

LV 5380 MULTI SDI MONITOR

LV 5380 OP72	REMOTE & TALLY
LV 5380 OP73	BATTERY MOUNT IDX
LV 5380 OP74	BATTERY MOUNT ANTON

INSTRUCTION MANUAL

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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.

<p><Symbol></p> 	<p>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.</p> <p>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.</p>
<p><Term></p>  WARNING	<p>Ignoring the precautions that this term indicates could lead to death or serious injury.</p>
<p><Term></p>  CAUTION	<p>Ignoring the precautions that this term indicates could lead to personal injury or damage to the instrument.</p>

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.

■ Warning Concerning the Power Source

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

■ 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 odor, or something else that is wrong with the instrument while you are operating it, stop operation immediately to avoid the threat of fire. Turn off the power switch, and remove the power cord from the instrument. After making sure that fire has not spread anywhere, contact your local LEADER agent.

- **Warning Concerning the LCD Panel**

The LCD panel can cause injury if it is broken. Do not apply strong shock to the LCD panel, cut it with sharp metal, or damage it in any similar manner.



- **Cautions Concerning the Input and Output Connectors**

To avoid damaging the instrument, only apply signals to the input connectors that conform to the specifications in this instruction manual.

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 power plug and the battery.

GENERAL SAFETY SUMMARY

■ About 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.

■ Daily Maintenance

When you clean the instrument, remove the power plug and the battery.

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 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 free service during the warranty period under the following conditions.

- 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 Handling Precautions

1.2.1 Power Supply Voltage



WARNING

The operating supply voltage range of this instrument's DC power supply is 10 to 18 V. Do not apply a voltage that exceeds this range. Doing so may damage the instrument or lead to fire.

1.2.2 Maximum Allowable Input Voltage



CAUTION

Table 1-1 indicates the maximum signal voltage that can be applied to the input connectors.

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
INPUT SDI A, INPUT SDI B	± 2 V (DC + peak AC)
EXT REF	± 5 V (DC + peak AC)
REMOTE (option)	0 to +5 V

1.2.3 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.

1.2.4 Backup Battery

If the backup battery runs out, the LV 5380 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 5380. Also, save the presets to USB memory.

You cannot replace the backup battery yourself. Contact your local LEADER agent.

1.2.5 Mechanical Shock

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

1.2.6 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 an external conductor.

1.2.7 Warming Up

To achieve 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 5380 is a waveform monitor that has high-precision, high-quality video signal waveform and vector display capabilities and a TFT LCD that boasts high color reproductivity. The LV 5380 also has a variety of other features. It has robust audio signal display features that include the lissajous and level displays of embedded audio. It can display two SDI signals at the same time. It can save screen captures to USB memory and display them later. It also has an on-picture gamut error monitoring feature. In addition to its advanced features and high precision, the LV 5380 is light and small, making it extremely portable. The LV 5380's portability and quality make it useful in any video production or monitoring site.

2.2 Features

- **Two Serial Digital Inputs**

The LV 5380 is equipped with two SDI inputs. You can use these inputs to receive two separate SDI signals or to receive a single dual link SDI signal.

The LV 5380 is also equipped with a connector for transmitting a reclocked channel A or B signal. When you choose to receive an SDI signal through channel A or B by pressing the INPUT key, the output connector transmits the selected signal.

- **High-Quality TFT LCD**

The LV 5380 achieves high picture quality by using an XGA TFT LCD (1024 × 768 pixels) that boasts high color reproductivity.

- **Comprehensive Waveform Features**

The LV 5380 uses fully digital waveform display processing to achieve high precision and quality. 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 5380 can also display vectors, and lissajous curves and level graphs of embedded audio.

- **Versatile Picture Display**

The LV 5380 uses fully digital waveform display processing to achieve high precision and quality. The display has a number of adjustment features such as color temperature selection, intensity adjustment, contrast adjustment, gain adjustment, and bias adjustment. It also has monochrome, chroma up, gamut error, and safety marker display features.

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

You can use the multi-screen display to display combinations of picture, video signal waveform, vector, and audio meter displays simultaneously. You can use the 2-channel display to display two SDI signals simultaneously.

2. SPECIFICATIONS

- **3D Assist Display**

The LV 5380 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 are anaglyph, convergence, overlay, checker, wipe, and flicker.

- **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 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.

- **Aperture Adjustment**

You can enhance the outlines in a picture to assist in the focusing of the camera. You can choose from 100 different aperture levels.

- **Screen Capture**

You can capture the display and store it as image data. You can view the captured data on the LV 5800 or store it in USB memory as a bitmap file that you can view on your PC.

- **Status Display**

The LV 5380 can display SDI signal data dump and error logs as well as the phase difference between the external sync signal and the SDI signal.

- **Time Code Display**

You can display LTC or VITC time codes.

- **ID Display**

You can assign IDs to input channels. IDs are entered from the LV 5380 panel.

- **Display Mode Switch Keys**

You can easily switch between different displays, such as the video signal waveform display, the vector display, and the picture display, by using the individual keys that are assigned to them. Also, because all of the keys are back-lit, it's easy to operate the LV 5380 in the dark.

- **Two Multi-Purpose Knobs**

The front panel has two multi-purpose knobs. The functions of the two knobs change depending on the display mode and the current menu level. For example, the two knobs adjust the intensity and contrast in the picture display, and they adjust the horizontal and vertical positions in the waveform display. The current functions of each knob are displayed in the bottom right of the screen.

- **Stereo Headphone Output**

The LV 5380 can deliver the embedded audio of an SDI signal in stereo through the headphone output jacks.

- **External Sync Signal Input**

The LV 5380 can receive tri-level sync signals and NTSC or PAL black burst signals.

2. SPECIFICATIONS

- **Presets**

The LV 5380 can remember up to 30 frequently used setting configurations. It can also remember five setting configurations each for the video signal waveform, vector, picture, audio, and status displays. When you use an individual setting configuration for a particular display, the settings for the other displays are not affected.

- **Last Memory Feature**

The LV 5380 backs up the current settings so that you can use the same settings that you were using before immediately after powering it up.

- **75-mm VESA Mounting**

The LV 5380 has 75-mm VESA mounting holes on its rear panel that allow it to be mounted on an arm or stand.

2. SPECIFICATIONS

2.3 Specifications

2.3.1 Video Signal Formats and Corresponding Standards

Table 2-1 Video signal formats and corresponding standards

Dual Link Interface (*1)

Color System	Quantization (*2)	Format		Compliant Standards
		Scanning	Frame (Field) Rates	
RGB 4:4:4	10 bits	1080p	30/29.97/25/24/23.98	SMPTE 372 (1920×1080)
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
	12 bits	1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
YCbCr 4:2:2	10 bits	1080p	60/59.94/50	SMPTE 372 (2048×1080)
	12 bits	1080p	30/29.97/25/24/23.98	
		1080PsF	30/29.97/25/24/23.98	
		1080i	60/59.94/50	
RGB 4:4:4 (2K)	12 bits	1080p	24/23.98	SMPTE 372 (2048×1080)
		1080PsF	24/23.98	
XYZ 4:4:4 (2K)	12 bits	1080p	24/23.98	SMPTE 428-1.9
		1080PsF	24/23.98	

Single Link Interface

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

Format Settings

Link Format Switching

Manual switching between single and dual link interfaces

Format Switching

Single Link

Manual or automatic

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.

*2 The picture display bit depth is 8 bits.

2. SPECIFICATIONS

2.3.2 Audio Playback

Compliant Standards	SMPTE-299 (HD) SMPTE-272M (SD)
Sampling Frequency	48 kHz
Quantization	24 bit
Clock Generation	Video clock
Synchronization	Everything is synchronized to the video clock.
Phases	All phases are in-sync.
Channel Separation	2 groups of 8 channels are selectable.

2.3.3 Input/Output Connectors

SDI Input

Input Connectors	2 BNC connectors
Single Link	2 connections (channels A and B)
Dual Link	1 connection (links A and B)
Input Impedance	75 Ω
Input Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency
Maximum Input Voltage	± 2 V (DC + peak AC)

SDI Output

Output Connector	1 BNC connector
	Reclocks and transmits the selected SDI input signal.
Output Impedance	75 Ω
Output Voltage	800 mVp-p ± 10 %
Output Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency

External Reference Input*

Input Signal	Tri-level sync or NTSC/PAL black burst
Input Connector	1 pair of BNC connectors
Input Impedance	15 k Ω passive loop-through
Input Return Loss	≥ 30 dB for 50 kHz to 30 MHz
Maximum Input Voltage	± 5 V (DC + peak AC)

Headphone Output

Output Signal	Extracts and transmits the embedded audio signal (any two channels) (synchronized to the video signal)
Output Connector	1 stereo miniature jack
Volume Adjustment	Configured in the menu
Power Output	50 mW max. (with 16 Ω impedance)

* If the video signal waveform or phase difference is displayed using an external sync signal as reference, the waveform phase one clock before or after an SDI signal is inserted or the power is turned on is indefinite.

2. SPECIFICATIONS

2.3.4 Control Connector

USB Port

Description

Used to save screen captures, event logs, preset data, and data dumps.

Specifications

USB 2.0

Media

Only supports USB memory devices.

2.3.5 LCD

LCD Type

8.4-inch color TFT

Format

XGA. The effective resolution is 1024 × 768.

Backlight Brightness

32 adjustable levels

Auto Shutoff

Time to turn off the LCD can be set.

2.3.6 Screen Capture

Description

Captures the screen

Display

Displays the captured image or superimposes the captured image over the input signal

Media

Internal memory (RAM) and USB memory

Only one screen capture can be stored in 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 5380 can load.

Data Input

Data saved to USB memory can be loaded and displayed on the LV 5380.

2.3.7 Presets

Comprehensive Presets

Save all panel operation configurations.

Display Mode Presets

Only save the configuration of a particular display mode.

Applicable Modes

Picture, video signal waveform, vector, audio, and status

Number of Presets

Comprehensive Presets

30

Display Mode Presets

5 for each display mode

Recall Method

Through the front panel controls or the remote control connector on the back panel (option)

Copying

Preset configurations can be copied as a group to or from USB memory.

2. SPECIFICATIONS

2.3.8 Video Signal Waveform Display

Waveform Operations

Display Modes

Overlay Display

Overlays component signals.

Parade Display

Displays component signals side by side.

Blanking Period

H and V blanking periods can be masked.

RGB Conversion

Converts a $YC_B C_R$ signal into an RGB signal and displays the result.

Pseudo-Composite Display

Artificially converts component signals into composite signals and displays the result.

Channel Assignment

In RGB conversion display, the order can be set to GBR order or RGB order.

Line Select

Displays the selected line.

Sweep Modes

H and V

Contrast

LOW, MIDDLE, HIGH, or MONOTONE

Vertical Axis

Gain

×1 or ×5

Variable Gain

×0.2 to ×2.0

Amplitude Accuracy

≤ ±0.5 %

HD Frequency Response

Y Signal

≤ ±0.5 % for 1 to 30 MHz

$C_B C_R$ Signal

≤ ±0.5 % for 0.5 to 15 MHz

Low-Pass Attenuation

≥ 20 dB (at 20 MHz)

SD Frequency Response

Y Signal

≤ ±0.5 % for 1 to 5.75 MHz

$C_B C_R$ Signal

≤ ±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, or BLANK

Field Display

×1, ×20, or ×40

Cursor Measurement

Types

Horizontal Cursors

2 (REF and DELTA)

Vertical Cursors

2 (REF and DELTA)

Amplitude Measurement

%, mV, or 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

V, %, 150%, 1023, or 3FF

Color Choices

7

Thumbnail Display

Can display thumbnails of picture displays and audio level meters.

Horizontal Marker Display

Type

mV or %

Number of Markers

1 or 2

2. SPECIFICATIONS

2.3.9	Vector Display	<div>Gain</div> <div>×1, ×5, or IQ-MAG</div> <div>Variable Gain</div> <div>×0.2 to ×2.0</div> <div>Amplitude Accuracy</div> <div>≤ ±0.5 %</div> <div>Blanking Period</div> <div>Masked*</div> <div>Contrast</div> <div>LOW, MIDDLE, HIGH, or MONOTONE</div> <div>Scale</div> <div>Type</div> <div>75 % or 100 % (color bar)</div> <div>IQ Axis</div> <div>Show or hide</div> <div>Color Choices</div> <div>7</div> <div>Line Select</div> <div>Displays the selected line.</div> <div>Pseudo-Composite Display</div> <div>Artificially converts component signals into composite signals and displays the result.</div> <div>Thumbnail Display</div> <div>Can display thumbnails of picture displays and audio level meters.</div>
*	In the multi-screen display, the blanking period depends on the video signal waveform display blanking display settings.	
2.3.10	5 Bar Display	<div>Description</div> <div>Displays the peak levels of Y, R, G, B and composite.</div> <div>Channel Assignment</div> <div>RGB or GBR</div> <div>Scale</div> <div>mV or %</div> <div>Error Level</div> <div>Based on gamut error level, composite gamut error level and luminance error level settings.</div> <div>Line Select</div> <div>Displays the selected line.</div> <div>Filter</div> <div>1 MHz LPF or 2.8MHz LPF (only HD signals) (removes transient errors and can be turned ON and OFF)</div>
2.3.11	Picture Displays	<div>Color Temperature</div> <div>6500K or 9300K</div> <div>Image Quality Adjustment</div> <div>Intensity, contrast, gain, bias, and aperture</div> <div>Display Sizes</div> <div>Fit, full frame, real, X2, X4, and 4:3 full screen</div> <div>SD Display Size</div> <div>4:3 / 16:9</div> <div>Color</div> <div>R, G, and B can be turned off separately. Chroma gain and monochrome displays are available.</div> <div>Aspect Marker Display</div> <div>4:3 / 13:9 / 14:9 / 16:9 / 2.39:1</div> <div>Aspect Marker Format</div> <div>Line, shadow, or black</div> <div>Safety Marker Size</div> <div>ARIB TR-B4, SMPTE RP 218, or user-defined</div> <div>Line Select</div> <div>Marks the selected line.</div> <div>Gamut Error Display</div> <div>Displays gamut error locations over the picture</div> <div>Thumbnail Display</div> <div>Displays thumbnails of audio level meters</div>

2. SPECIFICATIONS

2.3.12 Embedded Audio Display

Lissajous Display

Displayed Channels

2ch (single) or 8ch (multi)

Display Mode

X-Y or MATRIX

Level Meter Display

Displayed Channels

2ch or 8ch

Meter

60 dB peak level, 90 dB peak level, or
AVERAGE

The peak level meters have a hold feature.

Channels

Group Selection:

Select any two groups within the same SDI
channel from groups 1, 2, 3, and 4.

Audio Information Detection

Sampling Frequency

Detects the presence of each audio channel

48 kHz (synchronized to the video signal)

Thumbnail Display

Displays the picture

* The LV 5380 dual link interface only supports the audio signal received through link A.

2.3.13 Status Display

Event Log

Recording Capacity

Up to 1000 events

Description

Records all events from start to finish.

Recorded Events

Errors, changes in input type, time stamps, etc.

Data Output

Saved in text format to USB memory.

Data Dump Display

Display Modes

Display 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

Saved in text format to USB memory.

Phase Difference Display

Display

Displays the phase difference numerically and
graphically

Measurement Signal

Phase difference between the external sync
signal (the reference) and the SDI signal

Phase difference between channel A (the
reference) and channel B

Phase difference between link A (the reference)
and link B

Display Range

Vertical

Approx. $\pm 1/2$ frame

Horizontal

± 1 line

Thumbnail Display

Displays the picture

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2.3.14 Error Counting

Description	Counts and displays the number of video errors, audio errors, and gamut errors.
Error Count	Up to 999999 errors can be counted separately for video, audio, and gamut.
Count Period	All errors that occur in one field are counted as one error
Video Errors	
CRC Error	Detects HD signal transmission errors.
EDH Error	Detects SD signal transmission errors.
Phase Error	Detects phase errors between links A and B in a dual link signal.
Gamut Error	Detects gamut errors.
Detection Range	
Upper Limit	90.8 to 109.4 % (in 0.1 % steps) 635.6 to 765.8 mV (in 0.1-mV steps)
Lower Limit	-7.2 to 6.1 % (in 0.1 % steps) -50.4 to 42.7 mV (in 0.1-mV steps)
Filter	1 MHz LPF or 2.8MHz LPF (only HD signals) (removes transient errors and can be turned ON and OFF)
Composite Gamut Error	Detects level errors that occur when component signals are converted to composite signals.
Detection Range	
NTSC Upper Limit	90.0 to 135.0 % (in 0.1 % steps)
NTSC Lower Limit	-40.0 to 20.0 % (in 0.1 % steps)
PAL Upper Limit	630.0 to 945.0 mV (in 0.1-mV steps)
PAL Lower Limit	-280.0 to 140.0 mV (in 0.1-mV steps)
Filter	1 MHz LPF or 2.8MHz LPF (only HD signals) (removes transient errors and can be turned ON and OFF)
Luminance Error	Detects level errors in the luminance component
Detection Range	
Upper Limit	90.8 to 109.4 % (in 0.1 % steps) 635.6 to 765.8 mV (in 0.1-mV steps)
Lower Limit	-7.2 to 6.1 % (in 0.1 % steps) -50.4 to 42.7 mV (in 0.1-mV steps)
Filter	1 MHz LPF or 2.8MHz LPF (only HD signals) (removes transient errors and can be turned ON and OFF)
Audio Errors	
CRC Error	Detects CRC errors in channel status bits.
BCH Error	Detects HD signal audio packet transmission errors.

* In a dual link signal, many errors will not be detected properly if links A and B are not synched.

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2.3.15 Time Display

Current Time Display
Elapsed Time
Time Code

Time display based on the internal clock
Time elapsed since the error count was cleared
LTC or VITC
(In a dual link signal, only link A is supported)
SMPTE 12M-2

Compliant Standard

2.3.16 3D Assist Display

Supported Format
Input Connectors

HD-SDI (Single link)

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

Description

Color or monochrome

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.

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

Description

The video signal for the left eye and the video signal for the right eye are divided by boundary lines and displayed.

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.

2. SPECIFICATIONS

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.
Boundary Line Movement	The boundary lines can be moved up and down and left and right separately
Boundary Lines	Show, hide
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
Grid Width	
Disparity Grid Lines	6 to 192 pix (0.3 to 10.0 %)(*2)
Horizontal Grid Lines	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. SPECIFICATIONS

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 of the multi-screen display
Display Format	Side by side, overlaid
3D 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 Other Display Features

ID Display	An ID can be assigned to each input channel.
Format Display	The format can be displayed when an SDI signal is detected.

2.3.19 Front Panel

Key LEDs	All keys illuminate dimly. The selected key lights more brightly.
Power Switch	Turns the power on and off. If power is removed when the switch is on, the instrument will turn on when power is restored.
Last Memory Feature	Backs up the panel settings.
Key Lock	Locks all keys other than the power switch.

2.3.20 General Specifications

Environmental Conditions	
Operating Temperature Range	0 to 40°C
Operating Humidity Range	85 %RH or less (no condensation)
Optimal Temperature Range	10 to 30°C
Optimal Humidity Range	85 %RH or less (no condensation)
Power Requirements	
Voltage	10 to 18 VDC
Power Consumption	30 W max.
Dimensions	215 × 176 × 85 mm (W × H × D; excluding protruding parts)
Weight	2.0 kg
Accessories	Instruction manual 1 Ferrite core 1 VESA spacer 1

2.4 LV 5380 OP72 (REMOTE & TALLY)

2.4.1 General

This option consists of a remote interface installed on the back panel of the LV 5380. You can use the interface to load presets and control the display of the tally indication.

2.4.2 Features

- **Preset Recall**

You can load up to 30 presets remotely.

- **Input Channel Switching**

You can switch the currently displayed channel (A or B) remotely.

- **Tally Indication**

The LV 5380 can receive two tally input signals, and it can display on-air and standby tally indications.

2.4.3 Specifications

Control Connector

Description

Used to recall presets, display tally indications, switch input channels (A or B), and transmit the alarm signal.

Control Signal

LV-TTL level

Input

Active-low logic

Activates on a pulse width of 350 ms or more (however, the tally is level sensitive).

Control interval of 1 s or more.

Output

Active-low or active-high

Control Connector

15-pin D-sub (female)

Locking screws

Inch screws (No.4-40UNC)

Input Voltage Range

0 to 5 V

Preset Recall

Description

Loads presets.

(Display mode presets cannot be loaded.)

Remote Modes

BIT or BINARY

Number of Loadable Presets

30 in BINARY mode or 8 in BIT mode

Input Channel Switching

Description

You can set the displayed channel to INPUT SDI A or INPUT SDI B.

2. SPECIFICATIONS

Alarm Output	
Description	The alarm signal is used to indicate errors.
Output Signal	Active during errors. (You can set the signal to active-low or active-high. The minimum pulse width is 1 s.)
Output Level	3.3-V LV-TTL
Detection	The alarm signal can be set to indicate INPUT SDI A errors, INPUT SDI B errors, or INPUT SDI A and B errors.
Tally Indication	
Description	Displays tally information from the remote control connector on the LCD.
Display	Red and green are displayed separately or at the same time.
General Specifications	
Environmental Conditions	Same as the LV 5380
Accessories	15-pin D-sub connector 1 15-pin D-sub connector cover 1

2.5 LV 5380 OP73 (BATTERY MOUNT IDX)

2.5.1 General

The LV 5380 OP73 is an optional battery mount for the back of the LV 5380.

2.5.2 Features

- **Support for V-Mount Batteries**
- **Remaining Battery Power Indicator**

The LV 5380 display shows the approximate amount of remaining battery power using four levels.

- **Automatic DC Input Detection**

To save battery power, the LV 5380 runs on the power from DC INPUT connector whenever it is available.

2.5.3 Specifications

Supported Batteries	V-mount batteries
Input Connector	1 IDX P-V2 V-plate
Power Supply Input Range	10 to 18 VDC
Remaining Battery Power Signal Input	0 to 5 VDC (analog)
Battery Power Specifications	
Battery Output Voltage	10 to 18 VDC
Rated Battery Power	30 W or more
Remaining Battery Power Indicator	
Level Indicator	Displays four levels from Empty to Full
LV 5380 Power Source Switching	
Description	When both batteries and a DC power supply are connected to the LV 5380, the DC power supply has precedence. (*1)
General Specifications	
Environmental Conditions	Same as the LV 5380
Dimensions	215 × 176 × 110 mm (W × H × D; excluding protruding parts)

*1 When you switch between the power supplies (battery to DC power supply or DC power supply to battery), the LV 5380 may restart.

2.6 LV 5380 OP74 (BATTERY MOUNT ANTON)

2.6.1 General

The LV 5380 OP74 is an optional battery mount for the back of the LV 5380.

2.6.2 Features

- **Support for Gold Mount Batteries**

You can attach gold mount batteries produced by Anton/Bauer to the LV 5380 OP74. This means that you can use the same batteries that you use for video cameras and other equipment with the LV 5380.

- **Remaining Battery Power Indicator**

The LV 5380 display shows the approximate amount of remaining battery power using four levels.

- **Automatic DC Input Detection**

To save battery power, the LV 5380 runs on the power from DC INPUT connector whenever it is available.

2.6.3 Specifications

Supported Batteries	Gold mount batteries produced by Anton/Bauer
Input Connector	1 Anton/Bauer QR-GOLD mount
Power Supply Input Range	10 to 18 VDC
Remaining Battery Power Signal Input	0 to 5 VDC (analog)
Battery Power Specifications	
Battery Output Voltage	10 to 18 VDC
Rated Battery Power	30 W or more
Remaining Battery Power Indicator	
Level Indicator	Displays four levels from Empty to Full
LV 5380 Power Source Switching	
Description	When both batteries and a DC power supply are connected to the LV 5380, the DC power supply has precedence. (*1)
General Specifications	
Environmental Conditions	Same as the LV 5380
Dimensions	215 × 176 × 110 mm (W × H × D; excluding protruding parts)

*1 When you switch between the power supplies (battery to DC power supply or DC power supply to battery), the LV 5380 may restart.

3. COMPONENT NAMES AND FUNCTIONS

3.1 Front Panel

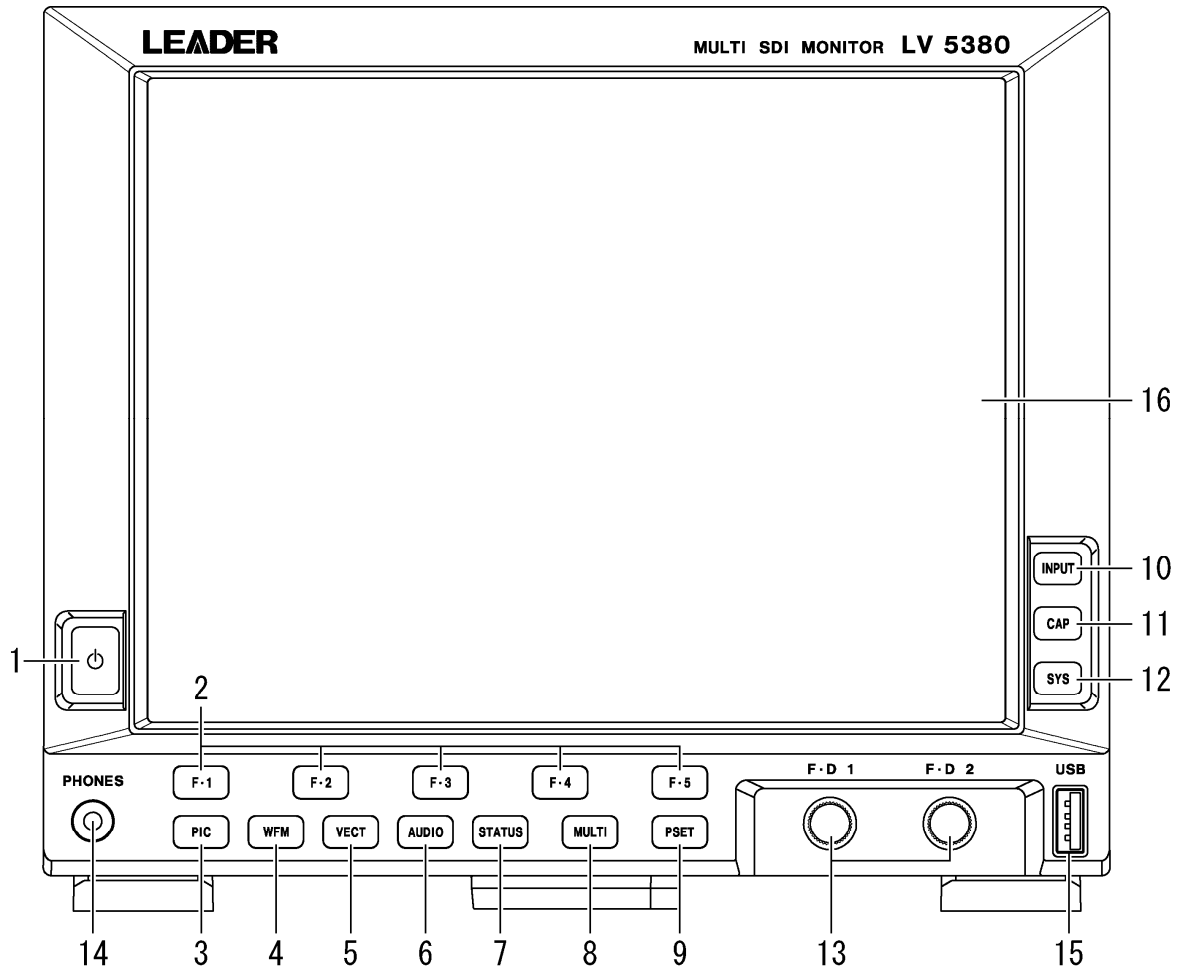


Figure3-1 Front panel

3. COMPONENT NAMES AND FUNCTIONS

Table 3-1 Front panel items and functions

No.	Name	Function	Refer To
1	Power switch	Press: Switches the power from off to on. Press and hold: Switches the power from on to off.	4.1.3 4.1.4
2	F•1 to F•5 keys	Used to select menu items and pop-up commands.	4.9
3	PIC key	Press: Switches to picture display mode. Shows the display mode preset menu.* Press and hold: Shows the picture menu.	Chapter 10
4	WFM key	Press: Switches to video signal waveform display mode. Shows the display mode preset menu.* Press and hold: Shows the video signal waveform menu.	Chapter 11
5	VECT key	Press: Switches to vector display mode. Shows the display mode preset menu.* Press and hold: Shows the vector menu.	Chapter 13
6	AUDIO key	Press: Switches to audio display mode. Shows the display mode preset menu.* Press and hold: Shows the audio menu.	Chapter 14
7	STATUS key	Press: Switches to status display mode. Shows the display mode preset menu.* Press and hold: Shows the status menu.	Chapter 14
8	MULTI key	Press: Switches between the single- and multi-screen displays. Press and hold: Shows the multi-screen display menu.	Chapter 6
9	PSET key	Press: Shows the preset menu. Press and hold: Shows the preset registration menu.	Chapter 8
10	INPUT key	Switches the input channel.	4.3
11	CAP key	Captures the current display and shows the screen capture menu.	Chapter 9
12	SYS key	Press: Shows the system menu. ----- Press and hold: Enables and disables the key lock.	Chapter 5 4.7
13	F•D 1 F•D 2	Mostly used to set values. Generally, pressing the knobs will return the value to its default setting.	4.9
14	PHONES	Headphone jack	13.2.3 13.6
15	USB	The USB port is used to save and load various kinds of data. Use memory that has a FAT16 or FAT32 file system.	-
16	LCD	All of the different measurement and data displays appear here.	-

* The display mode preset menu appears when display mode presets are enabled.

3.2 Rear Panel

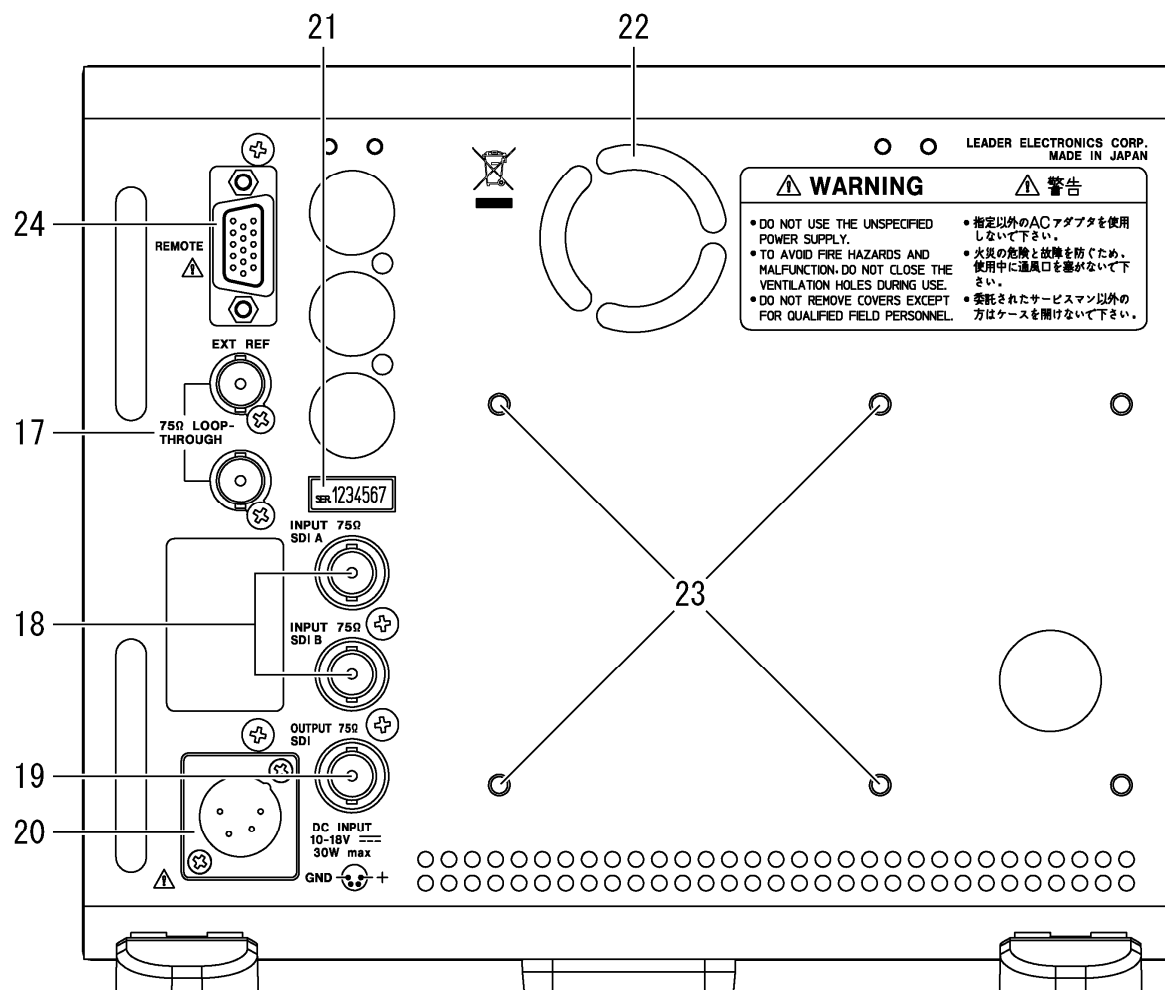


Figure3-2 Rear panel

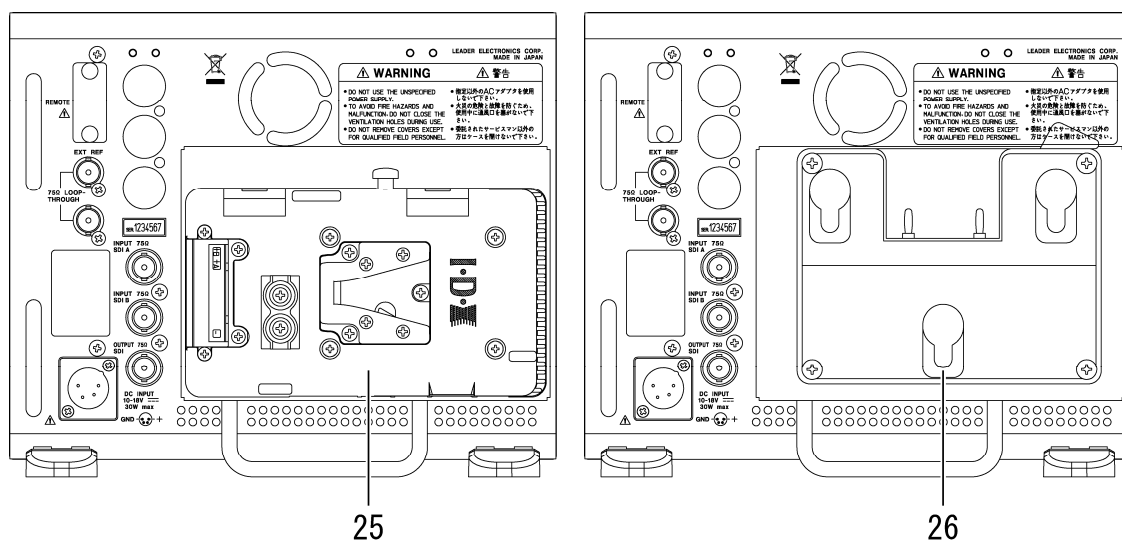


Figure3-3 Rear panel (with the battery mount option)

3. COMPONENT NAMES AND FUNCTIONS

Table 3-2 Rear panel items and functions

No.	Name	Function	Refer To
17	EXT REF	External reference input connectors. They are loop-through.	4.5
18	INPUT SDI A INPUT SDI B	SDI signal input connector	4.2
19	OUTPUT SDI	Reclocked SDI signal output connector	4.4
20	DC INPUT	Input connector for the DC power supply	4.1.2
21	Serial Number Label	The serial number is printed here.	-
22	FAN	Cooling fan	-
23	VESA Mounting Holes	VESA compliant (75 × 75 mm) mounting holes.	4.6
24	REMOTE (OP72)	Remote control connector. Used to load presets, transmit the alarm signal, and perform other operations.	5.5 15.1
25	Battery Mount (OP73)	An adapter for attaching V-mount batteries.	4.1.5
26	Battery Mount (OP74)	An adapter for attaching batteries produced by Anton/Bauer.	4.1.5

3.3 Bottom Panel

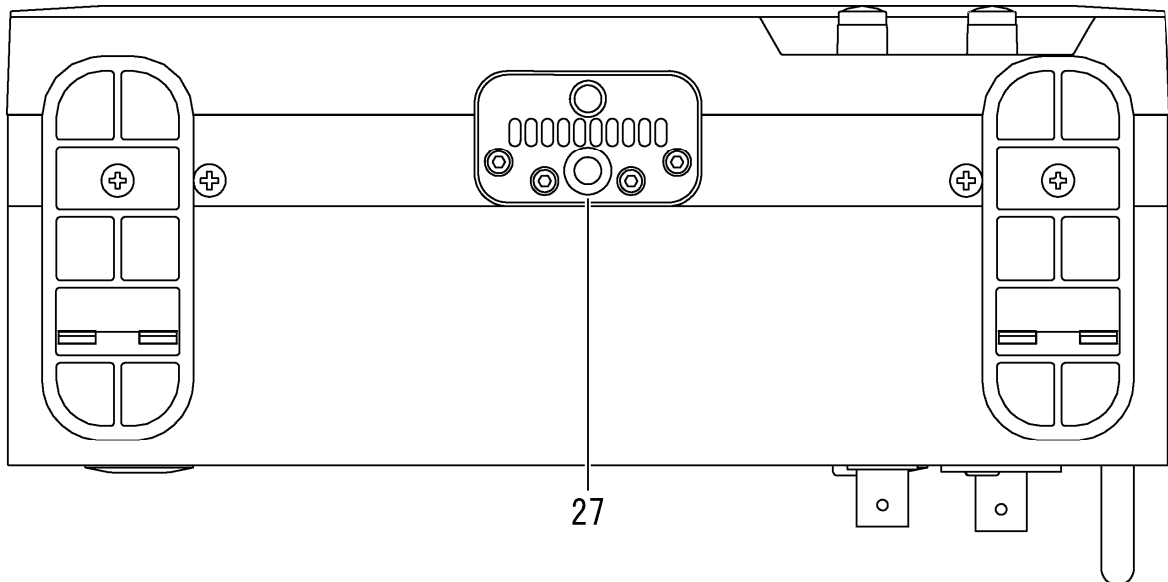


Figure3-4 Bottom panel

Table 3-3 Bottom panel items and functions

No.	Name	Function
27	Tripod adapter	Used when attaching a tripod to the LV 5380. Do not move the LV 5380 with the tripod attached if you have attached an optional battery that weighs 1 kg or more.

4. BEFORE YOU BEGIN MEASURING

4.1 Preparing the Power Supply

4.1.1 Attaching the Ferrite Core

Follow the steps below to attach the ferrite core that comes with the LV 5380 to the power cord before you connect it to the LV 5380. The ferrite core will reduce the noise that is produced when you connect the power cord to the LV 5380.

- 1 Release the two tabs, and open the ferrite core cover.



Figure4-1 Ferrite core attachment step 1

- 2 Attach the ferrite core approximately 5 mm away from the power source connector.



Figure4-2 Ferrite core attachment step 2

- 3 Wrap the power cord around the core once.



Figure4-3 Ferrite core attachment step 3

- 4 Close the ferrite core cover.

Be careful not to pinch the power cord when you close the cover.



Figure4-4 Ferrite core attachment step 4

4. BEFORE YOU BEGIN MEASURING

4.1.2 Attaching the DC Power Cord

The DC power supply input connector and its pin assignments are shown below. Apply +12 V to the four pins shown in the figure below.

When the power cord is connected and the power is turned off, the internal microcomputer is in standby mode and some power is consumed. If you do not intend to use the LV 5380 for an extended period of time, remove the DC power cord.

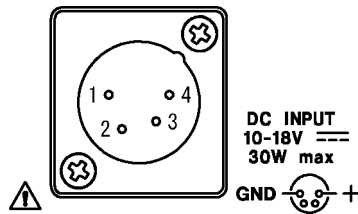


Figure4-5 DC power supply input connector

Table 4-1 DC power supply input connector pin assignments

Pin No.	Pin Name
1	GND
2	NC*
3	NC*
4	+12 V

* Do not connect anything to this pin.



WARNING

The operating supply voltage range of this instrument's DC power supply is 10 to 18 V. Do not apply a voltage that exceeds this range. Doing so may damage the instrument or lead to fire.

4.1.3 Turning on the Power

To turn on the power, press the power switch on the front panel. The power switch's LED lights when the power is on.

When you turn on the power, the LV 5380 starts up with the same panel settings that were set when it was last turned off. However, the following items are cleared: the error counter, LAPSED, the capture data, the status display error count, and the event log.

4.1.4 Turning off the Power

To turn off the power, hold the power switch on the front panel for one second or more. The power switch's LED turns off when you turn off the power.

4.1.5 Using a Battery (Option)

The LV 5380 can use batteries if it is equipped with a battery mount. The LV 5380 becomes very heavy when a battery is attached to it. Be careful to prevent the LV 5380 from falling or otherwise causing harm.

If the battery weighs more than 1 kg, do not move the LV 5380 with the tripod attached.

Doing so may cause the LV 5380 to warp and malfunction.

The battery mounts are factory options (sold separately). Batteries and chargers are not included.

- If you attach a battery while the power is off, the power switch LED on the front panel will blink.
- While the battery is in use, the amount of remaining battery power is indicated in the upper right of the display. To correctly display the amount of remaining battery power, select the battery type in the system settings.

[Reference] Section 5.9, Remaining Battery Power Display (Option)

- The DC power supply has precedence when it is used at the same time as the battery. When you switch between the power supplies (battery to DC power supply or DC power supply to battery), the LV 5380 may restart.

4.2 Applying SDI Input Signals

Apply an SDI signal to the SDI input connectors (INPUT SDI A and INPUT SDI B).

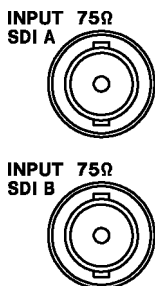


Figure4-6 SDI input connectors

- The SDI input connectors (INPUT SDI A and INPUT SDI B) are for component SDI (serial digital interface) signals only. Do not apply analog video signals, composite SDI signals, or any other kind of signal other than component SDI.
- The SDI input connectors (INPUT SDI A and INPUT SDI B) are terminated internally at 75 Ω . You do not need to attach a terminator. Connect each of the external reference input connectors to a cable with a characteristic impedance of 75 Ω .
- Keep the SDI input signal strength at 800 mVp-p \pm 10 % at the input signal source BNC output connector. An SDI signal that is outside of this range may not be received properly.
- When viewing a single link signal in the 1-channel display, you can press the INPUT key on the front panel to select which connector's signal you want to measure.
- The LV 5380 supports the formats listed in **Table 2-1**. In the default settings, the link format is single, and the input format is detected automatically. To set the input format manually or switch between the single and dual link formats, see section 5.1, "Setting the Input Format."



CAUTION

The maximum allowable voltage of the SDI input connectors is ± 2 V. Do not apply excessive voltage to the connectors. Doing so may damage the device or lead to injury.

4.3 Switching between SDI Signals (INPUT)

There are two SDI signal input connectors on the rear panel: INPUT SDI A and INPUT SDI B. When viewing a single link signal in the 1-channel display, you can press the INPUT key on the front panel to select which connector's signal you want to measure.

When viewing a single link signal in the 2-channel display and when using the 3D assist display, you can press the INPUT key on the front panel to select which connector's signal you want to transmit.

When the link format is set to dual, the INPUT key does not function.

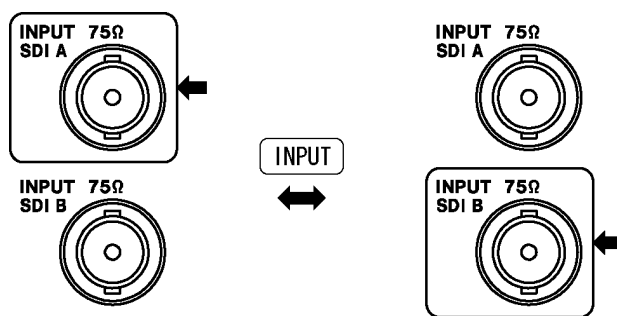


Figure4-7 Switching SDI input signals

4.4 Transmitting an SDI Output Signal

When the link format is set to single, the SDI output connector transmits a reclocked version of the SDI signal that has been selected using the INPUT key on the front panel. When the link format is set to dual, the SDI output connector transmits a reclocked version of the signal received through INPUT SDI A. Use the output connector to transmit the signal to a picture monitor or other device that supports SDI signals.

The output impedance of the connector is $75\ \Omega$. Terminate the connector of the device you connect to at $75\ \Omega$.

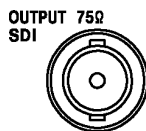


Figure4-8 SDI output connector

4.5 Applying an External Sync Signal

You can use an external sync signal for the video signal waveform and vector display modes (unless the displayed signal is a dual link 10-bit YCbCr signal). Apply a tri-level sync signal or an NTSC/PAL black burst signal to the external reference input connectors.

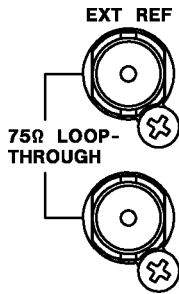


Figure4-9 External reference input connectors

As shown in the figure below, the external reference 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 device's connector at 75 Ω .

Connect each of the external reference input connectors to a cable with a characteristic impedance of 75 Ω .

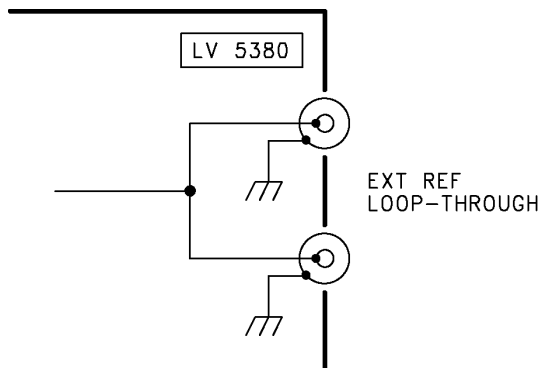


Figure4-10 Loop-through

- To use an external sync signal, set EXT REF to ON in video signal waveform, vector, or status display mode. Waveforms are displayed using the synchronized SDI signal in the picture, audio, and status displays (except for phase difference measurement) regardless of this setting.
- 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.
- If the video signal waveform or phase difference is displayed using an external sync signal as reference, the waveform phase one clock before or after an SDI signal is inserted or the power is turned on is indefinite.



CAUTION

The maximum allowable voltage of the external reference input connectors is ± 5 V. Do not apply excessive voltage to the connectors. Doing so may damage the device or lead to injury.

4.6 Using a VESA Stand

You can attach a VESA stand (75 × 75 mm) to the LV 5380. When you attach a VESA stand to the LV 5380, insert the supplied VESA spacer between the LV 5380 and the stand.

If the LV 5380 is equipped with a battery mount option, you cannot attach a VESA stand to it.

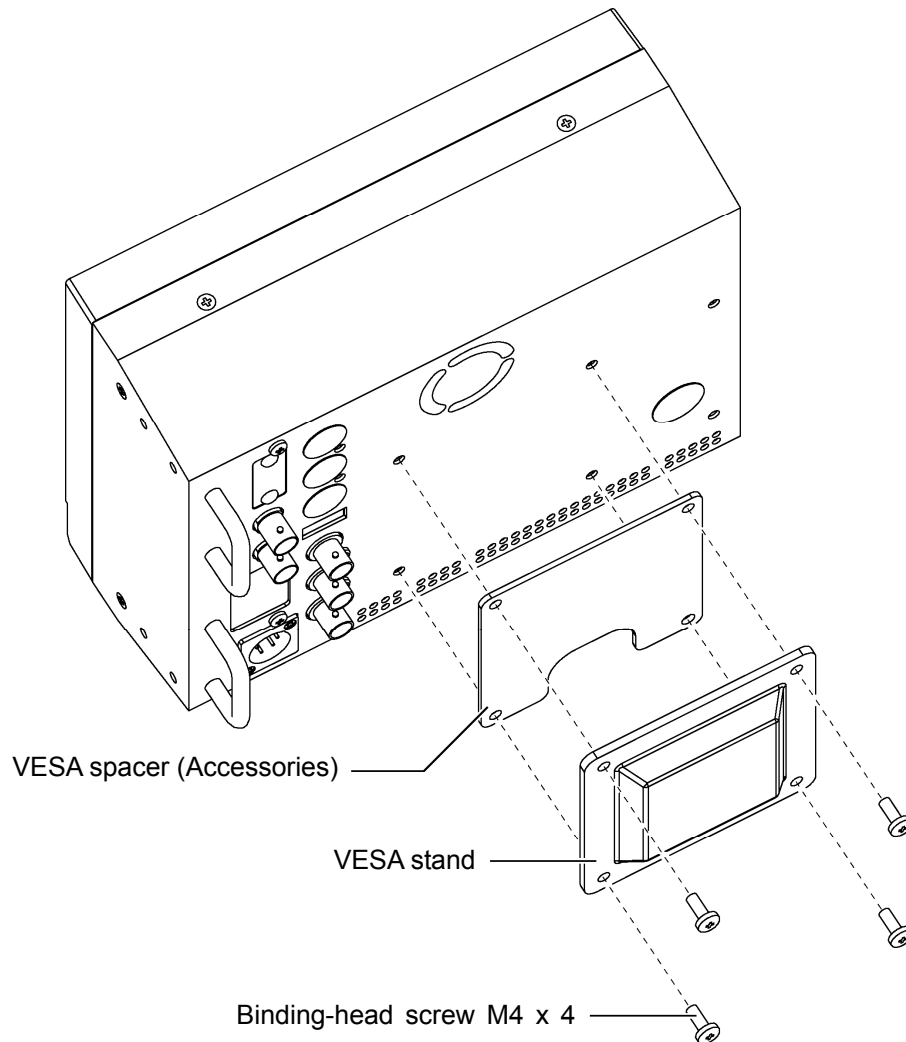


Figure4-11 Attaching a VESA stand

4. BEFORE YOU BEGIN MEASURING

4.7 Enabling the Key Lock

You can prevent accidental operations on the LV 5380 by enabling the key lock. The key lock disables all LV 5380 keys except for the power switch.

- **Enabling the Key Lock**

Press and hold SYS for 2 seconds or more. Release SYS after the message “Keylock Press 'SYS' for 2sec.” appears in red in the bottom right of the display.

While the key lock is enabled, a key symbol appears in the upper right of the display.

- **Disabling the Key Lock**

Press and hold SYS for 2 seconds or more. Release SYS after the message “Keylock Canceled.” appears in green in the bottom right of the display.

4.8 General Display Explanation

This section explains the common elements in all measurement displays.

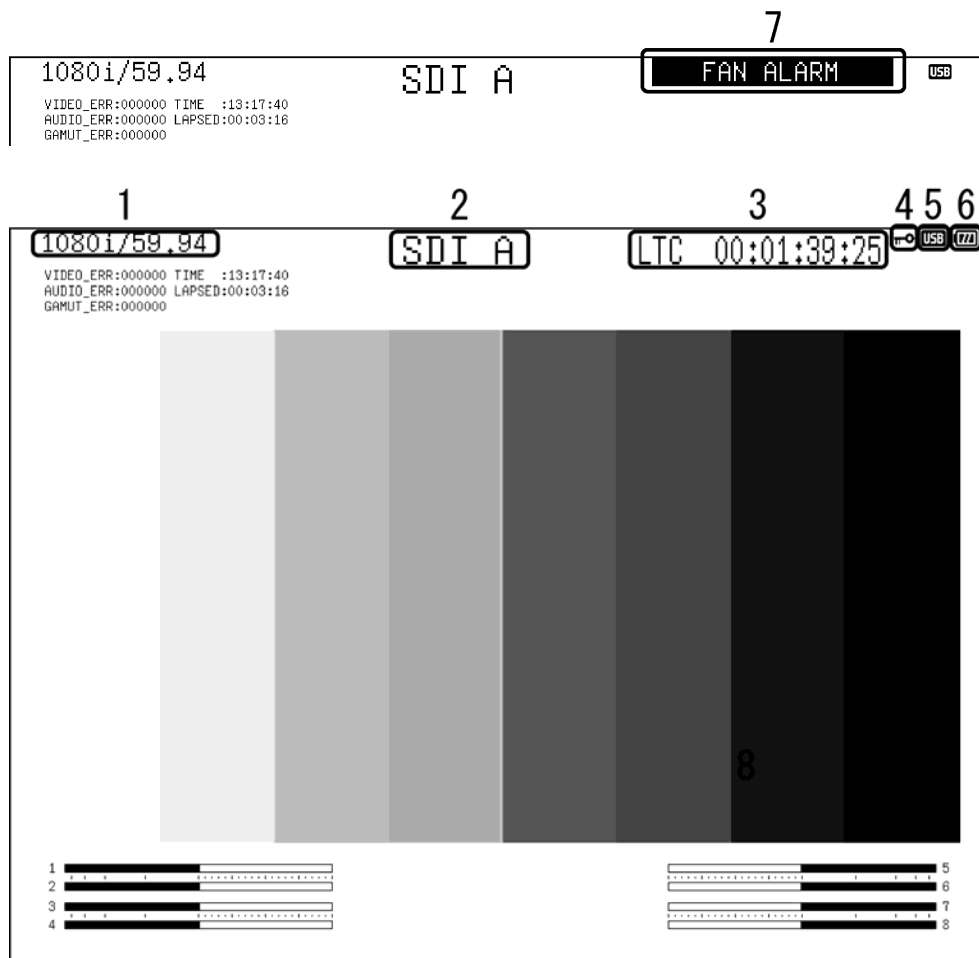


Figure4-12 Screen display

1 Input Format

The format of the SDI input signal appears here. When the link format is set to single, you can choose whether to detect the format automatically or to set it manually. (You must set the format manually when the link format is set to dual.) You can also choose to hide this display.

[Reference] Section 5.1.2, "Setting the Input Format Detection Method,"
 Section 5.1.3, "Selecting i or PsF,"
 Section 5.1.4, "Setting the Input Format,"
 Section 5.4.3, "Displaying the Input Format."

2 Input Channel

The input channel number or ID appears here. You can set an ID for each input channel. You can also choose to hide this display.

[Reference] Section 5.4.4, "Selecting the Input SDI Signal Display Format"
 Section 5.3, "Setting the Channel ID"

3 Timecode

The SDI input signal timecode appears here. You can set the timecode to LTC, VITC, or OFF.

[Reference] Section 5.4.1, "Selecting the Timecode Display Format"

4 Key Lock Indication

This symbol appears when the key lock is enabled.

[Reference]: Section 4.7, "Enabling the Key Lock"

5 USB Indication

This symbol appears here when USB memory is connected.

6 Remaining Battery Power Indicator (Option)

When the LV 5380 is using a battery, the amount of remaining battery power is displayed here using four levels.

[Reference] Section 4.1.5, "Using a Battery (Option)"
 Section 5.9, "Remaining Battery Power Display (Option)"

7 Alarm

The following alarms may appear here.

FAN ALARM

This alarm appears when the fan is not functioning.

If "FAN ALARM" appears, contact your local LEADER agent.

OVER HEAT

This alarm appears when the internal temperature has exceeded the specified limits.

If "OVER HEAT" appears, check the operating environment. If "OVER HEAT" appears even though there are no problems with the operating environment, contact your local LEADER agent.

4.9 Basic Panel Operations

The main panel operations are listed below.

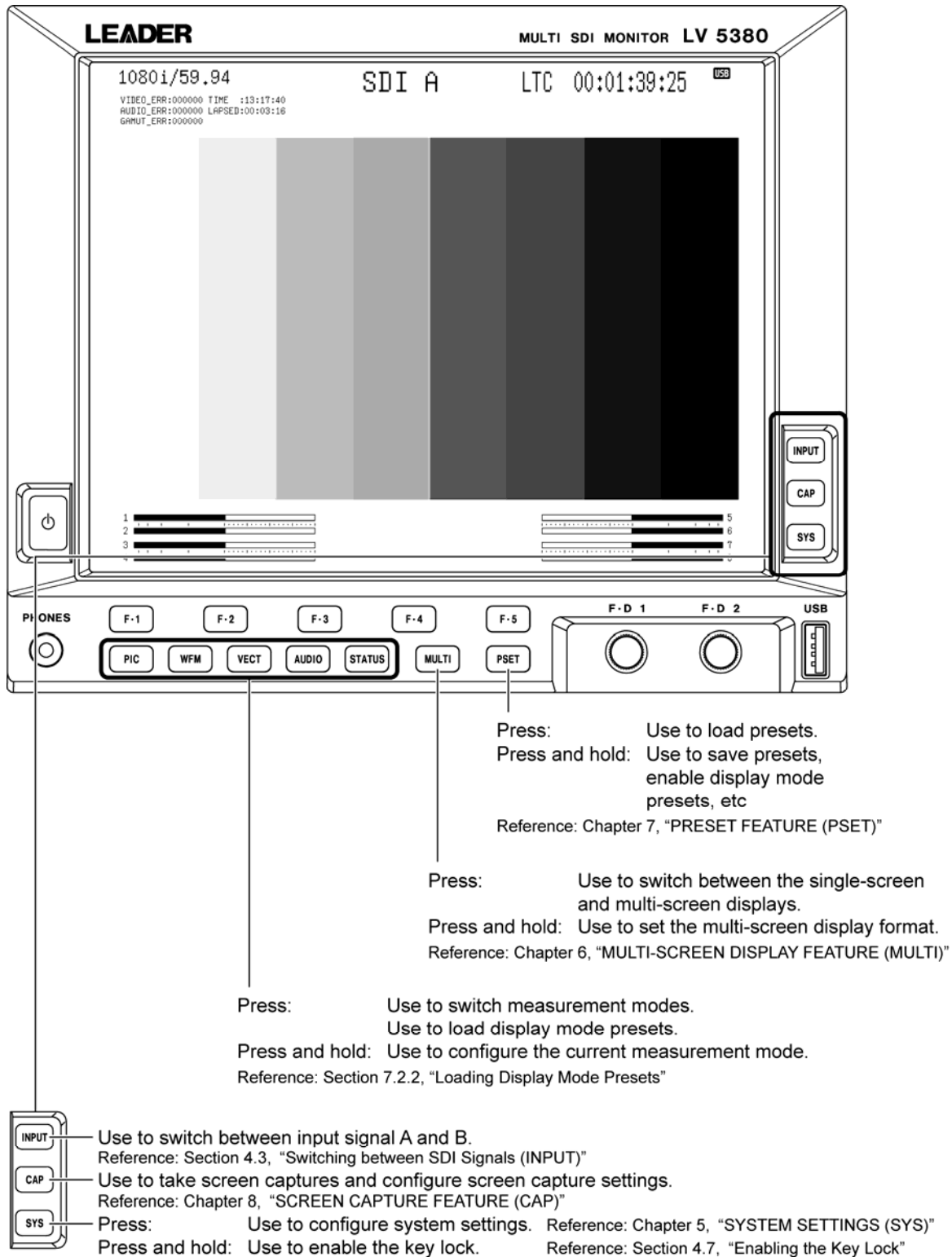


Figure4-13 Basic Panel Operations

4.10 Displaying Menus

You can configure various settings in the setup menus, but the setup menus are not displayed all of the time.

To display a setup menu, you can either press and hold the appropriate key for 0.5 seconds or more,¹ or you can use the function keys or function dials in the appropriate display.²

Setup menus automatically disappear after 10 seconds of user inactivity. To adjust how long setup menus remain displayed, see section 5.8, “Setting the Menu Display Time.” Regardless of the display time setting, the system menu, preset registration menu, and preset menu do not disappear because of user inactivity.

- 1 The main setup menu appears. You do not need to press and hold the keys to display the system menu, screen capture menu, preset menu, or display mode preset menu.
- 2 The section of the setup menu that was displayed most recently appears.

As an example, if you do not perform any operations for 10 seconds in the situation shown below, the picture menu will disappear.

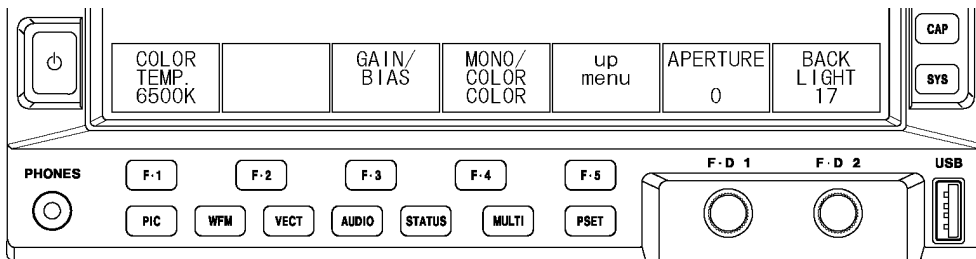


Figure4-14 Setup menu display example 1

If you press and hold **PIC** after the picture menu in figure 4-14 has disappeared, the main picture menu appears.

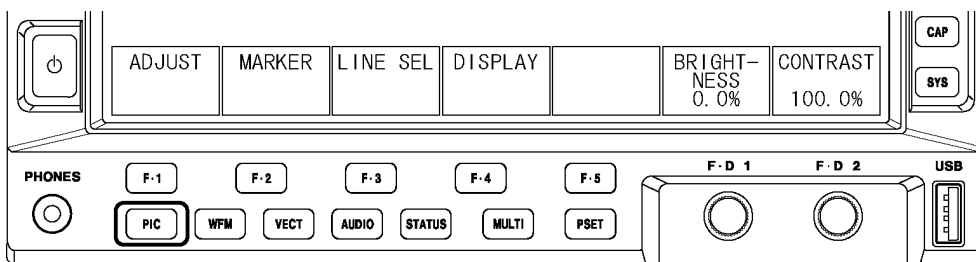


Figure4-15 Setup menu display example 2

If you use the function keys or the function dial after the picture menu in figure 4-15 has disappeared, the picture menu will reappear at the level that it was at before.

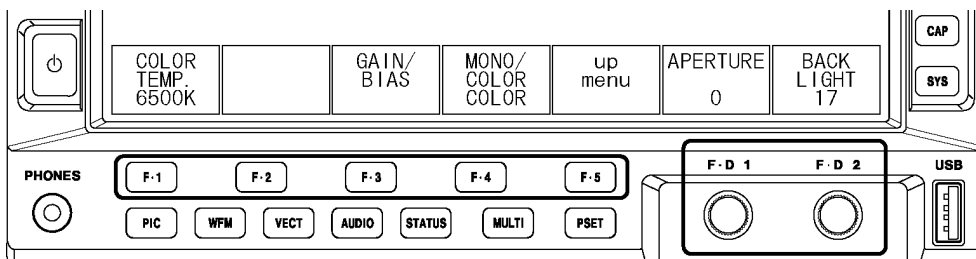


Figure4-16 Setup menu display example 3

4. BEFORE YOU BEGIN MEASURING

The following section explains how to configure settings in the setup menus.

- **Selecting a Pop-Up Command**

As an example, to set **F•1** GAIN MAG in the figure below, press **F•1**. Pop-up commands appear. You can select a command by pressing **F•1**.

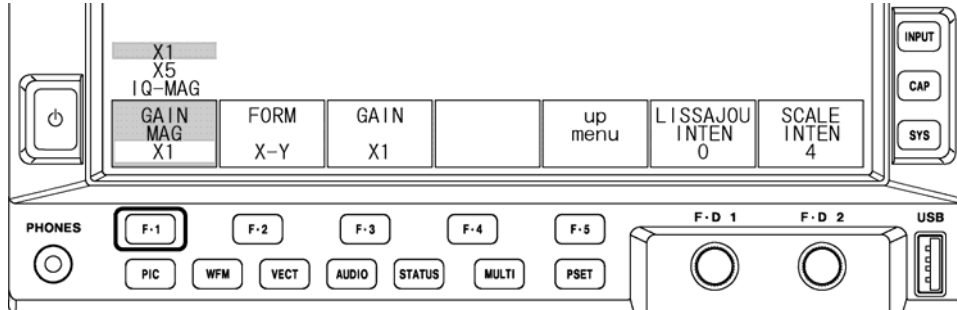


Figure4-17 Selecting a pop-up command

- **Setting the Value Assigned to a Function Dial**

As an example, to set **F•D 1** LISSAJOU INTEN in the figure below, turn **F•D 1**. If you press **F•D 1**, LISSAJOU INTEN is set to its default value of 0.

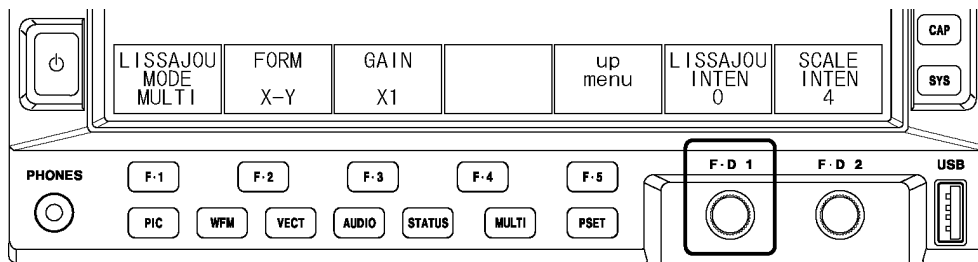


Figure4-18 Setting a number, example 1

- **Setting the Value Assigned to a Function Key**

As an example, to set **F•3** LOWER LEVEL in the figure below, press **F•3**, and then turn **F•D 1**. If you press **F•D 1**, LOWER LEVEL is set to its default value.

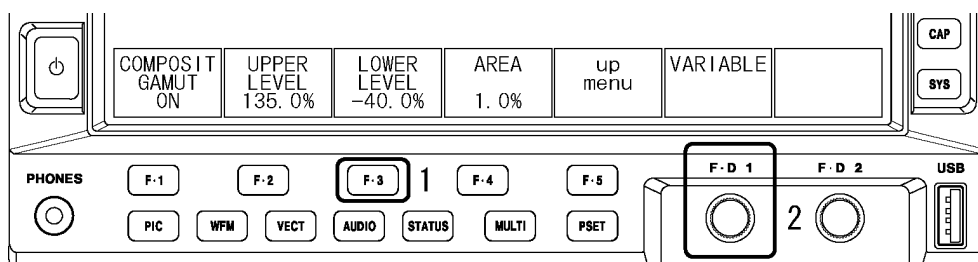


Figure4-19 Setting a number, example 2

5. SYSTEM SETTINGS (SYS)

You can configure general LV 5380 settings in the system menu.

To display the system menu, press **[SYS]**. The system menu will not automatically disappear after a certain amount of time has passed. To hide the system menu, press **[SYS]** again.

[SYS] →

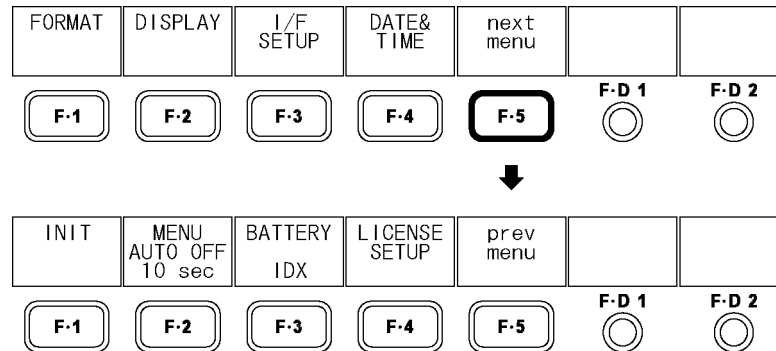


Figure5-1 System menu

5.1 Setting the Input Format

To set the input format, press **[F-1]** FORMAT in the system menu. A menu for setting the input format and the composite display format appears.

[SYS] → **[F-1]** FORMAT →

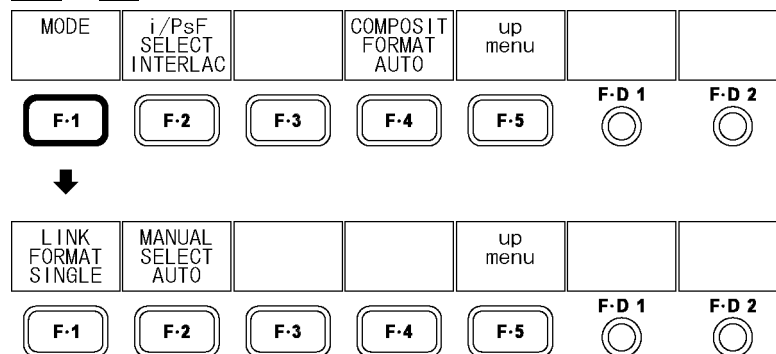


Figure5-2 Format menu

5.1.1 Selecting a Link Format

To select a link format, follow the procedure below.

It takes approximately 20 seconds to switch between the dual link and single link formats. While the LV 5380 is switching from one link format to the other, it displays the message, "System reconfiguration."

The LV 5380 cannot detect the input format when the link format is set to dual. Refer to section 5.1.4, "Setting the Input Format," and set the input format manually.

Procedure

[SYS] → **[F-1]** FORMAT → **[F-1]** MODE → **[F-1]** LINK FORMAT

Settings

SINGLE:	The LV 5380 receives single link signals. This is the default setting.
DUAL:	The LV 5380 receives dual link 1920 × 1080 signals.
2K:	The LV 5380 receives dual link 2048 × 1080 signals.

5.1.2 Setting the Input Format Detection Method

When the link format is set to single, to select whether to detect the input format automatically or to set it manually, follow the procedure below.

When the link format is set to dual, you must set the input format manually, and this setting is not available.

Procedure

SYS → **F•1** FORMAT → **F•1** MODE → **F•2** FORMAT SELECT

Settings

AUTO:	The input format is detected automatically. This is the default setting.
MANUAL:	The input format must be set manually.

5.1.3 Selecting i or PsF

When the link format is set to single, even if you set **F•2** FORMAT SELECT to AUTO, the following formats cannot be detected automatically.

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

To select whether to display the input format name as interlaced or segmented frame, follow the procedure below.

This setting is available when **F•2** FORMAT SELECT is set to AUTO.

Procedure

SYS → **F•1** FORMAT → **F•2** i/PsF SELECT

Settings

INTERLAC:	The input format name is displayed as interlaced. This is the default setting.
SEG.FRM:	The input format name is displayed as segmented frame.

5.1.4 Setting the Input Format

You must set the input format manually if the link format is set to dual or if the link format is set to single and **F•2** FORMAT SELECT has been set to MANUAL.

To set the input format, follow the procedure below.

This setting is available when **F•2** FORMAT SELECT has been set to MANUAL or when the link format is set to dual.

Procedure

1. **SYS** → **F•1** FORMAT → **F•2** SCANNING
2. **F•3** FIELD FREQ. (for single link interlaced signals)
F•3 FRAME FREQ. (for single link segmented frame or progressive signals)
F•3 D_LINK FORMAT (for dual link signals)

Table 5-1 Input formats

F•1 LINK FORMAT	F•2 SCANNING	F•3 FIELD FREQ./FRAME FREQ./D_LINK FORMAT
SINGLE	1080i (default setting)	60, 59.94 (default setting), or 50
	1080PsF	30, 29.97 (default setting), 25, 24, or 23.98
	1080p	30, 29.97 (default setting), 25, 24, or 23.98
	720p	60, 59.94 (default setting), 50, 30, 29.97, 25, 24, or 23.98
	525i	59.94
	625i	50
DUAL	1080i (default setting)	GBR10bit (default setting), GBR12bit, or YC12bit
	1080PsF	GBR10bit (default setting), GBR12bit, YC12bit, or XYZ12bit
	1080p	GBR10bit (default setting), GBR12bit, YC10bit, YC12bit, or XYZ12bit
2K	1080PsF (default setting)	GBR12bit or XYZ12bit
	1080p	GBR12bit or XYZ12bit

* For dual link signals, the field and frame rates are determined automatically.

5.1.5 Setting the Composite Display Format

To set the composite display format, follow the procedure below.

The composite display format affects how video signal waveforms and vectors are converted into pseudo-composite signals.

Procedure

SYS → **F•1** FORMAT → **F•4** COMPOSIT FORMAT

Settings

AUTO:	When the field frequency of a received SDI signal is 50 Hz or the frame frequency is 25 or 50 Hz, the signal is converted into a PAL pseudo-composite signal. Otherwise, the signal is converted into an NTSC pseudo-composite signal. This is the default setting.
NTSC:	All received SDI signals are converted into NTSC pseudo-composite signals.
PAL:	All received SDI signals are converted into PAL pseudo-composite signals.

5.2 LCD Settings

You can set the backlight shutoff time and brightness by accessing **F•1** LCD in the system menu.

SYS → **F•2** DISPLAY →

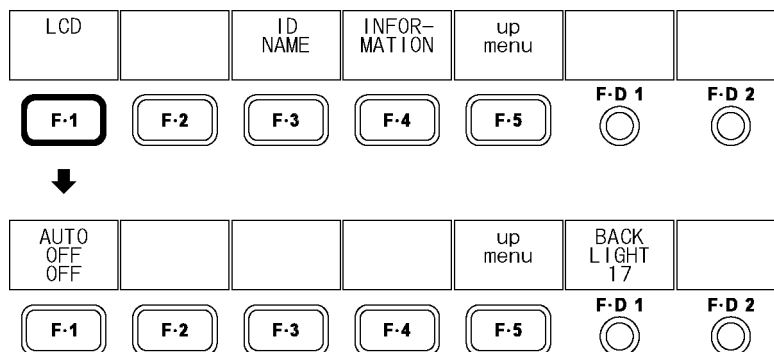


Figure5-3 LCD menu

5.2.1 Setting the Auto Shutoff Time

To set the backlight auto shutoff time, follow the procedure below.

After the backlight has been automatically shut off, it will turn on again when any key other than the power key is pressed.

Procedure

SYS → **F•2** DISPLAY → **F•1** LCD → **F•1** AUTO OFF

Settings

OFF:	The backlight is not shut off automatically. This is the default setting.
5sec:	The backlight is shut off after five seconds of user inactivity.
5min:	The backlight is shut off after five minutes of user inactivity.
30min:	The backlight is shut off after thirty minutes of user inactivity.

5.2.2 Adjusting the Backlight

To adjust the backlight brightness, follow the procedure below. The larger the number, the brighter the backlight.

If you press **F•D 1**, the backlight brightness will be set to its default value of 17.

You can also adjust the backlight brightness in the picture display by following the procedure described in section 10.3.9, “Adjusting the Backlight.” Changing one of these values will also change the other value.

Procedure

SYS → **F•2** DISPLAY → **F•1** LCD → **F•D 1** BACK LIGHT

Settings

Setting range: 1 to 32. (The default setting is 17.)

5.3 Setting the Channel ID

The LV 5380 can display user-defined channel IDs instead of the typical input channel names (SDI A/SDI B). To create user-defined channel IDs, access **F•3** ID NAME in the system menu.

To display the IDs that you create here, set INPUT INFO to ID.

[Reference] INPUT INFO → Section 5.4.4, “Selecting the Input SDI Signal Display Format”

SYS → **F•2** DISPLAY →

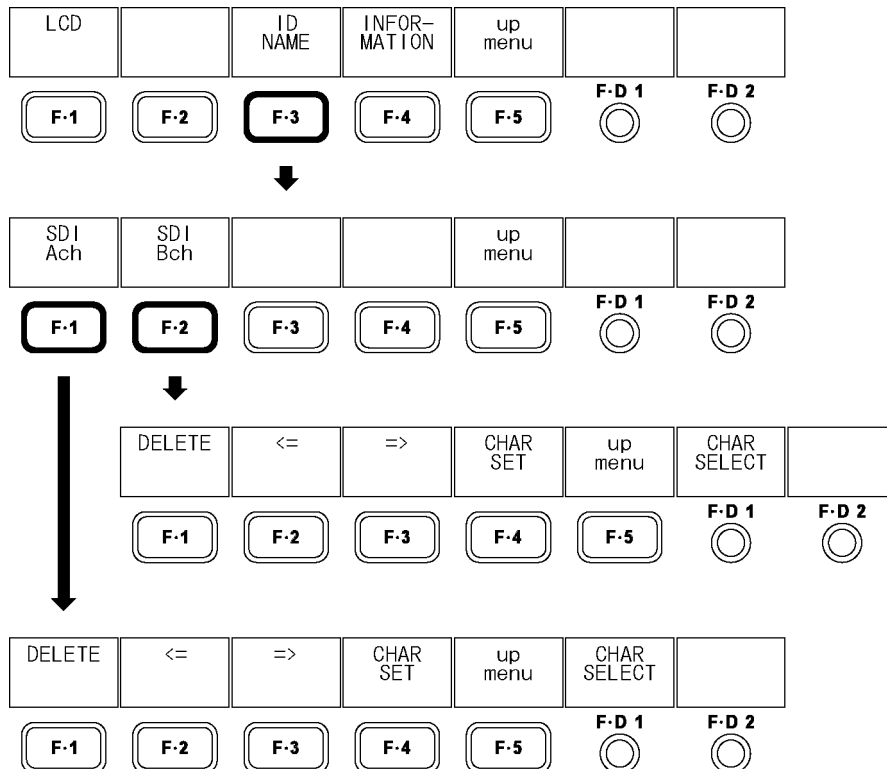


Figure5-4 ID NAME menu

5.3.1 Creating an ID

To create a user-defined ID for each input channel, follow the procedure below.
IDs can be up to 10 characters long.

Procedure

1. **[SYS]** → **[F•2]** DISPLAY → **[F•3]** ID NAME → **[F•1]** SDI Ach or **[F•2]** SDI Bch
2. **[F•D 1]** CHAR SELECT (to select a character)
3. **[F•4]** CHAR SET or **[F•D 1]** CHAR SELECT (to enter a character)
4. **[F•4]** up menu (to finish creating the ID)

To Move the Cursor

[F•2] <= or **[F•3]** =>

To Delete the Character at the Cursor

[F•1] DELETE

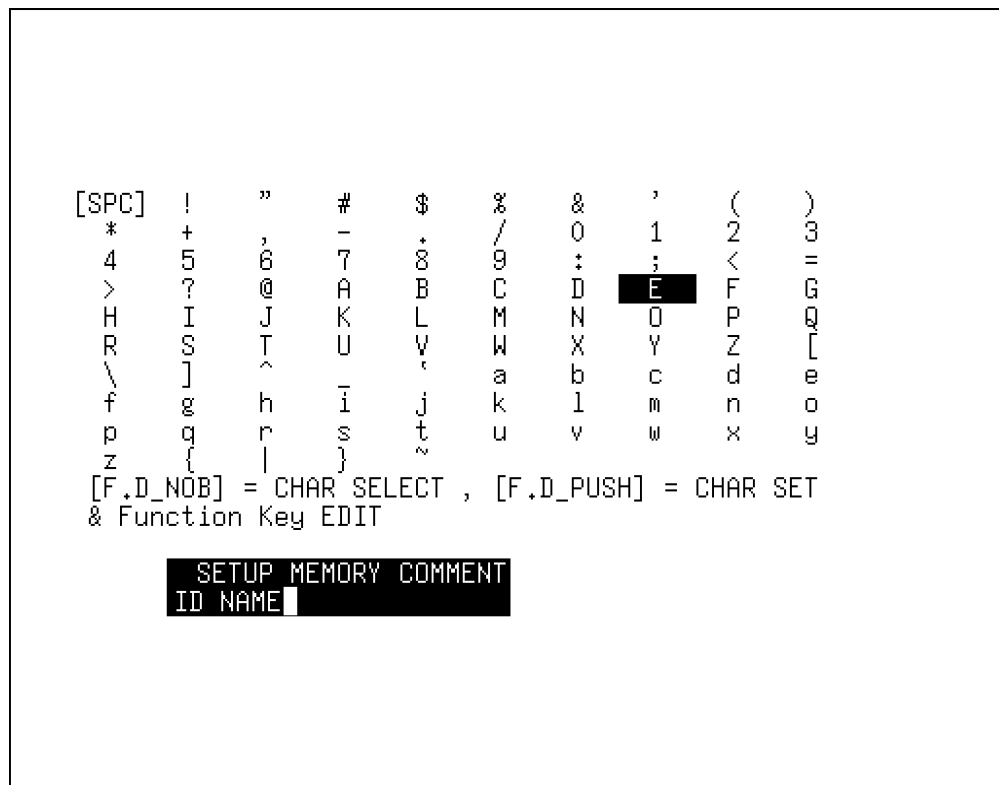


Figure5-5 ID Entry Display

5.4 Configuring the Display

To set the timecode, error counter, input, and input SDI signal display formats, access **F•4** INFORMATION in the system menu.

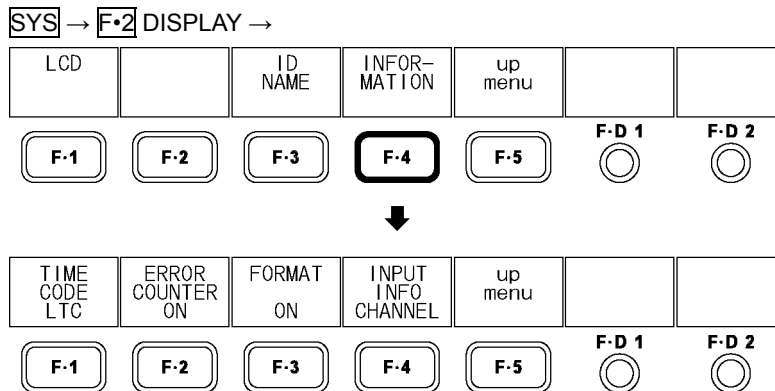


Figure5-6 INFORMATION menu

5.4.1 Selecting the Timecode Display Format

To select the display format for the SDI input signal timecode, follow the procedure below. The timecode must conform to SMPTE 12M-2. Also, when the link format is set to dual, only the timecode embedded in link A is displayed.

The display format you select here also applies to the event log of the status display.

Procedure

SYS → **F•2** DISPLAY → **F•4** INFORMATION → **F•1** TIME CODE

Settings

LTC:	The SDI input signal LTC timecode is displayed in the upper right of the screen. This is the default setting.
VITC:	The SDI input signal VITC timecode is displayed in the upper right of the screen.
OFF:	No timecodes are displayed.

5.4.2 Displaying the Error Counter and Time

To select whether to show or hide the error counter (VIDEO_ERR, AUDIO_ERR, and GAMUT_ERR) and time (TIME and LAPSED) in the upper left of the screen, follow the procedure below.

Procedure

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

Settings

ON:	The error counter and the time are displayed. This is the default setting.
OFF:	The error counter and the time are not displayed.

5.4.3 Displaying the Input Format

To show or hide the input format, follow the procedure below.

Procedure

[SYS] → **[F•2]** DISPLAY → **[F•4]** INFORMATION → **[F•3]** FORMAT

Settings

ON: The input format is displayed in the upper left of the screen. This is the default setting.

OFF: The input format is not displayed.

5.4.4 Selecting the Input SDI Signal Display Format

To select the input SDI signal display format, follow the procedure below.

You can set a user-defined ID for each channel by following the procedure in section 5.3.1, “Creating an ID.”

Procedure

[SYS] → **[F•2]** DISPLAY → **[F•4]** INFORMATION → **[F•4]** INPUT INFO

Settings

ID: The input SDI signal ID is displayed at the top of the screen in the center. When the link format is set to dual, the ID for channel A is displayed.

CHANNEL: The input SDI signal channel name is displayed at the top of the screen in the center. This is the default setting.

OFF: The input SDI signal is not displayed.

5.5 Remote Settings (Option)

To configure remote settings, press **[F•1]** REMOTE SETUP in the system menu.

[F•1] REMOTE SETUP appears when the remote option is installed on the LV 5380. The settings that you specify here will not be initialized even if you initialize the settings by following the procedure described in section 5.7.1, “Initializing the Settings.”

You can configure the preset loading method, the alarm signal polarity, and the channels whose errors are indicated by the alarm signal.

[Reference]: Section 15.1, “Remote Control Feature”

[SYS] → **[F•3]** I/F SETUP →

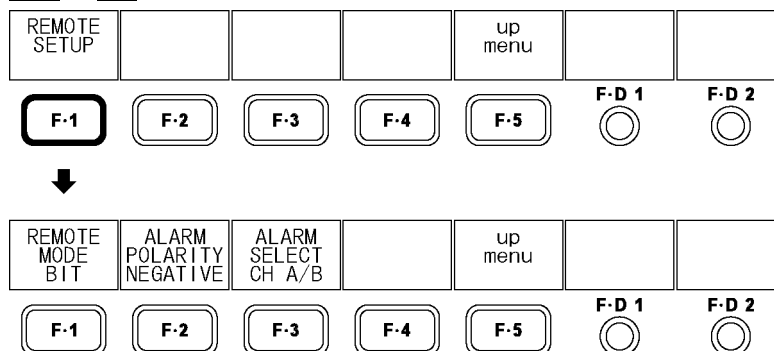


Figure5-7 REMOTE SETUP menu

5.5.1 Selecting the Method for Loading Presets

You can use pins 2 through 9 (/P1 through /P8) of the remote control connector to load presets. There are two different methods for loading presets. To choose which method to use, follow the procedure below.

Procedure

SYS → **F•3** I/F SETUP → **F•1** REMOTE SETUP → **F•1** REMOTE MODE

Settings

BIT: /P1 through /P8 are assigned to preset numbers 1 through 8, and you can load one of the eight presets. This is the default setting.

BINARY: /P5 is set to the MSB, and /P1 is set to the LSB. You can load one of any of the 30 presets by specifying a binary value.

5.5.2 Setting the Alarm Signal Polarity

The alarm signal is transmitted from pin 14 (ALARM) of the remote control connector when the LV 5380 internal temperature reaches or exceeds a specific value, 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 in the status menu.

To set the polarity of the alarm signal, follow the procedure below.

Procedure

SYS → **F•3** I/F SETUP → **F•1** REMOTE SETUP → **F•2** ALARM POLARITY

Settings

POSITIVE: An active-high signal is transmitted.

NEGATIVE: An active-low signal is transmitted. This is the default setting.

5.5.3 Setting the Channels Whose Errors Are Indicated by the Alarm Signal

The alarm signal is transmitted when an error occurs in one of the items set to ON in the menu that appears when you press **F•4** ERROR CONFIG in the status menu. To set the channels whose errors are indicated by the alarm signal, follow the procedure below.

Procedure

SYS → **F•3** I/F SETUP → **F•1** REMOTE SETUP → **F•3** ALARM SELECT

Settings

CH A: The alarm signal is transmitted when an error occurs on channel A.

CH B: The alarm signal is transmitted when an error occurs on channel B.

CH A/B: The alarm signal is transmitted when an error occurs on channel A or B. This is the default setting.

5.6 Setting the Date and Time

To set the date and time, access **F·4** DATE&TIME in the system menu.

The date and time that you set here will not be initialized even if you initialize the settings by following the procedure described in section 5.7.1, “Initializing the Settings.”

SYS → **F·4** DATE&TIME →

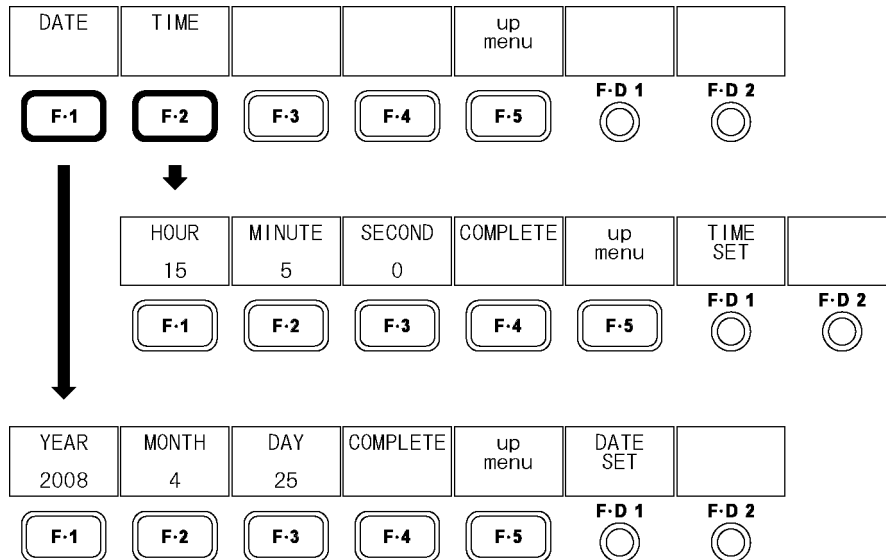


Figure5-8 DATE&TIME menu

5.6.1 Setting the Date

To set the date, follow the procedure below.

The date that you set will be used when various kinds of data are saved to USB memory.

Procedure

1. **SYS** → **F·4** DATE&TIME → **F·1** DATE
2. **F·1** YEAR → **F·D 1** DATE SET (to set the year)
3. **F·2** MONTH → **F·D 1** DATE SET (to set the month)
4. **F·3** DAY → **F·D 1** DATE SET (to set the day)
5. **F·4** COMPLETE (to confirm the date setting)

5.6.2 Setting the Time

To set the time, follow the procedure below.

The time you set appears in the upper left of the screen next to **TIME**.

It is also used when various kinds of data are saved to USB memory.

Procedure

1. **SYS** → **F·4** DATE&TIME → **F·2** TIME
2. **F·1** HOUR → **F·D 1** DATE SET (to set the hour)
3. **F·2** MINUTE → **F·D 1** DATE SET (to set the minute)
4. **F·3** SECOND → **F·D 1** DATE SET (to set the second)
5. **F·4** COMPLETE (to confirm the time setting)

5.7 Initialization

To initialize the LV 5380 settings, access **[F•1] INIT** in the system menu.

[SYS] → **[F•5]** next menu → **[F•1] INIT** →

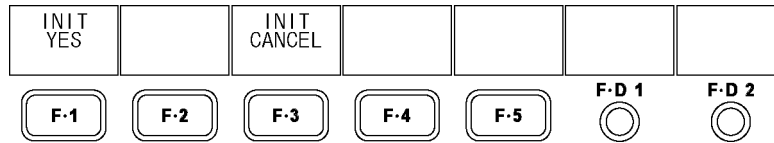


Figure5-9 INIT menu

5.7.1 Initializing the Settings

To initialize the settings, follow the procedure below. For information about the initial settings, see section 16.1, “Menu Tree.” The initial settings are underlined.

To cancel the initialization of the settings, press **[F•3] INIT CANCEL**.

Even if you initialize the settings, the date, time, presets, display mode presets, remote control settings (option), and CINELITE II gamma correction values (option) are not initialized.

Procedure

[SYS] → **[F•5]** next menu → **[F•1] INIT** → **[F•1] INIT YES**

5.8 Setting the Menu Display Time

To set the menu display time (in five second steps), follow the procedure below. Setup menus automatically disappear after a set period of user inactivity (menus do not automatically disappear if OFF is selected.)

Regardless of the display time setting, the system menu, preset registration menu, and preset menu do not disappear because of user inactivity.

Procedure

[SYS] → **[F•5]** next menu → **[F•2] MENU AUTO OFF** → **[F•D 1] TIME SET**

Settings

Setting range: 5 to 60 s. / OFF (The default setting is 10 s.)

5.9 Remaining Battery Power Display (Option)

When you are using a battery, you can display the approximate amount of remaining battery power in the upper right of the display using four levels.

Table 5-2 Indications of Remaining Battery Power

Display				
Color	White	White	Yellow	Red
Power	Full			

To correctly display the amount of remaining battery power, you need to select the battery type. To select the battery type, follow the procedure below.

The LV 5380 displays **F•3** BATTERY if it has a battery mount option installed.

Procedure

SYS → **F•5** next menu → **F•3** BATTERY

Settings

-
- | | |
|-----------|--|
| IDX: | Select this option when you are using a V-mount battery. If the battery that you are using does not support remaining battery power output (analog), select OTHERS.
IDX is the default setting if the LV 5380 is equipped with OP73. |
| ANTON-BA: | Select this option if you are using a battery made by Anton/Bauer.
ANTON-BA is the default setting if the LV 5380 is equipped with OP74. |
| OTHERS: | Select this option if you are using a battery other than one of the ones listed above.
The amount of remaining battery power will only be displayed correctly if you are using a 14.4-V lithium-ion battery. Also, because the remaining power is detected based on the battery connector voltage, it may not be displayed correctly. |
| OFF: | The remaining battery power is not displayed. |
-

5.10 License Settings

5.10.1 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 5380. Leader will send you a license key when you purchase an option. Before purchasing an option, prepare the MAC address and the serial number of your LV 5380.*1, *2 Each LV 5380 requires a unique license key. You cannot use the same key for multiple instruments.

*1 You can view the MAC address from the license display.

*2 The serial number is printed on a label on the rear panel.

To install an option, follow the procedure below.

1. Press **SYS**.

The system menu appears.

2. Press **F•5** next menu.

3. Press **F•4** **LICENSE SETUP**.

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

MAC ADDRESS: 00:00:00:00:00:00

LICENSE LIST: 1. FS3035 - CINELITE II
2.
3.
4.
5.

0 1 2 3 4 5 6 7 8 9

[F.D_NOB] = CHAR SELECT , [F.D_PUSH] = CHAR SET
& Function Key EDIT

OPTION LICENSE KEY []

CLEAR CHAR SET REGISTER REMOVE up menu CHAR SELECT

F•1 F•2 F•3 F•4 F•5 F•D 1 F•D 2

Figure5-10 License display

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

The key operations that can be performed in the license display are as follows:

- F•1** CLEAR: Deletes the license key that you are currently entering
- F•2** CHAR SET: Enters the selected number
- F•D 1** CHAR SELECT: Turn to select a number, and press to enter the number

5. Press **F•3** **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 the an installed option, enter the license key, and then press **F•4** REMOVE.

5.10.2 Viewing the MAC Address and Installed Options

In the license display shown above, you can view the MAC address and the options that are installed on the LV 5380. The options (sold separately) that the LV 5380 supports are shown below.

Table 5-3 Supported options

Option Number	Name	Notes
FS 3035	CINELITE II	Requires a license key
LV 5380 OP72	REMOTE & TALLY	Factory option
LV 5380 OP73	BATTERY MOUNT IDX	Factory option
LV 5380 OP74	BATTERY MOUNT ANTON	Factory option

6. MULTI-SCREEN DISPLAY FEATURE (MULTI)

The LV 5380 has five display modes: picture display, video signal waveform display, vector display, audio display, and status display. The display that only shows one mode at a time is referred to as the single-screen display. 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. The 1-channel display shows the channel that you have selected using **INPUT**, the 2-channel display and the 3D assist display show channels A and B simultaneously.

To switch between the multi- and single-screen displays, press **MULTI**.

To configure the multi-screen display, press and hold **MULTI** for 0.5 seconds or more, or use the function keys and function dials while in the multi-screen display.

MULTI (press and hold) →

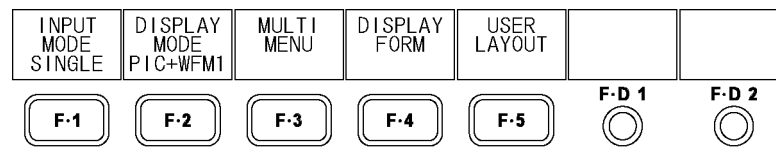


Figure 6-1 Multi-screen display menu

- * The single-screen display can show audio meters and pictures 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

You can switch between the single- and multi-screen displays by pressing **MULTI**.

To select the multi-screen display format, follow the procedure in section 6.3, “Selecting the Multi-Screen Display Format.”

Settings

ON (lighted):	<p>Multi-screen display</p> <p>Cursor measurement cannot be used in the video signal waveform display.</p> <p>The vector display is shown using the intensity (WFM INTEN), color (WFM COLOR), and setup level that have been specified for the video signal waveform display. (This excludes the VEC+PIC setting on the 2-channel display.)</p> <p>You cannot use display mode presets.</p>
OFF (not lighted):	<p>Single-screen display. This is the default setting.</p>

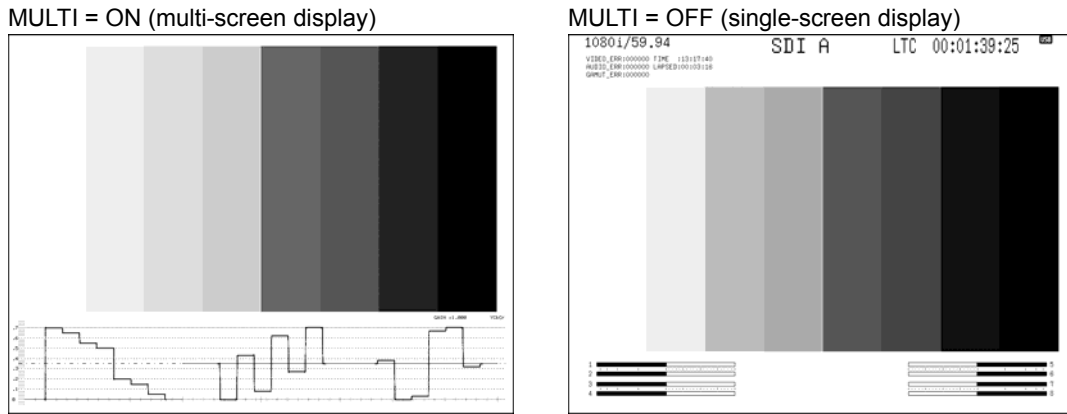


Figure 6-2 Single- and multi-screen displays

6.2 Selecting the Display Mode


To select the display mode, follow the procedure below.

For details on the 3D assist display, see chapter 7, “3D ASSIST DISPLAY FEATURE.”

Procedure

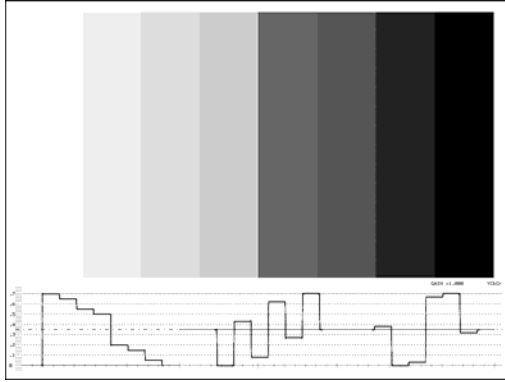
MULTI (press and hold) → **F•1** INPUT MODE

Settings

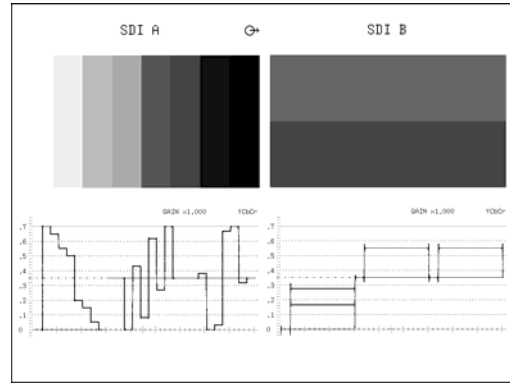
- | | |
|-----------|--|
| SINGLE: | The channel that you selected using INPUT is displayed. This is the default setting. |
| DUAL: | Channels A and B are displayed simultaneously. This setting cannot be chosen when the link format is set to dual.
The line select feature, the marker feature on the picture display, 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 connector. On the display,  indicates the selected channel. |
| 3D ASIST: | The video signal for the left eye and the video signal for the right eye are displayed simultaneously. This option cannot be selected when the link format is set to dual.
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. |

6. MULTI-SCREEN DISPLAY FEATURE (MULTI)

INPUT MODE = SINGLE



INPUT MODE = DUAL



INPUT MODE = 3D ASIST

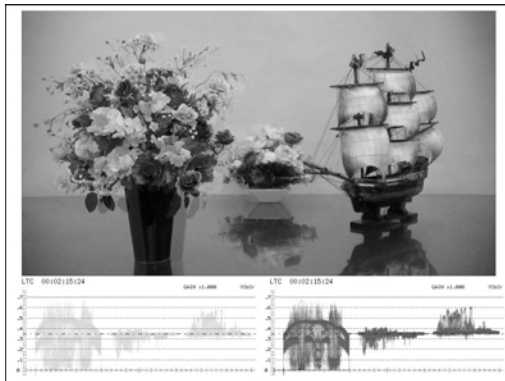


Figure 6-3 Selecting the display mode

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 (press and hold) → **F•2** DISPLAY MODE

• 1-channel display

Settings

PIC+WFM1: The picture and video signal waveform displays are displayed on top of each other. This is the default setting. The SDI signal information and the error counter do not appear at the top of the screen.

The video signal waveform can be changed to the histogram display.

PIC+WFM2: The picture and video signal waveform displays are displayed on top of each other. The SDI signal information and the error counter do not appear at the top of the screen.

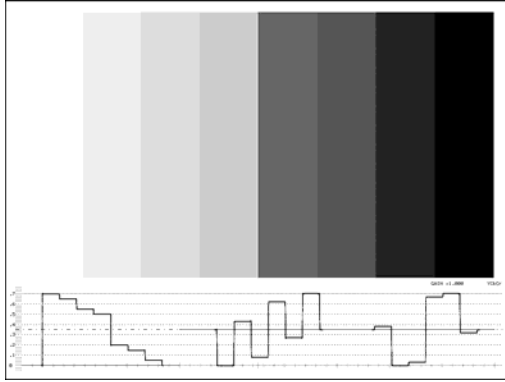
The video signal waveform can be changed to the histogram display.

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

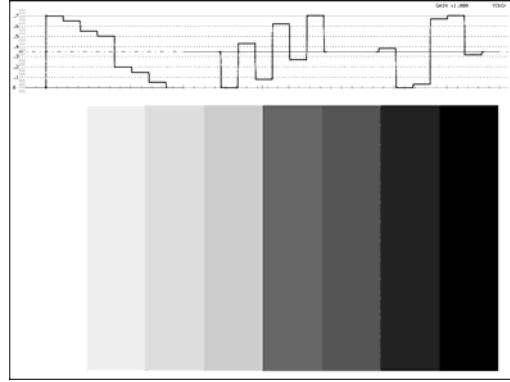
P+W+V+A: Shows the picture, video signal waveform, vector, and audio meter displays at the same time.

6. MULTI-SCREEN DISPLAY FEATURE (MULTI)

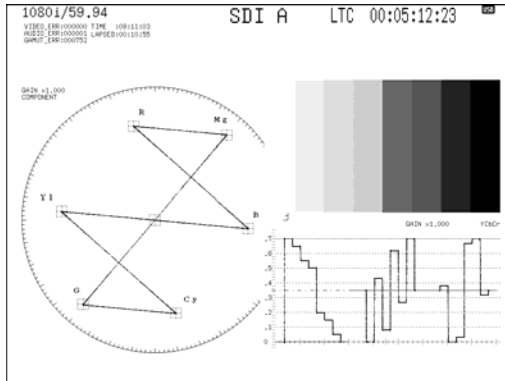
DISPLAY MODE = PIC+WFM1



DISPLAY MODE = PIC+WFM2



DISPLAY MODE = P+W+V



DISPLAY MODE = P+W+V+A

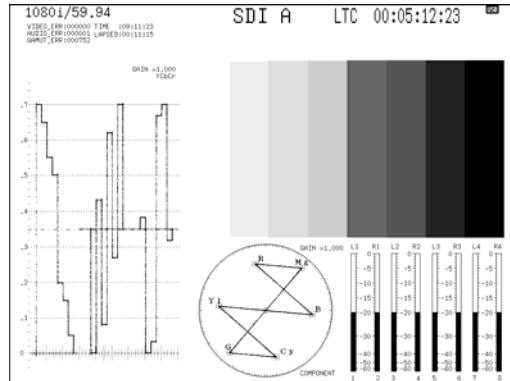


Figure 6-4 Multi-screen display formats (1-channel display)

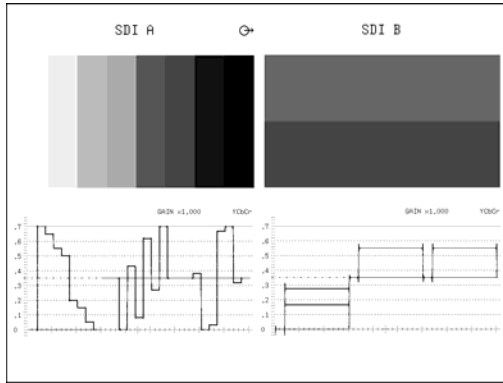
● 2-channel display

Settings

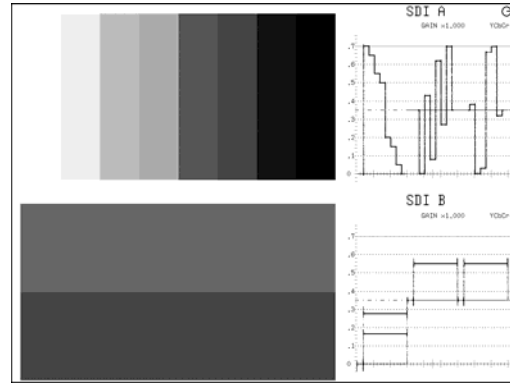
P+W: H:	The picture and video signal waveform displays of channels A and B are arranged horizontally. This is the default setting.
P+W: V:	The picture and video signal waveform displays of channels A and B are arranged vertically.
W+V: V:	The video signal waveform and vector displays of channels A and B are arranged vertically.
WFM+PIC:	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:	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.

6. MULTI-SCREEN DISPLAY FEATURE (MULTI)

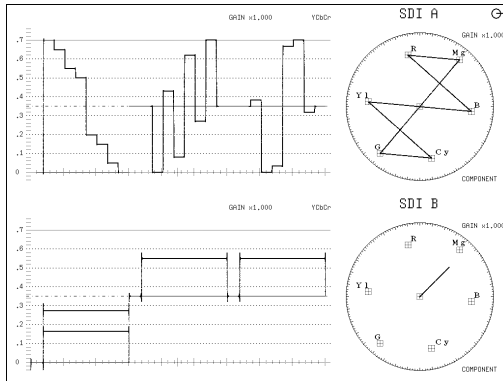
DISPLAY MODE = P+W: H



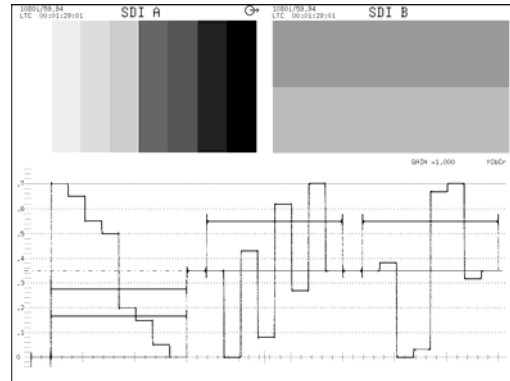
DISPLAY MODE = P+W: V



DISPLAY MODE = W+V: V



DISPLAY MODE = WFM+PIC



DISPLAY MODE = VEC+PIC

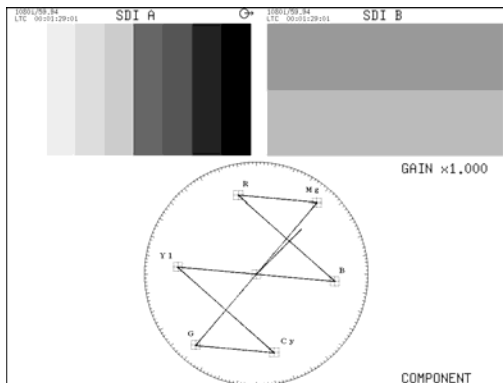


Figure 6-5 Multi-screen display (2-channel display)

6.4 Configuring Wipe Display Settings

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 (press and hold) → **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 setting.

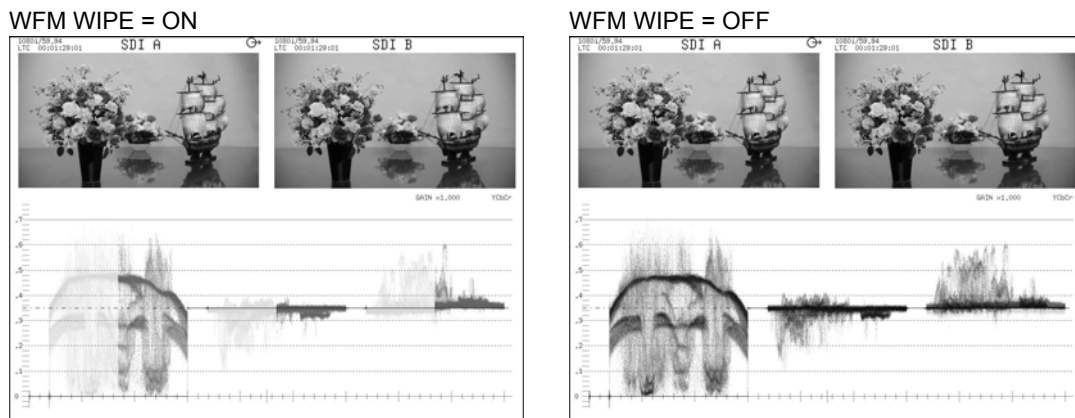


Figure 6-6 Wipe display

6.5 Setting Each 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).

The settings that you specify here affect the settings in single mode as well.

Any options out of **F•1** PIC to **F•4** AUDIO that correspond to measurement modes that are not being displayed are hidden.

Procedure

MULTI (press and hold) → **F•3** MULTI MENU → **F•1** PIC
 → **F•2** WFM
 → **F•3** VECT
 → **F•4** AUDIO

6.6 Switching between the Video Signal Waveform and Histogram Sub Items

When (1) **[F•1]** INPUT MODE is set to SINGLE and **[F•2]** DISPLAY MODE is set to PIC+WFM1 or PIC+WFM2 or (2) **[F•1]** INPUT MODE is set to 3D ASIST (excluding the case when **[F•3]** MEASURE SELECT is set to DISPRTY), to switch between the video signal waveform and histogram sub items, follow the procedure below.

Procedure

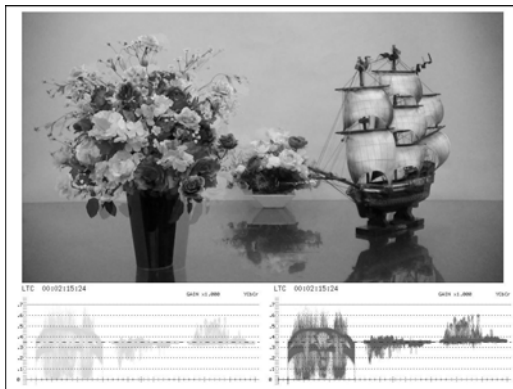
[MULTI] (press and hold) → **[F•4]** DISPLAY FORM → **[F•1]** SUB-ITEM

Settings

WFM: The video signal waveform display appears. This is the default setting.

HISTGRM: The histogram display appears.

SUB-ITEM = WFM



SUB-ITEM = HISTGRM

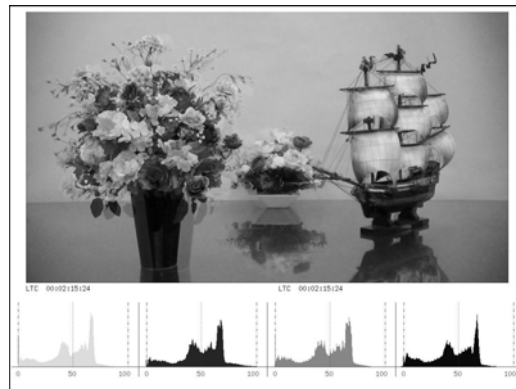


Figure 6-7 Video signal waveform and histogram displays

6.7 Configuring Video Signal Waveform Settings

Press **[F•2]** WFM SETUP on the Multi-Screen Display menu to configure video signal waveform settings. This setting is available when **[F•5]** 3D INPUT FORMAT is set to L/R DUAL and **[F•1]** SUB-ITEM is set to WFM. Use this menu to select the display format and the waveform color.

[MULTI] (press and hold) → **[F•4]** DISPLAY FORM →

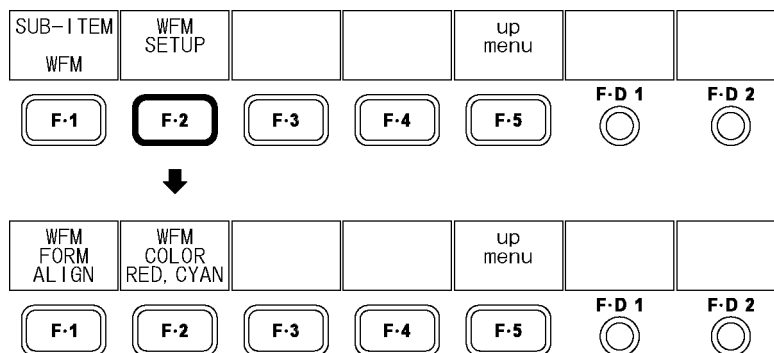


Figure 6-8 WFM SETUP menu

6.7.1 Selecting the Display Format

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

Procedure

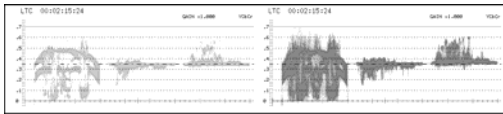
MULTI (press and hold) → **F•4** DISPLAY FORM → **F•2** WFM SETUP → **F•1** WFM FORM

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 setting.

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

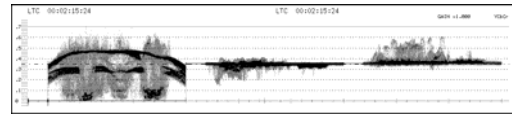


Figure 6-9 Video signal waveform display formats

6.7.2 Selecting the Video Signal Waveform Color

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

Procedure

MULTI (press and hold) → **F•4** DISPLAY FORM → **F•2** 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 setting.

SINGLE: Waveforms are displayed in the color specified by WFM COLOR on the video signal waveform menu.

6.8 Setting the Histogram

Press **F•2** HISTGRM SETUP on the Multi-Screen Display menu to configure histogram settings. This setting appears when **F•1** SUB-ITEM is set to HISTGRM. Use this menu to select the display format and the channels to display and to turn Y, R, G, and B on and off.

MULTI (press and hold) → **F•4** DISPLAY FORM →

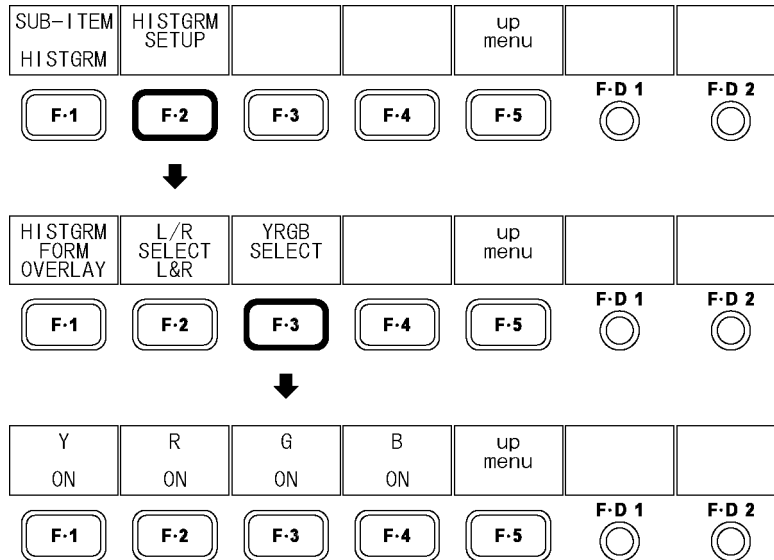


Figure 6-10 HISTGRM SETUP menu

6.8.1 Selecting the Display Format

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

Procedure

MULTI (press and hold) → **F•4** DISPLAY FORM → **F•2** HISTGRM SETUP → **F•1** HISTGRM FORM

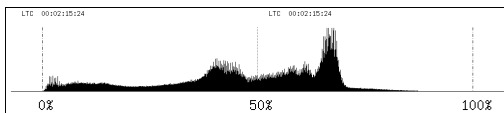
Settings

LUMA: The histogram of the Y (luminance) signal is displayed.

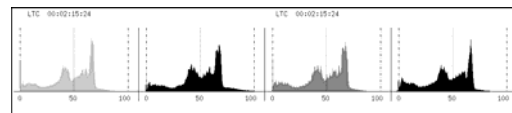
PARADE: The histograms of the Y, R, G, and B signals (in this order) are displayed side by side. This is the default setting.

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.

HISTGRM FORM = LUMA



HISTGRM FORM = PARADE



HISTGRM FORM = OVERLAY

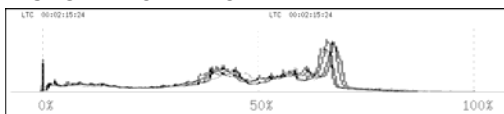


Figure 6-11 Histogram display formats

6.8.2 Selecting the Channels To Display

When **[F•5]** 3D INPUT FORMAT is set to L/R DUAL, follow the procedure below to select the channels to display on the histograms.

Procedure

[MULTI] (press and hold) → **[F•4]** DISPLAY FORM → **[F•2]** HISTGRM 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 setting.

6.8.3 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] (press and hold) → **[F•4]** DISPLAY FORM → **[F•2]** HISTGRM SETUP → **[F•3]** YRGB SELECT
 → **[F•1]** Y
 → **[F•2]** R
 → **[F•3]** G
 → **[F•4]** B

Settings

ON: The Y, R, G, or B signal is displayed. This is the default setting.
 OFF: The Y, R, G, or B signal is not displayed.

6.9 User-Defined Layout Settings

You can display the measurement screen with a user-defined layout that you set in advance. To create a layout file, contact your local LEADER agent.

Press **[F•5]** USER LAYOUT on the Multi-Screen Display menu to set the display to a user-defined layout. This setting appears when **[F•1]** INPUT MODE is set to SINGLE or DUAL and a USB memory device that contains layout files is connected to the LV 5380.

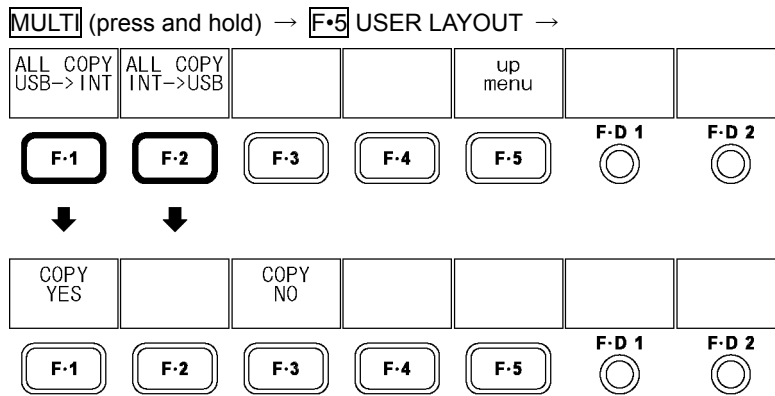


Figure 6-12 USER LAYOUT menu

6.9.1 Displaying User Layouts

To display user layouts, follow the procedure below.

1. **Connect a USB memory device that has user layout files to the LV 5380.**

Make sure that the folder structure on the USB memory device is the same as is shown below.

```

└─ USB memory
   └─ layout
      └─ layout.txt

```

2. **MULTI** (press and hold) → press **F•5** USER LAYOUT.
3. Press **F•1** ALL COPY USB->INT → press **F•1** COPY YES.
The layout files are copied from the USB memory device to the LV 5380.
To cancel the copy operation, press **F•3** COPY NO.
4. Set **F•1** INPUT MODE to SINGLE or DUAL.
5. Set **F•2** DISPLAY MODE to USER1 or USER2.

6.9.2 Copying All Layout Files

To copy all the layout files from the LV 5380 to a USB memory device, follow the procedure below. To cancel the copy operation, press **F•3** COPY NO.

To copy all layout files at once, you have to use a USB memory device that already has layout files on it. Note that any existing layout files on the USB memory device will be overwritten during the copy operation.

Procedure

MULTI (press and hold) → **F•5** USER LAYOUT → **F•2** ALL COPY INT->USB → **F•1** COPY YES

7. 3D ASSIST DISPLAY FEATURE

This chapter explains the 3D assist display feature, which is activated when you set **[F•1]** INPUT MODE to 3D ASIST in the multi-screen display feature.

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).

Use **[F•2]** 3D FUNCTION on the multi-screen display menu to configure the 3D assist display settings. This setting is available when **[F•1]** INPUT MODE is set to 3D ASIST.

[MULTI] (press and hold) → **[F•2]** 3D FUNCTION →

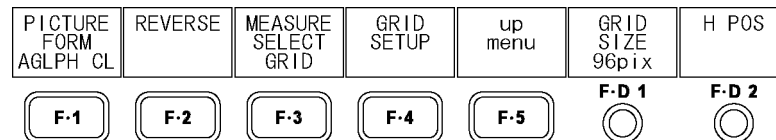


Figure 7-1 3D FUNCTION menu

7.1 Selecting the Input Signal

To select the input signal, follow the procedure below.

Procedure

[MULTI] (press and hold) → **[F•5]** 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 setting.

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.

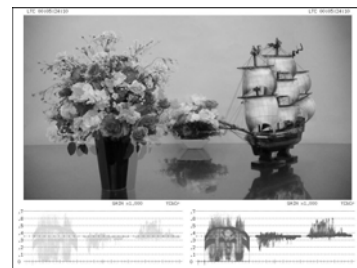
Video signal for the left eye
(channel A)



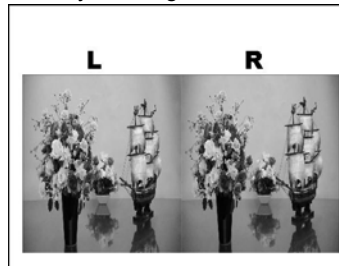
Video signal for the right eye
(channel B)



3D INPUT FORMAT = L/R DUAL



Side-by-side signal



3D INPUT FORMAT = HF SbyS

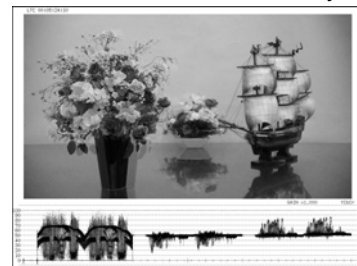




Figure 7-2 Selecting the input signal

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

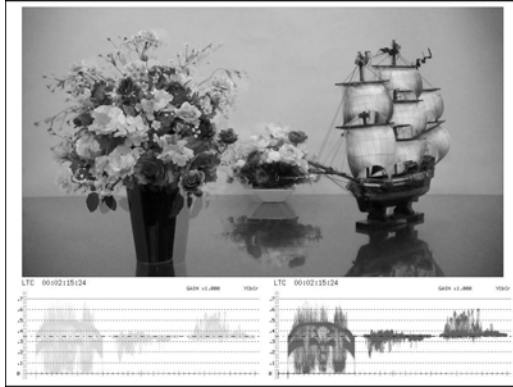
MULTI (press and hold) → **F•2** 3D FUNCTION → **F•1** PICTURE FORM

Settings

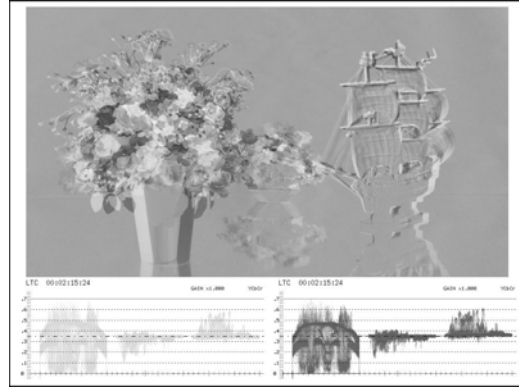
- AGLPH CL:** Green and blue are masked from the video signal for the left eye, and red is masked from the video signal for the right eye. These signals are then combined and displayed. This is the default setting.
- AGLPH MO:** Green and blue are masked from the monochrome video signal for the left 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 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.

7. 3D ASSIST DISPLAY FEATURE

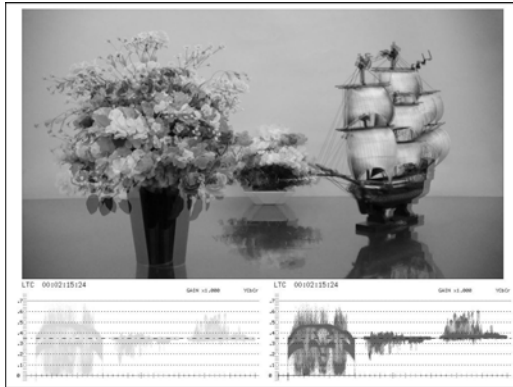
PICTURE FORM = AGLPH CL / AGLPH MO



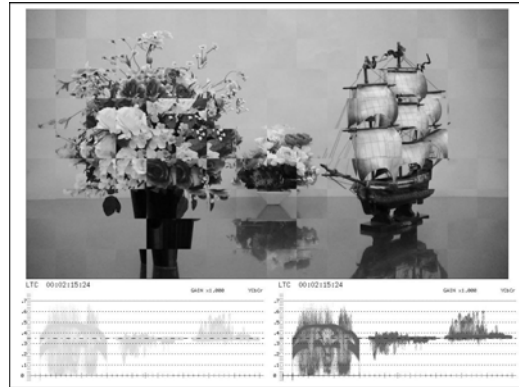
PICTURE FORM = CNVRGNCE



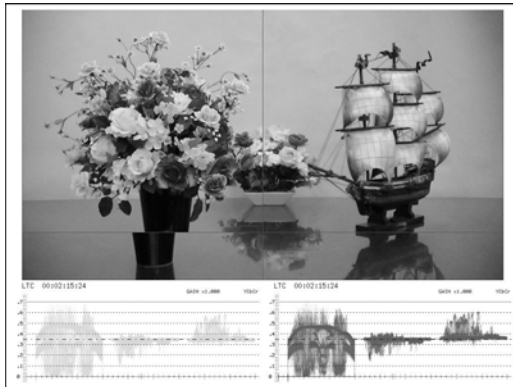
PICTURE FORM = OVERLAY



PICTURE FORM = CHECKER



PICTURE FORM = WIPE



PICTURE FORM = FLICKER

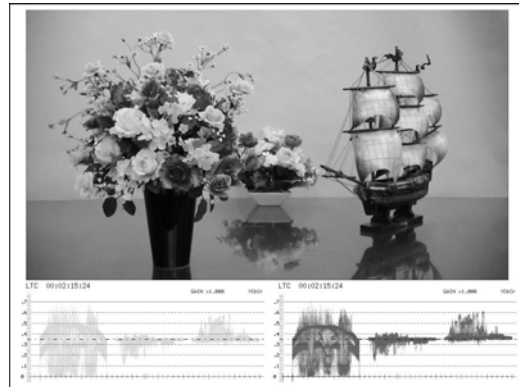


Figure 7-3 Picture display formats

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.

MULTI (press and hold) → **F•2** 3D FUNCTION →



Figure 7-4 3D FUNCTION menu

Procedure

MULTI (press and hold) → **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.

MULTI (press and hold) → **F•2** 3D FUNCTION →

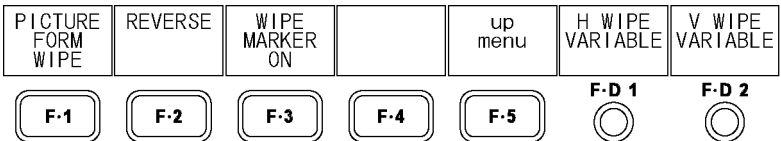


Figure 7-5 3D FUNCTION menu

7.4.1 Turning the Boundary Lines On and Off

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

Procedure

MULTI (press and hold) → **F•2** 3D FUNCTION → **F•3** WIPE MARKER

Settings

OFF: Boundary lines are not displayed. This is the default setting.
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**.

[Reference] WFM FORM → Section 6.7.1, "Selecting the Display Format"

Procedure

MULTI (press and hold) → **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, press **F•2** REVERSE on the 3D FUNCTION menu.

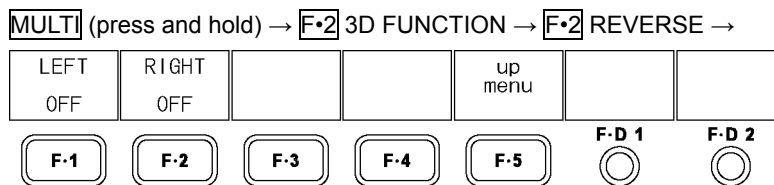


Figure 7-6 REVERSE menu

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 (press and hold) → **F•2** 3D FUNCTION → **F•2** REVERSE
 → **F•1** LEFT
 → **F•2** RIGHT

Settings

OFF: The display is not inverted. This is the default setting.
 VERTICAL: Pictures are inverted vertically.
 HORIZONTAL: 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, OVERLAY, or FLICKER, you can use the grid or the cursors to measure disparity. To select the disparity measurement mode, follow the procedure below.

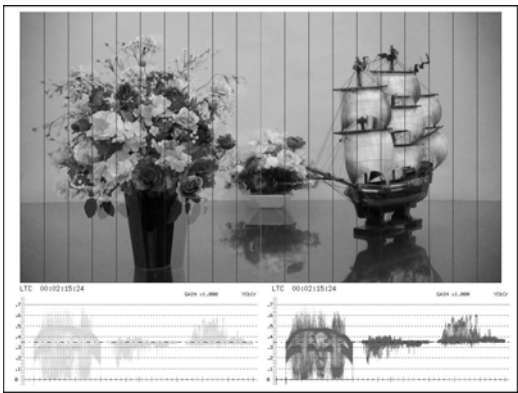
Procedure

MULTI (press and hold) → **F•2** 3D FUNCTION → **F•3** MEASURE SELECT

Settings

OFF: No grid lines or cursors are displayed. This is the default setting.
 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

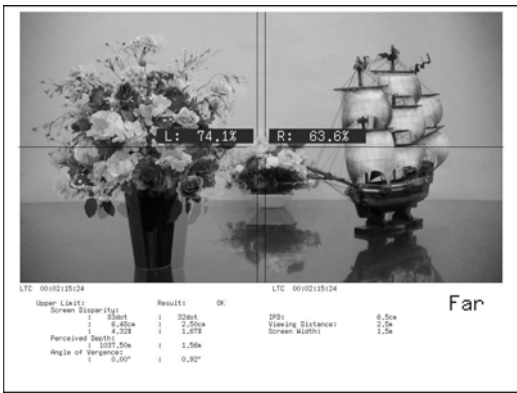


Figure 7-7 Selecting the measurement mode

7.7 Configuring Grid Display Settings

To configure the grid display settings, press **F•4** GRID SETUP on the 3D FUNCTION menu. These settings are available when **F•3** MEASURE SELECT is set to GRID.

MULTI (press and hold) → **F•2** 3D FUNCTION → **F•4** GRID SETUP →

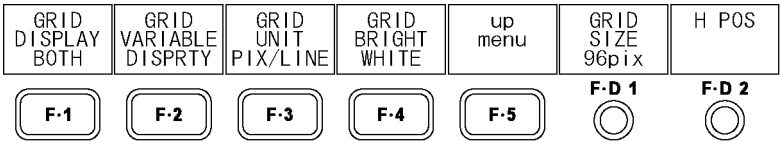


Figure 7-8 GRID SETUP menu

* The settings for **F•D 1** and **F•D 2** are also displayed on the higher-level menu.

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] (press and hold) → **[F•2]** 3D FUNCTION → **[F•4]** GRID SETUP → **[F•1]** GRID DISPLAY

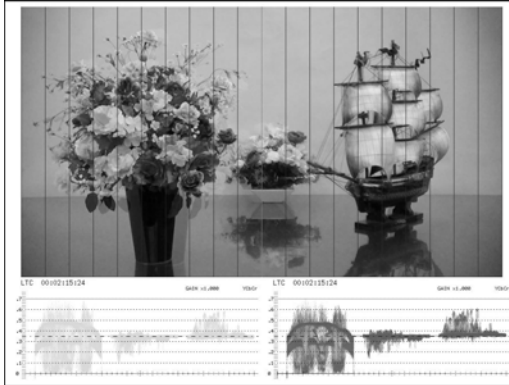
Settings

DISPRTY: Vertical grid lines are displayed. Use this option when you want to perform disparity measurements. This is the default setting.

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

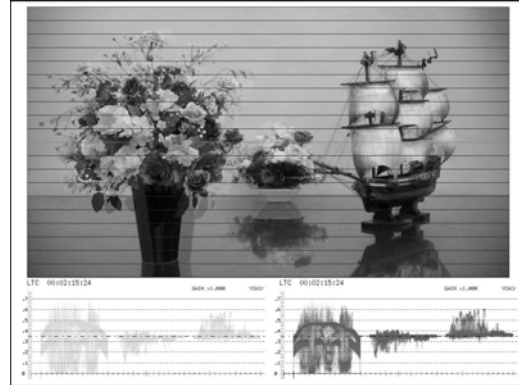


Figure 7-9 Grid display

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] (press and hold) → **[F•2]** 3D FUNCTION → **[F•4]** GRID SETUP → **[F•2]** GRID VARIABLE

Settings

DISPRTY: The disparity grid is selected. This is the default setting.

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] (press and hold) → **[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: 6 to 192 pix (The default setting is 96 pix) (*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: 6 to 108 line (The default setting is 54 line) (*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] (press and hold) → **[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 setting.

%: 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] (press and hold) → **[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] (press and hold) → **[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 setting.
 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

To configure the disparity measurement settings, press **[F•4]** DISPRTY SETUP on the 3D FUNCTION menu.

These settings are available when **[F•3]** MEASURE SELECT is set to DISPRTY.

[MULTI] (press and hold) → **[F•2]** 3D FUNCTION → **[F•4]** DISPRTY SETUP →

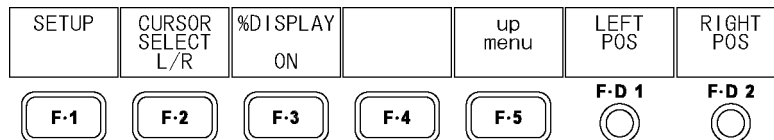


Figure 7-10 DISPRTY SETUP menu

* The settings for **[F•D 1]** and **[F•D 2]** are also displayed on the higher-level menu.

7.8.1 Disparity Measurement Display Explanation

When you set **[F•3]** MEASURE SELECT to DISPRTY on the 3D FUNCTION menu, the disparity measurement display appears.

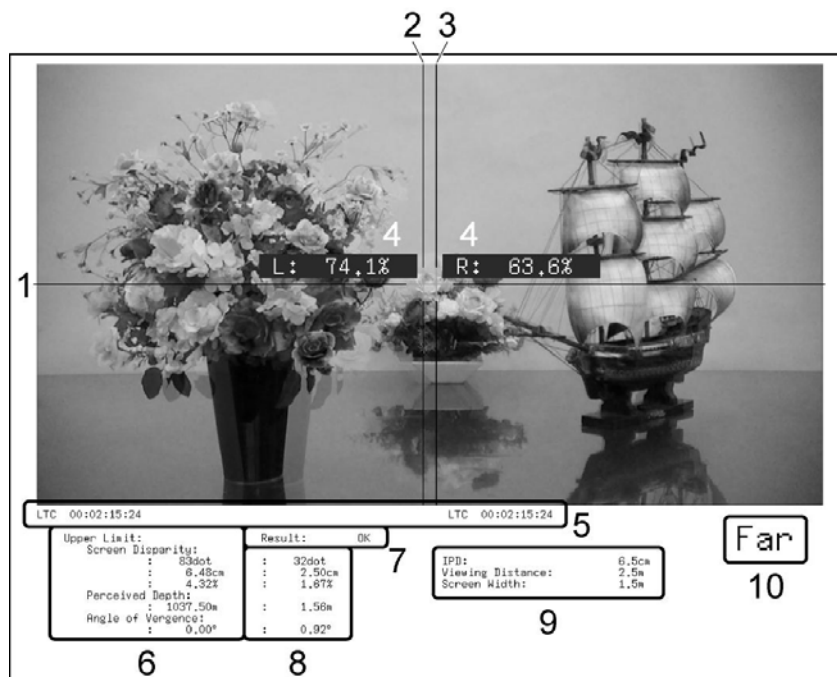


Figure 7-11 Disparity measurement display

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 time codes for the video signal for the left eye and the video signal for the right eye are displayed.

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 Viewing environment

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

10 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.”

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

The names of the settings and measurement items that are used with the LV 5380 are shown below.

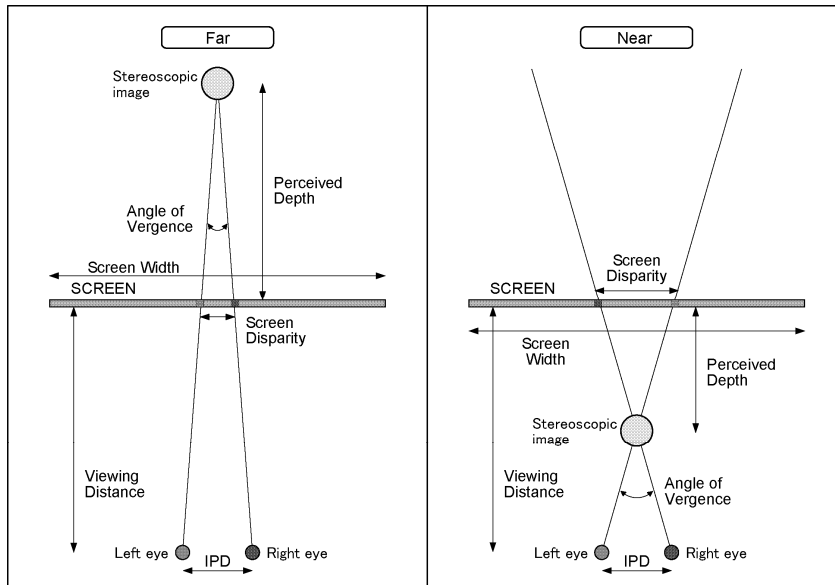


Figure 7-12 Setting and measurement item names

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.

PARAMETER		
Parameter		
IPD	6.5cm	
Viewing Distance	2.5m	
Screen Width	1.5m	
Upper Limit	Far	Near
Screen Disparity	83dot	-96dot
	6.48cm	-7.50cm
	4.32%	5.00%
Perceived Depth	1037.50m	-1.34m
Angle of Vergence	0.00°	3.21°

Figure 7-13 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•5** CANCEL.

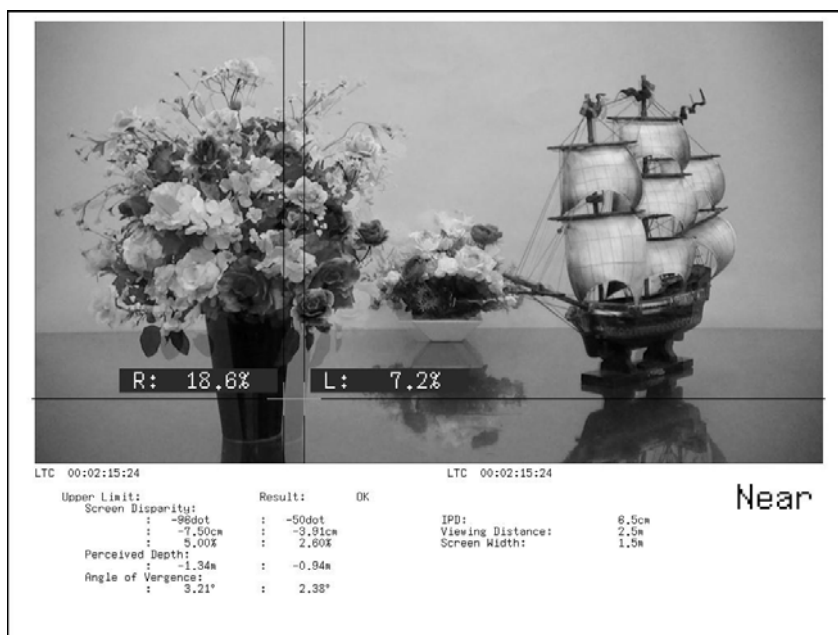


Figure 7-14 Disparity measurement display

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 1** 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.

8. PRESET FEATURE (PSET)

You can use the preset feature to register and load panel settings. Also, you can use the same settings on multiple LV 5380s by copying all of the presets to USB memory.

There are two kinds of presets: comprehensive presets (usually just referred to as presets) and display mode presets.

Even if you initialize the settings by following the procedure described in section 5.7.1, “Initializing the Settings,” the presets that have been registered will not be deleted.

- **Presets**

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

Registering a Preset

Set the LV 5380 to the settings that you want to register, and then press and hold **PSET**. Press **F•1** FULL PRESET in the preset registration menu to register the settings.

Loading a Preset

Press **PSET**, and load the preset from the preset menu.

- **Display Mode Presets**

You can register up to five different sets of panel settings for each different display mode.² When you use an individual setting configuration for a particular display, the settings for the other displays are not affected.

Registering a Display Mode Preset

Set the LV 5380 to the settings that you want to register, and then press and hold **PSET**. Press **F•2** FUNCTION PRESET in the preset registration menu to register the settings.

Loading a Display Mode Preset

After setting FUNCTION PRESET to ON in the preset registration menu, press **PIC**, **WFM**, **VECT**, **AUDIO**, or **STATUS**. Load the preset from the display mode preset menu.

1 The date and time are not included.

2 The five different display modes are the picture, video signal waveform, vector, audio, and status displays.

* The preset registration menu and the preset menu do not automatically disappear after a certain amount of time has passed. To hide these menus, press **PSET** again.

8.1 Presets

8.1.1 Registering Presets

1. Set the LV 5380 to the settings that you want to register.
2. Press and hold **PSET** to display the preset registration menu.
3. Press **F•1** FULL PRESET to display a list of files.
4. Press **F•2** COMMENT INPUT to display the file name input display.

You can 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 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 a 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•5** 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.

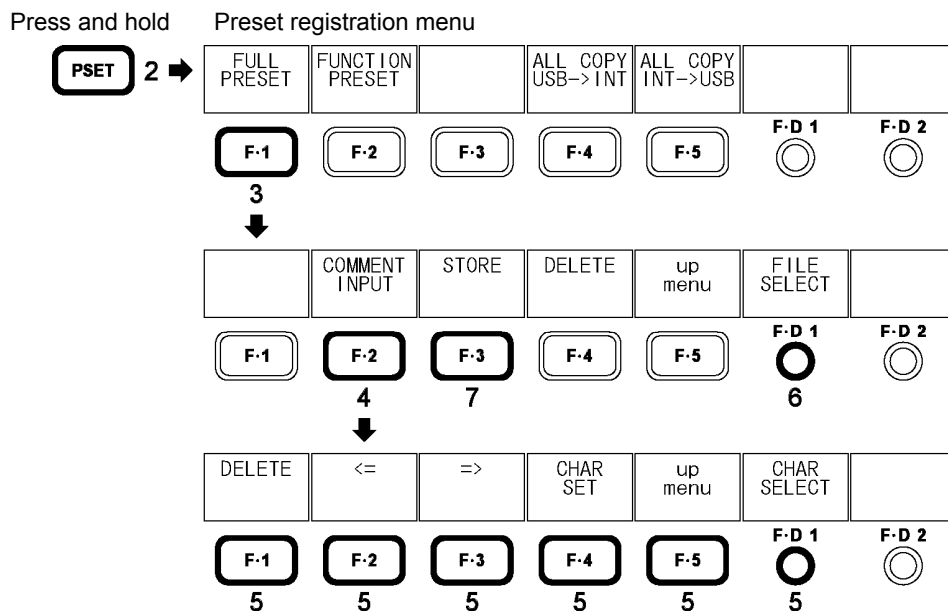


Figure8-1 Registering presets

8. PRESET FEATURE (PSET)

8.1.2 Loading Presets

1. Press **PSET** to display the preset menu.
2. Press a function key from **F•1** No.1 to **F•5** No.5.

If the preset number that you want to load is greater than 5, turn **F•D 1** more.

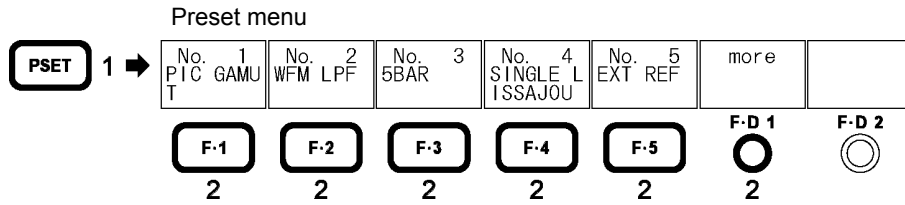


Figure8-2 Loading presets

8.1.3 Deleting Presets

1. Press and hold **PSET** to display the preset registration menu.
2. Press **F•1** FULL PRESET to display a list of files..
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 will only appear if a file is saved with the file number that you selected.

5. Press **F•1** DELETE YES.

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

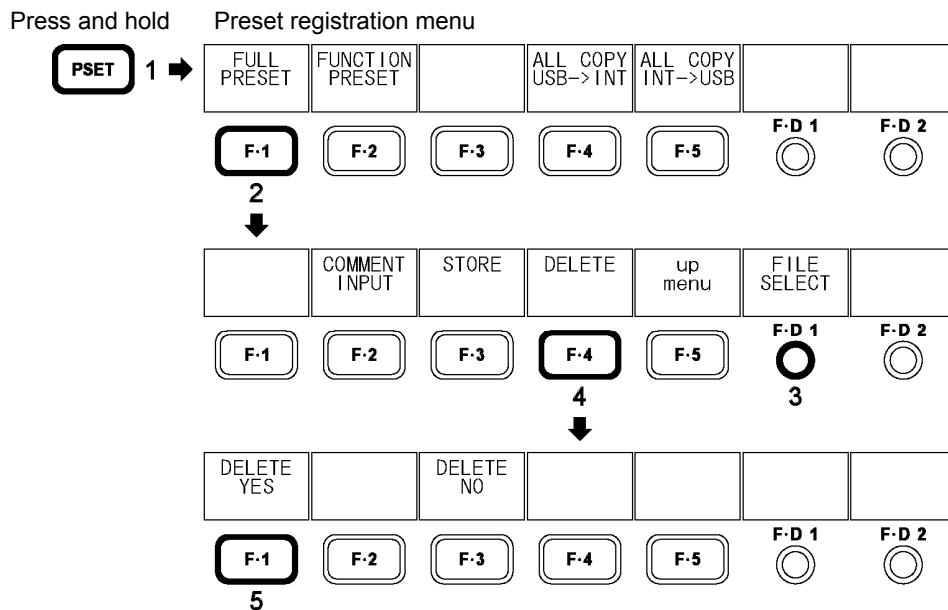


Figure8-3 Deleting presets

8.2 Display Mode Presets

8.2.1 Registering Display Mode Presets

1. Set the LV 5380 to the settings that you want to register.
2. Press and hold **PSET** to display the preset registration menu.
3. Press **F•2** FUNCTION PRESET to display a list of files.

F•2 FUNCTION PRESET appears in the single-screen display.

4. Press **F•2** COMMENT INPUT to display the file name input display.

You can 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 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 a 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•5** 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.

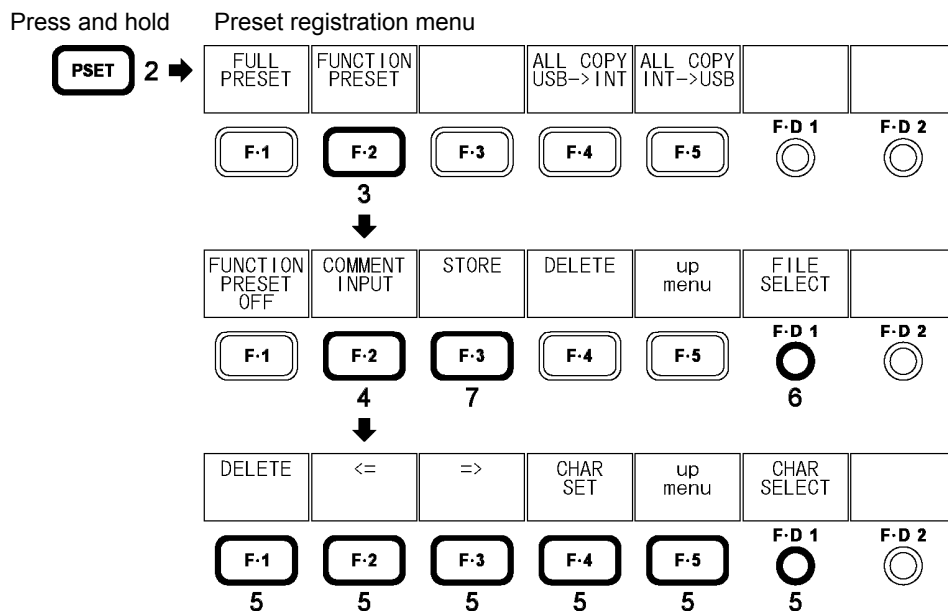


Figure8-4 Registering display mode presets

8.2.2 Loading Display Mode Presets

1. Press and hold **PSET** to display the preset registration menu.
2. Press **F•2** FUNCTION PRESET to display a list of files.
F•2 FUNCTION PRESET appears in the single-screen display.
3. Set **F•1** FUNCTION PRESET to ON.
The default setting is OFF.
4. Press the key of the display mode whose preset you want to load. The display mode preset menu appears.
5. Press a function key from **F•1** No.1 to **F•5** No.5.

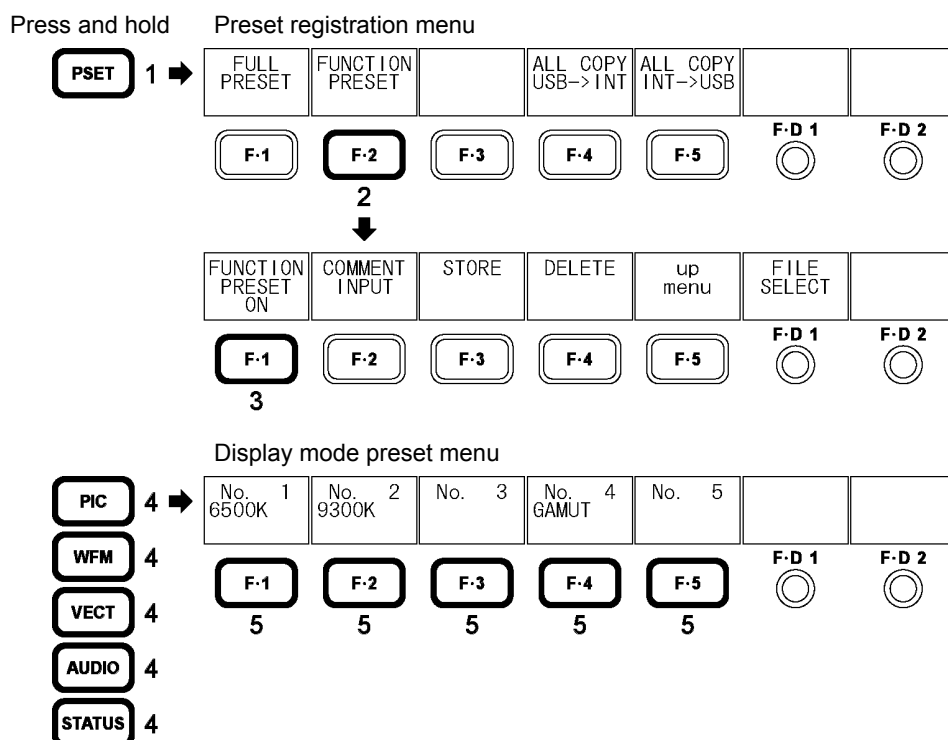


Figure8-5 Loading display mode presets

8.2.3 Deleting Display Mode Presets

1. Press the key of the display mode whose preset you want to delete.
2. Press and hold **PSET** to display the preset registration menu.

If a display mode preset has been enabled, hide the preset menu before pressing and holding **PSET**.

3. Press **F•2** FUNCTION PRESET to display a list of files.

F•2 FUNCTION PRESET appears in 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 will only appear if a file is saved with the file number that you selected.

6. Press **F•1** DELETE YES.

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

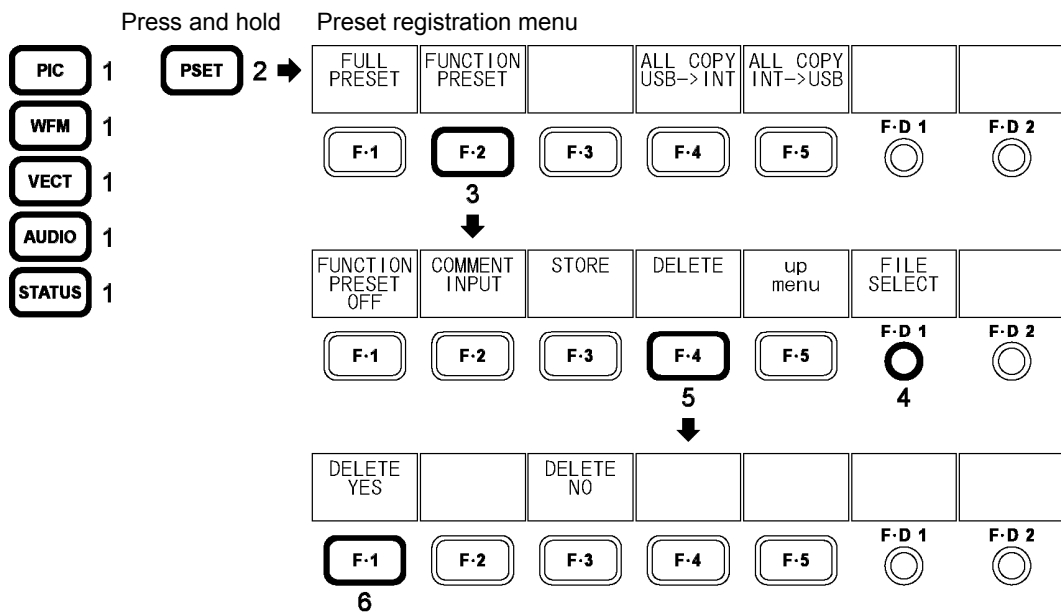


Figure8-6 Deleting display mode presets

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.

Press and hold Preset registration menu

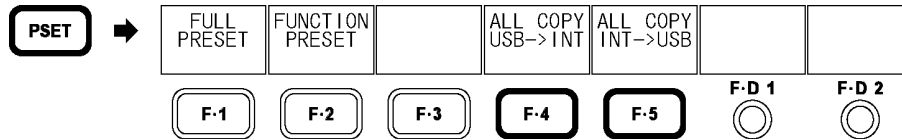


Figure8-7 ALL COPY menu

8.3.1 Copying Presets from USB Memory to the LV 5380

To copy all of the presets that have been saved to USB memory to the LV 5380, follow the procedure below.

If presets have already been saved to the LV 5380 memory, they will be overwritten.

To cancel the copy operation, press **F•3** COPY NO.

Procedure

PSET (press and hold) → **F•4** ALL COPY USB->INT → **F•1** COPY YES

8.3.2 Copying Presets from the LV 5380 to USB Memory

To copy all of the presets that have been saved to the LV 5380 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 5380 file numbers by one.

If you change the file names in the USB memory, you will not be able to copy the files from the USB memory to the LV 5380.

📁 USB memory

└ 📁 PRESET

- └ 📁 PIC_00.PRE (to PIC_04.PRE) Display mode presets (PIC) No. 1 to 5
- └ 📁 WFM_00.PRE (to WFM_04.PRE) Display mode presets (WFM) No. 1 to 5
- └ 📁 VEC_00.PRE (to VEC_04.PRE) Display mode presets (VECT) No. 1 to 5
- └ 📁 AUD_00.PRE (to AUD_04.PRE) Display mode presets (AUDIO) No. 1 to 5
- └ 📁 STTS_00.PRE (to STTS_04.PRE) Display mode presets (STATUS) No. 1 to 5
- └ 📁 PRESET_00.PRE (to PRESET_29.PRE) Presets No.1 to 30

Procedure

PSET (press and hold) → **F•5** ALL COPY INT->USB → **F•1** COPY YES

9. SCREEN CAPTURE FEATURE (CAP)

You can use the screen capture feature to acquire still image data of the current display. You can save the data to USB memory or add it to the input SDI signal and display it using the LV 5380.

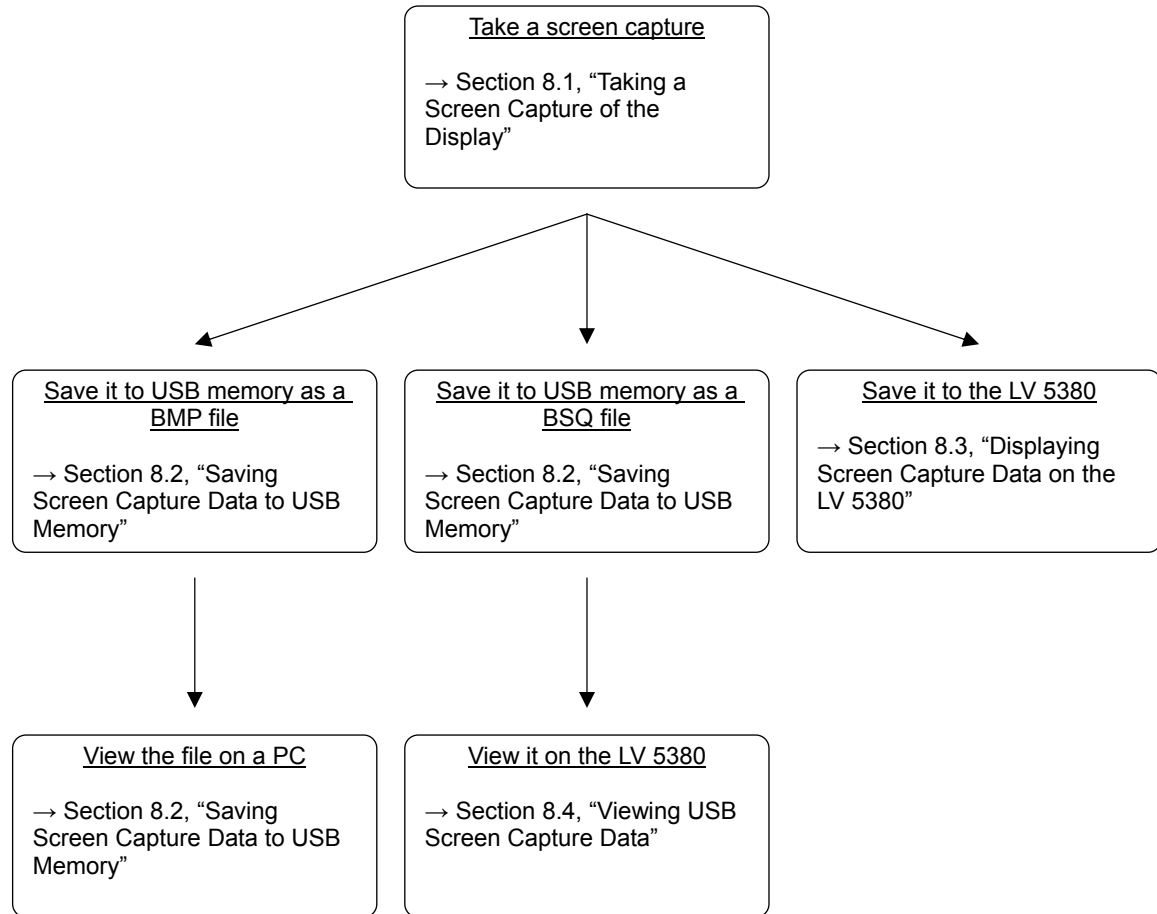


Figure9-1 Screen capture feature

9.1 Taking a Screen Capture of the Display

1. Show the display that you want to capture on the LV 5380.

Only measurement displays can be captured. Preset setting displays and file setting displays 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 in the screen capture menu.

The screen capture menu will disappear if a certain period of time passes with no user activity. To use the menu to make a setting, press one of the function keys from **F•1** to **F•5**, and the menu will reappear.

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**, **PSET**, or **SYS**.

Turn off the power.

When the captured data is cleared, the **CAP** key LED will turn off.

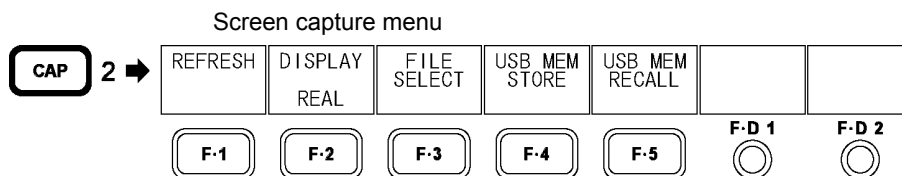


Figure9-2 Taking a screen capture of the display

9.2 Saving Screen Capture Data to USB Memory

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 5380 even after the power has been turned off by saving the captured data to USB memory (if you save the captured data in BSQ format).

You can also view captured data on a PC (if you save the captured data in BMP format).

1. Press **F•3** **FILE SELECT**.

F•3 **FILE SELECT** appears when USB memory is connected to the LV 5380.

2. Select the file formats.

The file formats that you can select are explained below. Set at least one of the formats to ON. Both of the formats are set to ON by default.

BMP FILE The captured data is saved to the USB memory as a bitmap file.
You can view the saved file on a PC.

BSQ FILE The captured data is saved to the USB memory as a BSQ file.
You can view the saved data again later on the LV 5380.

After you have finished selecting the file formats, press **F•5** up menu.

3. Press **F•4** **USB MEM STORE** to save the captured data to USB memory.

F•4 **USB MEM STORE** appears when USB memory is connected to the LV 5380 and **BMP FILE** or **BSQ FILE** is set to ON.

The file name is automatically set to the date and time that you set in 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
├─ BMP
│  └─ yyyyymmddhhmmss.bmp
└─ BSQ
     └─ yyyyymmddhhmmss.bsq
  
```

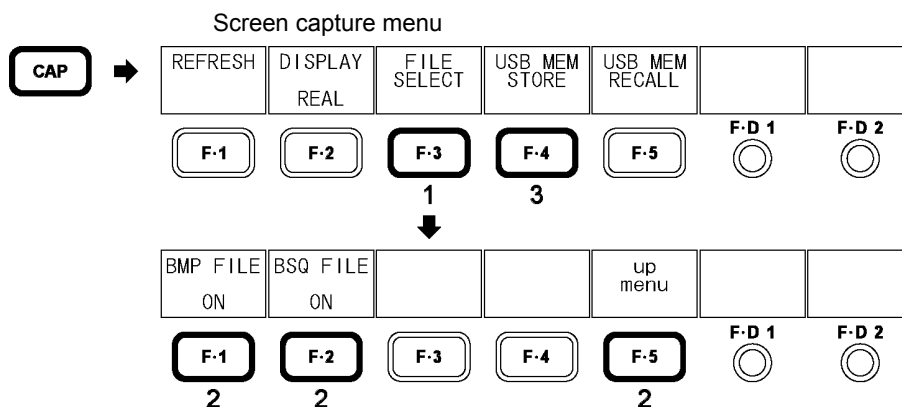


Figure9-3 Saving screen capture data

9.3 Displaying Screen Capture Data on the LV 5380

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

1. Press **F•2 DISPLAY, and select the display format.**

The display formats that you can select are explained below.

REAL The input SDI signal is displayed. This is the default setting.

HOLD The captured data is displayed.

The video signal waveform, vector, and lissajous curve displays are displayed in cyan. (This excludes parts of the 2-channel display and parts of the 3D assist display.)

BOTH The input SDI signal and the captured data are displayed overlapping each other with their intensities halved.

The video signal waveform, vector, and lissajous curve displays are displayed in cyan. (This excludes parts of the 2-channel display and parts of the 3D assist display.)

You can display captured video signal waveform, vector, lissajous curve, picture, and histogram display data on the LV 5380. Other kinds of data (status, audio meter, 5 bar, etc.) cannot be displayed. However, these other kinds of data can be saved to USB memory as BMP files.

For details, see section 9.2, “Saving Screen Capture Data to USB Memory.”

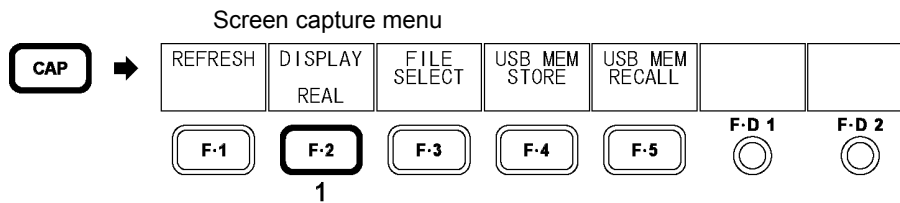


Figure9-4 Displaying screen capture data

9.4 Viewing USB Memory Screen Capture Data

The BSQ format screen capture data that you save by following the procedure in section 9.2, “Saving Screen Capture Data to USB Memory,” can be displayed, or it can be overlaid on the current SDI input signal.

Screen capture data that has been saved in BMP format and screen capture data that has been saved in BSQ format on a different model cannot be displayed on the LV 5380.

1. Press **CAP**.
2. Press **F•5** **USB MEM RECALL**.
F•5 **USB MEM RECALL** appears when USB memory is connected to the LV 5380.
3. Turn **F•D 1** **FILE SELECT** to select the file that you want to display.
 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 BSQ file.
 You can cancel the captured data display operation by pressing **F•5** up menu.
5. Press **F•2** **DISPLAY**, and select the display format.

After you press **F•1** **RECALL**, the display format is BOTH. For details about the different display formats, see section 9.3, “Displaying Screen Capture Data on the LV 5380.”

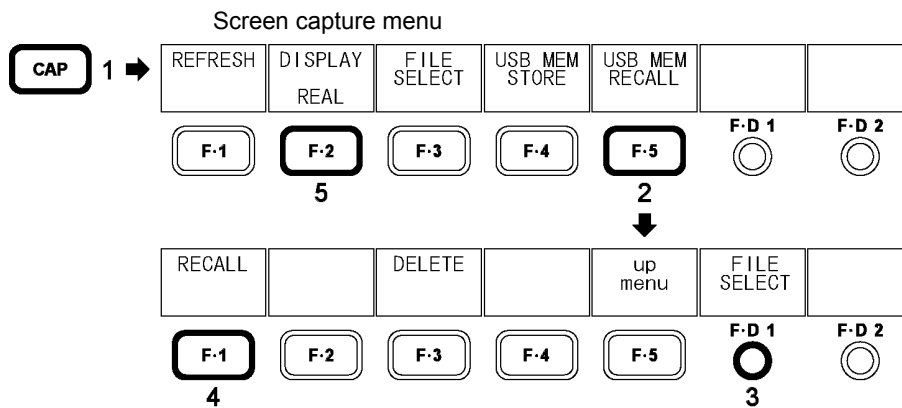


Figure9-5 Viewing USB Memory screen capture data

10. PICTURE DISPLAY (PIC)

10.1 General Picture Display Explanation

The picture display appears when you press **PIC**.

To display the picture menu, press and hold **PIC** for 0.5 seconds or more, or use the function keys and function dials while in the picture display. The picture menu will disappear when you press **PIC** again or after a certain period of time passes with no user activity.

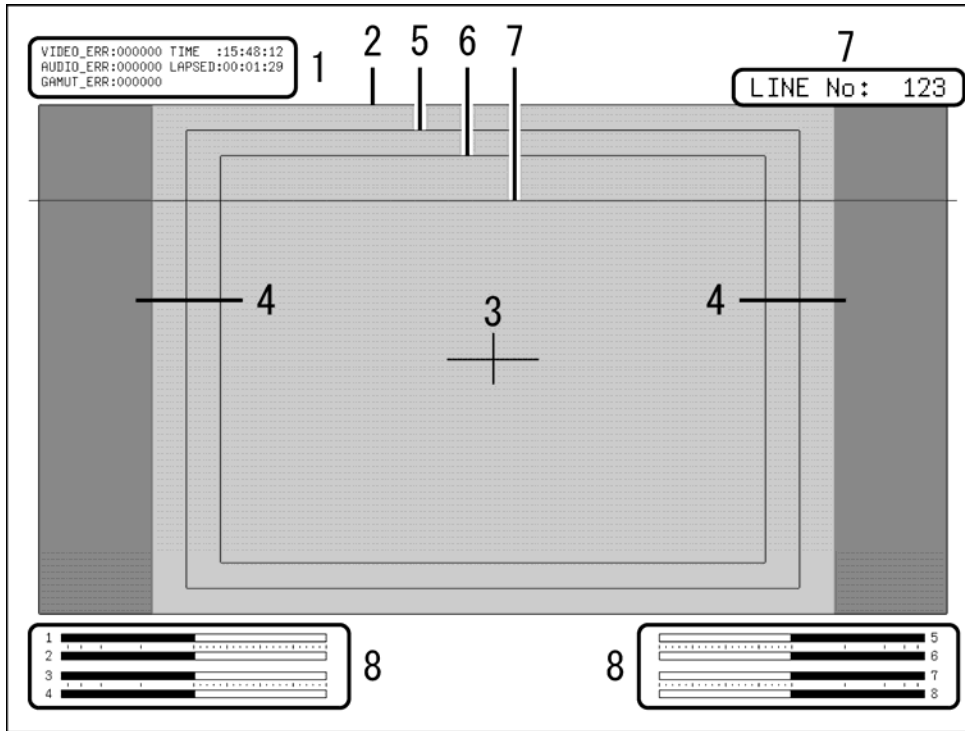


Figure10-1 Picture display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, "General Status Display Explanation."

2 Frame marker

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

[Reference] Section 10.4.1, "Displaying a Frame Marker"

3 Center marker

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

[Reference] Section 10.4.2, "Displaying a Center Marker"

4 Aspect marker

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

[Reference] Section 10.4.3, "Displaying an Aspect Marker,"
 Section 10.4.4, "Selecting the Aspect Marker Type"

5 Safe action marker

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

[Reference] Section 10.4.5, "Selecting the Safety Marker Type,"
 Section 10.4.6, "Displaying a Safe Action Marker,"
 Section 10.4.8, "Displaying User Markers,"
 Section 10.4.9, "Setting User Marker Sizes"

6 Safe title marker

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

[Reference] Section 10.4.5, "Selecting the Safety Marker Type,"
 Section 10.4.7, "Displaying a Safe Title Marker,"
 Section 10.4.8, "Displaying User Markers,"
 Section 10.4.9, "Setting User Marker Sizes"

7 Selected line

You can display a marker on the selected line.

[Reference] Section 10.5, "Line Selection Settings (LINE SEL)"

8 Thumbnails

You can display the audio meter using thumbnails. You can turn the audio meter display off if you want to.

[Reference] Section 10.6.4, "Displaying the Audio Meter,"
 Section 10.6.5, "Selecting the Audio Meter Display Format"

10.2 Setting the Brightness and Contrast

You can set the picture brightness and contrast by using **F•D 1** BRIGHTNESS and **F•D 2** CONTRAST in 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.

PIC (press and hold) →

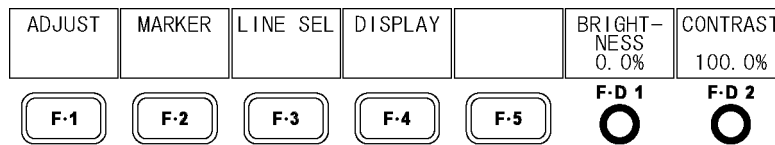


Figure10-2 Picture menu

10.2.1 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 (press and hold) → **F•D 1** BRIGHTNESS

Settings

Setting range: -50.0 % to 50.0 %. (The default setting is 0.0 %.)

10.2.2 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 (press and hold) → **F•D 2** CONTRAST

Settings

Setting range: 0.0 % to 200.0 %. (The default setting is 100.0 %.)

10.3 Adjusting the Picture (ADJUST)

To adjust the picture, press **[F•1]** ADJUST in the picture menu. You can configure the color temperature, gain, bias, color display, aperture, and backlight. You can also configure the chroma up and monochrome/color settings.

This menu item does not appear when CINELITE DISPLAY of the CINELITE display option is set to CINEZONE.

[PIC] (press and hold) → **[F•1]** ADJUST →

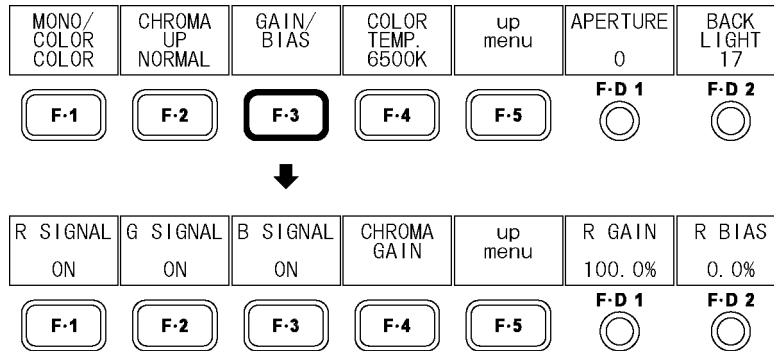


Figure10-3 ADJUST menu

10.3.1 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 is in use.

Procedure

[PIC] (press and hold) → **[F•1]** ADJUST → **[F•1]** MONO/COLOR

Settings

COLOR: The picture is displayed in color. This is the default setting.
 MONO: The picture is displayed in monochrome.

10.3.2 Increasing the Chroma Gain

To switch between the two chroma gain settings, follow the procedure below.

Procedure

[PIC] (press and hold) → **[F•1]** ADJUST → **[F•2]** CHROMA UP

Settings

NORMAL: The chroma gain is the value that has been set using **[F•4]** CHROMA GAIN. This is the default setting.
 UP: The chroma gain is set to 2 (200.0 %). **[F•4]** CHROMA GAIN is not displayed.

10.3.3 Turning RGB 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 (press and hold) → F.1 ADJUST → F.3 GAIN/BIAS → F.1 R SIGNAL
→ F.2 G SIGNAL
→ F.3 B SIGNAL

Settings

ON:	The R, G, or B signal is displayed. All of the signals are set to this by default.
OFF:	The R, G, or B signal is not displayed.

10.3.4 Setting the RGB 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 (press and hold) → **F.1** ADJUST → **F.3** GAIN/BIAS
 → **F.1** R SIGNAL (when R is on) → **F.D 1** R GAIN
 → **F.2** G SIGNAL (when G is on) → **F.D 1** G GAIN
 → **F.3** B SIGNAL (when B is on) → **F.D 1** B GAIN

Settings

Setting range: 0.0 % to 200.0 %. (The default setting is 100.0 %.)

10.3.5 Setting the RGB Bias

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

Procedure

PIC (press and hold) → **F.1** ADJUST → **F.3** GAIN/BIAS
 → **F.1** R SIGNAL(when R is on) → **F.D 2** R BIAS
 → **F.2** G SIGNAL(when G is on) → **F.D 2** G BIAS
 → **F.3** B SIGNAL(when B is on) → **F.D 2** B BIAS

Settings

Setting range: -50.0% to 50.0%. (The default setting is 0.0%.)

10.3.6 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 %.

When **F•2** CHROMA UP is set to UP, the CHROMA GAIN menu item does not appear, and the chroma gain is fixed at 200.0 %.

Procedure

PIC (press and hold) → **F•1** ADJUST → **F•3** GAIN/BIAS → **F•4** CHROMA GAIN
→ **F•D 1** CHROMA GAIN

Settings

Setting range: 0.0 % to 200.0 %. (The default setting is 100.0 %.)

10.3.7 Setting the Monitor's Color Temperature

To set the monitor's color temperature, follow the procedure below.

Procedure

PIC (press and hold) → **F•1** ADJUST → **F•4** COLOR TEMP.

Settings

6500K: The monitor's color temperature is set to 6500 K. This is the default setting.

9300K: The monitor's color temperature is set to 9300 K.

10.3.8 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 1**, the aperture will be set to its default value of 0.

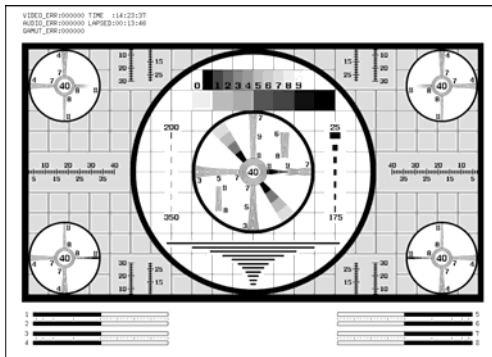
Procedure

PIC (press and hold) → **F•1** ADJUST → **F•D 1** APERTURE

Settings

Setting range: 0 to 100. (The default setting is 0.)

APERTURE = 0



APERTURE = 100

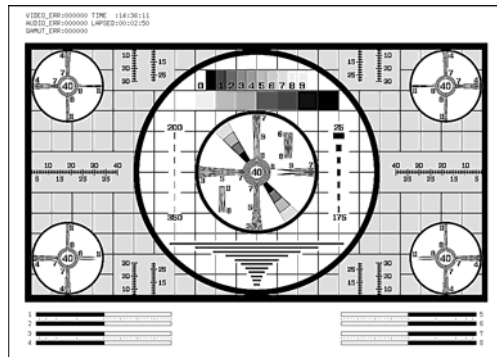


Figure10-4 Aperture settings

10.3.9 Adjusting the Backlight

To adjust the backlight brightness, follow the procedure below.

The larger the number, the brighter the backlight.

If you press **F•D 2**, the backlight brightness will be set to its default value of 17.

You can also adjust the backlight brightness in the system settings by following the procedure described in section 5.2.2, "Adjusting the Backlight." Changing one of these values will also change the other value.

This setting affects other displays in addition to the picture display.

Procedure

PIC (press and hold) → **F•1** ADJUST → **F•D 2** BACK LIGHT

Settings

Setting range: 1 to 32. (The default setting is 17.)

10.4 Setting Markers (MARKER)

To configure marker settings, press **F•2** MARKER in the picture menu. You can display markers and set their types and sizes.

The markers that you set here do not appear in thumbnail displays or the 2-channel display.

F•2 MARKER appears when SIZE has been set to FIT.

[Reference] SIZE → Section 9.6.1, "Setting the Display Size"

PIC (press and hold) → **F•2** MARKER →

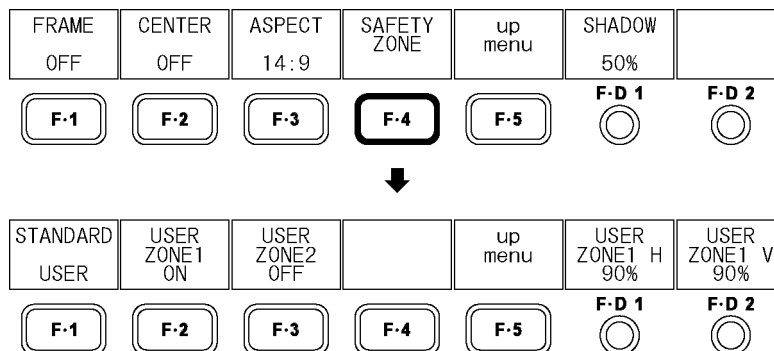


Figure10-5 MARKER menu

10.4.1 Displaying a Frame Marker

To display a frame marker, follow the procedure below.

The frame marker is displayed around the outer edge of the picture.

Procedure

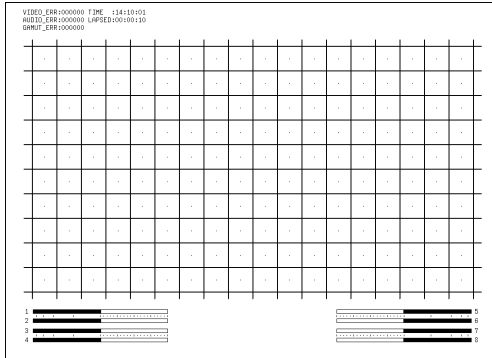
PIC (press and hold) → **F•2** MARKER → **F•1** FRAME

Settings

ON: A frame marker is displayed.

OFF: A frame marker is not displayed. This is the default setting.

FRAME = OFF



FRAME = ON

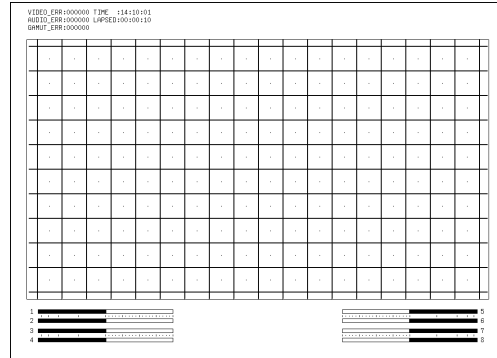


Figure10-6 Displaying a frame marker

10.4.2 Displaying a Center Marker

To display a 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 (press and hold) → **F•2** MARKER → **F•2** CENTER

Settings

ON: A center marker is displayed.

OFF: A center marker is not displayed. This is the default setting.

CENTER = ON

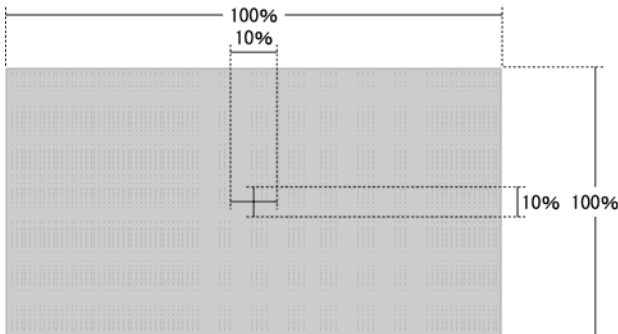


Figure10-7 Displaying a center marker

10.4.3 Displaying an Aspect Marker

To display an 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.

Procedure

PIC (press and hold) → **F•2** MARKER → **F•3** ASPECT

Settings

OFF:	An aspect marker is not displayed. This is the default setting.
14:9:	A 14:9 aspect marker is displayed.
13:9:	A 13:9 aspect marker is displayed.
4:3:	A 4:3 aspect marker is displayed. This option cannot be selected when the input SDI signal is set to SD and the display is set to 4:3.
2.39:1:	A 2.39:1 aspect marker is displayed. This option cannot be selected when the input SDI signal is set to SD.
16:9:	A 16:9 aspect marker is displayed. This option cannot be selected when the input SDI signal is set to HD or SD and the display is set to 16:9.

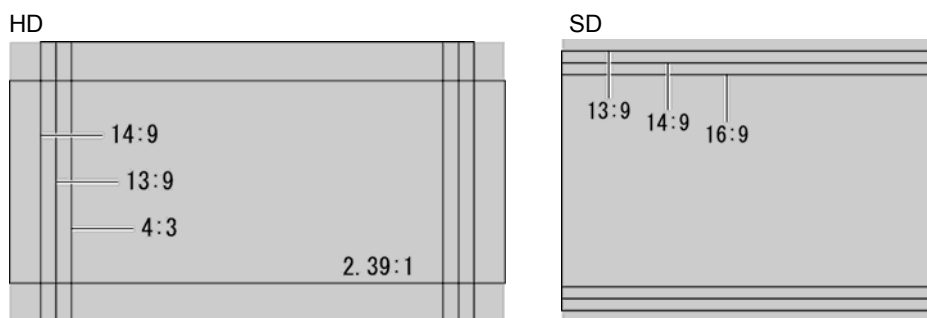


Figure10-8 Displaying an aspect marker

10.4.4 Selecting the Aspect Marker Type

To select the aspect marker type, follow the procedure below.

This setting is available when **F•3** ASPECT is set to any value other than OFF.

Procedure

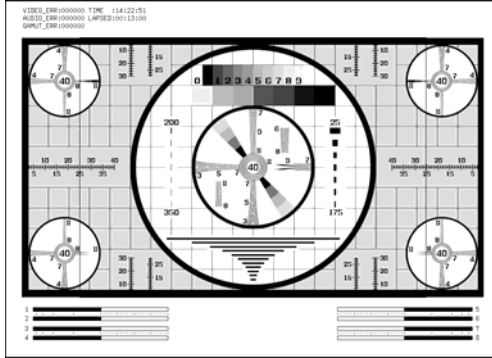
PIC (press and hold) → **F•2** MARKER → **F•D 1** SHADOW

Settings

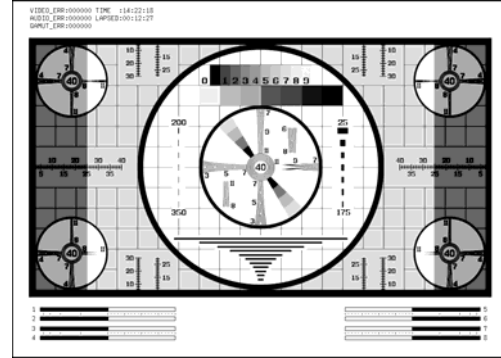
0%:	The aspect marker is indicated with a line.
1 to 99%:	The area around the aspect marker is indicated with a shadow. The default setting is 50 %.
100%:	The area outside the aspect marker is indicated with black space.

10. PICTURE DISPLAY (PIC)

SHADOW = 0%



SHADOW = 50%



SHADOW = 100%

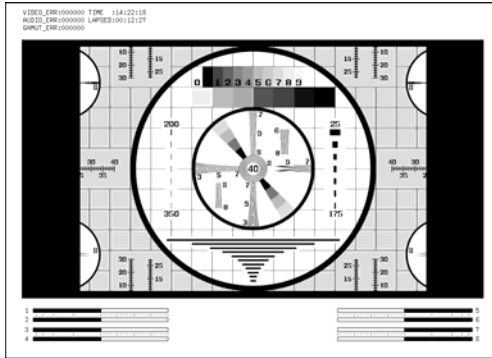


Figure10-9 Aspect marker types

10.4.5 Selecting the Safety Marker Type

To select the safety marker type, follow the procedure below.

The safe action marker, safe title marker, and user markers (two types) can be turned on and off separately.

Procedure

PIC (press and hold) → **F•2** 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 setting.

USER: Up to two user markers can be displayed. You can set user markers to any size you like.

10.4.6 Displaying a Safe Action Marker

To display a safe action marker, follow the procedure below.

This setting is available when **F•1** STANDARD is set to ARIB or SMPTE.

Procedure

PIC (press and hold) → F.2 MARKER → F.4 SAFETY ZONE → F.2 SAFE ACTION

Settings

ON: A safe action marker is displayed.

OFF: A safe action marker is not displayed. This is the default setting.

10.4.7 Displaying a Safe Title Marker

To display a safe title marker, follow the procedure below.

This setting is available when **F·1** STANDARD is set to ARIB or SMPTE.

Procedure

PIC (press and hold) → F.2 MARKER → F.4 SAFETY ZONE → F.3 SAFE TITLE

Settings

ON: A safe title marker is displayed.

OFF: A safe title marker is not displayed. This is the default setting.

10.4.8 Displaying User Markers

To display user markers, follow the procedure below.

There are two types of user markers that can be turned on and off separately.

The user marker display settings are available when **F•1** STANDARD is set to USER.

Procedure

PIC (press and hold) → F•2 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 setting.

10.4.9 Setting User Marker Sizes

To set the user marker sizes, follow the procedure 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 an 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 (press and hold) → **F•2** MARKER → **F•4** SAFETY ZONE →
F•2 USER ZONE1 (when it is set to ON) → **F•D 1** USER ZONE1 H
→ **F•D 2** USER ZONE1 V

Settings

Setting range: 0 % to 100 %. (The default setting is 90 %.)

• Setting User Marker 2

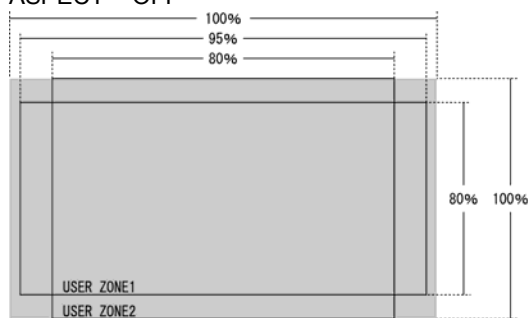
Procedure

PIC (press and hold) → **F•2** MARKER → **F•4** SAFETY ZONE →
F•3 USER ZONE2 (when it is set to ON) → **F•D 1** USER ZONE2 H
→ **F•D 2** USER ZONE2 V

Settings

Setting range: 0 % to 100 %. (The default setting 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

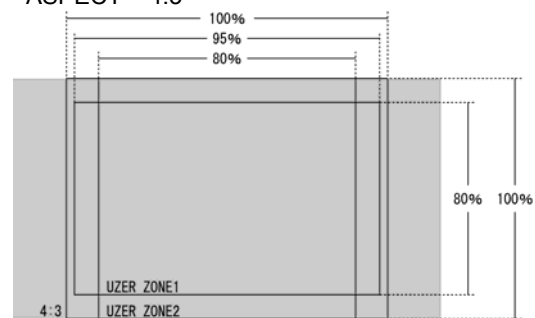


Figure10-10 User marker setting examples

10.5 Line Selection Settings (LINE SEL)

To configure line selection settings, press **F•3** LINE SEL in 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.

F•3 LINE SEL appears when SIZE has been set to FIT.

[Reference] SIZE → Section 10.6.1, “Setting the Display Size”

PIC (press and hold) → **F•3** LINE SEL →

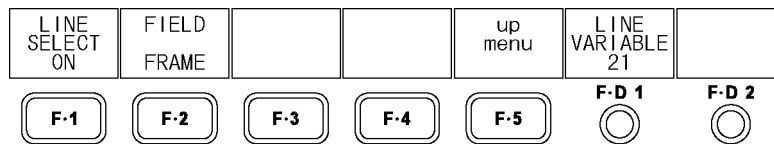


Figure10-11 LINE SEL menu

10.5.1 Displaying a Marker on the Selected Line

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

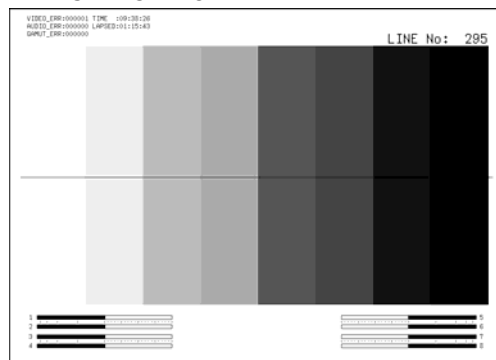
PIC (press and hold) → **F•3** LINE SEL → **F•1** LINE SELECT

Settings

ON: A marker appears on the selected line.

OFF: A marker does not appear on the selected line. This is the default setting.

LINE SELECT = ON



LINE SELECT = OFF

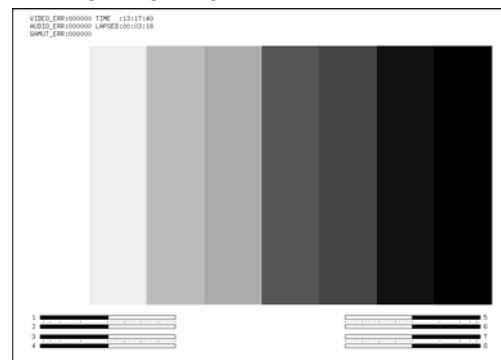


Figure10-12 Turning line selection on and off

10.5.2 Selecting a Line

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 in the video signal waveform, vector, and status (data dump) displays.

Procedure

PIC (press and hold) → **F•3** LINE SEL → **F•D 1** LINE VARIABLE

10.5.3 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 (press and hold) → **F•3** LINE SEL → **F•2** FIELD

Settings (the examples are for the setting 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 setting.	(Example: 1 to 1125.)

10.6 Display Settings (DISPLAY)

To configure the display settings, press **F•4** DISPLAY in the picture menu. You can configure the picture display size, the gamut error display, and the thumbnail display.

PIC (press and hold) → **F•4** DISPLAY →

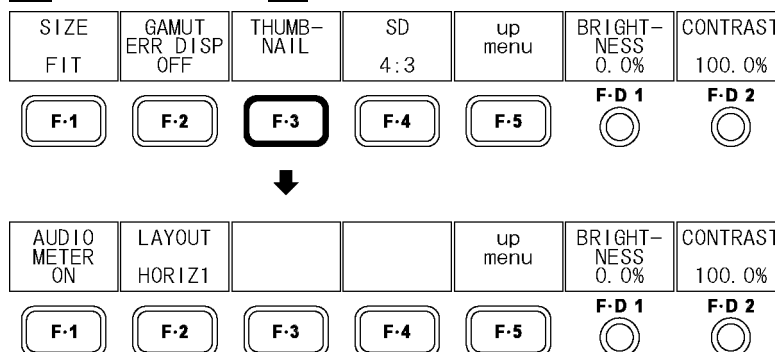


Figure10-13 DISPLAY menu

10.6.1 Setting the Display Size

To set the picture display size, follow the procedure below.

The video signal waveform, vector, and audio display thumbnails and their windows in the multi-screen display are displayed using the FIT setting regardless of the setting made here. However, when 3D INPUT FORMAT is set to L/R DUAL and PICTURE FORM is set to AGLPH CL, AGLPH MO, CNVRGNCE, OVERLAY, or FLICKER on the 3D assist display, you can select not only FIT, but REAL as well.

This menu item does not appear when CINELITE DISPLAY of the CINELITE display option is set to f Stop or %DISPLAY.

[Reference] 3D INPUT FORMAT → Section 7.1, “Selecting the Input Signal”

PICTURE FORM → Section 7.2, “Selecting the Display Format”

Procedure

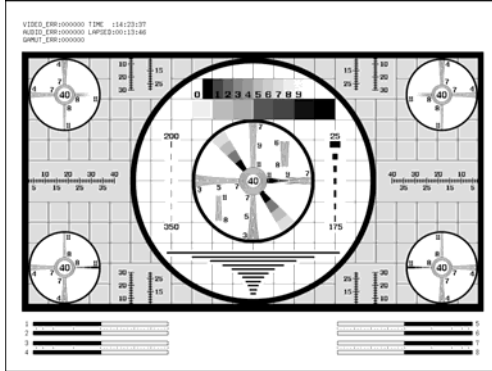
PIC (press and hold) → **F•4** DISPLAY → **F•1** SIZE

Settings

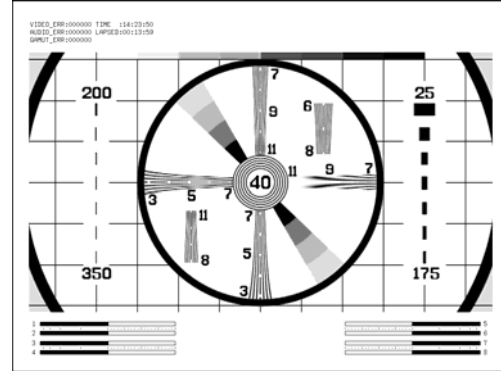
FIT:	The picture size is adjusted to the most suitable size for the screen. This is the default setting.
REAL:	A single sample of the video signal is displayed with a single pixel on the screen. The marker and line select features cannot be used. You can adjust the picture position by using H POS and V POS (see the next section for details). This setting cannot be chosen when D_LINK FORMAT is set to YC10bit.
X2:	A single sample of the video signal is displayed with four pixels (two horizontal and two vertical pixels) on the screen. The marker and line select features cannot be used. You can adjust the picture position by using H POS and V POS (see the next section for details). This setting cannot be chosen when D_LINK FORMAT is set to YC10bit.
X4:	A single sample of the video signal is displayed with sixteen pixels (four horizontal and four vertical pixels) on the screen. The marker and line select features cannot be used. You can adjust the picture position by using H POS and V POS (see the next section for details). This setting cannot be chosen when D_LINK FORMAT is set to YC10bit.
FULL FRM:	A single frame, including the blanking period, is displayed. The marker and line select features cannot be used.
FUL SCRNR:	When the input SDI signal is set to SD and the display is set to 4:3, the entire picture is displayed on the entire screen. When the input SDI signal is set to HD or SD and the display is set to 16:9, the center of the picture is displayed on the entire screen (see the figure below). Nothing but the picture is displayed. (For example, thumbnails and error count information are not displayed.) Also, the marker and line select features cannot be used.

10. PICTURE DISPLAY (PIC)

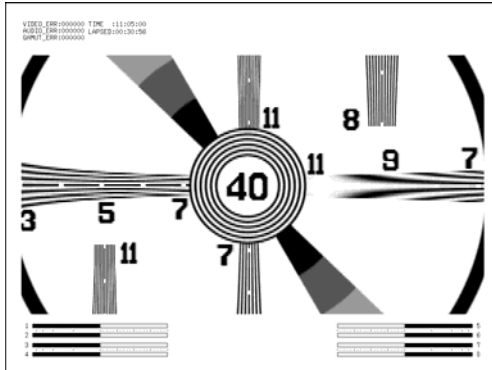
SIZE = FIT



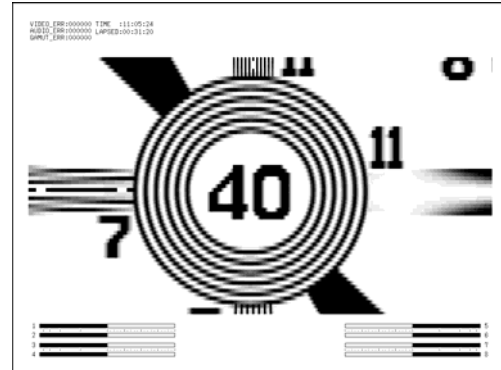
SIZE = REAL



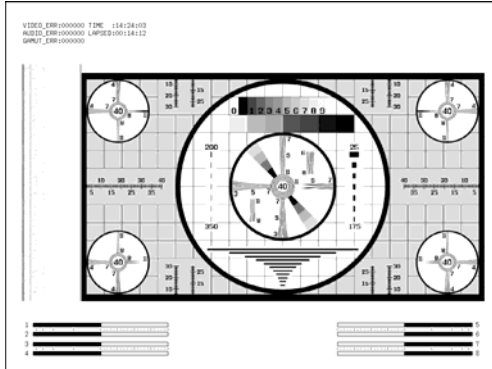
SIZE = X2



SIZE = X4



SIZE = FULL FRM



SIZE = FUL SCRNR

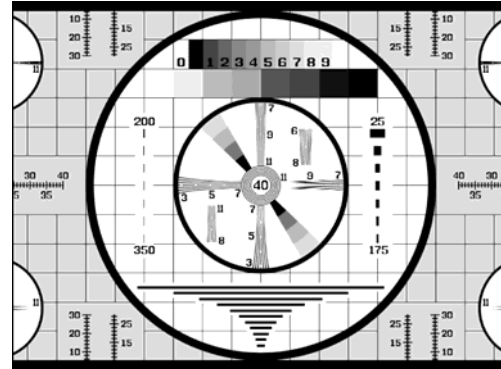


Figure10-14 Picture display sizes

10.6.2 Setting the Display Position

To set the picture position, follow the procedure below.

This setting is available when **F•1** SIZE is set to REAL, X2, or X4.

Procedure

PIC (press and hold) → **F•4** DISPLAY → **F•D 1** H POS
→ **F•D 2** V POS

10.6.3 Displaying Gamut Errors

To display gamut errors on the picture, follow the procedure below. The gamut error level display range can be set in the status display.

This setting is displayed when GAMUT ERROR, COMPOSIT GAMUT, or LUMA ERROR is set to a value other than OFF on the status display.

This setting is not available when D_LINK FORMAT is set to XYZ12bit in the system settings. This setting does not appear.

[Reference] GAMUT ERROR → Section 14.5.6, “Detecting Gamut Errors”

COMPOSIT GAMUT → Section 14.5.9, “Detecting Composite Gamut Errors”

LUMA ERROR → Section 14.5.11, “Detecting Luminance Errors”

D_LINK FORMAT → Section 5.1.4, “Setting the Input Format”

Procedure

PIC (press and hold) → **F•4** DISPLAY → **F•2** GAMUT ERR DISP

Settings

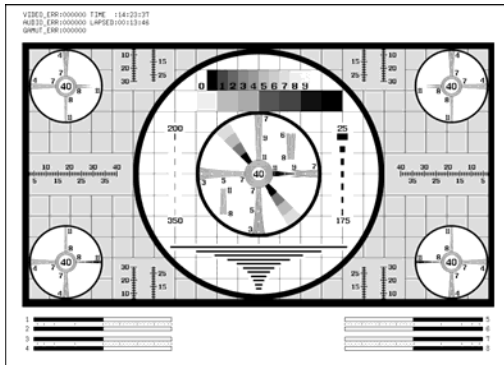
OFF: Gamut errors are not displayed. This is the default setting.

WHITE: The picture intensity is halved, and gamut error locations are marked in white.

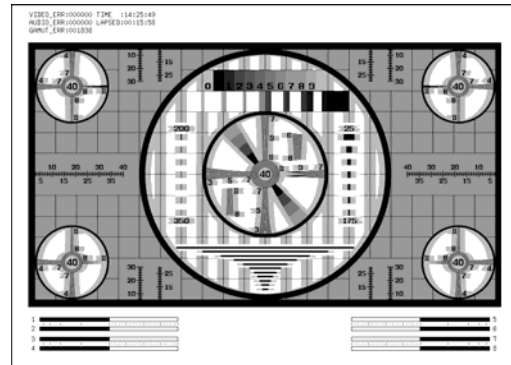
RED: The picture intensity is halved, and gamut error locations are marked in red.

MESH: Gamut error locations are covered with a mesh pattern.

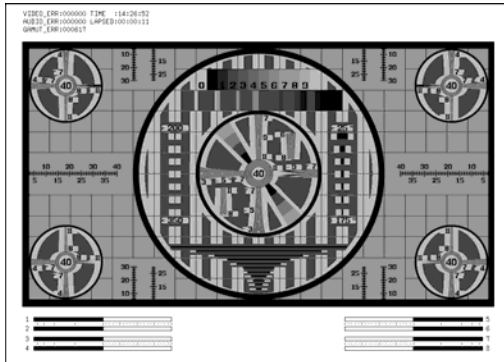
GAMUT ERR DISP = OFF



GAMUT ERR DISP = WHITE



GAMUT ERR DISP = RED



GAMUT ERR DISP = MESH

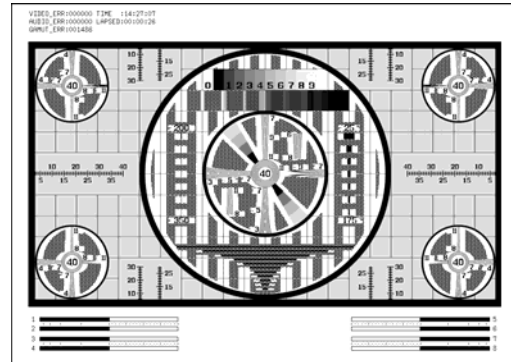


Figure10-15 Gamut error displays

10.6.4 Displaying the Audio Meter

To display the audio meter in the picture display, follow the procedure below.
Configure input channel settings and other audio meter settings in the audio display.

Procedure

PIC (press and hold) → **F•4** DISPLAY → **F•3** THUMBNAIL → **F•1** AUDIO METER

Settings

ON: The audio meter is displayed. This is the default setting.

OFF: The audio meter is not displayed.

AUDIO METER = ON



AUDIO METER = OFF

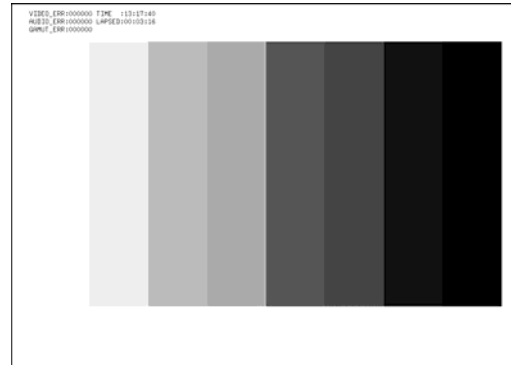


Figure10-16 Displaying the audio meter

10.6.5 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 in the audio display.
Changing this setting will also change the video signal waveform display and vector display audio meter display formats.

[Reference] SDI GROUP → Section 13.2.1, “Selecting the Audio Display Input Channels”

Procedure

PIC (press and hold) → **F•4** DISPLAY → **F•3** 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 setting.

HORIZ2: 1st GROUP is displayed on the top two levels and 2nd GROUP is displayed on the bottom two levels.

10. PICTURE DISPLAY (PIC)

LAYOUT = HORIZ1



LAYOUT = HORIZ2



Figure10-17 Audio meter display formats

10.6.6 Selecting the SD Signal Display Format

When the input SDI signal is set to SD, to set the display format, follow the procedure below.

Procedure

PIC (press and hold) → **F•4** DISPLAY → **F•4** SD

Settings

- 4:3: The input signal is displayed in 4:3 format. This is the default setting.
- 16:9: The input signal is squeezed (enlarged horizontally) and displayed in 16:9 format.

10.7 CINELITE Settings (for the CINELITE option)

To configure the CINELITE settings, press **F•5** CINELITE on the picture menu or **F•3** CINELITE on the multi-screen display menu.

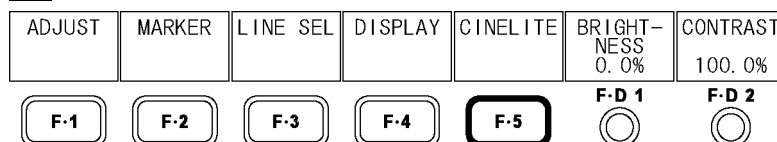
F•5 CINELITE appears on the single-screen display.

F•3 CINELITE appears when INPUT MODE is set to SINGLE or DUAL on the multi-screen display.

In both situations, the CINELITE II option must be installed. See the FS 3035 instruction manual for details.

[Reference] INPUT MODE → Section 6.2, "Selecting the Display Mode"

PIC (press and hold) →



MULTI (press and hold) → **F•3** MULTI MENU → **F•1** PIC → **F•4** DISPLAY →

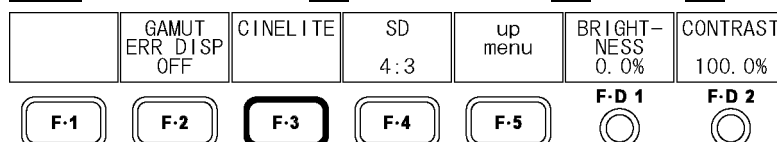


Figure10-18 CINELITE menu

11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

11.1 General Video Signal Waveform Display Explanation

To display video signal waveforms, press **WFM**.

To display the video signal waveform menu, press and hold **WFM** for 0.5 seconds or more, or use the function keys and function dials while in the video signal waveform display. The video signal waveform menu will disappear when you press **WFM** again or after a certain period of time passes with no user activity.

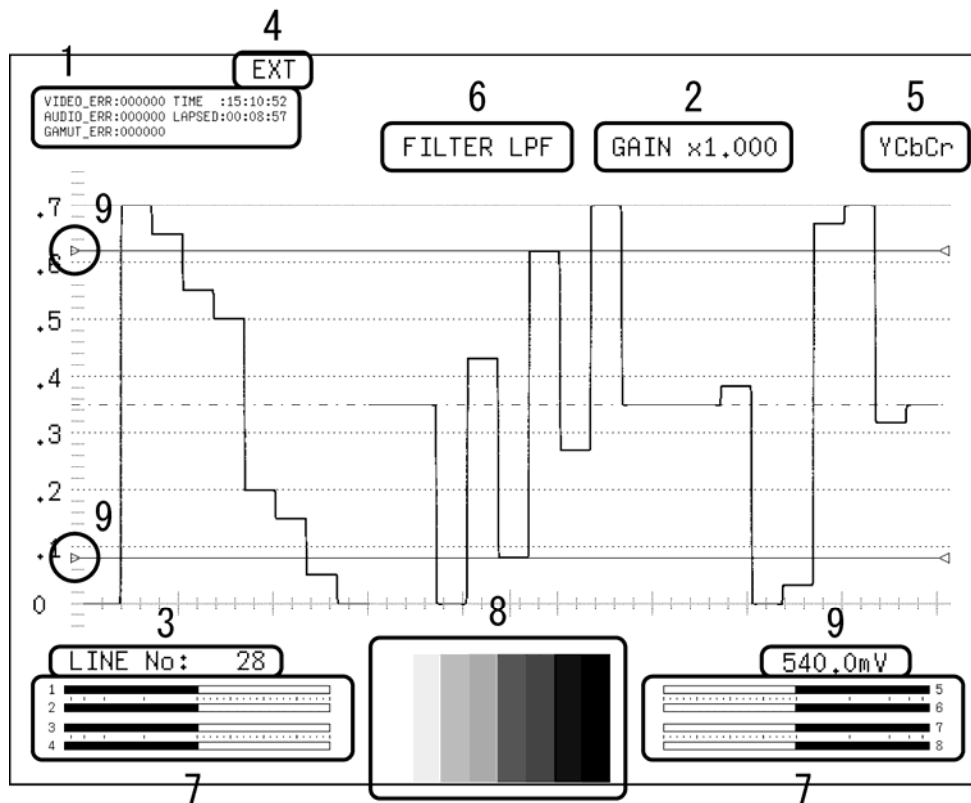


Figure11-1 Video signal waveform display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, “General Status Display Explanation.”

2 Gain

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

[Reference] GAIN MAG → Section 11.4.4, “Setting the Fixed Vertical Gain”

GAIN VARIABLE → Section 11.4.5, “Setting the Variable Vertical Gain”

3 Selected line

You can display the waveform of the selected line.

[Reference] Section 11.5.1, “Displaying the Waveform of the Selected Line,”

Section 11.5.2, “Selecting a Line”

4 Sync signal

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

[Reference] Section 11.5.4, “Switching to an External Sync Signal”

5 Display format

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

[Reference] Section 11.6.1, “Selecting a Display Format,”

Section 11.6.2, “Displaying the GBR or RGB Signal Simultaneously with the Luminance Signal”

6 Filter

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

[Reference] FILTER → Section 11.6.5, “Selecting a Filter”

7 Thumbnails (audio meter)

You can display the audio meter using thumbnails. You can turn the audio meter display off if you want to.

[Reference] Section 11.6.7, “Displaying the Audio Meter,”

Section 11.6.8, “Selecting the Audio Meter Display Format”

8 Thumbnail (picture)

You can display the picture using a thumbnail. You can turn the picture display off if you want to.

[Reference] Section 11.6.9, “Displaying the Picture”

9 Cursor

You can measure the time or cursor amplitude using cursors.

[Reference] Section 11.7, “Cursor Settings”

11.2 Display Position Settings

To set the display position, use **F•D 1** H POS and **F•D 2** V POS in the video signal waveform menu. You can set the video signal waveform horizontal and vertical positions.

F•D 1 H POS and **F•D 2** V POS appear in other levels of the video signal waveform menu as well and function in the same way.

WFM (press and hold) →

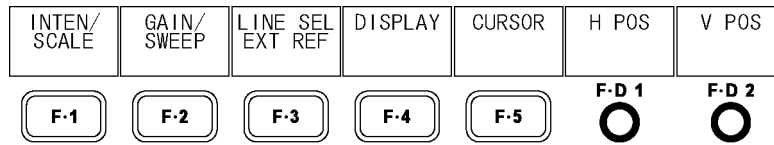


Figure11-2 Video signal waveform menu

11.2.1 Setting the Horizontal Position

To set the video signal waveform horizontal position, follow the procedure below.

To return the horizontal display position to its default location, press **F•D 1**.

Procedure

WFM (press and hold) → **F•D 1** H POS

11.2.2 Setting the Vertical Position

To set the video signal waveform vertical position, follow the procedure below.

To return the vertical display position to its default location, press **F•D 2**.

Procedure

WFM (press and hold) → **F•D 2** V POS

11.3 Video Signal Waveform and Scale Settings (INTEN/SCALE)

To configure video signal waveform and scale settings, press **[F•1]** INTEN/SCALE in the video signal waveform menu. You can set the color, intensity, and contrast of the video signal waveform; the unit, color, and intensity of the scale; and the marker display.

[WFM] (press and hold) → **[F•1]** INTEN/SCALE →

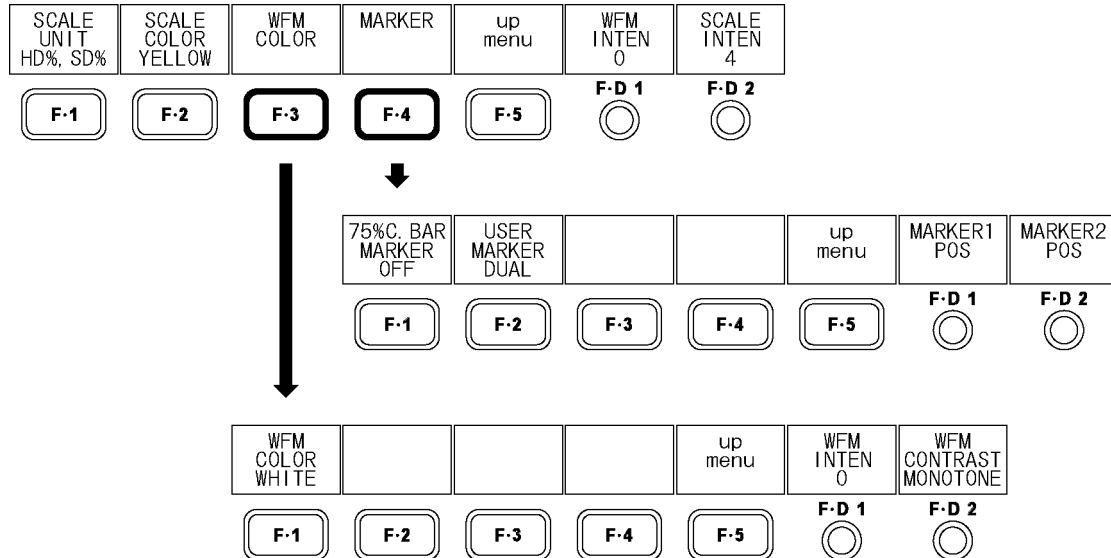


Figure11-3 INTEN/SCALE menu

11.3.1 Setting the Scale Units

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.

[Reference] COLOR MATRIX → Section 11.6.1, “Selecting the Display Format”

Composite display format → Section 5.1.5, “Setting the Composite Display Format”

Procedure

[WFM] (press and hold) → **[F•1]** INTEN/SCALE → **[F•1]** SCALE UNIT

Settings

HDV, SD%: The scale units are set to V for HD signals and % for SD signals.

HDV, SDV: The scale units are set to V.

HD%, SD%: The scale units are set to %. This is the default setting.

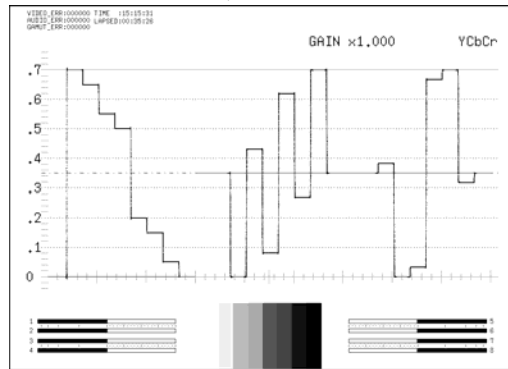
150%: The scale units are set to %. (Starting from -50 %.) This setting cannot be chosen when COLOR MATRIX is set to YCbCr, XYZ, or COMPOSIT.

1023: 0 to 100 % is displayed as 64 to 940 (YGBR) or 64 to 960 (CbCr). You cannot select this option when COLOR MATRIX is set to COMPOSIT or when D_LINK FORMAT is set to XYZ12bit in the system settings.

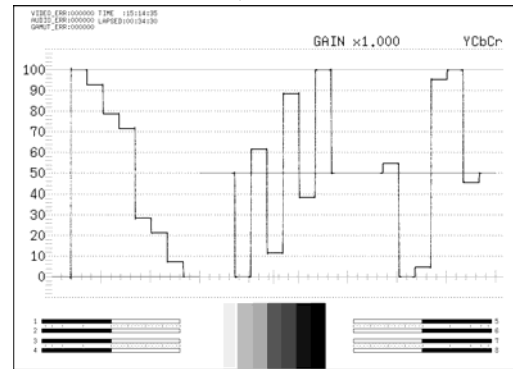
3FF: 0 to 100 % is displayed as 040 to 3AC (YGBR) or 040 to 3C0 (CbCr). This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT.

11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

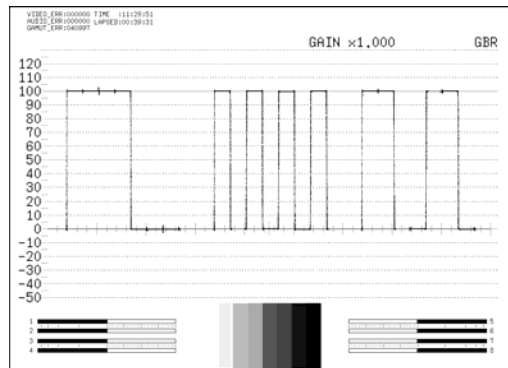
SCALE UNIT = HDV,SDV



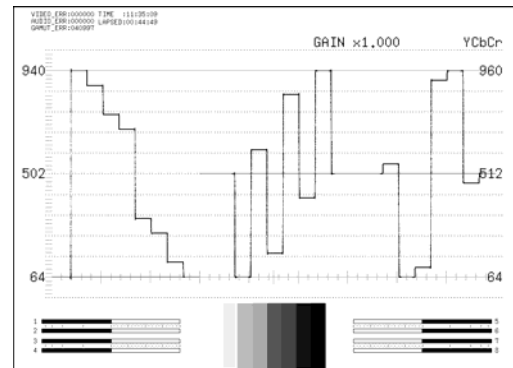
SCALE UNIT = HD%,SD%



SCALE UNIT = 150%



SCALE UNIT = 1023



SCALE UNIT = 3FF

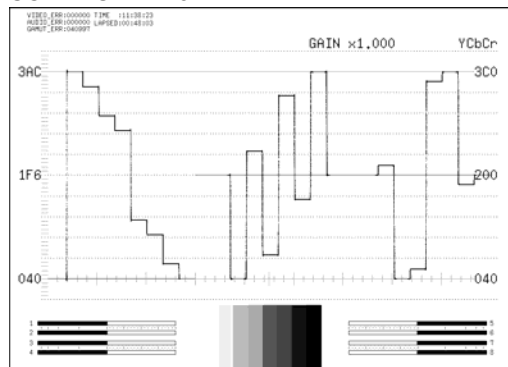


Figure11-4 Scale units

11.3.2 Changing the Scale Color

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

Procedure

WFM (press and hold) → **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 setting.
- 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.

11.3.3 Changing the Video Signal Waveform Color

To select the video signal waveform color from one of two options, follow the procedure below.

When DISPLAY MODE is set to WFM+PIC in the 2-channel display or when WFM COLOR is set to RED, CYAN in the 3D assist display, this setting is not available.

[Reference] DISPLAY MODE → Section 6.3, “Selecting the Multi-Screen Display Format”

WFM COLOR → Section 6.7.2, “Selecting the Video Signal Waveform Color”

Procedure

WFM (press and hold) → **F•1** INTEN/SCALE → **F•3** WFM COLOR → **F•1** WFM COLOR

Settings

WHITE: The video signal waveform is displayed in white. This is the default setting.

GREEN: The video signal waveform is displayed in green.

11.3.4 Setting the Contrast

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

When DISPLAY MODE is set to WFM+PIC in the 2-channel display or when WFM COLOR is set to RED, CYAN in the 3D assist display, this setting is not available.

If you press **F•D 2**, the contrast will be set to its default value of MONOTONE.

[Reference] DISPLAY MODE → Section 6.3, “Selecting the Multi-Screen Display Format”

WFM COLOR → Section 6.7.2, “Selecting the Video Signal Waveform Color”

Procedure

WFM (press and hold) → **F•1** INTEN/SCALE → **F•3** WFM COLOR → **F•D 2** WFM CONTRAST

Settings

MONOTONE: Waveforms are displayed with a single color. This is useful for comparing overlapping waveforms. This is the default setting.

LOW: Waveforms are displayed in low contrast.

MIDDLE: Waveforms are displayed in middle contrast.

HIGH: Waveforms are displayed in high contrast.

11.3.5 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.

Procedure

WFM (press and hold) → **F•1** INTEN/SCALE → **F•4** MARKER → **F•1** 75%C.BAR MARKER

Settings

ON: Markers for 75 % intensity color bars are displayed.

OFF: Markers for 75 % intensity color bars are not displayed. This is the default setting.

11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

75% C.BAR MARKER = ON

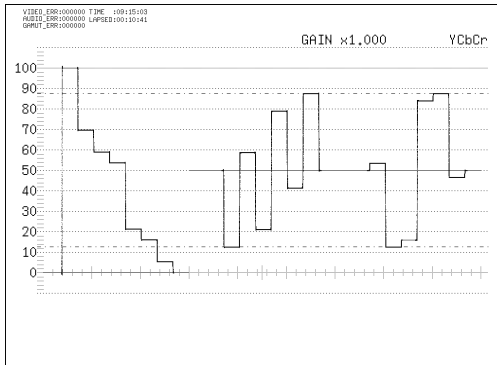


Figure11-5 Displaying markers for 75 % intensity color bars

11.3.6 Displaying Horizontal Markers

To display up to two horizontal markers, follow the procedure below.

Use **[F•D 1]** MARKER1 POS to move marker 1 (blue) and **[F•D 2]** MARKER2 POS to move marker 2 (green). 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 mV position. Press **[F•D 2]** to move marker 2 to the 100.0 mV position.

You cannot display the horizontal markers when the cursors are displayed.

Procedure

[WFM] (press and hold) → **[F•1]** INTEN/SCALE → **[F•4]** MARKER → **[F•2]** USER MARKER

Settings

OFF: Markers are not displayed. This is the default setting.
 SINGLE: Marker 1 is displayed.
 DUAL: Marker 1 and Marker 2 are displayed.

USER MARKER = DUAL

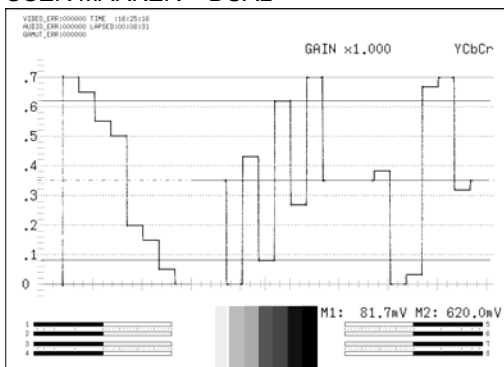


Figure11-6 Displaying horizontal markers

11.3.7 Setting the Video Signal Waveform Intensity

To set the video signal waveform intensity, follow the procedure below.

If you press **F•D 1**, the waveform intensity will be set to its default value of 0.

Procedure

WFM (press and hold) → **F•1** INTEN/SCALE → **F•D 1** WFM INTEN

Settings

Setting range: -128 to 127. (The default setting is 0.)

11.3.8 Setting the Scale Intensity

To set the scale intensity, follow the procedure below.

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

Procedure

WFM (press and hold) → **F•1** INTEN/SCALE → **F•D 2** SCALE INTEN

Settings

Setting range: -8 to 7. (The default setting is 4.)

11.4 Gain and Sweep Settings (GAIN/SWEEP)

To set the gain and sweep, press **F•2** GAIN/SWEEP in the video signal waveform menu. You can set the video signal waveform display format, sweep, and gain.

WFM (press and hold) → **F•2** GAIN/SWEEP →

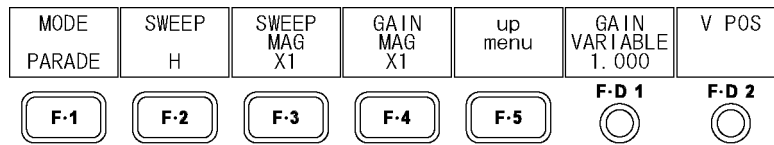


Figure11-7 GAIN/SWEEP menu

11.4.1 Switching between the Overlay and Parade Displays

To switch between the overlay and parade displays, follow the procedure below.

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

[Reference] COLOR MATRIX → Section 11.6.1, “Selecting the Display Format”

Procedure

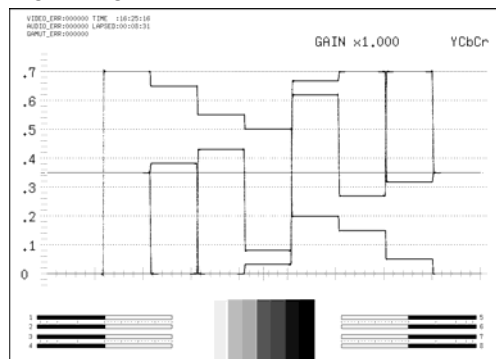
WFM (press and hold) → **F•2** GAIN/SWEEP → **F•1** MODE

Settings

OVERLAY: Component signals are displayed overlaid.

PARADE: Component signals are displayed side by side. This is the default setting.

MODE = OVERLAY



MODE = PARADE

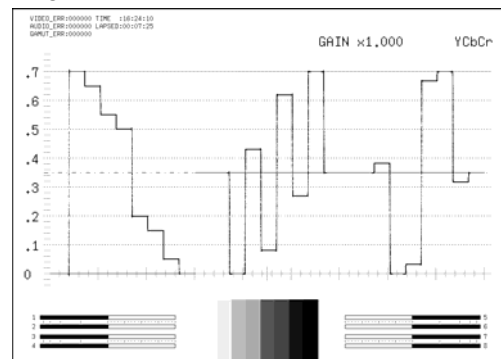


Figure11-8 Overlay and parade displays

11.4.2 Selecting the Sweep Method

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

The sweep methods that you can select vary depending on how **F•1** MODE is set and what the input format is.

The field and frame displays cannot be used on the 2-channel display or 3D assist display. If they are specified, they are automatically changed to the line display.

Procedure

WFM (press and hold) → **F•2** GAIN/SWEEP → **F•2** SWEEP

- When the input format is interlaced or segmented frame and **MODE** is set to **PARADE**

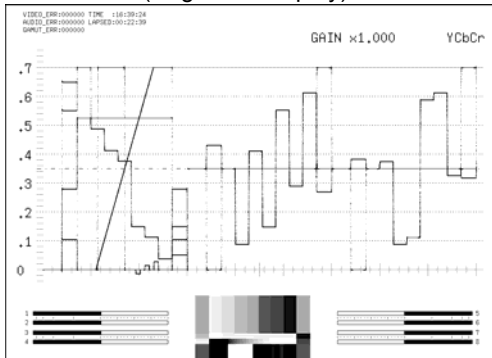
Settings

H: Single lines are displayed. This is the default setting.

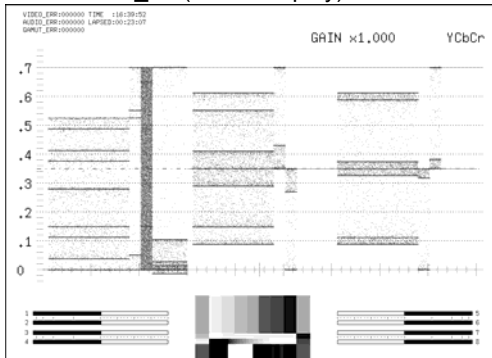
V_F1: Field 1 is displayed.

V_F2: Field 2 is displayed.

SWEEP = H (single-line display)



SWEEP = V_F1 (field 1 display)



SWEEP = V_F2 (field 2 display)

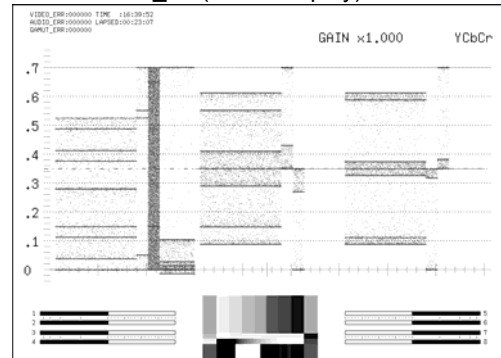


Figure11-9 When the input format is i or sF in the parade display

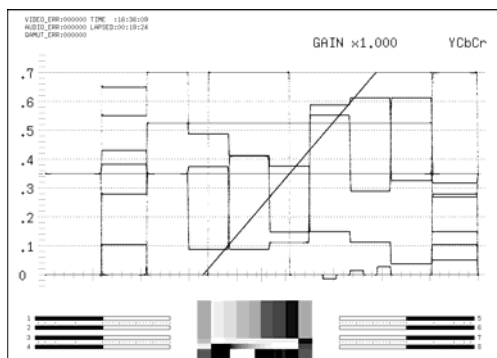
11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

- When the input format is interlaced or segmented frame and **MODE** is set to **OVERLAY**

Settings

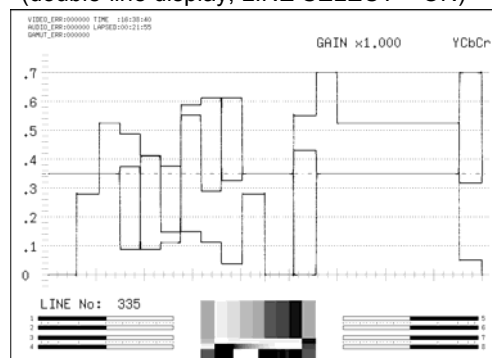
H_1H:	Single lines are displayed. This is the default setting.
H_2H:	Two lines are displayed at a time.
V_F1:	Field 1 is displayed.
V_F2:	Field 2 is displayed.
V_2V:	Single frames are displayed.

SWEEP = H_1H (single-line display)

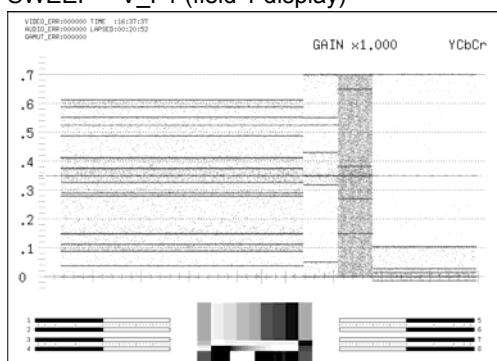


SWEEP = H_2H

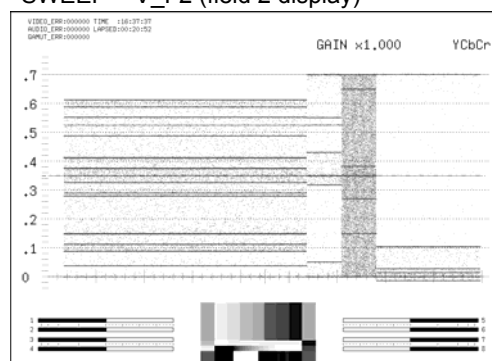
(double-line display; LINE SELECT = ON)



SWEEP = V_F1 (field 1 display)



SWEEP = V_F2 (field 2 display)



SWEEP = V_2V (single-frame display)

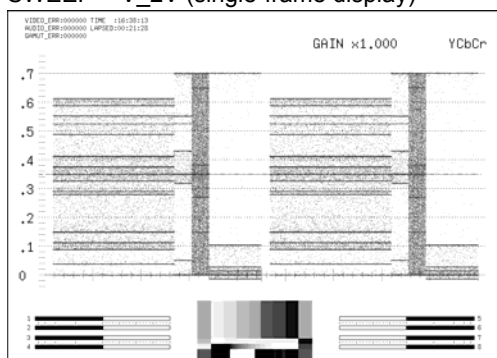


Figure11-10 When the input format is i or sF in the overlay display

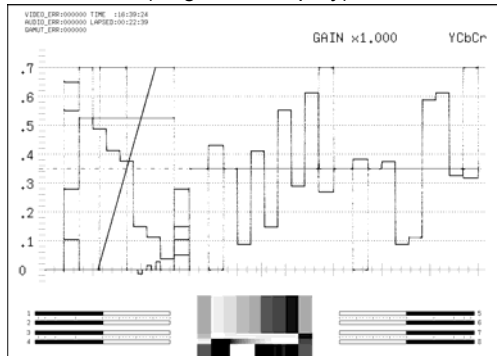
11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

- When the input format is progressive and **MODE** is set to **PARADE**

Settings

H: Single lines are displayed. This is the default setting.
V: Single frames are displayed.

SWEEP = H (single-line display)



SWEEP = V (single-frame display)

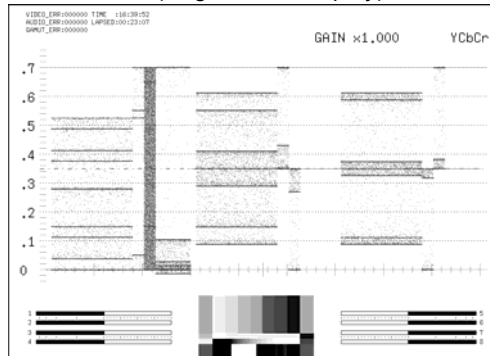


Figure11-11 When the input format is p in the parade display

- When the input format is progressive and **MODE** is set to **OVERLAY**

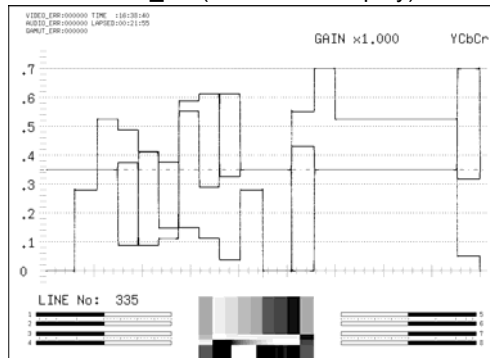
Settings

H_1H: Single lines are displayed. This is the default setting.
H_2H: Two lines are displayed at a time.
V: Single frames are displayed.

SWEEP = H_1H (single-line display)



SWEEP = H_2H (double-line display)



SWEEP = V (single-frame display)

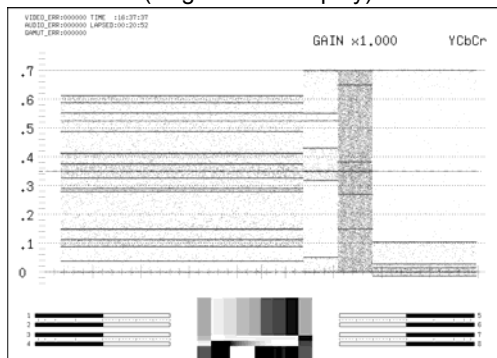


Figure11-12 When the input format is p in the overlay display

11.4.3 Setting the Horizontal Magnification

The magnifications that you can choose vary, as shown below, depending on how SWEEP is set.

[Reference] SWEEP → See section 11.4.2, “Selecting the Sweep Method”

Table 11-1 Horizontal magnifications

SWEEP	×1	×10	×20	×40	ACTIVE	BLANK
H_1H、H	Yes	Yes	Yes	No	Yes	Yes
H_2H	Yes	Yes	Yes	No	No	Yes
V_F1、V_F2、V、V_2V	Yes	No	Yes	Yes	No	No

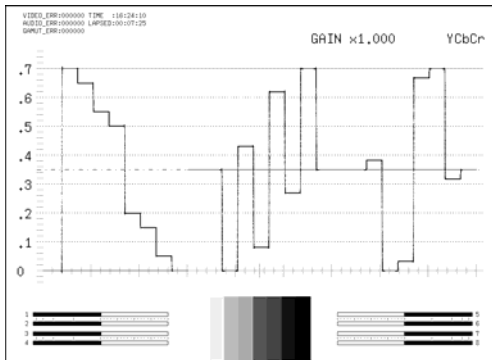
Procedure

WFM (press and hold) → **F•2** GAIN/SWEEP → **F•3** SWEEP MAG

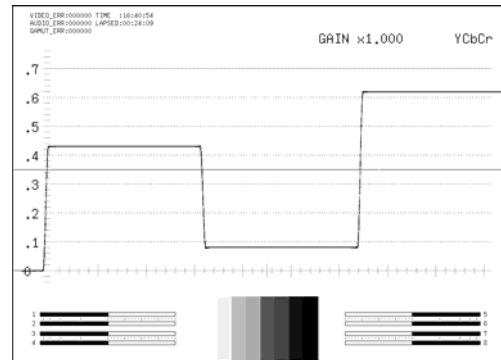
Settings

- ×1: The video signal waveforms are displayed so that they fit in the screen. This is the default setting.
- ×10: The video signal waveforms are magnified to 10 times the size of ×1 at the center of the display.
- ×20: The video signal waveforms are magnified to 20 times the size of ×1 at the center of the display.
- ×40: The video signal waveforms are magnified to 40 times the size of ×1 at the center of the display.
- ACTIVE: Everything but the video signal waveform blanking period is magnified.
- BLANK: The video signal waveform blanking period is magnified.

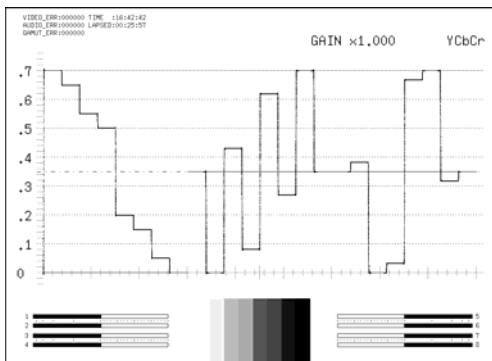
SWEEP MAG = ×1



SWEEP MAG = ×10



SWEEP MAG = ACTIVE



SWEEP MAG = BLANK

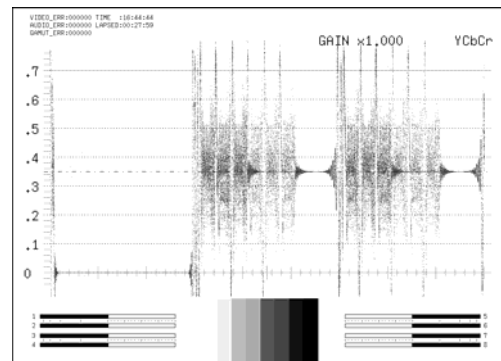


Figure11-13 Horizontal magnifications

11.4.4 Setting the Fixed Vertical Gain

To set the video signal waveform fixed vertical gain, follow the procedure below.

Procedure

WFM (press and hold) → **F•2** GAIN/SWEEP → **F•4** GAIN MAG

Settings

- ×1: Waveforms are not magnified. This is the default setting.
- ×5: Waveforms are magnified to five times their normal size.

11.4.5 Setting the Variable Vertical Gain

To set the video signal waveform variable vertical gain, follow the procedure below.

You can set the video signal waveform gain to a value between 0.2 and 10 by setting **F•4** GAIN MAG and **F•D 1** GAIN VARIABLE. The gain value appears in the upper right of the screen.

Procedure

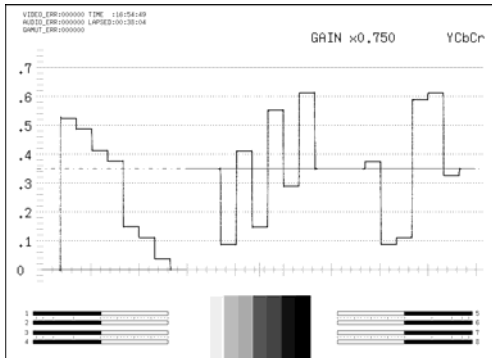
WFM (press and hold) → **F•2** GAIN → **F•D 1** GAIN VARIABLE

Settings

Setting range: 0.200 to 2.000 (when GAIN MAG is ×1; the default setting is 1.000.)
1.000 to 10.000 (when GAIN MAG is ×5; the default setting is 5.000.)

GAIN MAG = ×1

GAIN VARIABLE = 0.750



GAIN MAG = ×5

GAIN VARIABLE = 2.500

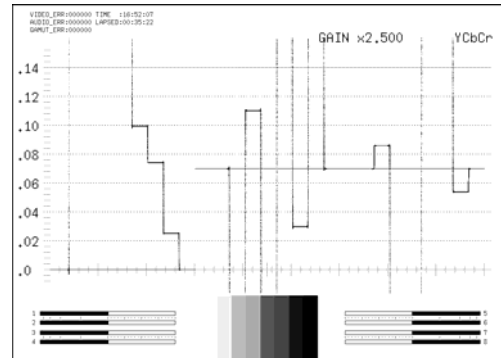


Figure11-14 Vertical magnifications

11.5 Line Selection and Sync Signal Settings (LINE SEL EXT REF)

To configure line selection and sync signal settings, press **F•3** LINE SEL EXT REF in the video signal waveform menu. You can display the waveform of the selected line and switch to an external sync signal.

The line select display cannot be used on the 2-channel display or 3D assist display.

WFM (press and hold) → **F•3** LINE SEL EXT REF →

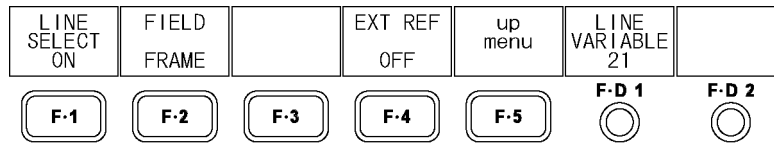


Figure 11-15 LINE SEL EXT REF menu

11.5.1 Displaying the Waveform of the Selected Line

To display the waveform of the selected line, follow the procedure below.

Changing this setting will also change the picture display and vector display line selection settings.

Procedure

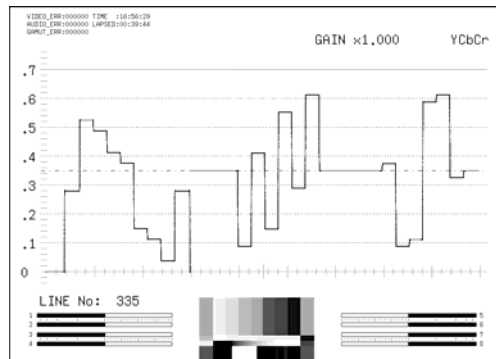
WFM (press and hold) → **F•3** LINE SEL EXT REF → **F•1** LINE SELECT

Settings

ON: The waveform of the selected line is displayed.

OFF: The waveforms of all lines are displayed overlapping each other. This is the default setting.

LINE SELECT = ON



LINE SELECT = OFF

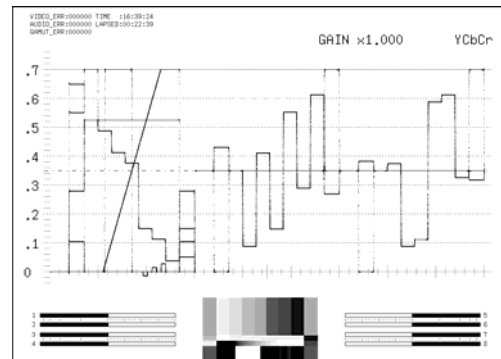


Figure 11-16 Turning line selection on and off

11.5.2 Selecting a Line

To select a line to display the waveform of, 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 in the picture, vector, and status (data dump) displays.

Procedure

WFM (press and hold) → **F•3** LINE SEL EXT REF → **F•D 1** LINE VARIABLE

11.5.3 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 picture display and vector display line selection ranges.

Procedure

WFM (press and hold) → **F•3** LINE SEL EXT REF → **F•2** FIELD

Settings (the examples are for the setting 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 setting. (Example: 1 to 1125.)

11.5.4 Switching to an External Sync Signal

To switch to an external sync signal, follow the procedure below.

Changing this setting will also change the vector display and status display sync signal settings.

When D_LINK FORMAT is set to YC10bit, you cannot use an external sync signal, and this setting is not available.

[Reference] D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

Procedure

WFM (press and hold) → **F•3** LINE SEL EXT REF → **F•4** EXT REF

Settings

ON: An external sync signal is used.

OFF: The internal sync signal is used. This is the default setting.

11.6 Display Settings (DISPLAY)

To configure the display settings, press **F•4** DISPLAY in the video signal waveform menu. You can set the video signal waveform display format, channels, filters, the blanking display, and thumbnails.

WFM (press and hold) → **F•4** DISPLAY →

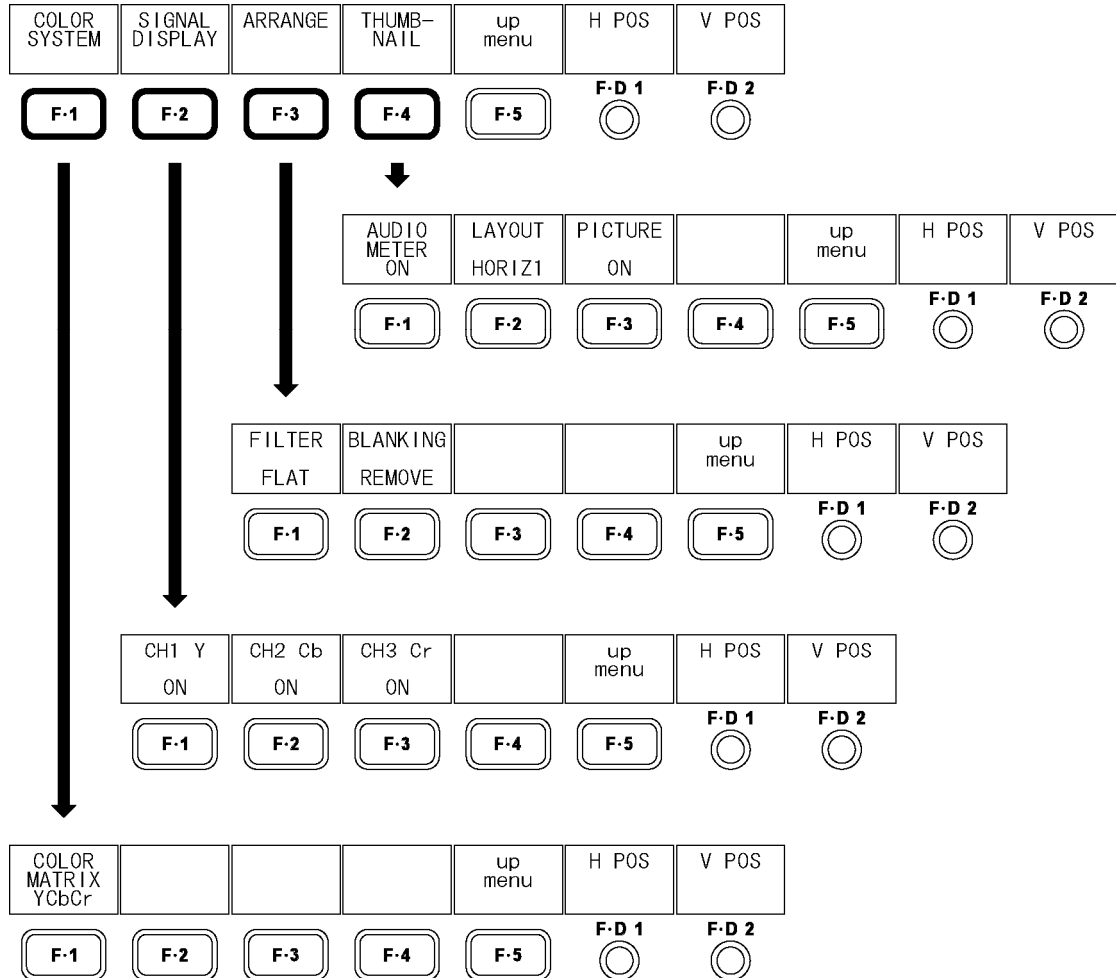


Figure11-17 DISPLAY menu

11.6.1 Selecting the Display Format

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

The selected display format is indicated in the upper right of the display.

If you select COMPOSIT, choose the composite display format (NTSC or PAL) by setting COMPOSIT FORMAT in the system settings.

[Reference] COMPOSIT FORMAT → Section 5.1.5, “Setting the Composite Display Format”

Procedure

WFM (press and hold) → **F.4** DISPLAY → **F.1** COLOR SYSTEM → **F.1** COLOR MATRIX

Settings

YCbCr: Luminance and chrominance signals are displayed. You cannot select this option when D_LINK FORMAT is set to XYZ12bit or GBR in the system settings. This is the default setting.

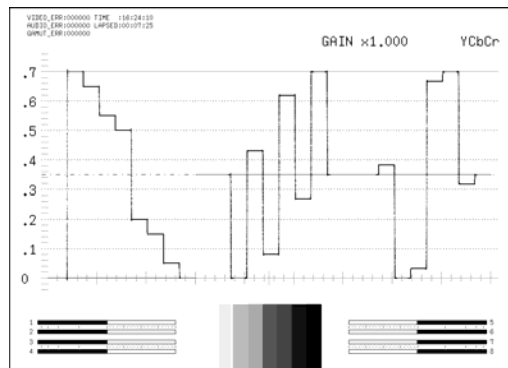
XYZ: The XYZ signal is displayed. You cannot select this option when D_LINK FORMAT is set to XYZ12bit in the system settings.

GBR: A $YC_B C_R$ signal is converted into a GBR signal and displayed.

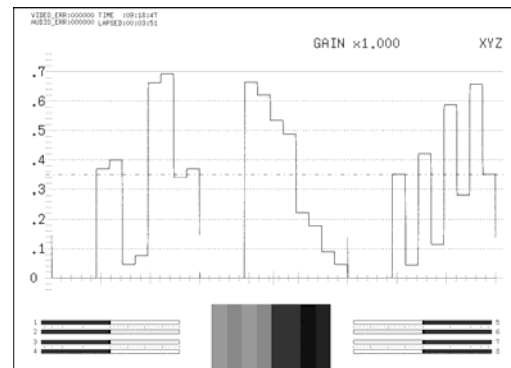
RGB: A $YC_B C_R$ signal is converted into an RGB signal and displayed.

COMPOSIT: A $YC_B C_R$ signal is converted into a pseudo-composite signal and displayed.

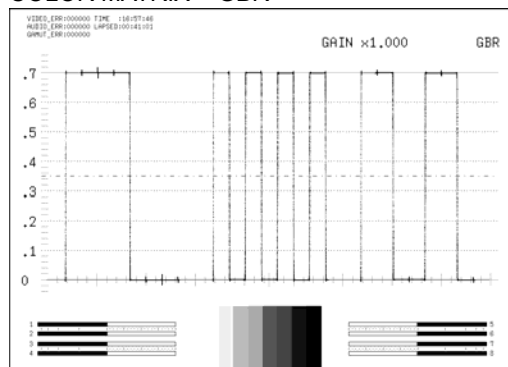
COLOR MATRIX = YCbCr



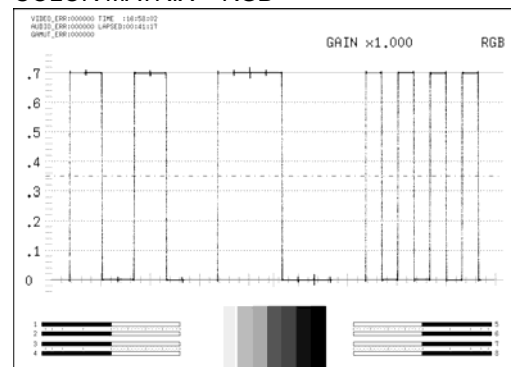
COLOR MATRIX = XYZ



COLOR MATRIX = GBR



COLOR MATRIX = RGB



11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

COLOR MATRIX = COMPOSIT

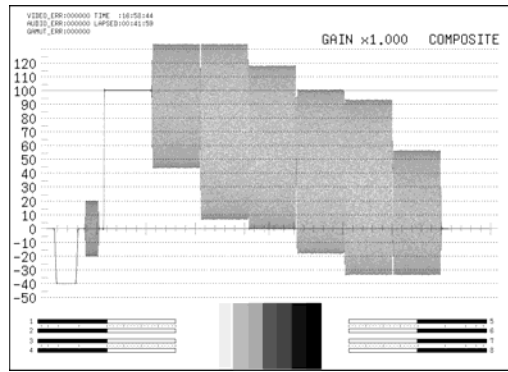


Figure11-18 Component displays and the pseudo-composite display

11.6.2 Displaying the GBR or RGB Signal Simultaneously with the Luminance Signal

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

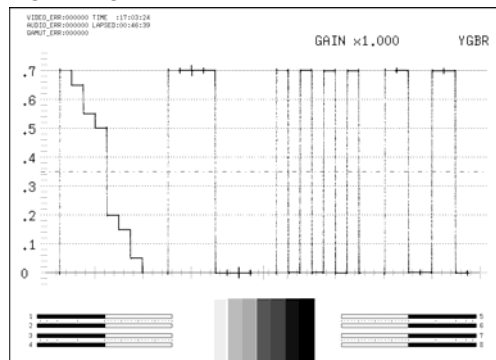
WFM (press and hold) → **F•4** DISPLAY → **F•1** COLOR SYSTEM → **F•2** YGBR
→ **F•2** YRGB

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 setting.

YGBR = ON



YGBR = OFF

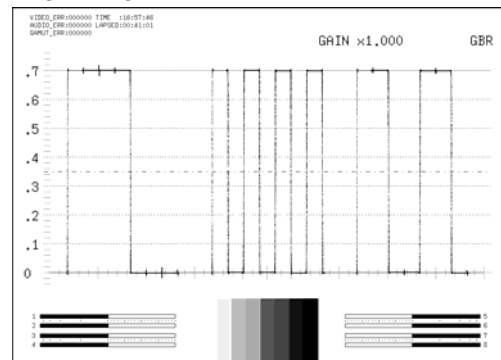


Figure11-19 YGBR display

11.6.3 Setting the Setup Level

To set the pseudo-composite display setup level, 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.

[Reference] Composite display format → Section 5.1.5, “Setting the Composite Display Format”

Procedure

[WFM] (press and hold) → **[F•4]** DISPLAY → **[F•1]** COLOR SYSTEM → **[F•3]** SETUP

Settings

0%: No setup level is added. This is the default setting.

7.5%: A setup level of 7.5% is added.

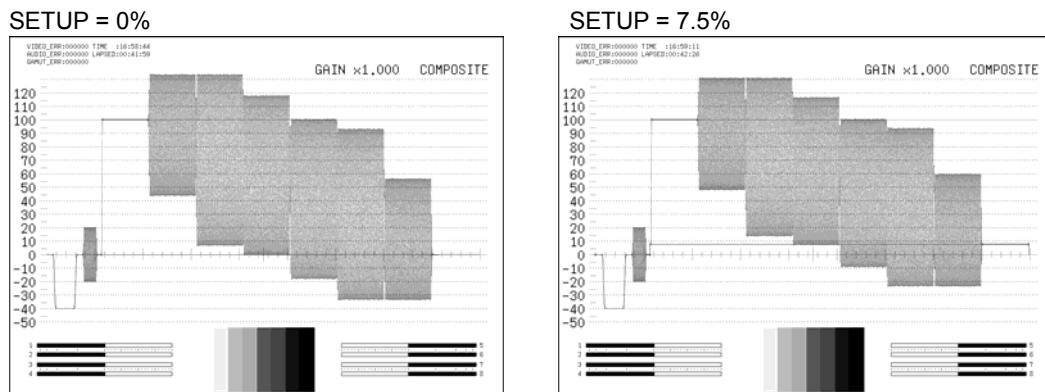


Figure11-20 Pseudo-composite display setup level

11.6.4 Turning $Y C_B C_R$, GBR, or RGB Signal Components On and Off

To turn individual channels in a $Y C_B C_R$, XYZ, GBR, or RGB signal on and off, follow the procedure below.

You cannot set every channel to OFF.

This setting is available when **[F•1]** COLOR MATRIX is not set to COMPOSIT.

However, it is not available when **[F•2]** YGBR or **[F•2]** YRGB is set to ON.

Procedure

[WFM] (press and hold) → **[F•4]** DISPLAY → **[F•2]** SIGNAL DISPLAY

→ **[F•1]** CH1 Y / **[F•2]** CH2 Cb / **[F•3]** CH3 Cr

→ **[F•1]** CH1 X / **[F•2]** CH2 Y / **[F•3]** CH3 Z

→ **[F•1]** CH1 G / **[F•2]** CH2 B / **[F•3]** CH3 R

→ **[F•1]** CH1 R / **[F•2]** CH2 G / **[F•3]** CH3 B

Settings

ON: The selected channel in the $Y C_B C_R$, XYZ, GBR, or RGB signal is displayed.
This is the default setting.

OFF: The selected channel in the $Y C_B C_R$, XYZ, GBR, or RGB signal is not displayed.

11.6.5 Selecting a Filter

To select a filter, follow the procedure below.

The filters that you can select vary depending on how **[F•1]** COLOR MATRIX is set.

Procedure

[WFM] (press and hold) → **[F•4]** DISPLAY → **[F•3]** ARRANGE → **[F•1]** FILTER

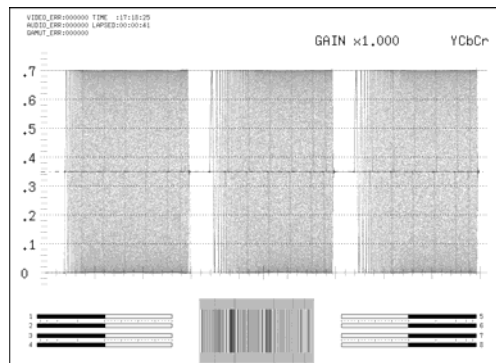
- When COLOR MATRIX is set to YCbCr, XYZ, GBR, or RGB

Settings

FLAT: This filter has a flat frequency response over the entire bandwidth of the input signal. This is the default setting.

LOW PASS: This filter is a low-pass filter with the following frequency responses:
 Attenuation of 20 dB or more at 20 MHz (when the input SDI signal is HD)
 Attenuation of 20 dB or more at 3.8 MHz (when the input SDI signal is SD)

FILTER = FLAT



FILTER = LOW PASS

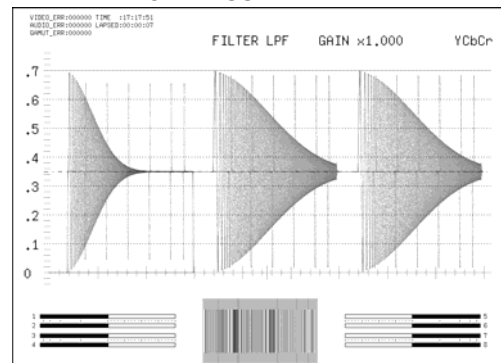


Figure11-21 Component signal filters

- When COLOR MATRIX is set to COMPOSIT

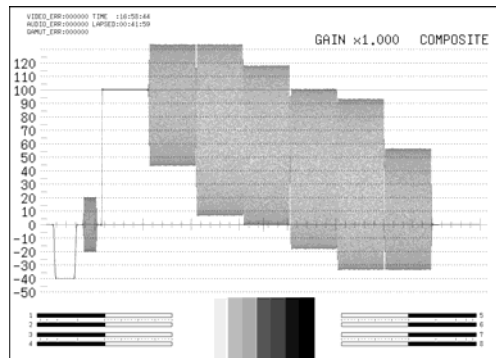
Settings

FLAT: Only the pseudo-composite signal is displayed. This is the default setting.

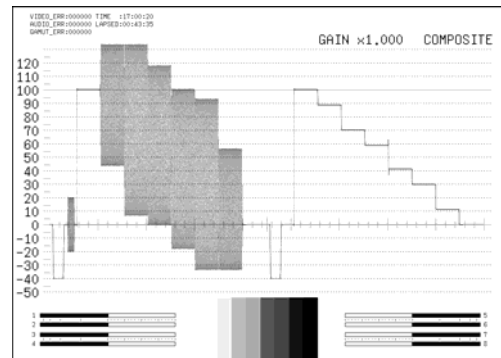
FLAT+LUM: The pseudo-composite signal and the luminance signal are displayed side by side.

LUM+CRMA: The pseudo-composite luminance and chrominance signals are displayed side by side.

FILTER = FLAT



FILTER = FLAT+LUM



11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

FILTER = LUM+CRMA

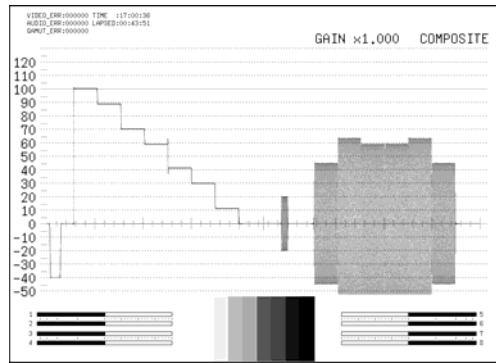


Figure11-22 Pseudo-composite signal filters

11.6.6 Displaying the Blanking Period

To set how the blanking period is displayed, follow the procedure below.

The blanking interval is normally not shown in the vector display, but in the multi-screen display, the blanking interval is shown according to the setting that you make here.

Procedure

WFM (press and hold) → **F•4** DISPLAY → **F•3** ARRANGE → **F•2** BLANKING

Settings

REMOVE: Only the active period of the input SDI signal is displayed. This is the default setting.

H VIEW: The active period and the horizontal blanking period of the input SDI signal are displayed.

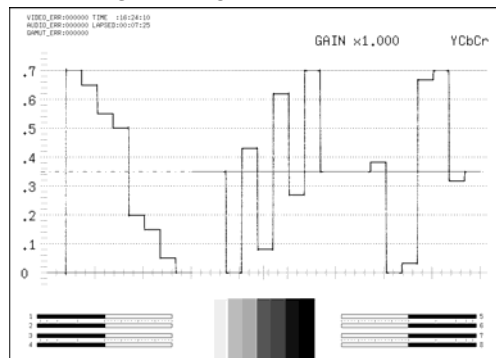
This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT.

V VIEW: The active period and the vertical blanking period of the input SDI signal are displayed.

ALL VIEW: The entire input SDI signal is displayed.

This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT.

BLANKING = REMOVE



BLANKING = ALL VIEW

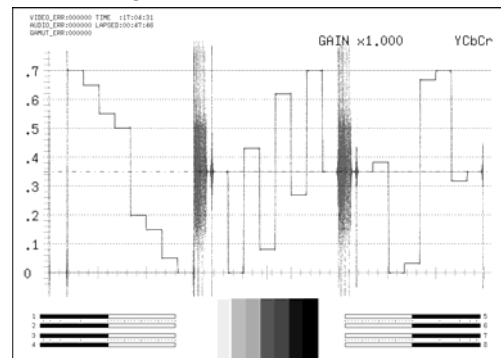


Figure11-23 Displaying the blanking period

11.6.7 Displaying the Audio Meter

To display the audio meter in the video signal waveform display, follow the procedure below.

Configure audio meter settings in the audio display.

Procedure

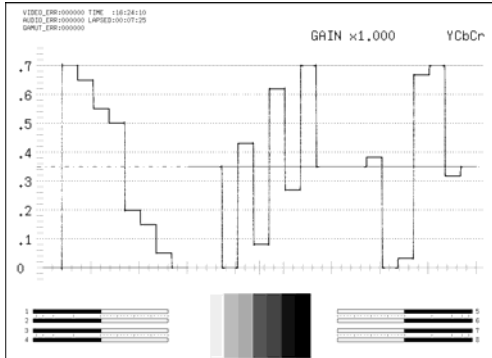
WFM (press and hold) → **F•4** DISPLAY → **F•4** THUMBNAIL → **F•1** AUDIO METER

Settings

ON: The audio meter is displayed. This is the default setting.

OFF: The audio meter is not displayed.

AUDIO METER = ON



AUDIO METER = OFF

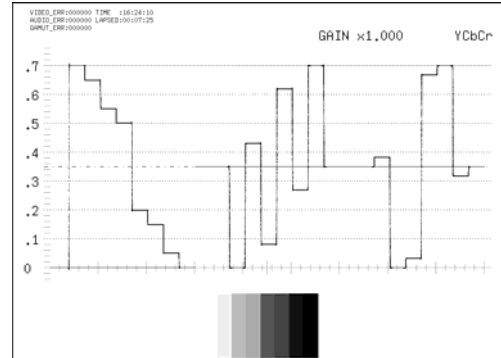


Figure11-24 Displaying the audio meter

11.6.8 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 in the audio display.

Changing this setting will also change the picture display and vector display audio meter display formats.

[Reference] SDI GROUP → Section 13.2.1, "Selecting the Audio Display Input Channels"

Procedure

WFM (press and hold) → **F•4** DISPLAY → **F•4** 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 setting.

HORIZ2: 1st GROUP is displayed on the top two levels and 2nd GROUP is displayed on the bottom two levels.

11. VIDEO SIGNAL WAVEFORM DISPLAY (WFM)

LAYOUT = HORIZ1



Figure11-25 Audio meter display formats

11.6.9 Displaying the Picture

To display the picture in the video signal waveform display, follow the procedure below. Configure picture settings in the picture display. Markers cannot be displayed.

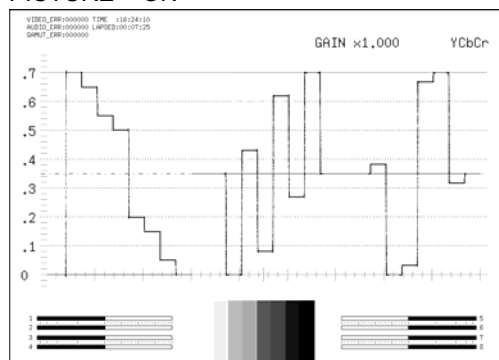
Procedure

WFM (press and hold) → F•4 DISPLAY → F•4 THUMBNAIL → F•3 PICTURE

Settings

ON: The picture is displayed. This is the default setting.
OFF: The picture is not displayed.

PICTURE = ON



PICTURE = OFF

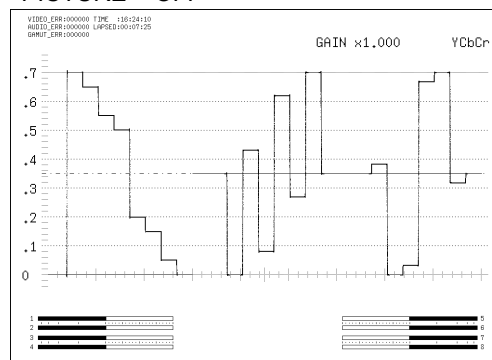


Figure11-26 Displaying the picture

11.7 Cursor Settings

To configure cursor settings, press **F•5** CURSOR in the video signal waveform menu. You can display cursors and use them to make measurements.

You cannot perform cursor measurements when the horizontal markers are displayed or in the multi-screen display.

WFM (press and hold) → **F•5** CURSOR →

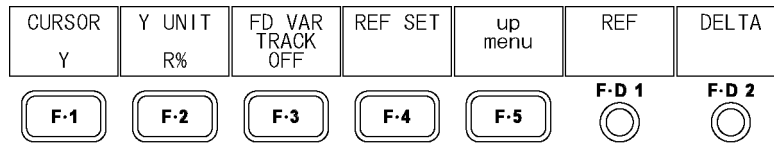


Figure11-27 CURSOR menu

11.7.1 Displaying Cursors

To display cursors, follow the procedure 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.

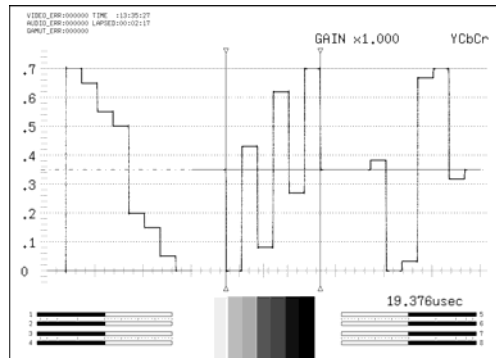
Procedure

WFM (press and hold) → **F•5** CURSOR → **F•1** CURSOR

Settings

X: X cursors are displayed for measuring time.
 Y: Y cursors are displayed for measuring amplitude.
 OFF: Cursors are not displayed. This is the default setting.

CURSOR = X



CURSOR = Y

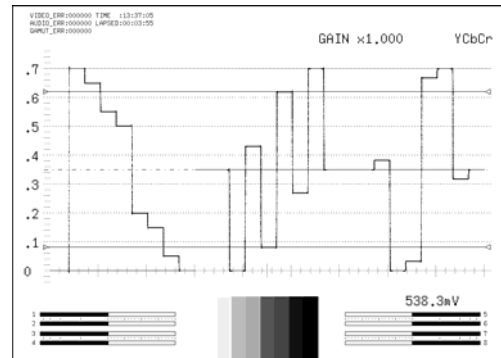


Figure11-28 Cursor displays

11.7.2 Selecting the Cursor Type

To select whether to move the two cursors separately or simultaneously, follow the procedure below. You can also switch between cursor types by pressing **F•D 1**.

Procedure

WFM (press and hold) → **F•5** CURSOR → **F•3** FD VAR TRACK

Settings

ON: The cursors move simultaneously. Triangles appear at the ends of each cursor.

OFF: The cursors move separately. This is the default setting.

11.7.3 Moving the 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 both cursors separately

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 (press and hold) → **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 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**.

Procedure

WFM (press and hold) → **F•5** CURSOR → **F•3** FD VAR TRACK ON → **F•D 1** TRACK
→ **F•D 2** DELTA

11.7.4 Setting the Units of Measurement

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

● When CURSOR is set to Y

Procedure

WFM (press and hold) → **F•5** CURSOR → **F•2** Y UNIT

Settings

mV:	Measurements are made in units of voltage. This is the default setting.
%:	Measurements are made as percentages. When COLOR MATRIX is set to YCbCr, XYZ, 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 where REF SET is pressed set to 100 %.

● When CURSOR is set to X

Procedure

WFM (press and hold) → **F•5** CURSOR → **F•2** X UNIT

Settings

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

11.7.5 Setting the Base Value

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 (press and hold) → **F•5** CURSOR → **F•4** REF SET

12. VECTOR DISPLAY (VECT)

12.1 General Vector Display Explanation

To display vectors, press **VECT**.

To display the vector menu, press and hold **VECT** for 0.5 seconds or more, or use the function keys and function dials while in the vector display. The vector menu will disappear when you press **VECT** again or after a certain period of time passes with no user activity.

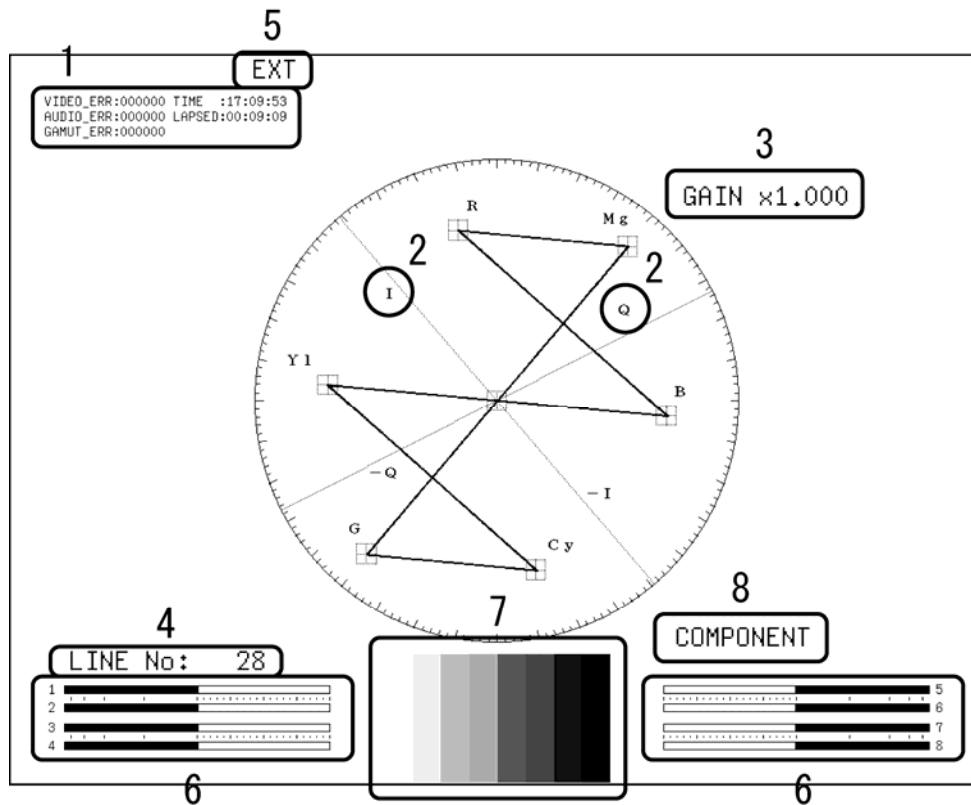


Figure12-1 Vector display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, “General Status Display Explanation.”

2 I and Q axes

The I and Q axes can be displayed.

[Reference] Section 12.2.1, “Displaying the I and Q Axes”

3 Gain

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

[Reference] GAIN MAG → Section 12.3.1, “Setting the Fixed Gain”

GAIN VARIABLE → Section 12.3.2, “Setting the Variable Gain”

4 Selected line

You can display the vector of the selected line.

[Reference] Section 12.4.1, “Displaying the Vector of the Selected Line,”

Section 12.4.2, “Selecting a Line”

5 Sync signal

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

[Reference] Section 12.4.4, “Switching to an External Sync Signal”

6 Thumbnails (audio meter)

You can display the audio meter using thumbnails. You can turn the audio display off if you want to.

[Reference] Turning the audio meter on and off → Section 12.5.2, “Displaying the Audio Meter”

Audio meter display formats → Section 12.5.3, “Selecting the Audio Meter Display Format”

7 Thumbnail (picture)

You can display the picture using a thumbnail. You can turn the picture display off if you want to.

[Reference] Turning the picture on and off → Section 12.5.4, “Displaying the Picture”

8 Display format

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

[Reference] Section 12.6.1, “Selecting the Display Format”

12.2 Vector and Scale Settings (INTEN/SCALE)

To configure vector and scale settings, press **F•1** INTEN/SCALE in the vector menu. You can configure the I and Q axes display, and the color, intensity, and contrast of the vector, and the color and intensity of the scale.

F•1 INTEN/SCALE appears when MODE is set to VECTOR.

[Reference] MODE → Section 12.5.1, “Switching between the Vector and 5 Bar Displays”

VECT (press and hold) → **F•1** INTEN/SCALE →

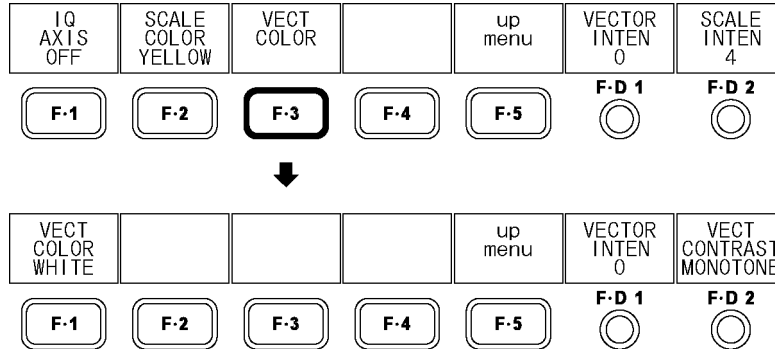


Figure12-2 INTEN/SCALE menu

12.2.1 Displaying the I and Q Axes

To display the I and Q axes, follow the procedure below.

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

Procedure

VECT (press and hold) → **F•1** INTEN/SCALE → **F•1** IQ AXIS

Settings

ON: The I and Q axes are displayed.

OFF: The I and Q axes are not displayed. This is the default setting.

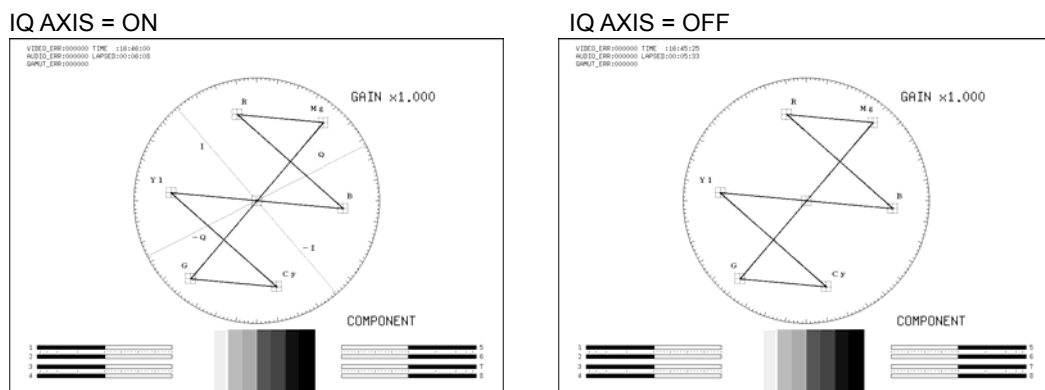


Figure12-3 Turning the I and Q axis displays on and off

12.2.2 Changing the Scale Color

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

Procedure

VECT (press and hold) → **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 setting.
 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.

12.2.3 Changing the Vector Color

To select the vector color from one of two options, follow the procedure below.

Regardless of this setting, in the multi-screen display, vectors are displayed using the color that WFM COLOR is set to. (This excludes the VEC+PIC setting on the 2-channel display.)

[Reference] WFM COLOR → Section 11.3.3, "Changing the Video Signal Waveform Color"

Procedure

VECT (press and hold) → **F•1** INTEN/SCALE → **F•3** VECT COLOR → **F•1** VECT COLOR

Settings

WHITE: Vectors are displayed in white. This is the default setting.
 GREEN: Vectors are displayed in green.

12.2.4 Setting the Contrast

To select the vector contrast, follow the procedure below.

Regardless of this setting, in the multi-screen display, vectors are displayed using the contrast that WFM CONTRAST is set to.

Procedure

VECT (press and hold) → **F•1** INTEN/SCALE → **F•3** VECT COLOR → **F•D 2** VECT CONTRAST

Settings

MONOTONE: Waveforms are displayed with a single color. This is useful for comparing overlapping waveforms. This is the default setting.
 LOW: Waveforms are displayed in low contrast.
 MIDDLE: Waveforms are displayed in middle contrast.
 HIGH: Waveforms are displayed in high contrast.

12.2.5 Setting the Vector Intensity

To set the vector intensity, follow the procedure below.

Regardless of this setting, in the multi-screen display, vectors are displayed using the intensity that WFM INTEN is set to. (This excludes the VEC+PIC setting on the 2-channel display.)

If you press **F•D 1**, the intensity will be set to its default value of 0.

[Reference] WFM INTEN → Section 11.3.6, “Setting the Video Signal Waveform Intensity”

Procedure

VECT (press and hold) → **F•1** INTEN/SCALE → **F•D 1** VECTOR INTEN

Settings

Setting range: -128 to 127. (The default setting is 0.)

12.2.6 Setting the Scale Intensity

To set the scale intensity, follow the procedure below.

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

Procedure

VECT (press and hold) → **F•1** INTEN/SCALE → **F•D 2** SCALE INTEN

Settings

Setting range: -8 to 7. (The default setting is 4.)

12.3 Gain Settings (GAIN)

To set the gain, press **F•2** GAIN in the vector menu.

F•2 GAIN appears when MODE is set to VECTOR.

[Reference] MODE → Section 12.5.1, “Switching between the Vector and 5 Bar Displays”

VECT (press and hold) → **F•2** GAIN →

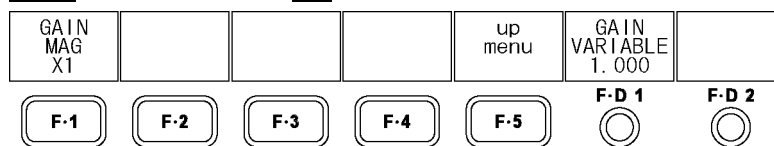


Figure12-4 GAIN menu

12.3.1 Setting the Fixed Gain

To set the fixed vector gain, follow the procedure below.

Procedure

VECT (press and hold) → **F•2** GAIN → **F•1** GAIN MAG

Settings

×1:	Vectors are not magnified. This is the default setting.
×5:	Vectors are magnified to five times their normal size.
IQ-MAG:	<p>×3.12 (for HD signals during component display; magnification that causes the I signal of the multiformat colorbar to lie on the circumference of the scale)</p> <p>×2.845 (for HD signals during pseudo-composite display; magnification that causes the I signal of the multiformat colorbar, which has gone through pseudo-composite conversion, to lie on the circumference of the scale)</p> <p>×2.92 (for SD signals during component display; magnification that causes the amplitude to lie on the circumference of the scale when the burst signal of the composite vector display is converted into component signals)</p> <p>×2.63 (for SD signals during pseudo-composite display; magnification that causes the -I and Q signals of the SMPTE colorbar, which has gone through pseudo-composite conversion, to lie on the circumference of the scale)</p>

12.3.2 Setting the Variable Gain

To set the variable vector gain, follow the procedure below.

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

Procedure

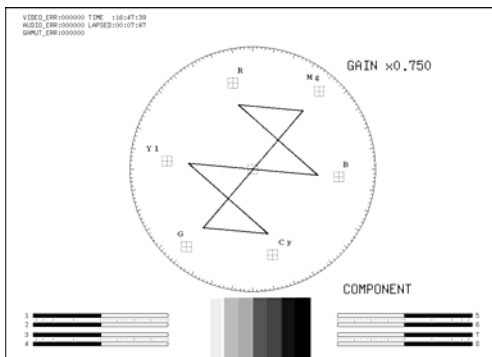
VECT (press and hold) → **F•2** GAIN → **F•D 1** GAIN VARIABLE

Settings

Setting range:	0.200 to 2.000. (When GAIN MAG is set to ×1. The default setting is 1.000.)
	1.000 to 10.000 (When GAIN MAG is set to ×5. The default setting is 5.000.)
	1.000 to 10.000 (When GAIN MAG is set to IQ-MAG. The default setting is 3.120, 2.845, 2.920, or 2.630.)

GAIN MAG = ×1

GAIN VARIABLE = 0.75



GAIN MAG = IQ-MAG

GAIN VARIABLE = 3.120

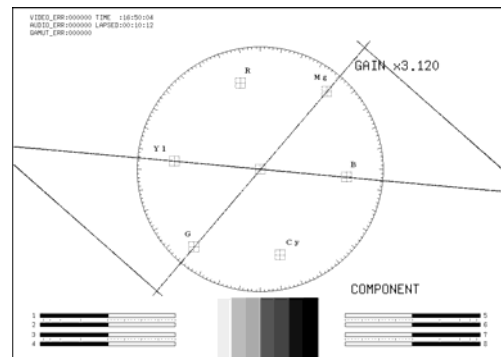


Figure12-5 Setting the vector gain

12.4 Line Selection and Sync Signal Settings (LINE SEL EXT REF)

To configure line selection and sync signal settings, press **F•3** LINE SEL EXT REF in the vector menu. You can display the vector of the selected line and switch to an external sync signal.

The line select feature cannot be used in the 2-channel display.

VECT (press and hold) → **F•3** LINE SEL EXT REF →

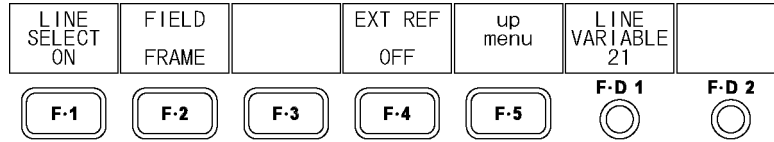


Figure12-6 LINE SEL EXT REF menu

12.4.1 Displaying the Vector of the Selected Line

To display the vector of the selected line, follow the procedure below.

Changing this setting will also change the picture display and video signal waveform display line selection settings.

Procedure

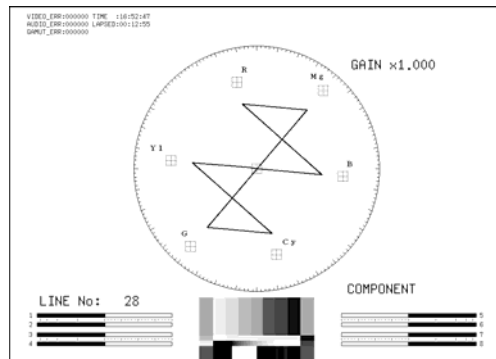
VECT (press and hold) → **F•3** LINE SEL EXT REF → **F•1** LINE SELECT

Settings

ON: The vector of the selected line is displayed.

OFF: The vectors of all lines are displayed overlapping each other. This is the default setting.

LINE SELECT = ON



LINE SELECT = OFF

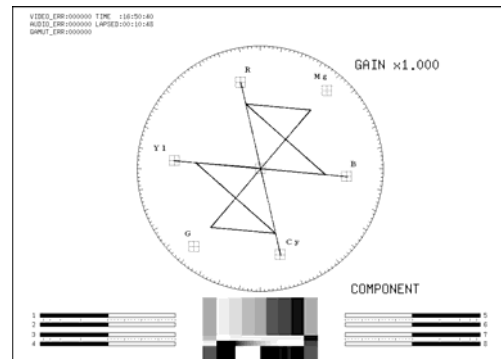


Figure12-7 Turning line selection on and off

12.4.2 Selecting a Line

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 in the picture, video signal waveform, and status (data dump) displays.

Procedure

VECT (press and hold) → **F•3** LINE SEL EXT REF → **F•D 1** LINE VARIABLE

12.4.3 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 SDI signal is interlaced or segmented frame.

Changing this setting will also change the picture display and video signal waveform display line selection ranges.

Procedure

VECT (press and hold) → **F•3** LINE SEL EXT REF → **F•2** FIELD

Settings (the examples are for the setting 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 setting. (Example: 1 to 1125.)

12.4.4 Switching to an External Sync Signal

To switch to an external sync signal, follow the procedure below.

Changing this setting will also change the video signal waveform display and status display sync signal settings.

When D_LINK FORMAT is set to YC10bit, you cannot use an external sync signal, and this setting is not available.

[Reference] D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

Procedure

VECT (press and hold) → **F•3** LINE SEL EXT REF → **F•4** EXT REF

Settings

ON: An external sync signal is used.

OFF: The internal sync signal is used. This is the default setting.

12.5 Display Settings (DISPLAY)

To configure the display settings, press **F•4** DISPLAY in the vector menu. You can switch between vector display and 5 bar display and configure thumbnails.

VECT (press and hold) → **F•4** DISPLAY →

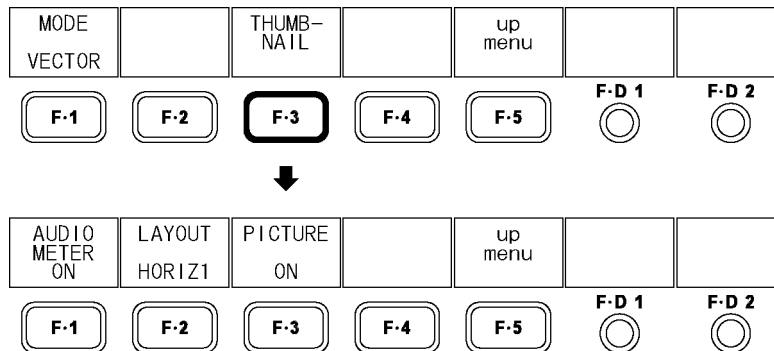


Figure12-8 DISPLAY menu

12.5.1 Switching between the Vector and 5 Bar Displays

To switch between the vector and 5 bar displays, follow the procedure below.
You cannot show the 5 bar display when D_LINK FORMAT is set to XYZ12bit in the system settings or when DISPLAY MODE is set to VEC+PIC in the 2-channel display.

[Reference] 5 bar display → Section 12.7, “5 Bar Settings (5BAR SETUP)”

D_LINK FORMAT → Section 5.1.4, “Setting the Input Format”

DISPLAY MODE → Section 6.3, “Selecting the Multi-Screen Display Format”

Procedure

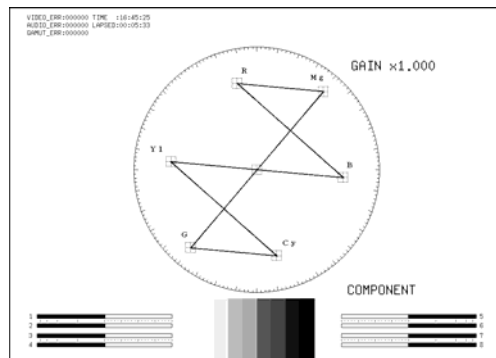
VECT (press and hold) → **F•4** DISPLAY → **F•1** MODE

Settings

VECTOR: The vector display appears. This is the default setting.

5BAR: The 5 bar display appears.

MODE = VECTOR



MODE = 5BAR

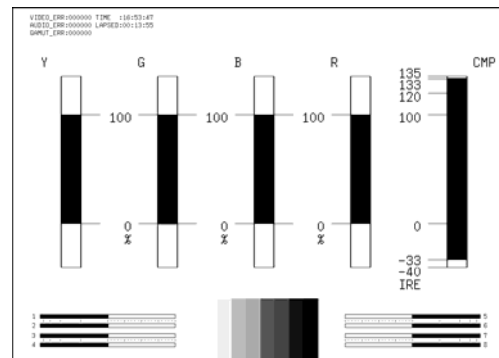


Figure12-9 Vector and 5 bar displays

12.5.2 Displaying the Audio Meter

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

Procedure

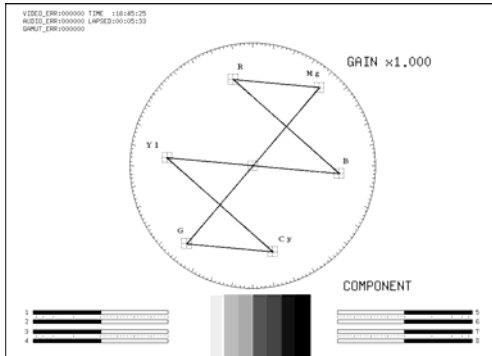
VECT (press and hold) → **F•4** DISPLAY → **F•3** THUMBNAIL → **F•1** AUDIO METER

Settings

ON: The audio meter is displayed. This is the default setting.

OFF: The audio meter is not displayed.

AUDIO METER = ON



AUDIO METER = OFF

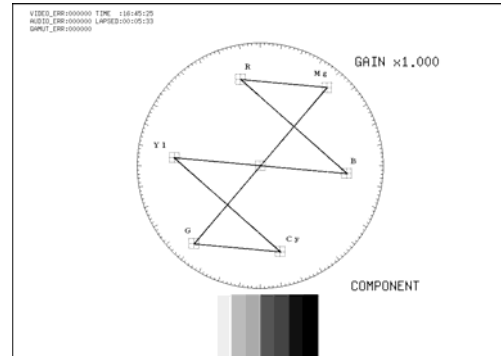


Figure12-10 Displaying the audio meter

12.5.3 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 in the audio display.
Changing this setting will also change the picture display and video signal waveform display audio meter display formats.

[Reference] SDI GROUP → Section 13.2.1, "Selecting the Audio Display Input Channels"

Procedure

VECT (press and hold) → **F•4** DISPLAY → **F•3** 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 setting.

HORIZ2: 1st GROUP is displayed on the top two levels and 2nd GROUP is displayed on the bottom two levels.

12. VECTOR DISPLAY (VECT)

LAYOUT = HORIZ1



Figure12-11 Audio meter display formats

12.5.4 Displaying the Picture

To display the picture in the vector display, follow the procedure below.
Configure picture settings in the picture display. Markers cannot be displayed.

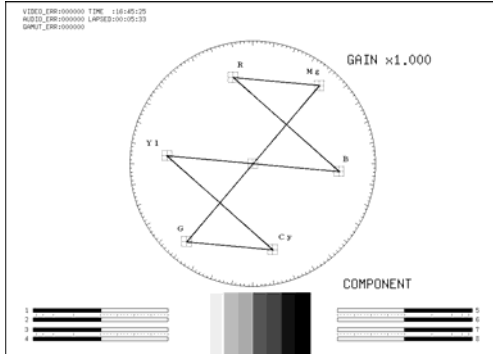
Procedure

VECT (press and hold) → **F•4** DISPLAY → **F•3** THUMBNAIL → **F•2** PICTURE

Settings

ON: The picture is displayed. This is the default setting.
OFF: The picture is not displayed.

PICTURE = ON



PICTURE = OFF

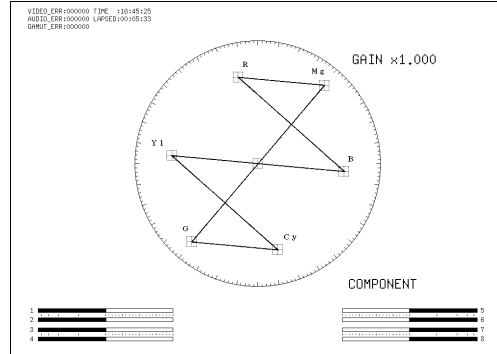


Figure12-12 Displaying the picture

12.6 Display Format Settings (COLOR SYSTEM)

To configure display format settings, press **F•5** COLOR SYSTEM in the vector menu. You can set the vector display format and display a scale for 75 % color bars.

F•5 COLOR SYSTEM appears when MODE is set to VECTOR.

[Reference] MODE → Section 12.5.1, “Switching between the Vector and 5 Bar Displays”

VECT (press and hold) → **F•5** COLOR SYSTEM →

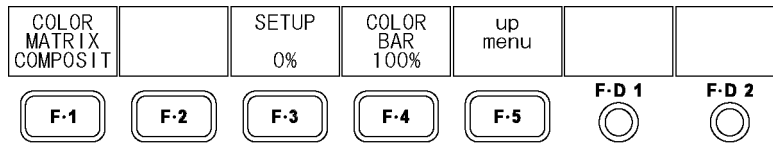


Figure12-13 COLOR SYSTEM menu

12.6.1 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 in the 5 bar display.)

If you select COMPOSIT, choose the composite display format (NTSC or PAL) by setting COMPOSIT FORMAT in the system settings.

[Reference] COMPOSIT FORMAT → Section 5.1.5, “Setting the Composite Display Format”

Procedure

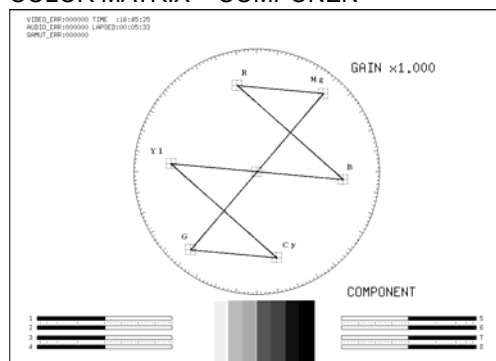
VECT (press and hold) → **F•5** COLOR SYSTEM → **F•1** COLOR MATRIX

Settings

COMPONEN: The component color difference signal is displayed on the X and Y axes. This is the default setting.

COMPOSIT: The component signal is converted into a composite signal, and the composite signal's color difference signal is displayed on the X and Y axes.

COLOR MATRIX = COMPONEN



COLOR MATRIX = COMPOSIT

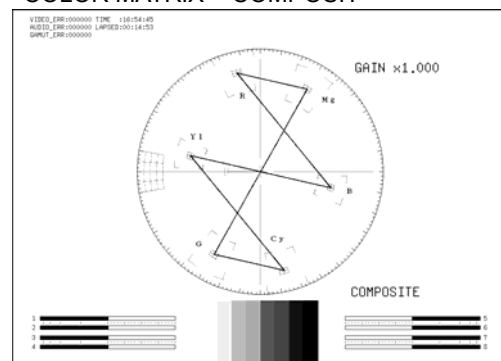


Figure12-14 Component and pseudo-composite displays

12.6.2 Setting the Setup Level

To set the pseudo-composite display setup level, follow the procedure below.

Regardless of this setting, in the multi-screen display, vectors are displayed using the setup level that you specify in the video signal waveform menu. (This excludes the VEC+PIC setting on the 2-channel display.)

This setting is available when **F•1** COLOR MATRIX is set to COMPOSIT and the composite display format is set to NTSC.

[Reference] Composite display format → Section 5.1.5, “Setting the Composite Display Format”

Procedure

VECT (press and hold) → **F•5** COLOR SYSTEM → **F•3** SETUP

Settings

0%: No setup level is added. This is the default setting.
7.5%: A setup level of 7.5% is added.

12.6.3 Displaying a Scale for 75 % Color Bars

To display a scale for 75 % color bars, follow the procedure below.

Procedure

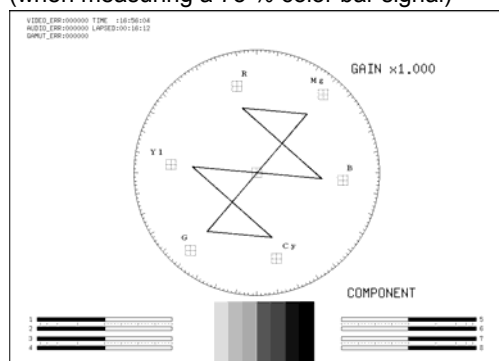
VECT (press and hold) → **F•5** COLOR SYSTEM → **F•4** COLOR BAR

Settings

100%: A scale that matches the peak levels of a 100 % color bar signal appears. This is the default setting.
75%: A scale that matches the peak levels of a 75 % color bar signal appears.

COLOR BAR = 100%

(when measuring a 75 % color bar signal)



COLOR BAR = 75%

(when measuring a 75 % color bar signal)

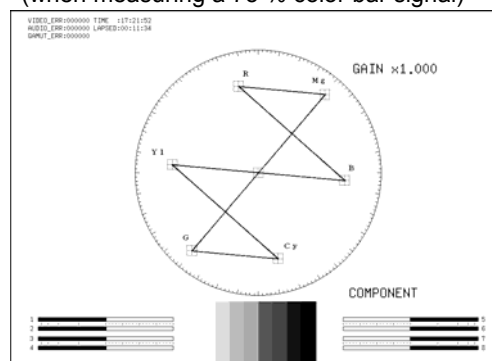


Figure12-15 Scale types

12.7 5 Bar Settings (5BAR SETUP)

To configure 5 bar settings, press **F•5** 5BAR SETUP in the vector menu. You can set the signal display order and the scale units.

F•5 5BAR SETUP appears when MODE is set to 5BAR.

[Reference] MODE → Section 12.5.1, "Switching between the Vector and 5 Bar Displays"

VECT (press and hold) → **F•5** 5BAR SETUP →

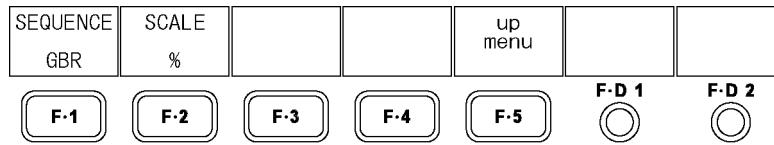


Figure12-16 5BAR SETUP menu

12.7.1 General 5 Bar Display Explanation

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

In 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.

Also, a low-pass filter is set to remove transient errors. Use the status menu to configure this filter.

[Reference] Section 14.5.5, "Turning the Low Pass Filter ON and OFF"

Section 14.5.6, "Selecting the Filter Characteristics"

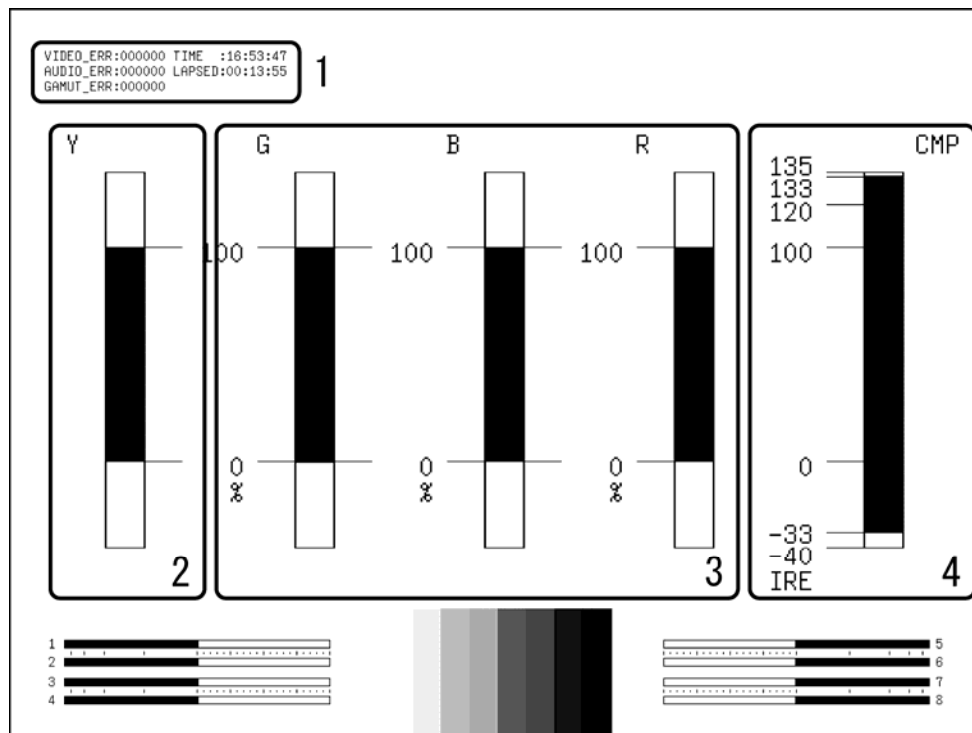


Figure12-17 5 bar display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, “General Status Display Explanation.”

2 Y

The luminance signal level is displayed here.

The levels that fall outside of the range you set using LUMA ERROR in the status display are displayed in red.

[Reference] LUMA ERROR → Section 14.5.12, “Configuring Luminance Error Detection Settings”

3 G, B, and R

The GBR signal levels of the converted $YC_B C_R$ signal are displayed.

You can change the signal order by setting **F•1** SEQUENCE to RGB. The levels that fall outside of the range that you set using GAMUT ERROR in the status display are displayed in red.

[Reference] GAMUT ERROR → Section 14.5.6, “Detecting Gamut Errors”

4 CMP

The pseudo-composite levels of the converted $YC_B C_R$ signal are displayed. (The blanking interval levels are not included.)

The levels that fall outside of the range you set using COMPOSIT GAMUT in the status display are displayed in red.

[Reference] COMPOSIT GAMUT → Section 14.5.9, “Detecting Composite Gamut Errors”

12.7.2 Changing the Signal Display Order

To set the order of the signals in the 5 bar display, follow the procedure below.

Procedure

VECT (press and hold) → **F•5** 5BAR SETUP → **F•1** SEQUENCE

Settings

GBR: The signals are displayed in this order: Y, G, B, R, CMP. This is the default setting.

RGB: The signals are displayed in this order: Y, R, G, B, CMP.

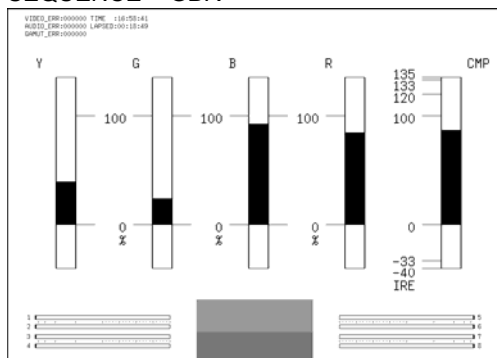
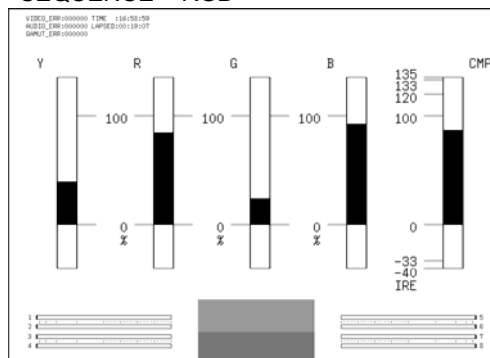
SEQUENCE = GBR**SEQUENCE = RGB**

Figure12-18 5 bar signal orders

12.7.3 Setting the Scale Units

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

To set the composite display format, set COMPOSIT FORMAT in the system settings.

[Reference] COMPOSIT FORMAT → Section 5.1.5, “Setting the Composite Display Format”

Procedure

VECT (press and hold) → **F•5** 5BAR SETUP → **F•2** SCALE

Settings

- %: The scale units are set to % and IRE. This is the default setting.
 mV: The scale units are set to mV. The scale values change as follows depending on the composite display format:
 100% = 700mV, 100IRE = 714mV (when the format is NTSC)
 100% = 700mV, 100IRE = 700mV (when the display format is PAL)

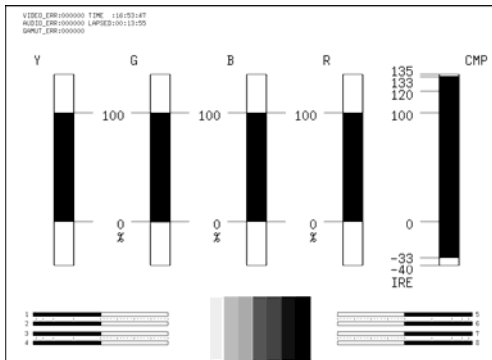
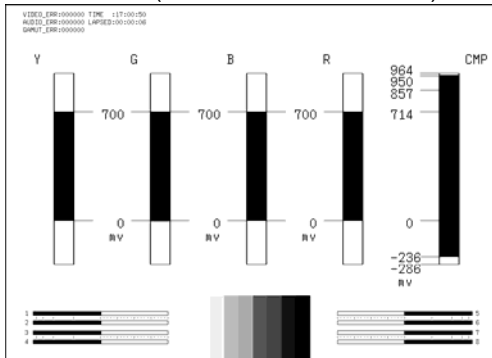
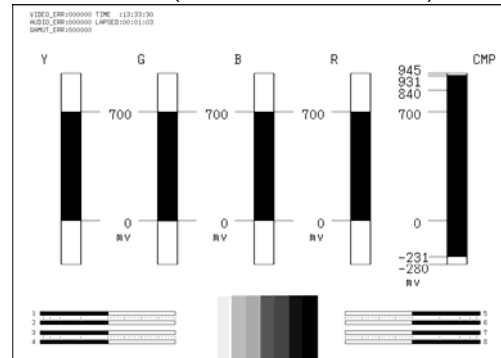
SCALE = %**SCALE = mV (when the format is NTSC)****SCALE = mV (when the format is PAL)**

Figure12-19 5 bar scale units

13. AUDIO DISPLAY (AUDIO)

In the audio display, the audio signal embedded in the input signal is measured.

When the link format is set to dual, only the audio signal embedded in link A is measured.

13.1 General Audio Display Explanation

The audio display appears when you press **AUDIO**.

To display the audio menu, press and hold **AUDIO** for 0.5 seconds or more, or use the function keys and function dials while in the audio display. The audio menu will disappear when you press **AUDIO** again or after a certain period of time passes with no user activity.

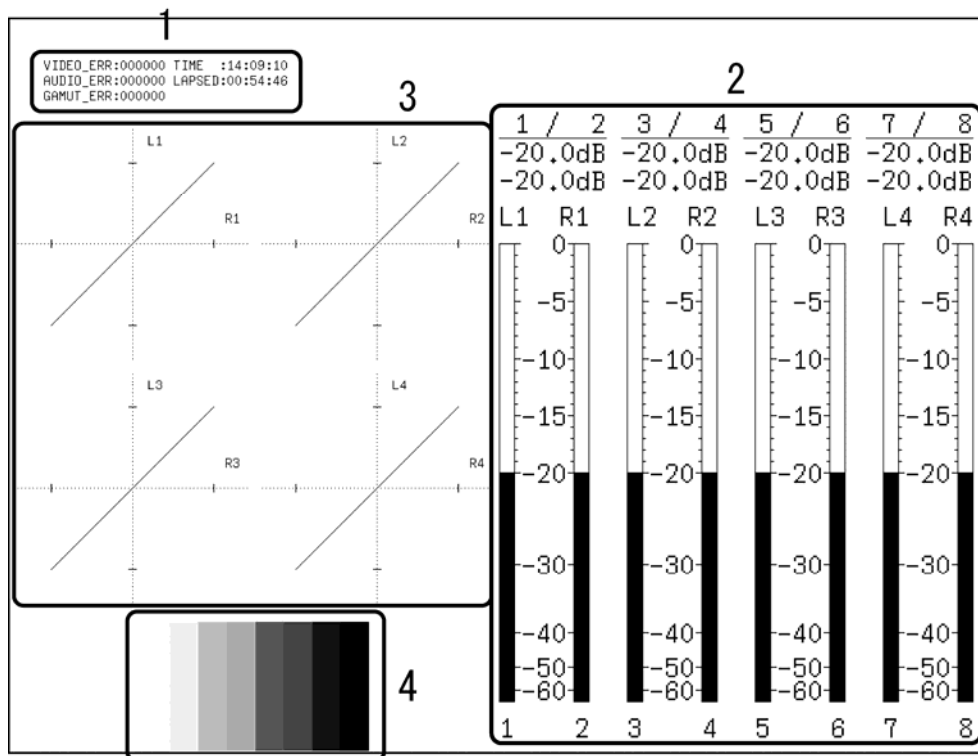


Figure13-1 Audio display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, “General Status Display Explanation.”

2 Audio Level Display

The audio levels of the channels selected using SDI GROUP (in the multi-lissajous display) or SINGLE LISSAJOU (in the single lissajous display) are displayed using meters and values.

In the meter display, levels that exceed the reference level are displayed in red, and levels that are less than the reference level are displayed in gray.

In the numerical display, the left channel levels are displayed on the top, and the right channel levels are displayed on the bottom.

[Reference] SDI GROUP → Section 13.2.1, “Selecting the Audio Display Input Channels”
 SINGLE LISSAJOU → Section 13.2.2, “Selecting Input Channels in the Single Lissajous Display,”
 Section 13.4.1, “Selecting the Display Format,” section 13.3, “Meter Settings (METER SETUP)”

3 Lissajous display

The audio signals of the channels selected using SDI GROUP (in the multi-lissajous display) or SINGLE LISSAJOU (in the single lissajous display) are displayed using lissajous curves. The lines on the scale indicate the reference level. You can change the reference level by setting REF LEVEL.

[Reference] SDI GROUP → Section 13.2.1, “Selecting the Audio Display Input Channels”
 SINGLE LISSAJOU → Section 13.2.2, “Selecting Input Channels in the Single Lissajous Display”
 REF LEVEL → Section 13.3.1, “Setting the Reference Level,”
 Section 13.4, “Lissajous Settings (LISSAJOU SETUP)”

4 Thumbnail (picture)

You can display the picture using a thumbnail. You can turn the picture display off if you want to.

[Reference] Section 13.5.1, “Displaying the Picture”

13.2 Input Channel Settings (CHANNEL SELECT)

To configure input channel settings, press **F•1** CHANNEL SELECT in the audio menu. You can set the audio display and single lissajous display input channels and the headphone jack output channels.

AUDIO (press and hold) → **F•1** CHANNEL SELECT →

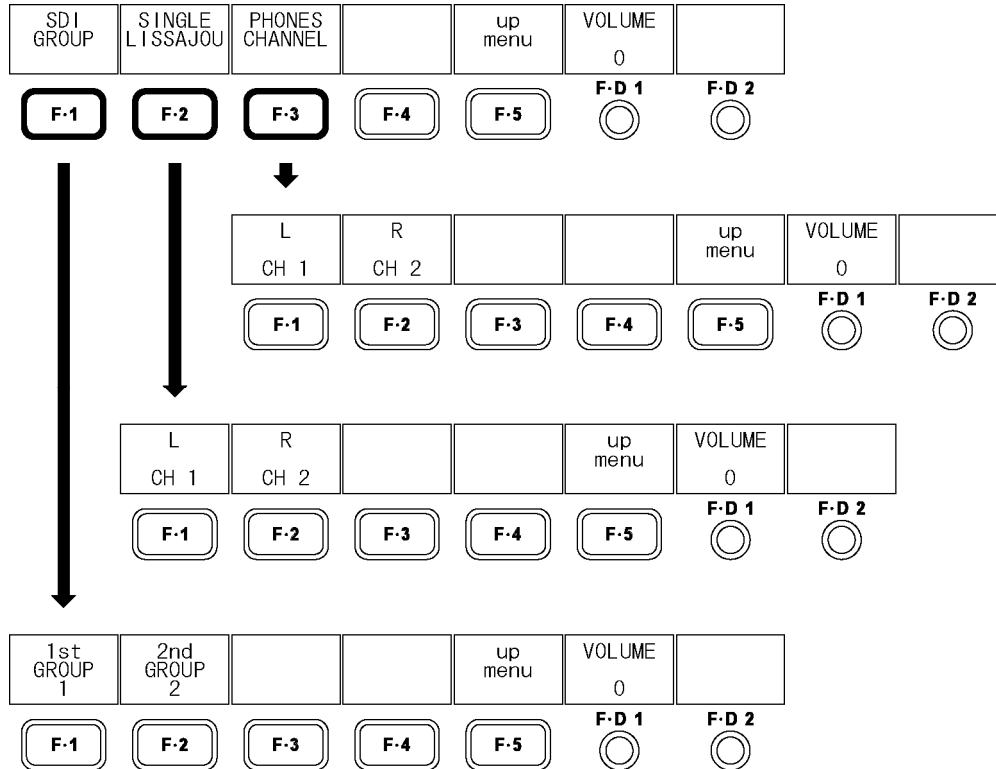


Figure13-2 CHANNEL SELECT menu

13.2.1 Selecting the Audio Display Input Channels

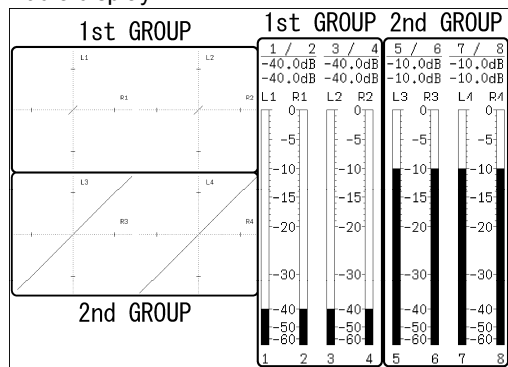
To select a group of eight channels to show in the audio display, follow the procedure below.

The channels that you select are displayed in the audio display and in the audio display thumbnails in the other display modes.

You can select two single lissajous display input channels and two headphone jack output channels from among the eight channels that you select.

The channels assigned to 1st GROUP and 2nd GROUP are listed below.

Audio display



Thumbnails (LAYOUT = HORIZ1)



Thumbnails (LAYOUT = HORIZ2)

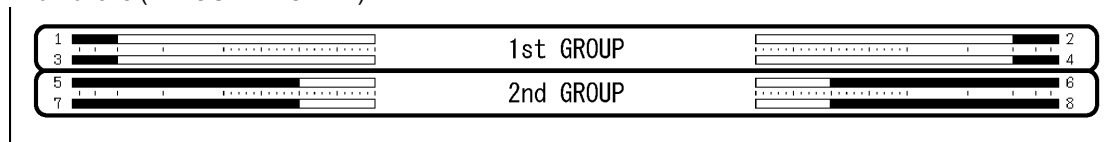


Figure13-3 Channel assignments

Procedure

AUDIO (press and hold) → **F•1** CHANNEL SELECT → **F•1** SDI GROUP
 → **F•1** 1st GROUP
 → **F•2** 2nd GROUP

Settings

- 1: Channels 1 through 4 are displayed. This is the default setting for 1st GROUP.
- 2: Channels 5 through 8 are displayed. This is the default setting for 2nd GROUP.
- 3: Channels 9 through 12 are displayed.
- 4: Channels 13 through 16 are displayed.

13.2.2 Selecting Input Channels in the Single Lissajous Display

To select the left and right single lissajous display input channels, follow the procedure below. You can choose the input channels from among the channels assigned to **F•1** 1st GROUP and **F•2** 2nd GROUP.

For example, if 1st GROUP is set to 3 and 2nd GROUP is set to 2, you can choose two of the following channels:

CH 5, CH 6, CH 7, CH 8, CH 9, CH 10, CH 11, CH 12.

Procedure

AUDIO (press and hold) → **F.1** CHANNEL SELECT → **F.2** SINGLE LISSAJOU → **F.1** L
→ **F.2** R

Settings

Setting range: The channels assigned to 1st GROUP (four channels) and the channels assigned to 2nd GROUP (four channels). The default settings are CH1 for L and CH2 for R.

13.2.3 Selecting the Headphone Jack Output Channels

To select the left and right headphone jack output channels separately, follow the procedure below. You can choose the input channels from among the channels assigned to **F•1** 1st GROUP and **F•2** 2nd GROUP.

For example, if 1st GROUP is set to 3 and 2nd GROUP is set to 2, you can choose one of the following pairs of channels:

CH 5, CH 6, CH 7, CH 8, CH 9, CH 10, CH 11, CH 12.

Procedure

AUDIO (press and hold) → **F•1** CHANNEL SELECT → **F•3** PHONES CHANNEL → **F•1** L
→ **F•2** R

Settings

Setting range: The channels assigned to 1st GROUP (four channels) + the channels assigned to 2nd GROUP (four channels)
The default settings are CH1 for L and CH2 for R.

13.3 Meter Settings (METER SETUP)

To configure meter settings, press **F•2** METER SETUP in the audio menu. You can set the meter reference level, range, and scale.

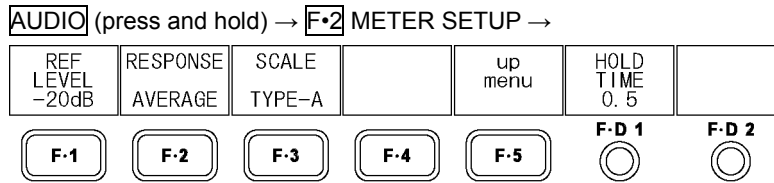


Figure13-4 METER SETUP menu

13.3.1 Setting the Reference Level

To set the reference level, follow the procedure below.

Levels that exceed the reference level are displayed in red, and levels that are within the reference level are displayed in gray.

The reference level that you set here is also used in the lissajous display. The lines on the scale indicate the reference level.

Procedure

AUDIO (press and hold) → **F•2** METER SETUP → **F•1** REF LEVEL

Settings

-20 dB:	The reference level is set to -20 dB. This is the default setting.
-18 dB:	The reference level is set to -18 dB.
-12 dB:	The reference level is set to -12 dB.

13.3.2 Setting the Range

To set the meter range, follow the procedure below.

The table below shows the responsiveness for different meter RESPONSE settings.

Table 13-1 Meter responsiveness

RESPONSE	delay time* ¹	return time* ²
PEAK60dB	Instantaneous	1.7 sec
PEAK90dB	Instantaneous	1.7 sec
AVERAGE	0.3 sec	0.3 sec

Procedure

AUDIO (press and hold) → **F•2** METER SETUP → **F•2** RESPONSE

Settings

PEAK60dB: The range is set to -60 to 0 dB.

PEAK90dB: The range is set to -90 to 0 dB.

AVERAGE: The reference level is set to 0 dB, and the range is set to -20 to 3 dB. This is the default setting.

*1 The amount of time it takes for the meter to show -20 dB when a -20 dB/1 kHz sine-wave signal is applied with no input preceding it.

*2 The amount of time it takes for the meter to show -40 dB when the application of a -20 dB/1 kHz sine-wave signal stops.

13.3.3 Selecting the Scale

To select the type of meter scale to use, follow the procedure below.

This setting is available when **F•2** RESPONSE is set to PEAK60dB or PEAK90dB.

Procedure

AUDIO (press and hold) → **F•2** METER SETUP → **F•3** SCALE

Settings

TYPE-A: A scale that covers the range determined by the RESPONSE setting is displayed. This is the default setting.

TYPE-B: A scale where the value determined by REF LEVEL is set to 0 dB is displayed.

13.3.4 Setting the Peak Value Hold Time

To set the meter's peak value hold time (in 0.5-second steps), follow the procedure below.

This setting is valid when **F•2** RESPONSE is set to PEAK60dB or PEAK90dB.

Procedure

AUDIO (press and hold) → **F•2** METER SETUP → **F•D 1** HOLD TIME

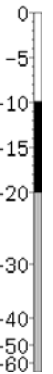

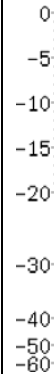
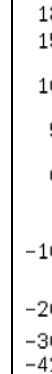
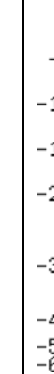
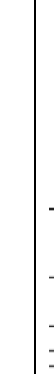
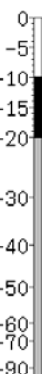
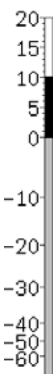
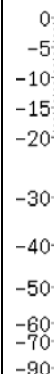
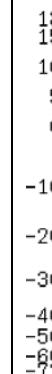
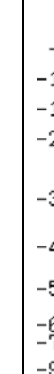




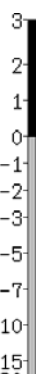
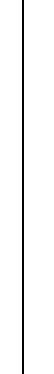
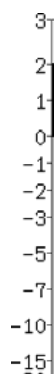
Settings

Setting range: 0.5 to 5.0 or HOLD. The default setting is 0.5.

13.3.5 Meter Settings Overview

The meter reading for a -10 dB audio signal are shown below.

Table 13-2 Meter Settings

F•1 REF LEVEL		-20dB		-18dB		-12dB		F•D 1
F•3 SCALE		TYPE-A	TYPE-B	TYPE-A	TYPE-B	TYPE-A	TYPE-B	HOLD TIME
F•2 RESPONSE	PEAK60dB							0.5 to 5.0 or HOLD
	PEAK90dB							0.5 to 5.0 or HOLD
	AVERAGE							N/A

13.4 Lissajous Settings (LISSAJOU SETUP)

To configure lissajous settings, press **F•3** LISSAJOU SETUP in the audio menu. You can set the lissajous curve display format, gain, and intensity, and you can set the scale display format and intensity.

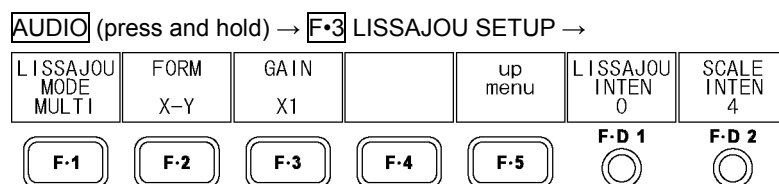


Figure13-5 LISSAJOU SETUP menu

13.4.1 Selecting the Display Format

To select the lissajous curve display format, follow the procedure below.

In the single lissajous display, the L and R channels set using SINGLE LISSAJOU are displayed. In the multi-lissajous display, the channels assigned to 1st GROUP and 2nd GROUP using SDI GROUP are displayed.

The correlation meter in single lissajous mode 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.

[Reference] SINGLE LISSAJOU → Section 13.2.2, “Selecting Input Channels in the Single Lissajous Display”

SDI GROUP → Section 13.2.1, “Selecting the Audio Display Input Channels”

Procedure

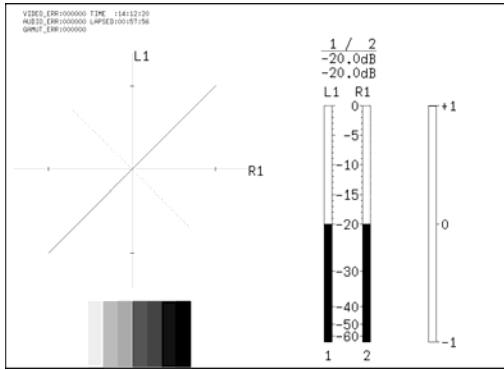
AUDIO (press and hold) → **F•3** LISSAJOU SETUP → **F•1** LISSAJOU MODE

Settings

SINGLE:	The lissajous curves, meters, and correlation meter of two channels are displayed.
MULTI:	The lissajous curves and meters of eight channels are displayed. This is the default setting.

13. AUDIO DISPLAY (AUDIO)

LISSAJOU MODE = SINGLE



LISSAJOU MODE = MULTI

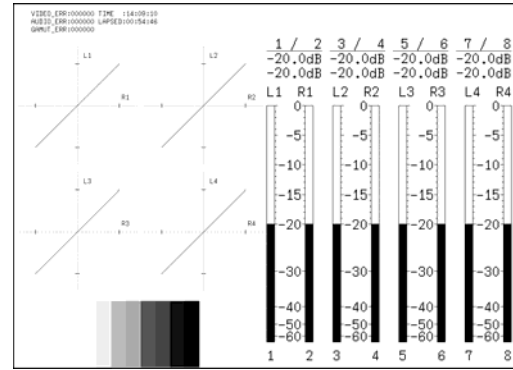


Figure13-6 Lissajous curve display format

13.4.2 Selecting the Scale Display Format

To set the scale display format, follow the procedure below.

Procedure

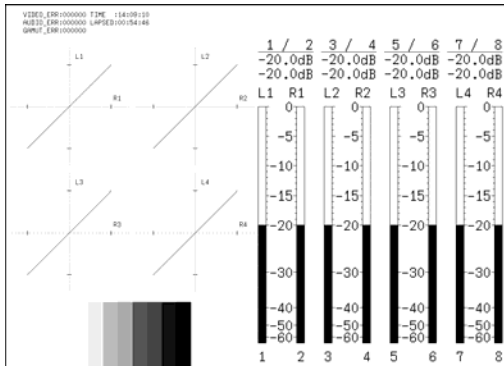
AUDIO (press and hold) → **F•3** LISSAJOU SETUP → **F•2** FORM

Settings

X-Y: R is assigned to the X-axis (horizontal), and L is assigned to the Y-axis (vertical). This is the default setting.

MATRIX: The R and L axes are positioned at 45° angles to the X and Y axes.

FORM = X-Y



FORM = MATRIX

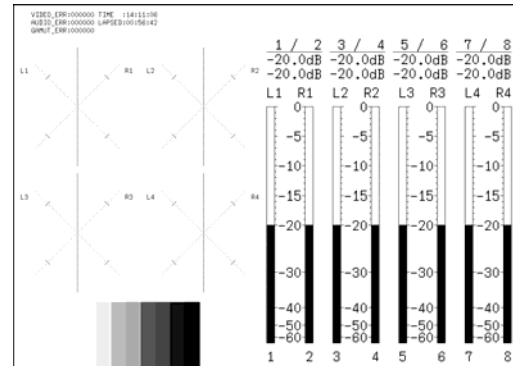


Figure13-7 Scale display formats

13.4.3 Setting the Gain

To set the lissajous curve gain, follow the procedure below.

Procedure

AUDIO (press and hold) → **F•3** LISSAJOU SETUP → **F•3** GAIN

Settings

×1: No gain. This is the default setting.
 AUTO: The gain is set so that the lissajous curves fit within the scale.
 All levels are adjusted so that the maximum level fits within the scale.

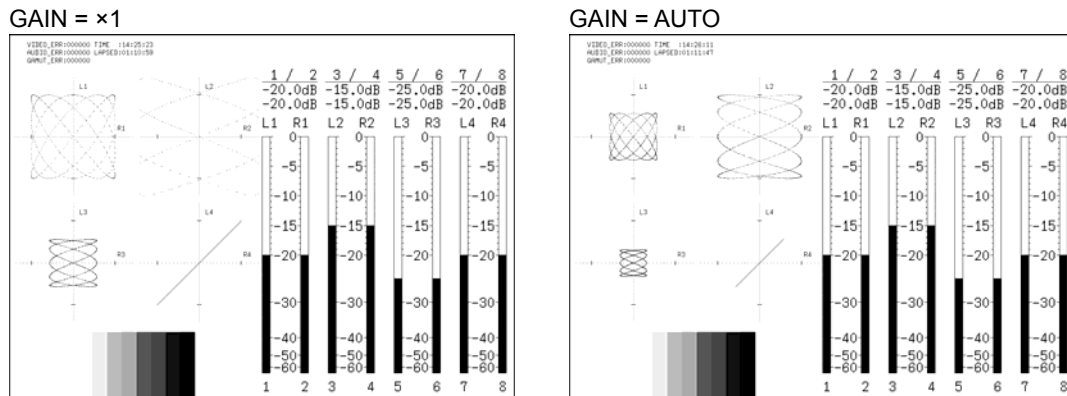


Figure13-8 Setting the lissajous gain

13.4.4 Setting the Lissajous Curve Intensity

To set the lissajous curve intensity, follow the procedure below.

Procedure

AUDIO (press and hold) → **F•3** LISSAJOU SETUP → **F•D 1** LISSAJOU INTEN

Settings

Setting range: -8 to 7. (The default setting is 0.)

13.4.5 Setting the Scale Intensity

To set the intensity of the lissajous scale, audio meter scale, and audio meter, follow the procedure below.

Procedure

AUDIO (press and hold) → **F•3** LISSAJOU SETUP → **F•D 2** LISSAJOU INTEN

Settings

Setting range: -8 to 7. (The default setting is 4.)

13.5 Display Settings (DISPLAY)

To configure the display settings, press **F•4** DISPLAY in the audio menu. You can configure thumbnail displays.

AUDIO (press and hold) → **F•4** DISPLAY →

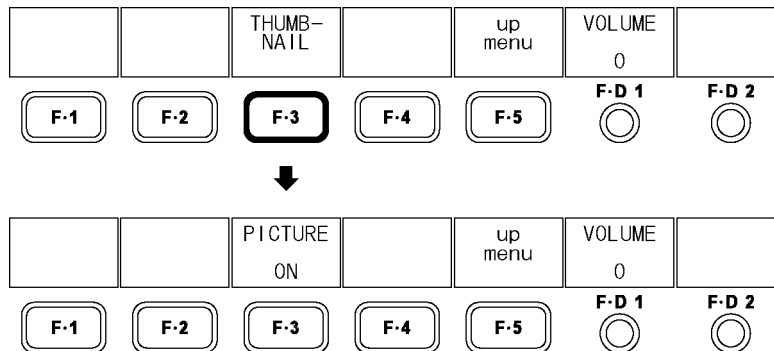


Figure13-9 DISPLAY menu

13.5.1 Displaying the Picture

To display the picture in the audio display, follow the procedure below.
Configure picture settings in the picture display. Markers cannot be displayed.

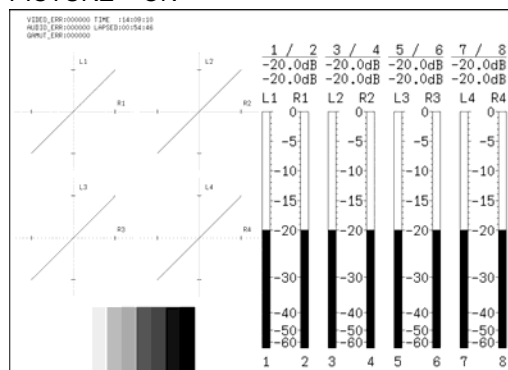
Procedure

AUDIO (press and hold) → **F•4** DISPLAY → **F•3** THUMBNAIL → **F•2** PICTURE

Settings

ON: The picture is displayed. This is the default setting.
OFF: The picture is not displayed.

PICTURE = ON



PICTURE = OFF

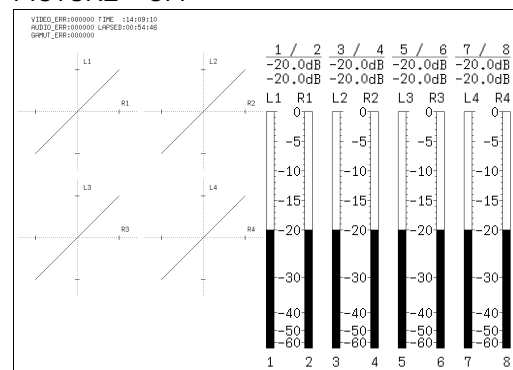


Figure13-10 Displaying the picture

13.6 Headphone Settings (VOLUME)

To configure the headphone settings, press **F•D 1** VOLUME in the audio menu. You can adjust the headphone volume.

F•D 1 VOLUME appears in other levels of the audio menu and functions in the same way.

AUDIO (press and hold) →

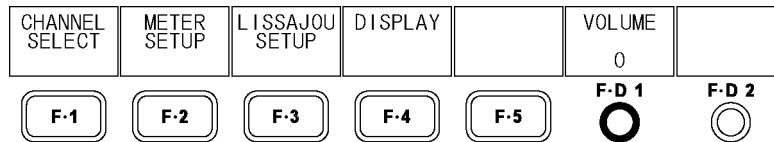


Figure13-11 DISPLAY menu

13.6.1 Adjusting the Headphone Volume

To adjust the headphone volume, follow the procedure below.

If you press **F•D 1**, the volume will be set to its default value of 0.

The table below shows what decibel levels correspond to the headphone volume levels.

Table 13-3 Headphone volumes

VOLUME	dB
127	0.0
126	-0.5
...	...
0	-63.5
...	...
-127	-127.0
-128	MUTE

Procedure

AUDIO (press and hold) → **F•D 1** VOLUME

Settings

Setting range: -128 to 127. (The default setting is 0.)

14. STATUS DISPLAY (STATUS)

14.1 General Status Display Explanation

The status display appears when you press **STATUS**.

Error count values are displayed beneath VIDEO, AUDIO, and GAMUT. 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.

To display the status menu, press and hold **STATUS** for 0.5 seconds or more, or use the function keys and function dials while in the status display. The status menu will disappear when you press **STATUS** again or after a certain period of time passes with no user activity.

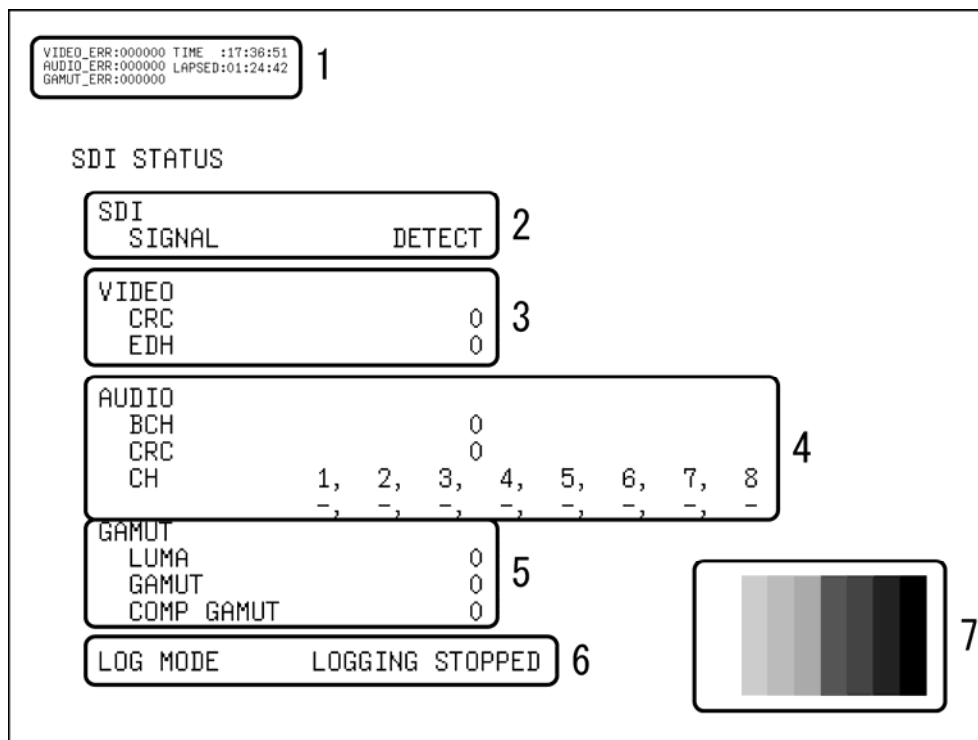


Figure14-1 Status display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here.

You can hide the error counter by setting ERROR COUNTER in the system settings to OFF. When D_LINK FORMAT is set to XYZ12bit in the system settings, GAMUT_ERR is not displayed.

[Reference] ERROR COUNTER → Section 5.4.2, "Displaying the Error Counter and Time"

D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

- **VIDEO_ERR**

The CRC (VIDEO) and EDH error counts are displayed here. CRC is for when the input SDI signal is HD, and EDH is for when the signal is SD.

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.

[Reference] Section 5.7.1, "Initializing the Settings," section 14.6.1, "Clearing Errors"

- **AUDIO_ERR**

When the input SDI signal is HD, the sum of the BCH and CRC (AUDIO) error counts is displayed here. When the input SDI signal is SD, the CRC (AUDIO) error count is displayed. If the sum of the BCH and CRC (AUDIO) error counts exceeds 999999, the displayed count remains fixed at 999999, but BCH and CRC (AUDIO) are both still counted separately until they reach 999999.

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.

[Reference] Section 5.7.1, "Initializing the Settings," section 14.6.1, "Clearing Errors"

- **GAMUT_ERR**

The sum of the GAMUT, COMP GAMUT and LUMA error counts is displayed here. If the sum of the three counts exceeds 999999, the displayed GAMUT_ERR count remains fixed at 999999, but GAMUT, COMP GAMUT and LUMA are still counted separately until they reach 999999.

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.

[Reference] Section 5.7.1, "Initializing the Settings," section 14.6.1, "Clearing Errors"

- **TIME**

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

[Reference] TIME → Section 5.6.2, "Setting the Time"

- **LAPSED**

The amount of elapsed time is displayed here. The timer is reset to 0 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.

[Reference] Section 5.6, "Setting the Date and Time," section 5.7.1, "Initializing the Settings," section 14.6.1, "Clearing Errors."

2 SDI SIGNAL

If an SDI signal is detected at the input terminal, "DETECT" appears here. Otherwise, "NO SIGNAL" appears. If "NO SIGNAL" appears, the error count information below will be blank. The input format indication in the upper left of the screen will also show "NO SIGNAL."

"NO SIGNAL" may appear even when an SDI signal is applied to the terminal if the signal amplitude is small or if there is a lot of jitter.

3 VIDEO

- **CRC**

CRC appears when the input SDI signal is HD.

An error is counted if the CRC in the input SDI signal and the CRC computed by the LV 5380 do not match.

CRC will not appear if CRC is set to OFF or if the input signal is SD.

[Reference] Section 14.5.1, "Detecting CRC Errors"

- **EDH**

EDH appears when the input SDI signal is SD.

An error is counted if there is an error flag in an EDH packet in the input SDI signal or if the CRC computed from the input SDI signal is different than an EDH packet's CRC data.

EDH packets contain ancillary data error flags, active picture error flags, full-field error flags, full-field CRC data, and active-field CRC data.

EDH will not appear if EDH is set to OFF or if the input signal is HD.

[Reference] Section 14.5.2, "Detecting EDH Errors"

- **A/B Delay**

A/B delay appears when the link format is set to dual.

An error is counted if the phase difference between links A and B exceeds 100 clocks.

4 AUDIO

When the link format is set to dual, only errors in the audio signal embedded in link A are detected.

- **BCH**

AUDIO appears when the input SDI signal is HD.

An error is counted if the input SDI signal's embedded audio BCH code causes an error. Errors may be counted at the instant when audio is embedded into an input SDI signal, or at the instant when the audio is removed.

BCH will not appear if BCH is set to OFF or if the input signal is SD.

[Reference] Section 14.5.3, "Detecting BCH Errors"

- **CRC**

An error is counted if the channel status bit of the input SDI signal's embedded audio has a CRC error. However, an error is not counted if the channel status bit is consumer.

Errors may be counted at the instant when audio is embedded into an input SDI signal, or at the instant when the audio is removed.

Errors are not displayed when CRC is set to OFF.

[Reference] Section 14.5.4, "Detecting CRC Errors"

- **CH**

The detected channels in the input SDI signal's embedded audio are displayed here. A hyphen appears for channels that are not detected.

If audio control packets are contained in the input SDI signal, the channels are detected from the audio control packet ACT bit. Otherwise, the channels are detected from the audio data packet.

5 GAMUT

• LUMA

The luminance error count is displayed here. By computing the luminance component, you can also detect errors when R, G, and B are being applied through a dual link signal. You can set the gamut error detection limits by pressing ERROR CONFIG and then LUMA ERROR in the status menu.

When LUMA ERROR is set to OFF or D_LINK FORMAT is set to XYZ12bit in the system settings, the error count is not displayed.

[Reference] Section 14.5.11, "Detecting Luminance Errors,"
 section 14.5.12, "Configuring Luminance Error Detection Settings"
 D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

• GAMUT

The gamut error count is displayed here.

You can set the gamut error detection limits and range by pressing ERROR CONFIG and then GAMUT ERROR in the status menu.

When GAMUT ERROR is set to OFF or D_LINK FORMAT is set to XYZ12bit in the system settings, the error count is not displayed.

[Reference] Section 14.5.6, "Detecting Gamut Errors,"
 section 14.5.8, "Configuring Gamut Error Detection Settings"
 D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

• COMP GAMUT

An error is counted here when a gamut error is detected in the pseudo-composite signal that is converted from the component signal.

Even if the component signal is within its set limits, it may be outside of its limits when it is converted to a pseudo-composite signal.

You can set the composite gamut error detection limits and range by pressing ERROR CONFIG and then COMPOSIT GAMUT in the status menu.

When COMPOSIT GAMUT is set to OFF or D_LINK FORMAT is set to XYZ12bit in the system settings, the error count is not displayed.

[Reference] Section 14.5.9, "Detecting Composite Gamut Errors,"
 "section 14.5.10, "Configuring Composite Gamut Error Detection Settings"
 D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

6 LOG MODE

"NOW LOGGING" appears here when events are being logged. "LOGGING STOPPED" appears when logging is stopped.

You can log events by pressing EVENT LOG and setting LOG to START.

[Reference] LOG → Section 14.2.3, "Starting Event Logging"

7 Thumbnail (picture)

You can display the picture using a thumbnail.

14.2 Event Log Settings (EVENT LOG)

The LV 5380 can log various events and save event logs in text format to a USB memory device. To configure event log settings, press **F•1** EVENT LOG in the status menu.

The event log contains both channel A and channel B events regardless of how INPUT is set.

STATUS (press and hold) → **F•1** EVENT LOG →

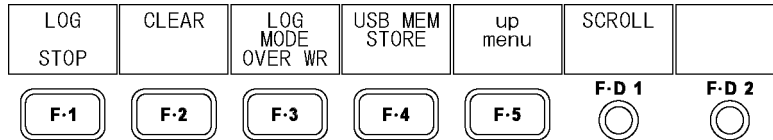


Figure14-2 EVENT LOG menu

14.2.1 General Event Log Explanation

To display the event log, press **F•1** EVENT LOG in the status menu.

Events include signal reception, error occurrence, and recovery from an error.

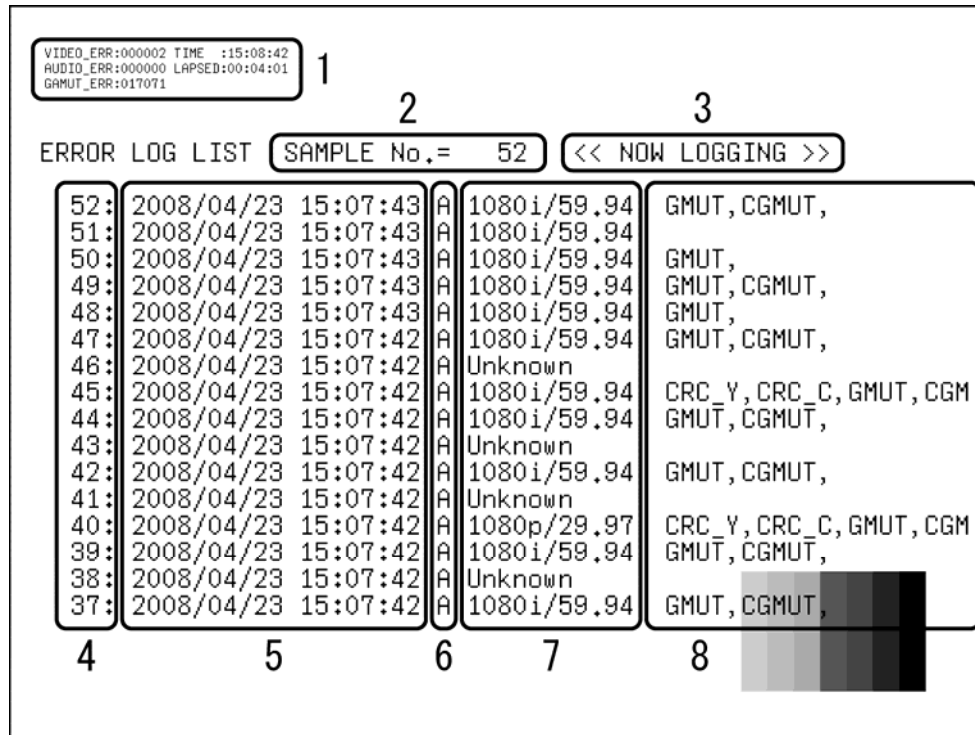


Figure14-3 Event log

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, "General Status Display Explanation."

2 SAMPLE No.

The total number of events (a number from 0 to 1000) is displayed.

3 Logging status

“NOW LOGGING” appears here when events are being logged. “LOGGING STOPPED” appears when logging is stopped. You can start and stop event logging by pressing **[F•1] LOG**.

[Reference] LOG → Section 14.2.3, “Starting Event Logging”

4 Event numbers

Events are assigned numbers in order of their occurrence. The most recent event appears at the top of the list. To view earlier events, turn **[F•D 1] SCROLL** to the right. You can display a maximum of 1000 events. To set whether or not events after the 1000th event are written over earlier events, press **[F•3] LOG MODE**.

[Reference] SCROLL → Section 14.2.2, “Scrolling through the Event Log”

LOG MODE → Section 14.2.5, “Setting the Event Log Overwrite Mode”

5 Timecode

Time codes for when the events occurred are displayed here. You can select the display format by following the procedure in section 5.4.1, “Selecting the Timecode Display Format.” If you select OFF, the current date and time are displayed.

6 Event channel

The channels that events occurred on (A or B) are listed here.

7 Input format

The input formats when events occurred are indicated here. If no signal was being received, “NO SIGNAL” appears. If the input format cannot be determined, “Unknown” appears.

8 Event type

The type of event that occurred is indicated here.

When the same kind of event occurs successively or when multiple events occur at the same time, they are treated as a single event in the event log. You can view all of the events by saving the event log to USB memory. This is especially useful when multiple events occur at the same time and you cannot view all of them on the LV 5380 screen. The displayed event types are listed below. If the detection of a particular error has been disabled, the event that corresponds to that error will not be recorded.

[Reference] Section 14.2.6, “Saving the Event Log to USB Memory”

Table 14-1 Event types

Display	Event type
CRC_Y	Transmission error in the HD Y signal
CRC_C	Transmission error in the HD C _B or C _R signal
EDH	Transmission error in the SD signal
GMUT	Gamut error
CGMUT	Composite gamut error
LUMA	Luminance error
A_BCH	Error in the embedded audio BCH
A_CRC	Error in the embedded audio CRC
SDI_DELAY	Phase difference error between links A and B

14.2.2 Scrolling through 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 (press and hold) → **F•1** EVENT LOG → **F•D 1** SCROLL

14.2.3 Starting Event Logging

To start event logging, follow the procedure below.

Procedure

STATUS (press and hold) → **F•1** EVENT LOG → **F•1** LOG

Settings

START:	Event logging starts. "NOW LOGGING" appears in the event log and the status display.
STOP:	Event logging stops. "LOGGING STOPPED" appears in the event log and the status display. This is the default setting.

14.2.4 Deleting 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 (press and hold) → **F•1** EVENT LOG → **F•2** CLEAR

14.2.5 Setting the Event Log 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 (press and hold) → **F•1** EVENT LOG → **F•3** LOG MODE

Settings

OVER WR:	Events after the 1000 th event are written over the oldest logged events. This is the default setting.
STOP:	Events after the 1000 th event are not logged.

14.2.6 Saving the Event Log to USB Memory

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 command appears when the LV 5380 has USB memory connected to it.

The file name is automatically set to the date and time that you set in the system settings according to the procedure in section 5.6, "Setting the Date and Time."

Example: 20080425150500.txt (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

```

└─ USB memory
   └─ LOG
      └─ yyymmddhhmmss.txt
  
```

Procedure

STATUS (press and hold) → **F•1** EVENT LOG → **F•4** USB MEM STORE

14.3 Data Dump Settings (DATA DUMP)

To configure data dump settings, press **F•2** DATA DUMP in the status menu. You can display the data of the selected line and save the displayed data to USB memory.

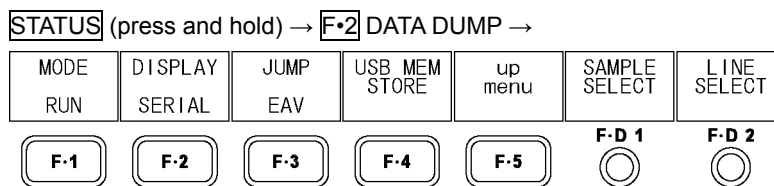


Figure14-4 DATA DUMP menu

14.3.1 General Data Dump Explanation

To show the data dump display, press **F•2** DATA DUMP in the status menu.

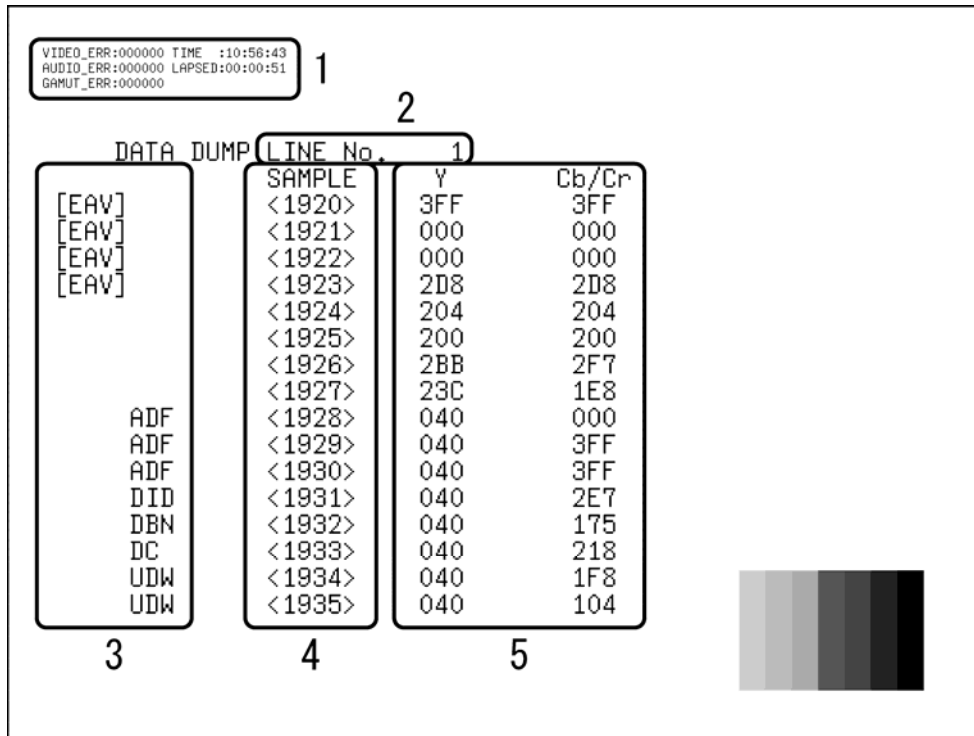


Figure14-5 Data dump display

1 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, “General Status Display Explanation.”

2 LINE No.

The data dump display shows the data for a particular line. The line that you select using **F•D 2** LINE SELECT appears next to LINE No.

[Reference] LINE SELECT → Section 14.3.2, “Selecting a Line in the Data Dump Display”

3 Ancillary data

The type of ancillary data contained in the SDI signal is indicated as shown in the table below.

Table 14-2 Ancillary data types

Display	Display color	Ancillary data type
ADF	Cyan	Ancillary data header word
DID	Cyan	Ancillary data ID word
SDID	Cyan	Secondary format data in which DID is smaller than 80H.
DBN	Cyan	Primary format data in which DID is larger than 80H.
DC	Cyan	Ancillary data count word
UDW	Cyan	Ancillary data user data word
CS	Magenta	Ancillary data checksum word
AP	Yellow	The active picture from after the SAV (start of active video) to just before the EAV (end of active video) when the selected line is within the active video area.

4 SAMPLE

The sample numbers of the selected line are displayed here. You can use **F•D 1** SAMPLE SELECT to scroll through the samples.

[Reference] SAMPLE SELECT → Section 14.3.3, “Scrolling through the Data Dump Display Samples”

5 Data

The data contained in the line samples is displayed here. You can change the data display format by pressing **F•2** DISPLAY.

[Reference] DISPLAY → Section 14.3.5, Selecting the Data Dump Display Format

14.3.2 Selecting a Line in the Data Dump Display

To select a line in the data dump display, 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 (press and hold) → **F•2** DATA DUMP → **F•D 2** LINE SELECT

14.3.3 Scrolling through the Data Dump Display Samples

To scroll through the data dump display samples, follow the procedure below.

Procedure

STATUS (press and hold) → **F•2** DATA DUMP → **F•D 1** SAMPLE SELECT

14.3.4 Setting the Data Dump Display Mode

To set the data dump display mode, follow the procedure below.

Procedure

STATUS (press and hold) → **F•2** DATA DUMP → **F•1** MODE

Settings

RUN: The displayed input SDI signal data is updated automatically. This is the default setting.

HOLD: The displayed input SDI signal data does not change.

14.3.5 Selecting the Data Dump 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 (press and hold) → **F•2** DATA DUMP → **F•2** DISPLAY

- When the Link Format Is Set to Single


Settings

SERIAL: The parallel converted data is displayed. This is the default setting.


COMPO: The parallel converted data is split into Y, C_B, and C_R, and then displayed.

HD signal when DISPLAY is set to SERIAL


DATA DUMP	LINE No.	1	
	SAMPLE	Y	Cb/Cr
[EAV]	<1920>	3FF	3FF
[EAV]	<1921>	000	000
[EAV]	<1922>	000	000
[EAV]	<1923>	2D8	2D8
	<1924>	204	204
	<1925>	200	200
	<1926>	2B8	2F7
	<1927>	23C	1E8
ADF	<1928>	040	000
ADF	<1929>	040	3FF
ADF	<1930>	040	3FF
DID	<1931>	040	2E7
DBN	<1932>	040	175
DC	<1933>	040	218
UDW	<1934>	040	1F8
UDW	<1935>	040	104


HD signal when DISPLAY is set to COMPO

DATA DUMP	LINE No.	1	Cb	Cr
	SAMPLE	Y		
[EAV]	<1920>	3FF	3FF	
[EAV]	<1921>	000		000
[EAV]	<1922>	000	000	
[EAV]	<1923>	2D8		2D8
	<1924>	204		
	<1925>	200		200
	<1926>	2B8	2F7	
	<1927>	23C		1E8
ADF	<1928>	040	000	
ADF	<1929>	040		3FF
ADF	<1930>	040	3FF	
DID	<1931>	040		2E7
DBN	<1932>	040	284	
DC	<1933>	040		218
UDW	<1934>	040	2C3	
UDW	<1935>	040		203


SD signal when DISPLAY is set to SERIAL

DATA DUMP	LINE No.	1	
	SAMPLE	COLOR	DATA
[EAV]	<1440>	Cb	3FF
[EAV]	<1441>	Y	000
[EAV]	<1442>	Cr	000
[EAV]	<1443>	Y'	3C4
ADF	<1444>	Cb	000
ADF	<1445>	Y	3FF
ADF	<1446>	Cr	3FF
DID	<1447>	Y'	2FF
DBN	<1448>	Cb	206
DC	<1449>	Y	224
UDW	<1450>	Cr	1D0
UDW	<1451>	Y'	289
UDW	<1452>	Cb	201
UDW	<1453>	Y	1D2
UDW	<1454>	Cr	289
UDW	<1455>	Y'	101


SD signal when DISPLAY is set to COMPO

DATA DUMP	LINE No.	1	C,ADR	Cb	Cr
	SAMPLE	Y			
[EAV]	<720>	000	<360>	3FF	000
[EAV]	<721>	3C4			
ADF	<722>	3FF	<361>	000	3FF
DID	<723>	2FF			
DC	<724>	224	<362>	180	100
UDW	<725>	2C6			
UDW	<726>	102	<363>	19F	2C6
UDW	<727>	29F			
UDW	<728>	2C6	<364>	104	29F
UDW	<729>	106			
UDW	<730>	19F	<365>	2C6	1F0
UDW	<731>	12B			
UDW	<732>	1F2	<366>	28F	12B
UDW	<733>	19F			
UDW	<734>	12B	<367>	1F4	
UDW	<735>	1F6			




Figure14-6 Data dump display formats (single link)

14. STATUS DISPLAY (STATUS)

• When the Link Format Is Set to Dual

Settings

LINK A: The parallel converted data sequences of link A are displayed. This is the default setting.


LINK B: The parallel converted data sequences of link B are displayed.

LINK A/B: Links A and B are combined, and their parallel data sequences are displayed.

DISPLAY = LINK A (GBR10bit)

VIDEO_00000000 TIME 100:00:00
AUDIO_00000000 LAPSED100:00:00
GMR1_00000000


DATA DUMP LINE No. 1		SAMPLE	G	B/R
[EAV]	<1920>	3FF	3FF	
[EAV]	<1921>	000	000	
[EAV]	<1922>	000	000	
[EAV]	<1923>	2D8	2D8	
	<1924>	204	204	
	<1925>	200	200	
	<1926>	2BB	2F7	
	<1927>	23C	1E8	
	<1928>	040	000	
ADF	<1929>	040	3FF	
ADF	<1930>	040	3FF	
DID	<1931>	040	2E7	
DBN	<1932>	040	10D	
DC	<1933>	040	218	
UDW	<1934>	040	259	
UDW	<1935>	040	101	



DISPLAY = LINK B (GBR10bit)

VIDEO_00000000 TIME 100:00:00
AUDIO_00000000 LAPSED100:00:00
GMR1_00000000

DATA DUMP LINE No. 1		SAMPLE	A	B/R
[EAV]	<1920>	3FF	3FF	
[EAV]	<1921>	000	000	
[EAV]	<1922>	000	000	
[EAV]	<1923>	2D8	2D8	
	<1924>	204	204	
	<1925>	200	200	
	<1926>	2BB	2F7	
	<1927>	23C	1E8	
	<1928>	040	000	
ADF	<1929>	040	3FF	
ADF	<1930>	040	3FF	
DID	<1931>	040	2E7	
DBN	<1932>	040	138	
DC	<1933>	040	218	
UDW	<1934>	040	18F	
UDW	<1935>	040	102	



DISPLAY = LINK A/B (GBR10bit)

VIDEO_00000000 TIME 100:00:00
AUDIO_00000000 LAPSED100:00:00
GMR1_00000000

DATA DUMP LINE No. 1		SAMPLE	G	B	R	A
[EAV]	<1920>	3FF	3FF	000	000	3FF
[EAV]	<1921>	000	3FF	000	000	000
[EAV]	<1922>	000	000	2D8	000	000
[EAV]	<1923>	2D8	000	2D8	2D8	2D8
	<1924>	204	204	200	204	204
	<1925>	200	204	200	200	200
	<1926>	2BB	2F7	1E8	2BB	2BB
	<1927>	23C	2F7	1E8	23C	23C
	<1928>	040	000	3FF	040	040
	<1929>	040	000	3FF	040	040
	<1930>	040	3FF	2E7	040	040
	<1931>	040	3FF	2E7	040	040
	<1932>	040	1C1	218	040	040
	<1933>	040	1C1	218	040	040
	<1934>	040	259	101	040	040
	<1935>	040	259	101	040	040




Figure14-7 Data dump display formats (dual link)

14.3.6 Setting the Data Dump Display Start Location

To set the data dump display start location, follow the procedure below.

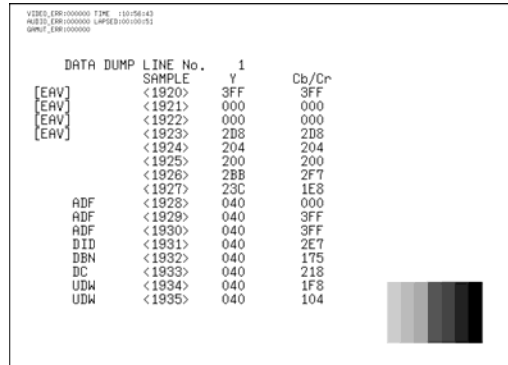
Procedure

STATUS (press and hold) → **F•2** DATA DUMP → **F•3** JUMP

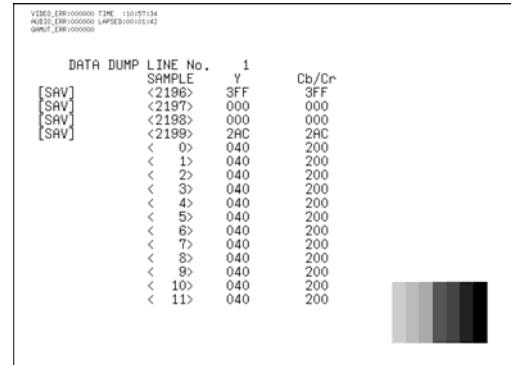
Settings

EAV: The display starts with the EAV sample. This is the default setting.

SAV: The display starts with the SAV sample.

JUMP = EAV


DATA DUMP LINE No.	SAMPLE	Y	Cb/Cr
[EAV]	<1920>	3FF	3FF
[EAV]	<1921>	000	000
[EAV]	<1922>	000	000
[EAV]	<1923>	2D8	2D8
	<1924>	204	204
	<1925>	200	200
	<1926>	2BB	2F7
	<1927>	23C	1E8
ADF	<1928>	040	000
ADF	<1929>	040	3FF
ADF	<1930>	040	3FF
DID	<1931>	040	2E7
DBN	<1932>	040	175
DC	<1933>	040	218
UDW	<1934>	040	1F8
UDW	<1935>	040	104

JUMP = SAV


DATA DUMP LINE No.	SAMPLE	Y	Cb/Cr
[SAV]	<2196>	3FF	3FF
[SAV]	<2197>	000	000
[SAV]	<2198>	000	000
[SAV]	<2199>	2AC	2AC
	< 0>	040	200
	< 1>	040	200
	< 2>	040	200
	< 3>	040	200
	< 4>	040	200
	< 5>	040	200
	< 6>	040	200
	< 7>	040	200
	< 8>	040	200
	< 9>	040	200
	< 10>	040	200
	< 11>	040	200

Figure14-8 Data dump display start locations

14.3.7 Saving a Data Dump to USB Memory

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 command appears when the LV 5380 has USB memory connected to it.

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 set in the system settings according to the procedure in section 5.6, "Setting the Date and Time."

Example: 20080425150500.txt (the order is: year, month, day, hour, minute, second)

The file structure in the USB memory is shown below.

```

└─ USB memory
  └─ DAT
    └─ yyyyymmddhhmmss.txt
  
```

Procedure

STATUS (press and hold) → **F•2** DATA DUMP → **F•4** USB MEM STORE

14. STATUS DISPLAY (STATUS)

Single link, HD

2008/07/11 08:21:59
SDI A
REF INT
FORMAT 1080i/59.94
LINE NUMBER 205
SAMPLE:DATA
ADDR:Y ,C
1920:3FF,3FF
1921:000,000
1922:000,000
1923:274,274
1916:040,200
1917:040,200
1918:040,200
1919:040,200

Single link, SD

2008/07/11 09:41:47
SDI A
REF INT
FORMAT 525i/59.94
LINE NUMBER 4
SAMPLE:DATA
ADDR:Y ,C
0720:000,3FF
0721:2D8,000
0722:3FF,000
0723:2FF,3FF
0716:040,200
0717:040,200
0718:040,200
0719:040,200

Dual link, YCbCr, LINK A

2009/07/23 11:18:28
SDI DUAL LINK A
REF INT
FORMAT 1080i/59.94 DUAL
LINE NUMBER 1
SAMPLE:DATA
LINK A
ADDR:Y ,C
1920:3FF,3FF
1921:000,000
1922:000,000
1916:040,200
1917:040,200
1918:040,200
1919:040,200

Dual link, GBR, LINK A/B

2009/07/23 10:36:08
SDI DUAL LINK AB
REF INT
FORMAT 1080i/59.94 DUAL
LINE NUMBER 1
SAMPLE:DATA
LINK A
ADDR:G ,B/R
1920:3FF,3FF
1921:000,000
1922:000,000
LINK B
ADDR:G ,B/R
1920:3FF,3FF
1921:000,000
1916:040,200
1917:040,200
1918:040,200
1919:040,200

Figure14-9 Data dump examples

14.4 Phase Difference Measurement Settings (EXT REF PHASE)

To configure phase difference measurement settings, press **F•3** EXT REF PHASE in the status menu. You can use this menu to measure the phase difference between the SDI signal and the external sync signal and between channels A and B. You can also measure the phase difference between links A and B when the link format is set to dual.

STATUS (press and hold) → **F•3** EXT REF PHASE →

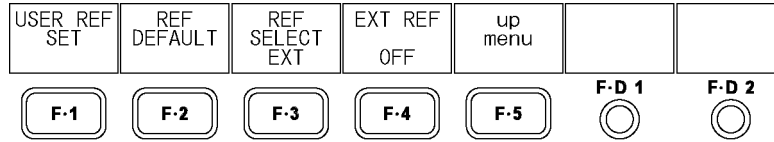


Figure 14-10 EXT REF PHASE menu

To perform phase difference measurement using an external sync signal, set **F•4** EXT REF to ON, and apply an external sync signal. The supported external sync signal formats are listed below.

- 1080i/60, 1080i/59.94, and 1080i/50
- 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, and 1080p/23.98
- 1080PsF/30, 1080PsF/29.97, 1080PsF/25, 1080PsF/24, and 1080PsF/23.98
- 720p/60, 720p/59.94, 720p/50, 720p/30, 720p/29.97, 720p/25, 720p/24, and 720p/23.98
- NTSC and NTSC with a 10-field ID
- PAL

[Reference] EXT REF → Section 14.4.6, “Switching to an External Sync Signal”

To measure the phase difference between channels A and B, select Bch using **INPUT**, and then set **F•3** REF SELECT to Ach.

[Reference] REF SELECT → Section 14.4.4, “Displaying the Phase Difference between Channels A and B”

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.

[Reference] Dual link → Section 5.1.1, “Selecting a Link Format”

REF SELECT → Section 14.4.5, “Displaying the Phase Difference between Links A and B”

14.4.1 Phase Difference Measurement Display Explanation

To display the phase difference measurement display, press **F•3** EXT REF PHASE in the status menu.

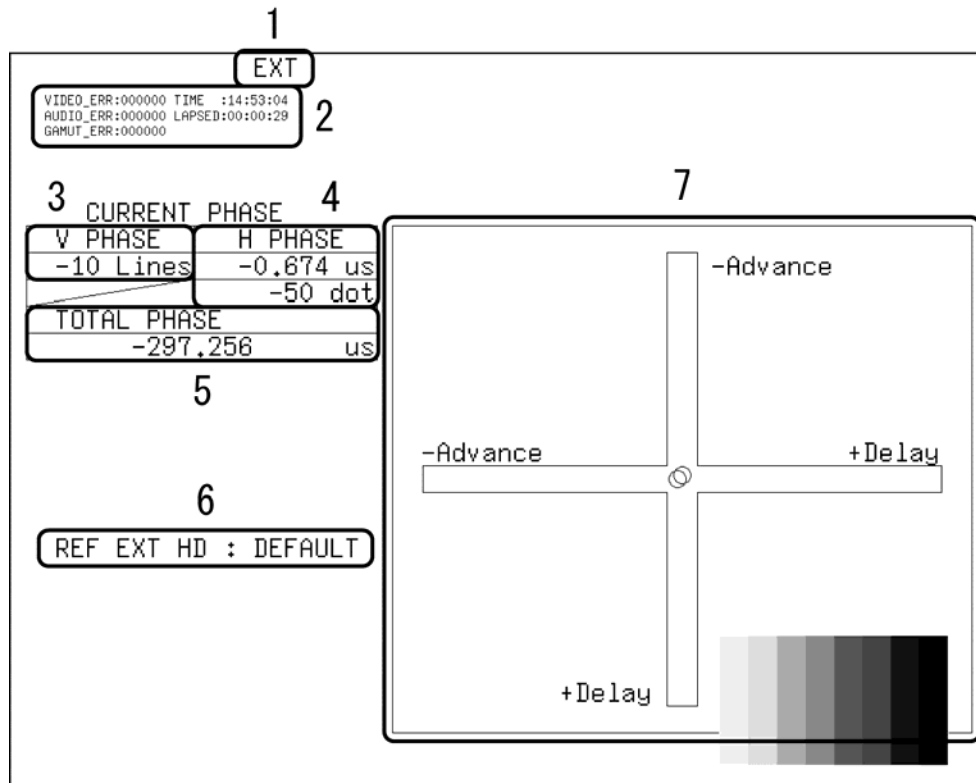


Figure14-11 Phase difference measurement display

1 Sync signal

EXT appears here when an external sync signal is being used. Set the LV 5380 to external sync to measure the phase difference between the input signal and an external sync signal.

[Reference] Section 14.4.6, "Switching to an External Sync Signal"

2 Error counter

The error counter, the current time, and the elapsed time are displayed here. For details, see section 14.1, "General Status Display Explanation."

3 V PHASE

The phase difference in lines is displayed here.

4 H PHASE

The phase difference is displayed here in microseconds (us) and sample numbers (dot).

5 TOTAL PHASE

The total of the V phase and H phase differences is displayed here in microseconds (us).

6 REF

The external sync signal setting is indicated using one of the following messages:

INT:	Indicates that the internal sync signal is being used. Phase difference measurement cannot be performed.
EXT HD: DEFAULT:	Indicates that a tri-level sync signal is being used with the default phase difference setting.
EXT HD: USER REF:	Indicates that a tri-level sync signal is being used with a user-defined phase difference setting.
EXT BB: DEFAULT:	Indicates that a BB signal is being used with the default phase difference setting.
EXT BB: USER REF:	Indicates that a BB signal is being used with the user-defined phase difference setting.
SDI A:	Indicates that the phase difference between channels A and B is being measured.
LINK A:	Indicates that the phase difference between links A and B is being measured.
NO SIGNAL:	Indicates that no external sync signal is being applied.

[Reference] Section 14.4.2, "Configuring a User-Defined Phase Difference Setting"
 Section 14.4.3, "Using the Default Phase Difference Setting"
 Section 14.4.4, "Displaying the Phase Difference between Channels A and B"
 Section 14.4.5, "Displaying the Phase Difference between Links A and B"
 Section 14.4.6, "Switching to an External Sync Signal"

7 Graphical Representation of the Phase Differences

The vertical axis indicates the V phase difference in lines. 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 H circle turns green when it is within ± 3 clocks of the center.

The V circle turns green when it is in the center.

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 in the Delay axis and differences of up to approximately -1/2 frames from the center are displayed in 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.

14. STATUS DISPLAY (STATUS)

Table 14-3 Delay and Advance axis display ranges

Format	Displayed in the Advance Axis							
				Displayed in the Delay Axis				
	V PHASE [Lines]	H PHASE [us]		V PHASE [Lines]	H PHASE [us]		V PHASE [Lines]	H PHASE [us]
1080i/59.94, 1080p/29.97, 1080PsF/29.97	-562	-29.645	to	0	0	to	562	0
1080i/60, 1080p/30, 1080PsF/30	-562	-29.616	to	0	0	to	562	0
1080i/50, 1080p/25, 1080PsF/25	-562	-35.542	to	0	0	to	562	0
1080p/23.98, 1080PsF/23.98	-562	-37.060	to	0	0	to	562	0
1080p/24, 1080PsF/24	-562	-37.023	to	0	0	to	562	0
720p/59.94	-375	0	to	0	0	to	374	22.230
720p/60	-375	0	to	0	0	to	374	22.208
720p/50	-375	0	to	0	0	to	374	26.653
720p/29.97	-375	0	to	0	0	to	374	44.475
720p/30	-375	0	to	0	0	to	374	44.430
720p/25	-375	0	to	0	0	to	374	53.319
720p/23.98	-375	0	to	0	0	to	374	55.597
720p/24	-375	0	to	0	0	to	374	55.542
525i/59.94	-262	-63.518	to	0	0	to	262	0
625i/50	-312	-63.962	to	0	0	to	312	0

14.4.2 Configuring a User-Defined Phase Difference Setting

To set the phase difference between the signals to 0, follow the procedure below.
This setting is not available when **F•3** REF SELECT is set to LINK A.

Procedure

STATUS (press and hold) → **F•3** EXT REF PHASE → **F•1** USER REF SET

14.4.3 Using the Default Phase Difference Setting

To set the phase difference between the signals to the default setting, follow the procedure below.

The default setting is the phase difference 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 device inconsistencies and phase fluctuations when the SDI signal is switched, a display error within the range of ± 3 clocks may occur.

This setting is not available when **F•3** REF SELECT is set to LINK A.

Procedure

STATUS (press and hold) → **F•3** EXT REF PHASE → **F•2** REF DEFAULT

14.4.4 Displaying the Phase Difference between Channels A and B

To display the phase difference between channel A (the reference) and channel B, follow the procedure below.

This setting is not displayed when channel A is selected.

Procedure

STATUS (press and hold) → **F•3** EXT REF PHASE → **F•3** REF SELECT

Settings

EXT:	The phase difference between an SDI signal and an external sync signal is displayed. This is the default setting.
Ach:	The phase difference between channels A and B is displayed.

14.4.5 Displaying the Phase Difference between Links A and B

To display the phase difference between links A and B when the link format is set to dual, follow the procedure below.

Procedure

STATUS (press and hold) → **F•3** EXT REF PHASE → **F•3** REF SELECT

Settings

EXT:	The phase difference between an SDI signal and an external sync signal is displayed. This is the default setting.
LINK A:	The phase difference between links A and B is displayed.

14.4.6 Switching to an External Sync Signal

To switch to an external sync signal, follow the procedure below.

Use an external sync signal to perform phase difference measurement. If you set this setting to OFF, the circles that represent the phase differences will not appear.

Changing this setting will also change the video signal waveform display and vector display sync signal settings.

When D_LINK FORMAT is set to YC10bit, you cannot use an external sync signal, and this setting is not available.

[Reference] D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

Procedure

STATUS (press and hold) → **F•3** EXT REF PHASE → **F•4** EXT REF

Settings

ON:	An external sync signal is used.
OFF:	The internal sync signal is used. This is the default setting.

14.5 Error Settings (ERROR CONFIG)

To configure error settings, press **F•4** ERROR CONFIG in the status menu. You can configure the input SDI signal video error, audio error, gamut error, composite error and luminance error settings.

When D_LINK FORMAT is set to XYZ12bit in the system settings, **F•3** GAMUT ERROR is not displayed.

[Reference] D_LINK FORMAT → Section 5.1.4, "Setting the Input Format"

STATUS (press and hold) → **F•4** ERROR CONFIG →

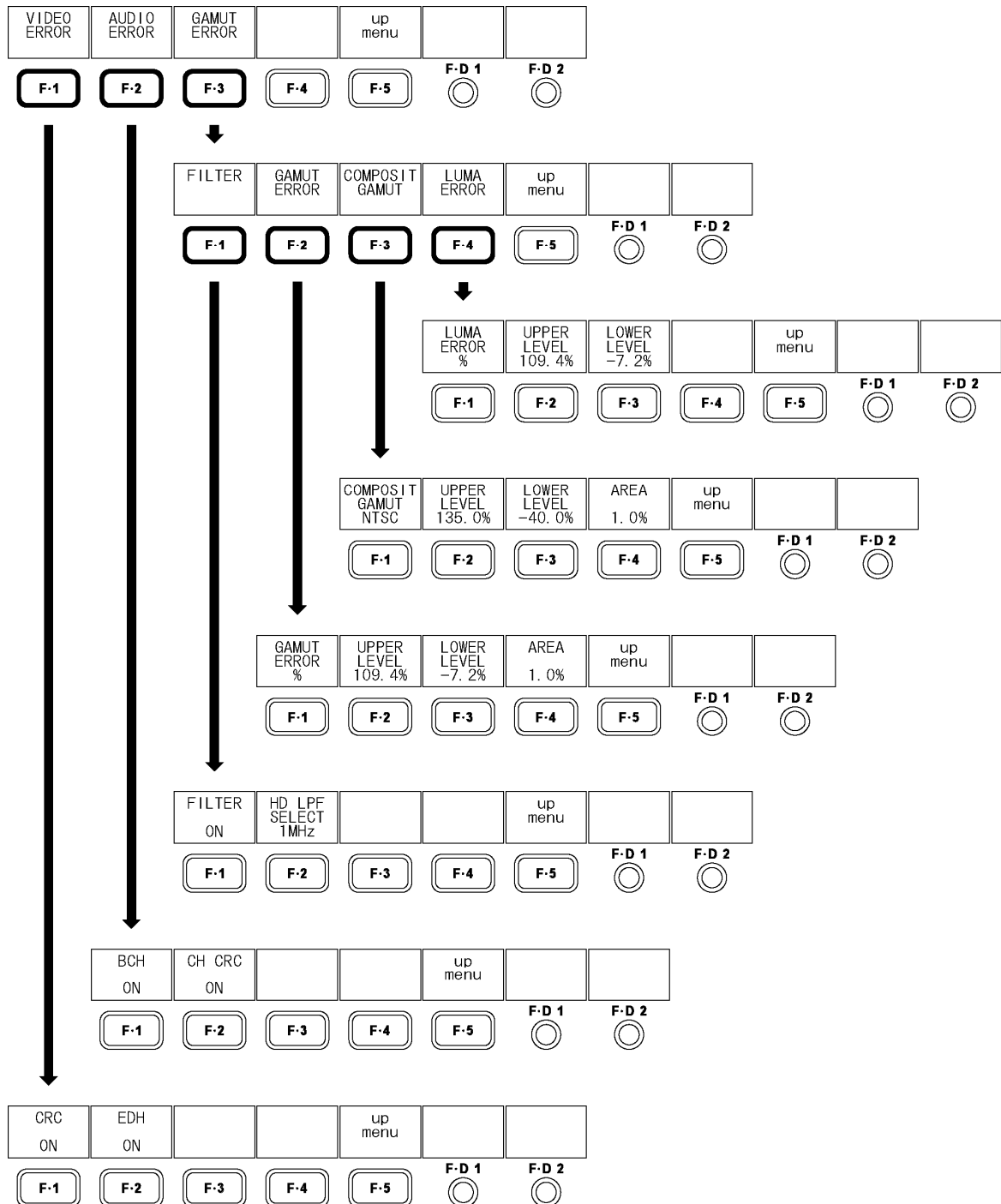


Figure14-12 ERROR CONFIG menu

14.5.1 Detecting CRC Errors

To detect CRC errors, follow the procedure below. If you set this setting to ON, the number of CRC errors appears next to CRC (VIDEO) in the status display.

This setting is valid when the input SDI signal is HD.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•1** VIDEO ERROR → **F•1** CRC

Settings

ON: CRC errors are detected. This is the default setting.

OFF: CRC errors are not detected.

14.5.2 Detecting EDH Errors

To detect EDH errors, follow the procedure below. If you set this setting to ON, the number of EDH errors appears next to EDH in the status display.

This setting is valid when the input SDI signal is SD.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•1** VIDEO ERROR → **F•2** EDH

Settings

ON: EDH errors are detected. This is the default setting.

OFF: EDH errors are not detected.

14.5.3 Detecting BCH Errors

To detect BCH errors, follow the procedure below. If you set this setting to ON, the number of BCH errors appears next to BCH in the status display.

This setting is valid when the input SDI signal is HD.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•2** AUDIO ERROR → **F•1** BCH

Settings

ON: BCH errors are detected. This is the default setting.

OFF: BCH errors are not detected.

14.5.4 Detecting CRC Errors

To detect CRC errors, follow the procedure below. If you set this setting to ON, the number of CRC errors appears next to CRC (AUDIO) in the status display.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•2** AUDIO ERROR → **F•2** CH CRC

Settings

ON: CRC errors are detected. This is the default setting.
OFF: CRC errors are not detected.

14.5.5 Turning the Low Pass Filter ON and OFF

During the detection of gamut, composite gamut or luminance errors, a low-pass filter is set to remove transient errors. To turn the filter ON or OFF, follow the procedure below.

The setting that you make here is also applied to the filter setting for the 5 bar display.

[Reference] Section 12.7.1, “General 5 Bar Display Explanation”

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•1** FILTER → **F•1** FILTER

Settings

ON: The filter is turned ON. This is the default setting.
OFF: The filter is turned OFF.

14.5.6 Selecting the Filter Characteristics

When **F•1** FILTER is set to ON, follow the procedure below to set the low-pass filter characteristics for gamut error detection.

This setting is valid when the input signal is HD. When the input signal is SD, a 1 MHz LPF is used, regardless of how you configure this setting.

The setting that you make here is also applied to the filter setting for the 5 bar display.

[Reference] Section 12.7.1, “General 5 Bar Display Explanation”

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•1** FILTER → **F•2** HD LPF SELECT

Settings

1MHz: A 1 MHz low-pass filter is used. This is the default setting.
2.8MHz: A 2.8 MHz low-pass filter is used.

14.5.7 Detecting Gamut Errors

To detect gamut errors, follow the procedure below. If you set this setting to % or mV, the number of gamut errors appears next to GAMUT in the status display.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•1** GAMUT ERROR

Settings

%: Gamut errors are detected. You can set the gamut error detection limits as percentages. This is the default setting.

mV: Gamut errors are detected. You can set the gamut error detection limits in units of mV.

OFF: Gamut errors are not detected.

14.5.8 Configuring Gamut Error Detection Settings

To set the gamut error detection limits and the detection area, follow the procedures below. These settings are available when **F•1** GAMUT ERROR is set to % or mV. The settings that you make here also apply to the R, G, and B bars in the 5 bar display.

- **Setting the error detection upper limit**

An error is detected when the input SDI signal level exceeds the specified value. If you press **F•D 1**, the upper limit will be set to its default value of 109.4 % or 765.8 mV.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•2** UPPER LEVEL → **F•D 1** VARIABLE

Settings When GAMUT ERROR Is Set to %

Setting range: 90.8 % to 109.4 %. (The default setting is 109.4 %.)

Settings When GAMUT ERROR Is Set to mV

Setting range: 635.6mV to 765.8 mV. (The default setting is 765.8 mV.)

- **Setting the error detection lower limit**

An error is detected when the input SDI signal level goes below the specified value. If you press **F•D 1**, the lower limit will be set to its default value of -7.2 % or -50.4 mV.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•3** LOWER LEVEL → **F•D 1** VARIABLE

Settings When GAMUT ERROR Is Set to %

Setting range: -7.2 % to 6.1 %. (The default setting is -7.2 %.)

Settings When GAMUT ERROR Is Set to mV

Setting range: -50.4 to 42.7 mV. (The default setting is -50.4 mV.)

● Setting the Error Detection Area

An error is detected when an error above the specified value occurs in the active picture. If you press **F•D 1**, the area will be set to its default value of 1.0 %.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•2** GAMUT ERROR → **F•4** AREA → **F•D 1** VARIABLE

Settings

Setting range: 0.0 % to 5.0 %. (The default setting is 1.0 %.)

14.5.9 Detecting Composite Gamut Errors

To detect gamut errors in a pseudo-composite signal converted from the component signal, follow the procedure below. If you set this setting to NTSC or PAL, the number of gamut errors appears next to COMP GAMUT in the status display.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•1** COMPOSIT GAMUT

Settings

NTSC: Composite gamut errors are detected. Select this option when the composite display format is NTSC. This is the default setting.

PAL: Composite gamut errors are detected. Select this option when the composite display format is PAL.

OFF: Composite gamut errors are not detected.

14.5.10 Configuring Composite Gamut Error Detection Settings

To set the composite gamut error detection limits and the detection area, follow the procedures below.

These settings are available when **F•1** COMPOSIT GAMUT is set to NTSC or PAL. The settings that you make here also apply to the CMP bar in the 5 bar display.

● Setting the error detection upper limit

An error is detected when the input SDI signal level exceeds the specified value. If you press **F•D 1**, the upper limit will be set to its default value of 135.0 % or 945.0 mV.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•2** UPPER LEVEL → **F•D 1** VARIABLE

Settings When COMPOSIT GAMUT Is Set to NTSC

Setting range: 90.0 to 135.0 %. (The default setting is 135.0 %.)

Settings When COMPOSIT GAMUT Is Set to PAL

Setting range: 630.0 to 945.0 mV. (The default setting is 945.0 mV.)

● Setting the error detection lower limit

An error is detected when the input SDI signal level goes below the specified value. If you press **F•D 1**, the lower limit will be set to its default value of -40.0 % or -280.0 mV.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•3** LOWER LEVEL → **F•D 1** VARIABLE

Settings When COMPOSIT GAMUT Is Set to NTSC

Setting range: -40.0 to 20.0 %. (The default setting is -40.0 %.)

Settings When COMPOSIT GAMUT Is Set to PAL

Setting range: -280.0 to 140.0 mV. (The default setting is -280.0 mV.)

● Setting the Error Detection Area

An error is detected when an error above the specified value occurs in the active picture. If you press **F•D 1**, the area will be set to its default value of 1.0 %.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•3** COMPOSIT GAMUT → **F•4** AREA → **F•D 1** VARIABLE

Settings

Setting range: 0.0 to 5.0 %. (The default setting is 1.0 %.)

14.5.11 Detecting Luminance Errors

To detect luminance errors, follow the procedure below. If you set this setting to % or mV, the number of luminance errors appears next to LUMA in the status display.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•1** LUMA ERROR

Settings

%:	Luminance errors are detected. You can set the gamut error detection limits as percentages. This is the default setting.
mV:	Luminance errors are detected. You can set the gamut error detection limits in units of mV.
OFF:	Luminance errors are not detected.

14.5.12 Configuring Luminance Error Detection Settings

To set the luminance error detection limits, follow the procedures below. These settings are available when **F•1** LUMA ERROR is set to % or mV. The settings that you make here also apply to the Y bar in the 5 bar display.

● Setting the error detection upper limit

An error is detected when the level of the SDI input signal's luminance component exceeds the specified value.

If you press **F•D 1**, the lower limit will be set to its default value of 109.4 % or 756.8 mV.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•2** UPPER LEVEL → **F•D 1** VARIABLE

Settings When LUMA ERROR Is Set to %

Setting range: 90.8 to 109.4 % (The default setting is 109.4 %)

Settings When LUMA ERROR Is Set to mV

Setting range: 635.6 to 765.8 mV (The default setting is 765.8 mV)

● Setting the error detection lower limit

An error is detected when the level of the SDI input signal's luminance component goes below the specified value.

If you press **F•D 1**, the lower limit will be set to its default value of -7.2 % or -50.4 mV.

Procedure

STATUS (press and hold) → **F•4** ERROR CONFIG → **F•3** GAMUT ERROR → **F•4** LUMA ERROR → **F•3** LOWER LEVEL → **F•D 1** VARIABLE

Settings When LUMA ERROR Is Set to %

Setting range: -7.2 to 6.1 % (The default setting is -7.2 %)

Settings When LUMA ERROR Is Set to mV

Setting range: -50.4 to 42.7 mV (The default setting is -50.4 mV)

14.6 Clearing Errors (ERROR CLEAR)

To clear errors, press **F•5** ERROR CLEAR in the status menu.

STATUS (press and hold) →

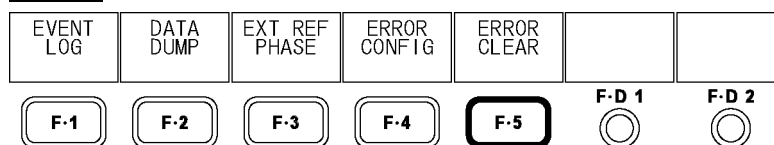


Figure14-13 Status menu

14.6.1 Clearing Errors

To reset the error counts in the status display to zero, follow the procedure below. Also, the LAPSED indication at the upper left of the screen resets to 00:00:00.

Procedure

STATUS (press and hold) → **F•5** ERROR CLEAR

15. External Interface (Option)

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 15-pin D-sub connector that comes with the option.

The remote control connector is a factory option (sold separately).

15.1.1 Remote Control Connector Specifications

This section contains a diagram of the remote control connector, which is located on the rear panel, and a table that describes its pin assignments.

The locking screws are inch screws (No.4-40UNC).



CAUTION

Do not apply voltage to the output pin.

Do not apply negative voltages or voltages that exceed +5 V to the input pins.

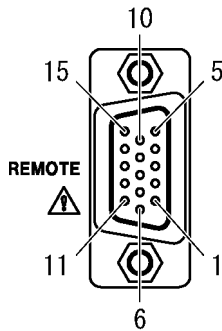


Figure15-1 Remote control connector

Table 15-1 Remote control connector pin assignments

Pin No.	Name	Input or Output	Explanation
1	GND	-	Grounding
2	/P1	Input	Loads preset 1
3	/P2	Input	Loads preset 2
4	/P3	Input	Loads preset 3
5	/P4	Input	Loads preset 4
6	/P5	Input	Loads preset 5
7	/P6	Input	Loads preset 6
8	/P7	Input	Loads preset 7
9	/P8	Input	Loads preset 8
10	/ACH	Input	Selects channel A
11	/BCH	Input	Selects channel B
12	/TALLY1	Input	Tally indication (red)
13	/TALLY2	Input	Tally indication (green)
14	ALARM	Output	Alarm output
15	GND	-	Grounding

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.

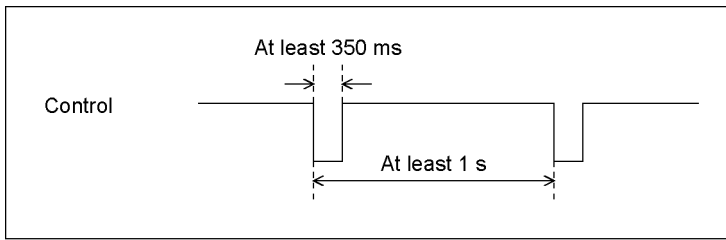


Figure 15-2 Control timing 1

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.)

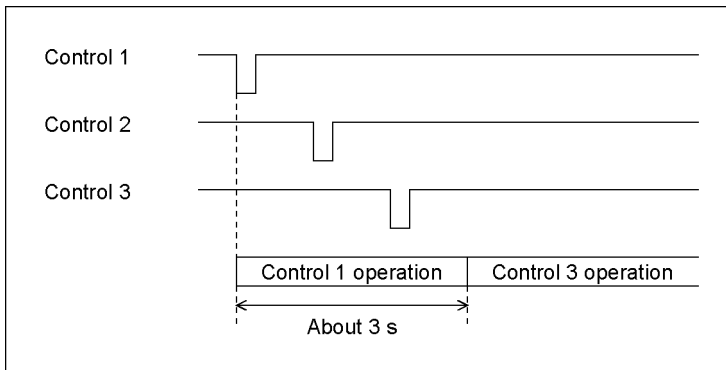


Figure 15-3 Control timing 2

15.1.3 Loading Presets

You can use pins 2 through 9 (/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.

Display mode presets cannot be loaded.

[Reference]: REMOTE MODE → Section 5.5.1, “Selecting the Method for Loading Presets”

Table 15-2 Loading presets

REMOTE MODE													Loaded Preset No.
BIT							BINARY						
Pin 9 /P8	Pin 8 /P7	Pin 7 /P6	Pin 6 /P5	Pin 5 /P4	Pin 4 /P3	Pin 3 /P2	Pin 2 /P1	Pin 6 /P5	Pin 5 /P4	Pin 4 /P3	Pin 3 /P2	Pin 2 /P1	
H	H	H	H	H	H	H	L	H	H	H	H	L	1
H	H	H	H	H	H	L	H	H	H	H	L	H	2
H	H	H	H	H	L	H	H	H	H	H	L	L	3
H	H	H	H	L	H	H	H	H	H	L	H	H	4
H	H	H	L	H	H	H	H	H	H	L	H	L	5
H	H	L	H	H	H	H	H	H	H	L	L	H	6
H	L	H	H	H	H	H	H	H	H	L	L	L	7
L	H	H	H	H	H	H	H	H	L	H	H	H	8
								H	L	H	H	L	9
								H	L	H	L	H	10
								H	L	H	L	L	11
								H	L	L	H	H	12
								H	L	L	H	L	13
								H	L	L	L	H	14
								H	L	L	L	L	15
								L	H	H	H	H	16
								L	H	H	H	L	17
								L	H	H	L	H	18
								L	H	H	L	L	19
								L	H	L	H	H	20
								L	H	L	H	L	21
								L	H	L	L	H	22
								L	H	L	L	L	23
								L	L	H	H	H	24
								L	L	H	H	L	25
								L	L	H	L	H	26
								L	L	H	L	L	27
								L	L	L	H	H	28
L	L	L	H	L	29								
L	L	L	L	H	30								

15.1.4 Switching the Input Channel

Pin 10 (/ACH) and pin 11 (/BCH) of the remote control connector are used for input channel switching.

Channel switching is not valid in displays, such as the 2-channel display, in which the front-panel INPUT key does not function.

Table 15-3 Input channel switching

Pin 10 (/ACH)	Pin 11 (/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.

15.1.5 Displaying a Tally Indication

Pin 12 (/TALLY1) and pin 13 (/TALLY2) of the remote control connector are used for the display of the tally indication.

This is not shown on the 2-channel display and some other displays.

Table 15-4 Tally indication

Pin 12 (/TALLY1)	Pin 13 (/TALLY2)	Description
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.

Pin 12 = L and pin 13 = H



Pin 12 = L and pin 13 = L



Figure15-4 Tally indication

15.1.6 Transmitting the Alarm Signal

The alarm signal is transmitted from pin 14 (ALARM) of the remote control connector when the LV 5380 internal temperature reaches or exceeds a specific value, 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 in 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 set the channels whose errors are indicated by the alarm signal by setting ALARM SELECT in the system settings.

[Reference]: ALARM POLARITY → Section 5.5.2, “Setting the Alarm Signal Polarity”

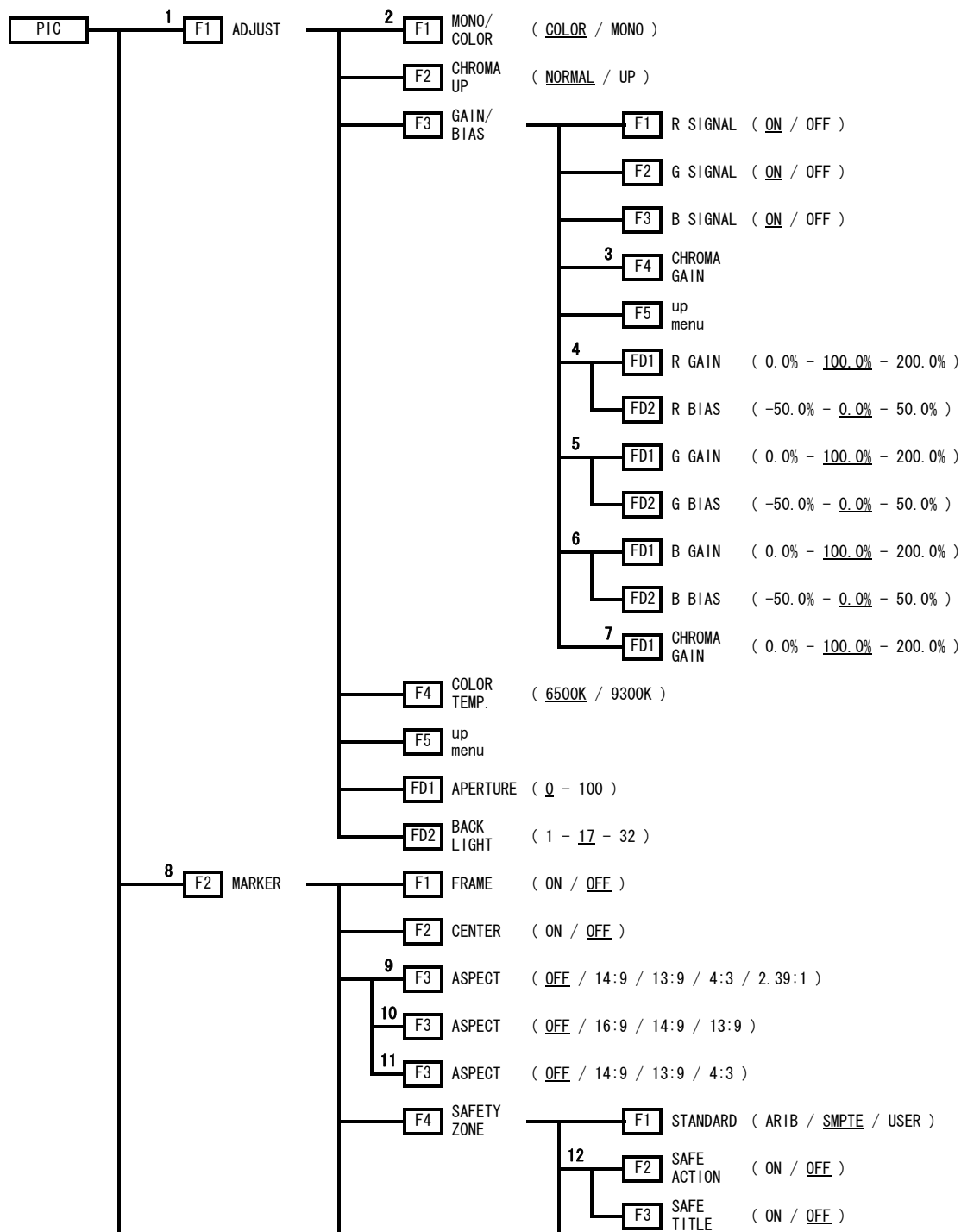
ALARM SELECT → Section 5.5.3, “Setting the Channels Whose Errors Are Indicated by the Alarm Signal”

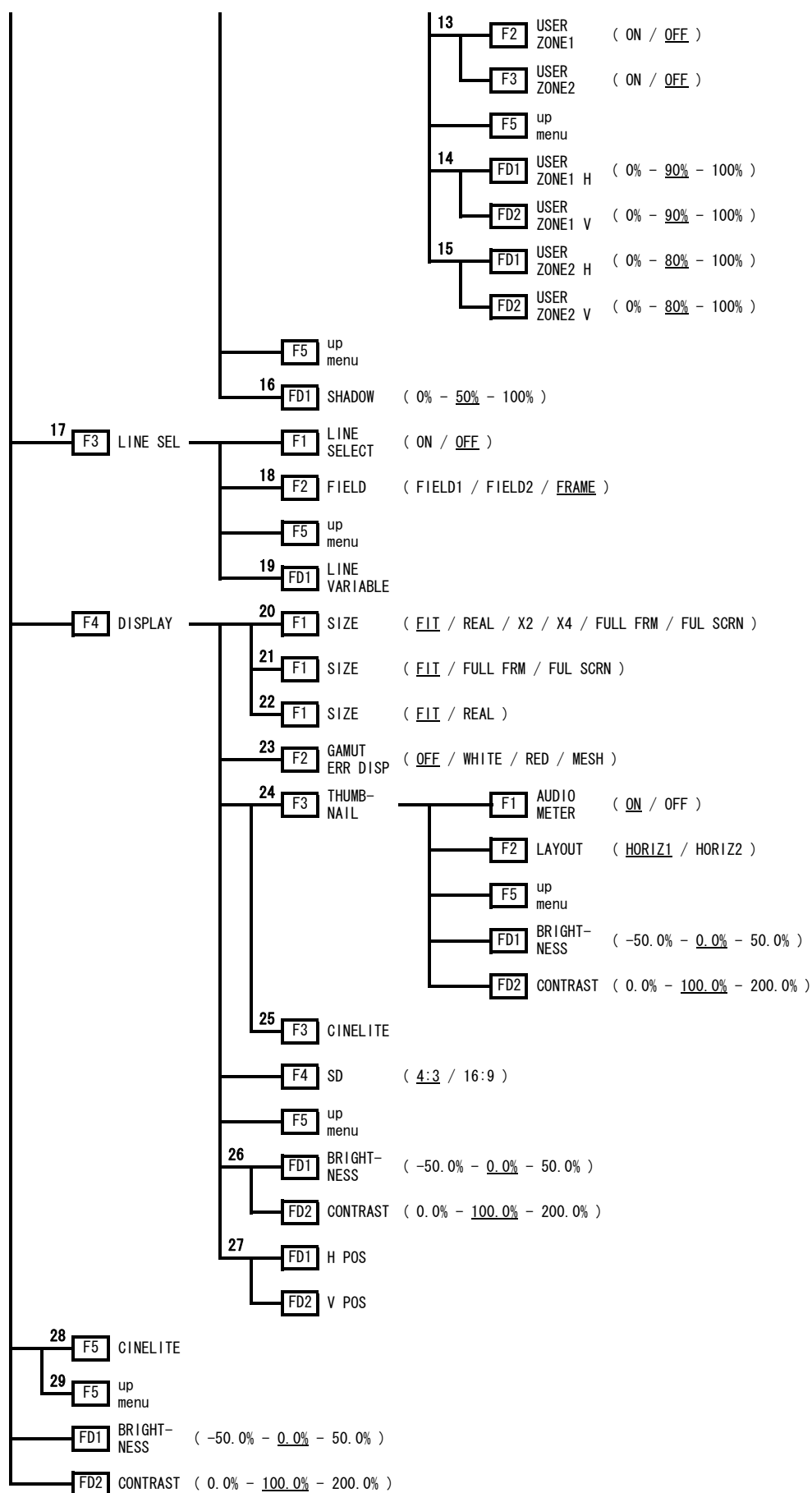
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16.1 Menu Tree

The menu structure is indicated below. The default settings are underlined.

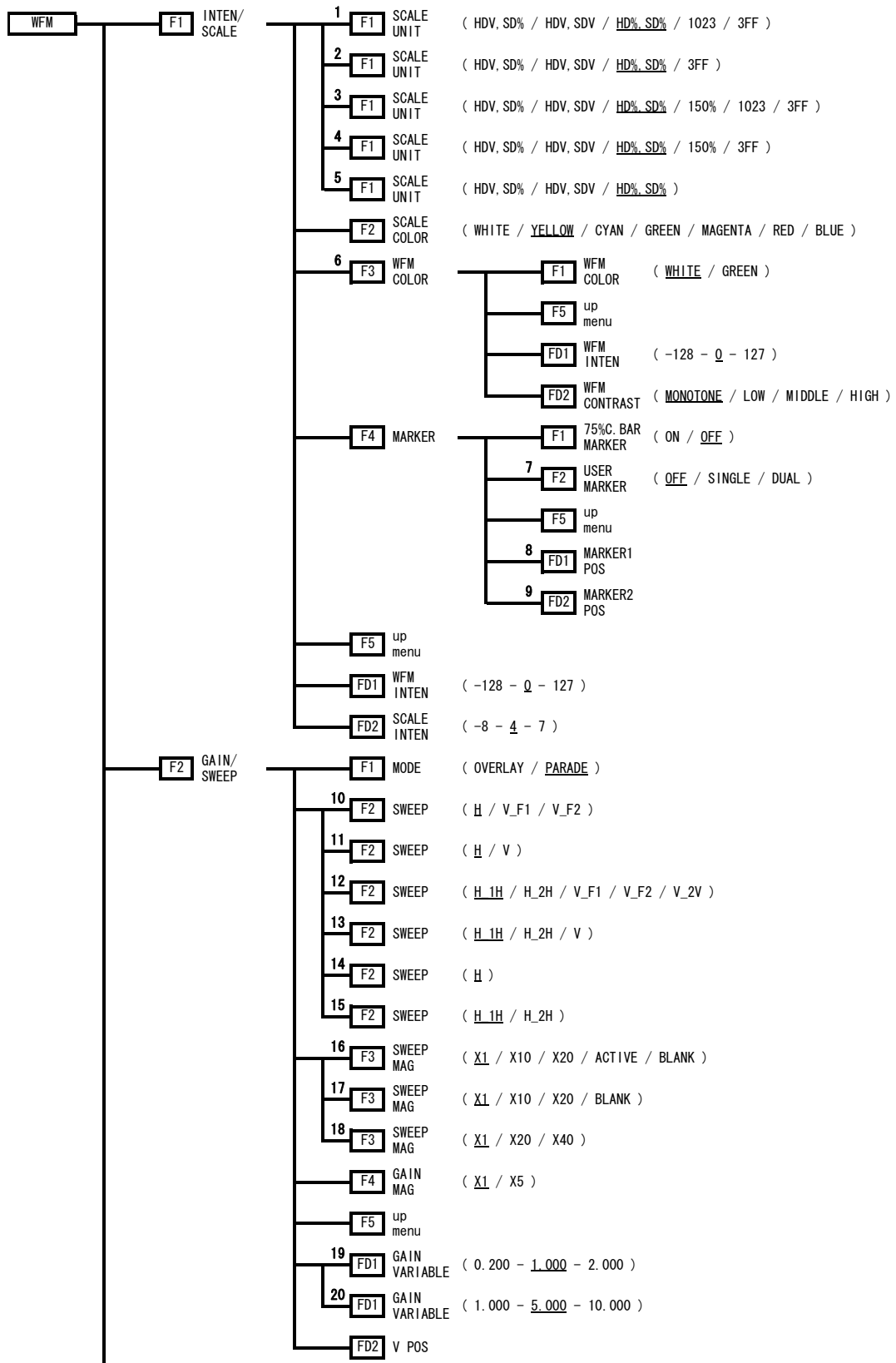
16.1.1 Picture Menu



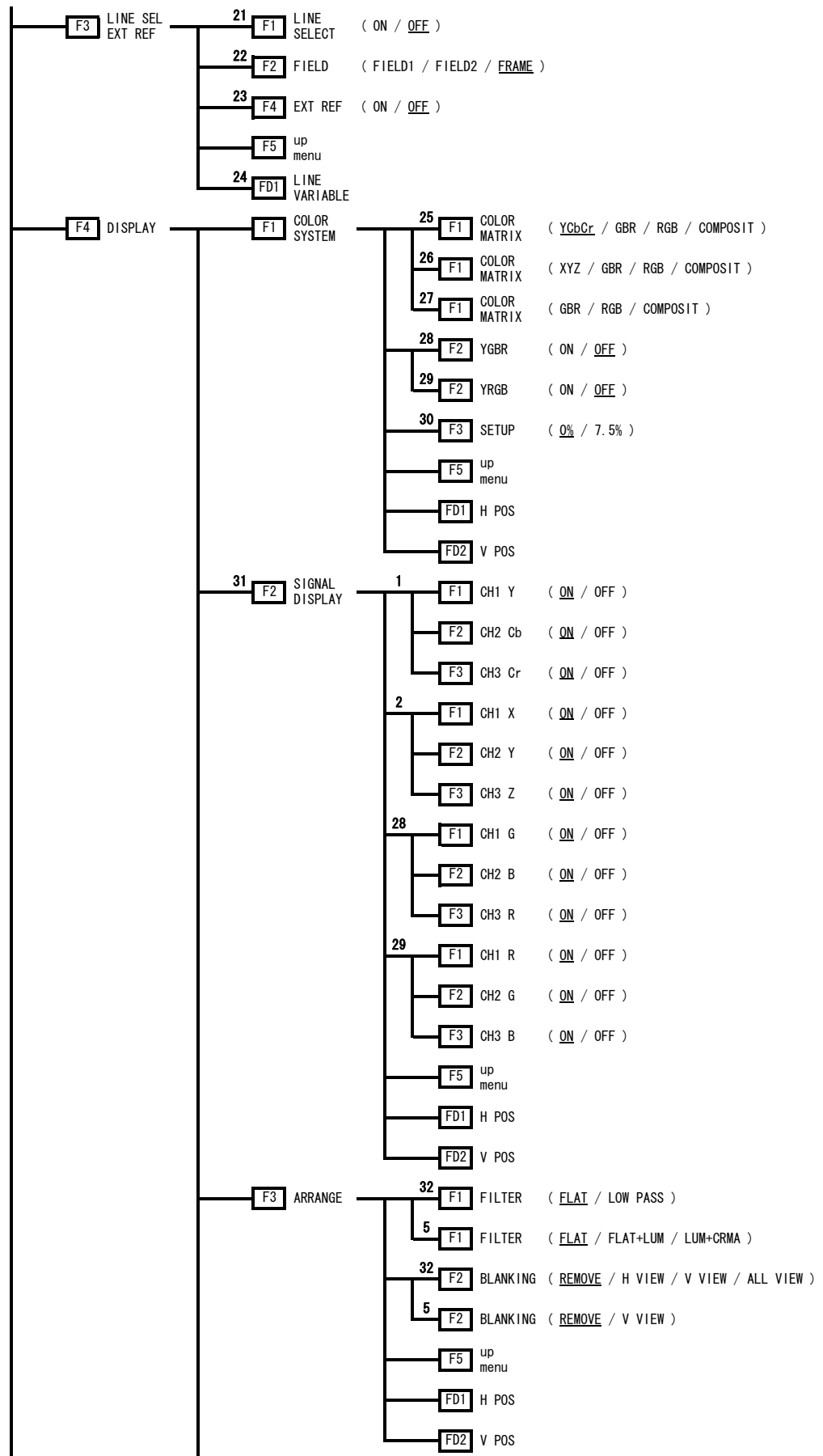


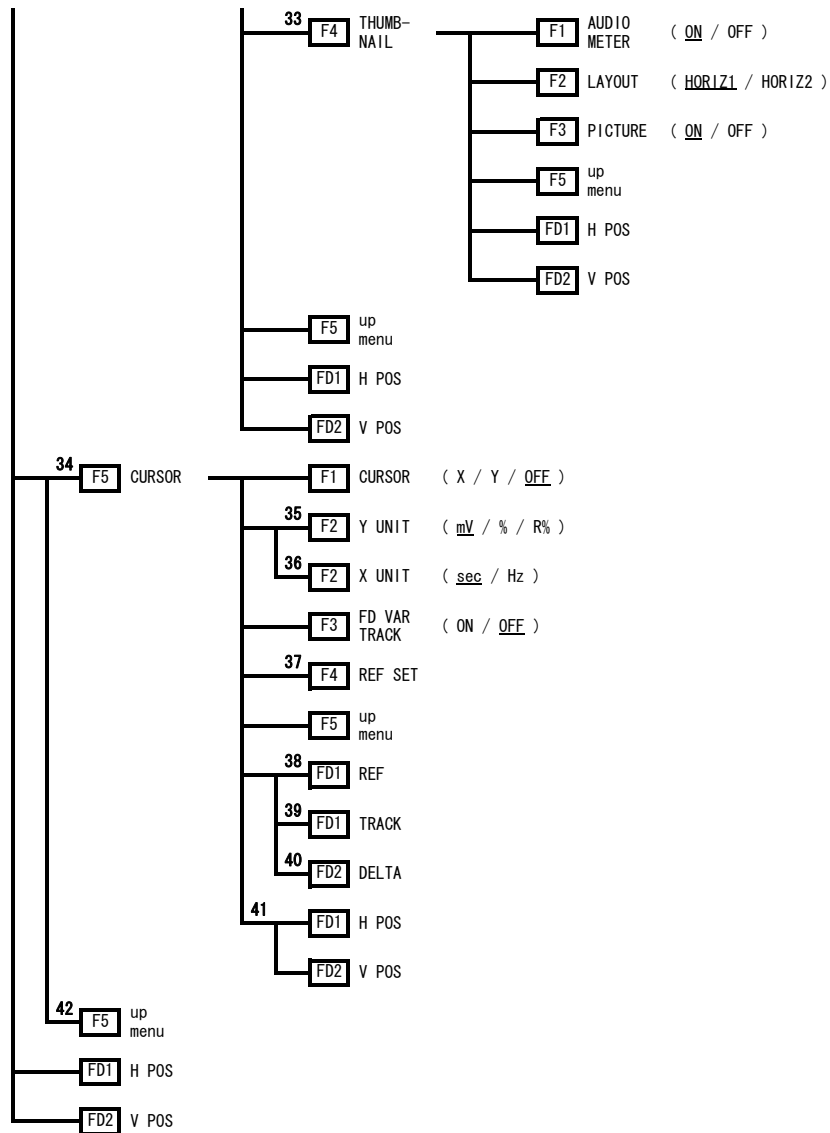
- 1 Does not appear when CINELITE DISPLAY of the CINELITE display option is set to CINEZONE.
- 2 Does not appear in the multi-screen display when INPUT MODE is set to 3D ASIST.
- 3 Appears when CHROMA UP is set to NORMAL.
- 4 Appears when you press R SIGNAL (unless R SIGNAL is set to OFF).
- 5 Appears when you press G SIGNAL (unless G SIGNAL is set to OFF).
- 6 Appears when you press B SIGNAL (unless B SIGNAL is set to OFF).
- 7 Appears when you press CHROMA GAIN.
- 8 Appears when SIZE is set to FIT. Does not appear in the multi-screen display when INPUT MODE is set to DUAL.
- 9 Appears when the input SDI signal is HD.
- 10 Appears when the input SDI signal is SD and SD is set to 4:3.
- 11 Appears when the input SDI signal is SD and SD is set to 16:9.
- 12 Appears when STANDARD is set to ARIB or SMPTE.
- 13 Appears when STANDARD is set to USER.
- 14 Appears when you press USER ZONE1 (unless USER ZONE1 is set to OFF).
- 15 Appears when you press USER ZONE2 (unless USER ZONE2 is set to OFF).
- 16 Appears when ASPECT is set to an option other than OFF.
- 17 Appears when SIZE is set to FIT. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 18 Appears when the input SDI signal is interlaced or segmented frame.
- 19 Appears when LINE SELECT is set to ON.
- 20 Appears when in the system settings, LINK FORMAT is set to SINGLE, or D_LINK FORMAT is set to an option other than YC10bit. Does not appear on multi menu or when CINELITE DISPLAY of the CINELITE display option is set to f Stop or %DISPLAY.
- 21 Appears when in the system settings, D_LINK FORMAT is set to YC10bit. Does not appear on multi menu or when CINELITE DISPLAY of the CINELITE display option is set to f Stop or %DISPLAY.
- 22 Appears in the multi-screen display when 3D INPUT FORMAT is set to L/R DUAL and PICTURE FORM in the 3D assist display is set to AGLPH CL, AGLPH MO, CNVRGNCE, OVERLAY, or FLICKER.
- 23 Appears when GAMUT ERROR, COMPOSIT GAMUT, or LUMA ERROR is set to a value other than OFF after you press ERROR CONFIG on the status menu. Does not appear when D_LINK FORMAT is set to XYZ12bit in the system settings.
- 24 Appears in the single-screen display.
- 25 Appears when INPUT MODE is set to SINGLE or DUAL on the multi-screen display and the CINELITE II option is installed. See the FS 3035 instruction manual for details.
- 26 Appears when SIZE is set to FIT, FULL FRM, or FUL SCRNL.
- 27 Appears when SIZE is set to REAL, X2, or X4.
- 28 Appears in the single-screen display and the CINELITE II option is installed. See the FS 3035 instruction manual for details.
- 29 Appears in the multi-screen display.

16.1.2 Video Signal Waveform Menu



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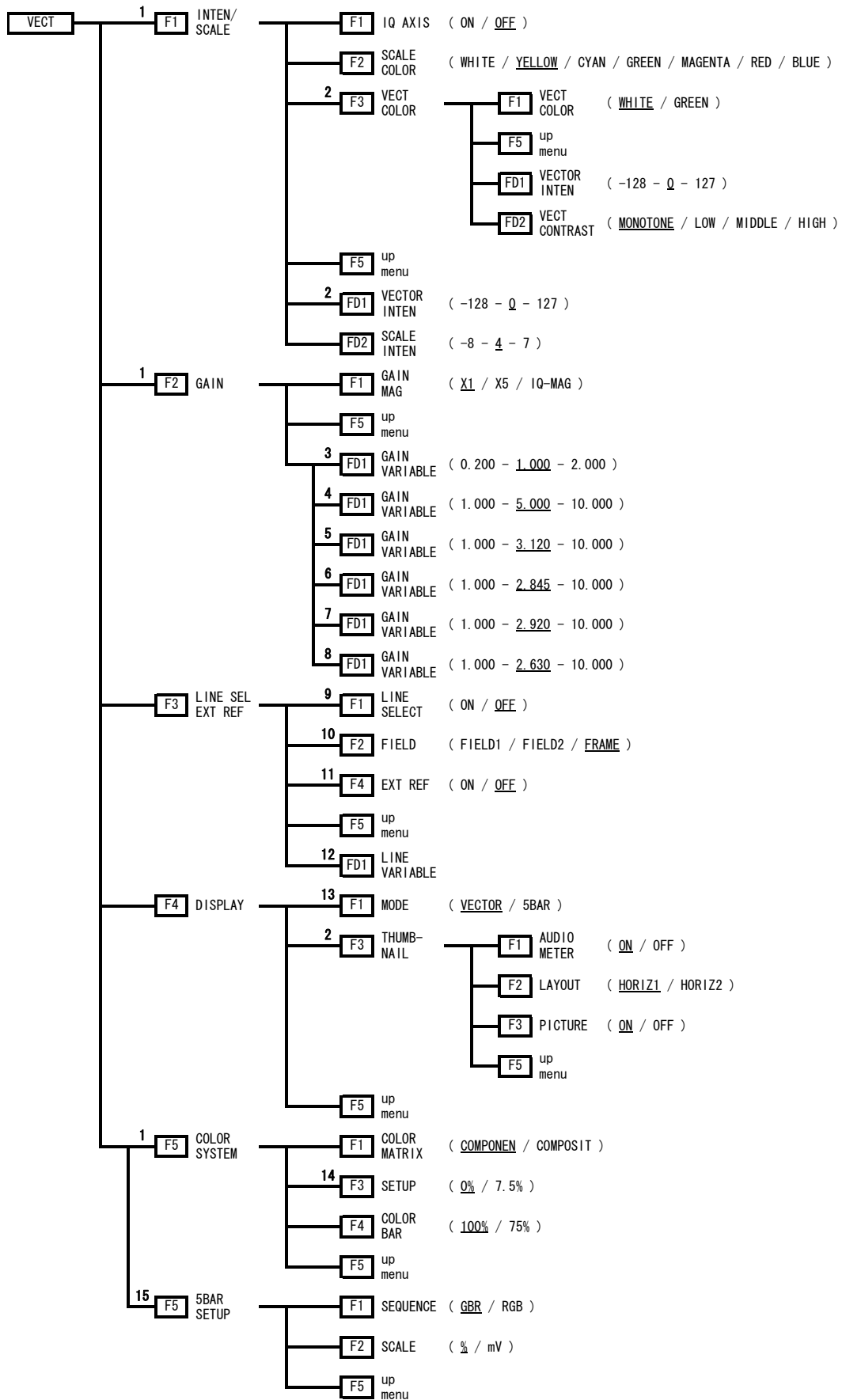


- 1 Appears when COLOR MATRIX is set to YCbCr.
- 2 Appears when COLOR MATRIX is set to XYZ.
- 3 Appears when COLOR MATRIX is set to GBR, or RGB. Does not appear when D_LINK FORMAT is set to XYZ12bit in the system settings.
- 4 Appears when COLOR MATRIX is set to GBR or RGB and D_LINK FORMAT is set to XYZ12bit in the system settings.
- 5 Appears when COLOR MATRIX is set to COMPOSIT.
- 6 Does not appear in the multi-screen display when DISPLAY MODE in the 2-channel display is set to WFM+PIC or when WFM COLOR in the 3D assist display is set to RED,CYAN.
- 7 Appears when CURSOR is set to OFF or in the multi-screen display.
- 8 Appears when USER MARKER is set to SINGLE or DUAL.
- 9 Appears when USER MARKER is set to DUAL.
- 10 Appears when MODE is set to PARADE and the input format is i/sF. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 11 Appears when MODE is set to PARADE and the input format is p. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 12 Appears when MODE is set to OVERLAY and the input format is i/sF. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 13 Appears when MODE is set to OVERLAY and the input format is p. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 14 Appears in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST and MODE is

set to PARADE.

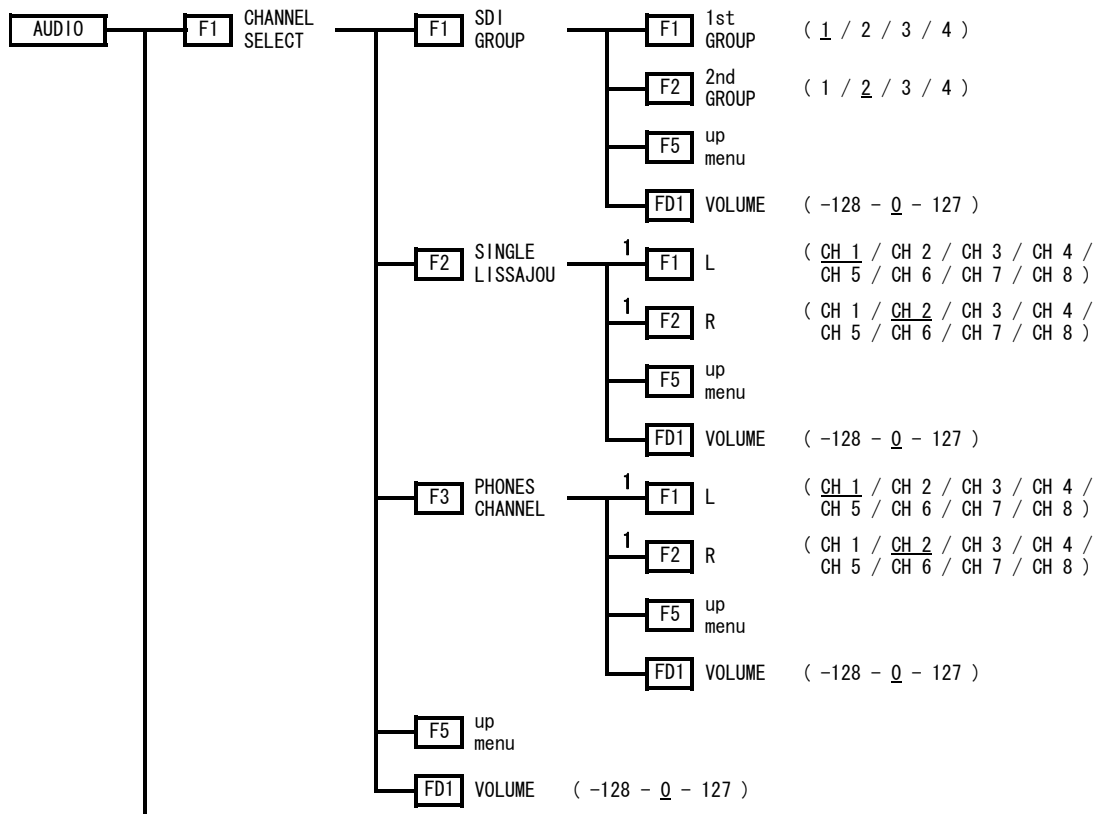
- 15 Appears in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST and MODE is set to OVERLAY.
- 16 Appears when SWEEP is set to H or H_1H.
- 17 Appears when SWEEP is set to H_2H.
- 18 Appears when SWEEP is set to V.
- 19 Appears when GAIN MAG is set to X1.
- 20 Appears when GAIN MAG is set to X5.
- 21 Appears when SWEEP is set to H. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 22 Appears when the input SDI signal is interlaced or segmented frame. Does not appear in the multi-screen display when INPUT MODE is set to DUAL or 3D ASIST.
- 23 Appears when in the system settings, LINK FORMAT is set to SINGLE or D_LINK FORMAT is set to an option other than YC10bit.
- 24 Appears when LINE SELECT is set to ON.
- 25 Appears when in the system settings, LINK FORMAT is set to SINGLE or D_LINK FORMAT is set to YC.
- 26 Appears when in the system settings, D_LINK FORMAT is set to XYZ12bit.
- 27 Appears when in the system settings, D_LINK FORMAT is set to GBR.
- 28 Appears when COLOR MATRIX is set to GBR.
- 29 Appears when COLOR MATRIX is set to RGB.
- 30 Appears when COLOR MATRIX is set to COMPOSIT and the composite display format is NTSC.
- 31 Appears when COLOR MATRIX is set to an option other than COMPOSIT and YGBR or YRGB is set to OFF.
- 32 Appears when COLOR MATRIX is set to an option other than COMPOSIT.
- 33 Appears in the single-screen display.
- 34 Appears in the single-screen display when USER MARKER is set to OFF.
- 35 Appears when CURSOR is set to Y.
- 36 Appears when CURSOR is set to X.
- 37 Appears when Y UNIT is set to R%.
- 38 Appears when CURSOR is set to X or Y and FD VAR TRACK is set to OFF.
- 39 Appears when CURSOR is set to X or Y and FD VAR TRACK is set to ON.
- 40 Appears when CURSOR is set to an option other than OFF.
- 41 Appears when CURSOR is set to OFF.
- 42 Appears in the multi-screen display.

16.1.3 Vector Menu

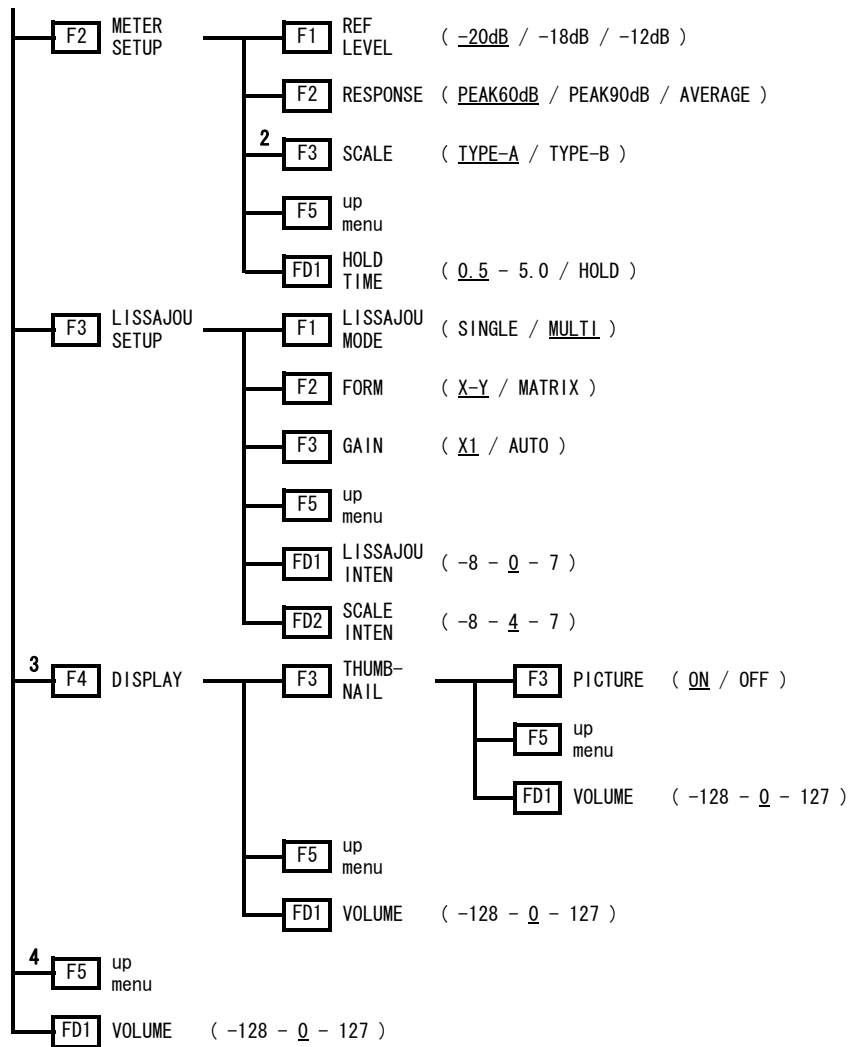


- 1 Appears when MODE is set to VECTOR.
- 2 Appears in the single-screen display.
- 3 Appears when GAIN MAG is set to X1.
- 4 Appears when GAIN MAG is set to X5.
- 5 Appears when GAIN MAG is set to IQ-MAG, the input signal is HD, and COLOR MATRIX is set to COMPONEN.
- 6 Appears when GAIN MAG is set to IQ-MAG, the input signal is HD, and COLOR MATRIX is set to COMPOSIT.
- 7 Appears when GAIN MAG is set to IQ-MAG, the input signal is SD, and COLOR MATRIX is set to COMPONEN.
- 8 Appears when GAIN MAG is set to IQ-MAG, the input signal is SD, and COLOR MATRIX is set to COMPOSIT.
- 9 Does not appear in the multi-screen display when INPUT MODE is set to DUAL.
- 10 Appears when the input SDI signal is interlaced or segmented frame. Does not appear in the multi-screen display when INPUT MODE is set to DUAL.
- 11 Appears when in the system settings, LINK FORMAT is set to SINGLE or D_LINK FORMAT is set to an option other than YC10bit.
- 12 Appears when LINE SELECT is set to ON.
- 13 Does not appear when D_LINK FORMAT is set to XYZ12bit in the system settings.
- 14 Appears when COLOR MATRIX is set to COMPOSIT and the composite display format is NTSC.
Does not appear in the multi-screen display menu.
- 15 Appears when MODE is set to 5BAR.

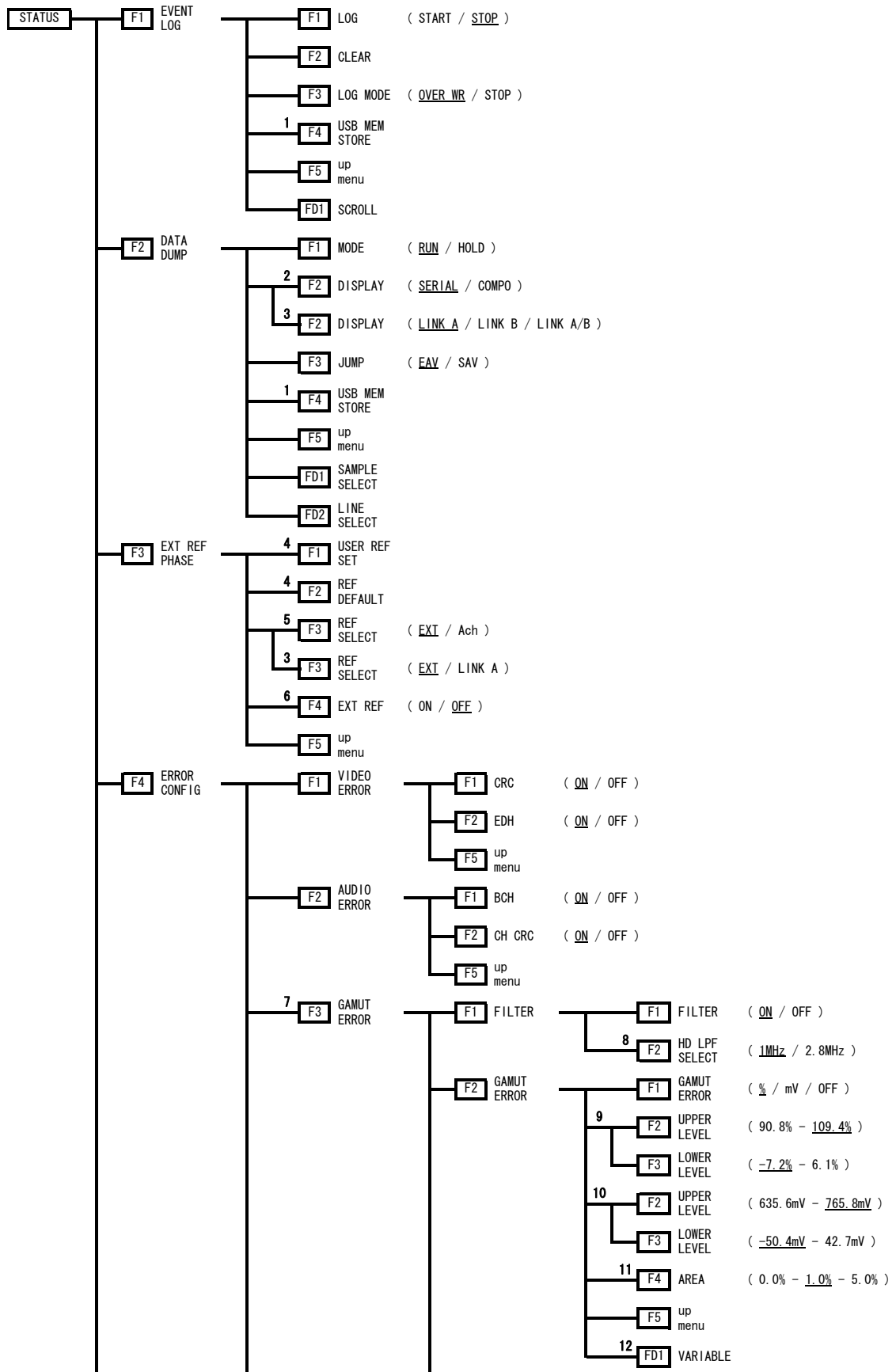
16.1.4 Audio Menu



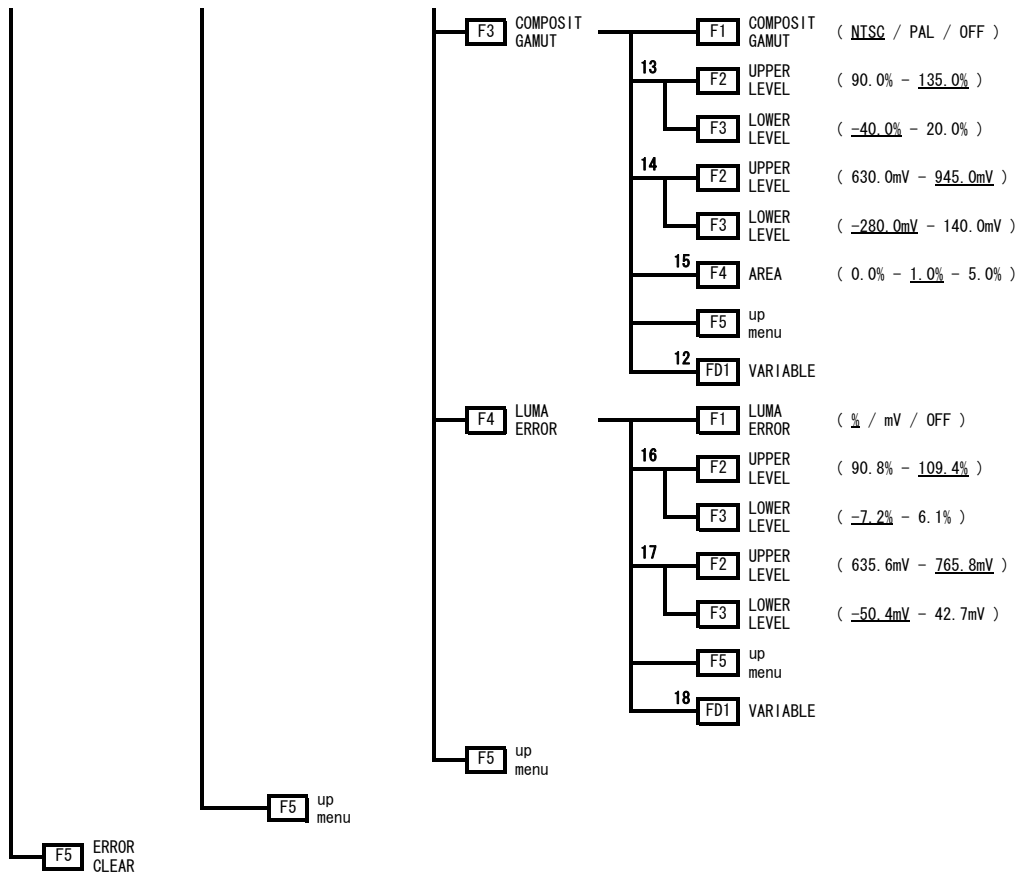
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16.1.5 Status Menu

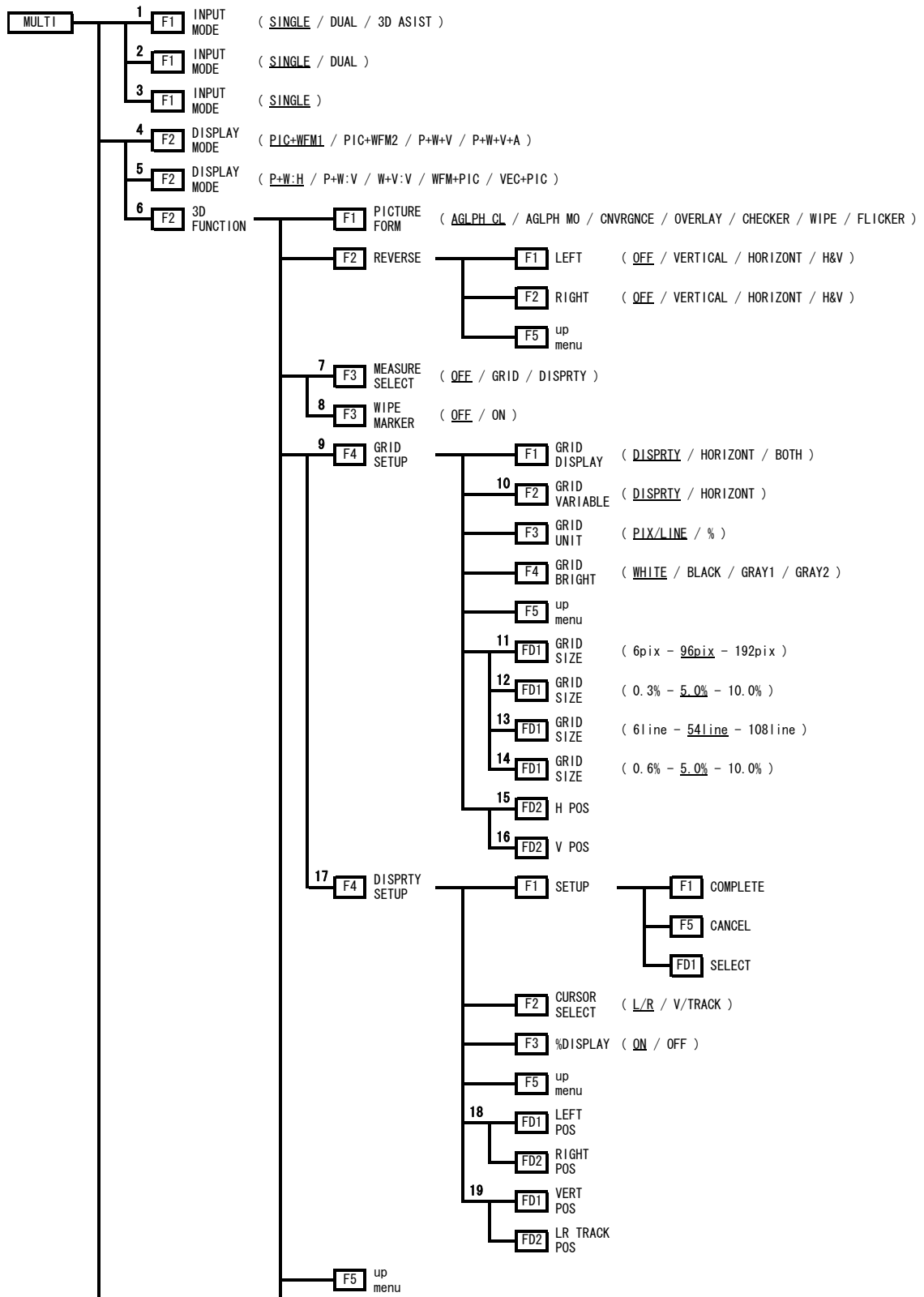


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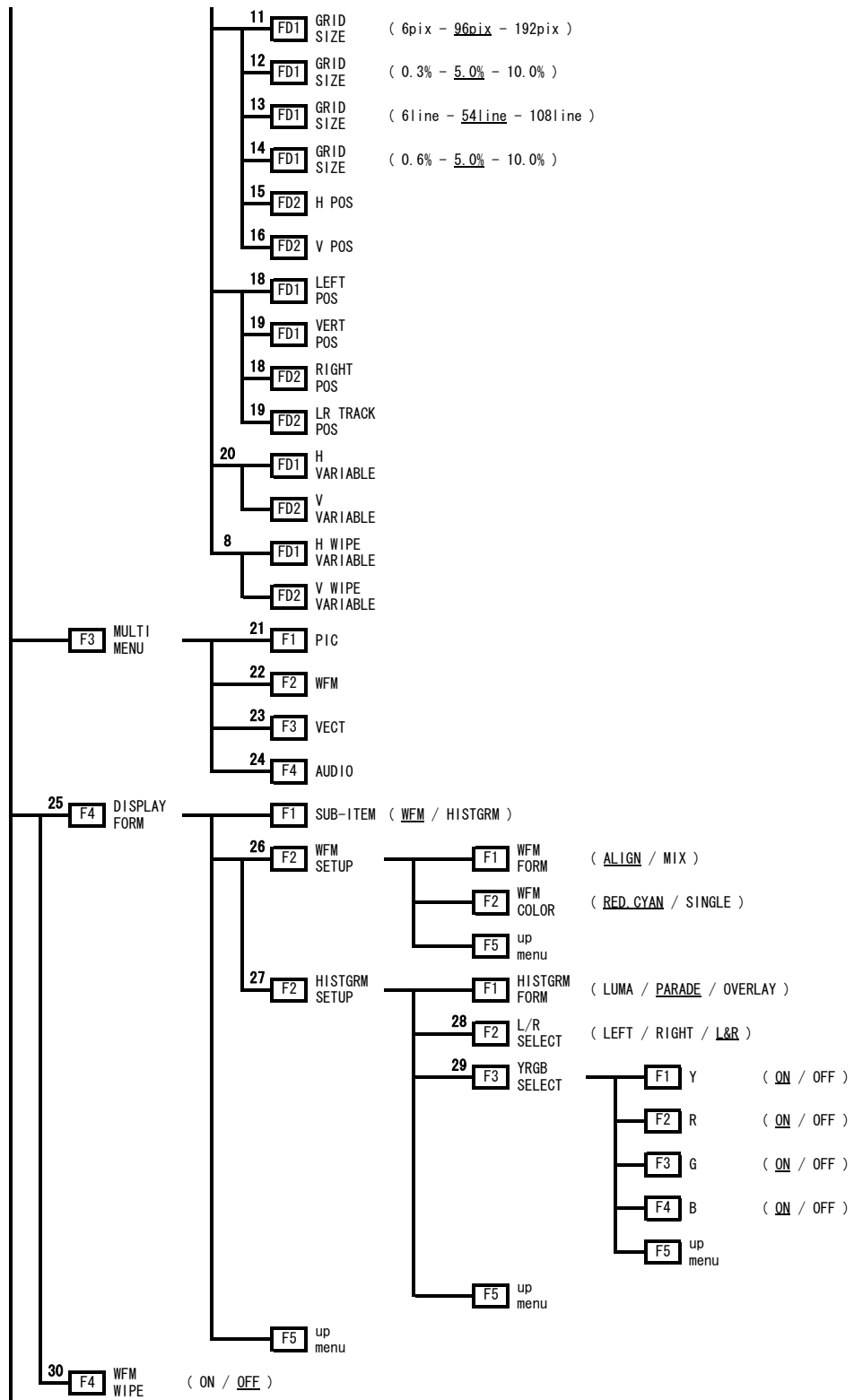


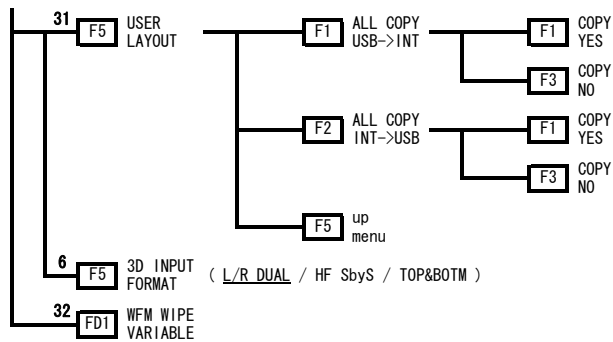
- 1 Appears when USB memory is connected.
- 2 Appears when in the system settings, LINK FORMAT is set to SINGLE.
- 3 Appears when in the system settings, LINK FORMAT is set to DUAL or 2K.
- 4 Does not appear appears when REF SELECT is set to LINK A.
- 5 Appears when in the system settings, LINK FORMAT is set to SINGLE and channel B is selected.
- 6 Does not appear appears when D_LINK FORMAT is set to YC10bit.
- 7 Does not appear when D_LINK FORMAT is set to XYZ12bit in the system settings.
- 8 Appears when FILTER is set to ON.
- 9 Appears when GAMUT ERROR is set to %.
- 10 Appears when GAMUT ERROR is set to mV.
- 11 Appears when GAMUT ERROR is set to % or mV.
- 12 Appears when UPPER LEVEL, LOWER LEVEL, or AREA is pressed.
- 13 Appears when COMPOSIT GAMUT is set to NTSC.
- 14 Appears when COMPOSIT GAMUT is set to PAL.
- 15 Appears when COMPOSIT GAMUT is set to NTSC or PAL.
- 16 Appears when LUMA ERROR is set to %.
- 17 Appears when LUMA ERROR is set to mV.
- 18 Appears when UPPER LEVEL or LOWER LEVEL is pressed.

16.1.6 Multi-Screen Display Menu



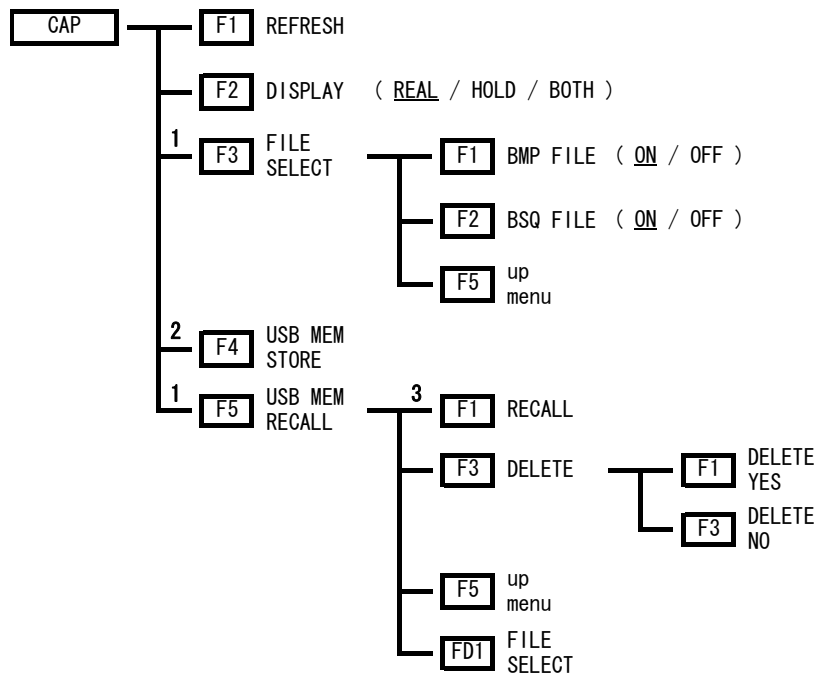
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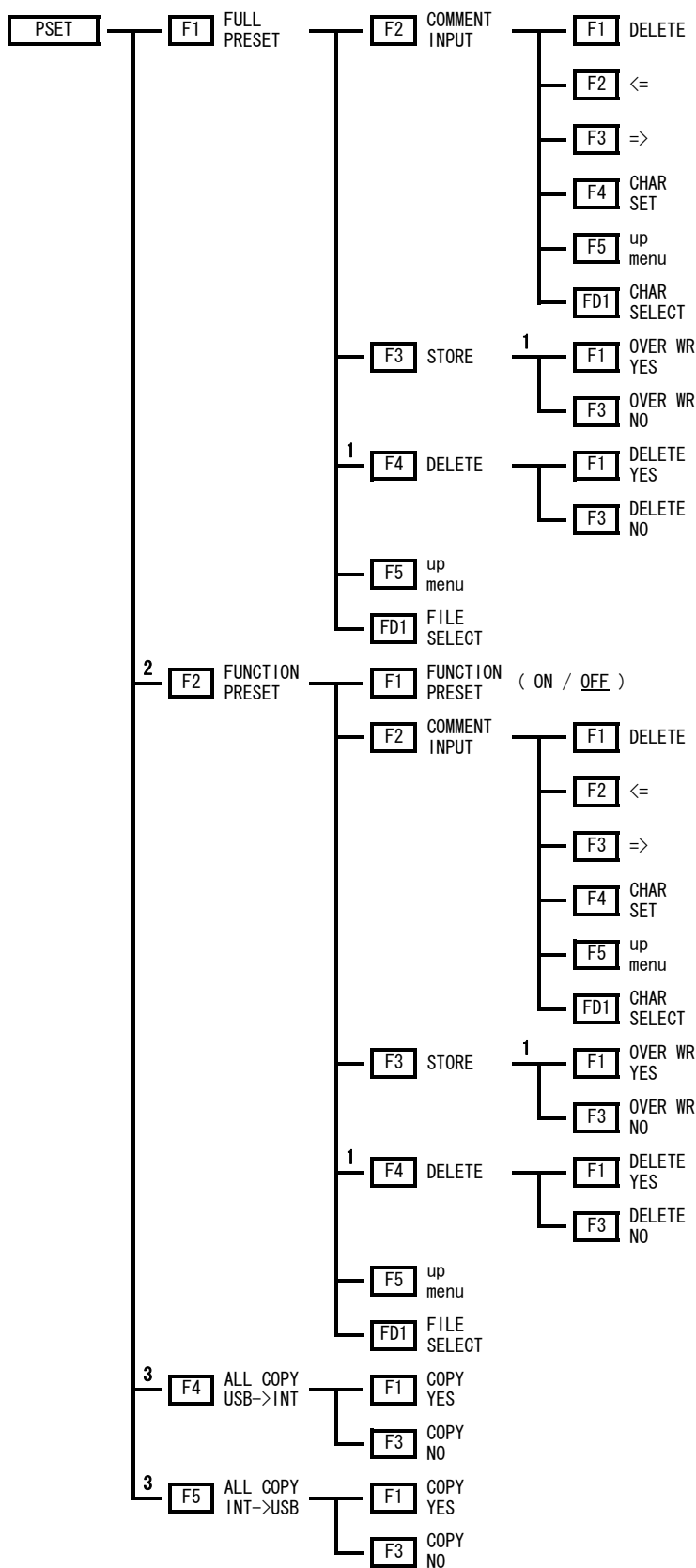
- 1 Appears when in the system settings, LINK FORMAT is set to SINGLE and an SD signal is not being applied.
- 2 Appears when in the system settings, LINK FORMAT is set to SINGLE and an SD signal is being applied.
- 3 Appears when in the system settings, LINK FORMAT is set to DUAL or 2K.
- 4 Appears when INPUT MODE is set to SINGLE.
- 5 Appears when INPUT MODE is set to DUAL.
- 6 Appears when INPUT MODE is set to 3D ASIST.
- 7 Appears when PICTURE FORM is set to AGLPH CL, AGLPH MO, CNVRGNCE, OVERLAY, or FLICKER.
- 8 Appears when PICTURE FORM is set to WIPE.
- 9 Appears when MEASURE SELECT is set to GRID.
- 10 Appears when GRID DISPLAY is set to BOTH.
- 11 Appears when GRID DISPLAY or GRID VARIABLE is set to DISPRTY and GRID UNIT is set to PIX/LINE. (This menu tree is for the 1080i/59.94 signal.)
- 12 Appears when GRID DISPLAY or GRID VARIABLE is set to DISPRTY and GRID UNIT is set to %.
- 13 Appears when GRID DISPLAY or GRID VARIABLE is set to HORIZONT and GRID UNIT is set to PIX/LINE. (This menu tree is for the 1080i/59.94 signal.)
- 14 Appears when GRID DISPLAY or GRID VARIABLE is set to HORIZONT and GRID UNIT is set to %.
- 15 Appears when GRID DISPLAY or GRID VARIABLE is set to DISPRTY.
- 16 Appears when GRID DISPLAY or GRID VARIABLE is set to HORIZONT.
- 17 Appears when MEASURE SELECT is set to DISPRTY.
- 18 Appears when CURSOR SELECT is set to L/R.
- 19 Appears when CURSOR SELECT is set to V/TRACK.
- 20 Appears when PICTURE FORM is set to CHECKER.
- 21 Appears when the picture is displayed.
- 22 Appears when video signal waveforms are displayed.
- 23 Appears when vectors are displayed.
- 24 Appears when the audio display is being shown.
- 25 Appears when INPUT MODE is set to 3D ASIST (except when MEASURE SELECT is set to DISPRTY) or when DISPLAY MODE is set to PIC+WFM1 or PIC+WFM2.
- 26 Appears when 3D INPUT FORMAT is set to L/R DUAL and SUB-ITEM is set to WFM.
- 27 Appears when SUB-ITEM is set to HISTGRM.
- 28 Appears when 3D INPUT FORMAT is set to L/R DUAL.
- 29 Appears when HISTGRM FORM is set to OVERLAY.
- 30 Appears when DISPLAY MODE is set to WFM+PIC.
- 31 Appears when INPUT MODE is set to SINGLE or DUAL and a USB memory device that contains a layout file is connected.
- 32 Appears when WFM WIPE is set to ON.

16.1.7 Screen Capture Menu



- 1 Appears when USB memory is connected.
- 2 Appears when BMP FILE or BSQ FILE is set to ON.
- 3 Appears when the cursor is on a BSQ file.

16.1.8 Preset Registration Menu

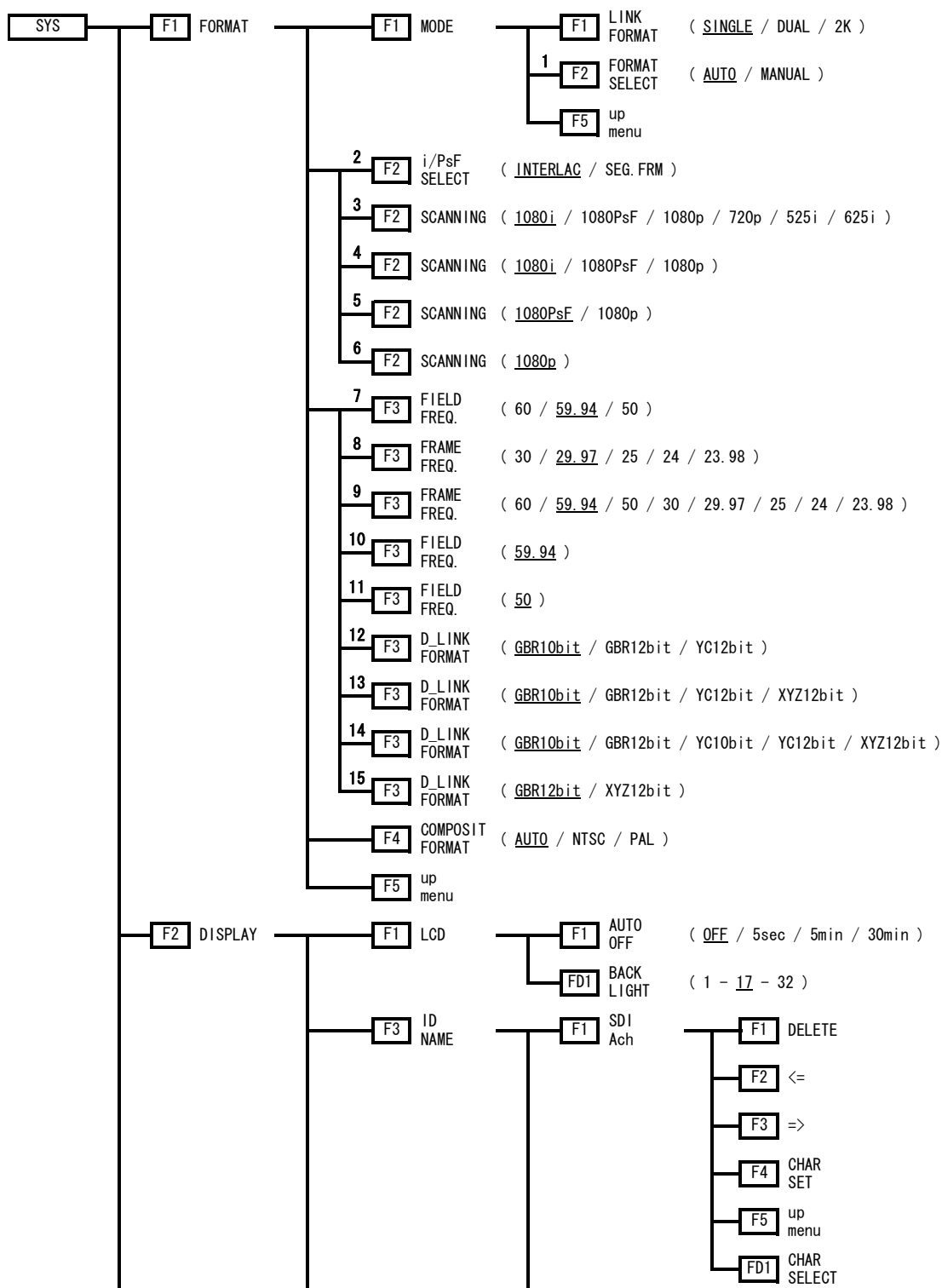


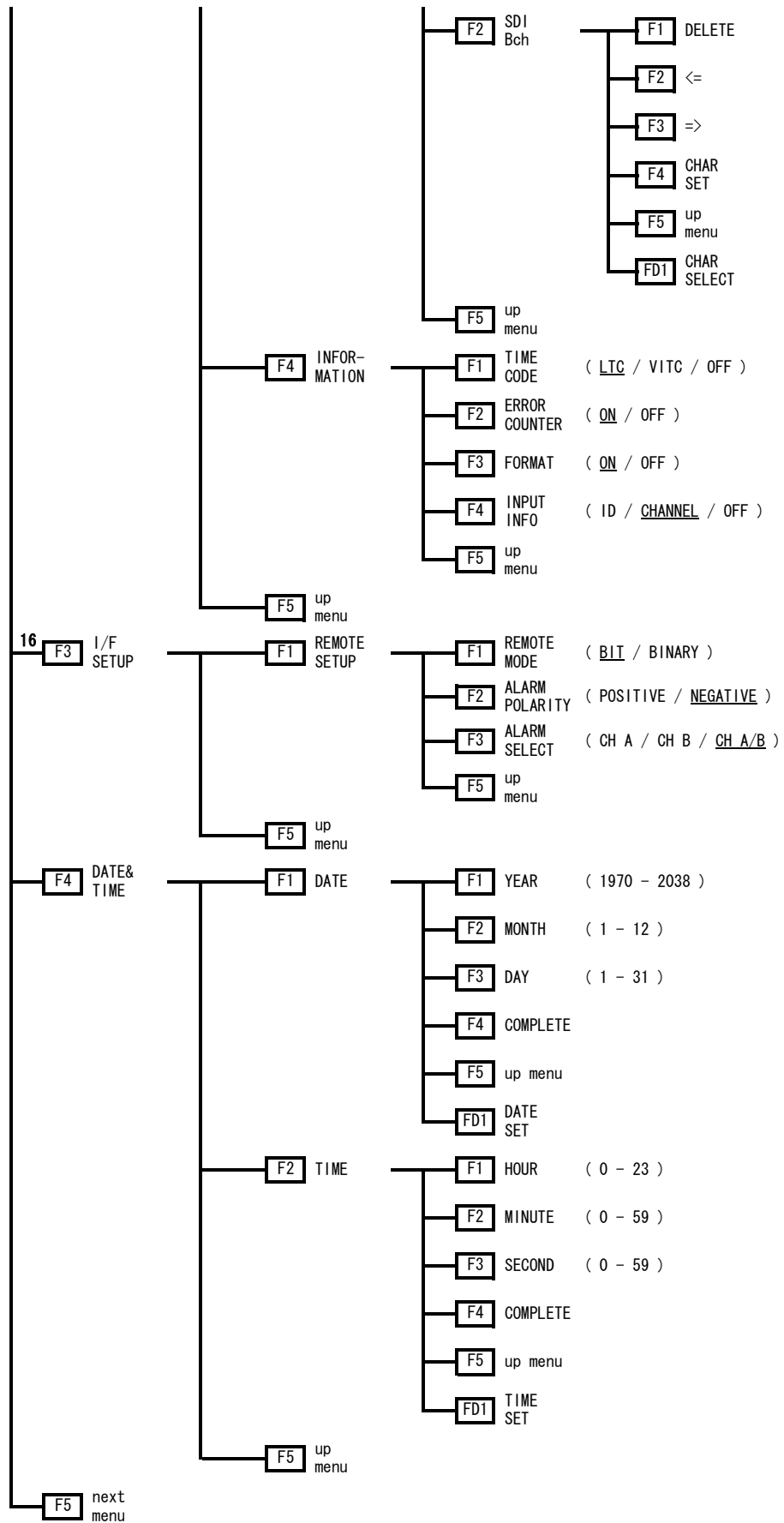
1 Appears when there is preset data in the selected number.

2 Appears in the single-screen display.

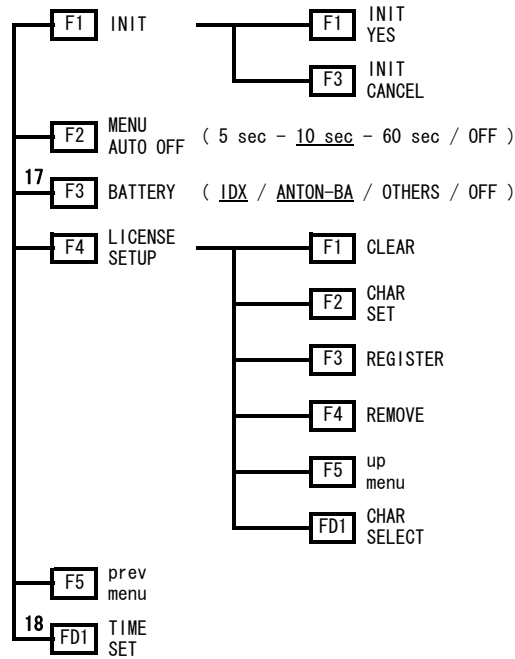
3 Appears when USB memory is connected.

16.1.9 System Menu





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- 1 Appears when LINK FORMAT is set to SINGLE.
- 2 Appears when FORMAT SELECT is set to AUTO.
- 3 Appears when FORMAT SELECT is set to MANUAL.
- 4 Appears when LINK FORMAT is set to DUAL and D_LINK FORMAT is set to GBR10bit, GBR12bit, or YC12bit.
- 5 Appears when LINK FORMAT is set to 2K or D_LINK FORMAT is set to XYZ12bit.
- 6 Appears when D_LINK FORMAT is set to YC10bit.
- 7 Appears when LINK FORMAT is set to SINGLE and SCANNING is set to 1080i.
- 8 Appears when LINK FORMAT is set to SINGLE and SCANNING is set to 1080PsF or 1080p.
- 9 Appears when SCANNING is set to 720p.
- 10 Appears when SCANNING is set to 525i.
- 11 Appears when SCANNING is set to 625i.
- 12 Appears when LINK FORMAT is set to DUAL and SCANNING is set to 1080i.
- 13 Appears when LINK FORMAT is set to DUAL and SCANNING is set to 1080PsF.
- 14 Appears when LINK FORMAT is set to DUAL and SCANNING is set to 1080p.
- 15 Appears when LINK FORMAT is set to 2K.
- 16 Appears when the remote control option is installed.
- 17 Appears when a battery mount option is installed.
The default setting is IDX when OP73 is installed and ANTON-BA when OP74 is installed.
- 18 Appears when you press MENU AUTO OFF.

16.2 Firmware Revision History

This manual was written for firmware version 4.4.

You can view the firmware version in the display that appears when you turn on the power.

- **Ver. 4.4**
 - A feature that does not automatically clear the function menu has been added.
 - Talley display response has been improved on the OP72 (REMOTE & TALLY).
- **Ver. 4.3**
 - Side-by-side and top-and-bottom inputs have been added to the 3D assist display in the multi-screen display.
 - A flicker display feature has been added to the 3D assist display in the multi-screen display.
 - A contrast adjustment function has been added to the video signal waveform and vector displays.
- **Ver. 4.2**
 - Support for the XYZ signal format has been added.
- **Ver. 4.1**
 - A feature for displaying up to two horizontal markers has been added to the video signal waveform display.
 - A 2.8 MHz low-pass filter for gamut errors has been added to the status display (only for HD).
- **Ver. 3.8**
 - WFM+PIC and VEC+PIC have been added to the display formats in the 2-channel display in the multi-screen display. (The waveforms can be displayed in a wipe display, and the captured waveform colors match the displayed colors.)
 - The following additions have been made to the 3D assist display in the multi-screen display.
 1. CHECKER has been added to the display formats.
 2. A disparity measurement feature has been added.
 3. A video signal waveform wipe display feature has been added.
 4. Support has been added for REAL displays of pictures.
 5. A feature for displaying the time codes of both channels at the same time has been added.
 - The grid menu and histogram menu hierarchies in the 3D assist display in the multi-screen display have been improved.
- **Ver. 3.4**
 - A 3D assist feature has been added to the multi-screen display.
 - A histogram display feature has been added to the multi-screen display.
 - V and R% have been added to the pseudo-composite cursor measurement units on the video signal waveform display.
 - A luminance error detection feature has been added to the status display.
 - A feature for displaying the phase difference between channel A (the reference) and channel B has been added to the status display.

- **Ver. 3.3**
 - The video signal waveform display now includes a 150 % scale. The 255 and FF scales have been removed.
 - The gamut error's UPPER LEVEL range on the status display has been changed.
 - The composite gamut error's LOWER LEVEL range on the status display has been changed.
- **Ver. 3.2**
 - Display sizes of ×2 and ×4 have been added to the picture display.
 - A 16:9, squeezed display feature has been added to the picture display.
 - In the status display, the filter that is used when gamut or composite gamut errors are being detected can now be turned ON and OFF.
- **Ver. 3.0**
 - The size of the input channels and time codes at the top of the screen has been doubled.
 - SWEEP MAG can now be set to ×10, ×20, ACTIVE or BLANK when a pseudo-composite signal is displayed in the video signal waveform display.
 - Value displays have been added to the level meters in the audio display.
 - A thumbnail of the picture has been added to the status display.
 - An additional line has been added to the status dump display in the status display.
 - The function menus of the various measurement modes can now be accessed from the multi-screen display.
- **Ver. 2.8**
 - Support for dual link signals has been added.
- **Ver. 2.5**
 - The marker lines in the picture display have been changed from white lines to white and black broken lines.
 - In the status display, the levels used for gamut error and composite gamut error detection can now be set in units of mV.
 - In the multi-screen display, the INPUT key can now be used to switch the output channel during 2-channel display.
- **Ver. 2.4**
 - The remote control option (OP72: REMOTE & TALLY) is now supported.
 - Keys can now be locked and unlocked through the pressing and holding of the SYS key for 2 seconds.
 - Licenses can now be deleted.
- **Ver. 2.0**
 - The picture display now includes the chroma up feature.
 - The picture display now supports the CINELITE II option (FS 3035).

- **Ver. 1.9**
 - Battery mount options (OP73: BATTERY MOUNT IDX, and OP74: BATTERY MOUNT ANTON) are now supported.
- **Ver. 1.8**
 - The headphone output channels can now be set to any two channels.
 - The multi-screen display now supports the simultaneous display of two separate inputs.

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所含有毒有害物质信息

部件号码: LV 5380



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	×	○	○	○	○	○
液晶显示模组	×	×	○	○	○	○
风扇	×	○	○	○	○	○
线材料一套	×	○	○	○	○	○
外筐	○	○	○	○	○	○
附件	○	○	○	○	○	○
包装材	○	○	○	○	○	○
电池	○	○	○	○	○	○
选件						
5380-72	×	○	○	○	○	○
5380-73	×	○	○	○	○	○
5380-74	×	○	○	○	○	○
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。						

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