VARIABLE (Left-right boundary line)
→ F•D 2 V WIPE VARIABLE (Top-bottom boundary line)

7.5 Setting the Inverted Display

To invert the display of the picture and the video signal waveform for each input signal, follow the procedure below. Use this feature when you are measuring video that is projected using half mirrors.

Procedure

MULTI → F•2 3D FUNCTION → F•2 REVERSE → F•1 LEFT
→ F•2 RIGHT

Settings

OFF:	The display is not inverted (this is the default value).
VERTICAL:	Pictures are inverted vertically.
HORIZONT:	Pictures and video signal waveforms are inverted horizontally. (*1)
H&V:	Pictures are inverted vertically and video signal waveforms are inverted horizontally. (*1)

*1 Horizontal inversion of the video signal waveform occurs only during the video period. Inversion cannot be performed when 3D INPUT FORMAT is set to HF SbyS or TOP&BOTM.

7.6 Selecting the Measurement Mode

When F•1 PICTURE FORM is set to AGLPH CL, AGLPH MO, CNVRGNCE, or OVERLAY, you can use the grid or the cursors to measure disparity.
To select the disparity measurement mode, follow the procedure below.

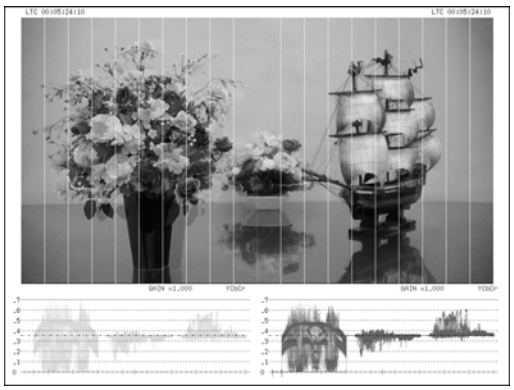
Procedure

MULTI → F•2 3D FUNCTION → F•3 MEASURE SELECT

Settings

OFF:	No grid lines or cursors are displayed (this is the default value).
GRID:	Grid lines are displayed. You can use the grid to measure disparity.
DISPRTY:	Cursors are displayed. You can perform detailed disparity measurements by setting the viewing environment.

MEASURE SELECT = GRID



MEASURE SELECT = DISPRTY

Figure 7-3 Selecting the measurement mode

7.7 Configuring Grid Display Settings

When F•3 MEASURE SELECT is set to GRID, press F•4 GRID SETUP to configure the grid settings.

7.7.1 Selecting the Displayed Grid

To select the type of grid that is displayed, follow the procedure below. The reference grid lines for both the disparity and horizontal grid lines are displayed in yellow.

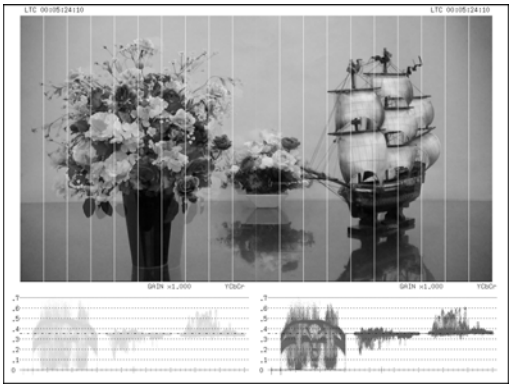
Procedure

MULTI → F•2 3D FUNCTION → F•4 GRID SETUP → F•1 GRID DISPLAY

Settings

DISPRTY:	Vertical grid lines are displayed. Use this option when you want to perform disparity measurements (this is the default value).
HORIZONT:	Horizontal grid lines are displayed. Use this option when you want to match the horizontal position of one camera or multiple cameras.
BOTH:	Both vertical and horizontal grid lines are displayed.

GRID DISPLAY = DISPRTY



GRID DISPLAY = HORIZONT

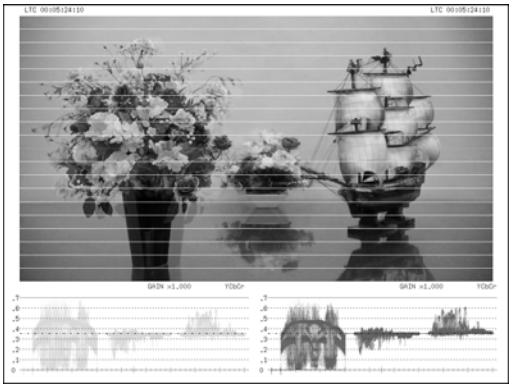


Figure 7-4 Selecting the displayed grid

7.7.2 Selecting the Grid to Configure

Configure the disparity grid and the horizontal grid separately.
When F•1 GRID DISPLAY is set to BOTH, to select the grid that you want to configure, follow the procedure below.

Procedure

MULTI → F•2 3D FUNCTION → F•4 GRID SETUP → F•2 GRID VARIABLE

Settings

DISPRTY: The disparity grid is selected (this is the default value).
HORIZONT: The horizontal grid is selected.

7.7.3 Adjusting the Grid Line Spacing

To adjust the grid line spacing, follow the procedure below.
Press F•D 1 to set the corresponding setting to its default value.

Procedure

MULTI → F•2 3D FUNCTION → F•4 GRID SETUP → F•D 1 GRID SIZE

Settings (When F•1 GRID DISPLAY or F•2 GRID VARIABLE is set to DISPRTY.)

Setting range: 6pix to 192pix (The default setting is 96pix) (*1)
0.3% to 10.0% (The default setting is 5.0%)

Settings (When F•1 GRID DISPLAY or F•2 GRID VARIABLE is set to HORIZONT.)

Setting range: 6line to 108line (The default setting is 54line) (*1)
0.6% to 10.0% (The default setting is 5.0%)

*1 The selectable range varies depending on the input signal. The values shown here are for a 1080i/59.94 input signal.

7.7.4 Selecting the Grid Line Adjustment Unit

To select the grid adjustment unit, follow the procedure below.

Procedure

MULTI → F•2 3D FUNCTION → F•4 GRID SETUP → F•3 GRID UNIT

Settings

PIX,LINE:	The disparity grid lines are adjusted with pixels as the unit. The horizontal grid lines are adjusted with lines as the unit (this is the default value).
%:	The disparity and horizontal grid lines are adjusted with percentage as the unit. Set the picture frame to 100 %.

7.7.5 Adjusting the Grid Line Positions

To adjust the grid line positions, follow the procedure below.
The reference grid lines (displayed in yellow) can be moved from one side of the picture to the other. Press F•D 2 to center the respective reference grid lines.

Procedure

MULTI → F•2 3D FUNCTION → F•4 GRID SETUP
→ F•D 2 H POS (When F•1 GRID DISPLAY or F•2 GRID VARIABLE is set to DISPRTY.)
→ F•D 2 V POS (When F•1 GRID DISPLAY or F•2 GRID VARIABLE is set to HORIZONT.)

7.7.6 Selecting the Grid Line Color

To select the grid line color, follow the procedure below.

Procedure

MULTI → F•2 3D FUNCTION → F•4 GRID SETUP → F•4 GRID BRIGHT

Settings

WHITE:	The grid lines are displayed in white (this is the default value).
BLACK:	The grid lines are displayed in black.
GRAY1:	The grid lines are displayed in dark gray.
GRAY2:	The grid lines are displayed in light gray.

7.8 Configuring Disparity Measurement Settings

When F•3 MEASURE SELECT is set to DISPRTY, press F•4 DISPRTY SETUP to measure disparity.

7.8.1 Disparity Measurement Display Explanation

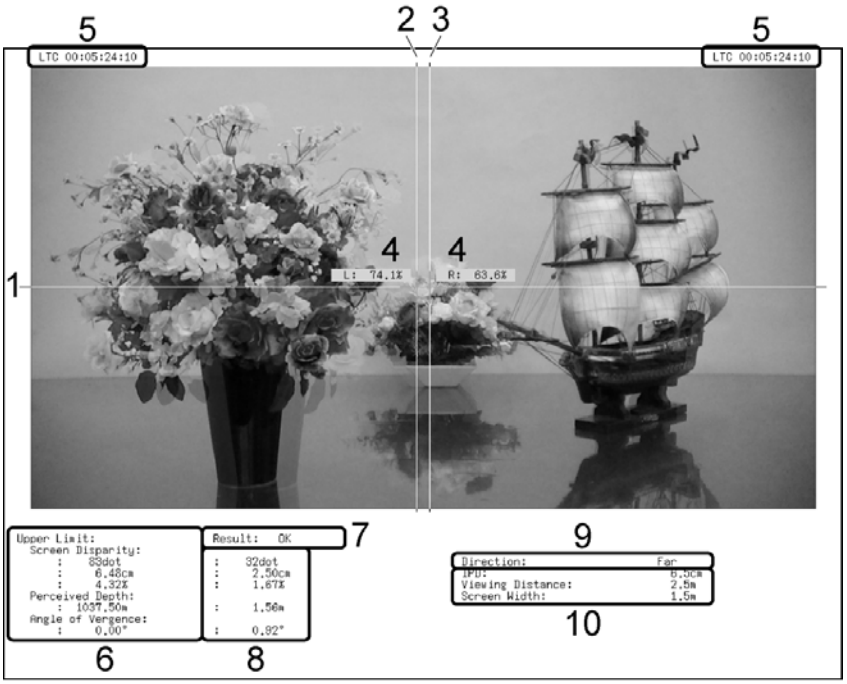


Figure 7-5 Disparity measurement display

1 V cursor

This is the vertical cursor.

2 L cursor

This is a disparity measurement cursor. Match this cursor with the video signal for the left eye.

3 R cursor

This is a disparity measurement cursor. Match this cursor with the video signal for the right eye.

4 Luminance level

The luminance levels at the intersections of the cursors are displayed as percentages. When a luminance level is 0.0 % or less or 80.0 % or greater, the measured value is displayed in yellow. Press F•3 %DISPLAY to turn the display ON and OFF.

5 Time code

The video signal for the left eye time code is displayed on the left, and the video signal for the right eye time code is displayed on the right.

6 Upper Limit

This displays the upper disparity limits that were set on the PARAMETER display. Depending on the cursor position, these switch automatically between the Far upper limits and the Near upper limits.

7 Result

When at least one measured value exceeds its upper limit, this displays “NG” in red. When all measured values are less than or equal to their upper limits, this displays “OK” in green.

8 Measured values

This displays the disparities that are measured by the cursors.

9 Far or Near

When the L cursor is on the left side, this displays “Far.” When the L cursor is on the right side, this displays “Near.”

10 Viewing environment

This displays the viewing environment that has been configured on the PARAMETER display.

- **About the Names of Settings and Measurement Items**

The names of the settings and measurement items that are used with the LV 7380 are shown below.

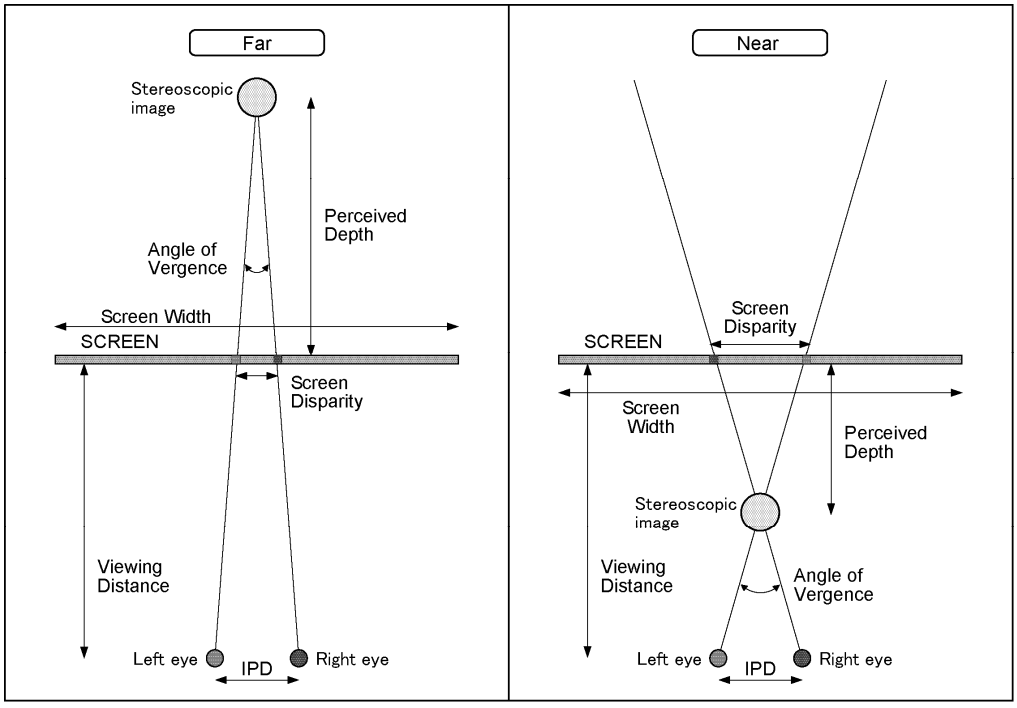


Figure 7-6 Setting and measurement item names

7.8.2 Disparity Measurement Procedure

To measure disparity, follow the procedure below.
Before you begin this procedure, set F•3 MEASURE SELECT to DISPRTY on the 3D FUNCTION menu.

1. Press F • 4 DISPRTY SETUP and then F • 1 SETUP.

The PARAMETER display appears.

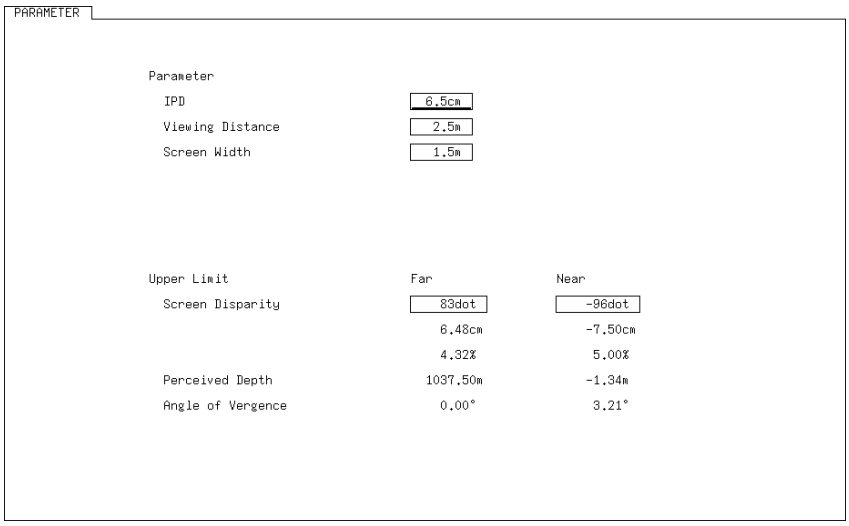


Figure 7-7 PARAMETER display

2. Under Parameter, enter the assumed viewing environment.

Turn F•D 1 SELECT to move the cursor, and press F•D 1 to select the parameter that you want to specify. The cursor color changes from cyan to yellow. Turn F•D 1 to set the value. When you have finished setting the value, press F•D 1 again.

IPD	Enter the interpupillary distance. For adults, this is approximately 6.5 cm. For children, this is approximately 5.0 cm. (Setting range: 2.0 to 20.0 cm. The default setting is 6.5 cm.)
Viewing Distance	Enter the distance from the screen to the viewer. (Setting range: 0.1 to 99.9 m. The default setting is 2.5 m.)
Screen Width	Enter the screen width. (Setting range: 0.1 to 250.0 m. The default setting is 1.5 m.)

3. Under Upper Limit, enter the upper limits for the measured values.

If at least one measured value exceeds its limit that you enter here, “NG” is displayed on the disparity measurement display.

Screen Disparity	Enter the upper limit for the screen disparity. When you specify the value in units of dots, the cm, %, Perceived Depth, and Angle of Vergence values are set automatically. Enter a negative value under Near. (Setting range: ±1920 dots. The default Far setting is 83 dots. The default Near setting is -96 dots.)
Perceived Depth	This displays the near and far limits as distances from the screen.
Angle of Vergence	This displays the angle of vergence limit.

4. **Press F•1 COMPLETE.**

   The settings are confirmed, and the disparity measurement display appears. To cancel the settings, press F•7 CANCEL.

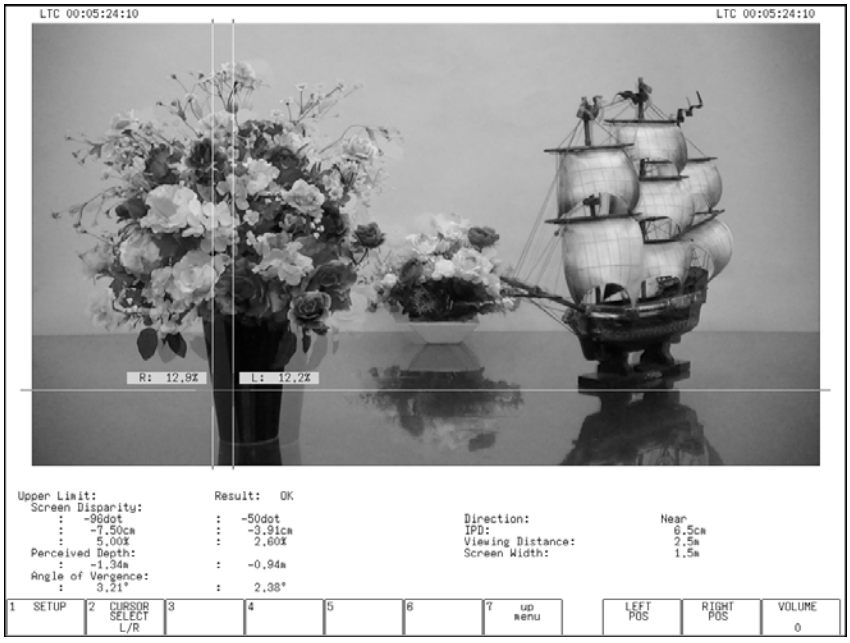


Figure 7-8 Disparity measurement display

5. **Set F•2 CURSOR SELECT to L/R.**
6. **Turn F•D 1 LEFT POS to match the L cursor with the video signal for the left eye.**

   Press F•D 1 to move the cursor to approximately the center of the screen.
7. **Turn F•D 2 RIGHT POS to match the R cursor with the video signal for the right eye.**

   The measured disparity is displayed at the bottom of the screen.
   Press F•D 2 to move the cursor to approximately the center of the screen.

- **To Move the V Cursor**

  It is useful to use the V cursor when you match the positions of the L and R cursors. Also, the luminance levels at the cursor intersections are displayed.
  To move the V cursor, set F•2 CURSOR SELECT to V/TRACK, and then turn F•D 1 VERT POS. Press F•D 1 to move the cursor to the center of the screen.

- **To Move the L and R Cursors at the Same Time**

  To move the L and R cursors at the same time, set F•2 CURSOR SELECT to V/TRACK, and then turn F•D 2 LR TRACK POS.

7.9 Configuring Video Signal Waveform Settings

When F•7 3D INPUT FORMAT is set to L/R DUAL and F•4 SUB-ITEM is set to WFM, press F•5 WFM SETUP to configure video signal waveform settings.

7.9.1 Selecting the Display Format

To select the video signal waveform display format, follow the procedure below.

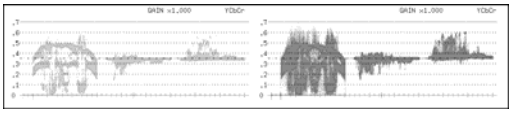
Procedure

MULTI → F•5 WFM SETUP → F•1 WFM FORM

Settings

ALIGN:	Channel A (the video signal for the left eye) and channel B (the video signal for the right eye) are displayed side by side (this is the default value).
MIX:	Channel A (the video signal for the left eye) and channel B (the video signal for the right eye) are displayed on top of each other. When F•2 WFM COLOR is set to RED,CYAN, only the parts where disparity exists are colored.

WFM FORM = ALIGN



WFM FORM = MIX

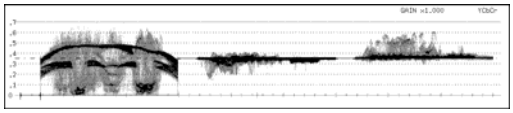


Figure 7-9 Selecting the display format

7.9.2 Selecting the Video Signal Waveform Color

To select the video signal waveform color, follow the procedure below.

Procedure

MULTI → F•5 WFM SETUP → F•2 WFM COLOR

Settings

RED,CYAN:	Channel A (the video signal for the left eye) is displayed in red, and channel B (the video signal for the right eye) is displayed in cyan (this is the default value).
SINGLE:	Waveforms are displayed in the color specified by WFM COLOR on the video signal waveform menu.

7.10 Setting the Histogram

When F•7 3D INPUT FORMAT is set to L/R DUAL and F•4 SUB-ITEM is set to HISTOGRAM, to select the histogram display channel, follow the procedure below.

Procedure

MULTI → F•5 HISTOGRAM SETUP → F•2 L/R SELECT

Settings

LEFT:	Channel A (the video signal for the left eye) is displayed.
RIGHT:	Channel B (the video signal for the right eye) is displayed.
L&R:	Channel A (the video signal for the left eye) and channel B (the video signal for the right eye) are displayed on top of each other (this is the default value).

8. PRESET FEATURE

You can use the preset feature to register and load panel settings. Also, you can use the same settings on multiple LV 7380s by copying presets to USB memory.

There are two kinds of presets: comprehensive presets (usually just referred to as presets) and display mode presets.
The registered panel settings are not deleted even if you initialize the settings.

- **Preset Settings**

  You can register up to 30 different sets of all the panel settings (some settings are not included).(*1)

  Registering Presets

  Set the LV 7380 to the settings that you want to register, and then press MEM.
  Press F•1 FULL PRESET on the preset registration menu to register the settings.

  Loading Presets

  Set FUNCTION PRESET to OFF on the preset registration menu.
  Press RCLL, and load the preset settings from the preset menu.

- **Display Mode Presets**

  You can register up to five different sets of panel settings for each display mode.(*2) When you use an individual setting configuration for a particular display, the settings for the other displays are not affected.
  This feature cannot be used with the multi-screen display.

  Registering Display Mode Presets

  Set the LV 7380 to the settings that you want to register, and then press MEM.
  Press F•2 FUNCTION PRESET on the preset registration menu to register the settings.

  Loading Display Mode Presets

  After setting FUNCTION PRESET to ON on the preset registration menu, press WFM, VEC, PIC, AUDIO, STATUS, or EYE (option).
  Press RCLL, and load the preset settings from the display mode preset menu.

*1 The [CAP] DISPLAY, BMP FILE, and BSW FILE settings
[SYS] FORMAT settings (the SDI Select Output, INTERFACE, ASPECT SELECT, DATE&TIME, and SHORTCUT KEY SET settings)
The [MEM] FUNCTION PRESET setting
The [MENU ON/OFF] setting

*2 Picture, video-signal-waveform, vector, audio, status, and eye-pattern displays (the eye pattern display is optional)

8.1 Preset Settings

8.1.1 Registering Presets

1. **Set the LV 7380 to the settings that you want to register.**
2. **Press MEM.**

   The preset registration menu appears.
3. **Press F•1 FULL PRESET.**

   A list of files appears.
4. **Press F•2 COMMENT INPUT.**

   The file name input display appears.
   You can also copy the file name of an already registered file. To copy a file name, move the cursor to the file in the file list whose name you want to copy, and then press F•D 1 FILE SELECT.
5. **Enter a file name using up to 16 characters.**

   The key operations that you can perform on the file name input display are as follows:

F•1 DELETE	Deletes the character at the cursor
F•2 <=	Moves the cursor to the left
F•3 =>	Moves the cursor to the right
F•4 CHAR SET	Enters the character
F•D 1 CHAR SELECT	Turn to select a character, and press to enter the character.

   After you enter the file name, press F•7 up menu.
6. **Turn F•D 1 FILE SELECT to select the file number of the file you want to register.**
7. **Press F•3 STORE.**

   If a file has already been stored with the file number that you selected, an overwrite confirmation prompt appears. If you want to overwrite the current file, press F•1 OVER WR YES. Otherwise, press F•3 OVER WR NO.

8.1.2 Loading Presets

To load presets, you have to set FUNCTION PRESET to OFF by following the procedure below. The default value of FUNCTION PRESET is OFF.
When the multi-screen display is being used, regardless of the FUNCTION PRESET setting, pressing RCLL displays the preset menu.

1. **Press MEM.**

   The preset registration menu appears.

2. **Press F•2 FUNCTION PRESET.**

   A list of files appears. F•2 FUNCTION PRESET appears on the single-screen display.

3. **Set F•1 FUNCTION PRESET to OFF.**

To load presets, follow the procedure below.

1. **Press RCLL.**

   The preset menu appears.

2. **Press a function key from F•1 No.1 to F•7 No.7.**

   If the preset number that you want to load is greater than 7, turn F•D 1 more.

8.1.3 Deleting Presets

1. **Press MEM.**

   The preset registration menu appears.

2. **Press F•1 FULL PRESET.**

   A list of files appears.

3. **Turn F•D 1 FILE SELECT to select the file number of the file you want to delete.**
4. **Press F•4 DELETE.**

   F•4 DELETE appears if a file exists that has the selected file number.

5. **Press F•1 DELETE YES.**

   To cancel the deletion of the selected preset, press F•3 DELETE NO.

8.2 Display Mode Presets

8.2.1 Registering Display Mode Presets

1. **Set the LV 7380 to the settings that you want to register.**
2. **Press MEM.**

   The preset registration menu appears.
3. **Press F•2 FUNCTION PRESET.**

   A list of files appears. F•2 FUNCTION PRESET appears on the single-screen display.
4. **Press F•2 COMMENT INPUT.**

   The file name input display appears.
   You can also copy the file name of an already registered file. To copy a file name, move the cursor to the file in the file list whose name you want to copy, and then press F•D 1 FILE SELECT.
5. **Enter a file name using up to 16 characters.**

   The key operations that you can perform on the file name input display are as follows:

F•1 DELETE	Deletes the character at the cursor
F•2 <=	Moves the cursor to the left
F•3 =>	Moves the cursor to the right
F•4 CHAR SET	Enters the character
F•D 1 CHAR SELECT	Turn to select a character, and press to enter the character.

   After you enter the file name, press F•7 up menu.
6. **Turn F•D 1 FILE SELECT to select the file number of the file you want to register.**
7. **Press F•3 STORE.**

   If a file has already been stored with the file number that you selected, an overwrite confirmation prompt appears. If you want to overwrite the current file, press F•1 OVER WR YES. Otherwise, press F•3 OVER WR NO.

8.2.2 Loading Display Mode Presets

To load display mode presets, you have to set FUNCTION PRESET to ON by following the procedure below. The default value of FUNCTION PRESET is OFF.

1. **Press MEM.**

   The preset registration menu appears.

2. **Press F•2 FUNCTION PRESET.**

   A list of files appears. F•2 FUNCTION PRESET appears on the single-screen display.

3. **Set F•1 FUNCTION PRESET to ON.**

To load display mode presets, follow the procedure below.

1. **Press the key of the display mode whose preset you want to load.**
2. **Press RCLL.**

   The display mode preset menu appears.

3. **Press a function key from F•1 No.1 to F•5 No.5.**

8.2.3 Deleting Display Mode Presets

1. **Press the key of the display mode whose preset you want to delete.**
2. **Press MEM.**

   The preset registration menu appears.

3. **Press F•2 FUNCTION PRESET.**

   A list of files appears.
   F•2 FUNCTION PRESET appears on the single-screen display.

4. **Turn F•D 1 FILE SELECT to select the file number of the file you want to delete.**
5. **Press F•4 DELETE.**

   F•4 DELETE appears if a file exists that has the selected file number.

6. **Press F•1 DELETE YES.**

   To cancel the deletion of the selected display mode preset, press F•3 DELETE NO.

8.3 Copying Presets

You can copy all of the presets and display mode presets by pressing F•4 ALL COPY USB->INT or F•5 ALL COPY INT->USB.
These commands appear when USB memory is connected.

8.3.1 Copying All Presets from USB Memory to the LV 7380

To copy all of the presets that have been saved to USB memory to the LV 7380, follow the procedure below.
If presets have already been saved to the LV 7380 memory, they will be overwritten.
To cancel the copy operation, press F•3 COPY NO.

Procedure

MEM → F•4 ALL COPY USB->INT → F•1 COPY YES

8.3.2 Copying All Presets from the LV 7380 to USB Memory

To copy all of the presets that have been saved to the LV 7380 to USB memory, follow the procedure below.
If presets have already been saved to the USB memory, they will be overwritten.
To cancel the copy operation, press F•3 COPY NO.

The file structure in the USB memory is shown below. Note that the file numbers in the USB memory are different from the LV 7380 file numbers by one.
If you change the file names on the USB memory device, you will not be able to copy the files from the USB memory to the LV 7380.

USB memory
└ LV7380_USER
  └ PRESET
    ├ WFM_00.PR7 (to WFM_04.PR7) ..... Display mode presets (WFM) No. 1 to 5
    ├ VEC_00.PR7 (to VEC_04.PR7) ..... Display mode presets (VECT) No. 1 to 5
    ├ PIC_00.PR7 (to PIC_04.PR7) ..... Display mode presets (PIC) No. 1 to 5
    ├ AUD_00.PR7 (to AUD_04.PR7) ..... Display mode presets (AUDIO) No. 1 to 5
    ├ STTS_00.PR7 (to STTS_04.PR7)..... Display mode presets (STATUS) No. 1 to 5
    ├ EYE_00.PR7 (to EYE_04.PR7)..... Display mode presets (EYE) No. 1 to 5 (option)
    └ PRESET_00.PR7 (to PRESET_29.PR7)..... Presets No.1 to 30

Procedure

MEM → F•5 ALL COPY INT->USB → F•1 COPY YES

9. SCREEN CAPTURE FEATURE

You can use the screen capture feature to acquire still image data of the current display. You can save the acquired data to USB memory or overlay it on the input signal and display it using the LV 7380.

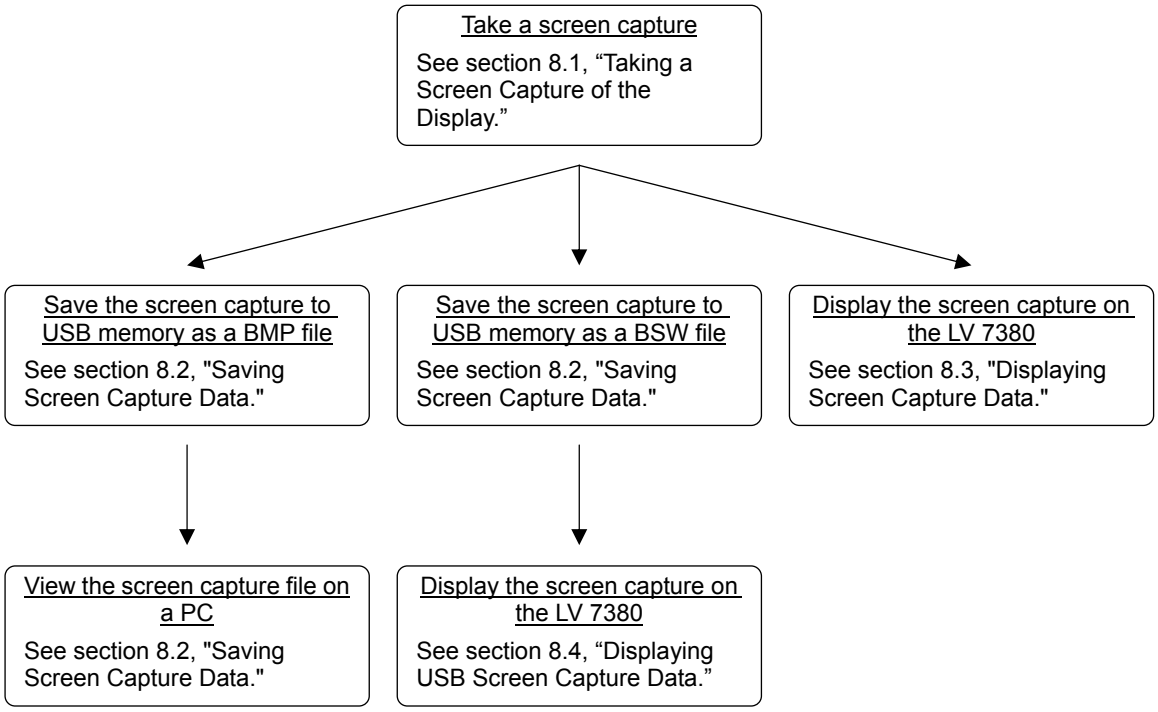


Figure 9-1 Screen capture feature

9.1 Taking a Screen Capture of the Display

1. **Configure the LV 7380 so that the display that you want to capture appears on the screen.**

   Only measurement displays can be captured. Screens such as the file setup screen and tab menus cannot be captured.

2. **Press CAP.**

   The currently displayed screen is captured, and the screen capture menu appears.
   You can also capture a display by pressing F•1 REFRESH on the screen capture menu.

   Note that if you perform one of the following operations after capturing a display, the captured data will be cleared.
   • Change the display mode
   • Press MULTI, MEM, RCLL, or SYS
   • Turn off the power
   When the captured data is cleared, the CAP key LED will turn off.

9.2 Saving Screen Capture Data

The data that you capture by following the procedure in section 9.1, “Taking a Screen Capture of the Display,” is cleared when operations such as changing the display mode are performed. You can display the captured data on the LV 7380 even after the power has been turned off by saving the captured data to USB memory (if you save the captured data in BSW format). You can also view the screen capture data on a PC (if you save the screen capture data in BMP format).

1. **Press F • 3 FILE SELECT.**

   F•3 FILE SELECT appears when USB memory is connected to the LV 7380.

2. **Select the file formats.**

   The file formats that you can select are explained below. To save to a file format, set it to ON. Both of the formats are set to ON by default.
   These settings can not be registered to presets.

   F•1 BMP FILE — The captured data is saved to the USB memory as a bitmap file. You can view the saved files on a PC.
   F•2 BSW FILE — The captured data is saved to the USB memory as a BSW file. You can view the saved files on the LV 7380.

   After you have finished setting the file formats, press F•7 up menu.

3. **Press F • 4 USB MEM STORE.**

   The captured data is saved to the USB memory.
   F•4 USB MEM STORE appears when USB memory is connected to the LV 7380 and BMP FILE or BSW FILE is set to ON.

   The file name is automatically set to the date and time that you have set using the system settings according to the procedure in section 5.6, “Setting the Date and Time.”
   Example: 20080425150500.bmp (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

USB memory
└ LV7380_USER
  └ BMP
    ├ yyyymmddhhmmss.bmp
    └ yyyymmddhhmmss.bsw

9.3 Displaying Screen Capture Data

The data that you capture by following the procedure in section 9.1, “Taking a Screen Capture of the Display,” can be displayed on the LV 7380, or it can be overlaid on the LV 7380's current input signal.

1. Press F•2 DISPLAY to select the display format.

   The display formats that you can select are explained below.

   REAL — The input signal is displayed (this is the default value).

   HOLD — The screen capture data is displayed. The video-signal-waveform, vector, audio-waveform, and eye-pattern-waveform displays (the eye pattern waveform display is optional) are shown in cyan. (This excludes parts of the 2-channel display and parts of the 3D assist display (option).)

   BOTH — The input signal and the captured data are displayed on top of each other with their intensities halved.
   The captured data's video-signal-waveform, vector, audio-waveform, and eye-pattern-waveform displays (the eye pattern waveform display is optional) are shown in cyan. (This excludes parts of the 2-channel display and parts of the 3D assist display (option).)

   You can display captured video-signal-waveform, vector, audio-waveform, audio-meter, picture, histogram and eye-pattern-waveform data (the eye pattern waveform data is optional) on the LV 7380. Other kinds of data (status, 5 bar, etc.) cannot be displayed. However, these other kinds of data can be saved to USB memory as BMP files.
   See section 9.2, “Saving Screen Capture Data.”

9.4 Displaying Screen Capture Data Saved to USB Memory

The data that you save in BSW format by following the procedure in section 9.2, “Saving Screen Capture Data,” can be displayed on the LV 7380, or it can be overlaid on the LV 7380's current input signal.
(Screen capture data that has been saved in BMP format and screen capture data that has been saved on a different model cannot be displayed on the LV 7380.)

1. **Press CAP.**
2. **Press F • 5 USB MEM RECALL.**

   F•5 USB MEM RECALL appears when USB memory is connected to the LV 7380.
3. **Turn F • D 1 FILE SELECT to select the file that you want to display.**

   Files are displayed in chronological order, with the oldest files first. Up to 100 files can be displayed.
   You can press F•3 DELETE here to delete the selected file.
4. **Press F • 1 RECALL.**

   F•1 RECALL appears when the selected file is a BSW file.
   You can cancel the captured data display operation by pressing F•7 up menu.
5. **Press F • 2 DISPLAY to select the display format.**

   After you press F•1 RECALL, the display format is BOTH. For details on the display format, see section 9.3, “Displaying Screen Capture Data.”

10. VIDEO SIGNAL WAVEFORM DISPLAY

10.1 Video Signal Waveform Display Explanation

To display video signal waveforms, press WFM.

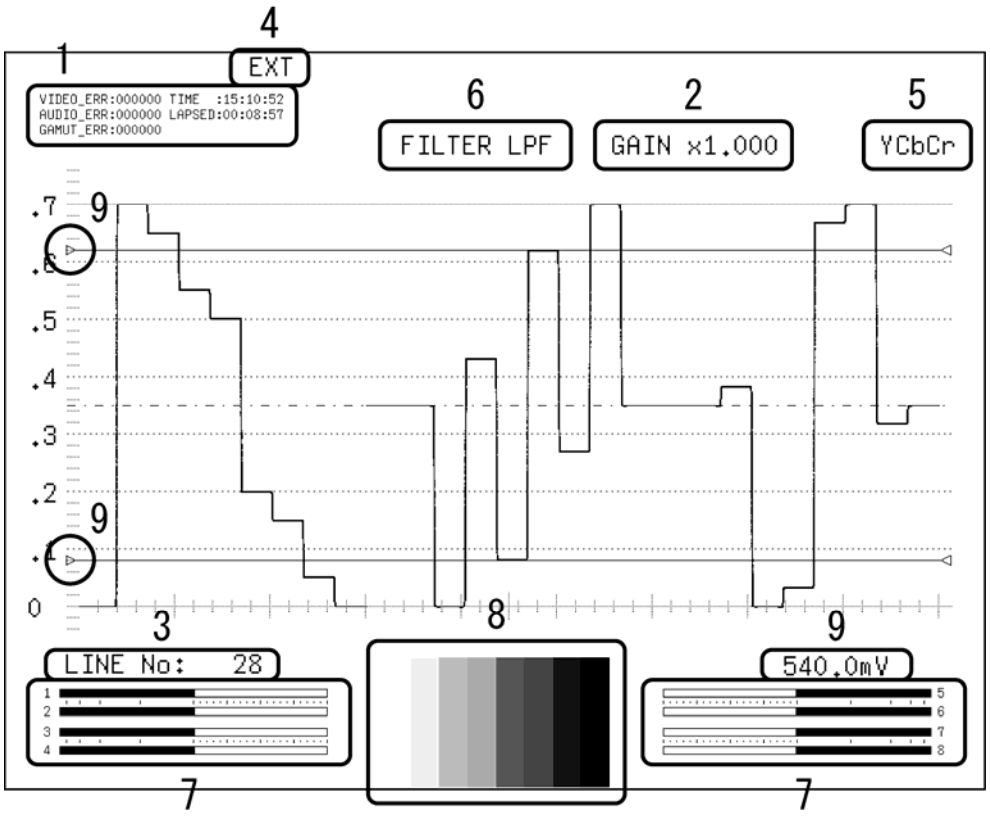


Figure 10-1 Video signal waveform display

1 Error Counter

The error counter, the current time, and the elapsed time appear here.

2 Gain

The video signal waveform gain appears here. You can set the gain to a value between 0.2 and 10 by setting GAIN MAG and GAIN VARIABLE.

3 Selected Line

You can display the waveform of the selected line.

4 Sync Signal

EXT appears here when an external sync signal is being used.

5 Display Format

The video signal waveform display format (YCbCr, GBR, YGBR, RGB, YRGB, or COMPOSITE) appears here.

6 Filter

FILTER LPF appears here when FILTER has been set to LOW PASS.

7 Thumbnail (Audio meter)

The audio meter appears here as a thumbnail. You can also turn this off.

8 Thumbnail (Picture)

The picture appears here as a thumbnail. You can also turn this off.

9 Cursor

You can measure the time or amplitude using cursors.

10.2 Setting the Display Position

To set the display position, use F•D 1 H POS and F•D 2 V POS on the video signal waveform menu. These enable you to set the video signal waveform horizontal and vertical positions. F•D 1 H POS and F•D 2 V POS appear on other levels of the video signal waveform menu as well and function in the same way.
Note that the display position cannot be set on the 2-channel display or 3D assist display (option).

10.2.1 Setting the Horizontal Position

To set the video signal waveform horizontal position, follow the procedure below.
To return the position to its default location, press F•D 1.

Procedure

WFM → F•D 1 H POS

10.2.2 Setting the Vertical Position

To set the video signal waveform vertical position, follow the procedure below.
To return the position to its default location, press F•D 2.

Procedure

WFM → F•D 2 V POS

10.3 Selecting Which Channels to Display

Pressing a front panel key from CH 1 to CH 3 turns on or off the display of the video signal waveform assigned to that key. The video signal waveform display is on when a key is lit and off when the key is not lit. By default, all of the video signal waveform displays are on.

This setting is invalid when COLOR MATRIX is set to COMPOSIT and when YGBR or YRGB is set to ON. You cannot turn the displays for all the keys off.

For information on the COLOR MATRIX setting, see section 10.10.1, “Selecting the Display Format.”

Waveforms are assigned to the CH 1 to CH 3 keys as indicated below.

Table 10-1 Waveform assignments

COLOR MATRIX	CH 1	CH 2	CH 3
YCbCr	Y	C_B	C_R
GBR	G	B	R
RGB	R	G	B

10.4 Setting the Display Mode

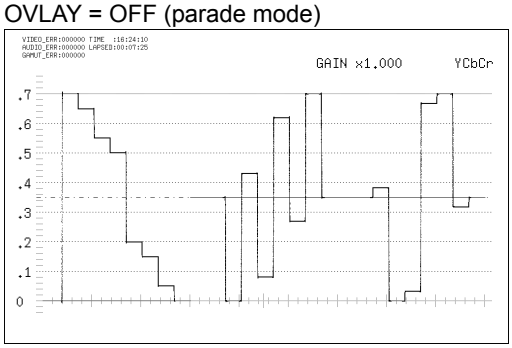
The video signal waveform display mode changes each time you press OVLAY on the front panel.

When the OVLAY key is lit, the display mode is overlay (waveforms are overlaid), when the OVLAY key is not lit, the display mode is parade (waveforms are shown side by side). The default value is parade mode.

This setting is invalid when COLOR MATRIX is set to COMPOSIT.

For information on the COLOR MATRIX setting, see section 10.10.1, “Selecting the Display Format.”

OVLAY = OFF (parade mode)



OVLAY = ON (overlay mode)

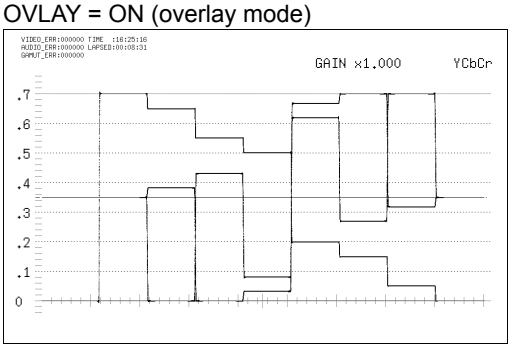


Figure 10-2 Parade and overlay display modes

10.5 Configuring the Video Signal Waveform and Scale Settings

To configure video-signal-waveform and scale settings, press F•1 INTEN/SCALE on the video signal waveform menu.

10.5.1 Selecting the Scale Unit

To set the scale units, follow the procedure below.
Regardless of this setting, when COLOR MATRIX is set to COMPOSIT, the scale units will always be % when the composite display format is NTSC and V when the composite display format is PAL.

For information on the COLOR MATRIX setting, see section 10.10.1, “Selecting the Display Format.”

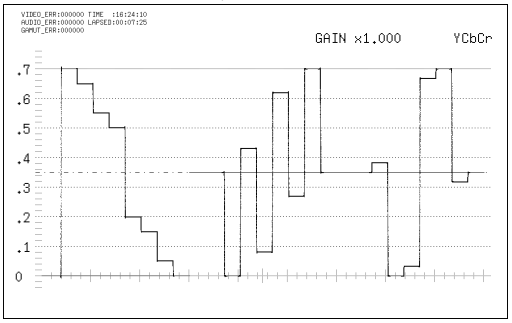
Procedure

WFM → F•1 INTEN/SCALE → F•1 SCALE UNIT

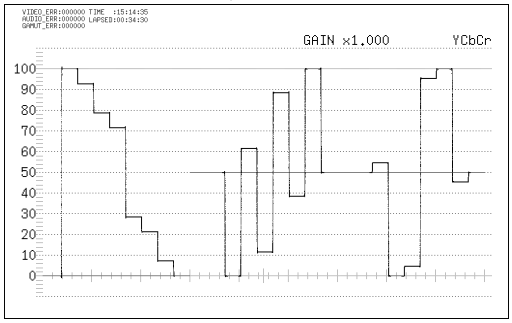
Settings

HDV,SD%:	The scale shows voltages when the input signal is HD and shows percentages when the input signal is SD.
HDV,SDV:	The scale shows voltages.
HD%,SD%:	The scale shows percentages (this is the default value).
150%:	The scale shows percentages. (Starting from -50 %.) This option cannot be selected when COLOR MATRIX is set to YCbCr or COMPOSIT.
1023:	0 to 100 % is displayed as 64 to 940 (YGBR) or 64 to 960 (C_BC_R). This option cannot be selected when COLOR MATRIX is set to COMPOSIT.
3FF:	0 to 100 % is displayed as 040 to 3AC (YGBR) or 040 to 3C0 (C_BC_R). This option cannot be selected when COLOR MATRIX is set to COMPOSIT.

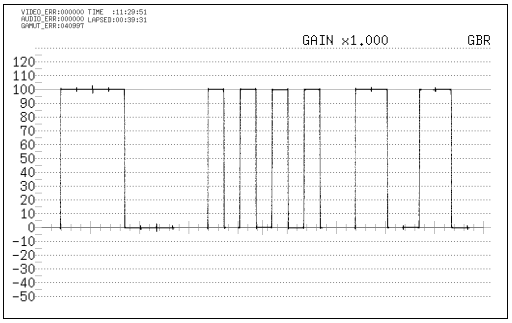
SCALE UNIT = HDV,SDV



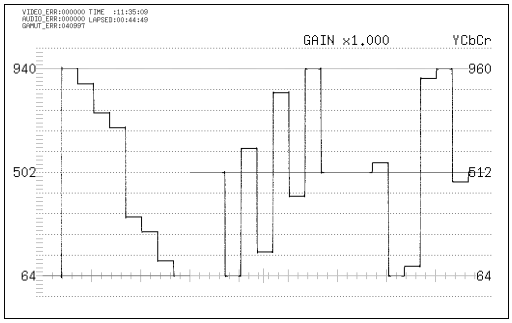
SCALE UNIT = HD%,SD%



SCALE UNIT = 150%



SCALE UNIT = 1023



SCALE UNIT = 3FF

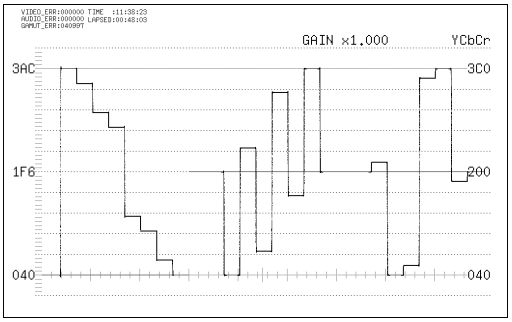


Figure 10-3 Scale units

10.5.2 Selecting the Scale Color

To select the scale color from one of seven options, follow the procedure below.

Procedure

WFM → F•1 INTEN/SCALE → F•2 SCALE COLOR

Settings

WHITE:	The scale is displayed in white.
YELLOW:	The scale is displayed in yellow (this is the default value).
CYAN:	The scale is displayed in cyan.
GREEN:	The scale is displayed in green.
MAGENTA:	The scale is displayed in magenta.
RED:	The scale is displayed in red.
BLUE:	The scale is displayed in blue.

10.5.3 Selecting the Waveform Color

To select the video signal waveform color from one of two options, follow the procedure below.
If the video signal waveform is displayed simultaneously with the vector waveform on the multi-screen display, the waveform color will be the same as the vector waveform color.
When DISPLAY MODE is set to WFM+PIC (option) in the 2-channel display or when WFM COLOR is set to RED, CYAN in the 3D assist display (option), this setting is not available.

Procedure

WFM → F•1 INTEN/SCALE → F•3 WFM COLOR (single-screen display)
→ F•3 WFM/VECT COLOR (multi-screen display)

Settings

WHITE:	The video signal waveform is displayed in white (this is the default value).
GREEN:	The video signal waveform is displayed in green.

10.5.4 Displaying Markers for 75 % Intensity Color Bars

When a 75% color bar signal is being input, to display markers that correspond to the chrominance signal peak levels, follow the procedure below.
This setting is available when COLOR MATRIX is set to YCbCr.
For information on the COLOR MATRIX setting, see section 10.10.1, “Selecting the Display Format.”

Procedure

WFM → F•1 INTEN/SCALE → F•4 MARKER → F•1 75%C.BAR MARKER

Settings

ON:	75 % intensity color bars are displayed.
OFF:	75 % intensity color bars are not displayed (this is the default value).

75%C.BAR MARKER = ON

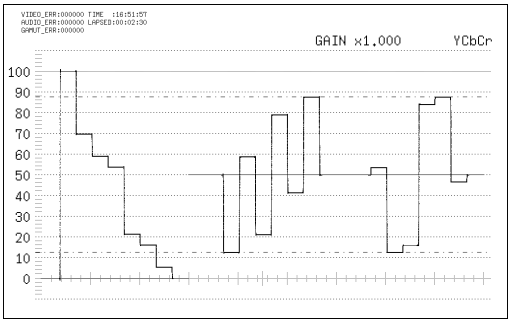


Figure 10-4 Displaying markers for 75 % intensity color bars

10.5.5 Displaying User Markers

To display up to two horizontal markers, follow the procedure below.
Use F•D 1 MARKER1 POS to move marker 1 (green) and F•D 2 MARKER2 POS to move marker 2 (blue). The marker values are displayed in the lower right of the screen in units of mV or as a percentage. Press F•D 1 to move marker 1 to the 0.0% position. Press F•D 2 to move marker 2 to the 100.0% position.
When CURSOR is set to X or Y, you cannot display the user markers.
For information on the CURSOR setting, see section 10.9.1, “Displaying Cursors.”

Procedure

WFM → F•1 INTEN/SCALE → F•4 MARKER → F•2 USER MARKER

Settings

SINGLE:	Marker 1 (green) is displayed.
DUAL:	Marker 1 (green) and Marker 2 (blue) are displayed.
OFF:	Markers are not displayed (this is the default value).

USER MARKER = DUAL

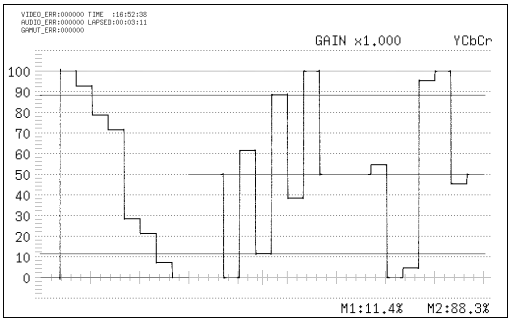


Figure 10-5 Displaying user markers

10.5.6 Selecting the Contrast

To select the video signal waveform contrast, follow the procedure below.
If the video signal waveform is displayed simultaneously with the vector waveform on the multi-screen display, the contrast will be the same as the vector waveform contrast.

Procedure

WFM → F•1 INTEN/SCALE → F•6 WFM CONTRAST (single-screen display)
→ F•6 WFM/VECT CONTRAST (multi-screen display)

Settings

LOW:	Low contrast is used.
MIDDLE:	Middle contrast is used (this is the default value).
HIGH:	High contrast is used.

10.5.7 Adjusting the Waveform Intensity

To set the video signal waveform intensity, follow the procedure below. If you press F•D 1, the intensity will be set to its default value of 0.
If the video signal waveform is displayed simultaneously with the vector waveform on the multi-screen display, the intensity will be the same as the vector waveform intensity.

Procedure

WFM → F•1 INTEN/SCALE → F•D 1 WFM INTEN (single-screen display)
→ F•D 1 WFM/VECT INTEN (multi-screen display)

Settings

Range:	-128 to 127 (the default value is 0)

10.5.8 Adjusting the Scale Intensity

To set the scale intensity, follow the procedure below.
If you press F•D 2, the intensity will be set to its default value of 4.

Procedure

WFM → F•1 INTEN/SCALE → F•D 2 SCALE INTEN

Settings

Range:	-8 to 7 (the default value is 4)

10.6 Configuring the Gain and Filter Settings

To configure the gain and filter settings, press F•2 GAIN/FILTER on the video signal waveform menu.

10.6.1 Selecting the Fixed Magnification

To select the fixed video signal waveform magnification, follow the procedure shown below.

Procedure

WFM → F•2 GAIN/FILTER → F•2 GAIN MAG

Settings

×1:	Waveforms are displayed at ×1 magnification (this is the default value).
×5:	Waveforms are displayed at ×5 magnification.

10.6.2 Setting the Variable Gain

To set the variable video signal waveform gain, follow the procedure below.
You can set the video signal waveform gain to a value between 0.2 and 10 by setting F•2 GAIN MAG and F•D 1 GAIN VARIABLE. The gain value appears in the upper right of the screen.

Procedure

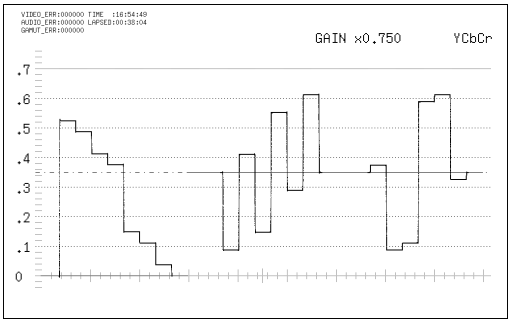
WFM → F•2 GAIN/FILTER → F•1 GAIN VARIABLE

Settings

CAL:	The gain is fixed (this is the default value).
VARIABLE:	You can adjust the waveform gain by turning F•D 1. Press F•D 1 to return the setting to its default value (1.000 or 5.000). 0.200 to 2.000 (when GAIN MAG is set to ×1; the default value is 1.000) 1.000 to 10.000 (when GAIN MAG is set to ×5; the default value is 5.000)

GAIN MAG = ×1

GAIN VARIABLE = 0.750



GAIN MAG = ×5

GAIN VARIABLE = 2.500

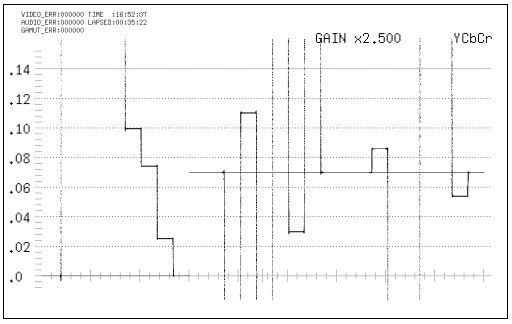


Figure 10-6 Vertical gain

10.6.3 Selecting the Vertical Display Position

When F•2 GAIN MAG is set to ×5, to select the vertical display position, follow the procedure below. Regardless of what you set here, the vertical display position returns to 0 % when you press F•D 2 V POS.

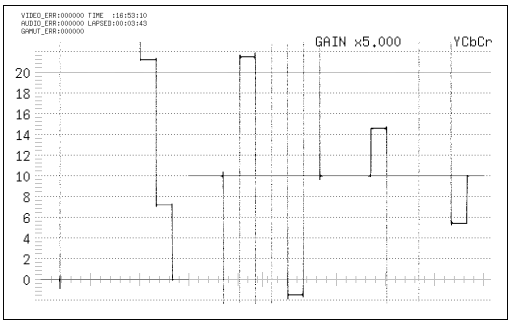
Procedure

WFM → F•2 GAIN/FILTER → F•3 V POS JUMP

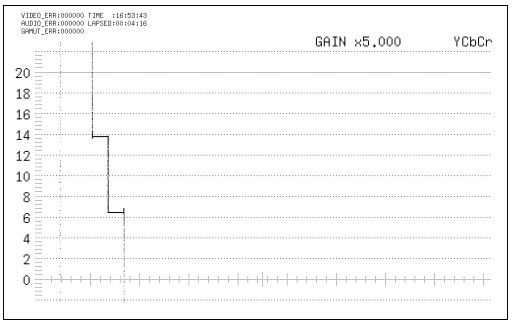
Settings

0%:	The 0 % level of the Y signal is displayed at the bottom edge (this is the default value).
75%:	The 75 % level of the Y signal is displayed at the center.
100%:	The 100 % level of the Y signal is displayed at the center.

V POS JUMP = 0%



V POS JUMP = 75%



V POS JUMP = 100%

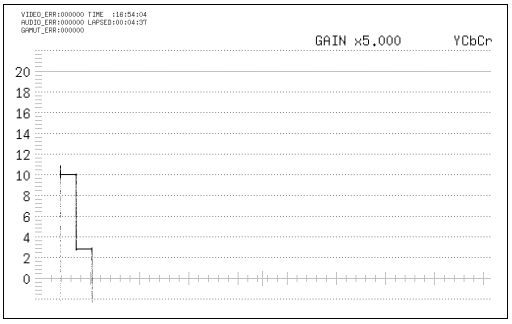


Figure 10-7 Selecting the vertical display position

10.6.4 Selecting the Filter

To select the filter, follow the procedure below.
The filters that you can select vary depending on how COLOR MATRIX is set.
For information on the COLOR MATRIX setting, see section 10.10.1, “Selecting the Display Format.”

Procedure

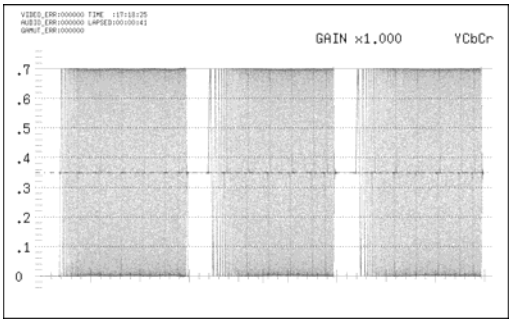
WFM → F•2 GAIN/FILTER → F•4 FILTER

- **When COLOR MATRIX Is Set to YCbCr, GBR, or RGB**

Settings

FLAT:	A filter with a flat frequency response over the entire bandwidth of the input signal is used (this is the default value).
LOW PASS:	A low-pass filter with the following frequency responses is used. Attenuation of 20 dB or more at 20 MHz when the input signal is HD Attenuation of 20 dB or more at 3.8 MHz when the input signal is SD

FILTER = FLAT



FILTER = LOW PASS

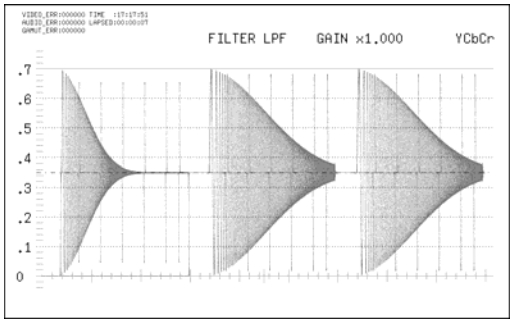


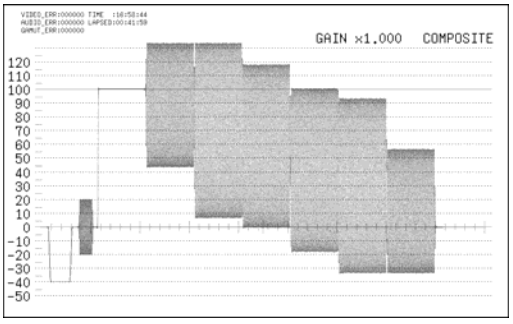
Figure 10-8 Component signal filters

- **When COLOR MATRIX Is Set to COMPOSIT**

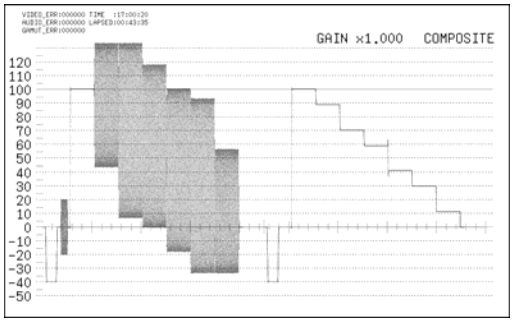
Settings

FLAT:	Only the pseudo-composite signal is displayed.
FLAT+LUM:	The pseudo-composite signal and the luminance signal are displayed side by side (this is the default value). This option cannot be selected when RGB is set to ON.
LUM+CRMA:	The pseudo-composite luminance and chrominance signals are displayed side by side. This option cannot be selected when RGB is set to ON.

FILTER = FLAT



FILTER = FLAT+LUM



FILTER = LUM+CRMA

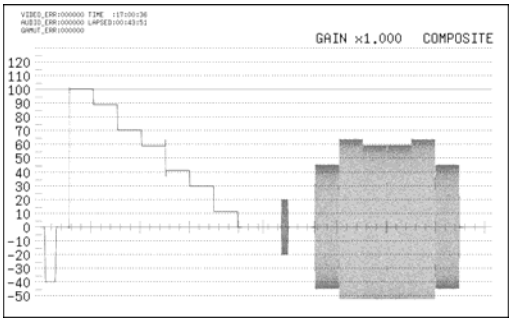


Figure 10-9 Pseudo-composite signal filters

10.7 Configuring Sweep Settings

To configure the sweep settings, press F•3 SWEEP on the video signal waveform menu.

10.7.1 Selecting the Sweep Method

To select the video signal waveform sweep method, follow the procedure below.

Procedure

WFM → F•3 SWEEP → F•1 SWEEP

Settings

H:	Lines are displayed (this is the default value).
V:	Fields or frames are displayed. This setting is not available in the 2-channel display or 3D assist display (option).

10.7.2 Selecting the Line Display Format

When F•1 SWEEP is set to H, to select the line display format, follow the procedure below.

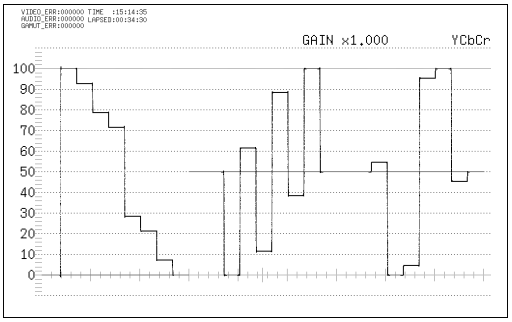
Procedure

WFM → F•3 SWEEP → F•2 H SWEEP

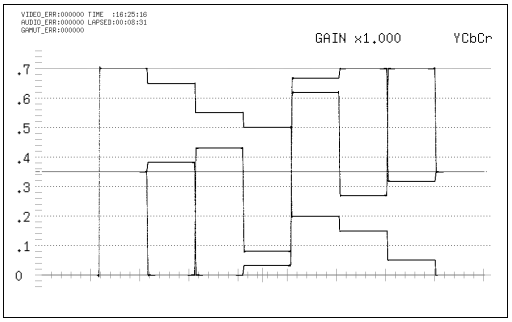
Settings

H:	Single lines are displayed (this is the default value). This option can be selected when the parade display is in use.
1H:	Single lines are displayed. This option can be selected when the overlay display is in use.
2H:	Two lines are displayed at a time. This option can be selected when the overlay display is in use.

H SWEEP = H



H SWEEP = 1H



H SWEEP = 2H

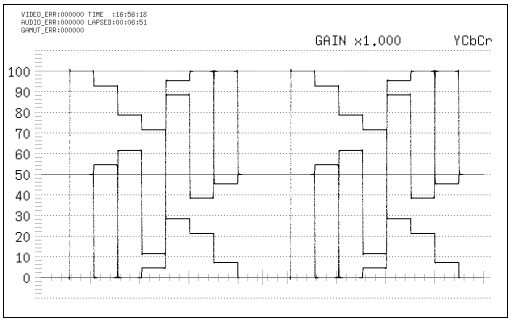


Figure 10-10 Selecting the line display format

10.7.3 Selecting the Field or Frame Display Format

When F•1 SWEEP is set to V, to select the field or frame display format, follow the procedure below.

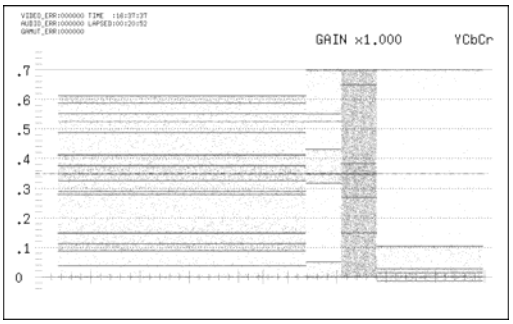
Procedure

WFM → F•3 SWEEP → F•2 V SWEEP

Settings

1V:	When the input signal is interlace or segmented frame, one field is shown. When the input signal is progressive, one frame is shown (this is the default value).
2V:	Single frames are displayed. This option can be selected when the input single is progressive.

V SWEEP = 1V



V SWEEP = 2V

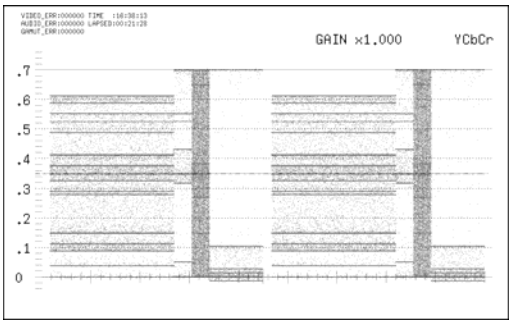


Figure 10-11 Selecting the field or frame display format

10.7.4 Selecting the Horizontal Magnification

To select the horizontal magnification, follow the procedure below. The magnifications that you can select vary as indicated below depending on the F•1 SWEEP and F•2 H SWEEP, COLOR MATRIX settings. (The table cells marked with “Yes” represent settings that can be selected.)

For information on the COLOR MATRIX setting, see section 10.10.1, “Selecting the Display Format.”

Table 10-2 Horizontal magnifications

F•1 SWEEP	COLOR MATRIX	F•2 H SWEEP	X1	X10	X20	X40	ACTIVE	BLANK
H	YCbCr, GBR, or RGB	H or 1H	Yes	Yes	Yes	No	Yes	Yes
		2H	Yes	Yes	Yes	No	No	Yes
	COMPOSIT	-	Yes	Yes	Yes	No	Yes	No
V	-	-	Yes	No	Yes	Yes	No	No

Procedure

WFM → F•3 SWEEP → F•3 SWEEP MAG

Settings

X1: The video signal waveforms are displayed so that they fit on the screen (this is the default value).

X10: The video signal waveforms are magnified from the center of the display to 10 times the size of X1.

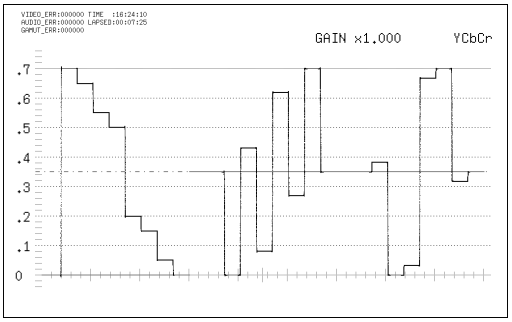
X20: The video signal waveforms are magnified from the center of the display to 20 times the size of X1.

X40: The video signal waveforms are magnified from the center of the display to 40 times the size of X1.

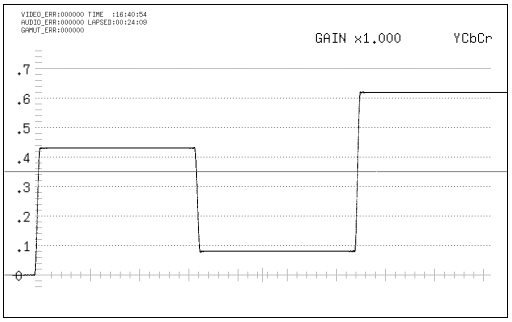
ACTIVE: Everything but the video signal waveform blanking interval is magnified. This is not supported on the thumbnail display.

BLANK: The video signal waveform blanking interval is magnified. This is not supported on the thumbnail display.

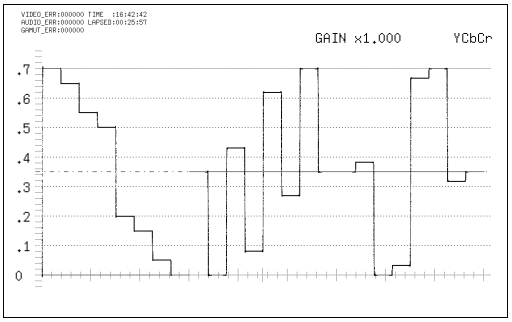
SWEEP MAG = X1



SWEEP MAG = X10



SWEEP MAG = ACTIVE



SWEEP MAG = BLANK

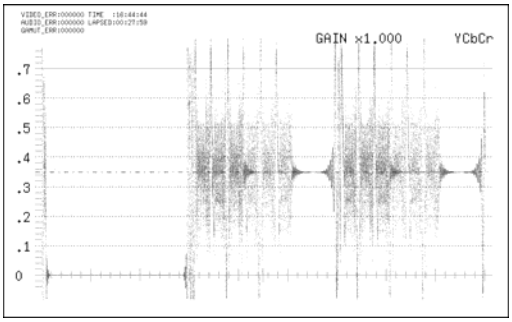


Figure 10-12 Horizontal magnifications

10.7.5 Selecting the Field to Display

When the input signal is interlace or segmented frame and F•2 V SWEEP is set to 1V, to select which field is displayed, follow the procedure below.

Procedure

WFM → F•3 SWEEP → F•4 FIELD

Settings

FIELD1:	Field 1 is displayed (this is the default value).
FIELD2:	Field 2 is displayed.

10.7.6 Displaying the Blanking Interval

To set how the blanking interval is displayed, follow the procedure below.
The blanking interval is normally not shown on the vector display, but on the multi-screen display, the blanking interval is shown according to the setting that you make here.
The blanking interval display is not supported on the thumbnail display.

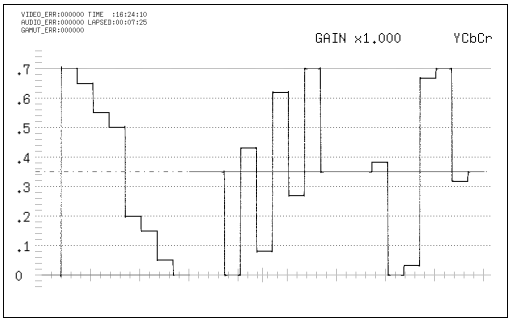
Procedure

WFM → F•3 SWEEP → F•5 BLANKING

Settings

REMOVE:	Only the active interval of the input signal is displayed (this is the default value).
H VIEW:	The active interval and the horizontal blanking interval of the input signal are displayed. This option cannot be selected when COLOR MATRIX is set to COMPOSIT.
V VIEW:	The active interval and the vertical blanking interval of the input signal are displayed.
ALL VIEW:	The entire input signal is displayed. This option cannot be selected when COLOR MATRIX is set to COMPOSIT.

BLANKING = REMOVE



BLANKING = ALL VIEW

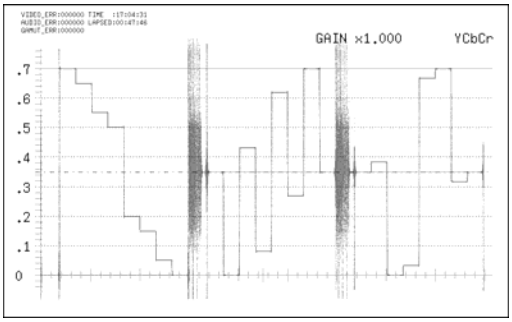


Figure 10-13 Displaying blanking intervals

10.8 Configuring Line Selection Settings

To configure the line selection settings, press F•4 LINE SEL on the video signal waveform menu. You can display the waveforms of the selected line.
The line selection display cannot be used on the field, frame, 2-channel, or 3D assist displays (option).

10.8.1 Turning Line Selection On and Off

To display the waveforms of the selected line, follow the procedure below.
Changing this setting will also change the vector-display and picture-display line selection settings.

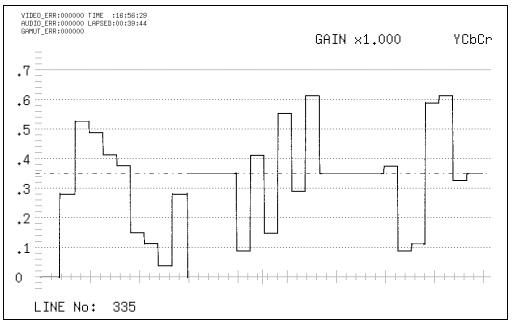
Procedure

WFM → F•4 LINE SEL → F•1 LINE SELECT

Settings

ON:	The waveforms of the selected line are displayed.
OFF:	The waveforms of all lines are displayed on top of each other (this is the default value).

LINE SELECT = ON



LINE SELECT = OFF

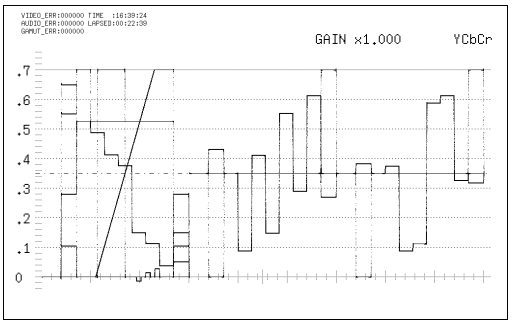


Figure 10-14 Turning line selection on and off

10.8.2 Selecting Lines

To select a line to display the waveform of, follow the procedure below. The selected line is indicated in the lower left of the screen. If you press F•D 1, the selected line changes to the first video line.
You can select a line when F•1 LINE SELECT is set to ON. Changing this setting will also change the selected line on the vector, picture, and status (data dump) displays.

Procedure

WFM → F•4 LINE SEL→ F•D 1 LINE VARIABLE

10.8.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.
The line selection range can be set when the input format is set to interlaced or segmented frame.
Changing this setting will also change the vector-display and picture-display line selection ranges.

Procedure

WFM → F•4 LINE SEL → F•2 FIELD

Settings
(the examples are for the selectable ranges when the input format is set to 1080i/59.94)

FIELD1:	A line from field 1 can be selected. (Example: 1 to 563.)
FIELD2:	A line from field 2 can be selected. (Example: 564 to 1125.)
FRAME:	All lines can be selected (this is the default value). (Example: 1 to 1125.)

10.9 Configuring Cursor Settings

To configure cursor settings, press F•5 CURSOR on the video signal waveform menu. You can display cursors and use them to perform measurements.
Cursor measurement is not available on the multi-screen display or when USER MARKER is set to SINGLE or DUAL.
For information on the USER MARKER setting, see section 10.5.5, “Displaying User Markers.”

10.9.1 Displaying Cursors

To display cursors, follow the procedure shown below.
The REF cursor is displayed in blue, and the DELTA cursor is displayed in green. The measured value of DELTA-REF is displayed in the bottom right of the screen. You can switch the positions of the REF and DELTA cursors by pressing F•D 2 DELTA.

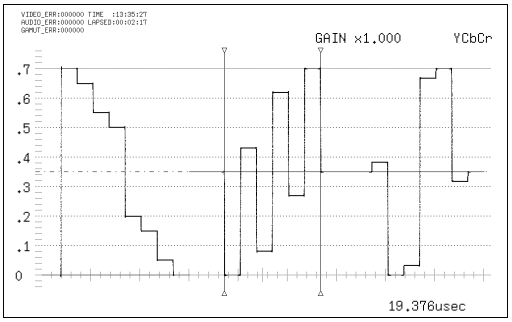
Procedure

WFM → F•5 CURSOR → F•1 CURSOR

Settings

X:	X cursors (time measurement) are displayed.
Y:	Y cursors (amplitude measurement) are displayed.
OFF:	Cursors are not displayed (this is the default value).

CURSOR = X



CURSOR = Y

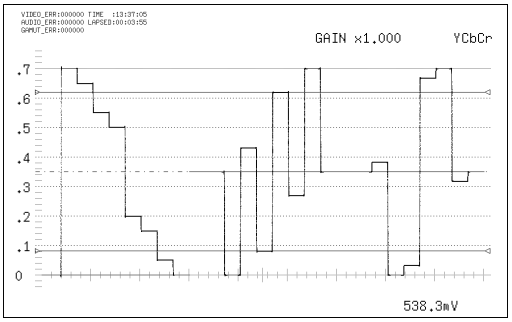


Figure 10-15 Cursor types

10.9.2 Moving Cursors

To move the cursors, follow the procedure below. Setting F•3 FD VAR TRACK and pressing F•D 1 changes the same setting.

- **To Move Each Cursor Separately (The default value)**

Move the REF (blue) cursor with F•D 1 REF, and move the DELTA (green) cursor with F•D 2 DELTA. You can move both cursors simultaneously by pressing F•D 1 to set it to TRACK. You can switch the positions of the REF and DELTA cursors by pressing F•D 2.

Procedure

WFM → F•5 CURSOR → F•3 FD VAR TRACK OFF → F•D 1 REF
→ F•D 2 DELTA

- **To Move Both Cursors Simultaneously**

Move both cursors simultaneously with F•D 1 TRACK. You can move both cursors separately by pressing F•D 1 to set it to REF. Move the DELTA (green) cursor with F•D 2 DELTA. You can switch the positions of the REF and DELTA cursors by pressing F•D 2. When F•3 FD VAR TRACK is set to ON, □ marks appear at both ends of the cursors.

Procedure

WFM → F•5 CURSOR → F•3 FD VAR TRACK ON → F•D 1 TRACK
→ F•D 2 DELTA

10.9.3 Selecting the Measurement Unit

To change the units used in cursor measurements, follow the procedure below.

- **When CURSOR Is Set to Y**

Procedure

WFM → F•5 CURSOR → F•2 Y UNIT

Settings

mV:	Measurements are made in units of voltage (this is the default value).
%:	Measurements are made as percentages. When COLOR MATRIX is set to YCbCr, GBR, or RGB : 700 mV = 100 % When COLOR MATRIX is set to COMPOSIT and the composite format is set to NTSC : 714 mV = 100 % When COLOR MATRIX is set to COMPOSIT and the composite format is set to PAL : 700 mV = 100 %
R%:	Measurements are made as percentages, with the amplitude when REF SET was pressed set to 100 %.
DEC:	Measurements are made in decimal with 0 to 100 % expressed as 64 to 940. This option cannot be selected when COLOR MATRIX is set to COMPOSIT.
HEX:	Measurements are made in hexadecimal with 0 to 100 % expressed as 040 to 3AC. This option cannot be selected when COLOR MATRIX is set to COMPOSIT.

- **When CURSOR is set to X**

Procedure

WFM → F•5 CURSOR → F•2 X UNIT

Settings

sec:	Measurements are made in units of seconds (this is the default value).
Hz:	Measurements are made in units of frequency, with the length of one period set to the distance between the two cursors.

10.9.4 Setting the Reference Amplitude

When F•2 Y UNIT is set to R%, follow the procedure below to set the amplitude at the location of your choice to 100 %.

Procedure

WFM → F•5 CURSOR → F•4 REF SET

10.10 Configuring the Color System Settings

To configure the color system settings, press F•6 COLOR SYSTEM on the video signal waveform menu.

10.10.1 Selecting the Display Format

To select the video signal waveform display format, follow the procedure below.
The selected display format is indicated in the upper right of the display.

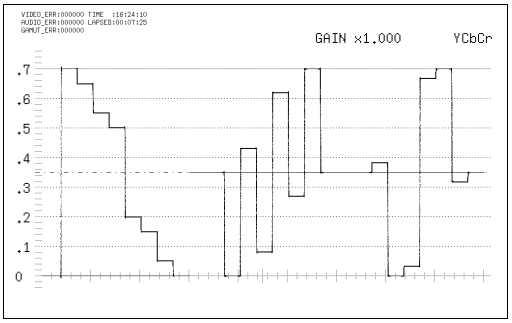
Procedure

WFM → F•6 COLOR SYSTEM → F•1 COLOR MATRIX

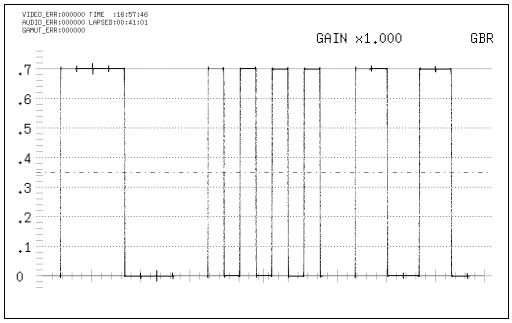
Settings

YCbCr:	The YCBCR signal is displayed without changes (this is the default value). This option cannot be selected when the input signal is GBR (4:4:4).
GBR:	The YCBCR signal is converted into a GBR signal and displayed.
RGB:	The YCBCR signal is converted into an RGB signal and displayed.
COMPOSIT:	The YCBCR signal is converted into a pseudo-composite signal and displayed.

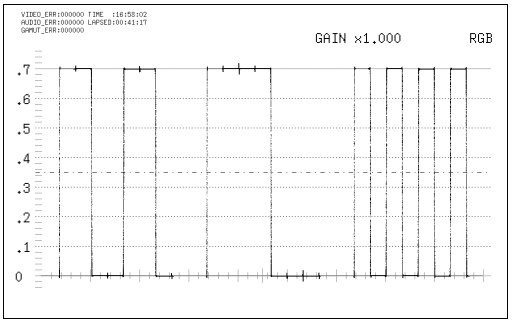
COLOR MATRIX = YCbCr



COLOR MATRIX = GBR



COLOR MATRIX = RGB



COLOR MATRIX = COMPOSIT

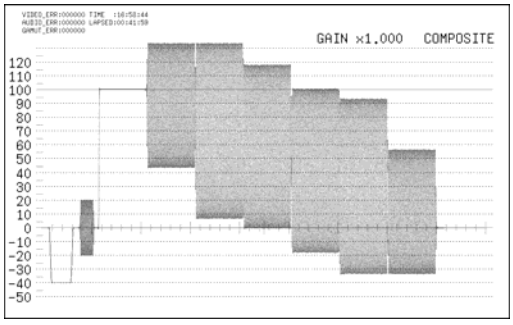


Figure 10-16 Component and pseudo-composite displays

10.10.2 Displaying Luminance Signals and GBR Signals Simultaneously

To display the GBR or RGB signal simultaneously with the luminance signal, follow the procedure below.
The selected display format is indicated in the upper right of the display.
This setting is available when F•1 COLOR MATRIX is set to GBR or RGB.

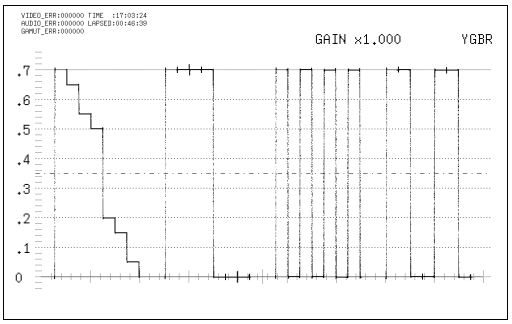
Procedure

WFM → F•6 COLOR SYSTEM → F•2 YGBR (when COLOR MATRIX is set to GBR)
→ F•2 YRGB (when COLOR MATRIX is set to RGB)

Settings

ON:	The GBR or RGB signal is displayed simultaneously with the luminance signal.
OFF:	The GBR or RGB signal is displayed by itself (this is the default value).

YGBR = ON



YGBR = OFF

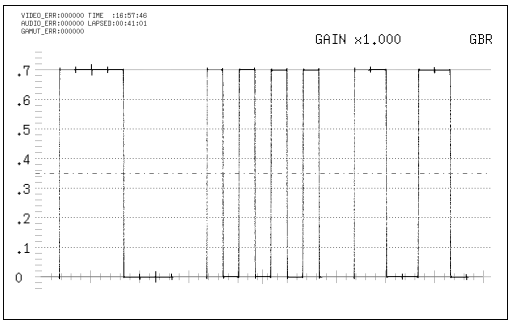


Figure 10-17 YGBR display

10.10.3 Displaying Pseudo-Composite and RGB Signals Simultaneously

To display the pseudo-composite and RGB signals simultaneously, follow the procedure below.
This setting is available when F•1 COLOR MATRIX is set to COMPOSIT.

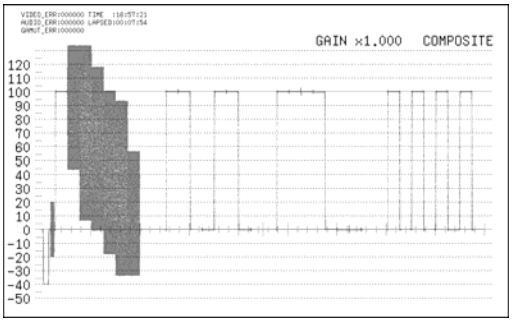
Procedure

WFM → F•6 COLOR SYSTEM → F•2 RGB

Settings

ON:	Pseudo-composite and RGB signals are displayed simultaneously.
OFF:	Only the pseudo-composite signal is displayed (this is the default value).

RGB = ON



RGB = OFF

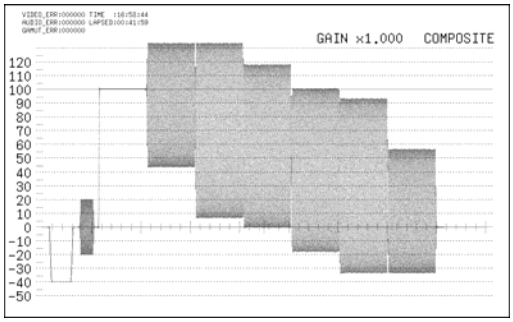


Figure 10-18 RGB display

10.10.4 Setting the Composite Display Format

To select the format for the pseudo-composite display, follow the procedure shown below. Changing this setting will also change the format setting for the vector display.

Procedure

WFM → F•6 COLOR SYSTEM → F•4 COMPOSIT FORMAT

Settings

AUTO:	When the input signal frame/field rate is 50 Hz, the format is PAL. Otherwise, the format is NTSC (this is the default value).
NTSC:	The format is NTSC. The scale shows percentages.
PAL:	The format is PAL. The scale shows voltages.

10.10.5 Setting the Setup Level

To set the setup level of the pseudo-composite display, follow the procedure below. This setting is available when F•1 COLOR MATRIX is set to COMPOSIT and the composite display format is set to NTSC.

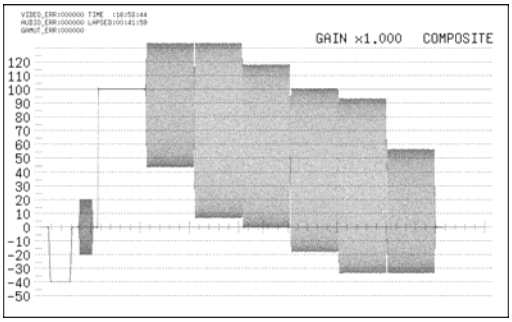
Procedure

WFM → F•6 COLOR SYSTEM → F•5 SETUP

Settings

0%:	No setup level is added (this is the default value).
7.5%:	A setup level of 7.5 % is added.

SETUP = 0%



SETUP = 7.5%

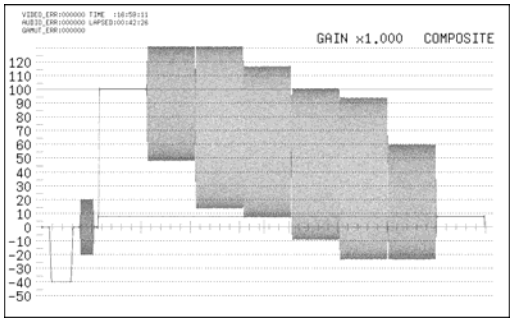


Figure 10-19 Setup level

10.11 Configuring Thumbnail Settings

To configure the thumbnail settings, press F•7 THUMBNAIL on the video signal waveform menu.

10.11.1 Turning the Audio Meter Display On and Off

To display the audio meter on the video signal waveform display, follow the procedure below.
Configure audio meter settings on the audio display.

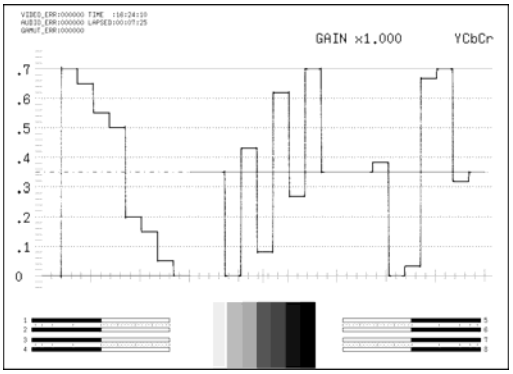
Procedure

WFM → F•7 THUMBNAIL → F•1 AUDIO METER

Settings

ON:	The audio meter is displayed (this is the default value).
OFF:	The audio meter is not displayed.

AUDIO METER = ON



AUDIO METER = OFF

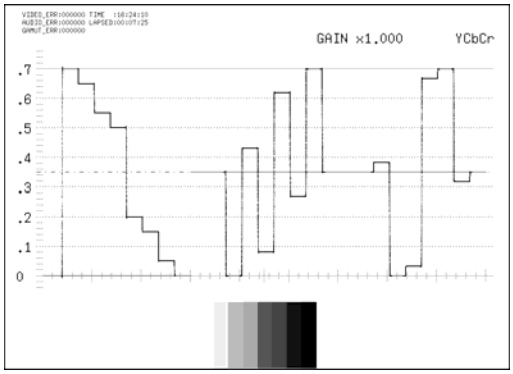


Figure 10-20 Turning the audio meter display on and off

10.11.2 Selecting the Audio Meter Display Format

To select the audio meter display format, follow the procedure below.
Configure 1st GROUP and 2nd GROUP in SDI GROUP on the audio display.
Changing this setting will also change the picture-display and vector-display audio meter display formats.

For information on the SDI GROUP setting, see section 13.2.1, “Selecting the Input Channel.”

Procedure

WFM → F•7 THUMBNAIL → F•2 LAYOUT

Settings

HORIZ1:	1st GROUP is displayed on the left side, and 2nd GROUP is displayed on the right side (this is the default value).
HORIZ2:	1st GROUP is displayed on the top two levels, and 2nd GROUP is displayed on the bottom two levels.

LAYOUT = HORIZ1

LAYOUT = HORIZ2

Figure 10-21 Audio meter display formats

10.11.3 Turning the Picture Display On and Off

To display the picture on the video signal waveform display, follow the procedure below. Configure picture settings on the picture display.

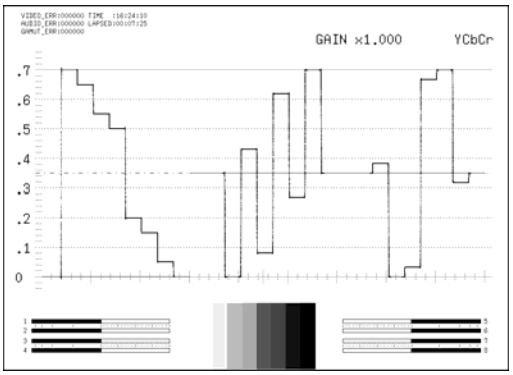
Procedure

WFM → F•7 THUMBNAIL → F•3 PICTURE

Settings

ON:	The picture is displayed (this is the default value).
OFF:	The picture is not displayed.

PICTURE = ON



PICTURE = OFF

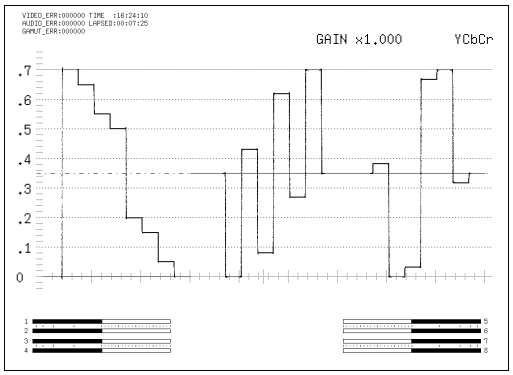


Figure 10-22 Turning the picture display on and off

11. VECTOR DISPLAY

11.1 Vector Display Explanation

To display vectors, press VEC.

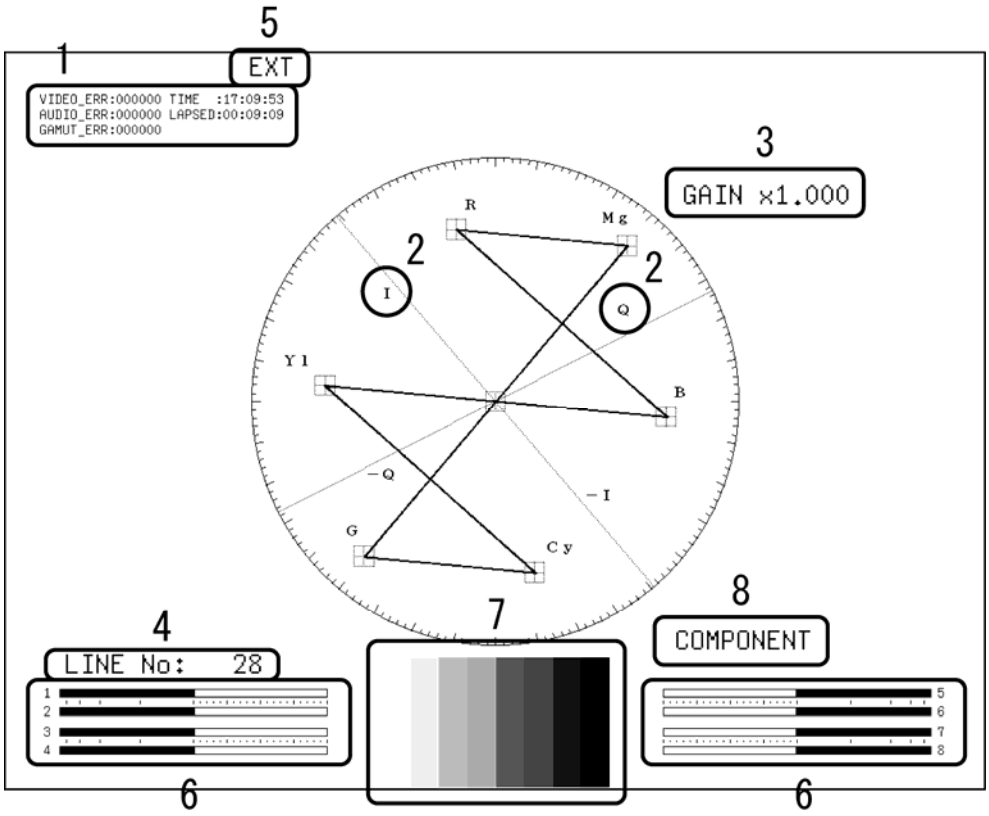


Figure 11-1 Vector display

1 Error Counter

The error counter, the current time, and the elapsed time appear here.

2 I and Q Axes

The I and Q axes can be displayed.

3 Gain

The vector gain appears here. You can set the gain to a value between 0.2 and 10 by setting GAIN MAG and GAIN VARIABLE.

4 Selected Line

You can display the waveform of the selected line.

5 Sync Signal

EXT appears here when an external sync signal is being used.

6 Thumbnail (Audio meter)

The audio meter appears here as a thumbnail. You can also turn this off.

7 Thumbnail (Picture)

The picture appears here as a thumbnail. You can also turn this off.

8 Display Format

The vector display format is indicated here as either COMPONENT or COMPOSITE.

11.2 Configuring Vector and Scale Settings

To configure vector and scale settings, press F•1 INTEN/SCALE on the vector menu.
F•1 INTEN/SCALE appears when DISPLAY is set to VECTOR.
For information on the DISPLAY setting, see section 11.6, “Switching between the Vector and 5-Bar Displays.”

11.2.1 Turning the Display of the I and Q Axes On and Off

To display the I and Q axes, follow the procedure shown below.
When the input format is 625i/50, the I and Q axes will not be displayed even if you select ON.

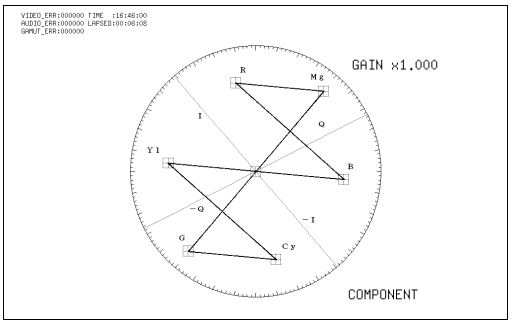
Procedure

VEC → F•1 INTEN/SCALE → F•1 IQ AXIS

Settings

ON:	The I and Q axes are displayed (this is the default value).
OFF:	The I and Q axes are not displayed.

IQ AXIS = ON



IQ AXIS = OFF

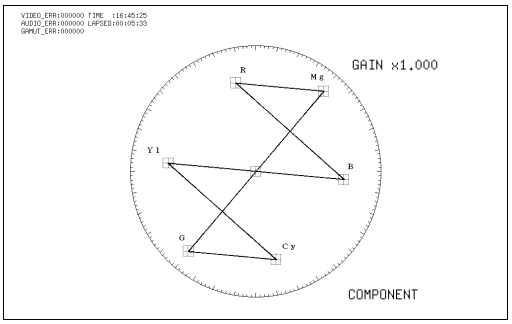


Figure 11-2 Turning the display of the I and Q axes on and off

11.2.2 Selecting the Scale Color

To select the scale color from one of seven options, follow the procedure below.

Procedure

VEC → F•1 INTEN/SCALE → F•2 SCALE COLOR

Settings

WHITE:	The scale is displayed in white.
YELLOW:	The scale is displayed in yellow (this is the default value).
CYAN:	The scale is displayed in cyan.
GREEN:	The scale is displayed in green.
MAGENTA:	The scale is displayed in magenta.
RED:	The scale is displayed in red.
BLUE:	The scale is displayed in blue.

11.2.3 Selecting the Vector Color

To select the vector color from one of two options, follow the procedure below.
If the vector is displayed simultaneously with the video signal waveform on the multi-screen display, the waveform color will be the same as the video signal waveform color.
This setting does not appear in the 2-channel display when DISPLAY MODE is set to VEC+PIC (option).

Procedure

VEC → F•1 INTEN/SCALE → F•3 VECT COLOR (single-screen display)
→ F•3 WFM/VECT COLOR (multi-screen display)

Settings

WHITE:	Vectors are displayed in white (this is the default value).
GREEN:	Vectors are displayed in green.

11.2.4 Selecting the Contrast

To select the vector contrast, follow the procedure below.
If the vector is displayed simultaneously with the video signal waveform on the multi-screen display, the contrast will be the same as the video signal waveform contrast.

Procedure

VEC → F•1 INTEN/SCALE → F•6 VECTOR CONTRAST (single-screen display)
→ F•6 WFM/VECT CONTRAST (multi-screen display)

Settings

LOW:	Low contrast is used.
MIDDLE:	Middle contrast is used (this is the default value).
HIGH:	High contrast is used.

11.2.5 Adjusting the Vector Intensity

To set the vector intensity, follow the procedure below. If you press F•D 1, the intensity will be set to its default value of 0.
If the vector is displayed simultaneously with the video signal waveform on the multi-screen display, the intensity will be the same as the video signal waveform intensity.

Procedure

VEC → F•1 INTEN/SCALE → F•D 1 VECTOR INTEN (single-screen display)
→ F•D 1 WFM/VECT INTEN (multi-screen display)

Settings

Range: -128 to 127 (the default value is 0)

11.2.6 Adjusting the Scale Intensity

To set the scale intensity, follow the procedure below.
If you press F•D 2, the intensity will be set to its default value of 4.

Procedure

VEC → F•1 INTEN/SCALE → F•D 2 SCALE INTEN

Settings

Range: -8 to 7 (the default value is 4)

11.3 Configuring Gain Settings

To set the vector gain, follow the procedure below.
You can set the vector gain to a value between 0.2 and 10 by setting F•2 GAIN MAG and F•D 1 GAIN VARIABLE. The gain value appears in the upper right of the screen.

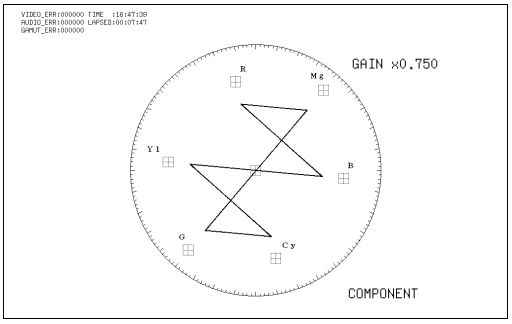
Procedure

VEC → F•2 GAIN MAG
→ F•D 1 GAIN VARIABLE

Settings

X1:	Vectors are displayed at X1 magnification (this is the default value). 0.200 to 2.000 (the default value is 1.000)
X5:	Vectors are displayed at X5 magnification. 1.000 to 10.000 (the default value is 5.000)
IQ-MAG:	Vectors are displayed using the following magnifications. 0.600 to 6.000 (the default value is 3.120; for HD signals during component display) 1.000 to 10.000 (the default value is 2.845; for HD signals during pseudo-composite display) 1.000 to 10.000 (the default value is 2.920; for SD signals during component display) 1.000 to 10.000 (the default value is 2.630; for SD signals during pseudo-composite display)

GAIN MAG = X1
GAIN VARIABLE = 0.75



GAIN MAG = IQ-MAG
GAIN VARIABLE = 3.120

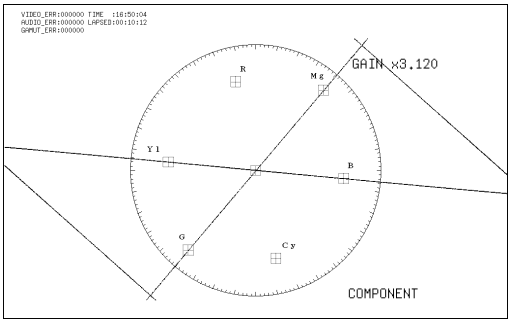


Figure 11-3 Vector gains

11.4 Configuring Line Selection Settings

To configure the line selection settings, press F•3 LINE SEL on the vector menu. You can display the vectors of the selected line.
The line select feature cannot be used on the 2-channel display.

11.4.1 Turning Line Selection On and Off

To display the vectors of the selected line, follow the procedure below.
Changing this setting will also change the video-signal-waveform-display and picture-display line selection settings.

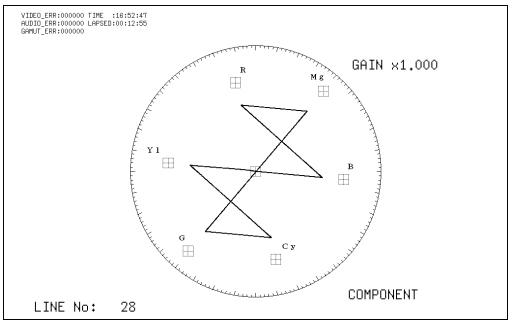
Procedure

VEC → F•3 LINE SEL → F•1 LINE SELECT

Settings

ON:	The vectors of the selected line are displayed.
OFF:	The vectors of all lines are displayed on top of each other (this is the default value).

LINE SELECT = ON



LINE SELECT = OFF

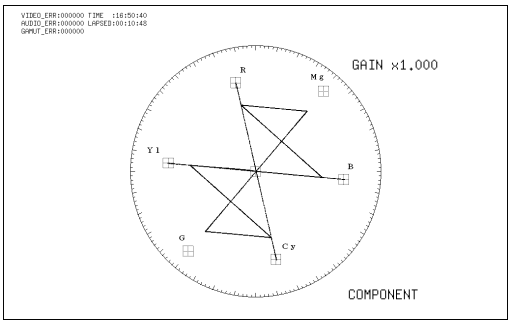


Figure 11-4 Turning line selection on and off

11.4.2 Selecting Lines

To select a line, follow the procedure below. The selected line is indicated in the lower left of the display. If you press F•D 1, the selected line changes to the first video line.
You can select a line when F•1 LINE SELECT is set to ON. Changing this setting will also change the selected line on the video-signal-waveform, picture, and status (data dump) displays.

Procedure

VEC → F•3 LINE SEL→ F•D 1 LINE VARIABLE

11.4.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.
The line selection range can be set when the input signal is interlace or segmented frame. Changing this setting will also change the video-signal-waveform-display and picture-display line selection ranges.

Procedure

VEC → F•3 LINE SEL → F•2 FIELD

Settings
(the examples are for the selectable ranges when the input format is set to 1080i/59.94)

FIELD1:	A line from field 1 can be selected. (Example: 1 to 563.)
FIELD2:	A line from field 2 can be selected. (Example: 564 to 1125.)
FRAME:	All lines can be selected (this is the default value). (Example: 1 to 1125.)

11.5 Configuring Display Format Settings

To configure display format settings, press F•4 COLOR SYSTEM on the vector menu. You can set the vector display format and display a scale.
F•4 COLOR SYSTEM appears when DISPLAY is set to VECTOR.
For information on the DISPLAY setting, see section 11.6, “Switching between the Vector and 5-Bar Displays.”

11.5.1 Selecting the Display Format

To select the vector display format, follow the procedure below.
The selected display format is indicated in the lower right of the display. (There is no indication on the 5 bar display.)

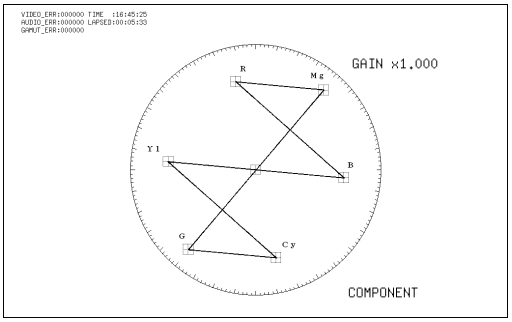
Procedure

VEC → F•4 COLOR SYSTEM → F•1 COLOR MATRIX

Settings

COMPONEN:	The component chrominance signal is displayed on the X and Y axes (this is the default value).
COMPOSIT:	The component signal is converted into a composite signal, and the composite signal’s chrominance signal is displayed on the X and Y axes.

COLOR MATRIX = COMPONEN



COLOR MATRIX = COMPOSIT

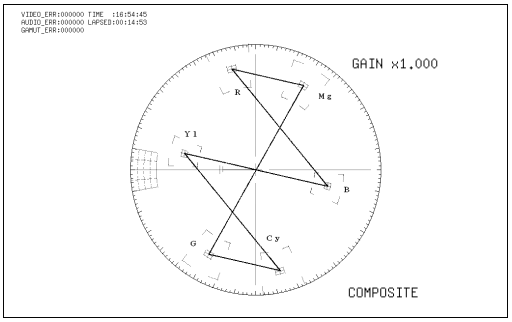


Figure 11-5 Component and pseudo-composite displays

11.5.2 Setting the Composite Display Format

To select the format for the pseudo-composite display, follow the procedure shown below. Changing this setting will also change the format setting for the video signal waveform display.

Procedure

VEC → F•4 COLOR SYSTEM → F•2 COMPOSIT FORMAT

Settings

AUTO:	When the input signal frame/field rate is 50 Hz, the format is PAL. Otherwise, the format is NTSC. (This is the default value.)
NTSC:	The format is NTSC.
PAL:	The format is PAL.

11.5.3 Setting the Setup Level

To set the setup level of the pseudo-composite display, follow the procedure below. When the multi-screen display is in use, the value specified for the SETUP setting on the video signal waveform menu is used. This setting does not appear. (This setting does appear on multi-screen displays in which no video signal waveforms are displayed.)
This setting is available when F•1 COLOR MATRIX is set to COMPOSIT and the composite display format is set to NTSC.

Procedure

VEC → F•4 COLOR SYSTEM → F•3 SETUP

Settings

0%:	No setup level is added (this is the default value).
7.5%:	A setup level of 7.5 % is added.

11.5.4 Selecting the Scale

To select the scale type, follow the procedure below.

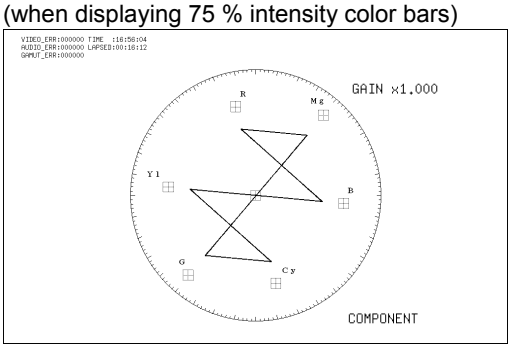
Procedure

VEC → F•4 COLOR SYSTEM → F•4 COLOR BAR

Settings

100%:	A scale that matches the peak levels of 100 % intensity color bars is displayed.
75%:	A scale that matches the peak levels of 75 % intensity color bars is displayed (this is the default value).

COLOR BAR = 100%
(when displaying 75 % intensity color bars)



COLOR BAR = 75%
(when displaying 75 % intensity color bars)

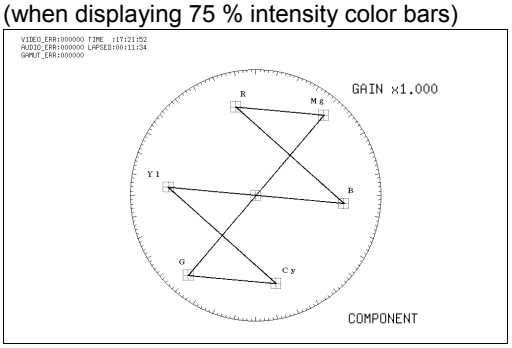


Figure 11-6 Scale types

11.6 Switching between the Vector and 5-Bar Displays

To switch between the vector and 5-bar displays, follow the procedure below.
For information on the 5 bar display, see section 11.7, “Configuring the 5 Bar Display.”

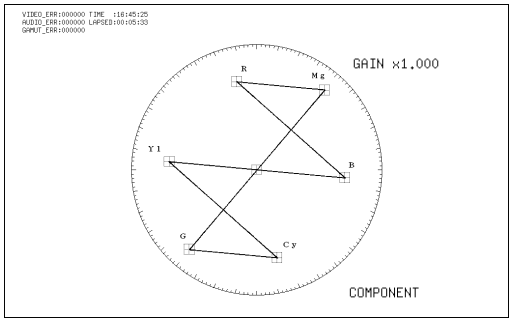
Procedure

VEC → F•5 DISPLAY

Settings

VECTOR:	Switches to the vector display (this is the default value).
5BAR:	Switches to the 5 bar display.

DISPLAY = VECTOR



DISPLAY = 5BAR

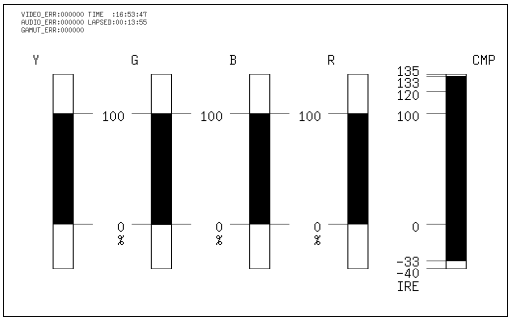


Figure 11-7 Vector and 5-bar displays

11.7 Configuring the 5 Bar Display

To configure the 5 bar display, press F•4 5BAR SETUP on the vector menu. You can set the signal display order and the scale units.
F•4 5BAR SETUP appears when DISPLAY is set to 5BAR.
For information on the DISPLAY setting, see section 11.6, “Switching between the Vector and 5-Bar Displays.”

11.7.1 5 Bar Display Explanation

The 5 bar display appears when F•1 DISPLAY is set to 5BAR.

On the 5 bar display, the positive and negative peak levels are displayed simultaneously. The levels are typically displayed in cyan, but portions that exceed their limits are displayed in red.

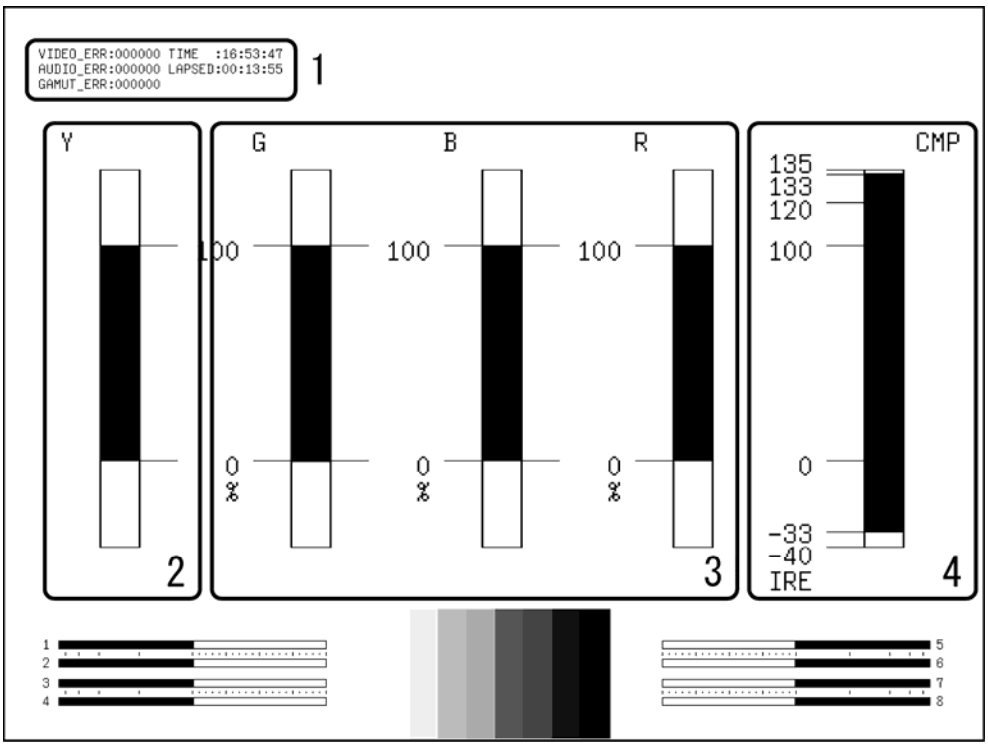


Figure 11-8 5 bar display

1 Error Counter

The error counter, the current time, and the elapsed time appear here.

2 Y

The luminance signal level appears here.
The levels that fall outside of the range you set using Luminance Error in the status display are displayed in red.

3 G, B, R

The levels after converting the YCBCR signal into a GBR signal appear here.
You can use F•1 SEQUENCE to change the signal order to RGB. The levels that fall outside of the range that you set using Gamut Error on the status screen are displayed in red.

4 CMP

The levels after converting the YCBCR signal into a pseudo-composite signal appear here. (The blanking interval levels are not displayed.)
Levels that fall outside of the range you set using Composite Gamut Error on the status screen are displayed in red.

11.7.2 Setting the Display Order

To select the order of the signals on the 5 bar display, follow the procedure below.

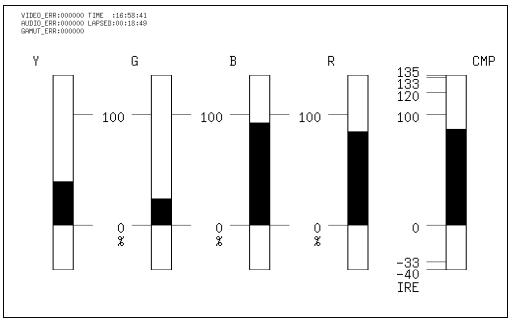
Procedure

VEC → F•4 5BAR SETUP → F•1 SEQUENCE

Settings

GBR:	From the left, the signals are displayed in this order: Y, G, B, R, CMP (this is the default value).
RGB:	From the left, the signals are displayed in this order: Y, R, G, B, CMP.

SEQUENCE = GBR



SEQUENCE = RGB

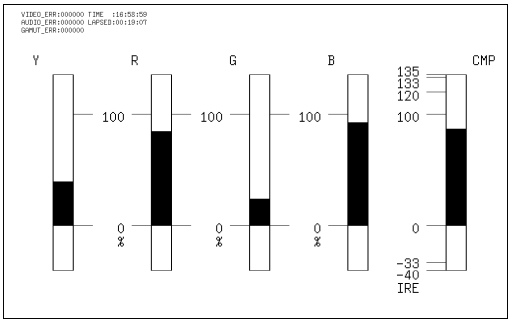


Figure 11-9 5 bar display orders

11.7.3 Selecting the Scale Unit

To set the scale units on the 5 bar display, follow the procedure below.

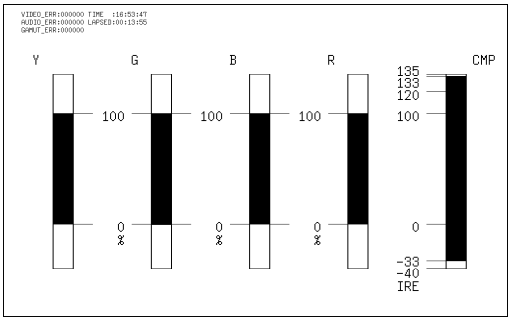
Procedure

VEC → F•4 5BAR SETUP → F•2 SCALE

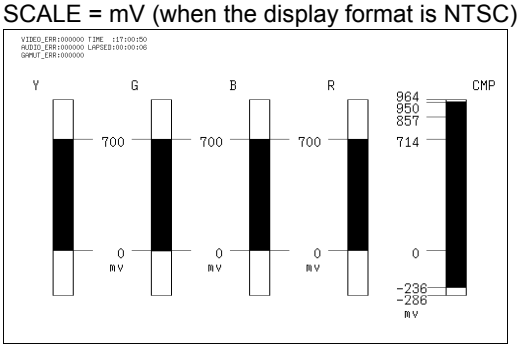
Settings

%:	The scale shows percentages and IRE (this is the default value).
mV:	The scale shows mV. The scale values change as follows depending on the composite display format: 100% = 700 mV, 100IRE = 714 mV (when the display format is NTSC) 100% = 700 mV, 100IRE = 700 mV (when the display format is PAL)

SCALE = %



SCALE = mV (when the display format is NTSC)



SCALE = mV (when the display format is PAL)

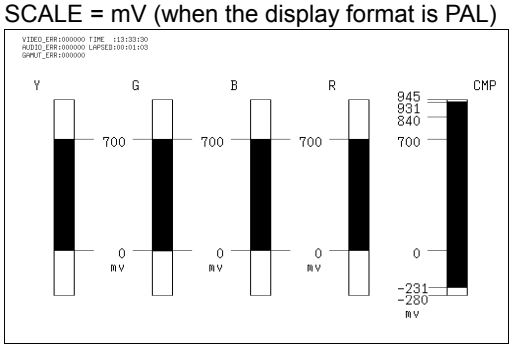


Figure 11-10 5 bar display scale units

11.8 Configuring Thumbnail Settings

To configure the thumbnail settings, press F•7 THUMBNAIL on the vector menu.

11.8.1 Turning the Audio Meter Display On and Off

To display the audio meter on the vector display, follow the procedure below.
Configure audio meter settings on the audio display.

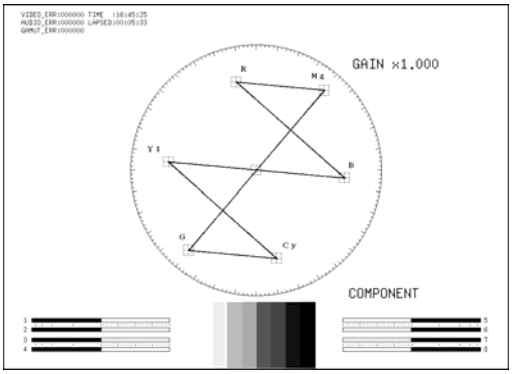
Procedure

VECT → F•7 THUMBNAIL → F•1 AUDIO METER

Settings

ON:	The audio meter is displayed (this is the default value).
OFF:	The audio meter is not displayed.

AUDIO METER = ON



AUDIO METER = OFF

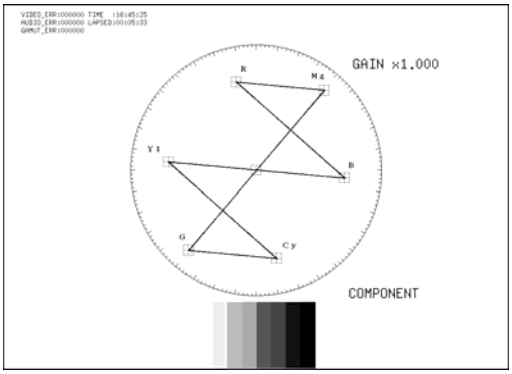


Figure 11-11 Turning the audio meter display on and off

11.8.2 Selecting the Audio Meter Display Format

To select the audio meter display format, follow the procedure below.
Configure 1st GROUP and 2nd GROUP in SDI GROUP on the audio display.
Changing this setting will also change the audio meter display formats on the video-signal-waveform and picture displays.

For information on the SDI GROUP setting, see section 13.2.1, “Selecting the Input Channel.”

Procedure

VEC → F•7 THUMBNAIL → F•2 LAYOUT

Settings

HORIZ1:	1st GROUP is displayed on the left side, and 2nd GROUP is displayed on the right side (this is the default value).
HORIZ2:	1st GROUP is displayed on the top two levels, and 2nd GROUP is displayed on the bottom two levels.

LAYOUT = HORIZ1

LAYOUT = HORIZ2

Figure 11-12 Audio meter display formats

11.8.3 Turning the Picture Display On and Off

To display the picture on the vector display, follow the procedure below.
Configure picture settings on the picture display.

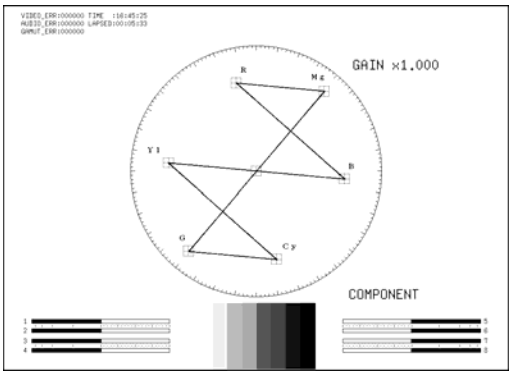
Procedure

VEC → F•7 THUMBNAIL → F•3 PICTURE

Settings

ON:	The picture is displayed (this is the default value).
OFF:	The picture is not displayed.

PICTURE = ON



PICTURE = OFF

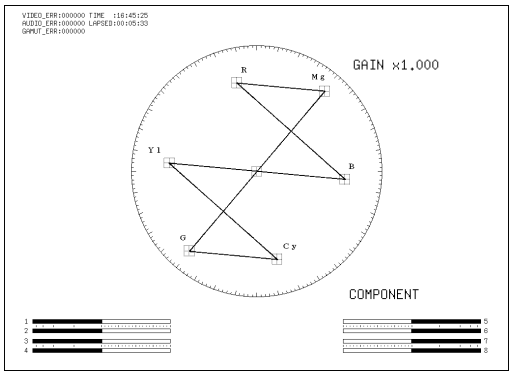


Figure 11-13 Turning the picture display on and off

12. PICTURE DISPLAY

12.1 Picture Display Explanation

The picture display appears when you press PIC.

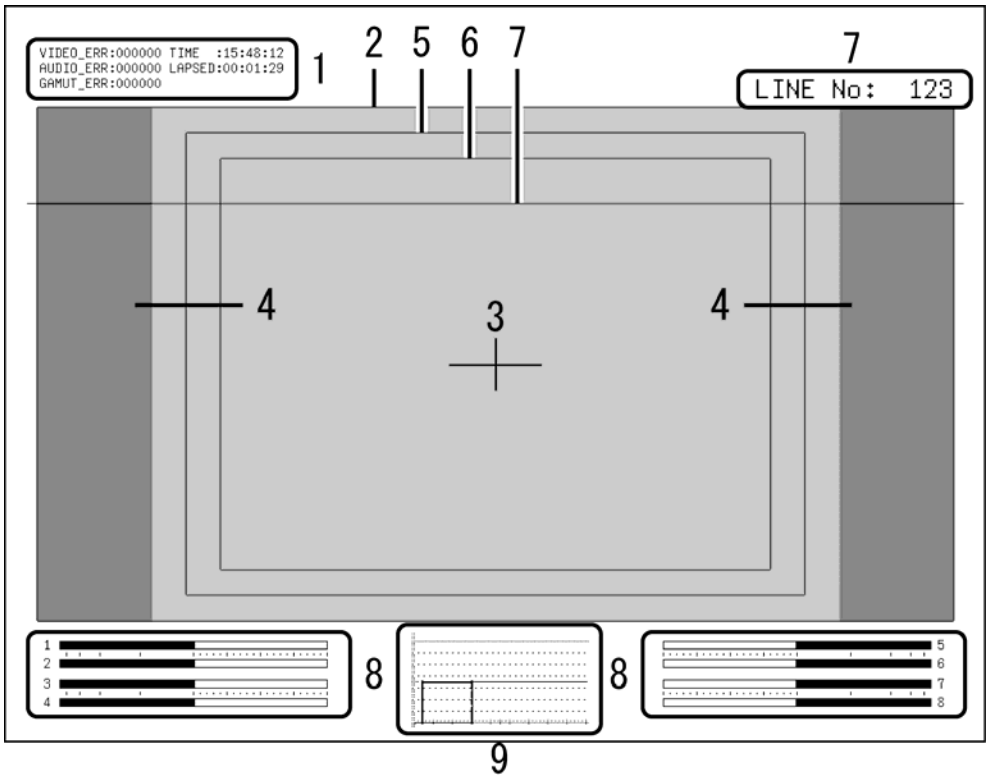


Figure 12-1 Picture display

1 Error Counter

The error counter, the current time, and the elapsed time appear here.

2 Frame Marker

You can display a marker around the outer edge of the picture.

3 Center Marker

You can display a marker in the center of the picture that is 10 % its size.

4 Aspect Marker

You can display a marker for the selected aspect ratio using a shadow, a black space, or a line.

5 Safe Action Marker

You can display a safe action marker according to the ARIB TR-B4 or SMPTE RP 218 specifications. You can also set the marker to some other size.

6 Safe Title Marker

You can display a safe title marker according to the ARIB TR-B4 or SMPTE RP 218 specifications. You can also set the marker to some other size.

7 Selected Line

You can display a marker on the selected line.

8 Thumbnail (Audio meter)

The audio meter appears here as a thumbnail. You can also turn this off.

9 Thumbnail (Video signal waveform)

The video signal waveform appears here as a thumbnail. You can also turn this off.

12.2 Setting the Brightness and Contrast

You can set the picture brightness and contrast by using F•D 1 BRIGHTNESS and F•D 2 CONTRAST on the picture menu.
F•D 1 BRIGHTNESS and F•D 2 CONTRAST appear in other levels of the picture menu as well and function in the same way.

12.2.1 Setting the Brightness

To set the picture brightness, follow the procedure below.
If you press F•D 1, the brightness will be set to its default value of 0.0 %.

Procedure
PIC → F•D 1 BRIGHTNESS

Settings	
Range:	-50.0 to 50.0 % (the default value is 0.0 %)

12.2.2 Setting the Contrast

To set the picture contrast, follow the procedure below.
If you press F•D 2, the contrast will be set to its default value of 100.0 %.

Procedure
PIC → F•D 2 CONTRAST

Settings	
Range:	0.0 to 200.0 % (the default value is 100.0 %)

12.3 Turning the RGB Signals On and Off

To turn the individual R, G, and B signal displays on and off, follow the procedure below.
You cannot turn off the display of every signal.

Procedure

PIC → F•1 R SIGNAL
→ F•2 G SIGNAL
→ F•3 B SIGNAL

Settings

ON:	The R, G, or B signal is displayed (this is the default value).
OFF:	The R, G, or B signal is not displayed.

12.4 Switching between the Color and Monochrome Displays

To switch between the color and monochrome displays, follow the procedure below.
This setting does not appear when the 3D assist display (option) is in use.

Procedure

PIC → F•4 MONO/COLOR

Settings

COLOR:	The picture is displayed in color (this is the default value).
MONO:	The picture is displayed in monochrome.

12.5 Amplifying the Chroma Gain

To switch the chroma gain, follow the procedure shown below.
For information on the CHROMA GAIN setting, see section 12.6.3, “Setting the Chroma Gain.”

Procedure

PIC → F•5 CHROMA UP

Settings

NORMAL:	The chroma gain is the value that has been set using F•D 1 CHROMA GAIN (this is the default value).
UP:	The chroma gain is set to 2 (200.0 %).

12.6 Adjusting the Picture

To adjust the picture, press F•6 ADJUST on the picture menu. You can configure the RGB signals individually (set their gain and bias), configure the chroma settings, and set the aperture.

12.6.1 Setting the Gain

To set the RGB signal gain separately for each color, follow the procedure below.
If you press F•D 1, the gain will be set to its default value of 100.0 %.

Procedure

PIC → F•6 ADJUST → F•1 R GAIN/BIAS → F•D 1 R GAIN
→ F•2 G GAIN/BIAS → F•D 1 G GAIN
→ F•3 B GAIN/BIAS → F•D 1 B GAIN

Settings

Range: 0.0 to 200.0 % (the default value is 100.0 %)

12.6.2 Setting the Bias

To set the RGB signal bias separately for each color, follow the procedure below.
If you press F•D 2, the gain will be set to its default value of 0.0 %.

Procedure

PIC → F•6 ADJUST → F•1 R GAIN/BIAS → F•D 2 R BIAS
→ F•2 G GAIN/BIAS → F•D 2 G BIAS
→ F•3 B GAIN/BIAS → F•D 2 B BIAS

Settings

Range: -50.0 to 50.0 % (the default value is 0.0 %)

12.6.3 Setting the Chroma Gain

To set the chroma gain, follow the procedure below.
If you press F•D 1, the gain will be set to its default value of 100.0 %.

Procedure

PIC → F•6 ADJUST → F•4 CHROMA/APERTURE → F•D 1 CHROMA GAIN

Settings

Range: 0.0 to 200.0% (the default value is 100.0%)

12.6.4 Setting the Aperture

To set the aperture, follow the procedure below. A larger number will result in more well-defined outlines. If you press F•D 2, the aperture will be set to its default value of 0.

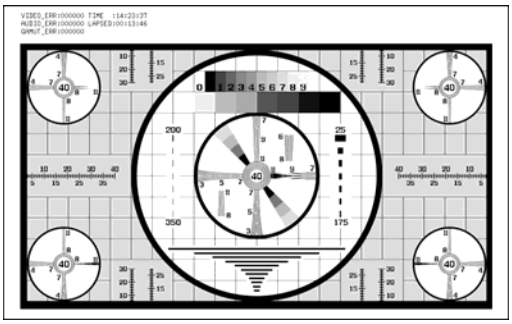
Procedure

PIC → F•6 ADJUST → F•4 CHROMA/APERTURE → F•D 2 APERTURE

Settings

Range: 0 to 100 (the default value is 0)

APERTURE = 0



APERTURE = 100

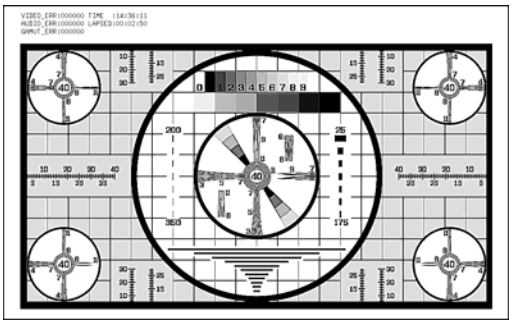


Figure 12-2 Setting the aperture

12.7 Configuring Marker Settings

To configure marker settings, press F•1 MARKER on the picture menu. You can display markers and set their types and sizes.
The markers that you set here do not appear on thumbnail displays or the 2-channel display.
F•1 MARKER appears when SIZE has been set to FIT.

For information on the SIZE setting, see section 12.9.1, “Setting the Display Size”

12.7.1 Turning the Display of the Frame Marker On and Off

To display the frame marker, follow the procedure below.
The frame marker is displayed around the outer edge of the picture.

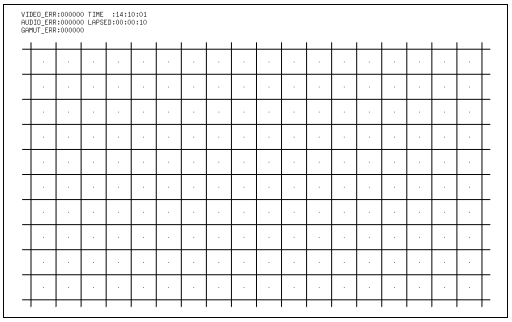
Procedure

PIC → F•7 next menu → F•1 MARKER → F•1 FRAME

Settings

ON:	The frame marker is displayed.
OFF:	The frame marker is not displayed (this is the default value).

FRAME = OFF



FRAME = ON

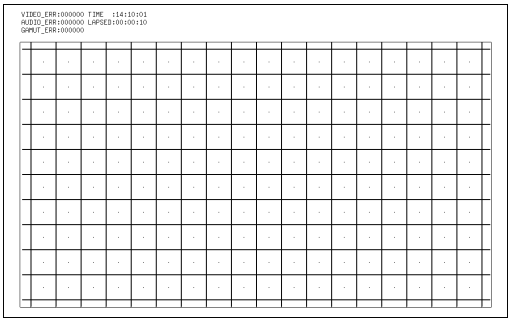


Figure 12-3 The frame marker

12.7.2 Turning the Display of the Center Marker On and Off

To display the center marker, follow the procedure below.
The center marker is displayed in the center of the picture at 10 % of the picture's size.

Procedure

PIC → F•7 next menu → F•1 MARKER → F•2 CENTER

Settings

ON:	The center marker is displayed.
OFF:	The center marker is not displayed (this is the default value).

CENTER = ON

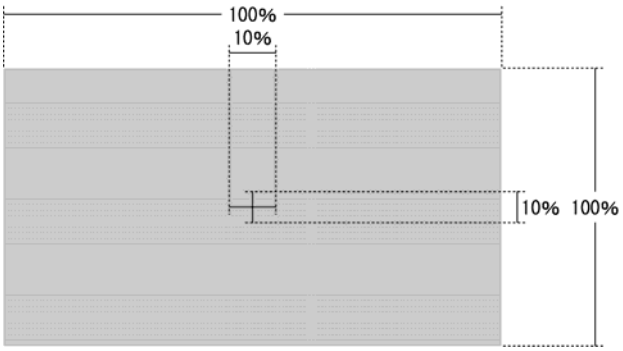


Figure 12-4 The center marker

12.7.3 Turning the Display of the Aspect Marker On and Off

To display the aspect marker, follow the procedure below.
There are three kinds of aspect marker: line, shadow, and black. The aspect marker type can be set using F•D 1 SHADOW.
When 3D INPUT FORMAT is set to HF SbyS or TOP&BOTM on the optional 3D assist display, this setting does not appear.

Procedure

PIC → F•7 next menu → F•1 MARKER → F•3 ASPECT

Settings

OFF:	The aspect marker is not displayed (this is the default value).
14:9:	The 14:9 aspect marker is displayed.
13:9:	The 13:9 aspect marker is displayed.
4:3:	The 4:3 aspect marker is displayed. This option cannot be selected when the input signal is SD.
2.39:1:	The 2.39:1 aspect marker is displayed. This option cannot be selected when the input signal is SD or HD (720p).
16:9:	The 16:9 aspect marker is displayed. This option cannot be selected when the input signal is HD.
AFD:	The aspect marker that has been written to the AFD packets is displayed. This option cannot be selected when the link format is set to dual.

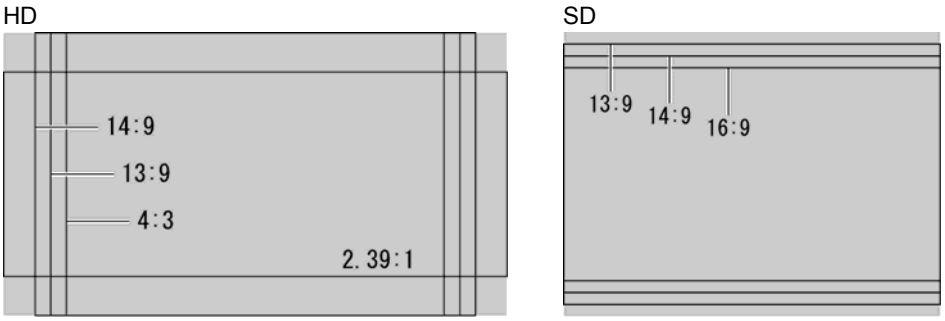


Figure 12-5 Aspect markers

12.7.4 Setting the Aspect Marker

To select the aspect marker type, follow the procedure below.
When F•3 ASPECT is set to OFF, this setting does not appear.

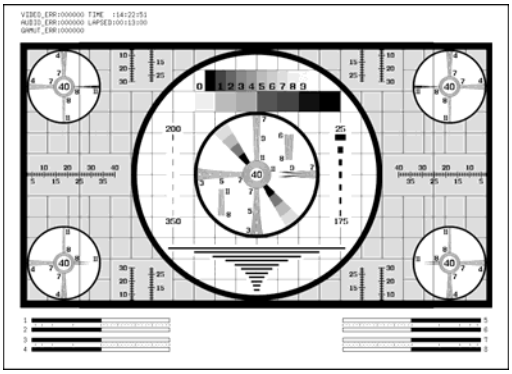
Procedure

PIC → F•7 next menu → F•1 MARKER → F•D 1 SHADOW

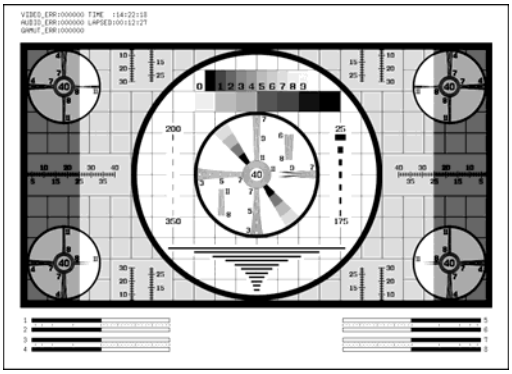
Settings

0%:	The aspect marker is indicated with a line.
1 to 99%:	The area around the aspect marker is indicated with a shadow (the default value is 50%).
100%:	The area outside the aspect marker is indicated with black space.

SHADOW = 0%



SHADOW = 50%



SHADOW = 100%

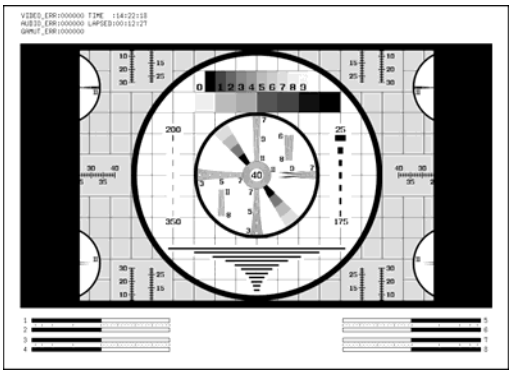


Figure 12-6 Aspect marker types

12.7.5 Setting Safety Markers

To select the safety marker type, follow the procedure below.
The display of the safe action marker, safe title marker, and user markers (two types) can be turned on and off separately.
When F•3 ASPECT is set to AFD, safety markers are not displayed.

Procedure

PIC → F•7 next menu → F•1 MARKER → F•4 SAFETY ZONE → F•1 STANDARD

Settings

ARIB:	ARIB TR-B4 safe action and safe title markers are displayed.
SMPTE:	SMPTE RP 218 safe action and safe title markers are displayed (this is the default value).
USER:	Up to two user markers are displayed. You can set user markers to any size you like.

12.7.6 Turning the Display of the Safe Action Marker On and Off

To display the safe action marker, follow the procedure shown below.
This setting is available when F•1 STANDARD is set to ARIB or SMPTE.

Procedure

PIC → F•7 next menu → F•1 MARKER → F•4 SAFETY ZONE → F•2 SAFE ACTION

Settings

ON:	The safe action marker is displayed.
OFF:	The safe action marker is not displayed (this is the default value).

12.7.7 Turning the Display of the Safe Title Marker On and Off

To display the safe title marker, follow the procedure shown below.
This setting is available when F•1 STANDARD is set to ARIB or SMPTE.

Procedure

PIC → F•7 next menu → F•1 MARKER → F•4 SAFETY ZONE → F•3 SAFE TITLE

Settings

ON:	The safe title marker is displayed.
OFF:	The safe title marker is not displayed (this is the default value).

12.7.8 Turning the Display of User Markers On and Off

To display a user marker, follow the procedure below.
There are two types of user markers. You can turn their displays on and off separately.
This setting is available when F•1 STANDARD is set to USER.

Procedure

PIC → F•7 next menu → F•1 MARKER → F•4 SAFETY ZONE → F•2 USER ZONE1
→ F•3 USER ZONE2

Settings

ON:	The selected user marker is displayed.
OFF:	The selected user marker is not displayed (this is the default value).

12.7.9 Setting User Markers

To set the size of a user marker, follow one of the procedures below.
The percentages used to specify the user marker sizes are based on the size of the picture (or the size of the aspect marker if the aspect marker is displayed). There are two types of user markers. You can set their horizontal (H) and vertical (V) sizes separately.

- **Setting User Marker 1**

Procedure

PIC → F•7 next menu → F•1 MARKER → F•4 SAFETY ZONE → F•2 USER ZONE1
(when the user marker is displayed)
→ F•D 1 USER ZONE1 H
→ F•D 2 USER ZONE1 V

Settings

Range: 0 to 100% (the default value is 90%).

- **Setting User Marker 2**

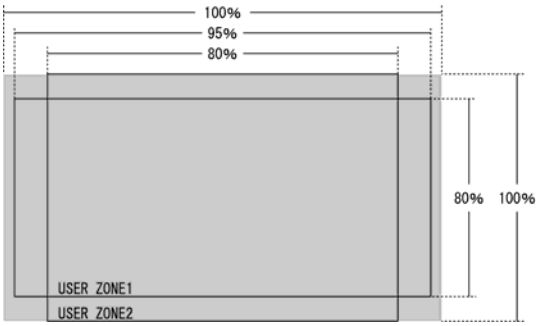
Procedure

PIC → F•7 next menu → F•1 MARKER → F•4 SAFETY ZONE → F•3 USER ZONE2
(when the user marker is displayed)
→ F•D 1 USER ZONE2 H
→ F•D 2 USER ZONE2 V

Settings

Range: 0 to 100% (the default value is 80%).

USER ZONE1 H = 95%
USER ZONE1 V = 80%
USER ZONE2 H = 80%
USER ZONE2 V = 100%
ASPECT = OFF



USER ZONE1 H = 95%
USER ZONE1 V = 80%
USER ZONE2 H = 80%
USER ZONE2 V = 100%
ASPECT = 4:3

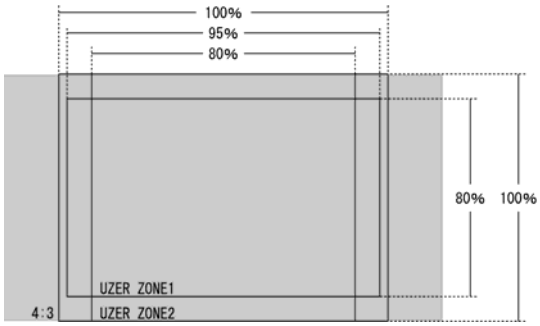


Figure 12-7 User marker setting examples

12.8 Configuring Line Selection Settings

To configure line selection settings, press F•2 LINE SEL on the picture menu. The line selection feature allows you to display a marker on the selected line.
The markers that you set here do not appear in thumbnail displays, the 2-channel display or 3D assist display (option).
F•2 LINE SEL appears when SIZE has been set to FIT.
For information on the SIZE setting, see section 12.9.1, “Setting the Display Size”

12.8.1 Turning Line Selection On and Off

To display a marker on the selected line, follow the procedure below.
Changing this setting will also change the video-signal-waveform-display and vector-display line selection settings.

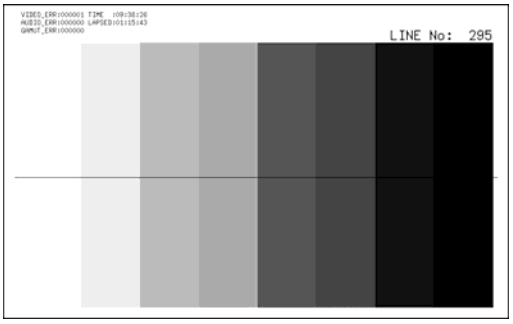
Procedure

PIC → F•7 next menu → F•2 LINE SEL → F•1 LINE SELECT

Settings

ON:	A marker appears on the selected line.
OFF:	A marker does not appear on the selected line (this is the default value).

LINE SELECT = ON



LINE SELECT = OFF

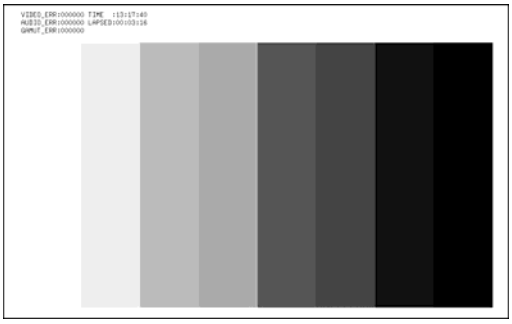


Figure 12-8 Turning line selection on and off

12.8.2 Selecting Lines

To select a line to display a marker on, follow the procedure below. The selected line is indicated in the upper right of the display. If you press F•D 1, the selected line changes to the first video line.
You can select a line when F•1 LINE SELECT is set to ON. Changing this setting will also change the selected line on the video-signal-waveform, vector, and status (data dump) displays.

Procedure

PIC → F•7 next menu → F•2 LINE SEL → F•D 1 LINE VARIABLE

12.8.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.
The line selection range can be set when the input format is set to interlaced or segmented frame.
Changing this setting will also change the video-signal-waveform-display and vector-display line selection ranges.

Procedure

PIC → F•7 next menu → F•2 LINE SEL → F•2 FIELD

Settings
(the examples are for the selectable ranges when the input format is set to 1080i/59.94)

FIELD1:	A line from field 1 can be selected. (Example: 1 to 563.)
FIELD2:	A line from field 2 can be selected. (Example: 564 to 1125.)
FRAME:	All lines can be selected (this is the default value). (Example: 1 to 1125.)

12.9 Configuring Display Settings

To configure the display settings, press F•3 DISPLAY on the picture menu. You can configure the picture display size, the gamut error display, and the AFD display.

12.9.1 Setting the Display Size

To set the picture display size, follow the procedure below.
Regardless of the setting made here, the picture is displayed using the FIT option on the thumbnail and multi-screen displays. However, when 3D INPUT FORMAT is set to L/R DUAL and PICTURE FORM is set to AGLPH CL, AGLPH MO, CNVRGNCE, or OVERLAY on the optional 3D assist display, you can select the REAL option as well as the FIT option. Additionally, the marker, line-selection, and CINELITE displays only support the FIT option.

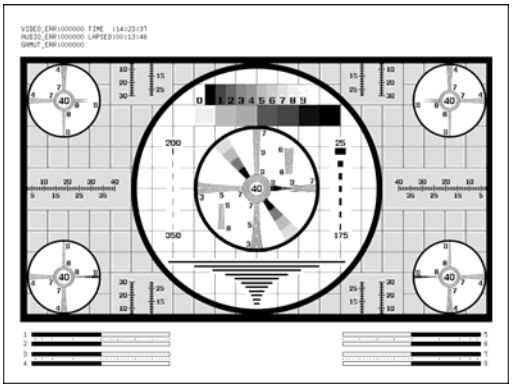
Procedure

PIC → F•7 next menu → F•3 DISPLAY → F•1 SIZE

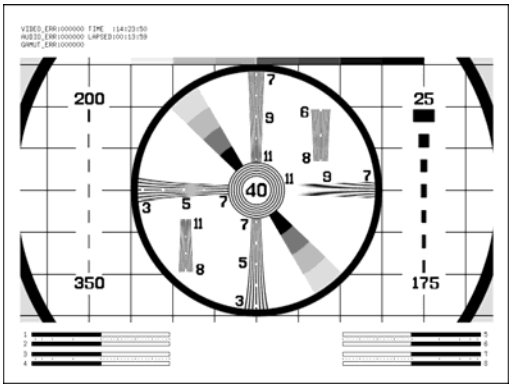
Settings

FIT:	The picture size is adjusted to the most suitable size for the screen (this is the default value).
REAL:	A single sample of the video signal is displayed with a single pixel on the screen. You can adjust the picture location by using H POS and V POS. This option cannot be selected when the link format is set to dual (1080p/60, 59.94, or 50).
FULL FRM:	A single frame, including the blanking interval, is displayed.
FUL SCRN:	The picture is displayed in full screen. If the input signal is HD and the aspect ratio in the system settings is set to 4:3, the picture is displayed with its ends cut off. Nothing but the picture is displayed. (For example, thumbnails and error count information are not displayed.)

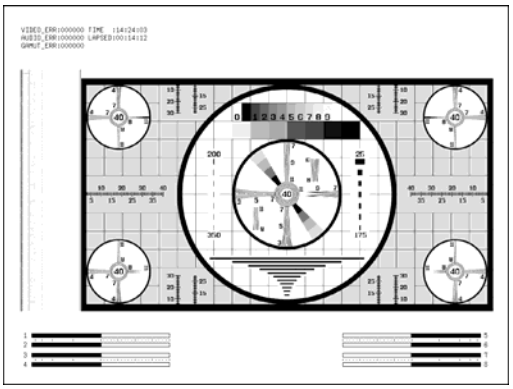
SIZE = FIT



SIZE = REAL



SIZE = FULL FRM



SIZE = FUL SCRN

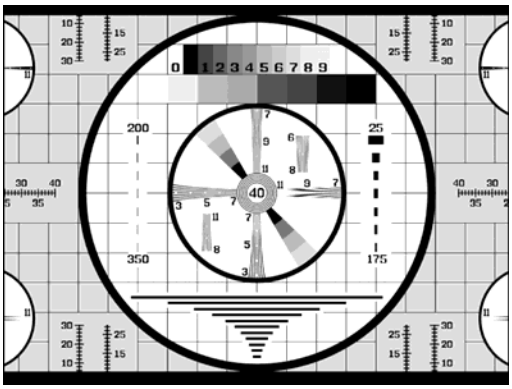


Figure 12-9 Picture display sizes

12.9.2 Setting the Display Position

When F•1 SIZE is set to REAL, follow the procedure below to set the picture's display position.

Procedure

PIC → F•7 next menu → F•3 DISPLAY → F•D 1 H POS
→ F•D 2 V POS

12.9.3 Displaying Gamut Errors

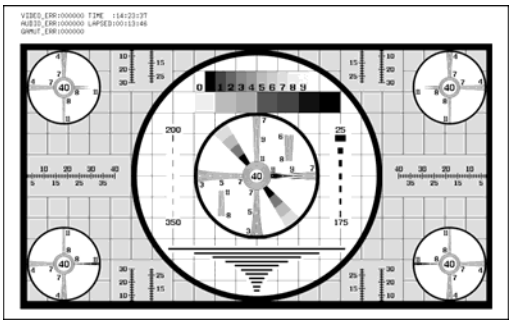
To display gamut errors on the picture, follow the procedure below. The gamut error level display range can be set on the status display.
This setting does not appear when, in the status display, Gamut Error, Composite Gamut Error, and Luminance Error are all set to OFF.

Procedure

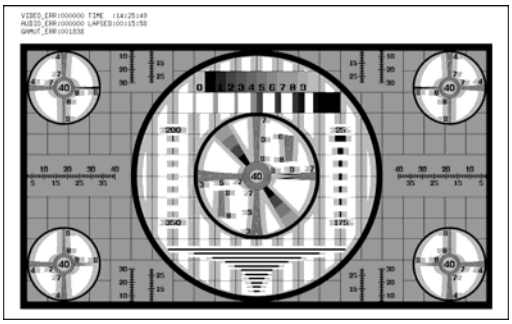
PIC → F•7 next menu → F•3 DISPLAY → F•2 GAMUT ERR DISP

Settings	
OFF:	Gamut errors are not displayed (this is the default value).
WHITE:	The picture intensity is halved, and gamut error locations are marked in white.
RED:	The picture intensity is halved, and gamut error locations are marked in red.
MESH:	Gamut error locations are filled with a mesh pattern.

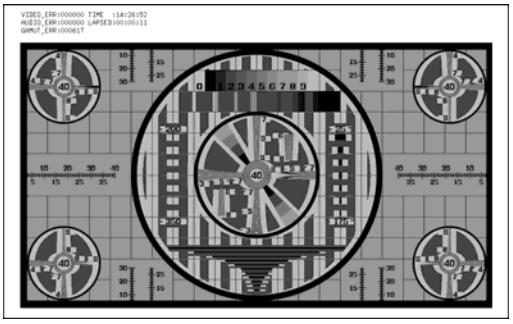
GAMUT ERR DISP = OFF



GAMUT ERR DISP = WHITE



GAMUT ERR DISP = RED



GAMUT ERR DISP = MESH

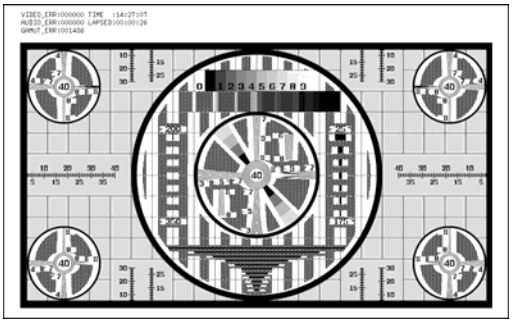


Figure 12-10 Displaying gamut errors

12.9.4 Displaying AFDs

To display abbreviations for SMPTE 2016-1-2007 standard AFD codes in the upper section of the screen, follow the procedure below. If there are no AFD packets embedded in the input signal, “---------” is displayed.
This feature is not supported in dual link mode, the 2-channel display, or the 3D assist display (option). It does not appear on their menus.

Procedure

PIC → F•7 next menu → F•3 DISPLAY → F•6 AFD ASPECT INFO

Settings	
ON:	AFD code abbreviations are displayed.
OFF:	AFD code abbreviations are not displayed (this is the default value).

The AFD is abbreviated according to the coded frame or the AFD code. The displayed abbreviations are shown in the following table.

Table 12-1 AFD display

Coded Frame	AFD Code	Displayed Abbreviation	Description
0 (4:3)	0000	0000- UNDEFINED	Undefined
0 (4:3)	0001	0001- RESERVED	Reserved
0 (4:3)	0010	0010- 16:9LBTop	Letterbox 16:9 image, at top of the coded frame
0 (4:3)	0011	0011- 14:9LBTop	Letterbox 14:9 image, at top of the coded frame
0 (4:3)	0100	0100- >16:9LBox	Letterbox image with an aspect ratio greater than 16:9, vertically centered in the coded frame
0 (4:3)	0101	0101- RESERVED	Reserved
0 (4:3)	0110	0110- RESERVED	Reserved
0 (4:3)	0111	0111- RESERVED	Reserved
0 (4:3)	1000	1000- FullFrame	Full frame 4:3 image, the same as the coded frame
0 (4:3)	1001	1001- Full Frame	Full frame 4:3 image, the same as the coded frame
0 (4:3)	1010	1010- 16:9LBox	Letterbox 16:9 image, vertically centered in the coded frame with all image areas protected
0 (4:3)	1011	1011- 14:9LBox	Letterbox 14:9 image, vertically centered in the coded frame
0 (4:3)	1100	1100- RESERVED	Reserved
0 (4:3)	1101	1101-4:3Full14:9	Full frame 4:3 image, with alternative 14:9 center
0 (4:3)	1110	1110-16:9LB14:9	Letterbox 16:9 image, with alternative 14:9 center
0 (4:3)	1111	1111-16:9LB4:3	Letterbox 16:9 image, with alternative 4:3 center
1 (16:9)	0000	0000w UNDEFINED	Undefined
1 (16:9)	0001	0001w RESERVED	Reserved
1 (16:9)	0010	0010w Full Frame	Full frame 16:9 image, the same as the coded frame
1 (16:9)	0011	0011w 14:9Pillbox	Pillarbox 14:9 image, horizontally centered in the coded frame
1 (16:9)	0100	0100w >16:9LBox	Letterbox image with an aspect ratio greater than 16:9, vertically centered in the coded frame
1 (16:9)	0101	0101w RESERVED	Reserved
1 (16:9)	0110	0110w RESERVED	Reserved
1 (16:9)	0111	0111w RESERVED	Reserved
1 (16:9)	1000	1000w FullFrame	Full frame 16:9 image, the same as the coded frame
1 (16:9)	1001	1001w 4:3Pillbox	Pillarbox 4:3 image, horizontally centered in the coded frame
1 (16:9)	1010	1010w FullNoCrop	Full frame 16:9 image, with all image areas protected
1 (16:9)	1011	1011w14:9Pillbox	Pillarbox 14:9 image, horizontally centered in the coded frame
1 (16:9)	1100	1100w RESERVED	Reserved
1 (16:9)	1101	1101w4:3PB14:9	Pillarbox 4:3 image, with alternative 14:9 center
1 (16:9)	1110	1110wFul14:9Safe	Full frame 16:9 image, with alternative 14:9 center
1 (16:9)	1111	1111wFull4:3Safe	Full frame 16:9 image, with alternative 4:3 center

12.10 Configuring Closed Caption Display Settings

To configure the closed caption display settings, press F•4 SUPER IMPOSE on the picture menu. You can configure the settings for the display of English closed caption information. Closed captions are displayed when you press F•4 SUPER IMPOSE. They are cleared from the display when you switch to a different menu. Additionally, when the F•4 SUPER IMPOSE menu is displayed, the displays of markers, line select markers, and AFDs are turned off. This feature is not supported by dual link mode and the multi-screen display. F•4 SUPER IMPOSE does not appear on their menus.

12.10.1 Selecting the Format

To select the format of English closed captions, follow the procedure below.

Procedure

PIC → F•7 next menu → F•4 SUPER IMPOSE → F•1 FORMAT

Settings

608(708):	CEA/EIA-608-B closed caption information that is embedded in EIA-708-B CDP packets is displayed (this is the default value).
608(608):	CEA/EIA-608-B closed caption information is displayed.
VBI:	CEA/EIA-608-B closed caption information that is embedded in vertical blanking intervals is displayed.

12.10.2 Selecting the Content to Display

To select the content to display of English closed captions, follow the procedure below.

Procedure

PIC → F•7 next menu → F•4 SUPER IMPOSE → F•2 LANGUAGE

Settings

Range:	CC1 to CC4 or TEXT1 to TEXT4 (the default value is CC1).

12.11 Configuring CINELITE Settings

CINELITE II consists of the CINELITE and CINEZONE features. This section will explain the CINELITE feature.
The CINELITE feature displays the luminance level of a video signal on the picture display. To configure its settings, from the picture menu, press F•5 CINELITE → F•1 f Stop DISPLAY or press F•5 CINELITE → F•2 %DISPLAY.
This feature is not supported by the multi-screen display. It does not appear on the multi-screen display menu.

12.11.1 f Stop Screen Explanation

To display the f Stop screen, follow the procedure below.

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•1 f Stop DISPLAY

On the f Stop screen, luminance levels are displayed using f-stop (exposure) values.
The measured f Stop value for a group of measured points is typically displayed using white, but it will be displayed using yellow when it corresponds to a luminance level of 80 % or more. Additionally, f Stop values that correspond to luminance levels equal to or less than 0 % can not be measured. They are displayed in yellow as "****."

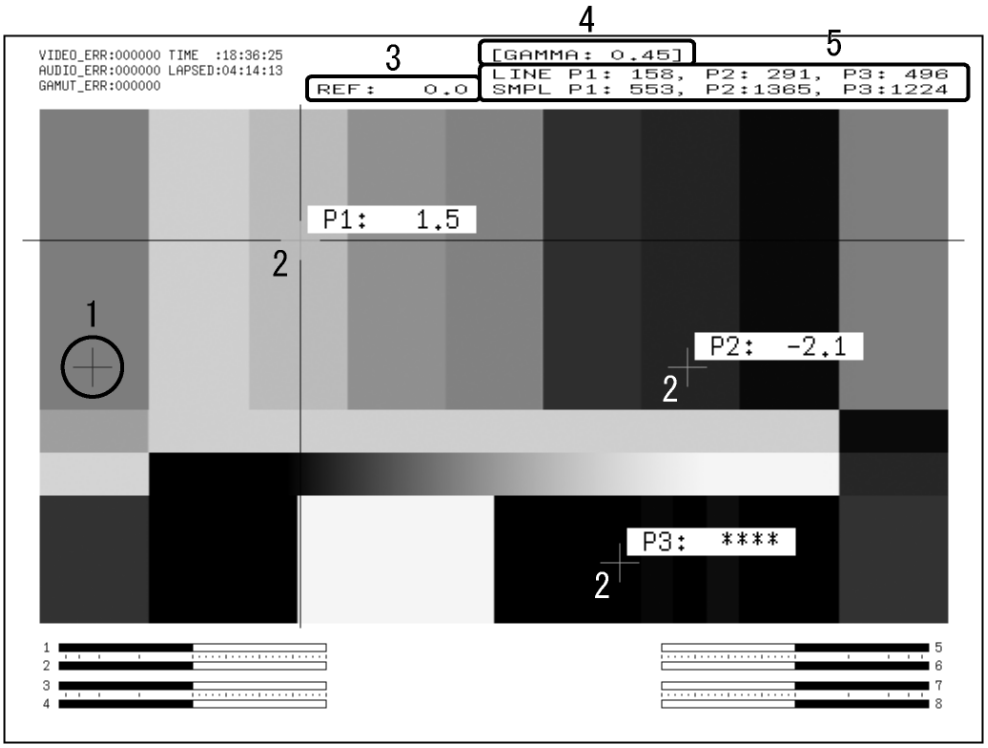


Figure 12-11 f Stop screen

1 Reference Position

The position where the cursors intersected when F•3 18% REF SET was pressed is displayed in red. This is the reference position for f-stop measurement.

2 Cursor

You can set up to three measurement points. The f Stop value relative to the reference point is displayed at each point.

3 Reference Value

The f Stop value at the reference position appears here. The value immediately after you have pressed F•3 18% REF SET is zero, but it will change when the picture changes.

4 Gamma Correction Value

The gamma correction value that you selected using F•4 GAMMA SELECT appears here.

5 Coordinates

The measurement point coordinates are indicated here with both line and sample numbers.

12.11.2 Procedure for Displaying the f Stop Screen

The following example shows how to display luminance levels as f Stop numbers relative to the luminance level of 18 % gray chart. Include an 18 % gray chart with the objects that you are filming.

1. **Press PIC.**
2. **Press F • 7 next menu and then F • 5 CINELITE.**
3. **Press F • 2 %DISPLAY.**
4. **Press F • 3 UNIT SELECT, and select Y%.**

   The luminance levels at the measurement points are displayed as percentages. The measured values of measurement points that are within the blanking interval are not displayed.

5. **Place the cursors over the 18 % gray chart.**

   Adjust the lighting so that the displayed luminance level is 45.0 % (for example).

6. **Press F • 7 up menu.**
7. **Press F • 1 f Stop DISPLAY.**
8. **Press F • 4 GAMMA SELECT to select a gamma correction table.**

   The default gamma correction value is 0.45, but you can also use a user-defined gamma correction table that matches the gamma characteristics of the camera that you are using. For details, see section 12.11.6, “Configuring User-Defined Correction Tables.”
   The selected gamma correction value is indicated in the upper right of the display.

9. **Make sure that the cursors are over the 18 % gray chart, and press F•3 18% REF SET.**

   The f Stop value for 18 % gray chart becomes 0.0 and is displayed in the upper part of the screen next to “REF:.” The reference position is displayed with a red cursor.

10. **Use the cursors to set the measurement points.**

    The f Stop value relative to 18 % gray chart appears next to each measurement point. You can set up to three measurement points.

12.11.3 %DISPLAY Screen Explanation

To display the %DISPLAY screen, follow the procedure below.

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•2 %DISPLAY

On the %DISPLAY screen, you can display luminance levels as Y percentages, RGB percentages, or using 255 RGB levels. Use F•3 UNIT SELECT to select the display format. The measured values are typically displayed using white, but they are displayed using yellow when the luminance level is 80 % or more or 0 % or less.

- **Y% Display**

Luminance levels are indicated as percentages.

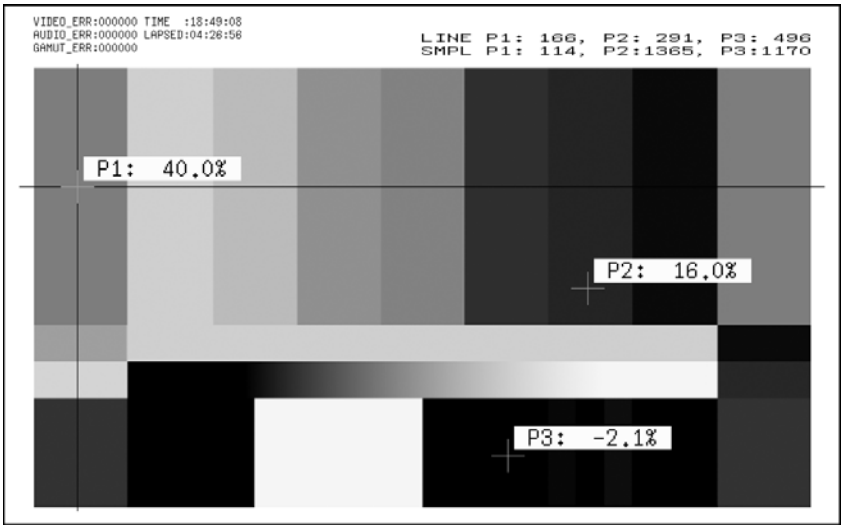


Figure 12-12 Y% display

- **RGB% Display**

Each R, G, and B level is indicated using a percentage. The levels are also indicated using bars on the left side of the display (the order is R, G, and then B).

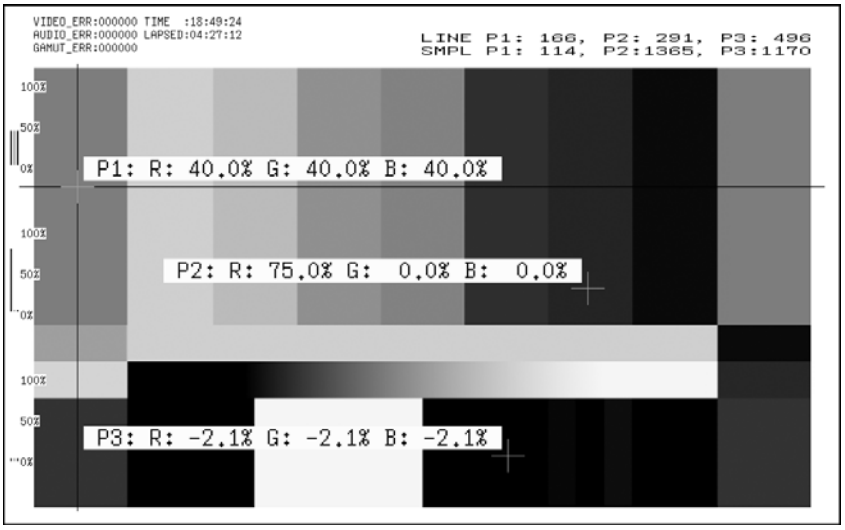


Figure 12-13 RGB% display

- **RGB 255 Display**

Each R, G, and B level is indicated using 256 steps from 0 to 255. The levels are also indicated using bars on the left side of the display (the order is R, G, and then B).
The value of an RGB level that is 100 % or greater is 255. The value of an RGB level that is 0 % or less is 0.

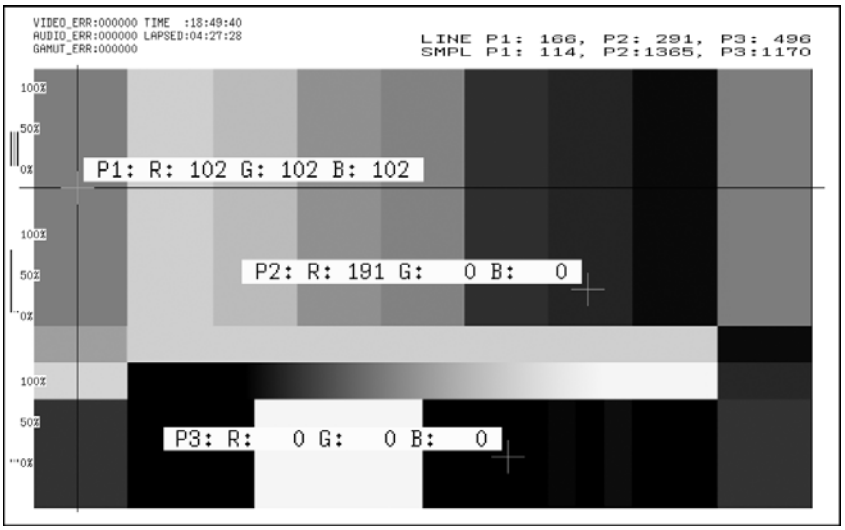


Figure 12-14 RGB 255 display

12.11.4 Setting Measurement Points

You can set up to three measurement points. Follow the procedure below to select which measurement point to set with the cursors, and then move the X and Y cursors by using F•D 1 SAMPLE SELECT and F•D 2 LINE SELECT, respectively. Press F•D 1 and F•D 2 at the same time to move the cursors to the center of the picture.

The cursors are not displayed if they are within the blanking interval. To display cursors that do not appear, move them within the screen.
You cannot turn off one of the points from P1 to P3. To hide a cursor, move it outside of the screen.
The measurement point settings made on the menus accessed by pressing F•1 f Stop DISPLAY and F•2 %DISPLAY are the same.

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•1 f Stop DISPLAY → F•1 MEAS POS
→ F•2 %DISPLAY → F•1 MEAS POS

Settings

P1:	You can use the cursors to select the position of measurement point 1 (this is the default value).
P2:	You can use the cursors to select the position of measurement point 2.
P3:	You can use the cursors to select the position of measurement point 3.

12.11.5 Setting the Area of Luminance Measurement

To select the area of luminance measurement, follow the procedure below. This setting is applied to P1 to P3 and REF.
The luminance measurement area settings made on the menus accessed by pressing F•1 f Stop DISPLAY and F•2 %DISPLAY are the same.

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•1 f Stop DISPLAY → F•2 MEAS SIZE
→ F•2 %DISPLAY → F•2 MEAS SIZE

Settings

1X1:	The single pixel at the intersection of the cursors is measured (this is the default value).
3X3:	The luminance of the 3X3 area of pixels centered on the pixel at the intersection of the cursors is averaged and measured.
9X9:	The luminance of the 9X9 area of pixels centered on the pixel at the intersection of the cursors is averaged and measured.

12.11.6 Configuring User-Defined Correction Tables

The default gamma correction value when measuring f Stop levels is 0.45, but you can also use a user-defined gamma correction table that matches the gamma characteristics of the camera that you are using. There are two types of user-defined correction tables. The first type consists of tables that are created using the LV 7380 and is made up of the USER1 to USER3 tables. The second type consists of tables that have been created externally using a device such as a PC and is made up of the USER-A to USER-E tables.
Neither type of user-defined correction table is deleted if you initialize the LV 7380.

- **Creating User-Defined Correction Tables Using the LV 7380**

You can create and store up to three user-defined correction tables on the LV 7380.
As an example, the following procedure shows how to create a user-defined correction table that matches a camera's gamma characteristics. Set the camera's f Stop value to 5.6 beforehand, and put an 18 % gray chart in the area that you will film.

1. **Adjust the lighting so that the displayed luminance level of the 18 % gray chart is 45.0 % (for example) on a camera whose f Stop value is set to 5.6.**

   For details, see steps 1 through 5 in section 12.11.2, “Procedure for Displaying the f Stop Screen.”

2. **Press F•7 up menu.**
3. **Press F•1 f Stop DISPLAY.**
4. **Press F•4 GAMMA SELECT, and select USER1.**

   In this example, the table for USER1 is created, but the tables for USER2 and USER3 can also be created in the same way.

5. **Press F•5 GAMMA CAL.**

   When you press F•5 GAMMA CAL, a user-defined correction table appears in the bottom left of the screen, and the luminance level appears as a 10-bit value (0 % is displayed as 64, and 100 % is displayed as 940) close to the cursor.
   This setting is available when F•4 GAMMA SELECT is set to an option from USER1 to USER3.

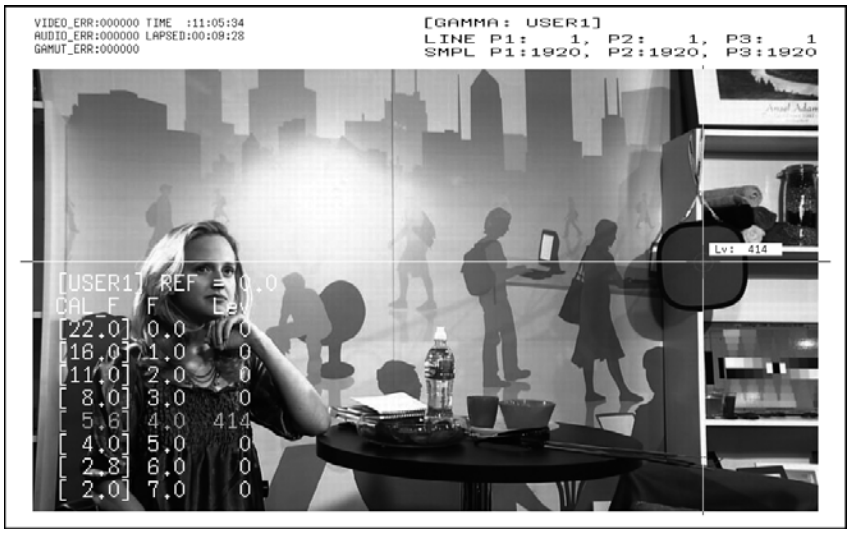


Figure 12-15 User-defined correction table creation screen

6. **Press F•1 TABLE CLEAR.**

   All the values in the user-defined correction table that is currently being edited are initialized. Be sure to initialize the values first when you create a new user-defined correction table.

7. **Press F•1 TABLE CLR YES.**

   To cancel the initialization of a user-defined correction table, press F•3 TABLE CLR NO.

8. **Place the cursors over the 18 % gray chart.**

9. **Press F•4 CAL F, and select 5.6.**

10. **Press F•3 CAL SET.**

    The luminance level when the camera f Stop value is 5.6 is input into Lev in the user-defined correction table. To delete a line of data, press F•2 1 DATA CLEAR.

11. **Change F•4 CAL F and the camera f Stop value together in the following order: 4.0, 2.8, 2.0, 8.0, 11.0, 16.0, 22.0. Press F•3 CAL SET each time you change the value to input the luminance level for each value.**

    Do not change the lighting or the position of the 18 % gray chart.
    Also, make sure that the Lev value for f Stop values 22.0 to 2.0 increases linearly.

The REF value in the user-defined correction table is entered when you press F•3 18% REF SET on the f Stop display.

For example, if you use the left-hand table shown below and press F•3 18% REF SET when the luminance value at the intersection of the cursors is 416 (10-bit value), the f Stop value at that point (3.0) is displayed as the REF value.

[USER1] REF=0.0				[USER1] REF=3.0		
CAL_F	F	Lev		CAL_F	F	Lev
[22.0]	0.0,	152		[22.0]	0.0,	152
[16.0]	1.0,	240		[16.0]	1.0,	240
[11.0]	2.0,	328	→	[11.0]	2.0,	328
[8.0]	3.0,	416		[8.0]	3.0,	416
[5.6]	4.0,	504		[5.6]	4.0,	504
[4.0]	5.0,	592		[4.0]	5.0,	592
[2.8]	6.0,	680		[2.8]	6.0,	680
[2.0]	7.0,	768		[2.0]	7.0,	768

Figure 12-16 User-defined correction tables

When the above user-defined correction tables are used, f Stop values are indicated as shown below. The values between specified values are interpolated linearly.

When Lv = 152 f Stop = -3.0
When Lv = 240 f Stop = -2.0
When Lv = 328 f Stop = -1.0
When Lv = 416 f Stop = 0.0
When Lv = 504 f Stop = 1.0
When Lv = 592 f Stop = 2.0
When Lv = 680 f Stop = 3.0
When Lv = 768 f Stop = 4.0

- **Loading a User-Defined Correction Table into the LV 7380**

You can load up to five user-defined correction tables into the LV 7380.
To load a user-defined correction table into the LV 7380, follow the procedure below.

1. Create a user-defined correction table.

Example (TEST.CLT):

##################################			Comment
NAME:SAMPLE_1			Keyword
TYPE:0			Keyword
#Input	-7%	0	Comment
#	109%	4095	Comment
#Output	0%	0	Comment
#	1000%	65535	Comment
#Input	Output		Comment
##################################			Comment
0	0		Data
1	16		Data
2	32		Data
(Omitted)			
4093	65488		Data
4094	65504		Data
4095	65520		Data
# EOF			Comment

When you create a correction table, make sure that it conforms to the specifications listed below.

Overall File Specifications

File Type	ASCII text file
Extension	.CLT
End-of-Line Character	CR+LF
Number of Lines	5000 or less
Number of Characters per Line	255 or less (including CR+LF)
File Name Length	20 characters or less (excluding the extension)
Permitted File Name Characters	Letters of the alphabet (A to Z; uppercase and lowercase), numerals (0 to 9), and underscores (_).

Comment Specifications

If you start a line with the number sign (#), the line is treated as a comment and does not affect operations. You can put comments anywhere.

Keyword Specifications

Be sure to put the keyword lines before the data lines and to enter a keyword without anything preceding it at the beginning of each keyword line.

NAME	The LV 7380 displays the eight characters that follow the separator (colon) as the name of the correction table. After the separator, enter the correction table name using letters of the alphabet (A to Z; uppercase and lowercase), numbers (0 to 9), and underscores (_). You can enter up to 10 characters.
TYPE	This is a code for identifying the file type. Enter a zero after the separator (colon).

Data Specifications

From the start of a line, enter the input value, a separator, and then the output value, in that order.

Input Value	Enter values from 0 to 4095 (12 bits), increasing the value by one for each line. A luminance level of 100 % is defined as 940 (10 bits) x 4 = 3760 (12 bits). A luminance level of 0 % is defined as 64 (10 bits) x 4 = 256 (12 bits).
Separator	Enter a single tab code.
Output Value	Enter a value from 0 to 65535 (16 bits).

2. Save the user-defined correction table to USB memory, and connect the USB memory to the LV 7380.

Save the correction table in the following directory.

USB memory
└ LV7380_USER
  └ TEST.CLT (for example)

3. Press PIC.

4. Press F • 7 next menu and then F • 5 CINELITE.

5. Press F • 1 f Stop DISPLAY.

6. Press F • 4 GAMMA SELECT, and select USER-A.

In this example, a user-defined correction table is copied to USER-A, but user-defined correction tables can be copied to USER-B through USER-E in the same way.

7. Press F • 6 GAMMA FILE.

This setting is available when F•4 GAMMA SELECT is set to an option from USER-A to USER-E.

8. Press F • 1 FILE LIST.

The file list screen appears. This setting appears when USB memory is connected.
To clear the table that has been copied to USER-A, press F•2 TABLE CLEAR.

9. **Use F•D 1 FILE SELECT to select the file to copy from the USB memory.**

   This menu item appears when you press F•1 FILE LIST.

10. **Press F•3 FILE LOAD.**

    The user-defined correction table that you selected is copied from the USB memory to USER-A. The copy operation is complete when the file list screen disappears and the display returns to the measurement screen. If a file has already been stored to USER-A, an overwrite confirmation prompt appears. If you want to overwrite the current file, press F•1 OVER WR YES. Otherwise, press F•3 OVER WR NO.

After you have copied a user-defined correction table, you can select it by pressing F•4 GAMMA SELECT on the CINELITE menu. A loaded correction table is displayed using the name determined by its NAME keyword.

12.12 Configuring CINEZONE Settings

CINELITE II consists of the CINELITE and CINEZONE features. This section will explain the CINEZONE feature.
The CINEZONE display has a gradation (step) display mode, in which the picture luminance levels are converted into RGB colors and displayed and a search display mode, in which the specified luminance level is displayed using green. To set either of these modes, on the picture menu, press F•5 CINELITE → F•3 CINEZONE.
This feature is not supported by the multi-screen display. F•5 CINELITE does not appear on the multi-screen display menu.

12.12.1 Gradation Display Mode

To display picture luminance levels through color gradation, follow the procedure below. In the gradation display mode, luminance levels are displayed using 1024 colors.
The picture is displayed such that luminance levels above F•D 1 UPPER are displayed using white, and levels below F•D 2 LOWER are displayed using black.
You can see what colors correspond to what luminance levels by looking at the scale on the right of the display.

If F•D 1 UPPER is 1 % greater than F•D 2 LOWER and you lower the value of F•D 1 UPPER, the value of F•D 2 LOWER is automatically lowered to maintain a difference of 1 % between the two values. In the same way, if you raise the value of F•D 2 LOWER, the value of F•D 1 UPPER is automatically raised to maintain a difference of 1 % between the two values.

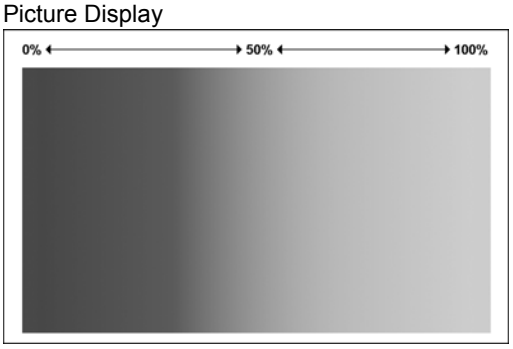
F•D 1 UPPER and F•D 2 LOWER appear when you set F•1 DISPLAY to GRADATE or STEP.

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•3 CINEZONE → use F•1 DISPLAY to select GRADATE
→ F•D 1 UPPER
→ F•D 2 LOWER

Settings	
Range for UPPER	-6.3 to 109.4 % (the default value is 100.0 %)
Range for LOWER	-7.3 to 108.4 % (the default value is 0.0%)

Picture Display



Gradation Display

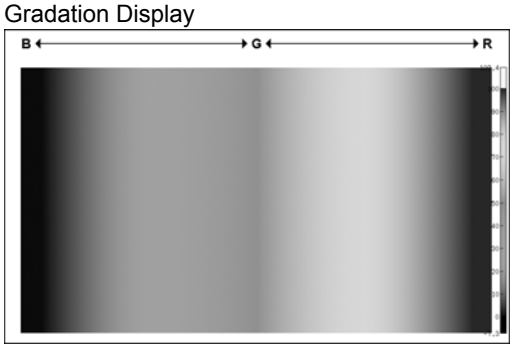


Figure 12-17 Gradation display

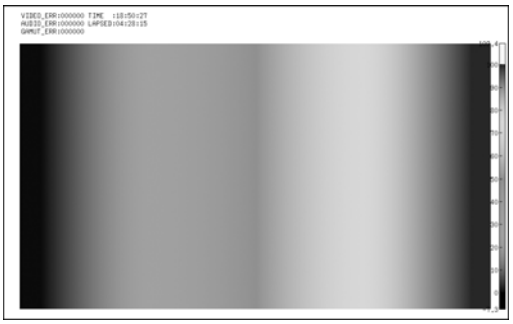
12.12.2 Step Display Mode

To display picture luminance levels in steps, follow the procedure below. In the step display mode, luminance levels are divided into 10 % steps and assigned to 12 different colors. For information about F•D 1 UPPER and F•D 2 LOWER, see section 12.12.1, “Gradation Display Mode.”

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•3 CINEZONE → use F•1 DISPLAY to select STEP
→ F•D 1 UPPER
→ F•D 2 LOWER

DISPLAY = GRADATE



DISPLAY = STEP

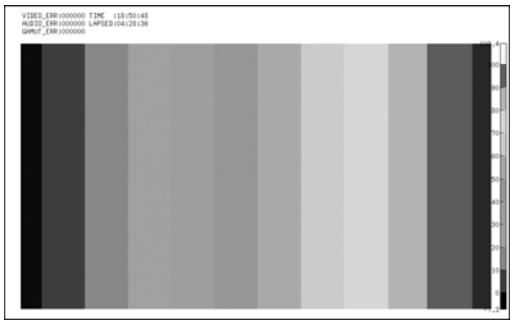


Figure 12-18 Step display

12.12.3 Search Display Mode

In the search display mode, the specified luminance level ±0.5 % is displayed using green on an otherwise monochrome picture display.
The picture is displayed such that luminance levels at and above F•D 1 UPPER are displayed using red, and levels below F•D 2 LOWER are displayed using blue.

To set the level that is displayed using green, follow the procedure below.
F•D 1 LEVEL appears when F•1 DISPLAY is set to SEARCH.

F•D 1 UPPER and F•D 2 LOWER appear when F•1 DISPLAY is set to GRADATE or STEP. For details, see section 12.12.1, “Gradation Display Mode.”

Procedure

PIC → F•7 next menu → F•5 CINELITE → F•3 CINEZONE → use F•1 DISPLAY to select SEARCH → F•D 1 LEVEL

Settings

Range: -7.3 to 109.4 % (the default value is 40.0 %)

DISPLAY = SEARCH

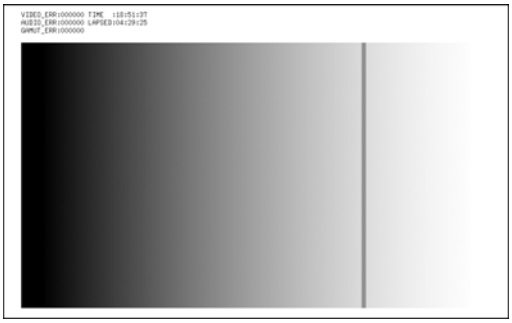


Figure 12-19 Search display

12.13 Configuring Thumbnail Settings

To configure the thumbnail settings, press F•6 THUMBNAIL on the picture menu. You can configure the audio-meter and video-signal-waveform displays.

12.13.1 Turning the Audio Meter Display On and Off

To display the audio meter on the picture display, follow the procedure below.
Configure audio meter settings on the audio display.

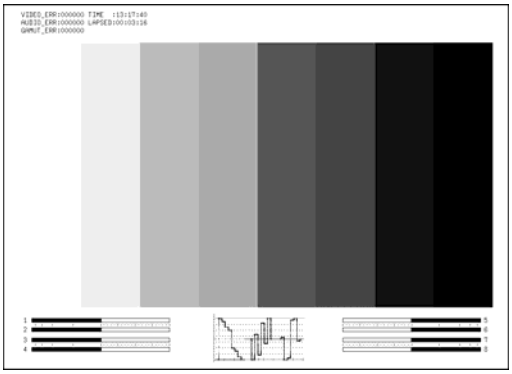
Procedure

PIC → F•7 next menu → F•6 THUMBNAIL → F•1 AUDIO METER

Settings

ON:	The audio meter is displayed (this is the default value).
OFF:	The audio meter is not displayed.

AUDIO METER = ON



AUDIO METER = OFF

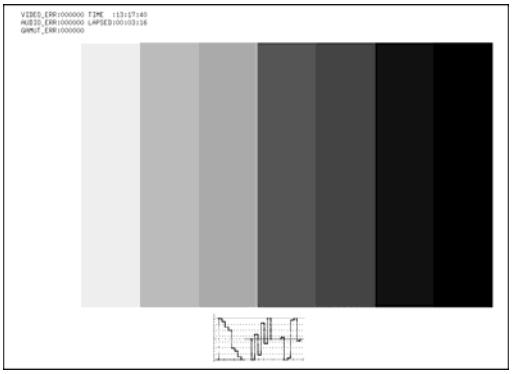


Figure 12-20 Turning the audio meter display on and off

12.13.2 Selecting the Audio Meter Display Format

To select the audio meter display format, follow the procedure below.
Configure 1st GROUP and 2nd GROUP in SDI GROUP on the audio display.
Changing this setting will also change the audio meter display formats on the video-signal-waveform and vector displays.

For information on the SDI GROUP setting, see section 13.2.1, “Selecting the Input Channel.”

Procedure

PIC → F•7 next menu → F•6 THUMBNAIL → F•2 LAYOUT

Settings

HORIZ1:	1st GROUP is displayed on the left side, and 2nd GROUP is displayed on the right side (this is the default value).
HORIZ2:	1st GROUP is displayed on the top two levels, and 2nd GROUP is displayed on the bottom two levels.

LAYOUT = HORIZ1

LAYOUT = HORIZ2

Figure 12-21 Audio meter display formats

12.13.3 Turning the Video Signal Waveform Display On and Off

To display the video signal waveform on the picture display, follow the procedure below. Configure the video signal waveform settings on the video signal waveform display.

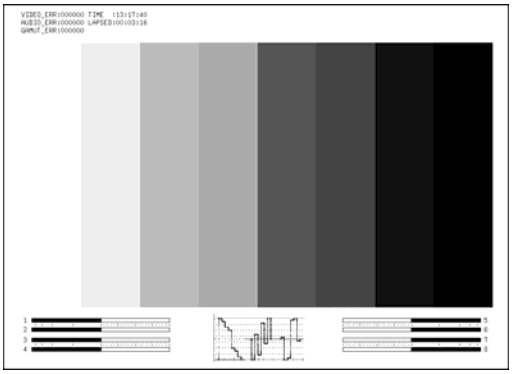
Procedure

PIC → F•7 next menu → F•6 THUMBNAIL → F•3 WAVEFORM

Settings

ON:	The video signal waveform is displayed (this is the default value).
OFF:	The video signal waveform is not displayed.

WAVE = ON



WAVE = OFF

Figure 12-22 Turning the video signal waveform display on and off

13. AUDIO DISPLAY

Audio signals that are embedded in input signals or audio signals that are received through the AES/EBU I/O connectors can be measured on the audio display. Additionally, audio signals that are embedded in input signals can be transmitted from the AES/EBU I/O connectors.
When the link format is set to dual, only the audio signal embedded in link A is measured.

13.1 Audio Display Explanation

The audio display appears when you press AUDIO.

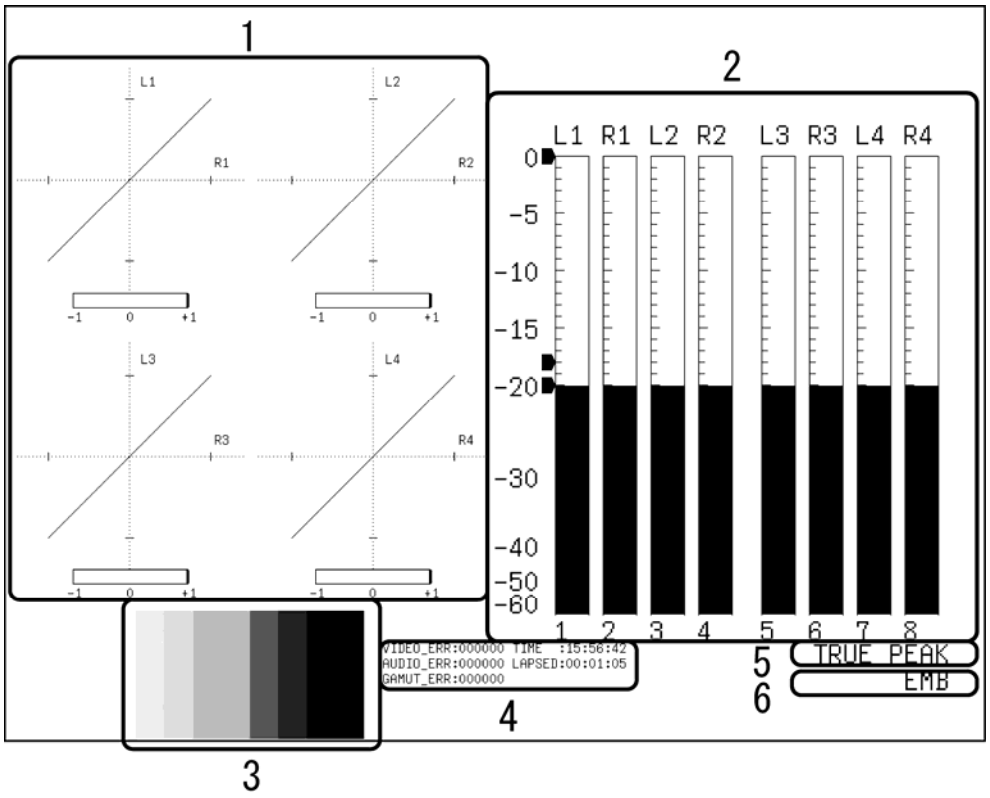


Figure 13-1 Audio display

1 Lissajous

The Lissajous curves of the selected channel's audio signal appear here.

2 Audio Meter

The audio levels of the selected channel's audio signal appear here.

3 Thumbnail (Picture)

The picture appears here as a thumbnail. You can also turn this off.

4 Error Counter

The error counter, the current time, and the elapsed time appear here.

5 Response Model

The response model of the audio meter appears here.

6 Measured Signal

The type of signal that is being measured appears here as EMB or AES.

13.2 Configuring General Audio Settings

Press F•1 GENERAL SETUP to configure general audio settings. You can set the input channels, the I/O mode of the AES/EBU connectors, and the signal to measure and configure the error detection.

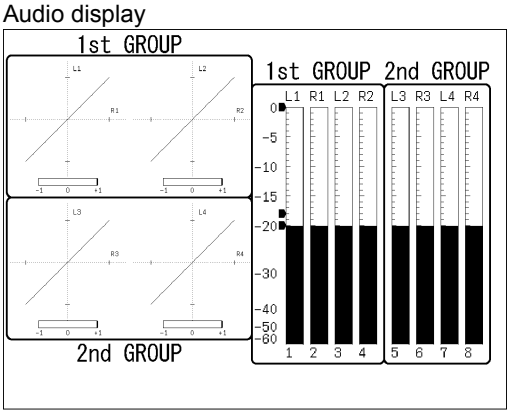
13.2.1 Selecting the Input Channels

To select a group of eight channels to show on the audio display, follow the procedure below.
The channels that you select are displayed on the audio display and on the audio display thumbnails in the other display modes.

When F•3 MONITOR SELECT is set to EXT AES, the input channels are fixed to channels 1 to 8. F•1 SDI GROUP is not displayed.

The mappings of the 1st GROUP and 2nd GROUP channels are shown below. (On the Lissajous display or surround display, channel assignments can be changed.)

Audio display



Thumbnails (LAYOUT = HORIZ1)

Thumbnails (LAYOUT = HORIZ2)

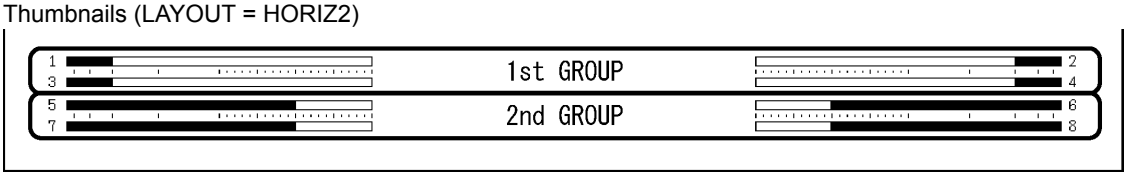


Figure 13-2 Channel mapping

Procedure

AUDIO → F•1 GENERAL SETUP → F•1 SDI GROUP → F•1 1st GROUP
→ F•2 2nd GROUP

Settings

1:	Channels 1 to 4 are displayed (this is the default value for 1st GROUP).
2:	Channels 5 to 8 are displayed (this is the default value for 2nd GROUP).
3:	Channels 9 to 12 are displayed.
4:	Channels 13 to 16 are displayed.

13.2.2 Setting the I/O Mode of the AES/EBU Connectors

The rear panel AES/EBU I/O connectors can be used as input connectors or as output connectors. To set the I/O mode of the AES/EBU connectors, follow the procedure below.

Procedure

AUDIO → F•1 GENERAL SETUP → F•2 EXT AES MODE

Settings

INPUT:	The AES/EBU connectors operate as input connectors (this is the default value). You can use F•3 MONITOR SELECT to select the signal that you want to measure.
OUTPUT:	The AES/EBU connectors operate as output connectors. They transmit the audio signal that is embedded in the input SDI signal.

13.2.3 Selecting the Signal to Measure

When F•2 EXT AES MODE is set to INPUT, follow the procedure below to select the signal that you want to measure. The selected signal is displayed as “EMB” or “AES” in the lower right of the screen.

Procedure

AUDIO → F•1 GENERAL SETUP → F•3 MONITOR SELECT

Settings

EMBEDDED:	The audio signal that is embedded in the input SDI signal will be measured (this is the default value).
EXT AES:	The audio signal that is received through an AES/EBU connector will be measured. This option cannot be selected when F•2 EXT AES MODE is set to OUTPUT.

13.3 Selecting the Display Mode

To select the display mode, follow the procedure below.

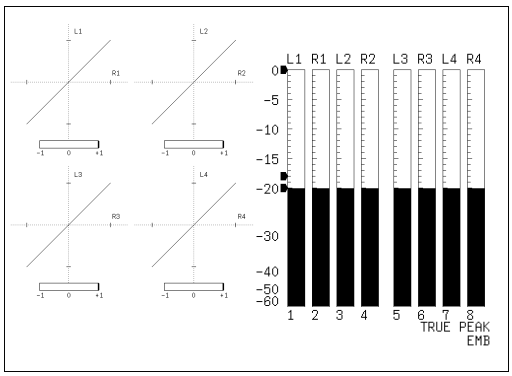
Procedure

AUDIO → F•3 DISPLAY MODE

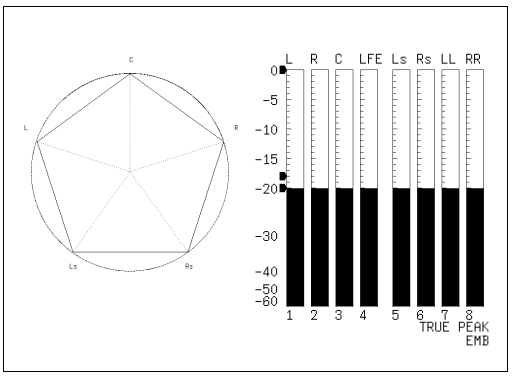
Settings

LISSAJOU:	The Lissajous curves are displayed on the left side of the screen, and the audio meter is displayed on the right side of the screen (this is the default value).
SURROUND:	The surround is displayed on the left side of the screen, and the audio meter is displayed on the right side of the screen.
STATUS:	The audio status is displayed on the left side of the screen, and the audio meter is displayed on the right side of the screen.

DISPLAY MODE = LISSAJOU



DISPLAY MODE = SURROUND



DISPLAY MODE = STATUS

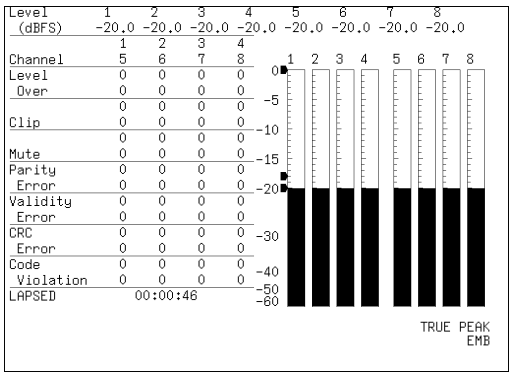


Figure 13-3 Selecting the display mode

13.4 Configuring Meter Display Settings

To configure meter display settings, press F•4 METER SETUP on the audio menu. You can set the meter's scale, the response model, and the reference level.

13.4.1 Selecting the Scale

To select the meter's scale, follow the procedure below.

Procedure

AUDIO → F•4 METER SETUP → F•1 DYNAMIC RANGE

Settings

-60dBFS:	The meter's scale is set to 0 to -60 dBFS (this is the default value).
-90dBFS:	The meter's scale is set to 0 to -90 dBFS.

13.4.2 Setting the Response Model

To select the meter's response model, follow the procedure below. The selected response model is indicated in the lower right of the display.

Procedure

AUDIO → F•4 METER SETUP → F•2 RESPONSE

Settings

TRUE PEAK:	The level meter's response model is set to TRUE PEAK.
PPM(I):	The level meter's response model is set to PPM(I).
PPM(II):	The level meter's response model is set to PPM(II).
VU+TRUE:	The level meter's response model is set to VU. The peak hold meter's response model is set to TRUE PEAK.
VU+PPM(I):	The level meter's response model is set to VU. The peak hold meter's response model is set to PPM(I).
VU+PPM(II):	The level meter's response model is set to VU. The peak hold meter's response model is set to PPM(II).
LOUDNESS-F, LOUDNESS-S:	The level meter's response model is set to the loudness of ITU-R BS.1770.

The response models of the meter are shown below.

Figure 13-1 Response models of the meter

	Delay Time(*1)	Return Time(*2)	Average Time
TRUE PEAK	0 msec	1.7 sec	-
PPM(I)	10 msec	1.7 sec	-
PPM(II)	10 msec	2.8 sec	-
VU	-	-	300 msec
LOUDNESS-F	-	-	125 msec
LOUDNESS-S	-	-	1000 msec

*1 The amount of time it takes for the level meter to show -20 dBFS when a -20 dBFS/1 kHz sine-wave signal is applied with no input preceding it.

*2 The amount of time it takes for the level meter to show -40 dBFS when a -20 dBFS/1 kHz sine-wave signal is removed from the input.

13.4.3 Setting the Peak Hold

When F•2 RESPONSE is set to one of the “VU+” options, follow the procedure below to set the peak hold time. The unit is seconds. You can set the value in 0.5-second steps.
If you press F•D 1, the peak hold time will be set to its default value of 0.5.

Procedure

AUDIO → F•4 METER SETUP → F•D 1 HOLD TIME

Settings

Range: 0.5 to 5.0 or HOLD (the default value is 0.5).

13.4.4 Setting the Reference Level

To set the meter reference level, follow the procedure below.

Procedure

AUDIO → F•4 METER SETUP → F•3 METER SETUP

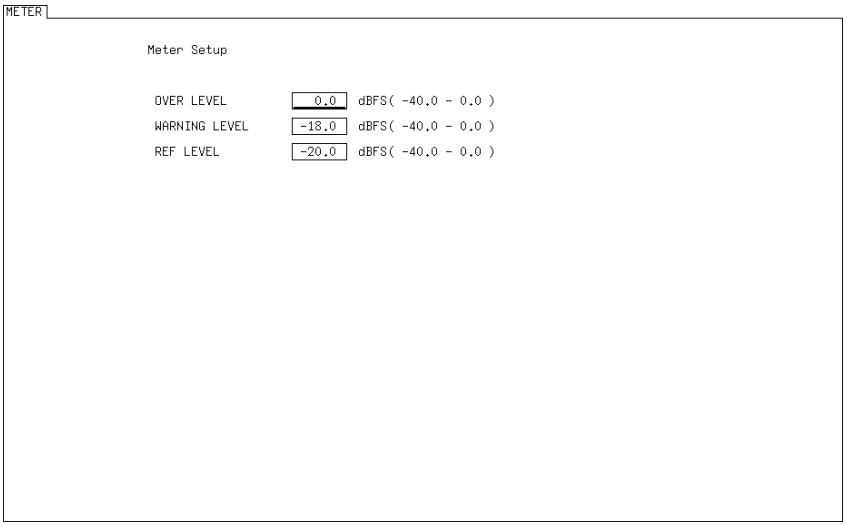


Figure 13-4 Setting the reference level

- **OVER LEVEL**

  The value that you set here is displayed as a red arrow at the corresponding level on the meter.
  If the audio level exceeds this value, a Level Over is counted on the audio status screen.

- **WARNING LEVEL**

  The value that you set here is displayed as a yellow arrow at the corresponding level on the meter. The levels above the yellow arrow are displayed in red. The levels below the arrow are displayed in yellow.

- **REF LEVEL**

  The value that you set here is displayed as a green arrow at the corresponding level on the meter.
  The levels above the green arrow are displayed in yellow. The levels below the arrow are displayed in green.

13.5 Configuring Lissajous Settings

To configure Lissajous settings, press F•5 LISSAJOU SETUP on the audio menu. You can set the Lissajous curve display format, gain, the displayed channels, and intensity, and you can set the scale display format and intensity.
This setting is available when F•3 DISPLAY MODE is set to LISSAJOU.

13.5.1 Selecting the Lissajous Curve Display Format

To select the Lissajous curve display format, follow the procedure below.
Whether you set this to SINGLE or MULTI, the channels set with F•4 CHANNEL MAPPING are displayed.

The correlation meter indicates the phase difference between the two signals. A reading of +1 indicates that the signals are in-phase, a reading of -1 indicates that the signals are 180 ° out of phase, and a reading of 0 indicates that the signals are not correlated.

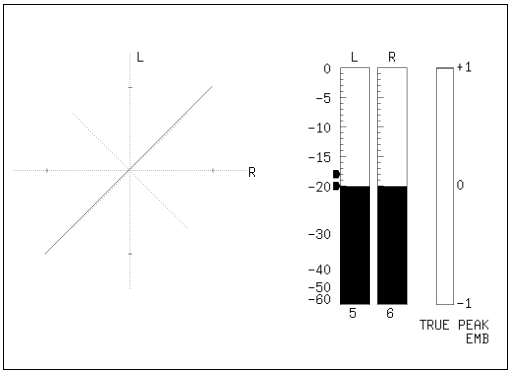
Procedure

AUDIO → F•5 LISSAJOU SETUP → F•1 LISSAJOU MODE

Settings

SINGLE:	The Lissajous curves and correlation meter of two channels are displayed.
MULTI:	The Lissajous curves and correlation meter of eight channels are displayed (this is the default value).

LISSAJOU MODE = SINGLE



LISSAJOU MODE = MULTI

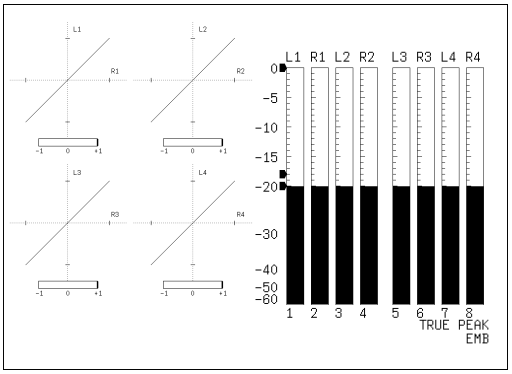


Figure 13-5 Selecting the display format

13.5.2 Selecting the Scale Display Format

To select the scale display format, follow the procedure below.

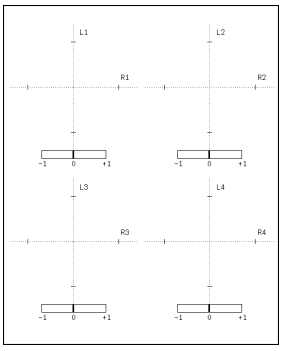
Procedure

AUDIO → F•5 LISSAJOU SETUP → F•2 FORM

Settings

X-Y:	R is assigned to the X-axis (horizontal), and L is assigned to the Y-axis (vertical).
MATRIX:	The R and L axes are positioned at 45 ° angles to the X and Y axes (this is the default value).

FORM = X-Y



FORM = MATRIX

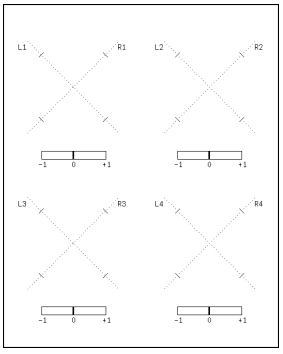


Figure 13-6 Scale display formats

13.5.3 Setting the Lissajous Curve Gain

To set the Lissajous curve gain, follow the procedure below.

Procedure

AUDIO → F•5 LISSAJOU SETUP → F•3 GAIN

Settings

X1:	Curves are displayed with a gain of X1 (this is the default value).
AUTO:	The gain is set so that the Lissajous curves fit within the scale.

GAIN = X1 GAIN = AUTO

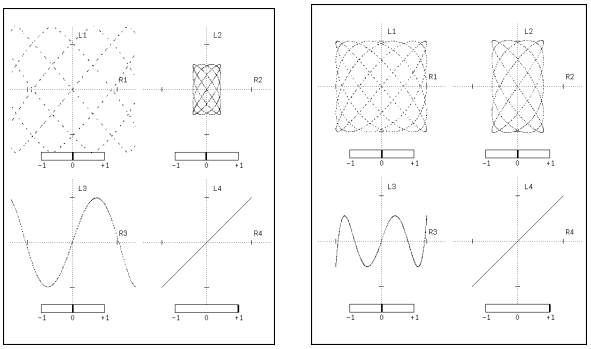


Figure 13-7 Setting the Lissajous curve gain

13.5.4 Mapping Channels

To select the channels that you want to map to the Lissajous display's L and R axes, follow the procedure below. The channels that you can select vary as shown below depending on how you configure the MONITOR SELECT setting.

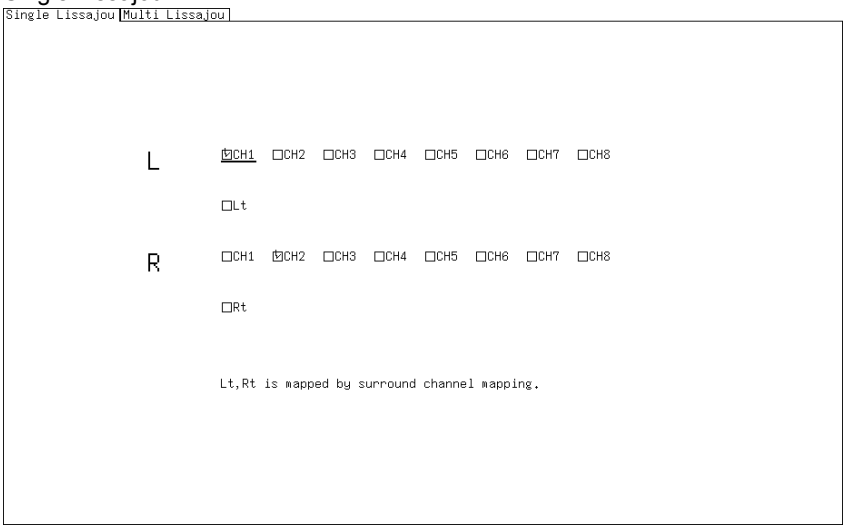
- When MONITOR SELECT Is Set to EMBEDDED
  The channels assigned to 1st GROUP and the channels assigned to 2nd GROUP
- When MONITOR SELECT Is Set to EXT AES
  Channels 1 to 8

The Single Lissajou Lt and Rt are calculated from the channels that are mapped on the surround channel mapping screen.

Procedure

AUDIO → F•5 LISSAJOU SETUP → F•4 CHANNEL MAPPING

Single Lissajou



Multi Lissajou

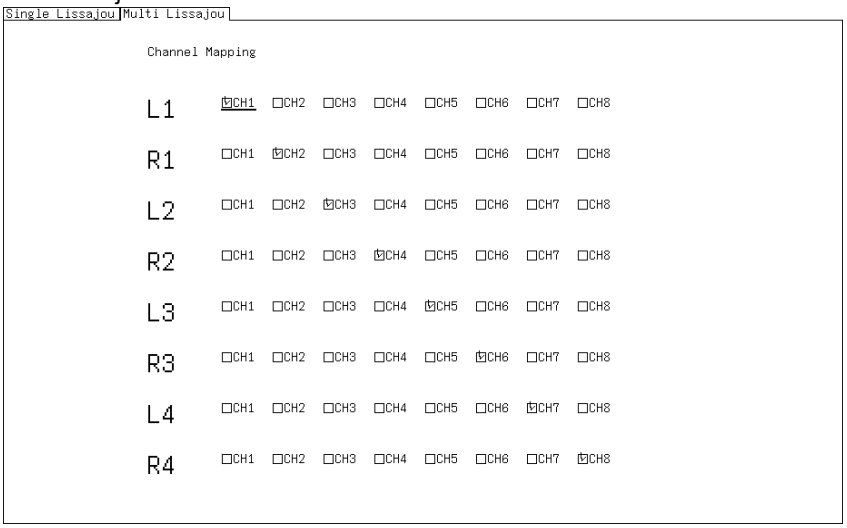


Figure 13-8 Channel mapping

13.5.5 Adjusting the Lissajous Curve Intensity

To set the Lissajous curve intensity, follow the procedure below.
If you press F•D 1, the intensity will be set to its default value of 0.

Procedure

AUDIO → F•5 LISSAJOU SETUP → F•D 1 LISSAJOU INTEN

Settings

Range: -8 to 7 (the default value is 0)

13.5.6 Adjusting the Scale Intensity

To set the intensity of the Lissajous and meter scales, follow the procedure below.
If you press F•D 2, the intensity will be set to its default value of 4.

Procedure

AUDIO → F•5 LISSAJOU SETUP → F•D 2 SCALE INTEN

Settings

Range: -8 to 7 (the default value is 4)

13.6 Configuring Surround Display Settings

To configure surround display settings, press F•5 SURROUND SETUP on the audio menu. You can set the surround display format, gain, the displayed channels, and intensity, and you can set the scale intensity.
This setting is available when F•3 DISPLAY MODE is set to SURROUND.

13.6.1 Selecting the Display Format

To select the surround display format, follow the procedure below. If adjacent channels (including Lch and Rch for PHANTOM C) are of opposite phases, the scale between the channels is displayed in red.

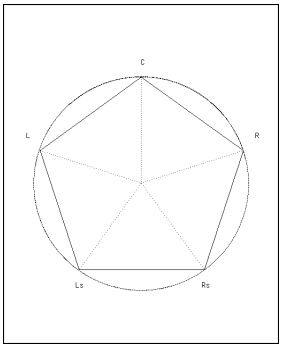
Procedure

AUDIO → F•5 SURROUND SETUP → F•1 SURROUND 5.1

Settings

NORMAL:	A waveform that combines Lch, Rch, Lsch, Rsch, and Cch (hard center) is displayed. (this is the default value)
PHANTOM C:	A waveform that combines Lch, Rch, Lsch, Rsch, and phantom center and a Cch (hard center) waveform are displayed separately.

SURROUND 5.1 = NORMAL



SURROUND 5.1 = PHANTOM C

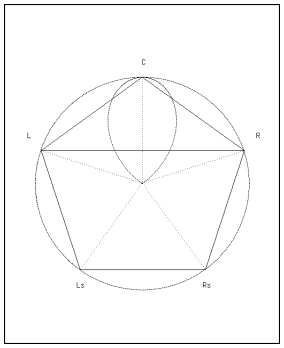


Figure 13-9 Selecting the display format

13.6.2 Setting the Gain

To set the surround waveform gain, follow the procedure below.

Procedure

AUDIO → F•5 SURROUND SETUP → F•3 GAIN

Settings

X1:	Waveforms are displayed with a gain of ×1.
AUTO:	The gain is set so that the surround waveforms fit within the scale (this is the default value).

GAIN = X1 GAIN = AUTO

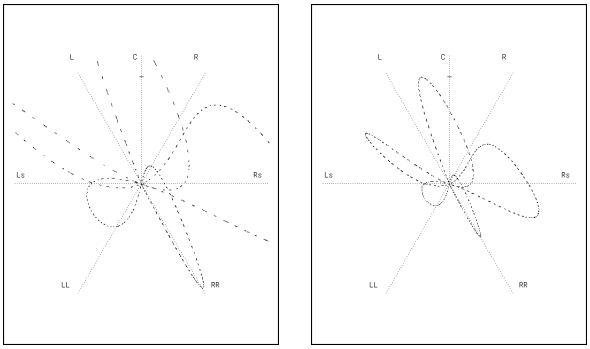


Figure 13-10 Setting the gain

13.6.3 Mapping Channels

To select the channels that you want to assign to the surround display axes, follow the procedure below. The channels that you can select vary as shown below depending on how you configure the MONITOR SELECT setting.

- When MONITOR SELECT Is Set to EMBEDDED
  The channels assigned to 1st GROUP and the channels assigned to 2nd GROUP
- When MONITOR SELECT Is Set to EXT AES
  Channels 1 to 8

Procedure

AUDIO → F•5 SURROUND SETUP → F•4 CHANNEL MAPPING

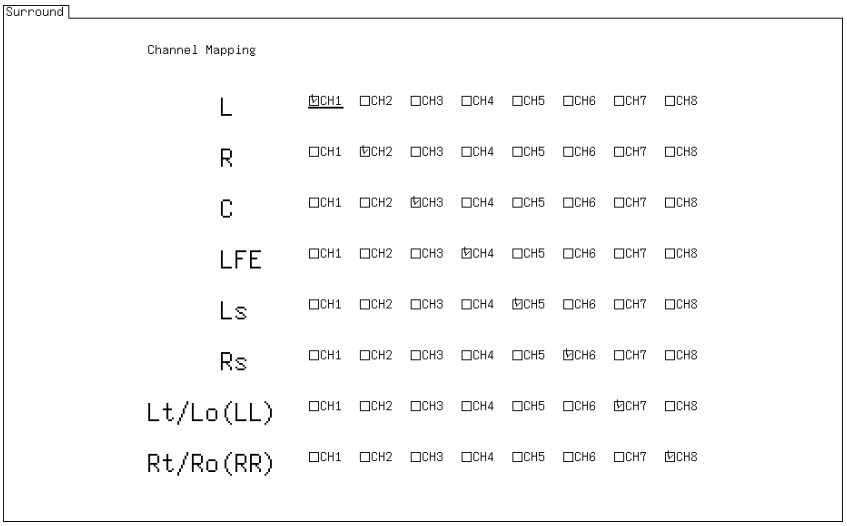


Figure 13-11 Channel mapping

13.6.4 Adjusting the Surround Waveform Intensity

To set the surround waveform intensity, follow the procedure below.
If you press F•D 1, the intensity will be set to its default value of 4.

Procedure

AUDIO → F•5 SURROUND SETUP → F•D 1 SURROUND INTEN

Settings

Range: -8 to 7 (the default value is 4)

13.6.5 Adjusting the Scale Intensity

To set the intensity of the surround and meter scales, follow the procedure below.
If you press F•D 2, the intensity will be set to its default value of 4.

Procedure

AUDIO → F•5 SURROUND SETUP → F•D 2 SCALE INTEN

Settings

Range: -8 to 7 (the default value is 4)

13.7 Configuring the Audio Status Display Settings

To configure audio status display settings, press F•5 STATUS SETUP on the audio menu. You can set the channel-status and user-data displays and reset the error counts.
This setting is available when F•3 DISPLAY MODE is set to STATUS.

13.7.1 Displaying the Channel Status

To display the status of the selected channel, follow the procedure shown below.
Use F•1 DISPLAY CHANNEL to select the channel. You can also use F•2 ALIGN to select the bit order.

Procedure

AUDIO → F•5 STATUS SETUP → F•2 CHANNEL STATUS

```
   AES/EBU CHANNEL STATUS DISPLAY

FORMAT       : Professional     Byte : 01234567        01234567
AUDIO DATA   : PCM                00 : 10100001    12 : 00000000
EMPHASIS     : No emphasis        01 : 00010001    13 : 00000000
SIGNAL LOCK  : Locked             02 : 00110100    14 : 00000000
SAMPLING FREQ: 48kHz              03 : 00000000    15 : 00000000
REFERENCE    : Not reference      04 : 00000000    16 : 00000000
CH MODE      : Two-channel        05 : 00000000    17 : 00000000
                                  06 : 00000000    18 : 00000000
RESOLUTION   : 24bits             07 : 00000000    19 : 00000000
ALIGNMENT    : Not indicated      08 : 00000000    20 : 00000000
ORIGIN       :                    09 : 00000000    21 : 00000000
DESTINATION  :                    10 : 00000000    22 : 00000000
TIME-OF-DAY  : 00:00:00           11 : 00000000    23 : 10100001
CRC          : NORMAL
```

Figure 13-12 Channel status screen

13.7.2 Displaying User Bits

To display the user bits of the selected channel, follow the procedure shown below. Use F•1 DISPLAY CHANNEL to select the channel. You can also use F•2 ALIGN to select the bit order.

Procedure

AUDIO → F•5 STATUS SETUP → F•3 USER BIT

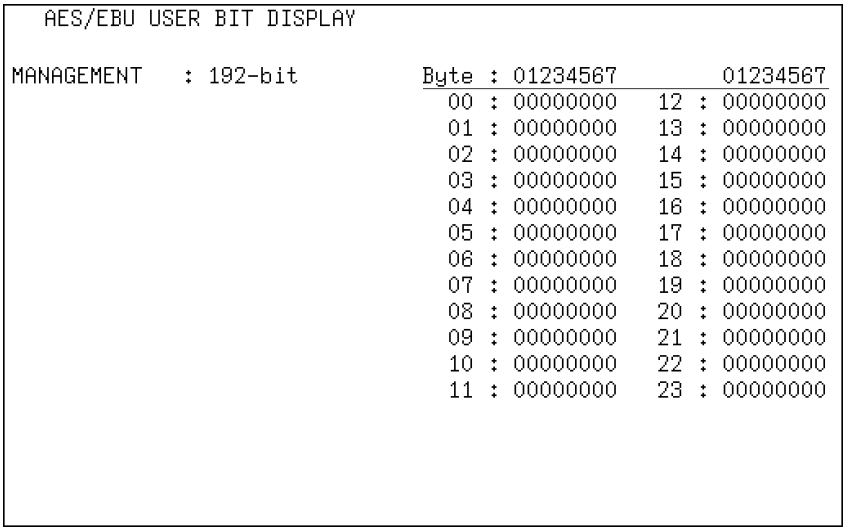


Figure 13-13 User bit screen

13.7.3 Configuring Error Detection Settings

To configure the error detection settings, follow the procedure below. On the audio status screen, error detection will be performed for the items that you set to ON.

Procedure

AUDIO → F•5 STATUS SETUP → F•4 ERROR CONFIG

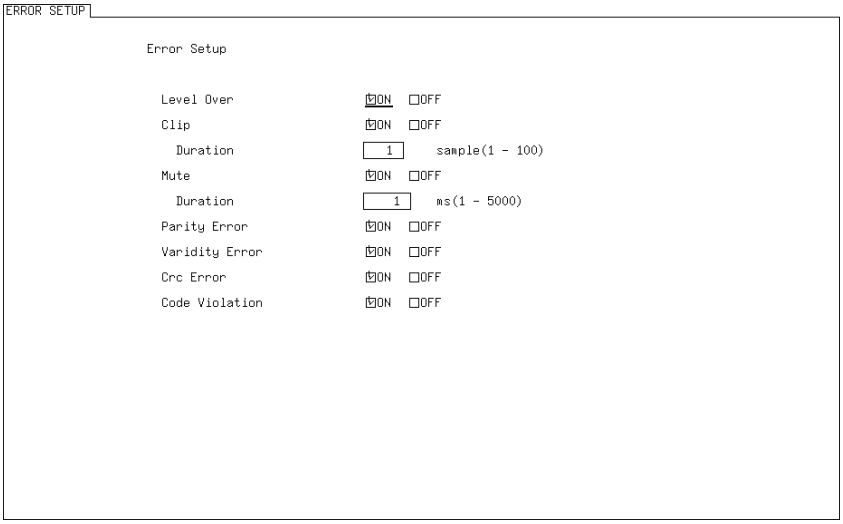


Figure 13-14 Configuring error detection settings

13.7.4 Resetting Errors

To reset the error counts that appear on the audio status display to 0, follow the procedure below. Also, the LAPSED indication at the lower left of the screen will be reset to 00:00:00.

Procedure

AUDIO → F•6 ERROR RESET
→ F•5 STATUS SETUP → F•6 ERROR RESET

13.8 Configuring Thumbnail Settings

To configure the thumbnail settings, press F•7 THUMBNAIL on the audio menu. You can turn the display of the picture thumbnail on and off.

13.8.1 Turning the Picture Display On and Off

To display the picture on the audio display, follow the procedure below.
Configure picture settings on the picture display.

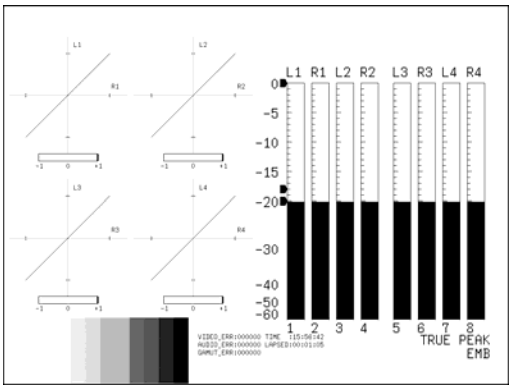
Procedure

AUDIO → F•7 THUMBNAIL → F•1 PICTURE

Settings

ON:	The picture is displayed (this is the default value).
OFF:	The picture is not displayed.

PICTURE = ON



PICTURE = OFF

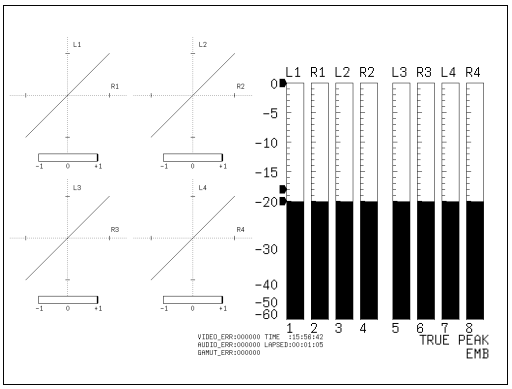


Figure 13-15 Displaying the picture

13.9 Configuring the Headphone Settings

To output the audio of the selected channels, connect a pair of headphones to the front panel headphone jack.

13.9.1 Selecting the Channels to Output

To select the left and right headphone jack output channels separately, follow the procedure below. The channels that you can select vary depending on how you configure the MONITOR SELECT setting.

Procedure

AUDIO → F•2 PHONES CHANNEL → F•2 L
→ F•3 R

Settings (when MONITOR SELECT is set to EMBEDDED)

Range: The channels assigned to 1st GROUP (four channels), the channels assigned to 2nd GROUP (four channels), Lt, and Rt (The default value of L is CH 1. The default value of R is CH 2.)

Settings (when MONITOR SELECT is set to EXT AES)

Range: CH 1 to CH 8, Lt, and Rt. (The default value of L is CH 1. The default value of R is CH 2.)

13.9.2 Adjusting the Volume

Use the VOLUME dial on the front panel to set the headphone volume. You can also adjust the volume when the display mode is set to a mode other than audio.
If you press the VOLUME dial, the volume will be reset to its default value of 0.

Settings

Range: -128 to 127 (the default value is 0)

The table below shows what decibel levels correspond to the headphone volume levels.

Table 13-2 Headphone volumes

VOLUME	dB
127	0.0
126	-0.5
0	-63.5
-127	-127.0
-128	Mute

14. STATUS DISPLAY

14.1 Status Display Explanation

The status display appears when you press STATUS.

Generally, the numbers displayed here represent error counts.
Errors are counted by field. Only one error can be counted for a single field, no matter how many errors occur on that field. The maximum error count is 999999. Once a count of 999999 is reached, the display will continue to show 999999 even if more errors occur.
Errors are not displayed for items whose F•5 ERROR CONFIG setting is set to OFF.

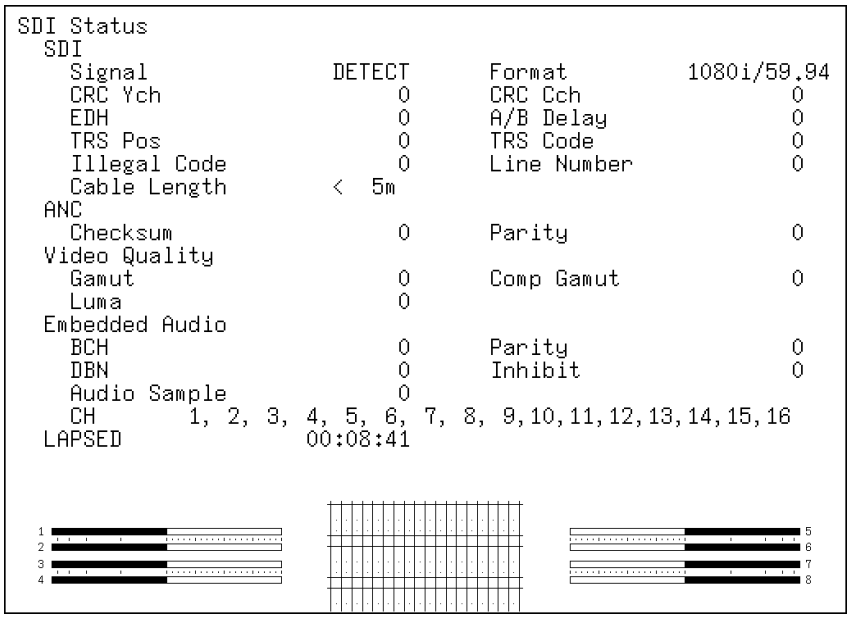


Figure 14-1 Status display

- **Signal**

  Whether or not an SDI signal is being received through one of the SDI input connectors is indicated here.
  When SDI signal input has been detected, “DETECT” appears. Otherwise, “NO SIGNAL” appears.
  “NO SIGNAL” may appear even when a signal is received through a connector if the signal amplitude is small or if there is a lot of jitter. If “NO SIGNAL” appears, the rest of the information listed below will be blank.

- **Format**

  The input signal format is indicated here.
  “-----” appears when the input signal format is not supported by the LV 7380 or when it differs from the format specified in the unit setup. When this happens, the rest of the information listed below will be blank.

- **CRC Ych, CRC Cch (When an HD signal is being applied)**

  An error is counted when the CRC embedded in the input signal is different from the CRC that the LV 7380 calculates. Errors are counted separately for the luminance signal (Ych) and the chrominance signal (Cch).

- **EDH (When an SD signal is being applied)**

  An error is counted when the EDH packet contains an ancillary data error flag, an active picture error flag, or a full-field error flag and when the CRC embedded in the EDH packet is different from the CRC that the LV 7380 calculates from the video data.

- **A/B Delay (When the link format is set to dual)**

  An error is counted if the phase difference between links A and B exceeds 100 clocks. (There is an error of ±1 clock.)

- **TRS Pos**

  Input signal TRS (Timing Reference Signal) errors are displayed here.

- **TRS Code**

  Input signal TRS (Timing Reference Signal) protection bit errors are displayed here.

- **Illegal Code**

  An error is counted when the input signal data falls within the timing reference signal (TRS) range or the range specified for the ancillary data flag (ADF).

- **Line Number (When an HD signal is being applied)**

  An error is counted when the line number that is embedded in the input signal does not match the line number that has been counted by the LV 7380.

- **Cable Length**

  The LV 7380 converts the attenuation of the received signal to a cable length and displays it here. (When the link format is set to dual, the cable length of each link is displayed.) Use F•5 ERROR CONFIG to set the cable type.

- **Checksum**

  The LV 7380 uses the checksum in the input signal's ancillary data header to count errors.

- **Parity**

  The LV 7380 uses the parity bit in the input signal's ancillary data header to count errors.

- **Gamut**

  The gamut error count is displayed here.

- **Comp Gamut**

  An error is counted when the conversion of the component signal into a composite signal results in a level error.

- **Luma**

  The luminance error count is displayed here.

- **BCH (When an HD signal is being applied)**

  The count of errors in the BCH code in the input signal's embedded audio is displayed here. When the link format is set to dual, only the errors in link A are counted.

- **Parity (When an HD signal is being applied)**

  The count of parity errors in the input signal's embedded audio is displayed here. When the link format is set to dual, only the errors in link A are counted.

- **DBN**

  The count of continuity errors in the input signal's embedded audio is displayed here. When the link format is set to dual, only the errors in link A are counted.

- **Inhibit**

  An error is counted when embedded audio packets are found in lines where they should not be embedded. When the link format is set to dual, only the errors in link A are counted.

- **Audio Sample**

  An error is counted when audio that is asynchronous to the video is embedded. If a certain number of audio data samples are not embedded in a certain number of video frames, it will be considered and error (as defined in SMPTE 299 and SMPTE 272M).
  When the link format is set to dual, only the errors in link A are counted.

- **CH**

  The channels of the audio packets embedded in the input signal are displayed here.
  When the link format is set to dual, only the channels in link A are detected.

- **LAPSED**

  The time that has elapsed since the errors were cleared is displayed here.
  Errors are cleared when you press F•6 ERROR CLEAR, initialize the system settings, or turn the power on and off.

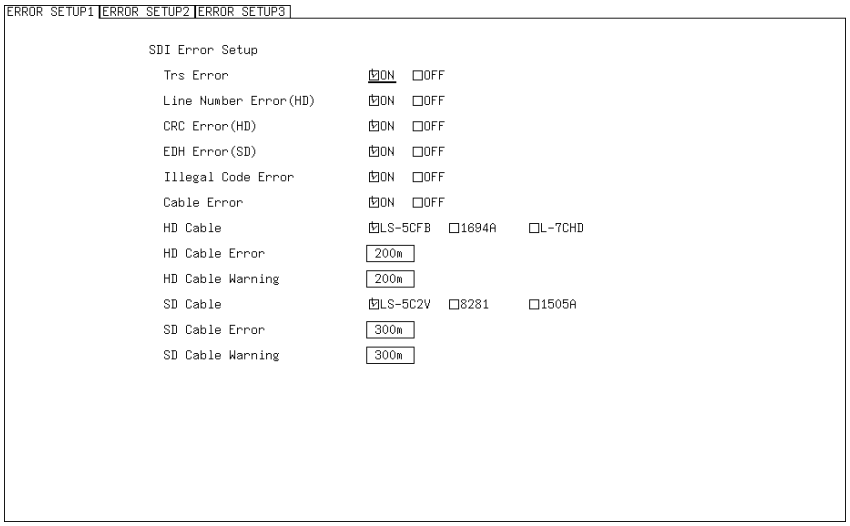
14.2 Configuring Error Detection Settings

To configure the error detection settings, follow the procedure below. Set the items that you want to perform error detection for to ON.

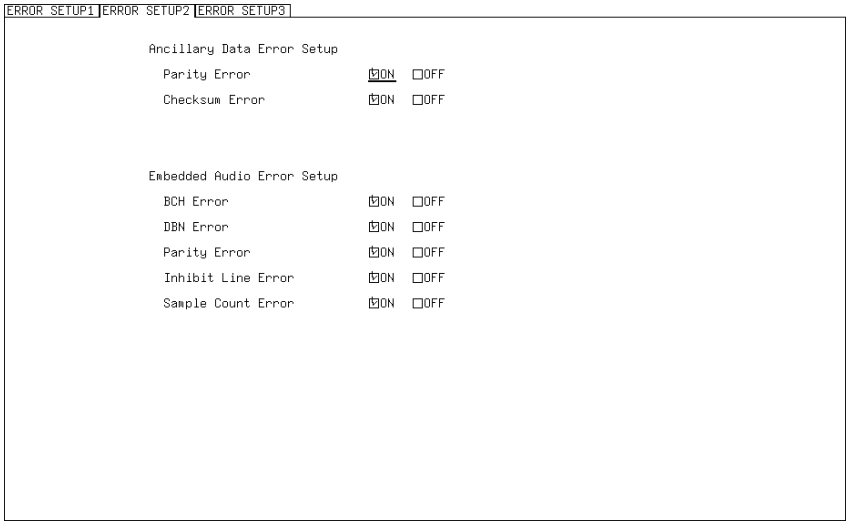
Procedure

STATUS → F•4 ERROR CONFIG

ERROR SETUP1



ERROR SETUP2



ERROR SETUP3

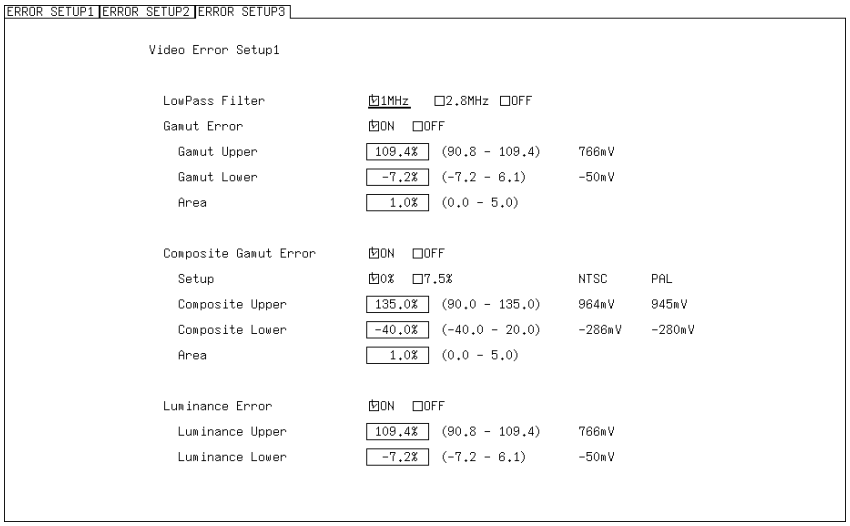


Figure 14-2 Configuring error detection settings

14.3 Clearing Errors

To reset the error counts in the status display to zero, follow the procedure below.
Also, the LAPSED indication will be reset to 00:00:00.

Procedure

STATUS → F•5 ERROR CLEAR

14.4 Configuring Event Log Settings

The LV 7380 can log various events. Logged events can also be saved in text format to USB memory.
To configure event log settings, press F•1 EVENT LOG on the status menu. The event log contains both channel A and channel B events regardless of how INPUT is set.

14.4.1 Displaying the Event Log

To display the event log, press F•1 EVENT LOG on the status menu.
Events include signal reception, error occurrence, and error recovery.

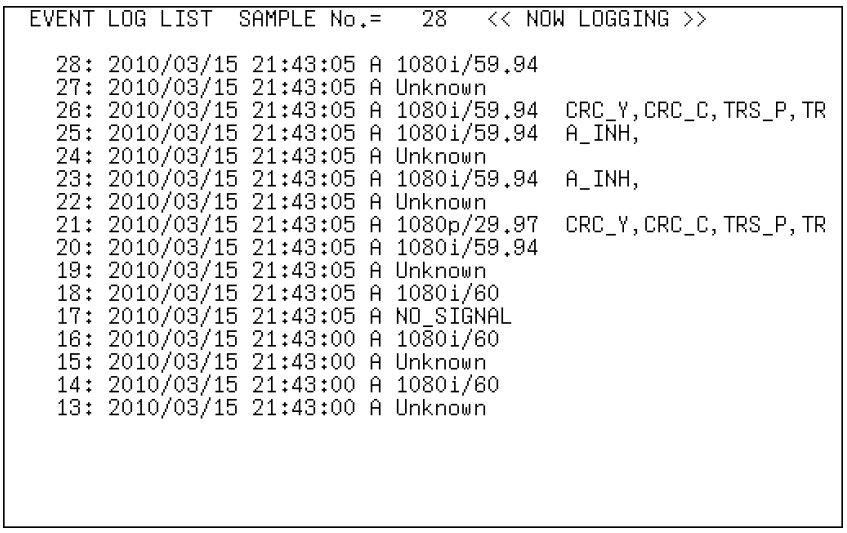


Figure 14-3 Event log

On the event log display, events are displayed using the following names.

Table 14-1 Event types

Display	Description
TRS_P	Trs Error (POS)
TRS_C	Trs Error (CODE)
LINE	Line Number Error
CRC_Y	CRC Error (LUMA)
CRC_C	CRC Error (CHROMA)
EDH	EDH Error
ILLEGAL	Illegal Code Error
CABLE_ERR	Cable Error
CABLE_WAR	Cable Warning
PRTY	Parity Error
CHK	Checksum Error
A_BCH	Embedded Audio BCH Error
A_DBN	Embedded Audio DBN Error
A_PRTY	Embedded Audio Parity Error
A_INH	Embedded Audio Inhibit Line Error
A_SMP	Embedded Audio Sample Count Error
GMUT	Gamut Error
CGMUT	Composite Gamut Error
LUMA	Luminance Error
SDI_DELAY	A/B Delay

14.4.2 Scrolling the Event Log

To scroll through the event log and view parts of the list that are outside of the display, follow the procedure below. The event log entries are listed in order with the most recent events listed first. To view earlier events, turn F•D 1 to the right. To view later events, turn it to the left. If you press F•D 1, the most recent events appear.

Procedure

STATUS → F•1 EVENT LOG → F•D 1 SCROLL

14.4.3 Starting Event Logging

To start event logging, follow the procedure below.

Procedure

STATUS → F•1 EVENT LOG → F•1 LOG

Settings

START:	Event logging is started. “NOW LOGGING” appears on the event log.
STOP:	Event logging is stopped (this is the default value). “LOGGING STOPPED” appears on the event log.

14.4.4 Clearing the Event Log

To delete the event log that is displayed on the screen, follow the procedure below. The log is also deleted when you turn the power off.

Procedure

STATUS → F•1 EVENT LOG → F•2 CLEAR

14.4.5 Setting the Overwrite Mode

To set the event log overwrite mode, follow the procedure below. The event log can record up to 1000 events. When the same error occurs successively, it is treated as a single event in the event log.

Procedure

STATUS → F•1 EVENT LOG → F•3 LOG MODE

Settings

OVER WR:	Events after the 1000th event are written over the oldest logged events (this is the default value).
STOP:	Events after the 1000th event are not logged.

14.4.6 Saving the Event Log

To save the event log in text format to USB memory, follow the procedure below.
You can view the saved event log on a PC.
This setting appears when USB memory is connected.

The file name is automatically set to the date and time that you have set using the system settings.
Example: 20080425150500.txt (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

USB memory
└ LV7380_USER
  └ LOG
    └ yyyymmddhhmmss.txt

Procedure

STATUS → F•1 EVENT LOG → F•4 USB MEM STORE

14.5 Configuring Data Dump Settings

To configure data dump settings, on the status menu, press F•2 SDI ANALYSIS → F•1 DATA DUMP. You can display the data of a selected line and save the displayed data to USB memory.

14.5.1 Displaying the Data Dump Screen

To display the data dump screen, press F•1 DATA DUMP.

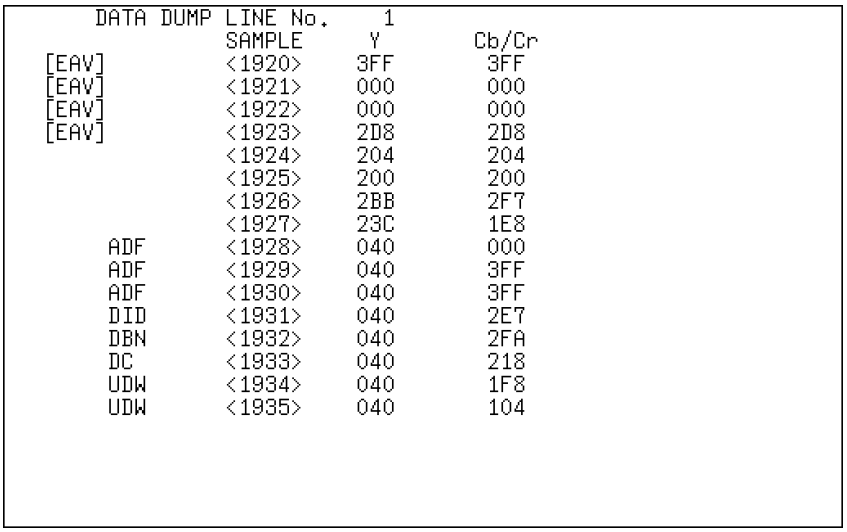


Figure 14-4 Data dump screen

In the data dump, the input signal's embedded ancillary data is detected, and the following detection codes are displayed.

Table 14-2 Detection code list

Detection Code	Display Color	Description
ADF	Cyan	Ancillary data flags (000h, 3FFh, and 3FFh)
DID	Cyan	Data identification (the data after ADF)
SDID	Cyan	Secondary data identification (the secondary format data when the DID is smaller than 80H)
DBN	Cyan	Data block numbers (the primary data format when the DID is larger than 80H)
DC	Cyan	Data count (the data after the SDID/DBN)
UDW	Cyan	User data words (the user data words of the data count length after ADF)
CS	Magenta	Checksum (the data immediately after UDW)
AP	Yellow	Active picture (the active picture from after the SAV to just before the EAV when the selected line is within the active video area)
4:3	Yellow	Aspect ratio 4:3 position (according to ARIB STD-B28)
M4:3	Yellow	Modified width 4:3 position (according to ARIB STD-B28)

14.5.2 Setting the Sample Number

To scroll through the data dump display samples, follow the procedure below.
If you press F•D 1, the sample number begins from EAV.

Procedure

STATUS → F•2 SDI ANALYSIS → F•1 DATA DUMP → F•D 1 SAMPLE SELECT

14.5.3 Setting the Line Number

To select a line number in the data dump, follow the procedure below.
If you press F•D 2, the selected line changes to the first video line.
Changing this setting will also change the picture, video-signal-waveform, and vector-display line selection settings.

Procedure

STATUS → F•2 SDI ANALYSIS → F•1 DATA DUMP→ F•D 2 LINE SELECT

14.5.4 Setting the Display Mode

To set the data dump display mode, follow the procedure below.

Procedure

STATUS → F•2 SDI ANALYSIS → F•1 DATA DUMP→ F•1 MODE

Settings

RUN:	The input signal data is automatically updated and displayed (this is the default value).
HOLD:	The input signal data is retained and displayed.

14.5.5 Selecting the Display Format

To select the data dump display format, follow the procedure below.
The types of display formats that you can select vary depending on the link format.

Procedure

STATUS → F•2 SDI ANALYSIS → F•1 DATA DUMP→ F•2 DISPLAY

Settings (when the link format is set to single)

SERIAL:	The data is converted from parallel to serial data and displayed (this is the default value).
COMPO:	The data is converted from parallel to serial data, split into Y, Cb, and Cr, and then displayed.

Settings (when the link format is set to dual)

LINK A:	The parallel converted data sequences of link A are displayed (this is the default value).
LINK B:	The parallel converted data sequences of link B are displayed.
LINK AB:	Links A and B are combined, and their parallel data sequences are displayed.

14.5.6 Setting the Display Start Position

To set the data dump display start position, follow the procedure below.

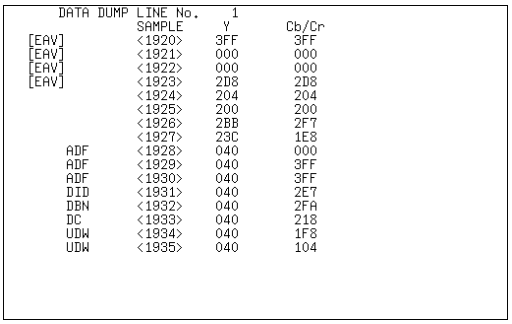
Procedure

STATUS → F•2 SDI ANALYSIS → F•1 DATA DUMP→ F•3 JUMP

Settings

EAV:	The display starts with the EAV sample (this is the default value).
SAV:	The display starts with the SAV sample.

JUMP = EAV



JUMP = SAV

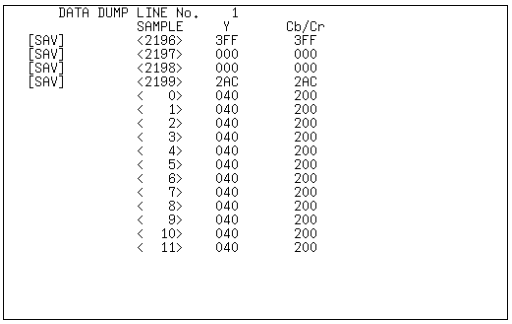


Figure 14-5 Setting the display start position

14.5.7 Saving Data Dumps

To save the data of the selected line in text format to USB memory, follow the procedure below. You can view the saved data dump on a PC.
This setting appears when USB memory is connected.

Regardless of the display and F•D 1 SAMPLE SELECT settings, the data is saved starting with the EAV sample in the format shown in the figure below.

The file name is automatically set to the date and time that you have set using the system settings.
Example: 20080425150500.txt (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

USB memory
└ LV7380_USER
  └ DAT
    └ yyyymmddhhmmss.txt

Procedure

STATUS → F•2 SDI ANALYSIS → F•1 DATA DUMP→ F•4 USB MEM STORE

14.6 Configuring Phase Difference Measurement Settings

To configure phase difference measurement settings, on the status menu, press F•2 SDI ANALYSIS → F•2 EXT REF PHASE. You can measure the phase difference between the SDI signal and the external sync signal. You can also measure the phase difference between links A and B when the link format is set to dual.

To measure the phase difference with the external sync signal, turn the front panel EXT key on, and then apply an external sync signal. The supported external sync signal formats are listed below.

- 1080i/60, 1080i/59.94, 1080i/50
- 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, 1080p/23.98
- 1080PsF/30, 1080PsF/29.97, 1080PsF/25, 1080PsF/24, 1080PsF/23.98
- 720p/60, 720p/59.94, 720p/50, 720p/30, 720p/29.97, 720p/25, 720p/24, 720p/23.98
- NTSC and NTSC with a 10-field ID
- PAL

To measure the phase difference between links A and B, set the link format to dual, and then set F•3 REF SELECT to LINK A.

14.6.1 Displaying the Phase Difference Measurement Screen

To display the phase difference measurement screen, press F•2 EXT REF PHASE.

On the right half of the screen, the vertical axis indicates the V phase difference in lines, and the horizontal axis represents the H phase time difference. When the circles that represent V and H overlap with each other in the center, there is no phase difference. The circles are normally displayed in white, but the circle that represents the H axis is displayed in green when it is within ±3 clocks of the center, and the circle that represents the V axis is displayed in green when it is at the center (±0 lines).
Circles do not appear when the internal sync signal is used.

For both the V and H axes, differences of up to approximately +1/2 frames from the center are displayed on the Delay axis and differences of up to approximately -1/2 frames from the center are displayed on the Advance axis. The H axis phase difference display may fluctuate within the range of ±1 clock in cases such as when the signal is switched.

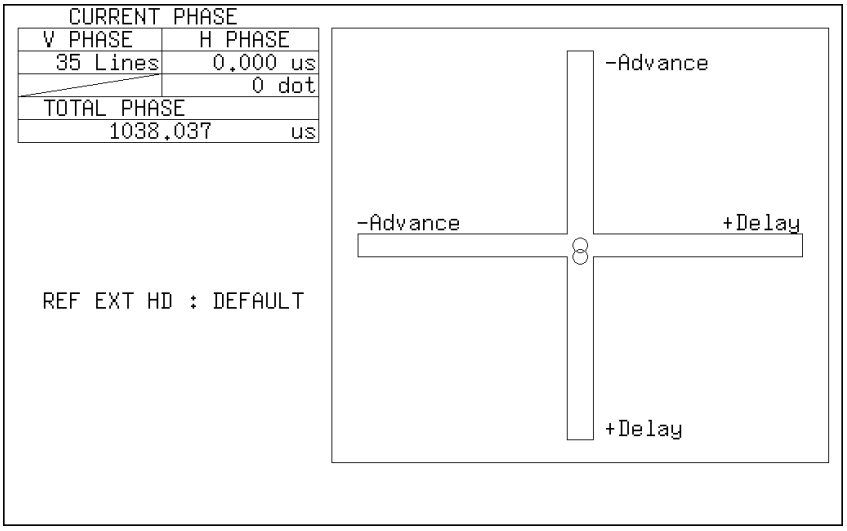


Figure 14-6 Phase difference measurement screen

14.6.2 Selecting the Signal to Measure

When the link format is set to dual, follow the procedure below to select the signal to perform phase difference measurement on.

Procedure

STATUS → F•2 SDI ANALYSIS → F•2 EXT REF PHASE → F•1 REFERENCE SELECT

Settings

EXT:	Link A's phase difference relative to the external sync signal is measured (this is the default value).
LINK A:	Link B's phase difference relative to link A is measured.

14.6.3 Setting the User Reference of the Phase Difference

To set the SDI signal and external sync signal phase difference to 0, follow the procedure below. This setting is not available when F•1 REF SELECT is set to LINK A.

Procedure

STATUS → F•2 SDI ANALYSIS → F•2 EXT REF PHASE → F•2 USER REF SET

14.6.4 Using the Phase Difference Default

To use the default SDI signal and external sync signal phase difference setting, follow the procedure below.
The default setting is the setting that makes a phase difference of 0 between the SDI output signal of the LEADER LT 443D MULTIFORMAT VIDEO GENERATOR without a timing offset and a BB signal when both signals are connected through cables of equal length. Because of phase fluctuations when the SDI signal is switched and device inconsistencies, a display error within the range of ±3 clocks may occur.
This setting is not available when F•1 REF SELECT is set to LINK A.

Procedure

STATUS → F•2 SDI ANALYSIS → F•2 EXT REF PHASE → F•3 REF DEFAULT

14.7 Displaying a List of Ancillary Data

To display a list of ancillary data, follow the procedure shown below.
This feature is not supported when the link format is set to dual. F•3 ANC DATA VIEWER is not displayed.

On the ancillary data screen, data is displayed as a list for each standard. If data is detected, “DETECT” is displayed in the STATUS column. If data is not detected, “MISSING” is displayed in the STATUS column.

To view the entire data, turn F•D 1 SCROLL to the right to scroll the screen. You can also press F•5 PAGE UP and F•6 PAGE DOWN to move between pages. In the upper right of the screen, the “page number/total number of pages” is displayed.
If you press F•D 1, the cursor returns to the first data entry.

Procedure

STATUS → F•3 ANC DATA VIEWER

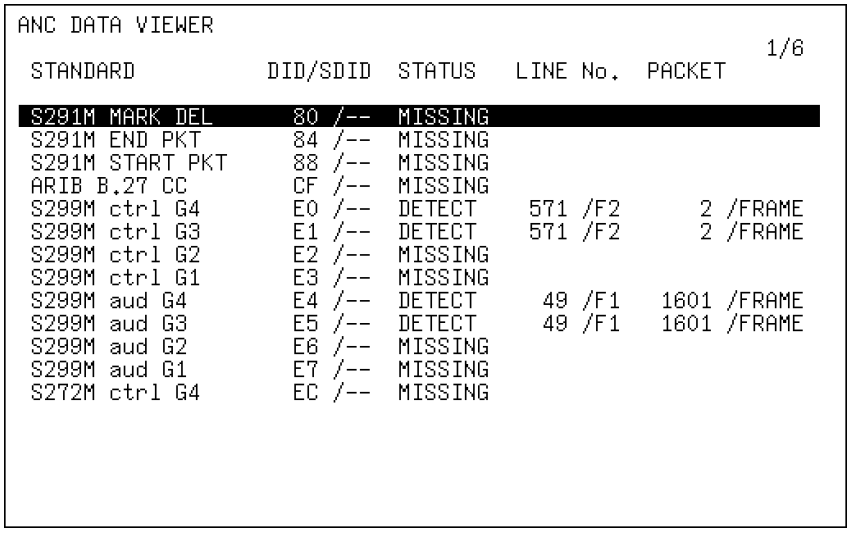


Figure 14-7 Ancillary data screen

14.7.1 Displaying a Dump of Ancillary Data

To display a dump of the data that you have selected on the ancillary data screen, follow the procedure below.
To view the entire data, turn F•D 1 SCROLL to the right to scroll the screen.
If you press F•D 1, the cursor returns to the first data entry.

Procedure

STATUS → F•3 ANC DATA VIEWER → F•1 ANC DUMP

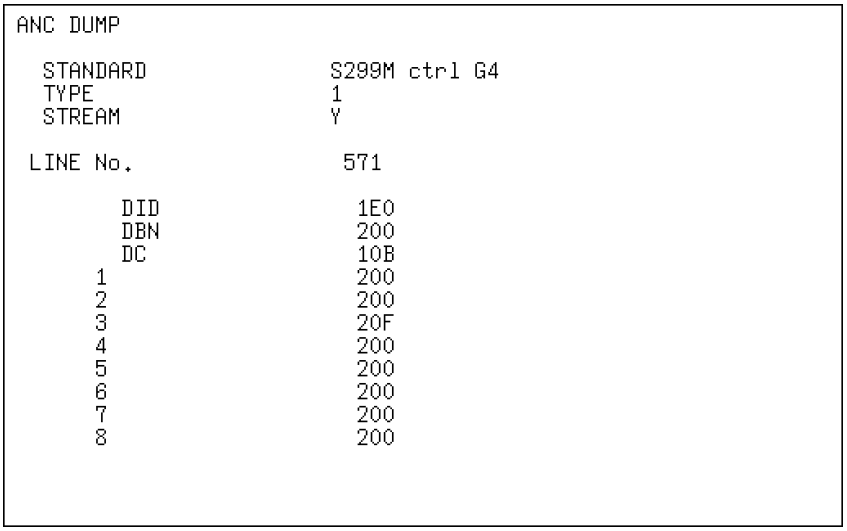


Figure 14-8 Ancillary dump screen

14.7.2 Updating the Dump Display

When the selected data is embedded in multiple lines, the line number that is displayed on the ANC dump screen is switched at a regular interval. (However, the line numbers are switched at an irregular interval.)
To select the dump display update time, follow the procedure below.

Procedure

STATUS → F•3 ANC DATA VIEWER → F•1 ANC DUMP → F•2 HOLD TIME

Settings

HOLD:	The screen is not updated.
1s:	The screen is updated once per second.
3s:	The screen is updated once per three seconds (this is the default value).

14.7.3 Selecting the Dump Mode

To select the dump mode, follow the procedure below.

Procedure

STATUS → F•3 ANC DATA VIEWER → F•1 ANC DUMP → F•3 DUMP MODE

Settings

HEX:	Data is displayed in hexadecimal format (this is the default value).
BINARY:	Data is displayed in binary format.

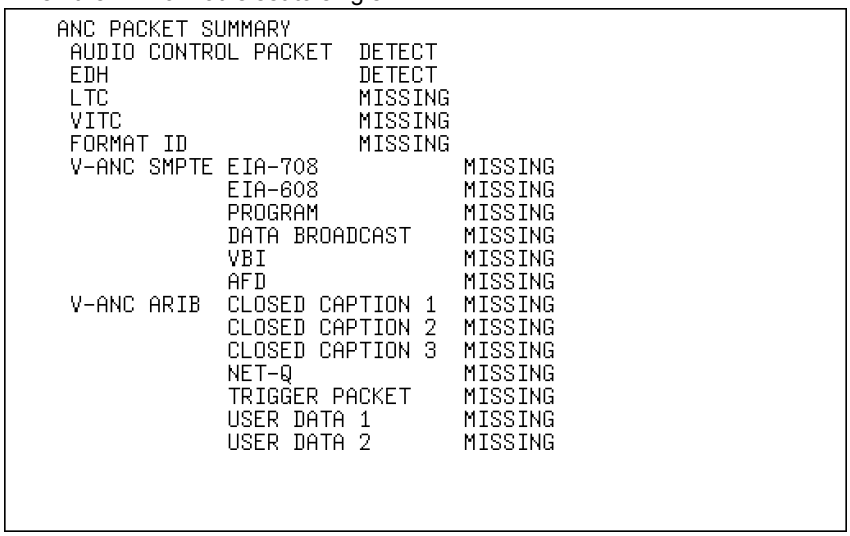
14.8 Displaying the Ancillary Packets

To display the ancillary packet screen, follow the procedure below.
If an ancillary packet is detected, “DETECT” appears next to it. Otherwise, “MISSING” appears next to it.

Procedure

STATUS → F•4 ANC PACKET

When the link format is set to single



When the link format is set to dual

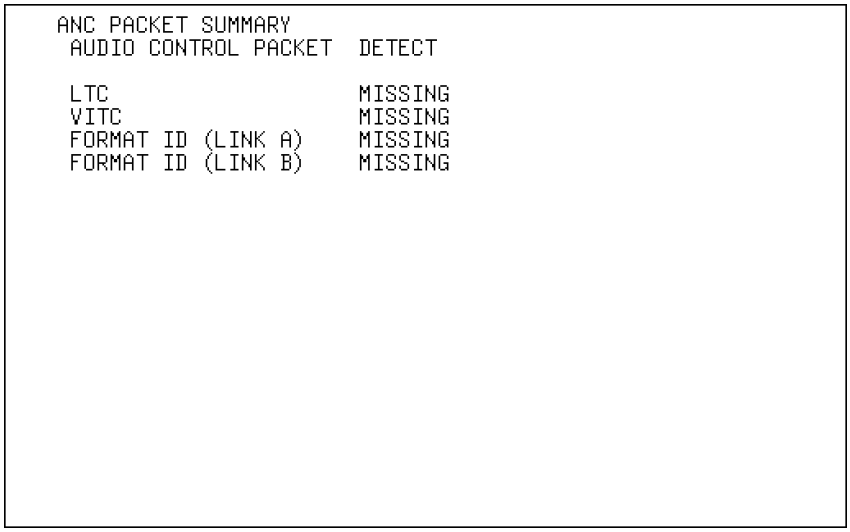


Figure 14-9 Ancillary packet screen

14.8.1 Displaying EDH Packets

To display EDH packets, follow the procedure below.
F•1 EDH appears when the input signal is SD.

Procedure

STATUS → F•4 ANC PACKET → F•1 EDH

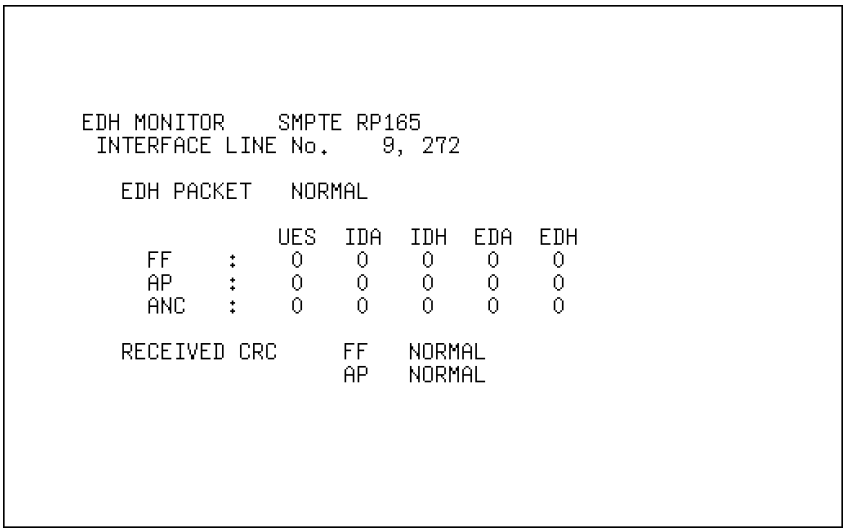


Figure 14-10 EDH packet screen

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).
  If you select DUMP, the dump display appears, and you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.2 Displaying the Format ID

To display the format ID packet, follow the procedure below.

Procedure

STATUS → F•4 ANC PACKET → F•2 FORMAT ID

```
FORMAT ID DISPLAY
  INTERFACE LINE No.      20, 583
BYTE1        10000101
  VERSION ID             1
  FORMAT ID              1125(1080) LINE
  DIGITAL INTERFACE      1.485Gb/s
BYTE2        00000110
  TRANSPORT STRUCTURE    INTERLACED
  PICTURE STRUCTURE      INTERLACED
  PICTURE RATE           30/1.001
BYTE3        10100000
  ASPECT RATIO           16:9
  H SAMPLING             RESERVED
  DISP ASPECT RATIO      16:9
  SAMPLING STRUCTURE     4:2:2 YCbCr
BYTE4        00000001
  CHANNEL ASSIGNMENT     RESERVED



  BIT DEPTH              10BIT
```

Figure 14-11 Format ID screen

- **Selecting the Display Format**

  You can use F•1 STANDARD to set the display format to SMPTE or ARIB.
  When the link format is set to dual, only SMPTE is supported, and this setting does not appear.

- **Selecting the Content to Display**

  When the link format is set to dual, you can use F•2 LINK FORMAT to set the data to display to LINK A or LINK B.

14.8.3 Displaying Audio Control Packets

To display audio control packets, follow the procedure below.
When the link format is set to dual, the link A packets are displayed.

Procedure

STATUS → F•4 ANC PACKET → F•3 CONTROL PACKET

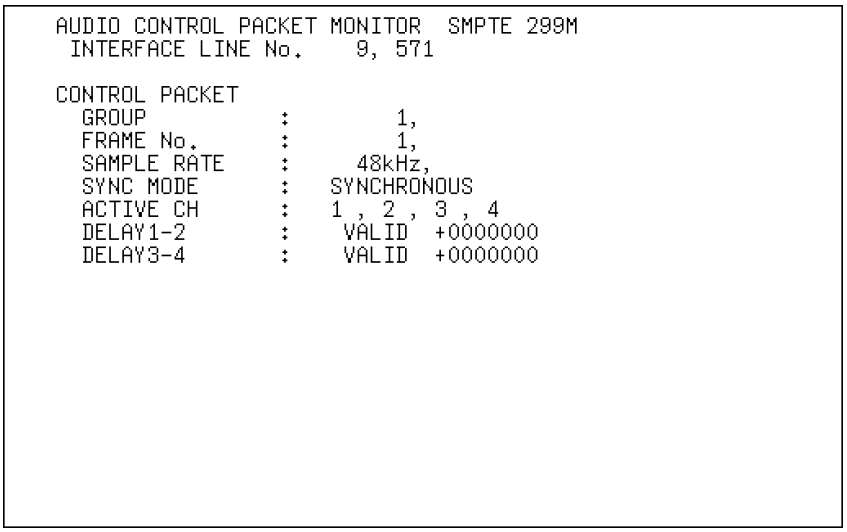


Figure 14-12 Audio control packet screen

- **Selecting the Group to Display**

  You can use F•3 GROUP to set the group to display to a group from groups 1 to 4. A single group in the audio signal consists of four channels.

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.4 Displaying Closed Caption Packets

To display the closed caption packets screen, follow the procedure below.
This feature is not supported when the link format is set to dual. F•4 V-ANC ARIB is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC ARIB → F•1 CLOSED CAPTION

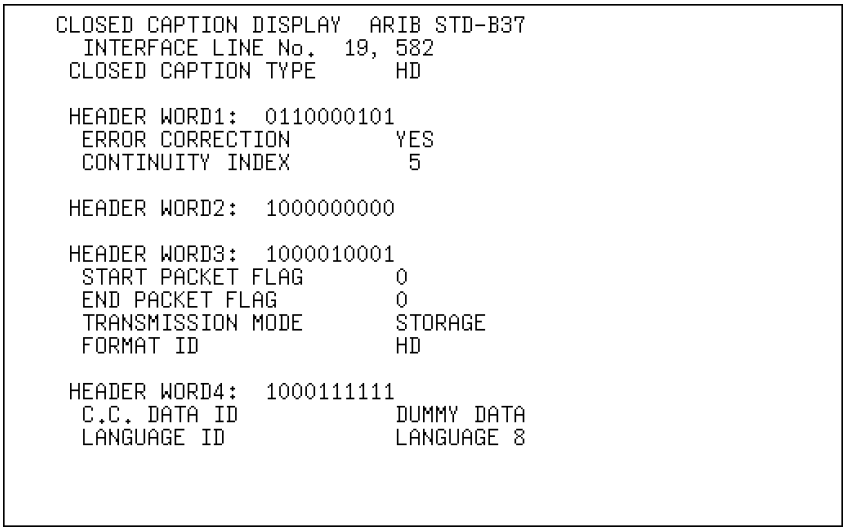


Figure 14-13 Closed caption packet screen

- **Selecting the Closed Caption Type**

  You can use F•2 TYPE to set the closed caption type to HD, SD, ANALOG, or CELLULAR.

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).
  If you select DUMP, the dump display appears, and you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•3 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.5 Displaying the Inter-Stationary Control Signal

To display the inter-stationary control signal, follow the procedure below.
This feature is not supported when the link format is set to dual. F•4 V-ANC ARIB is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC ARIB → F•2 NET-Q

DISPLAY = TEXT

```
INTER-STATIONARY CONTROL DATA  ARIB STD-B39
 INTERFACE LINE No.        20, 583
ERROR CORRECTION               YES
CONTINUITY INDEX                9
STATION CODE                  THK
DATE & TIME     2007/11/19 13:45:46
VIDEO CURRENT :1080i  /29.97 NEXT:NOT USED      COUNTDOWN:255
AUDIO CURRENT :S             NEXT:NOT USED      COUNTDOWN:255
DOWN MIX CURRENT:NOT USED    NEXT:NOT USED

TRIGGER SIGNAL
   Q1:0  Q2:0  Q3:0  Q4:0  Q5:0  Q6:0  Q7:0  Q8:0
   Q9:0 Q10:0 Q11:0 Q12:0 Q13:0 Q14:0 Q15:0 Q16:0
  Q17:0 Q18:0 Q19:0 Q20:0 Q21:0 Q22:0 Q23:0 Q24:0
  Q25:0 Q26:0 Q27:0 Q28:0 Q29:0 Q30:0 Q31:0 Q32:0
COUNTER     Q1:  3   Q2:255   Q3:255   Q4:255
COUNTDOWN   Q1:255   Q2:255   Q3:255   Q4:255
STATUS SIGNAL
   S1:0  S2:0  S3:0  S4:0  S5:0  S6:0  S7:0  S8:0
   S9:0 S10:0 S11:0 S12:0 S13:0 S14:0 S15:0 S16:0
```

Figure 14-14 Inter-stationary control signal screen

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display), DUMP (dump display), or Q LOG (Q-signal log display).
  If you select DUMP, the dump display appears. If you select Q LOG, the log display appears. In either case, you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

DISPLAY = DUMP

```
INTER-STATIONARY CONTROL DATA  ARIB STD-B39
 INTERFACE LINE No.
                        20, 583

       DID              25F
       SDID             1FE
       DC               2FF
     1 HEADER           180
     2 STATION CODE1    154
     3 STATION CODE2    248
     4 STATION CODE3    24B
     5 STATION CODE4    120
     6 STATION CODE5    120
     7 STATION CODE6    120
     8 STATION CODE7    120
     9 STATION CODE8    120
    10 YEAR             107
    11 MONTH            211
    12 DAY              119
```

DISPLAY = Q LOG

```
INTER-STATIONARY CONTROL DATA  ARIB STD-B39
 NETQ LOG LIST  SAMPLE No.=    6   << NOW LOGGING >>
                          Q32----------------------------Q1
    6: 09:56:13       A  -------- -------- -------- --------
    5: 09:56:13       A  11111111 11111111 11111111 11111111
    4: 09:54:43       A  -------- -------- -------- --------
    3: 09:54:43       A  11111111 11111111 11111111 11111111
    2: 09:54:40       A  -------- -------- -------- --------
    1: 09:54:40       A  -------- -------- -------- -------1
```

Figure 14-15 Selecting the display format

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

- **Setting the Bit Mask**

  When F•1 DISPLAY is set to TEXT, you can use F•4 BIT MASK to mask the Q and status signals independently.
  Press F•2 ALL ON to set all the bit masks to ON. Press F•3 ALL OFF to set all the bit masks to OFF.

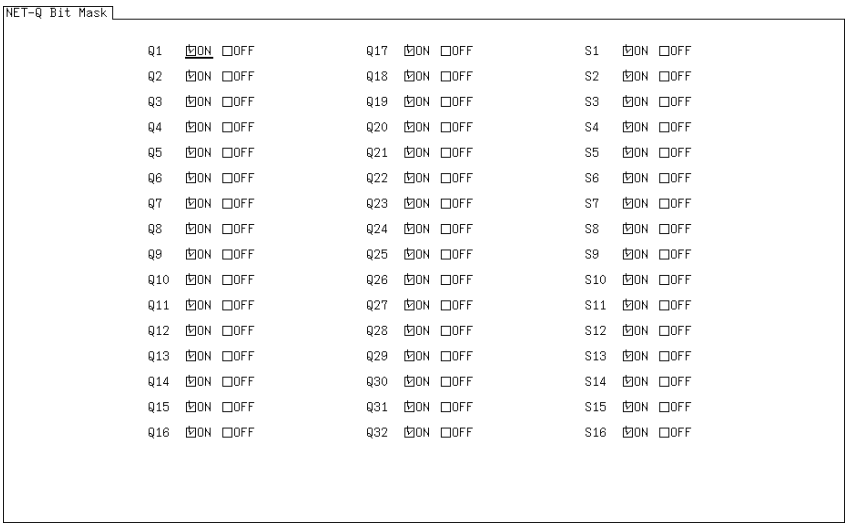


Figure 14-16 Setting the bit mask

- **Clearing the Q-Signal Log**

  When F•1 DISPLAY is set to Q LOG, press F•3 Q LOG CLEAR to clear the Q-signal log.

14.8.6 Displaying the Data Broadcast Trigger Signal

To display the data broadcast trigger signal, follow the procedure below.
This feature is not supported when the link format is set to dual. F•4 V-ANC ARIB is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC ARIB → F•3 DATA TRIGGER

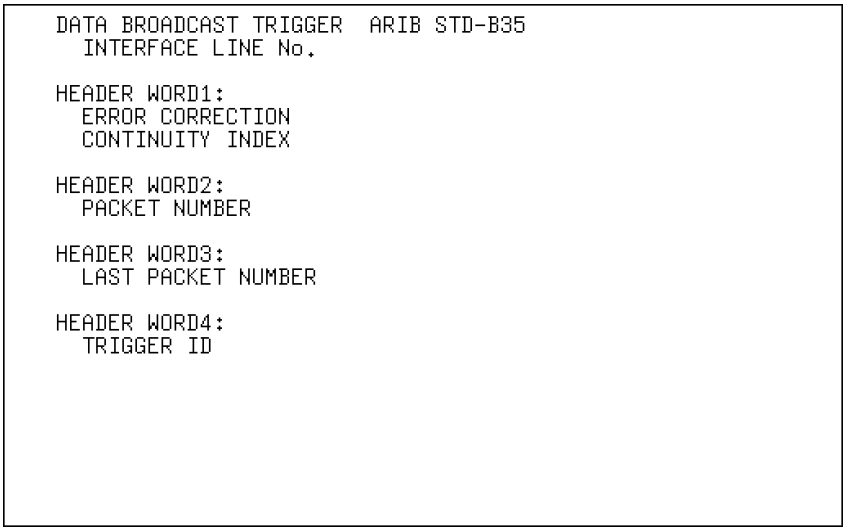


Figure 14-17 Data broadcast trigger signal screen

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).
  If you select DUMP, the dump display appears, and you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.7 Displaying User Data

To display the user data screen, follow the procedure below.
This feature is not supported when the link format is set to dual. F•4 V-ANC ARIB is not displayed.

The display format is set to DUMP, and you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC ARIB → F•4 USER DATA1
→ F•5 USER DATA2

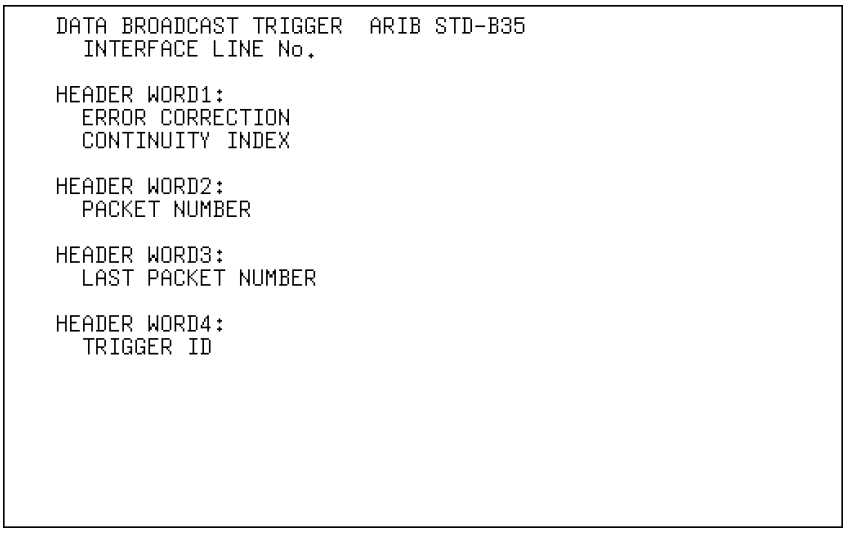


Figure 14-18 User data screen

- **Selecting the Dump Mode**

  You can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.8 Displaying EIA-708 Data

To display EIA-708 data, follow the procedure below.
This feature is not supported when the link format is set to dual. F•5 V-ANC SMPTE is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•5 V-ANC SMPTE → F•1 EIA-708

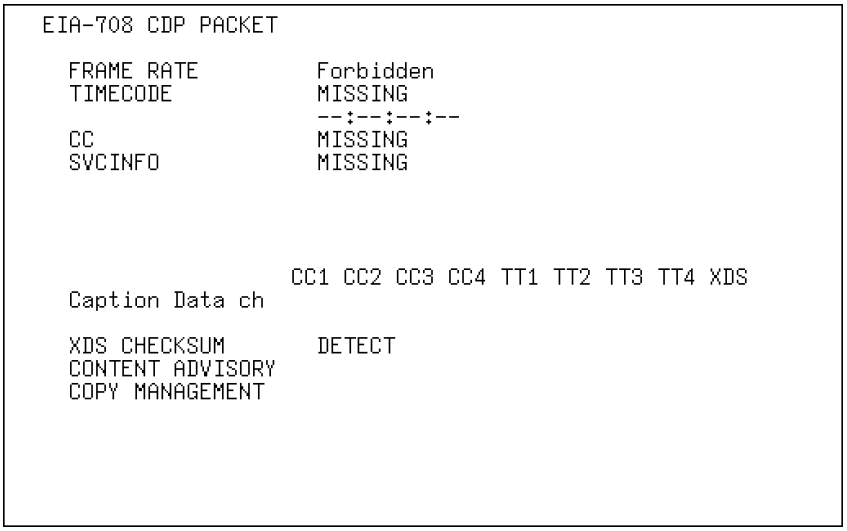


Figure 14-19 EIA-708 screen

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).
  If you select DUMP, the dump display appears, and you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.9 Displaying EIA-608 Data

To display EIA-608 data, follow the procedure below.
This feature is not supported when the link format is set to dual. F•5 V-ANC SMPTE is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•5 V-ANC SMPTE → F•2 EIA-608

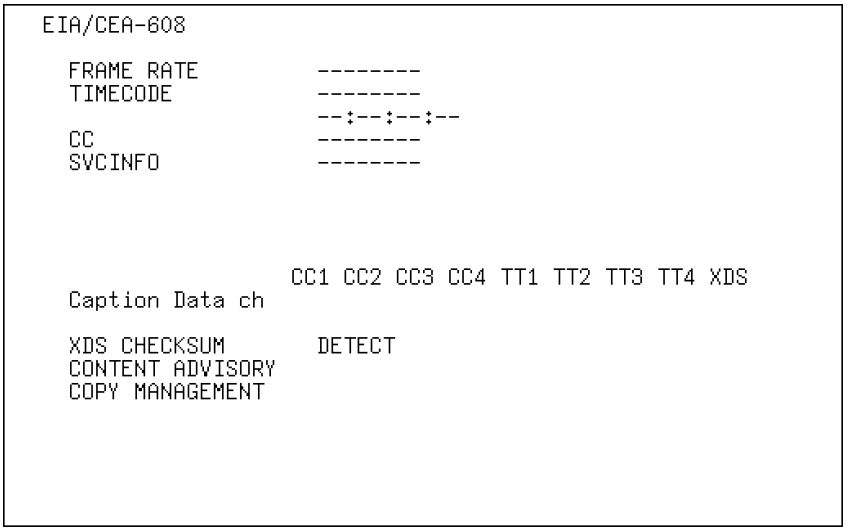


Figure 14-20 EIA-608 screen

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).
  If you select DUMP, the dump display appears, and you can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.10 Displaying Program Data

To display program data, follow the procedure below. If the item's ID exists, “DETECT” is displayed. If the item's ID does not exist, “MISSING” is displayed.
This feature is not supported when the link format is set to dual. F•5 V-ANC SMPTE is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•5 V-ANC SMPTE → F•3 PROGRAM

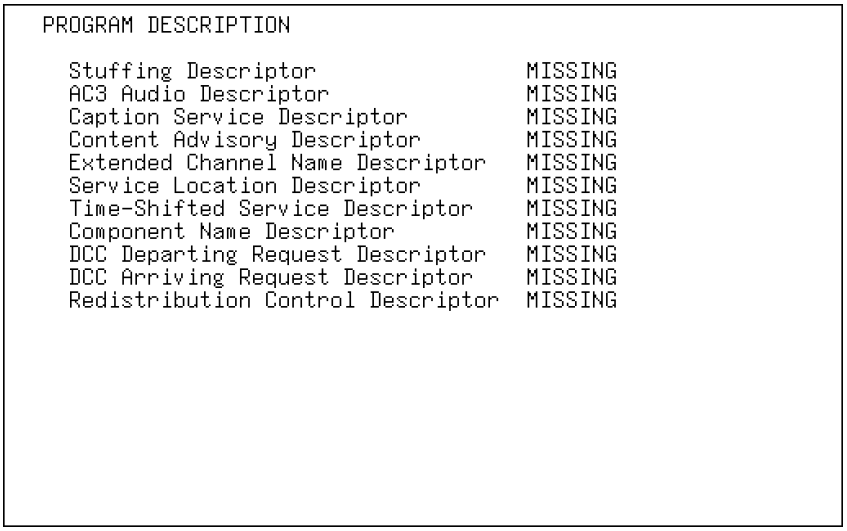


Figure 14-21 Program data screen

14.8.11 Displaying VBI Data

To display VBI data, follow the procedure below.
This feature is not supported when the link format is set to dual. F•5 V-ANC SMPTE is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•5 V-ANC SMPTE → F•4 VBI

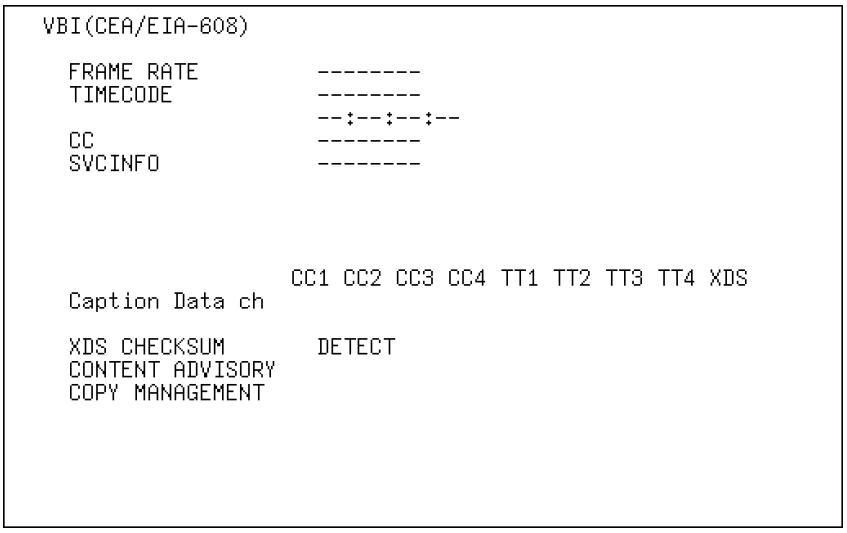


Figure 14-22 VBI data screen

14.8.12 Displaying AFD Packets

To display AFD packets, follow the procedure below.
This feature is not supported when the link format is set to dual. F•5 V-ANC SMPTE is not displayed.

Procedure

STATUS → F•4 ANC PACKET → F•5 V-ANC SMPTE → F•5 AFD

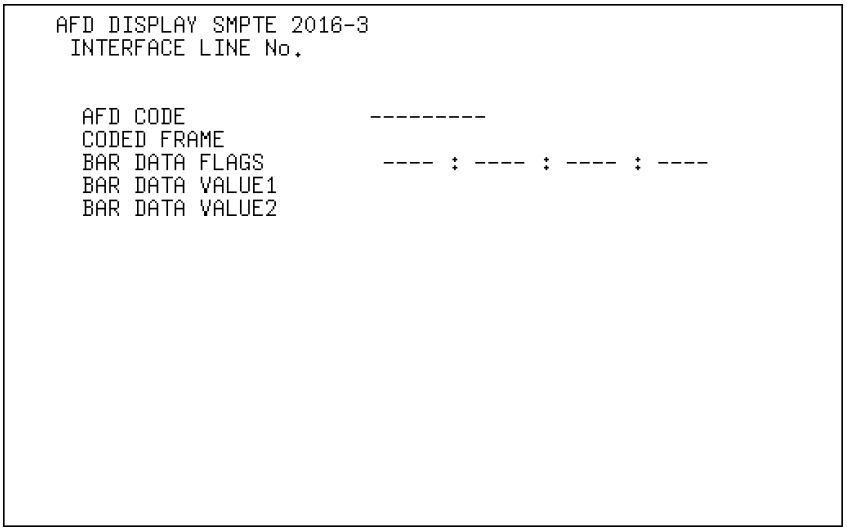


Figure 14-23 AFD screen

- **Selecting the Display Format**

  You can use F•1 DISPLAY to set the display format to TEXT (text display) or DUMP (dump display).

- **Selecting the Dump Mode**

  When F•1 DISPLAY is set to DUMP, you can use F•2 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

14.8.13 Performing Custom Searches

To display the custom search screen, follow the procedure below.
On the custom search screen, ancillary data packets with the specified DID and SDID are shown in a dump display. You can use F•D 1 SCROLL to view the entire data. If you press F•D 1, the first data entry is displayed.
When the link format is set to dual, the ancillary packets embedded in link A's Y data are detected.

Procedure

STATUS → F•4 ANC PACKET → F•6 CUSTOM SEARCH

```
CUSTOM SELECTED ANC PACKET
  INTERFACE LINE No.         9


        DID                 1E3
        DBN                 200
        DC                  10B
    1                       200
    2                       200
    3                       20F
    4                       200
    5                       200
    6                       200
    7                       200
    8                       200
    9                       200
   10                       200
   11                       200
      CHECKSUM              2FD
```

Figure 14-24 Custom search screen

- **Selecting the Dump Mode**

  You can use F•4 DUMP MODE to set the dump mode to HEX (hexadecimal display) or BINARY (binary display).

- **Detecting Ancillary Packets**

  To search for ancillary packets, follow the procedure below.

  1. **Press F • 1 DID, and then use F • D 2 DID SELECT to set the DID.**

     If ancillary packets with the specified DID are embedded in the video data, they will appear. If the SDID is also set, packets will appear if they have the specified DID and SDID.
     You can specify a value in the range of 00 to FF. Press F•D 2 to return the setting to its default value (00).

  2. **To specify the SDID, press F • 2 SDID, and then use F • D 2 SDID SELECT to set the SDID.**

     If ancillary packets with the specified DID and SDID are embedded in the video data, they will appear.
     You can specify a value in the range of 00 to FF or select “--” to not specify a value. Press F•D 2 to return the setting to its default value (--).

14.9 Configuring Thumbnail Settings

To configure the thumbnail settings, press F•7 THUMBNAIL on the status menu. You can configure the audio-meter and picture displays.

14.9.1 Turning the Audio Meter Display On and Off

To display the audio meter on the status display, follow the procedure below.
Configure audio meter settings on the audio display.

Procedure

STATUS → F•7 THUMBNAIL → F•1 AUDIO METER

Settings

ON:	The audio meter is displayed (this is the default value).
OFF:	The audio meter is not displayed.

14.9.2 Selecting the Audio Meter Display Format

To select the audio meter display format, follow the procedure below.
Configure 1st GROUP and 2nd GROUP on the audio menu.
Changing this setting will also change the audio meter display formats on the video-signal-waveform and picture displays.

For information on the SDI GROUP setting, see section 13.2.1, “Selecting the Input Channel.”

Procedure

STATUS → F•7 THUMBNAIL → F•2 LAYOUT

Settings

HORIZ1:	1st GROUP is displayed on the left side, and 2nd GROUP is displayed on the right side (this is the default value).
HORIZ2:	1st GROUP is displayed on the top two levels, and 2nd GROUP is displayed on the bottom two levels.

14.9.3 Turning the Picture Display On and Off

To display the picture on the status display, follow the procedure below.
Configure picture settings on the picture display.

Procedure

STATUS → F•7 THUMBNAIL → F•3 PICTURE

Settings

ON:	The picture is displayed (this is the default value).
OFF:	The picture is not displayed.

15. EXTERNAL INTERFACE

15.1 Remote Control Feature

You can use the remote control connector on the rear panel to load presets, transmit the alarm signal, and perform other operations. Use the supplied 25-pin D-sub connector.

15.1.1 Remote Control Connector Specifications

This section contains a diagram of the remote control connector, displayed as it appears on the rear panel, and a table that describes the connector's pinout.

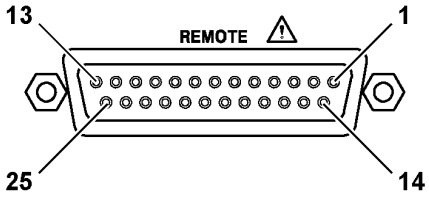


Figure 15-1 Remote control connector

Table 15-1 Remote control connector pinout

Pin No.	Name	Input or Output	Description
1	RESERVED	-	Reserved
2	GND	-	Grounding
3	/ACH	Input	Selects channel A
4	/BCH	Input	Selects channel B
5	/TALLY1	Input	Tally indication (red)
6	/TALLY2	Input	Tally indication (green)
7	RESERVED	-	Reserved
8	NC	-	Not used
9	NC	-	Not used
10	NC	-	Not used
11	NC	-	Not used
12	NC	-	Not used
13	NC	-	Not used
14	GND	-	Grounding
15	RESERVED	-	Reserved
16	ALARM	Output	Alarm output
17	/P1	Input	Loads preset 1
18	/P2	Input	Loads preset 2
19	/P3	Input	Loads preset 3
20	/P4	Input	Loads preset 4
21	/P5	Input	Loads preset 5
22	/P6	Input	Loads preset 6
23	/P7	Input	Loads preset 7
24	/P8	Input	Loads preset 8
25	RESERVED	-	Reserved

15.1.2 Control

The input connectors respond to active-low signals. To configure a setting, apply a stable signal for at least 350 ms. After configuring a setting, wait at least 1 second before configuring the next setting.

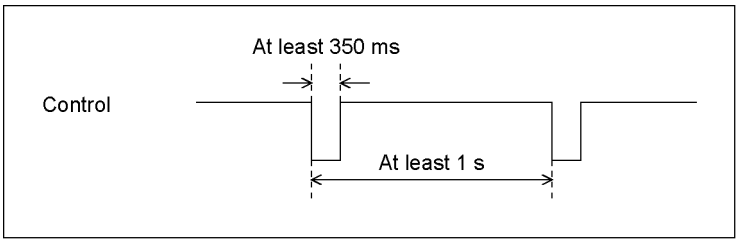


Figure 15-1 Control timing 1

After a setting is made, it may take about 3 seconds for the operation to finish. If you configure subsequent settings before the initial operation finishes, only the last setting will take effect. All settings in between will be discarded. (In the following example, control 2 will be discarded.)

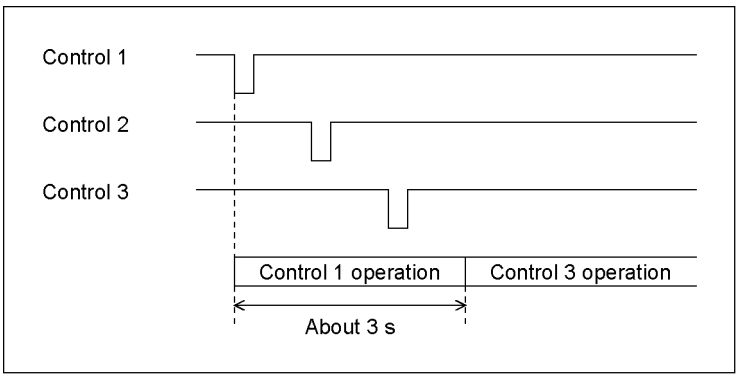


Figure 15-2 Control timing 2

15.1.3 Switching Input Channels

Pin 3 (/ACH) and pin 4 (/BCH) of the remote control connector are used for input channel switching.
Channel switching is not valid on screens in which the front panel INPUT key does not function.

Table 15-2 Input channel switching

3p (/ACH)	4p (/BCH)	Operation
L	H	Selects channel A.
H	L	Selects channel B.
L	L	Selects channel A.
H	H	The selected channel is not switched.

15.1.4 Displaying the Tally Indication

Pin 5 (/TALLY1) and pin 6 (/TALLY2) of the remote control connector are used for the display of the tally indication.
The tally indication is not displayed on some screens.

Table 15-3 Tally indication

5p (/TALLY1)	6p (/TALLY2)	Operation
L	H	The indication is red.
H	L	The indication is green.
L	L	The left half of the indication is red, and the right half is green.
H	H	The tally indication does not appear.

15.1.5 Transmitting Alarm Signals

The alarm signal is transmitted from pin 16 (ALARM) of the remote control connector when the LV 7380 internal temperature is 85 °C or higher, when the fan is broken, or when an error occurs in one of the items set to ON in the menu that appears when you press F•4 ERROR CONFIG on the status menu.

The alarm signal is a 3.3-V LV-TTL level signal. You can set the alarm signal polarity by setting Alarm Polarity in the system settings. You can also use Alarm Select to select the channel that alarms will be detected on.

15.1.6 Loading Presets

You can use pins 17 through 24 (/P1 through /P8) of the remote control connector to load presets. By default, /P1 to /P8 correspond to preset numbers 1 to 8, but you can load any of the 30 presets by setting Remote Mode to BINARY in the system settings, in which case pin 17 (/P1) will be the LSB, and pin 21 (/P5) will be the MSB.
Display mode presets cannot be loaded.

15.2 TELNET

You can use the Ethernet connector on the rear panel and a PC to perform operations remotely. The operations that you can perform are approximately the same as those that you can perform using the front panel.

15.2.1 Procedure

1. **Configure the ETHERNET SETUP settings.**

   These items can be configured in the system settings.
   If necessary, ask you network administrator what values you should use.
   See section 5.2.2, “Configuring the Ethernet Port.”

2. **Restart the LV 7380.**

   This enables the ETHERNET SETUP settings.

3. **Connect a cable to the LV 7380 Ethernet port.**

   Use a cross cable to connect the LV 7380 to a PC directly. Use a straight cable to connect the LV 7380 to a PC through a hub.

4. **Start TELNET.**

   After you start TELNET, the following display appears.
   For information on how to start TELNET, see your PC's instruction manual.

   ```
   login:
   ```

5. **Enter the login name, and press Enter.**

   The login name is LV7380. Be sure to use capital letters.
   You cannot change the login name.

   ```
   login: LV7380
   ```

6. **Enter the password, and press Enter.**

   The password is LV7380. Be sure to use capital letters.
   You cannot change the password.

   ```
   Password: ******
   ```

7. **Enter commands.**

   After you enter the password, the following command prompt appears.
   Enter commands while referring to sections 15.2.2, “How to Enter Commands,” and 15.2.3, “TELNET Commands.”

   ```
   LV7380>
   ```

15.2.2 How to Enter Commands

The command syntax is explained below. You can enter commands using uppercase or lowercase letters. To query a setting on the LV 7380, use a question mark as the parameter.

```
LV7380> [Command] + [Space] + [Parameter]
```

Examples of how to enter commands are shown below.

- **Showing the Status Display**

```
LV7380> STATUS
```

- **Displaying the Center Marker on the Picture Display**

```
LV7380> PICTURE:MARKER:CENTER ON
```

- **Querying the Vector Intensity**

```
LV7380> VECTOR:INTEN:VECTOR ?
```

15.2.3 TELNET Commands

TELNET commands follow the LV 7380 menu structure. For explanations of each command, see the explanations of their corresponding menu items in this manual.

Table 15-4 TELNET commands

Command	Parameters
SDI	A, B, AB, ?
REFERENCE	INT, EXT, ?
MODE	OVERLAY, PARADE, ?
CH1	ON, OFF, ?
CH2	ON, OFF, ?
CH3	ON, OFF, ?
WFM	-
VECTOR	-
PICTURE	-
AUDIO	-
EYE	-
STATUS	-
MULTI	-
MAKE	CAPTURE
RECALL	1 to 30
DATE	YEAR MONTH DAY HOUR MINUTE SECOND
VOLUME	-128 to 127, ?
WFM:SCALE:UNIT	%, V, V%, 150P, 1023, 3FF, ?
WFM:SCALE:COLOR:SCALE	WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE, ?
WFM:SCALE:COLOR:WFM	WHITE, GREEN, ?
WFM:INTEN:WFM	-128 to 127, ?
WFM:INTEN:SCALE	-8 to 7, ?

Command	Parameters
WFM:GAIN:MAG	X1, X5, ?
WFM:GAIN:VAR	0.2 to 10.0, ?
WFM:SWEEP:HV_SWEEP	H, V, ?
WFM:SWEEP:H_SWEEP	1H, 2H, H, ?
WFM:SWEEP:V_SWEEP	1V, 2V, ?
WFM:SWEEP:MAG	X1, X10, X20, ACTIVE, BLANK, X40, ?
WFM:LINE_SEL:LINE_SELECT	ON, OFF, ?
WFM:LINE_SEL:FIELD	FIELD1, FIELD2, FRAME, ?
WFM:LINE_SEL:LINE_NUMBER	1 to 1125 (depending on the format), ?
WFM:COLOR:MATRIX	YCBCR, GBR, RGB, COMPOSIT, ?
WFM:COLOR:YGBR	ON, OFF, ?
WFM:COLOR:YRGB	ON, OFF, ?
WFM:COLOR:FORMAT	AUTO, NTSC, PAL, ?
WFM:COLOR:SETUP	0%, 7.5%, ?
WFM:ARRANGE:FILTER	FLAT, LOW_PASS, FLAT+LUM, FLAT+CRMA, ?
WFM:ARRANGE:BLANKING	REMOVE, H_VIEW, V_VIEW, ALL_VIEW, ?
VECTOR:MODE	VECTOR, 5BAR, ?
VECTOR:INTEN:VECTOR	-128 to 127, ?
VECTOR:INTEN:SCALE	-8 to 7, ?
VECTOR:SCALE:IQ	ON, OFF, ?
VECTOR:SCALE:COLOR:SCALE	WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE, ?
VECTOR:SCALE:COLOR:VECTOR	WHITE, GREEN, ?
VECTOR:GAIN:MAG	X1, X5, IQ-MAG, ?
VECTOR:GAIN:VAR	0.2 to 10.0, ?
VECTOR:LINE_SEL:LINE_SELECT	ON, OFF, ?
VECTOR:LINE_SEL:FIELD	FIELD1, FIELD2, FRAME, ?
VECTOR:LINE_SEL:LINE_NUMBER	1 to 1125 (depending on the format), ?
VECTOR:COLOR:MATRIX	COMPONEN, COMPOSIT, ?
VECTOR:COLOR:FORMAT	AUTO, NTSC, PAL, ?
VECTOR:COLOR:SETUP	0%, 7.5%, ?
VECTOR:COLOR:BAR	100%, 75%, ?
VECTOR:5BAR:SEQUENCE	GBR, RGB, ?
VECTOR:5BAR:SCALE	%, MV, ?
PICTURE:ADJUST:R:SIGNAL	ON, OFF, ?
PICTURE:ADJUST:R:GAIN	0.0 to 200.0, ?
PICTURE:ADJUST:R:BIAS	-50.0 to 50.0, ?
PICTURE:ADJUST:G:SIGNAL	ON, OFF, ?
PICTURE:ADJUST:G:GAIN	0.0 to 200.0, ?
PICTURE:ADJUST:G:BIAS	-50.0 to 50.0, ?
PICTURE:ADJUST:B:SIGNAL	ON, OFF, ?
PICTURE:ADJUST:B:GAIN	0.0 to 200.0, ?
PICTURE:ADJUST:B:BIAS	-50.0 to 50.0, ?
PICTURE:ADJUST:CHROMA:MONO_COLOR	COLOR, MONO, ?
PICTURE:ADJUST:CHROMA:CHROMA_UP	NORMAL, UP, ?

Command	Parameters
PICTURE:ADJUST:CHROMA:GAIN	0.0 to 200.0, ?
PICTURE:ADJUST:APERTURE	0 to 100, ?
PICTURE:MARKER:FRAME	ON, OFF, ?
PICTURE:MARKER:CENTER	ON, OFF, ?
PICTURE:MARKER:ASPECT	OFF, 14_9, 13_9, 4_3, 2.39_1, 16_9, AFD, ?
PICTURE:MARKER:SAFETY:STANDARD	ARIB, SMPTE, USER, ?
PICTURE:MARKER:SAFETY:ACTION	ON, OFF, ?
PICTURE:MARKER:SAFETY:TITLE	ON, OFF, ?
PICTURE:MARKER:SAFETY:USER1	ON, OFF, ?
PICTURE:MARKER:SAFETY:USER2	ON, OFF, ?
PICTURE:MARKER:SAFETY:USER1_H	0 to 100, ?
PICTURE:MARKER:SAFETY:USER1_V	0 to 100, ?
PICTURE:MARKER:SAFETY:USER2_H	0 to 100, ?
PICTURE:MARKER:SAFETY:USER2_V	0 to 100, ?
PICTURE:MARKER:SHADOW	0 to 100, ?
PICTURE:LINE_SEL:LINE_SELECT	ON, OFF, ?
PICTURE:LINE_SEL:FIELD	FIELD1, FIELD2, FRAME, ?
PICTURE:LINE_SEL:LINE_NUMBER	1 to 1125 (depending on the format), ?
PICTURE:DISPLAY:SIZE	FIT, REAL, FULL_FRM, FUL_SCRN, ?
PICTURE:DISPLAY:GAMUT_ERR	OFF, WHITE, RED, MESH, ?
PICTURE:DISPLAY:ASPECT_INFO	ON, OFF, ?
PICTURE:BRIGHTNESS	-50.0 to 50.0, ?
PICTURE:CONTRAST	0.0 to 200.0, ?
AUDIO:SETUP:SDI_GROUP:1ST	1, 2, 3, 4, ?
AUDIO:SETUP:SDI_GROUP:2ND	1, 2, 3, 4, ?
AUDIO:SETUP:EXT_AES	INPUT, OUTPUT, ?
AUDIO:SETUP:MONITOR	EMBEDDED, EXT_AES, ?
AUDIO:SETUP:ERROR:DETECT:LEVEL	ON, OFF, ?
AUDIO:SETUP:ERROR:DETECT:CLIP	ON, OFF, ?
AUDIO:SETUP:ERROR:DETECT:MUTE	ON, OFF, ?
AUDIO:SETUP:ERROR:DETECT:PARITY	ON, OFF, ?
AUDIO:SETUP:ERROR:DETECT:VALIDITY	ON, OFF, ?
AUDIO:SETUP:ERROR:DETECT:CRC	ON, OFF, ?
AUDIO:SETUP:ERROR:DETECT:CODE	ON, OFF, ?
AUDIO:SETUP:ERROR:LEVEL:CLIP	1 to 100, ?
AUDIO:SETUP:ERROR:LEVEL:MUTE	1 to 5000, ?
AUDIO:PHONES:1ST:L	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, LT, RT, ?
AUDIO:PHONES:1ST:R	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, LT, RT, ?
AUDIO:PHONES:2ND:L	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, LT, RT, ?

Command	Parameters
AUDIO:PHONES:2ND:R	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, LT, RT, ?
AUDIO:DISPLAY	LISSAJOU, SURROUND, STATUS, ?
AUDIO:METER:DYNAMIC	-60DBFS, -90DBFS, ?
AUDIO:METER:RESPONSE	TRUE_PEAK, PPM(I), PPM(II), VU+TRUE, VU+PPM(I), VU+PPM(II), LOUDNESS_F, LOUDNESS_S, ?
AUDIO:METER:OVER	-40.0 to 0.0, ?
AUDIO:METER:WARNING	-40.0 to 0.0, ?
AUDIO:METER:REF	-40.0 to 0.0, ?
AUDIO:METER:HOLD	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, HOLD, ?
AUDIO:LISSAJOU:LISSAJOU	SINGLE, MULTI, ?
AUDIO:LISSAJOU:FORM	X-Y, MATRIX, ?
AUDIO:LISSAJOU:GAIN	X1, AUTO, ?
AUDIO:LISSAJOU:SINGLE:1ST:L	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, LT, ?
AUDIO:LISSAJOU:SINGLE:1ST:R	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, RT, ?
AUDIO:LISSAJOU:MULTI:1ST:L1	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:R1	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:L2	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:R2	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:L3	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:R3	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:L4	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:1ST:R4	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:SINGLE:2ND:L	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, LT, ?
AUDIO:LISSAJOU:SINGLE:2ND:R	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, RT, ?
AUDIO:LISSAJOU:MULTI:2ND:L1	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?

Command	Parameters
AUDIO:LISSAJOU:MULTI:2ND:R1	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:2ND:L2	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:2ND:R2	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:2ND:L3	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:2ND:R3	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:2ND:L4	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:MULTI:2ND:R4	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:LISSAJOU:INTEN:LISSAJOU	-8 to 7, ?
AUDIO:LISSAJOU:INTEN:SCALE	-8 to 7, ?
AUDIO:SURROUND:SURROUND	NORMAL, PHANTOM_C, ?
AUDIO:SURROUND:GAIN	X1, AUTO, ?
AUDIO:SURROUND:MAP:1ST:L	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:R	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:C	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:LFE	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:LS	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:RS	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:LL	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:1ST:RR	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:L	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:R	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:C	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:LFE	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:LS	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:RS	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9,

Command	Parameters
	CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:LL	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:MAP:2ND:RR	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:SURROUND:INTEN:SURROUND	-8 to 7, ?
AUDIO:SURROUND:INTEN:SCALE	-8 to 7, ?
AUDIO:STATUS:CHANNEL:1ST	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:STATUS:CHANNEL:2ND	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:STATUS:ALIGN	LSB, MSB, ?
AUDIO:USER:CHANNEL:1ST	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:USER:CHANNEL:2ND	CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8, CH9, CH10, CH11, CH12, CH13, CH14, CH15, CH16, ?
AUDIO:USER:ALIGN	LSB, MSB, ?
STATUS:EVENT:LOG	START, STOP, ?
STATUS:EVENT:LOG_MODE	OVER_WR, STOP, ?
STATUS:DUMP:MODE	RUN, HOLD, ?
STATUS:DUMP:DISPLAY	SERIAL, COMP, LINK_A, LINK_B, LINK_AB, ?
STATUS:DUMP:JUMP	EAV, SAV, ?
STATUS:DUMP:LINE_NUMBER	1 to 1125 (depending on the format), ?
STATUS:DUMP:SAMPLE	0 to 2199 (depending on the format), ?
STATUS:ERROR:DETECT:TRS	ON, OFF, ?
STATUS:ERROR:DETECT:LINE	ON, OFF, ?
STATUS:ERROR:DETECT:CRC	ON, OFF, ?
STATUS:ERROR:DETECT:EDH	ON, OFF, ?
STATUS:ERROR:DETECT:ILLEGAL	ON, OFF, ?
STATUS:ERROR:DETECT:CABLE	ON, OFF, ?
STATUS:ERROR:DETECT:HD_CABLE	LS-5CFB, 1694A, L-7CHD, ?
STATUS:ERROR:LEVEL:HD_CABLE:ERROR	5 to 200, ?
STATUS:ERROR:LEVEL:HD_CABLE:WARNING	50 to 300, ?
STATUS:ERROR:DETECT:SD_CABLE	LS-5C2V, 8281, 1505A, ?
STATUS:ERROR:LEVEL:SD_CALBE:ERROR	5 to 200, ?
STATUS:ERROR:LEVEL:SD_CABLE:WARNING	50 to 300, ?
STATUS:ERROR:DETECT:ANC:PARITY	ON, OFF, ?
STATUS:ERROR:DETECT:ANC:CHECKSUM	ON, OFF, ?
STATUS:ERROR:DETECT:AUDIO:BCH	ON, OFF, ?
STATUS:ERROR:DETECT:AUDIO:DBN	ON, OFF, ?
STATUS:ERROR:DETECT:AUDIO:PARITY	ON, OFF, ?
STATUS:ERROR:DETECT:AUDIO:INHIBIT	ON, OFF, ?
STATUS:ERROR:DETECT:GAMUT	ON, OFF, ?

Command	Parameters
STATUS:ERROR:LEVEL:GAMUT:UPPER	90.8 to 109.4, ?
STATUS:ERROR:LEVEL:GAMUT:LOWER	-7.2 to 6.1, ?
STATUS:ERROR:LEVEL:GAMUT:AREA	0.0 to 5.0, ?
STATUS:ERROR:DETECT:C.GAMUT	ON, OFF, ?
STATUS:ERROR:LEVEL:C.GAMUT:SETUP	0%, 7.5%, ?
STATUS:ERROR:LEVEL:C.GAMUT:UPPER	90.0 to 135.0, ?
STATUS:ERROR:LEVEL:C.GAMUT:LOWER	-40.0 to 20.0, ?
STATUS:ERROR:LEVEL:C.GAMUT:AREA	0.0 to 5.0, ?
STATUS:ERROR:DETECT:LUMA	ON, OFF, ?
STATUS:ERROR:LEVEL:LUMA:UPPER	90.8 to 109.4, ?
STATUS:ERROR:LEVEL:LUMA:LOWER	-7.2 to 6.1, ?
EYE:LINK	A, B, ?
EYE:MODE	EYE, JITTER, ?
EYE:EYE_SETUP:MEASURE	ON, OFF, ?
EYE:EYE_SETUP:GAIN	CAL, VARIABLE, ?
EYE:EYE_SETUP:SWEEP	2UI, 4UI, 16UI, ?
EYE:EYE_SETUP:FILTER	100KHZ, 1KHZ, 100HZ, 10HZ, TIMING, ALIGNMENT, ?
EYE:EYE_SETUP:GAIN_VAR	0.5 to 2.0, ?
EYE:JITTER_SETUP:PEAK_HOLD	ON, OFF, ?
EYE:JITTER_SETUP:MAG	X1, X2, X8, ?
EYE:JITTER_SETUP:SWEEP	1H, 2H, 1V, 2V, ?
EYE:JITTER_SETUP:FILTER	100KHZ, 1KHZ, 100HZ, 10HZ, TIMING, ALIGNMENT, ?
EYE:ERROR:DETECT:HD:AMPLITUDE	ON, OFF, ?
EYE:ERROR:DETECT:HD:RISETIME	ON, OFF, ?
EYE:ERROR:DETECT:HD:FALLTIME	ON, OFF, ?
EYE:ERROR:DETECT:HD:DELTATIME	ON, OFF, ?
EYE:ERROR:DETECT:HD:CURRENT_JITTER	ON, OFF, ?
EYE:ERROR:LEVEL:HD:AMPLITUDE:UPPER	80 to 140, ?
EYE:ERROR:LEVEL:HD:AMPLITUDE:LOWER	40 to 100, ?
EYE:ERROR:LEVEL:HD:RISETIME:MAX	40 to 140, ?
EYE:ERROR:LEVEL:HD:FALLTIME:MAX	40 to 140, ?
EYE:ERROR:LEVEL:HD:DELTATIME:MAX	40 to 140, ?
EYE:ERROR:LEVEL:HD:TIMING_JITTER:MAX	10 to 200, ?
EYE:ERROR:LEVEL:HD:CURRENT_JITTER:MAX	10 to 200, ?
EYE:ERROR:DETECT:SD:AMPLITUDE	ON, OFF, ?
EYE:ERROR:DETECT:SD:RISETIME	ON, OFF, ?
EYE:ERROR:DETECT:SD:FALLTIME	ON, OFF, ?
EYE:ERROR:DETECT:SD:DELTATIME	ON, OFF, ?
EYE:ERROR:DETECT:SD:TIMING_JITTER	ON, OFF, ?
EYE:ERROR:DETECT:SD:CURRENT_JITTER	ON, OFF, ?
EYE:ERROR:LEVEL:SD:AMPLITUDE:UPPER	80 to 140, ?
EYE:ERROR:LEVEL:SD:AMPLITUDE:LOWER	40 to 100, ?

Command	Parameters
EYE:ERROR:LEVEL:SD:RISETIME:MAX	40 to 140, ?
EYE:ERROR:LEVEL:SD:FALLTIME:MAX	40 to 140, ?
EYE:ERROR:LEVEL:SD:DELTATIME:MAX	40 to 140, ?
EYE:ERROR:LEVEL:SD:TIMING_JITTER:MAX	10 to 200, ?
EYE:ERROR:LEVEL:SD:CURRENT_JITTER:MAX	10 to 200, ?
EYE:INTEN:EYE	-8 to 7, ?
EYE:INTEN:SCALE	-8 to 7, ?
SYSTEM:SETUP:LINK_FORMAT	SINGLE, DUAL, 2K, ?
SYSTEM:SETUP:MANUAL_SELECT	AUTO, MANUAL, ?
SYSTEM:SETUP:I/PSF	INTERLACE, SEGMENTED_FRAME, ?
SYSTEM:SETUP:COLOR_SYSTEM	GBR, YCBCR, ?
SYSTEM:SETUP:PIXEL_DEPTH	10BIT, 12BIT, ?
SYSTEM:SETUP:SCANNING	1080I, 1080PSF, 1080P, ?
SYSTEM:SETUP:MANUAL_FORMAT	1080I_60, 1080I_59.94, 1080I_50, 1080P_30, 1080P_29.97, 1080P_25, 1080P_24, 1080P_23.98, 1080PSF_30, 1080PSF_29.97, 1080PSF_25, 1080PSF_24, 1080PSF_23.98, 720P_60, 720P_59.94, 720P_50, 720P_30, 720P_29.97, 720P_25, 720P_24, 720P_23.98, 525I_59.94, 625I_50, ?
SYSTEM:DISPLAY:INFO:TIMECODE	LTC, VITC, OFF, ?
SYSTEM:DISPLAY:ERROR_COUNTER	ON, OFF, ?
SYSTEM:DISPLAY:FORMAT	ON, OFF, ?
SYSTEM:DISPLAY:INPUT_INFO	ID, CHANNEL, OFF, ?
MULTI:INPUT	SINGLE, DUAL, ?
MULTI:DISPLAY	PIC+WFM1, PIC+WFM2, P+W+V, P+W+V+A, QUAD, P+W_H, P+W_V, W+V_V, ?
MULTI:AREA1_SEL	PIC, WFM, VECT, AUDIO, STATUS, EYE, ?
MULTI:AREA2_SEL	PIC, WFM, VECT, AUDIO, STATUS, EYE, ?
MULTI:AREA3_SEL	PIC, WFM, VECT, AUDIO, STATUS, EYE, ?
MULTI:AREA4_SEL	PIC, WFM, VECT, AUDIO, STATUS, EYE, ?
MULTI:SUB	WFM, HISTOGRAM, ?
MULTI:HISTOGRAM:FORM	LUMA, PARADE, OVERLAY, ?
MULTI:HISTOGRAM:Y	ON, OFF, ?
MULTI:HISTOGRAM:R	ON, OFF, ?
MULTI:HISTOGRAM:G	ON, OFF, ?
MULTI:HISTOGRAM:B	ON, OFF, ?

15.3 SNMP

By using SNMP (Simple Network Management Protocol), you can control an LV 7380 from SNMP managers. Additionally, you can also notify the SNMP managers of SDI signal errors that the LV 7380 generates.

15.3.1 Procedure

To control an LV 7380 remotely over SNMP, follow the procedure below.

1. **Configure the LV 7380 Ethernet settings, and connect an Ethernet cable.**

   For more detailed instructions, see steps 1 through 3 in section 15.2.1, “Procedure.” Set SNMP TRAP to ON.

2. **Start the SNMP managers.(*1)**

   To control the LV 7380 over SNMP, you need an SNMP manager (not included).

3. **Check that the SNMP managers can perform GET and SET operations.**

   For details on how to use the SNMP managers, see their instruction manuals.

4. **Set the following MIB items to the SNMP managers' IP addresses.**

   Perform the SET operation from the SNMP managers.

   1.3.6.1.4.1.leader(20111).lv7380(13).lv7380ST1(1).l13trapTBL(10).l13trapManagerIp(2).0

5. **Restart the LV 7380.**

6. **When the LV 7380 starts, it transmits the standard TRAP “coldStart(0).” Check that this is received by the SNMP managers.**

*1

SNMP Version	SNMPv1	
Community Names	Read community:	LDRUser
	Write community:	LDRAdm
	TRAP community:	LDRUser
SMI Definitions	IMPORTS	
	MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE, enterprises	
	FROM SNMPv2-SMI	
	DisplayString	
	FROM SNMPv2-TC	
	OBJECT-GROUP, MODULE-COMPLIANCE	
	FROM SNMPv2-CONF	

15.3.2 MIB

This section explains the MIB (Management Information Base) that the LV 7380 uses.
In the tables that follow, “ACCESS” has the following meanings:

ACCESS	Description
R/O	Information that can only be retrieved from the SNMP managers.
R/W	Information that can be retrieved and set from the SNMP managers.
R/WO	Information that can be retrieved and set from the SNMP managers. (However, the retrieved data consists of meaningless fixed values.)

15.3.3 Standard MIB

The LV 7380 uses the following standard MIBs:
• RFC1213 (MIB-II)
• RFC1354 (IP Forwarding Table MIB)

Note that in this version, there are objects that are not implemented.
In the tables that follow, “SUPPORT” has the following meanings:

SUPPORT	Description
○	Supports the MIB object as defined by the standard.
□	Reading and writing are possible according to the standard, but the LV 7380 only supports reading.
×	Not supported.

• system group

MIB	OID	SYNTAX	ACCESS	SUPPORT
sysDescr	system.1	DisplayString	R/O	○
sysObjectID	system.2	ObjectID	R/O	○
sysUpTime	system.3	TimeTicks	R/O	○
sysContact(*1)	system.4	DisplayString	R/W	○
sysName(*1)	system.5	DisplayString	R/W	○
sysLocation(*1)	system.6	DisplayString	R/W	○
sysServices	system.7	INTEGER	R/O	○

*1 Set using up to 40 bytes.

• interface group

MIB	OID	SYNTAX	ACCESS	SUPPORT
ifNumber	interfaces.1	INTEGER	R/O	○
ifTable	interfaces.2	Aggregate	-	○
ifEntry	ifTable.1	Aggregate	-	○
ifIndex	ifEntry.1	INTEGER	R/O	○
ifDescr	ifEntry.2	DisplayString	R/O	○
ifType	ifEntry.3	INTEGER	R/O	○
ifMtu	ifEntry.4	INTEGER	R/O	○
ifSpeed	ifEntry.5	Gauge	R/O	○
ifPhysAddress	ifEntry.6	OctetString	R/O	○
ifAdminStatus	ifEntry.7	INTEGER	R/O	□
ifOperStatus	ifEntry.8	INTEGER	R/O	□
ifLastChange	ifEntry.9	TimeTicks	R/O	○
ifInOctets	ifEntry.10	Counter	R/O	○
ifInUcastPkts	ifEntry.11	Counter	R/O	○
ifInNUcastPkts	ifEntry.12	Counter	R/O	○
ifInDiscards	ifEntry.13	Counter	R/O	○
ifInErrors	ifEntry.14	Counter	R/O	○
ifInUnknownProtos	ifEntry.15	Counter	R/O	○
ifOutOctets	ifEntry.16	Counter	R/O	○

MIB	OID	SYNTAX	ACCESS	SUPPORT
ifOutUcastPkts	ifEntry.17	Counter	R/O	○
ifOutNUcastPkts	ifEntry.18	Counter	R/O	○
ifOutDiscards	ifEntry.19	Counter	R/O	○
ifOutErrors	ifEntry.20	Counter	R/O	○
ifOutQLen	ifEntry.21	Gauge	R/O	○
ifSpecific	ifEntry.22	ObjectID	R/O	○

- **ip group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
ipForwarding	ip.1	INTEGER	R/O	○
ipDefaultTTL	ip.2	INTEGER	R/O	○
ipInReceives	ip.3	Counter	R/O	○
ipInHdrErrors	ip.4	Counter	R/O	○
ipInAddrErrors	ip.5	Counter	R/O	○
ipForwDatagrams	ip.6	Counter	R/O	○
ipInUnknownProtos	ip.7	Counter	R/O	○
ipInDiscards	ip.8	Counter	R/O	○
ipInDelivers	ip.9	Counter	R/O	○
ipOutRequests	ip.10	Counter	R/O	○
ipOutDiscards	ip.11	Counter	R/O	○
ipOutNoRoutes	ip.12	Counter	R/O	○
ipReasmTimeout	ip.13	INTEGER	R/O	○
ipReasmReqds	ip.14	Counter	R/O	○
ipReasmOKs	ip.15	Counter	R/O	○
ipReasmFails	ip.16	Counter	R/O	○
ipFragOKs	ip.17	Counter	R/O	○
ipFragFails	ip.18	Counter	R/O	○
ipFragCreates	ip.19	Counter	R/O	○
ipAddrTable	ip.20	Aggregate	-	○
ipAddrEntry	ipAddrTable.1	Aggregate	-	○
ipAdEntAddr	ipAddrEntry.1	IpAddress	R/O	○
ipAdEntIfIndex	ipAddrEntry.2	INTEGER	R/O	○
ipAdEntNetMask	ipAddrEntry.3	IpAddress	R/O	○
ipAdEntBcastAddr	ipAddrEntry.4	INTEGER	R/O	○
ipAdEntReasmMaxSize	ipAddrEntry.5	INTEGER	R/O	○
ipNetToMediaTable	ip.22	Aggregate	-	○
ipNetToMediaEntry	ipNetToMediaTable.1	Aggregate	-	○
ipNetToMediaIfIndex	ipNetToMediaEntry.1	INTEGER	R/O	□
ipNetToMediaPhysAddress	ipNetToMediaEntry.2	OctetString	R/O	□
ipNetToMediaNetAddress	ipNetToMediaEntry.3	IpAddress	R/O	□
ipNetToMediaType	ipNetToMediaEntry.4	INTEGER	R/O	□
ipRoutingDiscards	ip.23	Counter	R/O	○
ipForward	ip.24	Aggregate	-	○
ipForwardNumber	ipForward .1	Gauge	R/O	○
ipForwardTable	ipForward .2	Aggregate	-	○

MIB	OID	SYNTAX	ACCESS	SUPPORT
ipForwardDest	ipForwardTable.1	IpAddress	R/O	○
ipForwardMask	ipForwardTable.1	IpAddress	R/O	○
ipForwardPolicy	ipForwardTable.1	INTEGER	R/O	×
ipForwardNextHop	ipForwardTable.1	IpAddress	R/O	○
ipForwardIfIndex	ipForwardTable.1	INTEGER	R/O	○
ipForwardType	ipForwardTable.1	INTEGER	R/O	×
ipForwardProto	ipForwardTable.1	INTEGER	R/O	×
ipForwardAge	ipForwardTable.1	INTEGER	R/O	×
ipForwardInfo	ipForwardTable.1	ObjectID	R/O	×
ipForwardNextHopAS	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric1	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric2	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric3	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric4	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric5	ipForwardTable.1	INTEGER	R/O	×

- **icmp group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
icmpInMsgs	icmp.1	Counter	R/O	○
icmpInErrors	icmp.2	Counter	R/O	○
icmpInDestUnreachs	icmp.3	Counter	R/O	○
icmpInTimeExcds	icmp.4	Counter	R/O	○
icmpInParmProbs	icmp.5	Counter	R/O	○
icmpInSrcQuenchs	icmp.6	Counter	R/O	○
icmpInRedirects	icmp.7	Counter	R/O	○
icmpInEchos	icmp.8	Counter	R/O	○
icmpInEchoReps	icmp.9	Counter	R/O	○
icmpInTimestamps	icmp.10	Counter	R/O	○
icmpInTimestampReps	icmp.11	Counter	R/O	○
icmpInAddrMasks	icmp.12	Counter	R/O	○
icmpInAddrMaskReps	icmp.13	Counter	R/O	○
icmpOutMsgs	icmp.14	Counter	R/O	○
icmpOutErrors	icmp.15	Counter	R/O	○
icmpOutDestUnreachs	icmp.16	Counter	R/O	○
icmpOutTimeExcds	icmp.17	Counter	R/O	○
icmpOutParmProbs	icmp.18	Counter	R/O	○
icmpOutSrcQuenchs	icmp.19	Counter	R/O	○
icmpOutRedirects	icmp.20	Counter	R/O	○
icmpOutEchos	icmp.21	Counter	R/O	○
icmpOutEchoReps	icmp.22	Counter	R/O	○
icmpOutTimestamps	icmp.23	Counter	R/O	○
icmpOutTimestampReps	icmp.24	Counter	R/O	○
icmpOutAddrMasks	icmp.25	Counter	R/O	○
icmpOutAddrMaskReps	icmp.26	Counter	R/O	○

- **tcp group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
tcpRtoAlgorithm	tcp.1	INTEGER	R/O	○
tcpRtoMin	tcp.2	INTEGER	R/O	○
tcpRtoMax	tcp.3	INTEGER	R/O	○
tcpMaxConn	tcp.4	INTEGER	R/O	○
tcpActiveOpens	tcp.5	Counter	R/O	○
tcpPassiveOpens	tcp.6	Counter	R/O	○
tcpAttemptFails	tcp.7	Counter	R/O	○
tcpEstabResets	tcp.8	Counter	R/O	○
tcpCurrEstab	tcp.9	Gauge	R/O	○
tcpInSegs	tcp.10	Counter	R/O	○
tcpOutSegs	tcp.11	Counter	R/O	○
tcpRetransSegs	tcp.12	Counter	R/O	○
tcpConnTable	tcp.13	Aggregate	-	○
tcpConnEntry	tcpConnTable.1	Aggregate	-	○
tcpConnState	tcpConnEntry.1	INTEGER	R/O	□
tcpConnLocalAddress	tcpConnEntry.2	IpAddress	R/O	○
tcpConnLocalPort	tcpConnEntry.3	INTEGER	R/O	○
tcpConnRemAddress	tcpConnEntry.4	IpAddress	R/O	○
tcpConnRemPort	tcpConnEntry.5	INTEGER	R/O	○
tcpInErrs	tcp.14	Counter	R/O	○
tcpOutRsts	tcp.15	Counter	R/O	○

- **udp group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
udpInDatagrams	udp.1	Counter	R/O	○
udpNoPorts	udp.2	Counter	R/O	○
udpInErrors	udp.3	Counter	R/O	○
udpOutDatagrams	udp.4	Counter	R/O	○
udpTable	udp.5	Aggregate	-	○
udpEntry	udpTable.1	Aggregate	-	○
udpLocalAddress	udpEntry.1	IpAddress	R/O	○
udpLocalPort	udpEntry.2	INTEGER	R/O	○

- **snmp group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
snmpInPkts	snmp.1	Counter	R/O	○
snmpOutPkts	snmp.2	Counter	R/O	○
snmpInBadVersions	snmp.3	Counter	R/O	○
snmpInBadCommunityNames	snmp.4	Counter	R/O	○
snmpInBadCommunityUses	snmp.5	Counter	R/O	○
snmpInASNParseErrs	snmp.6	Counter	R/O	○
snmpInTooBigs	snmp.8	Counter	R/O	○
snmpInNoSuchNames	snmp.9	Counter	R/O	○
snmpInBadValues	snmp.10	Counter	R/O	○
snmpInReadOnlys	snmp.11	Counter	R/O	○
snmpInGenErrs	snmp.12	Counter	R/O	○
snmpInTotalReqVars	snmp.13	Counter	R/O	○
snmpInTotalSetVars	snmp.14	Counter	R/O	○
snmpInGetRequests	snmp.15	Counter	R/O	○
snmpInGetNexts	snmp.16	Counter	R/O	○
snmpInSetRequests	snmp.17	Counter	R/O	○
snmpInGetResponses	snmp.18	Counter	R/O	○
snmpInTraps	snmp.19	Counter	R/O	○
snmpOutTooBigs	snmp.20	Counter	R/O	○
snmpOutNoSuchNames	snmp.21	Counter	R/O	○
snmpOutBadValues	snmp.22	Counter	R/O	○
snmpOutGenErrs	snmp.24	Counter	R/O	○
snmpOutGetRequests	snmp.25	Counter	R/O	○
snmpOutGetNexts	snmp.26	Counter	R/O	○
snmpOutSetRequests	snmp.27	Counter	R/O	○
snmpOutGetResponses	snmp.28	Counter	R/O	○
snmpOutTraps	snmp.29	Counter	R/O	○
snmpEnableAuthenTraps	snmp.30	IpAddress	R/W	○

15.3.4 Enterprise MIB

- **Enterprise Number**

  The Enterprise Number of LEADER ELECTRONICS CORP. is 20111.
  iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).leader(20111)

- **Enterprise MIB Structure**

```
leader OBJECT IDENTIFIER ::= { enterprises 20111 }
lv7380 OBJECT IDENTIFIER ::= { leader 13 }
lv7380ST1 OBJECT IDENTIFIER ::= { lv7380 1 }
l13panelTBL OBJECT IDENTIFIER ::= { lv7380ST1 1 }      <-- PANEL key
l13wfmTBL OBJECT IDENTIFIER ::= { lv7380ST1 2 }        <-- WFM menu
l13vectorTBL OBJECT IDENTIFIER ::= { lv7380ST1 3 }     <-- VECTOR menu
l13pictureTBL OBJECT IDENTIFIER ::= { lv7380ST1 4 }    <-- PICTURE menu
l13audioTBL OBJECT IDENTIFIER ::= { lv7380ST1 5 }      <-- AUDIO menu
l13statusTBL OBJECT IDENTIFIER ::= { lv7380ST1 6 }     <-- STATUS menu
l13eyeTBL OBJECT IDENTIFIER ::= { lv7380ST1 7 }        <-- EYE menu
l13systemTBL OBJECT IDENTIFIER ::= { lv7380ST1 8 }     <-- SYSTEM menu
l13multiTBL OBJECT IDENTIFIER ::= { lv7380ST1 9 }      <-- MULTI menu
l13trapTBL OBJECT IDENTIFIER ::= { lv7380ST1 10 }      <-- Trap information
```

- **Enterprise MIBs**

```
leader OBJECT IDENTIFIER ::= { enterprises 20111 }
lv7380 OBJECT IDENTIFIER ::= { leader 13 }
lv7380ST1 OBJECT IDENTIFIER ::= { lv7380 1 }
l13panelTBL OBJECT IDENTIFIER ::= { lv7380ST1 1 }
l13wfmTBL OBJECT IDENTIFIER ::= { lv7380ST1 2 }
l13vectorTBL OBJECT IDENTIFIER ::= { lv7380ST1 3 }
l13pictureTBL OBJECT IDENTIFIER ::= { lv7380ST1 4 }
l13audioTBL OBJECT IDENTIFIER ::= { lv7380ST1 5 }
l13statusTBL OBJECT IDENTIFIER ::= { lv7380ST1 6 }
l13eyeTBL OBJECT IDENTIFIER ::= { lv7380ST1 7 }
l13systemTBL OBJECT IDENTIFIER ::= { lv7380ST1 8 }
l13multiTBL OBJECT IDENTIFIER ::= { lv7380ST1 9 }
l13trapTBL OBJECT IDENTIFIER ::= { lv7380ST1 10 }
```

- **l13panelTBL(1) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13plSDI	l13panelTBL.1	INTEGER	R/W	0 = a 1 = b 2 = ab
l13plReference	l13panelTBL.2	INTEGER	R/W	0 = int 1 = ext
l13plMode	l13panelTBL.3	INTEGER	R/W	0 = parade 1 = overlay
l13plWaveChTBL	l13panelTBL.4	Aggregate	-	-
l13plCH1	l13plWaveChTBL.1	INTEGER	R/W	0 = off 1 = on
l13plCH2	l13plWaveChTBL.2	INTEGER	R/W	0 = off 1 = on
l13plCH3	l13plWaveChTBL.3	INTEGER	R/W	0 = off 1 = on
l13plDisplay	l13panelTBL.5	INTEGER	R/W	0 = wfm 1 = vector 2 = picture 3 = audio 4 = status 5 = eye 6 = multi

- **l13wfmTBL(2) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13wfmScaleUnit	l13wfmTBL.1	INTEGER	R/W	0 = per 1 = v 2 = v-per 3 = sc-150p 6 = sc-1023 7 = sc-3ff
l13wfmScaleColorTBL	l13wfmTBL.2	Aggregate	-	-
l13wfmScaleColorScale	l13wfmScaleColorTBL.1	INTEGER	R/W	0 = white 1 = yellow 2 = cyan 3 = green 4 = magenta 5 = red 6 = blue
l13wfmScaleColorWfm	l13wfmScaleColorTBL.2	INTEGER	R/W	0 = white 1 = green
l13wfmGainTBL	l13wfmTBL.3	Aggregate	-	-
l13wfmGainMAG	l13wfmGainTBL.1	INTEGER	R/W	0 = ×1 1 = ×5
l13wfmSweepTBL	l13wfmTBL.4	Aggregate	-	-

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13wfmSweepHMAG	l13wfmSweepTBL.2	INTEGER	R/W	0 = ×1 1 = ×10 2 = ×20 3 = active 4 = blank
l13wfmSweepVMAG	l13wfmSweepTBL.3	INTEGER	R/W	0 = ×1 1 = ×20 2 = ×40
l13wfmColorTBL	l13wfmTBL.5	Aggregate	-	-
l13wfmColorMatrix	l13wfmColorTBL.1	INTEGER	R/W	0 = ycbcr 1 = gbr 2 = rgb 3 = composite
l13wfmColorYGBR	l13wfmColorTBL.2	INTEGER	R/W	0 = off 1 = on
l13wfmColorYRGB	l13wfmColorTBL.3	INTEGER	R/W	0 = off 1 = on
l13wfmColorFormat	l13wfmColorTBL.4	INTEGER	R/W	0 = auto 1 = ntsc 2 = pal
l13wfmColorSetup	l13wfmColorTBL.5	INTEGER	R/W	0 = p0per 1 = p7p5per
l13wfmArrangeTBL	l13wfmTBL.6	Aggregate	-	-
l13wfmGainFILTER	l13wfmArrangeTBL.1	INTEGER	R/W	0 = lowPass 1 = flat
l13wfmGainCFILTER	l13wfmArrangeTBL.2	INTEGER	R/W	1 = flat 2 = flatNum 3 = flatCrma
l13wfmGainBLANKING	l13wfmArrangeTBL.3	INTEGER	R/W	0 = remove 1 = v-view 2 = h-view 3 = all-view
l13wfmGainCBLANKING	l13wfmArrangeTBL.4	INTEGER	R/W	0 = remove 1 = v-view

- **l13vectorTBL(3) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13vectorMode	l13vectorTBL.1	INTEGER	R/W	0 = modVector 1 = mod5bar
l13vectorScaleTBL	l13vectorTBL.2	Aggregate	-	-
l13vectorScaleIQAXIS	l13vectorScaleTBL.1	INTEGER	R/W	0 = off 1 = on
l13vectorScaleColor	l13vectorScaleTBL.2	INTEGER	R/W	0 = white 1 = yellow 2 = cyan 3 = green 4 = magenta 5 = red 6 = blue
l13vectorVectorColor	l13vectorScaleTBL.3	INTEGER	R/W	0 = white 1 = green
l13vectorGainTBL	l13vectorTBL.3	Aggregate	-	-
l13vectorGainMag	l13vectorGainTBL.1	INTEGER	R/W	0 = ×1 1 = ×5 2 = iqmag
l13vectorColorTBL	l13vectorTBL.4	Aggregate	-	-
l13vectorColorMatrix	l13vectorColorTBL.1	INTEGER	R/W	0 = componen 1 = composite
l13vectorColorFormat	l13vectorColorTBL.2	INTEGER	R/W	0 = auto 1 = ntsc 2 = pal
l13vectorColorSetup	l13vectorColorTBL.3	INTEGER	R/W	0 = p0Per 1 = p7p5Per
l13vectorColorSystemBar	l13vectorColorTBL.4	INTEGER	R/W	0 = p100Per 1 = p75Per
l13vector5barTBL	l13vectorTBL.5	Aggregate	-	-
l13vector5barSequence	l13vector5barTBL.1	INTEGER	R/W	0 = gbr 1 = rgb
l13vector5barScale	l13vector5barTBL.2	INTEGER	R/W	0 = per 1 = mv

- **I13pictureTBL(4) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
I13pictureAdjustTBL	I13pictureTBL.1	Aggregate	-	-
I13pictureAdjustRsignal	I13pictureAdjustTBL.1	INTEGER	R/W	0 = off 1 = on
I13pictureAdjustGsignal	I13pictureAdjustTBL.2	INTEGER	R/W	0 = off 1 = on
I13pictureAdjustBsignal	I13pictureAdjustTBL.3	INTEGER	R/W	0 = off 1 = on
I13pictureAdjustMonoColor	I13pictureAdjustTBL.4	INTEGER	R/W	0 = color 1 = mono
I13pictureAdjustChromaUp	I13pictureAdjustTBL.5	INTEGER	R/W	0 = normal 1 = up
I13pictureDisplayTBL	I13pictureTBL.2	Aggregate	-	-
I13pictureDisplaySize	I13pictureDisplayTBL.1	INTEGER	R/W	0 = fit 1 = real 2 = full-frm 3 = ful-scrn
I13pictureDisplayGamutErr	I13pictureDisplayTBL.2	INTEGER	R/W	0 = off 1 = white 2 = red 3 = mesh
I13pictureDisplayAspectInfo	I13pictureDisplayTBL.3	INTEGER	R/W	0 = on 1 = off

- **I13audioTBL(5) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
I13audioSetupTBL	I13audioTBL.1	Aggregate	-	-
I13audioSetup1st	I13audioSetupTBL.1	INTEGER	R/W	0 = group1 1 = group2 2 = group3 3 = group4
I13audioSetup2nd	I13audioSetupTBL.2	INTEGER	R/W	0 = group1 1 = group2 2 = group3 3 = group4
I13audioExtAes	I13audioSetupTBL.3	INTEGER	R/W	0 = input 1 = output
I13audioMonitor	I13audioSetupTBL.4	INTEGER	R/W	0 = embedded 1 = ext-aes
I13audioErrorTBL	I13audioSetupTBL.5	Aggregate	-	-
I13audioErrorDetectLevel	I13audioErrorTBL.1	INTEGER	R/W	0 = on 1 = off
I13audioErrorDetectClip	I13audioErrorTBL.2	INTEGER	R/W	0 = on 1 = off
I13audioErrorDetectMute	I13audioErrorTBL.3	INTEGER	R/W	0 = on

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				1 = off
l13audioErrorDetectParity	l13audioErrorTBL.4	INTEGER	R/W	0 = on 1 = off
l13audioErrorDetectValidity	l13audioErrorTBL.5	INTEGER	R/W	0 = on 1 = off
l13audioErrorDetectCrc	l13audioErrorTBL.6	INTEGER	R/W	0 = on 1 = off
l13audioErrorDetectCode	l13audioErrorTBL.7	INTEGER	R/W	0 = on 1 = off
l13audioPhonesTBL	l13audioTBL.2	Aggregate	-	-
l13audioPhonesL	l13audioPhonesTBL.1	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16 16 = lt 17 = rt
l13audioPhonesR	l13audioPhonesTBL.2	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16 16 = lt 17 = rt

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13audioDisplay	l13audioTBL.3	INTEGER	R/W	0 = lissajou 1 = image 2 = status
l13audioMeterTBL	l13audioTBL.4	Aggregate	-	-
l13audioMeterDynamic	l13audioMeterTBL.1	INTEGER	R/W	0 = peak60dB 1 = peak90dB
l13audioMeterResponse	l13audioMeterTBL.2	INTEGER	R/W	0 = true-peak 1 = ppm1 2 = ppm2 3 = vu-true 4 = vu-ppm1 5 = vu-ppm2 6 = loudness-f 7 = loudness-s
l13audioMeterHold	l13audioMeterTBL.3	INTEGER	R/W	0 = pkh0p5 1 = pkn1p0 2 = pkn1p5 3 = pkn2p0 4 = pkn2p5 5 = pkn3p0 6 = pkn3p5 7 = pkn4p0 8 = pkn4p5 9 = pkn5p0 10 = pkhhold
l13audioLissajouTBL	l13audioTBL.5	Aggregate	-	-
l13audioLissajouLissajou	l13audioLissajouTBL.1	INTEGER	R/W	0 = single 1 = multi
l13audioLissajouForm	l13audioLissajouTBL.2	INTEGER	R/W	0 = xy 1 = matrix
l13audioLissajouGain	l13audioLissajouTBL.3	INTEGER	R/W	0 = ×1 1 = auto
l13audioLissajouSingleL	l13audioLissajouTBL.4	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				14 = ch15 15 = ch16 16 = lt
l13audioLissajouSingleR	l13audioLissajouTBL.5	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16 17 = rt
l13audioLissajouMultiL1	l13audioLissajouTBL.6	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiR1	l13audioLissajouTBL.7	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiL2	l13audioLissajouTBL.8	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiR2	l13audioLissajouTBL.9	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiL3	l13audioLissajouTBL.10	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiR3	l13audioLissajouTBL.11	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiL4	l13audioLissajouTBL.12	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioLissajouMultiR4	l13audioLissajouTBL.13	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioSurroundTBL	l13audioTBL.6	Aggregate	-	-
l13audioSurroundSurround	l13audioSurroundTBL.1	INTEGER	R/W	1 = normal 2 = phantom-c
l13audioSurroundGain	l13audioSurroundTBL.2	INTEGER	R/W	0 = ×1 1 = auto
l13audioSurroundMapL	l13audioSurroundTBL.3	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioSurroundMapR	l13audioSurroundTBL.4	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				15 = ch16
l13audioSurroundMapC	l13audioSurroundTBL.5	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioSurroundMapLS	l13audioSurroundTBL.7	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioSurroundMapLS	l13audioSurroundTBL.7	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				13 = ch14 14 = ch15 15 = ch16
l13audioSurroundMapRS	l13audioSurroundTBL.8	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioSurroundMapLL	l13audioSurroundTBL.9	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioSurroundMapRR	l13audioSurroundTBL.10	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioStatusTBL	l13audioTBL.7	Aggregate	-	-
l13audioStatusChannel	l13audioStatusTBL.1	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioStatusAlign	l13audioStatusTBL.2	INTEGER	R/W	0 = lsb 1 = msb
l13audioUserTBL	l13audioTBL.8	Aggregate	-	-
l13audioUserChannel	l13audioUserTBL.1	INTEGER	R/W	0 = ch1 1 = ch2 2 = ch3 3 = ch4 4 = ch5 5 = ch6 6 = ch7 7 = ch8 8 = ch9 9 = ch10 10 = ch11 11 = ch12 12 = ch13 13 = ch14 14 = ch15 15 = ch16
l13audioUserAlign	l13audioUserTBL.2	INTEGER	R/W	0 = lsb 1 = msb

- **I13statusTBL(6) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
I13statusEventTBL	I13statusTBL.1	Aggregate	-	-
I13StatusEventLog	I13statusEventTBL.1	INTEGER	R/W	0 = stop 1 = start
I13StatusEventLogMode	I13statusEventTBL.2	INTEGER	R/W	0 = over-wr 1 = stop
I13statusDumpTBL	I13statusTBL.2	Aggregate	-	-
I13StatusDumpMode	I13statusDumpTBL.1	INTEGER	R/W	0 = run 1 = hold
I13StatusDumpDisplay	I13statusDumpTBL.2	INTEGER	R/W	0 = serial 1 = comp
I13StatusDumpDisplayDual	I13statusDumpTBL.3	INTEGER	R/W	0 = link-a 1 = link-b 2 = link-ab
I13StatusDumpJump	I13statusDumpTBL.4	INTEGER	R/W	0 = eav 1 = sav
I13statusErrTBL	I13statusTBL.3	Aggregate	-	-
I13StatusErrDetectTrs	I13statusErrTBL.1	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectLine	I13statusErrTBL.2	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectCrc	I13statusErrTBL.3	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectEdh	I13statusErrTBL.4	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectIllegal	I13statusErrTBL.5	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectCable	I13statusErrTBL.6	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectHdCable	I13statusErrTBL.7	INTEGER	R/W	0 = cableLS5CFB 1 = cable1694A 2 = cableL7CHD
I13StatusErrDetectSdCable	I13statusErrTBL.8	INTEGER	R/W	0 = cableLS5C2V 1 = cable8281 2 = cable1505A
I13StatusErrDetectParity	I13statusErrTBL.9	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectChecksum	I13statusErrTBL.10	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectAudioBch	I13statusErrTBL.11	INTEGER	R/W	0 = off 1 = on
I13StatusErrDetectAudioDbn	I13statusErrTBL.12	INTEGER	R/W	0 = off 1 = on

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13StatusErrDetectAudioParity	l13statusErrTBL.13	INTEGER	R/W	0 = off 1 = on
l13StatusErrDetectAudioInhibit	l13statusErrTBL.14	INTEGER	R/W	0 = off 1 = on
l13StatusErrDetectGamut	l13statusErrTBL.15	INTEGER	R/W	0 = off 1 = on
l13StatusErrDetectCGamut	l13statusErrTBL.16	INTEGER	R/W	0 = off 1 = on
l13StatusErrLevelCGamutSetup	l13statusErrTBL.17	INTEGER	R/W	0 = p0per 1 = p7p5per
l13StatusErrDetectLuma	l13statusErrTBL.19	INTEGER	R/W	0 = off 1 = on

- **l13eyeTBL(7) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13eyeLink	l13eyeTBL.1	INTEGER	R/W	0 = linkA 1 = linkB
l13eyeMode	l13eyeTBL.2	INTEGER	R/W	0 = eye 1 = jitter
l13eyeEyeSetupTBL	l13eyeTBL.3	Aggregate	-	-
l13eyeEyeSetupMeasure	l13eyeEyeSetupTBL.1	INTEGER	R/W	0 = on 1 = off
l13eyeEyeSetupGain	l13eyeEyeSetupTBL.2	INTEGER	R/W	0 = cal 1 = variable
l13eyeEyeSetupSweep	l13eyeEyeSetupTBL.3	INTEGER	R/W	0 = sweep2UI 1 = sweep4UI 2 = sweep16UI
l13eyeEyeSetupFilter	l13eyeEyeSetupTBL.4	INTEGER	R/W	0 = filter100khz 1 = filter1khz 2 = filter100hz 3 = filter10hz 4 = timing 5 = alignment
l13eyeJitterSetupTBL	l13eyeTBL.4	Aggregate	-	-
l13eyeJitterSetupPeak	l13eyeJitterSetupTBL.1	INTEGER	R/W	0 = on 1 = off
l13eyeJitterSetupMag	l13eyeJitterSetupTBL.2	INTEGER	R/W	0 = ×1 1 = ×2 2 = ×8
l13eyeJitterSetupSweep	l13eyeJitterSetupTBL.3	INTEGER	R/W	0 = sweep1H 1 = sweep2H 2 = sweep1V 3 = sweep2V
l13eyeJitterSetupFilter	l13eyeJitterSetupTBL.4	INTEGER	R/W	0 = filter100khz 1 = filter1khz

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				2 = filter100hz 3 = filter10hz 4 = timing 5 = alignment
I13eyeErrTBL	I13eyeTBL.5	Aggregate	-	-
I13eyeErrDetectHdAmplitude	I13eyeErrTBL.1	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectHdRiseTime	I13eyeErrTBL.2	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectHdFallTime	I13eyeErrTBL.3	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectHdDeltaTime	I13eyeErrTBL.4	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectHdTimingJitter	I13eyeErrTBL.5	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectHdCurrentJitter	I13eyeErrTBL.6	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectSdAmplitude	I13eyeErrTBL.7	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectSdRiseTime	I13eyeErrTBL.8	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectSdFallTime	I13eyeErrTBL.9	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectSdDeltaTime	I13eyeErrTBL.10	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectSdTimingJitter	I13eyeErrTBL.11	INTEGER	R/W	0 = on 1 = off
I13eyeErrDetectSdCurrentJitter	I13eyeErrTBL.12	INTEGER	R/W	0 = on 1 = off

- **I13systemTBL(8) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
I13systemSetupTBL	I13systemTBL.1	Aggregate	-	-
I13systemSetupLink	I13systemSetupTBL.1	INTEGER	R/W	0 = linkSingle 1 = linkDual 2 = link2k
I13systemSetupManual	I13systemSetupTBL.2	INTEGER	R/W	0 = auto 1 = manual
I13systemSetupIPsf	I13systemSetupTBL.3	INTEGER	R/W	0 = interlace 1 = segmentedFrame
I13systemSetupOutput	I13systemSetupTBL.4	INTEGER	R/W	0 = outputAB 1 = outputA
I13systemSetupColorSystem	I13systemSetupTBL.5	INTEGER	R/W	0 = gbr 1 = ycbcr
I13systemSetupPixelDepth	I13systemSetupTBL.6	INTEGER	R/W	0 = pixel10bit

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				1 = pixel12bit
l13systemSetupDualScanning	l13systemSetupTBL.7	INTEGER	R/W	0 = scan1080i 1 = scan1080psf 2 = scan1080p
l13systemSetupManualFormat	l13systemSetupTBL.8	INTEGER	R/W	0 = fmt1080I60 1 = fmt1080PSF30 2 = fmt1080I59p94 3 = fmt1080PSF29p97 4 = fmt1080I50 5 = fmt1080PSF25 6 = fmt1080PSF24 7 = fmt1080PSF23p98 8 = fmt1080P30 9 = fmt1080P29p97 10 = fmt1080P25 11 = fmt1080P24 12 = fmt1080P23p98 13 = fmt720P60 14 = fmt720P59p94 15 = fmt720P50 16 = fmt720P30 17 = fmt720P29p97 18 = fmt720P25 19 = fmt720P24 20 = fmt720P23p98 21 = fmt525I59p94 22 = fmt625I50
l13systemDisplayTBL	l13systemTBL.2	Aggregate	-	-
l13systemDisplayAspect	l13systemDisplayTBL.1	INTEGER	R/W	0 = aspect4-3 1 = aspect16-9 2 = aspect16-10
l13systemDisplayTimecode	l13systemDisplayTBL.2	INTEGER	R/W	0 = ltc 1 = vitc 2 = off
l13systemDisplayErrorCounter	l13systemDisplayTBL.3	INTEGER	R/W	0 = on 1 = off
l13systemDisplayFormat	l13systemDisplayTBL.4	INTEGER	R/W	0 = on 1 = off
l13systemDisplayInputInfo	l13systemDisplayTBL.5	INTEGER	R/W	0 = id 1 = channel 2 = off
l13sysSoftwareVersion	l13systemTBL.3	INTEGER	R/O	-

- **l13multiTBL(9) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13multiInput	l13multiTBL.1	INTEGER	R/W	0 = single 1 = dual
l13multiDisplayTBL	l13multiTBL.2	Aggregate	-	-
l13multiDisplaySingle	l13multiDisplayTBL.1	INTEGER	R/W	0 = pic-wfm1 1 = pic-wfm2 2 = p-w-v 3 = p-w-v-a 4 = quad
l13multiDisplayDual	l13multiDisplayTBL.2	INTEGER	R/W	0 = p-w-h 1 = p-w-v 2 = w-v-v
l13multiArea1Sel	l13multiTBL.3	INTEGER	R/W	0 = pic 1 = wfm 2 = vector 3 = audio 4 = status 5 = eye
l13multiArea2Sel	l13multiTBL.4	INTEGER	R/W	0 = pic 1 = wfm 2 = vector 3 = audio 4 = status 5 = eye
l13multiArea3Sel	l13multiTBL.5	INTEGER	R/W	0 = pic 1 = wfm 2 = vector 3 = audio 4 = status 5 = eye
l13multiArea4Sel	l13multiTBL.6	INTEGER	R/W	0 = pic 1 = wfm 2 = vector 3 = audio 4 = status 5 = eye
l13multiSub	l13multiTBL.7	INTEGER	R/W	0 = wfm 1 = histogram
l13multiHistogramTBL	l13multiTBL.8	Aggregate	-	-
l13multiHistogramY	l13multiHistogramTBL.1	INTEGER	R/W	0 = on 1 = off
l13multiHistogramR	l13multiHistogramTBL.2	INTEGER	R/W	0 = on 1 = off
l13multiHistogramG	l13multiHistogramTBL.3	INTEGER	R/W	0 = on 1 = off
l13multiHistogramB	l13multiHistogramTBL.4	INTEGER	R/W	0 = on

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				1 = off
l13multiHistogramForm	l13multiHistogramTBL.5	INTEGER	R/W	0 = luma 1 = parade 2 = overlay

- **l13trapTBL(10) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l13trapStrTBL	l13trapTBL.1	Aggregate	-	-- (Variable Binding List)
l13trapManagerIp	l13trapTBL.2	IpAddress	R/W	IP address of the manager that the trap will be sent to
l13trapID	l13trapTBL.3	INTEGER	R/O	0

15.3.5 Specific Trap

Specific Trap Type	Description	Specific Trap Type	Description
1	Fan stop detection	24	Parity error detection (audio)
2	No signal	25	DBN error detection (audio)
3	Format error	26	INH error detection (audio)
4	No error (at error recovery)	27	SDI delay error detection
10	CRC error detection (luma)	28	LEVEL Y error detection
11	CRC error detection (chroma)	30	Amplitude error detection (eye: HD)
12	EDH error detection	31	Rise time error detection (eye: HD)
13	TRS error detection (pos)	32	Fall time error detection (eye: HD)
14	TRS error detection (code)	33	Delta time error detection (eye: HD)
15	Reserved area error detection	34	Timing jitter error detection (eye: HD)
16	Line number error detection	35	Current jitter error detection (eye: HD)
17	Equivalent cable length measurement error detection	36	Amplitude error detection (eye: SD)
18	Equivalent cable length measurement warning detection	37	Rise time error detection (eye: SD)
19	Checksum error detection	38	Fall time error detection (eye: SD)
20	Parity error detection	39	Delta time error detection (eye: SD)
21	Gamut error detection	40	Timing jitter error detection (eye: SD)
22	Composite gamut error detection	41	Current jitter error detection (eye: SD)
23	BCH error detection		

15.3.6 Variable Binding List

- **index 1**

  OID: leader(20111).LV7380(13).lv7380ST1(1).trapTBL(10).trapStrTBL(1).1.0
  Syntax: Counter
  Range: 1 to 4294967295 (overflow occurs if this range is exceeded)
  Description: The total number of enterprise traps sent after starting up

- **index 2**

  OID: leader(20111).LV7380(13).lv7380ST1(1).trapTBL(10).trapStrTBL(1).2.0
  Syntax: Octet String
  Range: Up to 40 characters
  Description: Date/time when the error occurred and line information
  YYYY/MM/DD hh:mm:ss sdi (example: 2004/07/15 11:30:11 A)
  YYYY = year, MM = month, DD = day, hh = hour, mm = minute, ss = second,
  sdi = SDI input (A or B)

- **index 3**

  OID: leader(20111).LV7380(13).lv7380ST1(1).trapTBL(10).trapStrTBL(1).3.0
  Syntax: Octet String
  Range: Up to 40 characters
  Description: Format information (see the table below)

  Table 15-5 List of formats

Display	Description
1080i/60	1080i/60; single
1080sF/30	1080sF/30; single
1080i/59.94	1080i/59.94; single
1080sF/29.97	1080sF/29.97; single
1080i/50	1080i/50; single
1080sF/25	1080sF/25; single
1080sF/24	1080sF/24; single
1080sF/23.98	1080sF/23.98; single
1080p/30	1080p/30; single
1080p/29.97	1080p/29.97; single
1080p/25	1080p/25; single
1080p/24	1080p/24; single
1080p/23.98	1080p/23.98; single
720p/60	720p/60; single
720p/59.94	720p/59.94; single
720p/50	720p/50; single
720p/30	720p/30; single
720p/29.97	720p/29.97; single
720p/25	720p/25; single
720p/24	720p/24; single
720p/23.98	720p/23.98; single
525i/59.94	525i/59.94; single
625i/50	625i/50; single
FORMAT_UNKNOWN	Unknown format
NO_SIGNAL	No signal
1080i/60 DUAL	1080i/60 GBR (444); 10 bits
1080sF/30 DUAL	1080sF/30 GBR (444); 10 bits
1080i/59.94 DUAL	1080i/59.94 GBR (444); 10 bits
1080sF/29.97 DUAL	1080sF/29.97 GBR (444); 10 bits
1080i/50 DUAL	1080i/50 GBR (444); 10 bits
1080sF/25 DUAL	1080sF/25 GBR (444); 10 bits
1080sF/24 DUAL	1080sF/24 GBR (444); 10 bits
1080sF/23.98 DUAL	1080sF/23.98 GBR (444); 10 bits
1080p/30 DUAL	1080p/30 GBR (444); 10 bits
1080p/29.97 DUAL	1080p/29.97 GBR (444); 10 bits
1080p/25 DUAL	1080p/25 GBR (444); 10 bits
1080p/24 DUAL	1080p/24 GBR (444); 10 bits
1080p/23.98 DUAL	1080p/23.98 GBR (444); 10 bits

Display	Description
1080i/60 DUAL	1080i/60 GBR (444); 12 bits
1080sF/30 DUAL	1080sF/30 GBR (444); 12 bits
1080i/59.94 DUAL	1080i/59.94 GBR (444); 12 bits
1080sF/29.97 DUAL	1080sF/29.97 GBR (444); 12 bits
1080i/50 DUAL	1080i/50 GBR (444); 12 bits
1080sF/25 DUAL	1080sF/25 GBR (444); 12 bits
1080sF/24 DUAL	1080sF/24 GBR (444); 12 bits
1080sF/23.98 DUAL	1080sF/23.98 GBR (444); 12 bits
1080p/30 DUAL	1080p/30 GBR (444); 12 bits
1080p/29.97 DUAL	1080p/29.97 GBR (444); 12 bits
1080p/25 DUAL	1080p/25 GBR (444); 12 bits
1080p/24 DUAL	1080p/24 GBR (444); 12 bits
1080p/23.98 DUAL	1080p/23.98 GBR (444); 12 bits
1080p/60 DUAL	1080p/60 YCbCr (422); 10 bits
1080p/59.94 DUAL	1080p/59.94 YCbCr (422); 10 bits
1080p/50 DUAL	1080p/50 YCbCr (422); 10 bits
1080p/30 DUAL	1080p/30 YCbCr (422); 12 bits
1080p/29.97 DUAL	1080p/29.97 YCbCr (422); 12 bits
1080p/25 DUAL	1080p/25 YCbCr (422); 12 bits
1080p/24 DUAL	1080p/24 YCbCr (422); 12 bits
1080p/23.98 DUAL	1080p/23.98 YCbCr (422); 12 bits
1080i/60 DUAL	1080i/60 YCbCr (422); 12 bits
1080sF/30 DUAL	1080sF/30 YCbCr (422); 12 bits
1080i/59.94 DUAL	1080i/59.94 YCbCr (422); 12 bits
1080sF/29.97 DUAL	1080sF/29.97 YCbCr (422); 12 bits
1080i/50 DUAL	1080i/50 YCbCr (422); 12 bits
1080sF/25 DUAL	1080sF/25 YCbCr (422); 12 bits
1080sF/24 DUAL	1080sF/24 YCbCr (422); 12 bits
1080sF/23.98 DUAL	1080sF/23.98 YCbCr (422); 12 bits
1080sF/24 DUAL	1080sF/24 GBR_2K
1080sF/23.98 DUAL	1080sF/23.98 GBR_2K
1080p/24 DUAL	1080p/24 GBR_2K
1080p/23.98 DUAL	1080p/23.98 GBR_2K

- **index 4**

  OID: leader(20111).LV7380(13).lv7380ST1(1).trapTBL(11).trapStrTBL(1).4.0
  Syntax: Octet String
  Range: Up to 40 characters
  Description: Error information (see the table below)

Table 15-6 List of TRAP errors

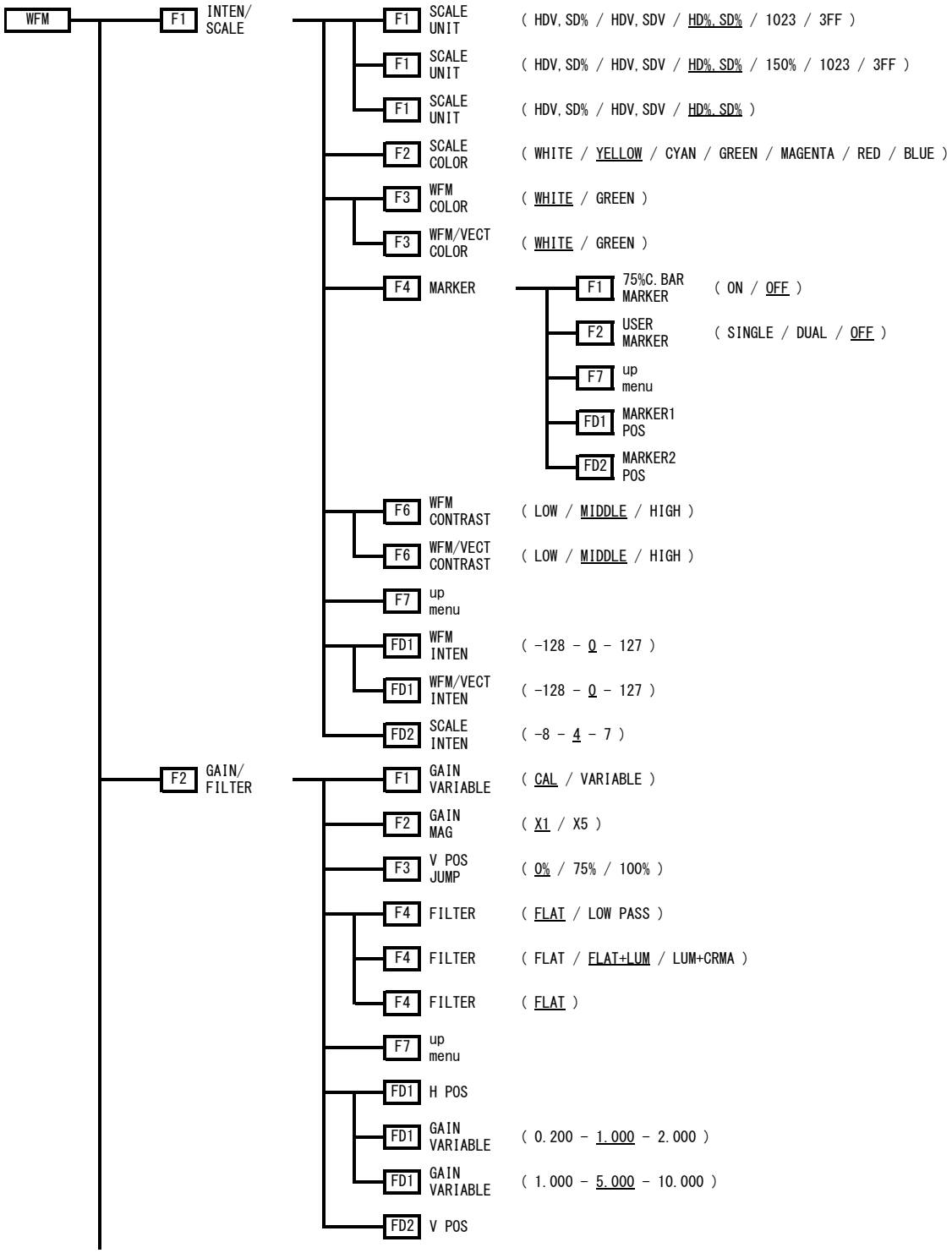
Display	Description
FAN_STOP1	Fan stop detection
FAN_STOP2	Fan stop detection
NO_SIGNAL	No signal
FORMAT_UNKNOWN	Format error
CRC_Y_ERR	CRC error detection (luma)
CRC_C_ERR	CRC error detection (chroma)
EDH_ERR	EDH error detection
TRS_P_ERR	TRS error detection (pos)
TRS_C_ERR	TRS error detection (code)
ILLEGAL_ERR	Reserved area error detection
LINE_ERR	Line number error detection
CABLE_ERR	Equivalent cable length measurement error detection
CABLE_WAR	Equivalent cable length measurement warning detection
CHK_ERR	Checksum error detection
PRTY_ERR	Parity error detection
GMUT_ERR	Gamut error detection
CGMUT_ERR	Composite gamut error detection
A_BCH_ERR	BCH error detection
A_PRTY_ERR	Parity error detection (audio)
A_DBN_ERR	DBN error detection (audio)
A_INH_ERR	INH error detection (audio)
SDI_DELAY_ERR	SDI delay error detection
LUMA_ERR	Luminance error detection
EYE_HD_AMP_ERR	Amplitude error detection (eye: HD)
EYE_HD_TR_ERR	Rise time error detection (eye: HD)
EYE_HD_TF_ERR	Fall time error detection (eye: HD)
EYE_HD_TR_TF_ERR	Delta time error detection (eye: HD)
EYE_HD_T_JIT_ERR	Timing jitter error detection (eye: HD)
EYE_HD_A_JIT_ERR	Current jitter error detection (eye: HD)
EYE_SD_AMP_ERR	Amplitude error detection (eye: SD)
EYE_SD_TR_ERR	Rise time error detection (eye: SD)
EYE_SD_TF_ERR	Fall time error detection (eye: SD)
EYE_SD_TR_TF_ERR	Delta time error detection (eye: SD)
EYE_SD_T_JIT_ERR	Timing jitter error detection (eye: SD)
EYE_SD_A_JIT_ERR	Current jitter error detection (eye: SD)

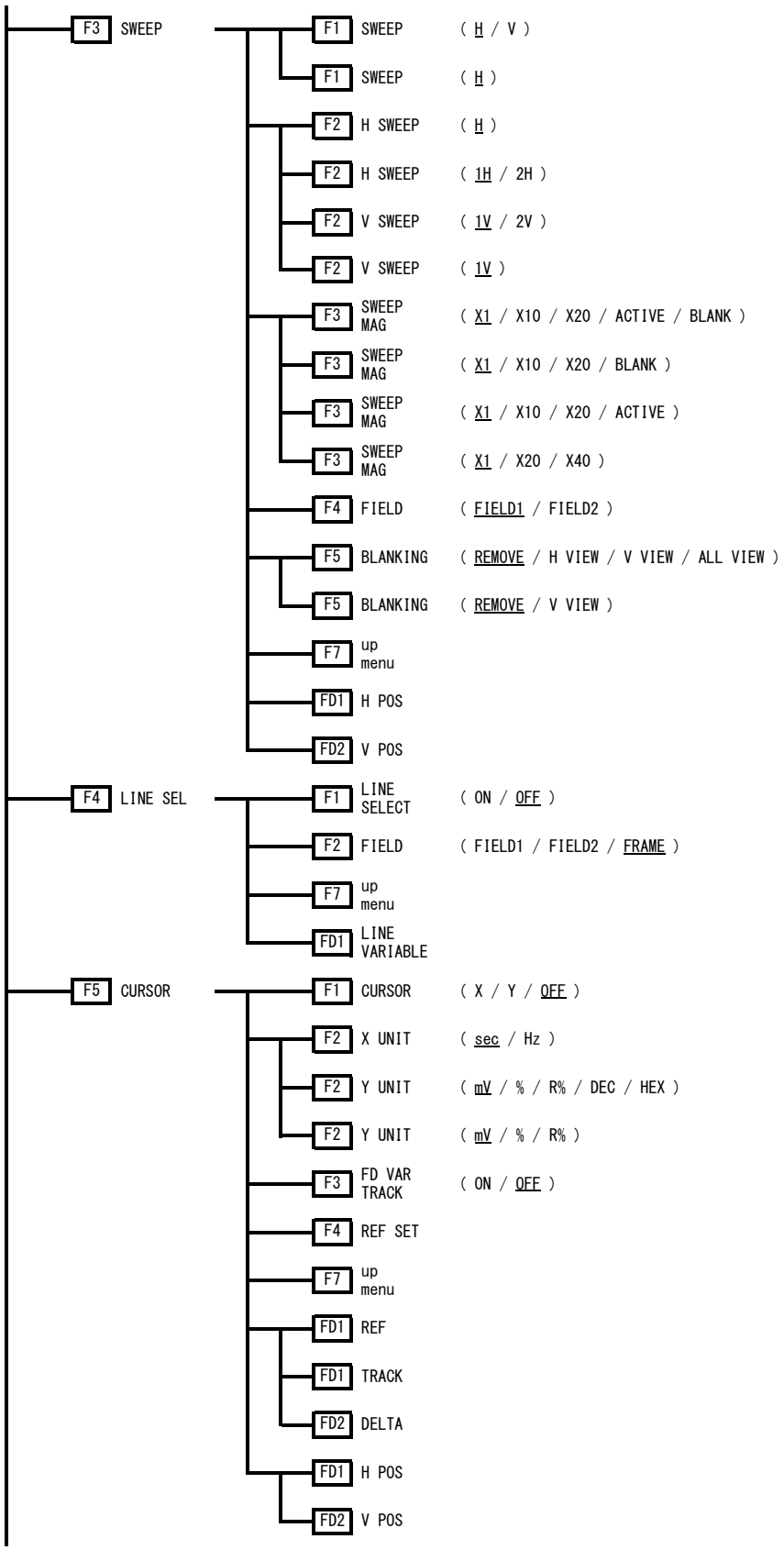
16. APPENDIX

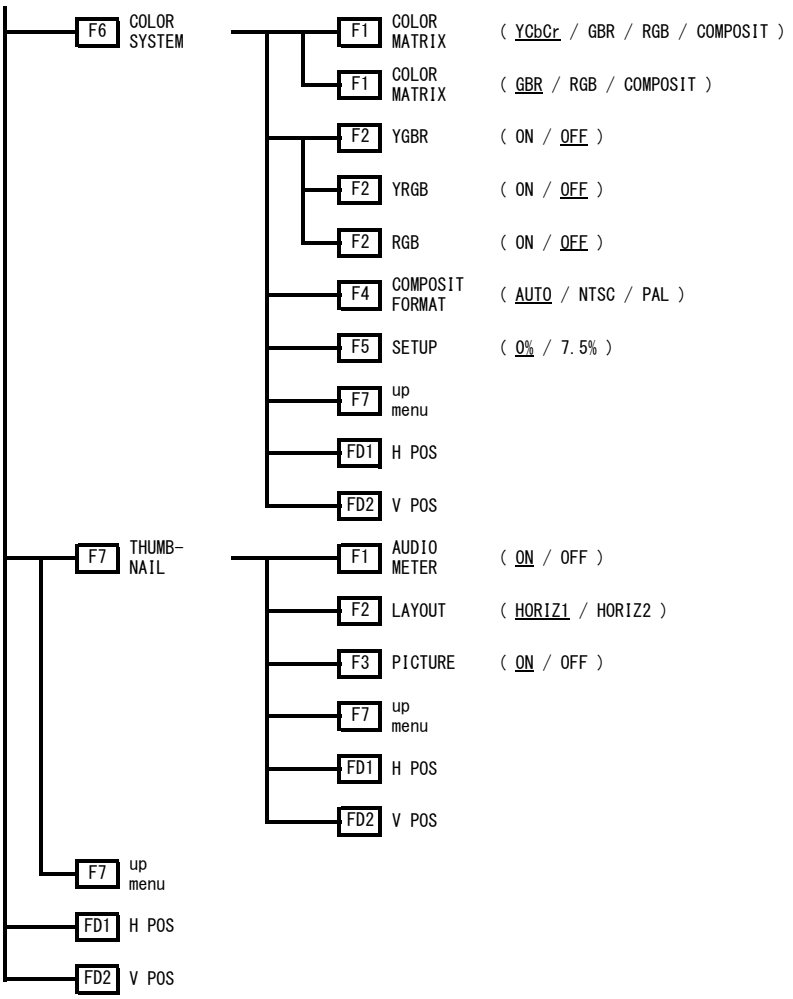
16.1 Menu Trees

The menu structures are indicated below. The default values are underlined.
The menus that are displayed vary depending on the LV 7380 settings and whether a USB memory device is connected to the LV 7380.

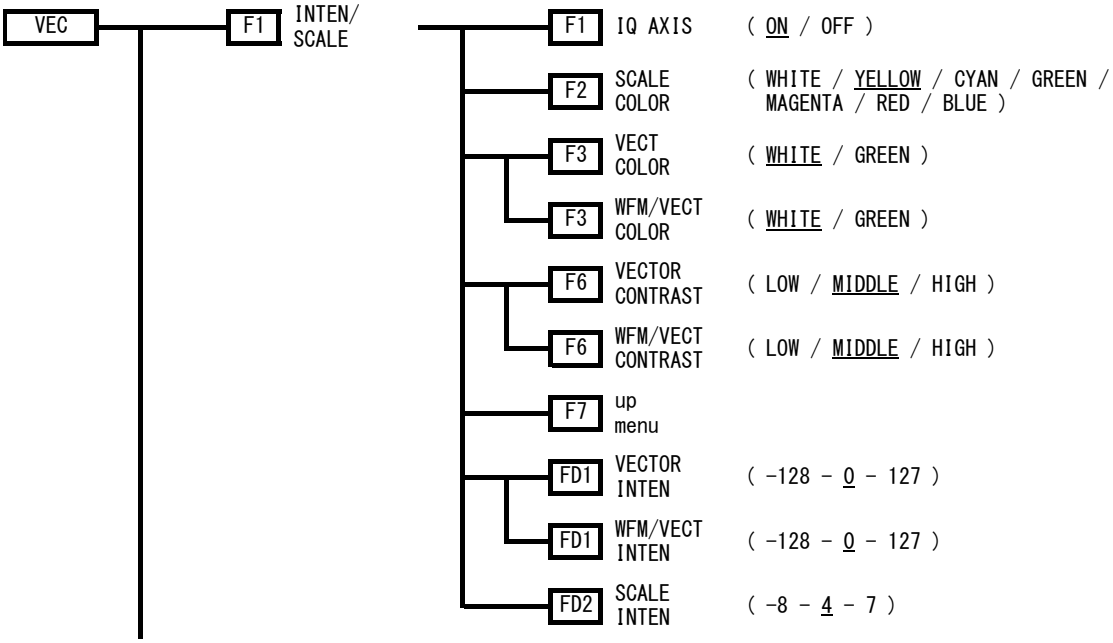
16.1.1 Video Signal Waveform Menu

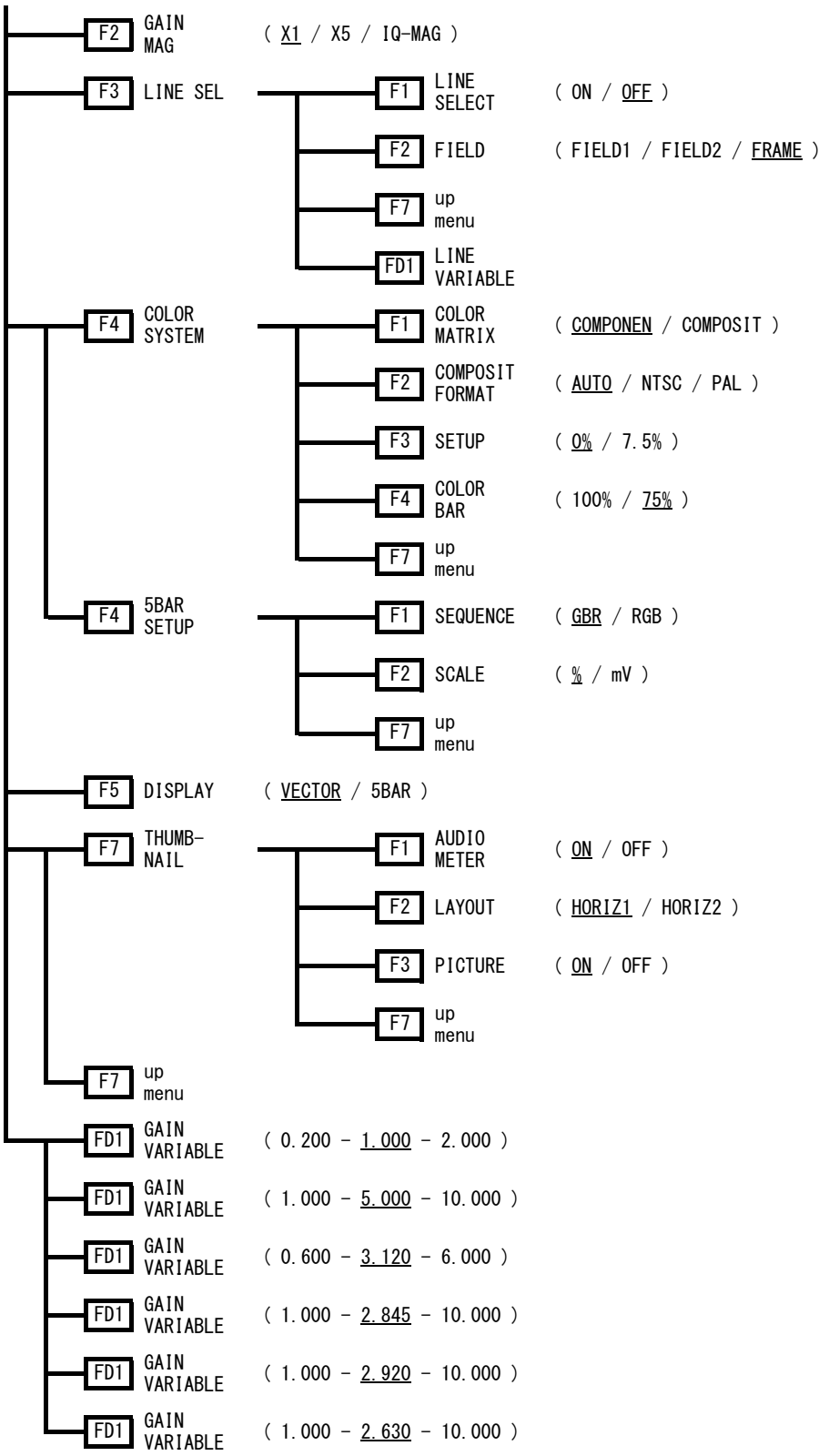



F3 SWEEP
F1 SWEEP (H / V)
F1 SWEEP (H)
F2 H SWEEP (H)
F2 H SWEEP (1H / 2H)
F2 V SWEEP (1V / 2V)
F2 V SWEEP (1V)
F3 SWEEP MAG (X1 / X10 / X20 / ACTIVE / BLANK)
F3 SWEEP MAG (X1 / X10 / X20 / BLANK)
F3 SWEEP MAG (X1 / X10 / X20 / ACTIVE)
F3 SWEEP MAG (X1 / X20 / X40)
F4 FIELD (FIELD1 / FIELD2)
F5 BLANKING (REMOVE / H VIEW / V VIEW / ALL VIEW)
F5 BLANKING (REMOVE / V VIEW)
F7 up menu
FD1 H POS
FD2 V POS
F4 LINE SEL
F1 LINE SELECT (ON / OFF)
F2 FIELD (FIELD1 / FIELD2 / FRAME)
F7 up menu
FD1 LINE VARIABLE
F5 CURSOR
F1 CURSOR (X / Y / OFF)
F2 X UNIT (sec / Hz)
F2 Y UNIT (mV / % / R% / DEC / HEX)
F2 Y UNIT (mV / % / R%)
F3 FD VAR TRACK (ON / OFF)
F4 REF SET
F7 up menu
FD1 REF
FD1 TRACK
FD2 DELTA
FD1 H POS
FD2 V POS

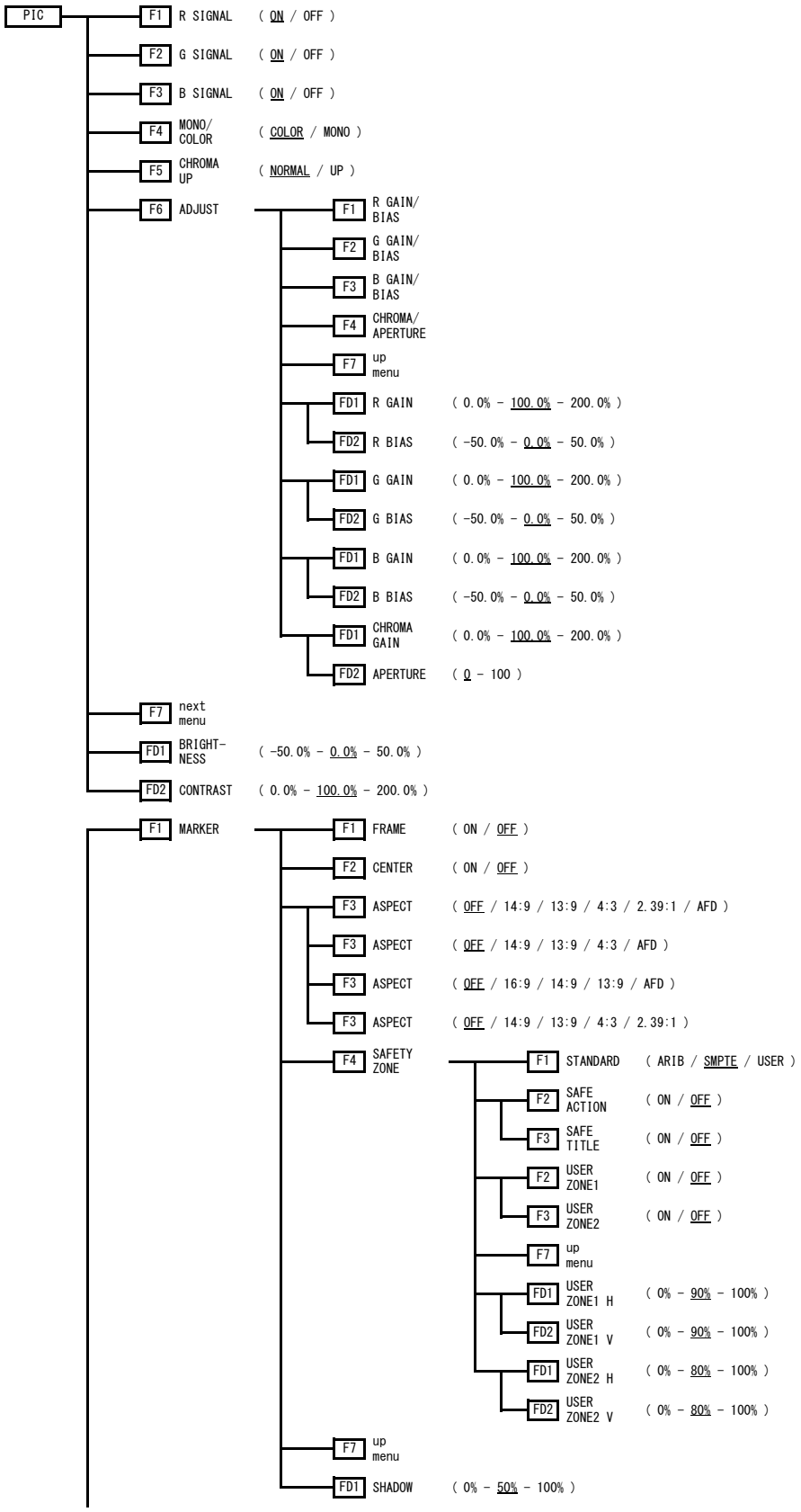


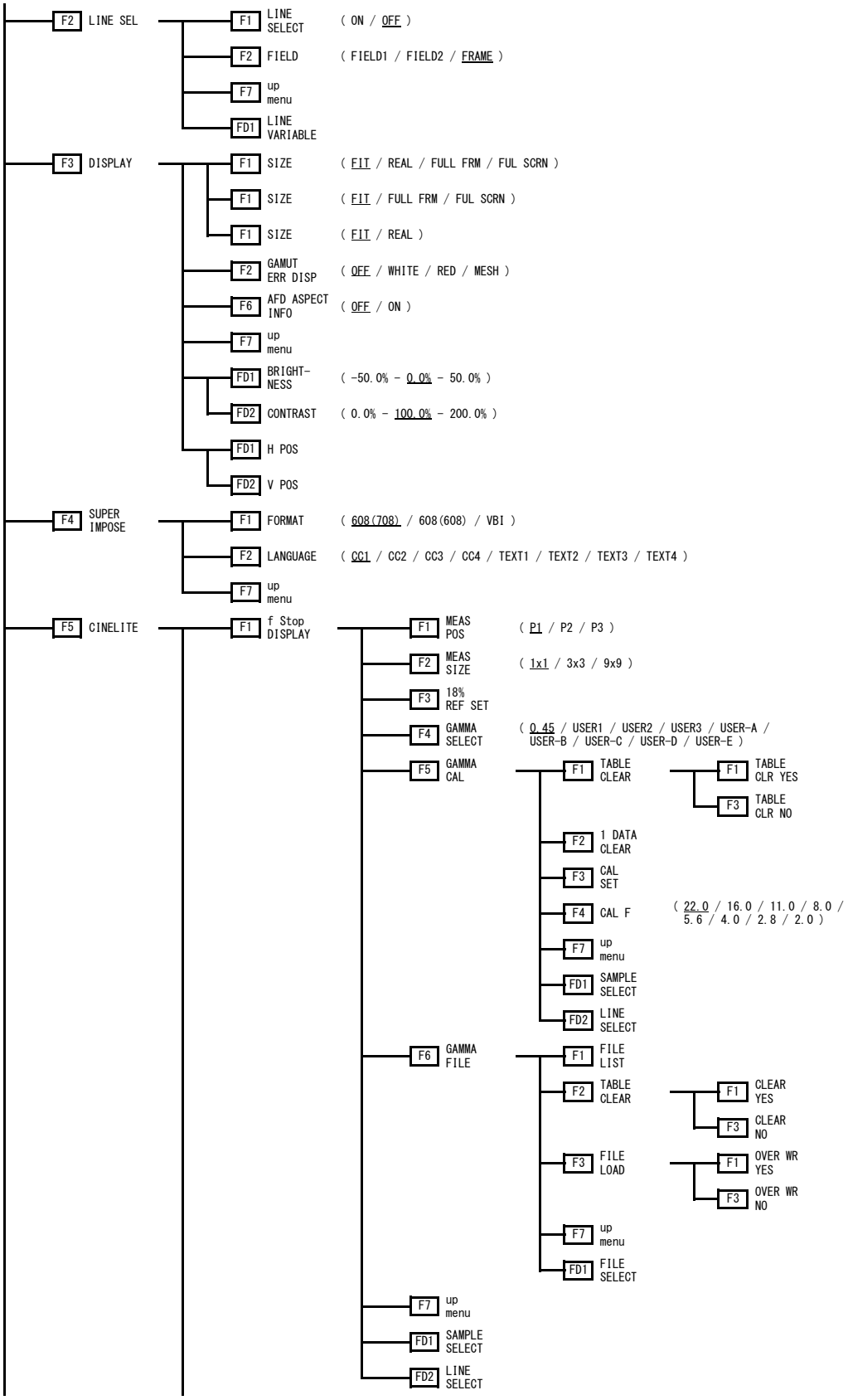
16.1.2 Vector Menu

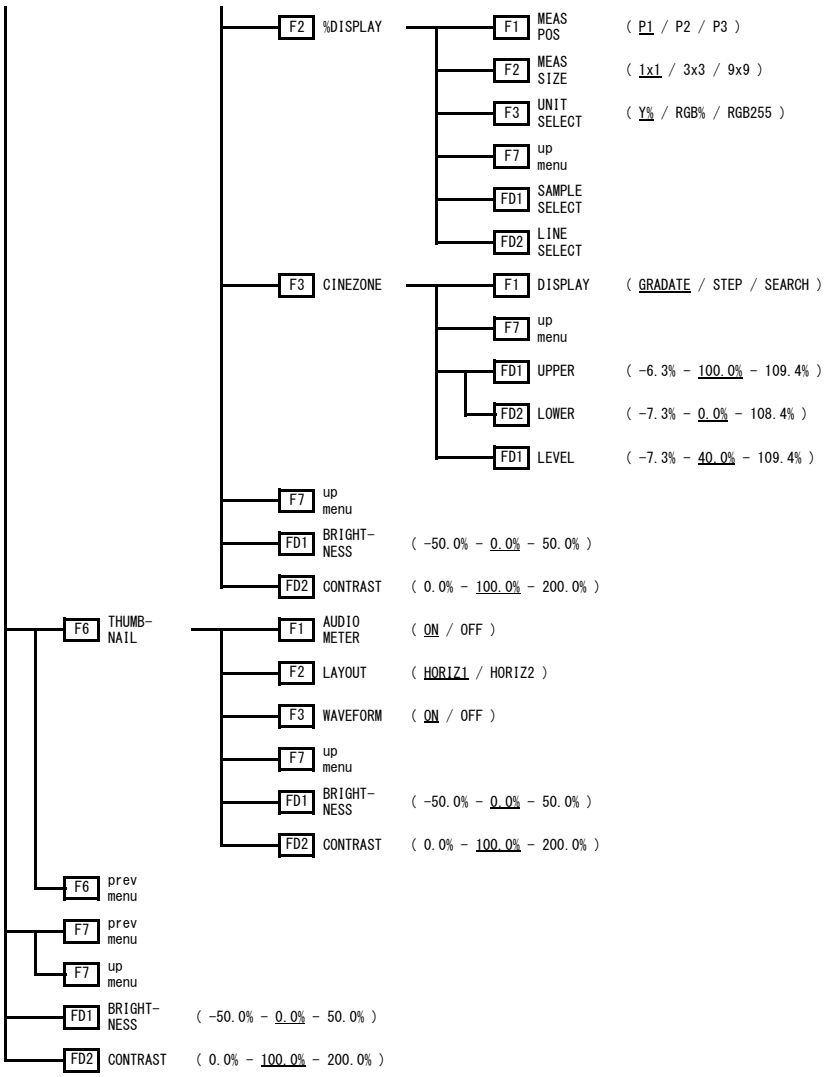



F2 GAIN MAG
(X1 / X5 / IQ-MAG)
F3 LINE SEL
F1 LINE SELECT
(ON / OFF)
F2 FIELD
(FIELD1 / FIELD2 / FRAME)
F7 up menu
FD1 LINE VARIABLE
F4 COLOR SYSTEM
F1 COLOR MATRIX
(COMPONEN / COMPOSIT)
F2 COMPOSIT FORMAT
(AUTO / NTSC / PAL)
F3 SETUP
(0% / 7.5%)
F4 COLOR BAR
(100% / 75%)
F7 up menu
F4 5BAR SETUP
F1 SEQUENCE
(GBR / RGB)
F2 SCALE
(% / mV)
F7 up menu
F5 DISPLAY
(VECTOR / 5BAR)
F7 THUMB-NAIL
F1 AUDIO METER
(ON / OFF)
F2 LAYOUT
(HORIZ1 / HORIZ2)
F3 PICTURE
(ON / OFF)
F7 up menu
F7 up menu
FD1 GAIN VARIABLE
(0.200 - 1.000 - 2.000)
FD1 GAIN VARIABLE
(1.000 - 5.000 - 10.000)
FD1 GAIN VARIABLE
(0.600 - 3.120 - 6.000)
FD1 GAIN VARIABLE
(1.000 - 2.845 - 10.000)
FD1 GAIN VARIABLE
(1.000 - 2.920 - 10.000)
FD1 GAIN VARIABLE
(1.000 - 2.630 - 10.000)

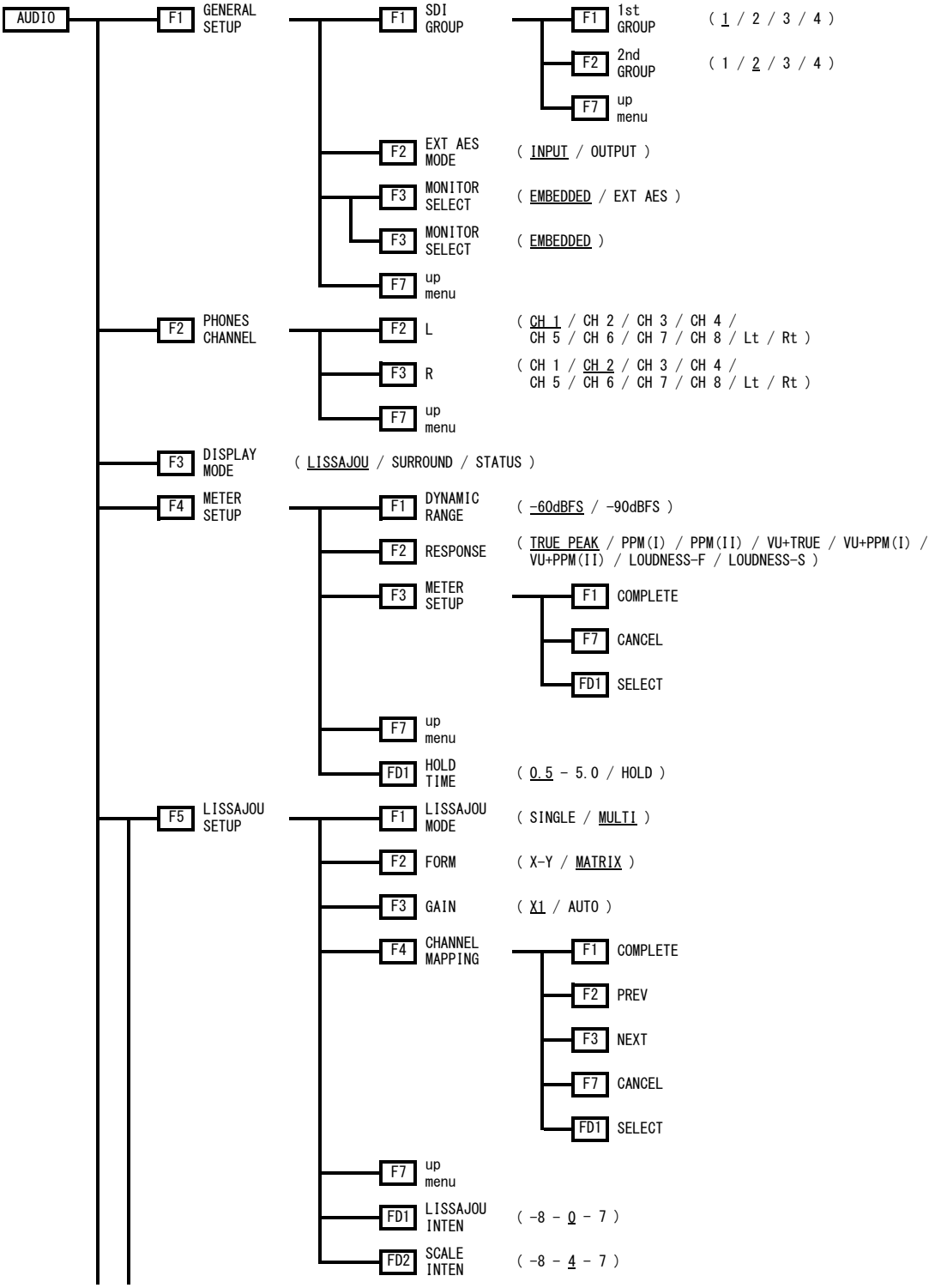
16.1.3 Picture Menu

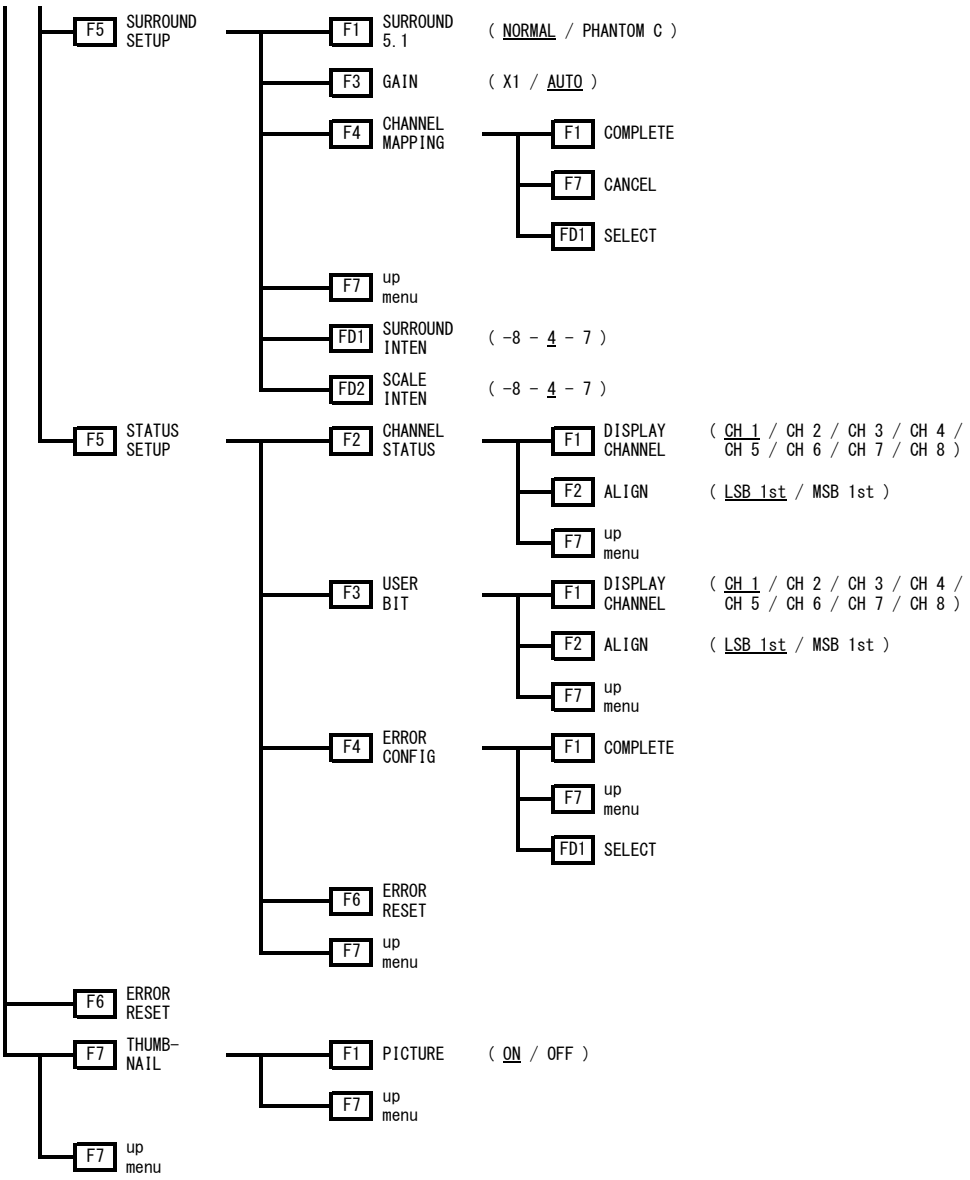



F2 LINE SEL
F1 LINE SELECT (ON / OFF)
F2 FIELD (FIELD1 / FIELD2 / FRAME)
F7 up menu
FD1 LINE VARIABLE
F3 DISPLAY
F1 SIZE (FIT / REAL / FULL FRM / FUL SCRN)
F1 SIZE (FIT / FULL FRM / FUL SCRN)
F1 SIZE (FIT / REAL)
F2 GAMUT ERR DISP (OFF / WHITE / RED / MESH)
F6 AFD ASPECT INFO (OFF / ON)
F7 up menu
FD1 BRIGHT-NESS (-50.0% - 0.0% - 50.0%)
FD2 CONTRAST (0.0% - 100.0% - 200.0%)
FD1 H POS
FD2 V POS
F4 SUPER IMPOSE
F1 FORMAT (608(708) / 608(608) / VBI)
F2 LANGUAGE (CC1 / CC2 / CC3 / CC4 / TEXT1 / TEXT2 / TEXT3 / TEXT4)
F7 up menu
F5 CINELITE
F1 f Stop DISPLAY
F1 MEAS POS (P1 / P2 / P3)
F2 MEAS SIZE (1x1 / 3x3 / 9x9)
F3 18% REF SET
F4 GAMMA SELECT (0.45 / USER1 / USER2 / USER3 / USER-A / USER-B / USER-C / USER-D / USER-E)
F5 GAMMA CAL
F1 TABLE CLEAR
F1 TABLE CLR YES
F3 TABLE CLR NO
F2 1 DATA CLEAR
F3 CAL SET
F4 CAL F (22.0 / 16.0 / 11.0 / 8.0 / 5.6 / 4.0 / 2.8 / 2.0)
F7 up menu
FD1 SAMPLE SELECT
FD2 LINE SELECT
F6 GAMMA FILE
F1 FILE LIST
F2 TABLE CLEAR
F1 CLEAR YES
F3 CLEAR NO
F3 FILE LOAD
F1 OVER WR YES
F3 OVER WR NO
F7 up menu
FD1 FILE SELECT
F7 up menu
FD1 SAMPLE SELECT
FD2 LINE SELECT

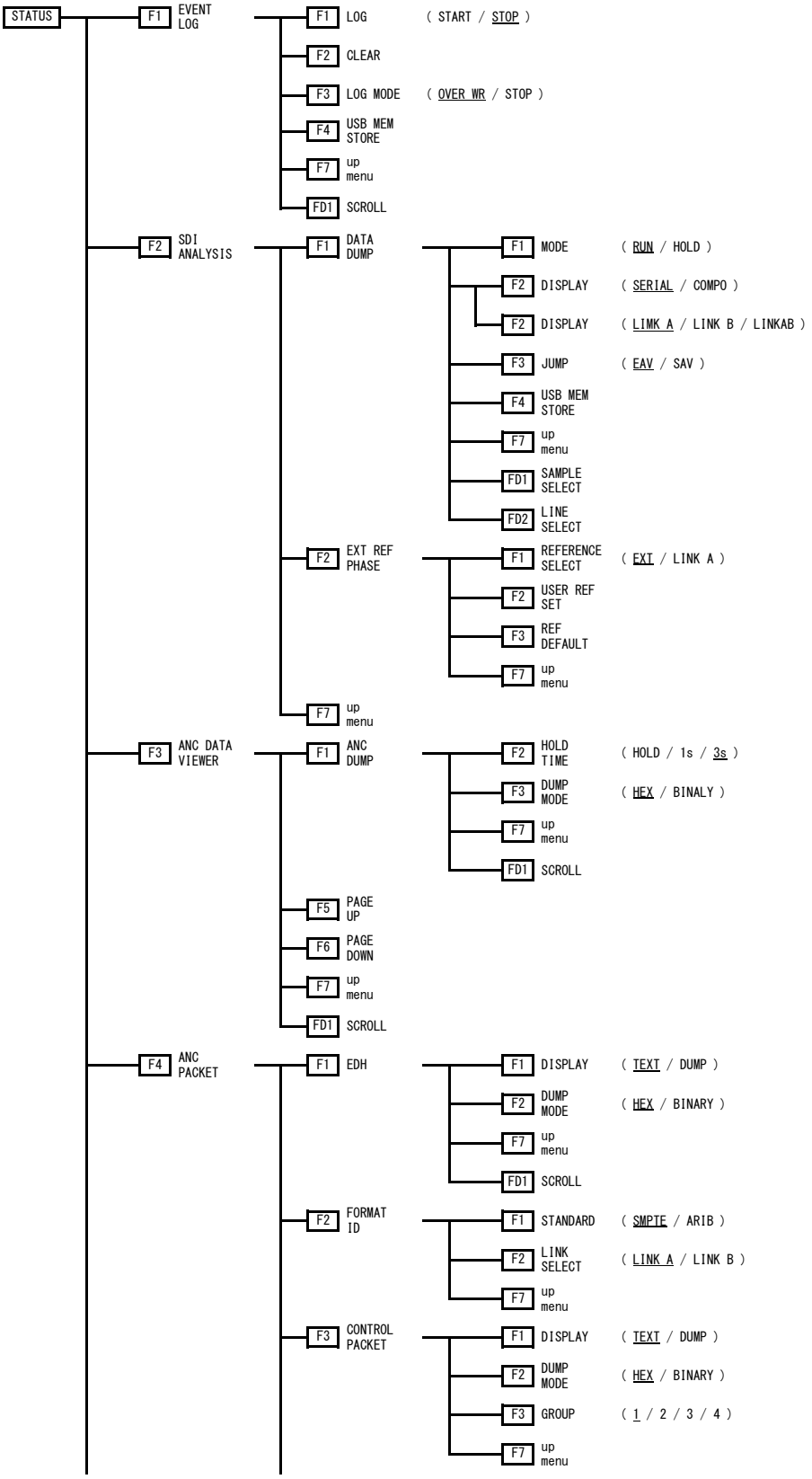

F2 %DISPLAY
F1 MEAS POS (P1 / P2 / P3)
F2 MEAS SIZE (1x1 / 3x3 / 9x9)
F3 UNIT SELECT (Y% / RGB% / RGB255)
F7 up menu
FD1 SAMPLE SELECT
FD2 LINE SELECT
F3 CINEZONE
F1 DISPLAY (GRADATE / STEP / SEARCH)
F7 up menu
FD1 UPPER (-6.3% - 100.0% - 109.4%)
FD2 LOWER (-7.3% - 0.0% - 108.4%)
FD1 LEVEL (-7.3% - 40.0% - 109.4%)
F7 up menu
FD1 BRIGHT-NESS (-50.0% - 0.0% - 50.0%)
FD2 CONTRAST (0.0% - 100.0% - 200.0%)
F6 THUMB-NAIL
F1 AUDIO METER (ON / OFF)
F2 LAYOUT (HORIZ1 / HORIZ2)
F3 WAVEFORM (ON / OFF)
F7 up menu
FD1 BRIGHT-NESS (-50.0% - 0.0% - 50.0%)
FD2 CONTRAST (0.0% - 100.0% - 200.0%)
F6 prev menu
F7 prev menu
F7 up menu
FD1 BRIGHT-NESS (-50.0% - 0.0% - 50.0%)
FD2 CONTRAST (0.0% - 100.0% - 200.0%)

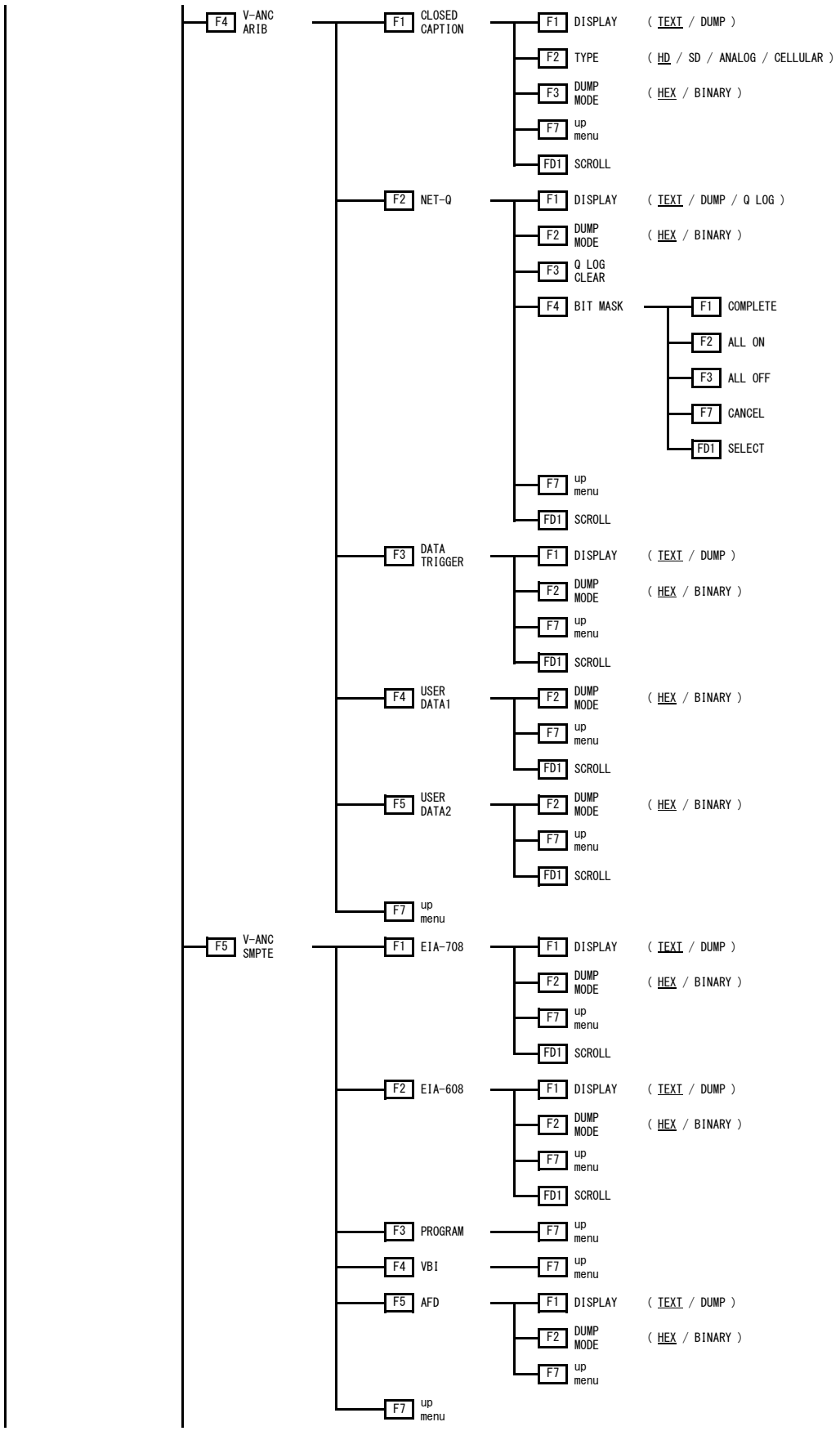
16.1.4 Audio Menu

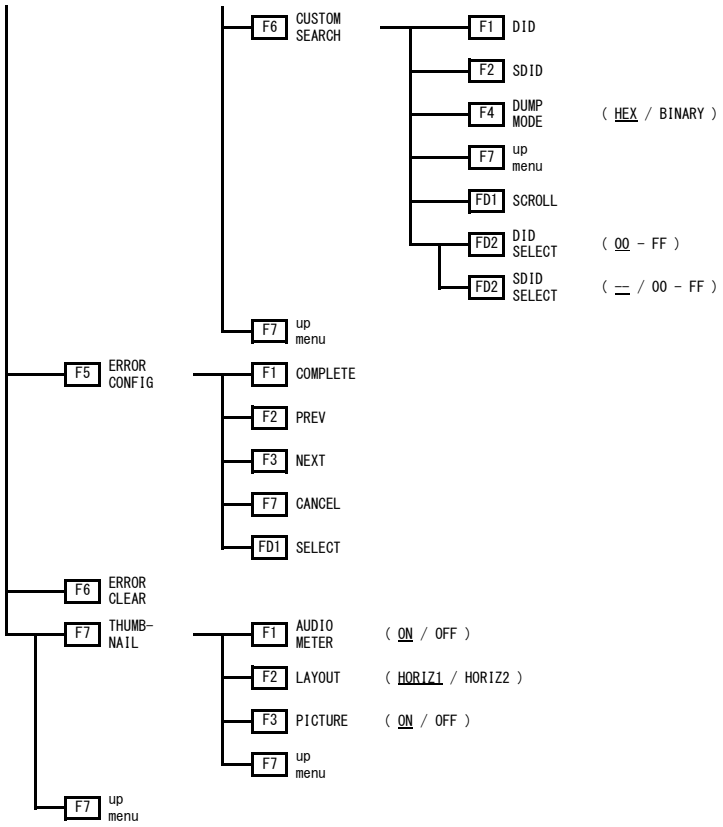



F5 SURROUND SETUP
F1 SURROUND 5.1 (NORMAL / PHANTOM C)
F3 GAIN (X1 / AUTO)
F4 CHANNEL MAPPING
F1 COMPLETE
F7 CANCEL
FD1 SELECT
F7 up menu
FD1 SURROUND INTEN (-8 - 4 - 7)
FD2 SCALE INTEN (-8 - 4 - 7)
F5 STATUS SETUP
F2 CHANNEL STATUS
F1 DISPLAY CHANNEL (CH 1 / CH 2 / CH 3 / CH 4 / CH 5 / CH 6 / CH 7 / CH 8)
F2 ALIGN (LSB 1st / MSB 1st)
F7 up menu
F3 USER BIT
F1 DISPLAY CHANNEL (CH 1 / CH 2 / CH 3 / CH 4 / CH 5 / CH 6 / CH 7 / CH 8)
F2 ALIGN (LSB 1st / MSB 1st)
F7 up menu
F4 ERROR CONFIG
F1 COMPLETE
F7 up menu
FD1 SELECT
F6 ERROR RESET
F7 up menu
F6 ERROR RESET
F7 THUMB-NAIL
F1 PICTURE (ON / OFF)
F7 up menu
F7 up menu

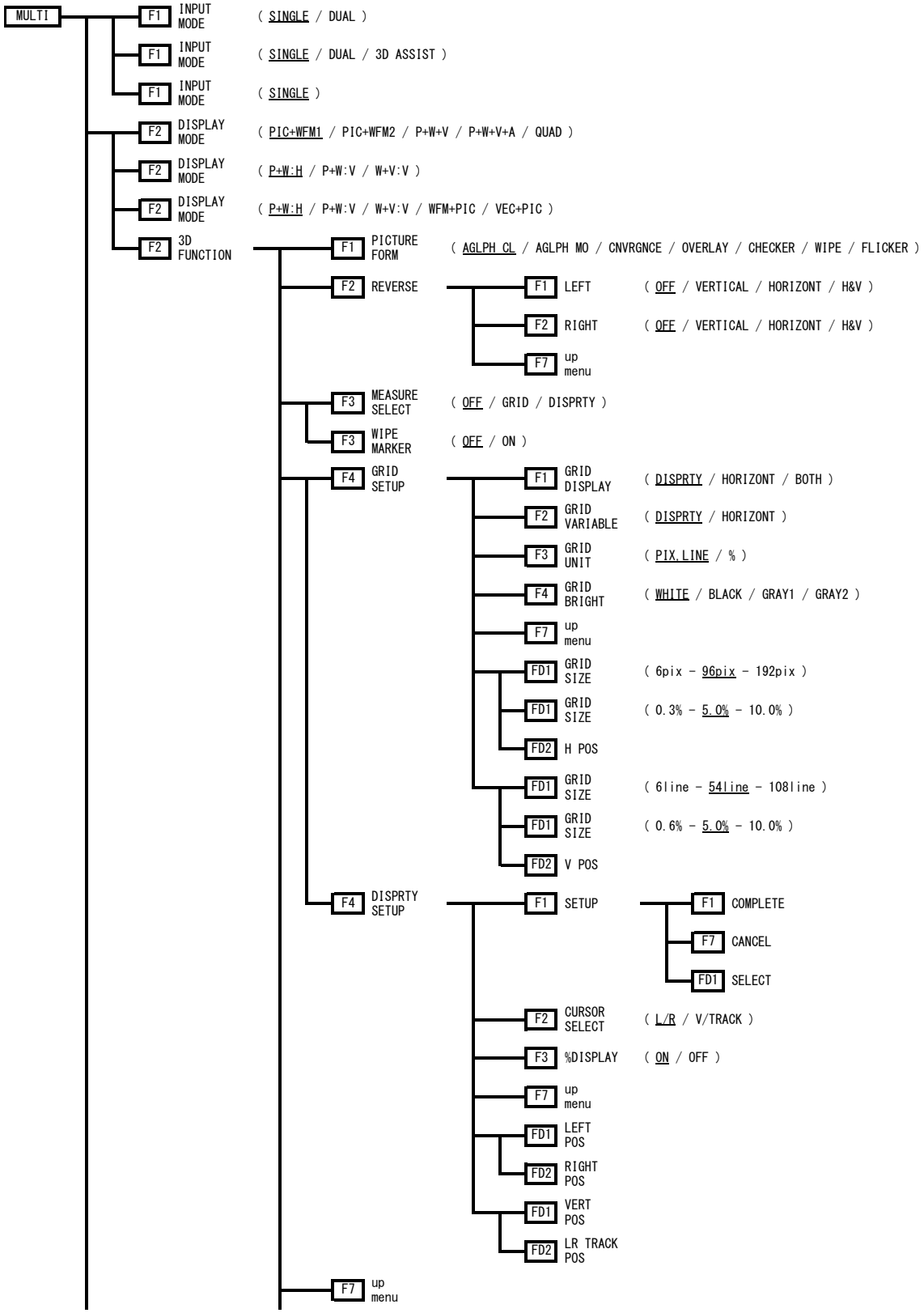
16.1.5 Status Menu

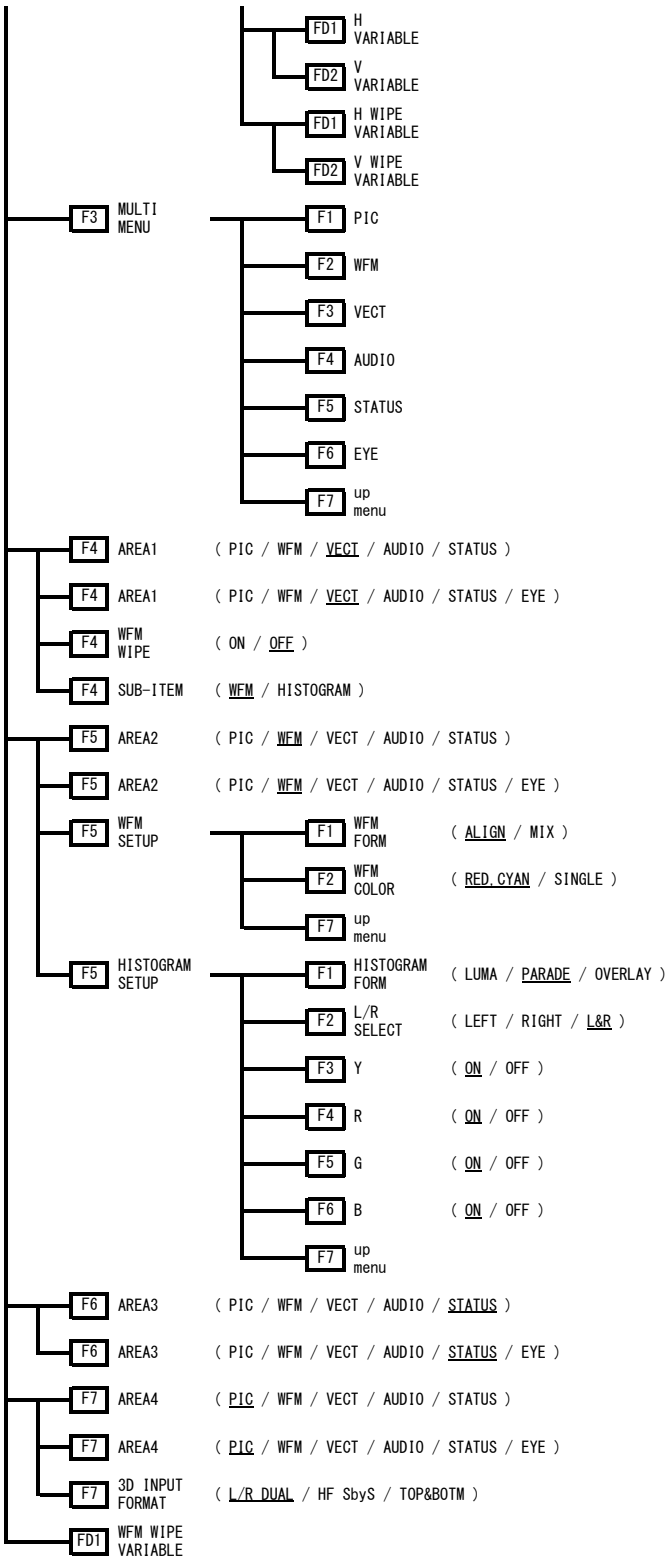



F4 V-ANC ARIB
F1 CLOSED CAPTION
F1 DISPLAY (TEXT / DUMP)
F2 TYPE (HD / SD / ANALOG / CELLULAR)
F3 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
F2 NET-Q
F1 DISPLAY (TEXT / DUMP / Q LOG)
F2 DUMP MODE (HEX / BINARY)
F3 Q LOG CLEAR
F4 BIT MASK
F1 COMPLETE
F2 ALL ON
F3 ALL OFF
F7 CANCEL
FD1 SELECT
F7 up menu
FD1 SCROLL
F3 DATA TRIGGER
F1 DISPLAY (TEXT / DUMP)
F2 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
F4 USER DATA1
F2 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
F5 USER DATA2
F2 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
F7 up menu
F5 V-ANC SMPTE
F1 EIA-708
F1 DISPLAY (TEXT / DUMP)
F2 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
F2 EIA-608
F1 DISPLAY (TEXT / DUMP)
F2 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
F3 PROGRAM
F7 up menu
F4 VBI
F7 up menu
F5 AFD
F1 DISPLAY (TEXT / DUMP)
F2 DUMP MODE (HEX / BINARY)
F7 up menu
F7 up menu

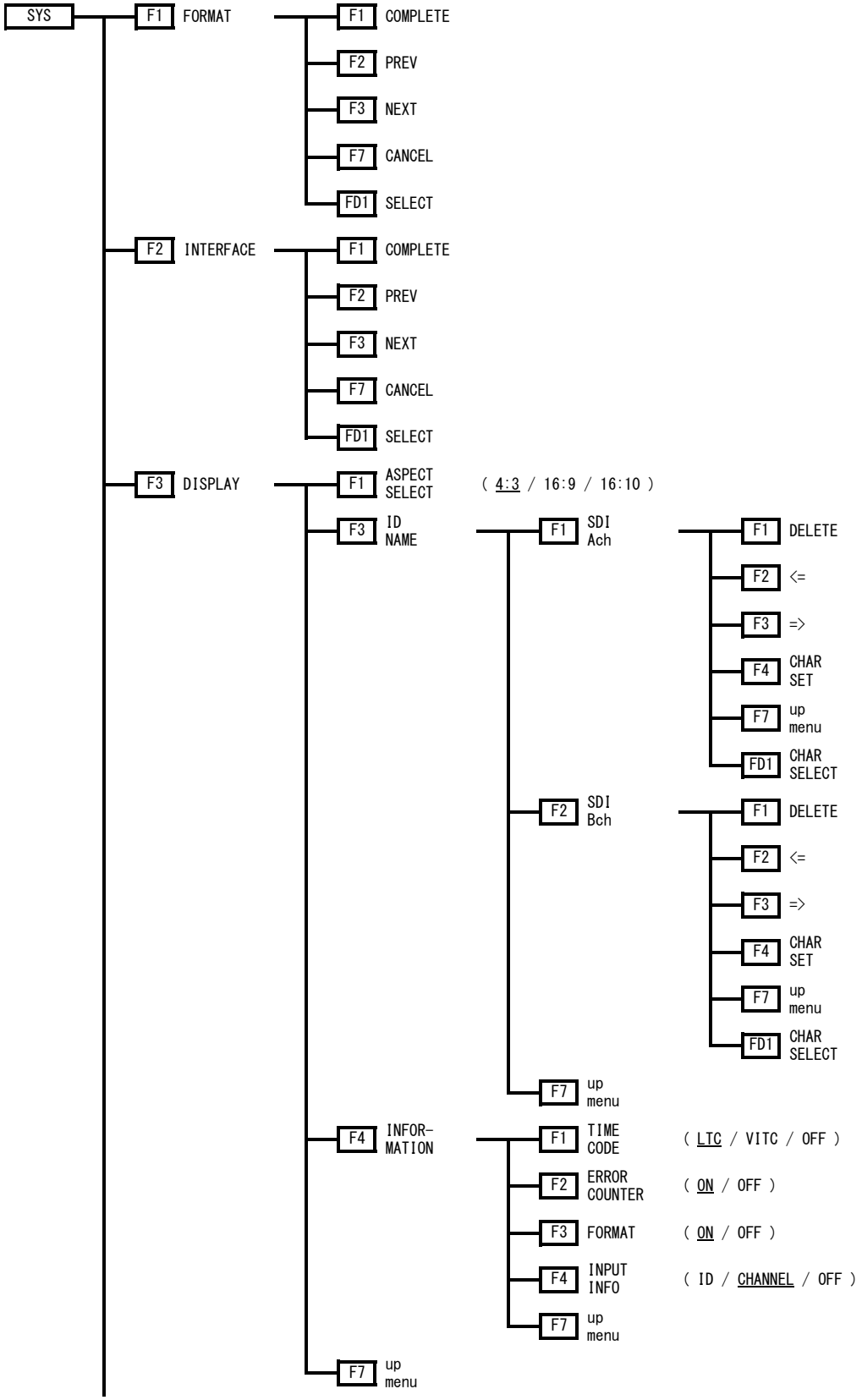

F6 CUSTOM SEARCH
F1 DID
F2 SDID
F4 DUMP MODE (HEX / BINARY)
F7 up menu
FD1 SCROLL
FD2 DID SELECT (00 - FF)
FD2 SDID SELECT (-- / 00 - FF)
F7 up menu
F5 ERROR CONFIG
F1 COMPLETE
F2 PREV
F3 NEXT
F7 CANCEL
FD1 SELECT
F6 ERROR CLEAR
F7 THUMB-NAIL
F1 AUDIO METER (ON / OFF)
F2 LAYOUT (HORIZ1 / HORIZ2)
F3 PICTURE (ON / OFF)
F7 up menu
F7 up menu

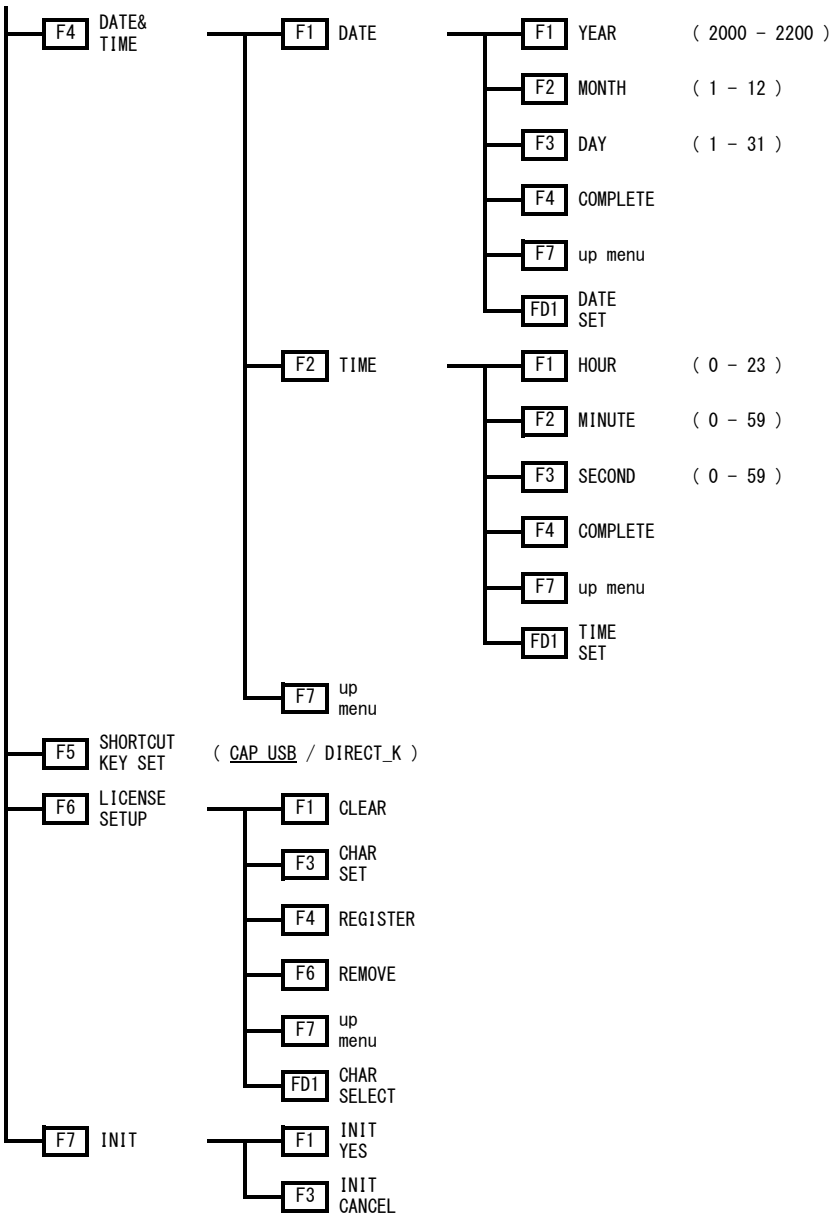
16.1.6 Multi-Screen Display Menu



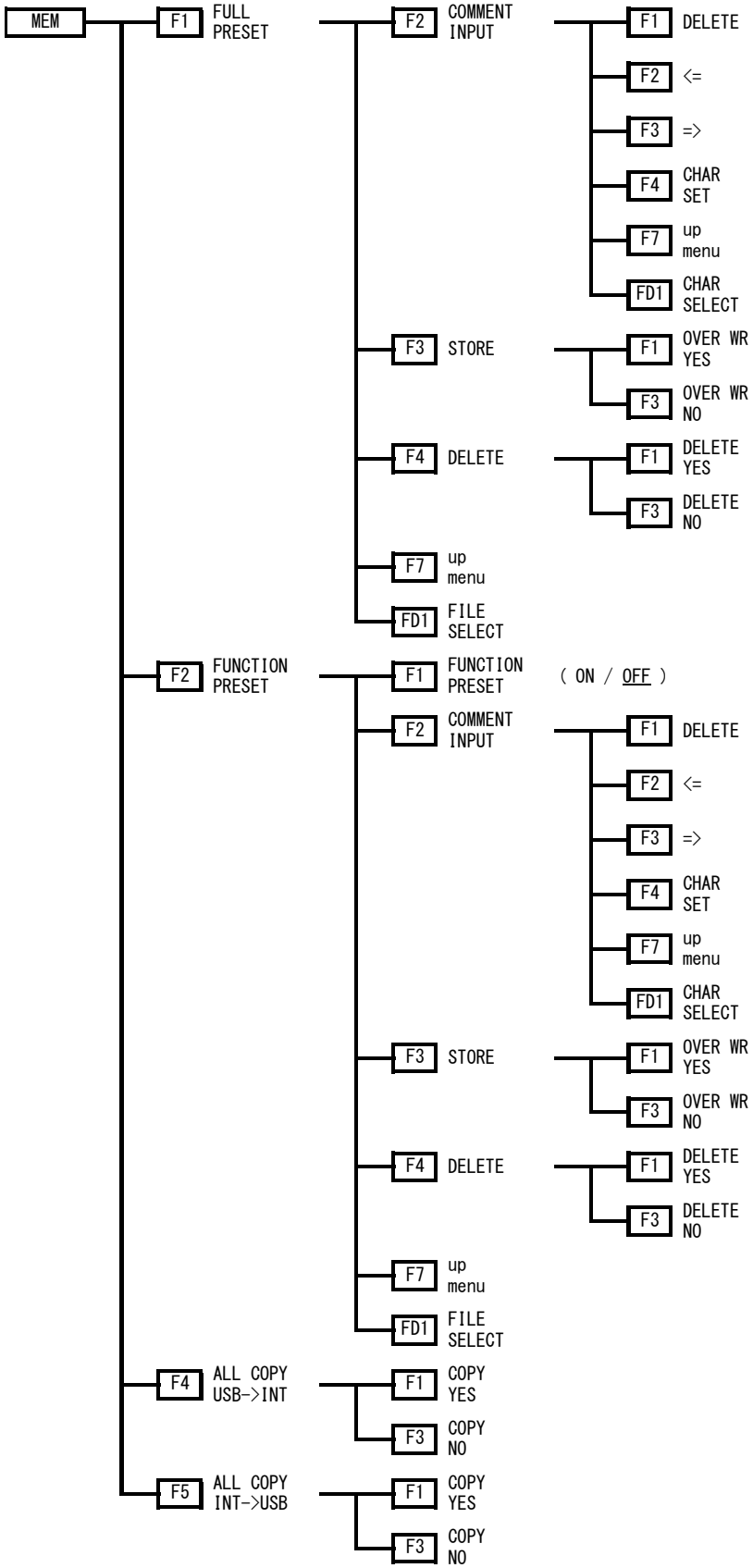

FD1 H VARIABLE
FD2 V VARIABLE
FD1 H WIPE VARIABLE
FD2 V WIPE VARIABLE
F3 MULTI MENU
F1 PIC
F2 WFM
F3 VECT
F4 AUDIO
F5 STATUS
F6 EYE
F7 up menu
F4 AREA1 (PIC / WFM / VECT / AUDIO / STATUS)
F4 AREA1 (PIC / WFM / VECT / AUDIO / STATUS / EYE)
F4 WFM WIPE (ON / OFF)
F4 SUB-ITEM (WFM / HISTOGRAM)
F5 AREA2 (PIC / WFM / VECT / AUDIO / STATUS)
F5 AREA2 (PIC / WFM / VECT / AUDIO / STATUS / EYE)
F5 WFM SETUP
F1 WFM FORM (ALIGN / MIX)
F2 WFM COLOR (RED.CYAN / SINGLE)
F7 up menu
F5 HISTOGRAM SETUP
F1 HISTOGRAM FORM (LUMA / PARADE / OVERLAY)
F2 L/R SELECT (LEFT / RIGHT / L&R)
F3 Y (ON / OFF)
F4 R (ON / OFF)
F5 G (ON / OFF)
F6 B (ON / OFF)
F7 up menu
F6 AREA3 (PIC / WFM / VECT / AUDIO / STATUS)
F6 AREA3 (PIC / WFM / VECT / AUDIO / STATUS / EYE)
F7 AREA4 (PIC / WFM / VECT / AUDIO / STATUS)
F7 AREA4 (PIC / WFM / VECT / AUDIO / STATUS / EYE)
F7 3D INPUT FORMAT (L/R DUAL / HF SbyS / TOP&BOTM)
FD1 WFM WIPE VARIABLE

16.1.7 System Menu

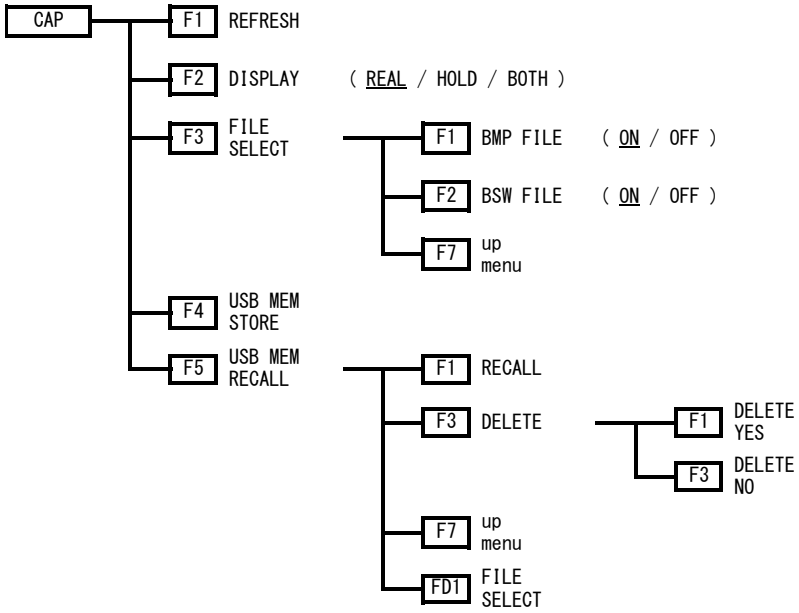



F4 DATE& TIME
F1 DATE
F1 YEAR (2000 - 2200)
F2 MONTH (1 - 12)
F3 DAY (1 - 31)
F4 COMPLETE
F7 up menu
FD1 DATE SET
F2 TIME
F1 HOUR (0 - 23)
F2 MINUTE (0 - 59)
F3 SECOND (0 - 59)
F4 COMPLETE
F7 up menu
FD1 TIME SET
F7 up menu
F5 SHORTCUT KEY SET (CAP USB / DIRECT_K)
F6 LICENSE SETUP
F1 CLEAR
F3 CHAR SET
F4 REGISTER
F6 REMOVE
F7 up menu
FD1 CHAR SELECT
F7 INIT
F1 INIT YES
F3 INIT CANCEL

16.1.8 Preset Menu



16.1.9 Capture Menu



16.2 CHANGE HISTORY OF THE SOFTWARE

This manual was written for firmware version 2.0.
You can view the firmware version on the display that appears when you turn on the power.

- **Ver. 2.0**
  - The function dial (F・D) response has been improved.
  - In the line select function, you can now press the function dial (F・D) to move to the first active line.
  - Video signal waveform, vector, and picture display menus have been rearranged.
  - A contrast adjustment function has been added to the video signal waveform and vector displays.
  - A variable marker display function has been added to the video signal waveform display.
  - A 75 % auxiliary scale display function has been added to the video signal waveform display.
  - A function for jumping to the 0 %, 75 %, and 100 % positions when GAIN MAG is set to X5 has been added to the video signal waveform display.
  - A SWEEP MAG function has been added to the pseudo-composite display of the video signal waveform display.
  - A RGB parade display function has been added to the pseudo-composite display of the video signal waveform display.
  - The default scale settings for HD and SD have been changed to % on the video signal waveform display.
  - Flexibility has been added to the channel mapping function of the audio display.
  - The default Lissajous curve display format has been changed to MATRIX on the audio display.
  - On the status display, 2.8 MHz has been added to the available low-pass filters for gamut error detection.
  - An audio sample error detection function has been added to the status display.
  - A timestamp function based on timecodes has been added to the event log display of the status display.
  - Marks (aspect ratio 4:3 position and modified width 4:3 position) have been added to the data dump display of the status display.
  - A flicker display function has been added to the 3D assist display (LV 7380SER01).
  - The intensity level display of the disparity measurement cursor can now be turned off on the 3D assist display (LV 7380SER01).
- **Ver. 1.9**
  - Support for side-by-side and top-and-bottom signals has been added to the 3D assist display (LV 7380SER01).
- **Ver. 1.7**
  - Support for the 3D assist display (the LV 7380SER01, which is sold separately) has been added to the multi-screen display.
  - Support for the histogram display has been added to the multi-screen display.
  - mV and R% have been added to the units for Y cursor measurement of the pseudo-composite signal in the video signal waveform display.
  - Support for luminance errors has been added to the status display.

- **Ver. 1.4**
  - The surround display format has been changed on the audio display.
  - The mappings of the 1st GROUP and 2nd GROUP channels on the audio display have been changed.
  - USB memory folder structure has been changed.

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Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码：LV 7380

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。

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)
实装基板	×	○	○	○	○	○
主体部	×	○	○	○	○	○
风扇	×	○	○	○	○	○
线材料一套	○	○	○	○	○	○
外筐	×	○	○	○	○	○
附件	○	○	○	○	○	○
包装材	○	○	○	○	○	○
电池	○	○	○	○	○	○

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

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Apr. 6, 2012 Ver.5 (FW Ver.2.0)