LV 5330

MULTI SDI MONITOR

INSTRUCTION MANUAL

LEADER
ELECTRONIC MEASURING INSTRUMENTS

Contents

GENERAL SAFETY SUMMARY

■ To Avoid Personal Injury

It is recommended that only qualified personnel with technical knowledge use this instrument only after reading and fully understanding all functions of the instrument described this instruction manual.

This instrument is not designed and manufactured for consumers.
If you do not have enough knowledge on electricity, to avoid personal injury and prevent damage to this product, please be sure to use this product only under the supervision of an engineer who has sufficient knowledge about electronics.

■ Note about Reading This Manual

Should you find the contents in this manual and any of its technical terms confusing, please feel free to contact your local LEADER agent.

■ Symbols and Terms

Following terms and symbols indicate necessary warnings and cautions used in this manual and on the product are there for safe operation.

＜Symbol＞ 	The sections where this symbol is marked in this manual or instrument, if not correctly performed or practiced, could result in personal injury or cause serious danger to the instrument. Misuse could also produce unintentional movement to create an operational impediment on the instrument or other products that might be connected to it. Be sure to refer to the safety precautions in this manual to safely use the part of the instrument where the symbol is marked.
＜Term＞ 	Warning statements identify warning conditions that if disregarded or not correctly performed or adhered to, could result in serious personal injury or even loss of life.
＜Term＞ 	Caution statements identify caution conditions that if disregarded or not correctly performed or adhered to, could result in personal injury or damage to the instrument.

GENERAL SAFETY SUMMARY

Review the following safety precautions to avoid operator's injury and loss of life and prevent damage and deterioration to this instrument. To avoid potential hazards, use this product as specified.

■ Warnings about the Case and Panels

Operator should not remove any cases or panel for any reasons. If you touch inside the instrument it could result personal shock or fire hazard. Refrain from spilling any liquid on or inserting anything flammables or piece of metal into the ventilation of the instrument. Such actions could cause fire, shock, malfunction and be an accident hazard while the power is on.

■ Warnings about the Power Source

This instrument works in the DC power supply, and uses an accessory AC adaptor.
There is danger of the product malfunction and a fire when things other than specification are used.

■ Warnings about the Installation Environment

●Operating Temperature Range
Operate the instrument between the temperature range of 0 to 40 °C. Operating the instrument at higher temperatures could cause a fire hazard.
Rapid changes of temperatures from cold to warm can create internal moisture or condensation and could damage the instrument. If there is a possibility of moisture condensation allow the instrument to sit for 30 minutes without the power on.

●Operating Humidity Range
Operating humidity range is < 85 % RH. (without condensation)
Do not operate the instrument with wet hands, this could cause a shock and fire hazard.

●Operation in the Presence of Gasses
Operating the instrument in and near the presence or storage locations of flammable, explosive gasses or fumes could create an explosion and fire hazard. Do not operate the instrument anywhere near such environments.

●Avoid Insertions
Do not insert metals or flammable objects or drop liquid on or into the instrument. To do so could cause fire, shock, malfunction and create a dangerous accident hazard.

GENERAL SAFETY SUMMARY

■ If You Notice Something Wrong during Operation

While operating the instrument if smoke, fire, or a bad smell occurs, turn off the instrument at once for it could cause a fire hazard. To turn off the power when such a case may occur, pull out the plug of an AC/DC adaptor. Contact your local LEADER agent after confirming there is no fire.

■ 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 about the Input and Output Connectors

Input Terminals are rated with a maximum input. Do not supply an input over the specified rating in the standard section of the instruction manual. Also, do not supply external power to Output terminal, this could cause the instrument to malfunction.

■ Caution When Not Using the Instrument for a Long Time

Make sure to disconnect the power cord of the AC adaptor from the socket when you do not use the instrument for a long time.

■ Cautions Concerning the Ethernet Port

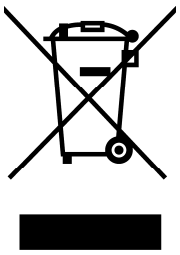
When you are connecting the instrument to the communication provider's equipment, connect to the Ethernet port through a hub that is authorized for use in the country that you are using the instrument in.

GENERAL SAFETY SUMMARY

■ Routine Maintenance

Remove the power cord plug from the socket when cleaning the instrument.
Avoid the use of thinner or benzene solvents for cleaning cases, panels and knobs since this might remove the paint or damage plastic surfaces.
Wipe cases, panels, and knobs lightly with a soft cloth damped with neutral detergent.
Do not allow water, detergent, or other foreign objects to enter the instrument while cleaning.
If a liquid or metal object enters the instrument, it can cause electric shock or fire.

■ About the European WEEE Directive



This instrument and its accessories are subject to the European WEEE Directive. Follow the applicable regulations of your country or region when discarding this instrument or its accessories. (WEEE stands for Waste Electrical and Electronic Equipment.)
Follow the EU Battery Directive when discarding the batteries that you removed from this instrument.

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Please conform to the above warnings and cautions for safe operation. There are cautions in each area of in this instruction manual, so please conform to each caution. If you have any questions about this manual, please feel free to contact your local LEADER agent.

1. Introduction

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

If some point about the operation of this instrument is still unclear after you have read this instruction manual, refer to the contact information on the back cover of the manual to contact LEADER, or contact your local LEADER agent.
After you have finished reading this manual, keep it in a convenient place so that you can refer to it when necessary.

1.1 Scope of Warranty

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

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

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

1.2 Handling Precautions

1.2.1 Power Supply Voltage

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

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 instrument or lead to injury.

Table 1-1 Maximum allowable input voltage

Input Connector	Maximum Allowable Input Voltage
INPUT SDI A, INPUT SDI B	±2V (DC + peak AC)
INPUT VIEW FINDER	±2V (DC + peak AC)
EXT REF	±5 V (DC + peak AC)
REMOTE	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 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.

1.2.5 Electrostatic Damage

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

1.2.6 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.

1.2.7 USB Memory Devices

Some USB memory devices are not properly recognized by the LV 5330. If the USB icon does not appear in the upper left of the screen when a USB memory device is connected to the LV 5330, restart the LV 5330, and then connect a different USB memory device.

1.2.8 Trademark Acknowledgments

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.
Other company and product names are registered trademarks or trademarks of their respective holders.

2. Specifications

2.1 Product Overview

The LV 5330 is a multi SDI monitor with support for HD-SDI and SD-SDI.
In creating the LV 5330, we prioritized on-site use. This has led to a compact, light, energy-saving design.
With its wide range of features, including picture display, video signal waveform display, vector display, audio level display, error detection, and data analyses, the LV 5330 can be used for both high-precision measurement and monitoring.
The LV 5330 also comes standard-equipped with CINELITE II, a powerful tool for analyzing video signal luminance data, and an analog input connector that enables the LV 5330 to be used as a camera viewfinder.

2.2 Features

- **SDI I/O**

  The LV 5330 has two SDI input connectors that can be used for both HD-SDI and SD-SDI input. It also has an SDI output connector that you can use to send a reclocked SDI signal.

- **View Finder Input Connector**

  The LV 5330 can receive and display analog composite signals (NTSC and PAL). It comes with a peaking feature that assists in focus adjustment.

- **TFT LCD**

  The LV 5330 has an XGA (1,024 × 768) 6.5-inch color TFT LCD.
  The LCD can display video signal waveforms, vectors, pictures, audio levels, and status information.
  You can also view combinations of these items using the LV 5330 multi-screen display feature.

- **Picture Display**

  The LV 5330 uses fully digital waveform display processing to achieve high precision and versatility. The display has a number of adjustment features such as color temperature selection, brightness adjustment, contrast adjustment, aperture adjustment, and chroma gain adjustment. It also has monochrome and safety marker display features.

- **CINELITE II**

  The LV 5330 comes standard-equipped with CINELITE II (CINELITE and CINEZONE), which is a video signal luminance information analysis tool.
  With CINELITE, you can use the cursor to select any 3 points and display their f-Stop numbers, percentage values, and level values. You can choose to analyze a single pixel or a small area by setting the size of the measured area to 1 pixel or to the average value for 9 or 81 pixels. Furthermore, the CINELITE Advanced feature makes it possible to synchronize measurements with the video signal waveform display and vector display.
  With CINEZONE, you can display the luminance levels in the picture using different colors. This allows you to quickly determine the overall luminance distribution in the picture, and it makes it easy to spot overexposure, underexposure, and different luminance levels in dark areas.

- **Video Signal Waveform Display**

  The LV 5330 uses fully digital waveform display processing to achieve high precision and quality. From video signal waveform display gain expansion, sweep expansion, and cursor measurement to pseudo-composite and RGB displays, the LV 5330 has all of the features that people look for in a waveform monitor. The LV 5330 is equipped with an external sync signal input and it can display video signal waveforms based on a tri-level sync signal or an NTSC or PAL black burst signal.

- **Vector Display**

  The LV 5330 can display component chrominance signal vectors.
  The amplitude can be manually zoomed, or set to a fixed magnification value such as five.
  The IQ axes, which are useful for vector observation, can be turned on and off.

- **5 Bar Display**

  The LV 5330 can display the peak levels of the Y, R, G, B and pseudo-composite signals. This feature is useful for monitoring gamut errors.

- **Audio Level Display**

  The LV 5330 can extract the audio signal embedded in an SDI signal and display levels and values for up to eight channels. (The maximum SD-SDI audio quantization level is 20 bits.)

- **Stereo Headphone Output**

  The LV 5330 can extract the audio signal embedded in an SDI signal. You can select two channels from the extracted audio and transmit them in stereo through the headphone output connector.

- **Status Display**

  The status display has a number of advanced features, including SDI signal error detection and analysis features.

  Error Detection

  The error detection feature can help you to catch transmission errors such as CRC errors (HD-SDI), EDH errors (SD-SDI), BCH errors, and checksum errors.

  Event Log

  The ability to log events such as detected errors and input signal switching makes long-term error monitoring easy. The event log can be saved to USB memory or sent to a PC through an Ethernet connection as text data.

  Data Dump

  The ability to display digital data after parallel conversion in hexadecimal or binary format is useful when there is a problem and is also useful for various kinds of data analysis. Data dumps can be saved to USB memory or sent to a PC over an Ethernet as text data.

  Packet Analysis

  The LV 5330 can analyze and display the various packets embedded in an SDI signal.

- **Time Code Display**

  The LV 5330 can decode SMPTE ST 12-2 time codes (LTC or VITC) and SMPTE ST 266 time codes (D-VITC) and display them. These codes can be used as timestamps in the event log.

- **Screen Capture**

  The display can be captured. Captured displays can be viewed or superimposed over an input signal.
  Captured displays can be saved in internal memory (RAM) or USB memory or sent to a PC through an Ethernet connection as bitmap data.

- **Presets**

  The LV 5330 can remember up to 30 frequently used setting configurations. The configurations can be recalled easily from the front panel or using commands sent through the Ethernet or remote connector.

- **Remote Connector**

  You can recall presets by sending commands through the remote connector.
  Also, a tally light can be displayed on the screen.

- **Ethernet Connector**

  From a PC connected to the LV 5330 through the Ethernet connector, you can recall presets, execute panel operations, transfer files, and monitor errors.

- **Last Memory**

  The LV 5330 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 5330 has 75-mm VESA mounting holes on its rear panel that allow it to be mounted on an arm or stand.

- **Tripod Attachment**

  The tripod adapter on the bottom of the LV 5330 can also be removed and placed on the top.

- **Power Supply**

  The LV 5330 has an XLR DC input connector and runs on a 12-VDC power supply.
  As a factory option, a battery adapter can be attached to the rear of the LV 5330. With this option, the LV 5330 can use the kinds of batteries that are used in video cameras and other equipment.
  (The 75-mm VESA mounting holes cannot be used if the LV 5330 has a battery adapter attached to it.)

2.3 Specifications

2.3.1 Video Signal Formats and Corresponding Standards

Table 2-1 Video signal formats and corresponding standards

Single Link

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

Dual Link (*1)

Color System	Quantization	Format		Compliant Standard
		Scanning	Frame (Field) Rates	
RGB 4:4:4	10 bits	1080i	60/59.94/50	SMPTE ST 372
		1080p	30/29.97/25/24/23.98	(1920 × 1080)
		1080PsF	30/29.97/25/24/23.98	

Format Setting	Can be set automatically based on the corresponding format or set manually
Supported Sampling Frequencies	
HD	74.25 MHz or 74.25/1.001 MHz
SD	13.5 MHz
External Sync	Automatically set from the corresponding format

*1 Only link A can be displayed. Link B cannot be displayed.

2.3.2 Audio Playback

Compliant Standard	
HD	SMPTE ST 299
SD	SMPTE ST 272
Sampling Frequency	48 kHz (must be synchronized to the video signal)
Quantization	
HD	24 bits
SD	20 bits
Clock Generation	Video clock
Synchronization	All audio channels must be synchronized to the video clock.
Phases	All phases must be in-sync.
Channel Separation	Two groups of eight channels are selectable.

2.3.3 Input/Output Connectors

SDI Input

Input Connector	2 BNC connectors (A/B switching)
Input Impedance	75 Ω
Input Return Loss	≥ 15 dB for 5 MHz to the serial clock frequency
Maximum Input Voltage	±2V (DC + peak AC)

SDI Output

Output Connector	1 BNC connector Reclocks and transmits the selected SDI input signal
Output Impedance	75 Ω
Output Voltage	800 mVp-p ± 10 %

View Finder Input

Function	Used to display the picture of a composite video signal
Input Connector	1 BNC connector
Input Impedance	75 Ω
Input Signal	NTSC or PAL VBS
Input Voltage	1 Vp-p
Maximum Input Voltage	±2V (DC + peak AC)

External Reference Input*

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

Headphone Output

Output Signal	The LV 5330 extracts and transmits the audio signal embedded in an SDI signal. (Must be synchronized to the video signal.)
Output Connector	1 stereo miniature jack
Volume Adjustment	Configured in the menu
Impedance	32 Ω (16 to 600 Ω)

* 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.

2.3.4 Control Connectors

USB Port

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

Remote Connector

Function	Used to recall presets, display a tally light, and switch input channels (A/B)
Control Signal	TTL level (active-low logic)
Control Connector	15-pin D-sub (female)
Locking Screws	Inch screws (No.4-40UNC)

Ethernet

Function	Used to control the LV 5330 from a PC and monitor errors and other events
Compliant Standard	IEEE802.3
Input/Output Connectors	1 RJ-45 connector
Type	10Base-T/100Base-TX (automatic switching)

2.3.5 LCD

LCD Type	6.5-inch color TFT
Format	XGA. The effective resolution is 1,024 × 768.
Backlight Brightness	Can be set to HIGH or LOW
Auto Shutoff	LCD can be automatically turned off after a set period of time.

2.3.6 Display Modes

Single Screen	Picture display, CINELITE display, CINEZONE display, video signal waveform display, vector display, status display, or view finder display
2 Screen	Picture display and video signal waveform display Video signal waveform display and vector display Video signal waveform display and picture display Video signal waveform display and audio level display Audio level values and meters
4 Screen Display	Vector display, video signal waveform display, status display, and picture display (the status display can be switched to the audio level display)
Format Display	Displays the video signal format at the top of the screen.

Color System Display	Displays the video signal color system at the top of the screen.
Date Display	Displays the date according to the internal clock at the top of the screen
Time or Time Code Display	Displays the time according to the internal clock or a time code at the top of the screen
Time Code	LTC, VITC, or D-VITC
Compliant Standard	
LTC and VITC	SMPTE ST 12-2
D-VITC	SMPTE ST 266

2.3.7 Screen Capture

Function	Captures the screen
Display	Displays the captured image or superimposes the captured image over the input signal
Media	Internal memory (RAM) and USB memory Only one screen capture can be stored in the internal memory.
Data Output	Screen captures can be saved as bitmap files or in a file format that the LV 5330 can load. They can be saved to USB memory or transmitted through an Ethernet and saved on a PC.
Data Input	Data saved to USB memory can be loaded and displayed on the LV 5330.

2.3.8 Presets

Number of Presets	30
Recall Method	Front panel or remote connector or Ethernet command
Copying	Preset configurations can be copied as a group to or from USB memory.

2.3.9 Video Signal Waveform Display

Waveform Operations	
Display Modes	
Overlay	Overlays component signals.
Parade	Displays component signals side by side.
Timing	Computes and displays Y-C_B and Y-C_R. Uses a bowtie signal (permission to use patented technology granted by Tektronix, Inc.).
Blanking Period	Show or hide
RGB Conversion	Converts a YC_BC_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
Vertical Axis	
Gain	×1 or ×5
Variable Gain	×0.2 to ×2.0
Amplitude Accuracy	±0.5 %
HD Frequency Characteristics	
Y Signal	±0.5 % for 1 to 30 MHz
C_BC_R Signals	±0.5 % for 0.5 to 15 MHz
Low-Pass Attenuation	≥ 20 dB (at 20 MHz)
SD Frequency Characteristics	
Y Signal	±0.5 % for 1 to 5.75 MHz
C_BC_R Signals	±0.5 % for 0.5 to 2.75 MHz
Low-Pass Attenuation	≥ 20 dB (at 3.8 MHz)
Horizontal Axis	
Line Display	×1, ×10, ×20, ACTIVE, or BLANK
Field Display	×1, ×20, or ×40
Cursor Measurement	
Composition	
Horizontal Cursors	2 (REF and DELTA)
Vertical Cursors	2 (REF and DELTA)
Amplitude Measurement	%, mV, R%, 3FF or 1023
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, 3FF, or 1023
75 % Marker	Displays the locations of the peaks of the chroma of a 75 % color bar test signal.
Display Colors	7 colors to choose from

2.3.10 Vector Display

Gain	×1, ×5, or IQ-MAG
Variable Gain	×0.2 to ×2.0
Amplitude Accuracy	±0.5 %
Blanking Period	Masked*
Scale	
Type	75 % or 100 % (color bar)
IQ Axis	Show or hide
Display Colors	7 colors to choose from

Line Select	Displays the selected line
Pseudo-Composite Display	Artificially converts component signals into composite signals and displays the result.

* In the multi-screen display, the blanking period depends on the video signal waveform display blanking display settings.

2.3.11 5 Bar Display

Function	Displays five peak levels: those of the Y, R, G, B and composite signals.
Scale	Percentage or mV
Error Level	Based on gamut error level and composite gamut error level settings.
Filter	1 MHz LPF or 2.8MHz LPF (only HD signals) (removes transient errors and can be turned ON and OFF)
Line Select	Displays the selected line

2.3.12 Phase Difference Display

Display	Displays the phase difference between an SDI signal and the external sync signal both numerically and graphically.
Display Range	
Vertical	Approx. ±1/2 frame
Horizontal	±1 line

2.3.13 Picture Display

Color Temperature	3200 K, 6500 K, 9300 K or THROUGH
Image Quality Adjustment	Brightness, contrast, chroma level, and aperture
Display Sizes	FIT, ×1, ×2 or FULL
Color Selection	Color or monochrome
Frame Rate	The frame rate is converted and displayed using the internal sync signal.
Marker Displays	
Center Marker	
Aspect Markers	
HD	4:3, 14:9, 13:9, 2.35:1, 1.85:1, and 1.66:1
SD	16:9, 14:9, 13:9, 2.35:1, 1.85:1, and 1.66:1
Safe Action Markers	95 %, 93 %, and 90 %
Safe Title Markers	88 % and 80 %
Line Select	Marks the selected line
Gamut Error Display	Displays gamut error locations over the picture

2.3.14 CINELITE Display

CINELITE Display	
Function	f-Stop display, percentage display, and level display
f-Stop Display	Displays the f value relative to the reference point The reference point is set to the value of an object with a reflection level of 18 %.
f-Stop Gamma Correction	
Reference Gamma	0.45 (ITU-R BT709)
User-Defined Correction Tables	3
External Correction Tables	5 (read from USB memory)
Regamma	ON or OFF
Percentage Display	Displays luminance or RGB components as percentages.
Level Display	Displays RGB components with 256 levels (8 bits).
Measured points	3
Measurement sizes	1 pixel, 3 × 3 pixels, or 9 × 9 pixels
CINELITE Advanced Display	
Features	Synchronized marker display, vector marker display
Synchronized Marker Display	Synchronizes the markers on the vector display or waveform display to the measurement points of the CINELITE display's f Stop display or % display
Vector Marker Display	Displays numerically the specified position on the vector display
Number of Markers	
Synchronized Marker	Up to 4
Vector Marker	1
Vector Numeric Display	Displays numerically the active marker position
Cb	Displays the C_B position as a percentage
Cr	Displays the C_R position as a percentage
deg	Displays the hue in degrees
d	Displays the distance from the center as a percentage

2.3.15 CINEZONE Display

CINEZONE Display	
Function	Displays the luminance levels in the picture using different colors
Display Colors	Linear (1024 colors) or step (12 colors)
Upper Limit Setting	-6.3 to 109.4 % (values above the upper limit are displayed using white)
Lower Limit Setting	-7.3 to 108.4 % (values below the lower limit are displayed using black)
Level Search Display	
Function	Colors are added to the display in accordance with luminance level ranges
Luminance Level Setting	-7.3 to 109.4 %
Luminance Level Range Setting	0.5 to 100.0 % (values greater than or equal to the specified range are displayed in white; values less than or equal to the range are displayed in black)

2.3.16 Audio Display

Level Meter Display	
Displayed Channels	8
Meter	60 dB peak level, 90 dB peak level, or average
Peak Hold Time	0.5 to 5.0 seconds/HOLD (when displaying the peak level)
Channels	
Group Selection:	You can select any two groups from groups 1, 2, 3, and 4.
Audio Information Detection	Detects the presence of each audio channel
Sampling Frequency	48 kHz (must be synchronized to the video signal)

2.3.17 Status Display

SDI Signal Error Detection	
Signal Detection	Detects the presence of an SDI signal
TRS Error	Detects TRS location and protection bit errors
Line Number Error	Detects HD-SDI signal line number errors
CRC Error	Detects HD-SDI signal transmission errors
EDH Error	Detects SD-SDI signal transmission errors
Gamut Error	Detects gamut errors
Detection Range Upper Limit	90.8 to 109.4 %
Detection Range Lower Limit	-7.2 to 6.1 %
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 Upper Limit	90.0 to 135.0 %
Detection Range Lower Limit	-40.0 to -20.0 %
Filter	1 MHz LPF or 2.8MHz LPF (only HD signals) (removes transient errors and can be turned ON and OFF)
Parity Error	Detects ancillary data header parity errors
Checksum Error	Detects ancillary data transmission errors
BCH Error	Detects errors in the transmission of the audio signal embedded in an HD-SDI signal
Audio CRC Error	Detects CRC errors in channel status bits
Audio Information Detection	Detects the presence of each audio channel
Error Count	Up to 100,000 errors (Only the specified errors are counted.)
Count Period	Only one error is counted for each second or frame.
Elapsed Time	Time elapsed since the error count was cleared
Event Log Display	
Recording Capacity	Up to 1,000 events
Description	Records all events from start to finish
Recorded Events	Errors, changes in input type, time stamps, etc.
Data Output	Event logs can be saved to USB memory or sent to a PC through an Ethernet connection as text data.
Data Dump Display	
Display Modes	Display data separated by serial data sequence or by channel
Line Select	Displays the selected line
Sample Select	Displays from the selected sample
Jump Feature	Jumps to an EAV or SAV
Data Output	Event logs can be saved to USB memory or sent to a PC through an Ethernet connection as

	text data.
Audio Status Display	
Control Packets	Analyzes and displays SDI signal audio control packets
Channel Status	Analyzes and displays or displays the dump of the channel status of the embedded audio signal
EDH Display	
Compliant Standard	SMPTE RP165
Display Details	Analyzes and displays received EDH packets
Format ID Display	
Compliant Standards	SMPTE ST 352 and ARIB STD-B39
Display Details	Analyzes and displays the format ID
Closed Caption Display	
Compliant Standard	ARIB STD-B37
Display Details	Analyzes and displays the closed caption signal.
Display Formats	Text, hexadecimal, and binary
Inter-Stationary Control Data Display (NET-Q)	
Compliant Standard	ARIB STD-B39
Display Details	Analyzes and displays inter-stationary control data
Display Formats	Text, hexadecimal, and binary

2.3.18 View Finder Display

Display Contents	Picture display
Display Size	Full screen
Image Quality Adjustment	Brightness, contrast, chroma level, and aperture

2.3.19 Front Panel

Key LEDs	All the keys are lit at all times, or you can light all the keys by pressing the shortcut key.
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	Backs up the panel settings.

2.3.20 Rear Panel

Stand Attachment	75-mm VESA Mounting
Battery Adapter*	As an option, an adapter can be attached that enables the LV 5330 to use batteries produced by IDX or Anton/Bauer.

* The 75-mm VESA mounting holes cannot be used if the LV 5330 has a battery adapter attached to it.

2.3.21 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 Supply	
Voltage	10 to 18 VDC
Power Consumption	18 W max.
Dimensions	215 × 128 × 63 mm (W × H × D; excluding protruding parts)
Weight	1.4 kg
Accessories	Instruction manual ..... 1 15-pin D-sub connector ..... 1 15-pin D-sub connector cover ..... 1 VESA spacer ..... 1 Ferrite core 1

3. Component Names and Functions

3.1 Front Panel

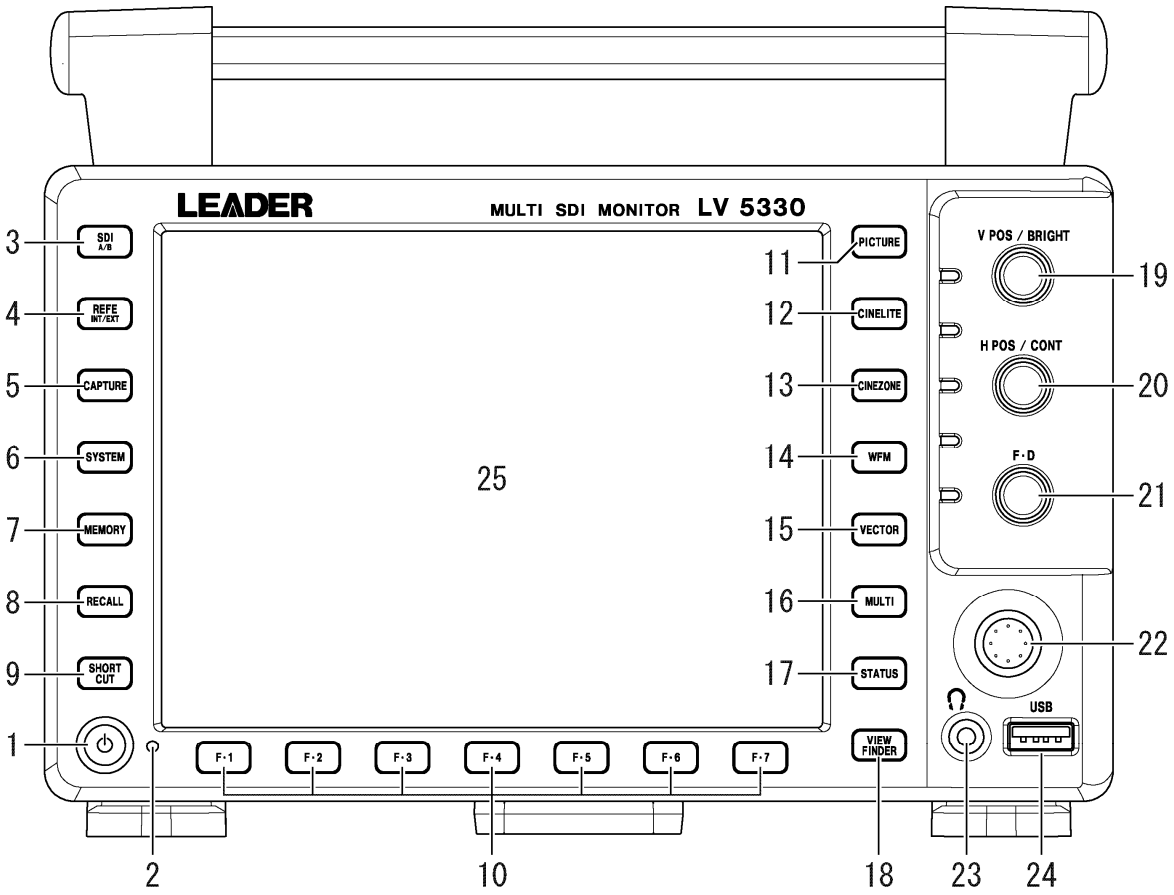


Figure 3-1 Front panel

Table 3-1 Front panel items and functions

No.	Name	Function
1	Power switch	A quick push switches the power from off to on. Holding the switch switches the power from on to off. Reference: Section 4.2, “Preparing the Power Supply”
2	Power LED	Lights when the power is on and turns off when the power is off.
3	SDI A/B key	Switches the input channel. Reference: Section 4.3, “Applying SDI Input Signals”
4	REFE INT/EXT key	Switches between the internal sync signal and an external sync signal. Reference: Section 4.6, “Applying an External Sync Signal”
5	CAPTURE key	Takes a screen capture of the display. Reference: Chapter 7, “Screen Capture Feature”
6	SYSTEM key	Press this key to make system settings. Reference: Chapter 5, “System Settings”
7	MEMORY key	Press this key to save or delete presets. Reference: Chapter 6, “Presets”
8	RECALL key	Press this key to recall a preset setting configuration. Reference: Section 6.2, “Loading Presets”
9	SHORTCUT key	Can be configured to be used for one of the following operations:

No.	Name	Function
		turning on the key LEDs, taking a screen capture, recalling a preset setting configuration, adjusting the volume, or adjusting the contrast. Reference: Section 5.6, “Assigning a Function to the SHORT CUT Key”
10	F･1 to F･7 keys	Used to select menu items and pop-up commands.
11	PICTURE key	Displays the picture. Reference: Chapter 8, “Picture Display”
12	CINELITE key	Switches to the CINELITE display. Reference: Chapter 9, “CINELITE Display”
13	CINEZONE key	Switches to the CINEZONE display. Reference: Chapter 10, “CINEZONE Display”
14	WFM key	Switches to the video signal waveform display. Reference: Chapter 11, “Video Signal Waveform Display”
15	VECTOR key	Switches to the vector display. Reference: Chapter 12, “Vector Display”
16	MULTI key	Shows multiple displays at the same time. Switches to the audio display. Reference: Chapter 13 “Audio Display,” chapter 16, “Multi-Screen Display Feature”
17	STATUS key	Switches to the status display. Reference: Chapter 14, “Status Display”
18	VIEW FINDER key	Displays the picture of the composite video signal. Reference: Chapter 15, “View Finder Display”
19	V POS/BRIGHT knob	Changes the vertical position in the video signal waveform display and changes the brightness in the picture display. Pushing the knob returns the value that you are adjusting to its default setting. Reference: Section 11.2.1, “Setting the Vertical Position,” section 8.2.1, “Adjusting the Brightness”
20	H POS/CONT knob	Changes the horizontal position in the video signal waveform display and changes the contrast in the picture display. Pushing the knob returns the value that you are adjusting to its default setting. Reference: Section 8.2.2, “Adjusting the Contrast,” section 11.2.2 “Setting the Horizontal Position”
21	F•D knob	Mostly used to set values. Generally, pressing this knob will return the value you are adjusting to its default setting. Reference: Section 4.10, “Basic Menu Operations”
22	Control stick	Moves the picture in the picture display and moves the cursor in the CINELITE display. Reference: Section 4.10, “Basic Menu Operations”
23	Headphone jack	Use to connect headphones. Reference: Section 13.6, “Headphone Settings”
24	USB port	Use to connect USB memory. USB memory is used to load and save various kinds of data. Reference: Section 1.2.7, “USB Memory Devices”
25	LCD	All of the different measurement and data displays appear here.

3.2 Rear Panel

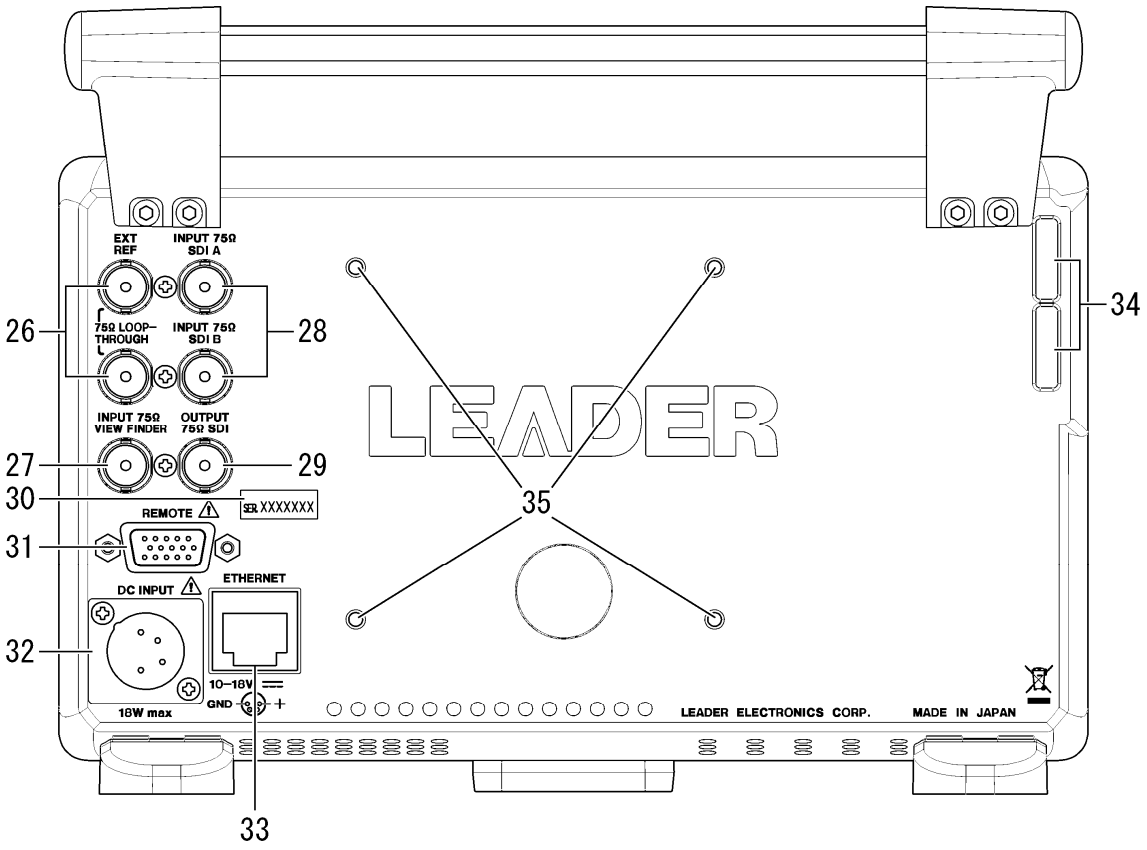


Figure 3-2 Rear panel

Table 3-2 Rear panel items and functions

No.	Name	Function
26	EXT REF	External reference input connectors. They are loop-through. Reference: Section 4.6, “Applying an External Sync Signal”
27	INPUT VIEW FINDER	Composite video signal input connector. Reference: Section 4.5, “Applying a Composite Video Signal”
28	INPUT SDI A INPUT SDI B	SDI signal input connectors. Reference: Section 4.3, “Applying SDI Input Signals”
29	OUTPUT SDI	Reclocked SDI signal output connector. Reference: Section 4.4, “Transmitting an SDI Output Signal”
30	Serial Number Label	The serial number is printed here.
31	REMOTE	Remote control connector. Can be used to execute actions such as recalling presets. Reference: Section 17.1, “Remote Control Feature”
32	DC INPUT	Input connector for the DC power supply. Reference: Section 4.2.1, “Attaching the DC Power Cord”
33	ETHERNET	Ethernet connector. Supports TELNET, FTP, and SNMP. Can be used to execute panel operations. Reference: Section 17.2, “TELNET,” section 17.3, “FTP,” section 17.4, “SNMP”
34	FAN	Cooling fan.

No.	Name	Function
35	VESA Mounting Holes	VESA compliant (75 × 75 mm) mounting holes. Reference: Section 4.8, “Using a VESA Stand”

3.3 Top and Bottom Panels

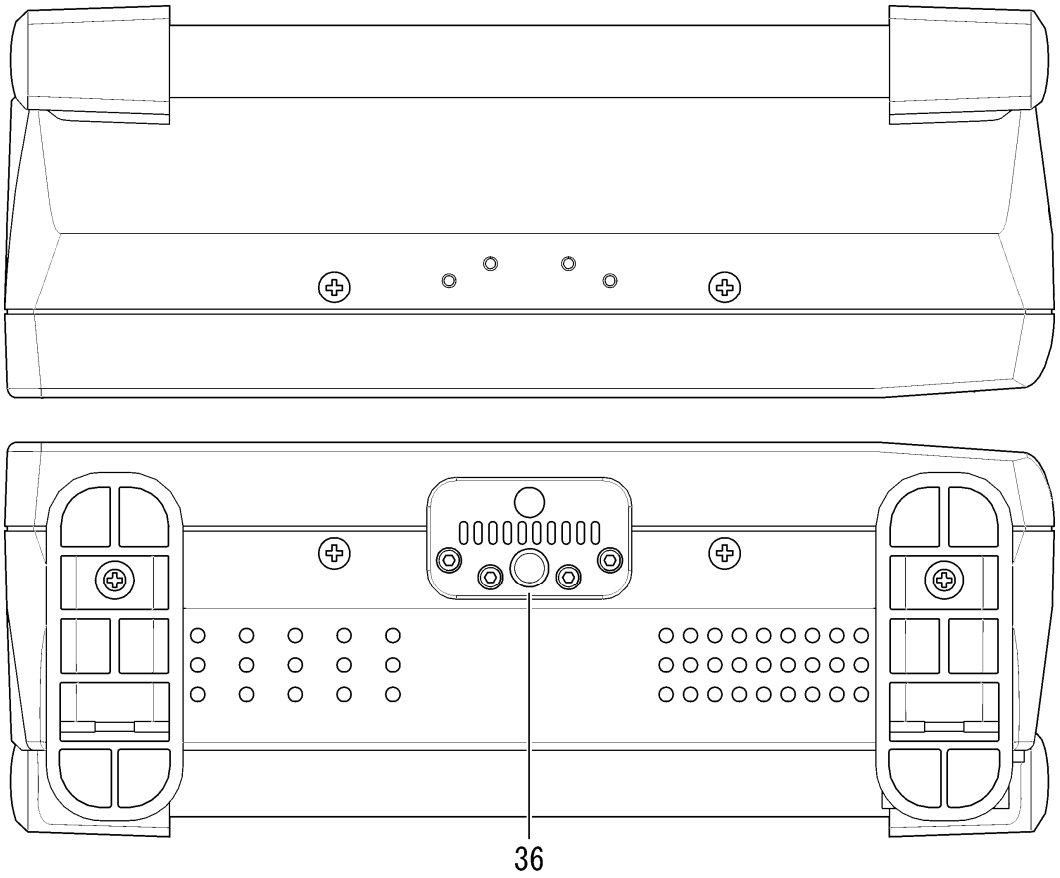


Figure 3-3 Top and bottom panels

Table 3-3 Top and bottom panel items and functions

No.	Name	Function
36	Tripod adapter	Used to attach a tripod to the LV 5330. The tripod adapter can also be attached to the top panel. Reference: Section 4.7, “Using a Tripod”

4. Before You Begin Measuring

4.1 Attaching the Ferrite Cores

Before connecting headphones to the LV 5330, follow the procedure below to attach a ferrite core that comes with the LV 5330 to the headphone cable. The ferrite core reduce the noise that is produced when you connect cable to the LV 5330.

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

Figure 4-1 Ferrite core attachment step 1

2. **Attach the ferrite core approximately 5 mm away from the headphone jack.**

Figure 4-2 Ferrite core attachment step 2

3. **Wrap the cable around the core once.**

Figure 4-3 Ferrite core attachment step 3

4. **Close the ferrite core cover.**

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

Figure 4-4 Ferrite core attachment step 4

4.2 Preparing the Power Supply

4.2.1 Attaching the DC Power Cord

The DC power supply input connector and its pin assignments are shown below. Apply +12 V to pin 4 shown in the figure below.
When the LV 5330 is connected to the DC power supply, the internal microcomputer is in standby mode and some power is consumed even if the power switch is turned off. If you do not intend to use the LV 5330 for an extended period of time, disconnect the DC power supply.

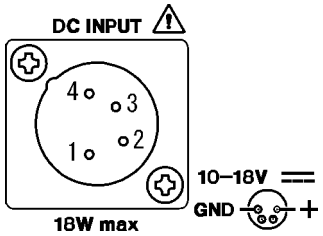


Figure 4-5 DC power supply input connector

Table 4-1 DC power supply input connector pin alignment

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.

4.2.2 Turning On the Power

To turn on the power, press the power switch on the front panel. The LED next to the power switch lights when the power is on.
When you turn on the power, the LV 5330 starts up with the same panel settings that were set when it was last turned off. However, the error counter and event log in the status display are cleared.

4.2.3 Turning Off the Power

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

4.3 Applying SDI Input Signals

The figure below shows the SDI signal input connectors.

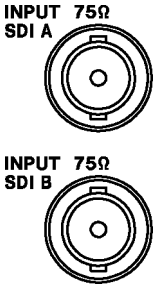


Figure 4-6 SDI input connectors

- 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 besides 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 SDI input connectors to a cable with a characteristic impedance of 75 Ω.
- Make sure that the SDI input signal strength is 800 mVp-p ± 10 % at the input signal source BNC output connector. An SDI signal that is outside of this range may not be received properly.
- You can press SDI on the front panel to switch from measuring the signal being applied to one connector to measuring the signal being applied to the other connector.
- The LV 5330 supports the formats listed in the table below. The input format is detected automatically by default. To set the input format manually, see section 5.1, “Setting the Input Format.”

Table 4-2 Supported formats

Color System	Scanning	Frame or Field Rates
YC_BC_R 4:2:2	1080i	60, 59.94, 50
	1080PsF	30, 29.97, 25, 24, 23.98
	1080p	30, 29.97, 25, 24, 23.98
	720p	60, 59.94, 50, 30, 29.97, 25, 24, 23.98
	525i	59.94
	625i	50
RGB 4:4:4	1080i	60, 59.94, 50
	1080PsF	30, 29.97, 25, 24, 23.98
	1080p	30, 29.97, 25, 24, 23.98

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 instrument or lead to injury.

4.4 Transmitting an SDI Output Signal

The signal that the SDI output connector delivers is a reclocked version of the SDI signal that has been selected using the SDI on the front panel. Use the output connector to transmit the signal to a picture monitor that supports SDI signals.
The output impedance of the connector is 75 Ω. Terminate the other end at 75 Ω.

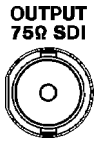


Figure 4-7 SDI output connector

4.5 Applying a Composite Video Signal

The figure below shows the composite video signal input connector. You can only check the picture of a signal that is applied to the connector. You can check the picture by viewing the signal in a view finder display.
The composite video input connector is terminated internally at 75 Ω, so there is no need to connect a terminator to it when it is not in use. Connect the composite input connector to a cable with a characteristic impedance of 75 Ω.

Figure 4-8 Composite video input connector

CAUTION

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

4.6 Applying an External Sync Signal

You can use an external sync signal for in the video signal waveform and vector displays. Apply a tri-level sync signal or an NTSC/PAL black burst signal to the external reference input connectors. The LV 5330 determines the sync signal format automatically.

Figure 4-9 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.

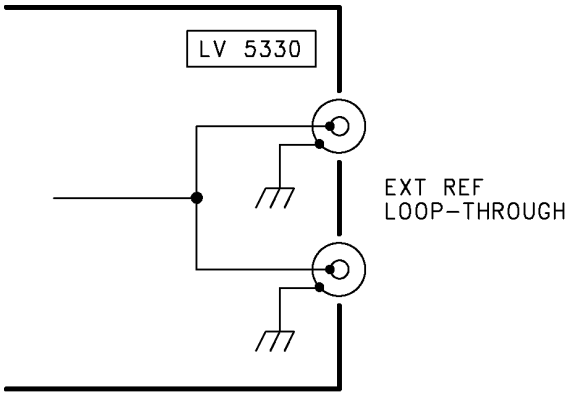


Figure 4-10 Loop-through

- To use an external sync signal, press REFE on the front panel to select EXT. Regardless of this setting, the picture, audio, and status displays all use the internal sync signal.
- If the video signal waveform or phase difference is displayed using an external sync signal as a reference, the waveform phase one clock before or after an SDI signal is inserted or the power is turned on is indefinite.
- If you are going to apply a tri-level sync signal, be sure to use one that has the same frame and line rates as the HD signal.
- The formats in which waveforms can be displayed while using a black burst signal as the sync signal are listed below. If the external sync signal is an NTSC black burst signal with an embedded 10-field ID and the SDI signal is 1080PsF/23.98 or 1080p/23.98, the LV 5330 automatically recognizes the 10-field ID.

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

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

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 instrument or lead to injury.

4.7 Using a Tripod

You can attach the LV 5330 to a tripod by using the tripod adapter on the bottom panel.
The tripod adapter can also be attached to the top panel. To attach the tripod adapter, you will need a 2-mm hexagonal wrench.

4.8 Using a VESA Stand

You can attach a VESA stand (75 × 75 mm) to the LV 5330.
When you attach a VESA stand to the LV 5330, insert the supplied VESA spacer between the LV 5330 and the stand.

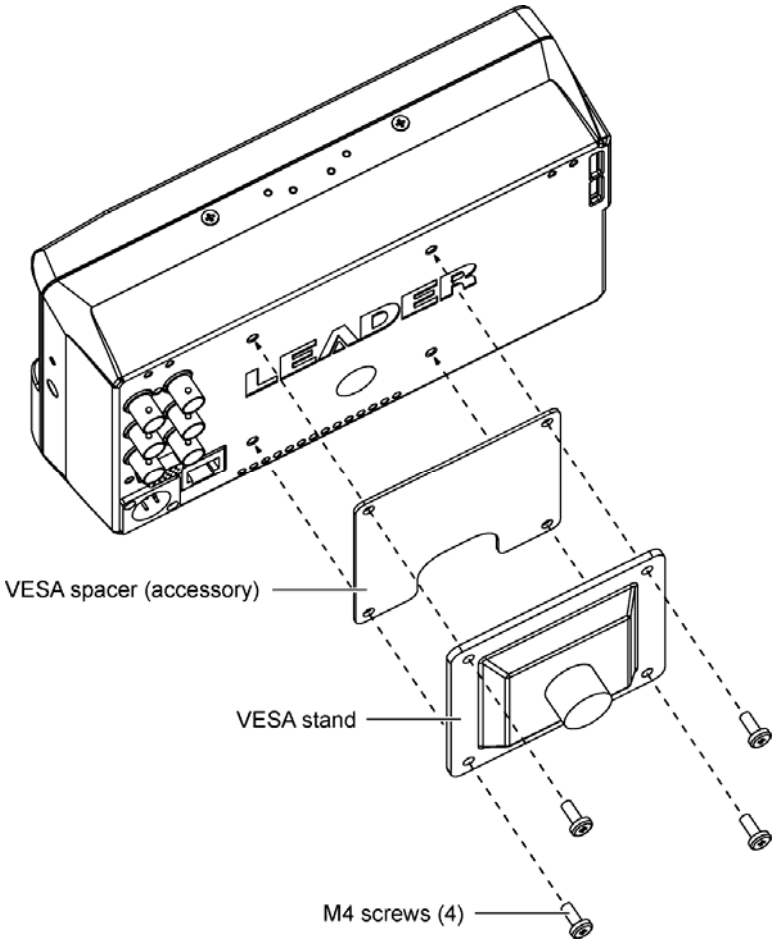


Figure 4-11 Attaching a VESA stand

4.9 General Display Explanation

This section explains the common elements in all measurement displays.

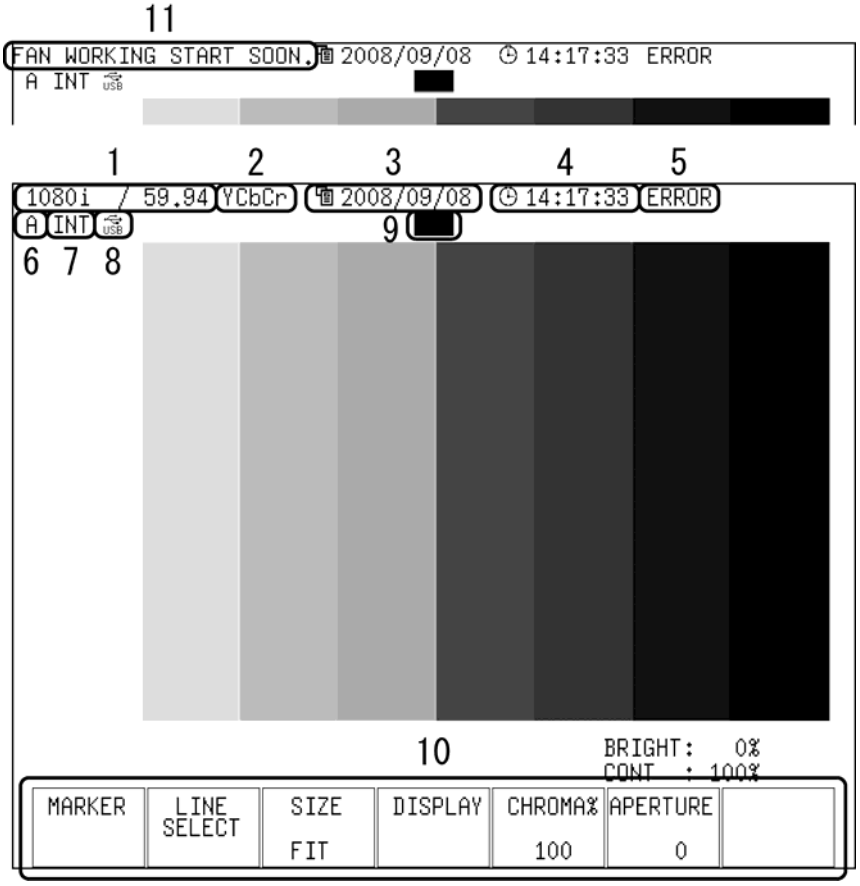


Figure 4-12 General display explanation

1 Input format

The input signal format appears here. You can hide this item.
When you are displaying an SDI signal, you can choose to specify the input format manually or to have the LV 5330 detect it automatically. If there is no input signal or the format of the signal is different from the manually set format, "----------" appears here.
When you are displaying a composite signal, the input format (NTSC or PAL) is detected automatically.

Reference: Section 5.1, "Setting the Input Format," section 5.3.1, "Displaying the Input Format"

2 Color system

The video signal waveform display color system (YCbCr, (D.)GBR, (D.)RGB, (D.)YGBR, (D.)YRGB, or (D.)COMP) appears here. You can hide this item.
This item does not appear in the view finder display.

Reference: Section 5.3.4, "Displaying the Color System," section 11.8, "Color System Settings"

3 Date

The date set in the system settings appears here. You can choose the date display format from one of the following options: Y/M/D, M/D/Y, D/M/Y, or OFF.

Reference: Section 5.3.2, "Selecting the Date Display Format," section 5.5, "Setting the Date and Time"

4 Time

The time set in the system settings or the timecode embedded in the SDI input signal appears here. You can hide this item.
You can set the timecode to LTC or VITC.

Reference: Section 5.3.3, “Selecting the Time Display Format,” section 5.3.5, “Selecting the Timecode Display Format,” section 5.5, “Setting the Date and Time”

5 Error message

Error messages appear here. The error messages that appear and the conditions that cause them are listed below.
If “It...stops.” or “FAN ALARM” appears even though there are no problems with the operating environment, contact your local LEADER agent.

NO_SIGNAL	This message appears when there is no signal.
ERROR	This message appears when an error occurs that has been set to be detected in the status display or when there is an error in the input format.
It...stops.	This message appears when the internal temperature of the LV 5330 has reached or exceeded 80 °C.
FAN ALARM	This message appears when the fan is broken.

6 Input channel

The input channel (A or B) appears here. You can change the input channel by pressing SDI on the front panel. This item does not appear in the view finder display.

7 Sync signal

“INT” appears here when an internal sync signal is being used, and “EXT” appears when an external sync signal is being used. You can change the sync signal by pressing REFE on the front panel. This item does not appear in the view finder display.

8 USB

Appears when USB memory is connected.

Reference: Section 1.2.7, “USB Memory Devices”

9 Tally light

This item appears in green when pin 13 of the remote connector is connected to a ground. This item does not appear in the video signal waveform, vector, multi, or status display.

Reference: Section 17.1.4, “Displaying a Tally Light”

10 Menu

The menu here is used to configure various settings. In some displays, the menu disappears after approximately five seconds have passed since the last operation. When the menu has disappeared, pressing any key will cause it to reappear.

11 Message

Messages are displayed here. The messages that appear and the conditions that cause them are listed below.

FAN WORKING START SOON.	This message appears when the fan is not operating and the internal temperature of the LV 5330 has reached or exceeded 40 °C. The fan will start spinning one minute after this message appears.
POWER OFF START SOON.	This message appears when the internal temperature of the LV 5330 has reached or exceeded 85 °C. The power will be turn off one minute after this message appears.

4.10 Basic Menu Operations

Most of the settings are configured using the setup menu.
This section explains how to operate the setup menu, using the setup menu in the picture display as an example.

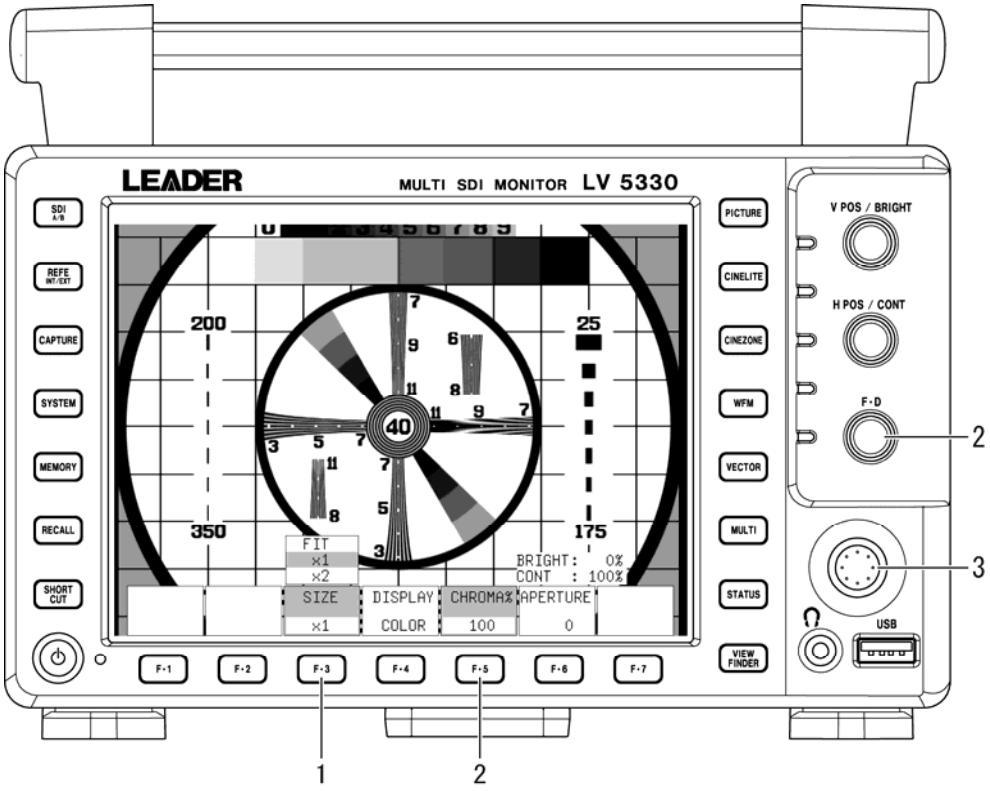


Figure 4-13 Basic menu operations

1 Selecting a setting

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

2 Setting a value

To set the value of a setting like F•5 CHROMA%, which is shown above, press F•5, and then turn F•D. Generally, pressing F•D will return the value you are adjusting to its default setting.

3 Using the control stick

Use the control stick to move the picture in the picture display or to move the cursor in the CINELITE display. Both the picture and the cursor move in the direction that you push the stick. To move more quickly, press down on the stick before pushing it in the direction that you want to move.
This feature is not available on the multi display.

5. System Settings

You can configure general LV 5330 settings in the system menu.
To display the system menu, press SYSTEM.

SYSTEM →

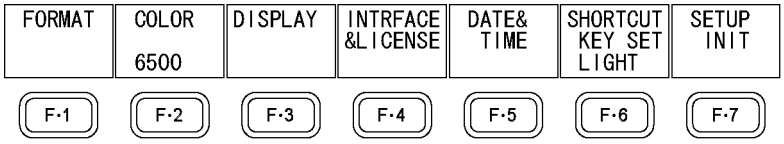


Figure 5-1 System menu

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.

SYSTEM → F•1 FORMAT →

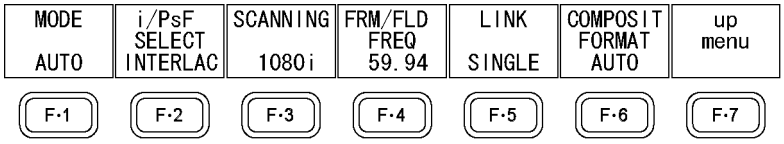


Figure 5-2 FORMAT menu

5.1.1 Setting the Input Format Detection Method

To select whether to detect the input format automatically or to set it manually, follow the procedure below.

Procedure

SYSTEM → F•1 FORMAT → F•1 MODE

Settings

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

5.1.2 Selecting i or PsF

Even if you set F•1 MODE 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•1 MODE is set to AUTO.

Procedure

SYSTEM → 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.

5.1.3 Setting the Input Format

If you set F•1 MODE to MANUAL, you have to set the input format manually.

To set the input format, follow the procedure below.
These settings are available when F•1 MODE is set to MANUAL.

Procedure

1. SYSTEM → F•1 FORMAT → F•3 SCANNING (Select the scanning method.)
2. F•4 FRM/FLD FREQ (Set the field or frame frequency.)

Table 5-1 Input formats

F•3 SCANNING	F•4 FRM/FLD FREQ
1080i	60, 59.94, and 50
1080PsF	30, 29.97, 25, 24, and 23.98
1080p	30, 29.97, 25, 24, and 23.98
720p*1	60, 59.94, 50, 30, 29.97, 25, 24, and 23.98
525i*1	59.94
625i*1	50

*1 You can specify this value when the LV 5330 is in dual link mode, but it will have no effect.

5.1.4 Selecting a Link Format

To select a link format, follow the procedure below.

Procedure

SYSTEM → F•1 FORMAT → F•5 LINK

Settings

SINGLE:	The LV 5330 is set to single link mode. This is the default setting.
DUAL-A:	The LV 5330 is set to dual link mode. However, only link A is supported. You must manually set the input format. Set F•1 MODE to MANUAL.

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

SYSTEM → F•1 FORMAT → F•6 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 Selecting the Monitor’s Color Temperature

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

Procedure

SYSTEM → F•2 COLOR

Settings

3200:	The monitor’s color temperature is set to 3200 K.
6500:	The monitor’s color temperature is set to 6500 K (this is the default setting).
9300:	The monitor’s color temperature is set to 9300 K.
THROUGH:	The monitor's color temperature is not adjusted.

5.3 Display Settings

To configure the display settings, press F•3 DISPLAY in the system menu. A menu appears for setting the brightness and auto shutoff time of the backlight, for configuring the display of remaining battery power, and for configuring the lighting of key LEDs.

SYSTEM → F•3 DISPLAY →

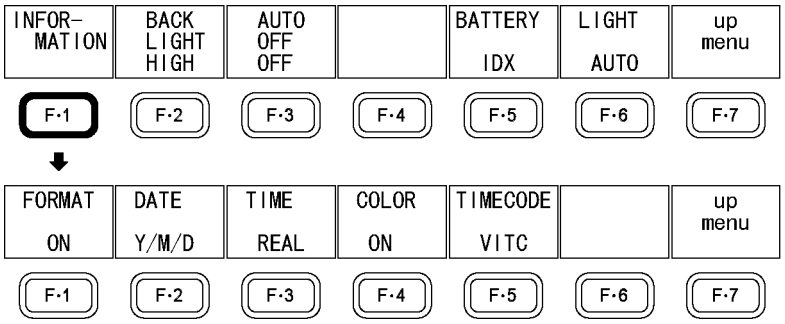


Figure 5-3 DISPLAY menu

5.3.1 Displaying the Input Format

To show or hide the input format, follow the procedure below. The input format appears at the top of the screen.

Procedure

SYSTEM → F•3 DISPLAY → F•1 INFORMATION → F•1 FORMAT

Settings

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

5.3.2 Selecting the Date Display Format

To set the date display format, follow the procedure below. The date appears in places such as at the top of the screen, in the event log, and in the USB memory display.

Procedure

SYSTEM → F•3 DISPLAY → F•1 INFORMATION → F•2 DATE

Settings

Y/M/D:	The date is displayed in this order: year, month, day (this is the default setting).
M/D/Y:	The date is displayed in this order: month, day, year.
D/M/Y:	The date is displayed in this order: day, month, year.
OFF:	The date is not displayed at the top of the screen. All other date displays are arranged in this order: year, month, day.

5.3.3 Selecting the Time Display Format

To set the time display format, follow the procedure below. The time appears in places such as at the top of the screen, in the event log, and in the USB memory display.

Procedure

SYSTEM → F•3 DISPLAY → F•1 INFORMATION → F•3 TIME

Settings

REAL:	The date set in the system settings is displayed (this is the default setting).
TIMECODE:	The timecode embedded in the SDI input signal is displayed at the top of the screen and in the event log.
OFF:	The time is not displayed at the top of the screen. All other time displays are based on the time set in the system settings.

5.3.4 Displaying the Color System

To show or hide the color system, follow the procedure below. The color system is indicated at the top of the screen as YCbCr, (D.)GBR, (D.)YGBR, (D.)RGB, (D.)YRGB, or (D.)COMP.

Procedure

SYSTEM → F•3 DISPLAY → F•1 INFORMATION → F•4 COLOR

Settings

ON:	The color system is displayed (this is the default setting).
OFF:	The color system is not displayed.

5.3.5 Selecting the Timecode Display Format

When you have set F•3 TIME to TIMECODE, follow the procedure below to set the timecode display format.

Procedure

SYSTEM → F•3 DISPLAY → F•1 INFORMATION → F•5 TIMECODE

Settings

LTC:	The LTC timecode is displayed.
VITC:	The VITC timecode is displayed (this is the default setting).
D-VITC:	The D-VITC timecode is displayed. This setting is not valid when the LV 5330 is in dual link mode.

5.3.6 Setting the Backlight Brightness

To set the backlight brightness, follow the procedure below.

Procedure

SYSTEM → F•3 DISPLAY → F•2 BACK LIGHT

Settings

HIGH:	The backlight is lit brightly (this is the default setting).
LOW:	The backlight is lit dimly. Use this setting in dark locations when the HIGH setting feels too bright.

5.3.7 Setting the Backlight 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.
Try to limit the number of times that the backlight turns on and off to a few times a day. Turning the backlight on and off frequently will reduce its longevity.

Procedure

SYSTEM → F•3 DISPLAY → F•3 AUTO OFF

Settings

OFF:	The backlight is not shut off automatically (this is the default setting).
5min:	The backlight is shut off after five minutes of user inactivity.
30min:	The backlight is shut off after 30 minutes of user inactivity.
60min:	The backlight is shut off after 60 minutes of user inactivity.

5.3.8 Displaying the Amount of Remaining Battery Power

When you use a battery, follow the procedure below to display the remaining battery power on the screen.
The battery adapter is optional. Regardless of the setting made here, the LV 5330 will not display the remaining battery power if the optional battery adapter is not installed.

Procedure

SYSTEM → F•3 DISPLAY → F•5 BATTERY

Settings

IDX:	The remaining battery power is displayed correctly when the LV 5330 is equipped with a battery produced by IDX System Technology (this is the default setting).
ANTON:	The remaining battery power is displayed correctly when the LV 5330 is equipped with a battery produced by Anton/Bauer.
OTHERS:	The remaining battery power is displayed correctly when the LV 5330 is equipped with a lithium 14.4 V battery produced by a company such as Sony.
OFF:	The remaining battery power is not displayed.

5.3.9 Lighting the Key LEDs

By default, you can light all the key LEDs by pressing SHORT CUT. To have the key LEDs lit at all times, follow the procedure below.

Procedure

SYSTEM → F•3 DISPLAY → F•6 LIGHT

Settings

AUTO:	If F•6 SHORTCUT KEY SET is set to LIGHT, all the key LEDs light when you press SHORT CUT. This is the default setting.
ON:	All the key LEDs are lit at all times.

5.4 Configuring the External Interface

To configure the external interface settings, press F•4 INTRFACE&LICENSE in the system menu. A menu appears for configuring remote control, Ethernet, and license settings.

SYSTEM → F•4 INTRFACE&LICENSE →

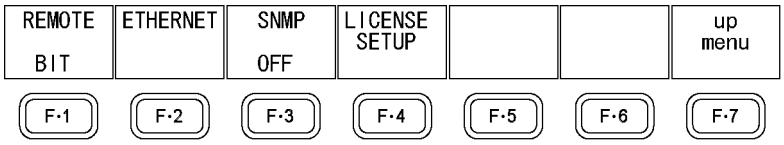


Figure 5-4 INTRFACE&LICENSE menu

5.4.1 Selecting the Method for Loading Presets

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

Reference: Section 17.1, “Remote Control Feature”

Procedure

SYSTEM → F•4 INTRFACE&LICENSE → F•1 REMOTE

Settings

BIT:	/P1 through /P8 are assigned to preset numbers 1 through 8, and you can load one of 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 30 presets by specifying a binary value.

5.4.2 Configuring Ethernet Settings

To configure Ethernet settings, press F•2 ETHERNET in the system menu. The settings configured here are valid after you restart the LV 5330. These settings are not initialized even if you initialize the LV 5330 by following the procedure in section 5.7.1, “Initializing the Settings Using SETUP INIT.”

SYSTEM → F•4 INTRFACE&LICENSE → F•2 ETHERNET →

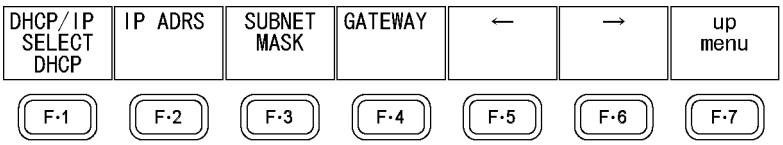


Figure 5-5 ETHERNET menu

First, follow the procedure below to choose DHCP or IP.

Procedure

SYSTEM → F•4 INTRFACE&LICENSE → F•2 ETHERNET → F•1 DHCP/IP SELECT

Settings

DHCP:	The IP_ADDRESS, SUBNET_MASK, and GATEWAY settings are all configured automatically using DHCP (this is the default setting).
IP:	The IP_ADDRESS, SUBNET_MASK, and GATEWAY settings must be configured automatically.

If you select IP, follow the procedure below to set IP_ADDRESS, SUBNET_MASK, and GATEWAY. If you select DHCP, F•2 IP ADRS, F•3 SUBNET MASK, and F•4 GATEWAY will not appear.

Procedure

1.	F•2 IP ADRS or F•3 SUBNET MASK or F•4 GATEWAY	(Select an item.)
2.	F•D	(Set the value of the item.)
3.	Press F•5 → or F•D	(Move the cursor.)

Settings

Selectable range: 0 to 255 (The default setting is 0.)

5.4.3 Setting the SNMP Mode

To select the SNMP access mode, follow the procedure below.

Procedure

SYSTEM → F•4 INTRFACE&LICENSE → F•3 SNMP

Settings

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

5.4.4 Configuring License Settings

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 5330. Leader will send you a license key when you purchase an option. When purchasing an option tell us the MAC address and the serial number of your LV 5330.[*1, *2] Each LV 5330 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.
Even if you initialize the LV 5330, the options that you install through this procedure will not be uninstalled.

1. **Press SYSTEM.**
2. **Press F•4 INTRFACE&LICENSE.**
3. **Press F•4 LICENSE SETUP.**

   The license display appears.
   In this display, you can check the MAC address, firmware version, and registered options.

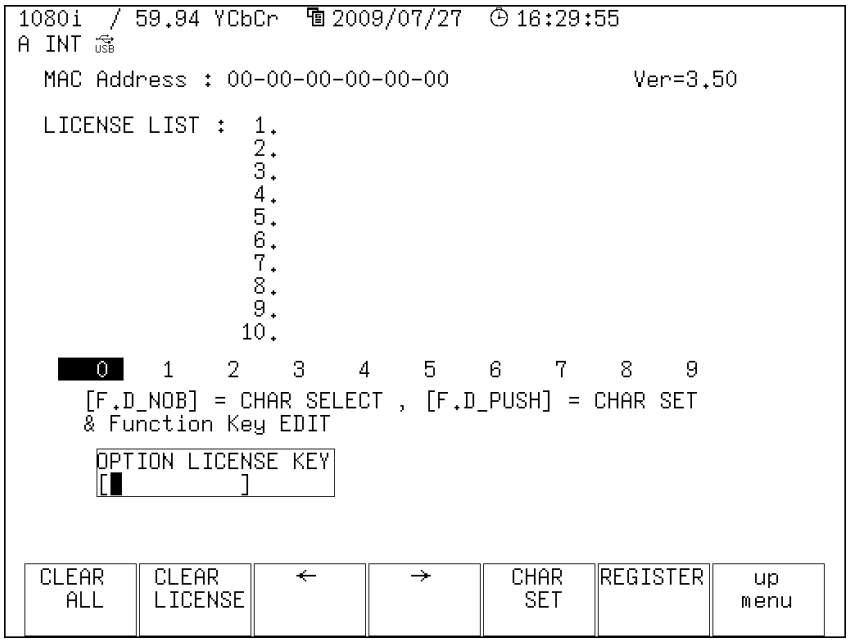


Figure 5-6 License display

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

   The key operations that you can perform in the license display are as follows:
   F•1 CLEAR ALL: Deletes the license key that you are currently entering
   F•3 ←: Moves the cursor to the left
   F•4 →: Moves the cursor to the right
   F•5 CHAR SET: Enters the selected number
   F•D: Turn to select a number, and press to enter the number

5. **Press F • 6 REGISTER.**

   If the license key was entered correctly, the option name is added to the LICENSE LIST, and the option can now be used.
   "FAILED" appears if the license key is not correct. Reenter the license key correctly.

5.5 Setting the Date and Time

To set the date and time, press F•5 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, "Initialization."

SYSTEM → F•5 DATE&TIME →

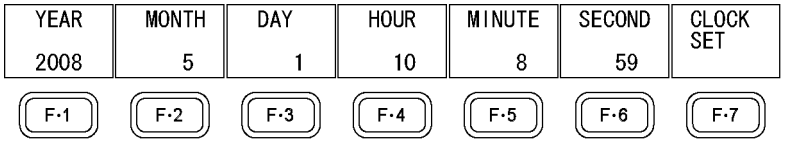


Figure 5-7 DATE&TIME menu

To set the date and time, follow the procedure below. When you press F•7 CLOCK SET, the clock is set to the time that you have selected. To cancel the date and time settings, press SYSTEM.

Procedure

1.	SYSTEM → F•5 DATE&TIME	
2.	Press F•1 YEAR → F•D	(Set the year.)
3.	Press F•2 MONTH → F•D	(Set the month.)
4.	Press F•3 DAY → F•D	(Set the day of the month.)
5.	Press F•4 HOUR → F•D	(Set the hour.)
6.	Press F•5 MINUTE → F•D	(Set the minute.)
7.	Press F•6 SECOND → F•D	(Set the second.)
8.	F•7 CLOCK SET	(Confirm the settings you have made.)

5.6 Assigning a Function to the SHORT CUT Key

To assign a function to the SHORT CUT key on the front panel, follow the procedure below.

Procedure

SYSTEM → F•6 SHORTCUT KEY SET

Settings

LIGHT: Pressing the SHORT CUT key makes all of the key LED lights. Use this setting in dark locations when it is difficult to determine where the keys are. The key LED lights turn off after an operation has been performed. This is the default setting.

CAP USB: Pressing the SHORT CUT key causes the LV 5330 to capture the current display and save it to USB memory in the specified format.

DIRECT_K: Pressing the SHORT CUT key causes the LV 5330 to load the registered preset. To register a preset, follow this procedure:
1. Set the LV 5330 to the settings that you want to register.
2. Press MEMORY.
3. Press SHORT CUT. The SHORT CUT key LED blinks twice, and the preset is registered.

VOLUME: Pressing the SHORT CUT key allows you to adjust the headphone volume with F•D (the function dial). The function dial reverts to its ordinary function after an operation has been performed.

CONTRAST: Pressing the SHORT CUT key switches the picture display contrast in this order: 50%, 100%, and 200%.

5.7 Initialization

There are two different ways to initialize the settings. One is to select SETUP INIT from the system menu, and the other is to follow a special procedure after restarting the LV 5330. The table below indicates which settings are initialized for each method. “Yes” means that a setting is initialized. “No” means that a setting is not initialized.

Table 5-2 Settings That Are Initialized

Item	SETUP INIT	Restart
Ethernet settings	No	Yes
Presets*	No	Yes
User-defined correction tables for the CINELITE display	No	Yes
Date and time	No	No
License settings	No	No

* Includes the preset that is assigned to the SHORT CUT key.

All of the settings that are not listed in the table are initialized by both methods. For information about the initial settings, see section 19.1, “Menu Tree.” The initial settings are underlined.

5.7.1 Initializing the Settings Using SETUP INIT

To initialize the settings from the system menu, press F•7 SETUP INIT.

SYSTEM → F•7 SETUP INIT

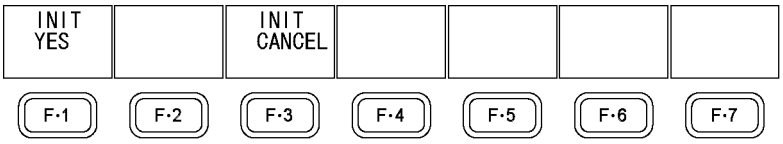


Figure 5-8 SETUP INIT menu

To initialize the settings, follow the procedure below. To cancel the initialization of the settings, press F•3 INIT CANCEL.

Procedure

SYSTEM → F•7 SETUP INIT → F•1 INIT YES

5.7.2 Initializing the Settings by Restarting the LV 5330

To initialize the settings by restarting the LV 5330, follow the procedure below.

Procedure

1. Turn off the power.
2. Turn on the power while holding down V POS and H POS.
3. Release V POS and H POS when the following message appears.
   ERROR_SRAM FILE SYSTEM
   PRESET DATA LOST!!!
   PUSH [WFM] KEY
4. Press WFM.

6. Presets

You can use the preset feature to register and load panel settings. Also, you can use the same settings on multiple LV 5330s by copying presets to USB memory.

You cannot register date and time or Ethernet settings. Registered presets are not deleted even if you initialize the LV 5330 by following the procedure in section 5.7.1, “Initializing the Settings Using SETUP INIT.”

6.1 Registering Presets

To register a preset, follow the procedure below.

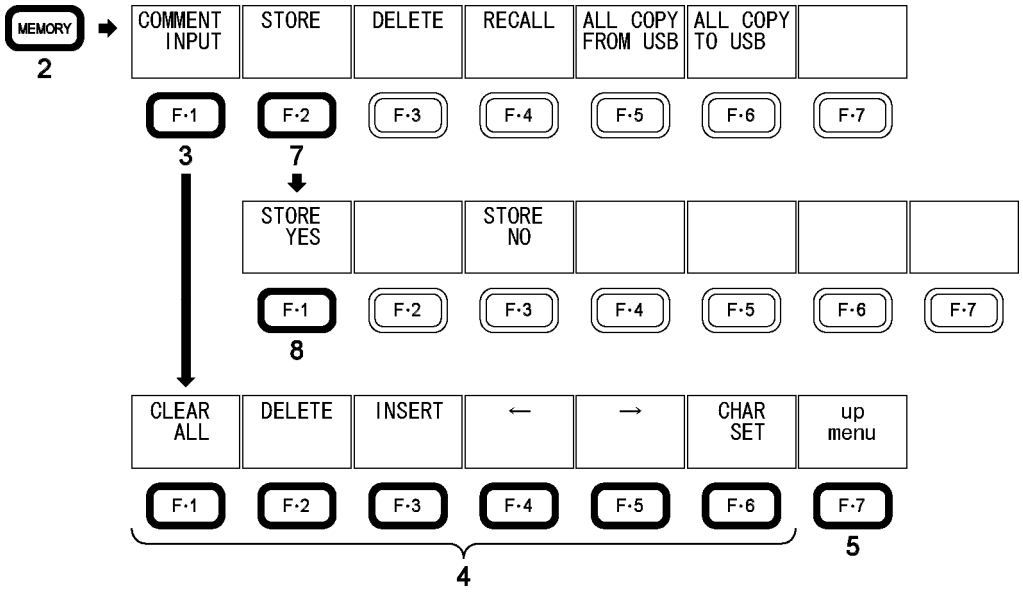


Figure 6-1 Registering presets

1. **Set the LV 5330 to the settings that you want to register.**
2. **Press MEMORY.**

   The file list display appears.
3. **Press F•1 COMMENT INPUT.**

   The file name input display appears.
4. **Enter a file name using up to 16 characters.**

   The key operations on the file name input display are as follows:

   F•1 CLEAR ALL Clears all characters.
   F•2 DELETE Deletes the character above the cursor.
   F•3 INSERT Inserts a space at the cursor position.
   F•4 ← Moves the cursor to the left.
   F•5 → Moves the cursor to the right.
   F•6 CHAR SET Enters a character.
   F•D Turn to select a character, and press to enter the character.

5. **Press F•7 up menu.**
6. **Turn F•D to select the file number of the file you want to register.**
7. **Press F•2 STORE.**
8. **Press F•1 STORE YES.**

   If a file has already been stored with the file number that you selected, the previous file is overwritten. To cancel the registration of the preset, press F•3 STORE NO.

6.2 Loading Presets

To load a preset, follow the procedure below.

If SHORTCUT KEY SET in the system settings has been set to DIRECT_K, you can load a preset simply by pressing SHORT CUT.

Reference: SHORTCUT KEY SET → Section 5.6, “Assigning a Function to the SHORT CUT Key”

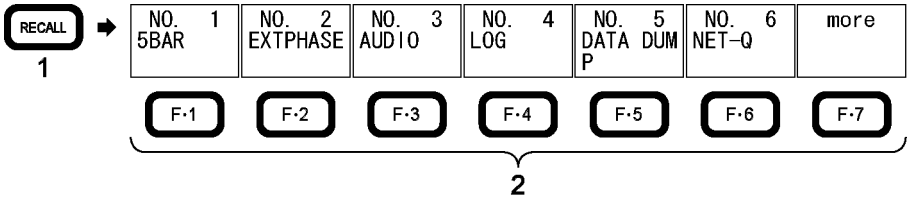


Figure 6-2 Loading presets

1. **Press RECALL.**

   The preset menu appears.

2. **Press a function key from F•1 No.1 to F•6 No.6.**

   If the preset number that you want to load is greater than 6, press F•7 more.

6.3 Deleting Presets

To delete a preset, follow the procedure below.

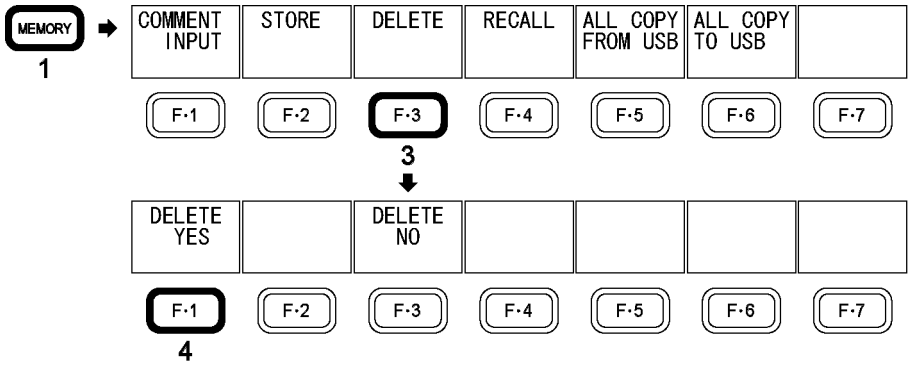


Figure 6-3 Deleting presets

1. **Press MEMORY.**

   The file list display appears.

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

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

6.4 Copying Presets

To copy a preset file in the file list display, follow the procedure below.

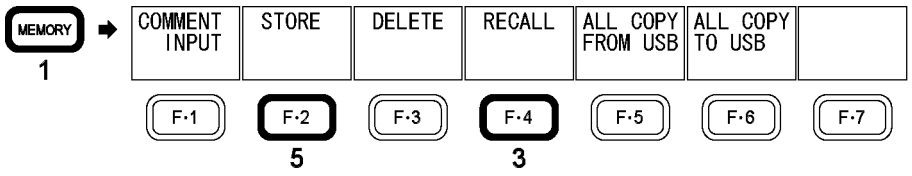


Figure 6-4 Copying presets

1. **Press MEMORY.**

   The file list display appears.

2. **Turn F • D to select the file number of the file you want to copy from.**
3. **Press F • 4 RECALL.**

   The name of the file that you select appears in SETUP MEMORY COMMENT.

4. **Turn F • D to select the file number of the file you want to copy to.**
5. **Press F • 2 STORE.**

6.5 Copying All Presets

You can copy all of the presets by using F•5 ALL COPY FROM USB and F•6 ALL COPY TO USB in the preset registration menu.

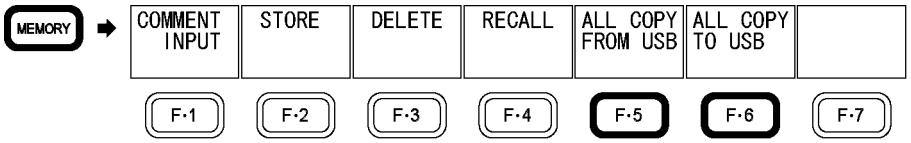


Figure 6-5 Copying all presets

6.5.1 Copying Presets from USB Memory to the LV 5330

To copy all of the presets that have been saved to USB memory to the LV 5330, follow the procedure below.
If presets have already been saved to the LV 5330 memory, they will be overwritten.
To cancel the copy operation, press F•3 COPY NO.

Procedure

MEMORY → F•5 ALL COPY FROM USB → F•1 COPY YES

6.5.2 Copying Presets from the LV 5330 to USB Memory

To copy all of the presets that have been saved to the LV 5330 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 5330 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 5330.

USB memory
└ SETUP
  └ 00.LVX (to 29.LVX) Presets No.1 to 30

Procedure

MEMORY → F•6 ALL COPY TO USB → F•1 COPY YES

7. Screen Capture Feature

You can use the screen capture feature to acquire still image data of the current display. You can save the acquired data to USB memory or overlay it on the input signal and display it using the LV 5330.

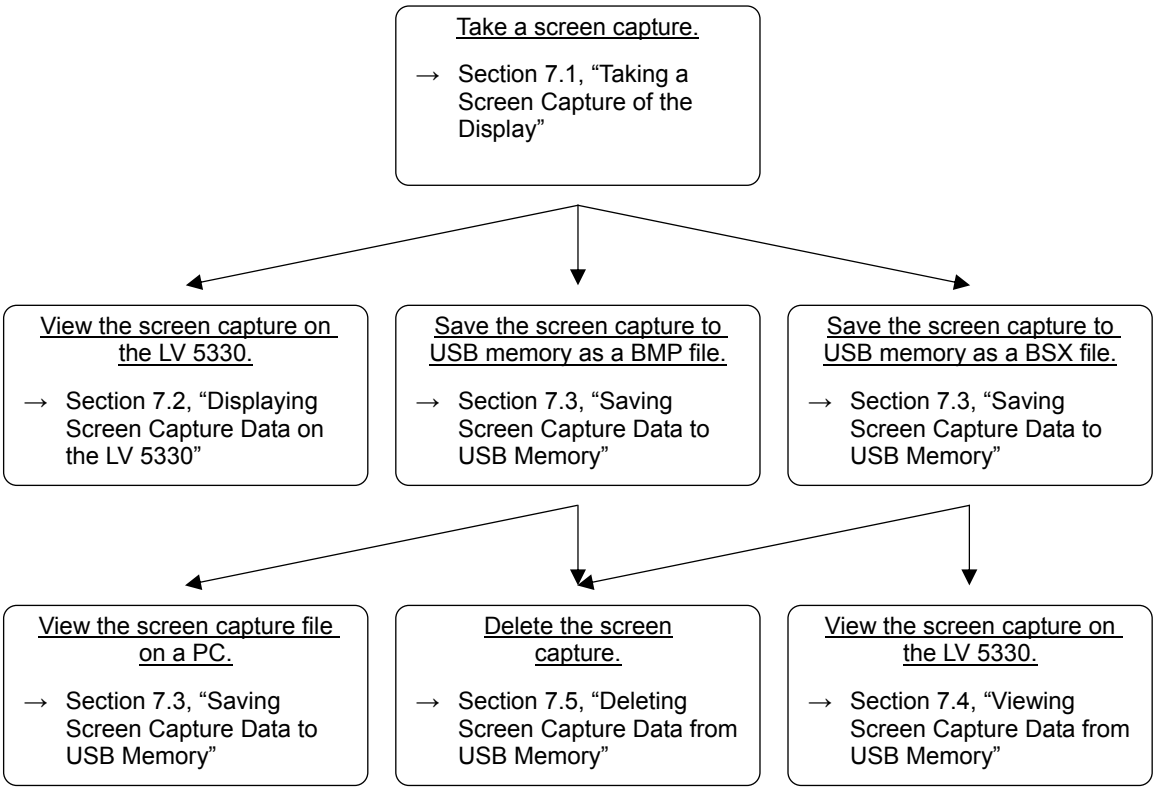


Figure 7-1 Screen capture feature

7.1 Taking a Screen Capture of the Display

To take a screen capture of the display, follow the procedure below.

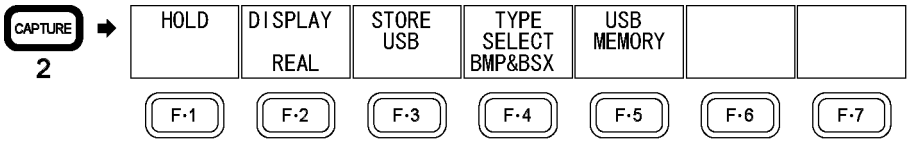


Figure 7-2 Taking a screen capture of the display

1. **Configure the LV 5330 so that the display that you want to capture appears on the screen.**

   Only measurement displays can be captured. The file list display and the USB memory display cannot be captured.

2. **Press CAPTURE.**

   When you press CAPTURE, the LV 5330 takes a screen capture of the display. You can also take screen captures by pressing F•1 HOLD while the screen capture menu is displayed.

   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 SYSTEM, MEMORY, or RECALL.
   - Turn off the power.

7.2 Displaying Screen Capture Data on the LV 5330

The data that you capture by following the procedure in section 7.1, “Taking a Screen Capture of the Display,” can be displayed, or it can be overlaid on the current input signal. To display or overlay the captured data, follow the procedure below.

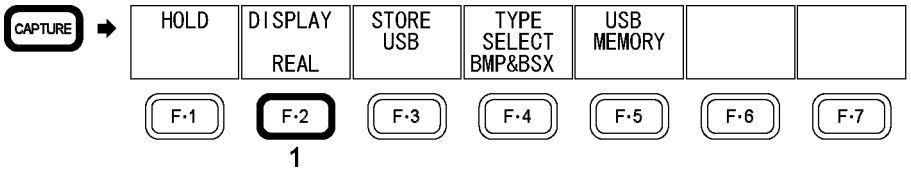


Figure 7-3 Displaying screen capture data

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

   The display formats that you can select are explained below.

REAL	The input signal is displayed (this is the default setting).
HOLD	The screen capture data is displayed.
BOTH	The input signal and the captured data are displayed on top of each other with their intensities halved.

   You can display the captured data of video signal waveforms, vectors, pictures, and audio meters on the LV 5330. Other kinds of data (CINELITE, CINEZONE, status, and 5-bar) cannot be displayed. However, these other kinds of data can be saved to USB memory as BMP files.
   For details, see section 7.3, “Saving Screen Capture Data to USB Memory.”

7.3 Saving Screen Capture Data to USB Memory

The data that you capture by following the procedure in section 7.1, “Taking a Screen Capture of the Display,” is cleared when operations such as changing the display mode are performed. However, you can display the captured data on the LV 5330 even after the power has been turned off by saving it to USB memory (if you save it in BSX format).
You can also view captured data on a PC (if you save it in BMP format).

If you set SHORTCUT KEY SET in the system settings to CAP USB, you can save the current display to USB memory simply by pressing SHORT CUT.

Reference: SHORTCUT KEY SET → Section 5.6, “Assigning a Function to the SHORT CUT Key”

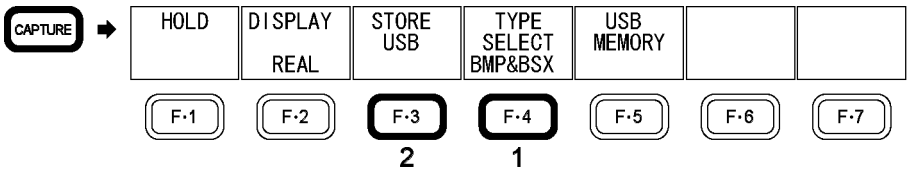


Figure 7-4 Saving screen capture data

1. Press F • 4 TYPE SELECT to select the file format that you want to save the screen capture data in.

The file formats that you can select are explained below.

BMP&BSX	The screen capture data is saved to a BMP file and a BSX file in the USB memory. You can view the saved data on a PC or on the LV 5330. This is the default setting.
BMP	The screen capture data is saved to a BMP file in the USB memory. You can view the saved data on a PC.
BSX	The screen capture data is saved to a BSX file in the USB memory. You can view the saved data on the LV 5330.

2. Press F • 3 STORE USB.

The captured data is saved to the USB memory.

The file name is automatically set to “CAP” + the date and time that have been set using the system settings.
The date is written using the format that has been specified in the system settings. The time is written in this order: hour, minute, second.
Example: CAP20080501100859.BMP

The file structure in the USB memory is shown below.

USB memory
└ BMP
  ├ CAP********hhmmss.BMP
  └ CAP********hhmmss.BSX

7.4 Viewing Screen Capture Data from USB Memory

The screen capture data that you save in BSX format by following the procedure in section 7.3, “Saving Screen Capture Data to USB Memory,” can be displayed, or it can be overlaid on the current input signal. Screen capture data that has been saved in BMP format cannot be displayed on the LV 5330.

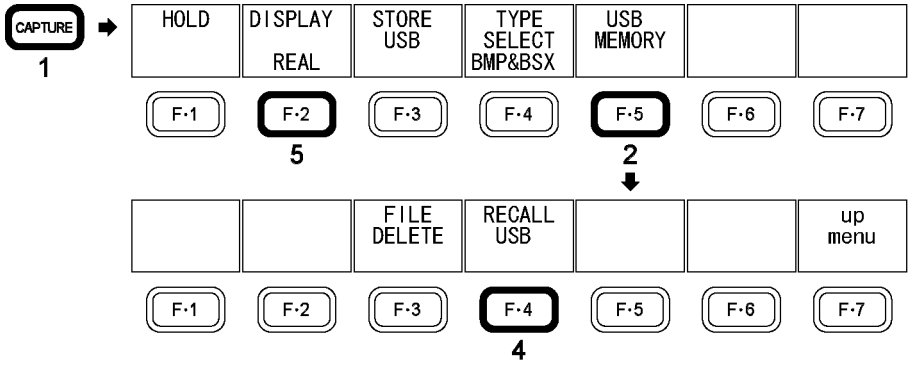


Figure 7-5 Viewing screen capture data from USB memory

1. **Press CAPTURE.**
2. **Press F • 5 USB MEMORY.**

   The file list display appears
   F•5 USB MEMORY appears when USB memory is connected to the LV 5330.
3. **Turn F • D to select the file number of the file you want to display.**
4. **Press F • 4 RECALL USB.**

   F•4 RECALL appears when the selected file is a BSX file.
5. **Press F • 2 DISPLAY, and select the display format.**

   After you press F•4 RECALL USB, the display format is BOTH. For details about the different display formats, see section 7.2, “Displaying Screen Capture Data on the LV 5330.”

7.5 Deleting Screen Capture Data from USB Memory

To delete the screen capture data that you save by following the procedure in section 7.3, “Saving Screen Capture Data to USB Memory,” follow the procedure below. You can also delete screen capture data from USB memory using a PC.

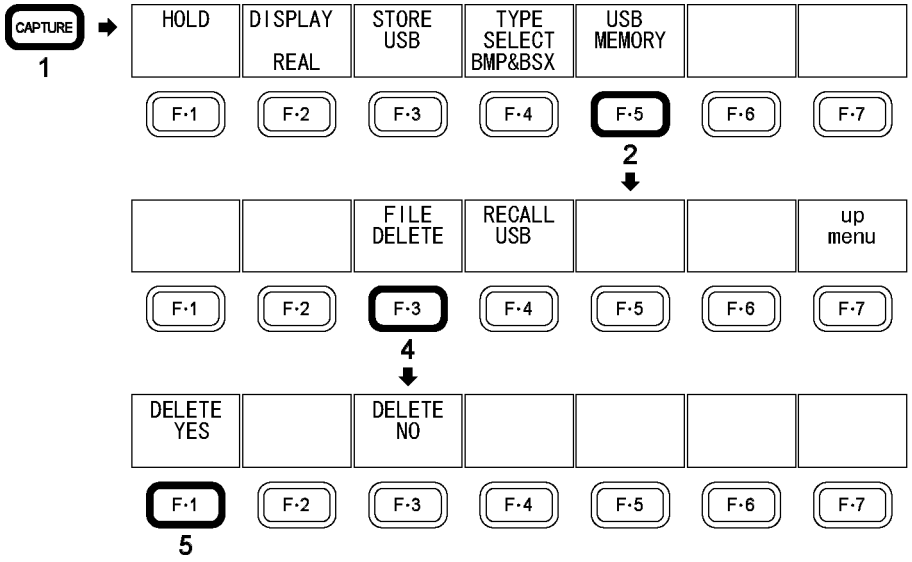


Figure 7-6 Deleting screen capture data from USB memory

1. **Press CAPTURE.**
2. **Press F•5 USB MEMORY.**

   The file list display appears.
   F•5 USB MEMORY appears when USB memory is connected to the LV 5330.
3. **Turn F•D to select the file number of the file you want to delete.**
4. **Press F•3 FILE DELETE.**

   F•3 FILE DELETE appears when there are files in USB memory.
5. **Press F•1 DELETE YES.**

   To abort the deletion of the selected screen capture data file, press F•3 DELETE NO.

8. Picture Display

8.1 Picture Display Explanation

To make the picture display appear, press PICTURE.

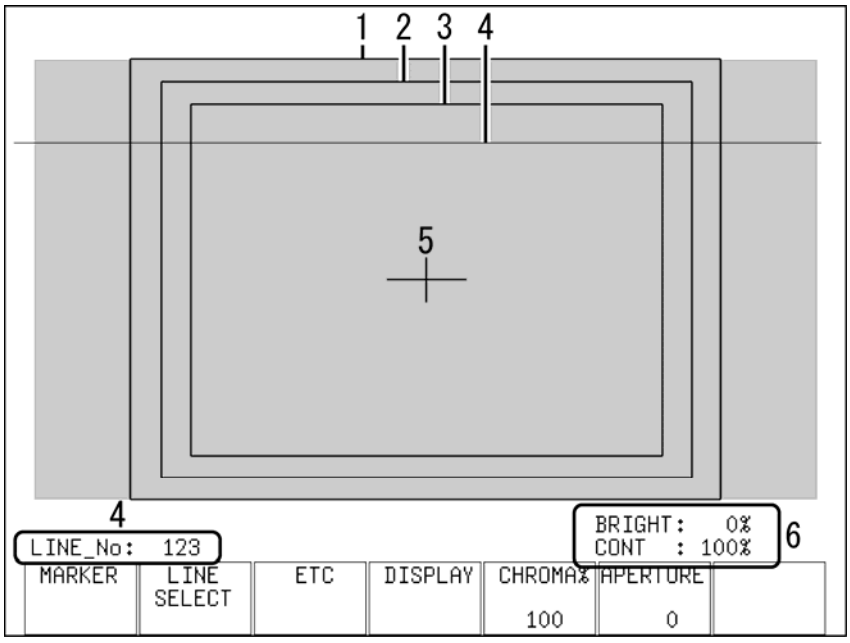


Figure 8-1 Picture display

Table 8-1 Picture display explanation

No.	Item	Explanation
1	Aspect marker	You can display a marker for the selected aspect ratio in relation to the frame. Reference: Section 8.3.1, “Displaying an Aspect Marker”
2	Safe action marker	You can display a marker of a selected size in relation to the frame or aspect marker. Reference: Section 8.3.2, “Displaying a Safe Action Marker”
3	Safe title marker	You can display a marker of a selected size in relation to the frame or aspect marker. Reference: Section 8.3.3, “Displaying a Safe Title Marker”
4	Selected line	You can display a marker on the selected line. Reference: Section 8.4, “Line Selection Settings”
5	Center marker	You can display a marker in the center of the picture that is 10 % the size of the frame. Reference: Section 8.3.4, “Displaying a Center Marker”
6	Brightness and contrast display	The brightness and contrast of the picture are displayed. The brightness and contrast can be adjusted at all levels of the picture display. Reference: Section 8.2, “Setting the Brightness and Contrast”

8.2 Setting the Brightness and Contrast

You can set the brightness and contrast of the picture by using BRIGHT and CONT. The brightness and contrast can be adjusted at all levels of the picture display. The current brightness and contrast settings appear in the lower right of the display.
The settings made here do not affect the CINELITE display, CINEZONE display, or multi-screen display.

8.2.1 Adjusting the Brightness

You can adjust the brightness of the picture by turning BRIGHT.
Pressing BRIGHT returns the brightness to its default setting (0 %).

Settings

Selectable range: –50 % to 50 % (The default value is 0 %.)

8.2.2 Adjusting the Contrast

You can adjust the contrast of the picture by turning CONT.
Pressing CONT returns the contrast to its default setting (100 %).

Regardless of this setting, when the multi-screen display format is set to PIC+WFM or PIC+VECT, the contrast is fixed at 60%. If you set SHORTCUT KEY SET in the system settings to CONTRAST, you will be able to press SHORT CUT on the front panel to switch the contrast in this order: 50%, 100%, and 200%.

Reference: MODE → Section 16.1, “Selecting the Multi-Screen Display Format”
SHORTCUT KEY SET → Section 5.6, “Assigning a Function to the SHORT CUT Key”

Settings

Selectable range: 50 % to 200 % (The default value is 100 %.)

8.3 Marker Settings

To configure marker settings, press F•1 MARKER in the picture menu. You can use the menu that appears to configure the display settings for every type of marker.
The markers that you set here do not appear in the multi-screen display. F•1 MARKER appears when SIZE is set to FIT and CC is set to OFF.

Reference: SIZE → Section 8.5, “Selecting the Picture Display Size”
CC → Section 8.5.1, “Displaying Closed Captions”

PICTURE → F•1 MARKER →

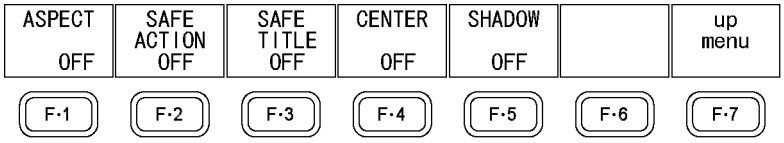


Figure 8-2 MARKER menu

8.3.1 Displaying an Aspect Marker

To display an aspect marker, follow the procedure below.
An aspect marker is displayed as white lines. You can also shade the area outside of the aspect marker.

Reference: Section 8.3.5, “Shading the Area Outside of an Aspect Marker”

Procedure

PICTURE → F•1 MARKER → F•1 ASPECT

Settings

2.35:1:	A 2.35:1 aspect marker is displayed.
1.85:1:	A 1.85:1 aspect marker is displayed.
1.66:1:	A 1.66:1 aspect marker is displayed.
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 setting cannot be selected when the input signal is SD-SDI and SQUEEZE is set to OFF.
16:9:	A 16:9 aspect marker is displayed. This setting cannot be selected when the input signal is HD-SDI or SD-SDI and SQUEEZE is set to ON.
OFF:	An aspect marker is not displayed. This is the default setting.

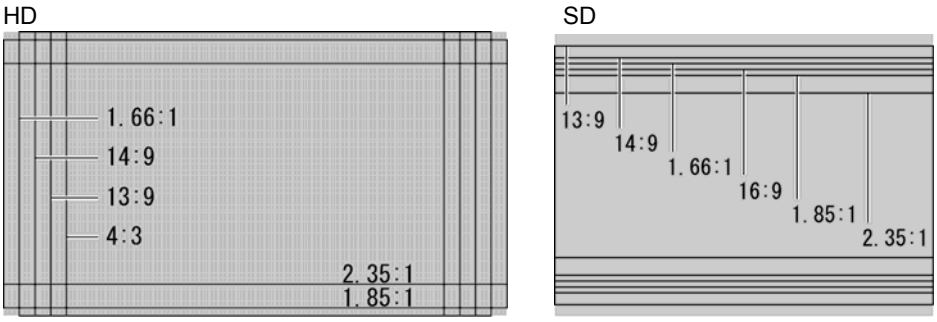


Figure 8-3 Aspect markers

8.3.2 Displaying a Safe Action Marker

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

Procedure

PICTURE → F•1 MARKER → F•2 SAFE ACTION

Settings

95%:	A safe action marker whose size is 95 % that of the frame (or aspect marker if an aspect marker is being displayed) is displayed.
93%:	A safe action marker whose size is 93 % that of the frame (or aspect marker if an aspect marker is being displayed) is displayed.
90%:	A safe action marker whose size is 90 % that of the frame (or aspect marker if an aspect marker is being displayed) is displayed.
OFF:	A safe action marker is not displayed. This is the default setting.

8.3.3 Displaying a Safe Title Marker

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

Procedure

PICTURE → F•1 MARKER → F•3 SAFE TITLE

Settings

88%:	A safe title marker whose size is 88 % that of the frame (or aspect marker if an aspect marker is being displayed) is displayed.
80%:	A safe title marker whose size is 80 % that of the frame (or aspect marker if an aspect marker is being displayed) is displayed.
OFF:	A safe title marker is not displayed. This is the default setting.

8.3.4 Displaying a Center Marker

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

Procedure

PICTURE → F•1 MARKER → F•4 CENTER

Settings

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

CENTER = ON

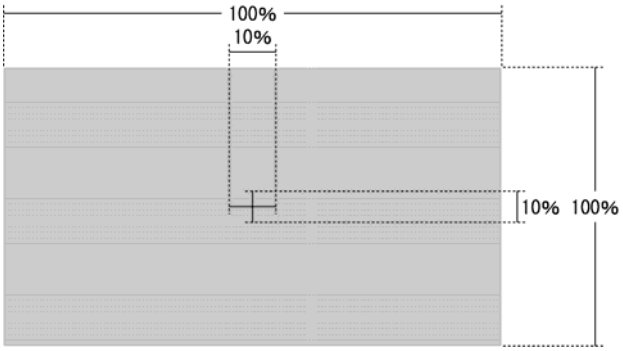


Figure 8-4 Center marker

8.3.5 Shading the Area Outside of an Aspect Marker

To shade the area outside of an aspect marker, follow the procedure below.

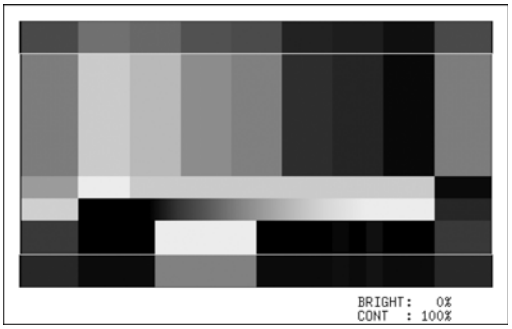
Procedure

PICTURE → F•1 MARKER → F•5 SHADOW

Settings

ON:	The LV 5330 shades the area outside of the aspect marker. This setting is not valid when F•1 ASPECT is set to OFF.
OFF:	Only the aspect marker is displayed. This is the default setting.

SHADOW = ON



SHADOW = OFF

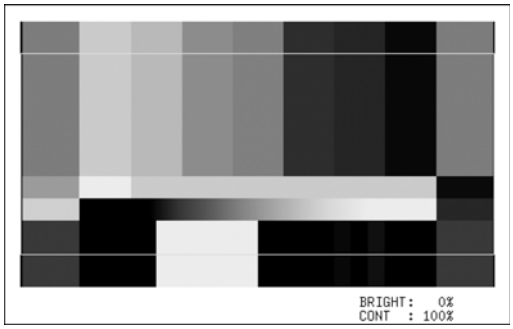


Figure 8-5 Aspect marker settings

8.4 Line Selection Settings

To configure line selection settings, press F•2 LINE SELECT 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 the CINELITE or CINEZONE display.
F•2 LINE SELECT appears when SIZE is set to FIT.

Reference: SIZE → Section 8.5, “Selecting the Picture Display Size”

PICTURE → F•2 LINE SELECT →

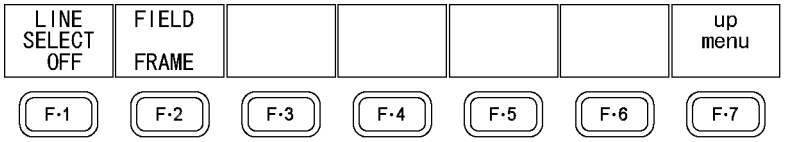


Figure 8-6 LINE SELECT menu

8.4.1 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

PICTURE → F•2 LINE SELECT → 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

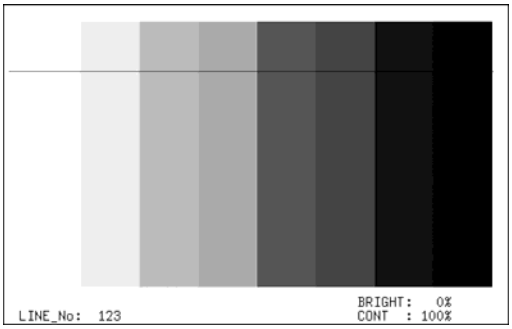


Figure 8-7 Line select display

8.4.2 Selecting a Line

To select a line to display a marker on, follow the procedure below. The selected line is indicated in the lower left of the display.
Changing this setting will also change the selected line in the CINELITE, video signal waveform, vector, and status (data dump) displays.

Procedure

PICTURE → F•2 LINE SELECT → F•D

8.4.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.
F•2 FIELD appears 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

PICTURE → F•2 LINE SELECT → F•2 FIELD

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

FIELD1:	A line from field one 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.)

8.5 Other Settings

To configure other settings, press F•3 ETC in the picture menu. You can configure closed caption and gamut error display settings from this menu.
When the LV 5330 is in dual link mode, F•1 CC is not displayed.

PICTURE → F•3 ETC →

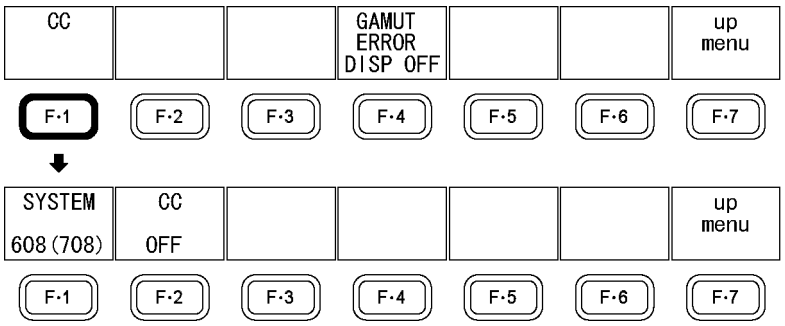


Figure 8-8 ETC menu

8.5.1 Displaying Closed Captions

To display SMPTE closed captions, follow the procedure below.
If you select a setting other than OFF, no markers are displayed.

Procedure

PICTURE → F•3 ETC → F•1 CC → F•2 CC

Settings

OFF:	Closed captions are not displayed. This is the default setting.
CC1:	SMPTE CC1 is displayed.
CC2:	SMPTE CC2 is displayed.
CC3:	SMPTE CC3 is displayed.
CC4:	SMPTE CC4 is displayed.
TEXT1:	SMPTE TEXT1 is displayed.
TEXT2:	SMPTE TEXT2 is displayed.
TEXT3:	SMPTE TEXT3 is displayed.
TEXT4:	SMPTE TEXT4 is displayed.

8.5.2 Selecting the Closed Caption Format

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

Procedure

PICTURE → F•3 ETC → F•1 CC → F•1 SYSTEM

Settings

608(708):	Display CEA/EIA-608-B closed caption data that is embedded in EIA-708-B CDP packets. This is the default setting.
608(608):	Display CEA/EIA-608-B closed caption data.
VBI:	Display CEA/EIA-608-B closed caption data that is embedded in vertical blanking intervals.

8.5.3 Displaying Gamut Errors

To display the locations where gamut errors or composite gamut errors are occurring over the picture, follow the procedure below. If the detected value is greater than the upper limit, a red mesh pattern indicates the error location. If the detected value is less than the lower limit, a black mesh pattern indicates the error location.
Gamut errors are displayed if GAMUT ERROR on the status menu is set to ON. Composite gamut errors are displayed if C.GAMUT ERROR is set to ON. Additionally, you can use the GAMUT and COMPOSIT GAMUT settings on the status menu to set the levels that are used to detect errors.
Gamut errors are not displayed on the CINELITE, CINEZONE, and multi-screen displays.

Reference: GAMUT ERROR, C.GAMUT ERROR → Section 14.6.3, “Configuring Error Detection Settings”
GAMUT → Section 14.6.7, “Setting Gamut Error Detection Levels”
COMPOSIT GAMUT → Section 14.6.8, “Setting Composite Gamut Error Detection Levels”

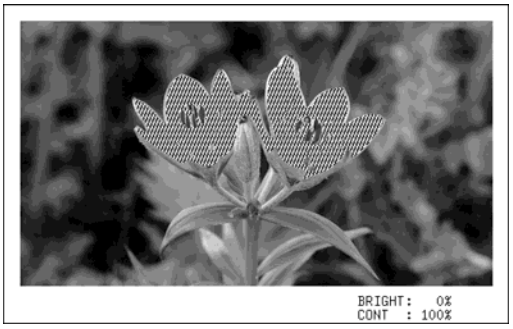
Procedure

PICTURE → F•3 ETC → F•4 GAMUT ERROR

Settings

DISP ON: Gamut error is displayed.
DISP OFF: Gamut error is not displayed. This is the default setting.

GAMUT ERROR = DISP ON



GAMUT ERROR = DISP OFF

Figure 8-9 Gamut error display

8.6 Display Settings

To configure the display settings, press F•4 DISPLAY in the picture menu.
From this menu, you can turn on or off each RGB channel and configure the display size, squeezed image display, and IP conversion settings.

PICTURE → F•4 DISPLAY →

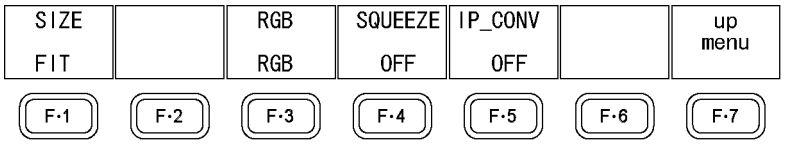


Figure 8-10 DISPLAY menu

8.6.1 Selecting the Picture Display Size

To set the picture display size, follow the procedure below.
Regardless of the setting made here, the picture is displayed using the FIT setting in the CINELITE, CINEZONE, and multi-screen displays.

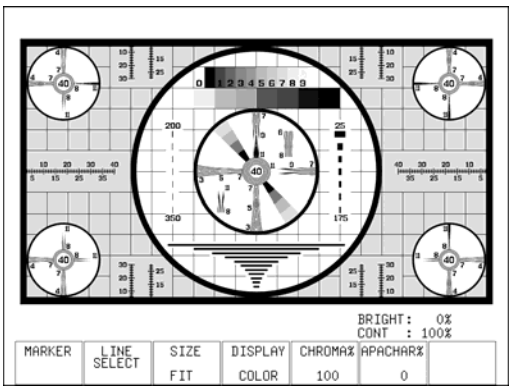
Procedure

PICTURE → F•4 DISPLAY → F•1 SIZE

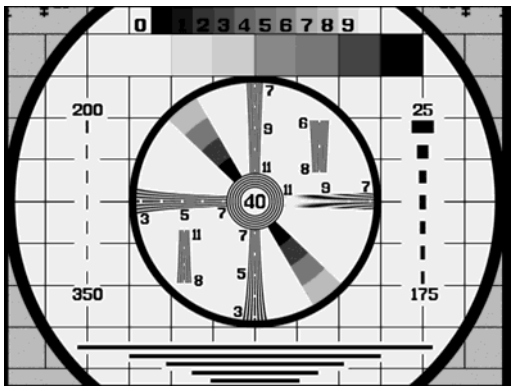
Settings

FIT:	The picture size is adjusted to the most suitable size for the screen. This is the default setting.
x1:	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. When the input signal is HD-SDI, you can use the control stick to adjust the location of the picture. Approximately five seconds after the last operation is performed, the menu and the information displays at the top of the screen disappear. To redisplay the menu and information, perform some kind of operation.
x2:	A single sample of the video signal is displayed with a four pixels on the screen. The marker and line select features cannot be used. You can use the control stick to adjust the location of the picture. Approximately five seconds after the last operation is performed, the menu and the information displays at the top of the screen disappear. To redisplay the menu and information, perform some kind of operation.
FULL:	The picture is displayed so that it takes up the whole screen.The marker and line select features cannot be used. When the input signal is HD-SDI, the sides of the picture are cut off to display it. Approximately five seconds after the last operation is performed, the menu and the information displays at the top of the screen disappear. To redisplay the menu and information, perform some kind of operation.

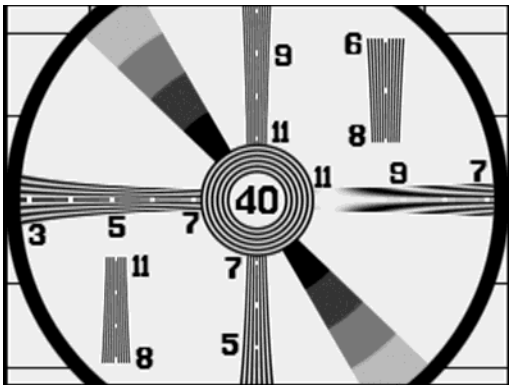
SIZE = FIT



SIZE = x1



SIZE = x2



SIZE = FULL

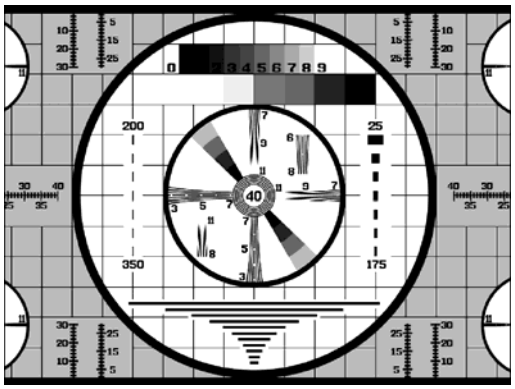


Figure 8-11 Picture display sizes

8.6.2 Turning R, G, and B ON or OFF

To turn the display of the individual R, G, and B signals ON or OFF, follow the procedure below. You cannot turn all the signals OFF.

Procedure

PICTURE → F•4 DISPLAY → F•3 RGB

Settings

RGB:	All the RGB signals are displayed. This is the default setting.
MONO:	The picture is displayed in monochrome.
RG-:	The R and G signals are displayed.
R-B:	The R and B signals are displayed.
-GB:	The G and B signals are displayed.
R--:	The R signal is displayed.
-G-:	The G signal is displayed.
--B:	The B signal is displayed.

8.6.3 Displaying Squeezed Images

To horizontally expand and display squeezed images, follow the procedure below.
This setting is valid when the input signal is SD-SDI and SIZE is set to FIT.
Regardless of the setting made here, the picture is displayed using the OFF setting in the CINELITE and CINEZONE displays.

Reference: SIZE → Section 8.5, “Selecting the Picture Display Size”

Procedure

PICTURE → F•4 DISPLAY → F•4 SQUEEZE

Settings

ON:	Images with an aspect ratio of 4:3 are expanded horizontally and displayed with an aspect ratio of 16:9.
OFF:	No image expansion is performed. This is the default setting.

8.6.4 Performing IP Conversion

To convert an interlaced signal to a progressive signal and display it, follow the procedure below. This setting is valid when the input signal is SD-SDI and SIZE is set to x1 or x2. This menu item does not appear when input signal is HD-SDI.

Reference: SIZE → Section 8.5, “Selecting the Picture Display Size”

Procedure

PICTURE → F•4 DISPLAY → F•5 IP_CONV

Settings

ON:	IP conversion is performed. This is the default setting.
OFF:	IP conversion is not performed.

8.7 Adjusting the Chroma Gain

To adjust the chroma gain, follow the procedure below. If you press F•D, the chroma gain will be reset to its default value of 100.
Regardless of the setting made here, the picture is displayed using a chroma gain of 100 in the CINELITE and CINEZONE displays.

Procedure

PICTURE → F•5 CHROMA%

Settings

Selectable range: 0 to 150 (The default setting is 100.)

8.8 Adjusting the Aperture

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

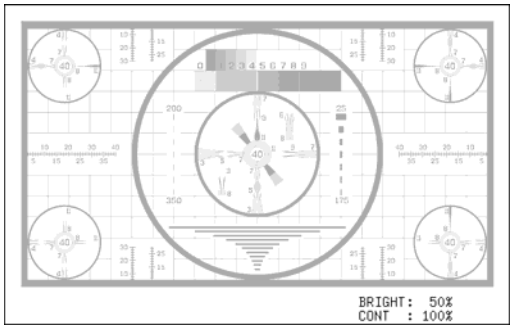
Procedure

PICTURE → F•6 APERTURE

Settings

Selectable range: 0 to 200 (The default setting is 0.)

APERTURE = 0



APERTURE = 100

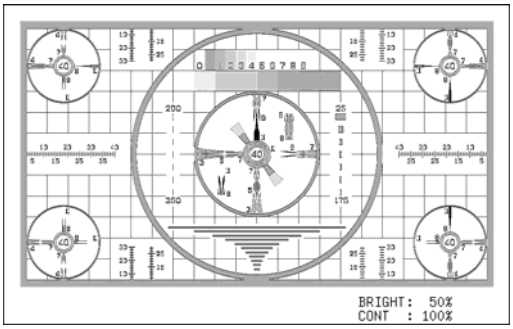


Figure 8-12 Aperture settings

9. CINELITE Display

In the CINELITE display, you can display the luminance levels of up to three points on the picture that you have selected. To show the CINELITE display, press CINELITE.

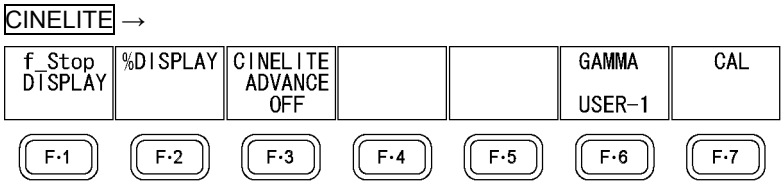


Figure 9-1 CINELITE menu

You can choose one of the following luminance level display formats.

- f Stop level (f Stop display)

→ Section 9.5, “Displaying Luminance Levels as f Stop Numbers”

- Luminance level (percentage)

→ Section 9.6, “Displaying Luminance Levels as Percentages or RGB Values”

- RGB level (percentage)

→ Section 9.6, “Displaying Luminance Levels as Percentages or RGB Values”

- RGB level (256 levels)

→ Section 9.6, “Displaying Luminance Levels as Percentages or RGB Values”

9.1 Selecting the Points to Measure

You can set up to three points to measure. To select which measurement point positions you will specify with the cursor, follow the procedure below.
The F•2 MEAS POS settings in the menus accessed by pressing F•1 f_Stop DISPLAY and F•2 %DISPLAY are the same.

Procedure

CINELITE → F•1 f_Stop DISPLAY → F•2 MEAS POS
→ F•2 %DISPLAY → F•2 MEAS POS

Settings

P1:	You can use the cursor to select the position of measurement point 1. This is the default setting.
P2:	You can use the cursor to select the position of measurement point 2.
P3:	You can use the cursor to select the position of measurement point 3.

9.2 Moving the Cursors

To set a measurement point, you must select a measurement point by pressing F•2 MEAS POS and then move the X and Y cursors to the point you want to measure. You can use the Y cursor to select a line and the X cursor to select a sample. The X and Y cursors are not displayed if they are within a blanking interval.

The measurement point settings made in the menus accessed by pressing F•1 f_Stop DISPLAY and F•2 %DISPLAY are the same. Changing the position of the Y cursor (LINE) will also change the selected line in the picture, video signal waveform, vector, and status (data dump) displays.

There are three different methods that you can use to move the cursors:

- **V POS and H POS**

Turn V POS clockwise to move the Y cursor (LINE) up. Press V POS to move the Y cursor to the center of the picture.
Turn H POS clockwise to move the X cursor (SMPL) to the right. Press H POS to move the X cursor to the center of the picture.

- **Control Stick (Single-screen display only)**

Push the control stick up to move the Y cursor (LINE) up.
Push the control stick to the right to move the X cursor (SMPL) to the right.
You can move diagonally when you use the control stick. Also, you can move quickly by pushing down on the control stick before moving it in the desired direction.

- **F • D**

You can move the cursors by turning F•D. You can toggle between the LINE and SAMPLE cursors by pressing F•D.
The F•1 F.D settings in the menus accessed by pressing F•1 f_Stop DISPLAY and F•2 %DISPLAY are the same.

Procedure

CINELITE → F•1 f Stop DISPLAY → F•1 F.D
→ F•2 %DISPLAY → F•1 F.D

Settings

LINE:	You can move the Y cursor (LINE) up by turning F•D clockwise. This is the default setting.
SAMPLE:	You can move the X cursor (SMPL) to the right by turning F•D clockwise.

9.3 Selecting the Measurement Area

To select the area of luminance measurement, follow the procedure below. This setting is applied to P1 to P3 and REF.
The F•3 MEAS SIZE settings in the menus accessed by pressing F•1 f_Stop DISPLAY and F•2 %DISPLAY are the same.

Procedure

CINELITE → F•1 f_Stop DISPLAY → F•3 MEAS SIZE
→ F•2 %DISPLAY → F•3 MEAS SIZE

Settings

1X1:	The single pixel at the intersection of the cursors is measured. This is the default setting.
3X3:	The luminance of the 3×3 area of pixels centered around the pixel at the intersection of the cursors is averaged and measured.
9X9:	The luminance of the 9×9 area of pixels centered around the pixel at the intersection of the cursors is averaged and measured.

9.4 Selecting the Points to Display

You can set three points to measure: P1 to P3. To select the measured points that you want to display, follow the procedure below.
The F•4 MEAS DISP settings in the menus accessed by pressing F•1 f_Stop DISPLAY and F•2 %DISPLAY are the same.

Procedure

CINELITE → F•1 f_Stop DISPLAY → F•4 MEAS DISP
→ F•2 %DISPLAY → F•4 MEAS DISP

Settings

P1P2P3:	The measured points P1 to P3 are displayed. This is the default setting.
P1P2--:	The measured points P1 and P2 are displayed.
P1--P3:	The measured points P1 and P3 are displayed.
--P2P3:	The measured points P2 and P3 are displayed.
P1----:	The measured point P1 is displayed.
--P2--:	The measured point P2 is displayed.
----P3:	The measured point P3 is displayed.

9.5 Displaying Luminance Levels as f Stop Numbers

In the f Stop display, the f Stop values relative to the reference position are displayed. Typically, 18 % gray is used in the reference position.
Measurement points that have a luminance level of 0% or less are displayed as “****” and cannot be measured.

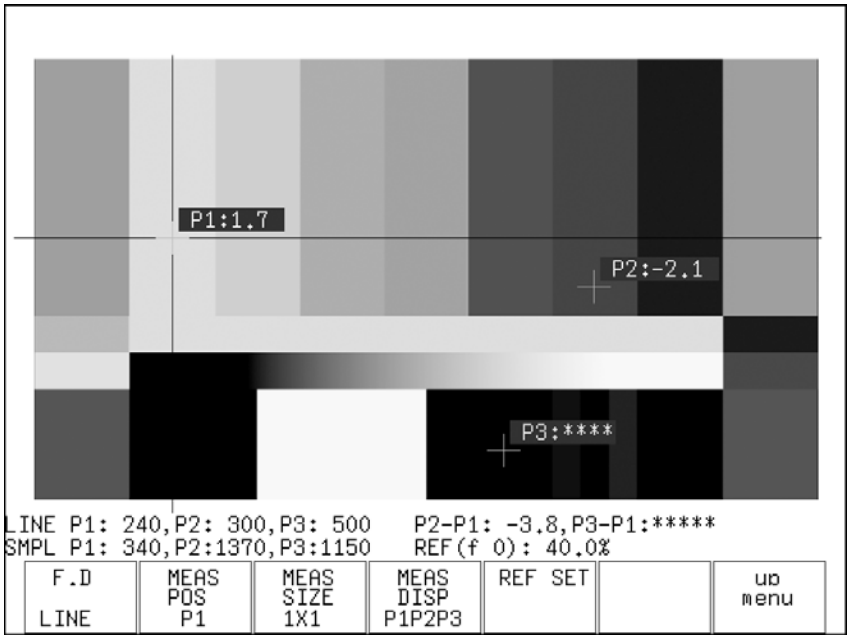


Figure 9-2 f Stop display

To display luminance levels as f Stop numbers using 18 % gray as the reference position, follow the procedure below. Include an 18 % gray chart with the objects that you are filming.

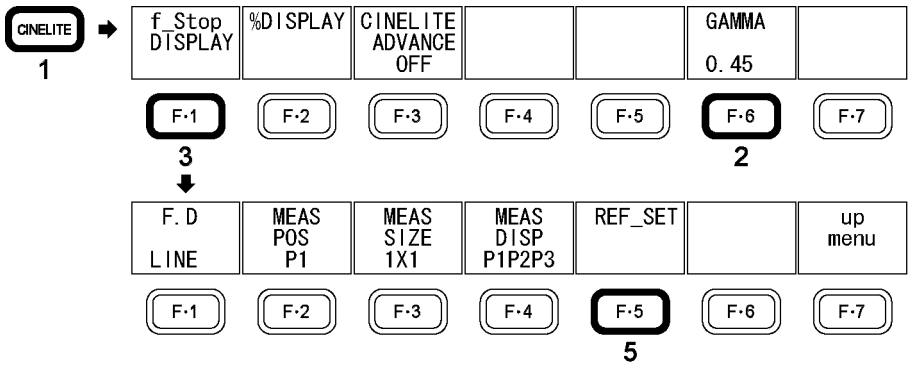


Figure 9-3 f Stop display

1. **Press CINELITE.**
2. **Press F•6 GAMMA to select a gamma correction table.**

   The default gamma correction value is 0.45, but you can also use a user-defined gamma correction table that matches the gamma characteristics of the camera that you are using. For details, see section 9.7, “Configuring User-Defined Correction Tables”
3. **Press F•1 f_Stop DISPLAY.**
4. **Place the cursors over the 18 % gray area.**

   You can set the cursor to any measurement point from P1 to P3.
   Reference: Section 9.2, “Moving the Cursors”
5. **Press F•5 REF_SET.**

   The luminance level 18 % gray becomes the reference value and is displayed as a percentage in the bottom right of the display next to “REF(f 0).” The f Stop value for this luminance level becomes 0.0.
6. **Use the cursors to set the measurement point.**

   The f Stop value relative to 18 % gray appears next to the cursors.
   Also, the P2-P1 and P3-P1 values are displayed in the bottom right of the display.

9.6 Displaying Luminance Levels as Percentages or RGB Values

In the percentage and RGB display, you can display luminance levels as level percentages, RGB percentages, or using 255 RGB levels.

- **LEVEL% display**

Luminance levels are indicated as percentages. This is the default setting.

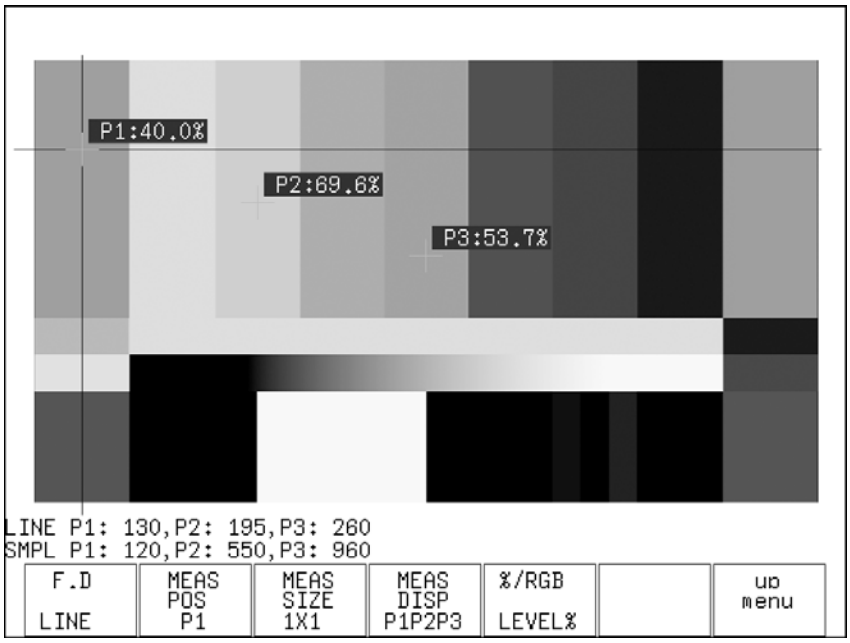


Figure 9-4 LEVEL% display

- **RGB% display**

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

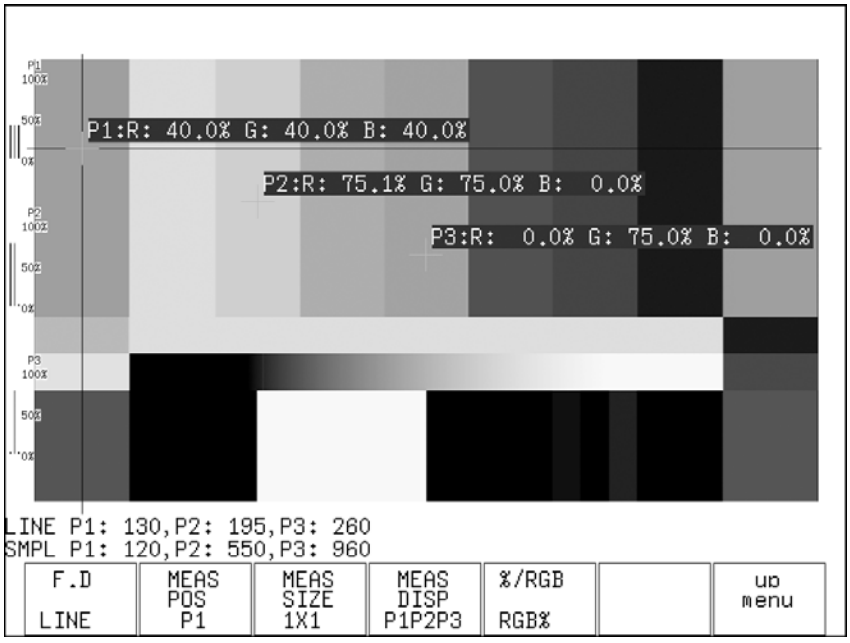


Figure 9-5 RGB% display

• **RGB 255 display**

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

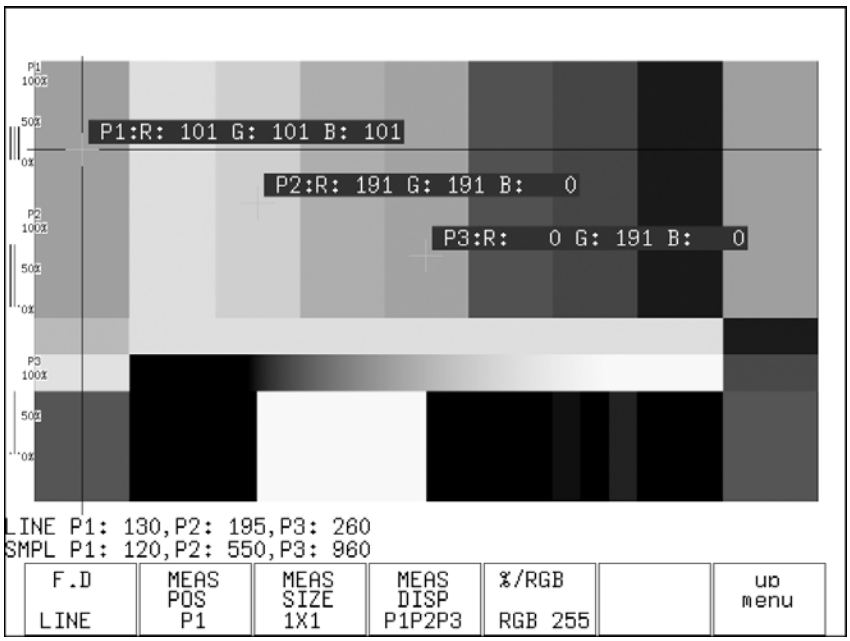


Figure 9-6 RGB 255 display

To display luminance levels as percentages or RGB levels, follow the procedure below.

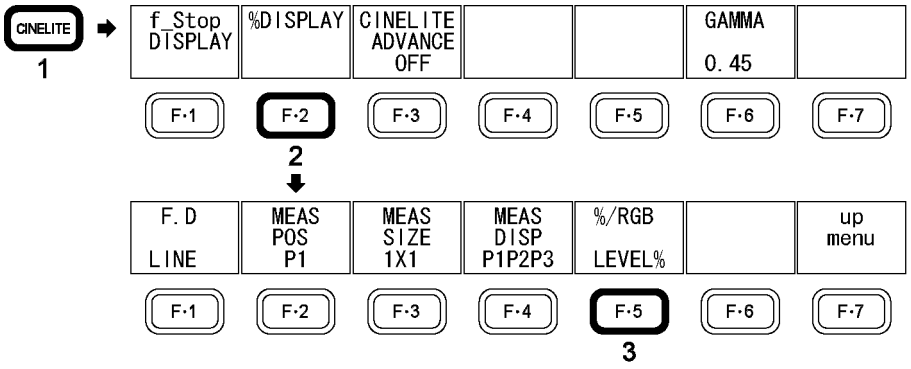


Figure 9-7 Percentage and RGB display

1. **Press CINELITE.**
2. **Press F•2 %DISPLAY.**
3. **Press F•5 %/RGB, and select the display format.**

   You can select LEVEL%, RGB%, or RGB 255.

4. **Use the cursors to set the measurement point.**

   The measured values appear near the cursors in the format that you selected in step 3. The cursors are not displayed if they are within the blanking interval.

   Reference: Section 9.2, “Moving the Cursors”

9.7 Displaying Synchronized Markers

When the link format is set to single, to synchronize the markers on the vector display and video signal waveform display to measurement points P1 to P3 and REF that you specify on the CINELITE display, follow the procedure below.

Markers cannot be displayed on the video signal waveform display under the following conditions.
• When SWEEP in the video signal waveform menu is V
• When COLOR MATRIX in the video signal waveform menu is COMPOSIT
Marker display will not work properly when waveforms are being displayed using an external sync signal.

If P+V or P+V+W is selected, the measured values of the selected measurement point are displayed in the lower left of the vector display. For details on the measured values, see section 12.2.5, “Displaying the Vector Marker.”

Procedure

CINELITE → F•3 CINELITE ADVANCE

Settings

OFF:	P1 to P3 and REF are displayed only on the CINELITE display. This is the default setting.
P+V:	P1 to P3 and REF are displayed on the CINELITE and vector displays.
P+W:	P1 to P3 and REF are displayed on the picture and video signal waveform displays.
P+V+W:	P1 to P3 and REF are displayed on the picture, vector, and video signal waveform displays.

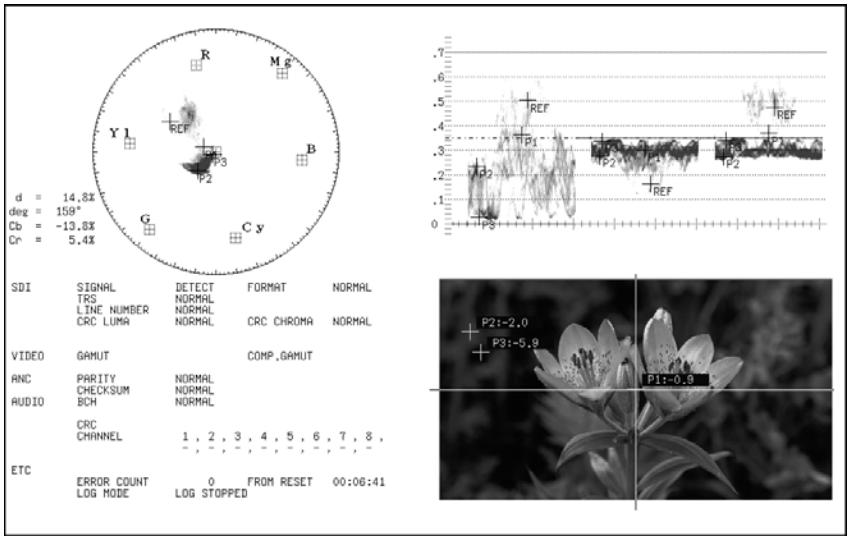


Figure 9-8 Displaying synchronized markers

9.8 Configuring User-Defined Correction Tables

The default gamma correction value when measuring f Stop levels is 0.45, but you can also use a user-defined gamma correction table that matches the gamma characteristics of the camera that you are using.
There are two types of user-defined correction tables. The first type includes USER-1 to USER-3 and consists of tables that are created using the LV 5330. The second type includes USER-A to USER-E and consists of tables that have been created externally using a device such as a PC. Neither type of user-defined correction table is deleted if you initialize the LV 5330 by following the procedure in section 5.7.1, “Initializing the Settings Using SETUP INIT.”

9.8.1 Creating User-Defined Correction Tables Using the LV 5330

You can create and store up to three user-defined correction tables on the LV 5330.
To create a user-defined correction table, prepare a grayscale chart for which the camera f Stop values vary by one for each step, and follow the procedure below.

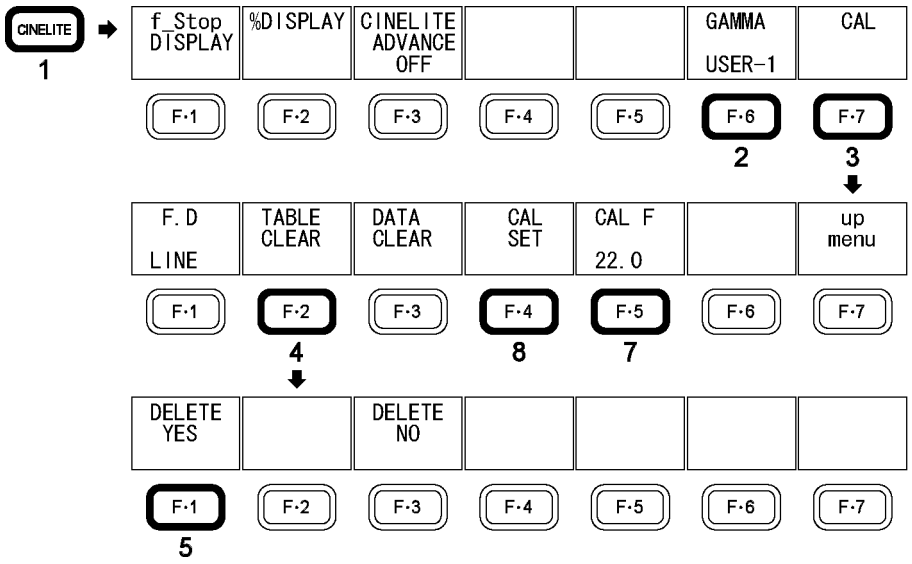


Figure 9-9 Creating user-defined correction tables

1. **Press CINELITE.**
2. **Press F•6 GAMMA, and select USER-1.**

   In this example, the table for USER-1 is created, but the tables for USER-2 and USER-3 can also be created in the same way.
3. **Press F•7 CAL.**

   When you press F•7 CAL, a user-defined correction table appears in the bottom left of the screen, and the luminance (the data dump Y value) appears near the intersection of the X and Y cursors.
   This setting is available when F•6 GAMMA is set to an option other than 0.45.

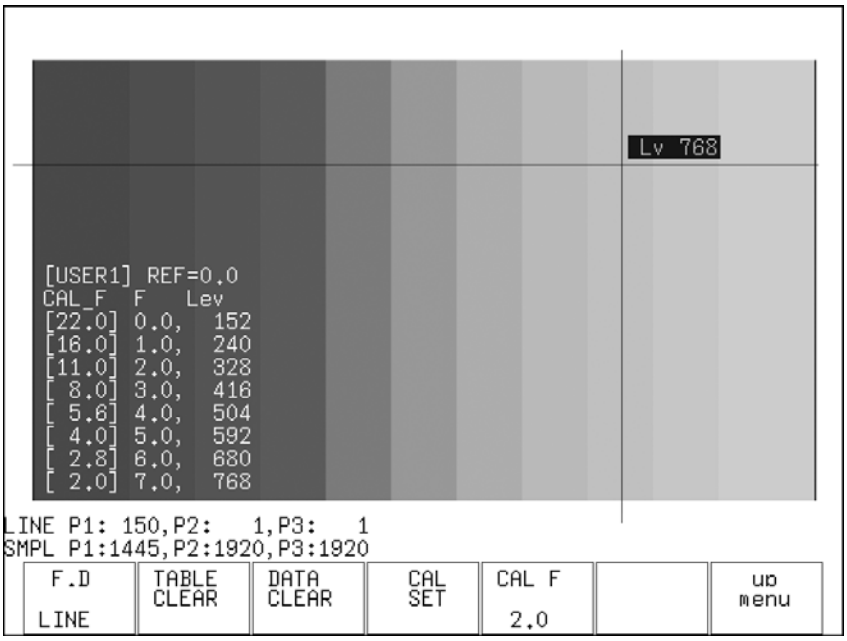


Figure 9-10 User-defined correction table creation display

4. **Press F•2 TABLE CLEAR.**

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

5. **Press F•1 DELETE YES.**

6. **Move the X and Y cursors to the darkest part of the grayscale chart.**

   As you repeat this step and the ones that follow, move the X and Y cursors up step-by-step.

7. **Press F•5 CAL F, and turn F•D to select 22.0.**

   As you repeat this step, change the value that you select from 22.0 to 16.0 to 11.0 to 8.0 to 5.6 to 4.0 to 2.8 to 2.0, in that order.

8. **Press F•4 CAL SET.**

   The location in the user-defined correction table specified using F•5 CAL F is set to the luminance at the intersection of the X and Y cursors. To delete a line of data, press F•3 DATA CLEAR.

9. **Repeat steps 5 through 7 to input Lev values into the user-defined correction table.**

   Make sure that the Lev value increases for each new step. Do not leave any Lev settings in the table blank.

The REF value in the user-defined correction table is entered when you press F•5 REF_SET in the f Stop display.

For example, if you use the table shown below and press F•5 REF_SET when the luminance at the intersection of the X and Y cursors (the data dump Y value) is 416, the f Stop value at that point (3.0) is displayed as the REF value.

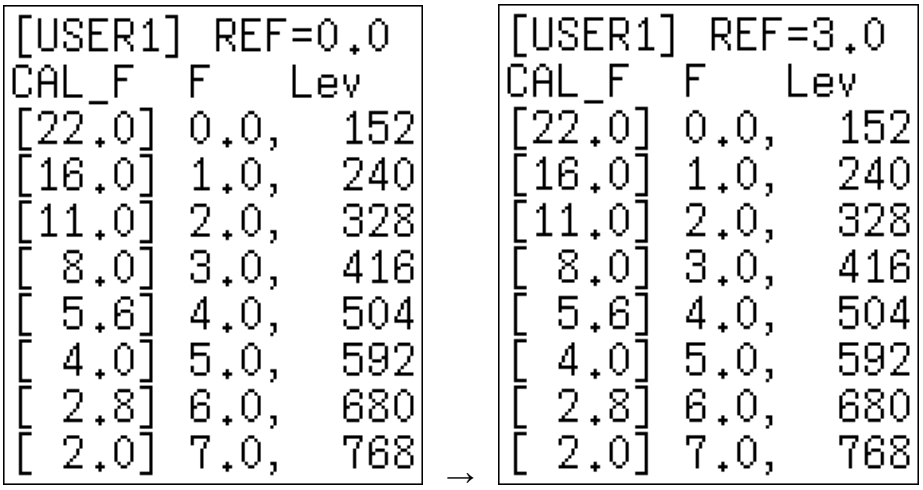


Figure 9-11 User-defined correction table

The f Stop value that corresponds to the luminance at the intersection of the X and Y cursors when F•5 REF_SET is pressed is 0. The other f Stop values are indicated below. The values between specified values are interpolated linearly.

When Lv = 152 f Stop = 0.0 - 3.0 = –3.0
When Lv = 240 f Stop = 1.0 - 3.0 = –2.0
When Lv = 328 f Stop = 2.0 - 3.0 = –1.0
When Lv = 416 f Stop = 3.0 - 3.0 = 0.0
When Lv = 504 f Stop = 4.0 - 3.0 = 1.0
When Lv = 592 f Stop = 5.0 - 3.0 = 2.0
When Lv = 680 f Stop = 6.0 - 3.0 = 3.0
When Lv = 768 f Stop = 7.0 - 3.0 = 4.0

9.8.2 Loading a User-Defined Correction Table into the LV 5330

You can load up to five user-defined correction tables into the LV 5330.
To load a user-defined correction table into the LV 5330, follow the procedure below.

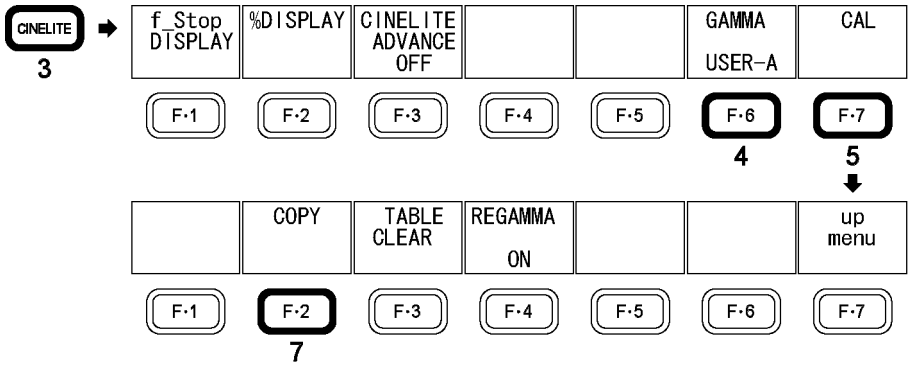


Figure 9-12 Loading user-defined correction tables

1. Create a user-defined correction table.

Example (TEST.CLT):

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

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

Overall File Specifications

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

Comment Specifications

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

Keyword Specifications

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

NAME: The LV 5330 displays the eight characters that follow the separator (colon) as the name of the correction table. After the separator, enter the correction table name using letters of the alphabet (A to Z; uppercase and lowercase), numbers (0 to 9), and underscores (_). You can enter up to 10 characters.

TYPE: This is a code for identifying the file type. Enter a zero after the separator (colon).

Data Specifications

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

Input Value	Enter values from 0 to 4095 (12 bits), increasing the value by one for each line. A luminance level of 100 % is defined as 940 (10 bits) × 4 = 3760 (12 bits). A luminance level of 0 % is defined as 64 (10 bits) × 4 = 256 (12 bits).
Separator	Enter a single tab code.
Output Value	Enter a value from -131072 to 131071 (18 bits, ±2000%).

2. Save the user-defined correction table to USB memory, and connect the USB memory to the LV 5330.

Save the user-defined correction table in the USB memory's root directory.

3. Press CINELITE.

4. Press F•6 GAMMA, and select USER-A.

In this example, a user-defined correction table is assigned to USER-A, but user-defined correction tables can be assigned to USER-B through USER-E in the same way.

5. Press F•7 CAL.

The file list display appears.
This setting is available when F•6 GAMMA is set to an option other than 0.45.

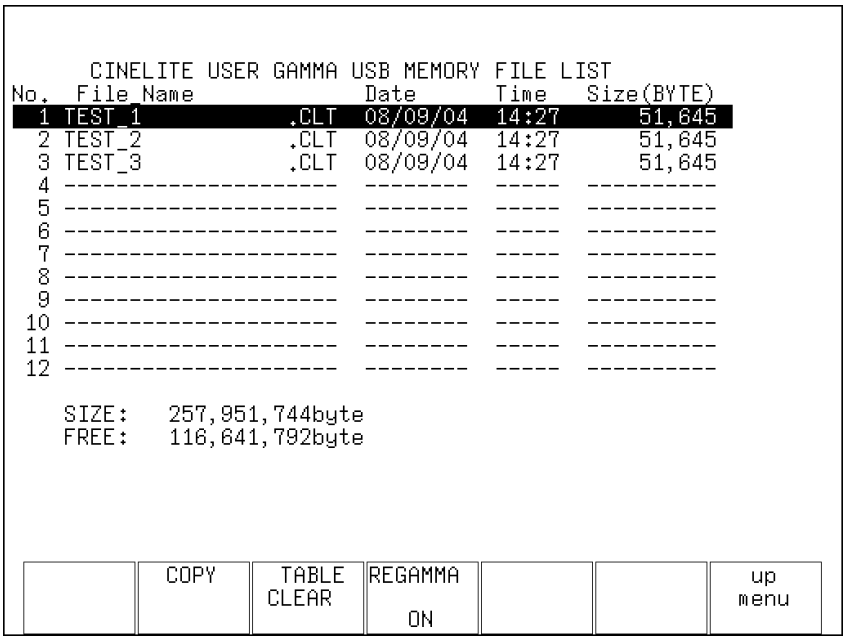


Figure 9-13 File list display

6. **Turn the function dial to select the file in the USB memory that you want to copy from.**
7. **Press F•2 COPY.**

   The user-defined correction table from the USB memory that you selected is copied to USER-A. If a file had already been copied to the selected table number (USER-A in this example), the previous file is overwritten. F•2 COPY appears when there are files in USB memory.

   To clear the table that has been copied to USER-A, press F•3 TABLE CLEAR.

   To turn regamma OFF, set F•4 REGAMMA to OFF, and then press F•2 COPY. The default setting is ON.

When you press F•6 GAMMA in the CINELITE menu, the user-defined correction tables that have been loaded from USB memory appear.
A loaded correction table is displayed using the name determined by its NAME keyword.
When regamma is OFF, an asterisk is displayed in front of the name of the correction table.

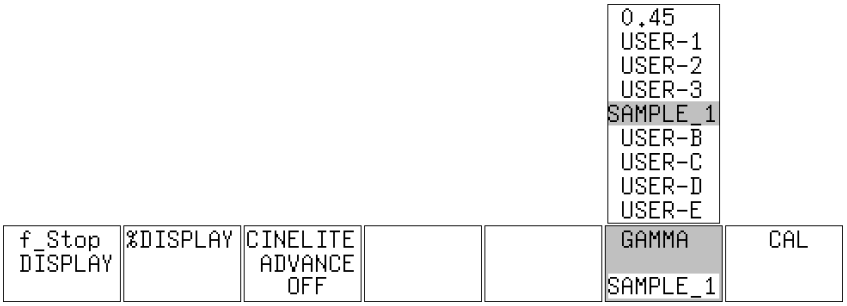


Figure 9-14 CINELITE menu

10. CINEZONE Display

The CINEZONE display has a CINEZONE display mode, in which the picture luminance levels are displayed using colors, and a level search display mode, in which the specified luminance level is displayed using green.
Both of these display modes can be accessed by pressing CINEZONE. Neither of them can be incorporated into the multi-screen display.

10.1 Switching between the CINEZONE and Level Search Displays

To switch between the CINEZONE and level search displays, follow the procedure below.

Procedure

CINEZONE → F•1 MODE

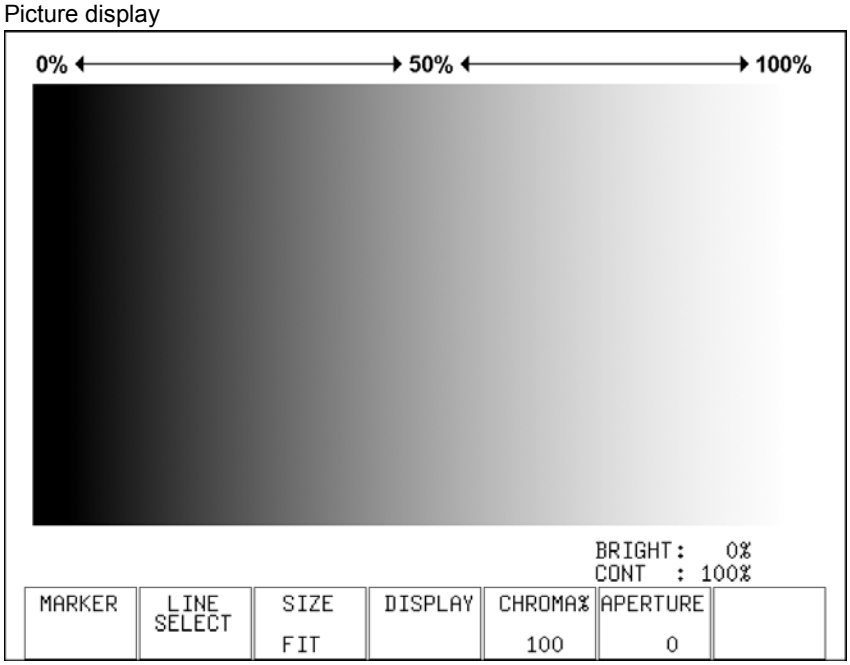
Settings

ZONE:	The CINEZONE display appears. This is the default setting.
SEARCH:	The level search display appears.

10.2 CINEZONE Display

In the CINEZONE display, the picture luminance levels are converted into RGB colors. Also, luminance levels above F•5 UPPER% are displayed using white, and levels below F•6 LOWER% are displayed using black. You can see what colors correspond to what luminance levels by looking at the scale on the right of the display.

Picture display



CINEZONE

CINEZONE display

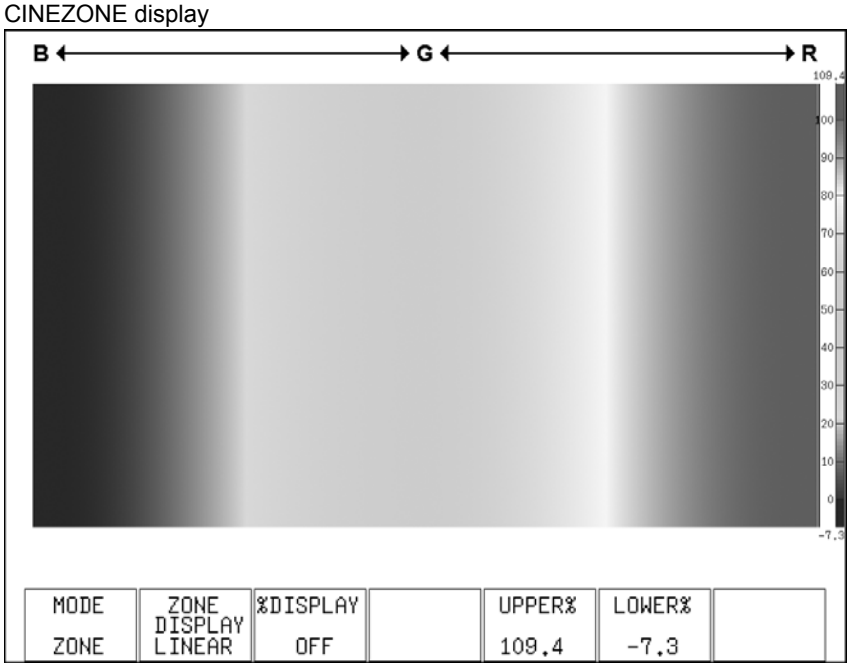


Figure 10-1 CINEZONE display

10.2.1 Selecting the Color Gradation

To select the color gradation, follow the procedure below.
F•2 ZONE DISPLAY appears when F•1 MODE is set to ZONE.

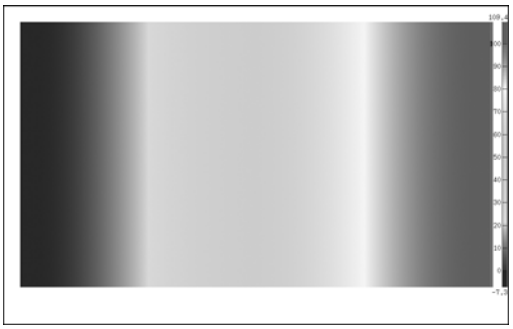
Procedure

CINEZONE → F•2 ZONE DISPLAY

Settings

LINEAR:	Luminance values from 0 to 100 % are displayed using 1024 different colors. This is the default setting.
STEP:	Values below 0 %, from 0 to 100 % (in 10 % steps), and above 100 % are displayed using 12 different colors.

ZONE DISPLAY = LINEAR



ZONE DISPLAY = STEP

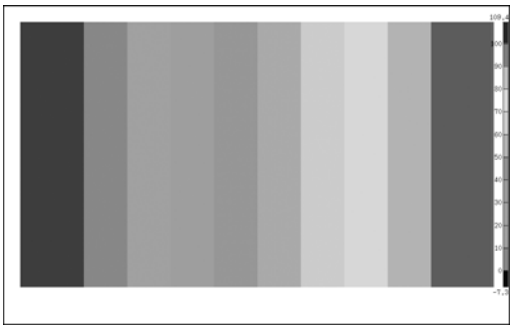


Figure 10-2 Color gradations

10.2.2 Superimposing the CINELITE Display

To superimpose the CINELITE display over the CINEZONE display, follow the procedure below.
You can superimpose the CINELITE percentage and RGB displays. You cannot superimpose the CINELITE f Stop display.
F•3 %DISPLAY appears when F•1 MODE is set to ZONE.

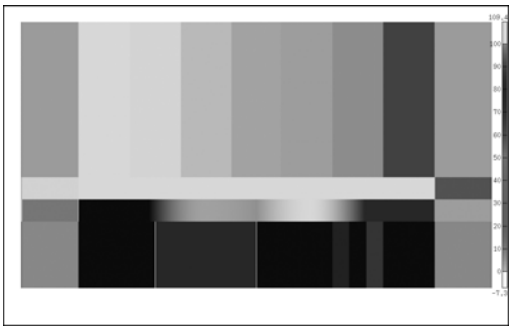
Procedure

CINEZONE → F•3 %DISPLAY

Settings

OFF:	Only the CINEZONE display appears. This is the default setting.
ON:	The CINELITE display is superimposed over the CINEZONE display.

%DISPLAY = OFF



%DISPLAY = ON

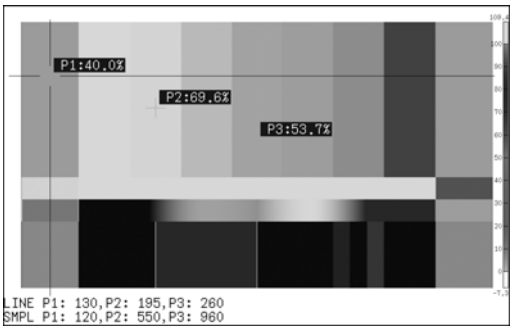


Figure 10-3 CINELITE display

10.2.3 Configuring the CINELITE Display

To configure the settings for the CINELITE display that is superimposed over the CINEZONE display, press F•4 DISPLAY on the CINEZONE menu. For instructions, see chapter 9, “CINELITE Display.”
F•4 DISPLAY appears when F•3 %DISPLAY is set to ON.

CINEZONE → F•4 DISPLAY →

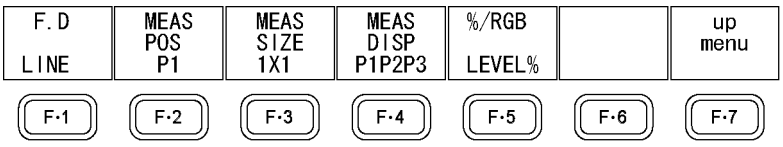


Figure 10-4 DISPLAY menu

10.2.4 Setting the Color

Luminance levels in the CINEZONE display are typically displayed using their corresponding colors, but luminance levels above F•5 UPPER% are displayed using white, and levels below F•6 LOWER% are displayed using black.

If F•5 UPPER% is 1 % greater than F•6 LOWER% and you lower the value of F•5 UPPER%, the value of F•6 LOWER% is automatically lowered to maintain a difference of 1 % between the two values. In the same way, if you raise the value of F•6 LOWER%, the value of F•5 UPPER% is automatically raised to maintain a difference of 1 % between the two values.

To set the color range, follow the procedure below.

Procedure

CINEZONE → F•5 UPPER%
→ F•6 LOWER%

Settings

Range for UPPER%: –6.3 to 109.4 (The default setting is 100.0.)
Range for LOWER%: –7.3 to 108.4 (The default setting is 0.0.)

10.3 Level Search Display

In the level search display, the specified luminance level range is displayed with gradations. Also, luminance levels greater than or equal to the specified range are displayed using white, and levels less than equal to the specified range are displayed using black.

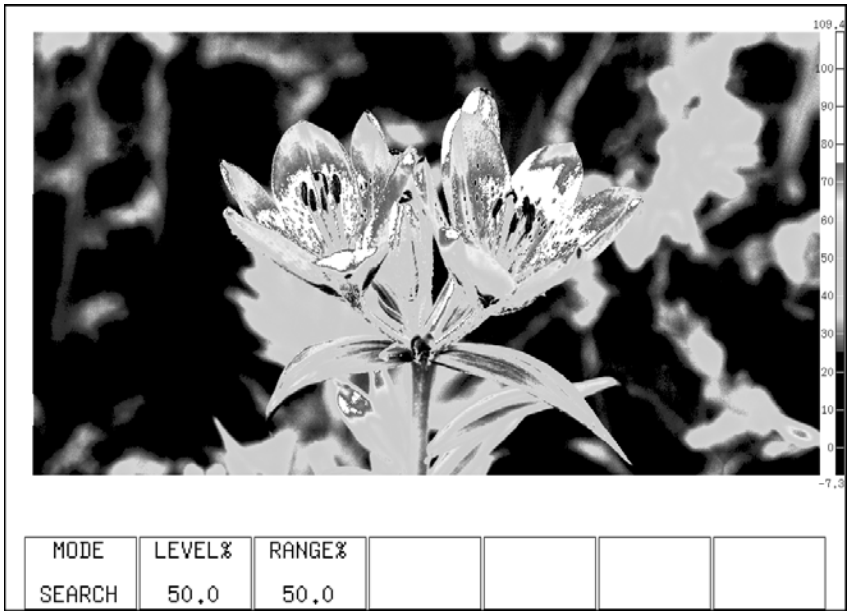


Figure 10-5 Level search display

10.3.1 Setting the Search Level

To set the level that is displayed with gradation, follow the procedure below.
The range specified by F•3 RANGE% in reference to F•2 LEVEL% is displayed with gradation.
F•2 LEVEL% appears when F•1 MODE is set to SEARCH.

Procedure

CINEZONE → F•2 LEVEL%
→ F•3 RANGE%

Settings

Range for LEVEL%: -7.3 to 109.4 (The default setting is 50.0.)
Range for RANGE%: 0.5 to 100.0 (The default setting is 12.0.)

11. Video Signal Waveform Display

11.1 Video Signal Waveform Display Explanation

To view the video signal waveform display, press WFM.

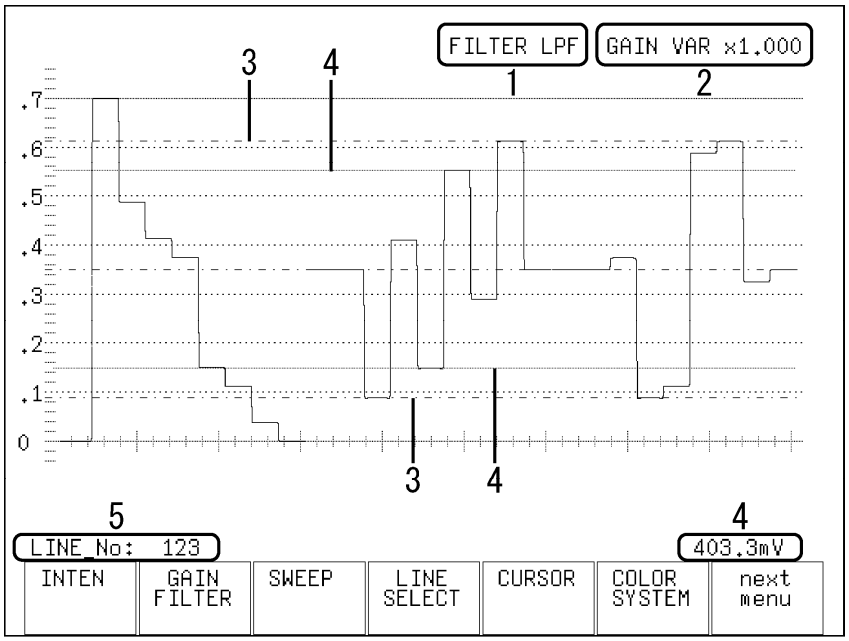


Figure 11-1 Video signal waveform display

Table 11-1 Video signal waveform display explanation

No.	Item	Explanation
1	Filter	Appears when you have set a low pass filter. Reference: Section 11.4.3, “Selecting a Filter”
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: Section 11.4.1, “Selecting the Fixed Gain,” section 11.4.2 “Setting the Variable Gain”
3	Scale for 75 % color bars	A scale that matches the peak levels of the chroma of a 75 % color bar test signal can be displayed here. Reference: Section 11.9.2, “Displaying a Scale for 75 % Color Bars”
4	Cursor	You can measure the time or amplitude using cursors. Reference: Section 11.7, “Cursor Settings”
5	Selected line	You can display the waveform of the selected line. Reference: Section 11.6, “Line Selection Settings”

11.2 Display Position Settings

You can adjust the display position of a video signal waveform using V POS and H POS.

11.2.1 Setting the Vertical Position

Turn V POS to set the video signal waveform's vertical position.
Pressing V POS will return the vertical display position to its default location.

11.2.2 Setting the Horizontal Position

Turn H POS to set the video signal waveform's horizontal position.
Pressing H POS will return the horizontal display position to its default location.

11.3 Intensity Settings

To configure the intensity settings, press F•1 INTEN in the video signal waveform menu. You can set the video signal waveform and scale intensities.

WFM → F•1 INTEN →

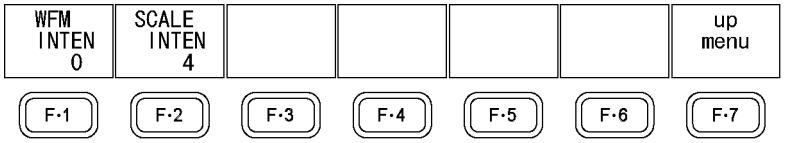


Figure 11-2 INTEN menu

11.3.1 Setting the Video Signal Waveform Intensity

To set the video signal waveform intensity, follow the procedure below. Regardless of this setting, in the multi-screen display, waveforms are displayed using the intensity that MULTI WFM is set to. The WFM INTEN value set using MULTI WFM and the VECTOR INTEN value set using MULTI VEC are the same.
If you press F•D, the intensity will be reset to its default value of 0.
Reference: MULTI WFM → Section 16.2, "Setting Each Measurement Mode"

Procedure

WFM → F•1 INTEN → F•1 WFM INTEN

Settings

Selectable range: –128 to 127 (The default value is 0.)

11.3.2 Setting the Scale Intensity

To set the scale intensity, follow the procedure below. Regardless of this setting, in the multi-screen display, scales are displayed using the intensity that MULTI WFM is set to. The SCALE INTEN value set using MULTI WFM and the SCALE INTEN value set using MULTI VEC are the same.
If you press F•D, the scale intensity will be reset to its default value of 4.
Reference: MULTI WFM → Section 16.2, "Setting Each Measurement Mode"

Procedure

WFM → F•1 INTEN → F•2 SCALE INTEN

Settings

Selectable range: –8 to 7 (The default setting is 4.)

11.4 Gain and Filter Settings

To configure gain and filter settings, press F•2 GAIN FILTER in the video signal waveform menu. You can configure the video signal waveform gain and filter.

WFM → F•2 GAIN FILTER →

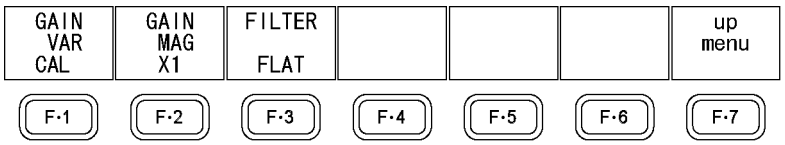


Figure 11-3 GAIN FILTER menu

11.4.1 Selecting the Fixed Gain

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

Procedure

WFM → F•2 GAIN FILTER → F•2 GAIN MAG

Settings

X1:	No gain. This is the default setting.
X5:	Waveforms are magnified to five times their normal size.

11.4.2 Setting the Variable Gain

To set the variable video signal waveform gain, follow the procedure below.
You can set the video signal waveform gain to a value between 0.2 and 10 by setting F•2 GAIN MAG and F•1 GAIN VAR.

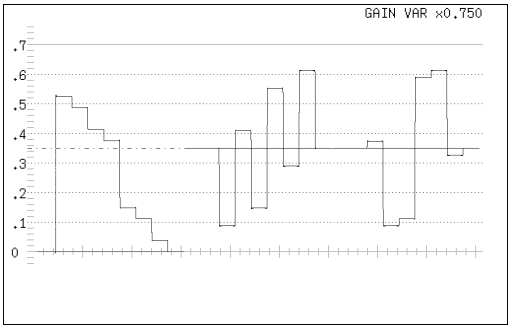
Procedure

WFM → F•2 GAIN FILTER → F•1 GAIN VAR

Settings

CAL:	The video signal waveform gain is fixed. This is the default setting.
VAR:	You can adjust the video signal waveform gain using F•D as described below. The gain value appears in the upper right of the screen. If you press F•D, the gain is set to its default value of 1.000 or 5.000. 0.200 to 2.000 (when GAIN MAG is ×1) 1.000 to 10.000 (when GAIN MAG is ×5)

GAIN MAG = ×1
GAIN VAR = VAR



GAIN MAG = ×5
GAIN VAR = CAL

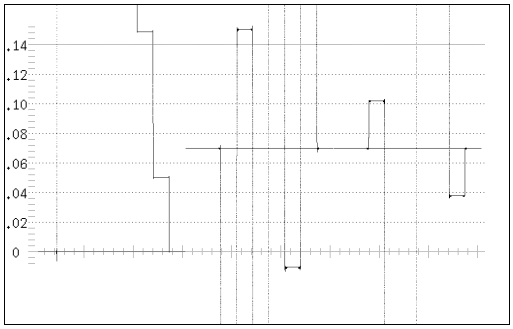


Figure 11-4 Video signal waveform gain

11.4.3 Selecting a Filter

To select a filter, follow the procedure below.
The filters that you can select vary depending on how COLOR MATRIX is set.
Reference: COLOR MATRIX → Section 11.8.1, “Selecting the Display Format”

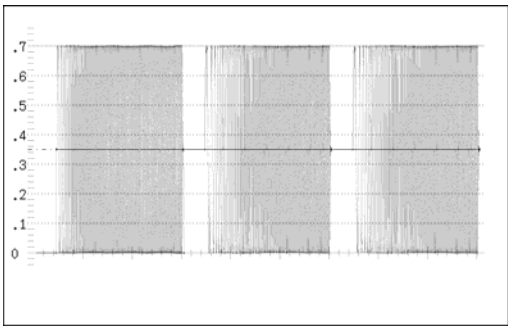
Procedure

WFM → F•2 GAIN FILTER → F•3 FILTER

- **When COLOR MATRIX is set to YCbCr; 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 signal is HD-SDI Attenuation of 20 dB or more at 3.8 MHz when the input signal is SD-SDI

FILTER = FLAT



FILTER = LOW PASS

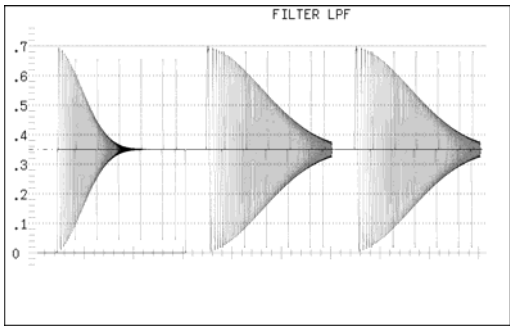
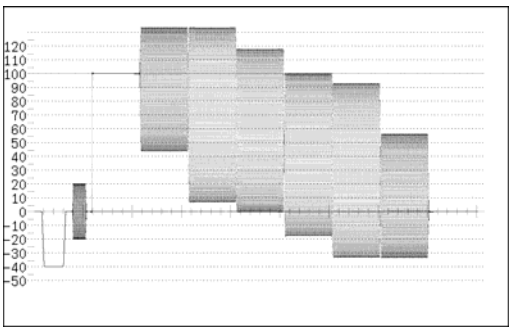


Figure 11-5 Component signal filter displays

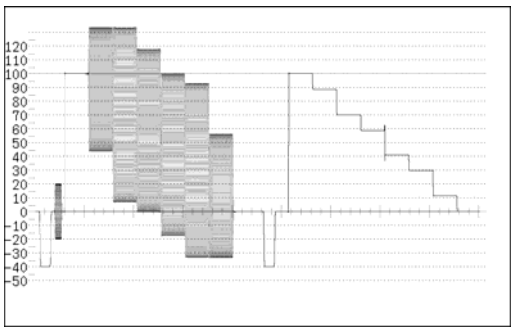
- **When COLOR MATRIX is set to COMPOSIT**

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.
LUMA:	Only the luminance signal is displayed.

FILTER = FLAT



FILTER = FLAT+LUM



FILTER = LUMA

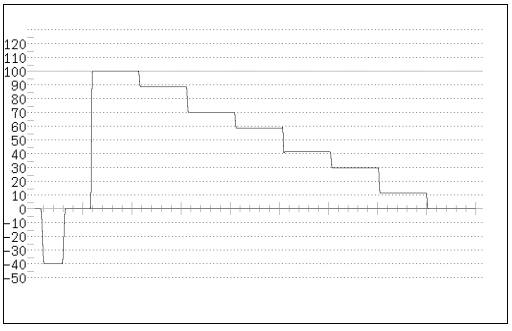


Figure 11-6 Pseudo-composite signal filter display

11.5 Sweep Settings

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

WFM → F•3 SWEEP →

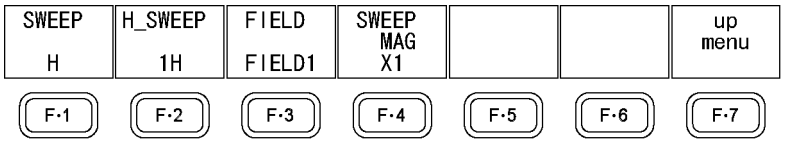


Figure 11-7 SWEEP menu

11.5.1 Selecting the Sweep Method

To select a video signal waveform sweep method, follow the procedure below.
This setting is available when MODE is set to OVERLAY or PARADE. When MODE is set to TIMING, the sweep mode setting is fixed at H.

Reference: MODE → Section 11.12, "Switching the Display Mode"

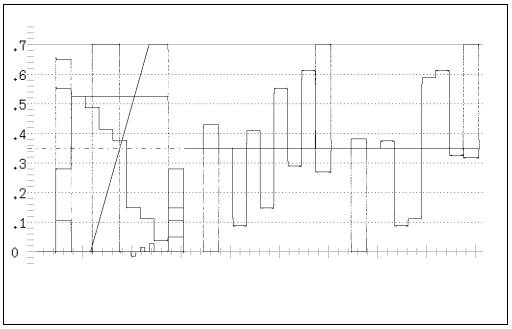
Procedure

WFM → F•3 SWEEP → F•1 SWEEP

Settings

H:	Lines are displayed. This is the default setting.
V:	Fields are displayed when the input format is interlaced or segmented frame. Frames are displayed when the input format is progressive or when F•2 V_SWEEP is set to 2V.

SWEEP = H



H_SWEEP = V

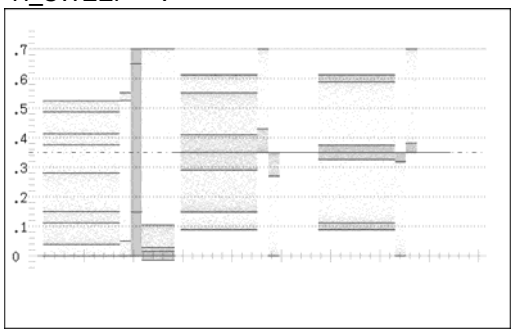


Figure 11-8 Sweep methods

11.5.2 Selecting the Line Display Sweep Time

To select the line display sweep time, follow the procedure below.
This setting is available when F•1 SWEEP is set to H and COLOR MATRIX is set to COMPOSIT or when F•1 SWEEP is set to H and MODE is set to OVERLAY. When MODE is set to PARADE, the sweep mode setting is fixed at 1H.

Reference: COLOR MATRIX → Section 11.8.1, "Selecting the Display Format"
MODE → Section 11.12, "Switching the Display Mode"

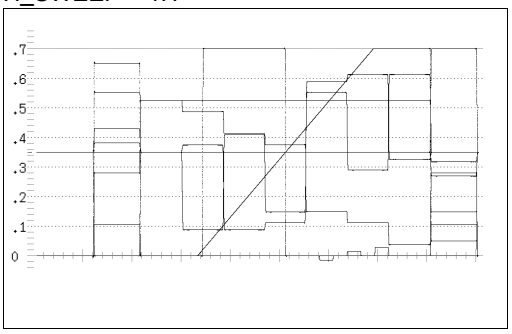
Procedure

WFM → F•3 SWEEP → F•2 H_SWEEP

Settings

1H:	The sweep time is set to that of one line. This is the default setting.
2H:	The sweep time is set to that of two lines.

H_SWEEP = 1H



H_SWEEP = 2H

Figure 11-9 Line display sweep times

11.5.3 Selecting the Field or Frame Display Sweep Time

To select the field or frame display sweep time, follow the procedure below.
This setting is available when F•1 SWEEP is set to V and the input format is set to interlaced or segmented frame (as long as MODE is set to PARADE and COLOR MATRIX is set to COMPOSIT).
When the input format is progressive, the sweep time is fixed at one frame. The sweep time is fixed at 1V unless MODE is set to PARADE and COLOR MATRIX is set to COMPOSIT.

Reference: COLOR MATRIX → Section 11.8.1, "Selecting the Display Format"
MODE → Section 11.12, "Switching the Display Mode"

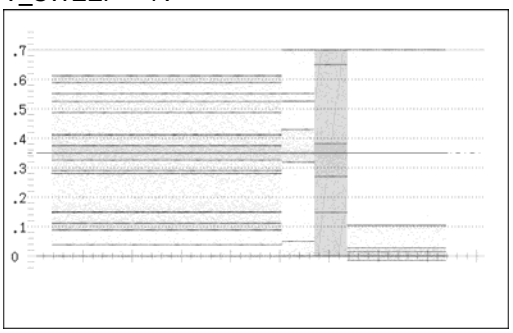
Procedure

WFM → F•3 SWEEP → F•2 V_SWEEP

Settings

1V:	The sweep time is set to that of one field. This is the default setting.
2V:	The sweep time is set to that of one frame.

V_SWEEP = 1V



V_SWEEP = 2V

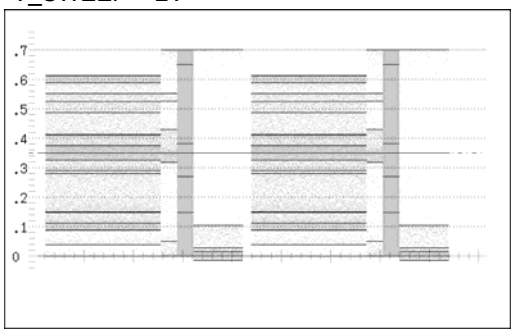


Figure 11-10 Field/frame display sweep times

11.5.4 Selecting Which Field to Display

When displaying fields, follow the procedure below to select which field to display. This setting is available when F•1 SWEEP is set to V and the input format is set to interlaced or segmented frame. However, this setting is invalid when F•2 V_SWEEP is set to 2V.

Procedure

WFM → F•3 SWEEP → F•3 FIELD

Settings

FIELD1: Field 1 is displayed. This is the default setting.
FIELD2: Field 2 is displayed.

11.5.5 Selecting the Horizontal Magnification

To select the horizontal magnification, follow the procedure below. The magnifications that you can select vary depending on the F•1 SWEEP, COLOR MATRIX, MODE, and F•2 H_SWEEP settings as indicated in the table below. When F•2 H_SWEEP is set to 2H and COLOR MATRIX is set to COMPOSIT, the magnification is fixed at ×1.

Reference: COLOR MATRIX → Section 11.8.1, "Selecting the Display Format"
MODE → Section 11.12, "Switching the Display Mode"

Table 11-2 Horizontal magnifications

SWEEP	COLOR MATRIX	MODE	H_SWEEP	×1	×10	×20	×40	ACTIVE	BLANK
H	YCbCr	PARADE	—	Yes	Yes	Yes	No	Yes	Yes
	GBR	OVERLAY	1H	Yes	Yes	Yes	No	Yes	Yes
	RGB		2H	Yes	Yes	Yes	No	No	Yes
		TIMING	—	Yes	Yes	Yes	No	Yes	No
	COMPOSIT	—	1H	Yes	No	No	No	Yes	No
V	—	—	—	Yes	No	Yes	Yes	No	No

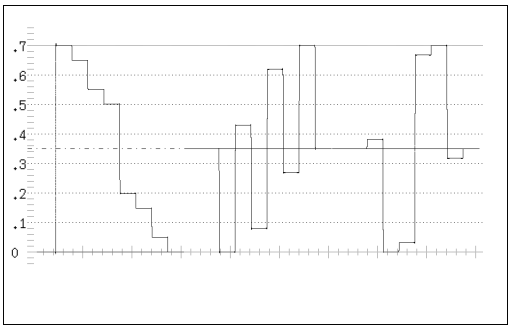
Procedure

WFM → F•3 SWEEP → F•4 SWEEP MAG

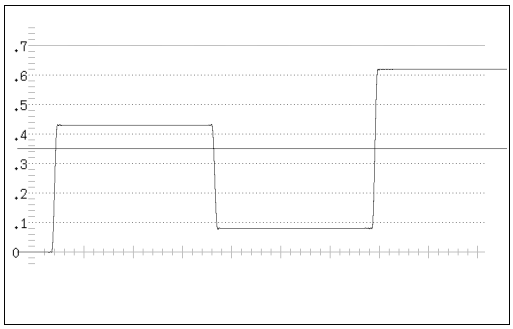
Settings

X1:	The video signal waveforms are displayed so that they fit in the screen. This is the default setting.
X10:	The video signal waveforms are magnified from the center of the display to 10 times the size of ×1.
X20:	The video signal waveforms are magnified from the center of the display to 20 times the size of ×1.
X40:	The video signal waveforms are magnified from the center of the display to 40 times the size of ×1.
ACTIVE:	Everything but the video signal waveform blanking interval is magnified.
BLANK:	The video signal waveform blanking interval is magnified.

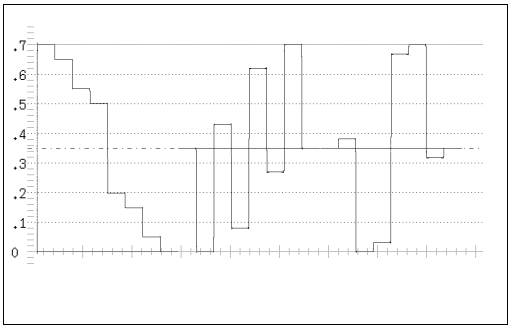
SWEEP MAG = ×1



SWEEP MAG = ×10



SWEEP MAG = ACTIVE



SWEEP MAG = BLANK

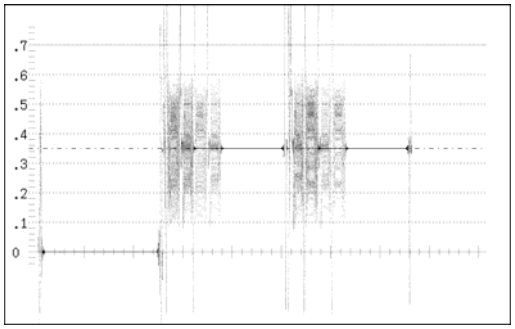


Figure 11-11 Horizontal magnifications

11.6 Line Selection Settings

To configure the line select settings, press F•4 LINE SELECT in the video signal waveform menu. You can display the waveform of the selected line.
This setting is available when SWEEP is set to H.

Reference: SWEEP → Section 11.5.1, “Selecting the Sweep Method”

WFM → F•4 LINE SELECT →

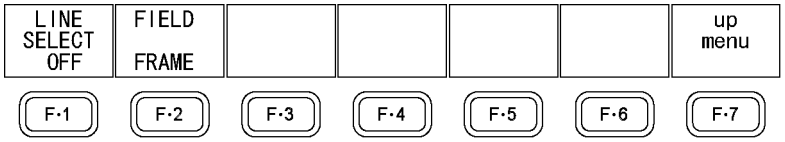


Figure 11-12 LINE SELECT menu

11.6.1 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.

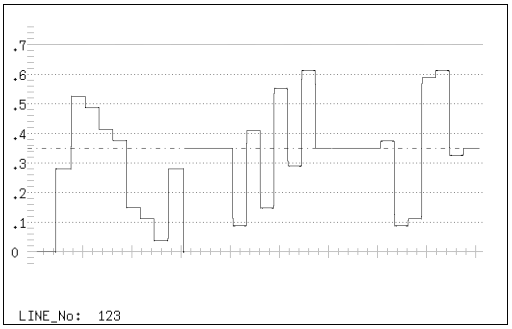
Procedure

WFM → F•4 LINE SELECT → F•1 LINE SELECT

Settings

ON:	The waveform of the selected line is displayed.
OFF:	The waveforms of all lines are displayed on top of each other. This is the default setting.

LINE SELECT = ON



LINE SELECT = OFF

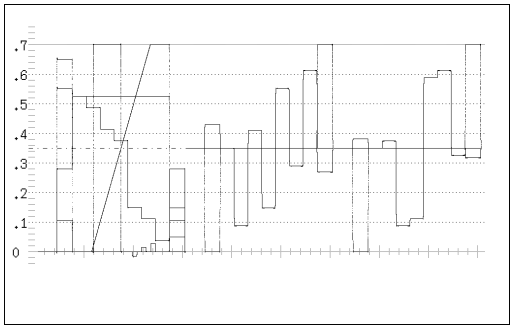


Figure 11-13 Turning line selection on and off

11.6.2 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.
Changing this setting will also change the selected line in the picture, CINELITE, vector, and status (data dump) displays.

Procedure

WFM → F•4 LINE SELECT → F•D

11.6.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.
F•2 FIELD appears 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 → F•4 LINE SELECT → F•2 FIELD

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

FIELD1:	A line from field one 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.)

11.7 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.

WFM → F•5 CURSOR →

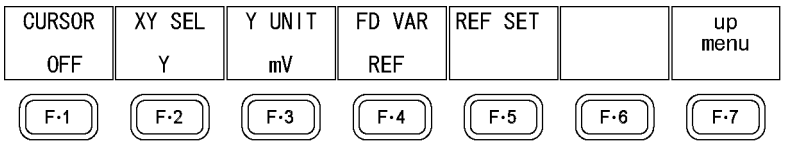


Figure 11-14 CURSOR menu

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.

Procedure

WFM → F•5 CURSOR → F•1 CURSOR

Settings

ON:	Cursors are displayed.
OFF:	Cursors are not displayed. This is the default setting.

11.7.2 Selecting the Cursor Type

To select the cursor type, follow the procedure below.
This setting is available when COLOR MATRIX is set to an option other than COMPOSIT.
When COLOR MATRIX is set to COMPOSIT, the cursor type setting is fixed at Y.

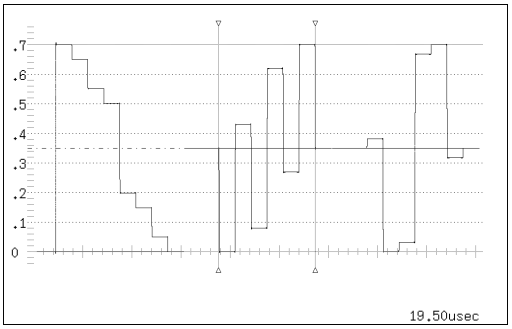
Procedure

WFM → F•5 CURSOR → F•2 XY SEL

Settings

X:	X cursors are displayed for measuring time.
Y:	Y cursors are displayed for measuring amplitude.

CURSOR = X



CURSOR = Y

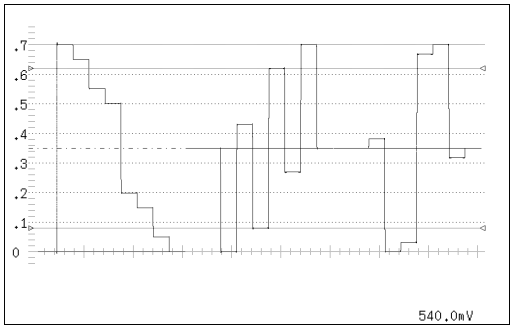


Figure 11-15 Cursor types

11.7.3 Moving the Cursors

Follow the procedure below to select a cursor and then move it by turning F•D. Triangles appear on both ends of the selected cursor.
You can also select a cursor by pressing F•D. Each time you press F•D, the selected cursor switches from REF, to DELTA, to TRACK, and so on.

Procedure

WFM → F•5 CURSOR → F•4 FD VAR

Settings

REF:	The REF cursor (blue) is selected. This is the default setting.
DELTA:	The DELTA cursor (green) is selected.
TRACK:	The REF cursor and DELTA cursor are both selected.

11.7.4 Setting the Units of Measurement

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

- **When CURSOR is set to Y**

Procedure

WFM → F•5 CURSOR → F•3 Y UNIT

Settings

mV:	Measurements are made in units of voltage. This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT. This is the default setting.
%:	Measurements are made as percentages. When COLOR MATRIX is set to YCbCr, GBR, or RGB 700 mV = 100 % When COLOR MATRIX is set to COMPOSIT and the composite format is set to NTSC 714 mV = 100 % When COLOR MATRIX is set to COMPOSIT and the composite format is set to PAL 700 mV = 100 %
R%:	The amplitude will be measured as a percentage of the amplitude at the time when you pressed F•5 REF SET. This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT.
3FF:	Measurements are made in hexadecimal with 0 to 100 % expressed as 040 to 3AC. This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT.
1023:	Measurements are made in decimal with 0 to 100 % expressed as 64 to 940. This setting cannot be chosen when COLOR MATRIX is set to COMPOSIT.

- **When CURSOR is set to X**

Procedure

WFM → F•5 CURSOR → F•3 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•3 Y UNIT is set to R%, follow the procedure below to set the amplitude at the location of your choice to 100 %.

Procedure

WFM → F•5 CURSOR → F•5 REF SET

11.8 Color System Settings

To configure the color system settings, press F•6 COLOR SYSTEM in the video signal waveform menu. You can set the video signal waveform display format and setup level.

WFM → F•6 COLOR SYSTEM →

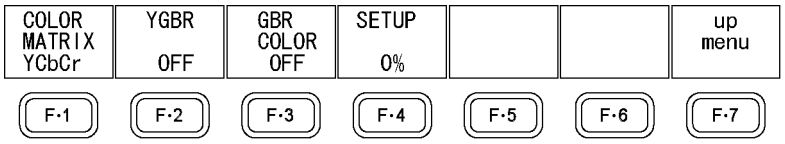


Figure 11-16 COLOR SYSTEM menu

11.8.1 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 left 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 5.1.4, "Setting the Composite Display Format"

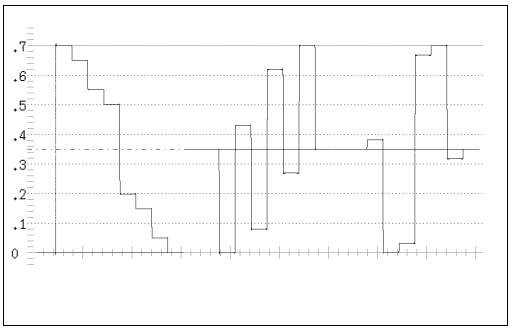
Procedure

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

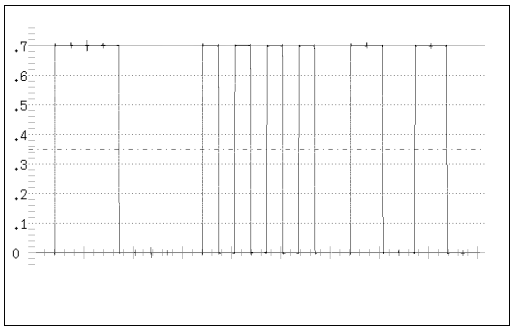
Settings

YCbCr:	Luminance and chrominance signals are displayed. This setting cannot be chosen when the LV 5330 is in dual link mode. This is the default setting.
GBR:	A YC_BC_R signal is converted into a GBR signal and displayed.
RGB:	A YC_BC_R signal is converted into an RGB signal and displayed.
COMPOSIT:	A YC_BC_R signal is converted into a pseudo-composite signal and displayed.

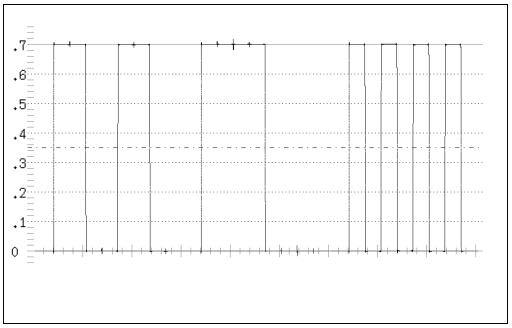
COLOR MATRIX = YCbCr



COLOR MATRIX = GBR



COLOR MATRIX = RGB



COLOR MATRIX = COMPOSIT

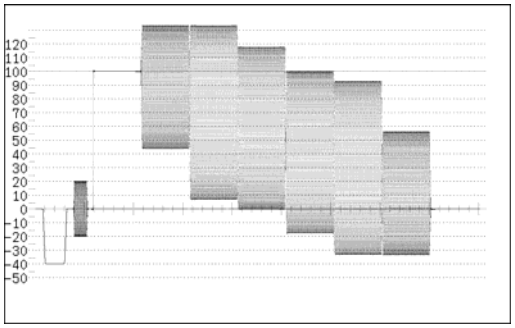


Figure 11-17 Component and pseudo-composite displays

11.8.2 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.

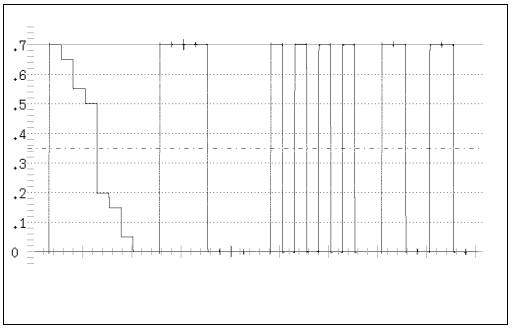
Procedure

WFM → F•6 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



YRGB = ON

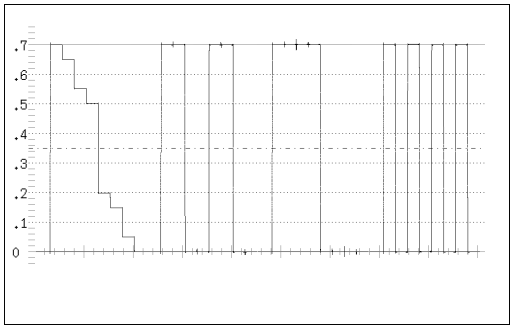


Figure 11-18 YGBR and YRGB displays

11.8.3 Selecting the Waveform Colors

To display waveforms in colors that correspond to G, B, and R, follow the procedure below. This setting is available when F•1 COLOR MATRIX is set to GBR or RGB.

Procedure

WFM → F•6 COLOR SYSTEM → F•3 GBR COLOR
→ F•3 RGB COLOR

Settings

ON:	Waveforms are displayed in colors that correspond to G, B, and R. Waveforms are displayed in white in the parade and V sweep displays.
OFF:	Waveforms are displayed in white. This is the default setting.

11.8.4 Setting the Setup Level

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

Reference: Composite display format → Section 5.1.4, "Setting the Composite Display Format"

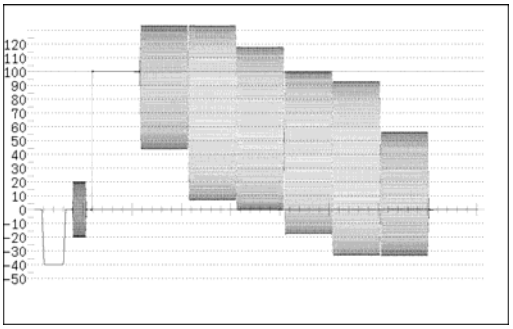
Procedure

WFM → F•6 COLOR SYSTEM → F•4 SETUP

Settings

0%:	No setup level is added. This is the default setting.
7.5%:	A setup level of 7.5 % is added.

SETUP = 0%



SETUP = 7.5%

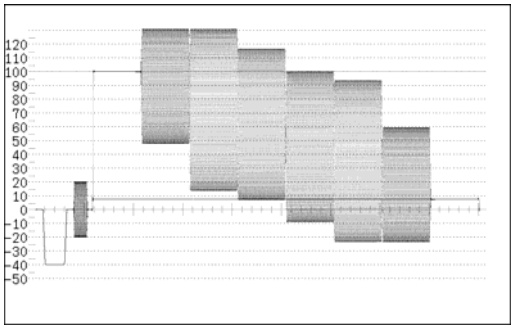


Figure 11-19 Pseudo-composite display setup levels

11.9 Scale Settings

To configure the scale settings, press F•1 SCALE in the video signal waveform menu. You can set the scale unit, type, and color.

WFM → F•7 next menu → F•1 SCALE →

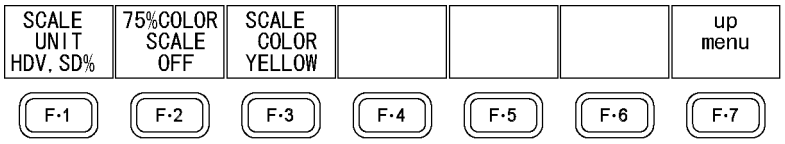


Figure 11-20 SCALE menu

11.9.1 Selecting the Scale Unit

To select the scale unit, follow the procedure below.
This setting is available when COLOR MATRIX is set to an option other than COMPOSIT. When COLOR MATRIX is set to COMPOSIT, the scale unit setting is fixed at percentage if the composite display format is NTSC, and it is fixed at V if the composite display format is PAL.

Reference: COLOR MATRIX → Section 11.8.1, "Selecting the Display Format"
Composite display format → Section 5.1.4, "Setting the Composite Display Format"

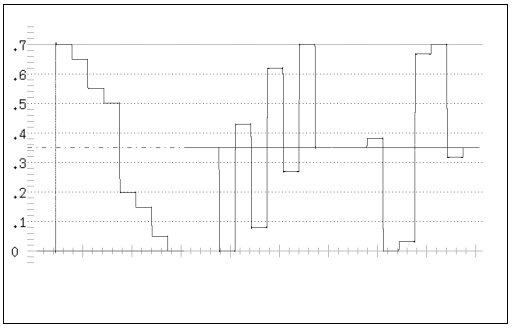
Procedure

WFM → F•7 next menu → F•1 SCALE → F•1 SCALE UNIT

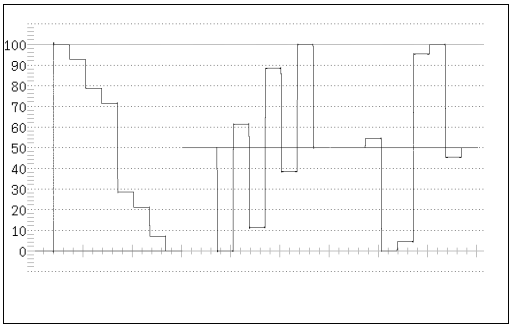
Settings

HDV,SD%:	The scale unit is set to V when the input signal is HD-SDI and to % when the input signal is SD-SDI. This is the default setting.
HDV,SDV:	The scale unit is set to V.
HD%,SD%:	The scale unit is set to %.
3FF:	0 to 100 % is displayed as 040 to 3AC (YGBR) or 040 to 3C0 (CbCr).
1023:	0 to 100 % is displayed as 64 to 940 (YGBR) or 64 to 960 (CbCr).

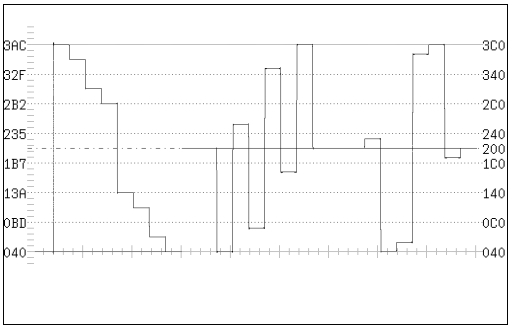
SCALE UNIT = HDV,SDV



SCALE UNIT = HD%,SD%



SCALE UNIT = 3FF



SCALE UNIT = 1023

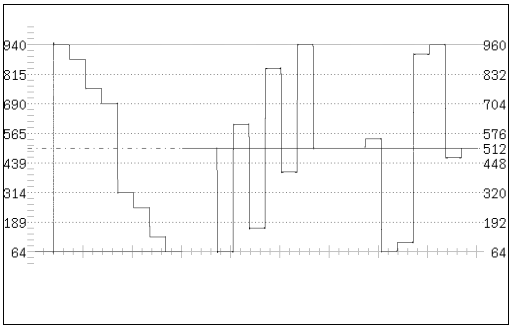


Figure 11-21 Scale units

11.9.2 Displaying a Scale for 75 % Color Bars

To display a scale that matches the peak levels of the chroma of a 75 % color bar test signal, follow the procedure below.
This setting is available when COLOR MATRIX is set to YCbCr.
Reference: COLOR MATRIX → Section 11.8.1, “Selecting the Display Format”

Procedure

WFM → F•7 next menu → F•1 SCALE → F•2 75%COLOR SCALE

Settings

ON:	A scale for 75 % color bars is displayed.
OFF:	A scale for 75 % color bars is not displayed. This is the default setting.

75%COLOR SCALE = ON

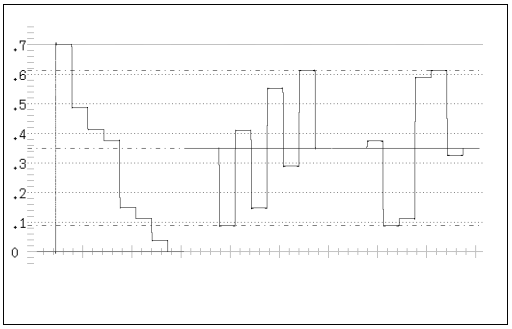


Figure 11-22 Scale for 75 % color bars

11.9.3 Changing the Scale Color

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

Procedure

WFM → F•7 next menu → F•1 SCALE → F•3 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.

11.10 Displaying the Blanking Interval

To display the blanking interval, follow the procedure below.

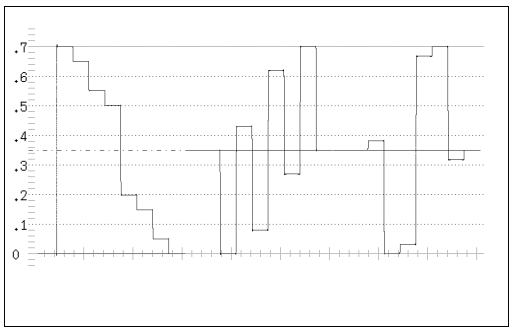
Procedure

WFM → F•7 next menu → F•2 EAV-SAV

Settings

REMOVE:	The blanking interval is blacked out. This is the default setting.
PASS:	The blanking interval is displayed.

EAV-SAV = REMOVE



EAV-SAV = PASS

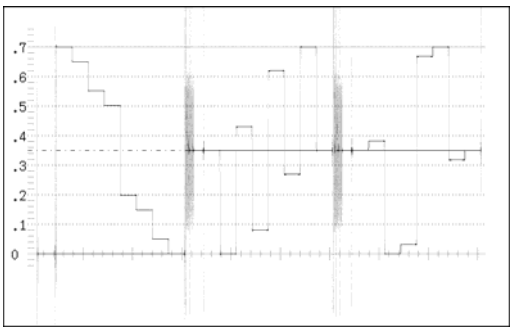


Figure 11-23 Blanking interval displays

11.11 Setting the Display Mode to TIMING

You can set the display mode using F•4 MODE, but TIMING cannot be selected with the default settings. To enable the selection of TIMING, set F•4 MODE to TIMING after first setting F•3 TIMING MODE to NORMAL by following the procedure below.

Procedure

WFM → F•7 next menu → F•3 TIMING MODE

Settings

NORMAL:	TIMING is added to the options for F•4 MODE.
PASS:	TIMING is not included in the options for F•4 MODE. This is the default setting.

11.12 Switching the Display Mode

To switch the display mode, follow the procedure below.

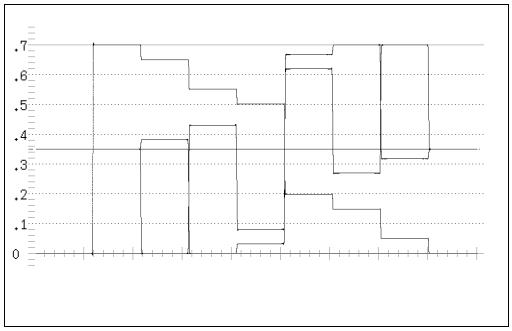
Procedure

WFM → F•7 next menu → F•4 MODE

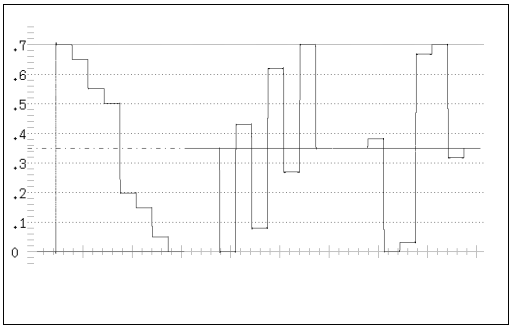
Settings

OVERLAY:	Component signals are displayed on top of each other (overlaid).
PARADE:	Component signals are displayed side by side (parade display). This is the default setting.
TIMING:	The time and amplitude differences between a given channel and channel 1 are displayed (timing display).

MODE = OVERLAY



MODE = PARADE



MODE = TIMING

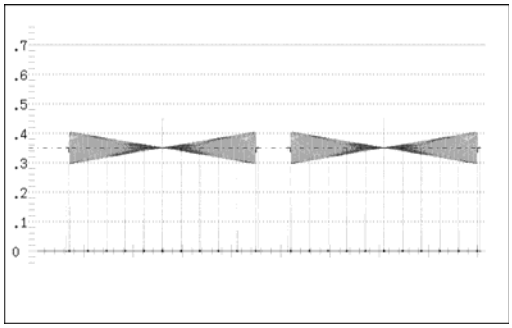


Figure 11-24 Display Modes

In the timing display, a bowtie signal (permission to use patented technology granted by Tektronix, Inc.) is used as the signal source. Y and C_B are displayed on the left half and Y and C_R are displayed on the right half.

You can examine the space between the narrow area of the waveform, referred to as the null, and the long reference markers in the center for timing problems. If you use an LT 443D signal as the signal source, the marker spacing indicates a time difference of 1 ns. If the null of the C_B or C_R waveform is further to the left of the screen than the marker, C_B or C_R is ahead, if the null is further to the right of the screen than the marker, C_B or C_R is behind.

You can examine the width of the pinched areas of the waveform to determine amplitude differences. If the amplitudes are different between channels, the pinched areas will be thicker.

11.13 Turning YC_BC_R; GBR; and RGB Channels On and Off

To turn signal channels on and off, press F•5 DISPLAY in the video signal waveform menu.
F•5 DISPLAY does not appear if:

- MODE is set to TIMING.
- COLOR MATRIX is set to COMPOSIT.
- YGBR or YRGB is set to ON.

Reference: MODE → Section 11.12, “Switching the Display Mode”
COLOR MATRIX → Section 11.8.1, “Selecting the Display Format”
YGBR, YRGB → Section 11.8.2, “Displaying the GBR or RGB Signal Simultaneously with the Luminance Signal”

WFM → F•7 next menu → F•5 DISPLAY →

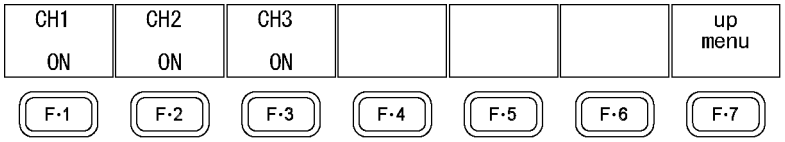


Figure 11-25 DISPLAY menu

To turn individual channels in a YC_BC_R; GBR; or RGB signal on and off, follow the procedure below.
You cannot set every channel to OFF.

Procedure

WFM → F•7 next menu → F•5 DISPLAY → F•1 CH1
F•2 CH2
F•3 CH3

Settings

ON:	The specified channel in the YC_BC_R, GBR, or RGB signal is displayed. This is the default setting.
OFF:	The specified channel in the YC_BC_R, GBR, or RGB signal is not displayed.

The waveforms that are assigned to each channel are indicated in the table below.

Table 11-3 Waveform assignments

COLOR MATRIX	CH1	CH2	CH3
YCbCr	Y	Cb	Cr
GBR	G	B	R
RGB	R	G	B

12. Vector Display

12.1 Vector Display Explanation

To display vectors, press VECTOR.

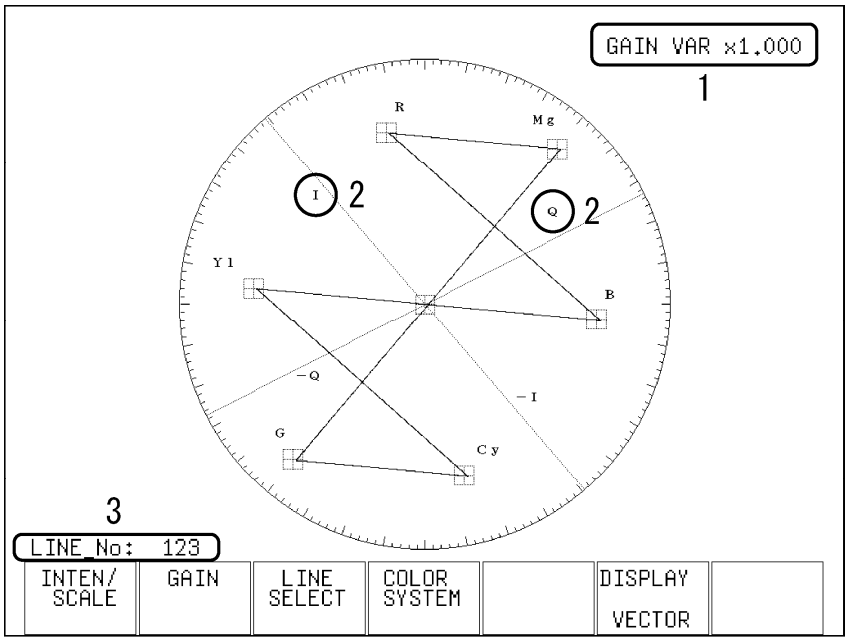


Figure 12-1 Vector display

Table 12-1 Vector display explanation

No.	Item	Explanation
1	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: Section 12.3.1, “Selecting the Fixed Gain,” section 12.3.2 “Setting the Variable Gain”
2	I and Q axes	The I and Q axes can be displayed. Reference: Section 12.2.3, “Displaying the I and Q Axes”
3	Selected line	You can display the waveform of the selected line. Reference: Section 12.4, “Line Selection Settings”

12.2 Vector and Scale Settings

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

VECTOR → F•1 INTEN/SCALE →

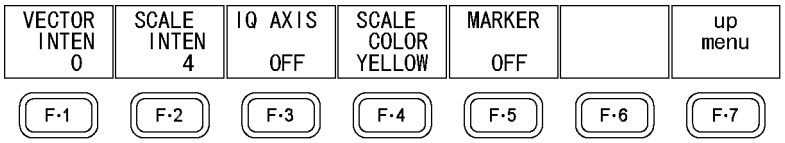


Figure 12-2 INTEN/SCALE menu

12.2.1 Setting the Vector Intensity

To set the vector intensity, follow the procedure below. Regardless of this setting, in the multi-screen display, scales are displayed using the intensity that MULTI VEC is set to. The VECTOR INTEN value set using MULTI VEC and the WFM INTEN value set using MULTI WFM are the same.
If you press F•D, the intensity will be reset to its default value of 0.
F•1 VECTOR INTEN appears when DISPLAY is set to VECTOR.

Reference: MULTI VEC → Section 16.2, "Setting Each Measurement Mode"
DISPLAY → Section 12.6, "Switching between the Vector, 5 Bar, and Phase Difference Displays"

Procedure

VECTOR → F•1 INTEN/SCALE → F•1 VECTOR INTEN

Settings

Selectable range: –128 to 127 (The default value is 0.)

12.2.2 Setting the Scale Intensity

To set the scale intensity, follow the procedure below. Regardless of this setting, in the multi-screen display, scales are displayed using the intensity that MULTI VEC is set to. The SCALE INTEN value set using MULTI VEC and the SCALE INTEN value set using MULTI WFM are the same.
If you press F•D, the scale intensity will be reset to its default value of 4.

Reference: MULTI VEC → Section 16.2, "Setting Each Measurement Mode"

Procedure

VECTOR → F•1 INTEN/SCALE → F•2 SCALE INTEN

Settings

Selectable range: –8 to 7 (The default setting is 4.)

12.2.3 Displaying the I and Q Axes

To display the I and Q axes, follow the procedure below.
F•3 IQ AXIS appears when DISPLAY is set to VECTOR.

Reference: DISPLAY → Section 12.6, "Switching between the Vector, 5 Bar, and Phase Difference Displays"

Procedure

VECTOR → F•1 INTEN/SCALE → F•3 IQ AXIS

Settings

ON:	The I and Q axes are displayed, unless the input format is 625i/50.
OFF:	The I and Q axes are not displayed. This is the default setting.

IQ AXIS = ON

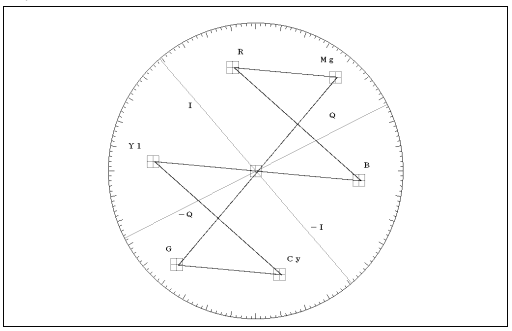


Figure 12-3 The I and Q axes display

12.2.4 Changing the Scale Color

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

Procedure

VECTOR → F•1 INTEN/SCALE → F•4 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.

12.2.5 Displaying the Vector Marker

When the link format is set to single, to display a marker on the vector display, follow the procedure below.

You can move the marker horizontally using H POS and vertically using V POS. The measured values are displayed in the lower right of the display. Press H POS to move the marker to the Cb = 0.0% position. Press V POS to move the marker to the Cr = 0.0% position.

Measured values are displayed using the following references: Cb at position B = 100.0% and Cr at position R = 100.0%. The distance from the center is expressed as “d,” and hue is expressed as “deg.” Normally, marker is displayed in green. When if falls outside the display, it blinks in red.

F•5 MARKER appears when DISPLAY is set to VECTOR.

Reference: DISPLAY → Section 12.6, “Switching between the Vector, 5 Bar, and Phase Difference Displays”

Procedure

VECTOR → F•1 INTEN/SCALE → F•5 MARKER

Settings

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

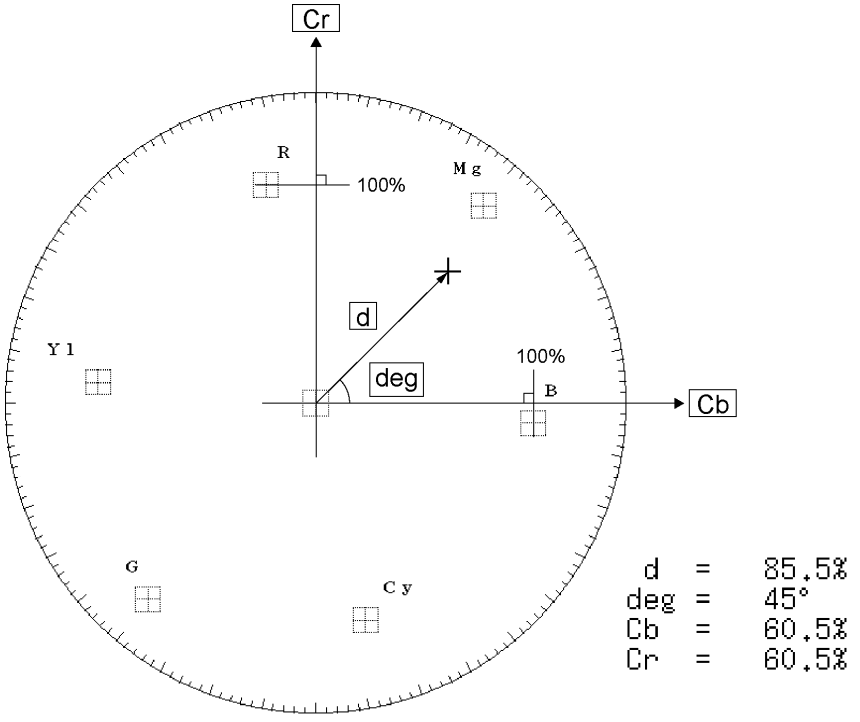


Figure 12-4 Displaying the vector marker

12.3 Gain Settings

To set the vector gain, press F•2 GAIN in the vector menu.
F•2 GAIN appears when DISPLAY is set to VECTOR.

Reference: DISPLAY → Section 12.6, “Switching between the Vector, 5 Bar, and Phase Difference Displays”

VECTOR → F•2 GAIN →

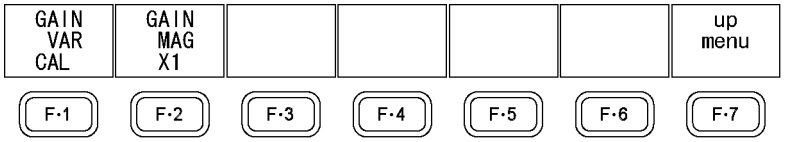


Figure 12-5 GAIN menu

12.3.1 Selecting the Fixed Gain

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

Procedure

VECTOR → F•2 GAIN → F•2 GAIN MAG

Settings

X1:	No gain. This is the default setting.
X5:	Vectors are magnified to five times their normal size.
IQ-MAG:	Vectors are magnified to 3.14 times their normal size. (The gain is set so that the IQ signal fits within the perimeter of the scale when NTSC SMPTE color bars are up-converted to HDTV.)

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•1 GAIN VAR.

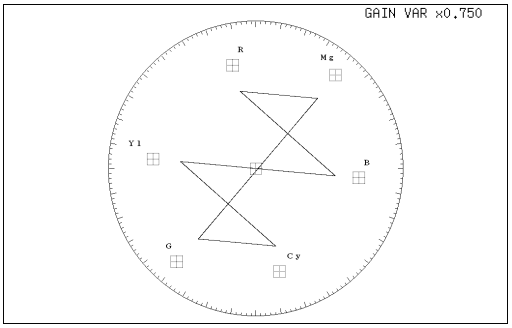
Procedure

VECTOR → F•2 GAIN → F•1 GAIN VAR

Settings

CAL:	The vector gain is fixed. This is the default setting.
VAR:	You can adjust the vector gain using F•D as described below. The gain value appears in the upper right of the screen. If you press F•D, the gain is set to its default value of 1.000, 5.000, or 3.140. 0.200 to 2.000 (when GAIN MAG is set to ×1) 1.000 to 10.000 (when GAIN MAG is set to ×5) 0.628 to 6.280 (when GAIN MAG is set to IQ-MAG)

GAIN MAG = ×1
GAIN VAR = VAR



GAIN MAG = IQ-MAG
GAIN VAR = CAL

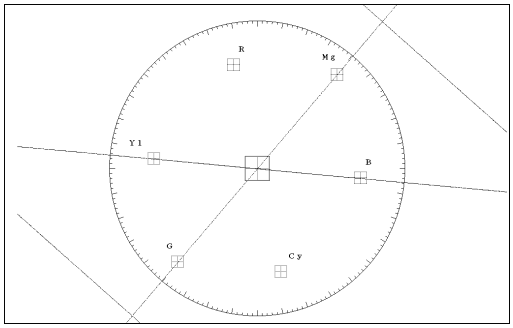


Figure 12-6 Vector gains

12.4 Line Selection Settings

To configure the line select settings, press F•3 LINE SELECT in the vector menu. You can display the vectors of the selected line.
F•3 LINE SELECT appears when DISPLAY is set to VECTOR or 5BAR.

Reference: DISPLAY → Section 12.6, “Switching between the Vector, 5 Bar, and Phase Difference Displays”

VECTOR → F•3 LINE SELECT →

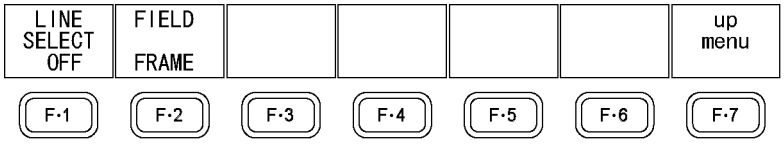


Figure 12-7 LINE SELECT menu

12.4.1 Displaying the Vectors of the Selected Line

To display the vectors 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.

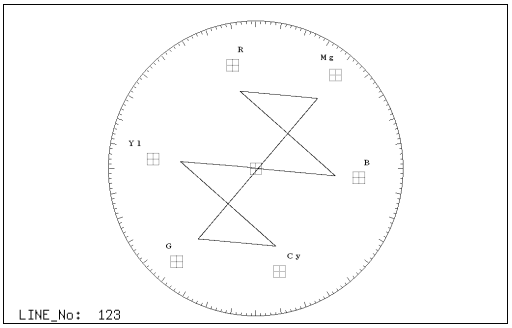
Procedure

VECTOR → F•3 LINE SELECT → F•1 LINE SELECT

Settings

ON:	The vectors of the selected line are displayed.
OFF:	The vectors of all lines are displayed on top of each other. This is the default setting.

LINE SELECT = ON



LINE SELECT = OFF

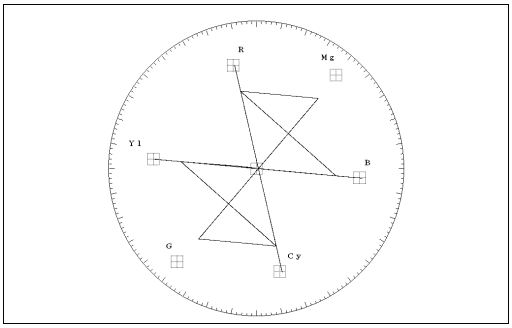


Figure 12-8 Turning line selection on and off

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.
Changing this setting will also change the selected line in the picture, CINELITE, video signal waveform, and status (data dump) displays.

Procedure

VECTOR → F•3 LINE SELECT → F•D

12.4.3 Setting the Line Selection Range

To set the line selection range, follow the procedure below.
F•2 FIELD appears when the input format is set to interlaced or segmented frame.
Changing this setting will also change the picture display and video signal waveform display line selection ranges.

Procedure

VECTOR → F•3 LINE SELECT → F•2 FIELD

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

FIELD1:	A line from field one 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.)

12.5 Color System Settings

To configure color system settings, press F•4 COLOR SYSTEM in the vector menu. You can set the vector display format and display a scale for 75 % color bars.
F•4 COLOR SYSTEM appears when DISPLAY is set to VECTOR.

Reference: DISPLAY → Section 12.6, “Switching between the Vector, 5 Bar, and Phase Difference Displays”

VECTOR → F•4 COLOR SYSTEM →

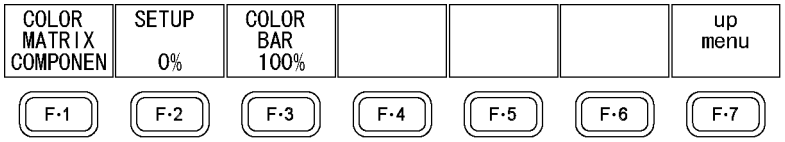


Figure 12-9 COLOR SYSTEM menu

12.5.1 Selecting the Display Format

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

Reference: COMPOSIT FORMAT → Section 5.1.4, “Setting the Composite Display Format”

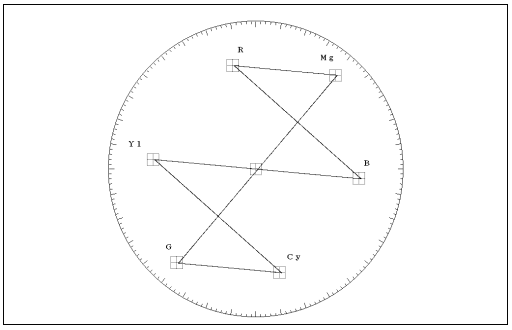
Procedure

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

Settings

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

COLOR MATRIX = COMPONEN



COLOR MATRIX = COMPOSIT

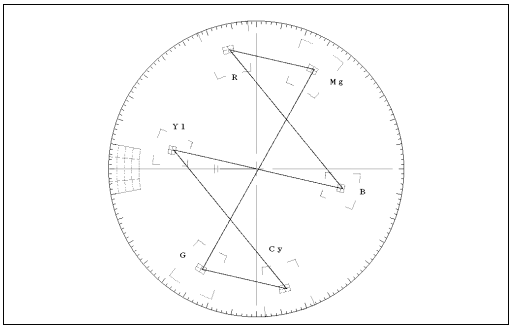


Figure 12-10 Component and pseudo-composite displays

12.5.2 Setting the Setup Level

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

Reference: Composite display format → Section 5.1.4, “Setting the Composite Display Format”

Procedure

VECTOR → F•4 COLOR SYSTEM → F•2 SETUP

Settings

0%:	No setup level is added. This is the default setting.
7.5%:	A setup level of 7.5 % is added.

12.5.3 Displaying a Scale for 75 % Color Bars

To display a scale for 75 % color bars, follow the procedure below.

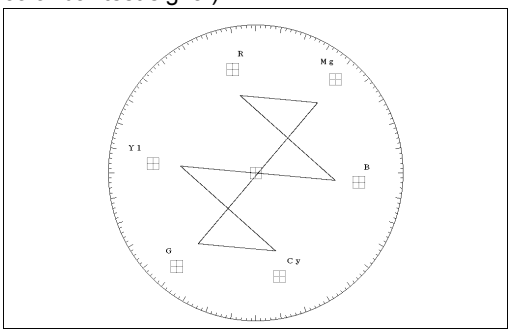
Procedure

VECTOR → F•4 COLOR SYSTEM → F•3 COLOR BAR

Settings

100%:	A scale that matches the peak levels of a 100 % color bar test signal appears. This is the default setting.
75%:	A scale that matches the peak levels of a 75 % color bar test signal appears.

COLOR BAR = 100% (when receiving a 75 % color bar test signal)



COLOR BAR = 75% (when receiving a 75 % color bar test signal)

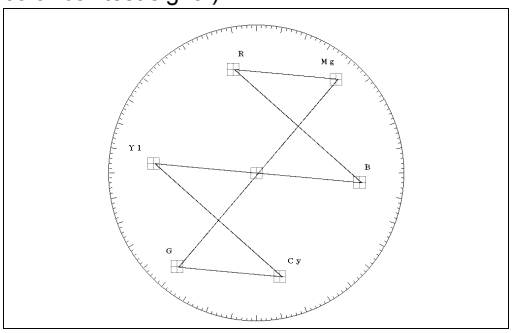


Figure 12-11 Scale types

12.6 Switching between the Vector, 5 Bar, and Phase Difference Displays

To switch between the vector, 5 bar, and phase difference displays, follow the procedure below.
When the LV 5330 is in dual link mode, it can only display vector waveforms. F•6 DISPLAY does not appear.

Procedure

VECTOR → F•6 DISPLAY

Settings

VECTOR: The vector display is shown. This is the default setting.
5BAR: The 5 bar display is shown.
EXTPHASE: The phase difference between an SDI signal and an external sync signal is displayed.

12.7 5 Bar Display

12.7.1 5 Bar Display Explanation

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.
To show the 5 bar display, set F•6 DISPLAY to 5BAR.

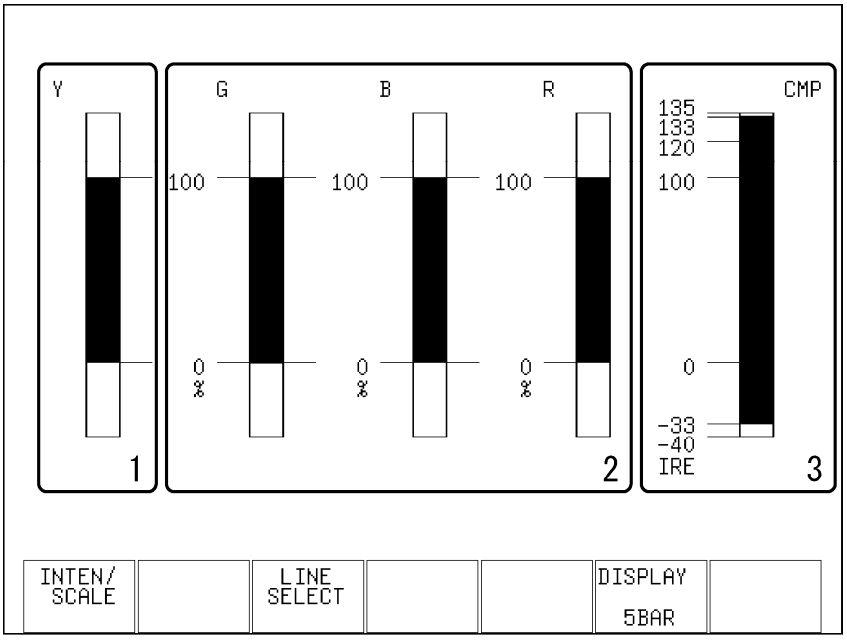


Figure 12-12 5 bar display

Table 12-2 5 bar display explanation

No.	Item	Explanation
1	Y	The luminance signal level is displayed here. Levels less than 0 % or greater than 100 % are displayed in red. (If you install an LV 5330SER02, which is sold separately, you can set the level that is considered an error.)
2	G, B, and R	The GBR signal levels of the converted YCBCR signal are displayed. The levels that fall outside of the range you set using GAMUT ERROR in the status display are displayed in red. Reference: Section 14.6.6, “Setting Gamut Error Detection Levels”
3	CMP	The pseudo-composite signal level of the converted YCBCR signal is displayed. (The blanking interval is not included.) Levels that fall outside of the range you set using COMPOSIT GAMUT in the status display are displayed in red. Reference: Section 14.6.7, “Setting Composite Gamut Error Detection Levels”

12.7.2 Selecting the 5 Bar Display Unit

The 5 bar display unit is the same as the UNIT setting that you have made on the status menu. To select the 5 bar display unit, follow the procedure below.

Procedure

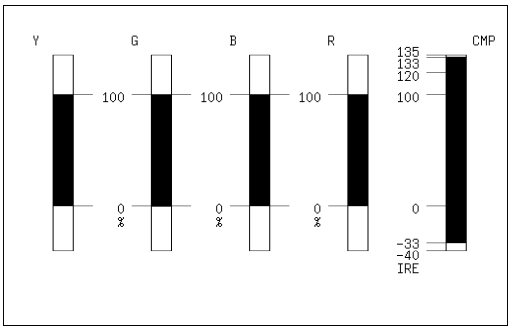
STATYS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•6 UNIT

Settings

%: The display unit for YGBR is percentage, and the display unit for CMP is IRE. This is the default setting.

mV: The display unit is mV. Depending on the composite display format, the scale differs as follows:
NTSC: 100 % = 700 mV (YGBR) and 100 IRE = 714 mV (CMP)
PAL: 100 % (IRE) = 700 mV

UNIT = %



UNIT = mV

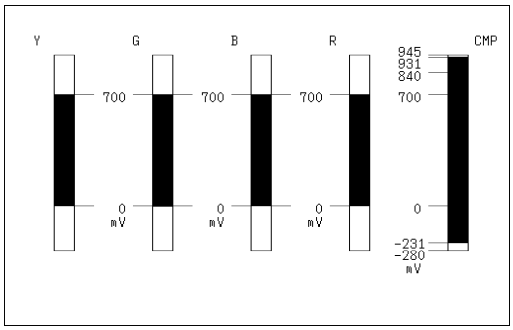


Figure 12-13 5 bar display unit (PAL)

12.8 Phase Difference Display

12.8.1 Explanation of the Phase Difference Display

In the phase difference display, you can measure the phase difference between an SDI signal and an external sync signal. To show the phase difference display, set F•6 DISPLAY to EXTPHASE.
To configure phase difference display settings, press F•5 EXTREF PHASE. F•5 EXTREF PHASE appears when F•6 DISPLAY is set to EXTPHASE.

VECTOR → F•5 EXTREF PHASE →

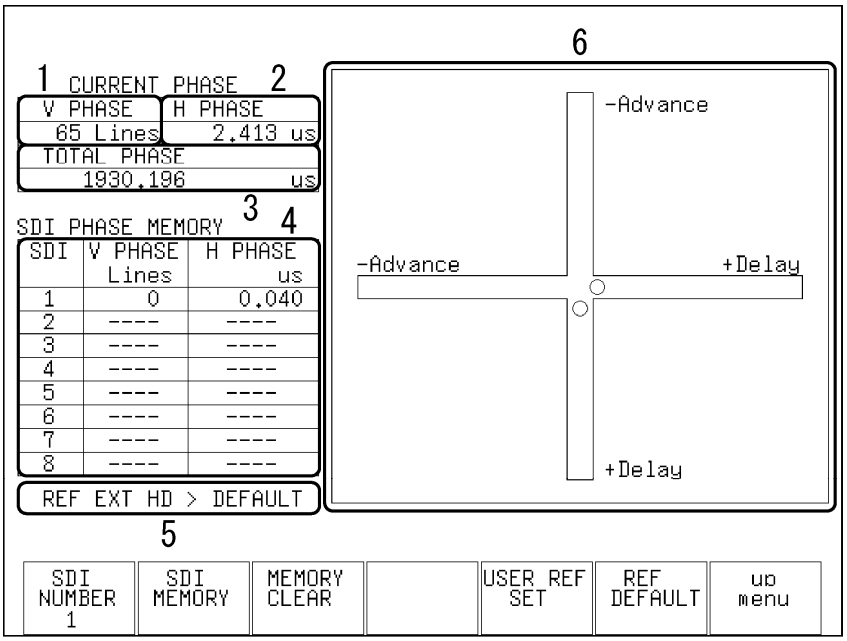


Figure 12-14 Phase difference display

To measure phase differences, press REFE to switch to external sync mode and apply an external sync signal to the LV 5330. 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

Table 12-3 Explanation of the phase difference display

No.	Item	Explanation
1	V PHASE	The phase difference in lines is displayed here.
2	H PHASE	The phase difference in microseconds (us) is displayed here.
3	TOTAL PHASE	The total of the V phase and H phase differences is displayed here in microseconds (us).
4	SDI PHASE MEMORY	Recorded phase differences are displayed here. Reference: Section 12.8.3, “Recording the Current Phase Difference”
5	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 a user-defined phase difference setting. NO SIGNAL — Indicates that no external sync signal is being applied. Reference: Section 12.8.5, “Setting the Current Phase Difference to Zero” Section 12.8.6, “Initializing the Phase Difference Settings”
6	Graphical display	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 LV 5330 uses internal synchronization. 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. See the tables below for details. The H axis phase difference display may fluctuate within the range of ±1 clock in cases such as when the signal is switched.

Table 12-4 Delay and Advance axis display ranges

Format	Displayed in the Advance Axis			Displayed in the Delay Axis				
	V PHASE (in lines)	H PHASE (in µs)		V PHASE (in lines)	H PHASE (in µs)		V PHASE (in lines)	H PHASE (in µs)
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

12.8.2 Setting the Phase Difference Memory Number

You can record up to eight phase differences between the SDI signal and the external sync signal. This is useful in cases such as when you are using a switcher to change signals and you want to align the separate phases.
To select which of the eight different memory numbers to record to or delete, follow the procedure below.

Procedure

VECTOR → F•5 EXTREF PHASE → F•1 SDI NUMBER

Settings

Selectable range: 1 to 8 (The default setting is 1.)

12.8.3 Recording the Current Phase Difference

To record the difference between the SDI signal and the external sync signal to the memory number that you have selected using F•1 SDI NUMBER, follow the procedure below.

Procedure

VECTOR → F•5 EXTREF PHASE → F•2 SDI MEMORY

12.8.4 Deleting Recorded Phase Differences

To delete the phase difference stored in the memory number that you have selected using F•1 SDI NUMBER, follow the procedure below.

Procedure

VECTOR → F•5 EXTREF PHASE → F•3 MEMORY CLEAR

12.8.5 Setting the Current Phase Difference to Zero

To set the current SDI signal and external sync signal phase difference to zero, follow the procedure below. You can change the reference phase difference to match the system that you are using.

Procedure

VECTOR → F•5 EXTREF PHASE → F•5 USER REF SET

12.8.6 Initializing the Phase Difference Settings

To set the current SDI signal and external sync signal phase difference 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.

Procedure

VECTOR → F•5 EXTREF PHASE → F•6 REF DEFAULT

13. Audio Display

13.1 Audio Display Explanation

The audio display shows the levels of eight specified channels using numbers and meters. The meters are typically green, but meters whose values are above the reference level are displayed in red.

The audio display does not have its own key. To show the audio display, press MULTI, and then press F•1 MODE to select AUDIO.
You can configure audio settings from the audio menu. To display the audio menu, press MULTI, and then press F•2 MULTI AUDIO.

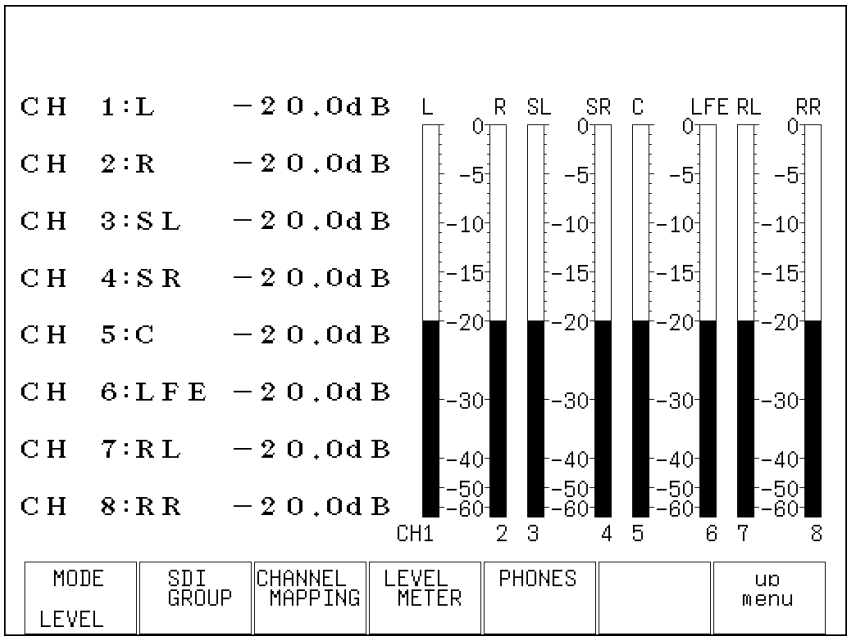


Figure 13-1 Audio display

13.2 Selecting the Display Mode

When the multi-screen display MODE is set to AUDIO, audio levels are displayed using numbers and meters, but when MODE is set to 4SCREEN (when LOWER is set to AUDIO) or WFM_AUDIO, only one or the other (numbers or meters) can be displayed.
When MODE is set to 4SCREEN or WFM_AUDIO, follow the procedure below to select the audio display mode.

Reference: MODE → Section 16.1, “Selecting the Multi-Screen Display Format”

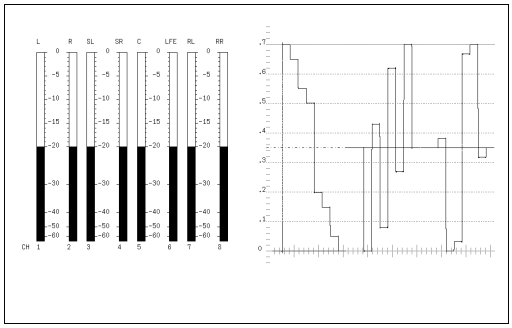
Procedure

MULTI → F•2 MULTI AUDIO → F•1 MODE

Settings

LEVEL:	Audio levels are displayed using meters. This is the default setting.
VALUE:	Audio levels are displayed using numbers.

MODE = LEVEL



MODE = VALUE

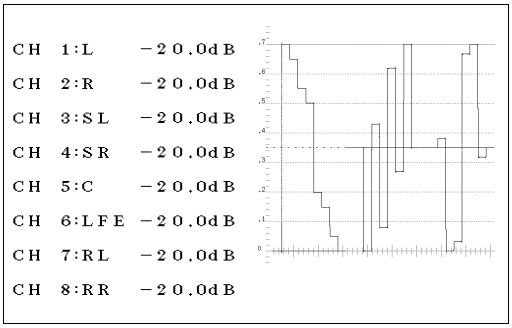


Figure 13-2 Audio display modes

13.3 Selecting Which Channels to Measure

In the audio display, you can measure and display the audio levels of eight channels. To select which channels to measure, press F•2 SDI GROUP in the audio menu.

MULTI → F•2 MULTI AUDIO → F•2 SDI GROUP →

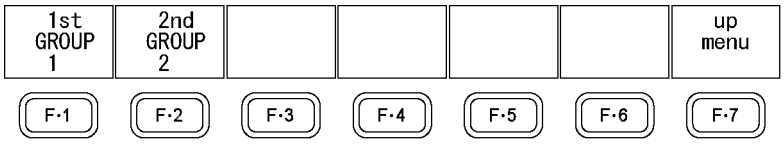


Figure 13-3 SDI GROUP menu

To select the eight channels to show in the audio display, follow the procedure below. The channels assigned to 1st GROUP and 2nd GROUP are listed below.

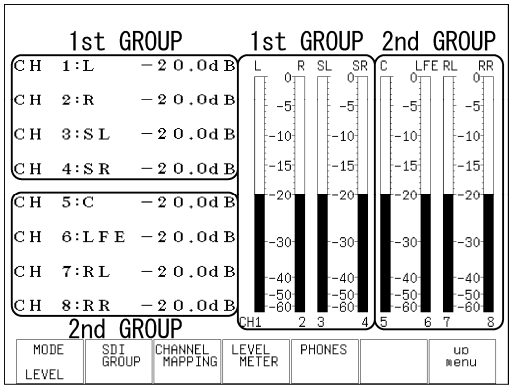


Figure 13-4 Channel assignments

You can select two headphone output channels from among the eight channels that you select here.

Procedure

MULTI → F•2 MULTI AUDIO → F•2 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.

13.4 Channel Mapping Settings

In the audio display, you can assign the following names to different channels: L, R, SL(S), SR, C, LFE, RL, and RR. To assign channel names, press F•3 CHANNEL MAPPING in the audio menu.

MULTI → F•2 MULTI AUDIO → F•3 CHANNEL MAPPING →

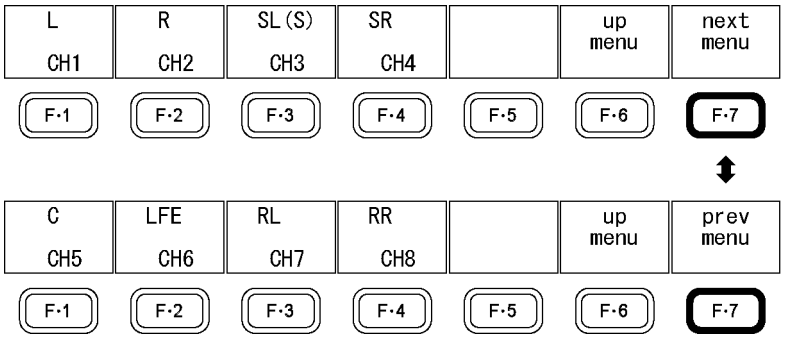


Figure 13-5 CHANNEL MAPPING menu

To assign channel names to different channels, follow the procedure below.
You can see channel names in the audio display. You cannot assign multiple names to a single channel.

Procedure

MULTI → F•2 MULTI AUDIO → F•3 CHANNEL MAPPING → F•1 L
→ F•2 R
→ F•3 SL(S)
→ F•4 SR
→ F•7 next menu → F•1 C
→ F•7 next menu → F•2 LFE
→ F•7 next menu → F•3 RL
→ F•7 next menu → F•4 RR

Settings

Selectable range:	The channels assigned to 1st GROUP and the channels assigned to 2nd GROUP. (The initial channel assignment settings are L:CH1, R:CH2, SL(S):CH3, SR:CH4, C:CH5, LFE:CH6, RL:CH7, and RR:CH8.)

13.5 Meter Settings

To configure meter settings, press F•4 LEVEL METER in the audio menu. You can set the meter reference level, range, and scale.

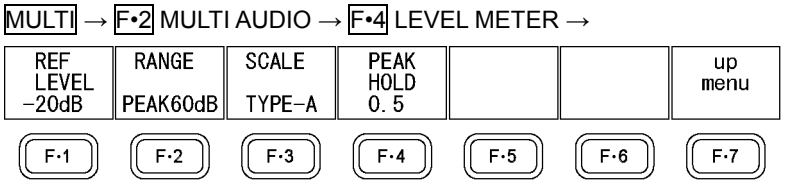


Figure 13-6 LEVEL METER menu

13.5.1 Setting the Reference Level

To set the meter 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 green.

Procedure

MULTI → F•2 MULTI AUDIO → F•4 LEVEL METER → F•1 REF LEVEL

Settings

–20dB:	The reference level is set to –20 dB. This is the default setting.
–18dB:	The reference level is set to –18 dB.
–12dB:	The reference level is set to –12 dB.
–9dB:	The reference level is set to –9 dB.

13.5.2 Setting the Range

To set the meter range, follow the procedure below.

Procedure

MULTI → F•2 MULTI AUDIO → F•4 LEVEL METER → F•2 RANGE

Settings

PEAK60dB:	The meter range is –60 to 0 dB, and the meters have peak markers. This is the default setting.
PEAK90dB:	The meter range is –90 to 0 dB, and the meters have peak markers.
AVERAGE:	The reference level is set to 0 dB, and the range is set to –20 to 3 dB. The meters do not have peak markers.

The table below shows the responsiveness for different meter RANGE settings.

Figure 13-1 Meter responsiveness

RANGE	delay time[1]	return time[2]
PEAK60dB	Instantaneous	1.7 sec
PEAK90dB	Instantaneous	1.7 sec
AVERAGE	0.3 sec	0.3 sec

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.

13.5.3 Selecting the Scale

To select the type of meter scale to use, follow the procedure below.
F•3 SCALE appears when F•2 RANGE is set to PEAK60dB or PEAK90dB.

Procedure

MULTI → F•2 MULTI AUDIO → F•4 LEVEL METER → F•3 SCALE

Settings

TYPE-A: A scale that covers the range determined by the RANGE 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.

13.5.4 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 RANGE is set to PEAK60dB or PEAK90dB.

Procedure

MULTI → F•2 MULTI AUDIO → F•4 LEVEL METER → F•4 PEAK HOLD

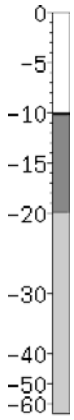
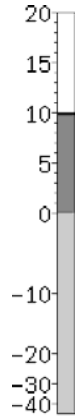
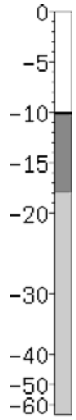
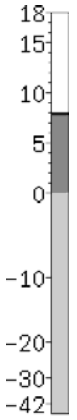
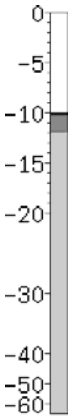
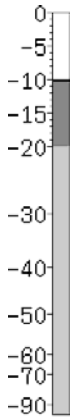
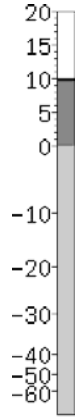
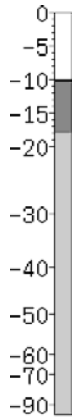
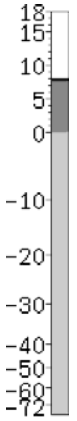
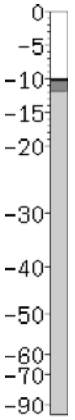
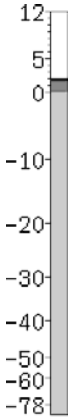
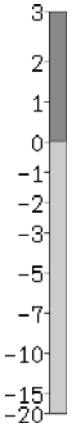
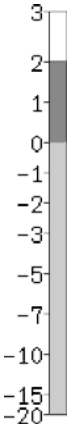
Settings

Selectable range: 0.5 to 5.0 or HOLD. The default setting is 0.5.

13.5.5 Meter Settings Overview

The meter readings for a –10 dB audio signal are shown below.

Figure 13-2 Meter Settings

F·1 REF LEVEL		–20dB		–18dB		–12dB		F·4 PEAK
F·3 SCALE		TYPE-A	TYPE-B	TYPE-A	TYPE-B	TYPE-A	TYPE-B	HOLD
F·2 RANGE	PEAK60dB							0.5 to 5.0 / HOLD
	PEAK90dB							0.5 to 5.0 / HOLD
	AVERAGE							Not valid

13.6 Headphone Settings

To configure the headphone settings, press F•5 PHONES in the audio menu. You can turn headphone output on and off, adjust the headphone volume, and set the headphone output channels.

MULTI → F•2 MULTI AUDIO → F•5 PHONES →

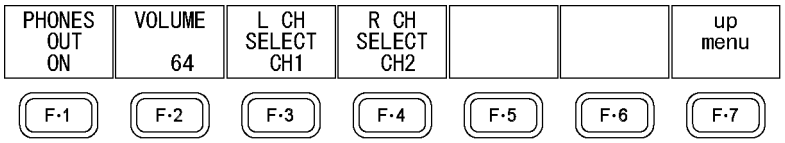


Figure 13-7 PHONES menu

13.6.1 Turning Headphone Output On and Off

To turn the headphone jack signal transmission on and off, follow the procedure below.

Procedure

MULTI → F•2 MULTI AUDIO → F•5 PHONES → F•1 PHONES OUT

Settings

ON:	An audio signal is transmitted through the headphone jack. This is the default setting.
OFF:	An audio signal is not transmitted through the headphone jack.

13.6.2 Adjusting the Headphone Volume

To adjust the headphone volume, follow the procedure below.
If you press F•D, the headphone volume will be reset to its default value of 64.

If SHORTCUT KEY SET in the system settings has been set to VOLUME, you can adjust the headphone volume simply by pressing SHORT CUT.

Reference: SHORTCUT KEY SET → Section 5.6, “Assigning a Function to the SHORT CUT Key”

Procedure

MULTI → F•2 MULTI AUDIO → F•5 PHONES → F•2 VOLUME

Settings

Selectable range: 0 to 128 (The default setting is 64.)

13.6.3 Selecting the Headphone Jack Output Channels

To select the left and right headphone jack output channels separately, follow the procedure below. You can select the two headphone channels from the channels that are assigned to 1st GROUP and 2nd GROUP.

Reference: 1st GROUP and 2nd GROUP → Section 13.3, “Selecting Which Channels to Measure”

Procedure

MULTI → F•2 MULTI AUDIO → F•5 PHONES → F•3 L CH SELECT
→ F•4 R CH SELECT

Settings

Selectable range:	The channels assigned to 1st GROUP and the channels assigned to 2nd GROUP. The default setting is CH1 for L and CH2 for R.

14. Status Display

14.1 Status Display Explanation

To show the status display, press STATUS.

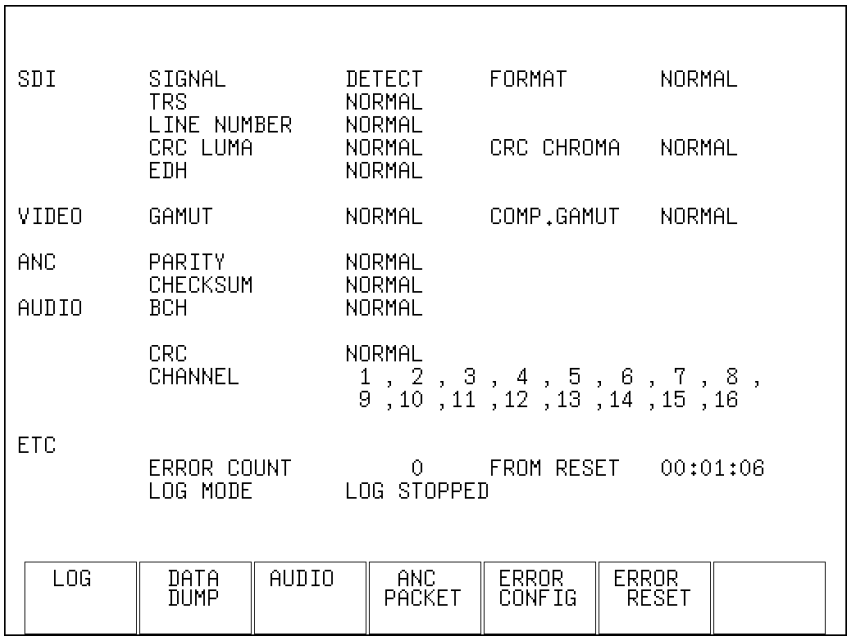


Figure 14-1 Status display

Figure 14-1 Status display explanation

Item	Display	Explanation
SIGNAL		Indicates whether or not an SDI signal is being applied to one of the SDI input connectors. “NO SIGNAL” may appear even when an SDI signal is applied to one of the connectors if the signal amplitude is small or if there is a lot of jitter. If “NO SIGNAL” appears, the rest of the information that follows will be blank.
	DETECT	An SDI signal is being applied.
	NO SIGNAL	An SDI signal is not being applied.
FORMAT		Indicates the video signal format detection status. The meanings of the indications vary as described below depending on whether the input format in the system settings has been set to AUTO or MANUAL. If “UNKNOWN” appears, the rest of the information that follows will be blank. Reference: Section 5.1, “Setting the Input Format”
	NORMAL	When the input format is set to AUTO, this indication means that a signal that the LV 5330 supports is being applied. When the input format is set to MANUAL, this indication means that a signal is being applied whose format is the same as that of the manually specified format.
	UNKNOWN	When the input format is set to AUTO, this indication means that a signal that the LV 5330 does not support is being applied. When the input format is set to MANUAL, this indication means that a signal is being applied whose format is other than that of the manually specified format.

Item	Display	Explanation
TRS		Indicates the TRS error detection results. A TRS error occurs when the EAV and SAV of the SDI input signal are not in the right places.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	TRS ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
LINE NUMBER		Indicates the line number error detection results. A line number error occurs when the line number embedded in the SDI input signal is different than the line number counted internally by the LV 5330. This indication is not displayed when the input signal is SD-SDI.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	LINE ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
CRC LUMA CRC CHROMA		Indicates CRC error detection results separately for the chrominance and luminance signals. An error occurs if the CRC embedded in the SDI input signal and the CRC computed by the LV 5330 do not match. This indication is not displayed when the input signal is SD-SDI.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	CRC ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
EDH		Indicates the EDH error detection results. An error occurs if there is an error flag in an EDH packet embedded in the SDI input signal and or if the CRC computed from the SDI input signal is different than an EDH packet’s CRC data. This indication is not displayed when the input signal is HD-SDI. Reference: Section 14.5.2, “EDH Packet Display Explanation”
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	NOT FOUND	No EDH packets have been found.
	Blank	EDH ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
GAMUT		Indicates the gamut error detection results. An error occurs when the gamut level exceeds the level set by GAMUT, accessed through ERROR CONFIG. Reference: Section 14.6.6, “Setting Gamut Error Detection Levels”
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	GAMUT ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”

Item	Display	Explanation
COMP.GAMUT		Indicates the composite gamut error detection results. An error occurs when the gamut level of the pseudo-composite signal exceeds the level set by COMPOSIT GAMUT, accessed through ERROR CONFIG. Reference: Section 14.6.7, “Setting Composite Gamut Error Detection Levels”
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	C.GAMUT ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
PARITY		Indicates the parity error detection results. UDW errors are not detected.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	PARITY ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
CHECKSUM		Indicates the checksum error detection results.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	CHECKSUM ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
BCH		Indicates the BCH error detection results. An error is counted if the SDI input signal’s embedded audio BCH code causes an error. This indication is not displayed when the input signal is SD-SDI.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	Blank	BCH ERROR has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
CRC		Indicates the CRC error detection results. An error is counted if the channel status bit of the SDI input signal’s embedded audio has a CRC error.
	NORMAL	No errors have been detected.
	ERROR	An error has been detected.
	WARNING	The channel status FORMAT is Consumer. Reference: Section 14.4.1, “Audio Status Display Explanation”
	Blank	AUDIO CRC has been set to OFF. Reference: Section 14.6.3, “Configuring Error Detection Settings”
CHANNEL		The detected channels in the SDI input signal’s embedded audio are displayed here. If audio control packets are embedded in the SDI input signal, the channels are detected from the audio control packet ACT bit. Otherwise, the channels are detected from the audio data packet.
	Number	Audio channels are embedded.
	—	Audio channels are not embedded.

Item	Display	Explanation
ERROR COUNT		The number of detected errors is displayed within the range of 0 to 100,000. You can select whether to count once for every second with a detected error or once for every field with a detected error. Reference: Section 14.6.2, “Selecting the Error Count Rate”
FROM RESET		Indicates the amount of time that has passed since the last error reset.
LOG MODE		Indicates the current condition of the event logging operation. Reference: Section 14.2.3, “Starting Event Logging”
	LOG STOPPED	Event logging is stopped.
	NOW LOGGING	Event logging is in progress.

14.2 Event Log Settings

The LV 5330 can log various events and save event logs in text format to a USB memory device. Events include signal reception, error occurrence, and recovery from an error.
To configure event log settings, press F•1 LOG in the status menu.
The event log contains both channel A and channel B events regardless of input channel setting.

STATUS → F•1 LOG →

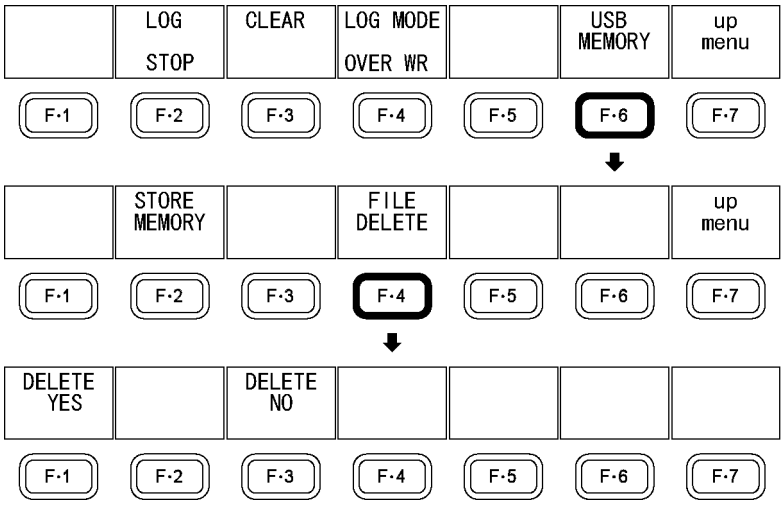


Figure 14-2 LOG menu

14.2.1 Event Log Explanation

To display the event log, press F•1 LOG.

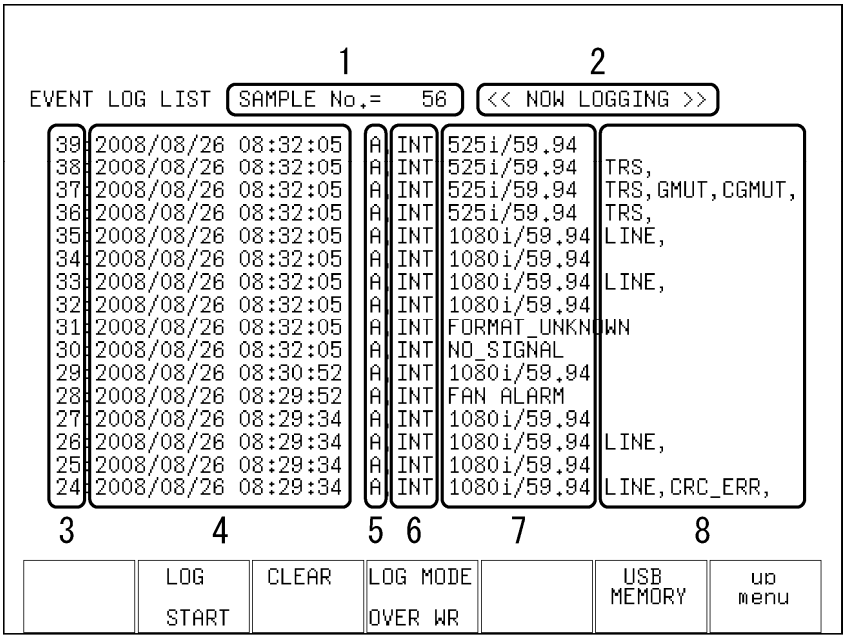


Figure 14-3 Event log

Table 14-2 Event log explanation

No.	Item	Explanation
1	SAMPLE No.	The total number of events (a number from 0 to 1000) is displayed.
2	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•2 LOG. Reference: Section 14.2.3, “Starting Event Logging”
3	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 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•4 LOG MODE. Reference: Section 14.2.2, “Scrolling through the Event Log” Section 14.2.5, “Setting the Event Log Overwrite Mode”
4	Event dates and times	The dates and times when events occurred are listed here. You can set the date and time in the system settings by following the procedures in section 5.5, “Setting the Date and Time.”
5	Event channels	The channels that events occurred on (A or B) are listed here.
6	Sync signals	The sync signal statuses (INT or EXT) when events occurred are listed here.

No.	Item	Explanation
7	Input formats	The input formats when events occurred are listed here. NO_SIGNAL — This message appears if there was no signal. FORMAT_UNKNOWN — This message appears if the input format could not be determined. FAN ALARM — This message occurs if the fan was not operating properly.
8	Event type	The types of events that occurred are listed 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 5330 screen. The displayed event types are listed below. If the detection of a particular error has been disabled, its corresponding event will not be recorded. TRS — TRS error LINE — HD-SDI signal line number error CRC_L — HD-SDI Y signal transmission error CRC_C — HD-SDI C_BC_R signal transmission error EDH — SD-SDI signal transmission error GMUT — Gamut error CGMUT — Composite gamut error PRTY — Ancillary data parity error CHK — Ancillary data checksum error BCH — Embedded audio transmission error CRC_WAR — Channel status FORMAT is Consumer CRC_ERR — Embedded audio CRC error Reference: Section 14.2.6, “Saving the Event Log to USB Memory” Section 14.6.3, “Configuring Error Detection Settings”

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 to the right. To view later events, turn it to the left.

Procedure

STATUS → F•1 LOG → F•D

14.2.3 Starting Event Logging

To start event logging, follow the procedure below.

Procedure

STATUS → F•1 LOG → F•2 LOG

Settings

START:	Event logging is started. “NOW LOGGING” appears in the event log and the status display.
STOP:	Event logging is stopped. “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 event log is also deleted when you:
• Initialize the LV 5330.
• Perform an error reset operation.
• Turn off the power.

Procedure

STATUS → F•1 LOG → F•3 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 → F•1 LOG → F•4 LOG MODE

Settings

OVER WR:	Events after the 1000th event are written over the oldest logged events. This is the default setting.
STOP:	Events after the 1000th 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.

The file name is automatically set to “LOG” + the date and time that you have set using the system settings.
The date is written using the format that has been specified in the system settings. The time is written in this order: hour, minute, second.
Example: LOG20080501100859.txt

The file structure in the USB memory is shown below.

USB memory
└ LOG
  └ LOG********hhmmss.TXT

F•6 USB MEMORY appears when USB memory is connected.

Procedure

STATUS → F•1 LOG → F•6 USB MEMORY → F•2 STORE MEMORY

14.2.7 Deleting Event Logs in USB Memory

To delete an event log that has been saved to USB memory, follow the procedure below. To abort the deletion of the selected event log, press F•3 DELETE NO.
F•4 FILE DELETE appears when there are files in USB memory.

Procedure

STATUS → F•1 LOG → F•6 USB MEMORY → F•4 FILE DELETE → F•1 DELETE YES

14.3 Data Dump Settings

To configure data dump settings, press F•2 DATA DUMP in the status menu. You can display the data of a selected line and save the displayed data to USB memory.

STATUS → F•2 DATA DUMP →

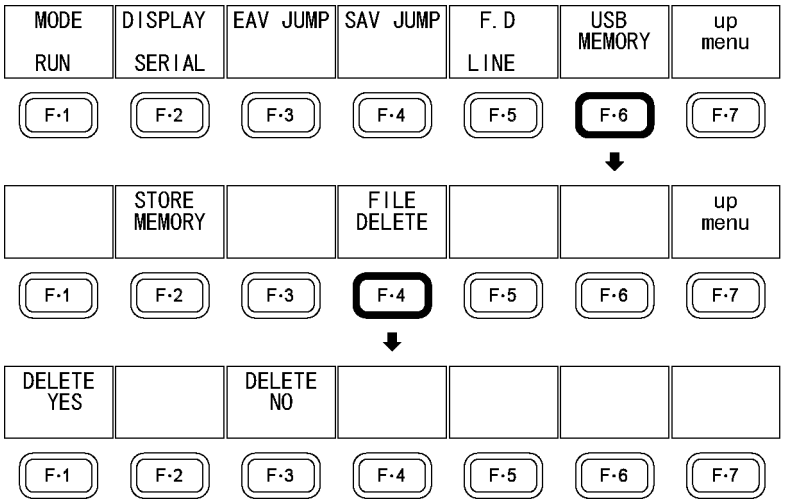


Figure 14-4 DATA DUMP menu

14.3.1 Data Dump Explanation

To show the data dump display, press F•2 DATA DUMP.

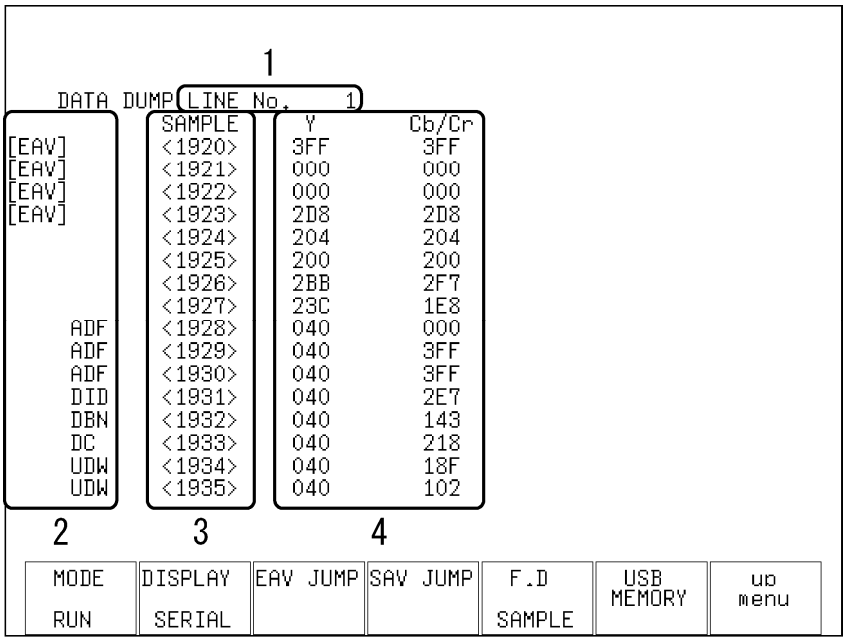


Figure 14-5 Data dump

Table 14-3 Data dump explanation

No.	Item	Explanation
1	LINE No.	The data dump display shows the data of the selected line. The selected line is indicated next to LINE No. To select a line, set F•5 F.D to LINE, and then turn F•D. Reference: Section 14.3.5, “Selecting Data Dump Lines and Samples”
2	Ancillary data	The type of ancillary data embedded in the SDI signal is indicated as shown in the table below. ADF (cyan) Ancillary data header word DID (cyan) Ancillary data ID word SDID (cyan) Data in the secondary format, in which DID is smaller than 80H. DBN (cyan) Data in the primary format, 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 to just before the EAV when the selected line is within the active video area.
3	SAMPLE	The sample numbers of the selected line are displayed here. To select a sample, set F•5 F.D to SAMPLE, and then turn F•D. Reference: Section 14.3.5, “Selecting Data Dump Lines and Samples”
4	Data	The data contained in the line samples is displayed here. You can change the data display format by pressing F•2 DISPLAY. Reference: Section 14.3.3, “Selecting the Data Dump Display Format”

14.3.2 Selecting the Data Dump Display Mode

To set the data dump display mode, follow the procedure below.

Procedure

STATUS → F•2 DATA DUMP → F•1 MODE

Settings

RUN: The displayed SDI input signal data is updated automatically. This is the default setting.

STOP: The displayed SDI input signal data is held.

14.3.3 Selecting the Data Dump Display Format

To select the data dump display format, follow the procedure below.

Procedure

STATUS → F•2 DATA DUMP → F•2 DISPLAY

Settings

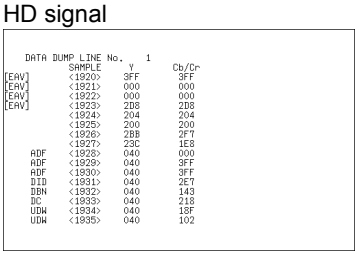
SERIAL: The data is converted from parallel to serial data and displayed. This is the default setting.

COMPO: The data is converted from parallel to serial data, split into Y, Cb, and Cr or G, B, and R, and then displayed.

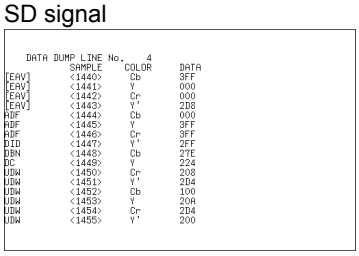
BINARY: The data is converted from parallel to serial data and displayed in binary format.

When DISPLAY is set to SERIAL:

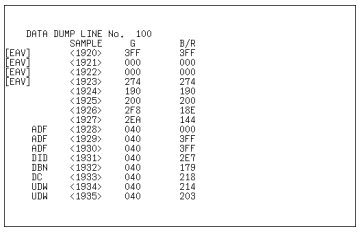
HD signal



SD signal

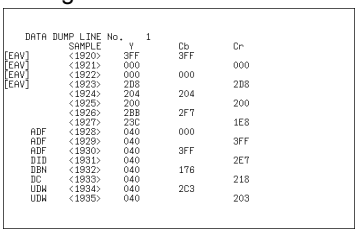


LINK is set to DUAL

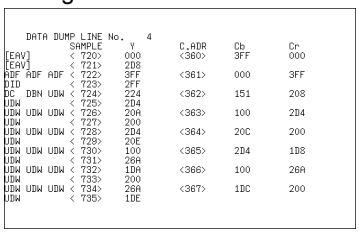


When DISPLAY is set to COMPO:

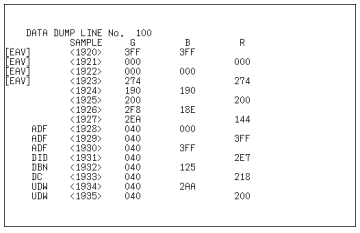
HD signal



SD signal

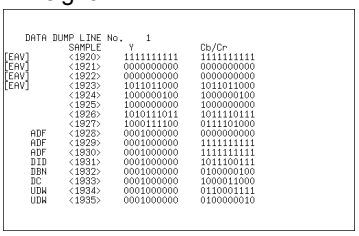


LINK is set to DUAL

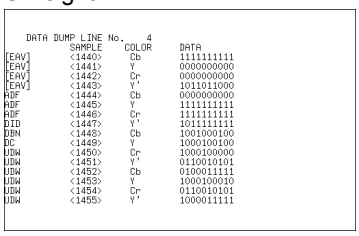


When DISPLAY is set to BINARY:

HD signal



SD signal



LINK is set to DUAL

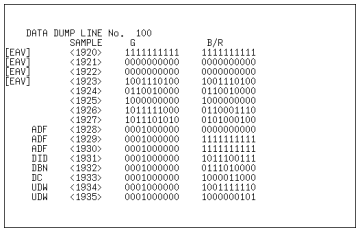


Figure 14-6 Data dump display formats

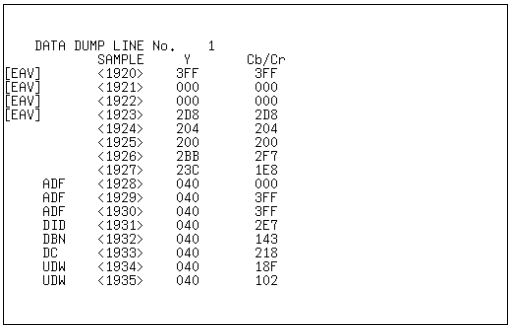
14.3.4 Selecting the Data Dump Display Start Position

To set the data dump display start position to EAV, follow the procedure below and press F•3 EAV JUMP. To set the data dump display start position to SAV, press F•4 SAV JUMP.

Procedure

STATUS → F•2 DATA DUMP → F•3 EAV JUMP
→ F•4 SAV JUMP

EAV JUMP



SAV JUMP

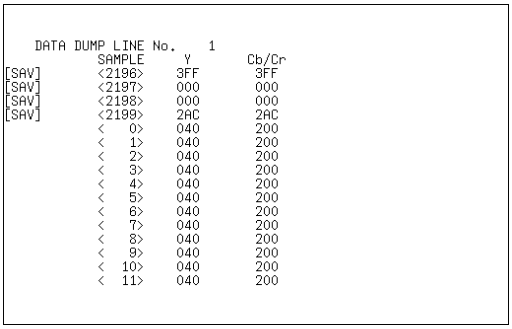


Figure 14-7 Data dump display start position

14.3.5 Selecting Data Dump Lines and Samples

To set the data dump line and sample numbers, turn F•D.
To set whether to set the line or sample number when you turn F•D, follow the procedure below.
When F•1 MODE is set to STOP, this setting is fixed to SAMPLE. F•5 F.D does not appear.

Procedure

STATUS → F•2 DATA DUMP → F•5 F.D

Settings

LINE:	Turning F•D changes the line number. Changing this setting will also change the picture, CINELITE, video signal waveform, and vector display line selection settings.
SAMPLE:	Turning F•D changes the sample number. This is the default setting.

14.3.6 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.

The file name is automatically set to “DAT” + the date and time that you have set using the system settings.
The date is written using the format that has been specified in the system settings. The time is written in this order: hour, minute, second.
Example: DAT20080425150500.TXT

The file structure in the USB memory is shown below.

USB memory
└ DAT
  └ DAT********hhmmss.TXT

F•6 USB MEMORY appears when USB memory is connected.

Procedure

STATUS → F•2 DATA DUMP → F•6 USB MEMORY → F•2 STORE MEMORY

14.3.7 Deleting Data Dumps in USB Memory

To delete a data dump that has been saved to USB memory, follow the procedure below. To abort the deletion of the selected data dump, press F•3 DELETE NO.
F•4 FILE DELETE appears when there are files in USB memory.

Procedure

STATUS → F•2 DATA DUMP → F•6 USB MEMORY → F•4 FILE DELETE → F•1 DELETE YES

14.4 Audio Status Settings

To configure audio status settings, press F•3 AUDIO in the status menu. You can view the data of the selected channel.

14.4.1 Audio Status Display Explanation

To show the audio status display, press F•3 AUDIO.

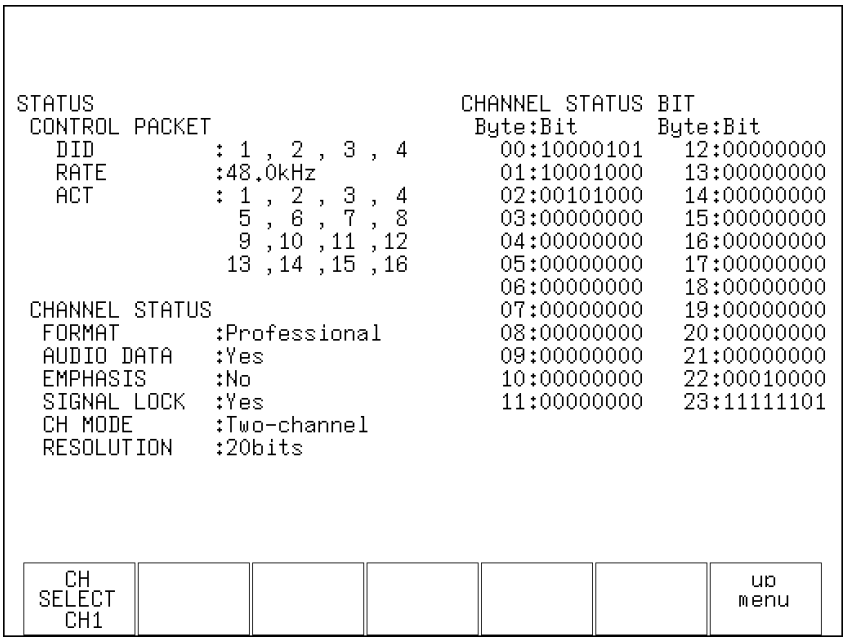


Figure 14-8 Audio status display

Figure 14-4 Audio status display explanation

Item	Display	Explanation
DID		Indicates the embedded audio groups.
	Number	There are embedded audio groups in the signal.
	—	There are no embedded audio groups in the signal.
RATE		Indicates the audio signal sampling rate.
ACT		Indicates the embedded audio channels.
	Number	Audio channels are embedded.
	—	Audio channels are not embedded.
FORMAT		Displays the audio signal type.
	Professional	The signal format is intended for broadcast studios.
	Consumer	The signal format is intended for consumer audio.
AUDIO DATA		Indicates whether or not the selected signal is an audio signal.
	Yes	The signal is an audio signal.
	No	The signal is not an audio signal.

Item	Display	Explanation
EMPHASIS		Indicates the audio signal emphasis specification.
	Not_indicated	There is no emphasis specification.
	No	No emphasis
	50/15us	The emphasis time constant is 50/15us.
	CCIT_J17	CCITT J.17 (800 Hz insertion loss of 6.5 dB)
	Reserved	Undefined data has been received.
SIGNAL LOCK		Indicates the whether or not the sampling frequency is locked.
	Yes	Locked
	No	Not locked
CH MODE		Indicates the channel mode specification.
	Not_indicated	There is no mode specification.
	Two-channel	Two-channel mode has been specified.
	Single-channel	Single-channel mode has been specified.
	Primary/secondary	Primary/secondary mode has been specified.
	Stereo	Stereo mode
	Reserved	Undefined data has been received.
RESOLUTION		Indicates the quantization resolution.
	24bits	24-bit resolution
	20bits	20-bit resolution
CHANNEL STATUS BIT		Displays the 192 channel-status bits.

14.4.2 Selecting Which Channels to Display

To select which channel to display in the audio status display, follow the procedure below. You can select a channel from the channels that have been assigned to 1st GROUP and 2nd GROUP in the audio menu.

Reference: 1st GROUP and 2nd GROUP → Section 13.3, “Selecting Which Channels to Measure”

Procedure

STATUS → F•3 AUDIO → F•1 CH SELECT

Settings

Selectable range: The channels assigned to 1st GROUP and the channels assigned to 2nd GROUP. The default setting is CH1.

14.5 Ancillary Packet Settings

The LV 5330 can analyze and display the ancillary packets embedded in an SDI input signal. To display ancillary packets, press F•4 ANC PACKET in the status menu.

14.5.1 Explanation of the Ancillary Packet Display

In the ancillary packet display, DETECT appears next to packets that have been detected in the SDI input signal, and MISSING appears next to packets that have not been detected. To see whether or not ancillary packets have been detected, press F•4 ANC PACKET.

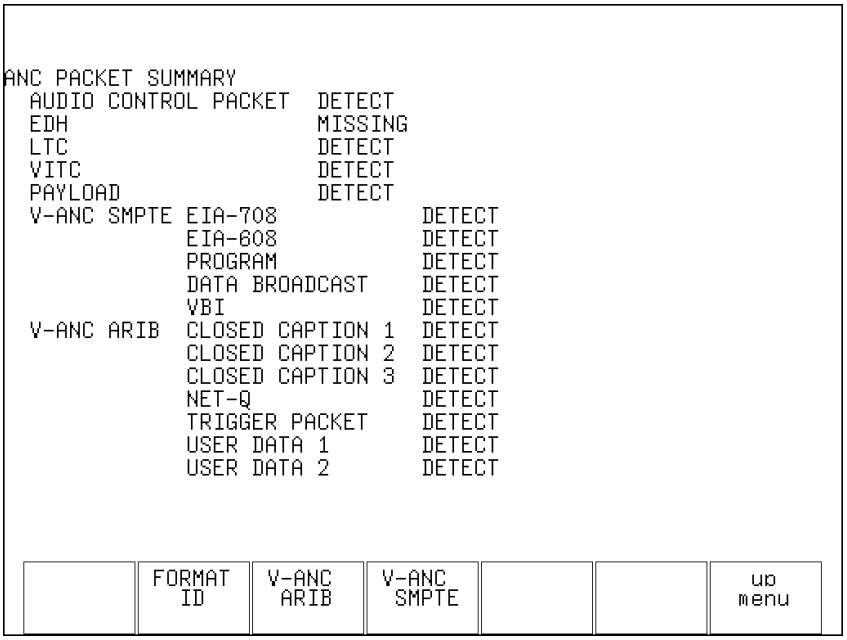


Figure 14-9 Ancillary packet display

Table 14-5 Explanation of the ancillary packet display

Item	Explanation	Compliant Standard	Lines
AUDIO CONTROL PACKET	An embedded audio control packet. Embedded audio streams contain groups that are composed of four channels each. Each group has a control packet. Reference: Section 14.4.1, “Audio Status Display Explanation”		9 and 571 (HD) 12 and 275 (SD)
EDH	A packet for detecting SD-SDI signal transmission errors. When multiple devices are connected, this packet can be used to determine which device caused an error. Both full-field and active picture errors are detected. This packet is not detected when the input signal is HD-SDI. Reference: Section 14.5.2, “EDH Packet Display Explanation”	SMPTE RP165	9 and 272 (525/59.94) 5 and 318 (625/50)

Item	Explanation	Compliant Standard	Lines
LTC	A type of time code. One is embedded per frame.	SMPTE ST 12-2	10 (HD)
VITC	A type of time code. One is embedded per field.	SMPTE ST 12-2	9 and 571 (HD)
PAYLOAD	A packet for identifying the input format. Reference: Section 14.5.3, “Format ID Display Explanation”	SMPTE ST 352 ARIB STD-B39	
EIA-708	A standard closed caption packet for digital video. Only numbers and letters of the alphabet are supported. It is embedded in the V-ANC area.		
EIA-608	A closed caption packet whose standard was originally developed for analog composite video. Only numbers and letters of the alphabet are supported. It is embedded in the V-ANC area.		
PROGRAM	A program information packet. It is embedded in the V-ANC area.	SMPTE ST 334	
DATA BROADCAST	A data broadcast packet. It is embedded in the V-ANC area.	SMPTE ST 334	
VBI	A packet embedded in the V-ANC area.	SMPTE ST 334	
CLOSED CAPTION 1 to 3	Subtitle packets. Up to three sets of subtitle data can be embedded in the V-ANC area. Reference: Section 14.5.4, “Subtitle Packet Display Explanation”	ARIB STD-B37	19 and 582 (HD) 18 and 281 (SD)
NET-Q	An inter-stationary control signal Reference: Section 14.5.5, “Inter-Stationary Control Signal Display Explanation”	ARIB STD-B39	20 and 583 (HD) 19 and 282 (SD)
TRIGGER PACKET	A trigger signal for data transmission.	ARIB STD-B35	20 and 583 (HD) 19 and 282 (SD)
USER DATA 1 and 2	A packet for user-defined data.	ARIB TR-B23	20 and 583 (HD) 19 and 282 (SD)

14.5.2 EDH Packet Display Explanation

The EDH display is divided into a flag display (UES, IDA, IDH, EDA, and EDH) and a CRC display (RECEIVED CRC). The flag display shows the contents of the EDH packets that are embedded in the SDI input signal. The CRC display shows the results of comparing the CRCs from the EDH packets to the CRCs computed by the LV 5330.

Because SDI output is only transmitted through the serial clock circuit, packets are not rewritten even if an error occurs in RECEIVED CRC.

To display EDH packets, follow the procedure below. F•1 EDH appears when the input signal is SD-SDI.

Procedure

STATUS → F•4 ANC PACKET → F•1 EDH

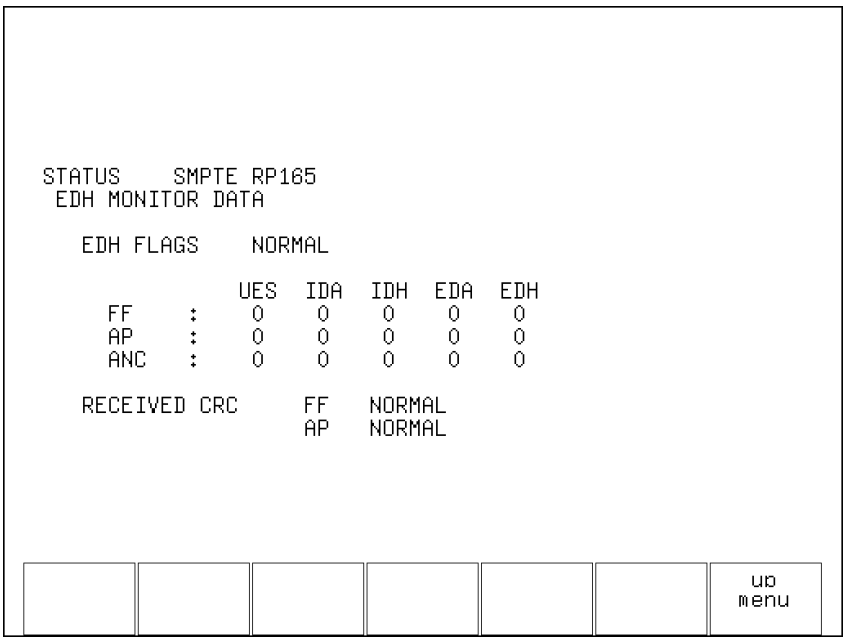


Figure 14-10 EDH Packet Display

Table 14-6 EDH Packet Display Explanation

Item	Display	Explanation
EDH FLAGS		Indicates the results of EDH packet error detection.
	NORMAL	This indication appears when all of the flags (UES, IDA, IDH, EDA, and EDH) are zeros and the CRC indications (RECEIVED CRC) are all NORMAL.
	ERROR	This indication appears when any of the flags (UES, IDA, IDH, EDA, and EDH) is 1 or when one of the CRC indications (RECEIVED CRC) is ERROR.
FF		Indicates the result of creating a CRC for an entire field and checking it for errors.
AP		Indicates the result of creating a CRC for the active video area and checking it for errors.
ANC		Indicates the result of creating a parity bit and checksum for the ancillary data and checking them for errors.
UES		Indicates whether or not the connected device supports EDH packets.
	0	The connected device supports EDH packets.
	1	The connected device does not support EDH packets.
IDA		Indicates internal data transmission errors in the devices before the LV 5330.
	0	No errors have been detected.
	1	An error has been detected.
IDH		Indicates internal data transmission errors in the device immediately before the LV 5330.
	0	No errors have been detected.
	1	An error has been detected.
EDA		Indicates data transmission errors from the devices before the LV 5330.
	0	No errors have been detected.
	1	An error has been detected.
EDH		Indicates data transmission errors from the device immediately before the LV 5330.
	0	No errors have been detected.
	1	An error has been detected.
RECEIVED CRC FF		Indicates full-field CRC errors.
	NORMAL	The full-field CRC embedded in the EDH packets and the full-field CRC computed by the LV 5330 match.
	ERROR	The full-field CRC embedded in the EDH packets and the full-field CRC computed by the LV 5330 do not match.
RECEIVED CRC AP		Indicates active picture CRC errors.
	NORMAL	The active picture CRC embedded in the EDH packets and the active picture CRC computed by the LV 5330 match.
	ERROR	The active picture CRC embedded in the EDH packets and the active picture CRC computed by the LV 5330 do not match.

14.5.3 Format ID Display Explanation

The format ID packet is an ancillary packet for identifying the video signal format.
To display the format ID packet, follow the procedure below.

Procedure

STATUS → F•4 ANC PACKET → F•2 FORMAT ID

To select the format ID packet type, follow the procedure below.

Procedure

STATUS → F•4 ANC PACKET → F•2 FORMAT ID → F•1 PACKET SELECT

Settings

SMPTE:	The format ID packet specified by SMPTE ST 352 is displayed.
ARIB:	The format ID packet specified by ARIB STD-B39 is displayed. This is the default setting.

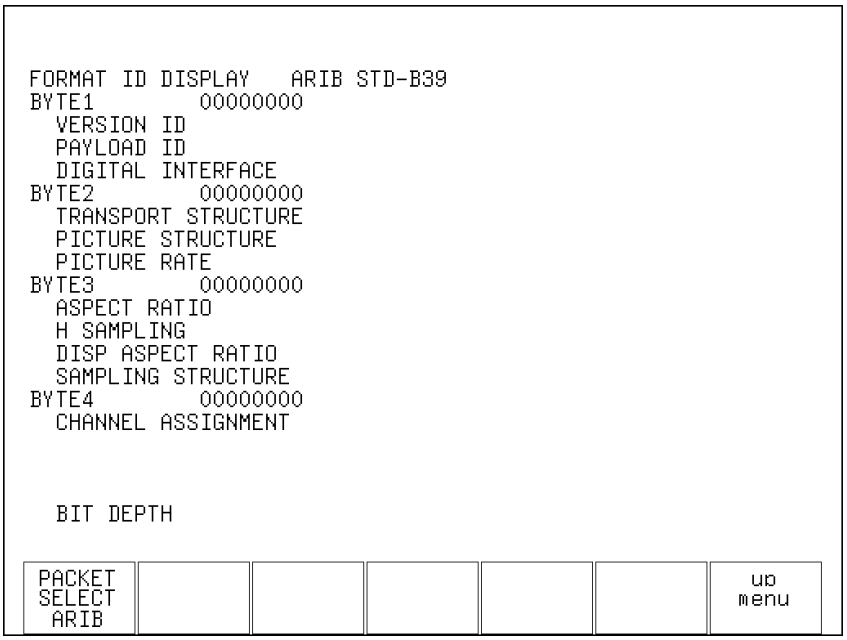


Figure 14-11 Format ID display (ARIB)

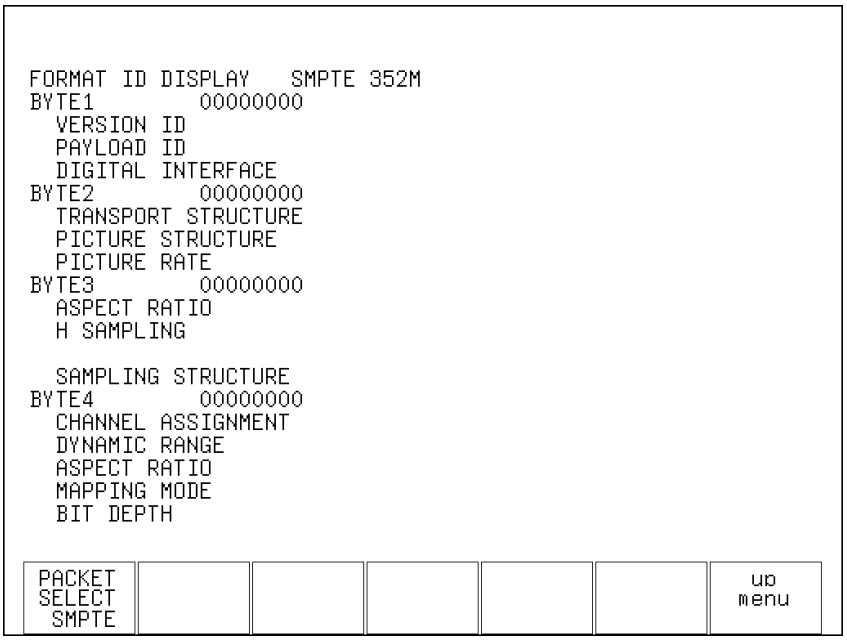


Figure 14-12 Format ID display (SMPTE)

Table 14-7 Format ID display explanation

Item	Explanation
BYTE1 to 4	Display the format ID using binary values.
VERSION ID	Displays the format ID version.
PAYLOAD ID	Displays the video format.
DIGITAL INTERFACE	Displays the SDI input signal bit rate.
TRANSPORT STRUCTURE	Displays the transmission scan mode.
PICTURE STRUCTURE	Displays the picture scan mode.
PICTURE RATE	Displays the frame rate.
ASPECT RATIO	Displays the aspect ratio.
H SAMPLING	Displays the number of horizontal samples.
DISP ASPECT RATIO	Displays the aspect ratio. This item does not appear when F•1 PACKET SELECT is set to SMPTE.
SAMPLING STRUCTURE	Displays the sampling structure.
CHANNEL ASSIGNMENT	Displays the dual-link links.
DYNAMIC RANGE	Displays the dynamic range of a single pixel. This item does not appear when F•1 PACKET SELECT is set to ARIB.
ASPECT RATIO	Displays the aspect ratio. This item does not appear when F•1 PACKET SELECT is set to ARIB.
MAPPING MODE	Displays the mapping mode. This item does not appear when F•1 PACKET SELECT is set to ARIB.
BIT DEPTH	Displays the bit depth of a single pixel.

14.5.4 Subtitle Packet Display Explanation

To display the contents of the subtitle packets specified by the ARIB standard, follow the procedure below.
The ARIB standard allows for up to three different subtitle packets to be embedded in a signal. You can select and display one of those packets. You can select to display packet contents in text format or in dump format.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•1 CLOSED CAPTION

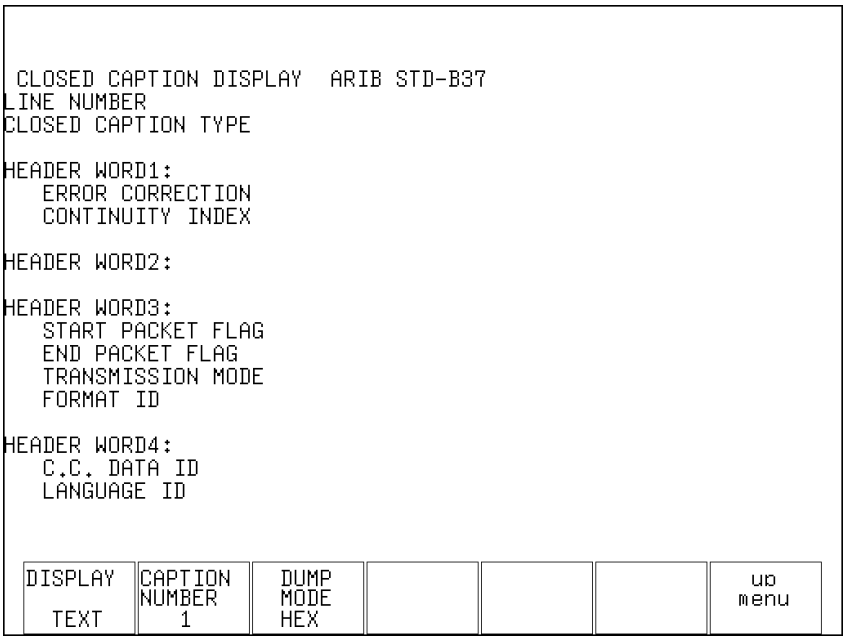


Figure 14-13 Subtitle packet display

Table 14-8 Subtitle packet display explanation

Item	Explanation
HEADER WORD1 to 4	Display the headers using binary values.
LINE NUMBER	Displays the numbers of the lines in which subtitle information is embedded.
CLOSED CAPTION TYPE	Displays the subtitle packet type.
ERROR CORRECTION	Indicates whether or not error correction has taken place.
CONTINUITY INDEX	Displays a counter that indicates packet continuity.
START PACKET FLAG	Displays the starting packet in the ancillary packets that compose the subtitle data group.
END PACKET FLAG	When packets are divided in MPEG-2 TS, this item indicates whether or not the end packet is included.
TRANSMISSION MODE	Displays the transmission mode.
FORMAT ID	Displays the subtitle packet type.
C.C. DATA ID	Displays the subtitle data identifier.
LANGUAGE ID	Displays the language identifier that is used when transmitting subtitles in multiple languages.

- **Selecting the Subtitle Packet Type**

To select the subtitle packet type, follow the procedure below. The values that you can set (1, 2, and 3) correspond to the order in which the subtitles are embedded.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•1 CLOSED CAPTION → F•2 CAPTION NUMBER

Settings

Selectable range: 1 to 3 (The default value is 1.)

- **Selecting the Subtitle Packet Display Format**

To select the subtitle packet display format, follow the procedure below.
In the dump display, you can view the entire packet by scrolling through it with F•D.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•1 CLOSED CAPTION → F•1 DISPLAY

Settings

TEXT:	The header section is analyzed and displayed in text format. This is the default setting.
DUMP:	The data for a single packet is shown using a dump display.

- **Selecting the Dump Display Format**

To select the dump display format, follow the procedure below.
This setting is valid when F•1 DISPLAY is set to DUMP.

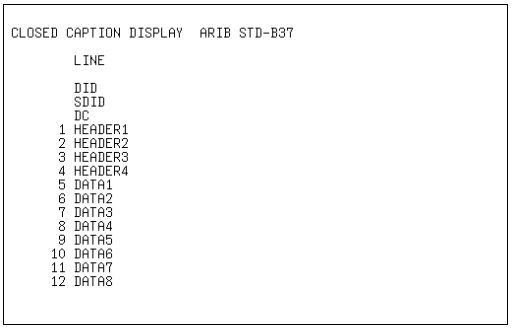
Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•1 CLOSED CAPTION → F•3 DUMP MODE

Settings

HEX:	Data is displayed in hexadecimal format. This is the default setting.
BINARY:	Data is displayed in binary format.

DUMP MODE = HEX



DUMP MODE = BINARY

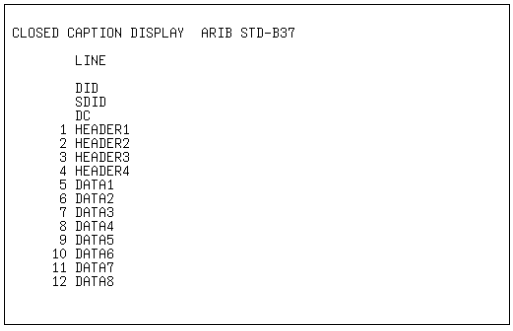


Figure 14-14 Dump display formats

14.5.5 Inter-Stationary Control Signal Display Explanation

To display the contents of the inter-stationary control signal specified by the ARIB standard, follow the procedure below.
You can select to display the signal contents in text format or in dump format.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•2 NET-Q

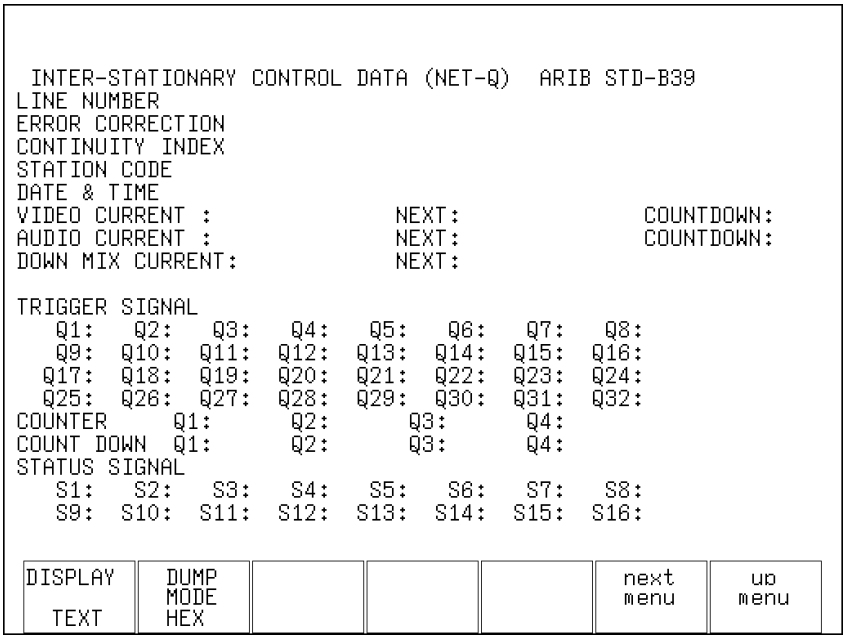


Figure 14-15 Inter-stationary control signal display

Table 14-9 Inter-stationary control signal display explanation

Item	Explanation
LINE NUMBER	Displays the numbers of the lines in which the inter-stationary control signal is embedded.
ERROR CORRECTION	Indicates whether or not error correction has taken place.
CONTINUITY INDEX	Displays a counter that indicates packet continuity.
STATION CODE	Uses letters to display the code of the station that produced the signal.
DATE & TIME	Displays the date and time when the signal was produced.
VIDEO CURRENT	Displays the current video mode.
AUDIO CURRENT	Displays the current audio mode.
DOWN MIX CURRENT	Displays the audio down-mix specification.
NEXT	Displays the next video mode, audio mode, or audio down-mix specification.
COUNTDOWN	Displays the countdown until the next video or audio signal mode switch.
TRIGGER SIGNAL	Displays the trigger signal, which indicates the signal timing.
COUNTER	Displays the counter for TRIGGER SIGNAL Q1 to Q4.
COUNTDOWN	Displays timing information for TRIGGER SIGNAL Q1 to Q4.
STATUS SIGNAL	Displays the status signal.

• **Selecting the Inter-Stationary Control Signal Format**

To select the inter-stationary control signal format, follow the procedure below.
In the dump display, you can view the entire packet by scrolling through it with F•D.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•2 NET-Q → F•1 DISPLAY

Settings

TEXT:	The packet is analyzed and displayed in text format. This is the default setting.
DUMP:	The data for a single packet is shown using a dump display.

• **Selecting the Dump Display Format**

To select the dump display format, follow the procedure below.
This setting is valid when F•1 DISPLAY is set to DUMP.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•2 NET-Q → F•2 DUMP MODE

Settings

HEX:	Data is displayed in hexadecimal format. This is the default setting.
BINARY:	Data is displayed in binary format.

DUMP MODE = HEX

```
INTER-STATIONARY CONTROL DATA (NET-Q)  ARIB STD-B39

      LINE

      DID
      SDID
      DC
    0 HEADER
    1 STATION CODE1
    2 STATION CODE2
    3 STATION CODE3
    4 STATION CODE4
    5 STATION CODE5
    6 STATION CODE6
    7 STATION CODE7
    8 STATION CODE8
    9 YEAR
   10 MONTH
   11 DAY
```

DUMP MODE = BINARY

```
INTER-STATIONARY CONTROL DATA (NET-Q)  ARIB STD-B39

      LINE

      DID
      SDID
      DC
    0 HEADER
    1 STATION CODE1
    2 STATION CODE2
    3 STATION CODE3
    4 STATION CODE4
    5 STATION CODE5
    6 STATION CODE6
    7 STATION CODE7
    8 STATION CODE8
    9 YEAR
   10 MONTH
   11 DAY
```

Figure 14-16 Dump display formats

• **Turning Q Signals On and Off**

To turn the displays for TRIGGER SIGNAL Q1 to Q32 on and off, follow the procedure below. This setting is valid when F•1 DISPLAY is set to TEXT.

Procedure

STATUS → F•4 ANC PACKET → F•3 V-ANC ARIB → F•2 NET-Q → F•6 next menu → F•1 Q1 to F•2 Q32

Settings

ON:	The specified Q signal is displayed. The default setting is 1.
OFF:	The specified Q signal is not displayed.

14.5.6 EIA-708 Data Display Explanation

To display EIA-708 data, follow the procedure below.
You can set the display format to text or dump format. If you select the dump format, turn F•D to view all the data.

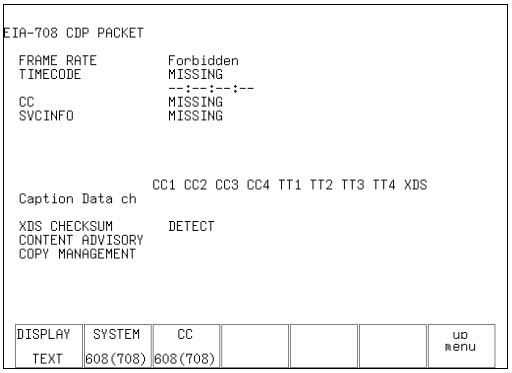
Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC SMPTE → F•1 EIA-708 → F•1 DISPLAY

Settings

TEXT: Data is displayed in text format. This is the default setting.
DUMP: A data dump is displayed in hexadecimal format.

DISPLAY = TEXT



DISPLAY = DUMP

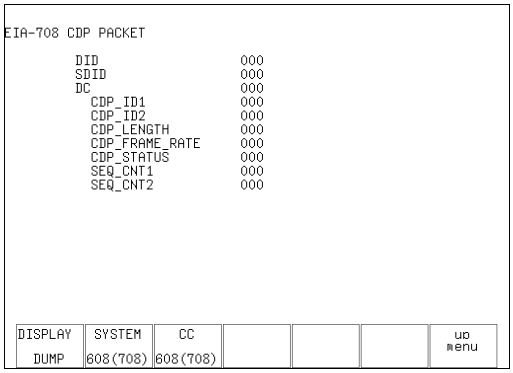


Figure 14-17 EIA-708 data display

Table 14-10 EIA-708 data display explanation

Item	Description
FRAME RATE	Displays the information from the frame_rate field in the header of EIA-708 CDP packets.
TIME CODE	Displays whether the EIA-708 time_code_section is present or not. The LV 5330 checks whether the time_code_section is present or not by examining the time_code_present field in the header of CDP packets. If the time code is present, its value is also displayed.
CC	Displays whether the EIA-708 ccdata_section is present or not. The LV 5330 checks whether the ccdata_section is present or not by examining the ccdata_present field in the header of CDP packets.
SVCINFO	Displays whether the EIA-708 ccsvcinfo_section is present or not. The LV 5330 checks whether the ccsvcinfo_section is present or not by examining the ccsvcinfo_present field in the header of CDP packets.
Caption Data ch	Displays the type of the CC packet that was received.
XDS CHECKSUM	Displays the result of a comparison of a checksum computed on the XDS data that was received and the checksum field in the XDS packet.
CONTENT ADVISORY	Displays the content advisory information of the XDS data that was received.
COPY MANAGEMENT	Displays the copy management information of the XDS data that was received.

14.5.7 EIA-608 Data Display Explanation

To display EIA-608 data, follow the procedure below.
You can set the display format to text or dump format. If you select the dump format, turn F•D to view all the data.

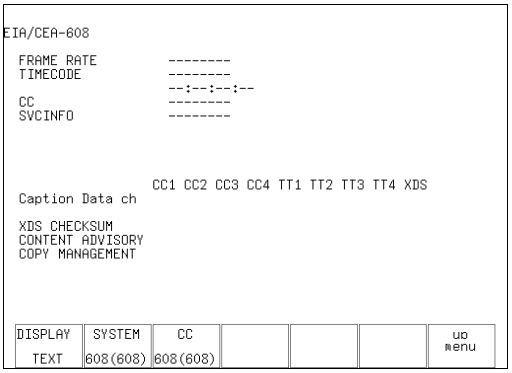
Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC SMPTE → F•2 EIA-608 → F•1 DISPLAY

Settings

TEXT:	Data is displayed in text format. This is the default setting.
DUMP:	A data dump is displayed in hexadecimal format.

DISPLAY = TEXT



DISPLAY = DUMP

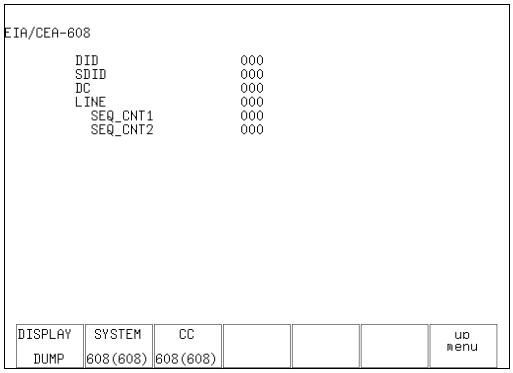


Figure 14-18 EIA-608 data display

14.5.8 Program Data Display Explanation

To display whether ATSC A/65 program description packets are present or not, follow the procedure below. For each descriptor, if its ID is present, “DETECT” is displayed; if its ID is not present, “MISSING” is displayed.

Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC SMPTE → F•3 PROGRAM

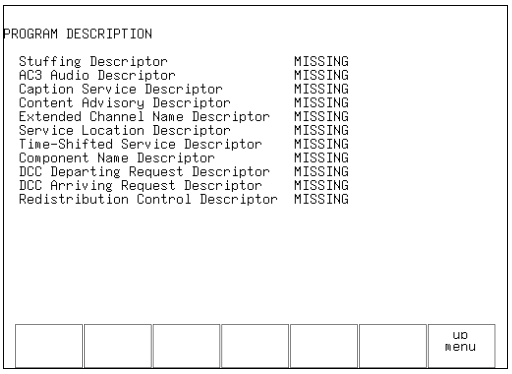


Figure 14-19 Program data display

14.5.9 VBI Data Display Explanation

To display VBI data, follow the procedure below.

Procedure

STATUS → F•4 ANC PACKET → F•4 V-ANC SMPTE → F•5 VBI

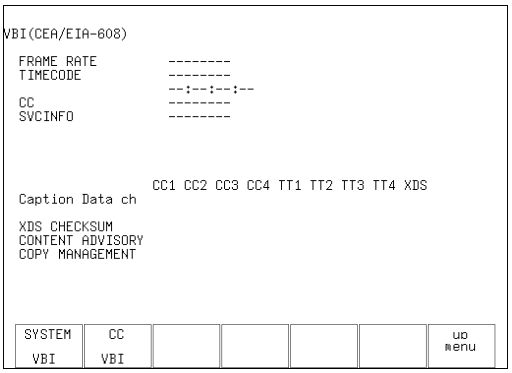


Figure 14-20 VBI data display

14.6 Error Settings

To configure error settings, press F•5 ERROR CONFIG in the status menu. You can configure remote control connector error transmission, the error count, error detection, error detection levels, and the error displays.

STATUS → F•5 ERROR CONFIG →

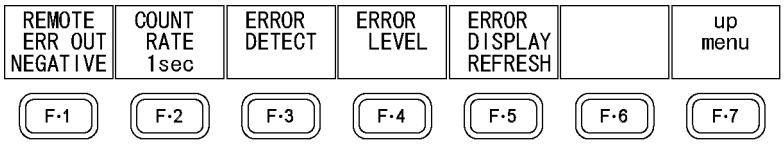


Figure 14-21 ERROR CONFIG menu

14.6.1 Selecting the Alarm Signal Polarity

When an error occurs in one of the items set to ON in the menu that appears when you press F•3 ERROR DETECT, an alarm signal is transmitted through pin 14 of the remote control connector.
To set the polarity of the alarm signal, follow the procedure below.

Reference: Section 17.1.3, “Transmitting Alarm Signals”

Procedure

STATUS → F•5 ERROR CONFIG → F•1 REMOTE ERR OUT

Settings

OFF:	An alarm signal is not transmitted.
POSITIVE:	A high signal is transmitted when an error occurs.
NEGATIVE:	A low signal is transmitted when an error occurs. This is the default setting.

14.6.2 Selecting the Error Count Rate

When errors occur in items set to ON in the menu that appears when you press F•3 ERROR DETECT, the ERROR COUNT indication in the status display increases.
To set the rate at which the ERROR COUNT indication increases, follow the procedure below.

Procedure

STATUS → F•5 ERROR CONFIG → F•2 COUNT RATE

Settings

V RATE:	The ERROR COUNT indication increases each time that there is an error in a field (when the input format is interlaced or segmented frame) or a frame (when the input format is progressive). Even if multiple errors occur in the same field (or frame), the ERROR COUNT indication only increases by one.
1sec:	Errors are counted by seconds. Even if multiple errors occur within the same second, the ERROR COUNT indication only increases by one. This is the default setting.

14.6.3 Configuring Error Detection Settings

To configure error detection settings, press F•3 ERROR DETECT in the status menu. The errors that you set to ON here are detected and displayed in the status display.

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT →

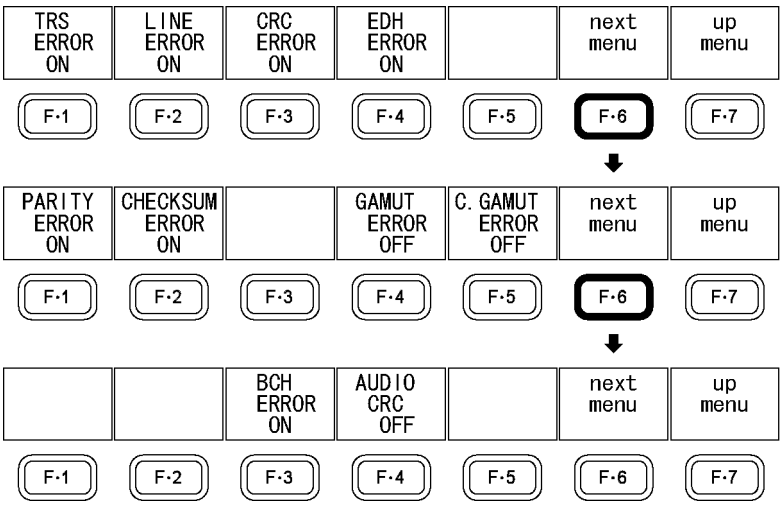


Figure 14-22 ERROR DETECT menu

- **Detecting TRS Errors**

To detect TRS errors, follow the procedure below. If you set this setting to ON, TRS error information appears next to TRS in the status display.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•1 TRS ERROR

Settings

ON:	TRS errors are detected. This is the default setting.
OFF:	TRS errors are not detected.

- **Detecting Line Number Errors**

To detect line number errors, follow the procedure below. If you set this setting to ON, line number error information appears next to LINE NUMBER in the status display.
This setting is valid when the input signal is HD-SDI.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•2 LINE ERROR

Settings

ON:	Line number errors are detected. This is the default setting.
OFF:	Line number errors are not detected.

- **Detecting CRC Errors**

To detect CRC errors, follow the procedure below. If you set this setting to ON, CRC error information appears next to CRC LUMA and CRC CHROMA in the status display.
This setting is valid when the input signal is HD-SDI.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•3 CRC ERROR

Settings

ON:	CRC errors are detected. This is the default setting.
OFF:	CRC errors are not detected.

- **Detecting EDH Errors**

To detect EDH errors, follow the procedure below. If you set this setting to ON, EDH error information appears next to EDH in the status display.
This setting is valid when the input signal is SD-SDI.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•4 EDH ERROR

Settings

ON:	EDH errors are detected. This is the default setting.
OFF:	EDH errors are not detected.

- **Detecting Parity Errors**

To detect parity errors in ancillary data, follow the procedure below. If you set this setting to ON, parity error information appears next to PARITY in the status display.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•6 next menu → F•1 PARITY ERROR

Settings

ON:	Parity errors are detected. This is the default setting.
OFF:	Parity errors are not detected.

- **Detecting Checksum Errors**

To detect checksum errors in ancillary data, follow the procedure below. If you set this setting to ON, checksum error information appears next to CHECKSUM in the status display.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•6 next menu → F•2 CHECKSUM ERROR

Settings

ON:	Checksum errors are detected. This is the default setting.
OFF:	Checksum errors are not detected.

- **Detecting Gamut Errors**

To detect gamut errors, follow the procedure below. If you set this setting to ON, gamut error information appears next to GAMUT in the status display.
To set the threshold for gamut error detection, press F•4 ERROR LEVEL.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•6 next menu → F•4 GAMUT ERROR

Settings

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

- **Detecting Composit 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 ON, composite gamut error information appears next to COMP.GAMUT in the status display.
To set the threshold for composite gamut error detection, press F•4 ERROR LEVEL.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•6 next menu → F•5 C.GAMUT ERROR

Settings

ON:	Composite gamut errors are detected.
OFF:	Composite gamut errors are not detected. This is the default setting.

- **Detecting BCH Errors**

To detect BCH errors in the embedded audio, follow the procedure below. If you set this setting to ON, BCH error information appears next to BCH in the status display.
This setting is valid when the input signal is HD-SDI.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•6 next menu → F•6 next menu → F•3 BCH ERROR

Settings

ON:	BCH errors are detected. This is the default setting.
OFF:	BCH errors are not detected.

- **Detecting Audio CRC Errors**

To detect CRC errors in the embedded audio, follow the procedure below. If you set this setting to ON, audio CRC error information appears next to CRC in the status display.

Procedure

STATUS → F•5 ERROR CONFIG → F•3 ERROR DETECT → F•6 next menu → F•6 next menu → F•4 AUDIO CRC

Settings

ON:	Audio CRC errors are detected.
OFF:	Audio CRC errors are not detected. This is the default setting.

14.6.4 Setting the Gamut Filter

If you are detecting gamut errors or composite gamut errors, you can set a low-pass filter to remove transient errors such as overshoot.
To set the gamut filter, follow the procedure below.

Procedure

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•3 GAMUT FILTER

Settings

1M:	A 1 MHz low-pass filter is applied during error detection. This is the default setting.
2.8M:	A 2.8 MHz (when the input signal is HD) or 1 MHz (when the input signal is SD) low-pass filter is applied during error detection.
OFF:	A low-pass filter is not applied during error detection.

14.6.5 Setting the Detection Level Unit

To select the unit for the error detection levels, follow the procedure below.
The unit that you select here is also applied to the 5 bar screen.
Reference: Section 12.7.2, “Selecting the 5 Bar Display Unit”

Procedure

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVE → F•6 UNIT

Settings

%:	The levels are set as percentages. This is the default setting.
mV:	The levels are set as mV.

14.6.6 Setting Gamut Error Detection Levels

To set gamut error detection levels, press F•1 GAMUT in the status menu.
The settings that you make here also apply to the R, G, and B bars in the 5 bar display. The unit for setting the level is the same as the unit that was specified with F•6 UNIT.

Reference: Section 12.7.1, “5 Bar Display Explanation”

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•1 GAMUT →

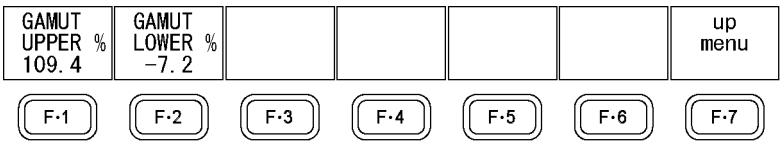


Figure 14-23 GAMUT menu

- **Setting the Upper Limit**

To set the gamut error upper limit, follow the procedure below. An error is detected when the SDI input signal level exceeds the specified value.
If you press F•D, the gamut error upper limit will be reset to its default value of 109.4 % or 765.8 mV.

Procedure

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•1 GAMUT
→ F•1 GAMUT UPPER %
→ F•1 GAMUT UPPER mV

Settings

Selectable range: 90.8 to 109.4 % (The default setting is 109.4 %.)
635.6 to 765.8 mV (The default setting is 765.8 mV.)

- **Setting the Lower Limit**

To set the gamut error lower limit, follow the procedure below. An error is detected when the SDI input signal level goes below the specified value.
If you press F•D, the lower limit will be reset to its default value of –7.2 % or –50.4 mV.

Procedure

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•1 GAMUT
→ F•2 GAMUT LOWER %
→ F•2 GAMUT LOWER mV

Settings

Selectable range: –7.2 to 6.1 % (The default setting is –7.2 %.)
–50.4 to 42.7 mV (The default setting is –50.4 mV.)

14.6.7 Setting Composite Gamut Error Detection Levels

To set composite gamut error detection levels, press F•2 COMPOSIT GAMUT in the status menu.
The settings that you make here also apply to the CMP bar in the 5 bar display. The unit for setting the level is the same as the unit that was specified with F•6 UNIT.
Reference: Section 12.7.1, “5 Bar Display Explanation”

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•2 COMPOSIT GAMUT →

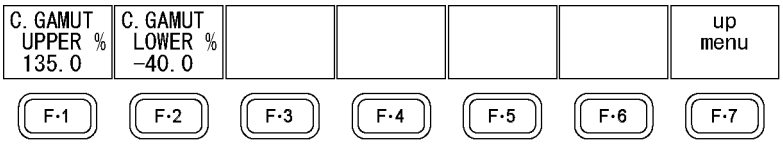


Figure 14-24 COMPOSIT GAMUT menu

- **Setting the Upper Limit**

To set the composite gamut error upper limit, follow the procedure below. An error is detected when the level of the pseudo-composite signal that is converted from the SDI input signal exceeds the specified value.
If you press F•D, the upper limit will be reset to its default value of 135.0%, 963.9 mV, or 945.0mV.

Procedure

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•2 COMPOSIT GAMUT
→ F•1 C.GAMUT UPPER %
→ F•1 C.GAMUT UPPER mV

Settings

Selectable range: 90.0 to 135.0 % (The default setting is 135.0 %.)
642.6 to 963.9 mV (The default setting is 963.9 mV.) (NTSC)
630.0 to 945.0 mV (The default setting is 945.0 mV.) (PAL)

- **Setting the Lower Limit**

To set the composite gamut error lower limit, follow the procedure below. An error is detected when the level of the pseudo-composite signal that is converted from the SDI input signal goes below the specified value.
If you press F•D, the lower limit will be reset to its default value of –40.0%, –285.6 mV, or –280.0 mV.

Procedure

STATUS → F•5 ERROR CONFIG → F•4 ERROR LEVEL → F•2 COMPOSIT GAMUT
→ F•2 C.GAMUT LOWER %
→ F•2 C.GAMUT LOWER mV

Settings

Selectable range: –40.0 to –20.0 % (The default setting is –40.0 %.)
–285.6 to –142.8 mV (The default setting is –285.6 mV.) (NTSC)
–280.0 to –140.0 mV (The default setting is –280.0 mV.) (PAL)

14.6.8 Selecting the Error Display Format

You can select how errors are indicated after the signal returns to normal. You can select the error indication format from one of the options listed below. Error information appears in the status display and in the upper right of the screen.

Procedure

STATUS → F•5 ERROR CONFIG → F•5 ERROR DISPLAY

Settings

REFRESH:	Error indications disappear one second after the signal returns to normal. This is the default setting.
HOLD:	Error indications do not disappear until an error reset operation is performed. The error count increases normally.

14.7 Resetting Errors

To reset errors, follow the procedure below. After errors have been reset, the status display changes as follows:

- ERROR COUNT is reset to 0.
- FROM RESET becomes 00:00:00.
- The event log is deleted.

Procedure

STATUS → F•6 ERROR RESET

15. View Finder Display

The LV 5330 can display the picture of a composite video signal received from a camera. Apply a composite video signal to INPUT VIEW FINDER on the back panel, and press VIEW FINDER. The composite signal cannot be shown in other displays (such as the video signal waveform and vector displays), and its picture cannot be incorporated into the multi-screen display.

The input format (NTSC or PAL) is detected automatically and displayed in the upper left of the screen.

In the view finder display, the menu and the information displays at the top of the screen disappear approximately five seconds after the last operation is performed. To redisplay the menu and information, perform some kind of operation.

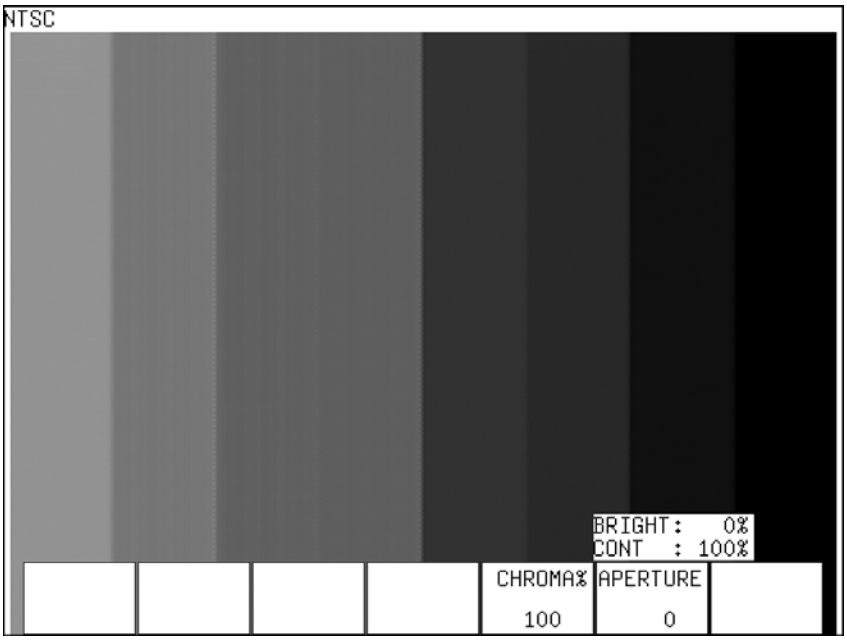


Figure 15-1 View finder display

15.1 Adjusting the Brightness

You can adjust the brightness of the picture by turning BRIGHT.
Pressing BRIGHT returns the brightness to its default setting (0 %).

Settings

Selectable range: –50 % to 50 % (The default value is 0 %.)

15.2 Adjusting the Contrast

You can adjust the contrast of the picture by turning CONT.
Pressing CONT returns the contrast to its default setting (100 %).

Settings

Selectable range: 50 % to 200 % (The default value is 100 %.)

15.3 Adjusting the Chroma Gain

To adjust the chroma gain, follow the procedure below. If you press F•D, the chroma gain will be reset to its default value of 100.

Procedure

VIEW FINDER → F•5 CHROMA%

Settings

Selectable range: 50 to 150 (The default setting is 100.)

15.4 Adjusting the Aperture

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

Procedure

VIEW FINDER → F•6 APERTURE

Settings

Selectable range: 0 to 200 (The default setting is 0.)

16. Multi-Screen Display Feature

The LV 5330 has eight display modes: picture, CINELITE, CINEZONE, video signal waveform, vector, audio, status, and view finder. 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 CINEZONE and view finder display modes cannot be incorporated into the multi-screen display.

To show the multi-screen display, press MULTI, and then press F•1 MODE to select the combination of display modes that you want to show.

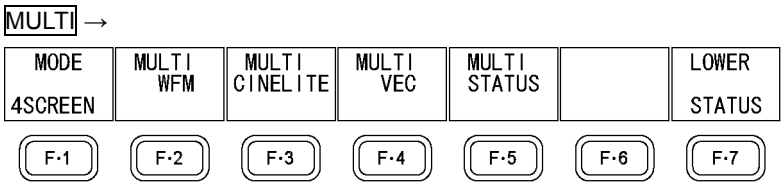


Figure 16-1 Multi-screen display menu

16.1 Selecting the Multi-Screen Display Format

To select the multi-screen display format, follow the procedure below.

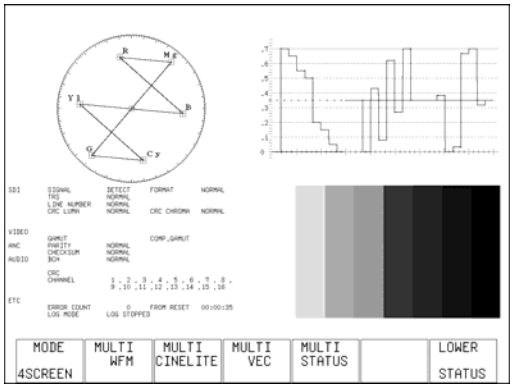
Procedure

MULTI → F•1 MODE

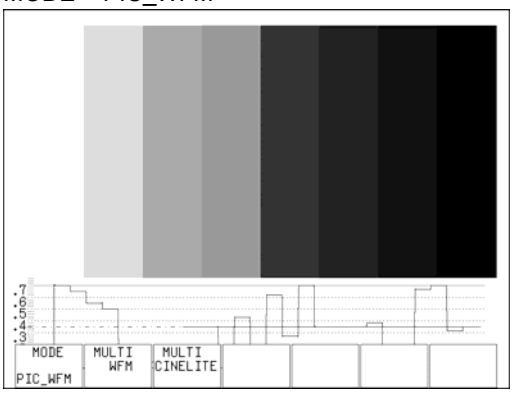
Settings

4SCREEN:	The vector, video signal waveform, status, and picture (or CINELITE) displays appear. You can change the status display to the audio or 5 bar display by pressing F•7 LOWER. This is the default setting.
PIC_WFM:	The picture (or CINELITE) and video signal waveform displays appear one on top of the other. Approximately five seconds after the last operation is performed, the menu and the information displays at the top of the screen disappear.
WFM_VEC:	The video signal waveform and vector displays appear next to each other.
WFM_PIC:	The video signal waveform and the picture appear.
WFM_AUD:	The audio and video signal waveform displays appear next to each other.
PIC+WFM:	The picture (or CINELITE) and video signal waveform displays are superimposed. The picture is displayed with the contrast set to 60%.
PIC+VECT:	The picture (or CINELITE) and vector waveform displays are superimposed. The picture is displayed with the contrast set to 60%.
AUDIO:	The audio display appears.

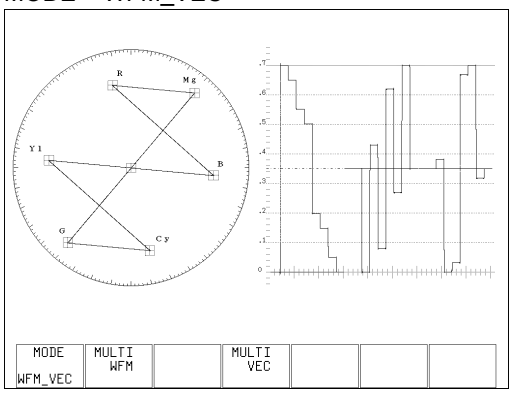
MODE = 4SCREEN



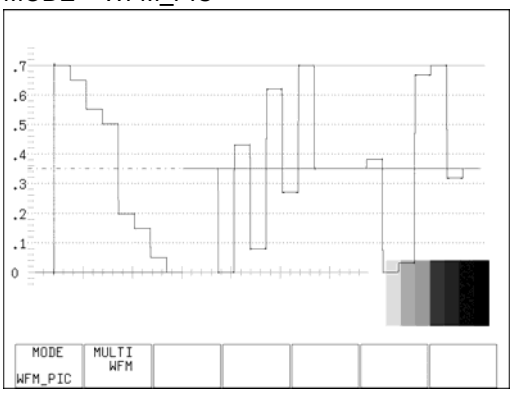
MODE = PIC_WFM



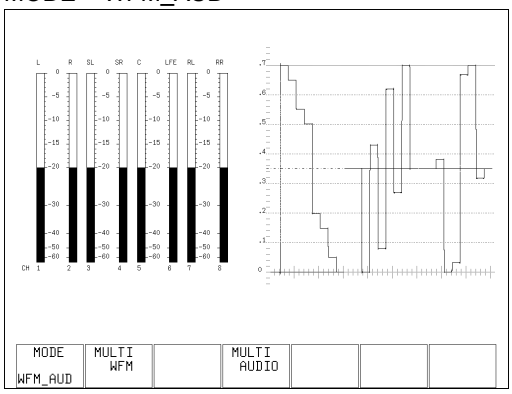
MODE = WFM_VEC



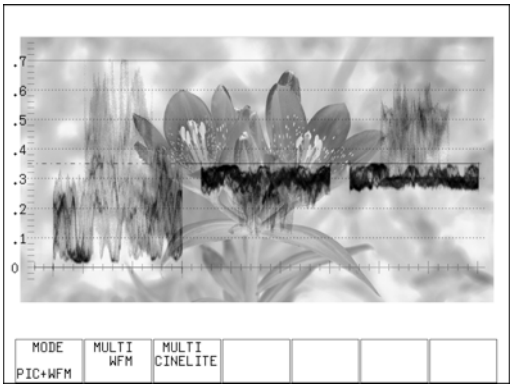
MODE = WFM_PIC



MODE = WFM_AUD



MODE = PIC+WFM



MODE = PIC+VECT

MODE = AUDIO

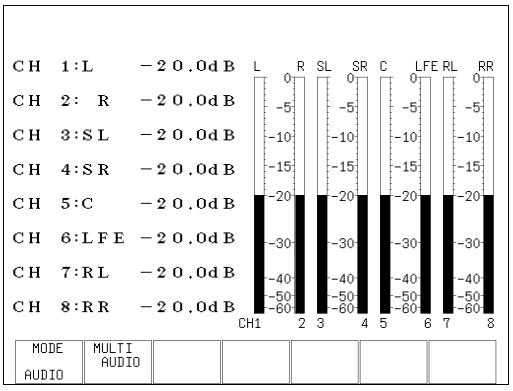


Figure 16-2 Multi-screen display formats

16.2 Setting Each Measurement Mode

Most of the single-screen display settings apply to the multi-screen display as well.
To configure the video signal waveform, CINELITE, vector, audio, or status display from the multi-screen display, follow the procedure below. Setting changes made in the multi-screen display will also change the single-screen display settings.

The single-screen display picture display settings (except for the line select feature) and WFM INTEN, VECTOR INTEN, and SCALE INTEN settings do not affect the settings in the multi-screen display. The VECTOR INTEN value set using MULTI VEC and the WFM INTEN value set using MULTI WFM are the same. Also, the SCALE INTEN value set using MULTI WFM and the SCALE INTEN value set using MULTI VEC are the same.

Procedure

MULTI → F•* MULTI WFM
→ F•* MULTI CINELITE
→ F•* MULTI VEC
→ F•* MULTI STATUS
→ F•* MULTI AUDIO

* F•* represents any of the function keys F•2 to F•5 and varies depending on the displayed contents.

16.3 Selecting the Displayed Contents in 4 SCREEN Display Mode

To select what is displayed in the lower left of the screen when F•1 MODE is set to 4 SCREEN, follow the procedure below.

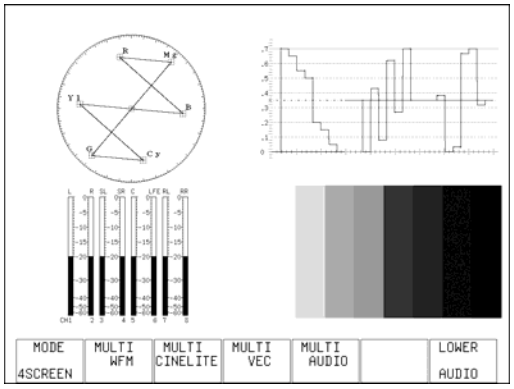
Procedure

MULTI → F•7 LOWER

Settings

STATUS:	The status display appears in the lower left of the multi-screen display. This is the default setting.
AUDIO:	The audio display appears in the lower left of the multi-screen display.
5BAR:	The 5 bar display appears in the lower left of the multi-screen display. This setting cannot be chosen when the LV 5330 is in dual link mode.

LOWER = AUDIO



LOWER = 5BAR

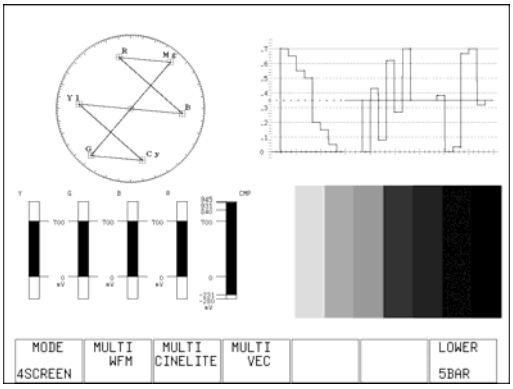


Figure 16-3 Displayed contents in 4 SCREEN display mode

17. External Interface

17.1 Remote Control Feature

You can use the remote control connector on the rear panel to load presets, transmit alarms, and perform other operations. Use the supplied 15-pin D-sub connector.

17.1.1 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 alignment.

CAUTION

Do not apply voltage to the output pins.
The input pins are all pulled up to +3.3 V. Do not apply negative voltages or voltages above +5 V to the input pins.

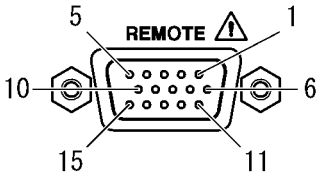


Figure 17-1 Remote control connector (inch screws)

Table 17-1 Remote control connector pin alignment

Pin No.	Name	Input or Output	Explanation
1	GND	-	Grounding pin
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	RESERVED	Input	Reserved
13	TALLY	Input	Tally light
14	ALARM	Output	Alarm output
15	GND	-	Grounding pin

* The input pins are active-low. When you use the remote control feature, make sure that you ground each connector. The pins operate on pulse widths at or above 1 second.
After configuring a setting, wait for 1 second or more before configuring the next setting.

17.1.2 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

SYSTEM → F•4 INTRFACE&LICENSE → F•1 REMOTE

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 30 presets by specifying a binary value.

17.1.3 Transmitting Alarm Signals

An alarm signal is transmitted from pin 14 of the remote control connector when the LV 5330 internal temperature is 80°C or greater, 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•3 ERROR DETECT.
To set the polarity of the alarm signal, follow the procedure below. You can also turn alarm transmission off.

Procedure

STATUS → F•5 ERROR CONFIG → F•1 REMOTE ERR OUT

Settings

OFF:	An alarm signal is not transmitted.
POSITIVE:	A high signal is transmitted when an error occurs.
NEGATIVE:	A low signal is transmitted when an error occurs. This is the default setting.

17.1.4 Displaying a Tally Light

A green tally light appears at the top of the display when pin 13 of the remote connector is connected to a ground.
The tally light only appears when the display mode is set to picture, CINELITE, CINEZONE, or view finder.

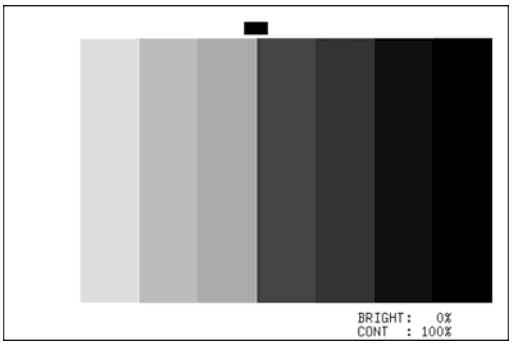


Figure 17-2 Tally light

17.2 TELNET

You can use the Ethernet connector on the rear panel and a PC to perform operations remotely. The operations that you can perform are approximately the same as those that you can perform using the front panel.

17.2.1 Procedure

1 Set the IP address, subnet mask, and gateway on the LV 5330.

These items can be configured in the system settings.
If necessary, ask you network administrator what values you should use.
Reference: Section 5.4.2, “Configuring Ethernet Settings”

2 Restart the LV 5330.

The IP address, subnet mask, and gateway values that you set become valid.

3 Connect a cable to the LV 5330 ETHER connector.

Use a cross cable to connect the LV 5330 to a PC directly. Use a straight cable to connect the LV 5330 to a PC through a hub.

4 Start TELNET.

After you start TELNET, the following display appears.
For information on how to start TELNET, see your PC user’s manual.

```
login:
```

5 Enter the login name, and press Enter.

The login name is LV5330. Be sure to use capital letters.
You cannot change the login name.

```
login: LV5330
```

6 Enter the password, and press Enter.

The password is LV5330. Be sure to use capital letters.
You cannot change the password.

```
Password: ******
```

7 Enter commands.

After you enter the password, the following command prompt appears.
Enter commands while referring to section 17.2.2, “How to Enter Commands,” and section 17.2.3, “TELNET Commands.”

```
LV5330>
```

17.2.2 How to Enter Commands

The command format is explained below. Commands can be entered using uppercase or lowercase letters. To query a setting on the LV 5330, use a question mark as the parameter.

```
LV5330> [Command] + [Space] + [Parameter]
```

Examples of how to enter commands are shown below.

- **Showing the status display**

```
LV5330> STATUS
```

- **Displaying the center marker in the picture display**

```
LV5330> PICTURE:MARKER:CENTER ON
```

- **Querying the vector intensity**

```
LV5330> VECTOR:INTEN:VECTOR ?
```

17.2.3 TELNET Commands

TELNET commands follow the LV 5330 menu structure. For explanations of each command, see the explanations of their corresponding menu items in this manual.

Table 17-2 TELNET Commands

Command	Parameters
SDI	A, B, or ?
REFERENCE	INT, EXT, or ?
PICTURE	—
PICTURE:MARKER:ASPECT_HD	2.35_1, 1.85_1, 1.66_1, 14_9, 13_9, 4_3, OFF, or ?
PICTURE:MARKER:ASPECT_SD	2.35_1, 1.85_1, 1.66_1, 16_9, 14_9, 13_9, OFF, or ?
PICTURE:MARKER:SAFE_ACTION	95, 93, 90, OFF, or ?
PICTURE:MARKER:SAFE_TITLE	88, 80, OFF, or ?
PICTURE:MARKER:CENTER	ON, OFF, or ?
PICTURE:MARKER:SHADOW	ON, OFF, or ?
PICTURE:LINE_SEL:LINE_SELECT	ON, OFF, or ?
PICTURE:LINE_SEL:LINE_NUMBER	1 to 1125, or ?
PICTURE:LINE_SEL:FIELD	1, 2, FRAME, or ?
PICTURE:SIZE	FIT, X1, X2, FULL, or ?
PICTURE:CC:SYSTEM	608(708), 608(608), VBI, or ?
PICTURE:CC:CC	OFF, CC1, CC2, CC3, CC4, TEXT1, TEXT2, TEXT3, TEXT4, or ?
PICTURE:DISPLAY:GAMUT_ERROR	DISP_ON, DISP_OFF, or ?
PICTURE:DISPLAY:RGB	RGB, MONO, RG-, R-B, -GB, R--, -G-, --B, or ?
PICTURE:DISPLAY:SQUEEZE	ON, OFF, or ?
PICTURE:DISPLAY:IP_CONV	ON, OFF, or ?
PICTURE:CHROMA	0 to 150, or ?
PICTURE:APERTURE	0 to 200, or ?
PICTURE:BRIGHT	–50 to 50, or ?
PICTURE:CONTRAST	50 to 200, or ?
CINELITE	—

Command	Parameters
CINELITE:FSTOP	—
CINELITE:DISPLAY	—
CINELITE:P1	?
CINELITE:P2	?
CINELITE:P3	?
CINELITE:DSIPLAY:LINE_NUMBER	1 to 1125, or ?
CINELITE:DSIPLAY:SAMPLE	0 to 2749, or ?
CINELITE:DISPLAY:MEAS_POS	P1, P2, P3, or ?
CINELITE:DISPLAY:MEAS_SIZE	1X1, 3X3, 9X9, or ?
CINELITE:DISPLAY:MEAS_DISP	P1P2P3, P1P2--, P1--P3, --P2P3, P1----, --P2--, ----P3, or ?
CINELITE:FSTOP:REF_SET	—
CINELITE:DISPLAY:%/RGB	LEVEL%, RGB%, RGB255, or ?
CINELITE:ADVANCE	OFF, P+V, P+W, P+V+W, or ?
CINELITE:GAMMA	0.45, USER-1, USER-2, USER-3 / USER-A, USER-B, USER-C, USER-D, USER-E, or ?
CINELITE:CAL:TABLE_CLEAR	—
CINELITE:CAL:DATA_CLEAR	—
CINELITE:CAL:SET	—
CINELITE:CAL:CAL_F	22.0, 16.0, 11.0, 8.0, 5.6, 4.0, 2.8, 2.0, or ?
CINELITE:CAL2:TBL_CLR	—
CINELITE:CAL2:REGAMMA	ON, OFF, or ?
CINEZONE	—
CINEZONE:MODE	ZONE, SEARCH, or ?
CINEZONE:ZONE_DISPLAY	LINEAR, STEP, or ?
CINEZONE:%DISPLAY	OFF, ON, or ?
CINEZONE:DISPLAY	—
CINEZONE:SEARCH:LEVEL	–7.3 to 109.4, or ?
CINEZONE:SEARCH:RANGE	0.5 to 100.0, or ?
CINEZONE:UPPER	–6.3 to 109.4, or ?
CINEZONE:LOWER	–7.3 to 108.4, or ?
WFM	—
WFM:INTEN:WFM	–128 to 127, or ?
WFM:INTEN:SCALE	–8 to 7, or ?
WFM:GAIN:VAR	CAL, VAR, or ?
WFM:GAIN:MAG	1, 5, or ?
WFM:GAIN:FILTER	FLAT, LOW_PASS, or ?
WFM:GAIN:C.FILTER	FLAT, FLAT+LUM, LUMA, or ?
WFM:SWEEP:SWEEP	H, V, or ?
WFM:SWEEP:H_SWEEP	1H, 2H, or ?
WFM:SWEEP:V_SWEEP	1V, 2V, or ?
WFM:SWEEP:FIELD	1, 2, or ?
WFM:SWEEP:H_MAG	1, 10, 20, ACTIVE, BLANK, or ?
WFM:SWEEP:V_MAG	1, 20, 40, or ?
WFM:LINE_SEL:LINE_SELECT	ON, OFF, or ?
WFM:LINE_SEL:LINE_NUMBER	1 to 1125, or ?
WFM:LINE_SEL:FIELD	1, 2, FRAME, or ?

Command	Parameters
WFM:COLOR:MATRIX	YCBCR, GBR, RGB, COMPOSIT, or ?
WFM:COLOR:YGBR	ON, OFF, or ?
WFM:COLOR:YRGB	ON, OFF, or ?
WFM:COLOR:GBR_COLOR	ON, OFF, or ?
WFM:COLOR:RGB_COLOR	ON, OFF, or ?
WFM:COLOR:SETUP	0, 7.5, or ?
WFM:SCALE:UNIT	V%, V, %, 3FF, 1023, or ?
WFM:SCALE:COLOR75P	ON, OFF, or ?
WFM:EAV_SAV	REMOVE, PASS, or ?
WFM:TIMING	NORMAL, PASS, or ?
WFM:MODE	OVERLAY, PARADE, TIMING, or ?
WFM:DISPLAY:CH1	ON, OFF, or ?
WFM:DISPLAY:CH2	ON, OFF, or ?
WFM:DISPLAY:CH3	ON, OFF, or ?
VECTOR	—
VECTOR:INTEN:VECTOR	–128 to 127, or ?
VECTOR:INTEN:SCALE	–8 to 7, or ?
VECTOR:INTEN:IQ	ON, OFF, or ?
VECTOR:INTEN:MARKER	ON, OFF, or ?
VECTOR:GAIN:VAR	CAL, VAR, or ?
VECTOR:GAIN:MAG	1, 5, IQ-MAG, or ?
VECTOR:LINE_SEL:LINE_SELECT	ON, OFF, or ?
VECTOR:LINE_SEL:LINE_NUMBER	1 to 1125, or ?
VECTOR:LINE_SEL:FIELD	1, 2, FRAME, or ?
VECTOR:COLOR:MATRIX	COMPONET, COMPOSIT, or ?
VECTOR:COLOR:SETUP	0, 7.5, or ?
VECTOR:COLOR:COLOR_BAR	100%, 75%, or ?
VECTOR:EXTREF_PHASE:SDI_NUMBER	1, 2, 3, 4, 5, 6, 7, 8, or ?
VECTOR:EXTREF_PHASE:SDI_MEMORY	—
VECTOR:EXTREF_PHASE:MEMORY_CLEAR	—
VECTOR:EXTREF_PHASE:USER_REF_SET	—
VECTOR:EXTREF_PHASE:REF_DEFAULT	—
VECTOR:DISPLAY	VECTOR, 5BAR, EXTPHASE, or ?
MULTI	—
MULTI:MODE	4SCREEN, PIC_WFM, WFM_VEC, WFM_PIC, WFM_AUD, PIC+WFM, PIC+VECT, AUDIO, or ?
AUDIO:MODE	LEVEL, VALUE, or ?
AUDIO:GROUP:1ST	1, 2, 3, 4, or ?
AUDIO:GROUP:2ND	1, 2, 3, 4, or ?
AUDIO:MAP:L	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:R	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:SL	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:SR	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:C	1ST-1, 1ST-2, 1ST-3, 1ST-4 /

Command	Parameters
	2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:LFE	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:RL	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:MAP:RR	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:METER:REF	–20, –18, –12, -9, or ?
AUDIO:METER:RANGE	60, 90, AVERAGE, or ?
AUDIO:METER:SCALE	TYPE-A, TYPE-B, or ?
AUDIO:METER:PEAKHOLD	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5 / 5.0, HOLD, or ?
AUDIO:PHONES:PHONES_OUT	ON, OFF, or ?
AUDIO:PHONES:VOLUME	0 to 128, or ?
AUDIO:PHONES:L_CH	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
AUDIO:PHONES:R_CH	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
MULTI:LOWER	STATUS, AUD_LVL, 5BAR, or ?
STATUS	—
MAKE	STATUS (See section 17.3, “FTP”)
STATUS:LOG	—
STAUTS:LOG:LOG	START, STOP, or ?
STAUTS:LOG:CLEAR	—
STAUTS:LOG:MODE	OVER_WR, STOP, or ?
MAKE	LOG (See section 17.3, “FTP”)
STATUS:DUMP	—
STATUS:DUMP:MODE	RUN, HOLD, or ?
STATUS:DUMP:DISPLAY	SERIAL, COMPO, BINARY, or ?
STATUS:DUMP:EAV	—
STATUS:DUMP:SAV	—
STATUS:DUMP:LINE_NUMBER	1 to 1125, or ?
STATUS:DUMP:SAMPLE	0 to 2749, or ?
MAKE	DUMP (See section 17.3, “FTP”)
STATUS:AUDIO	—
STATUS:AUDIO:CH	1ST-1, 1ST-2, 1ST-3, 1ST-4 / 2ND-1, 2ND-2, 2ND-3, 2ND-4, or ?
STATUS:EDH	—
STATUS:ANC:FORMAT:PACKET	SMPTE, ARIB, or ?
STATUS:ANC:VANC:CCAP:DISPLAY	TEXT, DUMP, or ?
STATUS:ANC:VANC:CCAP:CAP_NUMBER	1, 2, 3, or ?
STATUS:ANC:VANC:CCAP:DUMP_MODE	HEX, BINARY, or ?
STATUS:ANC:VANC:NETQ1:DISPLAY	TEXT, DUMP, or ?
STATUS:ANC:VANC:NETQ1:DUMP_MODE	HEX, BINARY, or ?
STATUS:ANC:VANC:NETQ2:Q1	ON, OFF, or ?
STATUS:ANC:VANC:NETQ2:Q2	ON, OFF, or ?
STATUS:ANC:VANC:NETQ2:Q3	ON, OFF, or ?
STATUS:ANC:VANC:NETQ2:Q4	ON, OFF, or ?

Command	Parameters
STATUS:ANC:VANC:NETQ2:Q5	ON, OFF, or ?
STATUS:ANC:VANC:NETQ3:Q6	ON, OFF, or ?
STATUS:ANC:VANC:NETQ3:Q7	ON, OFF, or ?
STATUS:ANC:VANC:NETQ3:Q8	ON, OFF, or ?
STATUS:ANC:VANC:NETQ3:Q9	ON, OFF, or ?
STATUS:ANC:VANC:NETQ3:Q10	ON, OFF, or ?
STATUS:ANC:VANC:NETQ4:Q11	ON, OFF, or ?
STATUS:ANC:VANC:NETQ4:Q12	ON, OFF, or ?
STATUS:ANC:VANC:NETQ4:Q13	ON, OFF, or ?
STATUS:ANC:VANC:NETQ4:Q14	ON, OFF, or ?
STATUS:ANC:VANC:NETQ4:Q15	ON, OFF, or ?
STATUS:ANC:VANC:NETQ5:Q16	ON, OFF, or ?
STATUS:ANC:VANC:NETQ5:Q17	ON, OFF, or ?
STATUS:ANC:VANC:NETQ5:Q18	ON, OFF, or ?
STATUS:ANC:VANC:NETQ5:Q19	ON, OFF, or ?
STATUS:ANC:VANC:NETQ5:Q20	ON, OFF, or ?
STATUS:ANC:VANC:NETQ6:Q21	ON, OFF, or ?
STATUS:ANC:VANC:NETQ6:Q22	ON, OFF, or ?
STATUS:ANC:VANC:NETQ6:Q23	ON, OFF, or ?
STATUS:ANC:VANC:NETQ6:Q24	ON, OFF, or ?
STATUS:ANC:VANC:NETQ6:Q25	ON, OFF, or ?
STATUS:ANC:VANC:NETQ7:Q26	ON, OFF, or ?
STATUS:ANC:VANC:NETQ7:Q27	ON, OFF, or ?
STATUS:ANC:VANC:NETQ7:Q28	ON, OFF, or ?
STATUS:ANC:VANC:NETQ7:Q29	ON, OFF, or ?
STATUS:ANC:VANC:NETQ7:Q30	ON, OFF, or ?
STATUS:ANC:VANC:NETQ8:Q31	ON, OFF, or ?
STATUS:ANC:VANC:NETQ8:Q32	ON, OFF, or ?
STATUS:ERROR:REMOTE_ERR	OFF, POSITIVE, NEGATIVE, or ?
STATUS:ERROR:RATE	V_RATE, 1SEC, or ?
STATUS:ERROR:DETECT:TRS	ON, OFF, or ?
STATUS:ERROR:DETECT:LINE	ON, OFF, or ?
STATUS:ERROR:DETECT:CRC	ON, OFF, or ?
STATUS:ERROR:DETECT:EDH	ON, OFF, or ?
STATUS:ERROR:DETECT:PARITY	ON, OFF, or ?
STATUS:ERROR:DETECT:CHECKSUM	ON, OFF, or ?
STATUS:ERROR:DETECT:GAMUT	ON, OFF, or ?
STATUS:ERROR:DETECT:C.GAMUT	ON, OFF, or ?
STATUS:ERROR:DETECT:BCH	ON, OFF, or ?
STATUS:ERROR:DETECT:AUDIO_CRC	ON, OFF, or ?
STATUS:ERROR:LEVEL:GAMUT_FILTER_HD	1M, 2.8M, OFF, or ?
STATUS:ERROR:LEVEL:GAMUT_FILTER_SD	1M, OFF, or ?
STATUS:ERROR:LEVEL:GAMUT:UNIT	%, mV, or ?
STATUS:ERROR:LEVEL:GAMUT:UPPER	90.8 to 109.4, or ? (when UNIT is %) 635.6 to 765.8, or ? (when UNIT is mV)
STATUS:ERROR:LEVEL:GAMUT:LOWER	–7.2 to 6.1, or ? (when UNIT is %) –50.4 to 42.7, or ? (when UNIT is mV)
STATUS:ERROR:LEVEL:C.GAMUT:UPPER	90.0 to 135.0, or ? (when UNIT is %)

Command	Parameters
	630.0 to 963.9, or ? (when UNIT is mV)
STATUS:ERROR:LEVEL:C.GAMUT:LOWER	–40.0 to –20.0, or ? (when UNIT is %) –285.6 to –140.0, or ? (when UNIT is mV)
STATUS:ERROR:DISPLAY	REFRESH, HOLD, or ?
STATUS:RESET	—
VIEW_FINDER	—
VIEW_FINDER:CHROMA	50 to 150, or ?
VIEW_FINDER:APERTURE	0 to 200, or ?
VIEW_FINDER:BRIGHT	–50 to 50, or ?
VIEW_FINDER:CONTRAST	50 to 200, or ?
CAPTURE	—
CAPTURE:HOLD	—
CAPTURE:DISPLAY	REAL, HOLD, BOTH, or ?
CAPTURE:TYPE_SELECT	BMP&BSX, BMP, BSX, or ?
SYSTEM:FORMAT:MODE	AUTO, MANUAL, or ?
FORMAT	1080I/60, 1080I/59.94, 1080I/50, 1080P/30 / 1080P/29.97, 1080P/25, 1080P/24, 1080P/23.98 / 1080PSF/30, 1080PSF/29.97, 1080PSF/25, 1080PSF/24 / 1080PSF/23.98, 720P/60, 720P/59.94, 720P/50 / 720P/30, 720P/29.97, 720P/25, 720P/24, 720P/23.98 / 525I/59.94, 625I/50, or ?
SYSTEM:FORMAT:LINK	SINGLE, DUAL-A, or ?
SYSTEM:FORMAT:COMPOSIT_FORMAT	AUTO, NTSC, PAL, or ?
SYSTEM:COLOR	3200, 6500, 9300, THROUGH, or ?
SYSTEM:DISPLAY:INFO:FORMAT	ON, OFF, or ?
SYSTEM:DISPLAY:INFO:DATE	Y/M/D, M/D/Y, D/M/Y, OFF, or ?
SYSTEM:DISPLAY:INFO:TIME	REAL, TIMECODE, OFF, or ?
SYSTEM:DISPLAY:INFO:COLOR	ON, OFF, or ?
SYSTEM:DISPLAY:INFO:TIMECODE	VITC, LTC, D-VITC, or ?
SYSTEM:DISPLAY:BACKLIGHT	HIGH, LOW, or ?
SYSTEM:DISPLAY:AUTO_OFF	OFF, 5, 30, 60, or ?
SYSTEM:DISPLAY:BATTERY	IDX, ANTON, OTHERS, OFF, or ?
SYSTEM:DISPLAY:LIGHT	AUTO, ON, or ?
SYSTEM:DATE	2000 to 2200, 1 to 12, 1 to 31, 0 to 23, 0 to 59, 0 to 59, or ? (Enter the year, month, day, hour, minute, and second, in that order, separated by commas.)
SYSTEM:INIT	—
RECALL	1 to 30

17.3 FTP

You can use the Ethernet connector on the rear panel to perform file transfer operations such as dumping data from the LV 5330 to a PC.

17.3.1 Procedure

1 Configure the LV 5330 Ethernet settings, and connect an Ethernet cable.

For more detailed instructions, see steps 1 through 3 in section 17.2.1, “Procedure.”

2 Start FTP.

After you start FTP, the following display appears.
For information on how to start FTP, see your PC user’s manual.

```
User:
```

3 Enter the user name, and press Enter.

The user name is LV5330. Be sure to use capital letters.
You cannot change the user name.

```
User: LV5330
```

4 Enter the password, and press Enter.

The password is LV5330. Be sure to use capital letters.
You cannot change the password.

```
Password: ******
```

5 Enter commands.

After you enter the password, the following command prompt appears.
Enter commands while referring to section 17.3.2, “How to Enter Commands,” and section 17.3.3, “FTP Commands.”

```
ftp>
```

17.3.2 How to Enter Commands

To transfer files through FTP, you must run a MAKE or CAPTURE command through TELNET before you execute FTP commands.
The FTP command format is explained below. Commands can be entered using uppercase or lowercase letters.

```
ftp> [Command] + [Space] + [Parameter 1] + [Space] + [Parameter 2]
```

Examples of how to enter commands are shown below.

- **Transferring a data dump**

1. Use the following TELNET command to save a data dump in the LV 5330 internal memory.

```
LV5330> MAKE DUMP
```

2. Use the following FTP command to transfer the data dump to “DUMP.TXT” on the D drive.

```
ftp> GET DUMP.TXT D:\DUMP.TXT
```

17.3.3 FTP Commands

The TELNET MAKE/CAPTURE commands and the FTP commands are listed in the tables below.

Table 17-3 MAKE/CAPTURE commands

Command	Parameters	Explanation
MAKE	STATUS	Saves the top level of the status display in the internal memory.
	LOG	Saves the event log in the internal memory.
	DUMP	Saves a data dump in the internal memory.
CAPTURE	—	Saves screen capture data in the internal memory.

Table 17-4 FTP commands

Command	Parameter 1	Parameter 2	Explanation
GET	STATUS.TXT	Directory name/file name.txt	The top level of the status display is transferred as a text file.
	LOG.TXT	Directory name/file name.txt	The event log is transferred as a text file.
	DUMP.TXT	Directory name/file name.txt	A data dump is transferred as a text file.
	CAPTURE.BMP	Directory name/file name.bmp	Screen capture data is transferred as a bitmap file.

17.4 SNMP

By using SNMP (Simple Network Management Protocol), you can control an LV 5330 from SNMP managers. Additionally, you can also notify the SNMP managers of SDI signal errors that the LV 5330 generates.

17.4.1 Procedure

1. **Configure the LV 5330 Ethernet settings, and connect an Ethernet cable.**

   See steps 1 through 3 in section 17.2.1, "Procedure" and also section 5.4.3, "Setting the SNMP Mode."

2. **Start the SNMP managers.** (***1**)

   To control the LV 5330 over SNMP, you need an SNMP manager (not included).

3. **Check that the SNMP managers can perform GET and SET operations.**

   For details on how to use the SNMP managers, see their instruction manuals.

4. **Set the following MIB items to the SNMP managers' IP addresses.**

   Perform the SET operation from the SNMP managers.

   1.3.6.1.4.1.leader(20111).lv5330(15).lv5330ST1(1).l15trapTBL(14).l15trapManagerIp(2).0

5. **Restart the LV 5330.**

6. **When the LV 5330 starts, it transmits the standard TRAP "coldStart(0)." Check that this is received by the SNMP managers.**

*1

SNMP Version	SNMPv1	
Community Names	Read community:	LDRUser
	Write community:	LDRAdm
	TRAP community:	LDRUser
SMI Definitions	IMPORTS	
	MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE, enterprises	
	FROM SNMPv2-SMI	
	DisplayString	
	FROM SNMPv2-TC	
	OBJECT-GROUP, MODULE-COMPLIANCE	
	FROM SNMPv2-CONF;	

17.4.2 MIB

This section explains the MIB (Management Information Base) that the LV 5330 uses.
In the tables that follow, "ACCESS" has the following meanings:

ACCESS	Description
R/O	Information that can only be retrieved from the SNMP managers.
R/W	Information that can be retrieved and set from the SNMP managers.
R/WO	Information that can be retrieved and set from the SNMP managers. (However, the retrieved data consists of meaningless fixed values.)

17.4.3 Standard MIB

The LV 5330 uses the following standard MIBs:
• RFC1213 (MIB-II)
• RFC1354 (IP Forwarding Table MIB)

Note that in this version, there are objects that are not implemented.
In the tables that follow, “SUPPORT” has the following meanings:

SUPPORT	Description
○	Supports the MIB object as defined by the standard.
▲	Reading and writing are possible according to the standard, but the LV 5330 only supports reading.
×	Not supported.

● system group

MIB	OID	SYNTAX	ACCESS	SUPPORT
sysDescr	system.1	DisplayString	R/O	○
sysObjectID	system.2	ObjectID	R/O	○
sysUpTime	system.3	TimeTicks	R/O	○
sysContact (*1)	system.4	DisplayString	R/W	○
sysName (*1)	system.5	DisplayString	R/W	○
sysLocation (*1)	system.6	DisplayString	R/W	○
sysServices	system.7	INTEGER	R/O	○

*1 Set using up to 40 bytes.

● interface group

MIB	OID	SYNTAX	ACCESS	SUPPORT
ifNumber	interfaces.1	INTEGER	R/O	○
ifTable	interfaces.2	Aggregate	-	○
ifEntry	ifTable.1	Aggregate	-	○
ifIndex	ifEntry.1	INTEGER	R/O	○
ifDescr	ifEntry.2	DisplayString	R/O	○
ifType	ifEntry.3	INTEGER	R/O	○
ifMtu	ifEntry.4	INTEGER	R/O	○
ifSpeed	ifEntry.5	Gauge	R/O	○
ifPhysAddress	ifEntry.6	OctetString	R/O	○
ifAdminStatus	ifEntry.7	INTEGER	R/O	▲
ifOperStatus	ifEntry.8	INTEGER	R/O	▲
ifLastChange	ifEntry.9	TimeTicks	R/O	○
ifInOctets	ifEntry.10	Counter	R/O	○
ifInUcastPkts	ifEntry.11	Counter	R/O	○
ifInNUcastPkts	ifEntry.12	Counter	R/O	○
ifInDiscards	ifEntry.13	Counter	R/O	○
ifInErrors	ifEntry.14	Counter	R/O	○
ifInUnknownProtos	ifEntry.15	Counter	R/O	○
ifOutOctets	ifEntry.16	Counter	R/O	○

MIB	OID	SYNTAX	ACCESS	SUPPORT
ifOutUcastPkts	ifEntry.17	Counter	R/O	○
ifOutNUcastPkts	ifEntry.18	Counter	R/O	○
ifOutDiscards	ifEntry.19	Counter	R/O	○
ifOutErrors	ifEntry.20	Counter	R/O	○
ifOutQLen	ifEntry.21	Gauge	R/O	○
ifSpecific	ifEntry.22	ObjectID	R/O	○

- **ip group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
ipForwarding	ip.1	INTEGER	R/O	○
ipDefaultTTL	ip.2	INTEGER	R/O	○
ipInReceives	ip.3	Counter	R/O	○
ipInHdrErrors	ip.4	Counter	R/O	○
ipInAddrErrors	ip.5	Counter	R/O	○
ipForwDatagrams	ip.6	Counter	R/O	○
ipInUnknownProtos	ip.7	Counter	R/O	○
ipInDiscards	ip.8	Counter	R/O	○
ipInDelivers	ip.9	Counter	R/O	○
ipOutRequests	ip.10	Counter	R/O	○
ipOutDiscards	ip.11	Counter	R/O	○
ipOutNoRoutes	ip.12	Counter	R/O	○
ipReasmTimeout	ip.13	INTEGER	R/O	○
ipReasmReqds	ip.14	Counter	R/O	○
ipReasmOKs	ip.15	Counter	R/O	○
ipReasmFails	ip.16	Counter	R/O	○
ipFragOKs	ip.17	Counter	R/O	○
ipFragFails	ip.18	Counter	R/O	○
ipFragCreates	ip.19	Counter	R/O	○
ipAddrTable	ip.20	Aggregate	-	○
ipAddrEntry	ipAddrTable.1	Aggregate	-	○
ipAdEntAddr	ipAddrEntry.1	IpAddress	R/O	○
ipAdEntIfIndex	ipAddrEntry.2	INTEGER	R/O	○
ipAdEntNetMask	ipAddrEntry.3	IpAddress	R/O	○
ipAdEntBcastAddr	ipAddrEntry.4	INTEGER	R/O	○
ipAdEntReasmMaxSize	ipAddrEntry.5	INTEGER	R/O	○
ipNetToMediaTable	ip.22	Aggregate	-	○
ipNetToMediaEntry	ipNetToMediaTable.1	Aggregate	-	○
ipNetToMediaIfIndex	ipNetToMediaEntry.1	INTEGER	R/O	▲
ipNetToMediaPhysAddress	ipNetToMediaEntry.2	OctetString	R/O	▲
ipNetToMediaNetAddress	ipNetToMediaEntry.3	IpAddress	R/O	▲
ipNetToMediaType	ipNetToMediaEntry.4	INTEGER	R/O	▲
ipRoutingDiscards	ip.23	Counter	R/O	○
ipForward	ip.24	Aggregate	-	○
ipForwardNumber	ipForward .1	Gauge	R/O	○
ipForwardTable	ipForward .2	Aggregate	-	○

MIB	OID	SYNTAX	ACCESS	SUPPORT
ipForwardDest	ipForwardTable.1	IpAddress	R/O	○
ipForwardMask	ipForwardTable.1	IpAddress	R/O	○
ipForwardPolicy	ipForwardTable.1	INTEGER	R/O	×
ipForwardNextHop	ipForwardTable.1	IpAddress	R/O	○
ipForwardIfIndex	ipForwardTable.1	INTEGER	R/O	○
ipForwardType	ipForwardTable.1	INTEGER	R/O	×
ipForwardProto	ipForwardTable.1	INTEGER	R/O	×
ipForwardAge	ipForwardTable.1	INTEGER	R/O	×
ipForwardInfo	ipForwardTable.1	ObjectID	R/O	×
ipForwardNextHopAS	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric1	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric2	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric3	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric4	ipForwardTable.1	INTEGER	R/O	×
ipForwardMetric5	ipForwardTable.1	INTEGER	R/O	×

- **icmp group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
icmpInMsgs	icmp.1	Counter	R/O	○
icmpInErrors	icmp.2	Counter	R/O	○
icmpInDestUnreachs	icmp.3	Counter	R/O	○
icmpInTimeExcds	icmp.4	Counter	R/O	○
icmpInParmProbs	icmp.5	Counter	R/O	○
icmpInSrcQuenchs	icmp.6	Counter	R/O	○
icmpInRedirects	icmp.7	Counter	R/O	○
icmpInEchos	icmp.8	Counter	R/O	○
icmpInEchoReps	icmp.9	Counter	R/O	○
icmpInTimestamps	icmp.10	Counter	R/O	○
icmpInTimestampReps	icmp.11	Counter	R/O	○
icmpInAddrMasks	icmp.12	Counter	R/O	○
icmpInAddrMaskReps	icmp.13	Counter	R/O	○
icmpOutMsgs	icmp.14	Counter	R/O	○
icmpOutErrors	icmp.15	Counter	R/O	○
icmpOutDestUnreachs	icmp.16	Counter	R/O	○
icmpOutTimeExcds	icmp.17	Counter	R/O	○
icmpOutParmProbs	icmp.18	Counter	R/O	○
icmpOutSrcQuenchs	icmp.19	Counter	R/O	○
icmpOutRedirects	icmp.20	Counter	R/O	○
icmpOutEchos	icmp.21	Counter	R/O	○
icmpOutEchoReps	icmp.22	Counter	R/O	○
icmpOutTimestamps	icmp.23	Counter	R/O	○
icmpOutTimestampReps	icmp.24	Counter	R/O	○
icmpOutAddrMasks	icmp.25	Counter	R/O	○
icmpOutAddrMaskReps	icmp.26	Counter	R/O	○

● tcp group

MIB	OID	SYNTAX	ACCESS	SUPPORT
tcpRtoAlgorithm	tcp.1	INTEGER	R/O	○
tcpRtoMin	tcp.2	INTEGER	R/O	○
tcpRtoMax	tcp.3	INTEGER	R/O	○
tcpMaxConn	tcp.4	INTEGER	R/O	○
tcpActiveOpens	tcp.5	Counter	R/O	○
tcpPassiveOpens	tcp.6	Counter	R/O	○
tcpAttemptFails	tcp.7	Counter	R/O	○
tcpEstabResets	tcp.8	Counter	R/O	○
tcpCurrEstab	tcp.9	Gauge	R/O	○
tcpInSegs	tcp.10	Counter	R/O	○
tcpOutSegs	tcp.11	Counter	R/O	○
tcpRetransSegs	tcp.12	Counter	R/O	○
tcpConnTable	tcp.13	Aggregate	-	○
tcpConnEntry	tcpConnTable.1	Aggregate	-	○
tcpConnState	tcpConnEntry.1	INTEGER	R/O	▲
tcpConnLocalAddress	tcpConnEntry.2	IpAddress	R/O	○
tcpConnLocalPort	tcpConnEntry.3	INTEGER	R/O	○
tcpConnRemAddress	tcpConnEntry.4	IpAddress	R/O	○
tcpConnRemPort	tcpConnEntry.5	INTEGER	R/O	○
tcpInErrs	tcp.14	Counter	R/O	○
tcpOutRsts	tcp.15	Counter	R/O	○

● udp group

MIB	OID	SYNTAX	ACCESS	SUPPORT
udpInDatagrams	udp.1	Counter	R/O	○
udpNoPorts	udp.2	Counter	R/O	○
udpInErrors	udp.3	Counter	R/O	○
udpOutDatagrams	udp.4	Counter	R/O	○
udpTable	udp.5	Aggregate	-	○
udpEntry	udpTable.1	Aggregate	-	○
udpLocalAddress	udpEntry.1	IpAddress	R/O	○
udpLocalPort	udpEntry.2	INTEGER	R/O	○

● **snmp group**

MIB	OID	SYNTAX	ACCESS	SUPPORT
snmpInPkts	snmp.1	Counter	R/O	○
snmpOutPkts	snmp.2	Counter	R/O	○
snmpInBadVersions	snmp.3	Counter	R/O	○
snmpInBadCommunityNames	snmp.4	Counter	R/O	○
snmpInBadCommunityUses	snmp.5	Counter	R/O	○
snmpInASNParseErrs	snmp.6	Counter	R/O	○
snmpInTooBigs	snmp.8	Counter	R/O	○
snmpInNoSuchNames	snmp.9	Counter	R/O	○
snmpInBadValues	snmp.10	Counter	R/O	○
snmpInReadOnlys	snmp.11	Counter	R/O	○
snmpInGenErrs	snmp.12	Counter	R/O	○
snmpInTotalReqVars	snmp.13	Counter	R/O	○
snmpInTotalSetVars	snmp.14	Counter	R/O	○
snmpInGetRequests	snmp.15	Counter	R/O	○
snmpInGetNexts	snmp.16	Counter	R/O	○
snmpInSetRequests	snmp.17	Counter	R/O	○
snmpInGetResponses	snmp.18	Counter	R/O	○
snmpInTraps	snmp.19	Counter	R/O	○
snmpOutTooBigs	snmp.20	Counter	R/O	○
snmpOutNoSuchNames	snmp.21	Counter	R/O	○
snmpOutBadValues	snmp.22	Counter	R/O	○
snmpOutGenErrs	snmp.24	Counter	R/O	○
snmpOutGetRequests	snmp.25	Counter	R/O	○
snmpOutGetNexts	snmp.26	Counter	R/O	○
snmpOutSetRequests	snmp.27	Counter	R/O	○
snmpOutGetResponses	snmp.28	Counter	R/O	○
snmpOutTraps	snmp.29	Counter	R/O	○
snmpEnableAuthenTraps	snmp.30	IpAddress	R/W	○

17.4.4 Enterprise MIB

- **MIB File**

  Download the file on the LV 5330 using FTP.
  The file name is “lv5330.my”.

- **Enterprise Number**

  The Enterprise Number of LEADER ELECTRONICS CORP. is 20111.
  iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).leader(20111)

- **Enterprise MIB Structure**

```
lv5330          OBJECT IDENTIFIER ::= { leader 15 }
lv5330ST1       OBJECT IDENTIFIER ::= { lv5330 1 }
l15panelTBL     OBJECT IDENTIFIER ::= { lv5330ST1 1 }
l15wfmTBL       OBJECT IDENTIFIER ::= { lv5330ST1 2 }
l15vectorTBL    OBJECT IDENTIFIER ::= { lv5330ST1 3 }
l15pictureTBL   OBJECT IDENTIFIER ::= { lv5330ST1 4 }
l15cineliteTBL  OBJECT IDENTIFIER ::= { lv5330ST1 5 }
l15cinezoneTBL  OBJECT IDENTIFIER ::= { lv5330ST1 6 }
l15viewfinderTBL OBJECT IDENTIFIER ::= { lv5330ST1 7 }
l15audioTBL     OBJECT IDENTIFIER ::= { lv5330ST1 8 }
l15multiTBL     OBJECT IDENTIFIER ::= { lv5330ST1 9 }
l15statusTBL    OBJECT IDENTIFIER ::= { lv5330ST1 10 }
l15captureTBL   OBJECT IDENTIFIER ::= { lv5330ST1 11 }
l15filesTBL     OBJECT IDENTIFIER ::= { lv5330ST1 12 }
l15systemTBL    OBJECT IDENTIFIER ::= { lv5330ST1 13 }
l15trapTBL      OBJECT IDENTIFIER ::= { lv5330ST1 14 }
```

- **l15panelTBL(1) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15plSDI	l15panelTBL.2	INTEGER	R/W	0=a 1=b
l15plReference	l15panelTBL.3	INTEGER	R/W	0=int 1=ext
l15plDisplay	l15panelTBL.6	INTEGER	R/W	0=wfm 1=vector 3=picture 4=multi 5=status 6=capture 7=system 8=memory 10=recall 12=viewfinder 13=cinelite 14=cinezone

- **l15wfmTBL(2) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15wfmIntenTBL	l15wfmTBL.1	Aggregate	-	-
l15wfmIntenWfm	l15wfmIntenTBL.1	INTEGER	R/W	-128 - 127
l15wfmIntenSCALE	l15wfmIntenTBL.2	INTEGER	R/W	-8 - 7
l15wfmGainTBL	l15wfmTBL.2	Aggregate	-	-
l15wfmGainVAR	l15wfmGainTBL.1	INTEGER	R/W	0=cal 1=var
l15wfmGainMAG	l15wfmGainTBL.2	INTEGER	R/W	0=x1 1=x5
l15wfmGainFILTER	l15wfmGainTBL.3	INTEGER	R/W	0=flat 1=lowPass 2=luma
l15wfmGainCFILTER	l15wfmGainTBL.4	INTEGER	R/W	0=flat 1=flatLum
l15wfmSweepTBL	l15wfmTBL.3	Aggregate	-	-
l15wfmSweepSweep	l15wfmSweepTBL.1	INTEGER	R/W	0=h 1=v
l15wfmSweepHSweep	l15wfmSweepTBL.2	INTEGER	R/W	0=sp1H 1=sp2H
l15wfmSweepVSweep	l15wfmSweepTBL.3	INTEGER	R/W	0=sp1V 1=sp2V
l15wfmSweepField	l15wfmSweepTBL.4	INTEGER	R/W	0=field1 1=field2 2=frame
l15wfmSweepHMAG	l15wfmSweepTBL.5	INTEGER	R/W	0=x1 1=x10

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				2=x20 3=active 4=blank
l15wfmSweepVMAG	l15wfmSweepTBL.6	INTEGER	R/W	0=x1 1=x20 2=x40
l15wfmLineSelectTBL	l15wfmTBL.4	Aggregate	-	-
l15wfmLineSelect	l15wfmLineSelectTBL.1	INTEGER	R/W	0=off 1=on
l15wfmLineSelectNumber	l15wfmLineSelectTBL.2	INTEGER	R/W	1 - 1125
l15wfmLineSelectField	l15wfmLineSelectTBL.3	INTEGER	R/W	0=field1 1=field2 2=frame
l15wfmColorTBL	l15wfmTBL.5	Aggregate	-	-
l15wfmColorMatrix	l15wfmColorTBL.1	INTEGER	R/W	0=ycbcr 1=gbr 2=rgb 3=composite
l15wfmColorYGBR	l15wfmColorTBL.2	INTEGER	R/W	0=off 1=on
l15wfmColorYRGB	l15wfmColorTBL.3	INTEGER	R/W	0=off 1=on
l15wfmColorColorGBR	l15wfmColorTBL.4	INTEGER	R/W	0=off 1=on
l15wfmColorColorRGB	l15wfmColorTBL.5	INTEGER	R/W	0=off 1=on
l15wfmColorSetup	l15wfmColorTBL.6	INTEGER	R/W	0=p0Per 1=p7p5Per
l15wfmScaleTBL	l15wfmTBL.6	Aggregate	-	-
l15wfmScaleUnit	l15wfmScaleTBL.1	INTEGER	R/W	0=hdvsdp 1=hdvsdv 2=hdpsdp 3=y3ff 4=y1023
l15wfmScaleColor	l15wfmScaleTBL.3	INTEGER	R/W	0=white 1=yellow 2=cyan 3=green 4=magenta 5=red 6=blue
l15wfmScaleColor75P	l15wfmScaleTBL.4	INTEGER	R/W	0=off 1=on
l15wfmEavSav	l15wfmTBL.7	INTEGER	R/W	0=remove 1=pass
l15wfmTimingMode	l15wfmTBL.9	INTEGER	R/W	0=normal

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				1=pass
l15wfmMode	l15wfmTBL.10	INTEGER	R/W	0=overlay 1=parade 2=timing
l15wfmDisplayTBL	l15wfmTBL.11	Aggregate	-	-
l15wfmDisplayCH1	l15wfmDisplayTBL.1	INTEGER	R/W	0=off 1=on
l15wfmDisplayCH2	l15wfmDisplayTBL.2	INTEGER	R/W	0=off 1=on
l15wfmDisplayCH3	l15wfmDisplayTBL.3	INTEGER	R/W	0=off 1=on

- **l15vectorTBL(3) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15vecIntenTBL	l15vectorTBL.1	Aggregate	-	-
l15vecIntenVector	l15vecIntenTBL.1	INTEGER	R/W	-128 - 127
l15vecIntenScale	l15vecIntenTBL.2	INTEGER	R/W	-8 - 7
l15vecGainTBL	l15vectorTBL.2	INTEGER	R/W	-
l15vecGainVar	l15vecGainTBL.1	INTEGER	R/W	0=cal 1=val
l15vecGainMag	l15vecGainTBL.2	INTEGER	R/W	0=x1 1=x5 2=iqmag
l15vecLineSelectTBL	l15vectorTBL.3	Aggregate	-	-
l15vecLineSelect	l15vecLineSelectTBL.1	INTEGER	R/W	0=off 1=on
l15vecLineSelectNumber	l15vecLineSelectTBL.2	INTEGER	R/W	1 - 1125
l15vecLineSelectField	l15vecLineSelectTBL.3	INTEGER	R/W	0=field1 1=field2 2=frame
l15vecColorSystemTBL	l15vectorTBL.4	Aggregate	-	-
l15vecColorSystemBar	l15vecColorSystemTBL.1	INTEGER	R/W	0=p100Per 1=p75Per
l15vecColorSystemMatrix	l15vecColorSystemTBL.2	INTEGER	R/W	0=componen 1=composite
l15vecColorSystemSetup	l15vecColorSystemTBL.3	INTEGER	R/W	0=p0Per 1=p7p5Per
l15vecScaleTBL	l15vectorTBL.5	Aggregate	-	-
l15vecScaleColor	l15vecScaleTBL.1	INTEGER	R/W	0=white 1=yellow 2=cyan 3=green 4=magenta 5=red 6=blue

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15vecScaleIQAXIS	l15vecScaleTBL.2	INTEGER	R/W	0=off 1=on
l15vecScaleMarker	l15vecScaleTBL.3	INTEGER	R/W	0=off 1=on
l15vecSelect	l15vectorTBL.6	INTEGER	R/W	0=vector 1=bar
l15vecExtPhaseTBL	l15vectorTBL.7	Aggregate	-	-
l15vecExtPhaseSdiNumber	l15vecExtPhaseTBL.1	INTEGER	R/W	0=n1 1=n2 2=n3 3=n4 4=n5 5=n6 6=n7 7=n8
l15vecExtPhaseSdiMemory	l15vecExtPhaseTBL.2	INTEGER	R/W	0=ExtPhaseSdiMemory
l15vecExtPhaseMemoryClear	l15vecExtPhaseTBL.3	INTEGER	R/W	0=ExtPhaseMemoryClear
l15vecExtPhaseUserRefSet	l15vecExtPhaseTBL.4	INTEGER	R/W	0=ExtPhaseUserRefSet
l15vecExtPhaseRefDefault	l15vecExtPhaseTBL.5	INTEGER	R/W	0=ExtPhaseRefDefault

- **l15pictureTBL(4) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15picMarkerTBL	l15pictureTBL.1	Aggregate	-	-
l15picMarker43	l15picMarkerTBL.1	INTEGER	R/W	0=hd235-1 1=hd185-1 2=hd166-1 3=hd14-9 4=hd13-9 5=hd4-3 6=off
l15picMarker169	l15picMarkerTBL.2	INTEGER	R/W	0=sd235-1 1=sd185-1 2=sd166-1 3=sd16-9 4=sd14-9 5=sd13-9 6=off
l15picMarkerSafeAction	l15picMarkerTBL.3	INTEGER	R/W	0=sa95 1=sa93 2=sa90 3=off
l15picMarkerSafeTitle	l15picMarkerTBL.4	INTEGER	R/W	0=st88 1=st80 2=off
l15picMarkerCenter	l15picMarkerTBL.5	INTEGER	R/W	0=off

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				1=on
l15picMarkerShadow	l15picMarkerTBL.6	INTEGER	R/W	0=off 1=on
l15picLineSelectTBLl	5pictureTBL.2	Aggregate	-	-
l15picLineSelect	l15picLineSelectTBL.1	INTEGER	R/W	0=off 1=on
l15picLineSelectNumber	l15picLineSelectTBL.2	INTEGER	R/W	1 - 1125
l15picLineSelectField	l15picLineSelectTBL.3	INTEGER	R/W	0=field1 1=field2 2=frame
l15picEtcTBL	l15pictureTBL.3	Aggregate	-	-
l15picCcTBL	l15picEtcTBL.1	Aggregate	-	-
l15picCcSystem	l15picCcTBL.1	INTEGER	R/W	0=eia608-708 1=eia608-608 2=vbi
l15picCcCc	l15picCcTBL.2	INTEGER	R/W	0=off 1=cc1 2=cc2 3=cc3 4=cc4 5=text1 6=text2 7=text3 8=text4
l15picGamutErr	l15picEtcTBL.4	INTEGER	R/W	0=dispon 1=dispoff
l15picDisplayTBL	l15pictureTBL.4	Aggregate	-	-
l15picSize	l15picDisplayTBL.1	INTEGER	R/W	0=fit 1=x1 2=x2 3=full
l15picRgb	l15picDisplayTBL.2	INTEGER	R/W	0=rgb 1=mono 2=rg 3=rb 4=gb 5=r 6=g 7=b
l15picSqueeze	l15picDisplayTBL.3	INTEGER	R/W	0=off 1=on
l15picIpConv	l15picDisplayTBL.4	INTEGER	R/W	0=off 1=on
l15picChroma	l15pictureTBL.5	INTEGER	R/W	0 - 150
l15picAperture	l15pictureTBL.6	INTEGER	R/W	0 - 200
l15picBright	l15pictureTBL.7	INTEGER	R/W	-50 - 50

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15picContrust	l15pictureTBL.8	INTEGER	R/W	50 - 200

- **l15cineliteTBL(5) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15cineliteFstop	l15cineliteTBL.1	INTEGER	R/W	0=Fstop
l15cineliteDisplay	l15cineliteTBL.2	INTEGER	R/W	0=Display
l15cineliteDisplayTBL	l15cineliteTBL.3	Aggregate	-	-
l15cineliteDisplayLineNumber	l15cineliteDisplayTBL.1	INTEGER	R/W	1 - 1125
l15cineliteDisplaySampleNumber	l15cineliteDisplayTBL.2	INTEGER	R/W	0 - 2749
l15cineliteDisplayFD	l15cineliteDisplayTBL.3	INTEGER	R/W	0=line 1=sample
l15cineliteDisplayMeasPos	l15cineliteDisplayTBL.4	INTEGER	R/W	0=p1 1=p2 0=p3
l15cineliteDisplayMeasSize	l15cineliteDisplayTBL.5	INTEGER	R/W	0=s1x1 1=s3x3 2=s9x9
l15cineliteDisplayMeasDisp	l15cineliteDisplayTBL.6	INTEGER	R/W	0=p1p2p3 1=p1p2 2=p1p3 3=p2p3 4=p1 5=p2 6=p3
l15cineliteDisplayRGB	l15cineliteDisplayTBL.7	INTEGER	R/W	0=level 1=rgb 2=rgb255
l15cineliteFstopRefSet	l15cineliteDisplayTBL.8	INTEGER	R/W	0=FstopRefSet
l15cineliteGamma	l15cineliteTBL.4	INTEGER	R/W	0=gO45 1=user-1 2=user-2 3=user-3 4=user-A 5=user-B 6=user-C 7=user-D 8=user-E
l15cineliteCalTBL	l15cineliteTBL.5	Aggregate	-	-
l15cineliteCalTableClear	l15cineliteCalTBL.1	INTEGER	R/W	0=CalTableClear
l15cineliteCalDataClear	l15cineliteCalTBL.2	INTEGER	R/W	0=CalDataClear
l15cineliteCalSet	l15cineliteCalTBL.3	INTEGER	R/W	0=CalSet
l15cineliteCalCalF	l15cineliteCalTBL.4	INTEGER	R/W	0=f22-0 1=f16-0 2=f11-0 3=f8-0

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				4=f5-6 5=f4-0 6=f2-8 7=f2-0
l15cineliteCal2TBL	l15cineliteTBL.6	Aggregate	-	-
l15cineliteCal2TblClr	l15cineliteCal2TBL.1	INTEGER	R/W	0=Cal2TblClr
l15cineliteAdvance	l15cineliteTBL.7	INTEGER	R/W	0=off 1=P-V 2=P-W 3=P-V-W

- **l15cinezoneTBL(6) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15cinezoneMode	l15cinezoneTBL.1	INTEGER	R/W	0=zone 1=search
l15cinezoneZoneDisplay	l15cinezoneTBL.2	INTEGER	R/W	0=linear 1=step
l15cinezonePerDisplay	l15cinezoneTBL.3	INTEGER	R/W	0=off 1=on
l15cinezoneDisplay	l15cinezoneTBL.4	INTEGER	R/W	0=Display
l15cinezoneUpper	l15cinezoneTBL.5	DisplayString	R/W	-6.3 - 109.4
l15cinezoneLower	l15cinezoneTBL.6	DisplayString	R/W	-7.3 - 108.4
l15cinezoneSearchLevel	l15cinezoneTBL.7	DisplayString	R/W	-7.3 - 109.4
l15cinezoneSearchRange	l15cinezoneTBL.8	DisplayString	R/W	0.5 - 100.0

- **l15viewfinderTBL(7) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15viewfinderChroma	l15viewfinderTBL.1	INTEGER	R/W	50 - 150
l15viewfinderAperture	l15viewfinderTBL.2	INTEGER	R/W	0 - 200
l15viewfinderBright	l15viewfinderTBL.3	INTEGER	R/W	-50 - 50
l15viewfinderContrust	l15viewfinderTBL.4	INTEGER	R/W	50 - 200

- **l15audioTBL(8) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15audMode	l15audioTBL.1	INTEGER	R/W	0=level 1=value
l15audSdiTBL	l15audioTBL.2	Aggregate	-	-
l15audSdi1St	l15audSdiTBL.1	INTEGER	R/W	0=group1 1=group2 2=group3 3=group4
l15audSdi2nd	l15audSdiTBL.2	INTEGER	R/W	0=group1 1=group2 2=group3 3=group4

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15audMeterTBL	l15audioTBL.3	Aggregate	-	-
l15audMeterRef	l15audMeterTBL.1	INTEGER	R/W	0=minus20dB 1=minus18dB 2=minus12dB 3=minus9dB
l15audMeterRange	l15audMeterTBL.2	INTEGER	R/W	0=peak60dB 1=peak90dB 2=avarage
l15audMeterScale	l15audMeterTBL.3	INTEGER	R/W	0=typeA 1=typeB
l15audMeterPeakHold	l15audMeterTBL.4	INTEGER	R/W	0=ph0p5 1=ph1 2=ph1p5 3=ph2 4=ph2p5 5=ph3 6=ph3p5 7=ph4 8=ph4p5 9=ph5 10=hold
l15audPhonesTBL	l15audioTBL.4	Aggregate	-	-
l15audPhonesOut	l15audPhonesTBL.1	INTEGER	R/W	0=off 1=on
l15audPhonesVolume	l15audPhonesTBL.2	INTEGER	R/W	0 - 128
l15audPhonesL	l15audPhonesTBL.3	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audPhonesR	l15audPhonesTBL.4	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapTBL	l15audioTBL.5	Aggregate	-	-
l15audChMapL	l15audChMapTBL.1	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapR	l15audChMapTBL.2	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapSL	l15audChMapTBL.3	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapSR	l15audChMapTBL.4	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapC	l15audChMapTBL.5	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapLFE	l15audChMapTBL.6	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapRL	l15audChMapTBL.7	INTEGER	R/W	0=ch1st1 1=ch1st2

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15audChMapRR	l15audChMapTBL.8	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4

- **l15multiTBL(9) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15mulMode	l15multiTBL.1	INTEGER	R/W	0=m4SCREEN 1=picWFM 2=wfmVEC 3=wfmPIC 4=wfmAUD 5=picpluswfm 6=picplusvect 8=audio
l15mulLower	l15multiTBL.2	INTEGER	R/W	0=statusDisp 1=audLVLDisp 2=fiveBarDisp

- **l15statusTBL(10) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15staDisplayTBL	l15statusTBL.1	Aggregate	-	-
l15staDisplayLog	l15staDisplayTBL.1	INTEGER	R/W	0=DisplayLog
l15staDisplayDump	l15staDisplayTBL.2	INTEGER	R/W	0=DisplayDump
l15staDisplayAudio	l15staDisplayTBL.3	INTEGER	R/W	0=DisplayAudio
l15staDisplayEdh	l15staDisplayTBL.4	INTEGER	R/W	0=DisplayEdh
l15staLogTBL	l15statusTBL.2	Aggregate	-	-
l15staLogLog	l15staLogTBL.1	INTEGER	R/W	0=stop 1=start
l15staLogClear	l15staLogTBL.2	INTEGER	R/W	0=LogClear
l15staLogMode	l15staLogTBL.3	INTEGER	R/W	0=overWR 1=stop
l15staDumpTBL	l15statusTBL.3	Aggregate	-	-
l15staDumpMode	l15staDumpTBL.1	INTEGER	R/W	0=run 1=hold

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15staDumpDisplay	l15staDumpTBL.2	INTEGER	R/W	0=serial 1=compo 2=binary
l15staDumpLineNumber	l15staDumpTBL.3	INTEGER	R/W	1 - 1125
l15staDumpSample	l15staDumpTBL.4	INTEGER	R/W	0 - 2749
l15staDumpEav	l15staDumpTBL.5	INTEGER	R/W	0=DumpEav
l15staDumpSav	l15staDumpTBL.6	INTEGER	R/W	0=DumpSav
l15staDumpFD	l15staDumpTBL.7	INTEGER	R/W	0=line 1=sample
l15staAudioTBL	l15statusTBL.4	Aggregate	-	-
l15staAudioChSEL	l15staAudioTBL.1	INTEGER	R/W	0=ch1st1 1=ch1st2 2=ch1st3 3=ch1st4 4=ch2nd1 5=ch2nd2 6=ch2nd3 0=ch2nd4
l15staAncPacketTBL	l15statusTBL.5	Aggregate	-	-
l15staAncpacFormatidTBL	l15staAncPacketTBL.1	Aggregate	-	-
l15staAncpacFormatPacketsel	l15staAncpacFormatidTBL.1	INTEGER	R/W	0=smpte 1=arib
l15staAncpacVancaribTBL	l15staAncPacketTBL.2	Aggregate	-	-
l15staAncVanClocapTBL	l15staAncpacVancaribTBL.1	Aggregate	-	-
l15staAncVanClocapDisplay	l15staAncVanClocapTBL.1	INTEGER	R/W	0=text 1=dump
l15staAncVanClocapCaptionnumber	l15staAncVanClocapTBL.2	INTEGER	R/W	0=n1 1=n2 2=n3
l15staAncVanClocapDumpmode	l15staAncVanClocapTBL.3	INTEGER	R/W	0=hex 1=binary
l15staAncVanNetqTBL	l15staAncpacVancaribTBL.2	Aggregate	-	-
l15staAncVanNetqDisplay	l15staAncVanNetqTBL.1	INTEGER	R/W	0=text 1=dump
l15staAncVanNetqDumpmode	l15staAncVanNetqTBL.2	INTEGER	R/W	0=hex 1=binary
l15staAncVanNetqQ1	l15staAncVanNetqTBL.3	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ2	l15staAncVanNetqTBL.4	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ3	l15staAncVanNetqTBL.5	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ4	l15staAncVanNetqTBL.6	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ5	l15staAncVanNetqTBL.7	INTEGER	R/W	0=off

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				1=on
l15staAncVanNetqQ6	l15staAncVanNetqTBL.8	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ7	l15staAncVanNetqTBL.9	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ8	l15staAncVanNetqTBL.10	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ9	l15staAncVanNetqTBL.11	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ10	l15staAncVanNetqTBL.12	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ11	l15staAncVanNetqTBL.13	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ12	l15staAncVanNetqTBL.14	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ13	l15staAncVanNetqTBL.15	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ14	l15staAncVanNetqTBL.16	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ15	l15staAncVanNetqTBL.17	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ16	l15staAncVanNetqTBL.18	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ17	l15staAncVanNetqTBL.19	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ18	l15staAncVanNetqTBL.20	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ19	l15staAncVanNetqTBL.21	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ20	l15staAncVanNetqTBL.22	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ21	l15staAncVanNetqTBL.23	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ22	l15staAncVanNetqTBL.24	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ23	l15staAncVanNetqTBL.25	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ24	l15staAncVanNetqTBL.26	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ25	l15staAncVanNetqTBL.27	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ26	l15staAncVanNetqTBL.28	INTEGER	R/W	0=off 1=on
l15staAncVanNetqQ27	l15staAncVanNetqTBL.29	INTEGER	R/W	0=off 1=on

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
I15staAncVanNetqQ28	I15staAncVanNetqTBL.30	INTEGER	R/W	0=off 1=on
I15staAncVanNetqQ29	I15staAncVanNetqTBL.31	INTEGER	R/W	0=off 1=on
I15staAncVanNetqQ30	I15staAncVanNetqTBL.32	INTEGER	R/W	0=off 1=on
I15staAncVanNetqQ31	I15staAncVanNetqTBL.33	INTEGER	R/W	0=off 1=on
I15staAncVanNetqQ32	I15staAncVanNetqTBL.34	INTEGER	R/W	0=off 1=on
I15staErrTBL	I15statusTBL.6	Aggregate	-	-
I15staRemoteErr	I15staErrTBL.1	INTEGER	R/W	0=positive 1=negative 2=off
I15staErrCountRate	I15staErrTBL.2	INTEGER	R/W	0=vRATE 1=sec1
I15staErrDetectTBL	I15staErrTBL.3	Aggregate	-	-
I15staErrDetectTrs	I15staErrDetectTBL.1	INTEGER	R/W	0=off 1=on
I15staErrDetectLine	I15staErrDetectTBL.2	INTEGER	R/W	0=off 1=on
I15staErrDetectCRC	I15staErrDetectTBL.3	INTEGER	R/W	0=off 1=on
I15staErrDetectEDH	I15staErrDetectTBL.4	INTEGER	R/W	0=off 1=on
I15staErrDetectParity	I15staErrDetectTBL.6	INTEGER	R/W	0=off 1=on
I15staErrDetectCheckSum	I15staErrDetectTBL.7	INTEGER	R/W	0=off 1=on
I15staErrDetectGamut	I15staErrDetectTBL.9	INTEGER	R/W	0=off 1=on
I15staErrDetectCGamut	I15staErrDetectTBL.10	INTEGER	R/W	0=off 1=on
I15staErrDetectBCH	I15staErrDetectTBL.13	INTEGER	R/W	0=off 1=on
I15staErrDetectAudCrc	I15staErrDetectTBL.15	INTEGER	R/W	0=off 1=on
I15staErrLevTBL	I15staErrTBL.4	Aggregate	-	-
I15staErrLevGamutTBL	I15staErrLevTBL.1	Aggregate	-	-
I15staErrLevGamutUpper	I15staErrLevGamutTBL.1	DisplayString	R/W	90.8 - 109.4 (%) 635.6 - 765.8 (mV)
I15staErrLevGamutLower	I15staErrLevGamutTBL.2	DisplayString	R/W	-7.2 - 6.1 (%) -50.4 - 42.7 (mV)
I15staErrLevCGamutTBL	I15staErrLevTBL.2	Aggregate	-	-
I15staErrLevCGamutUpper	I15staErrLevCGamutTBL.1	DisplayString	R/W	90.0 - 135.0 (%)

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				630.0 - 963.9 (mV)
l15staErrLevCGamutLower	l15staErrLevCGamutTBL.2	DisplayString	R/W	-40.0 - -20.0 (%) -285.6 - -140.0 (mV)
l15staErrDetectGamutFilterSD	l15staErrLevTBL.3	INTEGER	R/W	0=1M 1=off
l15staErrLevUnit	l15staErrLevTBL.6	INTEGER	R/W	0=per 1=mV
l15staErrDetectGamutFilterHD	l15staErrLevTBL.7	INTEGER	R/W	0=1M 1=2p8M 2=off
l15staErrDisplay	l15staErrTBL.5	INTEGER	R/W	0=refresh 1=hold
l15staReset	l15statusTBL.7	INTEGER	R/W	0=Reset

- **l15captureTBL(11) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15capDisplay	l15captureTBL.1	INTEGER	R/W	0=real 1=hold 2=both
l15capFileSelect	l15captureTBL.2	INTEGER	R/W	0=bmpbsx 1=bmp 2=bsx

- **l15filesTBL(12) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15filMakeTBL	l15filesTBL.1	Aggregate	-	-
l15filMakeStatus	l15filMakeTBL.1	INTEGER	R/W	0=MakeStatus
l15filMakeLog	l15filMakeTBL.2	INTEGER	R/W	0=MakeLog
l15filMakeDump	l15filMakeTBL.3	INTEGER	R/W	0=MakeDump
l15filMakeCapture	l15filMakeTBL.4	INTEGER	R/W	0=MakeCapture
l15filRecall	l15filesTBL.2	INTEGER	R/W	1 - 30

- **l15systemTBL(13) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15sysFormatTBL	l15systemTBL.1	Aggregate	-	-
l15sysFormatMode	l15sysFormatTBL.1	INTEGER	R/W	0=auto 1=manual
l15sysFormatFormat	l15sysFormatTBL.2	INTEGER	R/W	0=frm1080I60 1=frm1080I59p94 2=frm1080I50 3=frm1080PSF30 4=frm1080PSF29p97 5=frm1080PSF25 6=frm1080PSF24 7=frm1080PSF23p98

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				8=frm1080P30 9=frm1080P29p97 10=frm1080P25 11=frm1080P24 12=frm1080P23p98 13=frm720P60 14=frm720P59p94 15=frm720P50 16=frm720P30 17=frm720P29p97 18=frm720P25 19=frm720P24 20=frm720P23p98 21=frm525I59p94 22=frm625I50
l15sysFormatLink	l15sysFormatTBL.3	INTEGER	R/W	0=single 1=dual-A
l15sysFormatCompositeFormat	l15sysFormatTBL.4	INTEGER	R/W	0=auto 1=ntsc 2=pal
l15sysFormatIPSF	l15sysFormatTBL.5	INTEGER	R/W	0=interlac 1=segFram
l15sysColor	l15systemTBL.2	INTEGER	R/W	0=color3200 1=color6500 2=color9300 3=through
l15sysDispTBL	l15systemTBL.3	Aggregate	-	-
l15sysDispInfoTBL	l15sysDispTBL.1	Aggregate	-	-
l15sysDispInfoFormat	l15sysDispInfoTBL.1	INTEGER	R/W	0=on 2=off
l15sysDispInfoTime	l15sysDispInfoTBL.2	INTEGER	R/W	0=real 1=timecode 2=off
l15sysDispInfoDate	l15sysDispInfoTBL.3	INTEGER	R/W	0=ymd 1=mdy 2=dmy 3=off
l15sysDispInfoColor	l15sysDispInfoTBL.4	INTEGER	R/W	0=off 1=on
l15sysDispInfoTimeCode	l15sysDispInfoTBL.5	INTEGER	R/W	0=ltc 1=vitc 2=dvitc
l15sysDispDisplayBackLight	l15sysDispTBL.2	INTEGER	R/W	0=high 1=low
l15sysDispDisplayAutoOff	l15sysDispTBL.3	INTEGER	R/W	0=off 1=min5

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
				2=min30 3=min60
l15sysDispDisplayBattery	l15sysDispTBL.4	INTEGER	R/W	0=idx 1=anton 2=others 3=off
l15sysDispDisplayLight	l15sysDispTBL.5	INTEGER	R/W	0=auto 1=on
l15sysDate	l15systemTBL.4	DisplayString	R/W	yyyy/mm/dd hh:mm:ss
l15sysShortCutKey	l15systemTBL.5	INTEGER	R/W	0=light 1=capUSB 2=directK 3=volume 4=contrast
l15sysInit	l15systemTBL.6	INTEGER	R/W	90=initialize
l15sysVersionTBL	l15systemTBL.7	Aggregate	-	-
l15sysSoftwareVersion	l15sysVersionTBL.1	DisplayString	R/O	version

- **l15filesTBL(14) group**

MIB	OID	SYNTAX	ACCESS	VALUE/RANGE
l15trapStrTBL	l15trapTBL.1	Aggregate	-	-
l15trapManagerIp	l15trapTBL.2	IpAddress	R/W	-
l15trapID	l15trapTBL.3	IpAddress	R/W	-

17.4.5 Specific Trap

Specific Trap Type	Description
1	Fan stop
2	Fan start
3	No input signal
4	Format error
5	TRS error
6	Line number error
7	CRC LUMA error
8	CRC CHROMA error
9	Checksum error
10	BCH error
11	EDH error
13	Parity error
21	Audio CRC error
23	Gamut error
24	Composite gamut error
37	No error (at error recovery and startup)

17.4.6 Variable Binding List

- **index 1**

  OID : leader(20111).lv5330(15).lv5330ST1(1).l15trapTBL(14).l15trapStrTBL(1).1.0
  Syntax : Counter
  Range : 1 to 4294967295 (overflow occurs if this range is exceeded)
  Description : The total number of enterprise traps sent after starting up

- **index 2**

  OID : leader(20111).lv5330(15).lv5330ST1(1).l15trapTBL(14).l15trapStrTBL(1).2.0
  Syntax : Octet String
  Range : Up to 40 characters
  Description : Date/time when the error occurred and line information
  YYYY/MM/DD hh:mm:ss sdi,ref (example: 2004/07/15 11:30:11 A,INT)
  YYYY = year, MM = month, DD = day, hh = hour, mm = minute,
  ss = second, sdi = SDI input (A or B), ref = reference (INT or EXT)

- **index 3**

  OID : leader(20111).lv5330(15).lv5330ST1(1).l15trapTBL(14).l15trapStrTBL(1).3.0
  Syntax : Octet String
  Range : Up to 40 characters
  Description : Format information

- **index 4**

  OID : leader(20111).lv5330(15).lv5330ST1(1).l15trapTBL(14).l15trapStrTBL(1).4.0
  Syntax : Octet String
  Range : Up to 40 characters
  Description : Error information

18. Calibration and Repairs

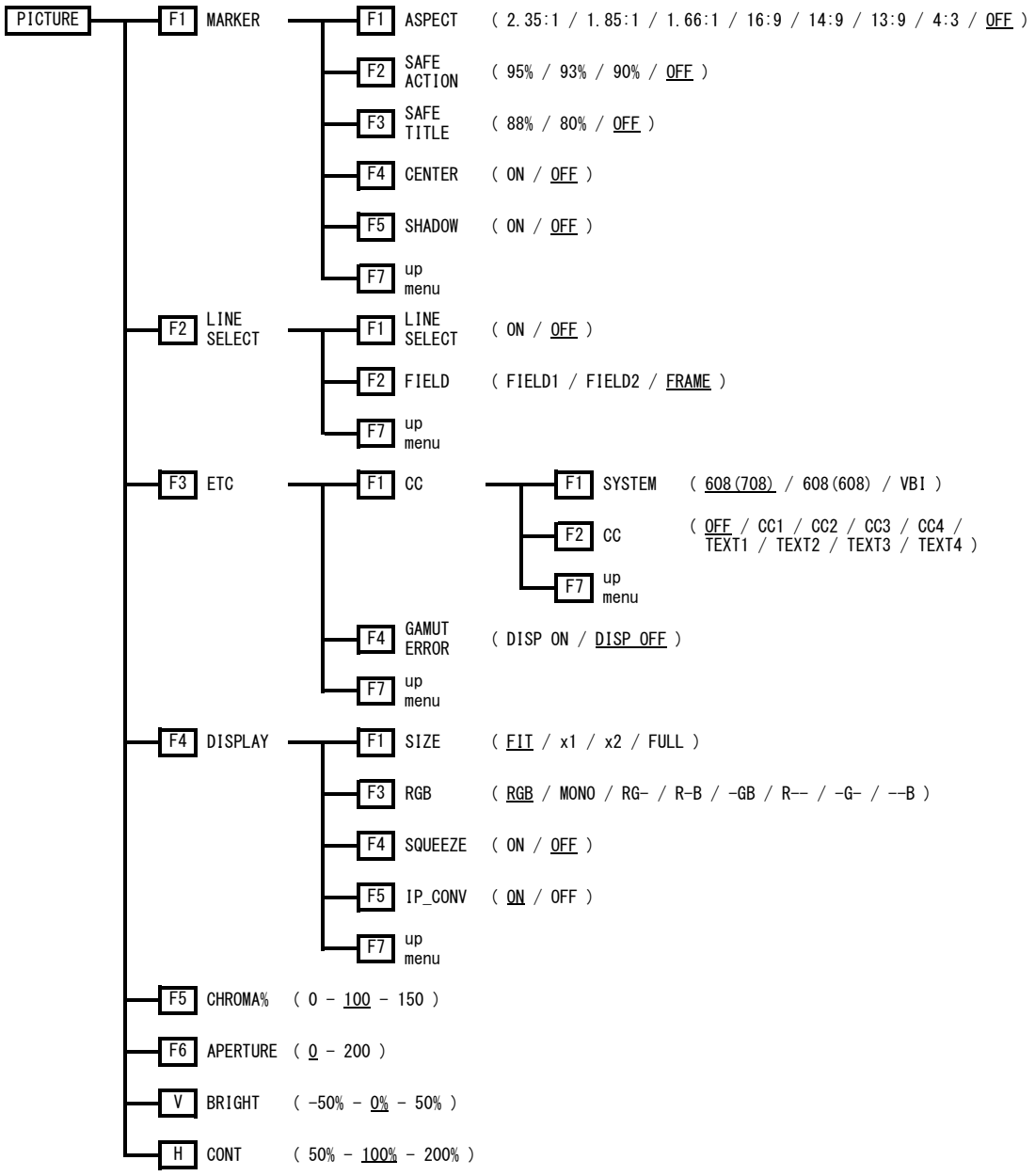
This instrument has been carefully examined at the factory to ensure that its performance is in accordance with the standards. However, because of factors such as parts wearing out over time, the performance of the instrument may degrade. To ensure stable performance, we recommend that you have the instrument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

19. APPENDIX

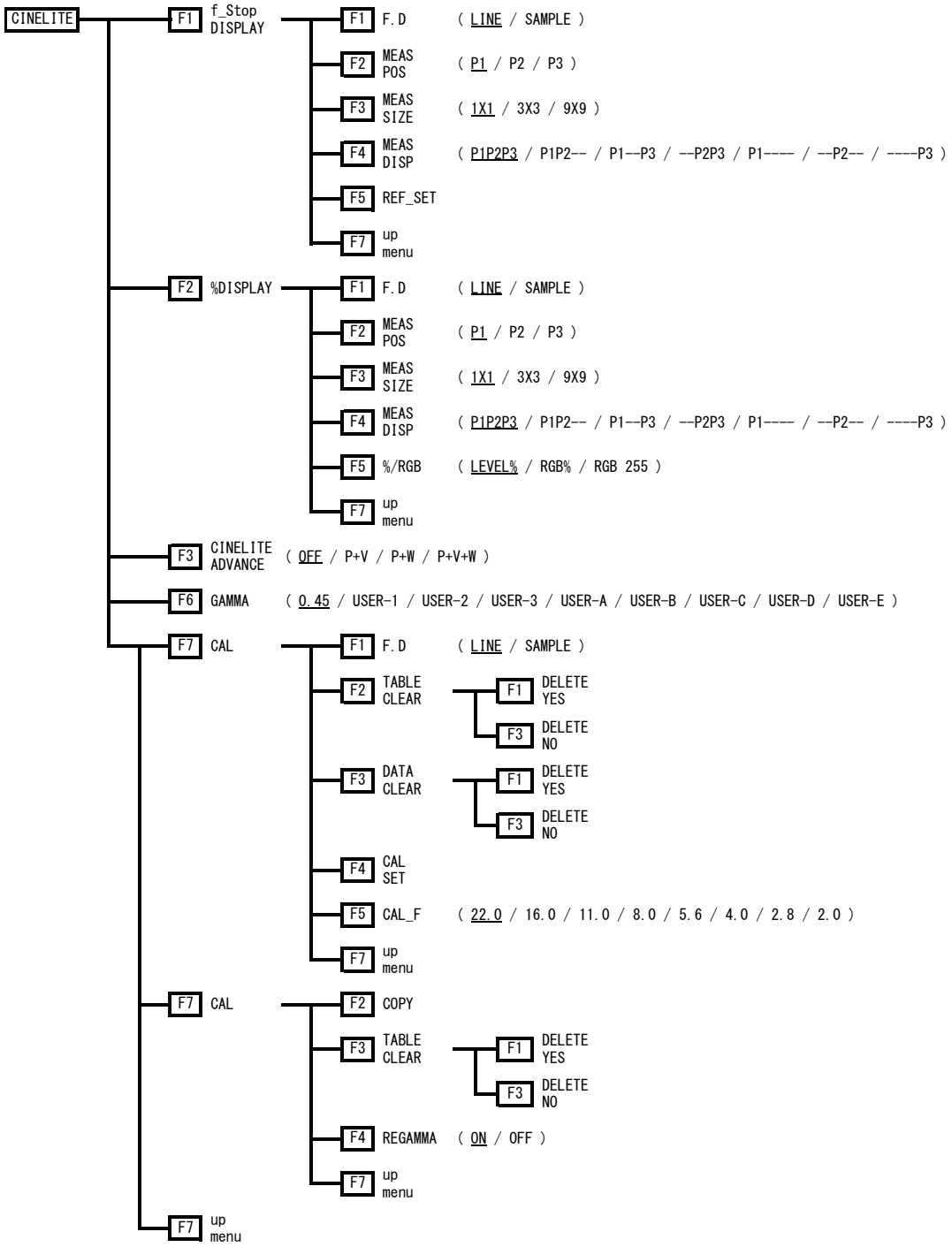
19.1 Menu Tree

The menu structure is indicated below. The default settings are underlined.

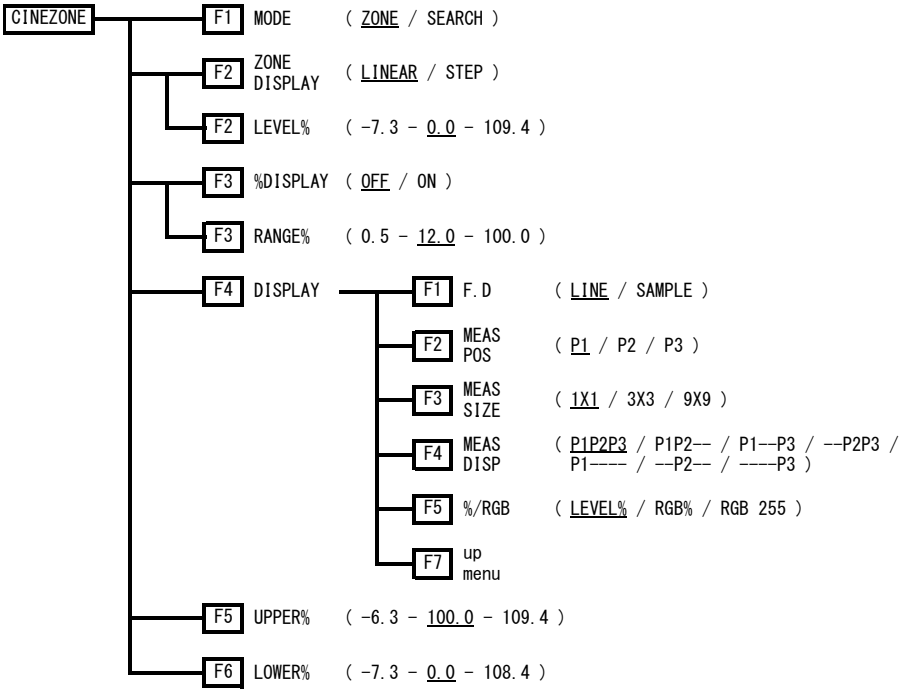
19.1.1 Picture Menu



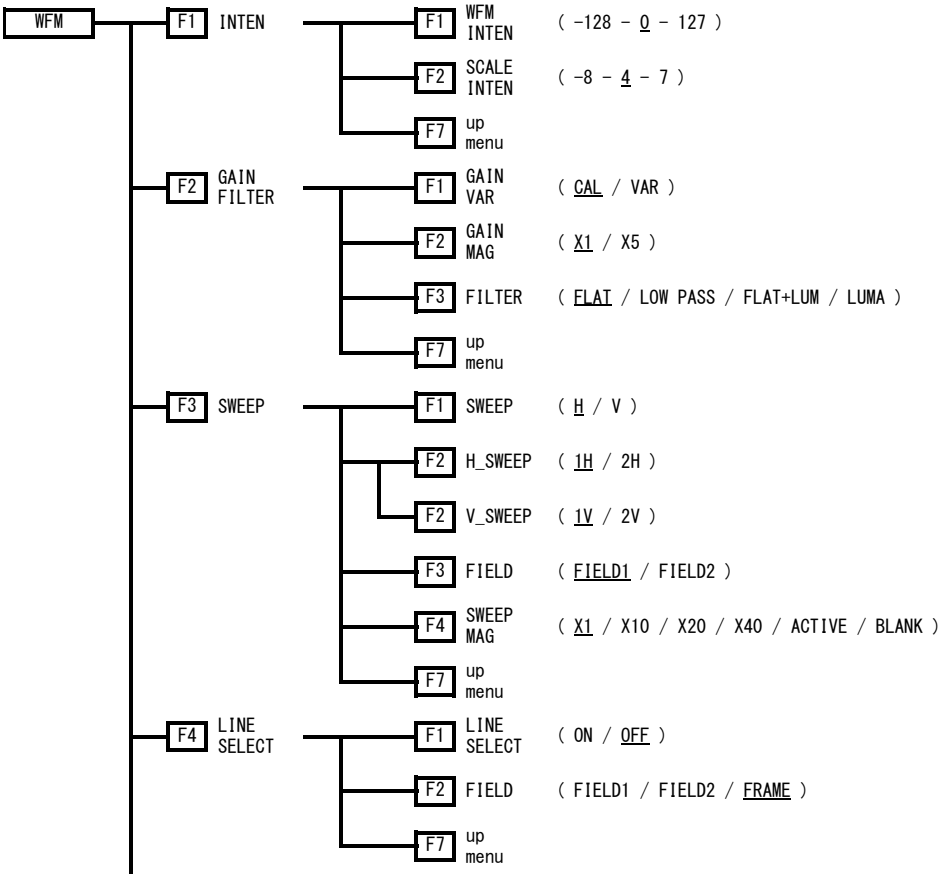
19.1.2 CINELITE Menu

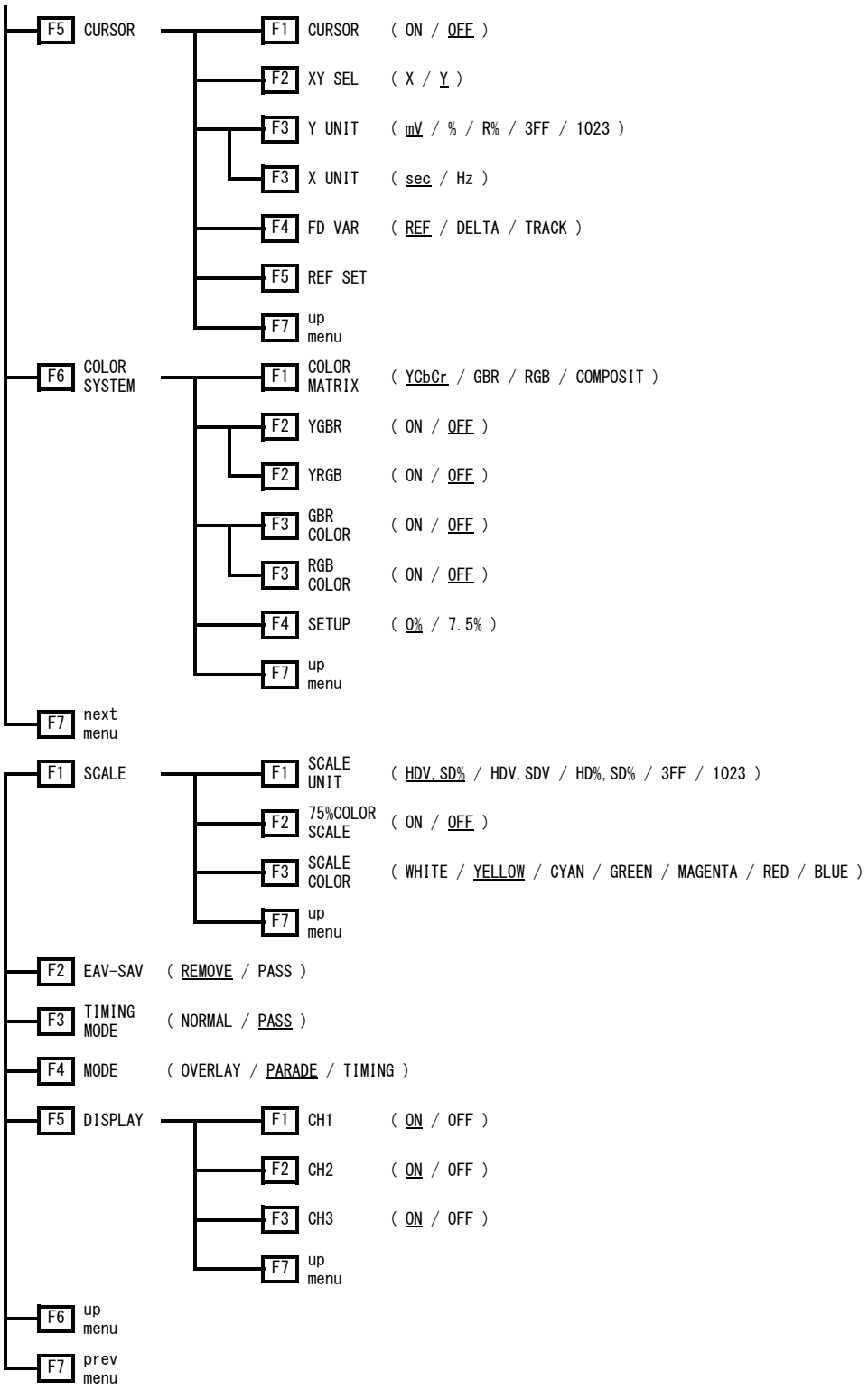


19.1.3 CINEZONE Menu

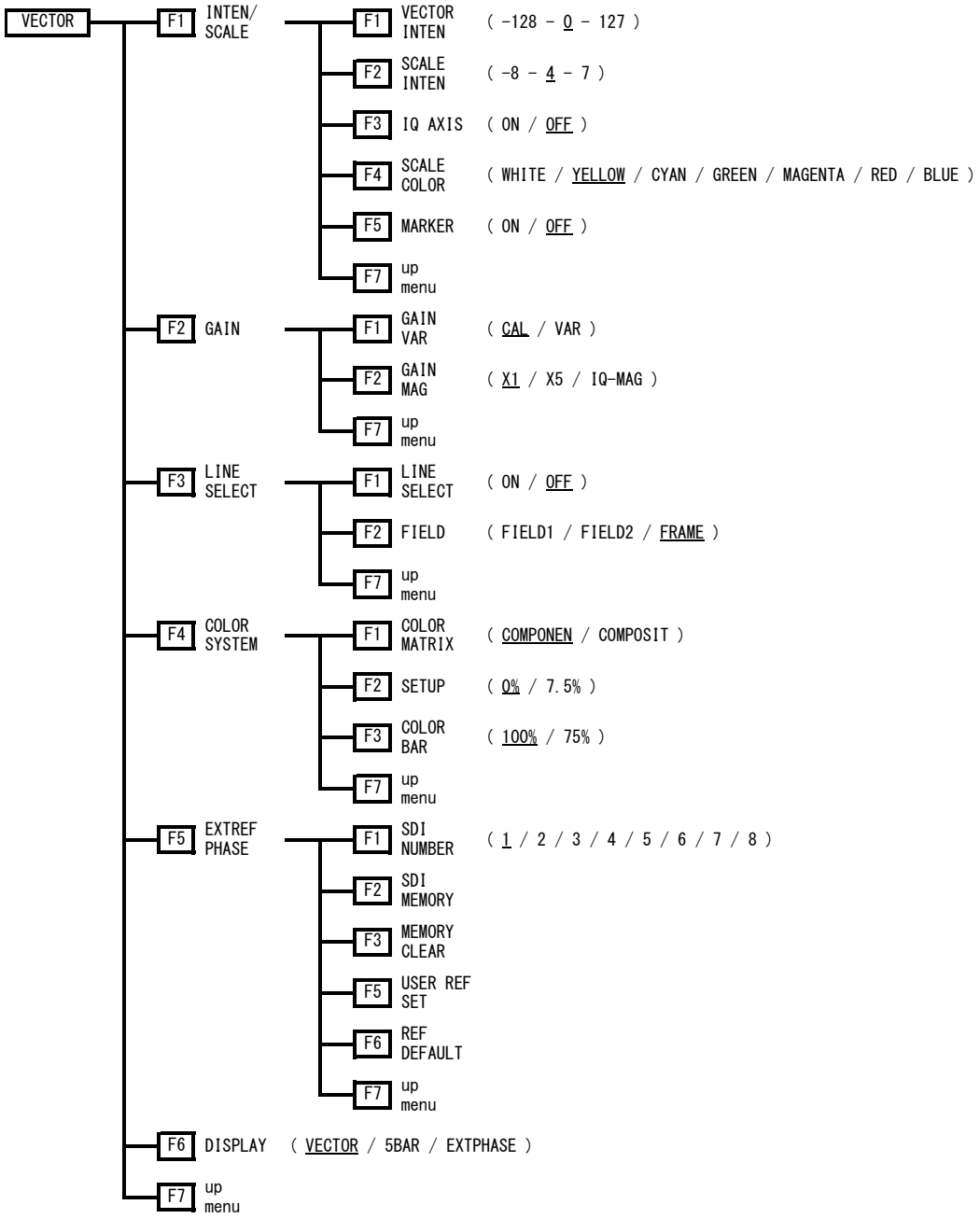


19.1.4 Video Signal Waveform Menu

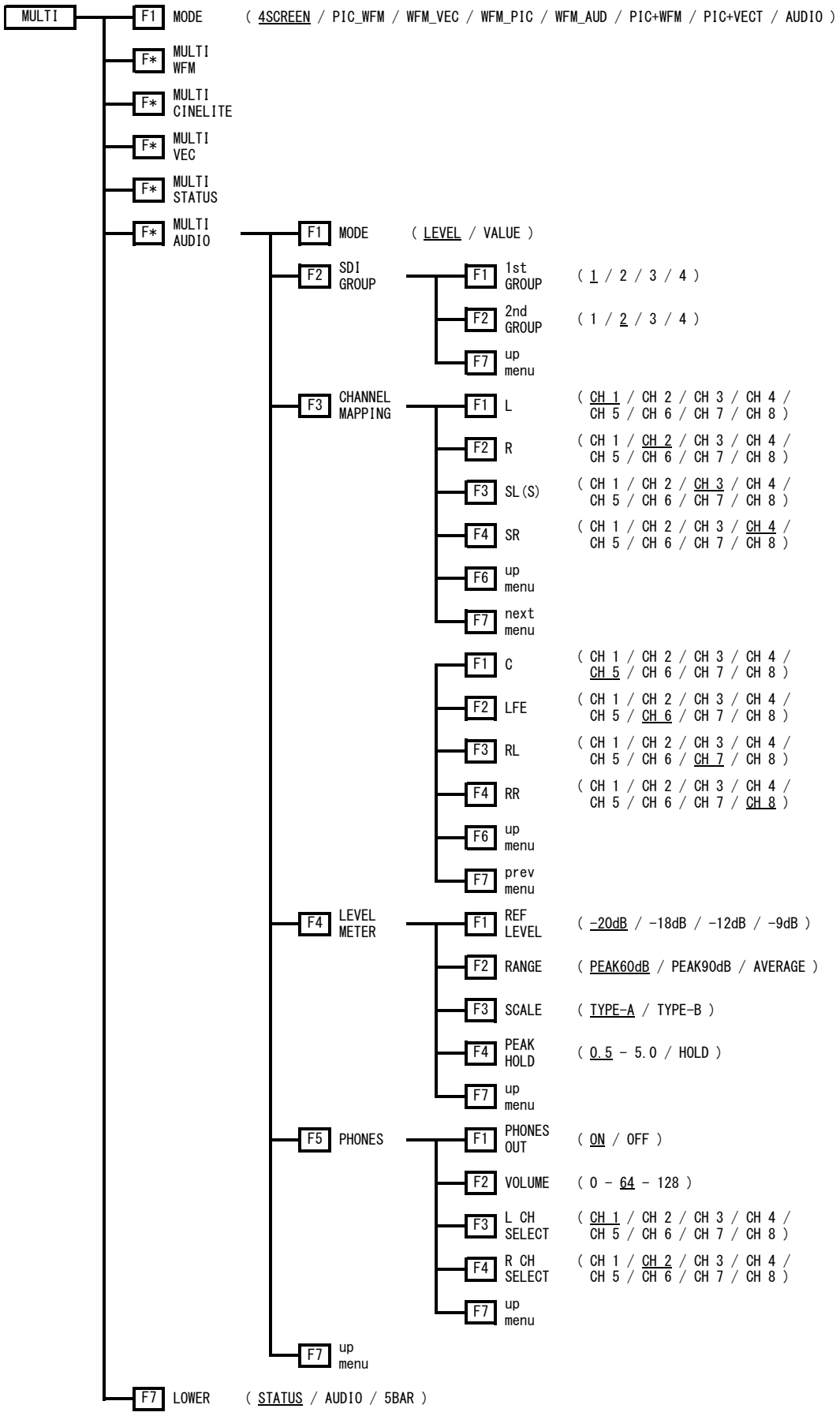



F5 CURSOR
F1 CURSOR (ON / OFF)
F2 XY SEL (X / Y)
F3 Y UNIT (mV / % / R% / 3FF / 1023)
F3 X UNIT (sec / Hz)
F4 FD VAR (REF / DELTA / TRACK)
F5 REF SET
F7 up menu
F6 COLOR SYSTEM
F1 COLOR MATRIX (YCbCr / GBR / RGB / COMPOSIT)
F2 YGBR (ON / OFF)
F2 YRGB (ON / OFF)
F3 GBR COLOR (ON / OFF)
F3 RGB COLOR (ON / OFF)
F4 SETUP (0% / 7.5%)
F7 up menu
F7 next menu
F1 SCALE
F1 SCALE UNIT (HDV, SD% / HDV, SDV / HD%, SD% / 3FF / 1023)
F2 75%COLOR SCALE (ON / OFF)
F3 SCALE COLOR (WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE)
F7 up menu
F2 EAV-SAV (REMOVE / PASS)
F3 TIMING MODE (NORMAL / PASS)
F4 MODE (OVERLAY / PARADE / TIMING)
F5 DISPLAY
F1 CH1 (ON / OFF)
F2 CH2 (ON / OFF)
F3 CH3 (ON / OFF)
F7 up menu
F6 up menu
F7 prev menu

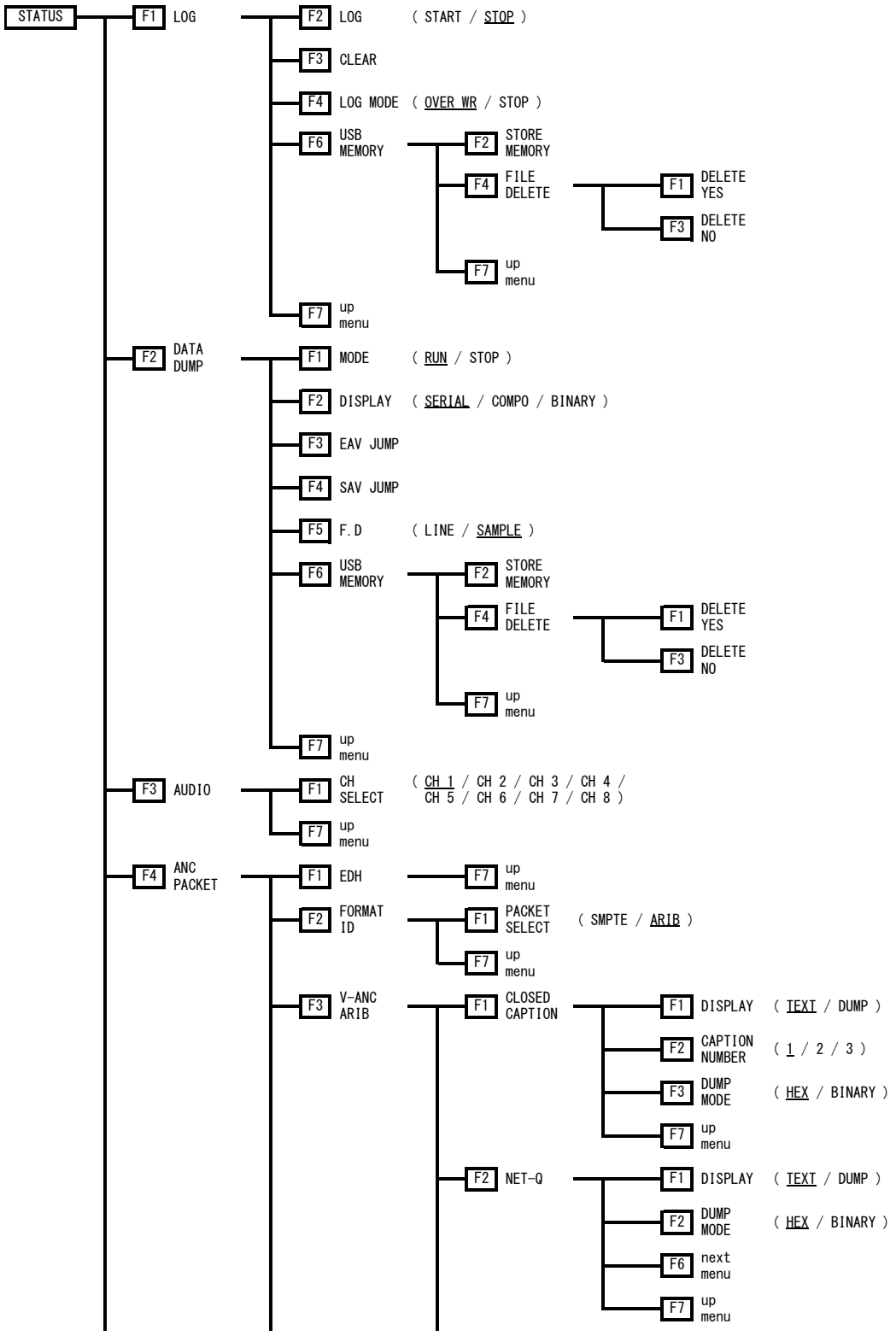
19.1.5 Vector Menu

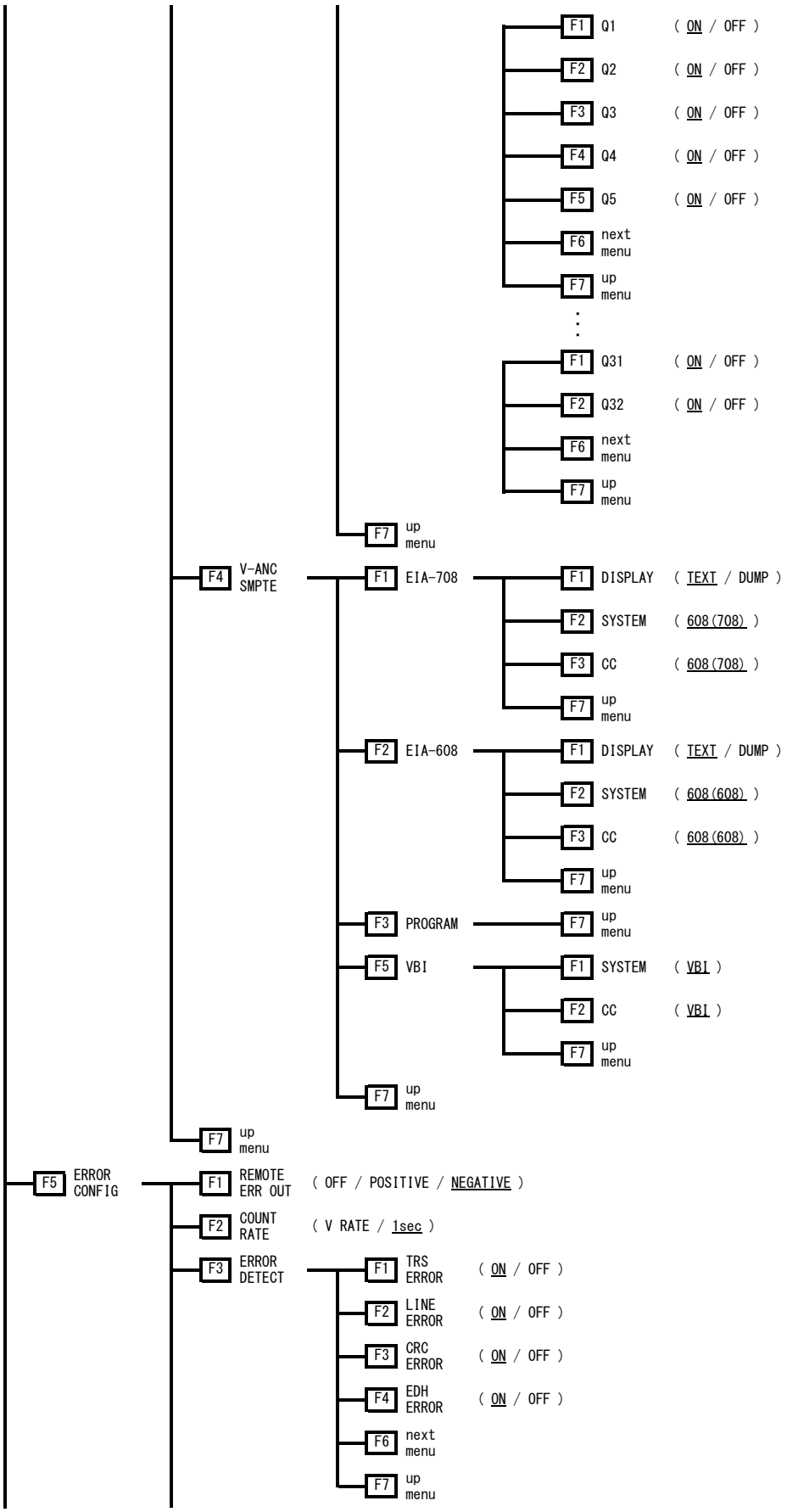


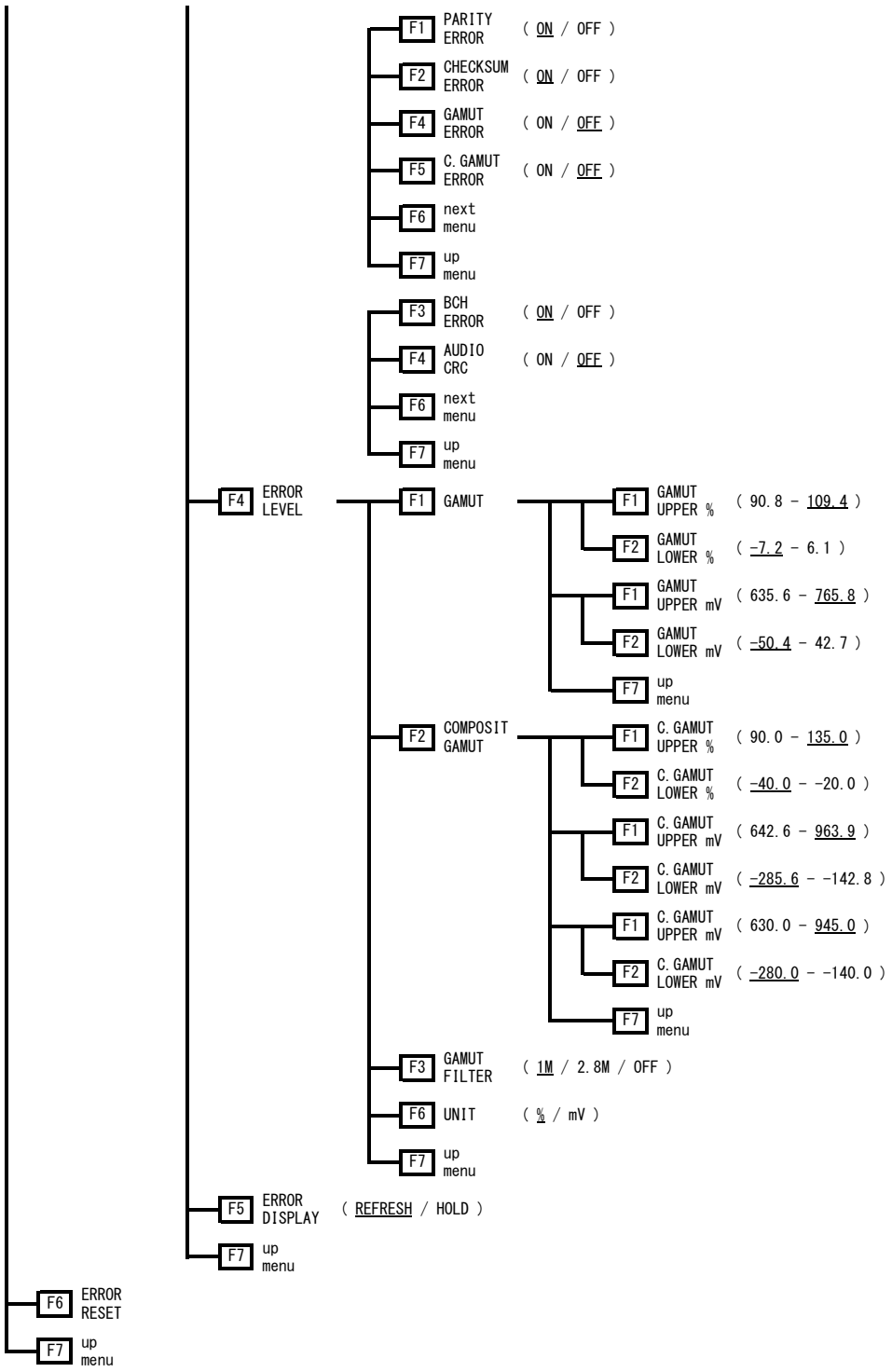
19.1.6 Multi-Screen Display Menu (Audio Menu)



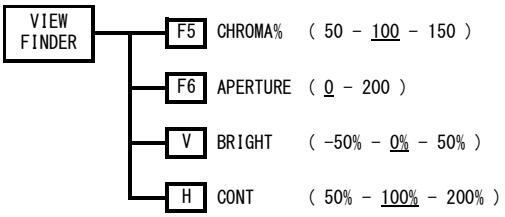
19.1.7 Status Menu



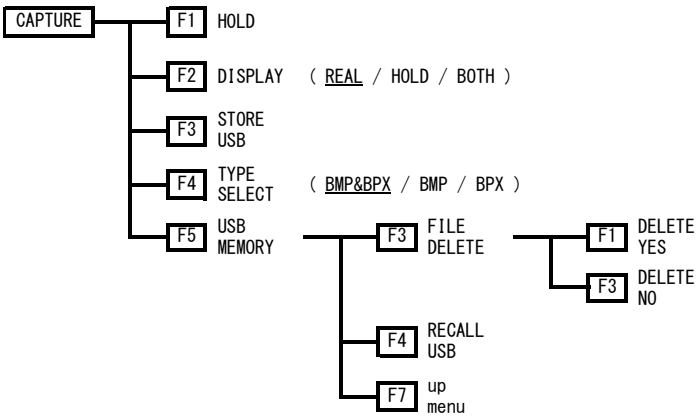

F1 Q1 (ON / OFF)
F2 Q2 (ON / OFF)
F3 Q3 (ON / OFF)
F4 Q4 (ON / OFF)
F5 Q5 (ON / OFF)
F6 next menu
F7 up menu
F1 Q31 (ON / OFF)
F2 Q32 (ON / OFF)
F6 next menu
F7 up menu
F7 up menu
F4 V-ANC SMPTE
F1 EIA-708
F1 DISPLAY (TEXT / DUMP)
F2 SYSTEM (608(708))
F3 CC (608(708))
F7 up menu
F2 EIA-608
F1 DISPLAY (TEXT / DUMP)
F2 SYSTEM (608(608))
F3 CC (608(608))
F7 up menu
F3 PROGRAM
F7 up menu
F5 VBI
F1 SYSTEM (VBI)
F2 CC (VBI)
F7 up menu
F7 up menu
F7 up menu
F5 ERROR CONFIG
F1 REMOTE ERR OUT (OFF / POSITIVE / NEGATIVE)
F2 COUNT RATE (V RATE / 1sec)
F3 ERROR DETECT
F1 TRS ERROR (ON / OFF)
F2 LINE ERROR (ON / OFF)
F3 CRC ERROR (ON / OFF)
F4 EDH ERROR (ON / OFF)
F6 next menu
F7 up menu


F1 PARITY ERROR (ON / OFF)
F2 CHECKSUM ERROR (ON / OFF)
F4 GAMUT ERROR (ON / OFF)
F5 C.GAMUT ERROR (ON / OFF)
F6 next menu
F7 up menu
F3 BCH ERROR (ON / OFF)
F4 AUDIO CRC (ON / OFF)
F6 next menu
F7 up menu
F4 ERROR LEVEL
F1 GAMUT
F1 GAMUT UPPER % (90.8 - 109.4)
F2 GAMUT LOWER % (-7.2 - 6.1)
F1 GAMUT UPPER mV (635.6 - 765.8)
F2 GAMUT LOWER mV (-50.4 - 42.7)
F7 up menu
F2 COMPOSIT GAMUT
F1 C.GAMUT UPPER % (90.0 - 135.0)
F2 C.GAMUT LOWER % (-40.0 - -20.0)
F1 C.GAMUT UPPER mV (642.6 - 963.9)
F2 C.GAMUT LOWER mV (-285.6 - -142.8)
F1 C.GAMUT UPPER mV (630.0 - 945.0)
F2 C.GAMUT LOWER mV (-280.0 - -140.0)
F7 up menu
F3 GAMUT FILTER (1M / 2.8M / OFF)
F6 UNIT (% / mV)
F7 up menu
F5 ERROR DISPLAY (REFRESH / HOLD)
F7 up menu
F6 ERROR RESET
F7 up menu

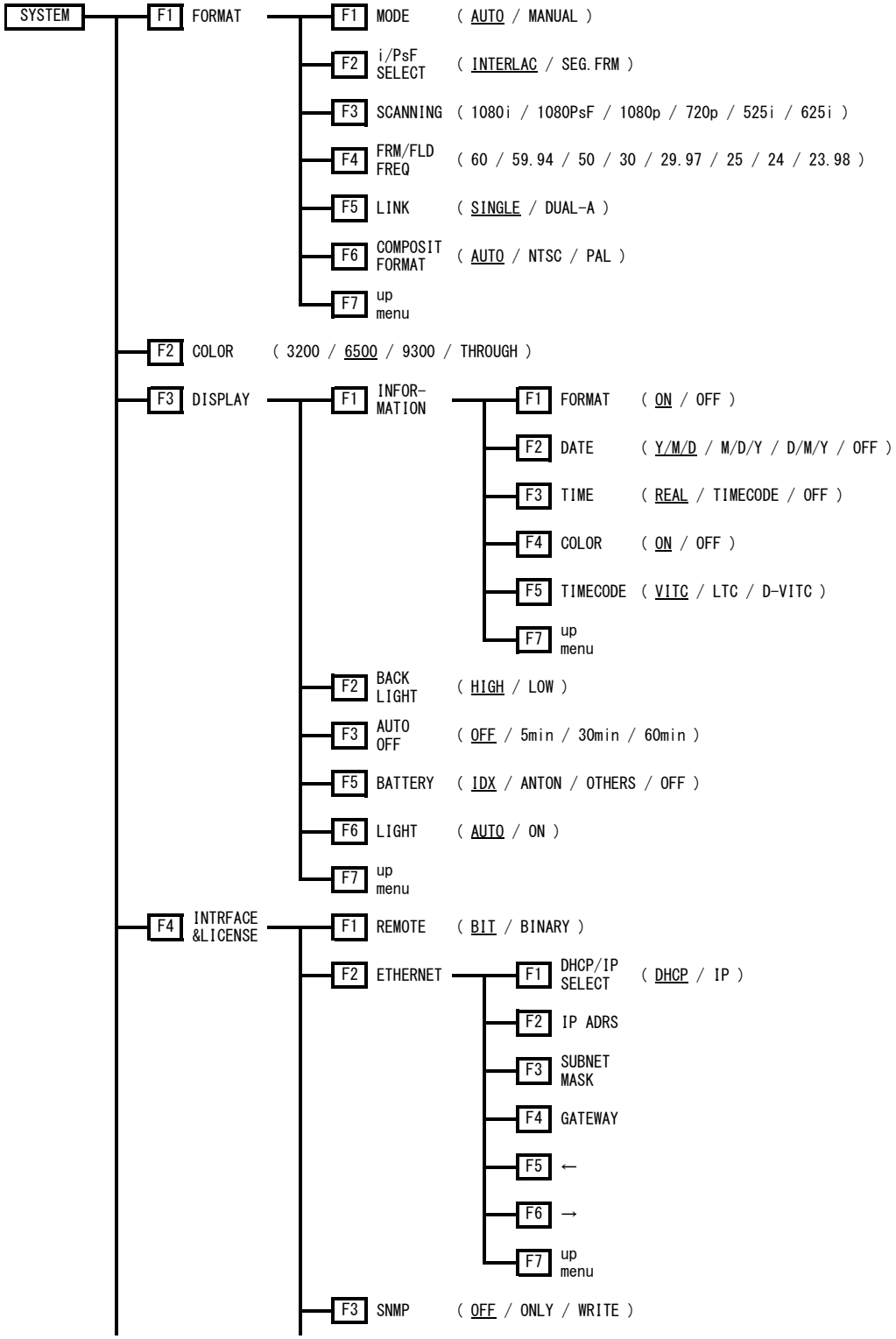
19.1.8 View Finder Menu

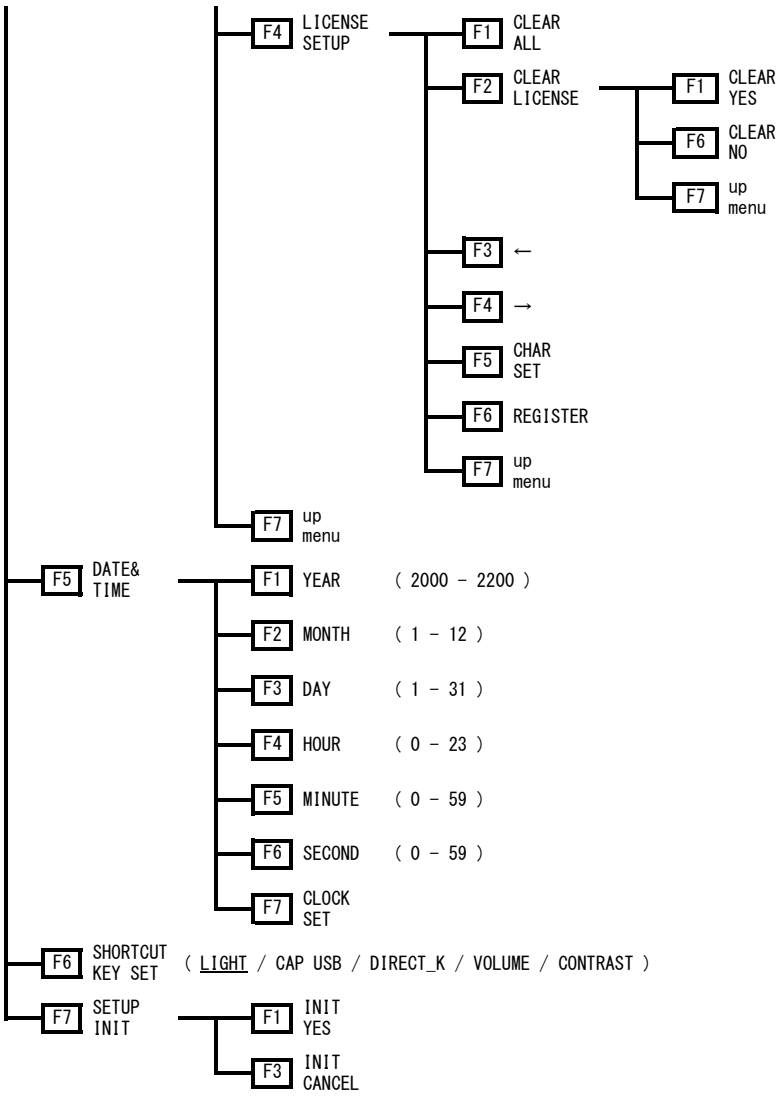


19.1.9 Screen Capture Menu

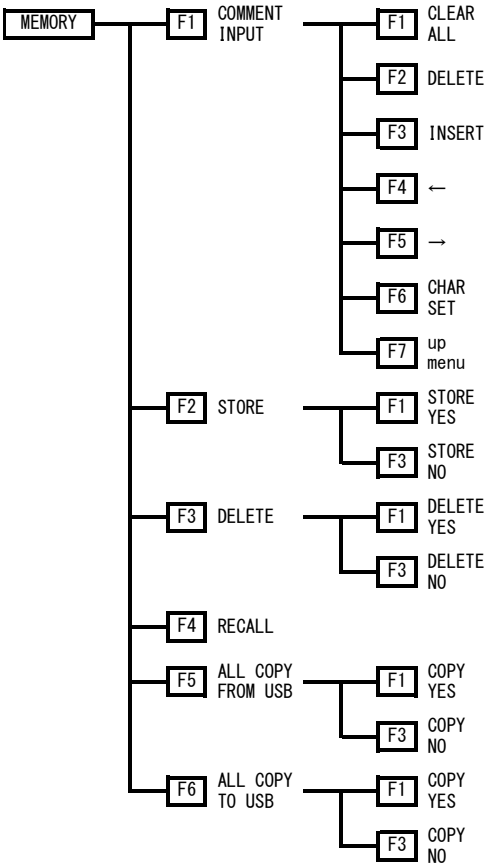


19.1.10 System Menu

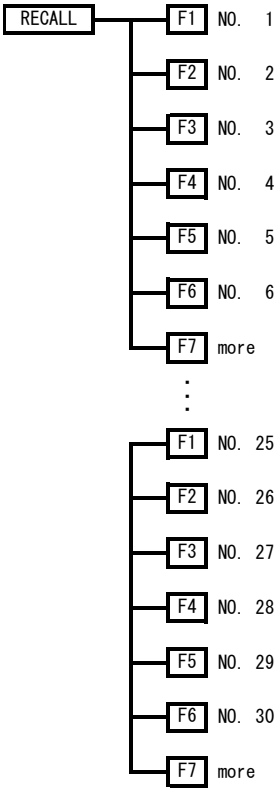



F4 LICENSE SETUP
F1 CLEAR ALL
F2 CLEAR LICENSE
F1 CLEAR YES
F6 CLEAR NO
F7 up menu
F3 ←
F4 →
F5 CHAR SET
F6 REGISTER
F7 up menu
F7 up menu
F5 DATE& TIME
F1 YEAR (2000 - 2200)
F2 MONTH (1 - 12)
F3 DAY (1 - 31)
F4 HOUR (0 - 23)
F5 MINUTE (0 - 59)
F6 SECOND (0 - 59)
F7 CLOCK SET
F6 SHORTCUT KEY SET (LIGHT / CAP USB / DIRECT_K / VOLUME / CONTRAST)
F7 SETUP INIT
F1 INIT YES
F3 INIT CANCEL

19.1.11 Preset Registration Menu



19.1.12 Preset Menu



19.2 FIRMWARE REVISION HISTORY

This manual was written for firmware version 4.50.
To view the firmware version, press SYS, F•4 INTRFACE&LICENSE, and then F•4 LICENSE SETUP.

- **Ver 4.21**
  - The contrast range on the picture display has been expanded to 200%.
  - The CINELITE Advanced feature has been added to the CINELITE display.
  - Measured values can now be recalled through TELNET on the CINELITE display.
  - In the search feature of CINEZONE display, the range to assign colors has been made variable, and the colors are now displayed with gradation.
- **Ver 3.2**
  - LUMA has been added to the pseudo-composite display filters of 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 3.1**
  - SNMP support was added.
  - In the audio display, -9 dB reference level was added.
- **Ver 2.6**
  - LV 5330SER02 (GAMUT & LEVEL ERROR) support was added.
- **Ver 2.5**
  - LV 5330SER01 (HISTOGRAM & USER GAMMA DISPLAY) support was added.
  - A feature that enables you to display pictures at their gamut errors on the picture display was added.
  - A feature that enables you to turn regamma ON or OFF on the CINELITE display was added.
- **Ver 2.3**
  - A feature that enables you to display pictures at their full size on the picture display was added.
  - A feature that enables you to display squeezed pictures on the picture display was added.
  - A feature that enables you to perform IP conversion on the picture display was added.
- **Ver 2.2**
  - A feature that enables you to display waveforms in the video signal waveform display in colors that correspond to G, B, and R was added.
  - In the system settings, the option to not adjust the monitor's color temperature was added.

- **Ver 2.1**
  - Dual link (link A) support was added.
  - D-VITC support was added.
  - Support for having the key LEDs lit at all times was added.
  - CC608 support was added.
  - A feature that enables you to turn R, G, and B ON or OFF on the picture display was added.
  - A feature that enables you to display the luminance level (%) at the reference position on the CINELITE display was added.
  - A feature that enables you to display the difference between measured points (P2-P1 and P3-P1) on the CINELITE display was added.
  - A feature that enables you to turn measured points ON or OFF on the CINELITE display was added.
  - A feature that enables you to display the CINELITE display's %DISPLAY on the CINEZONE display was added.
  - A feature that enables you to color waveforms when you are displaying the GBR (RGB) parade display on the video signal waveform display was added.
  - ACTIVE was added to the options that can be selected for the SWEEP MAG setting on the video signal waveform display when you are displaying the composite display.
  - A feature that enables you to select the 5 bar display unit (% or mV) on the vector waveform display was added.
  - PIC+WFM and PIC+VEC were added to the options that can be selected for the MODE setting on the multi display.
  - 5BAR was added to the options that can be selected for the LOWER setting on the multi display.
  - A feature that enables you to turn the filter ON or OFF on the status display when you are detecting gamut and composite gamut errors was added.
- **Ver 1.6**
  - Support for license keys was added.

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Following information is for Chinese RoHS only

所含有毒有害物质信息

部件号码：LV 5330

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	○	○	○	○	○	○

备注）

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 规定的限量要求以下。

×：表示该有毒有害物质或元素至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。

Ver.1

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June 19, 2013 Ver. 11 (FW Ver. 4.50)