LV 5700A/5710A

MULTI SDI MONITOR
HD SDI MONITOR

INSTRUCTION MANUAL

LEADER ELECTRONICS CORP.

TABLE OF 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.

■ Precautions on Contents

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**	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**	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.

WARNING

■ **Warnings on the Cases and Panels of the Instrument**

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 on Power Line**

- **Make sure to connect only to the rated power line voltage. Excess voltage may cause fire.**
  Confirm the voltage of the commercial power line before connecting the AC power cord. The power frequency of the power line should be 50/60 Hz.

- **Warning on the Power Cord**
  Use only the optional power cord that is attached to this instrument. The use of the power cord other than that attached could cause fire hazard.
  If the attached cord is damaged stop using it and contact your local LEADER agent. Should you use a damaged cord, it could cause a shock or create a fire hazard. When you pull out the cord be sure to hold it by plug and pull from the socket not by holding the cord wire.

■ **Warning on Fuse**

When the fuse is melted the instrument stops operation. If the fuse melted, turn off the power switch and disconnect the power plug from the socket. If you change the fuse while the cord is connected to the socket, it could cause a shock hazard. Only use the specified type and rated current and voltage fuses.
If the cause for melting fuse is unclear or if you suspect there is damage to the instrument or if you have no proper fuse at hand please contact your local LEADER agent.

GENERAL SAFETY SUMMARY

WARNING

■ Warning on Installation Environments

- **About the 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.

- **About the Operating Humidity Range**
  Operating humidity range is ≤ 85 % RH.
  Do not operate the instrument with wet hands. This could cause a shock and fire hazard.

- **About the 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.

■ Warning while Operating

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. When such a case occurs, turn off the power switch and pull the plug of the cord from the plug socket. Contact your local LEADER agent after confirming there is no fire.

■ Warning about Ground

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

GENERAL SAFETY SUMMARY

CAUTION

■ **Caution on Input/Output Terminals**

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 from the socket when you do not use the instrument for a long time.

■ **About the Cabinets**

- **This Product has No Cabinet**
  Please install into the optional cabinet or rack mount adaptor before use. Operating without cabinets may cause electric hazard, fire hazard and breakdown of the product.

Parts	Model No.
Cabinet with Handle	LR-2427B
Cabinet without Handle	LR-2404A
Inch Size Rack mount Adaptor	LR-2700A-I

- **Qualified Personnel shall Install the Product to the Cabinet or Rack Mount Adaptor**
  Please pay attentions for the follows when install.
  • Off the power, then disconnect power cable and the others.
  • Be careful for the internal parts or cables not to be caught by the cabinet.
- **To Protect the User, Please Stick the Enclosed "WARNING" Label on the Cabinet or Rack Mount Adaptor**

Please conform to the above warnings and cautions for safe operation. There are cautions in each area of 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.

■ **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.

1. INTRODUCTION

Thank you for purchasing LEADER's measuring instruments.
Please read this instruction manual carefully to ensure correct and safe operation.
If you have any difficulties or questions on how to use the instrument after you have read this manual, please feel free to contact your local LEADER agent.
After you have read the manual, keep the manual in a safe place for quick reference.

1.1 Scope of Warranty

This LEADER instrument has been manufactured under the strictest quality control guidelines. LEADER shall not be obligated to furnish free service during the warranty period under the following conditions.

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

1.2 Operating Precautions

⚠ WARNING

1.2.1 Line Voltage and Fuse

Confirm that the power line voltage is correct before connecting the power cord.
The voltage range and fuse rating are indicated on the rear panel.
The instrument must be connected to the rated line voltage and line frequency of 50 Hz to 60 Hz.
When replacing the fuse, turn the power switch off and disconnect the power cord from the outlet.

When replacing the fuse, use the correct fuse that matches the line voltage.

Voltage Range	Fuse Rating	LEADER Parts Number
90 to 250 V	T4AL, time-lag	436 3595 016

⚠ WARNING

1.2.2 Damage Caused by Static Electricity

Electronic parts are susceptible to damage from electrostatic discharge (ESD). The core wire of the coaxial cable may be charged with static electricity. If you are connecting a coaxial cable that is not connected on either end to an input/output connector of the instrument, short the cable's core wire and external conductor beforehand.

⚠ **CAUTION**

1.2.3 Maximum Allowable Input Voltage

The maximum allowable input voltage to the input connectors is shown in the table below. Do not apply excessive voltage to prevent damage to the instrument.
Refer to Installation Category Ⅱ.

Input Connector	Maximum Allowable Input Voltage
SDI INPUT	±2 V (DC + peak AC)
EXT REF	±5 V (DC + peak AC)
REMOTE	Input TTL level Within +5 V to -0.3 V

The maximum input voltage of "±5 V (DC + peak AC)" is as shown in Figure 1.1.

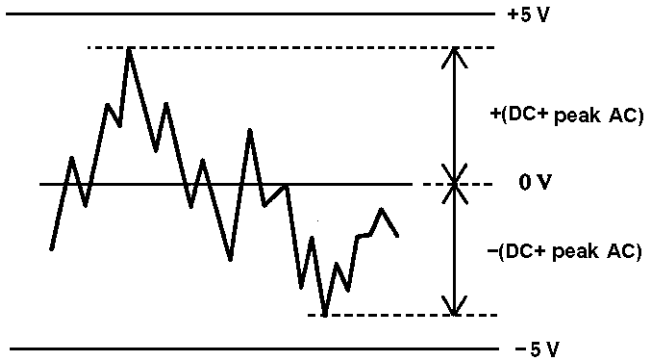


Figure 1.1 DC + Peak AC

⚠ **CAUTION**

1.2.4 Installation

Do not use the instrument in the following environments.

- High temperature environments
  Do not place the instrument under direct sunlight or near a heater (e.g., stove).
  Avoid using the instrument in a way that leads to drastic changes in temperature such as moving the instrument from a cold environment to a hot environment; this may cause condensation.
  Operating temperature range: 0 to 40 °C
- High humidity environments
  Do not place the instrument in a high humidity environment (e.g., bathroom, near a humidifier).
  Operating humidity range: ≤ 85 % RH (without condensation)
- Dusty environments
- Strong magnetic fields
  Do not place the instrument near a strong magnetic source (e.g., high-power transformer).

⚠ **CAUTION**

1.2.5 Mechanical Shock

Do not apply strong shock to the instrument. A strong shock can break precision parts of the instrument such as the internal crystal oscillator or LCD and can cause a malfunction. If the LCD breaks, grass fragments may cause injury.

⚠ **CAUTION**

1.2.6 Panel Screen

The front panel of the LV 5700A/LV 5710A rotates up and down by approximately 10 degrees.

When rotating the panel, press only the front panel section slowly to avoid getting your fingers caught in between.

1.2.7 Last Memory and Default Settings

The last memory function retains the front panel settings that exist immediately before the power is turned off. When the power is turned on again, the front panel settings are set to the previous settings.

However, if the backup battery for the last memory function runs out, an initialize message appears when the LV 5700A/LV 5710A starts. If this happens, contact your local LEADER agent and request repairs.

If you press the any key, the LV 5700A/LV 5710A will operate using initial settings.

1.2.8 Fan Stop Message

The LV 5700A/LV 5710A has a fan near the rear panel for internal cooling.

If the fan stops due to a malfunction, the following message blinks at 1-second intervals. If this happens, turn OFF the power immediately, contact your local LEADER agent, and request repairs.

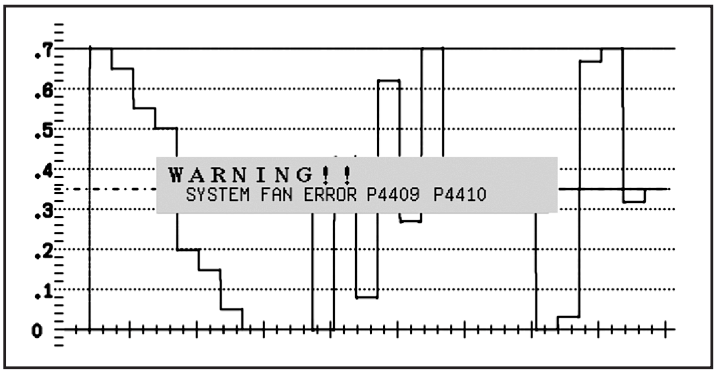


Figure 1.2 Fan Stop Message

1.2.9 LCD Monitor

There may be pixels on the LCD monitor that do not turn ON or those that remain ON at all times. This is not a malfunction.

1.2.10 Cabinet

For your safety and avoidance of EMI, do not remove the cabinet.

1.2.11 Calibration

This instrument is produced under the strictest quality controls at the factory, but accuracy may gradually deteriorate due to worn components.
Therefore, periodic calibration should be performed.
When service or calibration is required, contact your local LEADER agent.

1.2.12 About the CF Card Function

Explain the CompactFlash (henceforth, CF) memory card function that can be used in the LV 5700 series. About a CF memory card, operation is being confirmed up to 2GB now. The file system supports only FAT16.

The operation of the reading and writing of the file has been confirmed with the CF memory card in the table below.
In the CF memory cards other than being described here, reading and writing may be normally impossible.

CF memory card manufacture	Model number	Capacity
SanDisk	SDCFB- 32MB	32MB
SanDisk	SDCFB- 64MB	64MB
SanDisk	SDCFB-128MB	128MB
SanDisk	SDCFB-256MB	256MB
SanDisk	SDCFB-512MB	512MB
SanDisk	SDCFB-2.0GB	2.0GB

∗ A Microdrive can not be used.
∗ CF memory card of high-speed correspondence is not supported.
∗ CompactFlashTM is the trademark of U.S. SanDisk.
∗ In addition, company names, product names, etc. that have been described are the trademarks, and registered trademarks of each company.

2. SPECIFICATIONS

2.1 Description

The LV 5700A is a waveform monitor for HD-SDI and SD-SDI signals. The LV 5710A is a waveform monitor for HD-SDI signals. Both employ color TFT LCD screens.
The functions of waveform monitors, vectorscopes, audio lissajous, and simple picture monitors are achieved with a single unit.
Complete digital processing of SDI signals enables highly accurate measurements. In addition, extensive error detection functions and analysis functions are provided which allows the LV 5700A/LV 5710A to be used as SDI signal monitors.

2.2 Features

- **Two serial digital input systems**

  The SDI input connector on the LV 5700A supports free rates. Thus, either HD-SDI or SD-SDI signals can be applied to the same connector. The LV 5710A only supports HD-SDI signals. You can select auto or manual setting for the input signal format.

- **Output**

  Equipped with two active output connectors that reclock the input signal.
  One connector is an HD-SDI/SD-SDI switching type serial output; the other is a dedicated SD-SDI output. The dedicated SD-SDI output connector is not available on the LV 5710A.
  Other output connectors are the analog picture monitor output and the AES/EBU output that separates the embedded audio in the SDI signal.
  An analog XGA output connector is also provided allowing the screen to be displayed on an external monitor.

- **Display**

  Employs a color TFT LCD monitor with XGA resolution (1,024 x 768).
  The LCD monitor can show various displays such as waveform display, vectorscope display, picture display, audio display, and status display. These displays can also be placed side by side on a single screen (multi display).

  - Waveform display

    Displays waveforms of serial digital signals side by side or overlaid.
    The amplitude can be set to variable or expanded up to 5 times.
    The time axis can be expanded 10 or 20 times.
    Enables level measurements and time measurements using cursors.
    In addition, a composite signal conversion function that artificially converts component signals into composite signals such as NTSC or PAL is provided. This function allows the level of component signals to be managed in a similar fashion as conventional analog signals.

- Timing display
  Measures the time difference and amplitude difference between channels using the bowtie signals.
  (The use of bowtie signals has been authorized by Tektronix, Inc.)
- Vectorscope function
  Displays chrominance difference signal in vector format.
  The amplitude can be set to variable, IQ-MAG, or expanded up to 5 times.
  You can turn on/off the IQ axis display, which is convenient for monitoring signals.
  Even when a component signal is being applied, the signal can be artificially converted into an NTSC or PAL composite signal and shown on the vectorscope display.
- Picture display
  Displays SDI signals on a simple color picture display.
- Line selector
  Enables the selection and display of arbitrary video signal lines.
  Can be used on the waveform display, vectorscope display, picture display, and data dump display.
- Embedded audio signal display function
  Separates the embedded audio signal from the serial digital signal and shows lissajous display, sound image, and level meter display.
  Level display shows eight channels, and the range and response can be changed.
- Status display
  Equipped with extensive error detection functions and allows error status to be observed on a single screen.
  Displays event logs and status dumps. Analyzes and displays voice control packets embedded in the SDI signal, the channels status, EDH packets, and other packets in the AES/EBU signal.
- Screen capture
  Enables the displayed screen to be captured to the internal memory or compact flash memory card. The BMP data of the screen image can be retrieved into a PC via the network using FTP.
  When the internal memory or compact flash memory card is used, the captured screen and the signals that are input sequentially can be superimposed on the screen.

- **Extensive Analysis Functions**
  - Various types of error detection
    Detects CRC errors, EDH errors, BCH errors, checksum errors, parity errors, G, B, R gamut errors, and composite gamut errors. Error detection is useful in the monitoring of SDI signals and data that is over the range.

- Event log function of SDI signals
  Logs detected errors and events and stores the log list to the compact flash memory card. The log can be retrieved as text data into a PC via the network using FTP.

- Digital data dump function
  The digital data after parallel conversion can be displayed in hexadecimal or binary notation. This is useful when problems occur or when analyzing various types of data. The data dump can be stored to a compact flash memory card. The data dump can be retrieved as text data into a PC via the network using FTP.

- Analysis display
  Analyzes and displays voice control packets embedded in the SDI signal, the channels status, EDH packets, and other packets in the AES/EBU signal.

- Equivalent cable length measurement
  The signal level of the SDI signal is displayed as a value converted to a co-axial cable length. This allows you to check the margin.

- **Operation**
  - Remote control
    The LV 5700A/LV 5710A can be controlled through the panel and remotely controlled through a computer via the Ethernet network. In addition, presets can be recalled using the remote connectors on the rear panel.

  - Preset function
    Stores up to 100 sets of frequently used panel settings.
    You can easily recall stored settings from the panel or remote connector.

- **External Synchronization**

  Allows tri-level sync signals or B. B signals of NTSC and PAL to be input.

- **Illumination of all key LEDs**

  By assigning the SHORTCUT key to the function that illuminates all key LEDs, you can turn on all the key LEDs. This is useful when operating the LV 5700A/LV 5710A in a very dark place.

2.3 Specifications

2.3.1 Video Formats and Corresponding Standards

(1) Video Signal Standards

	Format Name	Standard Supported
1	1080i/60	SMPTE 274M,292M
2	1080i/59.94	
3	1080i/50	
4	1080p/30	
5	1080p/29.97	
6	1080p/25	
7	1080p/24	
8	1080p/23.98	
9	1080PsF/30	SMPTE RP211,292M
10	1080PsF/29.97	
11	1080PsF/25	
12	1080PsF/24	
13	1080PsF/23.98	
14	1035i/60	SMPTE 240M,292M
15	1035i/59.94	
16	720p/60	SMPTE 296M,292M
17	720p/59.94	
18	∗ 720p/50	
19	∗ 720p/30	
20	∗ 720p/29.97	
21	∗ 720p/25	
22	∗ 720p/24	
23	∗ 720p/23.98	
24	525i/59.94	SMPTE 259M (Supported only on the LV 5700A)
25	625i/50	

∗ Formats whose evaluation verification has not been completed as of September 2007.

(2) Other Standards

- Ancillary data standard
  SMPTE 291M (Supported only on the LV 5700A)
- Embedded audio standard
  HD-SDI SMPTE 299M
  SD-SDI SMPTE 272M (Supported only on the LV 5700A)

(3) Format Setting

SDI Signal	Select auto setting or manual setting
Sampling Frequency	74.25 MHz (HDTV), 74.25/1.001 MHz (HDTV),13.5 MHz (SDTV) SDTV is only supported by the LV 5700A.

External Synchronization	Auto setting by HDTV tri-level sync signal or SDTV black burst.

2.3.2 Input/Output Connector

(1) SDI Input

Input Connector	BNC connector	2 systems A and B
Input Impedance	75 Ω	
Input Return Loss	≥ 15 dB	5 MHz to serial clock frequency
Maximum Input Voltage	±2 V (DC + AC peak)	

(2) External Reference Input

Input Signal	Tri-level sync signal or NTSC/PAL black burst	
Input Connector	BNC connector	1 system 2 connectors
Input Impedance	15 kΩ	Passive Loop-through
Input Return Loss	≥ 30 dB	
Maximum Input Voltage	±5 V (DC + AC peak)	

(3) SDI Output

Output Connector	BNC connector	2 connectors
	One connector is a dedicated SD-SDI output connector (supported only on the LV 5700A)	
	Reclocks and outputs the selected SDI input signal	
Output Impedance	75 Ω	
Output Voltage	800 mVp-p ±10 %	

(4) Analog Output

Output Signal	Y, P_B, P_R, or G, B, R	
Output Connector	BNC connector	1 system 3 connectors
Output Impedance	75 Ω	
Output Amplitude	Video block	700 mVp-p±3 %
	Sync block	600 mVp-p±10 % (HD)
		300 mVp-p±10 % (SD)
		(supported only on the LV 5700A)
Phase Difference	±2 ns	
Frequency Response HDTV		
Y Signal	700 mV±3 %	1 MHz to 20 MHz
	700 mV+3 %, −30 %	20 MHz to 30 MHz
P_BP_R signal	700 mV±5 %	1 MHz to 15 MHz
Frequency Response SDTV (supported only on the LV 5700A)		
Y Signal	700 mV±3 %	0.5 MHz to 4 MHz
	700 mV+3 %, −30 %	4 MHz to 5.6 MHz
P_BP_R Signal	700 mV±5 %	0.5 MHz to 2.8 MHz

(5) AES/EBU Output

Output Signal	8 channels	CH1/2, CH3/4, CH5/6, CH7/8 or CH9/10, CH11/12, CH13/14, CH15/16
Output Connector	BNC connector	4 connectors
Output Impedance	75 Ω	
Output Amplitude	1 Vp-p±10 %	

(6) XGA Output

Output Signal	XGA signal	
Output Connector	15-pin D-sub	Female

(7) Remote Connector

Function	Recalling of presets	
Control Signal	TTL level (LOW active)	
Control Connector	25-pin D-sub	1 connector (female)

(8) Ethernet Connector

Function	Remote control from an external computer and monitoring of errors, etc.	
Type	10BASE-T/100BASE-TX Auto switching	
Input/Output Connector	RJ-45	1 connector
Standard	Conforms to IEEE802.3	

(9) Compact Flash Memory Card Slot

Function	Saves screen captures, error logs, preset data, and data dumps

∗ A Microdrive can't be used.

2.3.3 Display Format

Display Format	XGA	Effective area 1024 x 768 dots
Display	1-screen display Waveform display, vectorscope display, picture display, audio display, and status display 2-screen display Waveform display and vectorscope display Waveform display and picture display Waveform display and audio waveform display 4-screen display Select audio waveform display, audio level meter display, or status display in addition to waveform display, vectorscope display, and picture display.	

2.3.4 Waveform Display

(1) Waveform Operation

Display Mode	Overlay display: Displays component signals overlaid Parade display: Displays component signals side by side Timing display: Displays by calculating Y-C_B and Y-C_R Uses bowtie signals (authorized by Tektronix, Inc.)	
EAV-SAV Period	Select show or hide	
G, B, R Conversion	Converts Y, C_B, C_R signals into G, B, R and displays the result	
Pseudo-Composite Display	Artificially converts component signals into composite signals and displays the result (the color matrix for HDTV signal is converted into SDTV)	
Channel Assignment	Select GBR order or RGB order during GBR conversion display	
Line Select	Displays the selected line	

(2) Vertical Axis

Sensitivity	V scale	0 V to 0.7 V, −0.3 V to 0.7 V
	% scale	0 % to 100 %, −50 % to 100 %
Gain	Select ×1, ×5, and variable	
Variable Gain	×0.1 or less to ×10	
Amplitude Accuracy	±0.5 %	
Frequency Response HDTV		
Y Signal	±0.5 %	1 MHz to 30 MHz
C_BC_R Signal	±0.5 %	0.5 MHz to 15 MHz
Low-pass Attenuation	≥ 20 dB	at 20 MHz
Frequency Response SDTV	(supported only on the LV 5700A)	
Y Signal	±0.5 %	1 MHz to 5.75 MHz
C_BC_R Signal	±0.5 %	0.5 MHz to 2.75 MHz
Low-pass Attenuation	≥ 20 dB	at 3.8 MHz

(3) Horizontal Axis

Line Display	Display format	Overlay: 1H, 2H Parade: 1H, 2H, 3H Timing: 2H
	Magnification	Select ×1, ×10, ACTIVE, or BLANK
	Active Display	Displays only the video period
	Blank Display	Displays blanking period expanded when set to overlay 2H
Field Display	Display format	Overlay: 1V, 2V 2V display not allowed for progressive Parade: 1V, 2V, 3V
	Magnification	Select ×1 or ×20

Time Base Accuracy	±0.5 %
(4) Cursor Measurement	
Configuration	Horizontal cursors: 2 cursors (REF and DELTA) Vertical cursors: 2 cursors (REF and DELTA)
Amplitude Measurement	Measured in [%] and [V]
Time Measurement	Displayed in [usec] or [msec]
Frequency Display	Displays the frequency in which the time between cursors is considered a cycle.

2.3.5 Vectorscope Display

Sensitivity	Select 75 % or 100 % Using a color bar
Gain	Select ×1, ×5, IQ-MAG or variable
Variable Gain	×0.1 or less to ×10
Amplitude Accuracy	±0.5 %
EAV-SAV Period	Select show/hide
IQ Axis	Select show/hide
Pseudo-Composite Display	Artificially converts component signals into composite signals and displays the result (the color matrix for HDTV signal is converted into SDTV)

2.3.6 Picture Display

HDTV Display	Displayed by sampling the pixels
SDTV Display	Displayed by interpolating pixels (supported only on the LV 5700A)
Marker Display	Center marker 4:3 or 16:9 marker display Safe action marker display Safe title marker display
Line Select	Displays a marker the selected line

2.3.7 Embedded Audio Display

(1) Lissajous Display	
Display Channel	Select 2-ch or 8-ch display
Display Method	Select X-Y or L-R
(2) Sound Image Display	
Display Channel	Select 3-1 ch, 3-2 ch, or 3-2-2 ch.
(3) Level Meter Display	
Display Channel	Simultaneous 8 ch display
Meter	Select 60 dB peak level, 90 dB peak level, or average response meter Peak level meter has a hold function

(4) Correlation Meter Display

Displays the phase between channels using a correlation meter

(5) Channel

Group Selection	Select 1/2 or 3/4 groups
Ch Mapping	Mapping of L, R, SL(S), SR, C, LFE, RL, and RR is possible.

2.3.8 Status Display

(1) SDI Signal Status Display

Signal Detection	Detects the presence or absence of SDI signals	
Format Detection	Detects the SDI signal format	
TRS Error	Detects TRS errors	
Line Number Error	Detects line number errors	(HD-SDI only)
CRC Error	Detects video signal errors	(HD-SDI only)
EDH Error (supported only on the LV 5700A)	Detects EDH errors	(SD-SDI only)
Reserved Error	Detects reserved data errors	
Level Error	Detects video level errors	
Gamut Error	Detects Gamut errors	
Composite Gamut Error	Monitors the level error when the component signal is converted into composite signal	
BCH Error	Detects errors in the embedded audio signal. (HD-SDI only)	
Audio Sequency	Detects sequence errors of audio packets	
Audio Information Detection	Detects the presence or absence of audio on each channel	
External Sync Signal Detection	Detects the external sync signal	
Equivalent Cable Length Measurement	Measures the SDI signal level	
HD-SDI	Converts to a LS-5CFB coaxial cable length for signal source level of 800 mVp-p and displays the result.	
	Displays <5 m, 5 m, • • • , 125 m, and >130 m	
	Resolution	5 m steps
	Accuracy	±20 m (when using the LS-5CFB)
SD-SDI	Converts to a 5C2V coaxial cable length for signal source level of 800 mVp-p and displays the result. (supported only on the LV 5700A)	
	Displays <50 m, 50 m, • • • , 295 m, and >300 m	
	Resolution	5 m steps
	Accuracy	±20 m (when using the L-5C2V)

(2) Error Level Setting

Gamut Error	Upper limit: 90.0 % to 109.4 % Lower limit: –7.2 % to + 6.0 % 0.1 % steps
Composite Gamut Error	Upper limit: 90.0 % to 135.0 % Lower limit: –40 % to –20 % 0.1 % steps
Level Error	Luminance: –51 mV to +766 mV Both upper and lower limits Chroma: –400 mV to +399 mV Both upper and lower limits 1 mV steps
Cable Length	5 m to >300 m 5 m steps

(3) Data Dump Display

Display Format	Displayed separately by serial data sequence or channel.
Line Select	Displays the selected line
Sample Select	Displays selected samples
Jump Function	Move to EAV or SAV by one-key operation
Data Output	Save data in text format to a PC via a compact flash memory card or Ethernet network.

(4) Event Log

Number of Logs	Up to 1,000 events Select overwrite or update when the maximum number of events is exceeded
Operation	Logs events that occur from start to stop
Logged Items	Error items, input switching operation, time stamps, etc.
Data Output	Save data in text format to a PC via a compact flash memory card or Ethernet network.

(5) Audio Status

Voice Control Packets	Analyzes and displays the voice control packets of the SDI signal
Channel Status	Dumps, analyzes, and displays the channel status of the embedded audio signal

(6) EDH display

EDH Error	Displays the status of the EDH error
Packet Content	Analyzes and displays the contents of the EDH packet

(7) Error Count

Number of Errors	Up to 100,000 errors Counts only the specified errors
Operation	Displays the number of errors that occur from start to stop for only the items whose detection function is turned ON in the error settings
Measurement Interval	Frame (field), s

2.3.9 Screen Capture

Capture	Captures the display screen Records 1 screen in the internal memory
Media	Internal memory (RAM) or compact flash card
Data Output	Save data in B.M.P. format to a PC via a compact flash memory card or Ethernet network.

2.3.10 Presets

Number of Presets	100
Media	Internal memory or compact flash memory card
Recall Method	Through the front panel, remote connector, and Ethernet network Switch 8 points and 100 points for recalling through the remote connector
Copy	Copy presets collectively to the compact flash memory card or from the compact flash memory card to the LV 5700A/LV 5710A

2.3.11 Other Display Settings

(1) LCD

Backlight Brightness	Select high or low
Auto Shutoff	Set the time for the backlight to shut off automatically

(2) Display

Format	Displays the input signal format at the top section of the screen Select show or hide
Color System	Displays YC_BC_R, GBR, RGB, or COMP depending on the setting Select show or hide
Date	Displays the data using the built-in calendar function Select year/month/day, month/day/year, day/month/year, or hide
Time	Displays the time using the built-in time function or the ATC embedded in the SDI signal (frame count is not displayed) Select show or hide

(3) Illumination of Key LEDs

Illumination of All Key LEDs Turns on all the LEDs corresponding to the keys

2.3.12 General Specifications

Environmental Conditions	
Operating Temperature	0 to 40 °C
Operating Humidity	≤ 85 % RH (without condensation)
Spec-Guaranteed Temperature	10 to 30 °C
Spec-Guaranteed Humidity	≤ 85 % RH (without condensation)
Operating Environment	Indoor use
Operating Altitude	Up to 2,000 m
Overvoltage Category	Ⅱ
Pollution Degree	2
Power Requirements	90 to 250 VAC, 50 Hz/60 Hz, 120 Wmax.
Fuse	Time lag 4 A 250 V
Dimensions and Weight	215(W) × 133(H) × 449(D) mm, 4.9 kg
Accessories	

Instruction manual 1
Power cord 1
Cover/Inlet stopper..... 1
Screws for rack mounting (inch specification) 2
25-pin D-sub connector..... 1
25-pin D-sub connector cover..... 1

3. PANEL DESCRIPTION

3.1 Front Panel

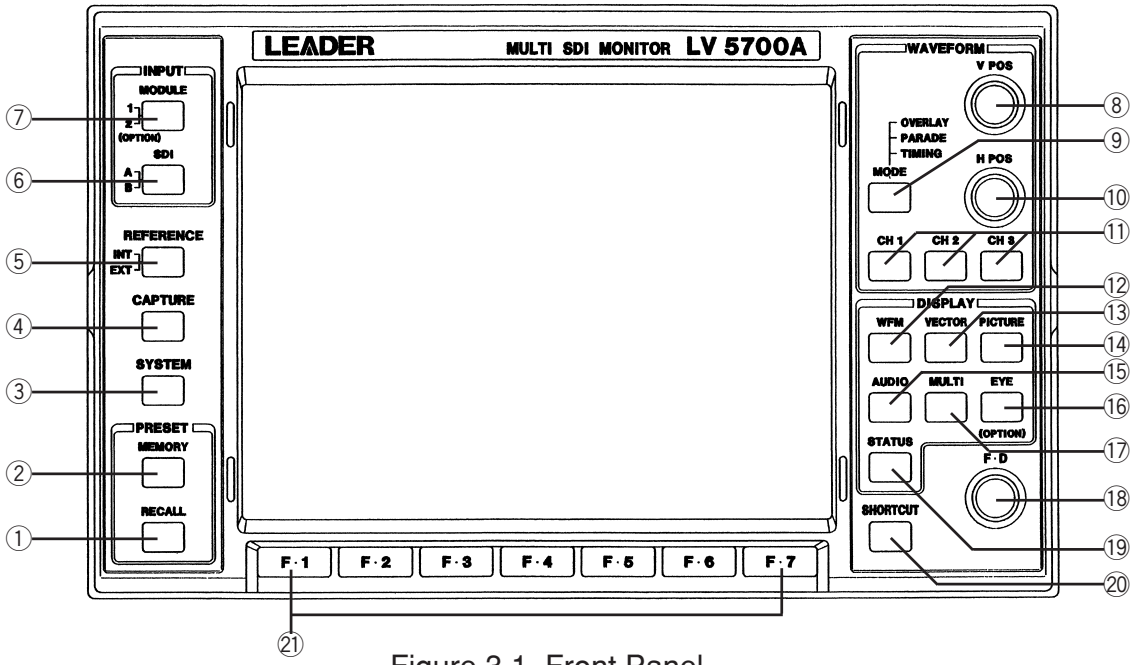


Figure 3.1 Front Panel

① RECALL key
Recalls panel settings that are stored in the memory.

② MEMORY key
Stores the panel settings to the memory.

③ SYSTEM key
Displays the system menu.

④ CAPTURE key
Displays the capture menu.

⑤ REFERENCE key
Press this key to switch the synchronization to internal or external.

⑥ SDI signal input selection key
Switches the input between INPUT A and INPUT B.

⑦ MODULE key (option)
Switches the input module between MODULE 1 and MODULE 2.
Only MODULE 1 is installed as standard.

⑧ V POS control
Adjusts the vertical position on the waveform display.
Press the control to reset the vertical position of the waveform to default.

⑨ MODE key
Switches the display mode of WFM waveforms.
OVERLAY displays channels 1, 2, and 3 overlaid.
PARADE displays channels 1, 2, and 3 side by side.
TIMING is used when performing timing measurements such as for bowtie displays.

⑩ H POS control
Adjusts the horizontal position on the waveform display.
Press the control to reset the horizontal position of the waveform to default.

⑪ CH1, CH2, and CH3 keys
Selects the channel from CH1, CH2, and CH3 to be shown on the waveform display.
The keys can be turned ON/OFF independently; the LED of the selected key turns on.
However, you cannot turn OFF all the channels simultaneously.

⑫ Waveform key (WFM)
Displays waveforms.

⑬ VECTOR key
Displays vector waveforms.

⑭ PICTURE key
Displays pictures.

⑮ AUDIO key
Shows the lissajous display, level meter, and other displays of embedded audio.

⑯ Eye pattern key (EYE) (option)
Displays eye patterns.

⑰ MULTI key
Displays multiple items at once.
You can select the contents to be displayed from a menu.

⑱ FUNCTION DIAL
FUNCTION DIAL for entering settings on each menu.
Press the dial to reset the setting in various menus to default.

⑲ STATUS key
Displays the status of the input signal.

⑳ SHORTCUT key
Assign the function on the shortcut key setup menu that appears.

㉑ Function keys (F·1 to F·7)
Function keys used to enter settings on the menu.

3.2 Rear Panel

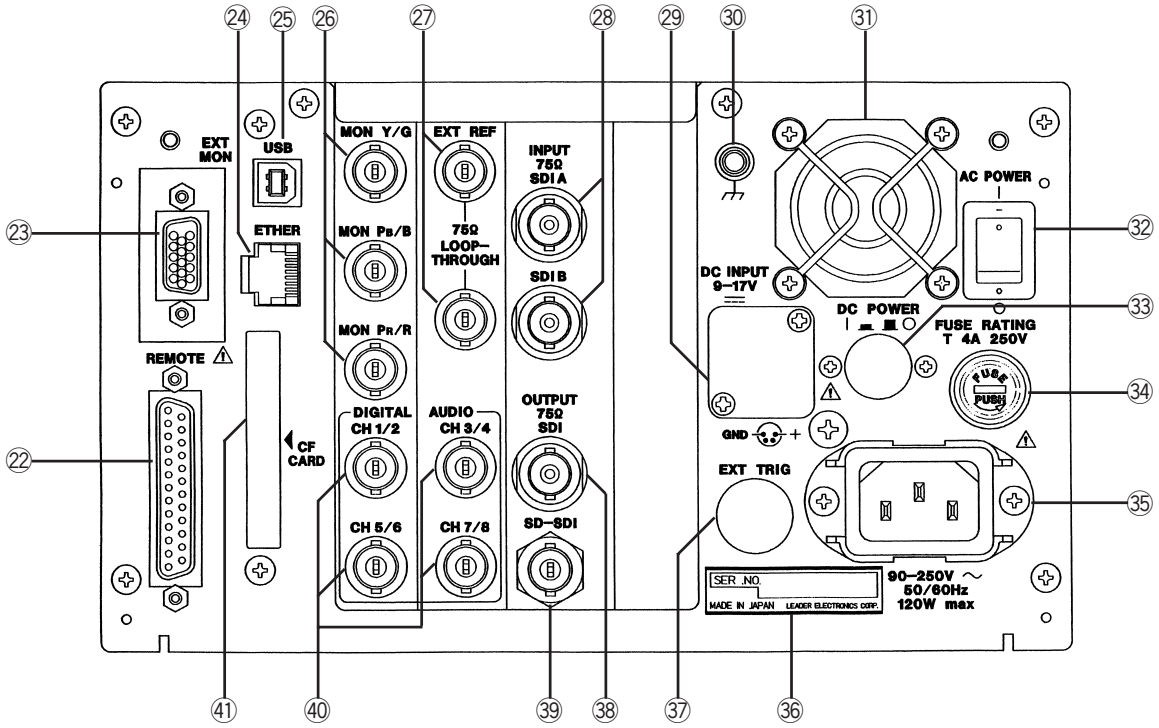


Figure 3.2 Rear Panel

㉒ REMOTE control connector
D-sub, 25-pin connector for remote control. Recalls 8 or 100 points of presets.

㉓ XGA output (EXT MON)
External XGA monitor output.

㉔ Ethernet connector (ETHER)
10BASE-T/100BASE-TX Ethernet connector.

㉕ USB connector
Connector complying with USB1.1.

㉖ Picture monitor output connector (MONI Y/G, P_B/B, P_R/R)
Outputs signals to the analog picture monitor.
You can select the output format from Y, P_B, P_R and G, B, R from a menu.
⚠ **CAUTION** Do not apply signals to the output connector. Doing so can lead to malfunction.

㉗ EXT REF connector
Accepts external sync signal. The input configuration is loop-through.
Supports HD tri-level sync signal or NTSC/PAL black burst signal.

㉘ SDI signal input connector (INPUT SDI A, B)
Input connector for serial digital signals. Two systems (A and B) are provided.
The input is internally terminated at 75 Ω.

㉙ DC INPUT connector (option)
Optional external power input for DC operation.
The DC INPUT connector is not provided on the standard model.

㉚ Ground terminal
This terminal is connected to the chassis and is used for grounding.

㉛ Fan
Cooling fan. Be sure not to obstruct air circulation.

㉜ AC POWER switch
Power switch for AC operation.

㉝ DC POWER switch (option)
Power switch for DC operation.
The DC POWER switch is not provided on the standard model.

㉞ Fuse
⚠ **WARNING**
AC power supply fuse. When replacing the fuse, use a fuse of the correct rating.

㉟ AC inlet
AC power input connector.

㊱ Serial number plate
Instrument serial number. Provide this number when contacting us.

㊲ External trigger input for eye patterns (EXT TRIG) (option)
External trigger input for the optional eye pattern display.
The external trigger input for eye patterns is not provided on the standard model.

㊳ SDI signal output connector (SDI OUTPUT)
HD-SDI or SD-SDI signal output. Retransmits the signal that is selected by the input selection (SEL A/B) key ⑥.
Use this signal by connecting to the picture monitor with an SDI input, for example.
⚠ **CAUTION** Do not apply signals to the output connector. Doing so can lead to malfunction.

㊴ SD-SDI OUTPUT connector (available only on the LV 5700A)
Dedicated SD-SDI signal output connector.
Retransmits the signal when SD-SDI signal selected by the input selection (SEL A/B) key ⑥.
Use this signal by connecting to the picture monitor with an SD-SDI input, for example.
⚠ **CAUTION** Do not apply signals to the output connector. Doing so can lead to malfunction.

㊵ DIGITAL AUDIO CH1/2, 3/4, 5/6, and 7/8 connectors
Separates the embedded audio signal that is multiplexed in the HD-SDI signal and outputs the signal in AES/EBU format.
⚠ **CAUTION** Do not apply signals to the output connector. Doing so can lead to malfunction.

㊶ Compact flash memory card (CF CARD)
Connector for data storage memory cards.

3.3 Connections to the Rear Panel Connectors

3.3.1 SDI INPUT Connector

The SDI INPUT connector ㉘ is terminated internally at 75 Ω. You do not need to connect a terminator. Use a cable with a characteristic impedance of 75 Ω for the connection.

⚠ CAUTION
Applying excessive input voltage to the connector can cause damage to the instrument. Do not apply excessive voltage.

3.3.2 EXT REF Connector

The EXT REF connectors ㉗ are loop-through configuration. Loop-through connectors are connected as shown in Figure 3.3.

Apply the input signal to either connector and terminate the other connector with a 75 Ω terminator or 75 Ω equipment. Make sure to terminate the end of the chain. Use a cable with a characteristic impedance of 75 Ω for the connection.

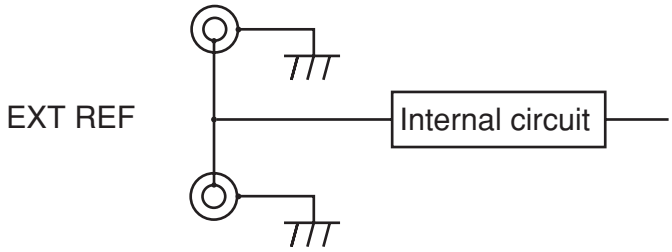


Figure 3.3 Loop-through input

3.3.3 SDI OUTPUT Connector

Use the SDI OUTPUT connector ㊳ or the SD-SDI OUTPUT connector ㊴ by connecting it to a picture monitor that supports SDI input. The output impedance is 75 Ω. Thus, terminate the other end at 75 Ω.

⚠ CAUTION
Do not apply signals to the output connector. Doing so can lead to malfunction.

3.3.4 Picture Monitor Output Connectors

The picture monitor output connectors (MONI Y/G, P_B/B, P_R/R) ㉖ are analog output connectors. The connector outputs SDI signals that have been D/A-converted to analog signals.
For example, you can use the output from this connector by connecting to an analog picture monitor. The output impedance is 75 Ω. Thus, terminate the other end at 75 Ω.

⚠ CAUTION
Do not apply signals to the output connector. Doing so can lead to malfunction.

3.3.5 DIGITAL AUDIO CH1/2, 3/4, 5/6, and 7/8 Connectors

The DIGITAL AUDIO CH1/2, 3/4, 5/6, and 7/8 Connectors ㊵ output signals in AES/EBU format after the embedded audio signal is separated from the HD-SDI signal.
The output impedance is 75 Ω. Thus, terminate the other end at 75 Ω.

The digital audio output may produce noise for a few seconds when the SDI input channel is switched between SDI-A and SDI-B until the internal circuit stabilizes.

⚠ CAUTION
Do not apply signals to the output connector. Doing so can lead to malfunction.

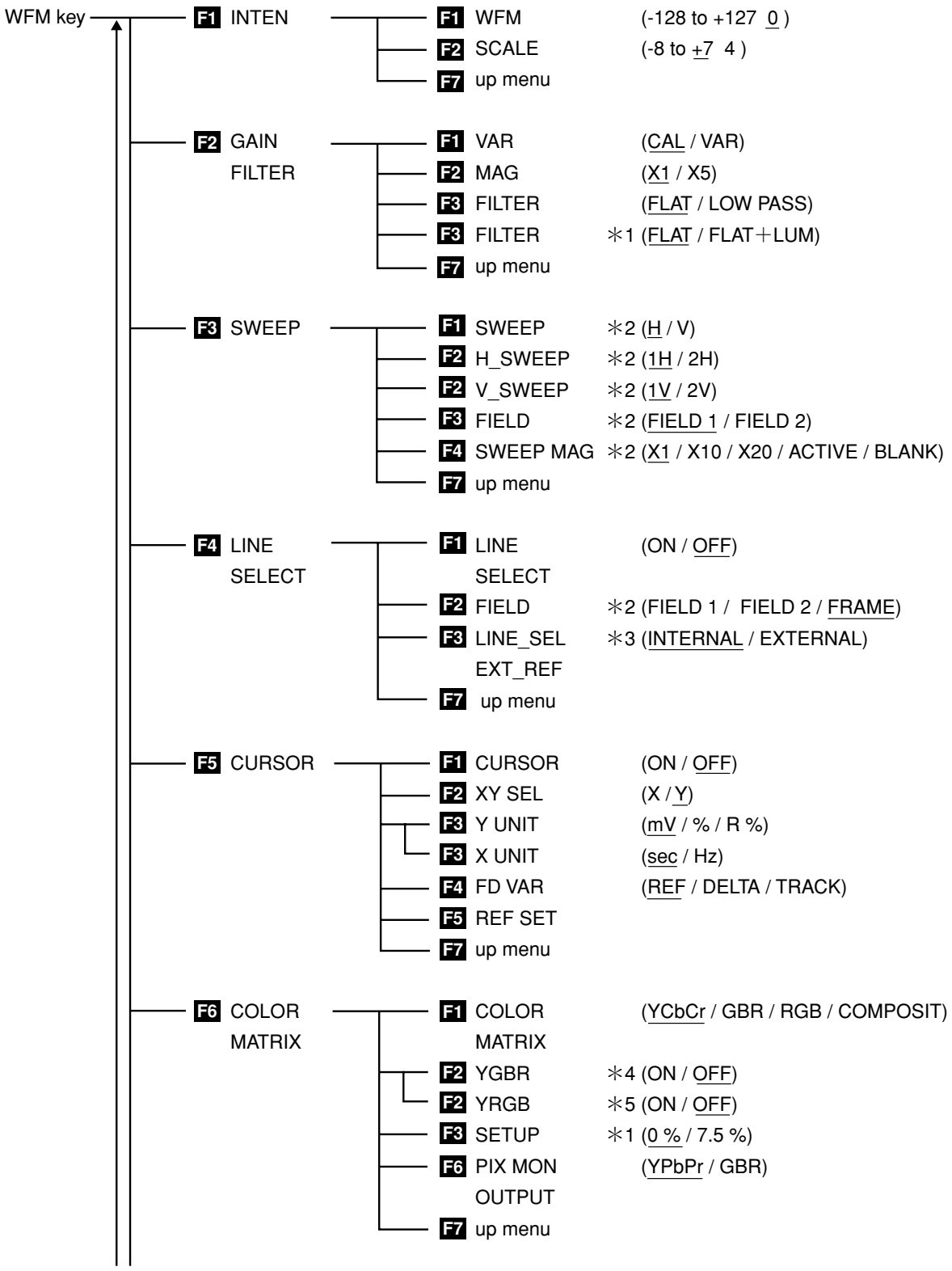
3.3.6 USB Connector

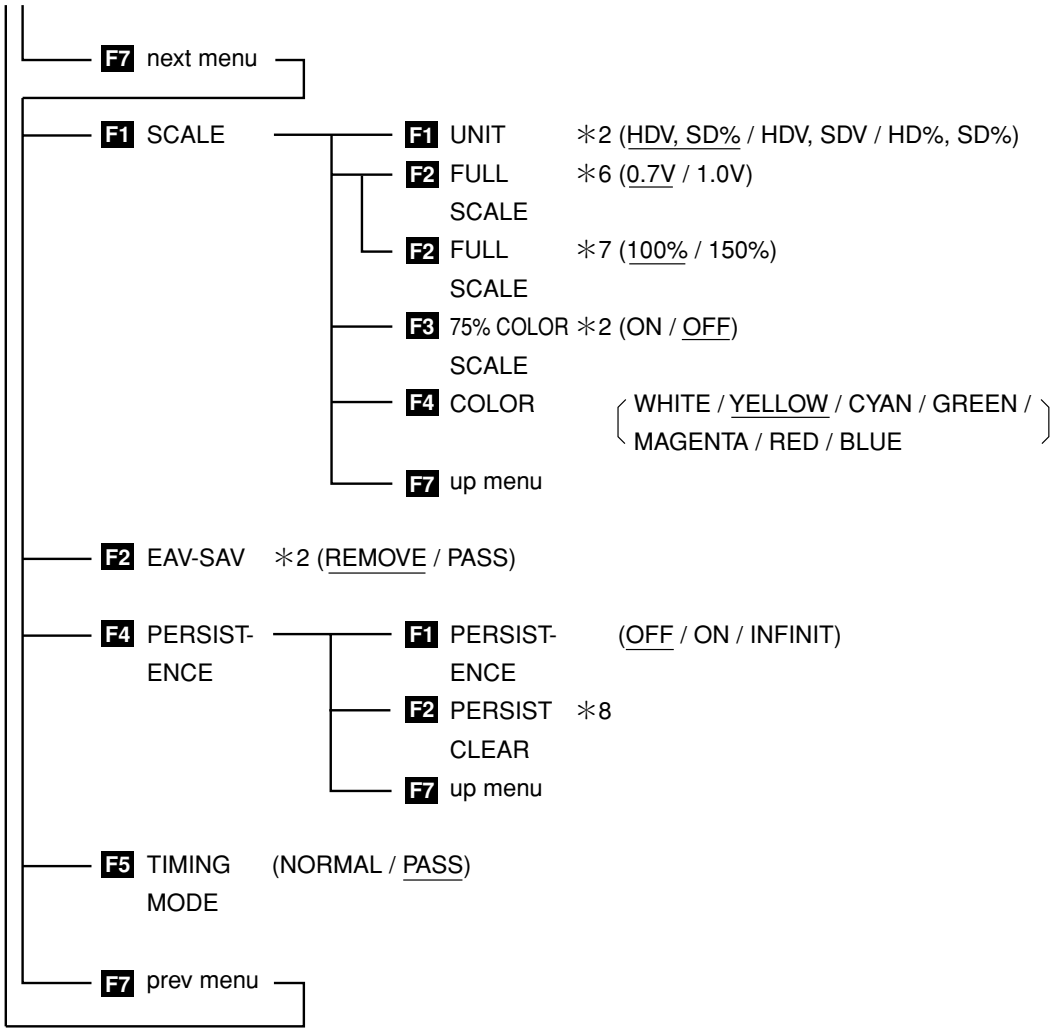
The USB connector ㉕ is for servicing and maintenance. Do not use this connector during normal use.

4. MENU STRUCTURE

The structure of the menu assigned to the front panel keys is shown below.
Underlined sections indicate initial settings.

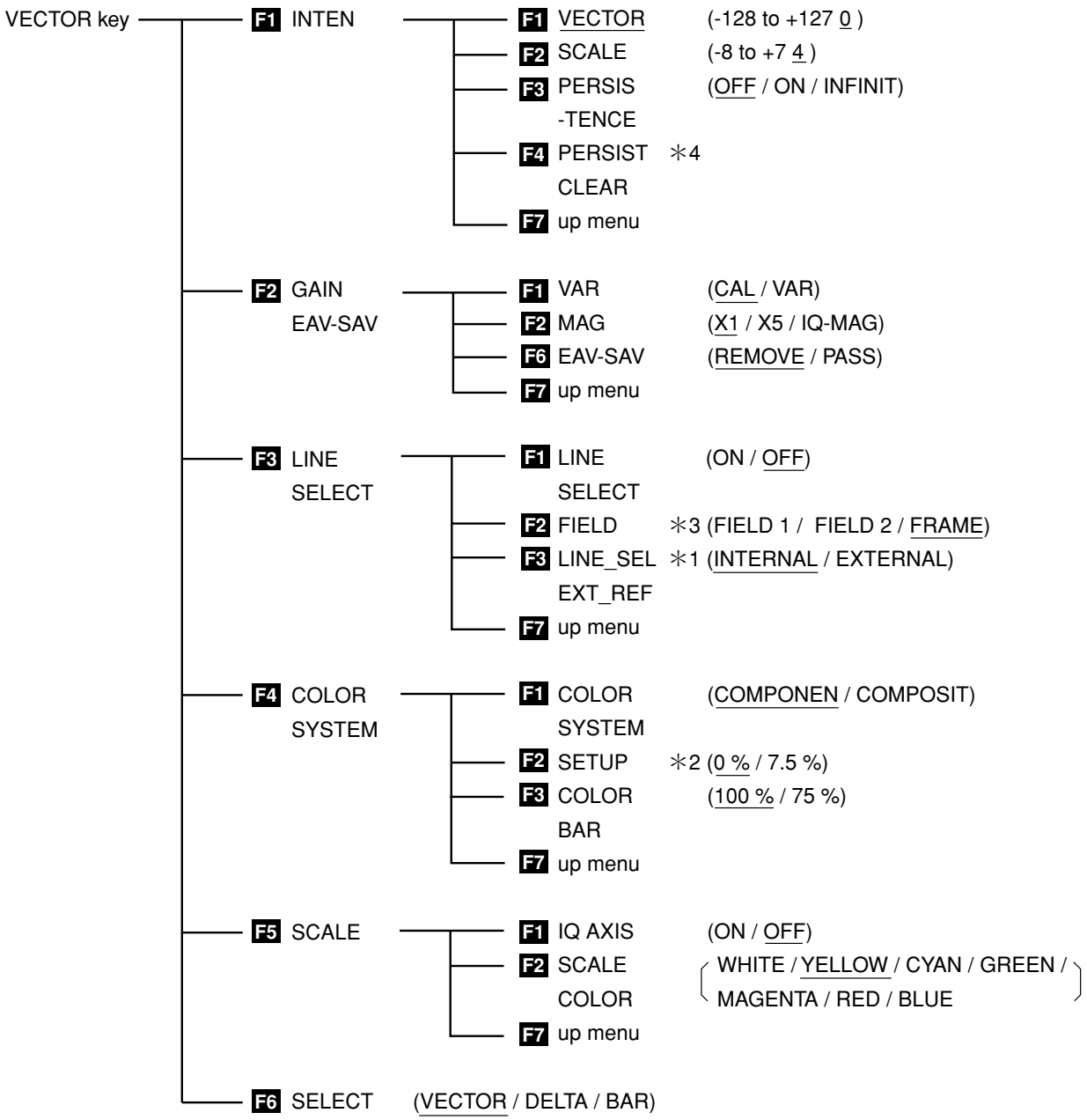
4.1 Waveform Display Menu





∗1 Menu shown during pseudo-composite display.
∗2 The selectable items vary depending on the video signal format, display mode, and other parameters.
∗3 When REFERENCE = EXT.
∗4 When COLOR_MATRIX = GBR.
∗5 When COLOR_MATRIX = RGB.
∗6 When set to V.
∗7 When set to %.
∗8 Displays when PERSISTENCE = INFINIT.

4.2 Vectorscope Display Menu



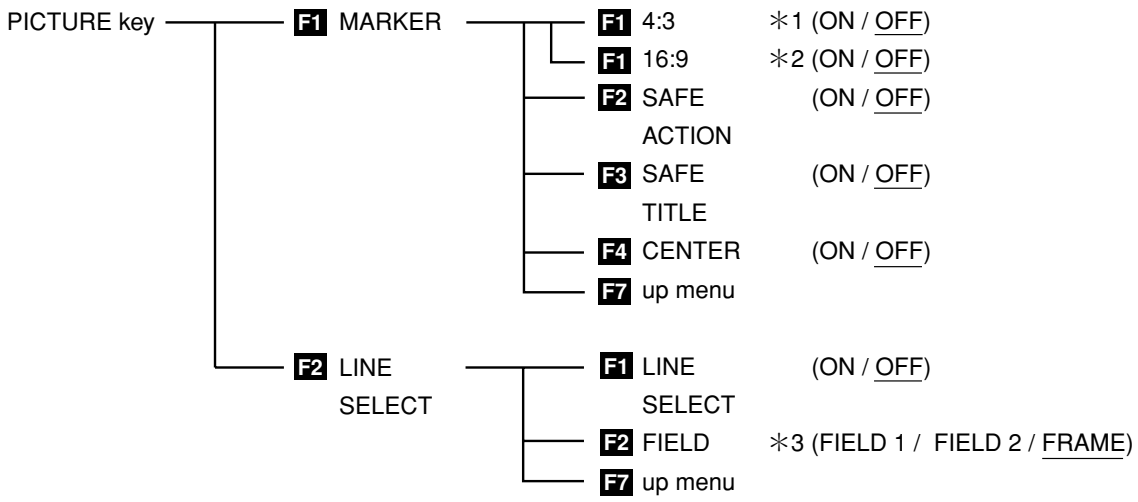
∗ 1 When REFERENCE = EXT.

∗ 2 Menu shown during pseudo-composite display.

∗ 3 The selectable items vary depending on the video signal format, display mode, and other parameters.

∗ 4 Displays when PERSISTENCE = INFINIT.

4.3 Picture Display Menu

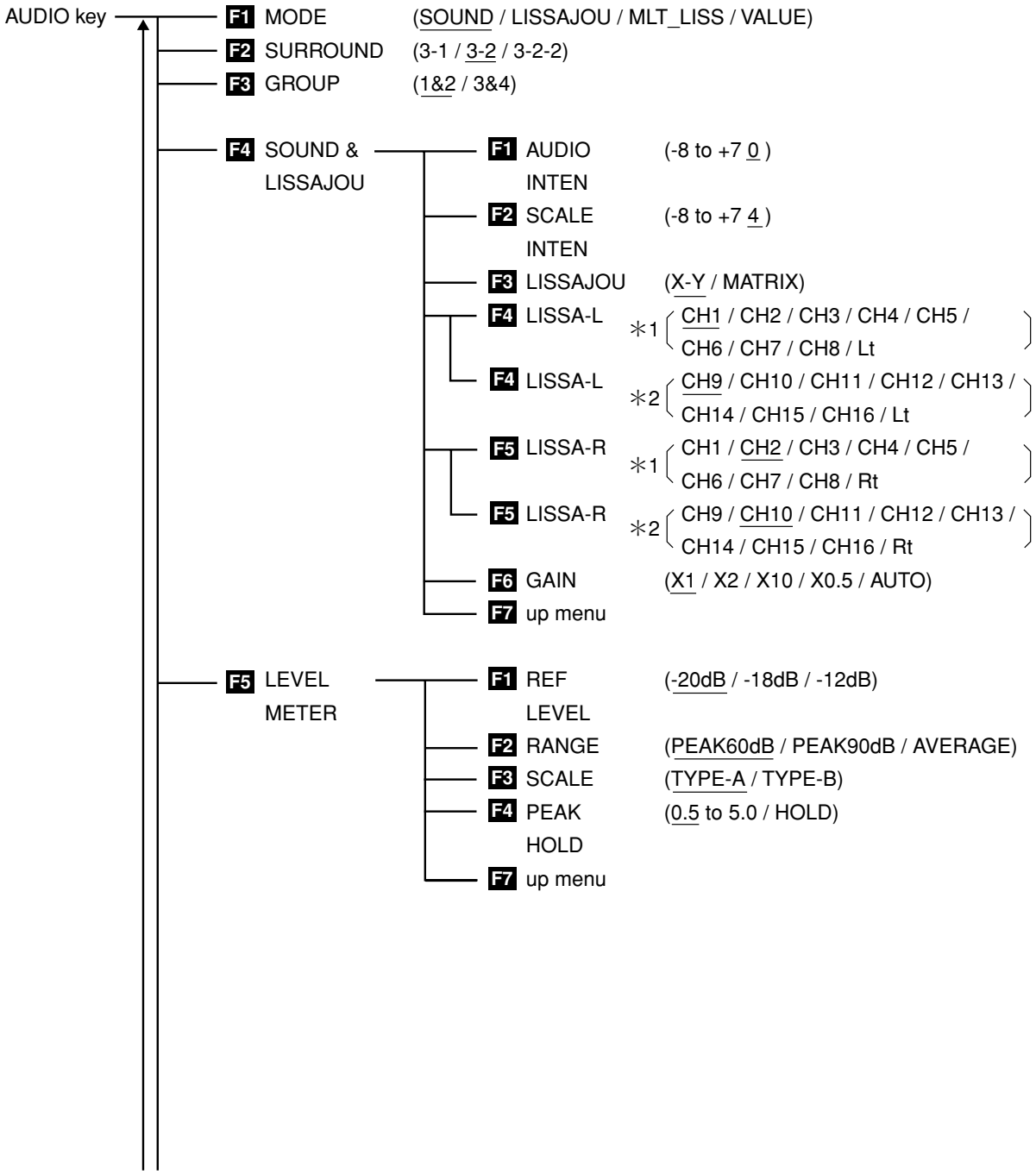


∗ 1 Menu shown when the HDTV signal is being applied.

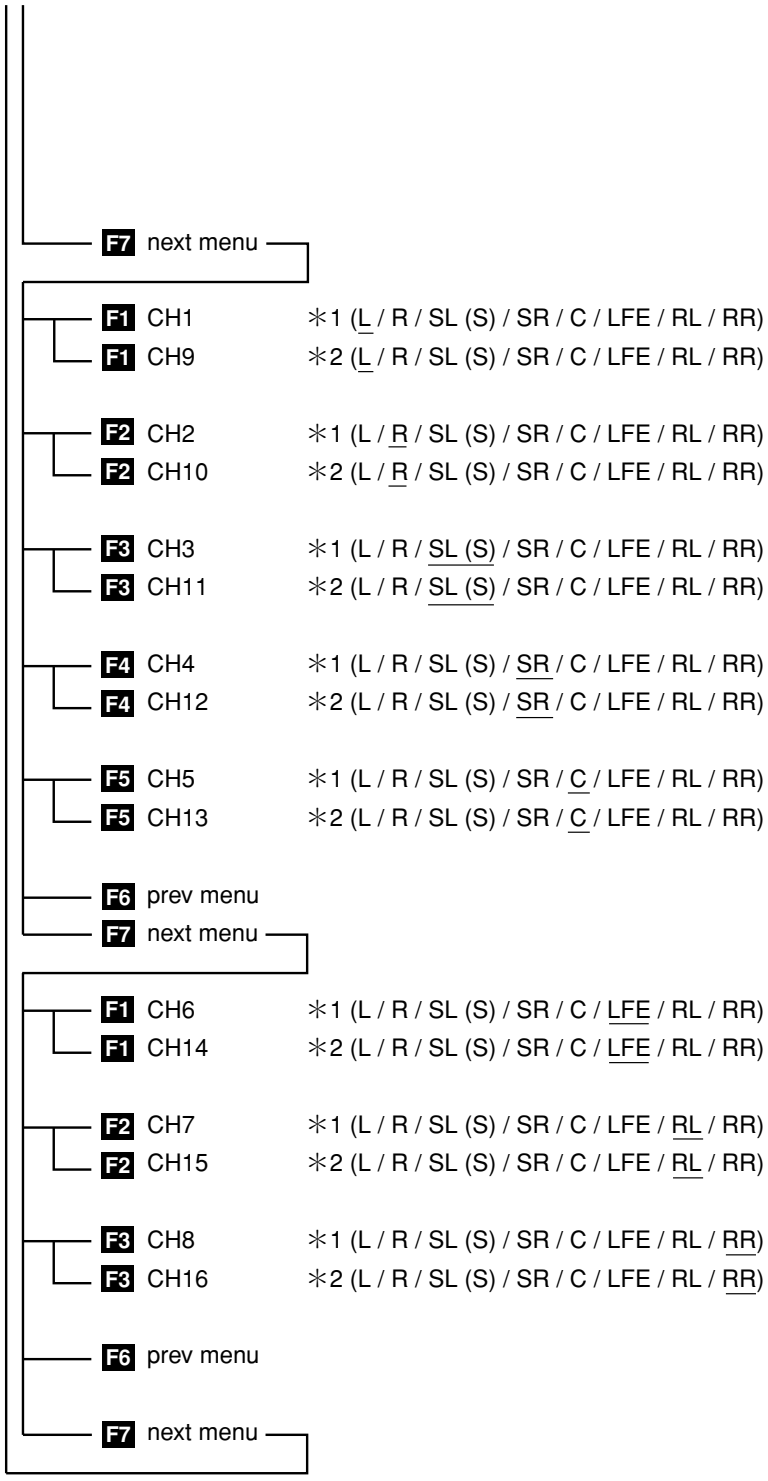
∗ 2 Menu shown when the SDTV signal is being applied.

∗ 3 The selectable items vary depending on the video signal format, display mode, and other parameters.

4.4 Audio Display Menu

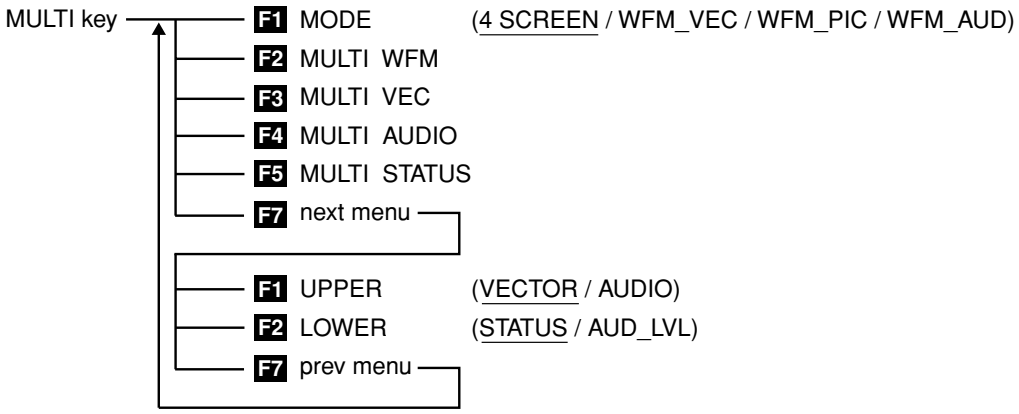


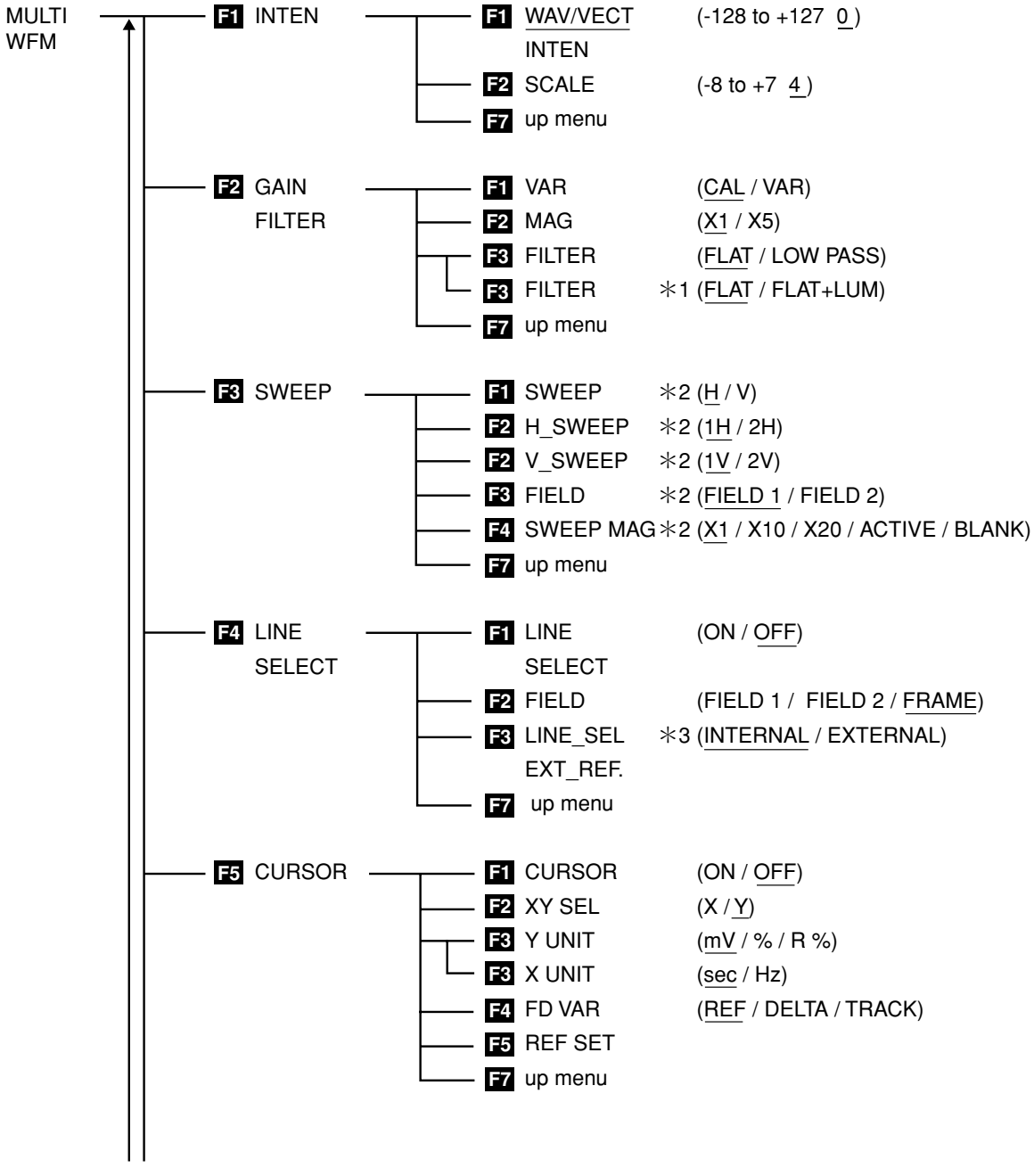
∗1 Menu shown when the audio groups 1 and 2 is selected.
∗2 Menu shown when the audio groups 3 and 4 is selected.

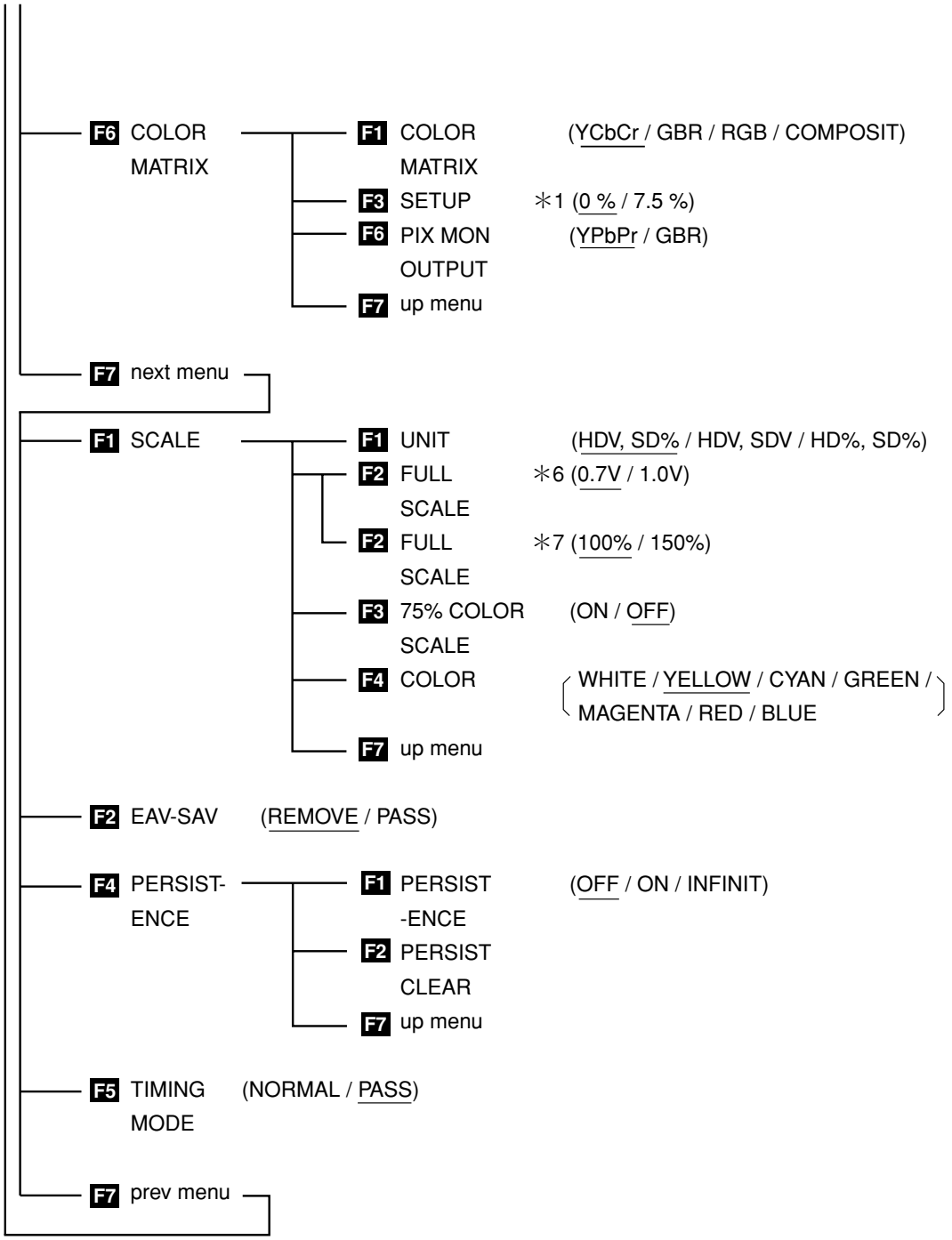


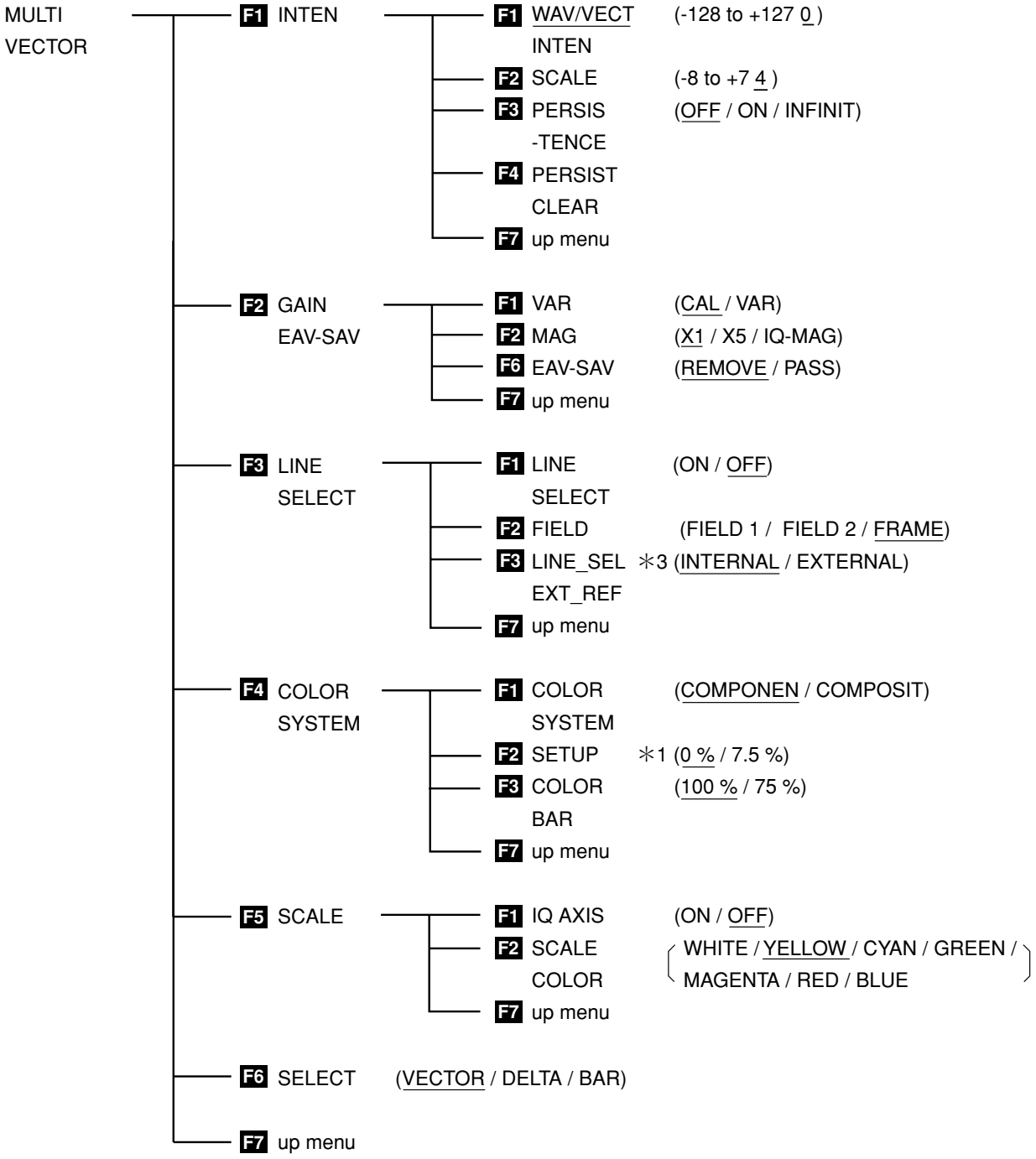
∗1 Menu shown when the audio groups 1 and 2 is selected.
∗2 Menu shown when the audio groups 3 and 4 is selected.

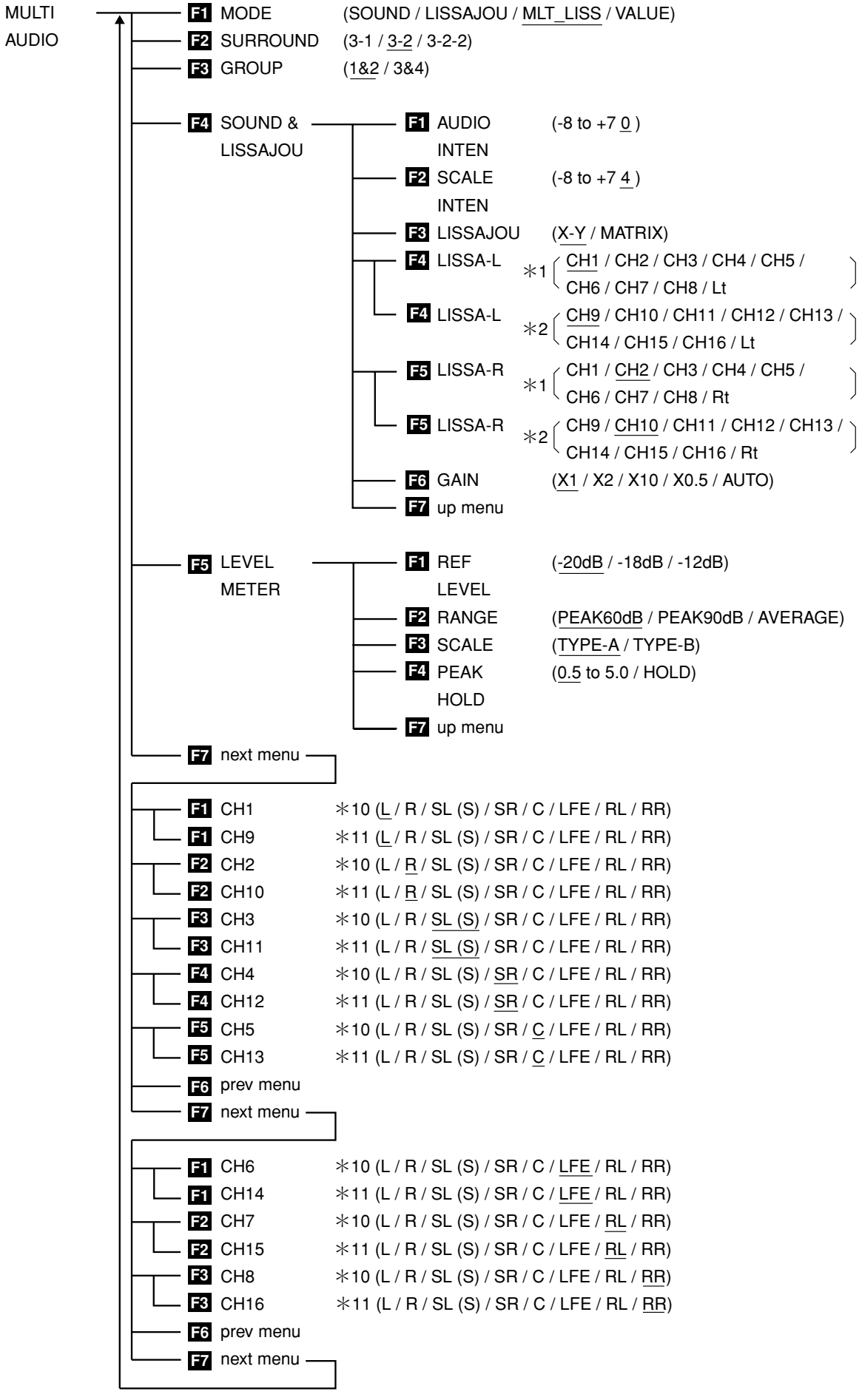
4.5 Multi Display Menu

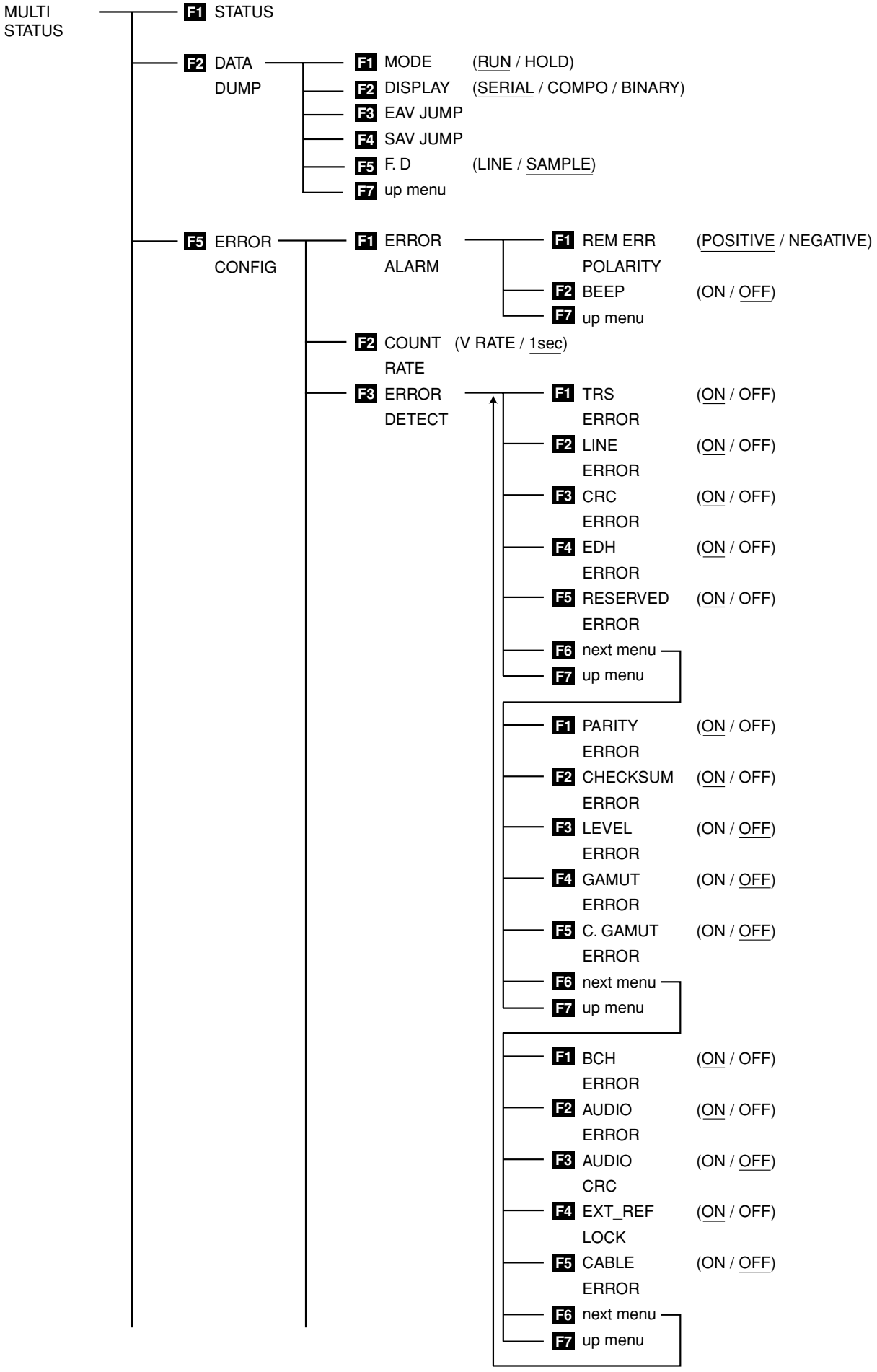


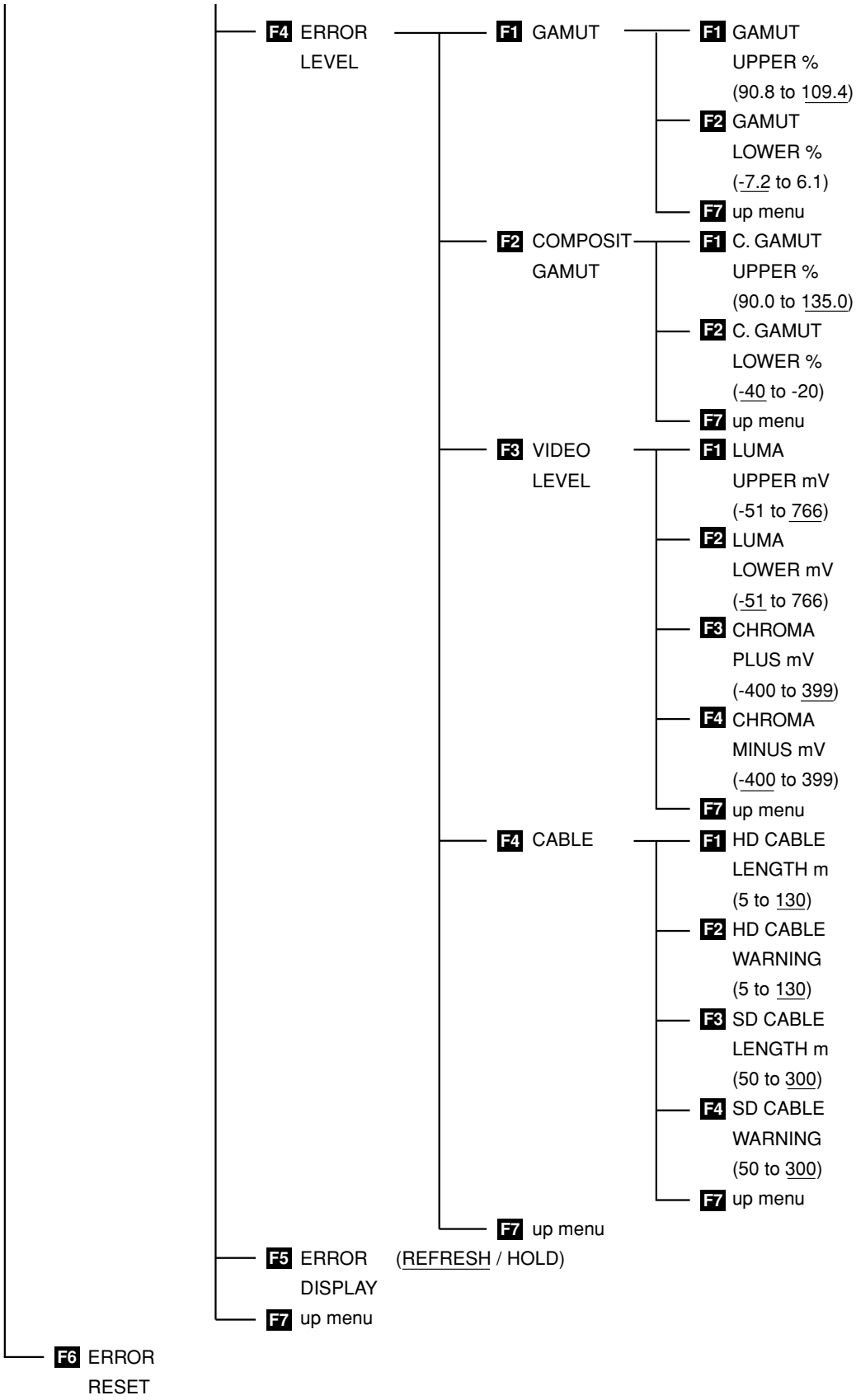



F6 COLOR MATRIX
F1 COLOR MATRIX (YCbCr / GBR / RGB / COMPOSIT)
F3 SETUP ∗1 (0 % / 7.5 %)
F6 PIX MON OUTPUT (YPbPr / GBR)
F7 up menu
F7 next menu
F1 SCALE
F1 UNIT (HDV, SD% / HDV, SDV / HD%, SD%)
F2 FULL SCALE ∗6 (0.7V / 1.0V)
F2 FULL SCALE ∗7 (100% / 150%)
F3 75% COLOR SCALE (ON / OFF)
F4 COLOR (WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE)
F7 up menu
F2 EAV-SAV (REMOVE / PASS)
F4 PERSIST-ENCE
F1 PERSIST -ENCE (OFF / ON / INFINIT)
F2 PERSIST CLEAR
F7 up menu
F5 TIMING MODE (NORMAL / PASS)
F7 prev menu


MULTI VECTOR
F1 INTEN
F1 WAV/VECT INTEN (-128 to +127 0)
F2 SCALE (-8 to +7 4)
F3 PERSIS -TENCE (OFF / ON / INFINIT)
F4 PERSIST CLEAR
F7 up menu
F2 GAIN EAV-SAV
F1 VAR (CAL / VAR)
F2 MAG (X1 / X5 / IQ-MAG)
F6 EAV-SAV (REMOVE / PASS)
F7 up menu
F3 LINE SELECT
F1 LINE SELECT (ON / OFF)
F2 FIELD (FIELD 1 / FIELD 2 / FRAME)
F3 LINE_SEL EXT_REF ∗3 (INTERNAL / EXTERNAL)
F7 up menu
F4 COLOR SYSTEM
F1 COLOR SYSTEM (COMPONEN / COMPOSIT)
F2 SETUP ∗1 (0 % / 7.5 %)
F3 COLOR BAR (100 % / 75 %)
F7 up menu
F5 SCALE
F1 IQ AXIS (ON / OFF)
F2 SCALE COLOR (WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE)
F7 up menu
F6 SELECT (VECTOR / DELTA / BAR)
F7 up menu


MULTI AUDIO
F1 MODE (SOUND / LISSAJOU / MLT_LISS / VALUE)
F2 SURROUND (3-1 / 3-2 / 3-2-2)
F3 GROUP (1&2 / 3&4)
F4 SOUND & LISSAJOU
F1 AUDIO INTEN (-8 to +7 0)
F2 SCALE INTEN (-8 to +7 4)
F3 LISSAJOU (X-Y / MATRIX)
F4 LISSA-L ∗1 CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / Lt
F4 LISSA-L ∗2 CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / Lt
F5 LISSA-R ∗1 CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / Rt
F5 LISSA-R ∗2 CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / Rt
F6 GAIN (X1 / X2 / X10 / X0.5 / AUTO)
F7 up menu
F5 LEVEL METER
F1 REF LEVEL (-20dB / -18dB / -12dB)
F2 RANGE (PEAK60dB / PEAK90dB / AVERAGE)
F3 SCALE (TYPE-A / TYPE-B)
F4 PEAK HOLD (0.5 to 5.0 / HOLD)
F7 up menu
F7 next menu
F1 CH1 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F1 CH9 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F2 CH2 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F2 CH10 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F3 CH3 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F3 CH11 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F4 CH4 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F4 CH12 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F5 CH5 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F5 CH13 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F6 prev menu
F7 next menu
F1 CH6 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F1 CH14 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F2 CH7 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F2 CH15 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F3 CH8 ∗10 (L / R / SL (S) / SR / C / LFE / RL / RR)
F3 CH16 ∗11 (L / R / SL (S) / SR / C / LFE / RL / RR)
F6 prev menu
F7 next menu

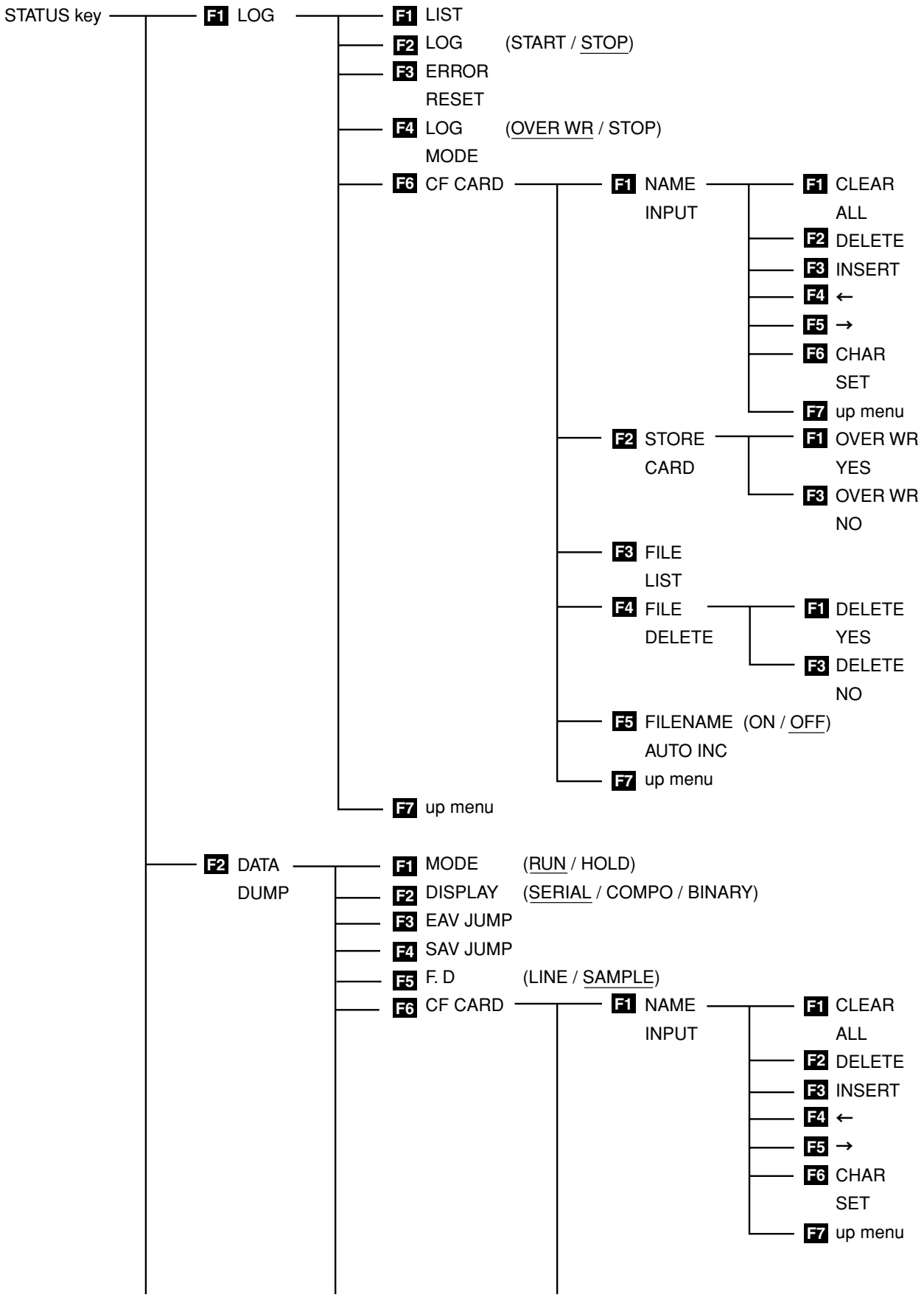

MULTI STATUS
F1 STATUS
F2 DATA DUMP
F1 MODE (RUN / HOLD)
F2 DISPLAY (SERIAL / COMPO / BINARY)
F3 EAV JUMP
F4 SAV JUMP
F5 F. D (LINE / SAMPLE)
F7 up menu
F5 ERROR CONFIG
F1 ERROR ALARM
F1 REM ERR POLARITY (POSITIVE / NEGATIVE)
F2 BEEP (ON / OFF)
F7 up menu
F2 COUNT RATE (V RATE / 1sec)
F3 ERROR DETECT
F1 TRS ERROR (ON / OFF)
F2 LINE ERROR (ON / OFF)
F3 CRC ERROR (ON / OFF)
F4 EDH ERROR (ON / OFF)
F5 RESERVED ERROR (ON / OFF)
F6 next menu
F7 up menu
F1 PARITY ERROR (ON / OFF)
F2 CHECKSUM ERROR (ON / OFF)
F3 LEVEL ERROR (ON / OFF)
F4 GAMUT ERROR (ON / OFF)
F5 C. GAMUT ERROR (ON / OFF)
F6 next menu
F7 up menu
F1 BCH ERROR (ON / OFF)
F2 AUDIO ERROR (ON / OFF)
F3 AUDIO CRC (ON / OFF)
F4 EXT_REF LOCK (ON / OFF)
F5 CABLE ERROR (ON / OFF)
F6 next menu
F7 up menu

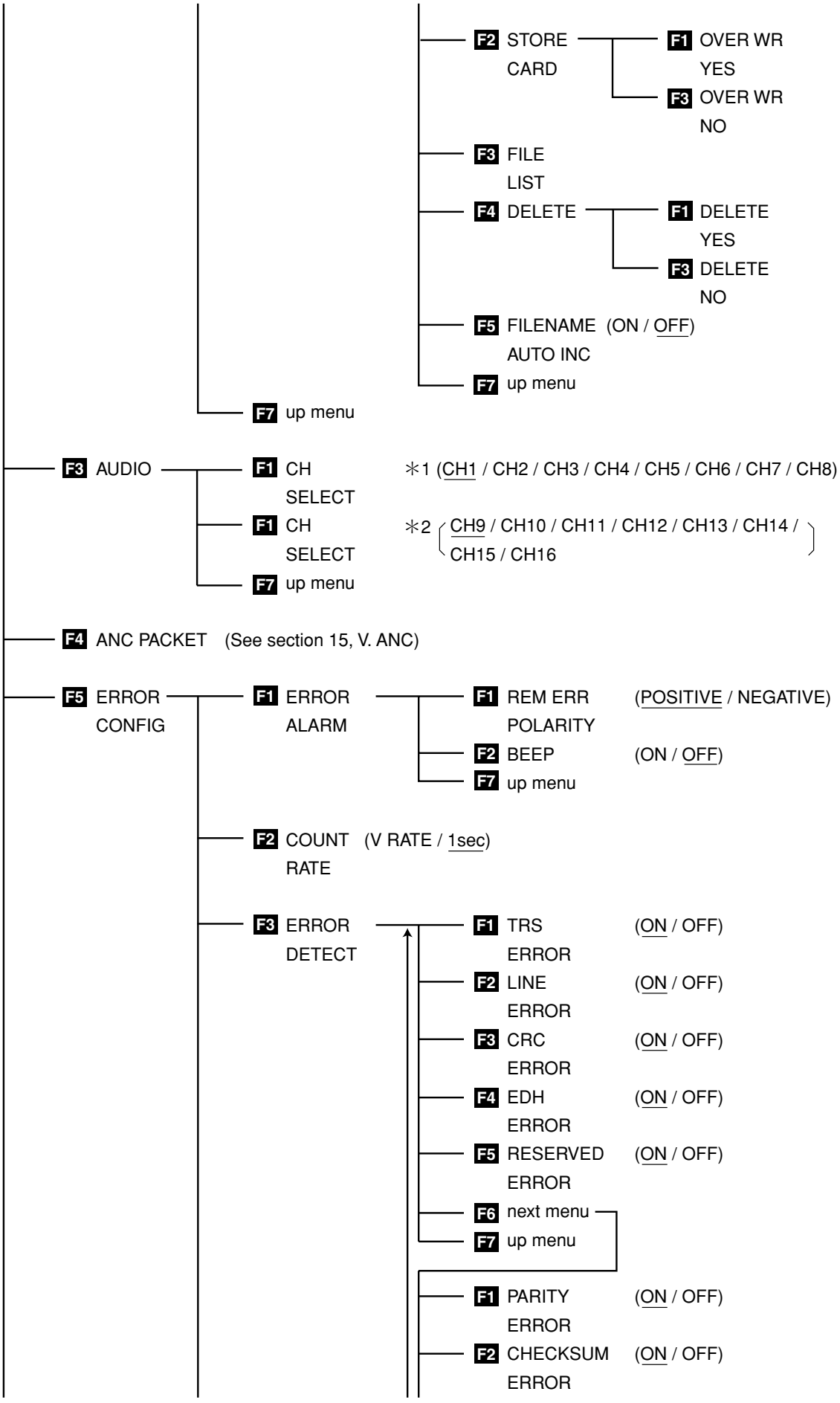


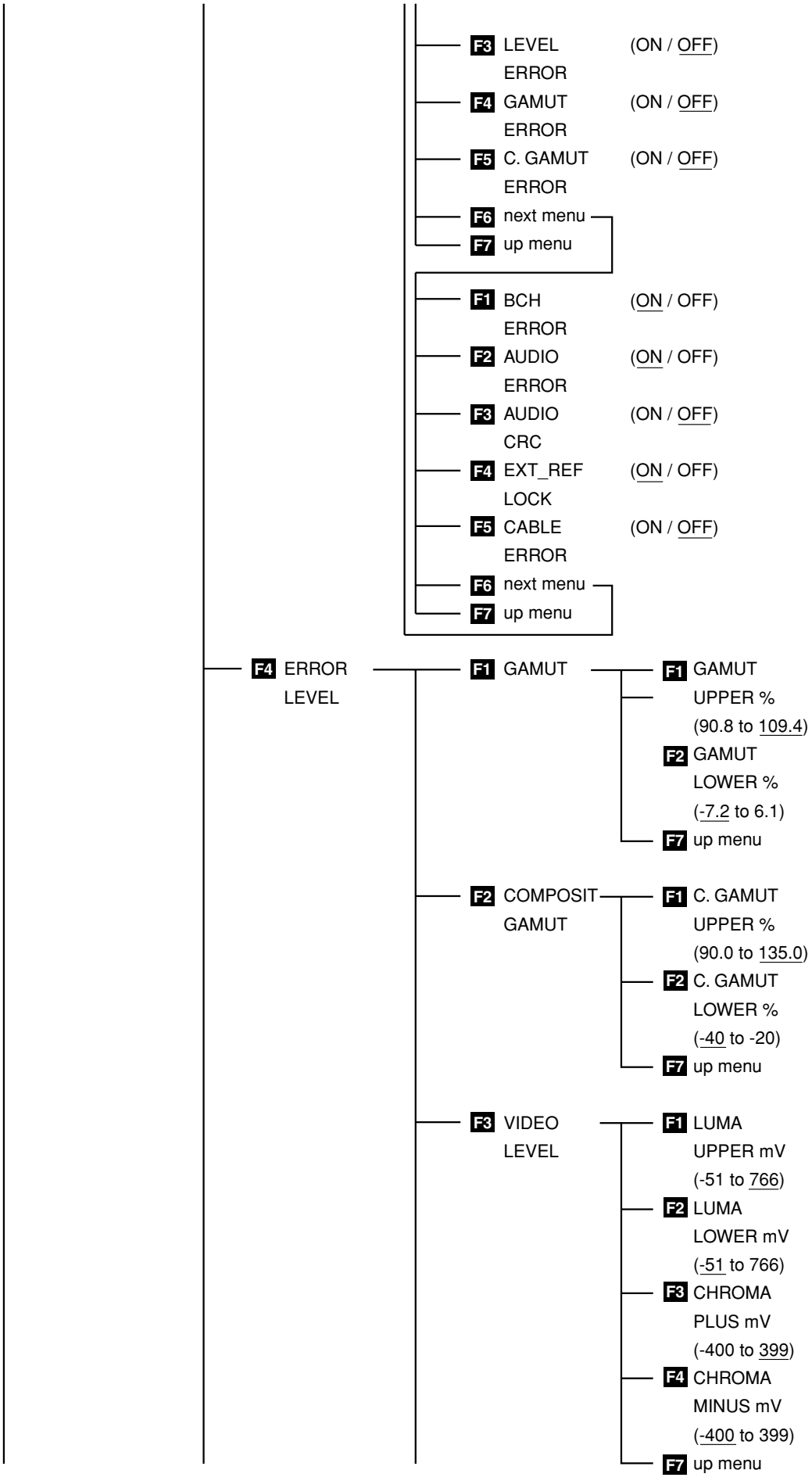
Items indicated by italics are common setting for Waveform Display and Vectorscope Display.

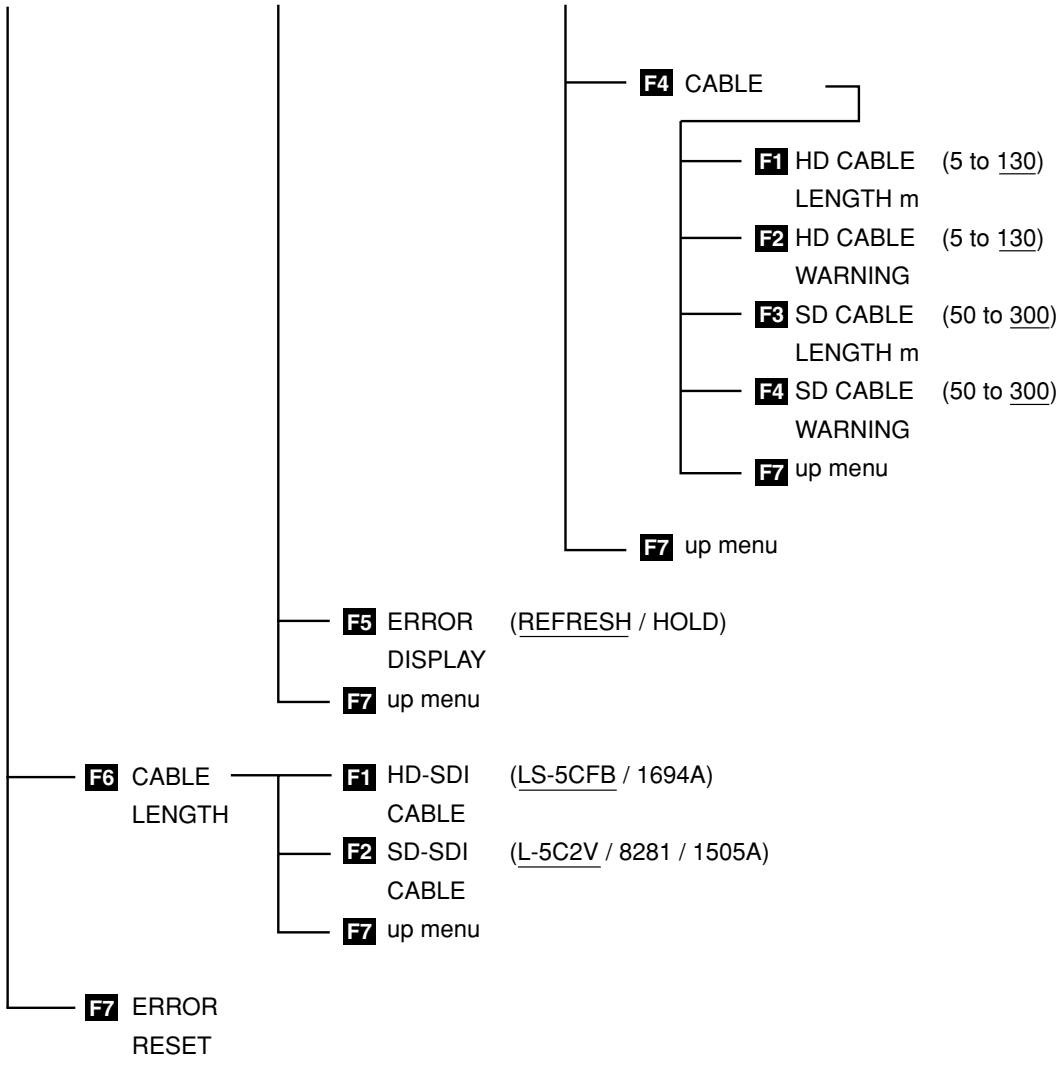
∗ 1 Menu shown during pseudo-composite display.
∗ 2 The selectable items vary depending on the video signal format, display mode, and other parameters.
∗ 3 When REFERENCE = EXT.
∗ 4 When COLOR_MATRIX = GBR.
∗ 5 When COLOR_MATRIX = RGB.
∗ 6 When set to V.
∗ 7 When set to %.
∗ 8 Menu shown when the HDTV signal is being applied.
∗ 9 Menu shown when the SDTV signal is being applied.
∗ 10 Menu shown when the audio groups 1 and 2 is selected.
∗ 11 Menu shown when the audio groups 3 and 4 is selected.

4.6 Status Display Menu




F2 STORE CARD
F1 OVER WR YES
F3 OVER WR NO
F3 FILE LIST
F4 DELETE
F1 DELETE YES
F3 DELETE NO
F5 FILENAME AUTO INC (ON / OFF)
F7 up menu
F7 up menu
F3 AUDIO
F1 CH SELECT
∗1 (CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8)
F1 CH SELECT
∗2 CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16
F7 up menu
F4 ANC PACKET (See section 15, V. ANC)
F5 ERROR CONFIG
F1 ERROR ALARM
F1 REM ERR POLARITY (POSITIVE / NEGATIVE)
F2 BEEP (ON / OFF)
F7 up menu
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)
F5 RESERVED ERROR (ON / OFF)
F6 next menu
F7 up menu
F1 PARITY ERROR (ON / OFF)
F2 CHECKSUM ERROR (ON / OFF)

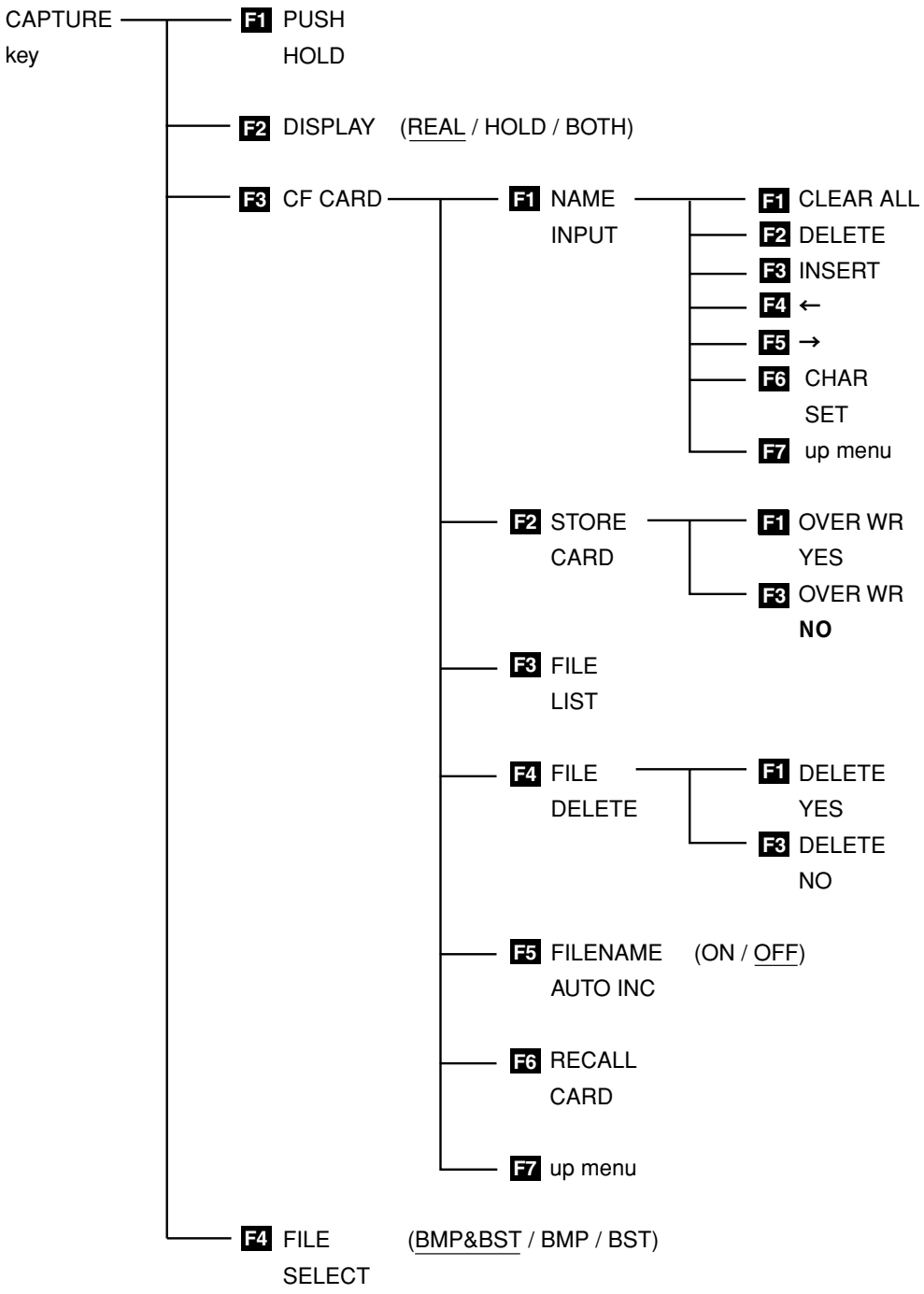

F3 LEVEL ERROR (ON / OFF)
F4 GAMUT ERROR (ON / OFF)
F5 C. GAMUT ERROR (ON / OFF)
F6 next menu
F7 up menu
F1 BCH ERROR (ON / OFF)
F2 AUDIO ERROR (ON / OFF)
F3 AUDIO CRC (ON / OFF)
F4 EXT_REF LOCK (ON / OFF)
F5 CABLE ERROR (ON / OFF)
F6 next menu
F7 up menu
F4 ERROR LEVEL
F1 GAMUT
F1 GAMUT UPPER % (90.8 to 109.4)
F2 GAMUT LOWER % (-7.2 to 6.1)
F7 up menu
F2 COMPOSIT GAMUT
F1 C. GAMUT UPPER % (90.0 to 135.0)
F2 C. GAMUT LOWER % (-40 to -20)
F7 up menu
F3 VIDEO LEVEL
F1 LUMA UPPER mV (-51 to 766)
F2 LUMA LOWER mV (-51 to 766)
F3 CHROMA PLUS mV (-400 to 399)
F4 CHROMA MINUS mV (-400 to 399)
F7 up menu



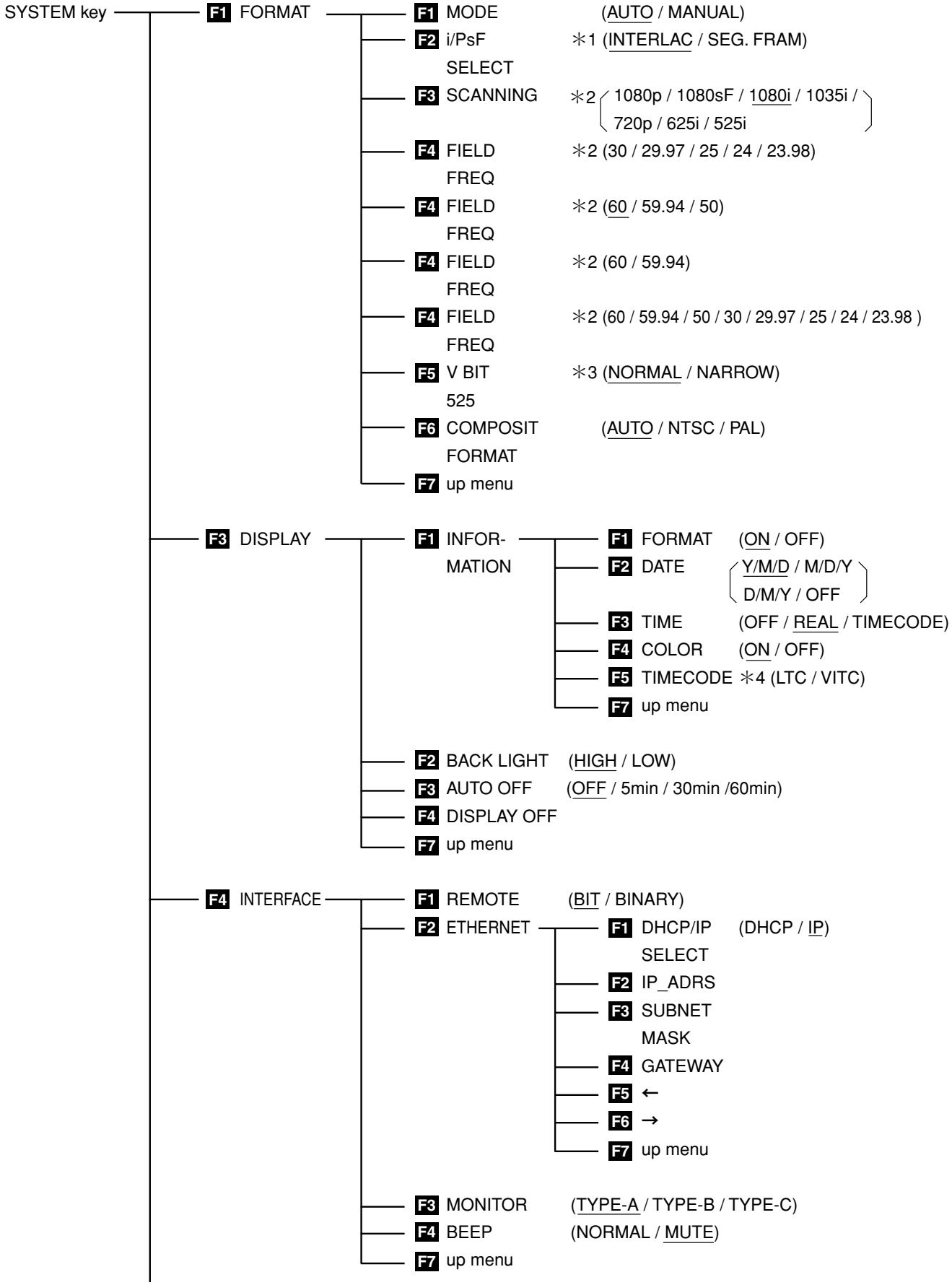
∗1 Menu shown when the audio groups 1 and 2 is selected.

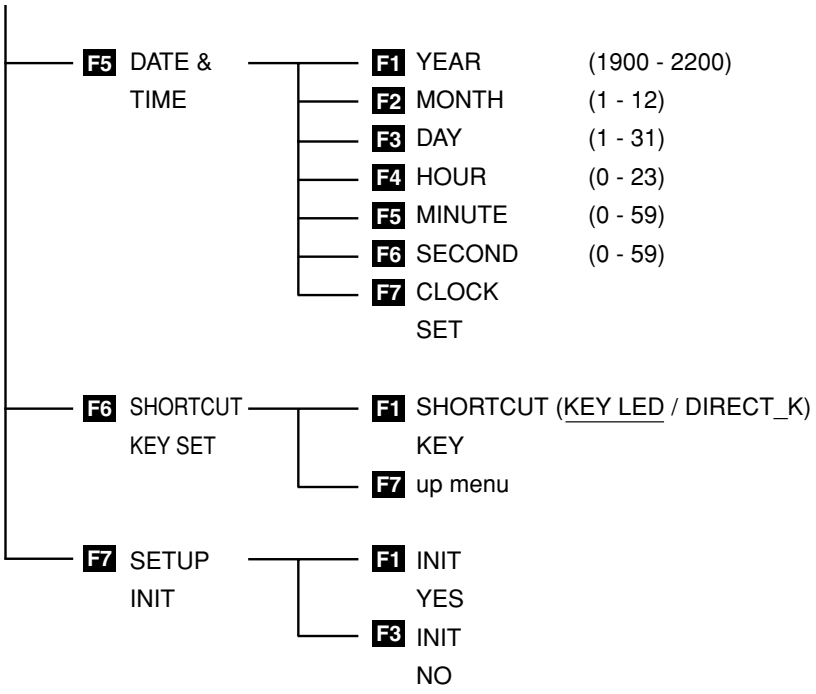
∗2 Menu shown when the audio groups 3 and 4 is selected.

4.7 Capture Menu



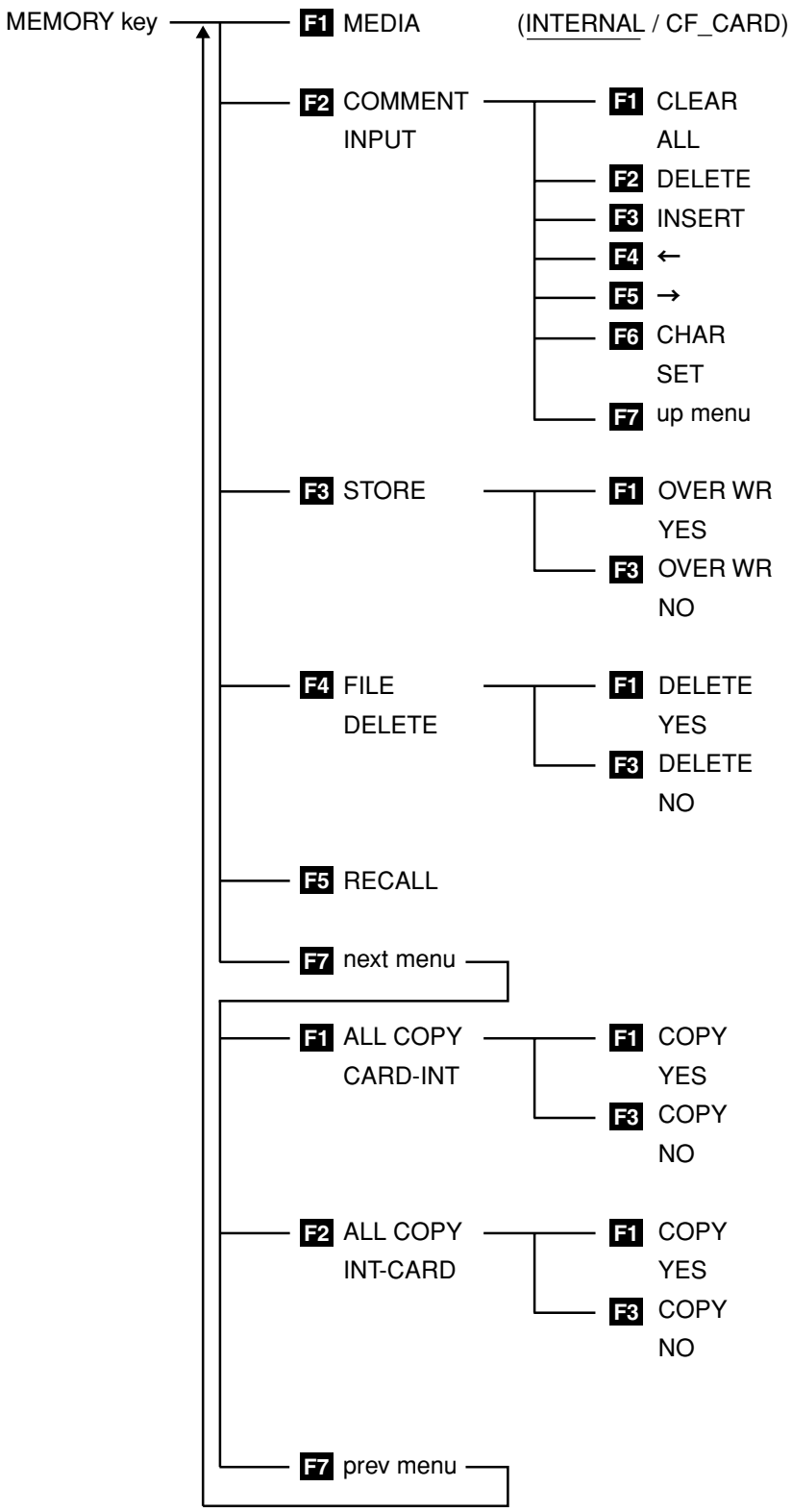
4.8 System Menu





∗1 Menu shown when the video format mode is set to AUTO.
∗2 Menu shown when the video format mode is set to MANUAL.
∗3 Menu shown when the SD-SDI signal is being applied.
∗4 Menu shown when the time display is set to TIMECODE selection.

4.9 Preset Menu



5. SYSTEM CONFIGURATION BEFORE WAVEFORM MONITORING

5.1 SDI Input Signal Selection

5.1.1 SDI Input Signal

- The SDI signal input connectors (INPUT SDI A, B) ㉘ are dedicated to serial digital video signals.
  Do not input other types of signals such as analog video signals.

- **The signal amplitude is within 800 mVp-p±10 %.** Do not apply signals that exceed this amplitude.

- Below are the supported formats. Only component SDI signals are supported; **Composite SDI signals are not supported.**
  The LV 5710A does not support SD-SDI signals.

1	1080i/60	
2	1080i/59.94	
3	1080i/50	
4	1080p/30	
5	1080p/29.97	
6	1080p/25	
7	1080p/24	
8	1080p/23.98	
9	1080PsF/30	
10	1080PsF/29.97	
11	1080PsF/25	
12	1080PsF/24	
13	1080PsF/23.98	
14	1035i/60	
15	1035i/59.94	
16	720p/60	
17	720p/59.94	
18	720p/50	＊
19	720p/30	＊
20	720p/29.97	＊
21	720p/25	＊
22	720p/24	＊
23	720p/23.98	＊
24	525i/59.94	(not supported by the LV 5710A)
25	625i/50	(not supported by the LV 5710A)

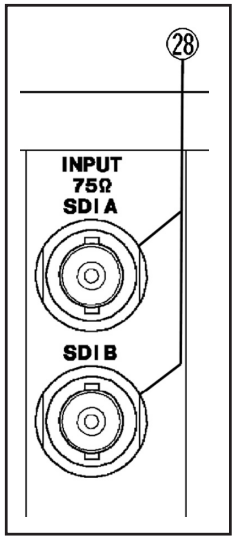


Figure 5.1 SDI signal input connectors ㉘ (INPUT SDI A,B)

＊Formats whose evaluation verification has not been completed as of September 2007.

5.1.2 Module Selection

The MODULE key ⑦ is valid only when the SDI input module or the analog input module (option sold separately) is installed. It does not function on the standard model.

If you press the MODULE key ⑦ when an error is being observed, an ERROR message may appear.

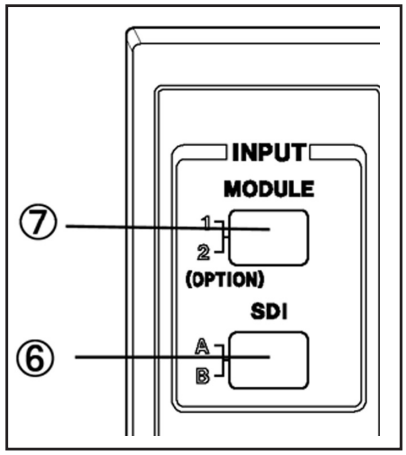


Figure 5.2 SDI signal input selection key ⑥
MODULE key ⑦

5.1.3 SDI Input Selection

The SDI signal input selection key ⑥ is switches the SDI signal input connectors (INPUT SDI A,B) ㉘ to select the channel corresponding to the SDI input signal to be monitored on the LV 5700A/LV 5710A.

The A and B indicators to the left of the SDI signal input selection key ⑥ illuminates according to the selected channel.

If you press the SDI signal input selection key ⑥ when an error is being observed, a NO SIGNAL or ERROR message appears, and the error count is incremented.

5.2 External Synchronization Signal Setting

5.2.1 External Sync Signals

- The EXT REF connector ㉗ supports HDTV analog tri-level sync signals and SDTV analog black burst signals.
- The format of the signal input to the EXT REF connector ㉗ is automatically determined.
- **The signal amplitude is within ±5 V.**
  Do not apply signals that exceed this voltage.
- When applying HDTV tri-level sync signals, input signals that have the same frame frequency and line frequency as HD-SDI signals.
- The video signal waveform on the reference of an external synchronize signal indicates that the waveform phase of approximately 1 clock is not decided.
- Below are black burst signal formats for which the waveform display can be synchronized.

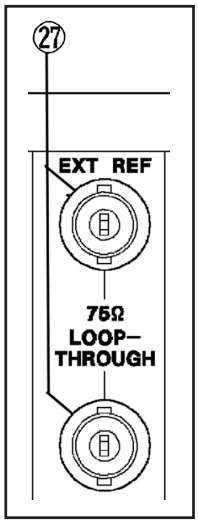


Figure 5.3 EXT REF connector ㉗
(EXT REF)

525i/59.94 black burst signal
1035i/59.94
1080i/59.94
1080p/29.97
1080PsF/29.97
720p/59.94
∗525i/59.94

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

∗ The LV 5710A does not support 525i/59.94 and 625i/50.

5.2.2 External Sync Signal Switching

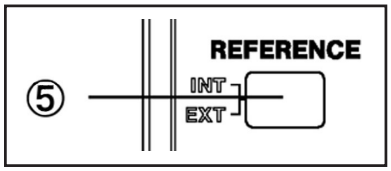


Figure 5.4 REFERENCE key ⑤

To display waveforms with respect to the external sync signal, press the REFERENCE key ⑤ to illuminate the EXT LED.
If the SDI signal and the external sync signal are not synchronized, the waveform display moves, and the status display indicates EXTERNAL UNLOCK (REFERENCE). For details on the EXTERNAL UNLOCK indication, see section 11, “Status Display.”

If you select INT using the REFERENCE key ⑤, the waveform is displayed using the sync signal on the SDI signal.

The displays that are affected by switching INT and EXT using the REFERENCE key ⑤ are waveform display and vectorscope display.
However, for picture display, audio display, and data dump display, synchronization is achieved using the SDI sync signal regardless of the INT/EXT setting.

5.3 System Menu

Settings related to the operation of the entire system are configured from the system menu by pressing the SYSTEM key ③.
Press the SYSTEM key ③ to display the System Setup Menu shown below.

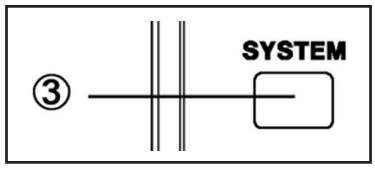


Figure 5.5 SYSTEM key ③

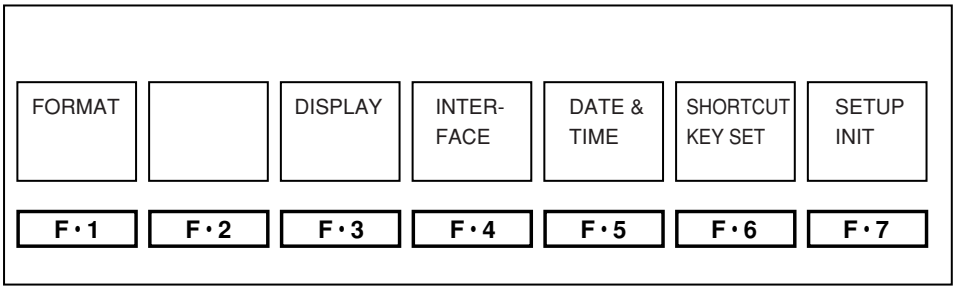


Figure 5.6 System setup menu

Function Key	Description
F·1 FORMAT	Sets the video signal format
F·3 DISPLAY	Sets the display
F·4 INTERFACE	Sets the input/output interface
F·5 DATE & TIME	Sets the date/time
F·6 SHORTCUT KEY SET	Sets the shortcut key operation
F·7 SETUP INIT	Initializes settings

Table 5.1 System setup menu description

5.4 Video Signal Format Setting

To set the video signal format, press the F·1 FORMAT key from the system setup menu. The video signal format setup menu appears. Then, set the items as desired.

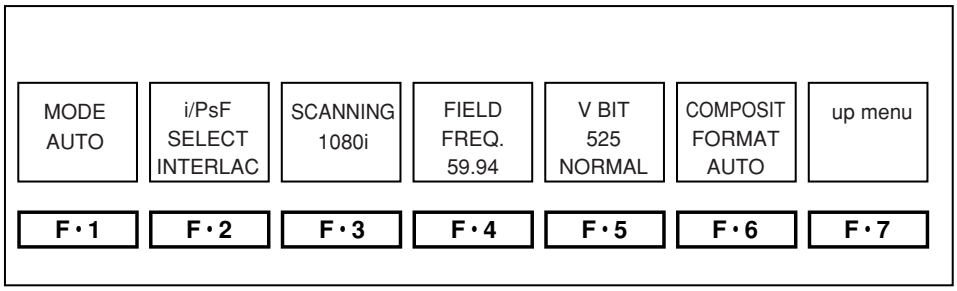


Figure 5.7 Video signal format setup menu

Function Key	Description
F·1 MODE	Selects auto/manual setting of the video signal format
F·2 i/PsF SELECT	Selects interlace and segment frame
F·3 SCANNING	Selects scanning when manual is selected
F·4 FIELD(FRAME)FREQ.	Selects the field/frame frequency when manual is selected
F·5 V BIT	Selects the V bit for 525i/59.94
F·6 COMPOSIT FORMAT	Selects the format for pseudo-composite display

Table 5.2 Description of the video signal format setup menu

5.4.1 Auto/Manual Selection

You can select auto or manual setting for the SDI signal video format.

(1) Auto Selection of the Video Signal Format

[SYSTEM → F·1 FORMAT → F·1 MODE :AUTO / MANUAL]

From the video signal format setup menu, press F·1 MODE to select AUTO. The LV 5700A/LV 5710A detects the format of the input SDI signal and automatically sets itself.

The detected video signal format is displayed at the upper left corner of the screen (the video signal format display must be turned ON as described in section 5.5.1, “Information Display”).

∗ The LV 5700A/LV 5710A cannot automatically distinguish HD-SDI interlace and segment frame.

See section 5.4.2, "Interlace and Segment Frame Selection" and set it manually.

Below are video signal formats that the LV 5700A/LV 5710A cannot automatically distinguish.

1080i/60 and 1080PsF/30

1080i/59.94 and 1080PsF/29.97

1080i/50 and 1080PsF/25

(2) Manual Selection of the Video Signal Format

[SYSTEM → F·1 FORMAT → F·1 MODE :AUTO / MANUAL]

If you press the F·1 MODE key to select MANUAL from the video signal format setup menu, you must set the video signal format manually according to the input SDI signal. To do so, carry out the procedures described in sections 5.4.3, "Scanning Selection," and 5.4.4, "Field/Frame Frequency Selection" in order. If the scanning and field/frame frequency selections are not correct, disturbance will occur on the display.

When an SDI signal of the specified video signal format is received, the video signal format is displayed at the upper left corner of the screen (the video signal format display must be turned ON as described in section 5.5.1, "Information Display").

5.4.2 Interlace and Segment Frame Selection

[SYSTEM → F·1 FORMAT → F·2 i/PsF SELECT :INTERLAC / SEG.FRAM]

Even when auto setting of the video signal format is used, 1080i (interlace) and 1080PsF (segment frame) cannot be distinguished automatically. You must manually select interlace or segment frame.

Press the F·2 i/PSF SELECT key from the video signal format setup menu and select interlace or segment frame. This selection is possible only when AUTO is selected in section 5.4.1, "Auto/Manual Setting Selection." The menu does not appear when MANUAL is selected.

INTERLAC: Selects interlace.
SEG.FRAM: Selects segment frame.

5.4.3 Scanning Selection

[SYSTEM → F·1 FORMAT → F·3 SCANNING :1080i / 1080PsF / 1080p / 1035i / 720p / 525i / 625i]

Manually selects the scanning of the video signal format (as a video signal format setting). The scanning selection is possible only when MANUAL is selected in section 5.4.1, "Auto/ Manual Setting Selection." The menu does not appear when AUTO is selected.

1080i: Selects HD-SDI with 1080 active interlaced lines.
1080PsF: Selects HD-SDI with 1080 active segment frames.
1080p: Selects HD-SDI with 1080 active progressive lines.
1035i: Selects HD-SDI with 1035 active interlaced lines.
720p: Selects HD-SDI with 720 active progressive lines.
∗ 525i: Selects SD-SDI with 525 interlaced lines.
∗ 625i: Selects SD-SDI with 625 interlaced lines.
∗ The LV 5710A does not support 525i and 625i.

5.4.4 Field/Frame Frequency Selection

[SYSTEM → F·1 FORMAT → F·4 FIELD FREQ. :60 / 59.94 / 50]
[SYSTEM → F·1 FORMAT → F·4 FIELD FREQ. :30 / 29.97 / 25 / 24 / 23.98]
[SYSTEM → F·1 FORMAT → F·4 FIELD FREQ. :30 / 29.97 / 25 / 24 / 23.98]
[SYSTEM → F·1 FORMAT → F·4 FIELD FREQ. :60 / 59.94]
[SYSTEM → F·1 FORMAT → F·4 FIELD FREQ. :60 / 59.94 / 50 / 30 / 29.97
25 / 24 / 23.98]

Manually selects field frequency or frame frequency as a video signal format setting.
The selectable field/frame frequencies vary depending on the selection made in section 5.4.3, "Scanning Selection" (among the video signal formats that the LV 5700A/LV 5710A supports).
The selected value is displayed as video signal format at the upper right corner of the screen (the video signal format display must be turned ON as described in section 5.5.1, "Information Display").

The field/frame frequency selection is possible only when MANUAL is selected in section 5.4.1, "Auto/Manual Setting Selection." The menu does not appear when AUTO is selected.

Below are the selectable ranges of the field/frame frequency with respect to the item selected in section 5.4.3, "Scanning Selection." The field frequency is fixed when 525i or 625i is selected.

		Field Frequency	Frame Frequency
Scanning Selection	1080i	60 / 59.94 / 50	————
	1080PsF	————	30 / 29.97 / 25 / 24 / 23.98
	1080p	————	30 / 29.97 / 25 / 24 / 23.98
	1035i	60 / 59.94	————
	720p	————	60 / 59.94 / 50 / 30 / 29.97 25 / 24 / 23.98
	525i ∗	59.94	————
	625i ∗	50	————

∗ The LV 5710A does not support 525i and 625i.

Table 5.3 Field/Frame frequencies according to the scanning selection

5.4.5 V Blanking Period Selection

When applying SD-SDI signals of 525i/59.94 format, the V blanking period must be set manually according to the period during which the V bit in the TRS is set to 1.

[SYSTEM] → [F·1] FORMAT → [F·5] V BIT 525 :NORMAL / NARROW]

NORMAL: Select this mode when the V bit of the 525i/59.94 SDI signal is 1 from line 1 to line 19 and from line 264 to line 282.

NARROW: Select this mode when the V bit of the 525i/59.94 SDI signal is 1 from line 1 to line 9 and from line 264 to line 272.

If the V bit selection is incorrect, a TRS error occurs.

The menu does not appear on the LV 5710A, because it does not support SD-SDI signals.

5.4.6 Format Selection of the Pseudo-Composite Display

[SYSTEM] → [F·1] FORMAT → [F·6] COMPOSIT FORMAT :AUTO / NTSC / PAL]

When pseudo-composite display is selected, you can select whether to display it in NTSC or PAL. You can also select auto setting. In auto setting, PAL is used only when the frame rate or field rate is 25 Hz or 50 Hz. For all other cases, NTSC is used.

Press the [F·6] COMPOSIT FORMAT key from the video signal format setup menu to make the selection.

NTSC: Artificially converts all video signal formats into NTSC composite signal.

PAL: Artificially converts all video signal formats into PAL composite signal.

AUTO: Artificially converts video signal formats with frame/field rate of 25 Hz or 50 Hz into PAL and all other video signal formats into NTSC composite signal.

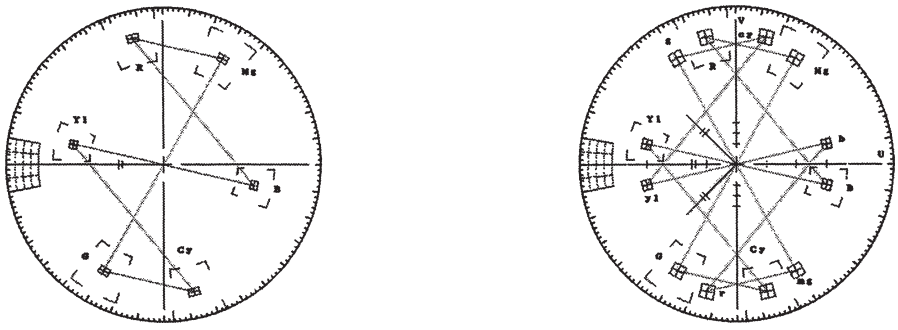


Figure 5.8 NTSC and PAL when displaying pseudo-composite vector waveforms

5.5 Screen Display Settings

To set the screen display, press the F·3 DISPLAY key from the system menu. The screen display setup menu appears. Then, set the items as desired.

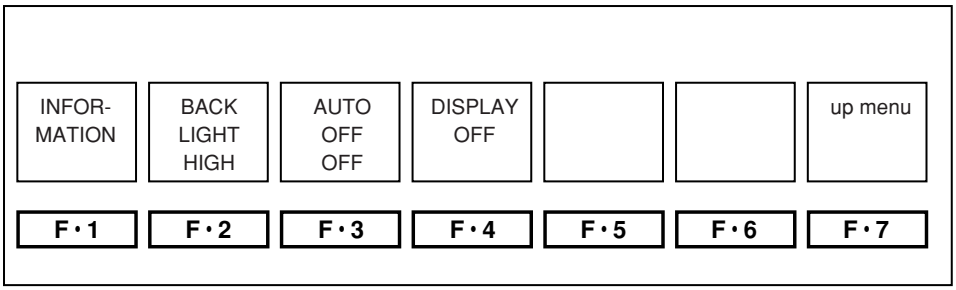


Figure 5.9 Screen display setup menu

Function Key	Description
F·1 INFORMATION	Sets the information display at the upper of the screen
F·2 BACK LIGHT	Selects the brightness of the LCD backlight
F·3 AUTO OFF	Selects the auto shutoff function of the LCD backlight
F·4 DISPLAY OFF	The LCD backlight is shutoff immediately

Table 5.4 Description of the screen display setup menu

5.5.1 Information Display

The LV 5700A/LV 5710A can display information such as the video signal format and date/time at the top section of the screen. You can use the menu to turn on or off the function.

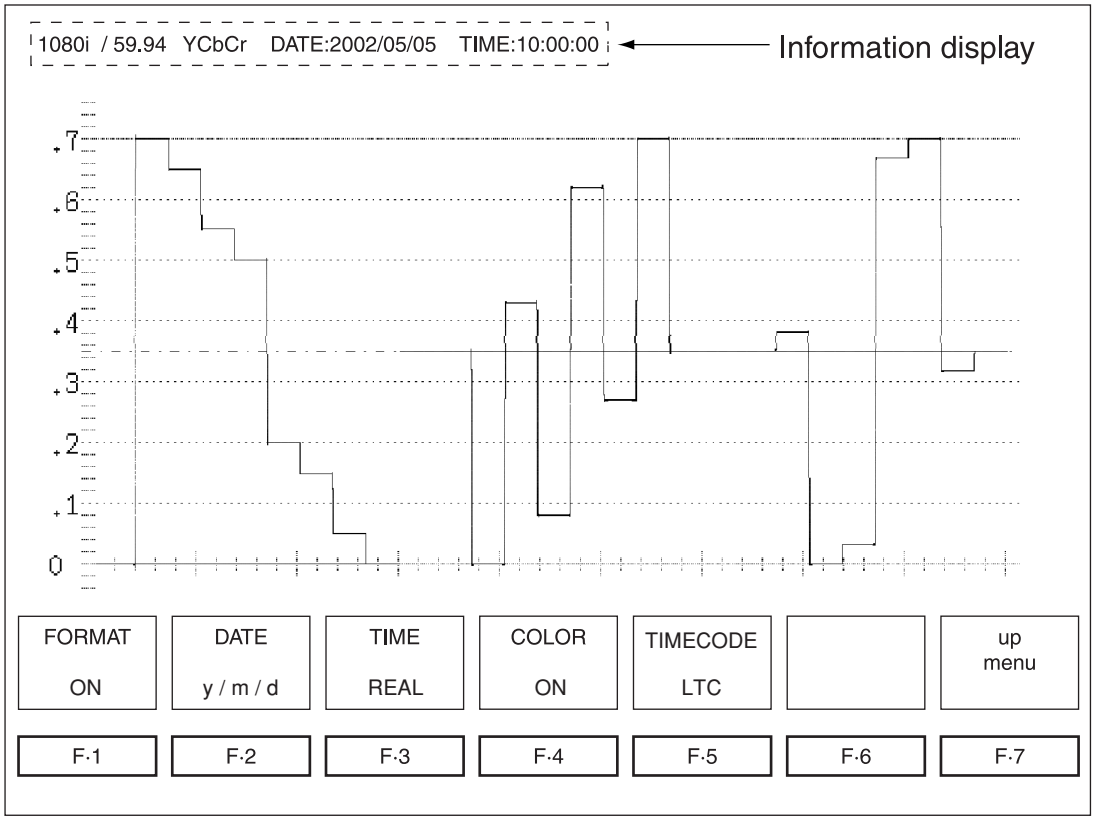


Figure 5.10 Information Display

(1) Showing the Video Signal Format

[SYSTEM → F·3 DISPLAY → F·1 INFORMATION → F·1 FORMAT :ON/OFF]

From the information display menu, press F·1 FORMAT to select whether to show the video signal format at the top section of the screen.

(2) Showing the Date

[SYSTEM → F·3 DISPLAY → F·1 INFORMATION → F·2 DATE : OFF / Y/M/D / M/D/Y / D/M/Y]

From the information display menu, press F·2 DATE to select the format of the date to be displayed at the top section of the screen.

Y/M/D: Displayed in the order year, month, and day.
M/D/Y: Displayed in the order month, day, and year.
D/M/Y: Displayed in the order day, month, and year.
OFF: Does not show the date.

(3) Displaying the Time

[SYSTEM → F·3 DISPLAY → F·1 INFORMATION → F·3 TIME: OFF / REAL / TIMECODE]

From the information display menu, press the F·3 TIME key to select the format of the time to be displayed at the top section of the screen.

REAL: Displays the current time (built-in realtime clock)
TIMECODE: Displays the time code embedded in the SDI signal.
OFF: Does not show the time.

The time codes that the LV 5700A/LV 5710A can display are LTC and VITC conforming to SMPTE RP188.

(4) Showing the Color System

[SYSTEM → F·3 DISPLAY → F·1 INFORMATION → F·4 COLOR :ON/OFF]

From the information display menu, press F·4 COLOR to select whether to show the color system at the top section of the screen.

(5) Selecting the Time Code

[SYSTEM → F·3 DISPLAY → F·1 INFORMATION → F·5 TIMECODE :LTC/VITC]

If TIMECODE is selected in (3) Time Display, select whether to set the displayed time code to LTC or VITC. The time codes that the LV 5700A/LV 5710A can display are LTC and VITC conforming to SMPTE RP188.

5.5.2 Backlight Switching

You can adjust the brightness of the LCD backlight and select auto shutoff.

(1) Adjusting the Brightness of the Backlight

[SYSTEM → F·3 DISPLAY → F·2 BACK LIGHT :LOW/HIGH]

From the screen display menu, press F·2 BACK LIGHT to adjust the brightness of the LCD. Select HIGH to brighten, LOW to dim.

(2) Auto Shutoff

[SYSTEM → F·3 DISPLAY → F·3 AUTO OFF :OFF / 5 min / 30 min / 60 min]

From the screen display menu, press F·3 AUTO OFF to set the auto shutoff function of the LCD backlight.

OFF: Does not automatically shut off the backlight.
5 min: The backlight is shut off 5 minutes after pressing the last key.
30 min: The backlight is shut off 30 minutes after pressing the last key.
60 min: The backlight is shut off 60 minutes after pressing the last key.

To recover from the backlight off condition, press any key.
The backlight turns ON, and the screen returns to the original condition.

Note Allow the backlight to turn off and on only a few times per day. Repeating the action frequently shortens the backlight life.

(3) Shutoff immediately

[SYSTEM → F·3 DISPLAY → F·4 DISPLAY OFF]

From the screen display menu, press F·4 DISPLAY OFF to turn off the LCD backlight immediately.

Note Allow the backlight to turn off and on only a few times per day. Repeating the action frequently shortens the backlight life.

5.6 Interface Settings

To set the interface such as the remote connector and Ethernet connector, press the F·4 INTERFACE key from the system setup menu.

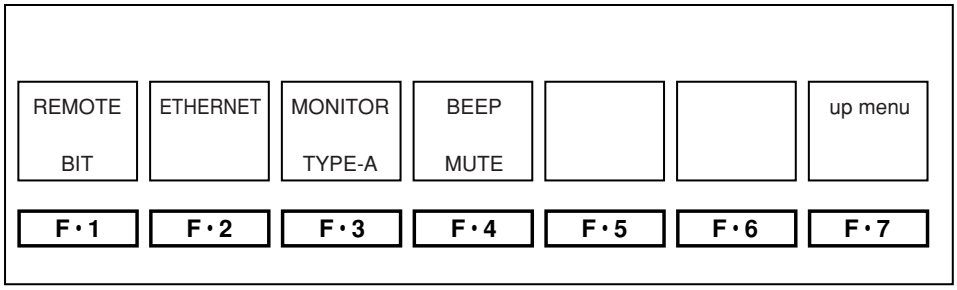


Figure 5.11 Interface setup menu

Function Key	Description
F·1 REMOTE	Selects the preset recall from the remote connector on the rear panel.
F·2 ETHERNET	Sets the Ethernet parameters.
F·3 MONITOR	Selects the monitor that is connected to the XGA connector on the rear panel.
F·4 BEEP	Turns ON/OFF the operation sound.

Table 5.5 Description of the interface setup menu

5.6.1 Remote Connector

The remote connector ㉒ is used to recall preset items on the LV 5700A/LV 5710A and output error alarms.

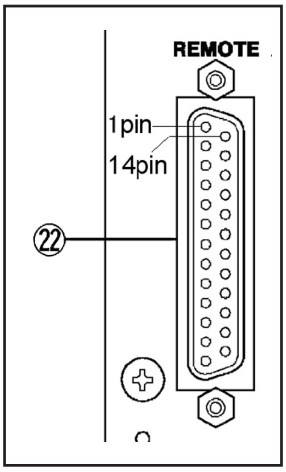


Figure 5.12 REMOTE Connector ㉒

Pin No.	Pin Name	Input/Output
1	N.C.	No connection
2	GND	No connection
3	N.C.	No connection
4	RESERVED	Input
5	N.C	No connection
6	N.C.	No connection
7	N.C.	No connection
8	N.C.	No connection
9	N.C.	No connection
10	N.C.	No connection
11	N.C.	No connection
12	N.C.	No connection
13	N.C.	No connection
14	GND	No connection
15	N.C.	No connection
16	ALARM	Output
17	P1	Input
18	P2	Input
19	P3	Input
20	P4	Input
21	P5	Input
22	P6	Input
23	P7	Input
24	P8	Input
25	RESERVED	Input

Table 5.6 Pin Arrangement of the REMOTE Connector

(1) REMOTE Connector

- Do not apply voltage to output pins.
- All input pins are pulled up to +3.3 V. **Do not apply voltage exceeding +5 V or negative voltage when externally controlling the LV 5700A/LV 5710A.**

(2) Recalling Presets through the REMOTE Connector

[SYSTEM → F·4 INTERFACE → F·1 REMOTE :BIT/BINARY]

Recalls presets using P1 through P8 of the REMOTE connector.

There are two methods of recalling presets.

If you select BIT, pins P1 to P8 are assigned to preset numbers 1 to 8, respectively. Eight presets can be recalled.

If you select BINARY, pins P1 to P7 are assigned to be LSB to MSB of a binary value. All 100 presets can be recalled.

Pins P1 to P8 are low active for both BIT and BINARY settings. When setting the pins, connect the pins to GND.

Wait at least 1 s between settings.

Unlike other waveform monitors made by LEADER, level detection (HIGH and LOW) are used for pins P1 to P8 (not edge detection).

(3) Alarm Output Pin

The alarm output pin of the remote connector outputs a high or low signal when an error occurs in the item that has been turned ON as described in section 11.11.3, "Detection ON/OFF of Errors." You can set the polarity of the alarm output as described in section 11.11.1, "Error Alarm Setting."

5.6.2 Ethernet Connection Procedure

To connect to the Ethernet network, connect a 100BASE-TX STP cable to the Ethernet connector (ETHER) ㉔.

Cable:

When connecting to the network via a hub, use a straight cable; when directly connecting to a PC (one-to-one connection), use a cross cable.

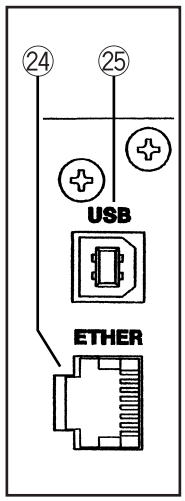


Figure 5.13 Ethernet connector (ETHER) ㉔

(1) TCP/IP Setup

To set Ethernet-related settings of the LV 5700A/LV 5710A, press the SYSTEM key ③ followed by the F·4 INTERFACE key and then the F·2 ETHERNET key.

The TCP/IP setup screen appears. Enter the parameters.

After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

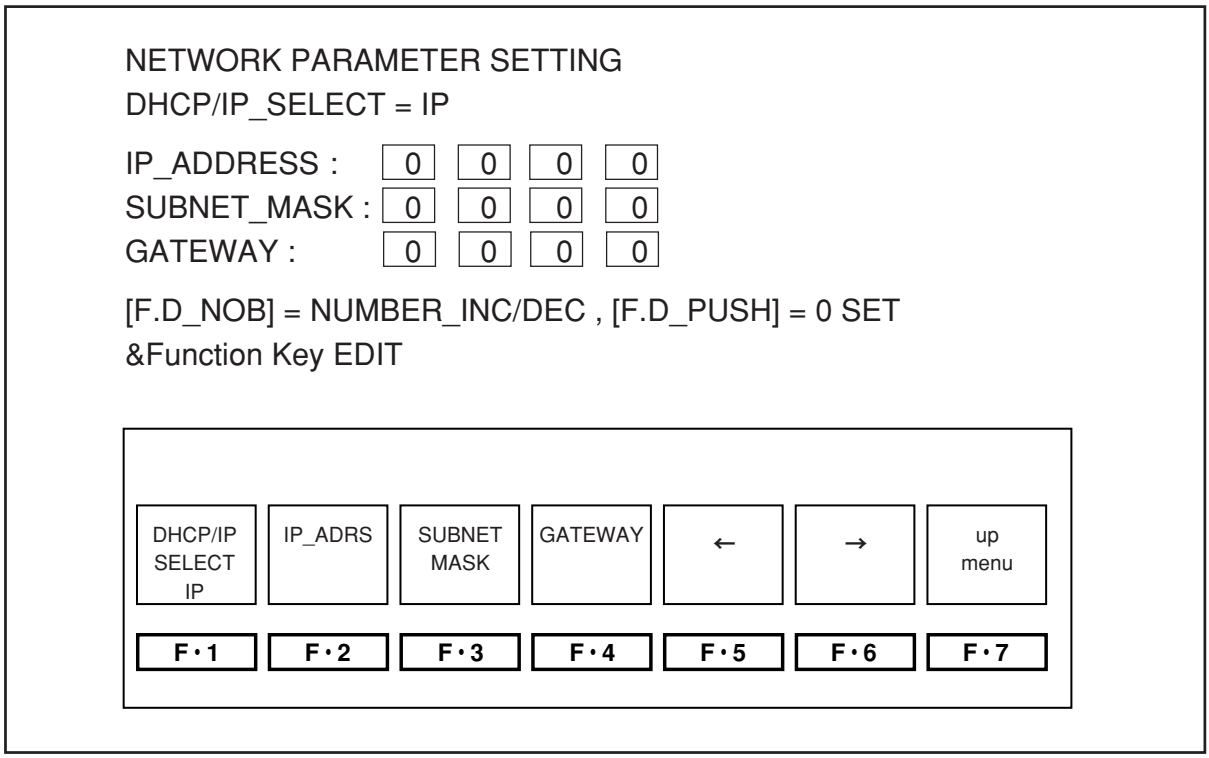


Figure 5.14 TCP/IP setup screen

(2) DHCP/IP Selection

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·1 DHCP/IP SELECT:DHCP / IP]

From the TCP/IP setup menu, press F·1 DHCP/IP SELECT to select whether to use DHCP or specify the IP address.

If DHCP is selected in an environment in which a DHCP server is running, the IP address, subnet mask, and default gateway settings are automatically assigned.

To find out if you can use DHCP, check with your network administrator.

After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

(3) IP Address Setting

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·2 IP_ADRS]

If IP was selected in section 5.6.2 (2), "DHCP/IP Selection," you must specify the IP address to be assigned to the LV 5700A/LV 5710A. The IP address must be a unique number on the network.

For details on obtaining an IP address for the LV 5700A/LV 5710A, check with your network administrator.

If DHCP is selected, the IP address cannot be specified.

Press F·2 IP_ADRS. A blue cursor appears at "IP_ADDRESS:" at the top section of the screen.

Set the value in the range of 0 to 255 by turning the function dial (F·D).

Use the F·5 and F·6 keys to move the cursor.

After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

(4) Subnet Mask Setting

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·3 SUBNET MASK]

If IP was selected in section 5.6.2 (2), "DHCP/IP Selection," you must specify the subnet mask.

For details on the subnet mask, check with your network administrator.

If DHCP is selected, the subnet mask cannot be specified.

Press F·3 SUBNET MASK. A blue cursor appears at "SUBNET_MASK:" at the top section of the screen.

Set the value in the range of 0 to 255 by turning the function dial (F·D).

Use the F·5 and F·6 keys to move the cursor.

After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

(5) Default Gateway Setting

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·4 GATEWAY]

If IP was selected in section 5.6.2 (2), "DHCP/IP Selection," you must specify the default gateway.

For details on the default gateway, check with your network administrator.

Press F·3 GATEWAY. A blue cursor appears at "GATEWAY:" at the top section of the screen.

Set the value in the range of 0 to 255 by turning the function dial (F·D).

Use the F·5 and F·6 keys to move the cursor.

After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

5.6.3 External XGA Monitor

The contents displayed on the LCD can also be displayed on an external monitor by connecting an external XGA monitor to the XGA output (EXT MON) ㉓.

The clarity of the display may be poor depending on the type of display. In such case, switch the monitor selection.

(1) External XGA Monitor Selection

[SYSTEM → F·4 INTERFACE → F·3 MONITOR : TYPE-A / TYPE-B / TYPE-C]

By default, TYPE-A is selected. If the clarity is poor, switch to TYPE-B or TYPE-C.

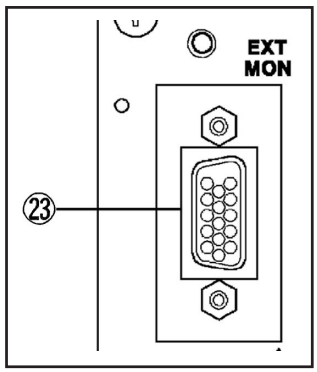


Figure 5.15 XGA Output (EXT MON) ㉓

Note: EXT MON (external XGA monitor output) on the LV 5700A/LV 5710A outputs a video signal that has been converted into a pseudo signal that matches the XGA signal timing.

If the synchronization on the external monitor connected is unstable or the monitor does not display correctly, change the LV 5700A/LV 5710A monitor mode to [Type-B] or [Type-C].

Depending on the type of external monitor connected, the video may not be displayed correctly.

5.6.4 Operation Sound Selection

[SYSTEM → F·4 INTERFACE → F·4 BEEP : NORMAL / MUTE]

Operation sounds may be generated when you operate the panel or insert or remove the compact flash card. If the sound bothers you, you can turn it off completely.

MUTE turns the sound off; NORMAL turns the sound on.

5.7 Date and Time Settings

The LV 5700A/LV 5710A has a calendar and time function. Thus, date/time can be displayed and error logs can be taken with time information. For details on displaying the date/time, see section 5.5, “Screen Display Settings.” For details on error logging, see section 11.7, “Error Log ”

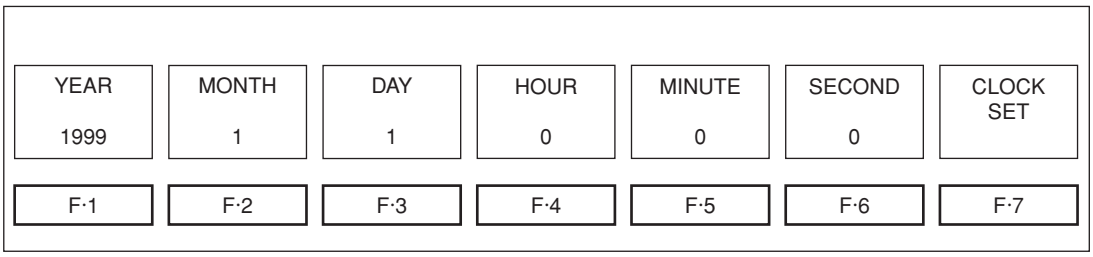


Figure 5.16 Date and Time Setup Menu

(1) Adjusting the Year

[SYSTEM → F·5 DATE & TIME → F·1 YEAR]

You can set the year from 1900 to 2200. From the menu, select F·1 YEAR and then adjust the year using the function dial (F·D) ⑱.

(2) Adjusting the Month

[SYSTEM → F·5 DATE & TIME → F·2 MONTH]

You can set the month from January to December. From the menu, select F·2 MONTH and then adjust the month using the function dial (F·D) ⑱.

(3) Adjusting the Date

[SYSTEM → F·5 DATE & TIME → F·3 DAY]

You can set the date from 1st to 31st. From the menu, select F·3 DAY and then adjust the date using the function dial (F·D) ⑱.

(4) Adjusting the Hour

[SYSTEM → F·5 DATE & TIME → F·4 HOUR]

You can set the hour from 1 to 24. From the menu, select F·4 HOUR and then adjust the hour using the function dial (F·D) ⑱.

(5) Adjusting the Minute

[SYSTEM → F·5 DATE & TIME → F·5 MINUTE]

You can set the minute from 0 to 59. From the menu, select F·5 MINUTE and then adjust the minute using the function dial (F·D) ⑱.

(6) Adjusting the Second

[SYSTEM → F·5 DATE & TIME → F·6 SECOND]

You can set the second from 0 to 59. From the menu, select F·6 SECOND and then adjust the second using the function dial (F·D) ⑱.

(7) Date/Time Confirmation

[SYSTEM → F·5 DATE & TIME → F·7 CLOCK SET]

When you are done adjusting the date and time, press F·7 CLOCK SET to write to the calendar function of the LV 5700A/LV 5710A.

The date/time setup menu is closed as the date/time is written, and the screen returns to the system menu.

To cancel the writing, press the SYSTEM key ③.

5.8 Shortcut Key Setting

You can assign any of the available functions to the SHORTCUT key ⑳.

From the system setup menu, press the F·6 SHORTCUT KEY SET key. Assign the function on the shortcut key setup menu that appears.

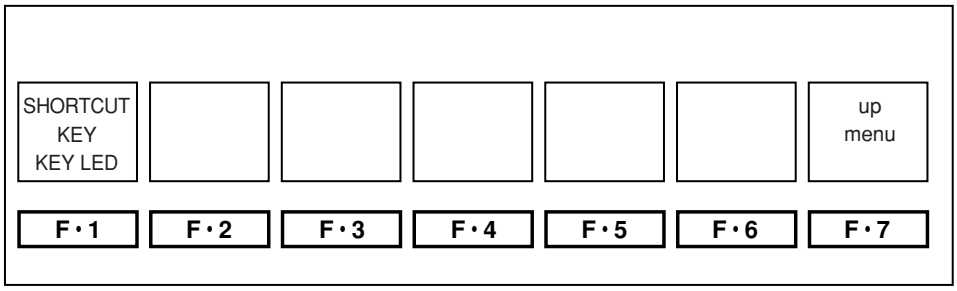


Figure 5.17 Shortcut key setup menu

5.8.1 Illumination of All Key LEDs

[SYSTEM → F·6 SHORTCUT KEY SET → F·1 SHORTCUT KEY : KEY LED / DIRECT_K]

By assigning the key LED illumination function to the SHORTCUT key ⑳, you can illuminate all the key LEDs of the LV 5700A/LV 5710A using the SHORTCUT key. When you perform the next operation, all keys other than the functioning key are turned OFF.

From the short cut key setup menu, press F·1 SHORTCUT KEY to select KEY LED.

This is useful when operating the LV 5700A/LV 5710A in a very dark place.

The shortcut key is assigned to the key LED illumination function.

5.8.2 Direct Recall

[SYSTEM → F·6 SHORTCUT KEY SET → F·1 SHORTCUT KEY : KEY LED / DIRECT_K]
By assigning the direct recall function to the SHORTCUT key ⑳, you can recall pre settings using the SHORTCUT key.
Direct recall is useful when a setting that is used often but deep in the menu tree is assigned (error log screen or data dump display, for example).
From the short cut key setup menu, press F·1 SHORTCUT KEY to select DIRECT_K. The shortcut key is assigned to the direct recall function.

The preset procedure is as follows:

(1) Set the LV 5700A/LV 5710A in a condition you wish to assign to the direct recall function.

(2) Press the MEMORY key ② to display the preset memory menu.

(3) Press the SHORTCUT key ⑳. The key LED blinks twice, and the setting is registered.

You are done assigning the direct recall function. You cannot enter a comment to the SHORTCUT key ⑳.

5.9 Initialization

The LV 5700A/LV 5710A stores the last operation before the power is turned off, and starts with the previous condition when the power is turned on the next time.

(1) Normal Initialization Procedure
[SYSTEM → F·7 SETUP INIT → F·1 INIT YES]
[SYSTEM → F·7 SETUP INIT → F·3 INIT NO]
Press the SYSTEM key ③, F·7 SETUP INIT, and then F·1 INIT YES. Press F·3 INIT NO to return to the system setup menu without initializing.

This initialization procedure does not initialize the Ethernet settings such as the IP address or the presets.

(2) Hardware Reset
To clear the backup memory and clear all settings including the Ethernet settings and presets, you must carry out a hardware reset.
To carry out a hardware reset, turn ON the power while holding down the V POS control ⑧ and the H POS control ⑩.
When you carry out a hardware reset, a message appears stating that the backup memory has been cleared. Press any key. The initialization procedure terminates.

6. VIDEO SIGNAL WAVEFORM DISPLAY

6.1 Video Signal Waveform Display

Press the WFM key ⑫ to display video signal waveforms.
The screen shows the video signal waveform, scale, and waveform display menu.
The waveform display menu consists of two pages. Use F·7 next menu or prev menu to switch between page 1 and 2.

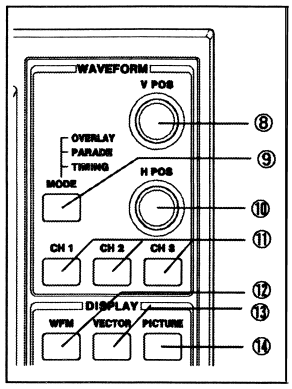
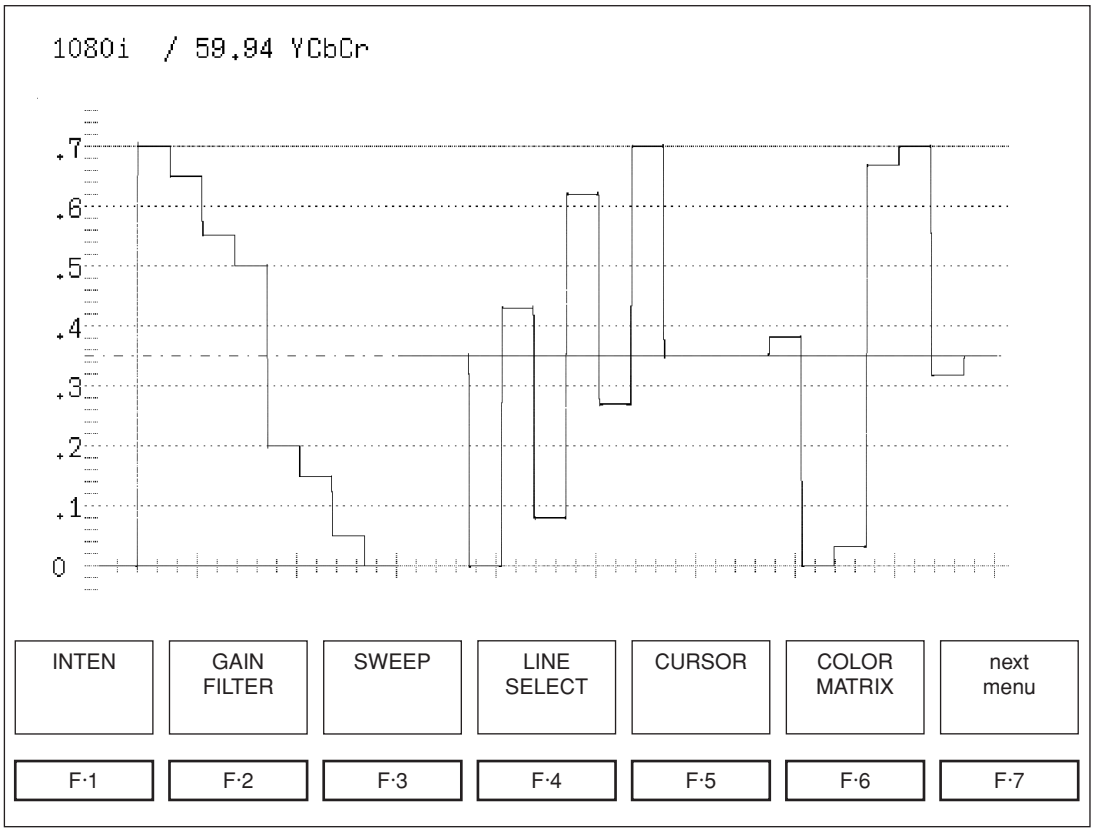
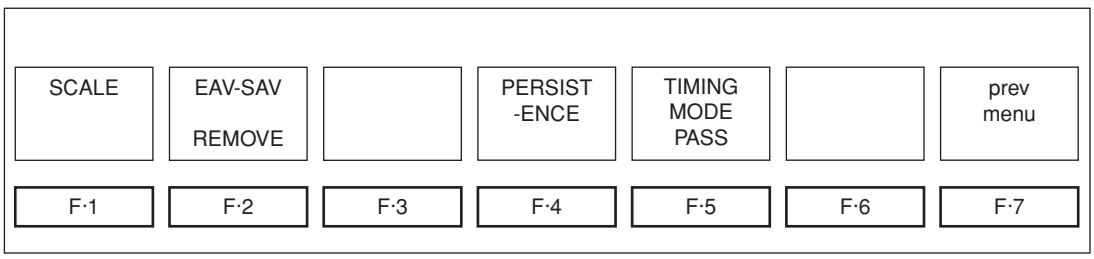


Figure 6.1 Waveform display setup key



(a) Page 1



(b) Page 2

Figure 6.2 Waveform Display and Waveform Display Menu

Function Key	Description
F·1 INTEN	Adjusts the intensity of the displayed waveform
F·2 GAIN FILTER	Sets the gain and low-pass filter
F·3 SWEEP	Sets the sweep time
F·4 LINE SELECT	Line select
F·5 CURSOR	Cursor measurement
F·6 COLOR MATRIX	Sets the color matrix
F·1 SCALE	Sets the size and unit of the scale
F·2 EAV-SAV	Selects the waveform display of the blanking period
F·4 PERSISTENCE	Sets the persistence characteristics of the waveform display
F·5 TIMING MODE	Selects the timing display

Table 6.1 Description of the waveform display menu

6.2 Display Channel Settings

Use the CH1, CH2, and CH3 keys ⑪ to select the waveform you wish to display.
Signals assigned to CH1, CH2, and CH3 keys ⑪ depend on whether Y, C_B, C_R display, G, B, R display, or R, G, B display is used.
For details, see section 6.10.1, “Color Matrix Conversion.”
By default, CH1, CH2, and CH3 are assigned to Y, C_B, and C_R, respectively.

Press the CH1, CH2, or CH3 key ⑪ to illuminate the corresponding LED and display the waveform assigned to that key. Press the key again to turn the LED off and clear the waveform display.
However, you cannot turn off all the channels.

If you select TIMING display using the MODE key ⑨, the conditions of the CH1, CH2, and CH3 keys ⑪ are ignored, and timing display is activated. In addition, the CH1, CH2, and CH3 keys ⑪ do not affect displays other than waveform displays such as vectorscope display and picture display.

The CH1, CH2, CH3 keys ⑪ do not function when the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion."

6.3 Display Mode Settings

Press the MODE key ⑨ to switch the waveform display format between overlay, parade, and timing (time difference measurement).

If the timing display is prohibited (PASS) as described in section 6.14, "Mode Key Switching," the timing display does not appear even when you press the MODE key ⑨.
If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," the display does not change even when you press the MODE key ⑨.

6.3.1 Overlay Display

Select OVERLAY using the MODE key ⑨ to display the waveforms of CH1, CH2, and CH3 overlaid.

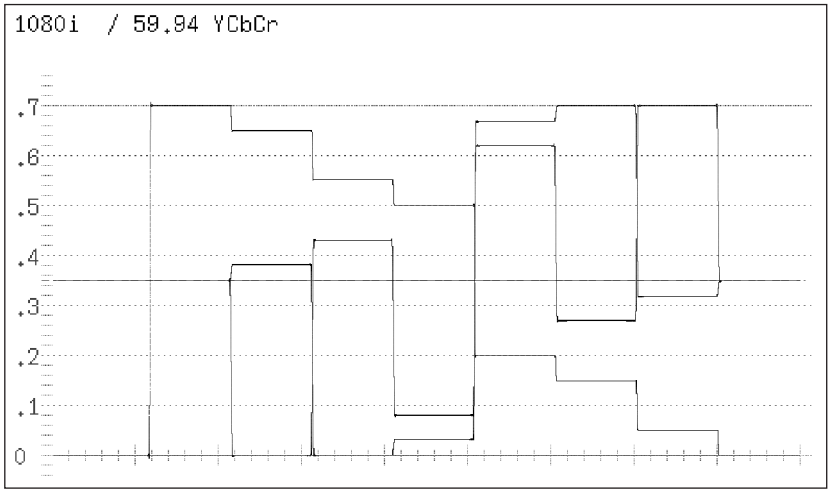


Figure 6.3 Overlay Display

6.3.2 Parade Display

Select PARADE using the MODE key ⑨ to display the waveforms of CH1, CH2, and CH3 side by side.
The waveforms are displayed in the order CH1, CH2, and CH3 from the left. In addition, if you select PARADE, the screen is automatically set to 1H or 1V display even if 2H display or 2V display is selected as described in section 6.7, "Sweep Settings." 2H display or 2V display is not possible in parade display.

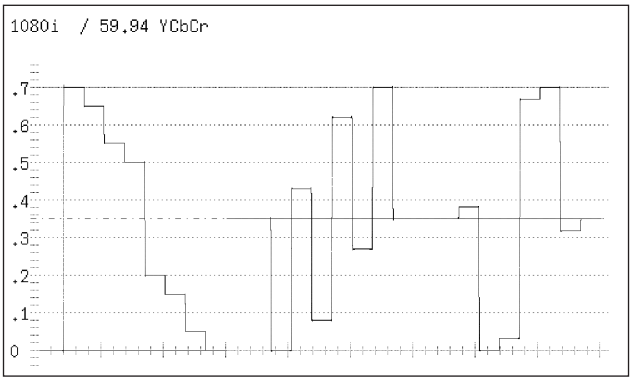


Figure 6.4 Parade Display

6.3.3 Timing Display

Select TIMING using the MODE key ⑨ to measure the time and amplitude differences between channels with respect to CH1 (Y/G). A bowtie signal is used as a signal source. Timing display shows two bowtie displays side by side as shown in Figure 6.5. The conditions of CH1, CH2, and CH3 ⑪ are ignored.

If the timing display is prohibited as described in section 6.14, "Mode Key Switching," the timing display does not appear even when you press the MODE key ⑨.

∗ Bowtie signal waveform measurement

If you set the LV 5700A/LV 5710A to TIMING display, CH1 (Y/G) and CH2 (C_B/B) are displayed on the left and CH1 (Y/G) and CH3 (C_R/R) are displayed on the right. The vertical lines of bowtie signals are marker signals. The long marker at the center is the reference marker (no time difference).

The interval between markers represents a timing difference of 1 ns (when LEADER's LT 443D is used). The timing difference is read from the interval between the null and the reference marker. If the null is positioned to the left of the reference marker, this indicates that C_B/B or C_R/R is advanced relative to Y/G.

If there is an amplitude difference between channels, the depth of the null is decreased. (Bowtie signal: use authorized by Tektronix, Inc.)

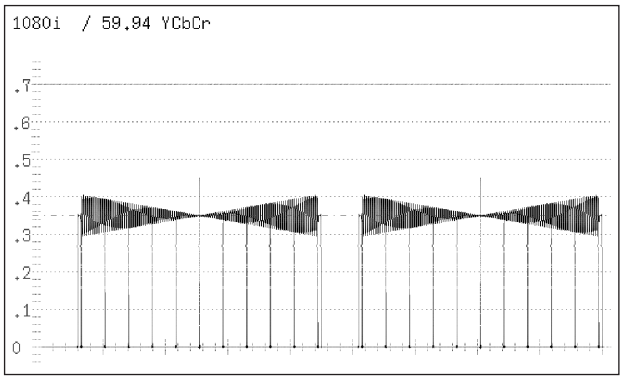


Figure 6.5 Timing Display

6.4 Position Adjustment

You can adjust the vertical position of the video signal waveform on the screen using the V POS control ⑧ and the horizontal position using the H POS control ⑩.

The V POS control ⑧ and H POS control ⑩ also function as switches. Press the switch to reset the display position of the video signal waveform to the reference position.

6.5 Brightness Adjustment

To adjust the brightness of the video signal waveform or the scale, press the WFM key ⑫ to display the waveform display menu. Then, select F·1 INTEN.
The brightness adjustment menu appears. Set the items as desired.

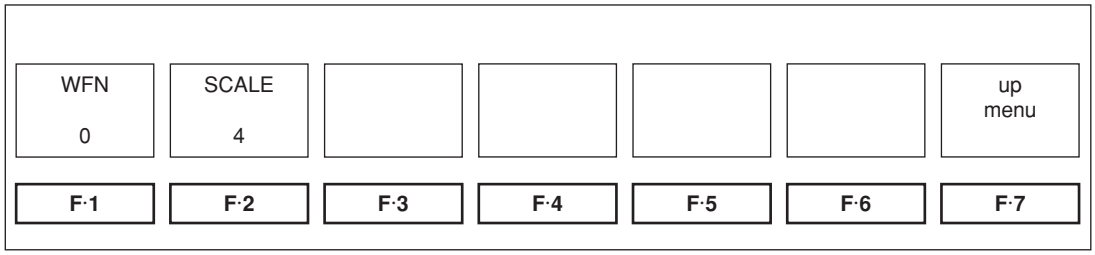


Figure 6.6 Brightness Adjustment Menu

6.5.1 Brightness Adjustment of the Video Signal Waveform

[WFM → F·1 INTEN → F·1 WFM → F·D]
To adjust the intensity (brightness) of the video signal waveform, press F·1 INTEN from the brightness adjustment menu.
While the F·1 WFM section is selected in blue, turn the function dial (F·D) ⑱ to adjust the brightness between -128 and 127.

The function dial (F·D) ⑱ also functions as a switch. Press the switch to reset the brightness of the video signal waveform to the reference value (0).

6.5.2 Scale Brightness Adjustment

[WFM → F·1 INTEN → F·2 SCALE → F·D]
To adjust the brightness of the scale on the video signal waveform display, press F·2 SCALE from the brightness adjustment menu and turn the function dial (F·D) ⑱.
The adjustment range of the scale brightness is -8 to 7 (16 levels).

The function dial (F·D) ⑱ also functions as a switch. Press the switch to reset the brightness of the scale on the video signal waveform display to the reference value (4).

6.6 Gain/Filter Adjustment

To adjust the gain (amplitude) of the video signal waveform or set the filter, press the WFM key ⑫ to display the waveform display menu. Then, select F·2 GAIN FILTER.
The gain/filter adjustment menu appears. Set the items as desired.

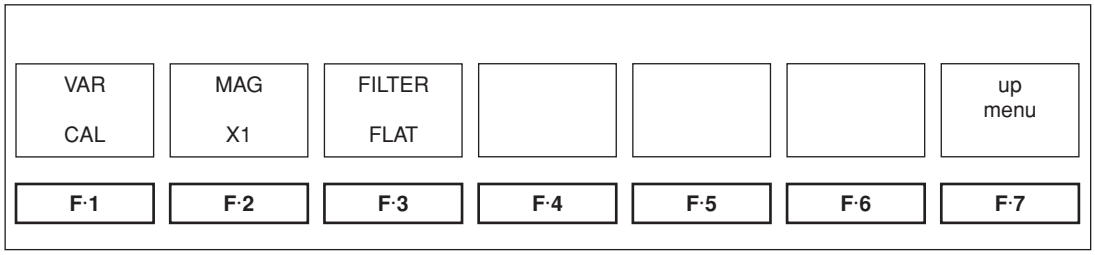


Figure 6.7 Gain/Filter Adjustment Menu

6.6.1 Gain Adjustment

[WFM → F·2 GAIN FILTER → F·1 VAR :CAL / VAR]

To continuously change the gain of the video signal waveform, press F·1 VAR from the gain/filter adjustment menu. Turn the function dial (F·D) ⑱ with VAR selected to change the gain continuously. Select CAL to set the gain to the reference value.

CAL: Reference gain
VAR: Continuous change of gain (variable)

The function dial (F·D) ⑱ also functions as a switch. Press the switch while VAR is selected to reset the gain to the reference value.
The maximum gain that can be set by the continuous variable gain is up to 10 times.

6.6.2 Gain Selection

[WFM → F·2 GAIN FILTER → F·2 MAG → X1 / X5]

To change the gain of the video signal waveform to 1x or 5x, press F·2 MAG from the gain/filter adjustment menu. Select X5 to set the gain to 5x. Select X1 to set the gain to the reference value (1x).

X1: 1x gain
X5: 5x gain

6.6.3 Filter Selection

(1) Filter Selection on the Component Display

[WFM → F·2 GAIN FILTER → F·3 FILTER → FLAT / LOW PASS]

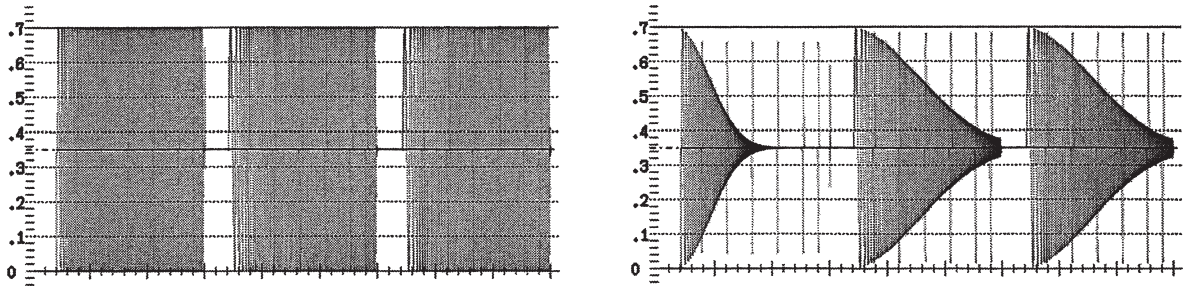
To apply a low-pass filter on the component waveform display such as Y, C_B, C_R or G, B, R, press the F·3 FILTER key from the gain/filter adjustment menu. Select LOW PASS to apply a low-pass filter to the video signal waveform display.
Select FLAT to produce a flat frequency response within the frequency range.
The low-pass filter response is as shown in Table 6.2.

FLAT: Flat frequency response within the signal frequency range
LOW PASS: Low-pass filter response with the frequency response shown in the table below

	Frequency Range	Low-Pass Filter Response
HDTV	30 MHz	Attenuation of 20 dB or more at 20 MHz
∗SDTV	5.75 MHz	Attenuation of 20 dB or more at 3.8 MHz

∗The LV 5710A does not support SDTV.

Table 6.2 Filter Response



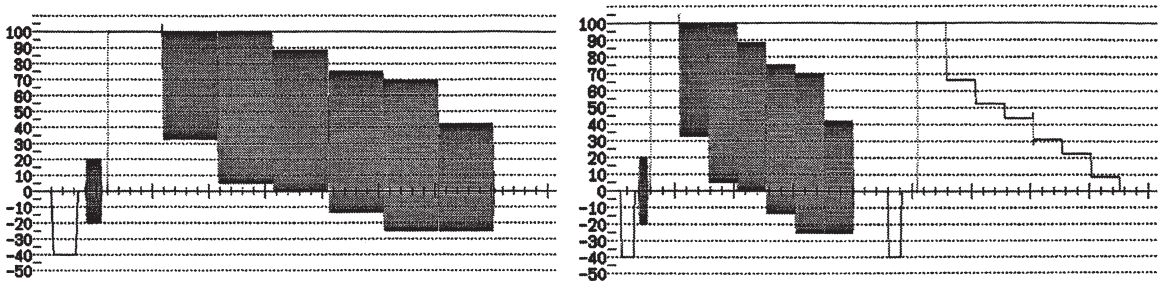
(a) FLAT (b) LOW PASS

Figure 6.8 Low-pass Filter Waveform

(2) Filter Selection on the Pseudo-Component Display

[WFM → F·2 GAIN FILTER → F·3 FILTER → FLAT / FLAT+LUM]

If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," the pseudo-composite waveform and luminosity component waveform can be displayed side by side. Press the F·3 FILTER from the gain/filter adjustment menu and select FLAT to display only the pseudo-composite waveform. Select FLAT+LUM to display the composite waveform and luminosity component using parade display.



(a) FLAT (b) FLAT+LUM

Figure 6.9 Filter Waveform of the Pseudo-composite Display

6.7 Sweep Settings

To set a sweep on the video signal waveform, select F·3 SWEEP from the waveform display menu that appears when you press the WFM key ⑫.

The sweep setup menu appears. Select the appropriate items. The contents of the sweep setup menu vary depending on the video signal format.

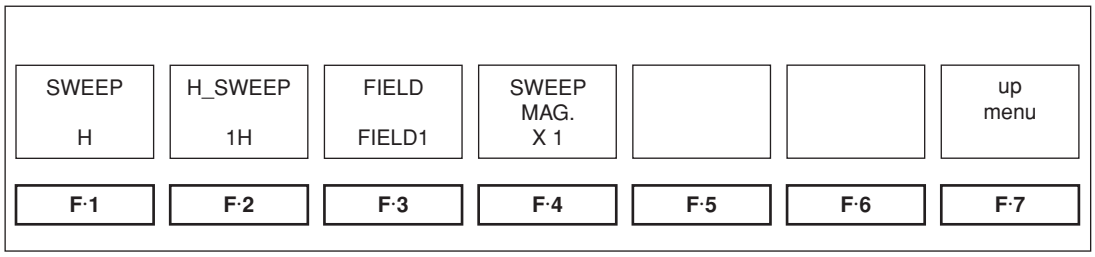


Figure 6.10 Sweep Setup Menu

6.7.1 Sweep Selection

[WFM → F·3 SWEEP → F·1 SWEEP : H / V]

To switch the sweep time, press F·1 SWEEP from the sweep setup menu.

H: Displays the video signal waveform in unit of lines.

V: Displays the video signal waveform in unit of fields (frame for progressive).

6.7.2 H Sweep Selection

[WFM → F·3 SWEEP → F·2 H_SWEEP : 1H / 2H]

If H is selected in section 6.7.1, "Sweep Selection," select whether to set the sweep time to 1 line or 2 lines. However, 2 line display is valid only when OVERLAY is selected in section 6.3, "Display Mode Settings." If TIMING is selected using the MODE key ⑨, the sweep setting for bowtie signal monitoring is enabled regardless of the sweep selection.

1H: 1 line display

2H: 2 line display (valid only when OVERLAY is selected as described in section 6.3, "Display Mode Settings")

6.7.3 V Sweep Selection

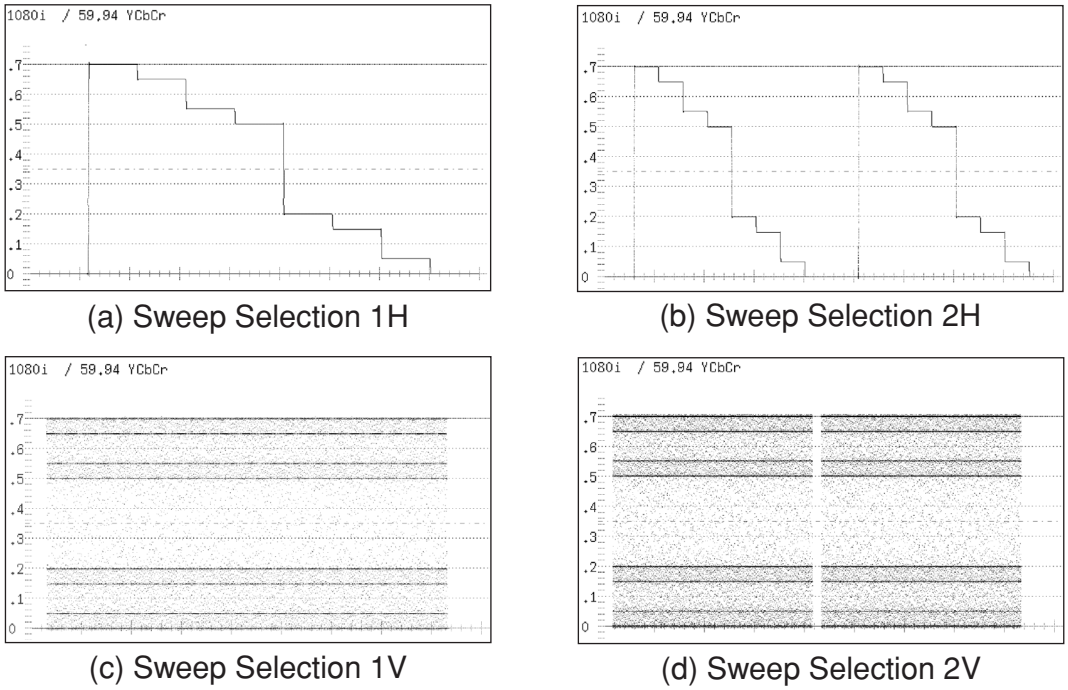
[WFM → F·3 SWEEP → F·2 V_SWEEP : 1V / 2V]

If V is selected in section 6.7.1, "Sweep Selection," select whether to set the sweep time to 1 field or 2 fields.

V sweep selection appears on the menu only when set to interlace format with OVERLAY is selected in section 6.3, "Display Mode Settings". If TIMING is selected using the MODE key ⑨, the sweep setting for bowtie signal monitoring is enabled regardless of the sweep selection.

1V: 1 field display for interlace and segment frame
1 frame display for progressive

2V: 1 frame display for interlace and segment frame
Not selectable for progressive



(a) Sweep Selection 1H (b) Sweep Selection 2H

(c) Sweep Selection 1V (d) Sweep Selection 2V

Figure 6.11 Sweep Selection

6.7.4 Sweep Magnification

[WFM → F·3 SWEEP → F·4 SWEEP MAG :X1 / X10 / X20 / ACTIVE / BLANK]

To expand the horizontal axis of the video signal waveform display, press F·4 SWEEP MAG from the sweep setup menu and select sweep magnification.

You can select the following magnification settings when 1H is selected as described in section 6.7.1, "Sweep Selection."

x1: Turns off sweep magnification.
x10: Magnifies the sweep 10x.
x20: Magnifies the sweep 20x.
ACTIVE: Displays only the active picture area.
BLANK: Displays the line blanking period without masking.

You can select the following magnification settings when OVERLAY is selected as described in section 6.3, "Display Mode Settings" and 2H is selected as described in section 6.7.1, "Sweep Selection."

x1: Turns off sweep magnification.
x10: Magnifies the sweep 10x.
x20: Magnifies the sweep 20x.
BLANK: Displays the line blanking period.
You can turn ON/OFF the mask for the waveform display during the blanking period by carrying out the procedure given in section 6.12, "Blanking Display Setting."

You can select the following sweep magnification settings when 1V or 2V is selected in section 6.7.1, “Sweep Selection.”

×1: Turns off sweep magnification.
×20: Magnifies the sweep 20x.

Sweep Selection	Sweep Magnification				
	X1	X10	X20	ACTIVE	BLANK
1H	Yes	Yes	Yes	Yes	Yes
2H	Yes	Yes	Yes	No	Yes
1V	Yes	No	Yes	No	No
2V	Yes	No	Yes	No	No

Yes indicates that it is selectable; No indicates that it is not.
However, 2V display in the progressive format cannot be selected.

Table 6.3 Relationship between Sweep Selection and Sweep Magnification

If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," magnification settings of x10 and BLANK are not possible on 1H display and 2H display.

6.7.5 Field Selection

[WFM → F·3 SWEEP → F·3 FIELD :FIELD1 / FIELD2]

You can select the displayed field, if 1V is selected in section 6.7.1, “Sweep Selection.”

From the sweep setup menu, press F·3 FIELD to select FIELD 1 or FIELD 2.

FIELD1: Field 1 is displayed.

FIELD2: Field 2 is displayed.

You cannot select the field if the video format is progressive.

6.8 Line Selector

To select a line on the video signal waveform to be displayed, press the WFM key ⑫ to display the waveform display menu. Then, select F·4 LINE SELECT.

The line select menu appears. Set the items as desired.

If 1V or 2V display is selected as described in section 6.7.1, "Sweep Selection," the line selector does not function.

If the line selector function is used in external synchronization mode, the displayed lines may be off by ±1 line depending on the phase of the external synchronization signal.

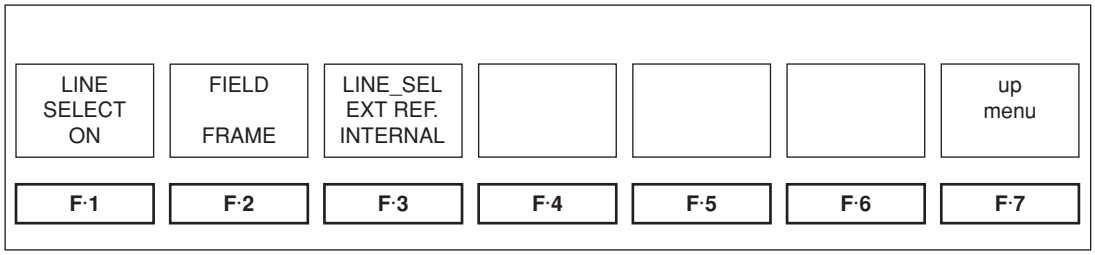


Figure 6.12 Line Select Menu

6.8.1 Line Select

[WFM → F·4 LINE SELECT → F·1 LINE SELECT :ON / OFF]

To enable the line select display on the video signal waveform display, press the F·1 LINE SELECT key from the line select menu and select ON. Then, turn the function dial (F·D) ⑱ to display an arbitrary line.

Select OFF to disable the line select display.

6.8.2 Field Selection

[WFM → F·4 LINE SELECT → F·2 FIELD :FIELD1 / FIELD2 / FRAME]

When the line select display is enabled on the video signal waveform display, you can set the variable range of the function dial (F·D) ⑱ to field or frame.

You cannot select the field if the video signal format is progressive.

FIELD1: Limits the range of lines that can be selected using the function dial (F·D) ⑱ to field 1.

FIELD2: Limits the range of lines that can be selected using the function dial (F·D) ⑱ to field 2.

FRAME: Sets the range of lines that can be selected using the function dial (F·D) ⑱ to the entire frame.

6.8.3 External Synchronization Selection

[WFM → F·4 LINE SELECT → F·3 LINE_SEL EXT REF :INTERNAL / EXTERNAL]

Select whether to perform line select using the external synchronization reference or the SDI synchronization signal.

INTERNAL: Performs line select using the SDI synchronization signal.

EXTERNAL: Performs line select using the external synchronization signal reference.

External synchronization selection appears on the menu only when EXT is selected using the REFERENCE key.

6.9 Cursor Measurement

Cursor measurement is used to measure voltage, time, and other parameters. The REF and Δ cursors are used to measure the voltage and time between two points on a waveform.

To perform cursor measurements, press the WFM key ⑫ to display the waveform display menu. Then, select F·5 CURSOR.

The cursor measurement menu appears. Set the items as desired.

If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," cursor measurements on the time axis is not possible.

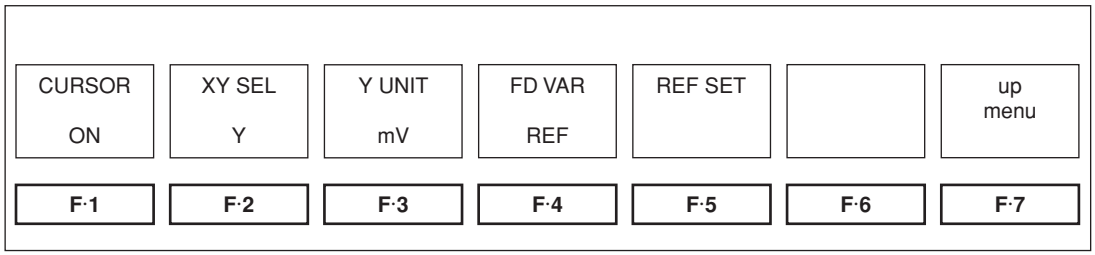


Figure 6.13 Cursor Measurement Menu

Function Key	Description
F·1 CURSOR	Turns ON/OFF the cursor display
F·2 XY SEL	Switches between the X-axis and Y-axis of the cursor.
F·3 X(Y) UNIT	Selects the cursor unit of the X-axis and Y-axis
F·4 FD VAR	Selects REF, DELTA, and TRACK using the function dial
F·5 REF SET	Sets the reference value for the relative measurement
F·D	Moves the cursor

Table 6.4 Cursor measurement menu description

6.9.1 Cursor Display

[WFM → F·5 CURSOR → F·1 CURSOR:ON / OFF]

To display the cursor, press F·1 CURSOR from the cursor measurement menu and select ON.

Select OFF to clear the cursor.

6.9.2 X-Axis/Y-Axis Cursor Selection

[WFM → F·5 CURSOR → F·2 XY SEL :X / Y]

Select the axis to perform the cursor measurement from X-axis (time) and Y-axis (amplitude).

If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," you cannot select the X-axis (time). Measurement is made only on the Y-axis (amplitude).

X: Measures the time using the cursor.

Y: Measures the amplitude using the cursor.

6.9.3 Cursor Measurement Unit Selection

(1) Selecting the X-Axis Cursor Unit

[WFM → F·5 CURSOR → F·3 X UNIT :sec / Hz]

You can set the X-axis cursor unit using the F·3 X UNIT key when X is selected as described in section 6.9.2, "X-Axis/Y-Axis Cursor Selection."

sec: Displays using units of seconds.

Hz: Displays using units of frequency where the interval between the cursors is taken to be one period.

If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," cursor measurements on the X-axis is not possible.

(2) Selecting the Y-Axis Cursor Unit

[WFM → F·5 CURSOR → F·3 Y UNIT :mV / % / R%]

You can set the Y-axis cursor unit using the F·3 Y UNIT key when Y is selected as described in section 6.9.2, "X-Axis/Y-Axis Cursor Selection."

mV: Displays using units of millivolts.

%: Displays using a ratio where 700 mV is taken to be 100 % during component display.
Displays using a ratio where 714 mV is taken to be 100 % during pseudo-composite display (NTSC).

R%: Displays the relative value with respect to the reference amplitude using a ratio.
The reference amplitude is specified using the procedure given in section 6.9.5, "Reference Amplitude Setting."

6.9.4 Cursor Movement

[WFM → F·5 CURSOR → F·4 FD VAR:REF / DELTA / TRACK]

To move the desired cursor, select F·4 FD VAR from the cursor measurement menu.

REF: Moves the reference cursor using the function dial (F·D) ⑱.

DELTA: Moves the Δ cursor using the function dial (F·D) ⑱.

TRACK: Moves the reference cursor and Δ cursor simultaneously using the function dial (F·D) ⑱.

6.9.5 Reference Amplitude Setting

[WFM → F·5 CURSOR → F·5 REF SET]

In cursor measurement, you can make an arbitrary amplitude a reference and display the relative value using a ratio.

Relative measurements can be carried out according to the procedure below.

① Select R% as described in section 6.9.3 (2), "Selecting the Y-Axis Cursor Unit."

② Set the cursors to the reference amplitude as described in section 6.9.4, "Cursor Movement."

③ Press F·5 REF SET to confirm the reference amplitude.

④ Measure the amplitude as described in section 6.9.4, "Cursor Movement."

6.10 Color Matrix Setting

The SDI signals that can be monitored on the LV 5700A/LV 5710A are limited to component signals consisting of intensity and chrominance difference signals.

Intensity and chrominance difference signals are usually represented by Y, C_B, C_R. The LV 5700A/LV 5710A also provides a functionality that computes and displays Y, C_B, C_R signals as G, B, R signals. Furthermore, component signals can be artificially converted into NTSC or PAL signals to be displayed.

In addition, G, B, R signals can be displayed as R, G, B signals (in the order red, green, and blue). The waveforms corresponding to CH1, CH2, and CH3 keys ⑪ vary according to these settings.

To set the color matrix, press the WFM key ⑫ to display the waveform display menu. Then, select F·6 COLOR MATRIX.

The color matrix setup menu appears. Set the items as desired.

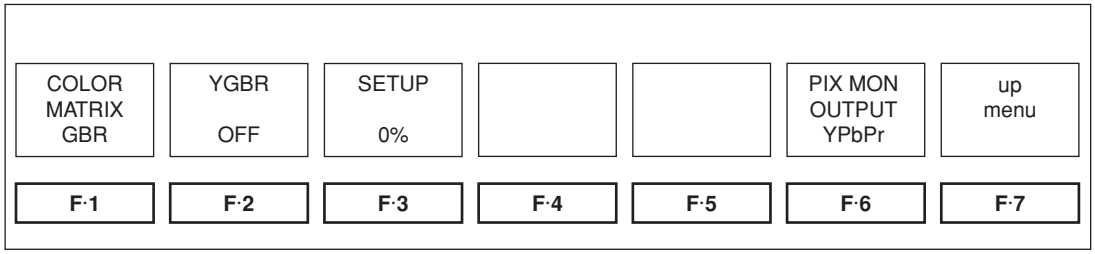


Figure 6.14 Color Matrix Setup Menu

6.10.1 Color Matrix Conversion

[WFM → F·6 COLOR MATRIX → F·1 COLOR MATRIX:YCbCr / GBR / RGB / COMPOSIT]

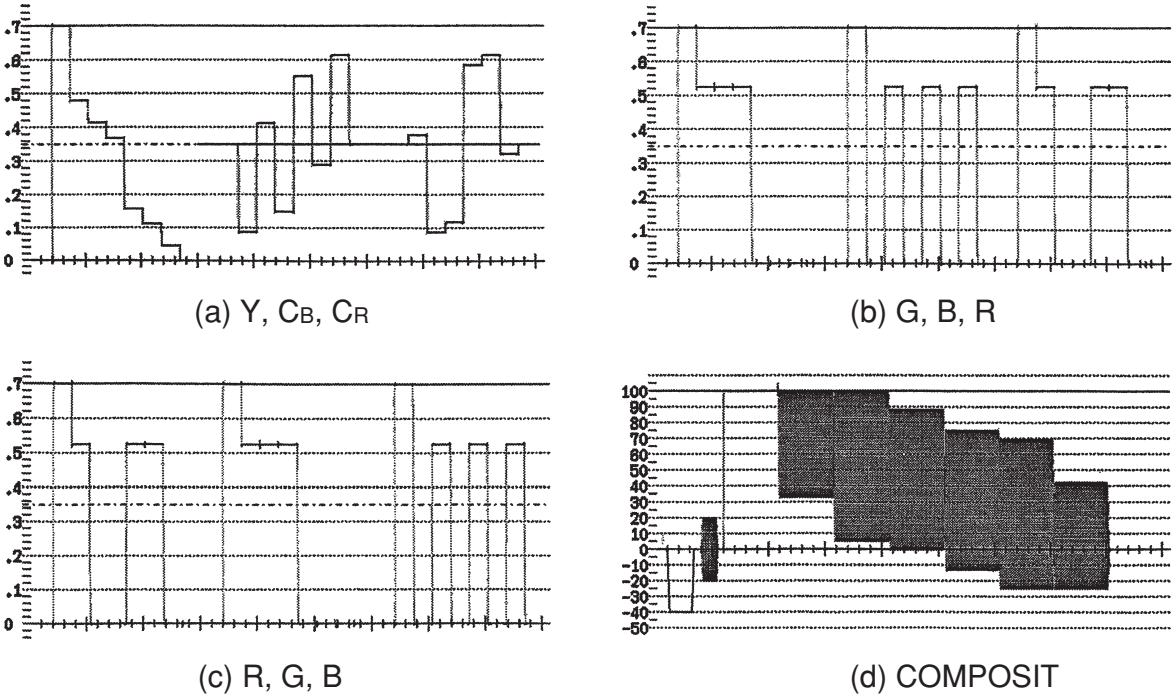
To select the color matrix of the video signal waveform display, press F·1 COLOR MATRIX from the color matrix setup menu.

YCbCr: Waveforms are displayed using intensity and chrominance difference signals.
CH1, CH2, and CH3 keys ⑪ are assigned as follows:
CH1:Y CH2:C_B CH3:C_R

GBR: Waveforms are displayed by converting the Y, C_B, C_R signal into G, B, R.
CH1, CH2, and CH3 keys ⑪ are assigned as follows:
CH1:G CH2:B CH3:R

RGB: Waveforms are displayed by converting the Y, C_B, C_R signal into R, G, B.
CH1, CH2, and CH3 keys ⑪ are assigned as follows:
CH1:R CH2:G CH3:B

COMPOSIT: The component signal is artificially converted into a pseudo-composite signal such as NTSC or PAL and displayed.
CH1, CH2, and CH3 keys ⑪ do not function.



(a) Y, C_B, C_R (b) G, B, R

(c) R, G, B (d) COMPOSIT

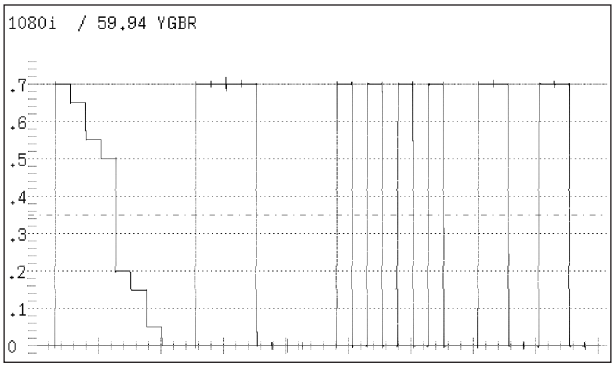
Figure 6.15 Waveform Display by Color Matrix

6.10.2 Y-GBR (R, G, B) Display

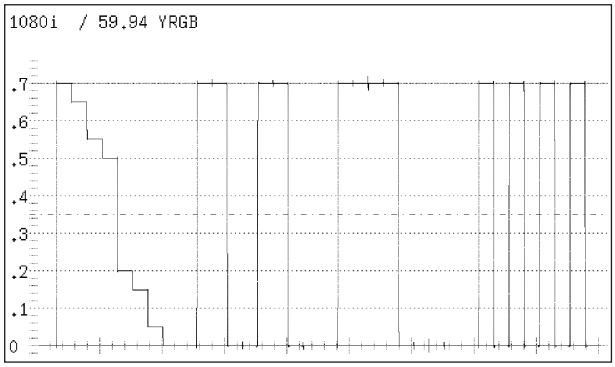
[WFM → F·6 COLOR MATRIX → F·2 YGBR :ON / OFF]
[WFM → F·6 COLOR MATRIX → F·2 YRGB :ON / OFF]

To display the intensity signal (Y) and the G, B, R or R, G, B signal that has been computed through matrix conversion simultaneously, press F·2 YGBR (YRGB) from the color matrix setup menu to select ON. In this case, the color matrix conversion as described in section 6.10.1 must be set to G, B, R or R, G, B. Y-GBR display is activated if G, B, R is selected; Y-RGB display is activated if R, G, B is selected. This selection is not possible if Y, C_B, C_R or pseudo-composite display is selected.

The Y-GBR display and Y-RGB display are shown only on a single screen of the video signal waveform display; it cannot be shown on the multi screen display.
When Y-GBR display or Y-RGB display is selected, the CH1, CH2, and CH3 keys ⑪ are disabled.



(a) Y-GBR Display



(b) Y-RGB Display

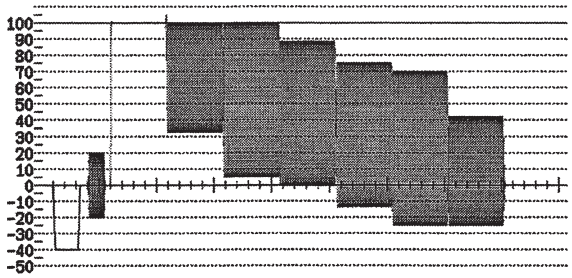
Figure 6.16 Y-GBR (RGB) Display

6.10.3 Setup Selection

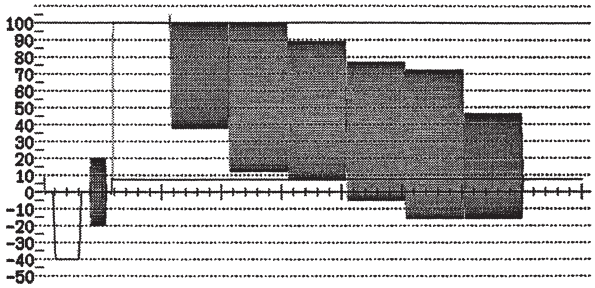
[WFM → F·6 COLOR MATRIX → F·3 SETUP → 0% / 7.5%]

If you select NTSC pseudo-composite display as described in section 6.10.1, "Color Matrix Conversion," you can select the setup level of the waveform display.
From the color matrix setup menu, press F·3 SETUP. If you select 0 %, setup is not added. If you select 7.5 %, a pseudo-composite waveform display with 7.5 % setup added is shown.

You can select setup only when using the NTSC pseudo-composite display. The menu does not appear during component display or PAL display.



(a) Setup 0 %



(b) Setup 7.5 %

Figure 6.17 Setup Display

6.10.4 Color Matrix Selection of the Picture Monitor Output

[WFM → F·6 COLOR MATRIX → F·6 PIX MON OUTPUT :YPbPr / GBR]

To select the color format of the analog picture monitor output on the rear panel, press F·6 PIX MON OUTPUT from the color matrix setup menu.

YPbPr: Outputs analog intensity and chrominance difference signals.

GBR: Converts the intensity and chrominance signals into G, B, R signals and outputs the analog G, B, R signals.

6.10.5 Pseudo-Composite Display

[WFM → F·6 COLOR MATRIX → F·1 COLOR MATRIX:YCbCr / GBR / RGB / COMPOSIT]

Only component SDI signals can be input to the LV 5700A/LV 5710A. However, by selecting COMPOSIT as described in section 6.10.1, "Color Matrix Conversion," you can display component signals as pseudo-composite signals.

If AUTO is selected as described in section 5.4.6, "Format Selection of the Pseudo-Composite Display," video signal format having a field frequency is 50 Hz or a frame frequency is 25 Hz or 50 Hz is converted into PAL. Video signal formats of other field/frame frequencies are converted into NTSC.

In the pseudo-composite display, the color burst frequency does not match the NTSC or PAL frequency; it is 1/4th the frequency of the input signal clock. In addition, when HD-SDI signals are displayed as pseudo-composite signals, the width and position of the sync signal and color burst signal are slightly different from those of the actual NTSC or PAL signals.

The line selector and V sweep are displayed using the number of lines of the original component signal.

In addition, the following limitations exist in the pseudo-composite display.

① The time axis cannot be expanded using sweep 1H and 2H.
② The time axis cannot be measured in cursor measurement.
③ For composite display of HD-SDI, the line select is set to that of HDTV.
④ To original component signal is output from the picture monitor output (analog output).
⑤ Waveform display of the EAV-SAV (blanking period) is not possible.
⑥ The MODE key, and CH1, CH2, and CH3 keys do not function.
⑦ The scale is set to % (IRE) scale during NTSC display and V (voltage) scale during PAL display.

6.11 Scale Settings

The LV 5700A/LV 5710A provides various scale settings on the video signal waveform display.

To set the scale, press the WFM key ⑫ to display the waveform display menu. Then, press F·7 next menu followed by F·1 SCALE.

The scale setup menu appears. Set the items as desired.

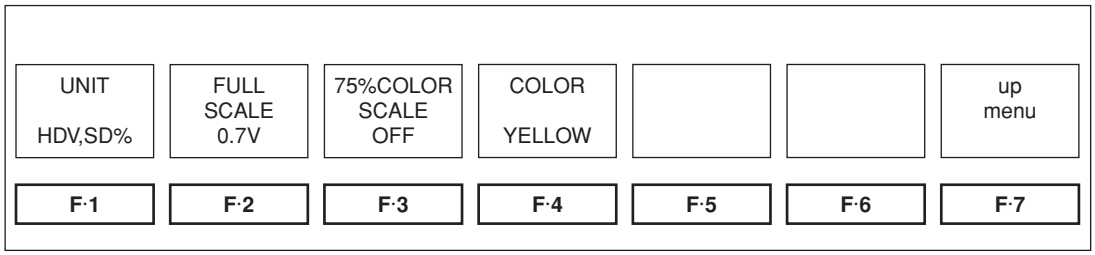


Figure 6.18 Scale Setup Menu

6.11.1 Scale Unit Selection

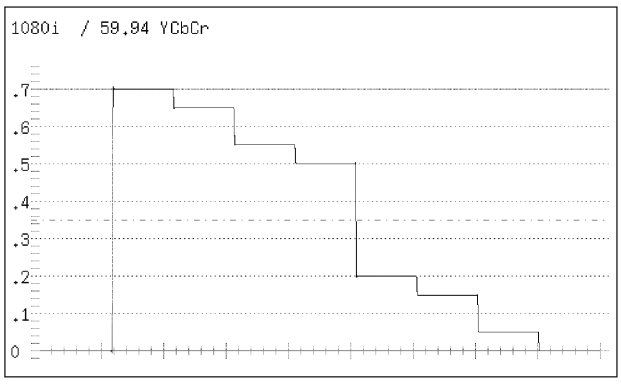
[WFM → F·7 next menu → F·1 SCALE → F·1 UNIT :HDV,SD% / HDV,SDV / HD%,SD%]

On the video signal waveform display, you can set the scale unit to match HDTV and SDTV separately.

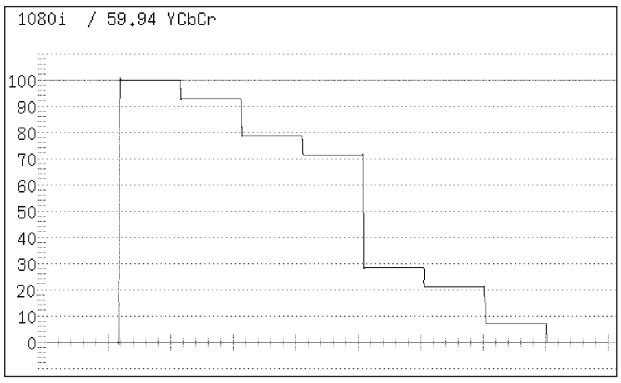
From the scale setup menu, press F·1 UNIT and select the scale unit of HDTV and SDTV.

HDV,SD%: V (voltage) unit for HDTV format and % unit for SDTV.
HDV,SDV: V (voltage) unit for HDTV and SDTV formats.
HD%,SD%: % unit for HDTV and SDTV formats.

The scale unit during pseudo-composite display is fixed to % (IRE) for NTSC display and V (voltage) for PAL display.



(a) Voltage scale



(b) Percentage scale

Figure 6.19 Scale unit selection

6.11.2 Full Scale Value Selection

[WFM → F·7 next menu → F·1 SCALE → F·2 FULL SCALE :0.7V / 1.0V]
[WFM → F·7 next menu → F·1 SCALE → F·2 FULL SCALE :100% / 150%]

You can select the full scale value on the scale setup menu according to the scale unit selected in section 6.11.1.

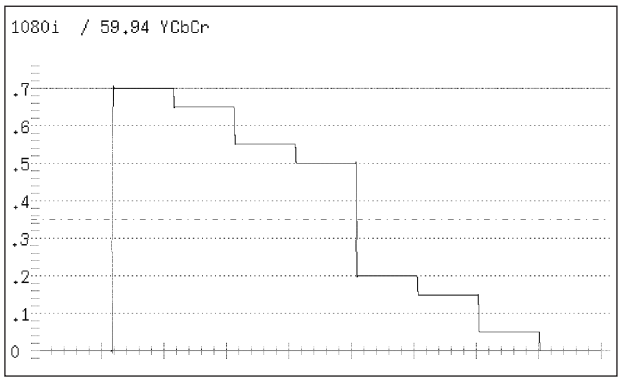
If V (voltage) is selected for the scale unit, you can set the full scale to be 0.7 V or 1.0 V.

If % (percentage) is selected, you can set the full scale to be 100% or 150%.

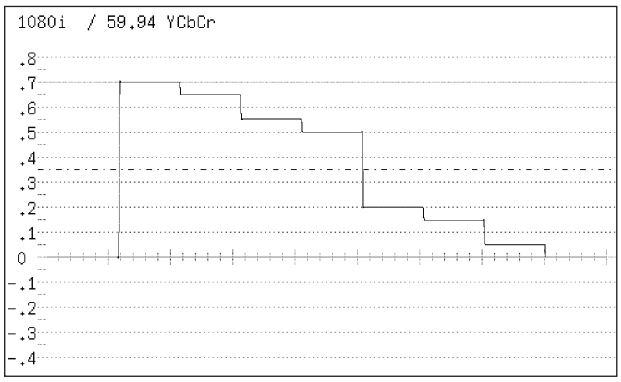
Figure 6.20 shows the full scale values of 0.7 V and 1.0 V when V (voltage) is selected for the scale unit.

- 0.7V: Displays waveforms with the full scale value set to 0.7 V. Waveforms are displayed in large size.
- 1.0V: Displays waveforms with the full scale value set to 1.0 V. Waveforms are displayed in small size.
- 100%: Displays waveforms with the full scale value set to 100 %. Waveforms are displayed in large size.
- 150%: Displays waveforms with the full scale value set to 150%. Waveforms are displayed in small size.

The full scale value during pseudo-composite display is fixed 150 % for NTSC display and 1.0 V for PAL display.



(a) Full Scale 0.7 V



(b) Full Scale 1.0 V

Figure 6.20 Full scale selection

6.11.3 Display Selection of the 75 % Color Bar Scale

[WFM → F·7 next menu → F·1 SCALE → F·3 75%COLOR SCALE :ON / OFF]

You can select a scale to match the peak level of the chrominance difference signal when the 75 % color bar is displayed as a waveform.

From the scale setup menu, press F·3 75% COLOR SCALE. Select ON to show the scale, OFF to hide the scale.

When pseudo-composite is displayed, the 75 % color bar scale cannot be displayed.

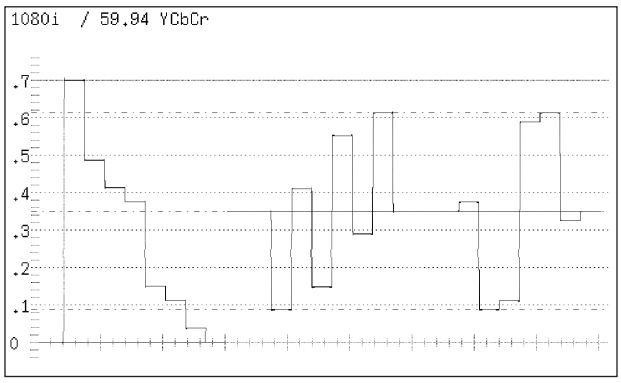


Figure 6.21 75 % Color Bar Scale

6.11.4 Scale Color Selection

[WFM → F·7 next menu → F·1 SCALE → F·4 COLOR: WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE]

You can select the scale color on the video signal waveform display. You can select the scale color from the seven colors below.

From the scale setup menu, press F·4 COLOR to select the color.

WHITE:	Sets the scale color to white.
YELLOW:	Sets the scale color to yellow.
CYAN:	Sets the scale color to cyan.
GREEN:	Sets the scale color to green.
MAGENTA:	Sets the scale color to magenta.
RED:	Sets the scale color to red.
BLUE:	Sets the scale color to blue.

6.12 Blanking Display Settings

[WFM → F·7 next menu → F·2 EAV-SAV :REMOVE / PASS]

You can select whether to display waveforms or mask to the black level during the blanking period on the video signal waveform display.

Press the WFM key ⑫ to display the waveform display menu. Then, press F·7 next menu followed by F·2 EAV-SAV to select REMOVE or PASS.

If the pseudo-composite display is selected as described in section 6.10.1, "Color Matrix Conversion," the waveform of the blanking period cannot be displayed.

REMOVE: Signals are masked to the black level during the blanking period.
PASS: All waveforms are displayed during the blanking period.

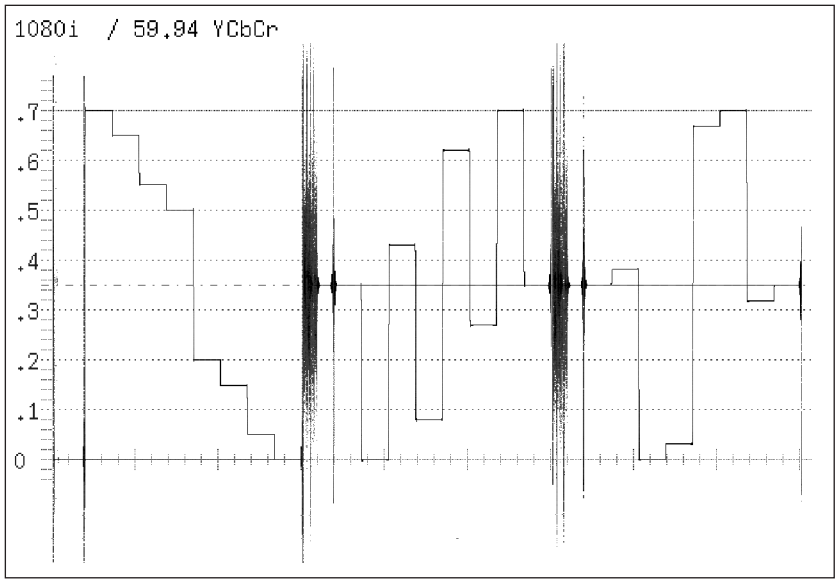


Figure 6.22 Waveform Display during the Blanking Period

6.13 Persistence Settings

Persistence characteristics can be added to the video signal waveform display.

To set the persistence, press the WFM key ⑫ to display the waveform display menu. Then, press F·7 next menu followed by F·4 PERSISTENCE.

The persistence setup menu appears. Set the items as desired.

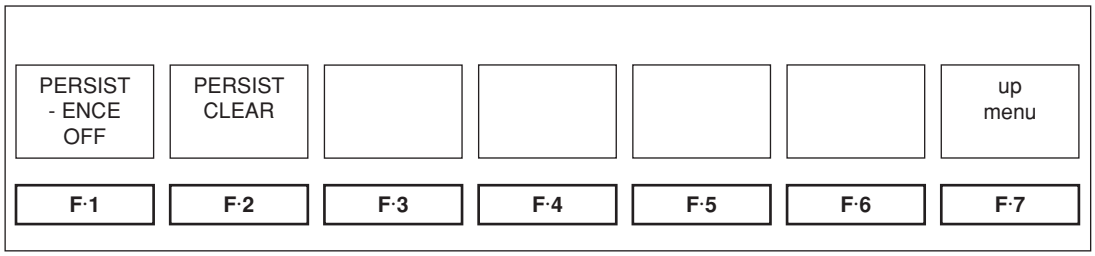


Figure 6.23 Persistence Setup Menu

6.13.1 Persistence Display

[WFM → F·7 next menu → F·4 PERSISTENCE → F·1 PERSISTENCE :ON / OFF / INFINIT]

You can set the persistence characteristics of the video signal waveform display.
Select the persistence characteristics from persistence off, persistence on, and overlay.

ON: Persistence characteristics are applied.
OFF: Persistence characteristics are not applied.
INFINIT: Waveforms are continuously overlaid.

6.13.2 Persistence Clear

[WFM → F·7 next menu → F·4 PERSISTENCE → F·2 PERSIST CLEAR]

You can clear the waveforms when the persistence characteristics are set to INFINIT as described in section 6.13.1, "Persistence Display."
Press F·2 PERSIST CLEAR from the persistence setup menu to clear the waveforms. Overlay display starts again.

The PERSIST CLEAR menu appears only when INFINIT is selected as described in section 6.13.1, "Persistence Display."

6.14 Mode Key Switching

[WFM → F·7 next menu → F·5 TIMING MODE :NORMAL / PASS]

You can select whether to allow the timing display to be selected when the MODE key ⑨ is pressed.
Press the WFM key ⑫ to display the waveform display menu. Then, press F·7 next menu followed by F·5 TIMING MODE.

NORMAL: The timing display is also shown when the MODE key is pressed.
PASS: The timing display is not shown even when the MODE key is pressed. Only overlay and parade displays are selected.

7. VECTORSCOPE DISPLAY

7.1 Vector Waveform Display

To show vector waveforms, press the VECTOR key ⑬.
The screen shows the vector waveforms, scale, and the vectorscope display menu.

The vector display of the component signal is achieved using X-Y display of C_B (horizontal) and C_R (vertical) signals.

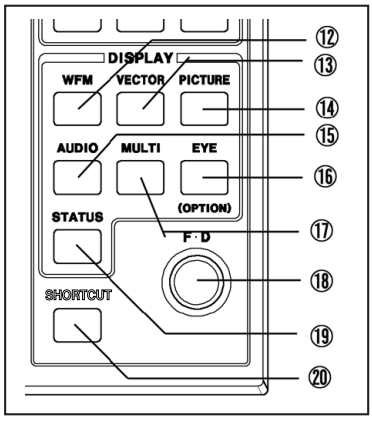


Figure 7.1 Area around the VECTOR key ⑬

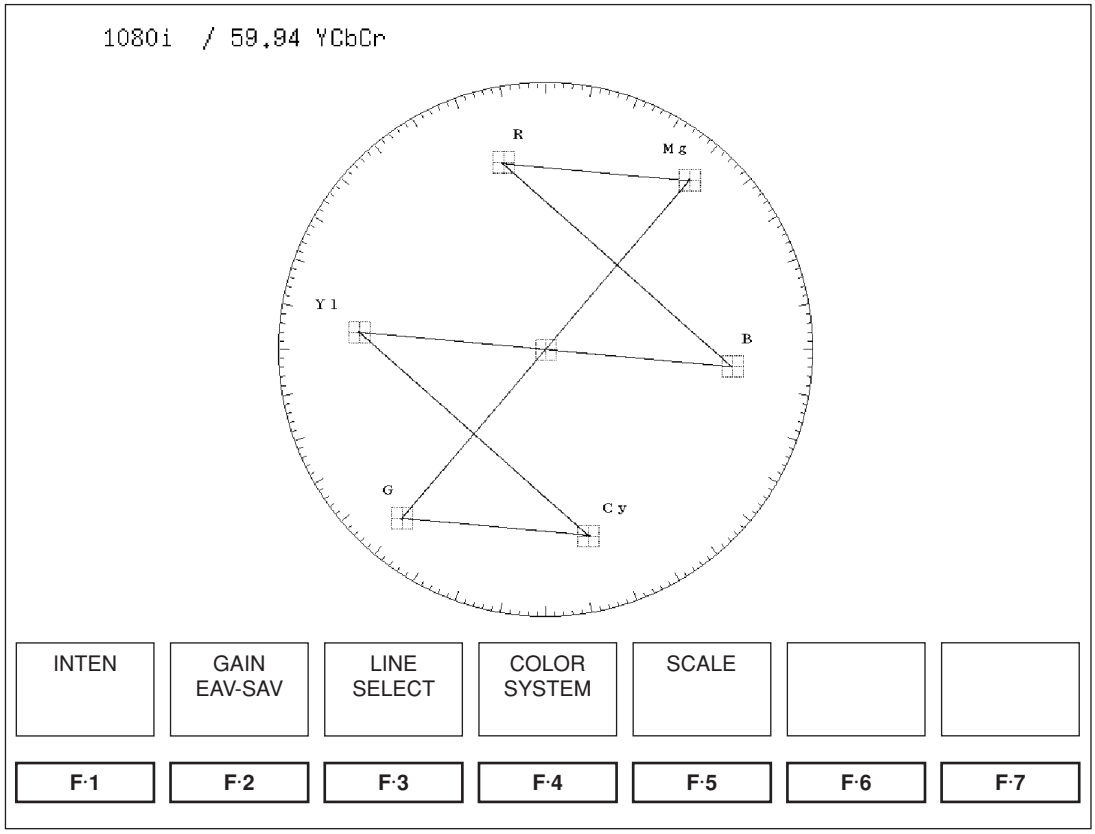


Figure 7.2 Vectorscope display and vectorscope display menu

Function Key	Description
F·1 INTEN	Adjusts the intensity of the displayed waveform
F·2 GAIN EAV-SAV	Sets the gain or blanking period display
F·3 LINE SELECT	Line select
F·4 COLOR SYSTEM	Sets the composite display and the color bar saturation
F·5 SCALE	Sets the scale

Table 7.1 Vectorscope display menu description

Graticule	Video Signal Format Setting	Applicable Calorimetry Standard
1	1080i/60,50 1080p/30,25,24 1080PsF/30,25,24 720/60p	SMPTE 274M, 296M
2	1035i/60	SMPTE 240M
3	525i/60,625i/50	SMPTE 125M

- Frame Amplitude ±3 % of full scale (0.7 V)
- Circle +20 % (graticule 1, 2) with respect to green with maximum color amplitude +20 % (graticule 3) with respect to red with maximum color amplitude

Table 7.2 Video signal format and applicable calorimetry standard

7.2 Brightness Adjustment

To adjust the brightness of the vectorscope display or scale, press the VECTOR key ⑬ to display the vectorscope display menu. Then, press F·1 INTEN.
The brightness and persistence adjustment menu appears. Make the appropriate adjustment.

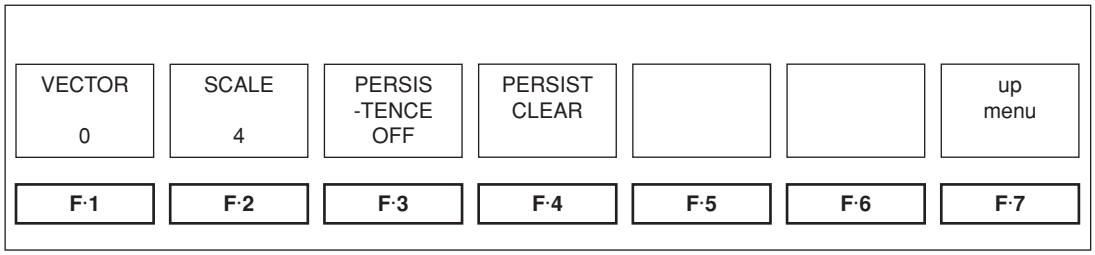


Figure 7.3 Brightness and persistence setup menu

7.2.1 Brightness Adjustment of Vector Waveforms

[VECTOR → F·1 INTEN → F·1 VECTOR → F·D]
To adjust the brightness of the vectorscope display, press F·1 VECTOR from the brightness and persistence setup menu. Then, turn the function dial (F·D) ⑱ to adjust the brightness.
The adjustment range is from -128 to 127.

The function dial (F·D) ⑱ also functions as a switch. Press the switch to reset the brightness of vector waveforms to the reference value (0).

7.2.2 Scale Brightness Adjustment

[VECTOR → F·1 INTEN → F·2 SCALE → F·D]
To adjust the brightness of the scale on the vectorscope display, press F·2 SCALE from the brightness adjustment menu and turn the function dial (F·D) ⑱ to make the adjustment.
The adjustment range is from -8 to 7 (16 steps).

The function dial (F·D) ⑱ also functions as a switch. Press the switch to reset the brightness of the scale on the vectorscope display to the reference value (4).

7.3 Persistence Settings

To adjust the brightness of the persistence characteristics of the vectorscope display, press the VECTOR key ⑬ to display the vectorscope display menu. Then, press F·1 INTEN.

The brightness and persistence adjustment menu appears as shown in Figure 7.3. Make the appropriate adjustment.

7.3.1 Persistence Display

[VECTOR → F·1 INTEN → F·3 PERSISTENCE :ON / OFF / INFINIT]

You can set the persistence characteristics of the vectorscope display.

Select the persistence characteristics from persistence off, persistence on, and overlay.

Press F·3 PERSISTENCE from the brightness and persistence setup menu to make the selection.

ON: Persistence characteristics are applied.

OFF: Persistence characteristics are not applied.

INFINIT: Overlaid.

7.3.2 Persistence Clear

[VECTOR → F·1 INTEN → F·4 PERSIST CLEAR]

You can clear the screen when the persistence characteristics are set to INFINIT as described in section 7.3.1, "Persistence Display."

Press F·4 PERSIST CLEAR from the persistence setup menu to clear the waveforms. Overlay display starts again.

The PERSIST CLEAR menu appears only when INFINIT is selected as described in section 7.3.1, "Persistence Display."

7.4 Gain Adjustment and Blanking Period Waveform Display

To adjust the gain of the vector waveforms or display the waveforms of the blanking period, press the VECTOR key ⑬. Then, select F·2 GAIN EAV-SAV from menu that appears.

The gain adjustment menu appears. Set the items as desired.

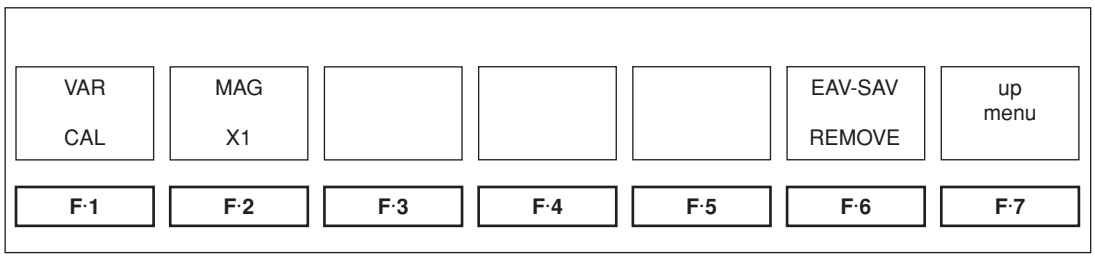


Figure 7.4 Gain adjustment menu

7.4.1 Gain Variable

[VECTOR → F·2 GAIN EAV-SAV → F·1 VAR :CAL / VAR]

To continuously change the gain of the vector waveform (variable), press F·1 VAR from the gain adjustment menu.

When you select VAR, you can change the gain continuously using the function dial (F·D) ⑱. At this time, the GAIN value set on the upper right of the screen is displayed.

Select CAL to set the gain to the reference value.

CAL: Sets the reference gain
VAR: Sets the variable gain

The function dial (F·D) ⑱ also functions as a switch. Press the switch while VAR is selected to reset the gain to the reference value.

7.4.2 Gain Selection

[VECTOR → F·2 GAIN EAV-SAV → F·2 MAG :X1 / X5 / IQ-MAG]

To change the gain of the video signal waveform to 1x or 5x, press F·2 MAG from the gain adjustment menu.

Select X5 to set the gain to 5x. Select X1 to set the gain to the reference value (1x).

If you select IQ-MAG, the IQ signal is positioned on the circumference of the vectorscope graticule when the NTSC SMPTE color bar is up-converted to HDTV.

The magnification of the IQ-MAG gain is as follows:

COLOR BARS

When set to 75 % 3.1 times

7.4.3 Blanking Display Settings

[VECTOR → F·2 GAIN EAV-SAV → F·6 EAV-SAV :REMOVE / PASS]

You can select whether to display waveforms or mask to the black level during the blanking period on the vectorscope display.

From the gain adjustment menu, press F·6 EAV-SAV to select REMOVE or PASS.

REMOVE: Masked during the blanking period.
PASS: All vector waveforms are displayed during the blanking period.

7.5 Line Selector

You can monitor a particular line by using the line selector function of the vectorscope display.

From the vectorscope display menu, press F·3 LINE SELECT.

The line select menu appears. Set the items as desired.

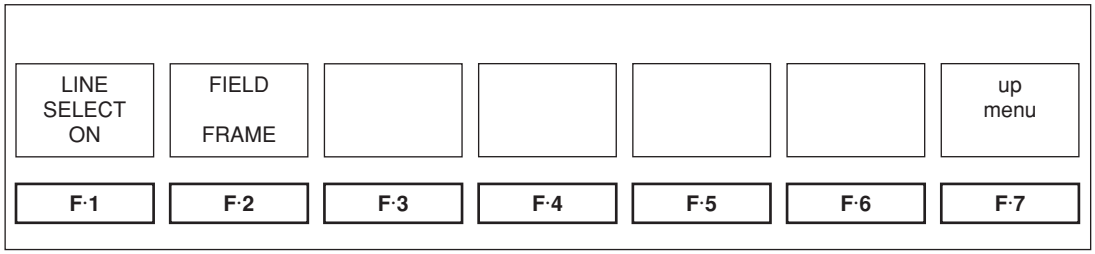


Figure 7.5 Line select menu

7.5.1 Line Select

[VECTOR → F·3 LINE SELECT → F·1 LINE SELECT :ON / OFF]

To select a line to be displayed on the vectorscope display, press F·1 LINE SELECT from the line select menu and select ON. Select OFF to clear the line selector function and display all the lines.

Select the line using the function dial (F·D) ⑱.

7.5.2 Field Selection

[VECTOR → F·3 LINE SELECT → F·2 FIELD :FIELD1 / FIELD2 / FRAME]

When the line select display is enabled on the vectorscope display, you can set the variable range of the function dial (F·D) ⑱ to field or frame.

You cannot select the field if the video signal format is progressive.

FIELD1: Limits the range of lines that can be selected using the function dial (F·D) ⑱ to field 1.

FIELD2: Limits the range of lines that can be selected using the function dial (F·D) ⑱ to field 2.

FRAME: Sets the range of lines that can be selected using the function dial (F·D) ⑱ to the entire frame.

7.5.3 External Synchronization Selection

[VECTOR → F·3 LINE SELECT → F·3 LINE_SESL EXT REF :INTERNAL / EXTERNAL]

Select whether to perform line select using the external synchronization reference or the SDI synchronization signal.

INTERNAL: Performs line select using the SDI synchronization signal.

EXTERNAL: Performs line select using the external synchronization signal reference.

External synchronization selection appears on the menu only when EXT is selected using the REFERENCE key.

7.6 Color System Settings

The vectorscope display of component signals is X-Y display of chrominance difference signals. However, you can also convert the signal into pseudo-composite signal to be displayed on the vectorscope.

You can also set the setup and the color bar saturation.

To set these color system parameters, press F·4 COLOR SYSTEM from the vectorscope display menu.

The color system setup menu appears. Set the items as desired.

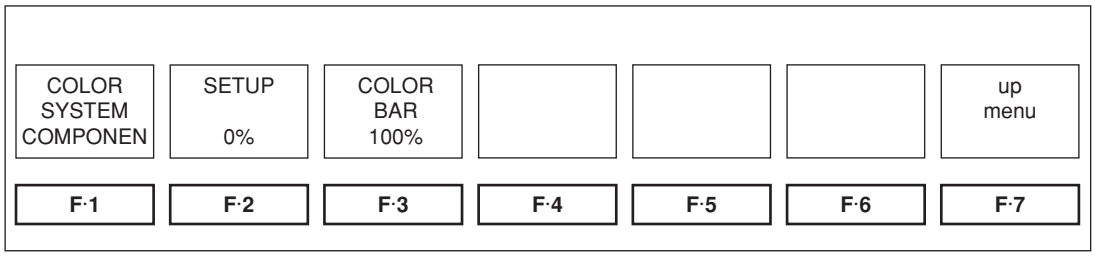


Figure 7.6 Color system setup menu

7.6.1 Composite and Component Display

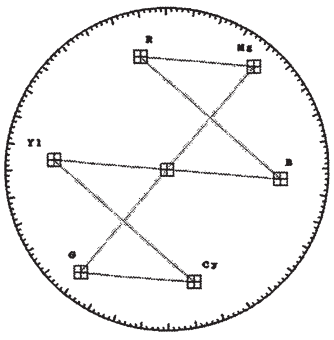
[VECTOR → F·4 COLOR SYSTEM → F·1 COLOR SYSTEM :COMPONEN / COMPOSIT]

To display component signals artificially as composite signals on the vectorscope display, press F·1 COLOR SYSTEM from the color system setup menu and select COMPOSIT.

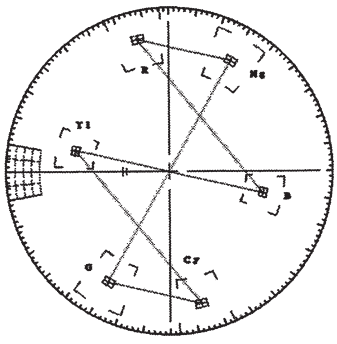
If you select COMPONEN, vectorscope display using chrominance difference signals is shown.

COMPONEN: Displays the chrominance difference signals of the component signal on the X-Y vectorscope display.

COMPOSIT: The component signal is artificially converted into a composite signal and shown on the vectorscope display.



(a) Chrominance difference signal vectorscope display



(b) Pseudo-composite vectorscope display

Figure 7.7 Chrominance difference signal vectorscope display and pseudo-composite vectorscope display

7.6.2 Setup Selection

[VECTOR → F·4 COLOR SYSTEM → F·2 SETUP :0 % / 7.5 %]

If composite display is selected as described in section 7.6.1, "Composite and Component Display," you can select the setup level of the vectorscope display.

From the color system setup menu, press F·2 SETUP. If you select 0 %, setup is not added. If you select 7.5 %, a pseudo-composite waveform display with 7.5 % setup added is shown.

You can select setup only when using the pseudo-composite display. The menu does not appear during component display.

7.6.3 Color Bar Saturation Selection

[VECTOR → F·4 COLOR SYSTEM → F·3 COLOR BAR :100 % / 75 %]

To select the 100 % color bar or 75 % color bar, press F·3 COLOR BAR from the color system setup menu and select 100 % or 75 %.

7.7 Scale Settings

To set the scale for the vectorscope display, press the VECTOR key ⑬ to display the vectorscope menu. Then, press F·5 SCALE.

The scale setup menu appears. Set the items as desired.

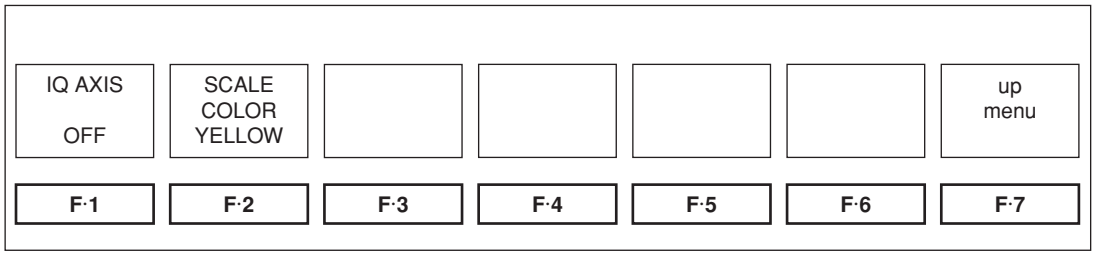


Figure 7.8 Scale setup menu

7.7.1 IQ Axis Display

[VECTOR → F·5 SCALE → F·1 IQ AXIS :ON / OFF]

To display the IQ axis on the vectorscope display, press F·1 IQ AXIS from the scale setup menu and select ON or OFF.

The IQ axis cannot be displayed for 625/50i.

- IQ axis on HDTV The following axis are displayed when the full scale value of 0.7 V is taken to be 100 %.

I axis	G=44.559 %	Q axis	G=37.056 %
	B=27.865 %		B=84.085 %
	R=69.120 %		R=62.417 %

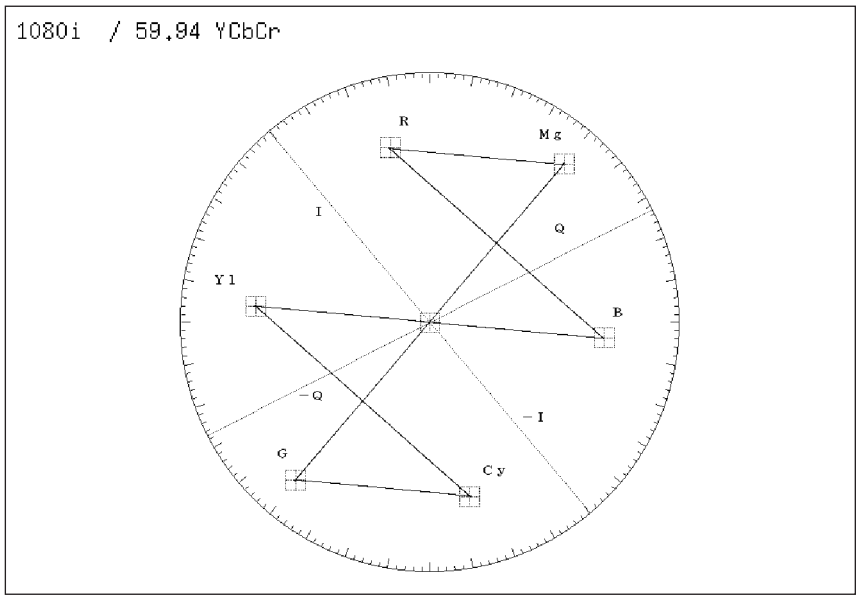


Figure 7.9 IQ axis on the vectorscope display

7.7.2 Scale Color Selection

[VECTOR → F·5 SCALE → F·2 COLOR :WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE]

You can select the scale color on the vectorscope display. You can select the scale color from the seven colors below.

From the scale setup menu, press F·2 COLOR to select the color.

WHITE:	Sets the scale color to white.
YELLOW:	Sets the scale color to yellow.
CYAN:	Sets the scale color to cyan.
GREEN:	Sets the scale color to green.
MAGENTA:	Sets the scale color to magenta.
RED:	Sets the scale color to red.
BLUE:	Sets the scale color to blue.

8. PICTURE DISPLAY

Press the PICTURE key ⑭ to display the picture.
SDTV is displayed with an aspect ratio of 4 to 3; HDTV is displayed with an aspect ratio of 16 to 9.

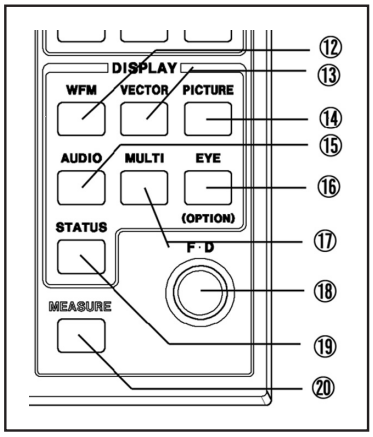


Figure 8.1 Area around the PICTURE key ⑭

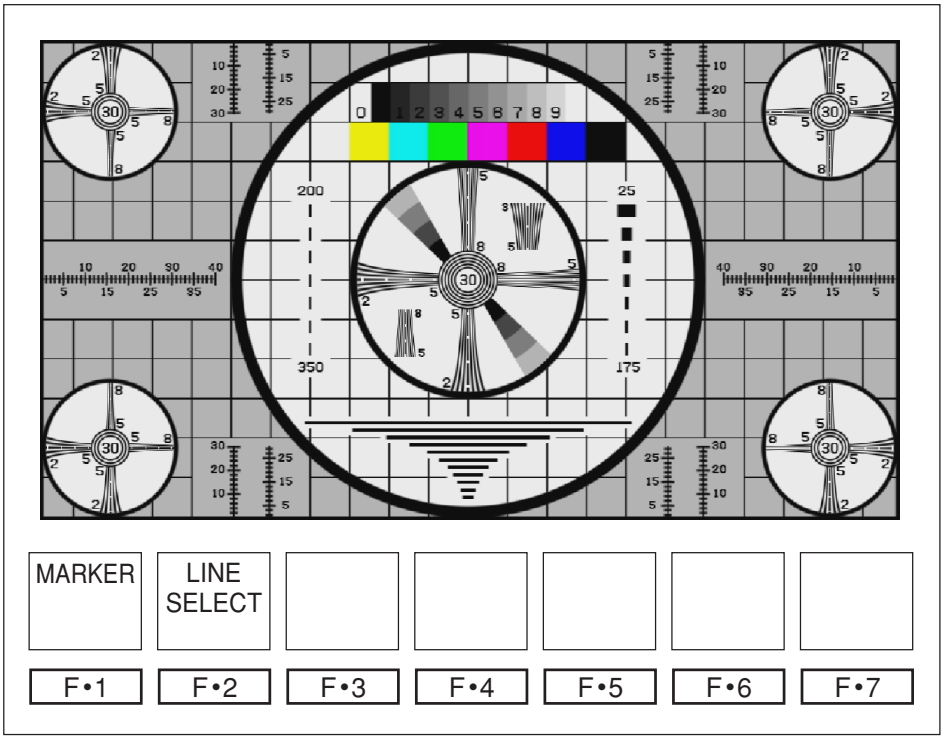


Figure 8.2 Picture display Menu

8.1 Safety Marker Display

To show the safety marker on the picture display, press F·1 MARKER to show the marker display menu.

As shown in the figure below, four marker sizes are available according to the input signal and aspect marker.

Markers cannot be displayed when showing the multi screen display.

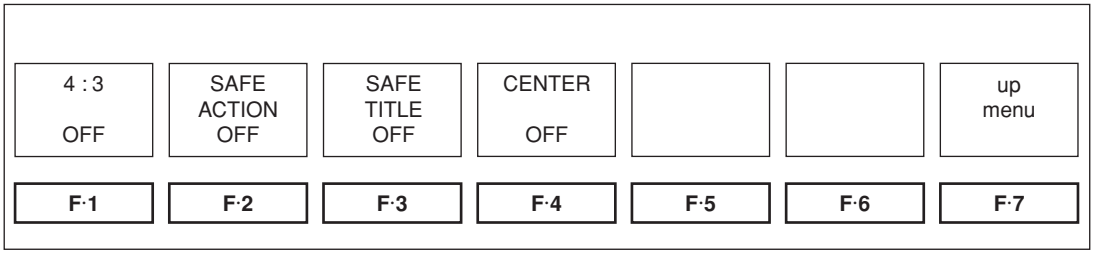


Figure 8.3 Marker Display Menu

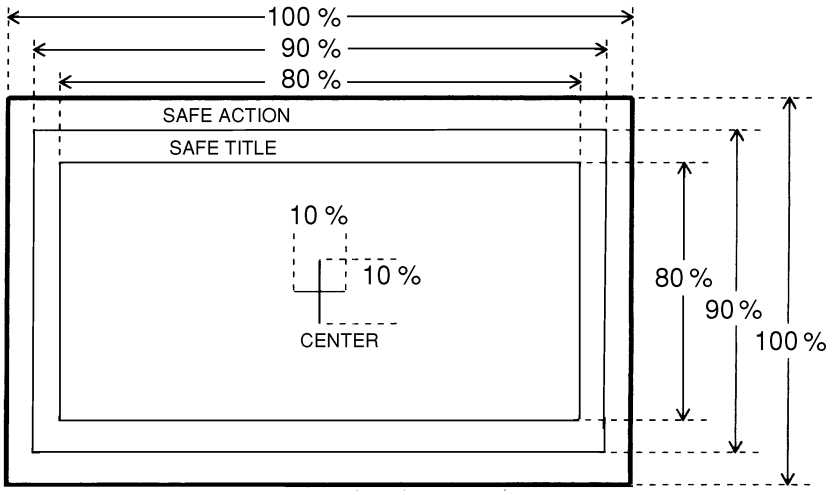


Figure 8.4 HD-SDI Marker Display (4:3 OFF)

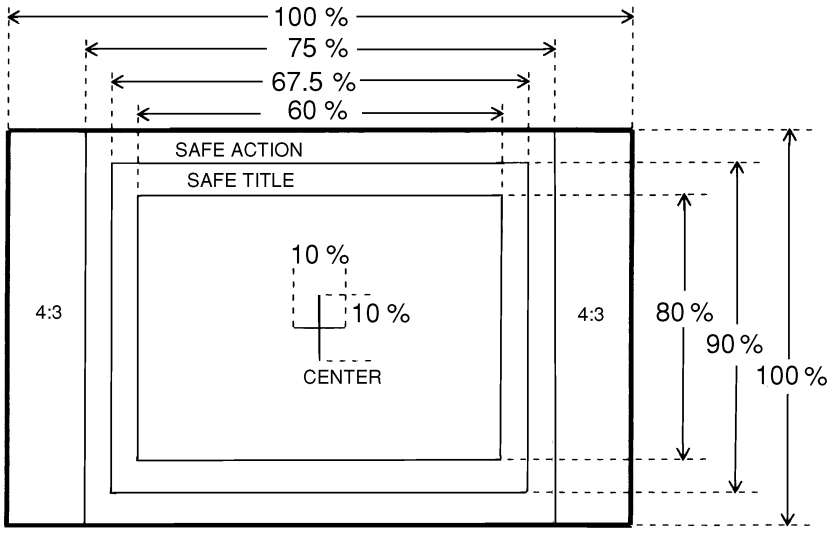


Figure 8.5 HD-SDI Marker Display (4:3 ON)

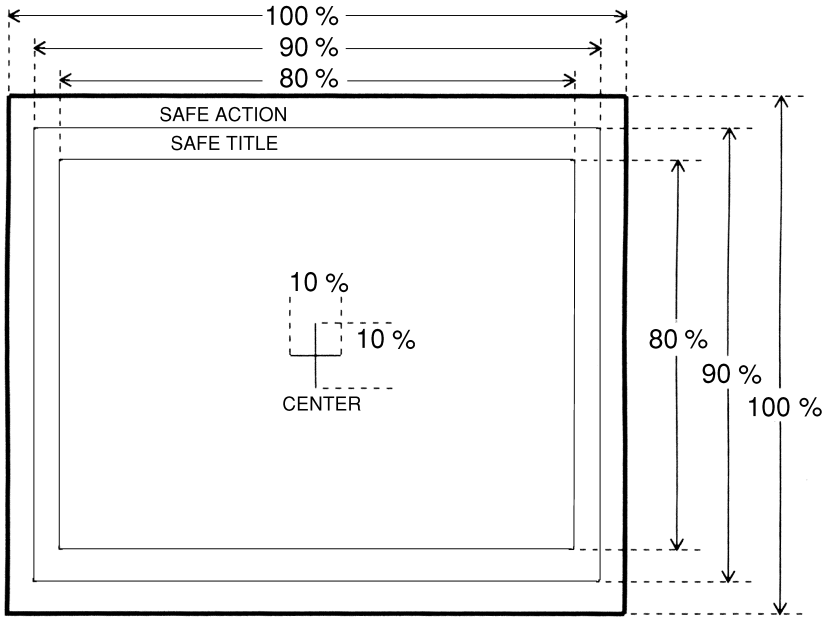


Figure 8.6 SD-SDI Marker Display (16:9 OFF)

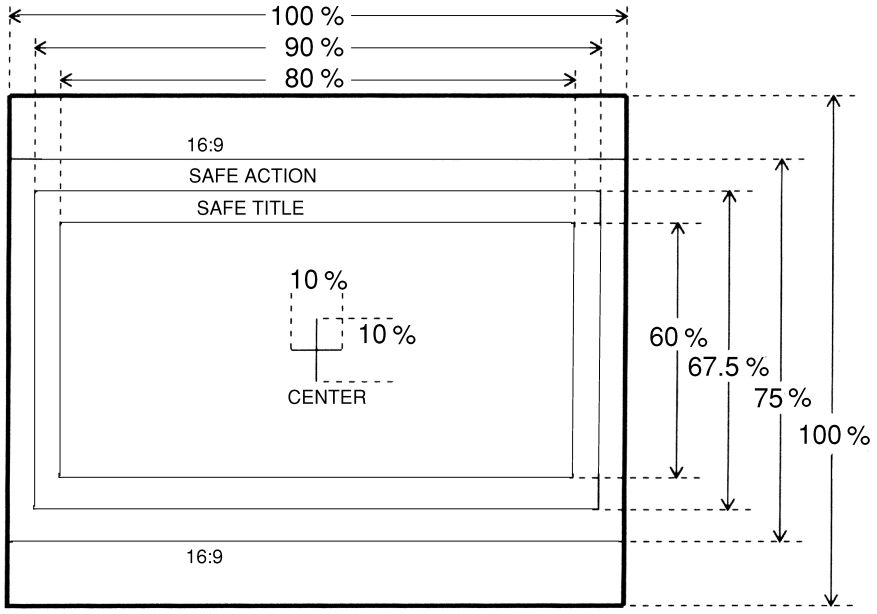


Figure 8.7 SD-SDI Marker Display (16:9 ON)

8.1.1 Aspect Marker (4:3)

[PICTURE → F•1 MARKER → F•1 4:3: ON / OFF]

When displaying HD-SDI signals with the picture aspect ratio of 16:9, the marker can be displayed at the position corresponding to 4:3. Depending on whether the 4:3 aspect marker display is ON, the sizes of the safe action marker and safe title marker are different.

The aspect marker can be turned ON/OFF by pressing F•1 4:3 from the marker display menu.

8.1.2 Aspect Marker (16:9)

[PICTURE → F•1 MARKER → F•1 16:9: ON / OFF]

When displaying SD-SDI signals with the picture aspect ratio of 4:3, the marker can be displayed at the position corresponding to 16:9. Depending on whether the 16:9 aspect marker display is ON, the sizes of the safe action marker and safe title marker are different.

The aspect marker can be turned ON/OFF by pressing F•1 16:9 from the marker display menu.

8.1.3 Safe Action Marker

[PICTURE → F•1 MARKER → F•2 SAFE ACTION: ON / OFF]

Safe action markers can be displayed at the 90 % positions vertically and horizontally with respect to the active area on the picture display.

If the aspect marker is displayed, the safe action markers are displayed at the 90% positions vertically and horizontally with respect to the aspect marker.

The safety action marker display is selected by pressing F•2 SAFE ACTION from the marker display menu.

8.1.4 Safe Title Marker

[PICTURE → F•1 MARKER → F•3 SAFE TITLE: ON / OFF]

Safe title markers can be displayed at the 80 % vertical and horizontal positions with respect to the active area on the picture display.

If the aspect marker is displayed, the safe title markers are displayed at the 80% positions vertically and horizontally with respect to the aspect marker.

The safety title marker display is selected by pressing F•3 SAFE TITLE from the marker display menu.

8.1.5 Center Marker

[PICTURE → F•1 MARKER → F•4 CENTER: ON / OFF]

A center marker (cross hairs) can be displayed at the center of the picture display.

The center marker display is selected by pressing F•4 CENTER from the marker display menu.

8.2 Line Select Marker Display

You can check the position of a particular line by using the line selector function of the picture waveform.

From the picture display menu, press F·2 LINE SELECT.

The line select menu appears. Set the items as desired.

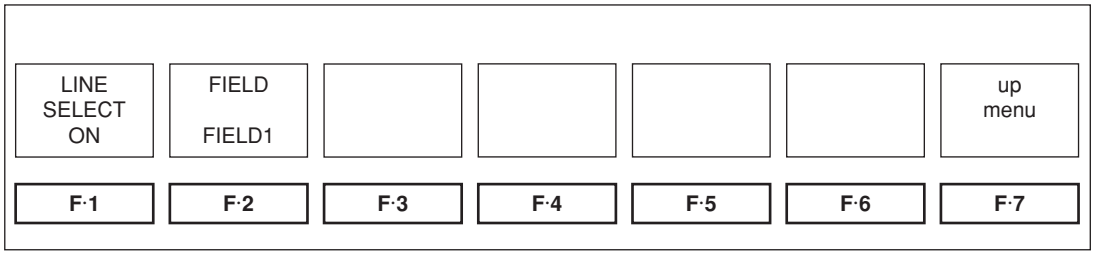


Figure 8.8 Line select menu

8.2.1 Line Select Marker Display

[PICTURE → F·2 LINE SELECT → F·1 LINE SELECT :ON / OFF]

The line select function allows the selected line to be displayed highlighted on the picture display.

The selectable range of line select is within the active picture area; Line select is not displayed during the blanking period.

From the line select menu, press F·1 LINE SELECT to select ON. Then, turn the function dial (F·D) ⑱ to select the line.

8.2.2 Field Selection of Line Select

[PICTURE → F·2 LINE SELECT → F·1 FIELD :FIELD1 / FIELD2 / FRAME]

When the line select display is enabled on the picture display, you can set the variable range of the function dial (F·D) ⑱ to field or frame.

You cannot select the field if the video signal format is progressive.

- FIELD1: Limits the range of lines that can be selected using the function dial (F·D) ⑱ to field 1.
- FIELD2: Limits the range of lines that can be selected using the function dial (F·D) ⑱ to field 2.
- FRAME: Sets the range of lines that can be selected using the function dial (F·D) ⑱ to the entire frame.

When interlace format is displayed as a picture, each field is converted into the XGA rate to be displayed. Since the interlace display is not actually used, the marker position does not change even if you change the field with the line select function.

9. AUDIO DISPLAY

The embedded audio signal can be separated from the SDI signal and displayed as a sound image or shown on lissajous and level meter displays.
Of the 16 channels of embedded audio, two groups where one group consists of four channels can be displayed.

For HD-SDI signals, the audio display is valid only when voice control packets are multiplexed.
If voice control packets are not multiplexed, all audio signals are muted.

Press the AUDIO key ⑮ to display audio signals.
The screen shows the audio signal waveform, level meter, audio display menu, and other items.
The audio display menu consists of three pages, and F·7 next menu and F·6 prev menu are used to switch the pages.

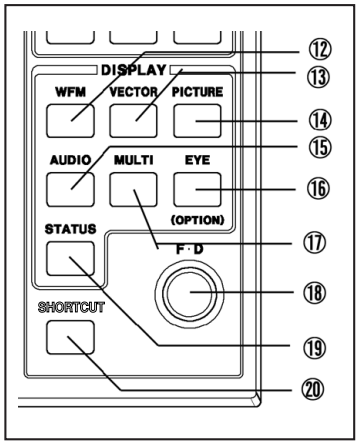


Figure 9.1 Area around the AUDIO key ⑮

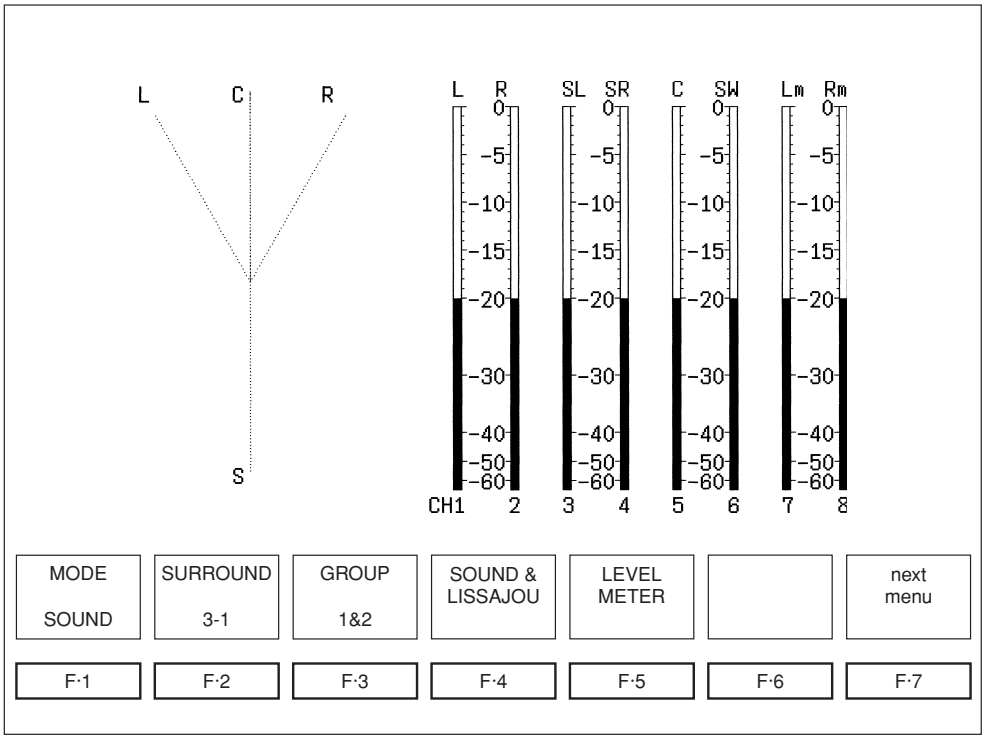


Figure 9.2 Audio display menu page 1

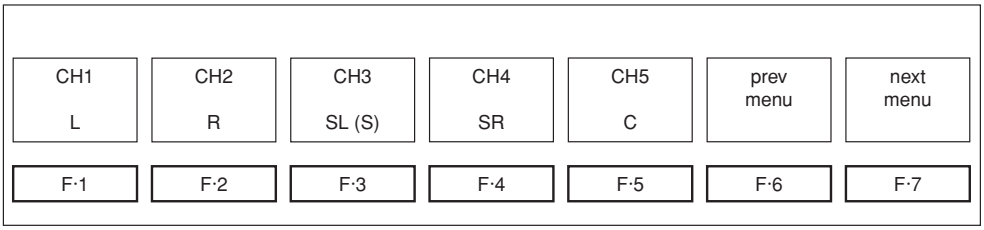


Figure 9.3 Audio display menu page 2

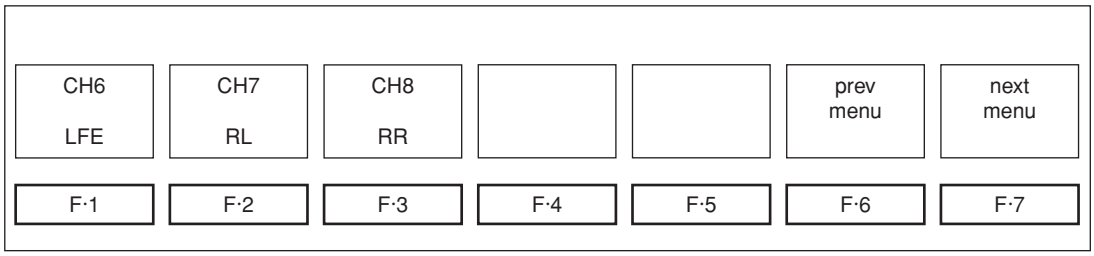


Figure 9.4 Audio display menu page 3

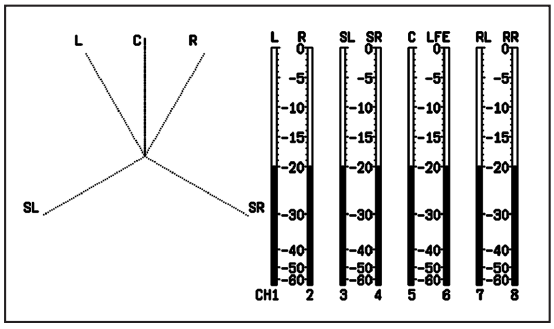
9.1 Audio Waveform Display Selection

[AUDIO → F·1 MODE :SOUND / LISSAJOU / MLT_LISS / VALUE]

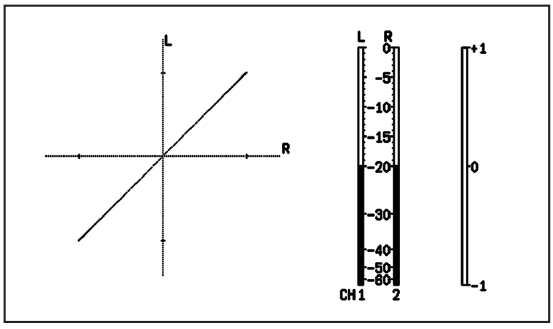
To display the audio signal, press F·1 MODE from the audio display menu and select sound image, lissajous, multi-lissajous, or level value display.
These displays are shown on the left side of the screen. A level meter is displayed on the right side.

The right-most meter on the lissajous display is called a phase meter. When the meter points to +1, it indicates that the L and R channels are in-phase. Indications of -1 and 0 correspond to reverse phase and no correlation, respectively.

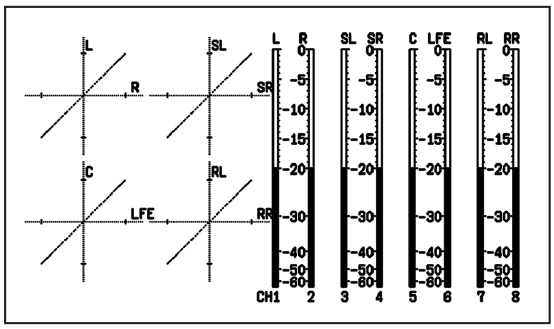
SOUND: Displays the sound image using waveforms.
LISSAJOU: Displays lissajous using waveforms.
MLT_LISS: Displays four-screen (eight channels simultaneously) lissajous using waveforms.
VALUE: Displays audio levels using values.



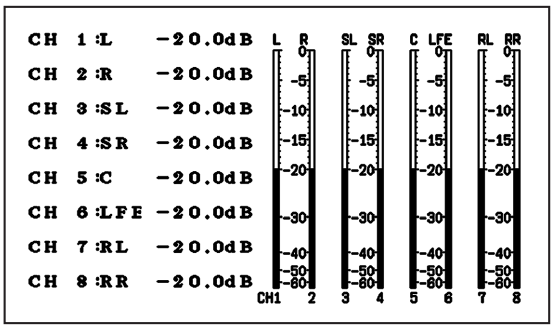
(a) Sound image display



(b) Lissajous display



(c) Four-screen lissajous display



(d) Value level display

Figure 9.5 Types of audio waveform displays

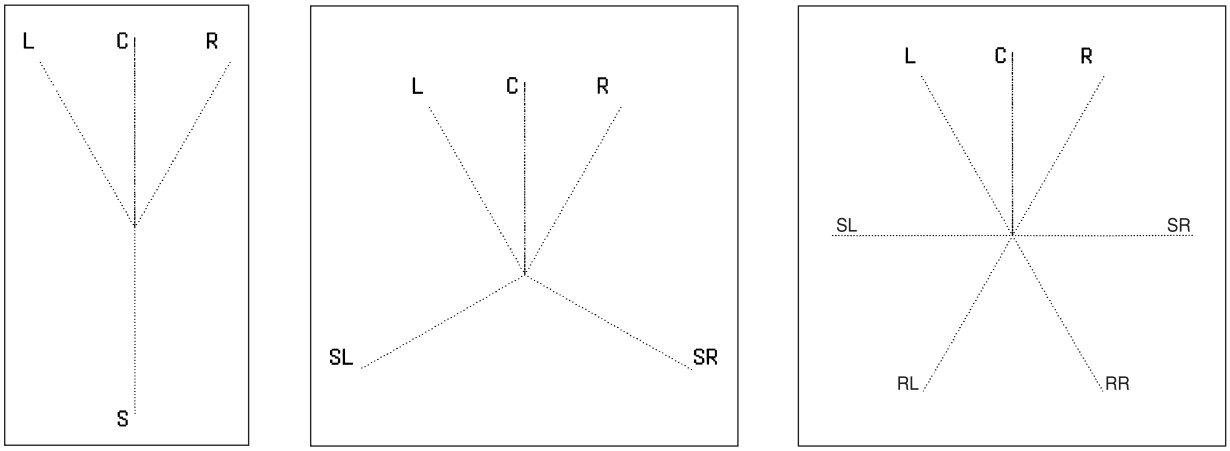
9.2 Surround System Selection

[AUDIO → F·2 SURROUND :3-1 / 3-2 / 3-2-2]

If sound image display (SOUND) is selected in section 9.1, "Audio Waveform Display Selection," you can select the surround system from 3-1 system, 3-2 system, and 3-2-2 system.

The surround system selection is also valid on the single lissajous display in which the L and R of lissajous channels are set to Lt and Rt, respectively. In this case, single lissajous display is shown by performing down-mixing computation according to the surround system. For details, see section 9.4.4, "Channel Selection of Lissajous Display."

To select the surround system, press F·2 SURROUND from the audio display menu and select 3-1, 3-2, or 3-2-2.



(a) Sound image display of the 3-1 system

(b) Sound image display of the 3-2 system

(c) Sound image display of the 3-2-2 system

Figure 9.6 Surround system

9.3 Group Selection of Embedded Audio

[AUDIO → F·3 GROUP :1&2 / 3&4]

Up to four groups--where one group consists of four channels of embedded audio (16 channels total) can be multiplexed to the SDI signal. However, you can only view up to two groups (eight channels) simultaneously on the LV 5700A/LV 5710A.

Select the combination of groups 1 and 2 or the combination of groups 3 and 4.

1&2: Selects groups 1 and 2 (CH1, CH2, CH3, CH4, CH5, CH6, CH7, and CH8).

3&4: Selects groups 3 and 4 (CH9, CH10, CH11, CH12, CH13, CH14, CH15, and CH16).

9.4 Audio Waveform Display Setting

To set the audio waveform display, press the AUDIO key ⑮ to display the audio display menu. Then, select F·4 SOUND & LISSAJOU.
The audio waveform display menu appears. Set the items as desired.

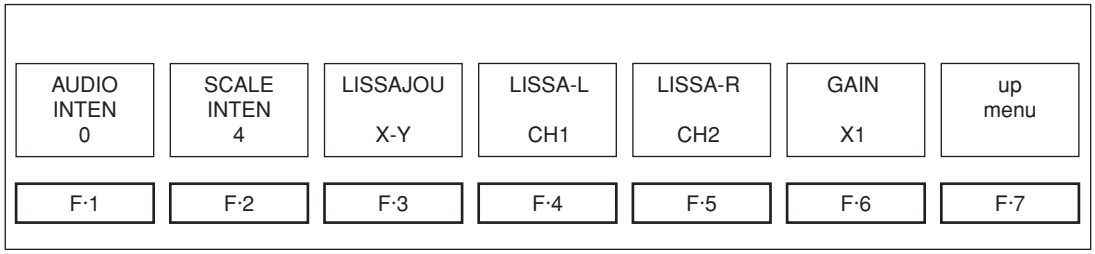


Figure 9.7 Audio waveform display menu

9.4.1 Brightness Adjustment of Audio Waveforms

[AUDIO → F·4 SOUND & LISSAJOU → F·1 AUDIO INTEN → F·D]
To adjust the brightness of audio waveforms, press F·1 AUDIO INTEN from the audio waveform display menu and turn the function dial (F·D) ⑱ to adjust the level in the range of -8 to 7.

The function dial (F·D) ⑱ also functions as a switch. Press the switch to reset the brightness of audio waveforms to the reference value (0).

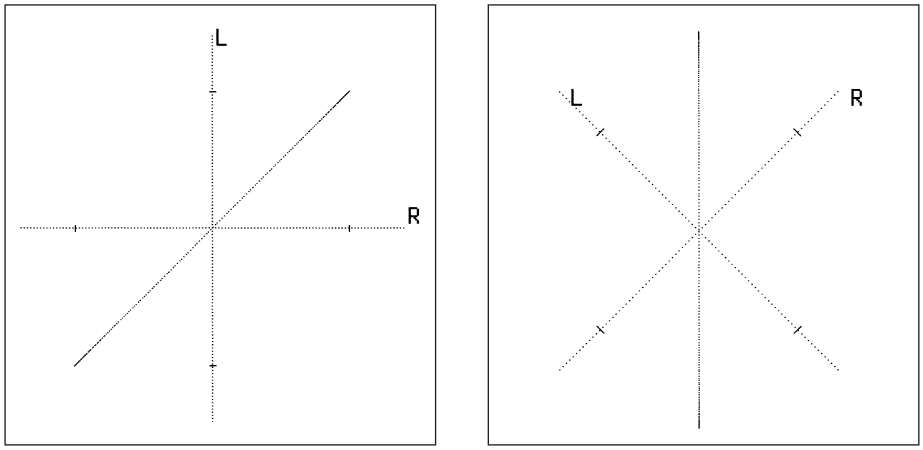
9.4.2 Scale Brightness Adjustment

[AUDIO → F·4 SOUND & LISSAJOU → F·2 SCALE INTEN → F·D]
To adjust the brightness of the scale, press F·2 SACLE INTEN from the audio waveform display menu and turn the function dial (F·D) ⑱ to adjust the level in the range of -8 to 7. The brightness adjustment of the scale also affects the brightness of the level meter display.

The function dial (F·D) ⑱ also functions as a switch. Press the switch to reset the brightness of the scale to the reference value (4).

9.4.3 Lissajous Display Format

[AUDIO → F·4 SOUND & LISSAJOU → F·3 LISSAJOU:X-Y / MATRIX]
If lissajous display (LISSAJOU) or multi-lissajous (MULTILISSAJOU) is selected in section 9.1, “Audio Waveform Display Selection,” you can select the display format from X-Y display and matrix display.
Press F·3 LISSAJOU from the audio waveform display menu and select X-Y or MATRIX.



(a) X-Y lissajous display (b) Matrix lissajous display

Figure 9.8 Lissajous display format

9.4.4 Lissajous Display Channel Selection

[AUDIO → F·4 SOUND & LISSAJOU → F·4 LISSAJ-L: CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / Lt]

[AUDIO → F·4 SOUND & LISSAJOU → F·4 LISSAJ-L: CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / Lt]

[AUDIO → F·4 SOUND & LISSAJOU → F·5 LISSAJ-R: CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / Rt]

[AUDIO → F·4 SOUND & LISSAJOU → F·5 LISSAJ-R: CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / Rt]

If lissajous display (LISSAJOU) is selected in section 9.1, "Audio Waveform Display Selection," you can select the L and R embedded audio channels of the lissajous display from CH1 to CH8 or CH9 to CH16. If 1&2 is selected as described in section 9.3, "Group Selection of Embedded Audio," CH1 to CH8 are displayed on the menu. If 3&4 is selected, CH9 to CH16 are displayed.

If you select Lt,Rt, the following down-mixing computation is carried out according to the name selected in section 9.6, "Channel Naming" and assigned to Lt and Rt.
Always select Lt and Rt in pairs. Otherwise, the lissajous waveforms will not be displayed correctly.
Below are the down-mixing computing equations for each surround system.

Down-mixing computing equation for the 3-1 system

Lt: 0.707 × (L + 0.707C + 0.707S)

Rt: 0.707 × (R + 0.707C + 0.707S)

Down-mixing computing equation for the 3-2 system

Lt: 0.707 × (L + 0.707C + 0.707SL)

Rt: 0.707 × (R + 0.707C + 0.707SR)

Down-mixing computing equation for the 3-2-2 system

Lt: 0.55 × (L + 0.707C + 0.707RL + 0.707SL)

Rt: 0.55 × (R + 0.707C + 0.707RR + 0.707SR)

9.4.5 Gain Selection

[AUDIO → F·4 SOUND & LISSAJOU → F·6 GAIN:X1 / X2 / X10 / X0.5 / AUTO]

If you selected an item other than numerical display (VALUE) in section 9.1, "Audio Waveform Display Selection," you can set the gain of the waveform display.

Press F·6 GAIN from the audio waveform display menu to select the gain factor.

X1: Reference gain value. When a reference level is applied, the display matches the scale marker.

X2: Displays at twice the reference gain.

X10: Displays at ten times the reference gain.

X0.5: Displays at 1/2 the reference gain.

AUTO: Automatically adjusts the gain.

9.5 Audio Level Meter Setting

To set the audio level meter, select F·5 LEVEL METER from the function menu that appears by pressing the AUDIO key ⑮.

The audio level meter menu appears as shown in Figure 9.9. Select the appropriate items.

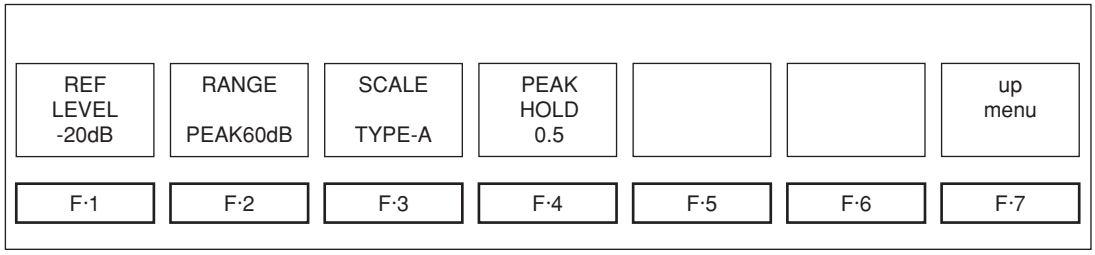


Figure 9.9 Audio Level Meter Menu

9.5.1 Reference Level Selection

[AUDIO → F·5 LEVEL METER → F·1 REF LEVEL: -20 dB / -18 dB / -12 dB]

Select the reference level of the level meter from -20 dB, -18 dB, and -12 dB.

Press F·1 REF LEVEL from the audio waveform display menu to select the reference level.

On the level meter display, levels below the reference level are indicated in white, and levels above the reference level are indicated in red.

9.5.2 Dynamic Range Selection

[AUDIO → F·5 LEVEL METER → F·2 RANGE: PEAK60dB / PEAK90dB / AVERAGE]

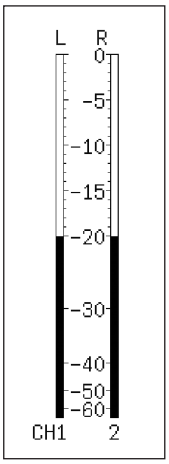
You can select the dynamic range and response of the level meter.

Press F·2 RANGE from the audio waveform display menu to select the dynamic range and response.

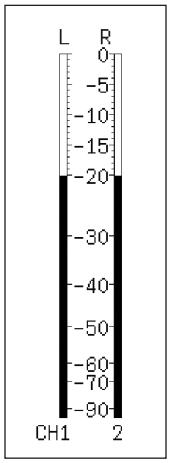
PEAK60dB: Displays a peak level meter capable of measuring down to -60 dB.

PEAK90dB: Displays a peak level meter capable of measuring down to -90 dB.

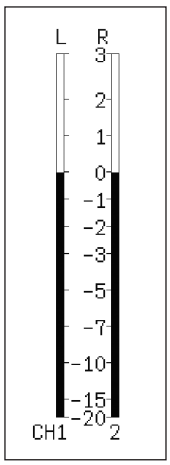
AVERAGE: Displays an average-response level meter from -20 dB to +3 dB with the reference level taken to be 0 dB.



(a) PEAK60



(b) PEAK90



(c) AVERAGE

The figure shows the scale when the reference level is set to -20 dB and the scale is set to TYPE-A.

Figure 9.10 Types of dynamic range

9.5.3 Scale Selection

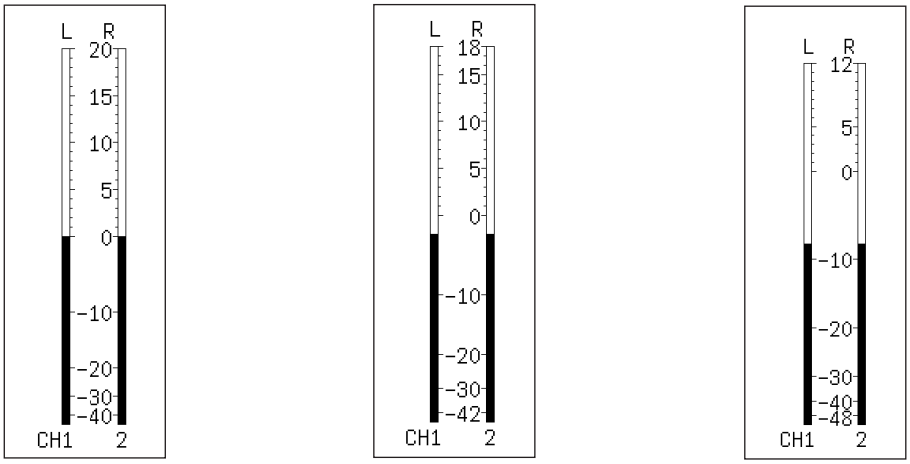
[AUDIO → F·5 LEVEL METER → F·3 SCALE:TYPE-A / TYPE-B]

Select whether to show the reference level as 0 dB or as the reference level specified in section 9.5.1, “Reference Level Selection” on the level meter scale.

Press F·3 SCALE from the audio waveform display menu to select the scale.

TYPE-A: Level meter is displayed independent of the reference level.

TYPE-B: Level meter is displayed with the reference level as 0 dB.



(a) Reference level -20 dB (b) Reference level -18 dB (c) Reference level -12 dB

Figure 9.11 TYPE-B level meter according to the reference level

Figure 9.11 shows the scale when PEAK60dB is selected.

9.5.4 Peak Hold

[AUDIO → F·5 LEVEL METER → F·4 PEAK HOLD:0.5 to 5.0 / HOLD]

If you selected PEAK60dB or PEAK90dB in section 9.5.2, “Dynamic Range Selection,” you can select the response time of the peak hold on the level meter. You can set the time in the range of approximately 0.5 s to 5.0 s in 0.5 steps. When you select HOLD, the peak level is held.

Adjust the response time using the function dial (F·D) ⑱.

9.6 Channel Naming

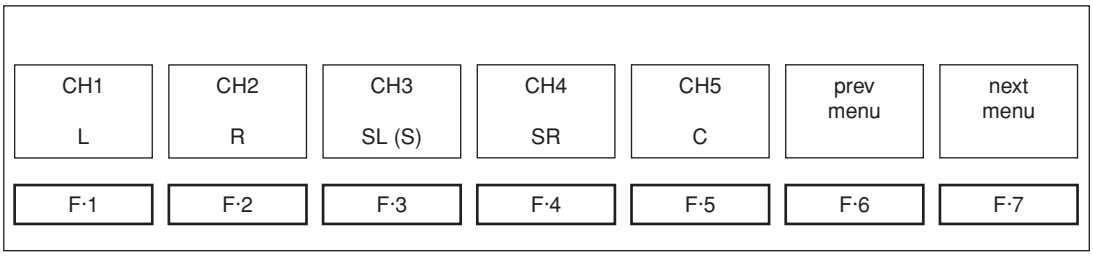


Figure 9.12 Audio display menu page 2

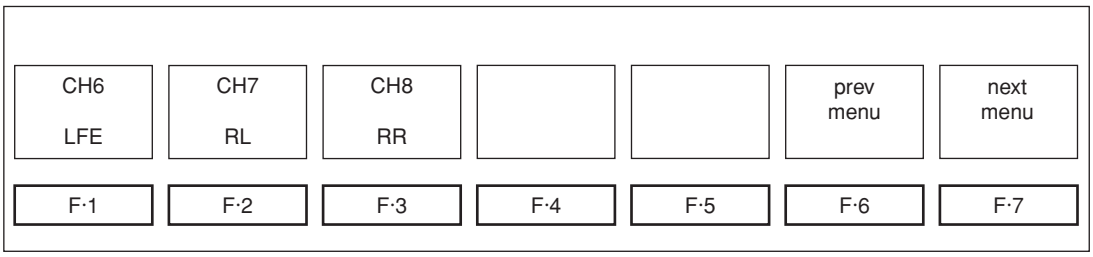


Figure 9.13 Audio display menu page 3

To show waveforms correctly on sound image display and other displays, the surround position is named for each channel. Using page 2 and page 3 of the audio waveform display menu that appears by pressing the AUDIO key ⑮, each audio signal channel is mapped to the surround position.

If you selected 1&2 in section 9.3, “Group Selection of Embedded Audio,” the channels shown on pages 2 and 3 of the audio waveform display menu are CH1 to CH4 and CH5 to CH8, respectively.

If you selected 3&4, the channels shown on pages 2 and 3 of the audio waveform display menu are CH9 to CH12 and CH13 to CH16, respectively.

You can select the names from L, R, C, SL(S), SR, RL, RR, and LFE.

10. MULTI SCREEN DISPLAY

Press the MULTI key ⑰ to display various information such as video signal waveform display and picture display and the multi screen menu.
The multi screen menu consists of two pages, and F·7 next menu or F·7 prev menu is used to switch the pages.

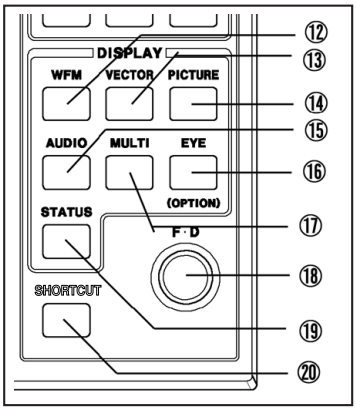


Figure 10.1 Area around the MULTI key ⑰

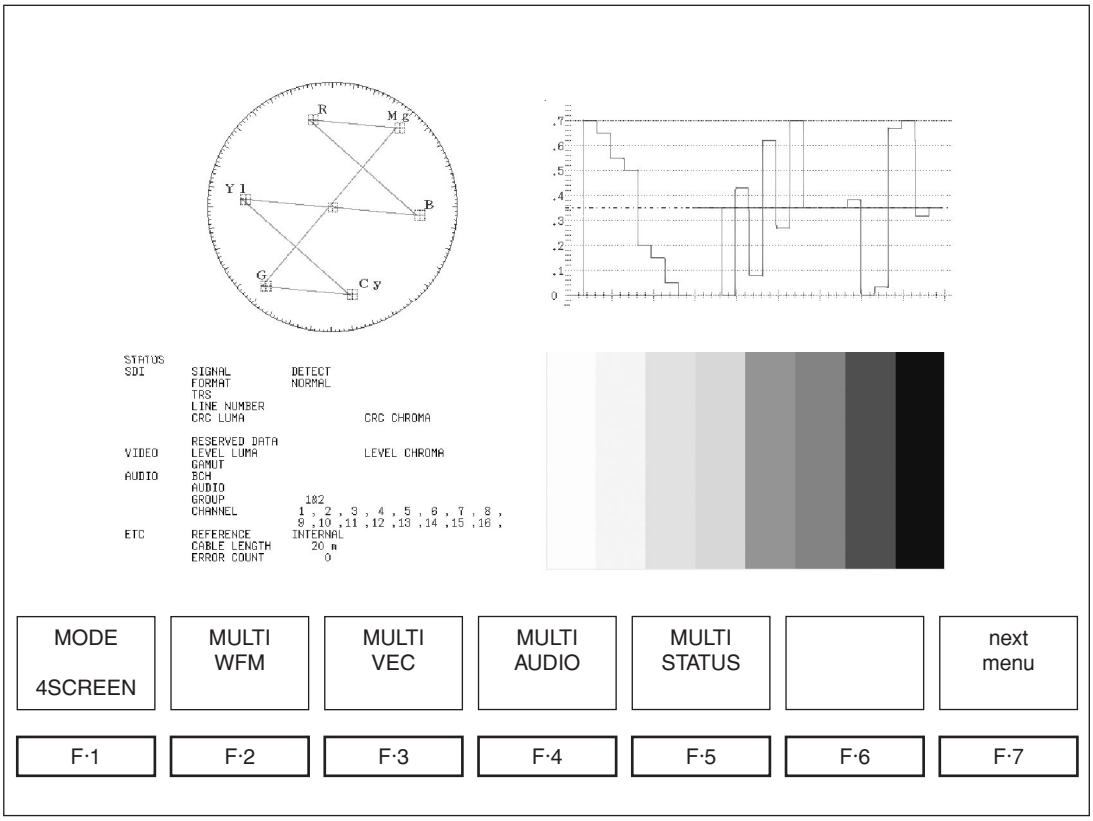


Figure 10.2 (a) Multi screen menu page 1

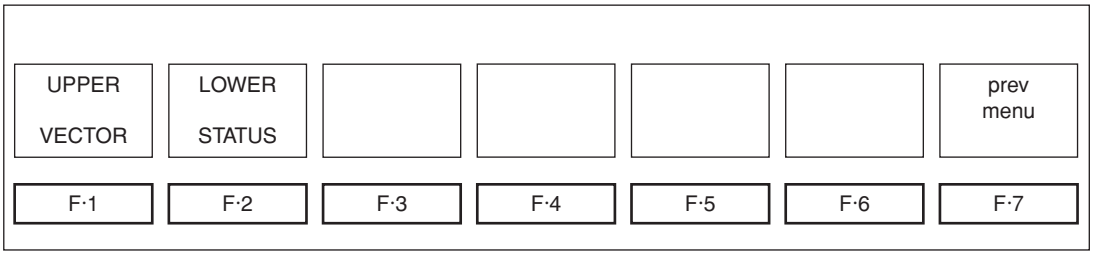


Figure 10.2 (b) Multi screen menu page 2

10.1 Four Multi Screen Modes

[MULTI → F·1 MODE :4SCREEN / WFM_VEC / WFM_PIC / WFM_AUD]

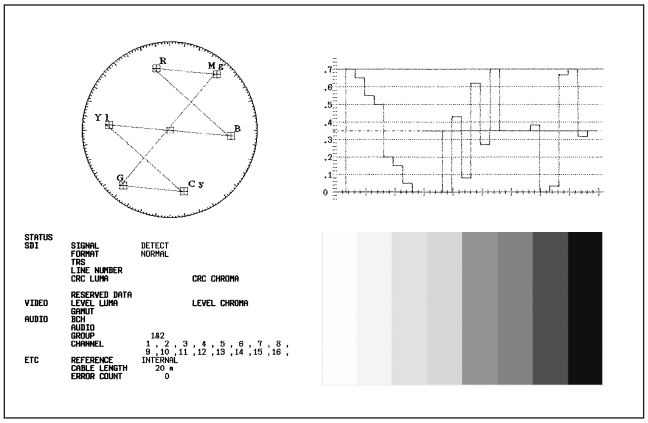
The following four modes are available for the multi screen display.

4SCREEN: 4 screen display. The screen is divided into four sections. The upper right quadrant shows the video signal waveform. The lower right shows the picture display. The upper left quadrant shows the vectorscope display or audio waveform. The lower left quadrant shows the audio level meter display or status display.

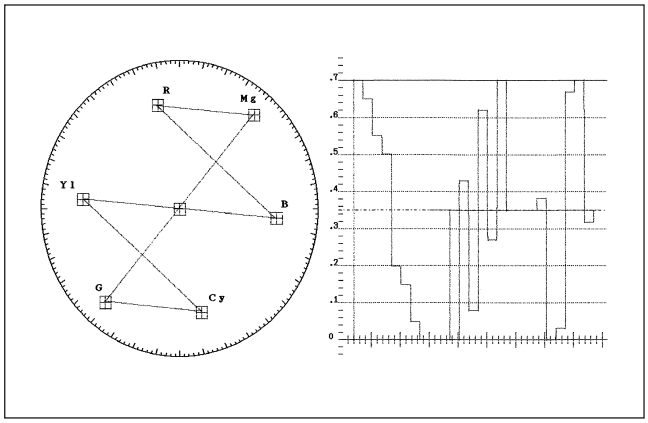
WFM_VEC: Shows the vectorscope and video signal waveform on the left and right sides of the screen, respectively.

WFM_PIC: Displays the videos signal waveform with the picture at the lower right of the screen.

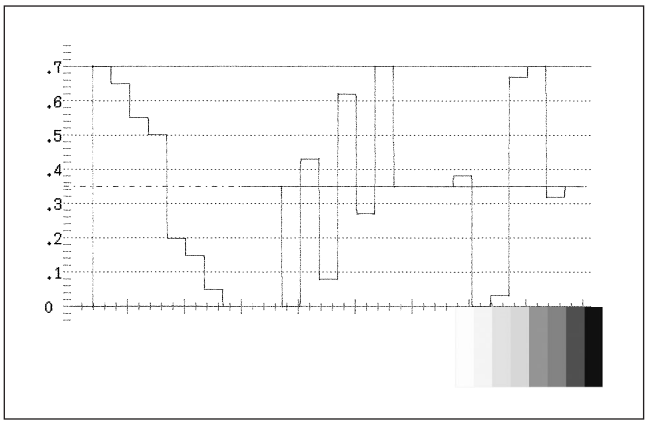
WFM_AUD: Shows the audio waveform and video signal waveform on the left and right sides of the screen, respectively.



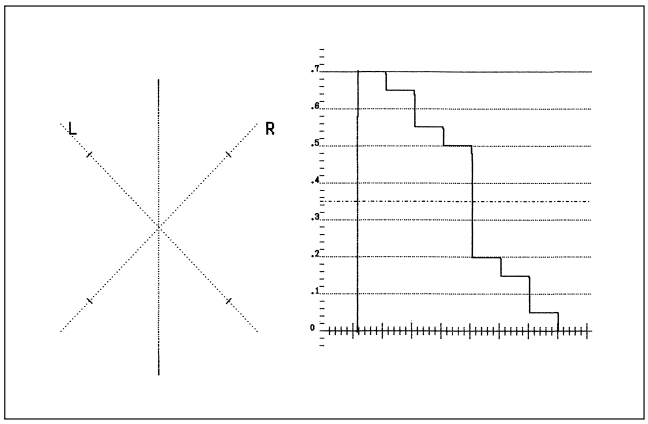
(a) 4 screen multi display



(b) Waveform display and vectorscope display



(c) Waveform display and picture display



(d) Waveform display and audio waveform display

Figure 10.3 Four Multi Screen Displays

10.2 Display Content Selection in 4 Screen Mode

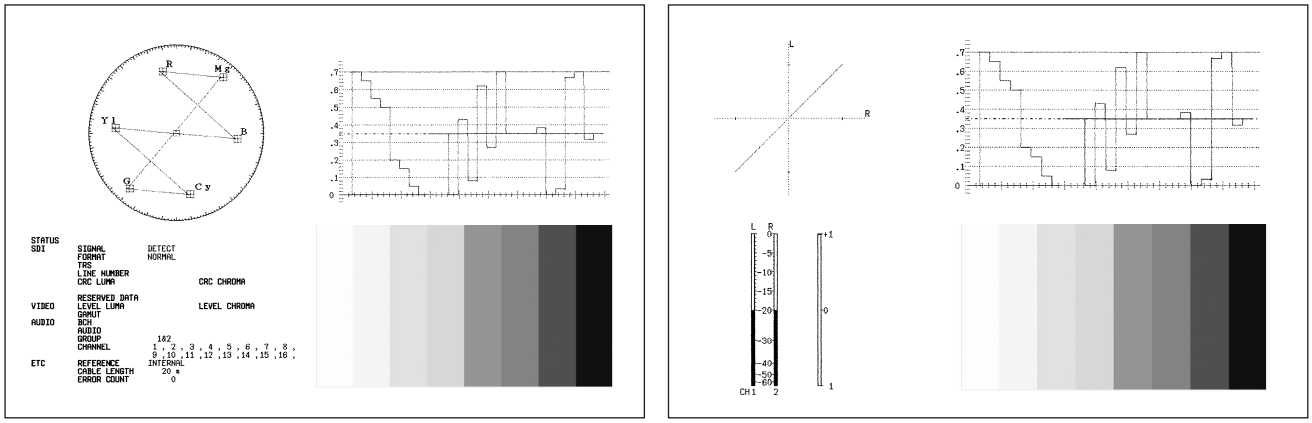
[MULTI → F·7 next menu → F·1 UPPER:VECTOR / AUDIO]

[MULTI → F·7 next menu → F·2 LOWER:STATUS / AUD_LVL]

On the 4 screen multi display, the video signal waveform is shown in the upper right quadrant and the picture in the lower right quadrant.

You can select the vectorscope waveform or audio waveform for the upper left quadrant, and status or audio level meter for the lower left quadrant.

Press F·1 UPPER from page 2 of the multi screen menu to select the content to be displayed in the upper left quadrant. Press F·2 LOWER to select the content to be displayed in the lower left quadrant.



(a) Select vectorscope display and status (b) Select audio waveform and audio level meter

Figure 10.4 Display content selection of 4 screen display

10.3 Various Settings on the Multi Screen Display

(F·2 to F·5) keys on page 1 of the multi screen menu is used to set various display items on the multi screen display.

The items specified on the multi screen display also apply to the single screen display. However, the brightness adjustment of waveform display is retained for each screen. In addition, cursor measurements cannot be performed on the multi screen display.

10.3.1 Video Signal Waveform Display Setting on the Multi Screen Display

[MULTI → F·2 MULTI WFM]

To set items related to the video signal waveform display on the multi screen display, press F·2 MULTI WFM from page 1 of the multi screen menu. The video signal waveform display menu that appears when the WFM key ⑫ is pressed appears. Enter the appropriate settings.

The settings related to the video signal waveform display on the multi screen display are passed on when the single video signal waveform display is shown. The exception is the brightness adjustment value of the video signal waveform display on the multi screen display.

For a detailed setup procedure, see the items in chapter 6, “Video Signal Waveform Display.”

Note that cursor measurements cannot be performed on the multi screen display.

10.3.2 Vectorscope Waveform Display Setting on the Multi Screen Display

[MULTI → F·3 MULTI VEC]

To set items related to the vectorscope display on the multi screen display, press F·3 MULTI VEC from page 1 of the multi screen menu. The vectorscope display menu that appears when the VECTOR key ⑬ is pressed appears. Enter the appropriate settings.

The settings related to the vectorscope display on the multi screen display are passed on when the single vectorscope display is shown. The exception is the brightness adjustment value of the vectorscope display on the multi screen display.

For a detailed setup procedure, see the items in chapter 7, “Vectorscope Display.”

10.3.3 Audio Setting on the Multi Screen Display

[MULTI → F·4 MULTI AUDIO]

To set items related to the audio display on the multi screen display, press F·4 MULTI AUDIO from page 1 of the multi screen menu. The audio display menu that appears when the AUDIO key ⑮ is pressed appears. Enter the appropriate settings.

The settings related to the audio display on the multi screen display are passed on when the single audio display is shown. The exception is the brightness adjustment value of the audio display on the multi screen display.

For a detailed setup procedure, see the items in chapter 9, “Audio Display.”

10.3.4 Status Setting on the Multi Screen Display

[MULTI → F·5 MULTI STATUS]

To set items related to the status display on the multi screen display, press F·5 MULTI STATUS from page 1 of the multi screen menu. The status display menu that appears when the STATUS key ⑲ is pressed appears. Enter the appropriate settings.

The settings related to the status display on the multi screen display are passed on when the single status display is shown.

For a detailed setup procedure, see the items in chapter 11, “Status Display.”

However, the error log display (section 11.7), detailed status display of embedded audio (section 11.9), and EDH status display (section 11.10) are not possible on the multi screen display.

11. STATUS DISPLAY

The status display can be used to check the status of various parameters of the serial digital signal.
Press the STATUS key ⑲ to display the status screen and the status display menu.

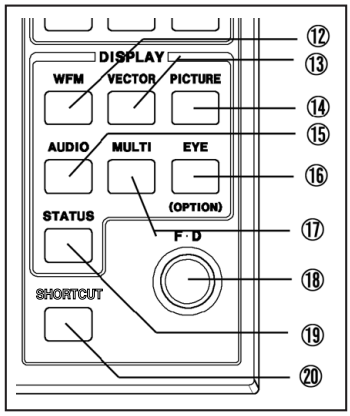


Figure 11.1 Area around the STATUS key ⑲

1080i / 59.94 YCbCr DATE:2002/05/05 TIME:10:00:00

SDI	SIGNAL	DETECT		
	TRS	NORMAL		
	LINE NUMBER	NORMAL		
	CRC LUMA	NORMAL	CRC CHROMA	NORMAL
	EDH	NORMAL		
	RESERVED DATA	NORMAL		
VIDEO	LEVEL LUMA	NORMAL	LEVEL CHROMA	NORMAL
	GAMUT	NORMAL	COMP. GAMUT	NORMAL
ANC	PARITY	NORMAL		
	CHECKSUM	NORMAL		
AUDIO	BCH	NORMAL		
	AUDIO	NORMAL		
	CRC	NORMAL		
	GROUP	1&2		
	CHANNEL	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16		
ETC	REFERENCE	INTERNAL		
	CABLE LENGTH	50m		
	ERROR COUNT	0	FROM RESET	00: 10: 00
	LOG MODE	NOW LOGGING		

LOG	DATA DUMP	AUDIO	ANC PACKET	ERROR CONFIG	CABLE LENGTH	ERROR RESET
F·1	F·2	F·3	F·4	F·5	F·6	F·7

Figure 11.2 Status Screen and Status Display Menu

Function Menu	Description
F·1 LOG	Displays the error log.
F·2 DATA DUMP	Displays the data dump.
F·3 AUDIO	Displays the status of the embedded audio.
F·4 ANC PACKET	Displays the contents of ANC data.
F·5 ERROR CONFIG	Displays the error detection setup menu.
F·6 CABLE LENGTH	Selects the cable type on the cable length meter.
F·7 ERROR RESET	Resets the error occurrence such as the error count.

Table 11.1 Description of the Status Display Menu

11.1 Status Display Screen

Press the STATUS key ⑲ to display the status screen and the status display menu. Below is the description of the status display.

Display Name	Description
SIGNAL	Detects the presence or absence of SDI signals.
FORMAT	Auto detection items of video signal format.
TRS	Detects TRS errors.
LINE NUMBER	Detects line number errors. (only for HDTV)
CRC LUMA	Detects Y video signal errors (only for HDTV)
CRC CHROMA	Detects C_B, C_R video signal errors (only for HDTV)
EDH	Detects SD-SDI errors (SDTV only on the LV 5700A)
RESERVED DATA	Detects reserved data errors.
LEVEL LUMA	Detects Y video level errors.
LEVEL CHROMA	Detects C_B, C_R video level errors.
GAMUT	Detects Gamut errors.
COMP. GAMUT	Detects level errors when the signal is converted into composite signal.
PARITY	Detects parity errors of ANC data.
CHECKSUM	Detects checksum errors of ANC data.
BCH	Detects embedded audio errors.
AUDIO	Detects sequency of embedded audio packets.
CRC	Detects CRC errors of channel status included in the embedded audio.
GROUP	Displays the selected embedded audio group.
CHANNEL	Detects the presence or absence of embedded audio on each channel.
REFERENCE	Detects the synchronization relationship between the external synchronization signal and the SDI signal.
CABLE LENGTH	Converts the SDI signal level into a coaxial cable length and displays the result.
ERROR COUNT	Counts the number of errors up to 100000 errors.
FROM RESET	Time elapsed since error reset.
LOG MODE	Displays the operation status of the error log function.

Table 11.2 Description of the Status Screen Display

11.2 Status Indication of SDI Signals

11.2.1 Signal Detection (Presence or Absence)

SIGNAL on the status display screen indicates whether the SDI signal exists at the input connector.

If the amplitude of the SDI signal is small or there is large amounts of jitter, NO SIGNAL may be indicated even when the signal is being applied.

SIGNAL indication

DETECT: The presence of the SDI signal is confirmed.

NO SIGNAL: The SDI signal cannot be detected.

11.2.2 Video Signal Format Detection

If auto selection of the video signal is enabled in section 5.4.1, “Auto/Manual Selection,” the FORMAT indication on the status display screen shows whether the video format of the input SDI signal can be monitored on the LV 5700A/LV 5710A.
If manual selection is used, it shows whether the selected video format is being input.
For both auto selection and manual selection, the current video format is shown at the upper right corner of the screen.

FORMAT indication
When the video format selection is set to AUTO
NORMAL: A signal of a video format that can be monitored on the LV 5700A/LV 5710A is being input.
ERROR: A signal of a video format that cannot be monitored on the LV 5700A/LV 5710A is being input.
When the video format selection is set to MANUAL
NORMAL: The video format selected manually is being input.
ERROR: A video format other than the one selected manually is being input.

11.2.3 TRS Error Detection

TRS on the status display screen can be used to detect errors in the TRS (Timing Reference Signal) of the input SDI signal.
TRS error detects whether the EAV (End of Active Video) and SAV (Start of Active Video) positions in the SDI signal are in the correct place.

To detect TRS errors, error detection in section 11.11.3 (1), “TRS Error ON/OFF” must be turned ON.

TRS indication
NORMAL: The TRS in the SDI signal is normal.
ERROR: There is an error in the TRS in the SDI signal.
Blank: TRS errors in the SDI signal are not being detected.

11.2.4 Line Number Error Detection

LINE NUMBER on the status display screen indicates whether the line number multiplexed in the input HD-SDI signal matches the number of lines that is being counted internally by the LV 5700A/LV 5710A.
Since the line number is multiplexed only in HD-SDI signals, it is not indicated for SD-SDI signals.

To detect line number errors, error detection in section 11.11.3 (2), “Line Number Error ON/OFF” must be turned ON.

LINE NUMBER indication
NORMAL: The line number in the HD-SDI signal is normal.
ERROR: There is an error in the line number in the HD-SDI signal.
Blank: Line number errors in the HD-SDI signal are not being detected.

11.2.5 CRC Error Detection

CRC LUMA and CRC CHROMA on the status display screen indicate whether the CRC multiplexed in the input HD-SDI signal matches the CRC result that is calculated internally by the LV 5700A/LV 5710A for the intensity signal and the chrominance difference signal separately.

Since the CRC is multiplexed only in HD-SDI signals, it is not indicated for SD-SDI signals.

To detect CRC errors, error detection in section 11.11.3 (3), “CRC Error ON/OFF” must be turned ON.

CRC LUMA indication

NORMAL: The CRC of the intensity signal in the HD-SDI signal is normal.
ERROR: There is an error in the CRC of the intensity signal in the HD-SDI signal.
Blank: CRC errors in the HD-SDI signal are not being detected.

CRC CHROMA indication

NORMAL: The CRC of the chrominance difference signal in the HD-SDI signal is normal.
ERROR: There is an error in the CRC of the chrominance difference signal in the HD-SDI signal.
Blank: CRC errors in the HD-SDI signal are not being detected.

11.2.6 EDH Error Detection

EDH on the status display screen indicates whether an error occurred in the EDH that is multiplexed in the input SD-SDI signal.

Since the EDH is multiplexed only in SD-SDI signals, it is not indicated for HD-SDI signals.

To detect EDH errors, error detection in section 11.11.3 (4), “EDH Error ON/OFF” must be turned ON.

For details on the EDH error, see section 11.10, “EDH Status Display.”

EDH indication

NORMAL: The EDH in the SD-SDI signal is normal.
ERROR: There is an error in the EDH in the SD-SDI signal.
NOT FOUND: The EDH in the SD-SDI signal cannot be found.
Blank: EDH errors in the SD-SDI signal are not being detected.

11.3 Status Display of Ancillary Data

11.3.1 Parity Error Detection

PARITY on the status display screen indicates the result of the error detection using the parity bit included in the ancillary data in the applied SDI signal.

To detect parity errors, error detection in section 11.11.3 (6), “Parity Error ON/OFF” must be turned ON.

If audio is not embedded in the signal, parity errors are not being detected.

PARITY indication

NORMAL: The parity of the ancillary data is normal.
ERROR: Parity error occurred in the ancillary data.

11.3.2 Checksum Error Detection

CHECKSUM on the status display screen indicates the result of the error detection using the checksum included in the ancillary data in the applied SDI signal.
The checksum errors detect only the HD-SDI signal. SD-SDI signal is not displayed on the status display screen.

To detect checksum errors, error detection in section 11.11.3 (7), “Checksum Error ON/OFF” must be turned ON.

If audio is not embedded in the signal, checksum errors are not being detected.

CHECKSUM indication
- NORMAL: The checksum of the ancillary data is normal.
- ERROR: Checksum error occurred in the ancillary data.

11.4 Status Display of the Video Signal Level

11.4.1 Reserved Area Error Detection

RESERVED DATA on the status display screen indicates whether the input SDI signal data exists in the timing identification data area or the area defined by the ancillary data flag (ADF).
In SDI signals, the 10 bit data from 000h to 003h and 3FCh to 3FFh is defined to be used by the timing identification code and ancillary data flag (ADF) and cannot be used as video signal data. A reserved area error occurs when data other than the timing identification signal or ancillary data flag exists in these areas.

To detect reserved area errors, error detection in section 11.11.3 (5), “Reserved Area Error ON/OFF” must be turned ON.

RESERVED DATA indication
- NORMAL: Data other than the timing identification signal or ancillary data flag (ADF) does not exist in the area from 000h to 003h and 3FCh to 3FFh.
- ERROR: Data other than the timing identification signal or ancillary data flag (ADF) exists in the area from 000h to 003h and 3FCh to 3FFh.
- Blank: Incorrect use of the area from 000h to 003h and 3FCh to 3FFh is not being monitored.

11.4.2 Level Error Detection

LEVEL LUMA and LEVEL CHROMA on the status display screen indicate whether the video signal waveform exceeds a prescribed level for the intensity signal and the chrominance difference signal separately.
You can set upper and lower limits for the level error detection values.

To detect level errors, error detection in section 11.11.3 (8), “Level Error ON/OFF” must be turned ON.
For the procedure in setting the threshold levels of level errors, see section 11.12.3, "Level Error Detection Values."

LEVEL LUMA indication

NORMAL: For the intensity signal, the specified upper and lower limits are not being exceeded.

ERROR: For the intensity signal, the specified level is being exceeded.

Blank: Level errors are not being detected.

LEVEL CHROMA indication

NORMAL: For the chrominance difference signal, the specified upper and lower limits are not being exceeded.

ERROR: For the chrominance difference signal, the specified level is being exceeded.

Blank: Level errors are not being detected.

11.4.3 Gamut Error Detection

GAMUT on the status display screen indicates whether gamut errors have occurred.
You can set upper and lower limits for the gamut error detection values.

To detect gamut errors, error detection in section 11.11.3 (9), “Gamut Error ON/OFF” must be turned ON.
For the procedure in setting the gamut error detection values, see section 11.12.1, “Gamut Error Threshold Level”.

GAMUT indication

NORMAL: The upper and lower limits do not exceed the specified level.

ERROR: The specified level is exceeded.

Blank: Gamut errors are not being detected.

11.4.4 Composite Gamut Error Detection

COMP. GAMUT on the status display screen indicates whether level errors have occurred when the signal was converted into composite signal.
Signals that meet the prescribed levels as Y, C_B, C_R signals may exceed the prescribed levels when converted to composite signal. Composite gamut error monitors the level using the signal converted to composite signal.
You can set upper and lower limits for the composite gamut error detection values.

To detect composite gamut errors, the composite gamut error detection in section 11.11.3 (10), "Composite Gamut Error ON/OFF" must be turned ON.
For the procedure in setting the threshold levels of composite gamut errors, see section 11.12.2, “Composite Gamut Error Threshold Level”.

COMP. GAMUT indication

NORMAL: The specified upper and lower limits are not exceeded after converting to a composite signal.

ERROR: The specified level is exceeded after converting to a composite signal.

Blank: Composite gamut errors are not being detected.

11.5 Status Display of Embedded Audio

11.5.1 BCH Error Detection

BCH on the status display screen indicates errors in the BCH code of the embedded audio that is multiplexed in the SDI signal.

To detect BCH errors, error detection in section 11.11.3 (11), “BCH Error ON/OFF” must be turned ON.

BCH indication

NORMAL: BCH error is not occurring in the embedded audio.
ERROR: BCH error occurred in the embedded audio.
Blank: BCH errors in the embedded audio are not being detected.

11.5.2 Sequency Detection of Audio Packets

AUDIO on the status display screen indicates the sequency of the embedded audio packets. The embedded audio packet that is multiplexed in the SDI signal contains a data block number word (DBN). The data block number word repeats values from 1 to 255 for each packet.
This function monitors whether the data block number word (DBN) is consecutive for each packet.

To detect audio packet sequency, error detection in section 11.11.3 (12), “Sequency Detection of Audio Packets ON/OFF” must be turned ON.

AUDIO indication

NORMAL: The sequency of the audio packets is maintained.
ERROR: The sequency of the audio packets is not maintained.
Blank: The sequency of audio packets is not being monitored.

11.5.3 Audio CRC Error Display

CRC on the status display screen indicates CRC errors in the channel status bit that is included in embedded audio packets.
The displayed CRC corresponds to the embedded audio group that is selected in section 9.3, "Group Selection of Embedded Audio."

In professional use such as in broadcasting, the CHANNEL STATUS format is usually set to Professional mode. If Consumer mode is used, WARNING (yellow) is displayed.
This is not counted as an error.

To detect audio CRC errors, the CRC error detection in section 11.11.3 (13), "Channel Status CRC Error ON/OFF" must be turned ON.

CRC indication

NORMAL: CRC error is not occurring in the channel status.
ERROR: CRC error occurred in the channel status.
WORNING: Consumer mode in channel status.
---: There is no channel status.
Blank: CRC errors are not being detected.

11.5.4 Group Selection Display

GROUP on the status display screen indicates the embedded audio group that is selected in section 9.3, “Group Selection of Embedded Audio.”

GROUP indication

1&2: Embedded audio groups 1 and 2 are selected.

3&4: Embedded audio groups 3 and 4 are selected.

11.5.5 Multiplex Channel Display

CHANNEL on the status display screen indicates embedded audio channels that are multiplexed in the SDI signal.

The multiple channel display can show all 16 channels as defined by the standard.

The presence of each embedded audio channel is detected by monitoring the voice control packets. If the voice control packet flag is not valid, multiplexed channels are not indicated even if embedded audio packets are multiplexed in the SDI signal.

CHANNEL indication

-: Embedded audio is not multiplexed.

Value: Audio channels corresponding to the indicated values are multiplexed.

11.6 Other Status Displays

11.6.1 Indication of External Synchronization Signal Selection

REFERENCE on the status display screen indicates whether internal synchronization (INT) or external synchronization (EXT) is selected with the REFERENCE key ⑤.

If ON is selected in section 11.11.3 (14), “Synchronization Detection of the External Synchronization Signal ON/OFF,” and external synchronization is selected, the relationship between the SDI signal and the external synchronization signal is indicated.

REFERNCE indication

INTERNAL: Internal synchronization is selected with the REFERENCE key ⑤.

EXTERNAL: External synchronization is selected with the REFERENCE key ⑤.
When the synchronization detection of the external synchronization signal is ON, this indicates the synchronization relationship is maintained between the SDI signal and the external synchronization signal.

EXTERNAL UNLOCK: The synchronization detection of the external synchronization signal is ON and there is no synchronization relationship between the SDI signal and the external synchronization signal.

11.6.2 Equivalent Cable Length Measurement Indication

CABLE LENGTH on the status display indicates the attenuation by converting the attenuation of the input SDI signal to an equivalent cable length by assuming the SDI signal intensity reference to be 800 mV.

(1) For HD-SDI signals

The equivalent cable length measurement for HD-SDI signals converts the signal attenuation to an LS-5CFB or 1694A cable length.

Select the type of cable length to be converted into in section 11.14.1, "HD-SDI Cable Selection."

The display range is as follows:

<5 m, 5 m, ..., 125 m , >130 m The display resolution is 5 m.

(2) For SD-SDI signals

The equivalent cable length measurement for SD-SDI signals converts the signal attenuation to a 5C2V, 8281, or 1505A cable length.

Select the type of cable length to be converted into in section 11.14.2, "SD-SDI Cable Selection."

The display range is as follows:

<50 m, 50 m, ..., 295 m, >300 m The display resolution is 5 m.

11.6.3 Error Count Indication

ERROR COUNT on the status display indicates the number of detected errors. The indication range is between 0 and 100,000. You can switch the error count indication to a mode that counts once per second or a mode that counts once per field. For details, see section 11.11.2, “Error Count Rate Setting.”

11.6.4 Elapsed Time since Error Reset

FROM RESET on the status display indicates the current elapsed time since error reset. The built-in realtime clock is used to display the elapsed time.

11.6.5 Error Log Mode Display

LOG MODE on the status display indicates the operation status of the error log function. You can select the error log operation in section 11.7.2, "Error Log Start/Stop."

LOG MODE indication

NOW LOGGING: Error log function is enabled.

LOG STOPPED: Error log function is disabled.

11.7 Error Log

Select F·1 LOG from the status display screen to show a log list display of error detection information.

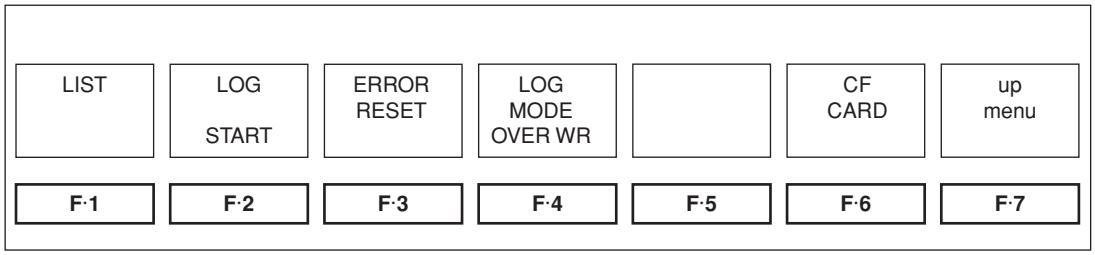


Figure 11.3 Error log display menu

11.7.1 Error Log List Display

[STATUS → F·1 LOG]

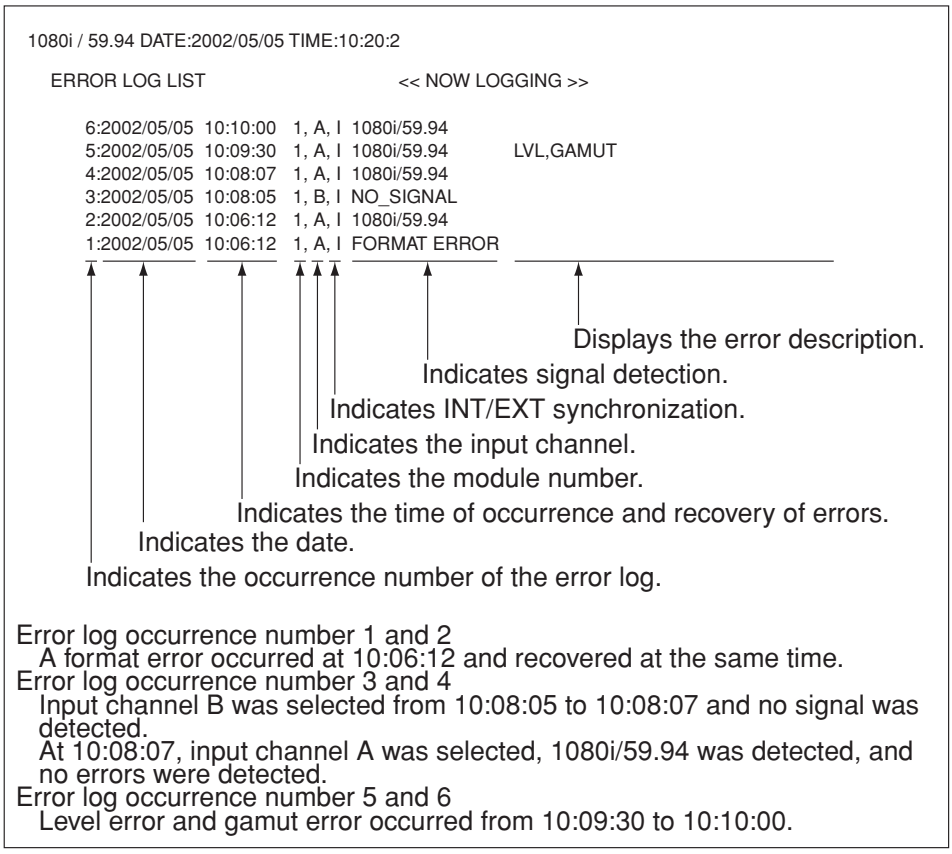
Select F·1 LOG from the status display menu that appears by pressing the STATUS key ⑲ to show the error log list.

To start the error log, you must select START using F·2 LOG.

To return from a screen such as the screen used to store data to the compact flash card back to the error log, press F·1 LIST.

The error log handles consecutive errors of the same type as a single log incident.
Up to 1,000 errors can be stored in the log.

The time of occurrence and recovery of errors in the error log record the time code when time code is selected in section 5.5.1, "Information Display."



Error log occurrence number 1 and 2
A format error occurred at 10:06:12 and recovered at the same time.
Error log occurrence number 3 and 4
Input channel B was selected from 10:08:05 to 10:08:07 and no signal was detected.
At 10:08:07, input channel A was selected, 1080i/59.94 was detected, and no errors were detected.
Error log occurrence number 5 and 6
Level error and gamut error occurred from 10:09:30 to 10:10:00.

Figure 11.4 Error Log Display

11.7.2 Starting/Stopping the Error Log

[STATUS → F·1 LOG → F·2 LOG: START / STOP]

To start or stop the error log, press F·2 LOG from the error log display menu to select START or STOP.

11.7.3 Clearing the Error Log

[STATUS → F·1 LOG → F·3 ERROR RESET]

To clear the error log, press F·3 ERROR RESET from the error log display menu.

11.7.4 Log Operation Mode

[STATUS → F·1 LOG → F·4 LOG MODE: OVER WR / STOP]

Up to 1000 items can be recorded in the error log.

You can select the operation when the log exceeds 1000 items. You can select to overwrite old logs or stop logging when 1000 items have been recorded.

To select the log operation mode, press F·4 LOG MODE from the error log display menu and select OVER WR (for overwrite) or STOP.

11.7.5 Storage to the Compact Flash Card

The error log can be stored to a compact flash card. The procedure is indicated below.

∗ Use FAT16 for the file system on the compact flash card.
Writing is not possible on other file systems such as FAT32 and NTFS.

① Showing the save menu to the compact flash card

[STATUS → F·1 LOG → F·6 CF CARD]

Press F·6 CF CARD from the error log display menu to show the compact flash card save menu.

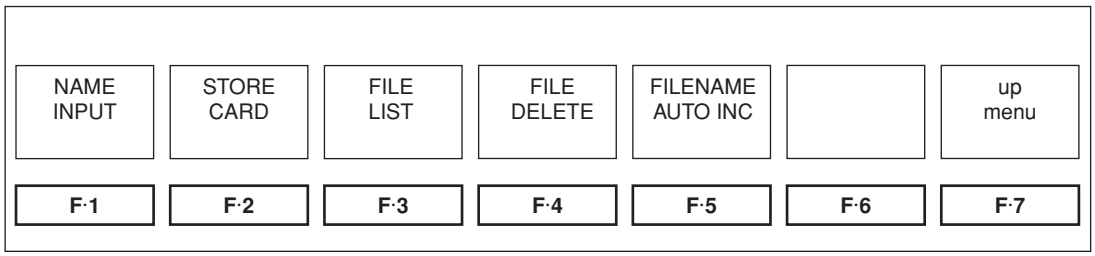


Figure 11.5 Compact Flash Card Save Menu

② Specifying the file name

[STATUS → F·1 LOG → F·6 CF CARD → F·1 NAME INPUT]

From the compact flash card save menu, press F·1 NAME INPUT to show the file name entry screen.

Use the function key (F·1 to F·7) ㉑ or the function dial (F·D) ⑱ to specify the file name. However, if there is a space in the middle of the file name, the characters after the space is ignored.

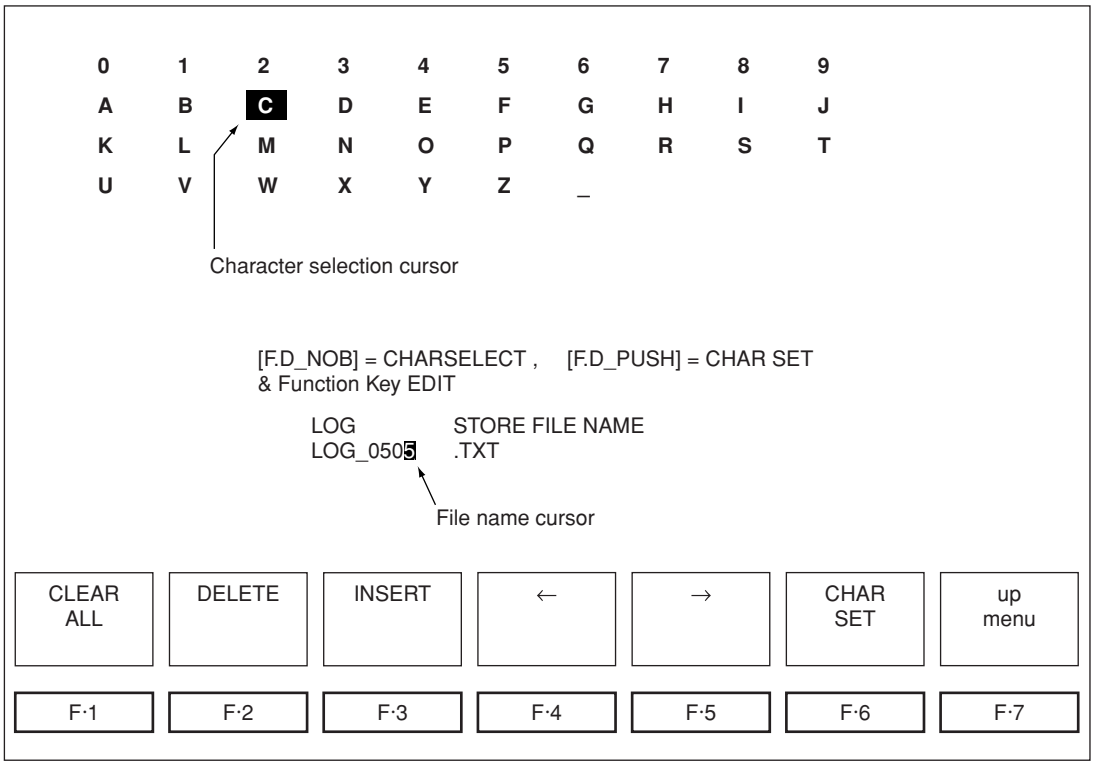


Figure 11.6 File name entry screen

Function Key	Description
F•1 CLEAR ALL	Clears the name
F•2 DELETE	Clears the character at the file name cursor
F•3 INSERT	Enter a single space at the file name cursor
F•4 ←	Moves the file name cursor to the left by a character
F•5 →	Moves the file name cursor to the right by a character
F•6 CHAR SET	Applies the character at the character selection cursor to the file name.
F•7 up menu	Confirms the file name

Table 11.3 File Name Entry Menu

③ Saving the error log to the card

[STATUS → F·1 LOG → F·6 CF CARD → F·2 STORE CARD]

After assigning a file name to the error log, quit the file name entry using F·7 up menu. Next, check that a compact flash card is inserted into the CF CARD slot ㊶ on the rear panel and press F·2 STORE CARD.

The error log is saved to the compact flash card as a text file.

If a compact flash card is not inserted in the CF CARD slot ㊶, a message “No Card In Slot” is displayed.

If a text file with the same name already exists on the compact flash card, F·1 OVER WR YES, F·3 OVER WR NO appears. Press the F·1 key to overwrite the file and F·3 key to cancel.

After the writing of the error log is complete, a file list of the compact card is displayed. The file list only displays the error log text file.

11.7.6 File List of the Compact Flash Card

[STATUS → F·1 LOG → F·6 CF CARD → F·3 FILE LIST]

To display the file list of the compact flash card, press F·3 FILE LIST from the compact flash card save menu. The file list only displays the text files of the error log.

If a compact flash card is not inserted in the CF CARD slot ㊶, a message “No Card In Slot” is displayed.

11.7.7 Log File Deletion

[STATUS → F·1 LOG → F·6 CF CARD → F·4 FILE DELETE]

To delete an error log file, press F·4 FILE DELETE from the compact flash card save menu. If you then press F·1 DELETE YES, the selected log file is deleted. If you press F·3 DELETE NO, the file is not deleted, and the screen returns to the compact flash card save menu.

11.8 Data Dump Display

Select F·2 DATA DUMP from the status display menu to show the data dump display screen. The data dump of the selected line and the data dump display menu are displayed.

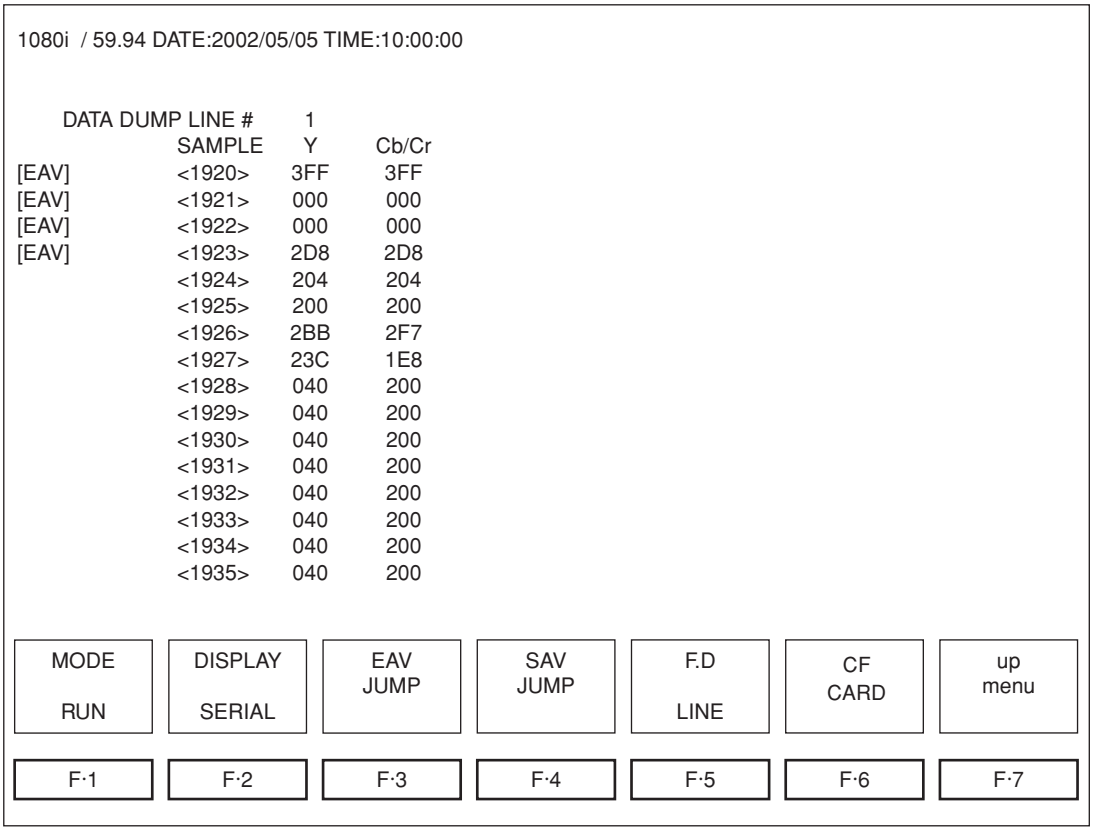


Figure 11.7 Data dump display and data dump display menu

11.8.1 Data Dump Display Auto Updating and Hold

[STATUS → F·2 DATA DUMP → F·1 MODE:RUN / HOLD]

The data dump display can be automatically updated or held. From the data dump display menu, press F·1 MODE to select RUN to automatically update the data dump or select HOLD to hold the data dump.

11.8.2 Data Dump Display Format Selection

[STATUS → F·2 DATA DUMP → F·2 DISPLAY:SERIAL / COMPO / BINARY]

There are three methods of displaying data dumps: serial display which displays the serial data array after parallel conversion, component display which displays individually for each waveform channel, and binary display. In the serial data array method, the intensity signal (Y) and chrominance difference signal (C_B, C_R) are displayed separately for HD-SDI signals.

SERIAL: Displays the data dump using a serial data array after parallel conversion.

COMPONENT: Displays the data dump using a serial data array after parallel conversion that has been separated into Y, C_B, C_R.

BINARY: Displays the data dump using a serial data array after parallel conversion in binary notation.

1080i / 59.94 YCbCr DATE:2004/04/05 TIME:10:00:00

DATA DUMP LINE No. 1

		SAMPLE	Y	Cb/Cr
[EAV]		<1920>	3FF	3FF
[EAV]		<1921>	000	000
[EAV]		<1922>	000	000
		<1923>	2D8	2D8
		<1924>	204	204
		<1925>	200	200
		<1926>	2BB	2F7
		<1927>	23C	1E8
	ADF	<1928>	040	000
	ADF	<1929>	040	3FF
	ADF	<1930>	040	3FF
	DID	<1931>	040	2E7
	DBN	<1932>	040	242
	DC	<1933>	040	218
	UDW	<1934>	040	140
	UDW	<1935>	040	205

(a) HD-SDI serial data array display

625i / 50 YCbCr DATE:2004/04/05 TIME:10:00:00

DATA DUMP LINE No. 1

	SAMPLE	COLOR	DATA
[EAV]	<1440>	Cb	3FF
[EAV]	<1441>	Y	000
[EAV]	<1442>	Cr	000
[EAV]	<1443>	Y'	2D8
ADF	<1444>	Cb	000
ADF	<1445>	Y	3FF
ADF	<1446>	Cr	3FF
DID	<1447>	Y'	2FF
DBN	<1448>	Cb	200
DC	<1449>	Y	224
UDW	<1450>	Cr	1B0
UDW	<1451>	Y'	2D3
UDW	<1452>	Cb	11E
UDW	<1453>	Y	1B2
UDW	<1454>	Cr	2D3
UDW	<1455>	Y'	21E

(b) SD-SDI serial data array display

1080i / 59.94 YCbCr DATE:2004/04/05 TIME:10:00:00

DATA DUMP LINE No. 1

		SAMPLE	Y	Cb	Cr
[EAV]		<1920>	3FF	3FF	
[EAV]		<1921>	000		000
[EAV]		<1922>	000	000	
		<1923>	2D8		2D8
		<1924>	204	204	
		<1925>	200		200
		<1926>	2BB	2F7	
		<1927>	23C		1E8
	ADF	<1928>	040	000	
	ADF	<1929>	040		3FF
	ADF	<1930>	040	3FF	
	DID	<1931>	040		2E7
	DBN	<1932>	040	242	
	DC	<1933>	040		218
	UDW	<1934>	040	140	
	UDW	<1935>	040		205

(c) HD-SDI component display

625i / 50 YCbCr DATE:2004/04/05 TIME:10:00:00

DATA DUMP LINE No. 1

			SAMPLE	Y	C. ADR	Cb	Cr
[EAV]			< 720>	000	<360>	3FF	000
[EAV]			< 721>	2D8			
ADF	ADF	ADF	< 722>	3FF	<361>	000	3FF
DID			< 723>	2FF			
DC	DBN	UDW	< 724>	224	<362>	200	1B0
UDW			< 725>	2D3			
UDW	UDW	UDW	< 726>	1B2	<363>	11E	2D3
UDW			< 727>	21E			
UDW	UDW	UDW	< 728>	2D3	<364>	1B4	21E
UDW			< 729>	1B6			
UDW	UDW	UDW	< 730>	11E	<365>	2D3	178
UDW			< 731>	2E8			
UDW	UDW	UDW	< 732>	17A	<366>	11E	2E8
UDW			< 733>	21E			
UDW	UDW	UDW	< 734>	2E8	<367>	17C	21E
UDW			< 735>	17E			

(d) SD-SDI component display

1080i / 59.94 YCbCr DATE:2004/04/05 TIME:10:00:00

DATA DUMP LINE No. 1

		SAMPLE	Y	Cb/Cr
[EAV]				
[EAV]		<1920>	1111111111	1111111111
[EAV]		<1921>	0000000000	0000000000
[EAV]		<1922>	0000000000	0000000000
		<1923>	1011011000	1011011000
		<1924>	1000000100	1000000100
		<1925>	1000000000	1000000000
		<1926>	1010111011	1011110111
		<1927>	1000111100	0111101000
	ADF	<1928>	0001000000	0000000000
	ADF	<1929>	0001000000	1111111111
	ADF	<1930>	0001000000	1111111111
	DID	<1931>	0001000000	1011100111
	DBN	<1932>	0001000000	1001000010
	DC	<1933>	0001000000	1000011000
	UDW	<1934>	0001000000	0101000000
	UDW	<1935>	0001000000	1000000101

(e) HD-SDI binary display

625i / 50 YCbCr DATE:2004/04/05 TIME:10:00:00

DATA DUMP LINE No. 1

	SAMPLE	COLOR	DATA
[EAV]	<1440>	Cb	1111111111
[EAV]	<1441>	Y	0000000000
[EAV]	<1442>	Cr	0000000000
[EAV]	<1443>	Y'	1011011000
ADF	<1444>	Cb	0000000000
ADF	<1445>	Y	1111111111
ADF	<1446>	Cr	1111111111
DID	<1447>	Y'	1011111111
DBN	<1448>	Cb	1000000000
DC	<1449>	Y	1000100100
UDW	<1450>	Cr	0110110000
UDW	<1451>	Y'	1011010011
UDW	<1452>	Cb	0100011110
UDW	<1453>	Y	0110110010
UDW	<1454>	Cr	1011010011
UDW	<1455>	Y'	1000011110

(f) SD-SDI binary display

Figure 11.8 Data dump display format of SDI signals

This function detects ancillary data that is multiplexed in the SDI signal and displays markers.

Detected codes

ADF: ANCILLARY DATA FLAGS
Displays the 000H, 3FFH, 3FFH (ADF) code from the DATA_DUMP data.

DID: DATA IDENTIFICATION
The DID code is the next data after the ADF code.

SDID: SECONDARY DATA IDENTIFICATION
If the DID code is smaller than 80H, SDID is displayed as data in the second format.

DBN: DATA BLOCK NUMBERS
If the DID code is greater than or equal to 80H, DBN is displayed as data in the first format.

DC: DATA COUNT
Displays the data count code (DC) following the SDID/DBN when the ADF code is detected.

UDW: USER DATA WORDS
Displays the user data word (UDW) code for the data count following the ADF code.
The data for ADF, DID, SDID, DBN, DC, and UDW above are displayed in cyan.

CS: CHECKSUM
Displays the CS code immediately after the UDW in magenta.

AP: ACTIVE PICTURE
If the selected line is in the active picture area, the area between SAV and EAV are displayed as active picture AP area in yellow.

11.8.3 Auto Search of EAV/SAV

[STATUS → F·2 DATA DUMP → F·3 EAV JUMP]
[STATUS → F·2 DATA DUMP → F·4 SAV JUMP]

You can select whether to display the start sample number of the data dump display using the EAV sample number or SAV sample number. Press F·3 EAV JUMP from the data dump display menu to display the data dump from the EAV sample number; press F·4 SAV JUMP to display the data dump from the SAV sample number.

11.8.4 Line Number and Sample Number Selection

[STATUS → F·2 DATA DUMP → F·5 F.D: LINE / SAMPLE]

To change the line number or sample number of the data dump display, turn the function dial (F·D) ⑱. If F·5 F.D is set to LINE, the line number is varied. If F·5 F.D is set to SAMPLE, the sample number is varied.

LINE: Sets the range of lines that can be selected using the function dial (F·D) ⑱ to the entire frame.
SAMPLE: Selects the sample number of the line specified using the function dial (F·D) ⑱.

11.8.5 Storage to the Compact Flash Card

The data dump can be stored one line that is selected to a compact flash card. The procedure is indicated below.

∗ Use FAT16 for the file system on the compact flash card.
Writing is not possible on other file systems such as FAT32 and NTFS.

① Showing the save menu to the compact flash card

[STATUS → F·2 DATA DUMP → F·6 CF CARD]

Press F·6 CF CARD from the data dump display menu to show the compact flash card save menu.

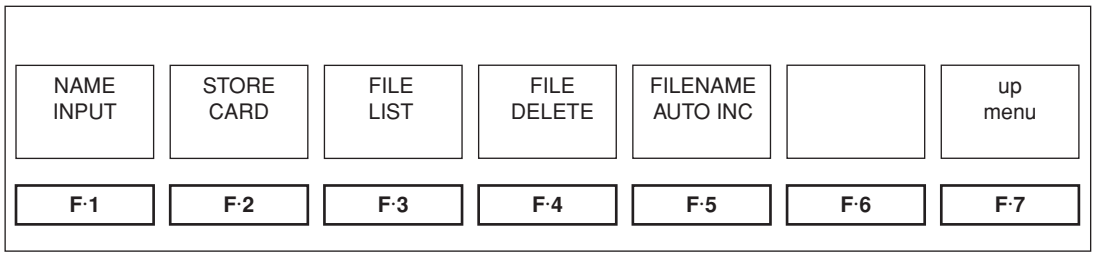


Figure 11.9 Compact Flash Card Save Menu

② Specifying the file name

[STATUS → F·2 DATA DUMP → F·6 CF CARD → F·1 NAME INPUT]

From the compact flash card save menu, press F·1 NAME INPUT to show the file name entry screen.

Use the function key (F·1 to F·7) ㉑ or the function dial (F·D) ⑱ to specify the file name. However, if there is a space in the middle of the file name, the characters after the space is ignored.

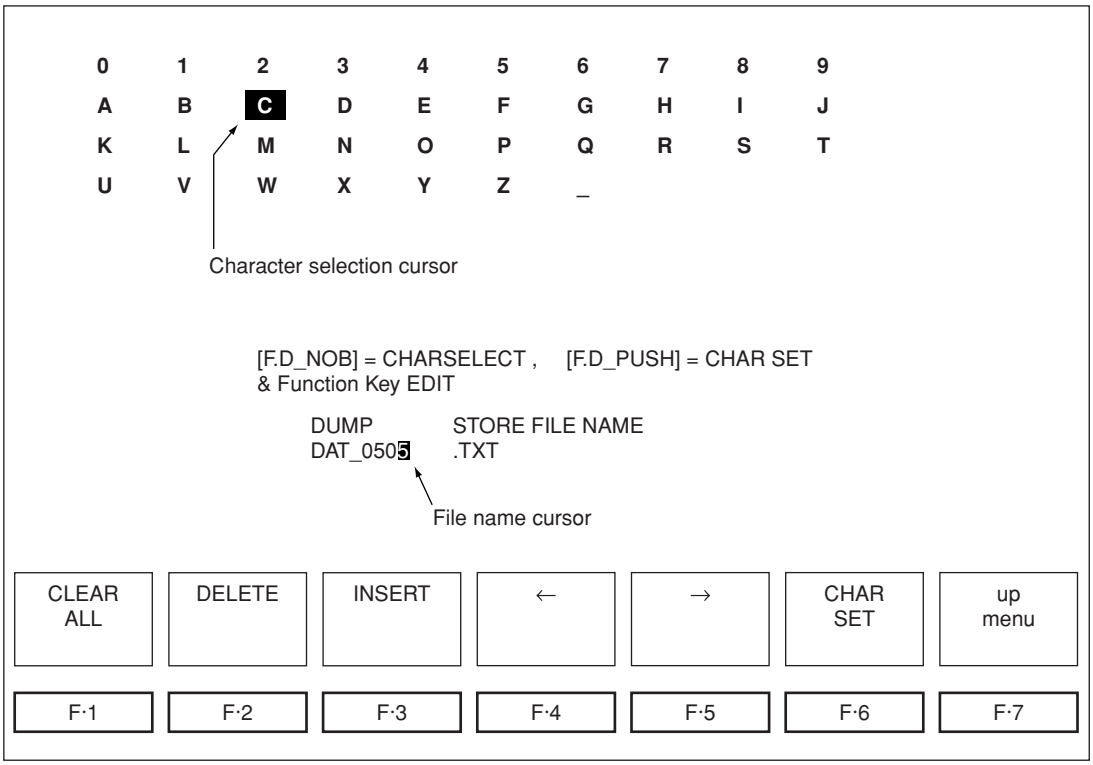


Figure 11.10 File name entry screen

Function Key	Description
F•1 CLEAR ALL	Clears the name
F•2 DELETE	Clears the character at the file name cursor
F•3 INSERT	Enter a single space at the file name cursor
F•4 ←	Moves the file name cursor to the left by a character
F•5 →	Moves the file name cursor to the right by a character
F•6 CHAR SET	Applies the character at the character selection cursor to the file name.
F•7 up menu	Confirms the file name

Table 11.4 File Name Entry Menu

③ Saving the data dump to the card

[STATUS → F·2 DATA DUMP → F·6 CF CARD → F·2 STORE CARD]

After assigning a file name to the data dump, quit the file name entry using F·7 up menu. Next, check that a compact flash card is inserted into the CF CARD slot on the rear panel and press F·2 STORE CARD.

The data dump is saved to the compact flash card as a text file.

If a compact flash card is not inserted in the CF CARD slot ㊶, a message “No Card In Slot” is displayed.

If a text file with the same name already exists on the compact flash card, F·1 OVER WR YES, F·3 OVER WR NO appears. Press the F·1 key to overwrite the file and F·3 key to cancel.

After the writing of the data dump is complete, a file list of the compact card is displayed.

The file list only displays the data dump text file.

11.8.6 File List of the Compact Flash Card

[STATUS → F·2 DATA DUMP → F·6 CF CARD → F·3 FILE LIST]

To display the file list of the compact flash card, press F·3 FILE LIST from the compact flash card save menu. The file list only displays the text files of the data dump.

If a compact flash card is not inserted in the CF CARD slot ㊶, a message “No Card In Slot” is displayed.

11.8.7 Data Dump File Deletion

[STATUS → F·2 DATA DUMP → F·6 CF CARD → F·4 FILE DELETE]

To delete a data dump file, press F·4 FILE DELETE from the compact flash card save menu. If you then press F·1 DELETE YES, the selected data dump file is deleted. If you press F·3 DELETE NO, the file is not deleted, and the screen returns to the compact flash card save menu.

11.8.8 EDH Packets Shown in the Data Dump

If EDH error detection is ON and error log is set to START in the data dump display of the SD-SDI signal, the EDH packet section is masked as "---", because the data cannot be processed correctly.

11.9 Detailed Status Display of Embedded Audio

Press F·3 AUDIO from the status display menu to show the detailed status display of embedded audio.

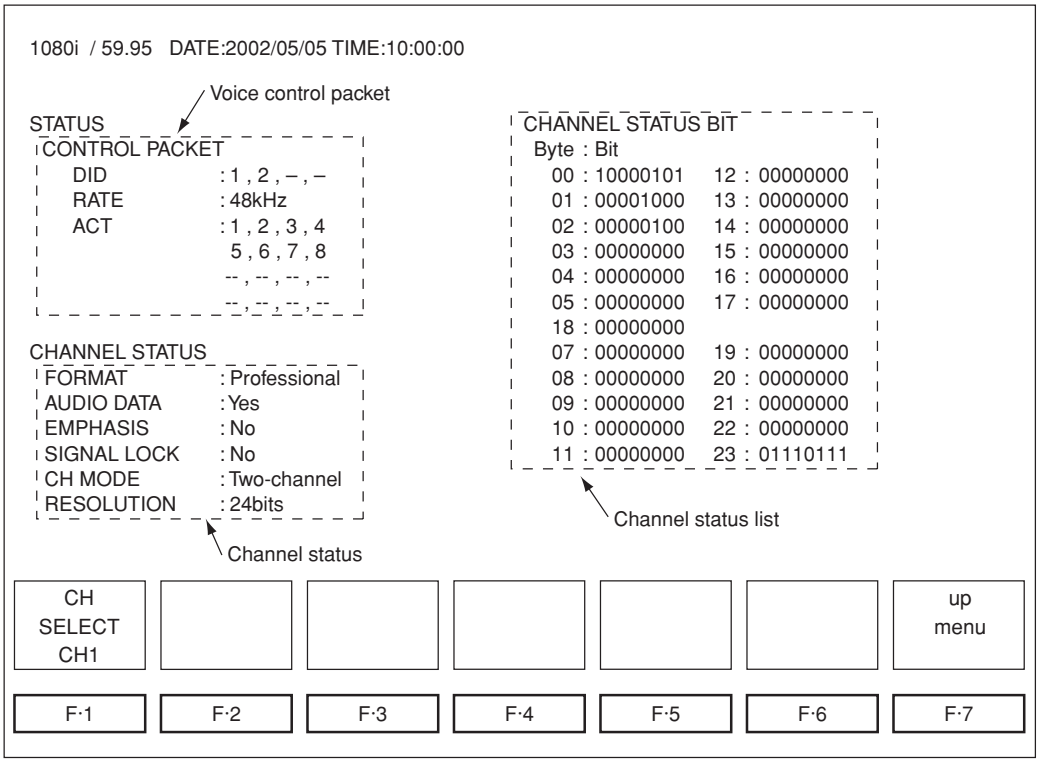


Figure 11.11 Detailed status display of embedded audio

11.9.1 Voice Control Packets

The voice control packets of the detailed status display of embedded audio is normally multiplexed in line 9 or line 571 (interlace only) of the horizontal ancillary data area of the Y channel. This function analyzes and displays this audio control packet.

DID indication

Indicates the audio groups that are multiplexed in the SDI signal as embedded audio.

Value: The audio groups indicated by the values are multiplexed.

-: Audio group that is not multiplexed.

RATE indication

Indicates the sampling frequency of the embedded audio.

ACT indication

Indicates the audio channels that are multiplexed in the SDI signal as embedded audio.

Value: The audio channels indicated by the values are multiplexed.

-: Audio channel that is not multiplexed.

11.9.2 Channel Status

The channel status of the detailed status display of embedded audio shows information by analyzing the channel status bit of embedded audio packets.

FORMAT indication

Indicates whether the signal is an audio signal for the broadcasting studio or a signal for consumer audio devices or the like.

Professional: Indicates that the signal is for the broadcasting studio.

Consumer: Indicates that the signal is for consumer audio devices or audio software manufacturing.

AUDIO DATA indication

Indicates whether the audio packet is an audio signal or data other than the audio signal.

Yes: Audio signal

No: Signal other than audio

EMPHASIS indication

Indicates the audio signal emphasis setting.

Not_indicated: No emphasis indication

No: No emphasis

50/15us: Emphasis time constant of 50/15 μs

CCIT_J17: CCITT J.17 (800 Hz insertion loss of 6.5 dB)

Reserved: Received undefined data

SIGNAL LOCK indication

Lock condition of the source sampling frequency

Yes: Locked

No: Not locked

CH MODE indication

Indicates channel mode setting.

Not_indicated:	No mode indication
Two-channel:	2 channel mode
Single-channel:	1 channel mode
Primary/secondary:	Primary/Secondary mode
Stereo:	Stereo mode
Reserved:	Received undefined data

RESOLUTION indication

Indicates quantization accuracy.

24bits:	Indicates audio data of 24-bit quantization accuracy.
20bits:	Indicates audio data of 20-bit quantization accuracy.

11.9.3 Channel Status List Display

The channel status list of the detailed status display of embedded audio shows all 192 bits of the channel status of embedded audio packets.

11.9.4 Channel Selection

To select the channel on the detailed status display of embedded audio, press the F·1 CH SELECT key.

In addition, you can switch between CH1 to CH8 and CH9 to CH16 by selecting 1&2 or 3&4 in section 9.3, "Group Selection of Embedded Audio."

11.10 EDH Status Display (Only on the LV 5700A)

In the case of SD-SDI signals, F·4 EDH is displayed in the status display menu, the detailed EDH status can be displayed.

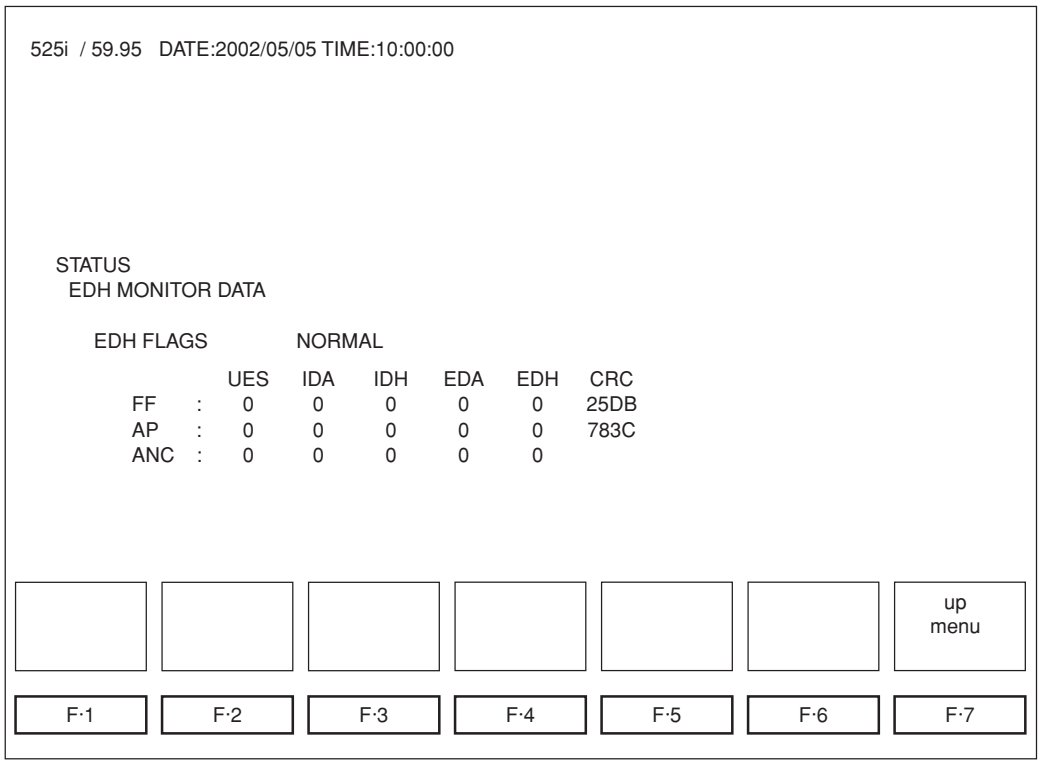


Figure 11.12 Detailed EDH status display

FF: Full field. A CRC code is generated from all the data in a single field, and the result of the error detection is displayed.

AP: Active picture. A CRC code is generated from the data in the active video period, and the result of the error detection is displayed.

ANC: Ancillary data. A parity bit and checksum are generated from the ancillary data, and the result of the error detection is displayed.

EDH: Transmission error detection flag immediately before the LV 5700A/LV 5710A.
A value of 0 indicates normal; 1 indicates an error.

EDA: Transmission error detection flag from a device before the LV 5700A/LV 5710A.
A value of 0 indicates normal; 1 indicates an error.

IDH: Error detection flag in the data transmission system inside the LV 5700A/LV 5710A.
A value of 0 indicates normal; 1 indicates an error.

IDA: Data transmission error detection flag in the device before the LV 5700A/LV 5710A.
A value of 0 indicates normal; 1 indicates an error.

UES: EDH packet detection flag.
A value of 0 indicates that EDH packet has been detected; 1 indicates that it has not.

CRC: Indicates the received CRC.

11.11 Error Detection Setting

Press [F·5] ERROR CONFIG from the status display menu to show the error configuration menu.

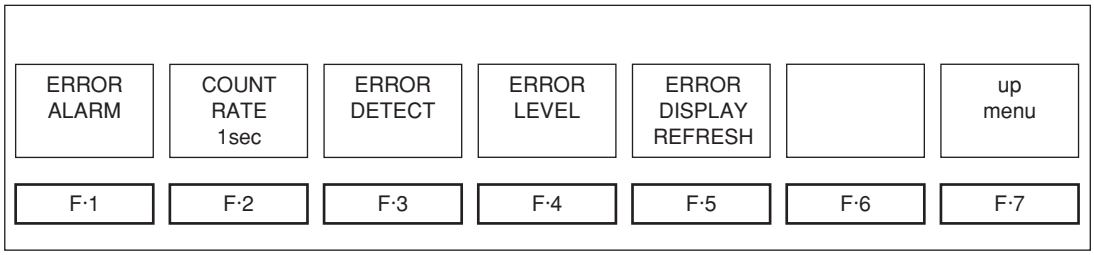


Figure 11.13 Error configuration menu

Function Key	Description
F·1 ERROR ALARM	Sets how to notify error occurrences.
F·2 COUNT RATE	Sets the count rate of the error count.
F·3 ERROR DETECT	Sets whether to turn ON/OFF the error detection function of each error.
F·4 ERROR LEVEL	Sets the error threshold level.
F·5 ERROR DISPLAY	Selects whether to refresh or hold the error display.

Table 11.5 Error configuration menu description

11.11.1 Error Alarm Setting

Select [F·1] ERROR ALARM from the error configuration menu to show the error alarm menu. You can set how to notify error occurrences in this menu.

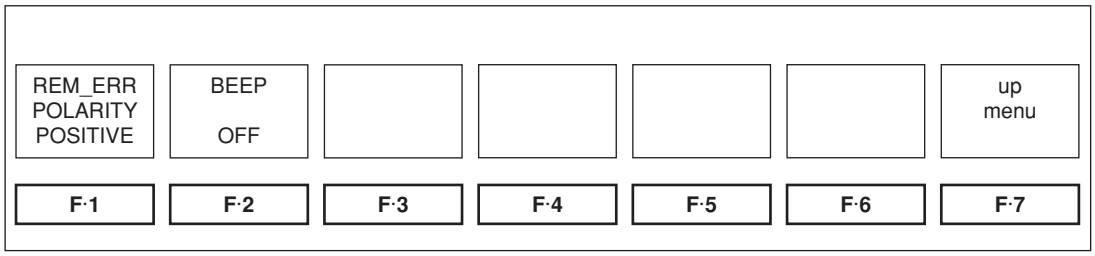


Figure 11.14 Error Alarm Menu

(1) Polarity Selection of the Remote Connector Error Output

[[STATUS] → [F·5] ERROR CONFIG → [F·1] ERROR ALARM → [F·1] REM_ERR POLARITY:POSITIVE /NEGATIVE]

An error alarm output pin is assigned to the remote connector on the rear panel. This output transmits a pulse when an error occurs in any of the items that have been turned ON in section 11.11.3, "Detection ON/OFF of Errors." For the location of the output pin, see section 5.7.1, "Remote Connector."

If you press [F·1] REM_ERR POLARITY to select POSITIVE from the error alarm menu, a high level signal is output when an error occurs. If you select NEGATIVE, a low level signal is output when an error occurs.

(2) Beep Sound

[STATUS → F·5 ERROR CONFIG → F·1 ERROR ALARM → F·2 BEEP:ON / OFF]

Press F·2 BEEP from the error alarm menu to select ON to sound an error beep every second when an error occurs. Select OFF to turn off the beep sound.

∗ The beep does not sound if SYSTEM → F·4 INTERFACE → F·4 BEEP is set to MUTE even if BEEP is turned ON in this setting.

11.11.2 Error Count Rate Setting

[STATUS → F·5 ERROR CONFIG → F·2 COUNT RATE:V RATE / 1sec]

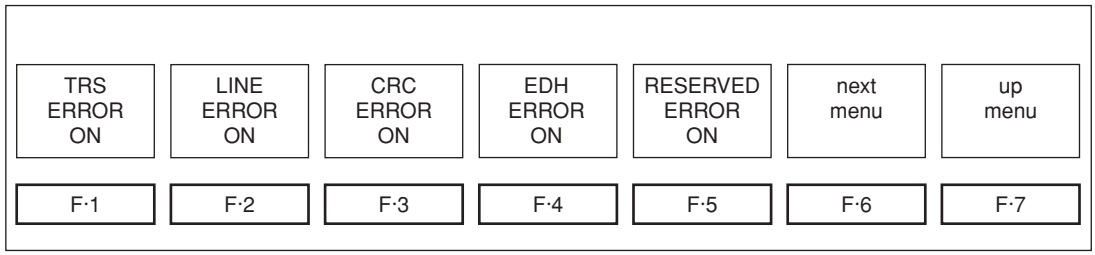
Press F·2 COUNT RATE from the error configuration menu to select the count rate of the error count on the status display screen.

V RATE: Increments the error count per field (frame for progressive). Even if multiple errors occur within a field, the error count is incremented only by 1.

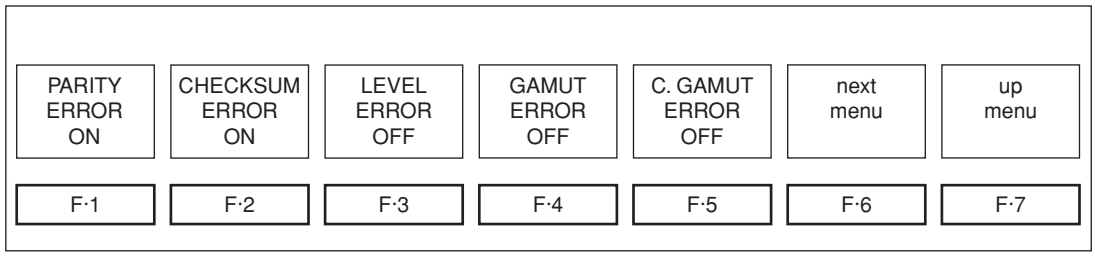
1sec: Increments the error count per second. Even if multiple errors occur within a second, the error count is incremented only by 1.

11.11.3 Detection ON/OFF of Errors

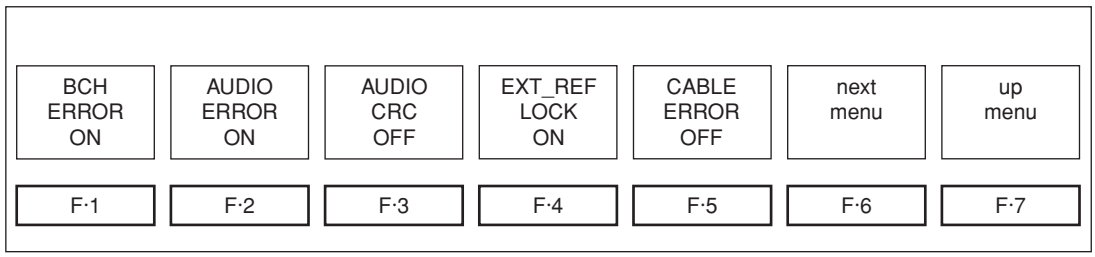
Press F·3 ERROR DETECT from the error configuration menu to show the error detection setup menu. You can turn ON/OFF the error detection function of each error from this menu.



(a) Error detection setup menu page 1



(b) Error detection setup menu page 2



(c) Error detection setup menu page 3

Figure 11.15 Error detection setup menu

(1) TRS Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·1 TRS ERROR:ON / OFF]

To turn ON/OFF the TRS error detection function, press F·1 TRS ERROR from the error detection setup menu to select ON or OFF.

(2) Line Number Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·2 LINE ERROR:ON / OFF]

To turn ON/OFF the line number error detection function, press F·2 LINE ERROR from the error detection setup menu to select ON or OFF.

The detection function only works on HD-SDI signals.

(3) CRC Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·3 CRC ERROR:ON / OFF]

To turn ON/OFF the CRC error detection function when HD-SDI signals are input, press F·3 CRC ERROR from the error detection setup menu to select ON or OFF.

(4) EDH Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·4 EDH ERROR:ON / OFF]

To turn ON/OFF the EDH error detection function when SD-SDI signals are input, press F·4 EDH ERROR from the error detection setup menu to select ON or OFF.

If the function is turned OFF, the result of EDH error detection is not displayed on the status display screen. However, the status of the EDH flag is displayed in the detailed status display of EDH.

The LV 5710A does not support the EDH error detection function.

(5) Reserved Area Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·5 RESERVED ERROR:ON / OFF]

To turn ON/OFF the reserved area error detection function, press F·5 RESERVED ERROR from the error detection setup menu to select ON or OFF.

(6) Parity Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·1 PARITY ERROR:ON / OFF]

To turn ON/OFF the parity error detection function, press F·6 next menu from the error detection setup menu followed by F·1 PARITY ERROR to select ON or OFF.

When embedded audio or ancillary data is not multiplexed in the signal.

Parity errors will not be detected.

(7) Checksum Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·2 CHECKSUM ERROR : ON / OFF]

To turn ON/OFF the checksum error detection function, press F·6 next menu from the error detection setup menu followed by F·2 CHECKSUM ERROR to select ON or OFF.

The detection function only works on HD-SDI signals.

When embedded audio or ancillary data is not multiplexed in the signal.

Checksum errors will not be detected.

(8) Level Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·3 LEVEL ERROR:ON / OFF]

To turn ON/OFF the level error detection function, press F·6 next menu from the error detection setup menu followed by F·3 LEVEL ERROR to select ON or OFF.

(9) Gamut Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·4 GAMUT ERROR:ON / OFF]

To turn ON/OFF the gamut error detection function, press F·6 next menu from the error detection setup menu followed by F·4 GAMUT ERROR to select ON or OFF.

(10) Composite Gamut Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·5 C. GAMUT ERROR: ON / OFF]

To turn ON/OFF the composite gamut error detection function, press F·6 next menu from the error detection setup menu followed by F·5 C. GAMUT ERROR to select ON or OFF.

(11) BCH Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·6 next menu → F·1 BCH ERROR:ON / OFF]

To turn ON/OFF the BCH error detection function, press F·6 next menu twice from the error detection setup menu followed by F·1 BCH ERROR to select ON or OFF.

The detection function only works on HD-SDI signals.

(12) Sequency Detection of Audio Packets ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·6 next menu → F·2 AUDIO ERROR:ON / OFF]

To turn ON/OFF the audio packet sequency error detection function, press F·6 next menu twice from the error detection setup menu followed by F·2 AUDIO ERROR to select ON or OFF.

(13) Channel Status CRC Error ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·6 next menu → F·3 AUDIO CRC : ON / OFF]

To turn ON/OFF the CRC error detection function of the channel status bit that is included in the embedded audio, press F·6 next menu twice from the error detection setup menu followed by F·3 AUDIO CRC to select ON or OFF.

(14) Synchronization Detection of the External Synchronization Signal ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·6 next menu → F·4 EXR_REF LOCK: ON / OFF]

To turn ON/OFF the function for detecting whether the external synchronization signal is synchronized with the SDI signal, press F·6 next menu twice from the error detection setup menu followed by F·4 EXT_REF LOCK to select ON or OFF.

(15) Equivalent Cable Length Meter Alarm ON/OFF

[STATUS → F·5 ERROR CONFIG → F·3 ERROR DETECT → F·6 next menu → F·6 next menu → F·5 CABLE ERROR: ON / OFF]

To turn ON/OFF the function for sounding an alarm (cable length meter indicated using red characters) when the cable length measured by the equivalent cable length meter function exceeds a specified value, press F·6 next menu twice from the error detection setup menu followed by F·5 CABLE ERROR to select ON or OFF.

11.12 Detection Value Setting of Errors

Select F·4 ERROR LEVEL from the error configuration menu to show the error level selection menu for setting the threshold levels for error detection.

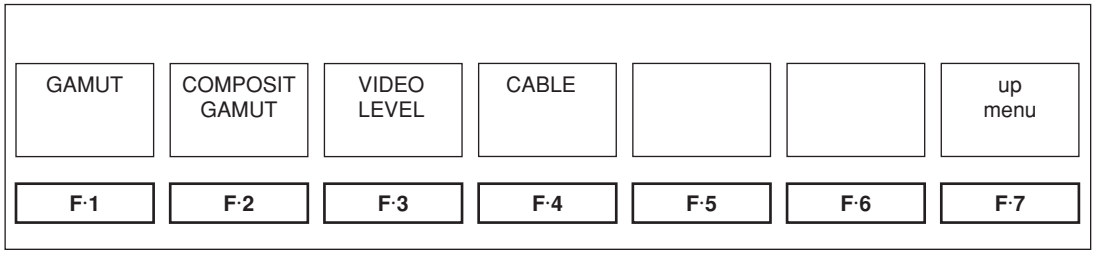


Figure 11.16 Error level item selection menu

Function Key	Description
F·1 GAMUT	Sets the gamut error threshold level.
F·2 COMPOSIT GAMUT	Sets the composite gamut error threshold level.
F·3 VIDEO LEVEL	Sets the level error threshold level.
F·4 CABLE	Sets the cable length meter error threshold level.

Table 11.6 Description of the error level item selection menu

11.12.1 Gamut Error Threshold Level

Press [F·1] GAMUT from the error level item selection menu to show the gamut error threshold level setup menu. You can set the gamut error threshold level from this menu.

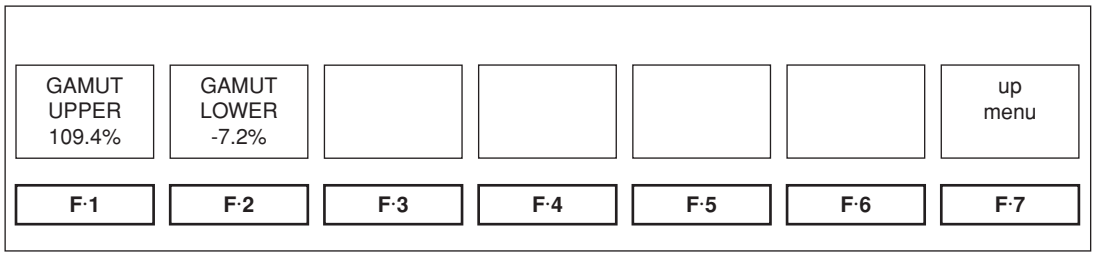


Figure 11.17 Gamut error threshold level setup menu

[[STATUS] → [F·5] ERROR CONFIG → [F·4] ERROR LEVEL → [F·1] GAMUT → [F·1] GAMUT UPPER: 90.8% ~ 109.4%]
[[STATUS] → [F·5] ERROR CONFIG → [F·4] ERROR LEVEL → [F·1] GAMUT → [F·2] GAMUT LOWER: -7.2% ~ 6.1%]
From the gamut error threshold level setup menu, press [F·1] GAMUT UPPER or [F·2] GAMUT LOWER and set the threshold levels to define signal levels used to determine gamut errors.

If a signal level greater than the UPPER value is detected, a gamut error occurs.
If a signal level smaller than the LOWER value is detected, a gamut error occurs.

11.12.2 Composite Gamut Error Threshold Level

Press [F·2] COMPOSIT GAMUT from the error level item selection menu to show the composite gamut error threshold level setup menu. You can set the composite gamut error threshold level from this menu.

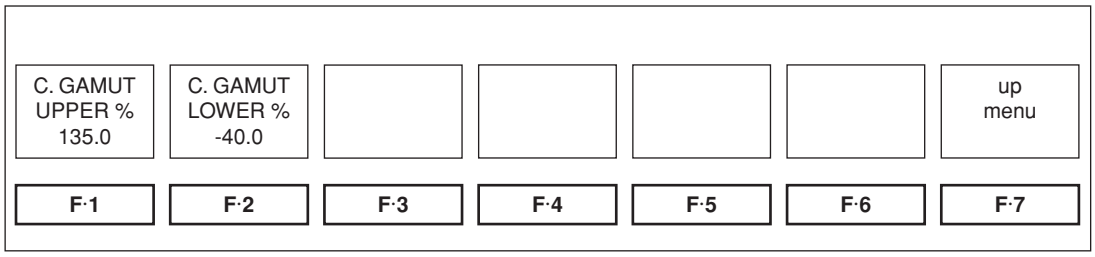


Figure 11.18 Composite gamut error threshold level setup menu

[[STATUS] → [F·5] ERROR CONFIG → [F·4] ERROR LEVEL → [F·2] COMPOSIT GAMUT → [F·1] C. GAMUT UPPER: 90.0% ~ 135.0%]
[[STATUS] → [F·5] ERROR CONFIG → [F·4] ERROR LEVEL → [F·2] COMPOSIT GAMUT → [F·2] C. GAMUT LOWER: -40.0% ~ -20.0%]

From the composite gamut error threshold level setup menu, press F·1 C. GAMUT UPPER % or F·2 C. GAMUT LOWER % and set the threshold levels to define signal levels used to determine composite gamut errors.

If a signal level greater the specified UPPER value is detected when the SDI signal is converted to composite signal, a composite gamut error occurs.
If a signal level less than the specified LOWER value is detected when the SDI signal is converted to composite signal, a composite gamut error occurs.

11.12.3 Level Error Detection Values

Press F·3 VIDEO LEVEL from the error level item selection menu to show the level error threshold level setup menu. You can set the level error threshold level from this menu.

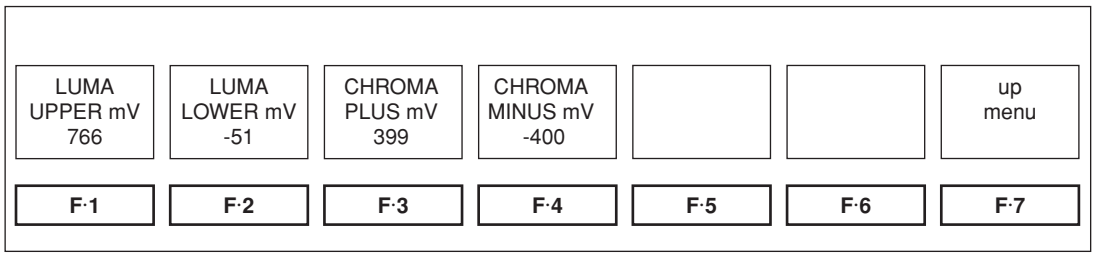


Figure 11.19 Level error threshold level setup menu

(1) Level Error of Intensity Signal
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·3 VIDEO LEVEL → F·1 LUMA UPPER mV: -51 ~ 766]
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·3 VIDEO LEVEL → F·2 LUMA LOWER mV: -51 ~ 766]
From the level error threshold level setup menu, press F·1 LUMA UPPER mV or F·2 LUMA LOWER mV and set the threshold levels to define signal levels used to determine level errors of intensity signals (Y).
If a signal level greater than the specified UPPER value is detected, a level error occurs.
If a signal level less than the specified LOWER value is detected, a level error occurs.

(2) Level Error of Chrominance Difference Signal
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·3 VIDEO LEVEL → F·3 CHROMA PLUS mV: -400 ~ 399]
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·3 VIDEO LEVEL → F·4 CHROMA MINUS mV: -400 ~ 399]
From the level error threshold level setup menu, press F·3 CHROMA PLUS mV or F·4 CHROMA MINUS mV and set the threshold levels to define signal levels used to determine level errors of chrominance difference signals (C_B and C_R).
If a signal level greater than the specified UPPER value is detected, a level error occurs.
If a signal level less than the specified LOWER value is detected, a level error occurs.

11.12.4 Detection Value of Equivalent Cable Length Meter Error

Press F·4 CABLE from the error level item selection menu to show the cable length meter error threshold level setup menu. You can set the cable length meter error threshold level from this menu.

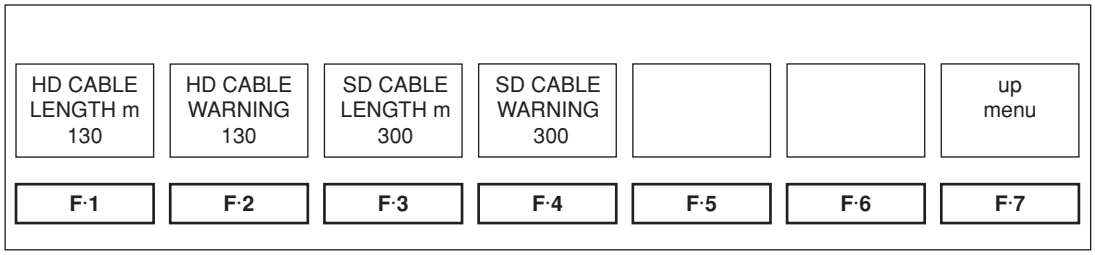


Figure 11.20 Cable length meter error threshold level setup menu

(1) Cable Length Meter Error of HD-SDI Signals

[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·4 CABLE → F·1 HD CABLE LENGTH m: 5 ~ 130]

From the cable length meter error threshold setup menu, press F·1 HD CABLE LENGTH and set the cable length (signal attenuation) used to determine equivalent cable length meter errors in the HD-SDI input signal.

If the cable length meter indication is greater than the specified value, an equivalent cable length meter error occurs.

If an error occurs, the equivalent cable length meter indication for CABLE LENGTH in the status display menu is shown in red.

(2) Cable Length Meter Alarm of HD-SDI Signals

[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·4 CABLE → F·2 HD CABLE WARNING: 5 ~ 130]

From the cable length meter error threshold setup menu, press F·2 HD CABLE WARNING and set the cable length (signal attenuation) used to determine equivalent cable length meter alarms of the HD-SDI input signal.

If the cable length meter indication is greater than the specified value, an equivalent cable length meter alarm is indicated.

If an alarm occurs, the equivalent cable length meter indication for CABLE LENGTH in the status display menu is shown in yellow.

(3) Cable Length Meter Error of SD-SDI Signals

[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·4 CABLE → F·3 SD CABLE LENGTH m: 50 ~ 300]

From the cable length meter error threshold setup menu, press F·3 SD CABLE LENGTH m and set the cable length (signal attenuation) used to determine equivalent cable length meter errors in the SD-SDI input signal.

If the cable length meter indication is greater than the specified value, an equivalent cable length meter error occurs.

If an error occurs, the equivalent cable length meter indication for CABLE LENGTH in the status display menu is shown in red.

(4) Cable Length Meter Alarm of SD-SDI Signals

[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·4 CABLE → F·4 SD CABLE WARNING: 50 ~ 300]

From the cable length meter error threshold setup menu, press F·4 SD CABLE WARNING and set the cable length (signal attenuation) used to determine equivalent cable length meter alarms of the SD-SDI input signal.

If the cable length meter indication is greater than the specified value, an equivalent cable length meter alarm is indicated.

If an alarm occurs, the equivalent cable length meter indication for CABLE LENGTH in the status display menu is shown in yellow.

11.13 Error Display Operation

[STATUS → F·5 ERROR DISPLAY: REFRESH / HOLD]

There are two methods of displaying errors on the status display. The error indication can be set to disappear after approximately 1 second or remain displayed until the error is reset.

From the status display menu, press F·5 ERROR DISPLAY. Select REFRESH to display error indications for approximately 1 second. Select HOLD to hold error indications until errors are reset.

11.14 Cable Selection of the Cable Length Meter

You can select the type of cable to which the SDI signal level is converted on the cable length meter on the status display.

From the status display menu, press F·6 CABLE LENGTH to show the cable selection menu of the equivalent cable length meter.

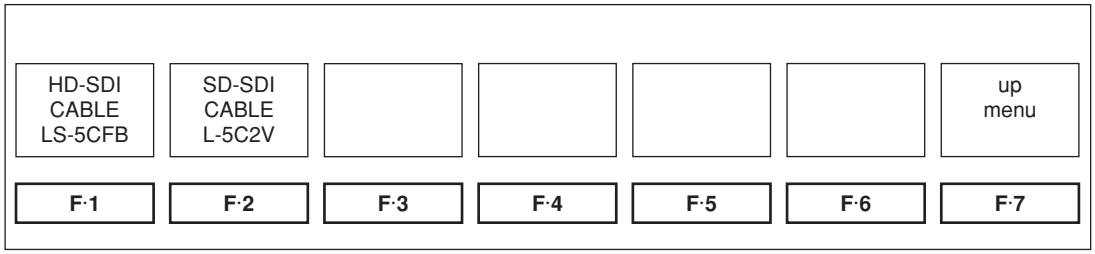


Figure 11.21 Cable selection menu of the cable length meter

11.14.1 HD-SDI Cable Selection

[STATUS → F·6 CABLE LENGTH → F·1 HD-SDI CABLE: LS-5CFB / 1694A]

To select the type of cable for the conversion on the HD-SDI cable length meter, press F·1 HD-SDI from the cable selection menu of the cable length meter. Select LS-5CFB or 1694A.

11.14.2 SD-SDI Cable Selection

[STATUS → F·6 CABLE LENGTH → F·2 SD-SDI CABLE: L-5C2V / 8281 / 1505A]

To select the type of cable for the conversion on the SD-SDI cable length meter, press F·2 SD-SDI from the cable selection menu of the cable length meter. Select L-5C2V, 8281, or 1505A.

11.15 Error Reset

[STATUS → F·7 ERROR RESET]

To reset the error indication on the status display screen and the error log, press F·7 ERROR RESET from the status display menu. The error indication is reset with a beep sound.

The beep does not sound if SYSTEM → F·4 Interface → F·4 BEEP is set to MUTE even if BEEP is turned ON in this setting.

12. CAPTURE FUNCTION

The LV 5700A/LV 5710A can copy the screen display to the internal memory or a compact flash card. If the screen display is saved to the internal memory, the data is lost when the screen display is changed or when the power is turned OFF. If the screen display is saved to a compact flash card, the data is saved even when the power is turned OFF. The data can be read on a PC as bitmap images.

Press the CAPTURE key ④ to capture the screen image to the internal memory of the LV 5700A/ LV 5710A. The capture menu appears.

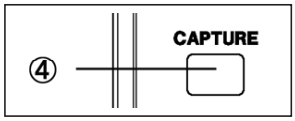


Figure 12.1 CAPTURE key ④

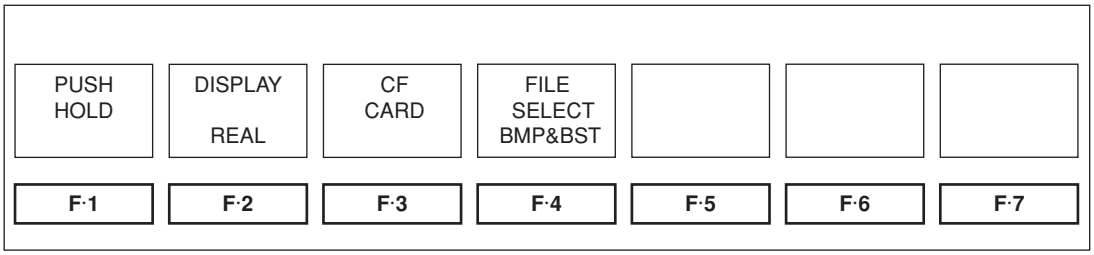


Figure 12.2 Capture menu

Function Key	Description
F·1 PUSH HOLD	Captures the screen to the internal memory.
F·2 DISPLAY	Selects to display the captured image.
F·3 CF CARD	Performs compact flash card operation.
F·4 FILE SELECT	Selects the file type to be saved, BMP or BST.

Table 12.1 Capture Menu Description

Carry out the following procedure to use the capture function.

(1) Show the display you wish to capture.

(2) Press the CAPTURE key ④ to capture the displayed contents in the LV 5700A/LV 5710A.

(3) Press F·2 DISPLAY to select whether to show the captured image or the current content. You can also select overlay display.

To store to a compact flash card, continue with the following procedure.

(4) Press F·3 CF CARD to show the compact flash card storage menu.

(5) Press F·1 NAME INPUT to specify the name of the captured image file.

After you have specified the name, press F·7 up menu.

(6) Press F·2 STORE CARD to store the data to the compact flash card.

12.1 Screen Capture

To use the capture function, show the display you wish to capture.
Then, press the CAPTURE key ④ to capture the displayed contents in the LV 5700A/LV 5710A.

The image data captured in the internal memory is cleared when you switch the screen display such as when you switch from the waveform display to the vectorscope display. The contents in the internal memory are also cleared when the power is turned OFF.

Simply capturing the display does not show the captured image on the screen. Carry out the procedure described in section 12.2, "Display Selection" to show the captured image.

Press [F·1] PUSH HOLD from the capture menu to capture the displayed contents again.

12.2 Display Selection

You can select how the captured data in the internal memory is displayed.
You can select the display method from 1) display the newest information, 2) display the captured image, and 3) display the newest information and captured image overlaid.
When using overlay display, the brightness of the newest information is cut to half, and the brightness of cyan is cut to half on the captured image.

DISPLAY selection

- REAL: Displays the newest information.
- HOLD: Displays the captured image.
- BOTH: Displays both newest information and captured image overlaid.

If you select HOLD, the video signal waveform display, vectorscope display, audio waveform display, and picture display show the captured image. However, the scale, readout, and audio level meter continue showing the newest information.
The bitmap data stored to the compact flash card is the information existing at the time the capture operation is carried out.

12.3 Storage to the Compact Flash Card

The image data captured in the internal memory of the LV 5700A/LV 5710A is cleared when you switch the display or when you turn OFF the power.
To keep the captured image from being cleared, the data must be stored to a compact flash card. By storing the data in a compact flash card, the image can be displayed on another device such as your PC, or it can be rewritten to the internal memory of the LV 5700A/LV 5710A at a later time.

The captured image can be transmitted directly to a PC via the Ethernet network.

∗ Use FAT16 for the file system on the compact flash card.
Writing is not possible on other file systems such as FAT32 and NTFS.

① Showing the compact flash card storage menu

[CAPTURE → F·3 CF CARD]

From the error log display menu, press F·3 CF CARD to show the compact flash card storage menu.

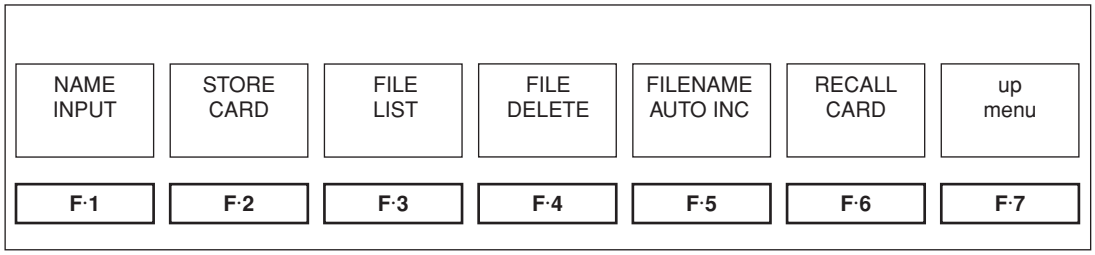


Figure 12.3 Compact flash card storage menu

② Specifying the file name

[CAPTURE → F·3 CF CARD → F·1 NAME INPUT]

From the compact flash card storage menu, press F·1 NAME INPUT to show the file name entry screen.

Use the function key (F·1 to F·7) ㉑ or the function dial (F·D) ⑱ to specify the file name. However, if there is a space in the middle of the file name, the characters after the space are ignored.

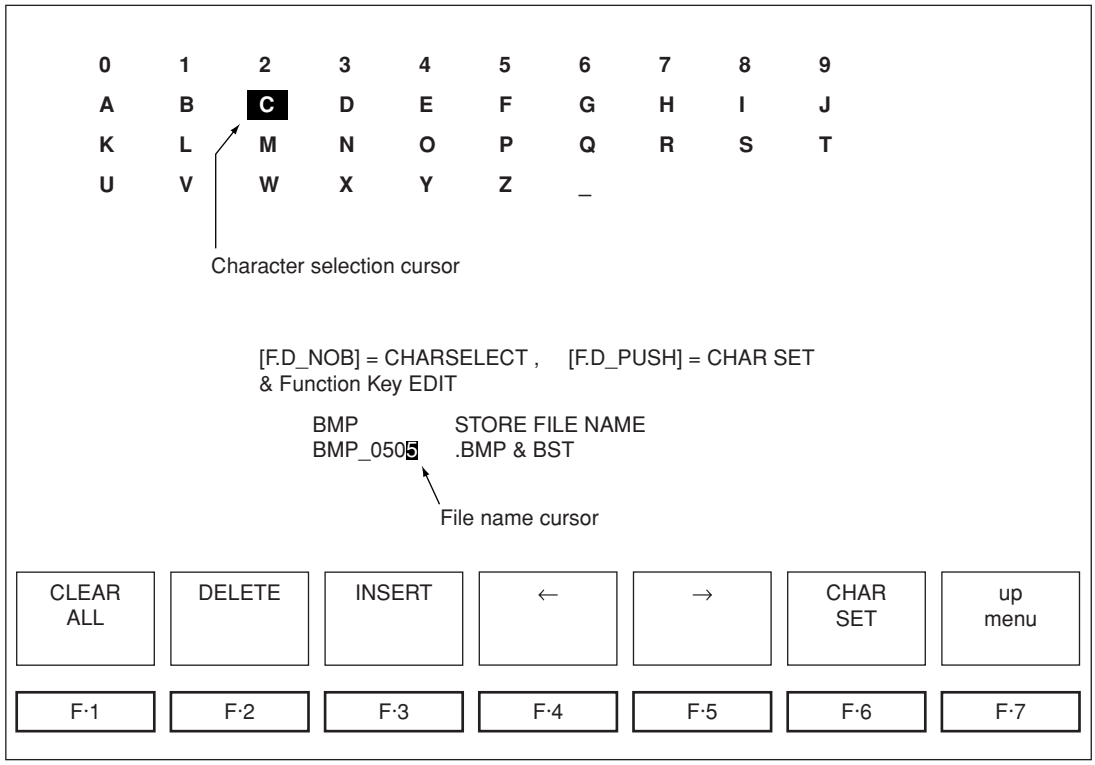


Figure 12.4 File name entry screen

Function Key		Description
F·1	CLEAR ALL	Clears the file name
F·2	DELETE	Clears the character at the file name cursor
F·3	INSERT	Enter a single space at the file name cursor
F·4	←	Moves the file name cursor to the left by a character
F·5	→	Moves the file name cursor to the right by a character
F·6	CHAR SET	Applies the character at the character selection cursor to the file name.
F·7	up menu	Confirms the file name

Table 12.2 File name entry menu

③ Storing the image data to the card

[CAPTURE → F·3 CF CARD → F·2 STORE CARD]

After assigning a file name to the image data, quit the file name entry using F·7 up menu.

Next, check that a compact flash card is inserted into the CF CARD slot ㊶ on the rear panel and press F·2 STORE CARD.

The image data is saved to the compact flash card as a bitmap file.

If a compact flash card is not inserted in the CF CARD slot ㊶, a message "No Card In Slot" is displayed.

After the writing of the image data is complete, a file list of the compact card is displayed.

The file list only displays the capture data bitmap files.

＊ BST files

When a captured image data is written to the compact flash card, a BMP (bitmap) file and a BST file are created. The bitmap file is used when displaying the captured image data on another device such as your PC.

The BST file is used to recall the image data on the LV 5700A/LV 5710A and contains setup items of the LV 5700A/LV 5710A that were used at the time the image was captured in addition to the waveform data.

Bitmap data cannot be used to recall the captured image on the LV 5700A/LV 5710A.

To select whether to save the BST file or BMP file, carry out the procedure given in section 12.7, "Storage File Selection."

12.4 Recalling from the Compact Flash Card

[CAPTURE → F·3 CF CARD → F·6 RECALL CARD]

BST files are needed to recall the image data stored to the compact flash card. Insert the compact flash card containing the BST file into the CF CARD slot on the rear panel. From the capture menu, press F·5 FILE LIST to show a list of captured image files on the compact flash card.

Select the file to be recalled from the list using the function dial (F·D) ⑱.

Next, press F·6 RECALL CARD to recall the captured image into the LV 5700A/LV 5710A.

The LV 5700A/LV 5710A is configured according to the settings included in the BST file. However, the audio level meter display and the readout values at the time errors occurred cannot be recalled from the compact flash card, because they are not stored in the BST file.

12.5 File List of the Compact Flash Card

[CAPTURE → F·3 CF CARD → F·3 FILE LIST]

To display the file list of the compact flash card, press F·3 FILE LIST from the compact flash card storage menu. The file list only displays the captured BST files.

If a compact flash card is not inserted in the CF CARD slot ㊶, a message "No Card In Slot" is displayed.

12.6 Deletion of Capture Files

[CAPTURE → F·3 CF CARD → F·4 FILE DELETE]

To delete a capture file, press F·4 FILE DELETE from the compact flash card storage menu. Then, press F·1 DELETE YES to delete the selected capture file. Press F·3 DELETE NO to not delete the file. The screen returns to the compact flash card storage menu.

12.7 Storage File Selection

[CAPTURE → F·4 FILE SELECT: BMP&BST / BMP / BST]

From the capture menu, press F·4 FILE SELECT. You can select the type of file for storing the captured image data to the compact flash card.

BMP&BST: Stores the bitmap file and BST file to the compact flash card. One capture image requires approximately 4.7 MB of free space.
The bitmap file can be used to display the image on a device such as a PC, and the BST file can be used to display the image on the LV 5700A/LV 5710A.

BMP: Stores only the bitmap file to the compact flash card.
One capture image requires approximately 2.4 MB of free space.
The bitmap file cannot be used to display the image on the LV 5700A/LV 5710A.

BST: Stores only the BST file to the compact flash card.
One capture image requires approximately 2.4 MB of free space.
The BST file is used to display the image on the LV 5700A/LV 5710A.

13. PRESET FUNCTION

You can register up to 100 sets of settings excluding the power ON/OFF setting and Ethernet settings on the LV 5700A/LV 5710A and recall them later. You can also recall the stored settings via the REMOTE connector on the rear panel.

13.1 Recalling of Settings

Press the RECALL key ① to display the recall menu. You can recall stored panel settings from this menu. Recall numbers are assigned to the (F·1 to F·6) ㉑ function keys.

If there are more than six sets of stored settings, press F·7 more to display them.

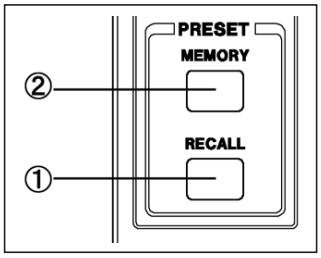


Figure 13.1 RECALL key ①
MEMORY key ②

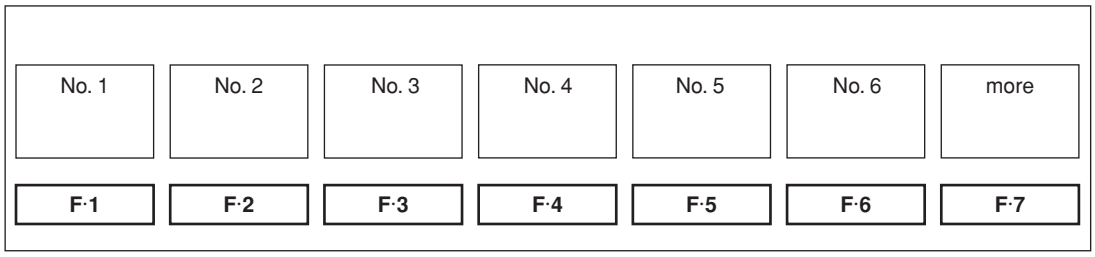
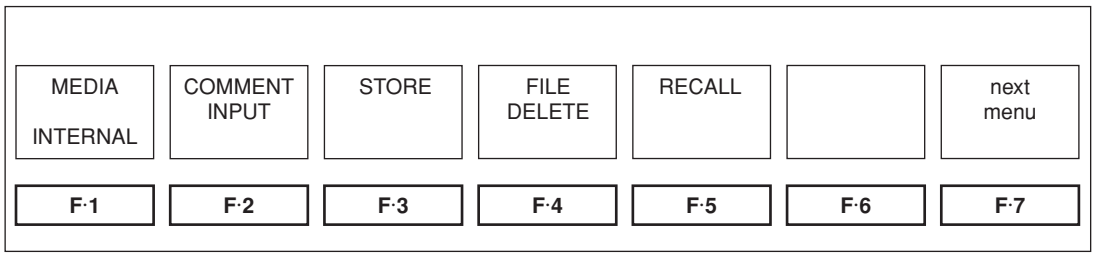


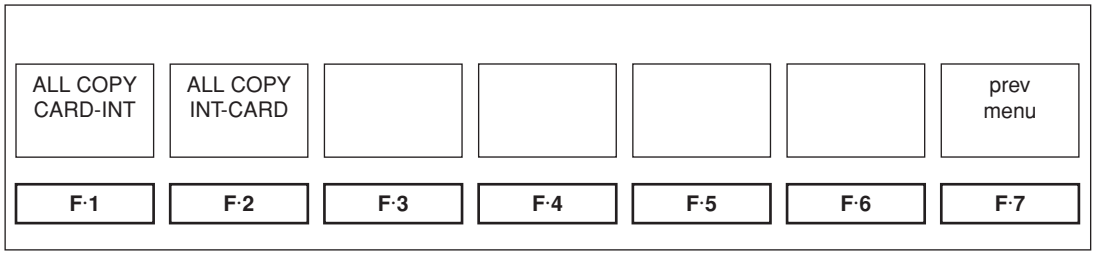
Figure 13.2 Recall menu

13.2 Registration of Settings

Press the MEMORY key ② to display the memory menu. The settings existing at that point can be saved using this menu. You can attach a comment for each setup item.



Memory menu page 1



Memory menu page 2

Figure 13.3 Memory menu

Function Key	Description
F·1 MEDIA	Selects the storage medium to save the memory contents
F·2 COMMENT INPUT	Enters comments
F·3 STORE	Stores the settings
F·4 FILE DELETE	Clears the memory
F·5 RECALL	Recalls presets (Screen display remains at the preset list)
F·1 ALL COPY CARD-INT	Copies all the presets stored on the compact flash card to the internal memory
F·2 ALL COPY INT-CARD	Copies all the presets stored in the internal memory to the compact flash card

Table 13.1 Memory Menu Description

13.2.1 Storage Medium Selection

[MEMORY → F·1 MEDIA: INTERNAL / CF_CARD]

There are two methods in saving the preset contents. One is to register to the internal flash memory. The other is to register to a compact flash card.

Press F·1 MEDIA from the memory menu to select the storage method.

INTERNAL: Stores the settings to the internal flash memory.

CF_CARD: Stores the settings to the compact flash card.

13.2.2 Comment Entry

[MEMORY → F·2 COMMENT INPUT]

You can enter a comment for each preset number.

To enter a comment, press F·2 COMMENT from the memory menu to display the comment entry screen.

Enter the comment using the function key (F·1 to F·7) ㉑ and the function dial (F·D) ⑱.

When you are done, press F·7 up menu to return.

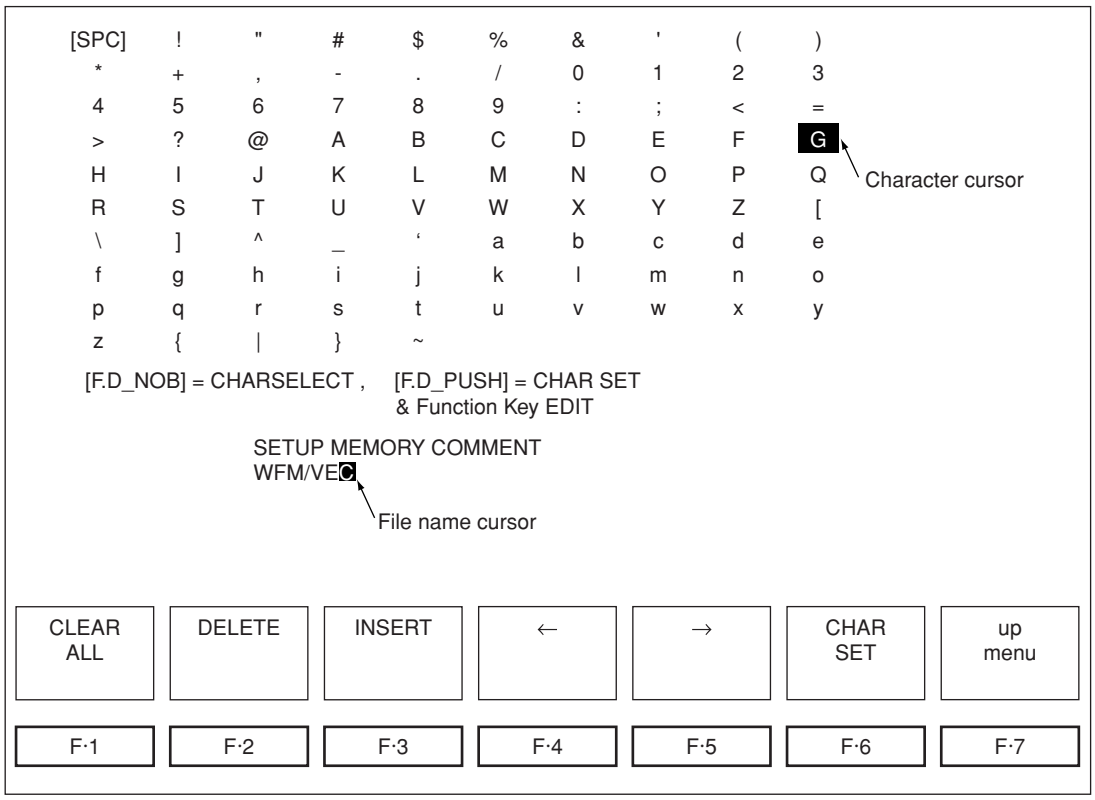


Figure 13.4 File name entry screen

Function Key	Description
F·1 CLEAR ALL	Clears the file name
F·2 DELETE	Clears the character at the file name cursor
F·3 INSERT	Enter a single space at the file name cursor
F·4 ←	Moves the file name cursor to the left by a character
F·5 →	Moves the file name cursor to the right by a character
F·6 CHAR SET	Applies the character at the character selection cursor to the file name.
F·7 up menu	Confirms the file name
F·D	Moves the character cursor

Table 13.2 File name entry menu

13.2.3 Storing of the Settings

After entering the comment, turn the function dial (F·D) ⑱ on the memory menu and select the desired preset number for registering the settings. Then, press F·3 STORE to store the settings.

13.2.4 Deleting of the Settings

To delete settings that have been registered as a preset, turn the function dial (F·D) ⑱ on the memory menu to select the preset number you wish to delete.
Then, press F·4 FILE DELETE. F·1 DELETE YES and F·3 DELETE NO appear for you to confirm the operation. Press F·1 to delete or F·3 to cancel.

13.2.5 Editing of Presets

To edit or recall the preset contents, press F·5 RECALL from the memory menu.
The screen display keeps showing the list of presets, but when you exit from the memory menu, the recalled settings are activated.
The recall function here is mainly used to move the preset number or copy the contents to another preset number.
After recalling a preset, select a preset number and press F·3 STORE to copy the contents of the recalled preset.

13.3 Copying of All Presets

If you wish to make the presets on multiple LV 5700A/LV 5710A monitors the same, you can use the compact flash card to do so.
Presets can be copied between the compact flash card and internal preset memories from the memory menu page 2.

∗ Use FAT16 for the file system on the compact flash card.
Writing is not possible on other file systems such as FAT32 and NTFS.

13.3.1 Copying from the CF Card to the Internal Memory

[MEMORY → F·7 next menu → F·1 ALL COPY CARD-INT]
From the memory menu page 2, press F·1 ALL COPY CARD-INT to copy all the presets on the compact flash card to the internal preset memories.

13.3.2 Copying from the Internal Memory to the CF Card

[MEMORY → F·7 next menu → F·2 ALL COPY INT-CARD]
From the memory menu page 2, press F·2 ALL COPY INT-CARD to copy all the presets in the internal memories to the compact flash card.

14. ETHERNET

14.1 Ethernet Control Function

Ethernet control can be used to enter nearly all the settings that can be specified using the front panel keys. In addition, data dump, status, and other information can be output.
Due to functional limitations, some operations may not be carried out even when a command is executed.
Before executing the commands, be sure you have a firm understanding of the information given in chapters 5 to 13.

14.2 Ethernet Connection Procedure

To connect to the Ethernet network, connect a 100BASE-TX STP cable to the Ethernet connector (ETHER) ㉔.

Cable:
When connecting to the network via a hub, use a straight cable; when directly connecting to a PC (one-to-one connection), use a cross cable.

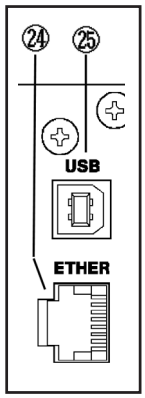


Figure 14.1 Ethernet connector (ETHER) ㉔

14.3 TCP/IP Setup

To set Ethernet-related settings of the LV 5700A/LV 5710A, press the SYSTEM key followed by the F·4 INTERFACE key and then the F·2 ETHERNET key.
The TCP/IP setup screen appears. Enter the parameters.
After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

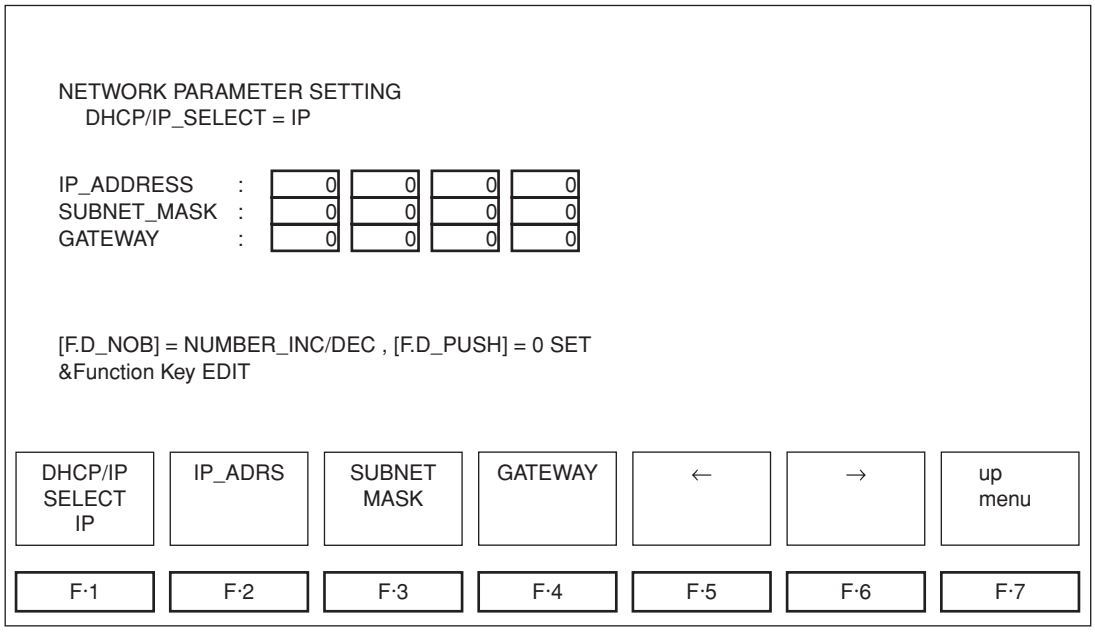


Figure 14.2 TCP/IP setup screen

14.3.1 DHCP/IP Selection

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·1 DHCP/IP SELECT:DHCP / IP]
From the TCP/IP setup menu, press F·1 DHCP/IP SELECT to select whether to use DHCP or specify the IP address.

If DHCP is selected in an environment in which a DHCP server is running, the IP address, subnet mask, and default gateway settings are automatically assigned.
To find out if you can use DHCP, check with your network administrator.
After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

14.3.2 IP Address Setting

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·2 IP_ADRS]
If IP was selected in section 14.3.1 “DHCP/IP Selection,” you must specify the IP address to be assigned to the LV 5700A/LV 5710A. The IP address must be a unique number on the network.
For details on obtaining an IP address for the LV 5700A/LV 5710A, check with your network administrator.
If DHCP is selected, the IP address cannot be specified.

Press F·2 IP_ADRS. A blue cursor appears at “IP_ADDRESS:” at the top section of the screen.
Set the value in the range of 0 to 255 by turning the function dial (F·D) ⑱.
Use the F·5 and F·6 keys to move the cursor.
After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

14.3.3 Subnet Mask Setting

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·3 SUBNET MASK]
If IP was selected in section 14.3.1 “DHCP/IP Selection,” you must specify the subnet mask.
For details on the subnet mask, check with your network administrator.
If DHCP is selected, the subnet mask cannot be specified.

Press F·3 SUBNET MASK. A blue cursor appears at “SUBNET_MASK:” at the top section of the screen.
Set the value in the range of 0 to 255 by turning the function dial (F·D) ⑱.
Use the F·5 and F·6 keys to move the cursor.
After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

14.3.4 Default Gateway Setting

[SYSTEM → F·4 INTERFACE → F·2 ETHERNET → F·4 GATEWAY]

If IP was selected in section 14.3.1 “DHCP/IP Selection,” you must specify the default gateway.

For details on the default gateway, check with your network administrator.

Press F·4 GATEWAY. A blue cursor appears at “GATEWAY:” at the top section of the screen.

Set the value in the range of 0 to 255 by turning the function dial (F·D) ⑱.

Use the F·5 and F·6 keys to move the cursor.

After setting the TCP/IP parameters, power cycle the LV 5700A/LV 5710A.

14.4 Operations on the PC

14.4.1 Remote Control using TELNET

To control the LV 5700A/LV 5710A remotely using a controller such as a PC connected to the network, TELNET is used. For a description on how to start TELNET, see the instruction manual that came with your PC.

∗ Example of starting TELNET on Windows 98

1) From the Start menu, select **Run**. Then, enter TELNET and click **OK**.
2) From the **Connect** menu, choose **Remote System**.
3) Enter the IP address assigned to the LV 5700A/LV 5710A in Host Name.
4) Choose **telnet** for the Port.
5) Set Terminal Type to **VT100**.
6) Click **Connect** to start the TELNET connection with the LV 5700A/LV 5710A.

Windows is a registered trademark of Microsoft Corporation.

When the TELNET connection is established, “login:” appears on the screen.

When the instrument is LV 5700A, enter “LV5700A”. Next “Password:” appears.

Enter “LV5700A”.

If the instrument is LV 5710A, enter “LV5710A”. Next “Password:” appears. Enter “LV5710A”.

The login name and password cannot be changed on the LV 5700A/LV 5710A.

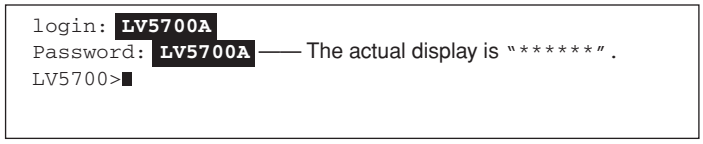


Figure 14.3 TELNET login screen

14.4.2 FTP File Transfer

To transfer files from the LV 5700A/LV 5710A to PC or workstation connected to the network, FTP is used. For a description on how to start FTP, see the instruction manual that came with your PC.

∗ Example of starting FTP on Windows 98

1) From the Start menu, select **Run**.
   Enter “FTP” followed by a space and then the IP address. Click **OK**.

Windows is a registered trademark of Microsoft Corporation.

When FTP starts, “User:” appears on the screen.
When the instrument is LV 5700A, enter “LV5700A”. Next “Password:” appears.
Enter “LV5700A”.
If the instrument is LV 5710A, enter “LV5710A”. Next “Password:” appears. Enter “LV5710A”.
The user name and password cannot be changed on the LV 5700A/LV 5710A.

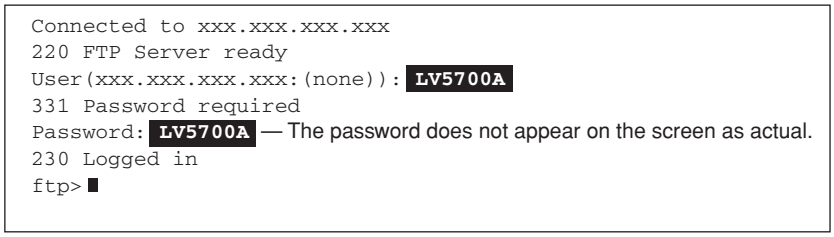


Figure 14.4 FTP login screen

14.5 TELNET Commands

The system of control commands used on the Ethernet network follows the menu structure of the LV 5700A/LV 5710A. Reading this chapter along with the instruction manual (section 5 to 13) for the LV 5700A/LV 5710A will facilitate the process of searching for the appropriate commands.

The control commands are entered using the following syntax: the command followed by a space followed by parameters.

Control Command Entry Example

LV5700A>WFM:GAIN:MAG 5 • • • Sets the gain of the video signal waveform display to 5 times.

14.5.1 Input Selection

MODULE

Function: Used to select or query the module.
Syntax: MODULE {1 / 2 / ?}
Description: MODULE 1
Selects module 1.
MODULE 2
Selects module 2.
MODULE ?
Queries the selected module.
Module selection is valid only when the optional SDI input module (sold separately) is installed.

SDI

Function: Used to select or query the SDI input channel.
Syntax: SDI {A / B / ?}
Description: SDI A
Selects input A.
SDI B
Selects input B.
SDI ?
Queries the selected input.
The SDI command is valid only against the selected module.
If the optional SDI input module (sold separately) is installed, switch the module using the MODULE command first, then execute the SDI command.

REFERENCE

Function: Used to select or query the synchronization signal.
Syntax: REFERENCE {INT / EXT / ?}
Description: REFERENCE INT
Uses the SDI signal to synchronize the waveform display.
REFERENCE EXT
Uses an external sync signal to synchronize the waveform display.
REFERENCE ?
Queries the synchronization of the waveform display.

14.5.2 Video Signal Waveform Display

MODE

Function: Used to switch or query the display mode on the video signal waveform display.

Syntax: MODE {OVERLAY / PARADE / TIMING / ?}

Description: MODE OVERLAY

Sets the video signal waveform display mode to overlay.

MODE PARADE

Sets the video signal waveform display mode to parade.

MODE TIMING

Sets the video signal waveform display mode to timing.

MODE ?

Queries the video signal waveform display mode.

The video signal waveform display mode can be selected even when waveforms are not being displayed.

CH1

Function: Used to display CH1 on the video signal waveform display or query the setting.

Syntax: CH1 {ON / OFF / ?}

Description: CH1 ON

Displays the waveform assigned to CH1 on the video signal waveform display.

CH1 OFF

Turns OFF the display of the waveform assigned to CH1 on the video signal waveform display.

CH1 ?

Queries the display of the waveform assigned to CH1 on the video signal waveform display.

The waveform assigned to CH1 is switched according to the procedure described in section 6.10, “Color System Settings” in the LV 5700A/LV 5710A Instruction Manual or by using the “WFM:COLOR:MATRIX” command.

CH2

Function: Used to display CH2 on the video signal waveform display or query the setting.

Syntax: CH2 {ON / OFF / ?}

Description: CH2 ON

Displays the waveform assigned to CH2 on the video signal waveform display.

CH2 OFF

Turns OFF the display of the waveform assigned to CH2 on the video signal waveform display.

CH2 ?

Queries the display of the waveform assigned to CH2 on the video signal waveform display.

The waveform assigned to CH2 is switched according to the procedure described in section 6.10, “Color System Settings” in the LV 5700A/LV 5710A Instruction Manual or by using the “WFM:COLOR:MATRIX” command.

CH3

Function: Used to display CH3 on the video signal waveform display or query the setting.

Syntax: CH3 {ON / OFF / ?}

Description: CH3 ON

Displays the waveform assigned to CH3 on the video signal waveform display.

CH3 OFF

Turns OFF the display of the waveform assigned to CH3 on the video signal waveform display.

CH3 ?

Queries the display of the waveform assigned to CH3 on the video signal waveform display.

The waveform assigned to CH3 is switched according to the procedure described in section 6.10, “Color System Settings” in the LV 5700A/LV 5710A Instruction Manual or by using the “WFM:COLOR:MATRIX” command.

WFM

Function: Displays the video signal waveform.

Syntax: WFM

WFM:INTEN:WFM

Function: Adjusts the brightness of the waveform on the video signal waveform display.

Syntax: WFM:INTEN:WFM {-128 to 127}

Description: WFM:INTEN:WFM 0

The darkest setting for the brightness adjustment parameter is -128; the brightest setting is 127. The default value is 0.

The adjustment step is 1 (decimal cannot be used).

WFM:INTEN:SCALE

Function: Adjusts the brightness of the scale on the video signal waveform display.

Syntax: WFM:INTEN:SCALE {-8 to 7}

Description: WFM:INTEN:SCALE 0

The darkest setting for the brightness adjustment parameter is -8; the brightest setting is 7. The default value is 4.

The adjustment step is 1 (decimal cannot be used).

WFM:GAIN:VAR

Function: Used to select or query the gain on the video signal waveform display.

Syntax: WFM:GAIN:VAR {CAL / VAR / ?}

Description: WFM:GAIN:VAR CAL

Sets the gain of the video signal waveform display to a constant value.

WFM:GAIN:VAR VAR

Sets the gain of the video signal waveform display to variable.

WFM:GAIN:VAR ?

Queries the gain setting of the video signal waveform display.

WFM:GAIN:MAG

Function: Used to select or query the gain factor on the video signal waveform display.

Syntax: WFM:GAIN:MAG {1 / 5 / ?}

Description: WFM:GAIN:MAG 1

Sets the gain factor of the video signal waveform display to 1x.

WFM:GAIN:MAG 5

Sets the gain factor of the video signal waveform display to 5x.

WFM:GAIN:MAG ?

Queries the gain factor of the video signal waveform display.

WFM:GAIN:FILTER

Function: Used to select or query the filter on the video signal waveform display.

Syntax: WFM:GAIN:FILTER {FLAT / LOW_PASS / ?}

Description: WFM:GAIN:FILTER FLAT

Displays the waveform without passing through a filter on the video signal waveform display.

WFM:GAIN:FILTER LOW_PASS

Displays the waveform through a low-pass filter on the video signal waveform display.

WFM:GAIN:FILTER ?

Queries the filter setting of the video signal waveform display.

WFM:GAIN:C.FILTER

Function: Used to select or query the filter on the pseudo-composite waveform display.

Syntax: WFM:GAIN:C.FILTER {FLAT / FLAT+LUM / ?}

Description: WFM:GAIN:C.FILTER FLAT

Displays the pseudo-composite waveform without passing it through a filter on the video signal waveform display.

WFM:GAIN:C.FILTER FLAT+LUM

Displays the pseudo-composite waveform and luminosity component waveform on the video signal waveform display.

WFM:GAIN:C.FILTER ?

Queries the filter setting of the video signal waveform display.

WFM:SWEEP:SWEEP

Function: Used to select or query the sweep mode on the video signal waveform display.

Syntax: WFM:SWEEP:SWEEP {1H / 2H / 1V / 2V / ?}

Description: WFM:SWEEP:SWEEP 1H

Enables 1H display on the video signal waveform display.

WFM:SWEEP:SWEEP 2H

Enables 2H display on the video signal waveform display.
To use 2H display, the MODE must be set to OVERLAY.

WFM:SWEEP:SWEEP 1V

Enables 1V display on the video signal waveform display.

WFM:SWEEP:SWEEP 2V

Enables 2V display on the video signal waveform display.
To use 2V display, the MODE must be set to OVERLAY.

WFM:SWEEP:SWEEP ?

Queries the sweep mode of the video signal waveform display.

WFM:SWEEP:MAG

Function: Used to expand the time axis on the video signal waveform display or query the setting.

Syntax: WFM:SWEEP:MAG {1 / 10 / 20 / ACTIVE / BLANK / ?}

Description: WFM:SWEEP:MAG 1

Displays the waveform without expanding the time axis on the video signal waveform display.

WFM:SWEEP:MAG 10

Displays the waveform by expanding the time axis by 10x on the video signal waveform display.
The sweep mode must be set to 1H or 2H.

WFM:SWEEP:MAG 20

Displays the waveform by expanding the time axis by 20x on the video signal waveform display.
The sweep mode must be set to 1V or 2V.

WFM:SWEEP:MAG ACTIVE

Displays only the active picture section on the video signal waveform display.
The sweep mode must be set to 1H.

WFM:SWEEP:MAG BLANK

Displays only the blanking section on the video signal waveform display.
The sweep mode must be set to 1H or 2H.

WFM:SWEEP:MAG ?

Queries the time axis expansion setting on the video signal waveform display.

WFM:SWEEP:FIELD

Function: Used to select or query the field on the video signal waveform display.

Syntax: WFM:SWEEP:FIELD {FIELD 1 / FIELD 2 / ?}

Description: WFM:SWEEP:FIELD FIELD 1

Displays field 1 on the video signal waveform display.

WFM:SWEEP:FIELD FIELD 2

Displays field 2 on the video signal waveform display.

WFM:SWEEP:FIELD ?

Queries the displayed field on the video signal waveform display.

The field can be selected only when the video format is set to interlace or segment frame and the sweep mode is set to 1V.

WFM:LINE_SELECT

Function: Used to select or query the line select on the video signal waveform display.

Syntax: WFM:LINE_SELECT {ON / OFF / ?}

Description: WFM:LINE_SELECT ON

Displays the selected line on the video signal waveform display.

WFM:LINE_SELECT OFF

Disables the line select function on the video signal waveform display.

WFM:LINE_SELECT ?

Queries the line select condition of the video signal waveform display.

WFM:LINE_SELECT:FIELD

Function: Used to select or query the line select field on the video signal waveform display.

Syntax: WFM:LINE_SELECT:FIELD {FIELD 1 / FIELD 2 / FRAME / ?}

Description: WFM:LINE_SELECT:FIELD FIELD 1

Performs line select of field 1 on the video signal waveform display.

WFM:LINE_SELECT:FIELD FIELD 2

Performs line select of field 2 on the video signal waveform display.

WFM:LINE_SELECT:FIELD FRAME

Performs line select of the entire frame on the video signal waveform display. (Enables the line select of the FIELD 1 and FIELD 2.)

WFM:LINE_SELECT:FIELD ?

Queries the line select field selection of the video signal waveform display.

WFM:LINE_SELECT:EXT_REF

Function: Used to set or query the synchronization signal when selecting the line on the video signal waveform display.

Syntax: WFM:LINE_SELECT:EXT_REF {INTERNAL / EXTERNAL / ?}

Description: WFM:LINE_SELECT:EXT_REF INTERNAL

Sets the reference of the video signal waveform display to INTERNAL (SDI input) when selecting the line.

WFM:LINE_SELECT:EXT_REF EXTERNAL

Sets the reference of the video signal waveform display to EXTERNAL (external synchronization) when selecting the line.

WFM:LINE_SELECT:EXT_REF ?

The EXT_REF command is valid only when external synchronization is selected.

Queries the selected reference of the video signal waveform display when selecting the line.

WFM:LINE_NUMBER

Function: Used to set or query the line select number on the video signal waveform display.

Syntax: WFM:LINE_NUMBER {1 to 525 (625,750,1125) /?}

Description: WFM:LINE_NUMBER 1

Displays line 1 on the video signal waveform display.

To display the specified line, line select must be turned ON.

The maximum line select number varies depending on the selected video format. Set a correct line number for the respective video format.

WFM:LINE_NUMBER ?

Queries the line select number on the video signal waveform display.

WFM:COLOR:MATRIX

Function: Used to select or query the color system on the video signal waveform display.

Syntax: WFM:COLOR:MATRIX {YCBCR / GBR / RGB / COMPOSIT / ?}

Description: WFM:COLOR:MATRIX YCBCR

Displays the waveform using YC_BC_R format on the video signal waveform display.

CH1, CH2, and CH3 are assigned to Y, C_B, and C_R, respectively.

WFM:COLOR:MATRIX GBR

Displays the waveform by converting to G, B, R format on the video signal waveform display.

CH1, CH2, and CH3 are assigned to G, B, and R, respectively.

WFM:COLOR:MATRIX RGB

Displays the waveform by converting to R, G, B format on the video signal waveform display.

CH1, CH2, and CH3 are assigned to R, G, and B, respectively.

WFM:COLOR:MATRIX COMPOSIT

Displays the composite signal on the video signal waveform display.

WFM:COLOR:MATRIX ?

Queries the color system on the video signal waveform display.

WFM:COLOR:YGBR

Function: Used to select or query the Y-GBR display on the video signal waveform display.

Syntax: WFM:COLOR:YGBR {ON / OFF / ?}

Description: WFM:COLOR:YGBR ON

Enables the Y-GBR display on the video signal waveform display.

WFM:COLOR:YGBR OFF

Disables the Y-GBR display on the video signal waveform display.

WFM:COLOR:YGBR ?

Queries the Y-GBR display setting on the video signal waveform display.

To enable the Y-GBR display, GBR must be selected using the "WFM:COLOR:MATRIX" command.

On the Y-GBR display, CH1, CH2, and CH3 cannot be turned ON/OFF.

WFM:COLOR:YRGB

Function: Used to select or query the Y-RGB display on the video signal waveform display.

Syntax: WFM:COLOR:YRGB {ON / OFF / ?}

Description: WFM:COLOR:YRGB ON

Enables the Y-RGB display on the video signal waveform display.

WFM:COLOR:YRGB OFF

Disables the Y-RGB display on the video signal waveform display.

WFM:COLOR:YRGB ?

Queries the Y-RGB display setting on the video signal waveform display.

To enable the Y-RGB display, RGB must be selected using the "WFM:COLOR:MATRIX" command.

On the Y-RGB display, CH1, CH2, and CH3 cannot be turned ON/OFF.

WFM:COLOR:SETUP

Function: Used to select or query the setup on the pseudo-composite display.

Syntax: WFM:COLOR:SETUP {0% / 7.5% / ?}

Description: WFM:COLOR:SETUP 0%

Does not add setup on the pseudo-composite display.

WFM:COLOR:SETUP 7.5%

Adds setup on the pseudo-composite display.

WFM:COLOR:SETUP ?

Queries the setup on the pseudo-composite display.

To set the setup, COMPOSIT must be selected using the "WFM:COLOR:MATRIX" command.

WFM:COLOR:PIX_MON

Function: Used to select or query the color system of the analog output on the rear panel.

Syntax: WFM:COLOR:PIX_MON {YPBPR / GBR / ?}

Description: WFM:COLOR:PIX_MON YPBPR

Sets the analog output on the rear panel to YPbPr.

WFM:COLOR:PIX_MON GBR

Sets the analog output on the rear panel to GBR.

WFM:COLOR:PIX_MON ?

Queries the color system of the analog output on the rear panel.

WFM:SCALE:UNIT

Function: Used to select or query the amplitude scale unit on the video signal waveform display.

Syntax: WFM:SCALE:UNIT {HDVSD% / HDVSDV / HD%SD% / V / % / ?}

Description: WFM:SCALE:UNIT HDVSD%

Sets the amplitude scale on the video signal waveform display to voltage for HD-SDI signals and percentage (IRE) for SD-SDI signals.

WFM:SCALE:UNIT HDVSDV

Sets the amplitude scale on the video signal waveform display to voltage.

WFM:SCALE:UNIT HD%SD%

Sets the amplitude scale on the video signal waveform display to percentage (IRE).

WFM:SCALE:UNIT V

Sets the amplitude scale on the video signal waveform display to voltage. Same setting value as HDVSDV.

WFM:SCALE:UNIT %

Sets the amplitude scale on the video signal waveform display to percentage (IRE). Same setting value as HD%SD%.

WFM:SCALE:UNIT ?

Queries the amplitude scale setting on the video signal waveform display.

WFM:SCALE:FULL_SCALE

Function: Used to select or query the full scale value of the amplitude scale unit on the video signal waveform display.

Syntax: WFM:SCALE:FULL_SCALE {0.7V / 1.0V / 100% / 150% / ?}

Description: WFM:SCALE:FULL_SCALE 0.7V

Sets the full scale value on the video signal waveform display to 0.7 V. Voltage scale must be specified using the “WFM:SCALE:UNIT” command.

WFM:SCALE:FULL_SCALE 1.0V

Sets the full scale value on the video signal waveform display to 1.0 V. Voltage scale must be specified using the “WFM:SCALE:UNIT” command.

WFM:SCALE:FULL_SCALE 100%

Sets the full scale value on the video signal waveform display to 100%. Percentage scale must be specified using the “WFM:SCALE:UNIT” command.

WFM:SCALE:FULL_SCALE 150%

Sets the full scale value on the video signal waveform display to 150%. Percentage scale must be specified using the “WFM:SCALE:UNIT” command.

WFM:SCALE:FULL_SCALE ?

Queries the full scale value on the video signal waveform display.

WFM:SCALE:COLOR

Function: Used to select or query the scale color on the video signal waveform display.

Syntax: WFM:SCALE:COLOR {WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE / ?}

Description: WFM:SCALE:COLOR WHITE

Displays the scale in white on the video signal waveform display.

WFM:SCALE:COLOR YELLOW

Displays the scale in yellow on the video signal waveform display.

WFM:SCALE:COLOR CYAN

Displays the scale in cyan on the video signal waveform display.

WFM:SCALE:COLOR GREEN

Displays the scale in green on the video signal waveform display.

WFM:SCALE:COLOR MAGENTA

Displays the scale in magenta on the video signal waveform display.

WFM:SCALE:COLOR RED

Displays the scale in red on the video signal waveform display.

WFM:SCALE:COLOR BLUE

Displays the scale in blue on the video signal waveform display.

WFM:SCALE:COLOR ?

Queries the scale color on the video signal waveform display.

WFM:SCALE:COLOR75P

Function: Used to select or query the scale display for the 75% color bar on the video signal waveform display.

Syntax: WFM:SCALE:COLOR75P {ON / OFF / ?}

Description: WFM:SCALE:COLOR75P ON

Displays the scale for the 75% color bar on the video signal waveform display.

WFM:SCALE:COLOR75P OFF

Turns OFF the display of the scale for the 75% color bar on the video signal waveform display.

WFM:SCALE:COLOR75P ?

Queries the scale display setting for the 75% color bar on the video signal waveform display.

WFM:EAV_SAV

Function: Used to select or query the blanking period display on the video signal waveform display.

Syntax: WFM:EAV_SAV {PASS / REMOVE / ?}

Description: WFM:EAV_SAV PASS

Displays the waveform even during the blanking period on the video signal waveform display.

WFM:EAV_SAV REMOVE

Masks the blanking period on the video signal waveform display.

WFM:EAV_SAV ?

Queries the blanking period display setting of the video signal waveform display.

WFM:PERSISTENCE

Function: Used to select or query the persistence characteristics on the video signal waveform display.

Syntax: WFM:PERSISTENCE {ON / OFF / INFINIT / ?}

Description: WFM:PERSISTENCE ON

Applies persistence characteristics to the video signal waveform display.

WFM:PERSISTENCE OFF

Does not apply persistence characteristics to the video signal waveform display.

WFM:PERSISTENCE INFINIT

Continuously overlays the waveforms on the video signal waveform display.

WFM:PERSISTENCE ?

Queries the persistence characteristics setting of the video signal waveform display.

WFM:PERSIST_CLEAR

Function: Clears the overlaid waveforms on the video signal waveform display.

Syntax: WFM:PERSIST_CLEAR

Description: WFM:PERSIST_CLEAR

Clears the overlaid waveforms on the video signal waveform display.

WFM:TIMING_MODE

Function: Used to select or query the switching mode of the video signal waveform display mode.

Syntax: WFM:TIMING_MODE {NORMAL / PASS / ?}

Description: WFM:TIMING_MODE NORMAL

Press the MODE key to switch the display in the following order: OVERLAY, PARADE, and TIMING.

WFM:TIMING_MODE PASS

Press the MODE key to switch the display in the following order: OVERLAY and PARADE. TIMING is not selected.

WFM:TIMING_MODE ?

Queries the switching mode setting of the video signal waveform display mode.

14.5.3 Vector Waveform Display

VECTOR

Function: Displays vector waveforms.

Syntax: VECTOR

VECTOR:INTEN:VECTOR

Function: Adjusts the brightness of the waveform display on the vectorscope display.

Syntax: VECTOR:INTEN:VECTOR {-128 to 127}

Description: The darkest setting for the brightness adjustment parameter is -128; the brightest setting is 127. The default value is 0.

The adjustment step is 1 (decimal cannot be used).

VECTOR:INTEN:SCALE

Function: Adjusts the brightness of the scale on the vectorscope display.

Syntax: VECTOR:INTEN:SCALE {-8 to 7}

Description: The darkest setting for the brightness adjustment parameter is -8; the brightest setting is 7. The default value is 4.

The adjustment step is 1 (decimal cannot be used).

VECTOR:INTEN:PERSISTENCE

Function: Used to select or query the persistence characteristics on the vectorscope display.

Syntax: VECTOR:INTEN:PERSISTENCE {ON / OFF / INFINIT / ?}

Description: VECTOR:INTEN:PERSISTENCE ON

Applies persistence characteristics to the vectorscope display.

VECTOR:INTEN:PERSISTENCE OFF

Does not apply persistence characteristics to the vectorscope display.

VECTOR:INTEN:PERSISTENCE INFINIT

Continuously overlays the waveforms on the vectorscope display.

VECTOR:INTEN:PERSISTENCE ?

Queries the persistence characteristics setting of the vectorscope display.

VECTOR:INTEN:PERSIST_CLEAR

Function: Clears the overlaid waveforms on the vectorscope display.
Syntax: VECTOR:INTEN:PERSIST_CLEAR
Description: VECTOR:INTEN:PERSIST_CLEAR
Clears the overlaid waveforms on the vectorscope display.

VECTOR:GAIN:VAR

Function: Used to select or query the gain on the vectorscope display.
Syntax: VECTOR:GAIN:VAR {CAL / VAR / ?}
Description: VECTOR:GAIN:VAR CAL
Sets the gain of the vectorscope display to a constant value.
VECTOR:GAIN:VAR VAR
Sets the gain of the vectorscope display to variable.
VECTOR:GAIN:VAR ?
Queries the gain setting of the vectorscope display.

VECTOR:GAIN:MAG

Function: Used to select or query the gain factor on the vectorscope display.
Syntax: VECTOR:GAIN:MAG {1 / 5 / IQ-MAG / ?}
Description: VECTOR:GAIN:MAG 1
Sets the gain factor of the vectorscope display to 1x.
VECTOR:GAIN:MAG 5
Sets the gain factor of the vectorscope display to 5x.
VECTOR:GAIN:MAG IQ-MAG
Sets the gain factor of the vectorscope display to 3.1x.
VECTOR:GAIN:MAG ?
Queries the gain factor setting of the vectorscope display.

VECTOR:LINE_SELECT

Function: Used to select or query the line selector on the vectorscope display.
Syntax: VECTOR:LINE_SELECT {ON / OFF / ?}
Description: VECTOR:LINE_SELECT ON
Displays the selected line on the vectorscope display.
VECTOR:LINE_SELECT OFF
Disables the line select function on the vectorscope display.
VECTOR:LINE_SELECT ?
Queries the line select condition of the vectorscope display.

VECTOR:LINE_SELECT:FIELD

Function: Used to select or query the field selection on the vectorscope display.
Syntax: VECTOR:LINE_SELECT:FIELD {FIELD 1 / FIELD 2 / FRAME / ?}
Description: VECTOR:LINE_SELECT:FIELD FIELD 1
Performs line select of field 1 on the vectorscope display.
VECTOR:LINE_SELECT:FIELD FIELD 2
Performs line select of field 2 on the vectorscope display.
VECTOR:LINE_SELECT:FIELD FRAME
Performs line select of the entire frame on the vectorscope display.
(Enables the line select of the FIELD 1 and FIELD 2.)
VECTOR:LINE_SELECT:FIELD ?
Queries the line select field selection of the vectorscope display.

VECTOR:LINE_NUMBER

Function: Used to set or query the line select number on the vectorscope display.

Syntax: VECTOR:LINE_NUMBER {1 to 525(625,750,1125)}

Description: VECTOR:LINE_NUMBER 1

Displays line 1 on the vectorscope display.

To display the selected line, line select must be turned ON.

The maximum line select number varies depending on the selected video format. Set a correct line number for the respective video format.

VECTOR:LINE_SELECT:EXT_REF

Function: Used to set or query the synchronization signal when selecting the line on the vectorscope display.

Syntax: VECTOR:LINE_SELECT:EXT_REF { INTERNAL / EXTERNAL / ? }

Description: VECTOR:LINE_SELECT:EXT_REF INTERNAL

Sets the reference of the vectorscope display to INTERNAL (SDI input) when selecting the line.

VECTOR:LINE_SELECT:EXT_REF EXTERNAL

Sets the reference of the vectorscope display to EXTERNAL (external synchronization) when selecting the line.

VECTOR:LINE_SELECT:EXT_REF ?

Queries the selected reference of the vectorscope display when selecting the line.

The EXT_REF command is valid only when external synchronization is selected.

VECTOR:COLOR_SYSTEM:COLOR_BAR

Function: Used to select or query the 100% / 75% color bar on the vectorscope display.

Syntax: VECTOR:COLOR_SYSTEM:COLOR_BAR {100% / 75% / ?}

Description: VECTOR:COLOR_SYSTEM:COLOR_BAR 100%

Sets the scale on the vectorscope display to 100% color bar.

VECTOR:COLOR_SYSTEM:COLOR_BAR 75%

Sets the scale on the vectorscope display to 75% color bar.

VECTOR:COLOR_SYSTEM:COLOR_BAR ?

Queries the color bar scale setting on the vectorscope display.

VECTOR:COLOR_SYSTEM:COLOR_SYSTEM

Function: Used to select or query the component display and composite display on the vectorscope display.

Syntax: VECTOR:COLOR_SYSTEM:COLOR_SYSTEM {COMPONET / COMPOSIT / ?}

Description: VECTOR:COLOR_SYSTEM:COLOR_SYSTEM COMPONET

Displays the vectorscope display using component signals.

VECTOR:COLOR_SYSTEM:COLOR_SYSTEM COMPOSIT

Displays the vectorscope display using pseudo-component signals.

VECTOR:COLOR_SYSTEM:COLOR_SYSTEM ?

Queries the color matrix on the vectorscope display.

VECTOR:COLOR_SYSTEM:SETUP

Function: Used to select or query the setup on the pseudo-composite display on the vectorscope display.

Syntax: VECTOR:COLOR_SYSTEM:SETUP {0% / 7.5% / ?}

Description: VECTOR:COLOR_SYSTEM:SETUP 0%

Shows the vectorscope display using pseudo-composite signals without setup.

VECTOR:COLOR_SYSTEM:SETUP 7.5%

Shows the vectorscope display using pseudo-composite signals with 7.5 % setup.

VECTOR:COLOR_SYSTEM:SETUP ?

Queries the setup of the pseudo-composite display on the vectorscope display.

To set the setup, the pseudo-composite display must be selected using the "VECTOR:COLOR_SYSTEM:COLOR_SYSTEM" command.

VECTOR:EAV_SAV

Function: Used to select or query the blanking period display on the vectorscope display.

Syntax: VECTOR:EAV_SAV {PASS / REMOVE / ?}

Description: VECTOR:EAV_SAV PASS

Displays the waveform even during the blanking period on the vectorscope display.

VECTOR:EAV_SAV REMOVE

Masks the blanking period on the vectorscope display.

VECTOR:EAV_SAV ?

Queries the blanking period display setting of the vectorscope display.

VECTOR:SCALE:IQ

Function: Used to select or query the scale display of the IQ axis on the vectorscope display.

Syntax: VECTOR:SCALE:IQ {ON / OFF / ?}

Description: VECTOR:SCALE:IQ ON

Displays the IQ axis on the vectorscope display.

VECTOR:SCALE:IQ OFF

Turns off the display of the IQ axis on the vectorscope display.

VECTOR:SCALE:IQ ?

Queries the display setting of the IQ axis on the vectorscope display.

VECTOR:SCALE:COLOR

Function: Used to select or query the scale color on the vectorscope display.

Syntax: VECTOR:SCALE:COLOR {WHITE / YELLOW / CYAN / GREEN / MAGENTA / RED / BLUE / ?}

Description: VECTOR:SCALE:COLOR WHITE

Displays the scale in white on the vectorscope display.

VECTOR:SCALE:COLOR YELLOW

Displays the scale in yellow on the vectorscope display.

VECTOR:SCALE:COLOR CYAN

Displays the scale in cyan on the vectorscope display.

VECTOR:SCALE:COLOR GREEN

Displays the scale in green on the vectorscope display.

VECTOR:SCALE:COLOR MAGENTA

Displays the scale in magenta on the vectorscope display.

VECTOR:SCALE:COLOR RED

Displays the scale in red on the vectorscope display.

VECTOR:SCALE:COLOR BLUE

Displays the scale in blue on the vectorscope display.

VECTOR:SCALE:COLOR ?

Queries the scale color on the vectorscope display.

14.5.4 Picture Display

PICTURE

Function: Displays pictures.
Syntax: PICTURE

PICTURE:MARKER:4_3

Function: Used to select or query the 4 to 3 aspect ratio display on the picture display.
Syntax: PICTURE:MARKER:4_3 {ON / OFF / ?}
Description: PICTURE:MARKER:4_3 ON
Enables the 4 to 3 aspect ratio display on the picture display.
PICTURE:MARKER:4_3 OFF
Disables the 4 to 3 aspect ratio display on the picture display.
PICTURE:MARKER:4_3 ?
Queries the 4 to 3 aspect ratio display setting on the picture display.
The 4 to 3 aspect ratio display appears only when the video signal format is set to HDTV (aspect ratio of 16:9).

PICTURE:MARKER:16_9

Function: Used to select or query the 16 to 9 aspect ratio display on the picture display.
Syntax: PICTURE:MARKER:16_9 {ON / OFF / ?}
Description: PICTURE:MARKER:16_9 ON
Enables the 16 to 9 aspect ratio display on the picture display.
PICTURE:MARKER:16_9 OFF
Disables the 16 to 9 aspect ratio display on the picture display.
PICTURE:MARKER:16_9 ?
Queries the 16 to 9 aspect ratio display setting on the picture display.
The 16 to 9 aspect ratio display appears only when the video signal format is set to SDTV (aspect ratio of 4:3).

PICTURE:MARKER:SAFE_ACTION

Function: Used to select or query the safe action area display on the picture display.
Syntax: PICTURE:MARKER:SAFE_ACTION {ON / OFF / ?}
Description: PICTURE:MARKER:SAFE_ACTION ON
Displays the safe action area on the picture display.
PICTURE:MARKER:SAFE_ACTION OFF
Does not display the safe action area on the picture display.
PICTURE:MARKER:SAFE_ACTION ?
Queries the safe action area display setting on the picture display.
Safe action area is the area that is 90% of the entire effective picture area (vertically and horizontally).

PICTURE:MARKER:SAFE_TITLE

Function: Used to select or query the safe title area display on the picture display.
Syntax: PICTURE:MARKER:SAFE_TITLE {ON / OFF / ?}
Description: PICTURE:MARKER:SAFE_TITLE ON
Displays the safe title area on the picture display.
PICTURE:MARKER:SAFE_TITLE OFF
Does not display the safe title area on the picture display.
PICTURE:MARKER:SAFE_TITLE ?
Queries the safe title area display setting on the picture display.
Safe title area is the area that is 80% of the entire effective picture area (vertically and horizontally).

PICTURE:MARKER:CENTER

Function: Used to select or query the center marker display on the picture display.
Syntax: PICTURE:MARKER:CENTER {ON / OFF / ?}
Description: PICTURE:MARKER:CENTER ON
Displays the center marker on the picture display.
PICTURE:MARKER:CENTER OFF
Does not display the center marker on the picture display.
PICTURE:MARKER:CENTER ?
Queries the center marker display setting on the picture display.

PICTURE:LINE_SELECT

Function: Used to select or query the line select marker display on the picture display.
Syntax: PICTURE:LINE_SELECT {ON / OFF / ?}
Description: PICTURE:LINE_SELECT ON
Displays the selected line marker on the picture display.
PICTURE:LINE_SELECT OFF
Does not display the line marker on the picture display.
PICTURE:LINE_SELECT ?
Queries the line marker display setting on the picture display.

PICTURE:LINE_NUMBER

Function: Used to set or query the line number of the line marker on the picture display.
Syntax: PICTURE:LINE_NUMBER {1 to 525(625,750,1125)}
Description: PICTURE:LINE_NUMBER 21
Displays a marker at line 21 on the picture display.
To display the selected line marker, line select must be turned ON.
The maximum line number of the line marker varies depending on the selected video format. Set a correct line number for the respective video format. The line marker does not display during the blanking period.

PICTURE:LINE_SELECT:FIELD

Function: Used to select or query the field selection on the picture display.

Syntax: PICTURE:LINE_SELECT:FIELD {FIELD 1 / FIELD 2 / FRAME / ?}

Description: PICTURE:LINE_SELECT:FIELD FIELD 1

Performs line select of field 1 on the picture display.

PICTURE:LINE_SELECT:FIELD FIELD 2

Performs line select of field 2 on the picture display.

PICTURE:LINE_SELECT:FIELD FRAME

Performs line select of the entire frame on the picture display. (Enables the line select of the FIELD 1 and FIELD 2.)

PICTURE:LINE_SELECT:FIELD ?

Queries the line select field selection of the picture display.

14.5.5 Audio Display

AUDIO

Function: Displays audio signals.
Syntax: AUDIO

AUDIO:MODE

Function: Used to set or query the display mode on the audio display.
Syntax: AUDIO:MODE {SOUND / LISSAJOU / MLT_LISS / VALUE / ?}
Description: AUDIO:MODE SOUND
Displays the sound image of the embedded audio.
AUDIO:MODE LISSAJOU
Displays embedded audio using single lissajous display.
AUDIO:MODE MLT_LISS
Displays embedded audio using multi lissajous display.
AUDIO:MODE VALUE
Displays embedded audio using level meters.
AUDIO:MODE ?
Queries the display mode of the embedded audio.

AUDIO:SURROUND

Function: Used to set or query the surround system on the audio display.
Syntax: AUDIO:SURROUND {3-1 / 3-2 / 3-2-2 / ?}
Description: AUDIO:SURROUND 3-1
Displays the sound image of the embedded audio using the 3-1 system.
AUDIO:SURROUND 3-2
Displays the sound image of the embedded audio using the 3-2 system.
AUDIO:SURROUND 3-2-2
Displays the sound image of the embedded audio using the 3-2-2 system.
AUDIO:SURROUND ?
Queries the surround system setting of the embedded audio.

AUDIO:GROUP

Function: Used to select or query the embedded audio group on the audio display.
Syntax: AUDIO:GROUP {1&2 / 3&4 / ?}
Description: AUDIO:GROUP 1&2
Selects embedded audio group 1 and group 2.
AUDIO:GROUP 3&4
Selects embedded audio group 3 and group 4.
AUDIO:GROUP ?
Queries the embedded audio group.

AUDIO:SOUND:AUDIO

Function: Adjusts the brightness of the waveform display on the audio display.

Syntax: AUDIO:SOUND:AUDIO {-8 to 7}

Description: AUDIO:SOUND:AUDIO 0

The darkest setting for the brightness adjustment parameter is -8; the brightest setting is 7. The default value is 0.

The adjustment step is 1 (decimal cannot be used).

AUDIO:SOUND:SCALE

Function: Adjusts the brightness of the scale and level meter on the audio display.

Syntax: AUDIO:SOUND:SCALE {-8 to 7}

Description: AUDIO:SOUND:SCALE 4

The darkest setting for the brightness adjustment parameter is -8; the brightest setting is 7. The default value is 4.

The adjustment step is 1 (decimal cannot be used).

AUDIO:SOUND:LISSAJOU

Function: Used to select or query the lissajous display format on the audio display.

Syntax: AUDIO:SOUND:LISSAJOU {X-Y / MATRIX / ?}

Description: AUDIO:SOUND:LISSAJOU X-Y

Sets the audio lissajous display to X-Y display.

AUDIO:SOUND:LISSAJOU MATRIX

Sets the audio lissajous display to matrix display.

AUDIO:SOUND:LISSAJOU ?

Queries the audio lissajous display format.

AUDIO:SOUND:LISSA_L

Function: Used to select or query the embedded audio channel that is to be assigned to channel L on the audio lissajous display.

Syntax: AUDIO:SOUND:LISSA_L {CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / LT / ?}

Description: AUDIO:SOUND:LISSA_L CH1 / AUDIO:SOUND:LISSA_L CH9

Assigns embedded audio CH1 or CH9 to channel L.

Switching between CH1 to CH8 and CH9 to CH16 is done by AUDIO_GROUP (1&2/3&4) selection.

AUDIO:SOUND:LISSA_L LT

Assigns down-mixed signal according to the surround system selected for channel L.

AUDIO:SOUND:LISSA_L ?

Queries the embedded audio channel that is assigned to channel L.

The response for CH1/CH9 is CH1

The response for CH2/CH10 is CH2

The response for CH3/CH11 is CH3

The response for CH4/CH12 is CH4

The response for CH5/CH13 is CH5

The response for CH6/CH14 is CH6

The response for CH7/CH15 is CH7

The response for CH8/CH16 is CH8

AUDIO:SOUND:LISSA_R

Function: Used to select or query the embedded audio channel that is to be assigned to channel R on the audio lissajous display.

Syntax: AUDIO:SOUND:LISSA_R {CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / RT / ?}

Description: AUDIO:SOUND:LISSA_R CH1 / AUDIO:SOUND:LISSA_R CH9

Assigns embedded audio CH1 or CH9 to channel R.
Switching between CH1 to CH8 and CH9 to CH16 is done by AUDIO_GROUP (1&2/3&4) selection.

AUDIO:SOUND:LISSA_R RT

Assigns down-mixed signal according to the surround system selected for channel R.

AUDIO:SOUND:LISSA_R ?

Queries the embedded audio channel that is assigned to channel R.
The response for CH1/CH9 is CH1
The response for CH2/CH10 is CH2
The response for CH3/CH11 is CH3
The response for CH4/CH12 is CH4
The response for CH5/CH13 is CH5
The response for CH6/CH14 is CH6
The response for CH7/CH15 is CH7
The response for CH8/CH16 is CH8

AUDIO:SOUND:GAIN

Function: Used to select or query the gain of the audio lissajous display and the sound image display.

Syntax: AUDIO:SOUND:GAIN {1 / 0.5 / 2 / 10 / AUTO / ?}

Description: AUDIO:SOUND:GAIN 1

Sets the gain of the audio lissajous display and the sound image display to the reference gain.

AUDIO:SOUND:GAIN 0.5

Sets the gain of the audio lissajous display and the sound image display to 1/2 the reference gain.

AUDIO:SOUND:GAIN 2

Sets the gain of the audio lissajous display and the sound image display to 2x the reference gain.

AUDIO:SOUND:GAIN 10

Sets the gain of the audio lissajous display and the sound image display to 10x the reference gain.

AUDIO:SOUND:GAIN AUTO

Automatically adjusts the gain of the audio lissajous display and the sound imege display.

AUDIO:SOUND:GAIN ?

Queries the gain setting of the audio lissajous display and the sound imege display.

AUDIO:METER:REF

Function: Used to select or query the reference level on the audio level meter display.

Syntax: AUDIO:METER:REF {-20 / -18 / -12 / ?}

Description: AUDIO:METER:REF -20

Sets the reference level to -20 dB on the audio level meter display.

AUDIO:METER:REF -18

Sets the reference level to -18 dB on the audio level meter display.

AUDIO:METER:REF -12

Sets the reference level to -12 dB on the audio level meter display.

AUDIO:METER:REF ?

Queries the reference level on the audio level meter display.

AUDIO:METER:RANGE

Function: Used to select or query the dynamic range on the audio level meter display.

Syntax: AUDIO:METER:RANGE {60 / 90 / AVERAGE / ?}

Description: AUDIO:METER:RANGE 60

Displays a peak level meter capable of measuring down to -60 dB on the audio level meter display.

AUDIO:METER:RANGE 90

Displays a peak level meter capable of measuring down to -90 dB on the audio level meter display.

AUDIO:METER:RANGE AVERAGE

Displays an average-response level meter from -20 dB to +3 dB with the reference level taken to be 0 dB on the audio level meter display.

AUDIO:METER:RANGE ?

Queries the dynamic range setting on the audio level meter display.

AUDIO:METER:SCALE

Function: Used to select or query the scale on the audio level meter display.

Syntax: AUDIO:METER:SCALE {TYPE-A / TYPE-B / ?}

Description: AUDIO:METER:SCALE TYPE-A

Displays the level meter independent of the reference level on the audio level meter display.

AUDIO:METER:SCALE TYPE-B

Displays the level meter with the reference level as 0 dB on the audio level meter display.

AUDIO:METER:SCALE ?

Queries the scale setting on the audio level meter display.

AUDIO:METER:PEAKHOLD

Function: Used to set or query the peak hold time on the audio level meter display.

Syntax: AUDIO:METER:PEAKHOLD {0.5 to 5.0 / 5.5 / ?}

Description: AUDIO:METER:PEAKHOLD 0.5

Sets the peak hold time to approximately 0.5 s on the audio level meter display.

AUDIO:METER:PEAKHOLD 5.5

Sets the peak hold time to infinity on the audio level meter display.

AUDIO:METER:PEAKHOLD ?

Queries the peak hold time setting on the audio level meter display.

AUDIO:CH1 / AUDIO:CH9

Function: Used to select or query the naming of embedded audio CH1 or CH9.

Syntax: AUDIO:CH1 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH9 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH1 L / AUDIO:CH9 L
Sets embedded audio CH1/CH9 to L.
AUDIO:CH1 R / AUDIO:CH9 R
Sets embedded audio CH1/CH9 to R.
AUDIO:CH1 SL(S) / AUDIO:CH9 SL(S)
Sets embedded audio CH1/CH9 to SL(S).
AUDIO:CH1 SR / AUDIO:CH9 SR
Sets embedded audio CH1/CH9 to SR.
AUDIO:CH1 C / AUDIO:CH9 C
Sets embedded audio CH1/CH9 to C.
AUDIO:CH1 LFE / AUDIO:CH9 LFE
Sets embedded audio CH1/CH9 to LFE.
AUDIO:CH1 RL / AUDIO:CH9 RL
Sets embedded audio CH1/CH9 to RL.
AUDIO:CH1 RR / AUDIO:CH9 RR
Sets embedded audio CH1/CH9 to RR.
AUDIO:CH1 ? / AUDIO:CH9 ?
Queries embedded audio CH1/CH9.

AUDIO:CH2 / AUDIO:CH10

Function: Used to select or query the naming of embedded audio CH2 or CH10.

Syntax: AUDIO:CH2 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH10 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH2 L / AUDIO:CH10 L
Sets embedded audio CH2/CH10 to L.
AUDIO:CH2 R / AUDIO:CH10 R
Sets embedded audio CH2/CH10 to R.
AUDIO:CH2 SL(S) / AUDIO:CH10 SL(S)
Sets embedded audio CH2/CH10 to SL(S).
AUDIO:CH2 SR / AUDIO:CH10 SR
Sets embedded audio CH2/CH10 to SR.
AUDIO:CH2 C / AUDIO:CH10 C
Sets embedded audio CH2/CH10 to C.
AUDIO:CH2 LFE / AUDIO:CH10 LFE
Sets embedded audio CH2/CH10 to LFE.
AUDIO:CH2 RL / AUDIO:CH10 RL
Sets embedded audio CH2/CH10 to RL.
AUDIO:CH2 RR / AUDIO:CH10 RR
Sets embedded audio CH2/CH10 to RR.
AUDIO:CH2 ? / AUDIO:CH10 ?
Queries embedded audio CH2/CH10.

AUDIO:CH3 / AUDIO:CH11

Function: Used to select or query the naming of embedded audio CH3 or CH11.

Syntax: AUDIO:CH3 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH11 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH3 L / AUDIO:CH11 L
Sets embedded audio CH3/CH11 to L.
AUDIO:CH3 R / AUDIO:CH11 R
Sets embedded audio CH3/CH11 to R.
AUDIO:CH3 SL(S) / AUDIO:CH11 SL(S)
Sets embedded audio CH3/CH11 to SL(S).
AUDIO:CH3 SR / AUDIO:CH11 SR
Sets embedded audio CH3/CH11 to SR.
AUDIO:CH3 C / AUDIO:CH11 C
Sets embedded audio CH3/CH11 to C.
AUDIO:CH3 LFE / AUDIO:CH11 LFE
Sets embedded audio CH3/CH11 to LFE.
AUDIO:CH3 RL / AUDIO:CH11 RL
Sets embedded audio CH3/CH11 to RL.
AUDIO:CH3 RR / AUDIO:CH11 RR
Sets embedded audio CH3/CH11 to RR.
AUDIO:CH3 ? / AUDIO:CH11 ?
Queries embedded audio CH3/CH11.

AUDIO:CH4 / AUDIO:CH12

Function: Used to select or query the naming of embedded audio CH4 or CH12.

Syntax: AUDIO:CH4 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH12 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH4 L / AUDIO:CH12 L
Sets embedded audio CH4/CH12 to L.
AUDIO:CH4 R / AUDIO:CH12 R
Sets embedded audio CH4/CH12 to R.
AUDIO:CH4 SL(S) / AUDIO:CH12 SL(S)
Sets embedded audio CH4/CH12 to SL(S).
AUDIO:CH4 SR / AUDIO:CH12 SR
Sets embedded audio CH4/CH12 to SR.
AUDIO:CH4 C / AUDIO:CH12 C
Sets embedded audio CH4/CH12 to C.
AUDIO:CH4 LFE / AUDIO:CH12 LFE
Sets embedded audio CH4/CH12 to LFE.
AUDIO:CH4 RL / AUDIO:CH12 RL
Sets embedded audio CH4/CH12 to RL.
AUDIO:CH4 RR / AUDIO:CH12 RR
Sets embedded audio CH4/CH12 to RR.
AUDIO:CH4 ? / AUDIO:CH12 ?
Queries embedded audio CH4/CH12.

AUDIO:CH5 / AUDIO:CH13

Function: Used to select or query the naming of embedded audio CH5 or CH13.

Syntax: AUDIO:CH5 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH13 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH5 L / AUDIO:CH5 L
Sets embedded audio CH5/CH13 to L.
AUDIO:CH5 R / AUDIO:CH13 R
Sets embedded audio CH5/CH13 to R.
AUDIO:CH5 SL(S) / AUDIO:CH13 SL(S)
Sets embedded audio CH5/CH13 to SL(S).
AUDIO:CH5 SR / AUDIO:CH13 SR
Sets embedded audio CH5/CH13 to SR.
AUDIO:CH5 C / AUDIO:CH13 C
Sets embedded audio CH5/CH13 to C.
AUDIO:CH5 LFE / AUDIO:CH13 LFE
Sets embedded audio CH5/CH13 to LFE.
AUDIO:CH5 RL / AUDIO:CH13 RL
Sets embedded audio CH5/CH13 to RL.
AUDIO:CH5 RR / AUDIO:CH13 RR
Sets embedded audio CH5/CH13 to RR.
AUDIO:CH5 ? / AUDIO:CH13 ?
Queries embedded audio CH5/CH13.

AUDIO:CH6 / AUDIO:CH14

Function: Used to select or query the naming of embedded audio CH6 or CH14.

Syntax: AUDIO:CH6 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH14 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH6 L / AUDIO:CH14 L
Sets embedded audio CH6/CH14 to L.
AUDIO:CH6 R / AUDIO:CH14 R
Sets embedded audio CH6/CH14 to R.
AUDIO:CH6 SL(S) / AUDIO:CH14 SL(S)
Sets embedded audio CH6/CH14 to SL(S).
AUDIO:CH6 SR / AUDIO:CH14 SR
Sets embedded audio CH6/CH14 to SR.
AUDIO:CH6 C / AUDIO:CH14 C
Sets embedded audio CH6/CH14 to C.
AUDIO:CH6 LFE / AUDIO:CH14 LFE
Sets embedded audio CH6/CH14 to LFE.
AUDIO:CH6 RL / AUDIO:CH14 RL
Sets embedded audio CH6/CH14 to RL.
AUDIO:CH6 RR / AUDIO:CH14 RR
Sets embedded audio CH6/CH14 to RR.
AUDIO:CH6 ? / AUDIO:CH14 ?
Queries embedded audio CH6/CH14.

AUDIO:CH7 / AUDIO:CH15

Function: Used to select or query the naming of embedded audio CH7 or CH15.

Syntax: AUDIO:CH7 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH15 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH7 L / AUDIO:CH15 L
Sets embedded audio CH7/CH15 to L.
AUDIO:CH7 R / AUDIO:CH15 R
Sets embedded audio CH7/CH15 to R.
AUDIO:CH7 SL(S) / AUDIO:CH15 SL(S)
Sets embedded audio CH7/CH15 to SL(S).
AUDIO:CH7 SR / AUDIO:CH15 SR
Sets embedded audio CH7/CH15 to SR.
AUDIO:CH7 C / AUDIO:CH15 C
Sets embedded audio CH7/CH15 to C.
AUDIO:CH7 LFE / AUDIO:CH15 LFE
Sets embedded audio CH7/CH15 to LFE.
AUDIO:CH7 RL / AUDIO:CH15 RL
Sets embedded audio CH7/CH15 to RL.
AUDIO:CH7 RR / AUDIO:CH15 RR
Sets embedded audio CH7/CH15 to RR.
AUDIO:CH7 ? / AUDIO:CH15 ?
Queries embedded audio CH7/CH15.

AUDIO:CH8 / AUDIO:CH16

Function: Used to select or query the naming of embedded audio CH8 or CH16.

Syntax: AUDIO:CH8 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}
AUDIO:CH16 {L / R / SL(S) / SR / C / LFE / RL / RR / ?}

Description: AUDIO:CH8 L / AUDIO:CH16 L
Sets embedded audio CH8/CH16 to L.
AUDIO:CH8 R / AUDIO:CH16 R
Sets embedded audio CH8/CH16 to R.
AUDIO:CH8 SL(S) / AUDIO:CH16 SL(S)
Sets embedded audio CH8/CH16 to SL(S).
AUDIO:CH8 SR / AUDIO:CH16 SR
Sets embedded audio CH8/CH16 to SR.
AUDIO:CH8 C / AUDIO:CH16 C
Sets embedded audio CH8/CH16 to C.
AUDIO:CH8 LFE / AUDIO:CH16 LFE
Sets embedded audio CH8/CH16 to LFE.
AUDIO:CH8 RL / AUDIO:CH16 RL
Sets embedded audio CH8/CH16 to RL.
AUDIO:CH8 RR / AUDIO:CH16 RR
Sets embedded audio CH8/CH16 to RR.
AUDIO:CH8 ? / AUDIO:CH16 ?
Queries embedded audio CH8/CH16.

14.5.6 Multi Display

MULTI

Function: Enables multi screen display.
Syntax: MULTI

MULTI:MODE

Function: Used to select or query the display mode on the multi screen.
Syntax: MULTI:MODE {4SCREEN / WFM_VEC / WFM_PIC / WFM_AUD / ?}
Description: MULTI:MODE 4SCREEN
Sets the multi screen display to 4 screen display.
MULTI:MODE WFM_VEC
Sets the multi screen display to 2 screen display consisting of waveform display and vectorscope display.
MULTI:MODE WFM_PIC
Sets the multi screen display to waveform display and reduced picture display.
MULTI:MODE WFM_AUD
Sets the multi screen display to 2 screen display consisting of waveform display and audio display.
MULTI:MODE ?
Queries the display mode of the multi screen display.

MULTI:UPPER

Function: Used to select or query the displayed content at the upper-left quadrant on the 4 screen multi display.
Syntax: MULTI:UPPER {VECTOR / AUDIO / ?}
Description: MULTI:UPPER VECTOR
Sets the displayed content at the upper-left quadrant of the 4 screen multi display to vectorscope display.
MULTI:UPPER AUDIO
Sets the displayed content at the upper-left quadrant of the 4 screen multi display to audio display.
MULTI:UPPER ?
Queries the displayed content at the upper-left quadrant of the 4 screen multi display.

MULTI:LOWER

Function: Used to select or query the displayed content at the lower-left quadrant on the 4 screen multi display.
Syntax: MULTI:LOWER {STATUS / AUD_LVL / ?}
Description: MULTI:LOWER STATUS
Sets the displayed content at the lower-left quadrant of the 4 screen multi display to status display.
MULTI:LOWER AUD_LVL
Sets the displayed content at the lower-left quadrant of the 4 screen multi display to audio level meter display.
MULTI:LOWER ?
Queries the displayed content at the lower-left quadrant of the 4 screen multi display.

MULTI:STATUS

Function: Used to select or query the displayed status content at the lower-left quadrant on the 4 screen multi display.

Syntax: MULTI:STATUS {STATUS / DATA / ?}

Description: MULTI:STATUS STATUS

Sets the displayed content at the lower-left quadrant of the 4 screen multi display to status display.

MULTI:STATUS DATA

Sets the displayed content at the lower-left quadrant of the 4 screen multi display to data dump display.

MULTI:STATUS ?

Queries the displayed status content at the lower-left quadrant of the 4 screen multi display.

14.5.7 Status Display

STATUS

Function: Displays the top screen of the status display.
Syntax: STATUS

MAKE STATUS

Function: Creates a text file of the top screen of the status display within the LV 5700A/LV 5710A.
Syntax: MAKE STATUS
Description: To transfer the created text file to a PC or workstation use the FTP commands.

STATUS:LOG

Function: Displays the status log.
Syntax: STATUS:LOG

MAKE LOG

Function: Creates a text file of the error log within the LV 5700A/LV 5710A.
Syntax: MAKE LOG
Description: To transfer the created text file to a PC or workstation use the FTP commands.

STATUS:LOG:LOG

Function: Used to start/stop the error log or query the setting.
Syntax: STATUS:LOG:LOG {START / STOP / ?}
Description: STATUS:LOG:LOG START
Starts the error log.
STATUS:LOG:LOG STOP
Stops the error log.
STATUS:LOG:LOG ?
Queries the error log status.

STATUS:LOG:CLEAR

Function: Used to clear (reset) the error log.
Syntax: STATUS:LOG:CLEAR

STATUS:LOG:MODE

Function: Used to select or query the action taken when the number of logs in the error log exceeds the maximum number (1,000 logs).
Syntax: STATUS:LOG:MODE {OVER_WR / STOP}
Description: STATUS:LOG:MODE OVER_WR
Clears old logs and continues to overwrite when the maximum number of error logs is exceeded.
STATUS:LOG:MODE STOP
Stops the log when the maximum number of error logs is exceeded.
STATUS:LOG:MODE ?
Query the action taken when the maximum number of error logs is exceeded.

STATUS:DUMP

Function: Displays the data dump.
Syntax: STATUS:DUMP

MAKE DUMP

Function: Creates a text file of the data dump within the LV 5700A/LV 5710A.
Syntax: MAKE DUMP
Description: To transfer the created text file to a PC or workstation use the FTP commands.

STATUS:DUMP:MODE

Function: Used to select whether the data dump display is automatically updated or held or query the setting.
Syntax: STATUS:DUMP:MODE {RUN / HOLD / ?}
Description: STATUS:DUMP:MODE RUN
Automatically updates the data dump display.
STATUS:DUMP:MODE HOLD
Holds the data dump display.
STATUS:DUMP:MODE ?
Queries the update mode of the data dump display.

STATUS:DUMP:DISPLAY

Function: Used to select whether to display data dumps using serial data arrays or individually for each channel or query the setting.
Syntax: STATUS:DUMP:DISPLAY {SERIAL / COMPO / BINARY / ?}
Description: STATUS:DUMP:DISPLAY SERIAL
Displays the data dump using the serial data array format.
STATUS:DUMP:DISPLAY COMPO
Displays the data dump individually for each channel.
STATUS:DUMP:DISPLAY BINARY
Displays the data dump in binary format.
STATUS:DUMP:DISPLAY ?
Queries the data dump display format.

STATUS:DUMP:LINE_NUMBER

Function: Used to specify the line number of the data dump display.
Syntax: STATUS:DUMP:LINE_NUMBER {1 to 525(625,750,1125)}
Description: STATUS:DUMP:LINE_NUMBER 1
Displays line 1 on the data dump display.
The maximum line select number varies depending on the selected video format. Set a correct line number for the respective video format.

STATUS:DUMP:SAMPLE

Function: Used to specify the first sample number of the data dump display.
Syntax: STATUS:DUMP:SAMPLE {0 to 2749}
Description: STATUS:DUMP:SAMPLE 1920
Displays from sample 1920 on the data dump display.
The maximum sample number varies depending on the selected video format. Set a correct sample number for the respective video format.

STATUS:DUMP:EAV

Function: Used when displaying the data dump from the EAV sample.
Syntax: STATUS:DUMP:EAV

STATUS:DUMP:SAV

Function: Used when displaying the data dump from the SAV sample.
Syntax: STATUS:DUMP:SAV

STATUS:AUDIO

Function: Used when displaying the detailed status of the embedded audio.
Syntax: STATUS:AUDIO

STATUS:AUDIO:CH_SEL

Function: Used to select or query the channel for displaying the status details of embedded audio.
Syntax: STATUS:AUDIO:CH_SEL {CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / ?}
Description: STATUS:AUDIO:CH_SEL CH1
Selects the detailed display of embedded audio channel 1.
∗ Note that the selection depends on the audio group setting.
STATUS:AUDIO:CH_SEL ?
Queries the selected embedded audio channel.
The response when CH1/CH9 is selected is CH1
The response when CH2/CH10 is selected is CH2
The response when CH3/CH11 is selected is CH3
The response when CH4/CH12 is selected is CH4
The response when CH5/CH13 is selected is CH5
The response when CH6/CH14 is selected is CH6
The response when CH7/CH15 is selected is CH7
The response when CH8/CH16 is selected is CH8

STATUS:EDH

Function: Used when displaying the EDH status.
Syntax: STATUS:EDH
Description: The EDH status display only displays SD-SDI signals.
The LV 5710A does not support this function.

STATUS:ERROR:ALARM:POLARITY

Function: Used to set or query the polarity of the error output pin of the remote connector.
Syntax: STATUS:ERROR:ALARM:POLARITY {NEGATIVE / POSITIVE / ?}
Description: STATUS:ERROR:ALARM:POLARITY NEGATIVE
Outputs a negative logic signal when an error occurs.
STATUS:ERROR:ALARM:POLARITY POSITIVE
Outputs a positive logic signal when an error occurs.
STATUS:ERROR:ALARM:POLARITY ?
Queries the polarity.

STATUS:ERROR:ALARM:BEEP

Function: Used to set or query the beep sound when errors occur.
Syntax: STATUS:ERROR:ALARM:BEEP {ON / OFF / ?}
Description: STATUS:ERROR:ALARM:BEEP ON
Sounds a beep when an error occurs.
STATUS:ERROR:ALARM:BEEP OFF
Does not sound a beep when an error occurs.
STATUS:ERROR:ALARM:BEEP ?
Queries the beep sound setting.

STATUS:ERROR:COUNT_RATE

Function: Used to set or query the error count rate.
Syntax: STATUS:ERROR:COUNT_RATE {V_RATE / 1SEC / ?}
Description: STATUS:ERROR:COUNT_RATE V_RATE
Counts errors per field (frame).
STATUS:ERROR:COUNT_RATE 1SEC
Counts errors at 1-second intervals.
STATUS:ERROR:COUNT_RATE ?
Queries the error count rate setting.

STATUS:ERROR:DETECT:TRS

Function: Used to set or query the TRS error detection.
Syntax: STATUS:ERROR:DETECT:TRS {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:TRS ON
Turns ON the TRS error detection function.
STATUS:ERROR:DETECT:TRS OFF
Turns OFF the TRS error detection function.
STATUS:ERROR:DETECT:TRS ?
Queries the TRS error detection function setting.

STATUS:ERROR:DETECT:LINE

Function: Used to set or query the line number error detection.
Syntax: STATUS:ERROR:DETECT:LINE {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:LINE ON
Turns ON the line number error detection function.
STATUS:ERROR:DETECT:LINE OFF
Turns OFF the line number error detection function.
STATUS:ERROR:DETECT:LINE ?
Queries the line number error detection function setting.
The line number error detection only functions on HD-SDI signals.

STATUS:ERROR:DETECT:CRC

Function: Used to set or query the CRC error detection.
Syntax: STATUS:ERROR:DETECT:CRC {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:CRC ON
Turns ON the CRC error detection function.
STATUS:ERROR:DETECT:CRC OFF
Turns OFF the CRC error detection function.
STATUS:ERROR:DETECT:CRC ?
Queries the CRC error detection function setting.
The CRC error detection only functions on HD-SDI signals.

STATUS:ERROR:DETECT:EDH

Function: Used to set or query the EDH error detection.
Syntax: STATUS:ERROR:DETECT:EDH {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:EDH ON
Turns ON the EDH error detection function.
STATUS:ERROR:DETECT:EDH OFF
Turns OFF the EDH error detection function.
STATUS:ERROR:DETECT:EDH ?
Queries the EDH error detection function setting.
The EDH error detection only functions on SD-SDI signals.
The LV 5710A does not support this function.

STATUS:ERROR:DETECT:RESERVED

Function: Used to set or query the reserved area error detection.
Syntax: STATUS:ERROR:DETECT:RESERVED {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:RESERVED ON
Turns ON the reserved area error detection function.
STATUS:ERROR:DETECT:RESERVED OFF
Turns OFF the reserved area error detection function.
STATUS:ERROR:DETECT:RESERVED ?
Queries the reserved area error detection function setting.

STATUS:ERROR:DETECT:PARITY

Function: Used to set or query the parity error detection.
Syntax: STATUS:ERROR:DETECT:PARITY {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:PARITY ON
Turns ON the parity error detection function.
STATUS:ERROR:DETECT:PARITY OFF
Turns OFF the parity error detection function.
STATUS:ERROR:DETECT:PARITY ?
Queries the parity error detection function setting.

STATUS:ERROR:DETECT:CHECKSUM

Function: Used to set or query the checksum error detection.
Syntax: STATUS:ERROR:DETECT:CHECKSUM {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:CHECKSUM ON
Turns ON the checksum error detection function.
STATUS:ERROR:DETECT:CHECKSUM OFF
Turns OFF the checksum error detection function.
STATUS:ERROR:DETECT:CHECKSUM ?
Queries the checksum error detection function setting.
The checksum error detection only functions on HD-SDI signals.

STATUS:ERROR:DETECT:LEVEL

Function: Used to set or query the level error detection.
Syntax: STATUS:ERROR:DETECT:LEVEL {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:LEVEL ON
Turns ON the level error detection function.
STATUS:ERROR:DETECT:LEVEL OFF
Turns OFF the level error detection function.
STATUS:ERROR:DETECT:LEVEL ?
Queries the level error detection function setting.

STATUS:ERROR:DETECT:GAMUT

Function: Used to set or query the gamut error detection.
Syntax: STATUS:ERROR:DETECT:GAMUT {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:GAMUT ON
Turns ON the gamut error detection function.
STATUS:ERROR:DETECT:GAMUT OFF
Turns OFF the gamut error detection function.
STATUS:ERROR:DETECT:GAMUT ?
Queries the gamut error detection function setting.

STATUS:ERROR:DETECT:C.GAMUT

Function: Used to set or query the composite gamut error detection.
Syntax: STATUS:ERROR:DETECT:C.GAMUT {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:C.GAMUT ON
Turns ON the composite gamut error detection function.
STATUS:ERROR:DETECT:C.GAMUT OFF
Turns OFF the composite gamut error detection function.
STATUS:ERROR:DETECT:C.GAMUT ?
Queries the composite gamut error detection function setting.

STATUS:ERROR:DETECT:BCH

Function: Used to set or query the BCH error detection.
Syntax: STATUS:ERROR:DETECT:BCH {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:BCH ON
Turns ON the BCH error detection function.
STATUS:ERROR:DETECT:BCH OFF
Turns OFF the BCH error detection function.
STATUS:ERROR:DETECT:BCH ?
Queries the BCH error detection function setting.
The BCH error detection only functions on HD-SDI signals.

STATUS:ERROR:DETECT:AUDIO

Function: Used to set or query the sequency detection of audio packets.
Syntax: STATUS:ERROR:DETECT:AUDIO {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:AUDIO ON
Turns ON the sequency detection function of audio packets.
STATUS:ERROR:DETECT:AUDIO OFF
Turns OFF the sequency detection function of audio packets.
STATUS:ERROR:DETECT:AUDIO ?
Queries the sequency detection function of audio packets.

STATUS:ERROR:DETECT:REF

Function: Used to set or query the synchronization detection of the external synchronization signal.
Syntax: STATUS:ERROR:DETECT:REF {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:REF ON
Turns ON the synchronization detection function of the external synchronization signal.
STATUS:ERROR:DETECT:REF OFF
Turns OFF the synchronization detection function of the external synchronization signal.
STATUS:ERROR:DETECT:REF ?
Queries the synchronization detection function of the external synchronization signal.

STATUS:ERROR:DETECT:CABLE

Function: Used to set or query the equivalent cable length meter alarm.
Syntax: STATUS:ERROR:DETECT:CABLE {ON / OFF / ?}
Description: STATUS:ERROR:DETECT:CABLE ON
Turns ON the equivalent cable length meter alarm.
STATUS:ERROR:DETECT:CABLE OFF
Turns OFF the equivalent cable length meter alarm.
STATUS:ERROR:DETECT:CABLE ?
Queries the equivalent cable length meter alarm.

STATUS:ERROR:LEVEL:GAMUT:UPPER

Function: Used to set the upper threshold level of the gamut error.
Syntax: STATUS:ERROR:LEVEL:GAMUT:UPPER {90.8 to 109.4}
Description: STATUS:ERROR:LEVEL:GAMUT:UPPER 90.8
Sets the upper threshold level of the gamut error to 90.8%.

STATUS:ERROR:LEVEL:GAMUT:LOWER

Function: Used to set the lower threshold level of the gamut error.
Syntax: STATUS:ERROR:LEVEL:GAMUT:LOWER {-7.2 to 6.1}
Description: STATUS:ERROR:LEVEL:GAMUT:LOWER -7.2
Sets the lower threshold level of the gamut error to -7.2%.

STATUS:ERROR:LEVEL:C.GAMUT:UPPER

Function: Used to set the upper threshold level of the composite gamut error.
Syntax: STATUS:ERROR:LEVEL:C.GAMUT:UPPER {90.0 to 135.0}
Description: STATUS:ERROR:LEVEL:C.GAMUT:UPPER 90.8
Sets the upper threshold level of the composite gamut error to 90.8%.

STATUS:ERROR:LEVEL:C.GAMUT:LOWER

Function: Used to set the lower threshold level of the composite gamut error.
Syntax: STATUS:ERROR:LEVEL:C.GAMUT:LOWER {-40.0 to -20.0}
Description: STATUS:ERROR:LEVEL:C.GAMUT:LOWER -37.2
Sets the lower threshold level of the composite gamut error to -37.2%.

STATUS:ERROR:LEVEL:LUMA:UPPER

Function: Used to set the upper threshold level of the intensity signal.
Syntax: STATUS:ERROR:LEVEL:LUMA:UPPER {-51 to 766}
Description: STATUS:ERROR:LEVEL:LUMA:UPPER 766
Sets the upper threshold level of the level error to 766 mV.

STATUS:ERROR:LEVEL:LUMA:LOWER

Function: Used to set the lower threshold level of the intensity signal.
Syntax: STATUS:ERROR:LEVEL:LUMA:LOWER {-51 to 766}
Description: STATUS:ERROR:LEVEL:LUMA:LOWER -51
Sets the lower threshold level of the level error to -51 mV.

STATUS:ERROR:LEVEL:CHROMA:PLUS

Function: Used to set the upper threshold level of the chrominance difference signal.
Syntax: STATUS:ERROR:LEVEL:CHROMA:PLUS {-400 to 399}
Description: STATUS:ERROR:LEVEL:CHROMA:PLUS 399
Sets the upper threshold level of the level error to 399 mV.

STATUS:ERROR:LEVEL:CHROMA:MINUS

Function: Used to set the lower threshold level of the chrominance difference signal.
Syntax: STATUS:ERROR:LEVEL:CHROMA:MINUS {-400 to 399}
Description: STATUS:ERROR:LEVEL:CHROMA:MINUS -400
Sets the lower threshold level of the level error to -400 mV.

STATUS:ERROR:LEVEL:CABLE:HD_LENGTH

Function: Used to set the threshold level of the equivalent cable length error of HD-SDI signals.

Syntax: STATUS:ERROR:LEVEL:CABLE:HD_LENGTH {5 to 130}

Description: STATUS:ERROR:LEVEL:CABLE:HD_LENGTH 100

Generates an error when the equivalent cable length meter reading is greater than or equal to 100 m.

STATUS:ERROR:LEVEL:CABLE:HD_WARN

Function: Used to set the threshold level of the equivalent cable length alarm of HD-SDI signals.

Syntax: STATUS:ERROR:LEVEL:CABLE:HD_WARN {5 to 130}

Description: STATUS:ERROR:LEVEL:CABLE:HD_WARN 100

Generates an alarm when the equivalent cable length meter reading is greater than or equal to 100 m.

STATUS:ERROR:LEVEL:CABLE:SD_LENGTH

Function: Used to set the threshold level of the equivalent cable length error of SD-SDI signals.

Syntax: STATUS:ERROR:LEVEL:CABLE:SD_LENGTH {50 to 300}

Description: STATUS:ERROR:LEVEL:CABLE:SD_LENGTH 100

Generates an error when the equivalent cable length meter reading is greater than or equal to 100 m.

STATUS:ERROR:LEVEL:CABLE:SD_WARN

Function: Used to set the threshold level of the equivalent cable length alarm of SD-SDI signals.

Syntax: STATUS:ERROR:LEVEL:CABLE:SD_WARN {50 to 300}

Description: STATUS:ERROR:LEVEL:CABLE:SD_WARN 100

Generates an alarm when the equivalent cable length meter reading is greater than or equal to 100 m.

STATUS:ERROR:DISPLAY

Function: Used to set or query the displayed time of errors.

Syntax: STATUS:ERROR:DISPLAY {REFRESH / HOLD / ?}

Description: STATUS:ERROR:DISPLAY REFRESH

Displays the error for 1 s for every error occurrence.

STATUS:ERROR:DISPLAY HOLD

Displays the error until it is reset.

STATUS:ERROR:DISPLAY ?

Queries the displayed time of errors.

STATUS:RESET

Function: Resets status display errors and other errors.

Syntax: STATUS:RESET

14.5.8 Capture

MAKE CAPTURE

Function: Captures the displayed screen to the internal memory of the LV 5700A/LV 5710A.

Syntax: MAKE CAPTURE

CAPTURE:DISPLAY

Function: Used to set or query the display of the captured image in the internal memory.

Syntax: CAPTURE:DISPLAY {REAL / HOLD / BOTH / ?}

Description: CAPTURE:DISPLAY REAL

Displays the input signal without displaying the captured image.

CAPTURE:DISPLAY HOLD

Displays only the captured image.

CAPTURE:DISPLAY BOTH

Displays the captured image and the input signal overlaid.

CAPTURE:DISPLAY ?

Queries the display setting of the captured image.

CAPTURE:FILE_SELECT

Function: Used to select or query the file for saving the captured image to the CF card.

Syntax: CAPTURE:FILE_SELECT {BMP&BST / BMP / BST / ?}

Description: CAPTURE:FILE_SELECT BMP&BST

Stores both the bitmap file and the BST file to the CF card.

CAPTURE:FILE_SELECT BMP

Stores only the bitmap file to the CF card.

CAPTURE:FILE_SELECT BST

Stores only the BST file to the CF card.

CAPTURE:FILE_SELECT ?

Queries file to be stored to the CF card.

14.5.9 System Setup

SYSTEM:FORMAT:MODE

Function: Used to select or query the setup mode of the video signal format.
Syntax: SYSTEM:FORMAT:MODE {AUTO / MANUAL / ?}
Description: SYSTEM:FORMAT:MODE AUTO
Automatically detects and sets the video signal format.
SYSTEM:FORMAT:MODE MANUAL
Sets the video signal format manually.
SYSTEM:FORMAT:MODE ?
Queries the setup mode of the video signal format

SYSTEM:FORMAT:FORMAT 1080I/60

Function: Sets the video signal format manually to 1080i/60.
Syntax: SYSTEM:FORMAT:FORMAT 1080I/60

SYSTEM:FORMAT:FORMAT 1080SF/30

Function: Sets the video signal format manually to 1080PsF/30.
Syntax: SYSTEM:FORMAT:FORMAT 1080SF/30

SYSTEM:FORMAT:FORMAT 1080I/59.94

Function: Sets the video signal format manually to 1080i/59.94.
Syntax: SYSTEM:FORMAT:FORMAT 1080I/59.94

SYSTEM:FORMAT:FORMAT 1080SF/29.97

Function: Sets the video signal format manually to 1080PsF/29.97.
Syntax: SYSTEM:FORMAT:FORMAT 1080SF/29.97

SYSTEM:FORMAT:FORMAT 1080I/50

Function: Sets the video signal format manually to 1080i/50.
Syntax: SYSTEM:FORMAT:FORMAT 1080I/50

SYSTEM:FORMAT:FORMAT 1080SF/25

Function: Sets the video signal format manually to 1080PsF/25.
Syntax: SYSTEM:FORMAT:FORMAT 1080SF/25

SYSTEM:FORMAT:FORMAT 1080P/30

Function: Sets the video signal format manually to 1080p/30.
Syntax: SYSTEM:FORMAT:FORMAT 1080P/30

SYSTEM:FORMAT:FORMAT 1080P/29.97

Function: Sets the video signal format manually to 1080p/29.97.
Syntax: SYSTEM:FORMAT:FORMAT 1080P/29.97

SYSTEM:FORMAT:FORMAT 1080P/25

Function: Sets the video signal format manually to 1080p/25.
Syntax: SYSTEM:FORMAT:FORMAT 1080P/25

SYSTEM:FORMAT:FORMAT 1080SF/24

Function: Sets the video signal format manually to 1080PsF/24.
Syntax: SYSTEM:FORMAT:FORMAT 1080SF/24

SYSTEM:FORMAT:FORMAT 1080SF/23.98

Function: Sets the video signal format manually to 1080PsF/23.98.
Syntax: SYSTEM:FORMAT:FORMAT 1080SF/23.98

SYSTEM:FORMAT:FORMAT 1080P/24

Function: Sets the video signal format manually to 1080p/24.
Syntax: SYSTEM:FORMAT:FORMAT 1080P/24

SYSTEM:FORMAT:FORMAT 1080P/23.98

Function: Sets the video signal format manually to 1080p/23.98.
Syntax: SYSTEM:FORMAT:FORMAT 1080P/23.98

SYSTEM:FORMAT:FORMAT 1035I/60

Function: Sets the video signal format manually to 1035i/60.
Syntax: SYSTEM:FORMAT:FORMAT 1035I/60

SYSTEM:FORMAT:FORMAT 1035I/59.94

Function: Sets the video signal format manually to 1035i/59.94.
Syntax: SYSTEM:FORMAT:FORMAT 1035I/59.94

SYSTEM:FORMAT:FORMAT 720P/60

Function: Sets the video signal format manually to 720p/60.
Syntax: SYSTEM:FORMAT:FORMAT 720P/60

SYSTEM:FORMAT:FORMAT 720P/59.94

Function: Sets the video signal format manually to 720p/59.94.
Syntax: SYSTEM:FORMAT:FORMAT 720P/59.94

SYSTEM:FORMAT:FORMAT 720P/50

Function: Sets the video signal format manually to 720p/50.
Syntax: SYSTEM:FORMAT:FORMAT 720P/50

SYSTEM:FORMAT:FORMAT 720P/30

Function: Sets the video signal format manually to 720p/30.
Syntax: SYSTEM:FORMAT:FORMAT 720P/30

SYSTEM:FORMAT:FORMAT 720P/29.97

Function: Sets the video signal format manually to 720p/29.97.
Syntax: SYSTEM:FORMAT:FORMAT 720P/29.97

SYSTEM:FORMAT:FORMAT 720P/25

Function: Sets the video signal format manually to 720p/25.
Syntax: SYSTEM:FORMAT:FORMAT 720P/25

SYSTEM:FORMAT:FORMAT 720P/24

Function: Sets the video signal format manually to 720p/24.
Syntax: SYSTEM:FORMAT:FORMAT 720P/24

SYSTEM:FORMAT:FORMAT 720P/23.98

Function: Sets the video signal format manually to 720p/23.98.
Syntax: SYSTEM:FORMAT:FORMAT 720P/23.98

SYSTEM:FORMAT:FORMAT 525I/59.94

Function: Sets the video signal format manually to 525i/59.94.
Syntax: SYSTEM:FORMAT:FORMAT 525I/59.94

SYSTEM:FORMAT:FORMAT 625I/50

Function: Sets the video signal format manually to 625i/50.
Syntax: SYSTEM:FORMAT:FORMAT 625I/50

SYSTEM:FORMAT:V_BIT

Function: Used to set or query the V blanking period on the SD-SDI signal.
Syntax: SYSTEM:FORMAT:V_BIT {NORMAL / NARROW / ?}
Description: SYSTEM:FORMAT:V_BIT NORMAL
Select this mode when the V bit in the TRS is 1 from line 1 to line 19 and from line 264 to line 282.
SYSTEM:FORMAT:V_BIT NARROW
Select this mode when the V bit in the TRS is 1 from line 1 to line 9 and from line 264 to line 272.
SYSTEM:FORMAT:V_BIT ?
Queries the V bit setting in the TRS.

SYSTEM:FORMAT:COMPOSIT_FORMAT

Function: Used to select or query the format of the pseudo-composite display.
Syntax: SYSTEM:FORMAT:COMPOSIT_FORMAT {AUTO / NTSC / PAL / ?}
Description: SYSTEM:FORMAT:COMPOSIT_FORMAT AUTO
Automatically sets the format of the pseudo-composite display according to the input signal.
SYSTEM:FORMAT:COMPOSIT_FORMAT NTSC
Sets the format of the pseudo-composite display to NTSC regardless of the input signal.
SYSTEM:FORMAT:COMPOSIT_FORMAT PAL
Sets the format of the pseudo-composite display to PAL regardless of the input signal.
SYSTEM:FORMAT:COMPOSIT_FORMAT ?
Queries the format of the pseudo-composite display.

SYSTEM:FORMAT:I/PSF

Function: Selects the video signal format detection/setting of the HD-SDI signal to INTERLACE (1080i/60, 1080i/59.94, 1080i/50) or SEGMENT FRAME (1080psF/30, 1080psF/29.97, 1080psF/25).
Syntax: SYSTEM:FORMAT:I/PSF {INTERLAC / SEG. FRAM / ?}
Description: SYSTEM:FORMAT:I/PSF INTERLAC
Sets the video signal format detection and selection to INTERLACE.
SYSTEM:FORMAT:I/PSF SEG. FRAM
Sets the video signal format detection and selection to SEGMENT FRAME.
SYSTEM:FORMAT:I/PSF ?
Queries the setup mode of the video signal format.

SYSTEM:DISPLAY:INFO:FORMAT

Function: Used to set or query the display of the video signal format.
Syntax: SYSTEM:DISPLAY:INFO:FORMAT {ON / OFF / ?}
Description: SYSTEM:DISPLAY:INFO:FORMAT ON
Displays the video signal format at the top section of the screen.
SYSTEM:DISPLAY:INFO:FORMAT OFF
Does not display the video signal format at the top section of the screen.
SYSTEM:DISPLAY:INFO:FORMAT ?
Queries the display setting of the video signal format.

SYSTEM:DISPLAY:INFO:DATE

Function: Used to set or query the date display.
Syntax: SYSTEM:DISPLAY:INFO:DATE {OFF / Y/M/D / M/D/Y / D/M/Y / ?}
Description: SYSTEM:DISPLAY:INFO:DATE OFF
Does not display the date at the top section of the screen.
SYSTEM:DISPLAY:INFO:DATE Y/M/D
Displays the date in year/month/day format at the top section of the screen.
SYSTEM:DISPLAY:INFO:DATE M/D/Y
Displays the date in month/day/year format at the top section of the screen.
SYSTEM:DISPLAY:INFO:DATE D/M/Y
Displays the date in day/month/year format at the top section of the screen.
SYSTEM:DISPLAY:INFO:DATE ?
Queries the date display setting.

SYSTEM:DISPLAY:INFO:TIME

Function: Used to set or query the time display.
Syntax: SYSTEM:DISPLAY:INFO:TIME {OFF / REAL / TIMECODE / ?}
Description: SYSTEM:DISPLAY:INFO:TIME OFF
Does not display the current time at the top section of the screen.
SYSTEM:DISPLAY:INFO:TIME REAL
Displays the current time at the top section of the screen.
SYSTEM:DISPLAY:INFO:TIME TIMECODE
Displays the timecode at the top section of the screen.
SYSTEM:DISPLAY:INFO:TIME ?
Queries the time display setting.

SYSTEM:DISPLAY:INFO:COLOR

Function: Used to set or query the color system display.
Syntax: SYSTEM:DISPLAY:INFO:COLOR {ON / OFF / ?}
Description: SYSTEM:DISPLAY:INFO:COLOR ON
Displays the color system format at the top section of the screen.
SYSTEM:DISPLAY:INFO:COLOR OFF
Does not display the color system format at the top section of the screen.
SYSTEM:DISPLAY:INFO:COLOR ?
Queries the color system display setting.

SYSTEM:DISPLAY:INFO:TIMECODE

Function: Of the time codes conforming to SMPTE RP-188, sets whether to decode LTC or VITC.

Syntax: SYSTEM:DISPLAY:INFO:TIMECODE {LTC / VITC / ?}

Description: SYSTEM:DISPLAY:INFO:TIMECODE LTC

Decodes LTC as the time code.

SYSTEM:DISPLAY:INFO:TIMECODE VITC

Decodes VITC as the time code.

SYSTEM:DISPLAY:INFO:TIMECODE ?

Queries the time code being decoded.

SYSTEM:DISPLAY:BACKLIGHT

Function: Used to set or query the backlight setting.

Syntax: SYSTEM:DISPLAY:BACKLIGHT {HIGH / LOW / ?}

Description: SYSTEM:DISPLAY:BACKLIGHT HIGH

Brightens the backlight.

SYSTEM:DISPLAY:BACKLIGHT LOW

Dims the backlight.

SYSTEM:DISPLAY:BACKLIGHT ?

Queries the brightness of the backlight.

To enable the query or the setting, TIMECODE must be selected using the "SYSTEM:DISPLAY:INFO:TIME" command.

SYSTEM:DISPLAY:AUTO_OFF

Function: Used to set or query the backlight auto shutoff.

Syntax: SYSTEM:DISPLAY:AUTO_OFF {OFF / 5 / 30 / 60 / ?}

Description: SYSTEM:DISPLAY:AUTO_OFF OFF

Does not automatically shut off the backlight.

SYSTEM:DISPLAY:AUTO_OFF 5

Shuts off the backlight after 5 minutes from the last operation.

SYSTEM:DISPLAY:AUTO_OFF 30

Shuts off the backlight after 30 minutes from the last operation.

SYSTEM:DISPLAY:AUTO_OFF 60

Shuts off the backlight after 60 minutes from the last operation.

SYSTEM:DISPLAY:AUTO_OFF ?

Queries the auto shutoff setting of the backlight.

SYSTEM:DISPLAY:DISPLAY_OFF

Function: Immediately turns the backlight off.

Syntax: SYSTEM:DISPLAY:DISPLAY_OFF

SYSTEM:INTERFACE:REMOTE

Function: Used to select or query the method of recalling preset data using the remote connector.

Syntax: SYSTEM:INTERFACE:REMOTE {BIT / BINARY / ?}

Description: SYSTEM:INTERFACE:REMOTE BIT

Sets the method of recalling the preset data using the remote connector to BIT selection.

SYSTEM:INTERFACE:REMOTE BINARY

Sets the method of recalling the preset data using the remote connector to BINARY selection.

SYSTEM:INTERFACE:REMOTE ?

Queries the method of recalling the preset data using the remote connector.

SYSTEM:INTERFACE:MONITOR

Function: Used to select and query the external XGA monitor.

Syntax: SYSTEM:INTERFACE:MONITOR {TYPE_A / TYPE_B / TYPE_C / ?}

Description: SYSTEM:INTERFACE:MONITOR TYPE_A

Sets the external XGA monitor output to TYPE_A mode.

SYSTEM:INTERFACE:MONITOR TYPE_B

Sets the external XGA monitor output to TYPE_B mode.

SYSTEM:INTERFACE:MONITOR TYPE_C

Sets the external XGA monitor output to TYPE_C mode.

SYSTEM:INTERFACE:MONITOR ?

Queries the external XGA monitor output mode.

SYSTEM:INTERFACE:BEEP

Function: Used to select and query the beep sound output.

Syntax: SYSTEM:INTERFACE:BEEP {NORMAL / MUTE / ?}

Description: SYSTEM:INTERFACE:BEEP NORMAL

Sets the beep sound output to normal.

SYSTEM:INTERFACE:BEEP MUTE

Sets the beep sound output to mute (disabled).

SYSTEM:INTERFACE:BEEP ?

Queries the beep sound output mode.

SYSTEM:DATE

Function: Used to set or query the date and time.

Syntax: SYSTEM:DATE {1900 to 2200,1 to 12,1 to 31,0 to 23,0 to 59,0 to 59}

Description: SYSTEM:DATE 2002,5,10,12,0,0

Sets the date and time to May 10th, 2002, 12 hours 0 minutes 0 seconds.

Each item is delimited by commas and set in the order year, month, day, hour, minute, and second.

SYSTEM:DATE ?

Used to query the date and time.

SYSTEM:INIT

Function: Initializes the LV 5700A/LV 5710A.
Syntax: SYSTEM:INIT
Description: Initializes the LV 5700A/LV 5710A to factory default settings. However, presets and TCP/IP settings are not initialized.

14.5.10 Preset Recall

RECALL

Function: Recalls presets.
Syntax: RECALL {1 to 100}
Description: RECALL 1
Recalls the settings stored to preset number 1.

14.5.11 When Option 70 is Installed

EYE

Function: Displays eye patterns.
Syntax: EYE

EYE:INTEN:EYE

Function: Adjusts the eye pattern brightness
Syntax: EYE:INTEN:EYE {-8 to 7}
Description: EYE:INTEN:EYE 7
Sets the brightness of the eye pattern display to the highest setting. The darkest setting for the brightness of the eye pattern display is -8; the brightest setting is 7. The default value is 0.

EYE:INTEN:SCALE

Function: Adjusts the brightness of the scale of the eye pattern display.
Syntax: EYE:INTEN:SCALE {-8 to 7}
Description: EYE:INTEN:SCALE 7
Sets the brightness of the scale of the eye pattern display to the highest setting.
The darkest setting for the brightness of the scale is -8; the brightest setting is 7. The default value is 4.

EYE:SWEEP

Function: Used to set or query the sweep length of the eye pattern display.
Syntax: EYE:SWEEP {2UI / 4UI / 16UI / ?}
Description: EYE:SWEEP 2UI
Displays the eye patterns at 2 UI (unit interval).
EYE:SWEEP 4UI
Displays the eye patterns at 4 UI.
EYE:SWEEP 16UI
Displays the eye patterns at 16 UI.
EYE:SWEEP ?
Queries the sweep length of the eye pattern display.

EYE:MODE

Function: Used to set or query the eye pattern setting.
Syntax: EYE:MODE {EYE / JITTER / HIST / ?}
Description: EYE:MODE EYE
Displays eye patterns.
EYE:MODE JITTER
Displays jitter waveforms.
EYE:MODE HIST
Displays histogram waveforms.
EYE:MODE ?
Queries the eye pattern mode setting.

EYE:REF

Function: Used to set or query the synchronization of the eye pattern display.
Syntax: EYE:REF {INT / EXT / ?}
Description: EYE:REF INT
Displays the eye patterns through self-synchronization.
EYE:REF EXT
Displays the eye patterns using an external sync signal.
EYE:REF ?
Queries the synchronization setting of the eye pattern display.

EYE:AUTO

Function: Used to set or query the automatic measurement of eye patterns.
Syntax: EYE:AUTO {ON / OFF / ?}
Description: EYE:AUTO ON
Performs automatic measurement of eye patterns.
EYE:AUTO OFF
Does not perform automatic measurement of eye patterns.
EYE:AUTO ?
Queries the automatic measurement setting of eye patterns.

EYE:HIST_SWEEP

Function: Used to set or query the jitter waveform sweep of the histogram mode.
Syntax: EYE:HIST_SWEEP {SLOW / FAST / ?}
Description: EYE:HIST_SWEEP SLOW
Sets the jitter waveform of histogram mode to slow sweep.
EYE:HIST_SWEEP FAST
Sets the jitter waveform of histogram mode to fast sweep.
EYE:HIST_SWEEP ?
Queries the jitter waveform sweep setting of the histogram mode.

EYE:JIT_GAIN

Function: Used to set or query the jitter waveform gain.
Syntax: EYE:JIT_GAIN {X1 / X2 / X8 / ?}
Description: EYE:JIT_GAIN X1
Sets the jitter waveform gain to x1.
EYE:JIT_GAIN X2
Sets the jitter waveform gain to x2.
EYE:JIT_GAIN X8
Sets the jitter waveform gain to x8.
EYE:JIT_GAIN ?
Queries the waveform gain setting.

EYE:FILTER

Function: Used to set or query the filter response of eye patterns.
Syntax: EYE:FILTER {10 / 100 / 1K / 10K / 100K / ?}
Description: EYE:FILTER 10
Sets the filter response of eye patterns to 10 Hz.
EYE:FILTER 100
Sets the filter response of eye patterns to 100 Hz.
EYE:FILTER 1K
Sets the filter response of eye patterns to 1 kHz.
EYE:FILTER 10K
Sets the filter response of eye patterns to 10 kHz.
EYE:FILTER 100K
Sets the filter response of eye patterns to 100 kHz.
EYE:FILTER ?
Queries the filter setting of eye patterns.

MULTI:MODE WFM_EYE

Function: Enables 2 screen display consisting of waveform display and eye pattern display.
Syntax: MULTI:MODE WFM_EYE

MULTI:UPPER EYE

Function: Sets the content shown at the upper-left quadrant of the 4 screen multi display to eye pattern display.
Syntax: MULTI:UPPER EYE

14.5.12 When Option 73/Option 73A is Installed

VECTOR:COLOR_SYSTEM:NTSC_SETUP

Function: Used to set or query the vectorscope display setup.
Syntax: VECTOR:COLOR_SYSTEM:NTSC_SETUP {0% / 7.5% / ?}
Description: VECTOR:COLOR_SYSTEM:NTSC_SETUP 0%
When setup is not added to the analog input signal.
VECTOR:COLOR_SYSTEM:NTSC_SETUP 7.5%
When 7.5 % setup is added to the analog input signal.
VECTOR:COLOR_SYSTEM:NTSC_SETUP ?
Queries the analog input signal setup setting.

SYSTEM:FORMAT:A_FORMAT

Function: Used to select or query NTSC or PAL for the analog signal input.
Syntax: SYSTEM:FORMAT:A_FORMAT {NTSC / PAL / ?}
Description: SYSTEM:FORMAT:A_FORMAT NTSC
Sets the analog signal input format to NTSC.
SYSTEM:FORMAT:A_FORMAT PAL
Sets the analog signal input format to PAL.
SYSTEM:FORMAT:A_FORMAT ?
Queries the analog signal input format.

VECTOR:COLOR_SYSTEM:NTSC_DISP

Function: Used to set or query the line-alternating vectorscope display during PAL signal input.
Syntax: VECTOR:COLOR_SYSTEM:NTSC_DISP {ON / OFF / ?}
Description: VECTOR:COLOR_SYSTEM:NTSC_DISP ON
Displays vector waveforms without alternating lines during PAL signal input.
VECTOR:COLOR_SYSTEM:NTSC_DISP OFF
Displays vector waveforms by alternating lines during PAL signal input.
VECTOR:COLOR_SYSTEM:NTSC_DISP ?
Queries the line alternating setting of vector waveforms during PAL signal input.

VECTOR:SCH

Function: Used to set or query the SCH display on the vectorscope display of the analog signal input.
Syntax: VECTOR:SCH {ON / OFF / ?}
Description: VECTOR:SCH ON
Displays SCH on the vectorscope display of the analog signal input.
VECTOR:SCH OFF
Does not display SCH on the vectorscope display of the analog signal input.
VECTOR:SCH ?
Queries the SCH display on the vectorscope display of the analog signal input.

14.5.13 When Option 74 is Installed

AUDIO:MONITOR:SPEAKER

Function: Used to select and query the speaker output.
Syntax: AUDIO:MONITOR:SPEAKER {ON / OFF / ?}
Description: AUDIO:MONITOR:SPEAKER ON
Enables speaker output.
AUDIO:MONITOR:SPEAKER OFF
Disables speaker output.
AUDIO:MONITOR:SPEAKER ?
Queries the speaker output setting.

AUDIO:MONITOR:CH_SEL

Function: Used to set or query the output channel setting.
Syntax: AUDIO:MONITOR:CH_SEL {CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / ?}
Description: AUDIO:MONITOR:CH_SEL CH1
Sets the AUDIO output to CH1 or CH9.
AUDIO:MONITOR:CH_SEL ?
Queries the format.
The response when CH1/CH9 is selected is CH1
The response when CH2/CH10 is selected is CH2
The response when CH3/CH11 is selected is CH3
The response when CH4/CH12 is selected is CH4
The response when CH5/CH13 is selected is CH5
The response when CH6/CH14 is selected is CH6
The response when CH7/CH15 is selected is CH7
The response when CH8/CH16 is selected is CH8

AUDIO:MONITOR:VOLUME

Function: Used to select and query the speaker output level.
Syntax: AUDIO:MONITOR:VOLUME {0 to 7 / ?}
Description: AUDIO:MONITOR:VOLUME 4
Sets the speaker output level to 4.
∗Arbitrary value between 0 (no sound) and 7 (maximum volume) at steps of 1.
AUDIO:MONITOR:VOLUME ?
Queries the speaker output level setting.

14.5.14 When Option 75 is Installed

AUDIO:GROUP_INPUT

Function: Used to select or query the embedded audio group.
Syntax: AUDIO:GROUP_INPUT {EMB1&2 / EMB3&4 / EXT / ?}
Description: AUDIO:GROUP_INPUT EMB1&2
Selects embedded group 1&2.
AUDIO:GROUP_INPUT EMB3&4
Selects embedded group 3&4.
AUDIO:GROUP_INPUT EXT
Selects the external AES/EBU audio input.
AUDIO:GROUP_INPUT ?
Queries the embedded group setting.

AUDIO:L-CH_SEL

Function: Used to set or query the channel to be monitored using the built-in speaker.
Sets the left channel when a headphone is connected.
Syntax: AUDIO:L-CH_SEL {CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / ?}
AUDIO:L-CH_SEL {CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / ?}
Description: AUDIO:L-CH_SEL CH1
Sets the monitored channel to CH1 or CH9.
AUDIO:L-CH_SEL ?
Queries the format.
The response when CH1/CH9 is selected is CH1
The response when CH2/CH10 is selected is CH2
The response when CH3/CH11 is selected is CH3
The response when CH4/CH12 is selected is CH4
The response when CH5/CH13 is selected is CH5
The response when CH6/CH14 is selected is CH6
The response when CH7/CH15 is selected is CH7
The response when CH8/CH16 is selected is CH8

AUDIO:R-CH_SEL

Function: Used to set or query the channel to be monitored using the built-in speaker.
Sets the right channel when a headphone is connected.
Syntax: AUDIO:R-CH_SEL {CH1 / CH2 / CH3 / CH4 / CH5 / CH6 / CH7 / CH8 / ?}
AUDIO:R-CH_SEL {CH9 / CH10 / CH11 / CH12 / CH13 / CH14 / CH15 / CH16 / ?}
Description: AUDIO:R-CH_SEL CH1
Sets the monitored channel to CH1 or CH9.
AUDIO:R-CH_SEL ?
Queries the format.
The response when CH1/CH9 is selected is CH1
The response when CH2/CH10 is selected is CH2
The response when CH3/CH11 is selected is CH3
The response when CH4/CH12 is selected is CH4
The response when CH5/CH13 is selected is CH5
The response when CH6/CH14 is selected is CH6
The response when CH7/CH15 is selected is CH7
The response when CH8/CH16 is selected is CH8

AUDIO:MONITOR_OUT

Function: Used to set or query the audio monitor output.
Syntax: AUDIO:MONITOR_OUT {ON / OFF / ?}
Description: AUDIO:MONITOR_OUT ON
Turns the audio monitor output on.
AUDIO:MONITOR_OUT OFF
Turns the audio monitor output off.
AUDIO:MONITOR_OUT ?
Queries the audio monitor output setting.

AUDIO:MONITOR:VOLUME

Function: Used to select and query the monitor output volume.
Syntax: AUDIO:MONITOR:VOLUME {0 to 255 / ?}
Description: AUDIO:MONITOR:VOLUME 128
Sets the monitor output level to 128.
∗ Arbitrary value between 0 (minimum) and 255 (maximum) at steps of 1.
AUDIO:MONITOR:VOLUME ?
Queries the monitor output level setting.

14.6 FTP Commands

GET STATUS.TXT

Function: Retrieves the text file of the top screen of the status display created in the LV 5700A/LV 5710A to a PC or workstation.

Syntax: GET STATUS.TXT [directory\file_name.TXT]

Description: Retrieves to a PC or workstation the text file of the top screen of the status display created in the LV 5700A/LV 5710A using TELNET command MAKE STATUS. Specify the directory on the PC or workstation in [directory].

GET LOG.TXT

Function: Retrieves the error log as a text file to a PC or workstation.

Syntax: GET LOG.TXT [directory\file_name.TXT]

Description: Retrieves to a PC or workstation the text file of the error log created in the LV 5700A/LV 5710A using TELNET command MAKE LOG. Specify the directory on the PC or workstation in [directory].

GET DUMP.TXT

Function: Retrieves the data dump as a text file to a PC or workstation.

Syntax: GET DUMP.TXT [directory\file_name.TXT]

Description: Retrieves to a PC or workstation the text file of the data dump created in the LV 5700A/LV 5710A using TELNET command MAKE DUMP. Specify the directory on the PC or workstation in [directory].

GET CAPTURE.BMP

Function: Retrieves the captured screen as a bitmap file to a PC or workstation.

Syntax: GET CAPTURE.BMP [directory\file_name.BMP]

Description: Retrieves to a PC or workstation the bitmap file of the captured screen created in the LV 5700A/LV 5710A using TELNET command MAKE CAPTURE. Specify the directory on the PC or workstation in [directory].

14.7 List of Commands

Input Selection

MODULE	Used to select or query the module.
SDI	Used to select or query the SDI input channel.
REFERENCE	Used to select or query the synchronization signal.

Video Signal Waveform Display

MODE	Used to switch or query the display mode on the video signal waveform display.
CH1	Used to display CH1 on the video signal waveform display or query the setting.
CH2	Used to display CH2 on the video signal waveform display or query the setting.
CH3	Used to display CH3 on the video signal waveform display or query the setting.
WFM	Displays the video signal waveform.
WFM:INTEN:WFM	Adjusts the brightness of the waveform on the video signal waveform display.
WFM:INTEN:SCALE	Adjusts the brightness of the scale on the video signal waveform display.
WFM:GAIN:VAR	Used to select or query the gain on the video signal waveform display.
WFM:GAIN:MAG	Used to select or query the gain factor on the video signal waveform display.
WFM:GAIN:FILTER	Used to select or query the filter on the video signal waveform display.
WFM:GAIN:C.FILTER	Used to select or query the filter on the video signal waveform display.
WFM:SWEEP:SWEEP	Used to select or query the sweep mode on the video signal waveform display.
WFM:SWEEP:MAG	Used to expand the time axis on the video signal waveform display or query the setting.
WFM:SWEEP:FIELD	Used to select or query the field on the video signal waveform display.
WFM:LINE_SELECT	Used to select or query the line selector on the video signal waveform display.
WFM:LINE_SELECT:FIELD	Used to select or query the line select field on the video signal waveform display.
WFM:LINE_SELECT:EXT_REF	Used to select or query the synchronization signal when selecting the line on the video signal waveform display.
WFM:LINE_NUMBER	Used to select or query the line select number on the video signal waveform display.

WFM:COLOR:MATRIX	Used to select or query the color system on the video signal waveform display.
WFM:COLOR:YGBR	Used to select or query the Y-GBR display on the video signal waveform display.
WFM:COLOR:YRGB	Used to select or query the Y-RGB display on the video signal waveform display.
WFM:COLOR:SETUP	Used to select or query the setup on the pseudo-composite display.
WFM:COLOR:PIX_MON	Used to select or query the color system of the analog output on the rear panel.
WFM:SCALE:UNIT	Used to select or query the amplitude scale unit on the video signal waveform display.
WFM:SCALE:FULL_SCALE	Used to select or query the full scale value of the amplitude scale unit on the video signal waveform display.
WFM:SCALE:COLOR75P	Used to select or query the scale display for the 75% color bar on the video signal waveform display.
WFM:SCALE:COLOR	Used to select or query the scale color on the video signal waveform display.
WFM:TIMING_MODE	Used to select or query the switching mode of the video signal waveform display mode.
WFM:EAV_SAV	Used to select or query the blanking period display on the video signal waveform display.
WFM:PERSISTENCE	Used to select or query the persistence characteristics on the video signal waveform display.
WFM:PERSIST_CLEAR	Clears the overlaid waveforms on the video signal waveform display.

Vector Waveform Display

VECTOR	Displays vector waveforms.
VECTOR:INTEN:VECTOR	Adjusts the brightness of the waveform display on the vectorscope display.
VECTOR:INTEN:SCALE	Adjusts the brightness of the scale on the vectorscope display.
VECTOR:INTEN:PERSISTENCE	Used to select or query the persistence characteristics on the vectorscope display.
VECTOR:INTEN:PERSIST_CLEAR	Clears the overlaid waveforms on the vectorscope display.
VECTOR:GAIN:VAR	Used to select or query the gain on the vectorscope display.
VECTOR:GAIN:MAG	Used to select or query the gain factor on the vectorscope display.
VECTOR:LINE_SELECT	Used to select or query the line selector on the vectorscope display.
VECTOR:LINE_SELECT:FIELD	Used to select or query the line select field selection on the vectorscope display.

VECTOR:LINE_NUMBER	Used to select or query the line select number on the vectorscope display.
VECTOR:LINE_SELECT:EXT_REF	Used to select or query the synchronization signal when selecting the line on the vectorscope display.
VECTOR:COLOR_SYSTEM:COLOR_BAR	Used to select or query the 100%/75% color bar on the vectorscope display.
VECTOR:COLOR_SYSTEM:COLOR_SYSTEM	Used to select or query the component display and composite display on the vectorscope display.
VECTOR:COLOR_SYSTEM:SETUP	Used to select or query the setup on the pseudo-composite display on the vectorscope display.
VECTOR:COLOR_SYSTEM:EAV_SAV	Used to select or query the blanking period display on the vectorscope display.
VECTOR:SCALE:IQ	Used to select or query the scale display of the IQ axis on the vectorscope display.
VECTOR:SCALE:SCALE_COLOR	Used to select or query the scale color on the vectorscope display.

Picture Display

PICTURE	Displays pictures.
PICTURE:MARKER:4_3	Used to select or query the 4 to 3 aspect ratio display on the picture display.
PICTURE:MARKER:16_9	Used to select or query the 16 to 9 aspect ratio display on the picture display.
PICTURE:MARKER:SAFE_ACTION	Used to select or query the safe action area display on the picture display.
PICTURE:MARKER:SAFE_TITLE	Used to select or query the safe title area display on the picture display.
PICTURE:MARKER:CENTER	Used to select or query the center marker display on the picture display.
PICTURE:LINE_SELECT	Used to select or query the line select marker display on the picture display.
PICTURE:LINE_NUMBER	Used to select or query the line number of the line marker on the picture display.
PICTURE:LINE_SELECT:FIELD	Used to select or query the field selection on the picture display.

Audio Display

AUDIO	Displays audio signals.
AUDIO:MODE	Used to select or query the display mode on the audio display.
AUDIO:SURROUND	Used to set or query the surround system on the audio display.
AUDIO:GROUP	Used to select or query the embedded audio group on the audio display.

AUDIO:SOUND:AUDIO	Adjusts the brightness of the waveform display on the audio display.
AUDIO:SOUND:SCALE	Adjusts the brightness of the scale and level meter on the audio display.
AUDIO:SOUND:LISSAJOU	Used to select or query the lissajous display format on the audio display.
AUDIO:SOUND:LISSA_L	Used to select or query the embedded audio channel that is to be assigned to channel L on the audio lissajous display.
AUDIO:SOUND:LISSA_R	Used to select or query the embedded audio channel that is to be assigned to channel R on the audio lissajous display.
AUDIO:SOUND:GAIN	Used to select or query the gain of the audio lissajous display.
AUDIO:METER:REF	Used to select or query the reference level on the audio level meter display.
AUDIO:METER:RANGE	Used to select or query the dynamic range on the audio level meter display.
AUDIO:METER:SCALE	Used to select or query the scale on the audio level meter display.
AUDIO:METER:PEAKHOLD	Used to set or query the peak hold time on the audio level meter display.
AUDIO:CH1 / AUDIO:CH9	Used to select or query the naming of embedded audio CH1/CH9.
AUDIO:CH2 / AUDIO:CH10	Used to select or query the naming of embedded audio CH2/CH10.
AUDIO:CH3 / AUDIO:CH11	Used to select or query the naming of embedded audio CH3/CH11.
AUDIO:CH4 / AUDIO:CH12	Used to select or query the naming of embedded audio CH4/CH12.
AUDIO:CH5 / AUDIO:CH13	Used to select or query the naming of embedded audio CH5/CH13.
AUDIO:CH6 / AUDIO:CH14	Used to select or query the naming of embedded audio CH6/CH14.
AUDIO:CH7 / AUDIO:CH15	Used to select or query the naming of embedded audio CH7/CH15.
AUDIO:CH8 / AUDIO:CH16	Used to select or query the naming of embedded audio CH8/CH16.

Multi Display

MULTI	Enables multi screen display.
MULTI:MODE	Used to select or query the display mode on the multi screen.
MULTI:UPPER	Used to select or query the displayed content at the upper-left quadrant on the 4 screen multi display.
MULTI:LOWER	Used to select or query the displayed content at the lower-left quadrant on the 4 screen multi display.
MULTI:STATUS	Used to select or query the displayed status content at the lower-left quadrant on the 4 screen multi display.

Status Display

STATUS	Displays the top screen of the status display.
STATUS:LOG	Displays the status log.
STATUS:LOG:LOG	Used to start/stop the error log or query the setting.
STATUS:LOG:CLEAR	Used to clear (reset) the error log.
STATUS:LOG:MODE	Used to select or query the action taken when the number of logs in the error log exceeds the maximum number (1,000 logs).
STATUS:DUMP	Displays the data dump.
STATUS:DUMP:MODE	Used to select whether the data dump display is automatically updated or held or query the setting.
STATUS:DUMP:DISPLAY	Used to select whether to display data dumps using serial data arrays or individually for each channel or query the setting.
STATUS:DUMP:LINE_NUMBER	Used to specify the line number of the data dump display.
STATUS:DUMP:SAMPLE	Used to specify the first sample number of the data dump display.
STATUS:DUMP:EAV	Used when displaying the data dump from the EAV sample.
STATUS:DUMP:SAV	Used when displaying the data dump from the SAV sample.
STATUS:AUDIO	Used when displaying the detailed status of the embedded audio.
STATUS:AUDIO:CH_SEL	Used to select or query the channel for displaying the status details of embedded audio.
STATUS:EDH	Used when displaying the EDH status.
STATUS:ERROR:ALARM:POLARITY	Used to select or query the polarity of the error output pin of the remote connector.
STATUS:ERROR:ALARM:BEEP	Used to set or query the beep sound when errors occur.
STATUS:ERROR:COUNT_RATE	Used to set or query the error count rate.

STATUS:ERROR:DETECT:TRS	Used to set or query the TRS error detection.
STATUS:ERROR:DETECT:LINE	Used to set or query the line number error detection.
STATUS:ERROR:DETECT:CRC	Used to set or query the CRC error detection.
STATUS:ERROR:DETECT:EDH	Used to set or query the EDH error detection.
STATUS:ERROR:DETECT:RESERVED	Used to set or query the reserved area error detection.
STATUS:ERROR:DETECT:PARITY	Used to set or query the parity error detection.
STATUS:ERROR:DETECT:CHECKSUM	Used to set or query the checksum error detection.
STATUS:ERROR:DETECT:LEVEL	Used to set or query the level error detection.
STATUS:ERROR:DETECT:GAMUT	Used to set or query the gamut error detection.
STATUS:ERROR:DETECT:C.GAMUT	Used to set or query the composite gamut error detection.
STATUS:ERROR:DETECT:BCH	Used to set or query the BCH error detection.
STATUS:ERROR:DETECT:AUDIO	Used to set or query the sequency detection of audio packets.
STATUS:ERROR:DETECT:REF	Used to set or query the synchronization detection of the external synchronization signal.
STATUS:ERROR:DETECT:CABLE	Used to set or query the equivalent cable length meter alarm.
STATUS:ERROR:LEVEL:GAMUT:UPPER	Used to set the upper threshold level of the gamut error.
STATUS:ERROR:LEVEL:GAMUT:LOWER	Used to set the lower threshold level of the gamut error.
STATUS:ERROR:LEVEL:C.GAMUT:UPPER	Used to set the upper threshold level of the composite gamut error.
STATUS:ERROR:LEVEL:C.GAMUT:LOWER	Used to set the lower threshold level of the composite gamut error.
STATUS:ERROR:LEVEL:LUMA:UPPER	Used to set the upper threshold level of the intensity signal.
STATUS:ERROR:LEVEL:LUMA:LOWER	Used to set the lower threshold level of the intensity signal.
STATUS:ERROR:LEVEL:CHROMA:PLUS	Used to set the upper threshold level of the chrominance difference signal.
STATUS:ERROR:LEVEL:CHROMA:MINUS	Used to set the lower threshold level of the chrominance difference signal.
STATUS:ERROR:LEVEL:CABLE:HD_LENGTH	Used to set the threshold level of the equivalent cable length error of HD-SDI signals.

STATUS:ERROR:LEVEL:CABLE:HD_WARN	Used to set the threshold level of the equivalent cable length alarm of HD-SDI signals.
STATUS:ERROR:LEVEL:CABLE:SD_LENGTH	Used to set the threshold level of the equivalent cable length meter error of SD-SDI signals.
STATUS:ERROR:LEVEL:CABLE:SD_WARN	Used to set the threshold level of the equivalent cable length meter alarm of SD-SDI signals.
STATUS:ERROR:DISPLAY	Used to set or query the displayed time of errors.
STATUS:RESET	Resets status display errors and other errors.

Capture

CAPTURE:DISPLAY	Used to set or query the display of the captured image in the internal memory.
CAPTURE:FILE_SELECT	Used to select or query the file for saving the captured image to the CF card.

System Setup

SYSTEM:FORMAT:MODE	Used to select or query the setup mode of the video signal format.
SYSTEM:FORMAT:FORMAT 1080I/60	Sets the video signal format manually to 1080i/60.
SYSTEM:FORMAT:FORMAT 1080SF/30	Sets the video signal format manually to 1080PsF/30.
SYSTEM:FORMAT:FORMAT 1080I/59.94	Sets the video signal format manually to 1080i/59.94.
SYSTEM:FORMAT:FORMAT 1080SF/29.97	Sets the video signal format manually to 1080PsF/29.97.
SYSTEM:FORMAT:FORMAT 1080I/50	Sets the video signal format manually to 1080i/50.
SYSTEM:FORMAT:FORMAT 1080SF/25	Sets the video signal format manually to 1080PsF/25.
SYSTEM:FORMAT:FORMAT 1080P/30	Sets the video signal format manually to 1080p/30.
SYSTEM:FORMAT:FORMAT 1080P/29.97	Sets the video signal format manually to 1080p/29.97.
SYSTEM:FORMAT:FORMAT 1080P/25	Sets the video signal format manually to 1080p/25.
SYSTEM:FORMAT:FORMAT 1080SF/24	Sets the video signal format manually to 1080PsF/24.
SYSTEM:FORMAT:FORMAT 1080P/24	Sets the video signal format manually to 1080p/24.
SYSTEM:FORMAT:FORMAT 1080P/23.98	Sets the video signal format manually to 1080p/23.98.

SYSTEM:FORMAT:FORMAT 1080SF/23.98	Sets the video signal format manually to 1080PsF/23.98.
SYSTEM:FORMAT:FORMAT 1035I/60	Sets the video signal format manually to 1035i/60.
SYSTEM:FORMAT:FORMAT 1035I/59.94	Sets the video signal format manually to 1035i/59.94.
SYSTEM:FORMAT:FORMAT 720P/60	Sets the video signal format manually to 720p/60.
SYSTEM:FORMAT:FORMAT 720P/59.94	Sets the video signal format manually to 720p/59.94.
SYSTEM:FORMAT:FORMAT 720P/50	Sets the video signal format manually to 720p/50.
SYSTEM:FORMAT:FORMAT 720P/30	Sets the video signal format manually to 720P/30.
SYSTEM:FORMAT:FORMAT 720P/29.97	Sets the video signal format manually to 720p/29.97.
SYSTEM:FORMAT:FORMAT 720P/25	Sets the video signal format manually to 720p/25.
SYSTEM:FORMAT:FORMAT 720P/24	Sets the video signal format manually to 720p/24.
SYSTEM:FORMAT:FORMAT 720P/23.98	Sets the video signal format manually to 720p/23.98.
SYSTEM:FORMAT:FORMAT 525I/59.94	Sets the video signal format manually to 525i/59.94.
SYSTEM:FORMAT:FORMAT 625I/50	Sets the video signal format manually to 625i/60.
SYSTEM:FORMAT:V_BIT	Used to set or query the V blanking period on the SD-SDI signal.
SYSTEM:FORMAT:COMPOSIT_FORMAT	Used to select or query the format of the pseudo-composite display.
SYSTEM:FORMAT:I/PSF	Selects the video signal format detection/setting of the HD-SDI signal to INTERLACE or SEGMENT FRAM.
SYSTEM:DISPLAY:INFO:FORMAT	Used to select or query the display of the video signal format.
SYSTEM:DISPLAY:INFO:DATE	Used to set or query the date display.
SYSTEM:DISPLAY:INFO:TIME	Used to set or query the time display.
SYSTEM:DISPLAY:INFO:COLOR	Used to set or query the color system display.
SYSTEM:DISPLAY:INFO:TIMECODE	Of the time codes conforming to SMPTE RP-188, sets whether to decode LTC or VITC.
SYSTEM:DISPLAY:BACKLIGHT	Used to set or query the backlight setting.
SYSTEM:DISPLAY:AUTO_OFF	Used to set or query the backlight auto shutoff.
SYSTEM:DISPLAY:DISPLAY_OFF	Immediately turns the backlight off.
SYSTEM:INTERFACE:REMOTE	Used to select or query the method of recalling preset data using the remote connector.
SYSTEM:INTERFACE:MONITOR	Used to select and query the external XGA monitor.
SYSTEM:INTERFACE:BEEP	Used to select and query the beep sound output.
SYSTEM:DATE	Used to set or query the date and time.
SYSTEM:INIT	Initializes the LV 5700A/LV 5710A.

Preset Recall

RECAL	Recall presets.

FTP Commands

GET STATUS. TXT	Retrieves the text file of the top screen of the status display created in the LV 5700A/LV 5710A to a PC or workstation.
GET LOG. TXT	Retrieves the error log as a text file to a PC or workstation.
GET DUMP. TXT	Retrieves the data dump as a text file to a PC or workstation.
GET CAPTURE. BMP	Retrieves the captured screen as a bitmap file to a PC or workstation.

When Option 70 Is Installed

EYE	Displays eye patterns.
EYE:INTEN:EYE	Adjusts the eye pattern brightness
EYE:INTEN:SCALE	Adjusts the brightness of the scale of the eye pattern display.
EYE:SWEEP	Used to set or query the sweep length of the eye pattern display.
EYE:REF	Used to set or query the synchronization of the eye pattern display.
EYE:AUTO	Used to set or query the automatic measurement of eye patterns.
EYE:FILTER	Used to set or query the filter response of eye patterns.
EYE:MODE	Used to set or query the eye pattern setting.
EYE:HIST_SWEEP	Used to set or query the jitter waveform sweep of the histogram mode.
EYE:JITTER_GAIN	Used to set or query the jitter waveform gain.
MULTI:MODE WFM_EYE	Enables 2 screen display consisting of waveform display and eye pattern display.
MULTI:UPPER EYE	Sets the content shown at the upper-left quadrant of the 4 screen multi display to eye pattern display.

When Option 73/Option 73A Is Installed

VECTOR:NTSC_SETUP	Used to set or query the vectorscope display setup.
SYSTEM:FORMAT:FORMAT	Used to select or query NTSC or PAL for the analog signal input.
SYSTEM:NTSC_DISP	Used to set or query the line-alternating vectorscope display during PAL signal input.
SYSTEM:SCH	Used to set or query the SCH display on the vectorscope display of the analog signal input.

When Option 74 Is Installed

AUDIO:MONITOR:SPEAKER	Used to select and query the speaker output.
AUDIO:MONITOR:CH_SEL	Used to set or query the output channel setting.
AUDIO:MONITOR:VOLUME	Used to select and query the speaker output level.

When Option 75 Is Installed

AUDIO:GROUP_INPUT	Used to select or query the embedded audio group.
AUDIO:L-CH_SEL	Used to set or query the channel to be monitored using the built-in speaker. Sets the left channel when a headphone is connected.
AUDIO:R-CH_SEL	Used to set or query the channel to be monitored using the built-in speaker. Sets the right channel when a headphone is connected.
AUDIO:MONITOR_OUT	Used to set or query the audio monitor output.
AUDIO:MONITOR:VOLUME	Used to select and query the monitor output volume.

Creates a file

MAKE STATUS	Creates a text file of the top screen of the status display within the LV 5700A/5710A.
MAKE LOG	Creates a text file of the error log within the LV 5700A/5710A.
MAKE DUMP	Creates a text file of the data dump within the LV 5700A/5710A.
MAKE CAPTURE	Captures the displayed screen to the internal memory of the LV 5700A/5710A.

15. V. ANC

15.1 Description

An ANC data display function is added to the LV 5700A/5710A MULTI SDI/HD SDI WAVEFORM MONITOR.

15.2 Features

- List indicating the presence of ANC data
  Displays a list of the presence/absence of ancillary data.

- ANC data dump display
  Displays a data dump of ancillary data in hexadecimal (HEX) or binary (BIN) notation.

- Format ID
  Displays the current video mode as defined by ARIB STD B-39 or the payload ID packet defined by SMPTE 352M in text format along with the binary data.

- V-ANC data display for the ARIB standard
  - Displays the text and data dump of the inter-stationary control data as defined by ARIB STD-B39.
  - Displays the text and data dump of the header section of the closed caption data as defined by ARIB STD-B37.
  - Displays the presence/absence of packets of the user data as defined by ARIB TR-B23.

15.3 Specifications

15.3.1 Standard Supported

Signal Name	Standard Supported	DID	SDID
Payload ID	SMPTE 352M	241h	101h
V-ANC ARIB Standard Inter-stationary control data	ARIB STD-B39	25Fh	1FEh
Data broadcast trigger signal	ARIB STD-B35	25Fh	1FDh
Digital closed caption	ARIB STD-B37	25Fh	1DFh (HD closed caption) 2DEh (SD closed caption) 2DDh (Analog)
User data 1	ARIB TR-B23	25Fh	2FCh
User data 2	ARIB TR-B23	25Fh	1FBh

15.3.2 List Indicating the Presence of ANC Data

Displayed Packets
- Audio control packet
- EDH packet
- Time code packet
- ARIB STD-B37 Closed caption packet
- ARIB STD-B39 Inter-stationary control data packet
- ARIB STD-B35 Data broadcast trigger packet
- ARIB TR-B23 User data packet

15.3.3 Closed Caption Data Packet Display

Display Format
- Analyzes 4 words of the header and displays the text
- Displays a data dump of the packet in hexadecimal or binary notation.

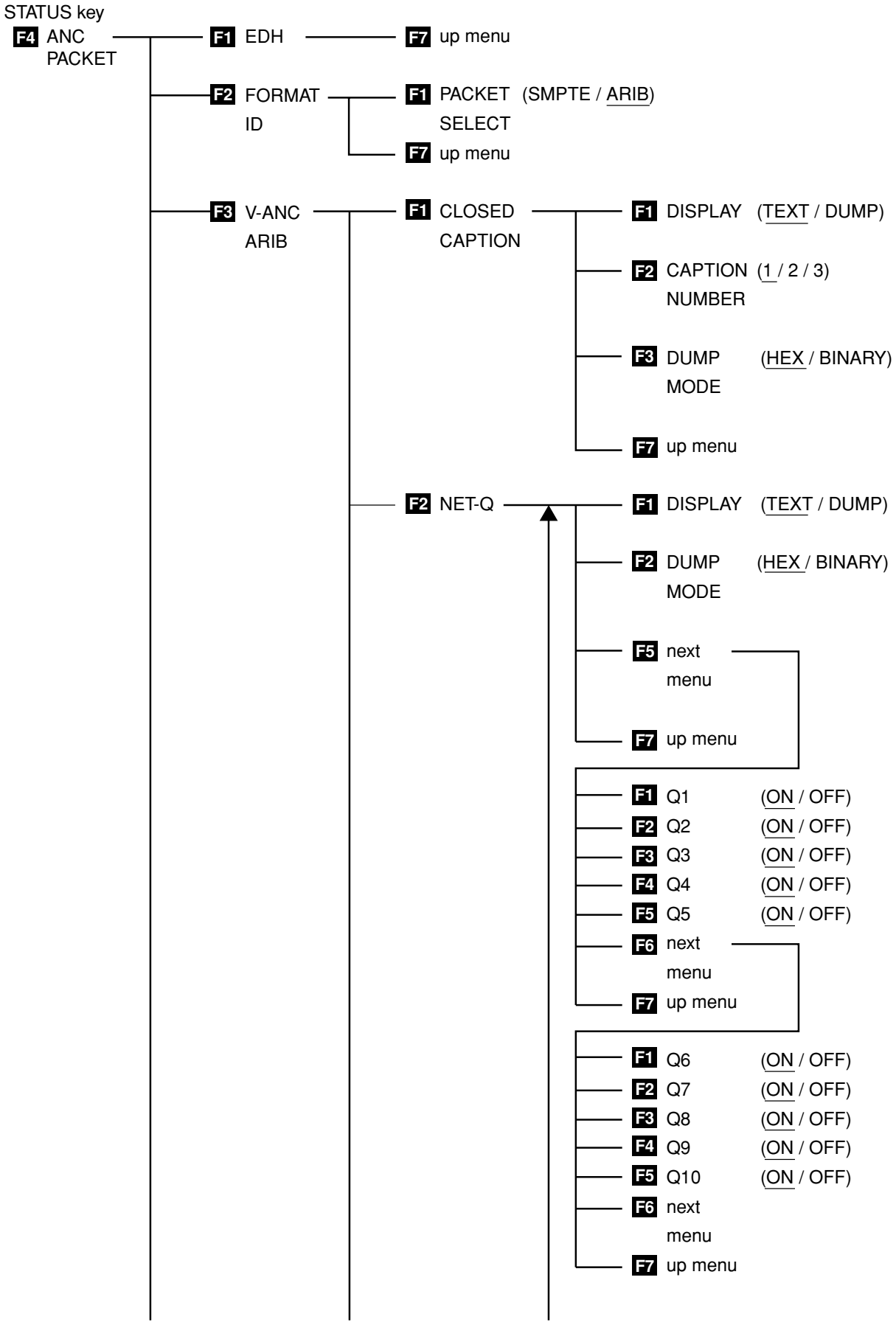
15.3.4 Inter-Stationary Control Data Display

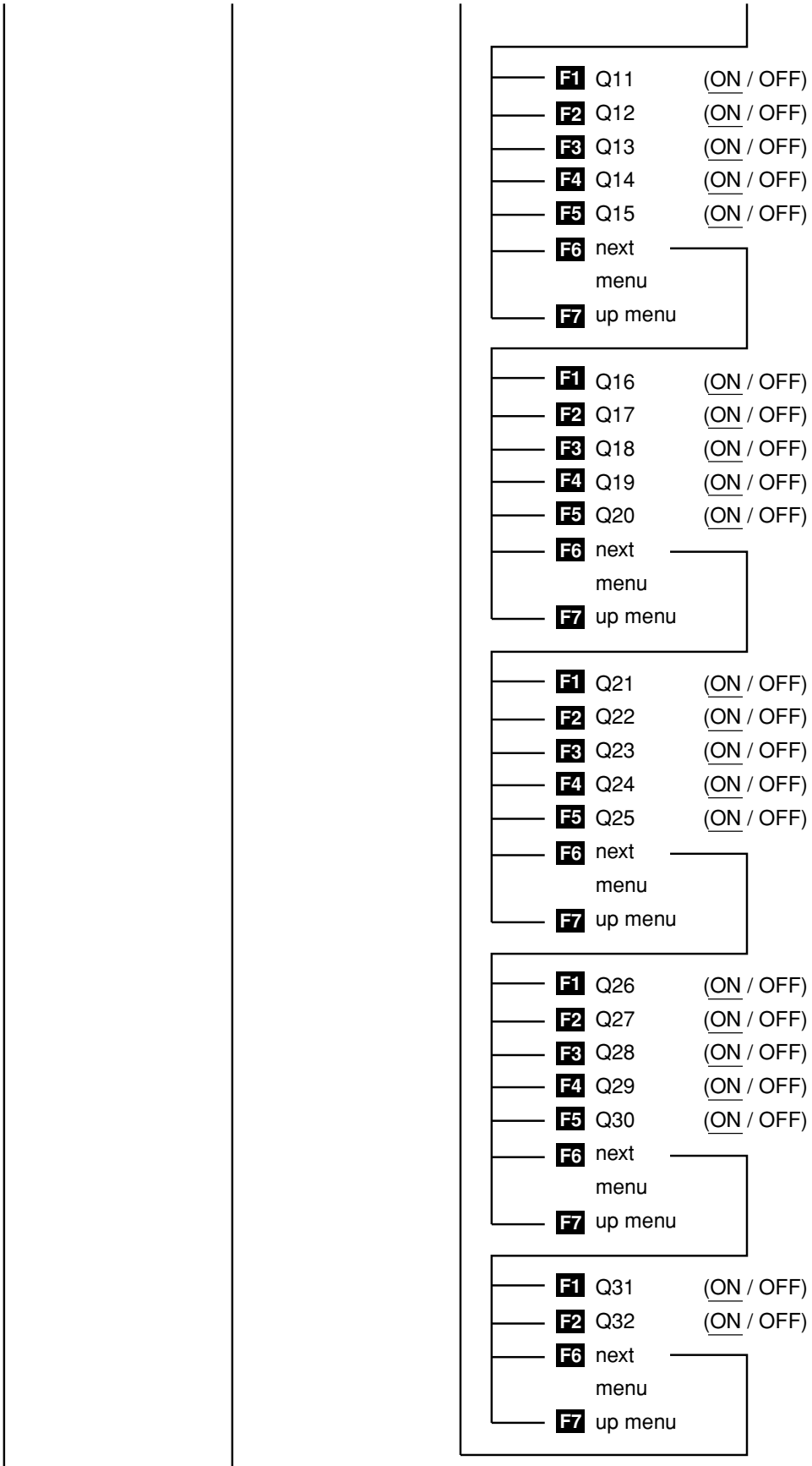
Display Format
- Displays the originating station code, video mode, audio mode, trigger (Q) signal, status (S) signal, counter, count down, etc.
- Displays a data dump of the packet in hexadecimal or binary notation.

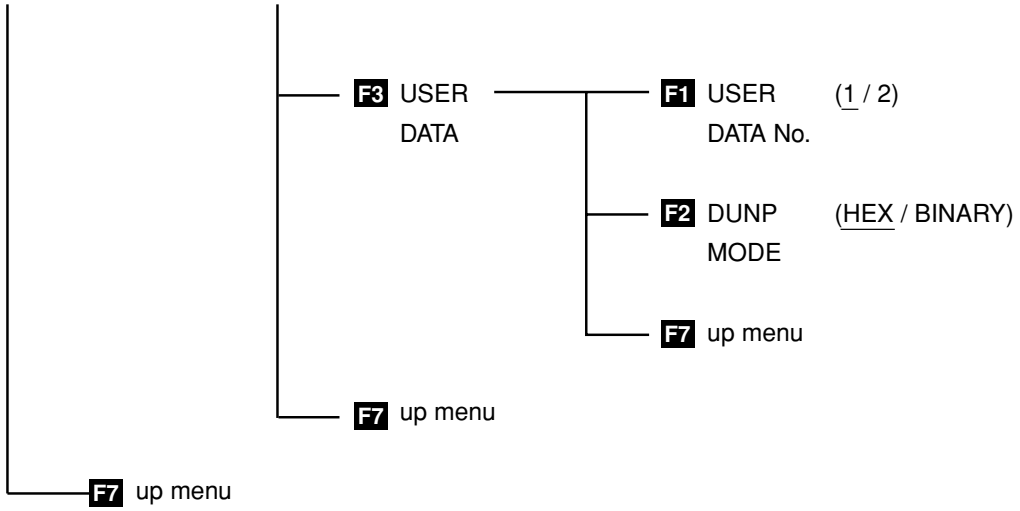
15.3.5 User Data Display

Display Format
- Displays a data dump of the packet in hexadecimal or binary notation.

15.4 MENU Structure




F1 Q11 (ON / OFF)
F2 Q12 (ON / OFF)
F3 Q13 (ON / OFF)
F4 Q14 (ON / OFF)
F5 Q15 (ON / OFF)
F6 next menu
F7 up menu
F1 Q16 (ON / OFF)
F2 Q17 (ON / OFF)
F3 Q18 (ON / OFF)
F4 Q19 (ON / OFF)
F5 Q20 (ON / OFF)
F6 next menu
F7 up menu
F1 Q21 (ON / OFF)
F2 Q22 (ON / OFF)
F3 Q23 (ON / OFF)
F4 Q24 (ON / OFF)
F5 Q25 (ON / OFF)
F6 next menu
F7 up menu
F1 Q26 (ON / OFF)
F2 Q27 (ON / OFF)
F3 Q28 (ON / OFF)
F4 Q29 (ON / OFF)
F5 Q30 (ON / OFF)
F6 next menu
F7 up menu
F1 Q31 (ON / OFF)
F2 Q32 (ON / OFF)
F6 next menu
F7 up menu


F3 USER DATA
F1 USER DATA No. (1 / 2)
F2 DUNP MODE (HEX / BINARY)
F7 up menu
F7 up menu
F7 up menu

15.5 Screen Structure

15.5.1 ANC_PACKET Summary Display

[STATUS → F·4 ANC PACKET]

Displays a list of the presence/absence of ANC data that is detectable.

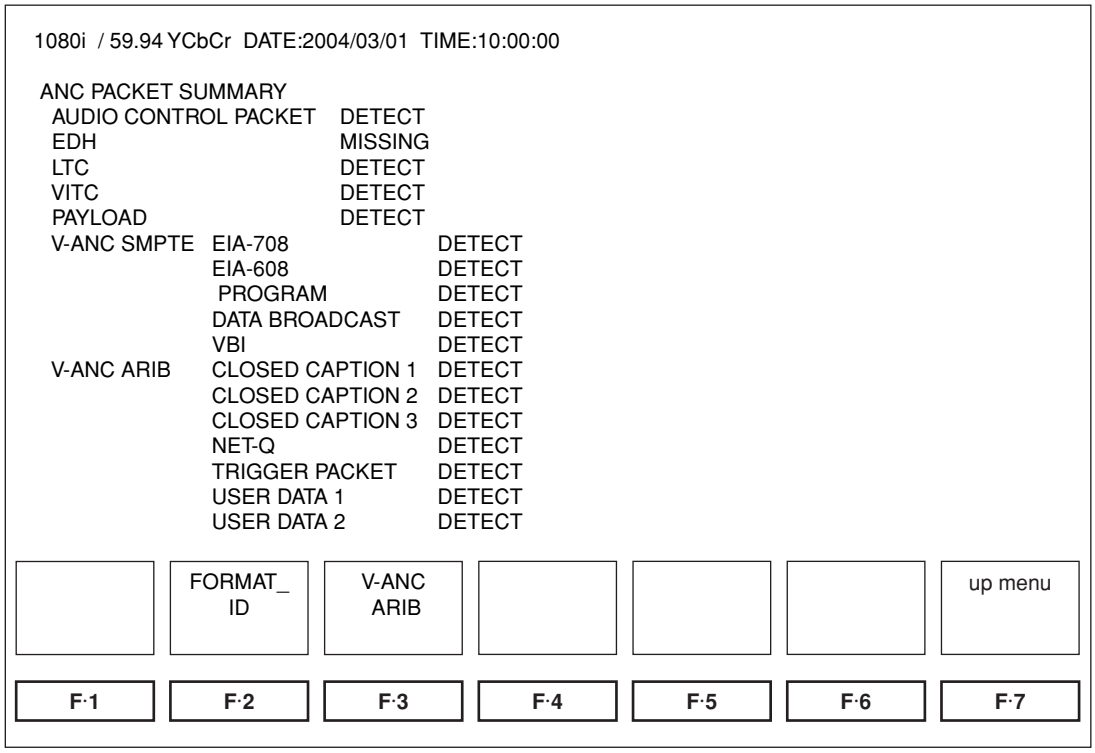


Figure 15.1 ANC Packet Detection Display and ANC Packet Menu

① AUDIO CONTROL PACKET (VOICE CONTROL PACKET)

Control data for the embedded audio.

Embedded audio is composed of four channels per group, and a total of four groups (16 channels) can be multiplexed. One audio control packet is multiplexed per group.

Main packet contents

- Synchronous/Asynchronous
- Active audio channels
- Sampling frequency

Multiplex line

- HD-SDI Line 9 and 571 of the Y channel
- SD-SDI Line 12 and 275

∗ Details are displayed using STATUS → F·3 AUDIO.

② EDH (Error Detection and Handling)

Packet for detecting SD-SDI transmission errors.

When multiple devices are connected, this packet allows you to track the device in which the error occurred.

Error is detected on the full field and active picture.

Multiplex line

- 525/59.94 Line 9 and 272
- 625/50 Line 5 and 318

∗ Details are displayed using [STATUS] → [F·4] ANC PACKET → [F·1] EDH.

③ LTC (Linear/Longitudinal Time Code)

A type of time code that is multiplexed in the frame once.

Multiplex line

- HD-SDI Line 10

④ VITC (Vertical Interval Time Code)

A type of time code that is multiplexed in the field once.

Multiplex line

- HD-SDI Line 9 and 571

⑤ PAYLOAD (Payload ID)

A packet for identifying the SDI video signal format.

Complies with the SMPTE 352M-2002 standard.

∗Details are displayed using [STATUS] → [F·4] ANC PACKET → [F·2] FORMAT_ID.

⑥ EIA-708

One of the closed caption standards.

Closed caption data for digital video. Closed caption consisting only of alphanumeric characters.

Multiplexed in the V-ANC area

⑦ EIA-608

One of the closed caption standards.

Originally closed caption data for analog composite signals (multiplexed in line 21).

Closed caption consisting only of alphanumeric characters.

Multiplexed in the V-ANC area

⑧ PROGRAM (Program Description)

Multiplexed in the V-ANC area

⑨ DATA BROADCAST

Multiplexed in the V-ANC area

⑩ VBI

Multiplexed in the V-ANC area

⑪ CLOSED CAPTION 1, 2, 3

Closed caption information packet multiplexed in the V-ANC area. Up to 3 closed caption data can be multiplexed.

Multiplex line

- HD-SDI Line 19 and 582
- SD-SDI Line 18 and 281

⑫ NET-Q (Inter-Stationary Control Data)

⑬ TRIGGER PACKET (Data Broadcast Trigger Signal)

⑭ USER DATA 1, 2

15.5.2 Format ID Display

[STATUS → F·4 ANC PACKET → F·2 FORMAT ID → F·1 PACKET SELECT : SMPTE / ARIB]

An ANC packet that identifies the video signal format. The available formats are SMPTE and ARIB.

SMPTE: Displays the PAYLOAD ID as defined by SMPTE 352M.

ARIB: Displays the current video mode as defined by ARIB STB-B39.

```
1080i  / 59.94 GBR DATE:2004/05/05 TIME:10:00:00

  FORMAT ID DISPLAY  SMPTE 352M
  BYTE1          10000111
    VERSION ID                  SMPTE 352M-2002
    PAYLOAD ID                  1128(1080) LINE
    DIGITAL INTERFACE           1.485Gb/s

  BYTE2          0000110
   TRANSPORT STRUCTURE          INTERLACED
    PICTURE STRUCTURE           INTERLACED
    PICTURE RATE                30/1.001

  BYTE3          00000010
    ASPECT RATIO                RESERVED
    H SAMPLING                  RESERVED
    SAMPLING STRUCTURE          4:4:4 GBR

  BYTE4          00000001
    CHANNEL ASSIGNMENT          DUAL LINK A
    DYNAMIC RANGE               100%
  ASPECT RATIO                  NOT USED
  MAPPING MODE                  NOT USED
    BIT DEPTH                   10BIT
```

Figure 15.2 Format ID Display

15.5.3 V Blanking Ancillary Data ARIB

15.5.3.1 Closed Caption Data Display

[STATUS → F·4 ANC PACKET → F·3 V-ANC ARIB → F·1 CLOSED CAPTION]

- Closed caption packet as defined by ARIB.
- Text display and dump display selectable (F·1 DISPLAY: TEXT/DUMP).
- Binary or hexadecimal display selectable for the dump display.
  (F·3 DUMP MODE: HEX/BINARY)
- Select one from up to three packets and display (F·2 CAPTION NUMBER: 1/2/3)

(1) Data Analysis Display

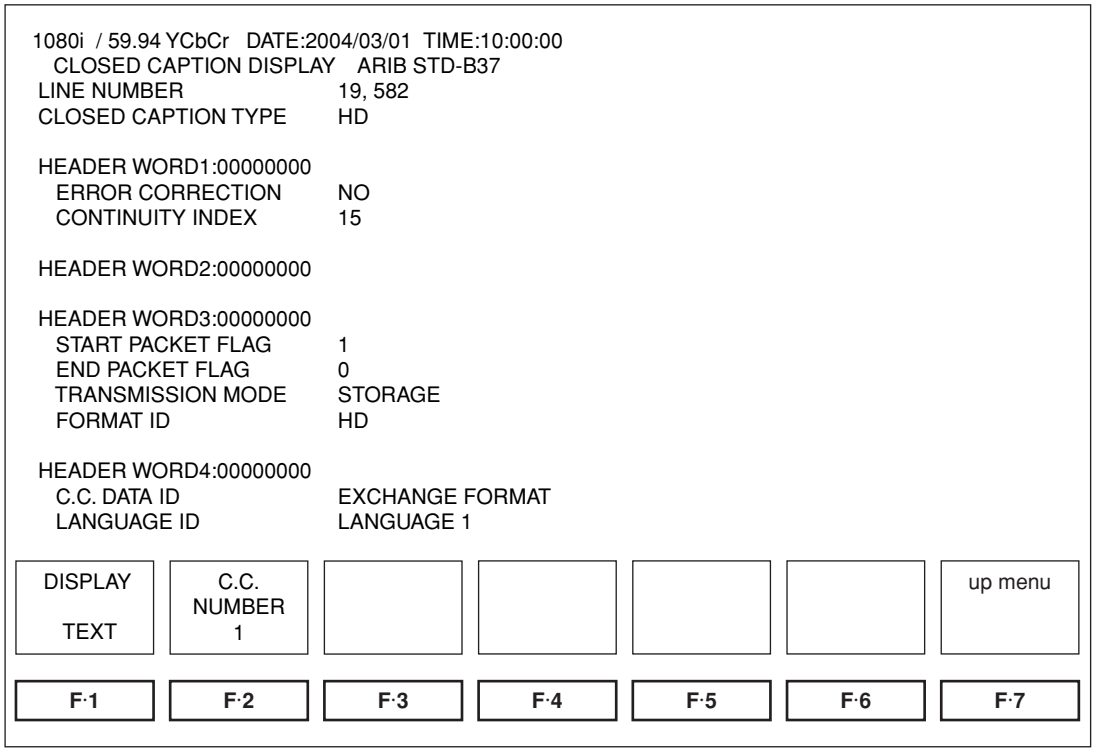


Figure 15.3 Closed Caption Data Screen and Closed Caption Data Display Menu

(2) Data Dump Display 1 (HEX)

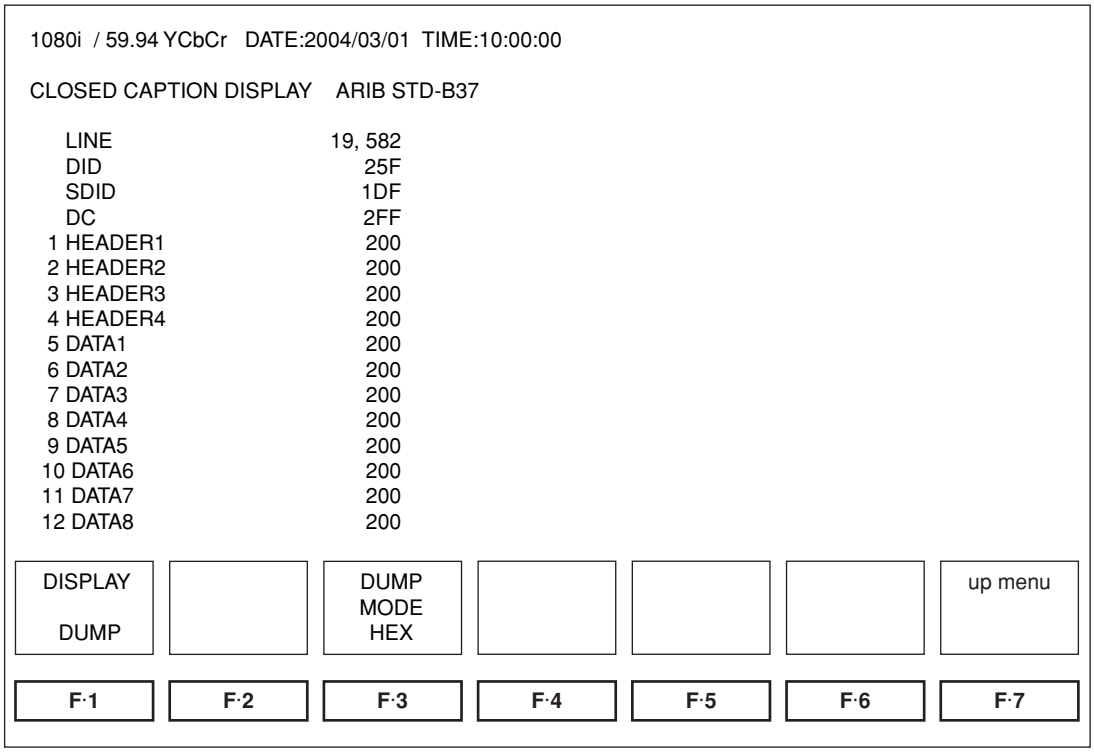


Figure 15.4 Closed Caption Data in Hexadecimal Notation Display

(3) Data Dump Display 2 (BIN)

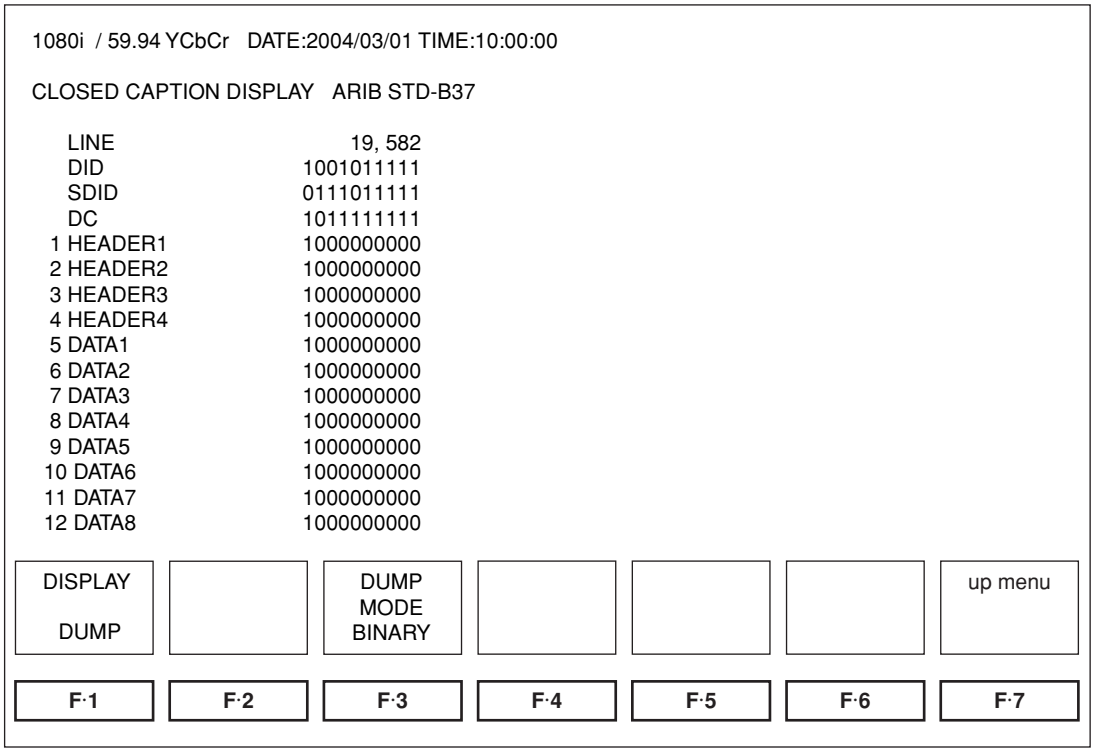


Figure 15.5 Closed Caption Data in Binary Notation Display

15.5.3.2 Inter-Stationary Control Data

(1) Data Analysis Display

[STATUS → F·4 ANC PACKET → F·3 V-ANC ARIB → F·2 NET-Q]

- Text display and dump display selectable (F·1 DISPLAY: TEXT/DUMP).
- Binary or hexadecimal display selectable for the dump display.
  (F·2 DUMP MODE: HEX/BINARY)
- Each Q signal can be turned ON/OFF.

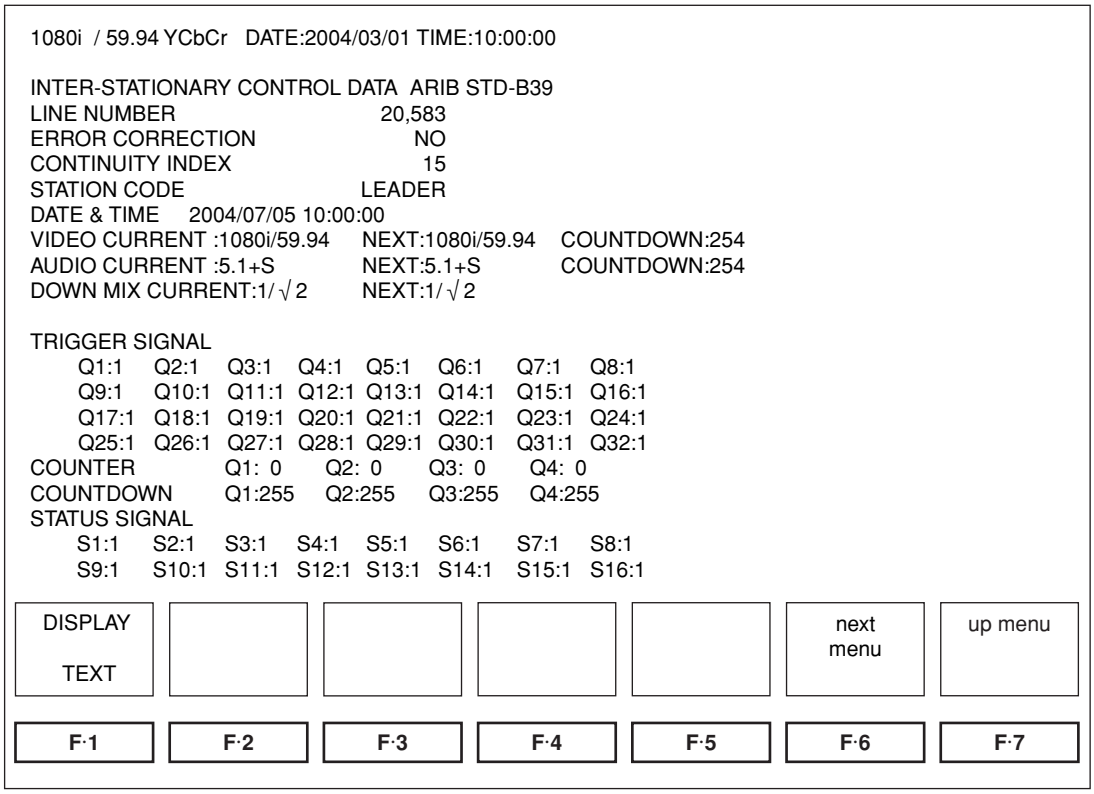


Figure 15.6 Inter-Stationary Control Data Display and Inter-Stationary Control Menu

(2) Data Dump Display (HEX)

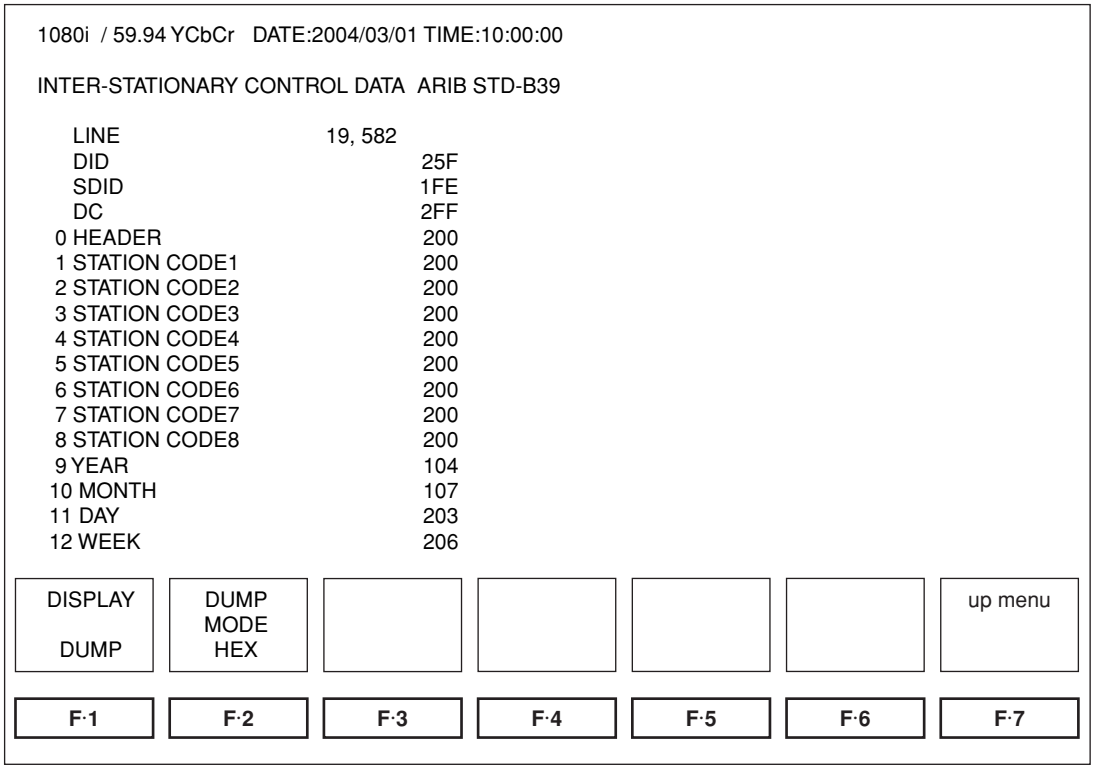


Figure 15.7 Inter-Stationary Control Data in Hexadecimal Notation Display

(3) Data Dump Display (BIN)

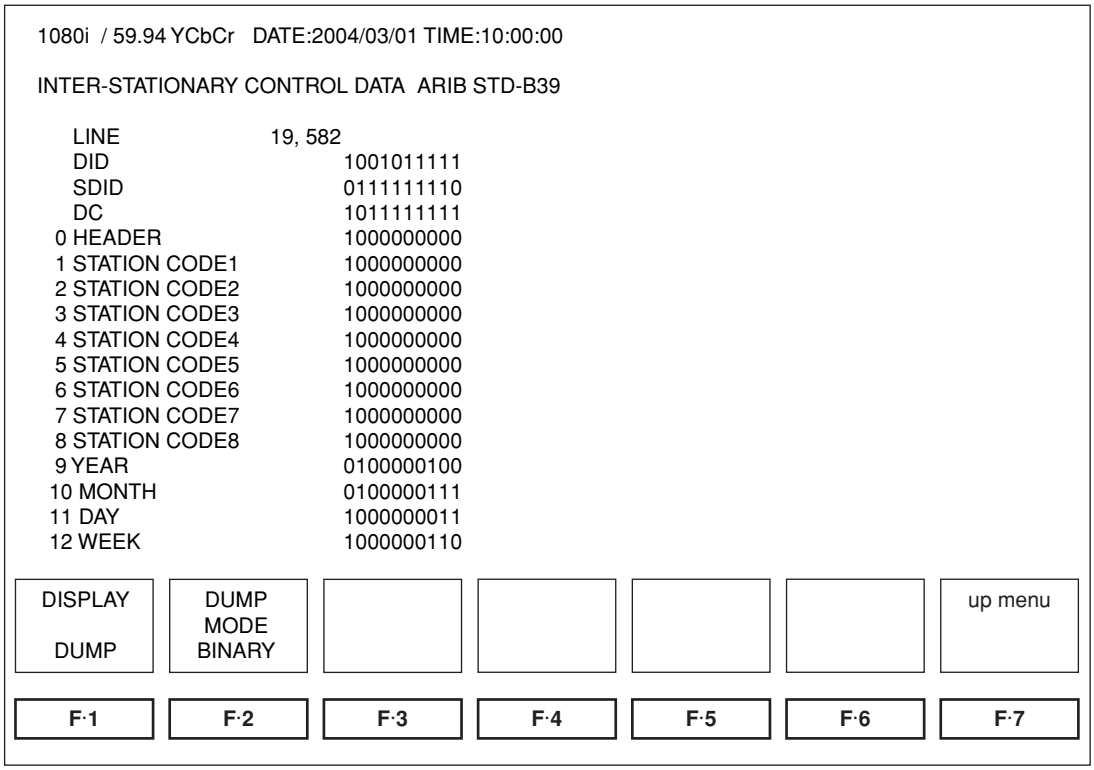


Figure 15.8 Inter-Stationary Control Data in Binary Notation Display

15.5.3.3 User Data Display

Press [STATUS] on the panel, press [F·4] ANC PACKET, [F·3] V-ANC ARIB, and USER DATA.

User data is displayed.

- Press [F·1] USER DATA No. to switch between user data 1 and user data 2.
- Press [F·2] DUMP MODE to switch the display mode between HEX and BINARY.

(1) User Data Display (HEX)

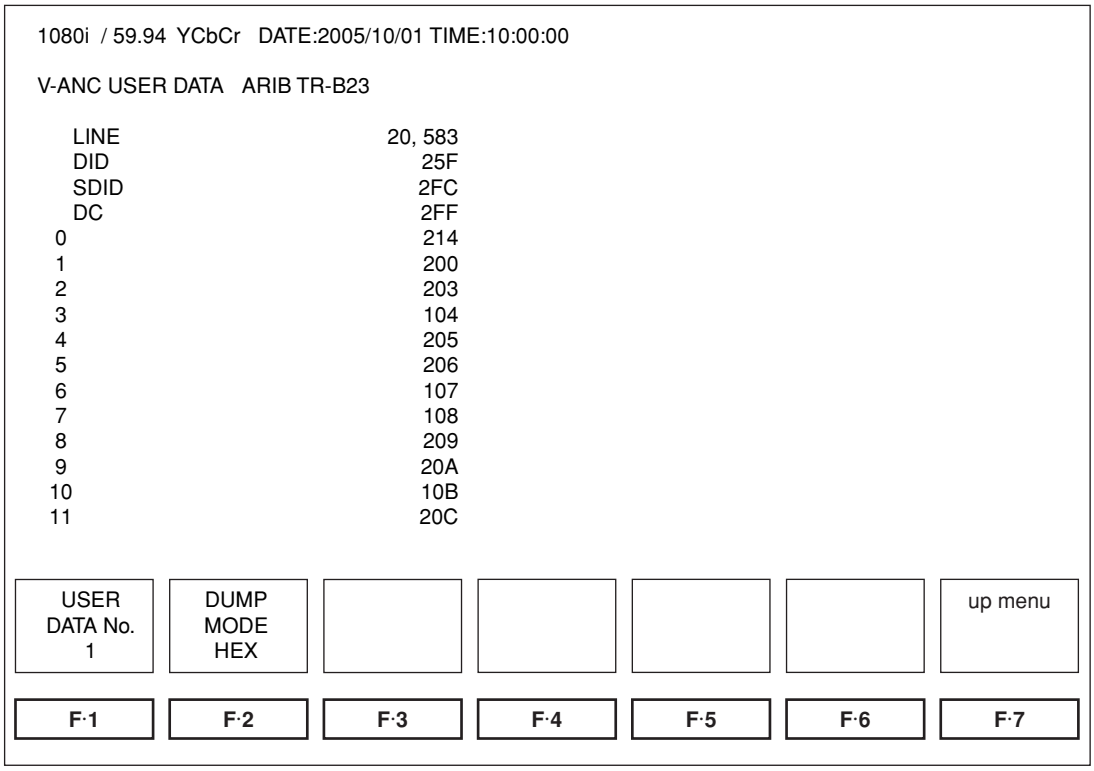


Figure 15.9 User Data in Hexadecimal Notation Display

(2) User Data Display (BIN)

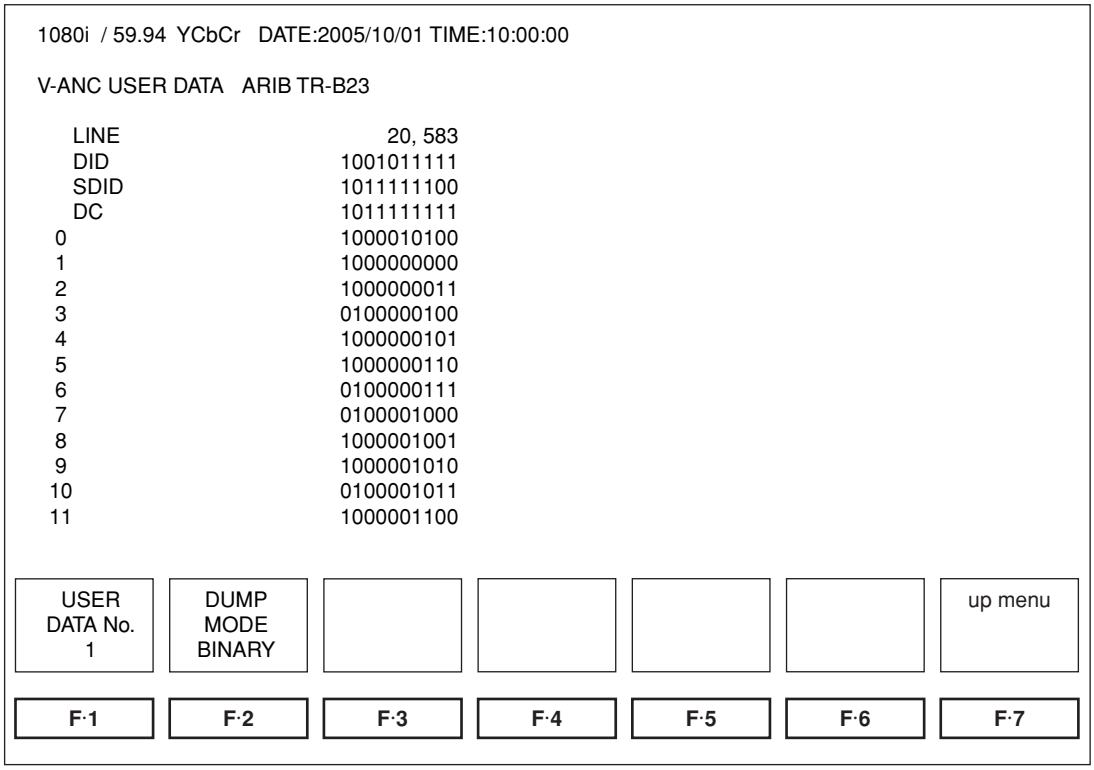


Figure 15.10 User Data in Binary Notation Display

16. DELTA/BAR DISPLAY

16.1 Description

A delta/bar display function for gamut detection is added to the LV 5700A/5710A.

16.2 Features

• Component gamut monitor function using the delta display
This function converts the Y, C_B, C_R format of the SDI signal into GBR, and each GBR component is arranged in a delta format and displayed. The over and under levels of gamut are displayed graphically improving the visibility.

• Simultaneous monitoring of component and composite gamut using the bar display
This function displays the gamut using five bars of Y, G, B, R, and COMP by converting the Y, C_B, C_R format of the SDI signal into GBR and composite formats. Component and composite gamut can be monitored on the easily viewable bar display.

• Simultaneous monitoring using the four-screen multi display
By displaying the delta or bar display on the four-screen multi display, the WFM waveform, audio, picture, status, and gamut can be monitored simultaneously.
(Vectors cannot be displayed simultaneously with delta or bar display.)

16.3 Specifications

16.3.1 Waveform Display

Delta Display	Displays the GBR component gamut
Bar Display	Displays the YGBR component and composite gamut
Display Selection	Select vector, delta, or bar.

16.3.2 Error Level Setting

Component Gamut	Upper limit: 90.0 % to 109.4 % Lower limit: -7.2 % to +6.0 % 0.1 % steps
Composite Gamut	Upper limit: 90.0 % to 135.0 % Lower limit: -40 % to -20 % 0.1 % steps

16.3.3 Gamut Display Frequency Characteristics

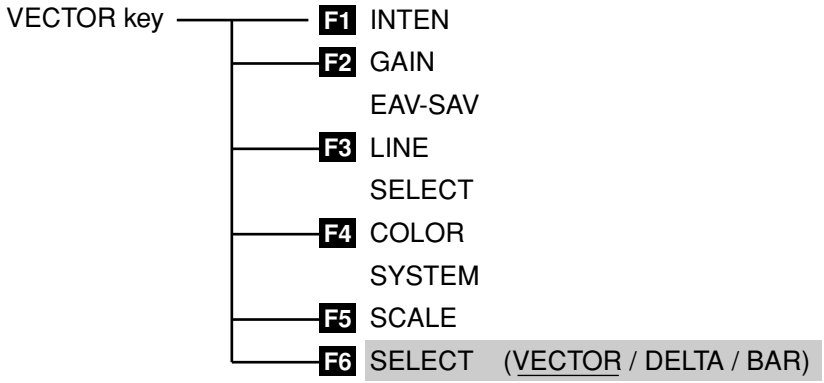
Both Delta and Bar Displays	HD A low pass filter of approximately 5 MHz is inserted. SD A low pass filter of approximately 1.8 MHz is inserted. ∗ Eliminates transient gamut errors such as in an overshoot.

16.3.4 Miscellaneous

When a line is selected, detection is performed on only the selected line for the component gamut.

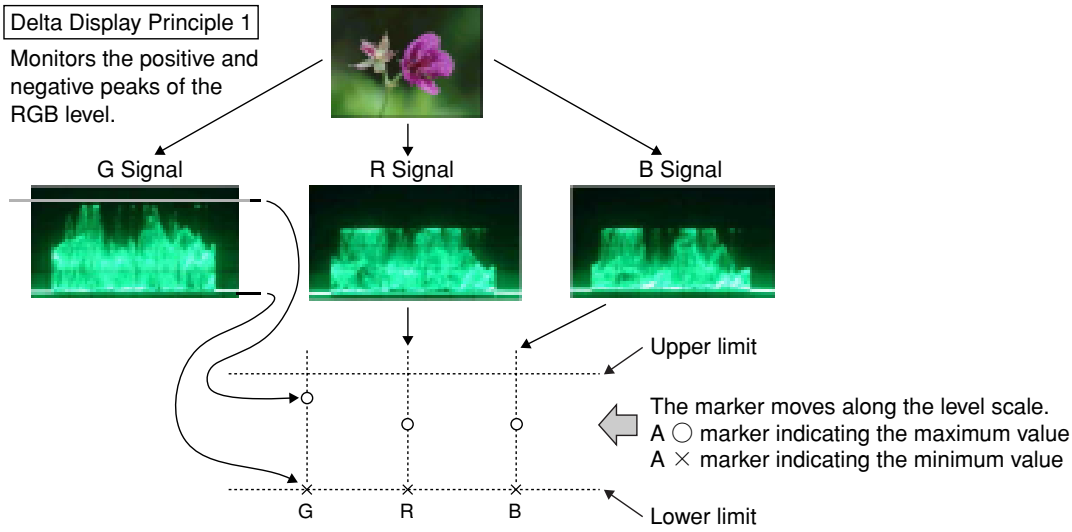
16.4 Menu Structure

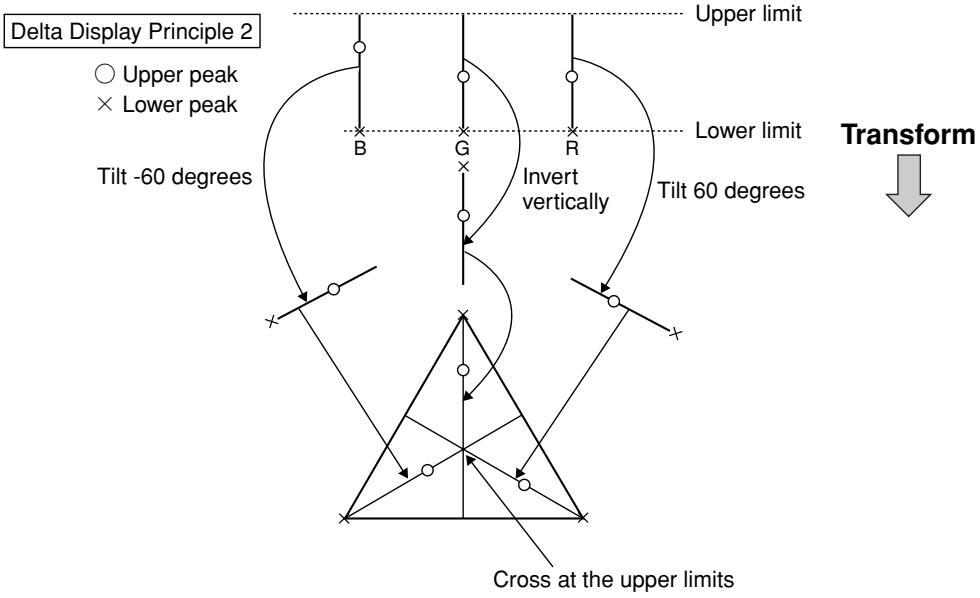
The structure of the menu assigned to the front panel keys is shown below.
The sections corresponding to the added functions are shaded.
Underlined sections indicate initial settings.

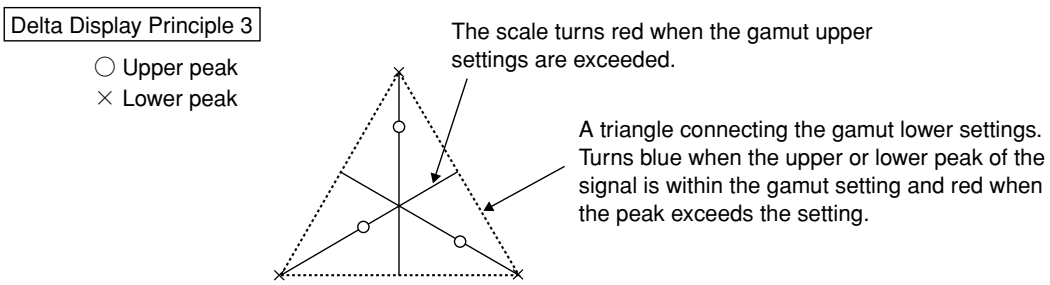


16.5 Delta/Bar Display

16.5.1 Delta Display

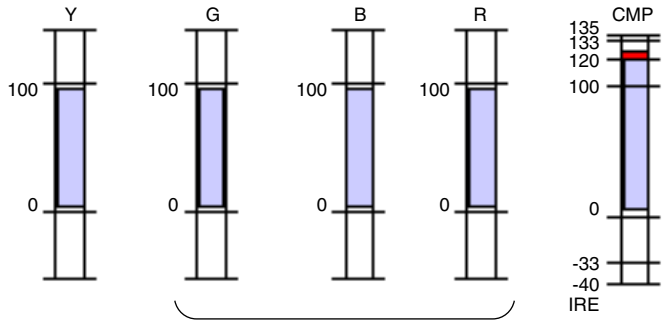






16.5.2 Bar Display

• Bar Display Contents

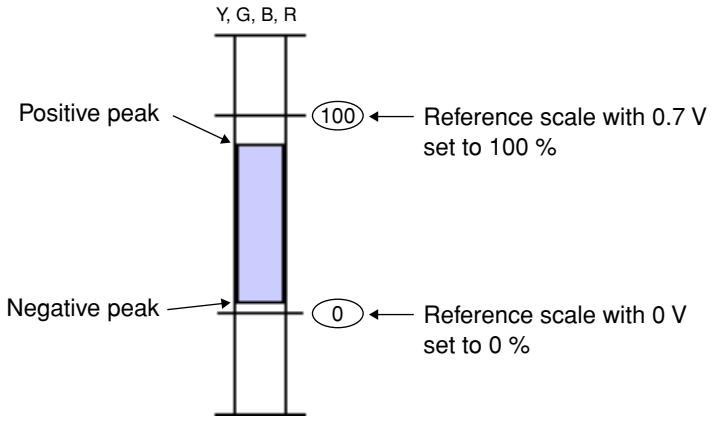


Y level bar → Y signal level of the SDI signal

GBR component gamut bar → Level after converting the SDI signal into GBR

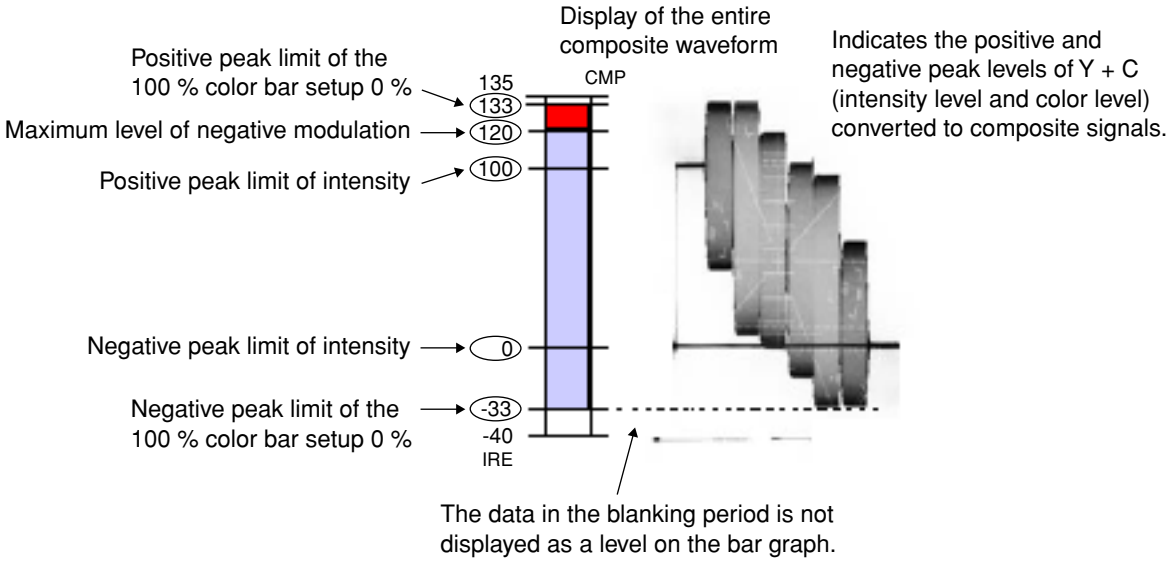
Composite gamut bar → Level that combines the intensity signal and chroma signal after converting the SDI signal into composite.

• Component Bar Display Contents



Indicates the range defined by the positive and negative peak levels.

• Composite Bar Display Contents



16.6 Operation

16.6.1 Delta Display

[VECTOR → F·6 SELECT : VECTOR / DELTA / BAR]

From vector mode, press the F·6 key to select DELTA.
The delta display is shown in place of the vectorscope display.
The vectorscope and delta displays cannot be shown simultaneously.

The gamut error setting can be specified from the following status menu.
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·1 GAMUT →
F·1 GAMUT UPPER: 90.0 % ~ 109.4 %]
F·2 GAMUT LOWER: -7.2 % ~ +6.0 %]

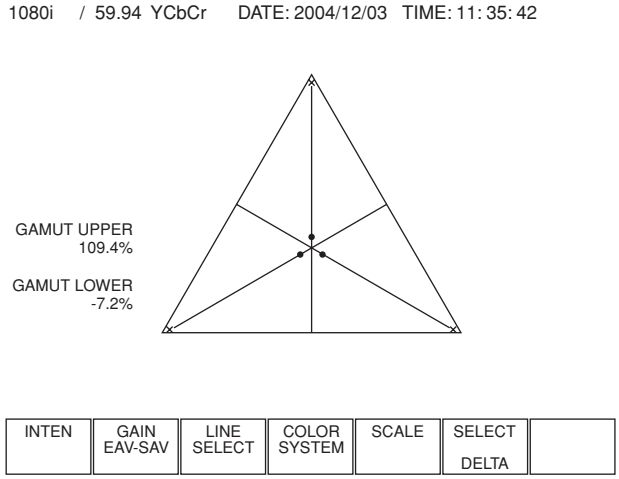


Figure 16.1 Delta Display When a 100 % Color Bar Signal is Applied (Single Display)

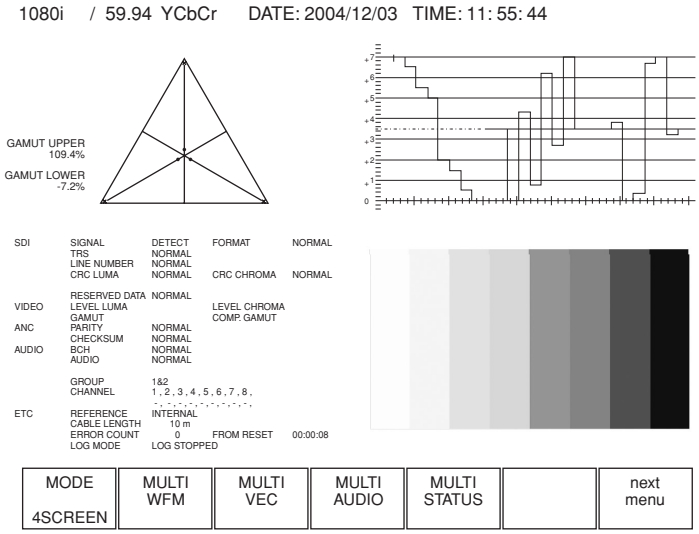


Figure 16.2 Delta Display When a 100 % Color Bar Signal is Applied
(Four-Screen Multi Display)

16.6.2 Bar Display

[VECTOR → F·6 SELECT : VECTOR / DELTA / BAR]

From vector mode, press the F·6 key to select BAR.
The bar display is shown in place of the vectorscope display.
The vectorscope and bar displays cannot be shown simultaneously.

The gamut error setting can be specified from the following status menu.
(1) Y level display Fixed 0 to 100 %.

(2) Component gamut G, B, R
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·1 GAMUT →
F·1 GAMUT UPPER: 90.0 % ~ 109.4 %]
F·2 GAMUT LOWER: -7.2 % ~ +6.0 %]

(3) Composite gamut CMP
[STATUS → F·5 ERROR CONFIG → F·4 ERROR LEVEL → F·1 COMPOSIT GAMUT →
F·1 GAMUT UPPER: 90.0 % ~ 135.0 %]
F·2 GAMUT LOWER: -40.0 % ~ -20.0 %]

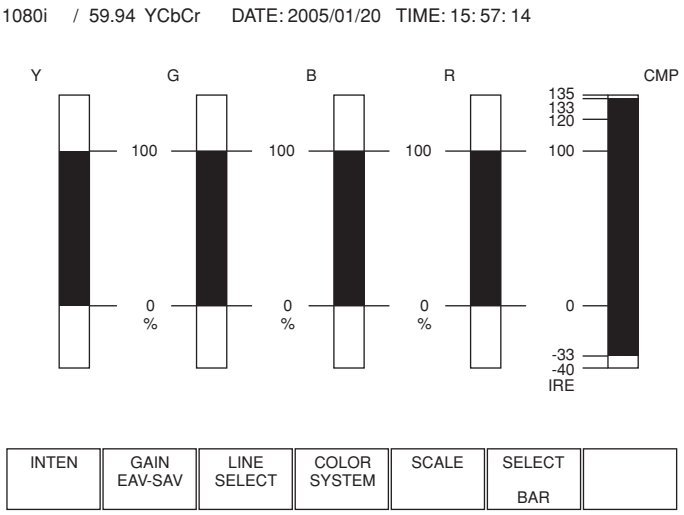


Figure 16.3 Bar Display When a 100 % Color Bar Signal is Applied

17. SNMP

17.1 SNMP Communication

17.1.1 Description

SNMP (Simple Network Management Protocol) can be used to control the LV 5700A/LV 5710A and notify SDI signal errors.
The following sections describe how to set the LV 5700A/LV 5710A and MIB (Management Information Base) when using SNMP.

17.1.2 SNMP Version Supported

The LV 5700A/LV 5710A supports SNMPv1.

17.1.3 Setup

17.1.3.1 Configuring the SNMP Manager

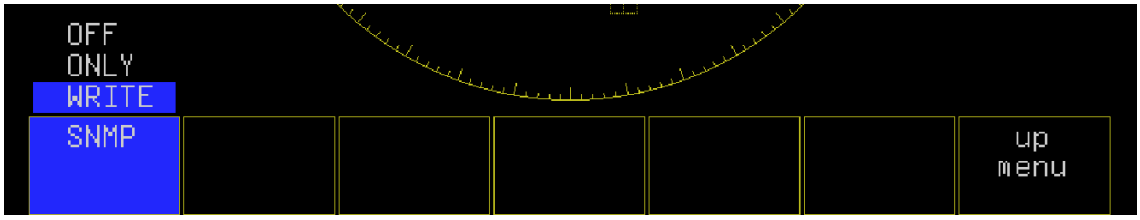
An SNMP manager software application is required to use SNMP to control the LV 5700A/LV 5710A from a PC or a similar device.
(The LV 5700A/LV 5710A does not come with an SNMP manager software application.)
For the operating procedure of the manager, see the instruction manual for the SNMP manager that you are using.

1. Set the community name as follows:
   Read Community: LDRUser
   Write Community: LDRAdm

2. SMI Definitions
   IMPORTS
   MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE, enterprises
   FROM SNMPv2-SMI
   DisplayString
   FROM SNMPv2-TC
   OBJECT-GROUP, MODULE-COMPLIANCE
   FROM SNMPv2-CONF;

17.1.3.2 Setting the LV 5700A/LV 5710A

1. Set the IP address (see chapter 14, “Ethernet”).
2. From the SYSTEM menu, choose INTERFACE > SNMP > SNMP READ WRITE.



3. Turn off the LV 5700A/LV 5710A and back on.
4. Check that GET and SET operations can be carried out from the SNMP manager.
5. Carry out a SET operation from the SNMP manager to assign the IP address of the SNMP manager to the MIB object below. The IP address of the SNMP manager is common to LV 5700A/LV 5710A.
6. Restart the LV 5700A/LV 5710A.
7. The standard SNMP trap “coldStart(0)” is sent when the LV 5700A/LV 5710A starts up.
   Check that the trap is received by the SNMP manager.

17.1.4 MIB (Management Information Base)

This section describes the MIB (Management Information Base) that the LV 5700A/LV 5710A uses.

17.1.4.1 Standard MIB

The LV 5700A/LV 5710A uses the standard MIB listed below.

- RFC1213 (MIB-Ⅱ)
- RFC1354 (IP Forwarding Table MIB)

17.1.4.1.1 Standard MIB Functions

This section describes the standard MIB objects that are implemented on the LV 5700A/LV 5710A.
Note that this version does not support some objects (those marked as “No” under the S column).

The indications in the ACCESS column in the tables are defined as follows:

- R	Information that can be retrieved using the SNMP manager.
- R/W	Information that can be retrieved and set using the SNMP manager.
- R/WO	Information that can be retrieved and set using the SNMP manager. However, the retrieved data is a fixed value with no meaning.

The indications in the S column in the tables are defined as follows:

- Yes	Supported as defined by the standard.
- △	Only read is supported by the LV 5700A/LV 5710A even though read and write are possible according to the standard.
- No	Not supported.

MIB-Ⅱ (RFC1213)

system group

MIB	OID	SYNTAX	ACCESS	S
sysDescr	system.1	DisplayString	R	○
sysObjectID	system.2	ObjectID	R	○
sysUpTime	system.3	TimeTicks	R	○
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	○

＊1 Set using up to 40 bytes.

interface group

MIB	OID	SYNTAX	ACCESS	S
ifNumber	interfaces.1	INTEGER	R	○
ifTable	interfaces.2	Aggregate	- -	○
ifEntry	ifTable.1	Aggregate	- -	○
ifIndex	ifEntry.1	INTEGER	R	○
ifDescr	ifEntry.2	DisplayString	R	○
ifType	ifEntry.3	INTEGER	R	△
ifMtu	ifEntry.4	INTEGER	R	△
ifSpeed	ifEntry.5	Gauge	R	○
ifPhysAddress	ifEntry.6	OctetString	R	○
ifAdminStatus	ifEntry.7	INTEGER	R	○
ifOperStatus	ifEntry.8	INTEGER	R	○
ifLastChange	ifEntry.9	TimeTicks	R	○
ifInOctets	ifEntry.10	Counter	R	○
ifInUcastPkts	ifEntry.11	Counter	R	○
ifInNUcastPkts	ifEntry.12	Counter	R	○
ifInDiscards	ifEntry.13	Counter	R	○
ifInErrors	ifEntry.14	Counter	R	○
ifInUnknownProtos	ifEntry.15	Counter	R	○
ifOutOctets	ifEntry.16	Counter	R	○
ifOutUcastPkts	ifEntry.17	Counter	R	○
ifOutNUcastPkts	ifEntry.18	Counter	R	○
ifOutDiscards	ifEntry.19	Counter	R	○
ifOutErrors	ifEntry.20	Counter	R	○
ifOutQLen	ifEntry.21	Gauge	R	○
ifSpecific	ifEntry.22	ObjectID	R	○

ip group (RFC1354)

MIB	OID	SYNTAX	ACCESS	S
ipForwarding	ip.1	INTEGER	R	○
ipDefaultTTL	ip.2	INTEGER	R	○
ipInReceives	ip.3	Counter	R	○
ipInHdrErrors	ip.4	Counter	R	○
ipInAddrErrors	ip.5	Counter	R	○
ipForwDatagrams	ip.6	Counter	R	○
ipInUnknownProtos	ip.7	Counter	R	○
ipInDiscards	ip.8	Counter	R	○
ipInDelivers	ip.9	Counter	R	○
ipOutRequests	ip.10	Counter	R	○
ipOutDiscards	ip.11	Counter	R	○
ipOutNoRoutes	ip.12	Counter	R	○
ipReasmTimeout	ip.13	INTEGER	R	○
ipReasmReqds	ip.14	Counter	R	○
ipReasmOKs	ip.15	Counter	R	○
ipReasmFails	ip.16	Counter	R	○
ipFragOKs	ip.17	Counter	R	○
ipFragFails	ip.18	Counter	R	○
ipFragCreates	ip.19	Counter	R	○
ipAddrTable	ip.20	Aggregate	- -	○
ipAddrEntry	ipAddrTable.1	Aggregate	- -	○
ipAdEntAddr	ipAddrEntry.1	IpAddress	R	○
ipAdEntIfIndex	ipAddrEntry.2	INTEGER	R	○
ipAdEntNetMask	ipAddrEntry.3	IpAddress	R	○
ipAdEntBcastAddr	ipAddrEntry.4	INTEGER	R	○
ipAdEntReasmMaxSize	ipAddrEntry.5	INTEGER	R	○
ipNetToMediaTable	ip.22	Aggregate	- -	○
ipNetToMediaEntry	ipNetToMediaTable.1	Aggregate	- -	○
ipNetToMediaIfIndex	ipNetToMediaEntry.1	INTEGER	R	△
ipNetToMediaPhysAddress	ipNetToMediaEntry.2	OctetString	R	△
ipNetToMediaNetAddress	ipNetToMediaEntry.3	IpAddress	R	△
ipNetToMediaType	ipNetToMediaEntry.4	INTEGER	R	△
ipRoutingDiscards	ip.23	Counter	R	○
ipForward	ip.24	Aggregate	- -	○
ipForwardNumber	ipForward .1	Gauge	R	○
ipForwardTable	ipForward .2	Aggregate	- -	○
ipForwardDest	ipForwardTable.1	IpAddress	R	○
ipForwardMask	ipForwardTable.1	IpAddress	R	○
ipForwardPolicy	ipForwardTable.1	INTEGER	R	×
ipForwardNextHop	ipForwardTable.1	IpAddress	R	○
ipForwardIfIndex	ipForwardTable.1	INTEGER	R	○

MIB	OID	SYNTAX	ACCESS	S
ipForwardType	ipForwardTable.1	INTEGER	R	×
ipForwardProto	ipForwardTable.1	INTEGER	R	×
ipForwardAge	ipForwardTable.1	INTEGER	R	×
ipForwardInfo	ipForwardTable.1	ObjectID	R	×
ipForwardNextHopAS	ipForwardTable.1	INTEGER	R	×
ipForwardMetric1	ipForwardTable.1	INTEGER	R	×
ipForwardMetric2	ipForwardTable.1	INTEGER	R	×
ipForwardMetric3	ipForwardTable.1	INTEGER	R	×
ipForwardMetric4	ipForwardTable.1	INTEGER	R	×
ipForwardMetric5	ipForwardTable.1	INTEGER	R	×

icmp group

MIB	OID	SYNTAX	ACCESS	S
icmpInMsgs	icmp.1	Counter	R	○
icmpInErrors	icmp.2	Counter	R	○
icmpInDestUnreachs	icmp.3	Counter	R	○
icmpInTimeExcds	icmp.4	Counter	R	○
icmpInParmProbs	icmp.5	Counter	R	○
icmpInSrcQuenchs	icmp.6	Counter	R	○
icmpInRedirects	icmp.7	Counter	R	○
icmpInEchos	icmp.8	Counter	R	○
icmpInEchoReps	icmp.9	Counter	R	○
icmpInTimestamps	icmp.10	Counter	R	○
icmpInTimestampReps	icmp.11	Counter	R	○
icmpInAddrMasks	icmp.12	Counter	R	○
icmpInAddrMaskReps	icmp.13	Counter	R	○
icmpOutMsgs	icmp.14	Counter	R	○
icmpOutErrors	icmp.15	Counter	R	○
icmpOutDestUnreachs	icmp.16	Counter	R	○
icmpOutTimeExcds	icmp.17	Counter	R	○
icmpOutParmProbs	icmp.18	Counter	R	○
icmpOutSrcQuenchs	icmp.19	Counter	R	○
icmpOutRedirects	icmp.20	Counter	R	○
icmpOutEchos	icmp.21	Counter	R	○
icmpOutEchoReps	icmp.22	Counter	R	○
icmpOutTimestamps	icmp.23	Counter	R	○
icmpOutTimestampReps	icmp.24	Counter	R	○
icmpOutAddrMasks	icmp.25	Counter	R	○
icmpOutAddrMaskReps	icmp.26	Counter	R	○

tcp group

MIB	OID	SYNTAX	ACCESS	S
tcpRtoAlgorithm	tcp.1	INTEGER	**R**	○
tcpRtoMin	tcp.2	INTEGER	**R**	○
tcpRtoMax	tcp.3	INTEGER	**R**	○
tcpMaxConn	tcp.4	INTEGER	**R**	○
tcpActiveOpens	tcp.5	Counter	**R**	○
tcpPassiveOpens	tcp.6	Counter	**R**	○
tcpAttemptFails	tcp.7	Counter	**R**	○
tcpEstabResets	tcp.8	Counter	**R**	○
tcpCurrEstab	tcp.9	Gauge	**R**	○
tcpInSegs	tcp.10	Counter	**R**	○
tcpOutSegs	tcp.11	Counter	**R**	○
tcpRetransSegs	tcp.12	Counter	**R**	○
tcpConnTable	tcp.13	Aggregate	- -	○
tcpConnEntry	tcpConnTable.1	Aggregate	- -	○
tcpConnState	tcpConnEntry.1	INTEGER	**R**	△
tcpConnLocalAddress	tcpConnEntry.2	IpAddress	**R**	○
tcpConnLocalPort	tcpConnEntry.3	INTEGER	**R**	○
tcpConnRemAddress	tcpConnEntry.4	IpAddress	**R**	○
tcpConnRemPort	tcpConnEntry.5	INTEGER	**R**	○
tcpInErrs	tcp.14	Counter	**R**	○
tcpOutRsts	tcp.15	Counter	**R**	○

udp group

MIB	OID	SYNTAX	ACCESS	S
udpInDatagrams	udp.1	Counter	**R**	○
udpNoPorts	udp.2	Counter	**R**	○
udpInErrors	udp.3	Counter	**R**	○
udpOutDatagrams	udp.4	Counter	**R**	○
udpTable	udp.5	Aggregate	- -	○
udpEntry	udpTable.1	Aggregate	- -	○
udpLocalAddress	udpEntry.1	IpAddress	**R**	○
udpLocalPort	udpEntry.2	INTEGER	**R**	○

snmp group

MIB	OID	SYNTAX	ACCESS	S
snmpInPkts	snmp.1	Counter	**R**	○
snmpOutPkts	snmp.2	Counter	**R**	○
snmpInBadVersions	snmp.3	Counter	**R**	○
snmpInBadCommunityNames	snmp.4	Counter	**R**	○
snmpInBadCommunityUses	snmp.5	Counter	**R**	○
snmpInASNParseErrs	snmp.6	Counter	**R**	○
snmpInTooBigs	snmp.8	Counter	**R**	○
snmpInNoSuchNames	snmp.9	Counter	**R**	○
snmpInBadValues	snmp.10	Counter	**R**	○
snmpInReadOnlys	snmp.11	Counter	**R**	○
snmpInGenErrs	snmp.12	Counter	**R**	○
snmpInTotalReqVars	snmp.13	Counter	**R**	○
snmpInTotalSetVars	snmp.14	Counter	**R**	○
snmpInGetRequests	snmp.15	Counter	**R**	○
snmpInGetNexts	snmp.16	Counter	**R**	○
snmpInSetRequests	snmp.17	Counter	**R**	○
snmpInGetResponses	snmp.18	Counter	**R**	○
snmpInTraps	snmp.19	Counter	**R**	○
snmpOutTooBigs	snmp.20	Counter	**R**	○
snmpOutNoSuchNames	snmp.21	Counter	**R**	○
snmpOutBadValues	snmp.22	Counter	**R**	○
snmpOutGenErrs	snmp.24	Counter	**R**	○
snmpOutGetRequests	snmp.25	Counter	**R**	○
snmpOutGetNexts	snmp.26	Counter	**R**	○
snmpOutSetRequests	snmp.27	Counter	**R**	○
snmpOutGetResponses	snmp.28	Counter	**R**	○
snmpOutTraps	snmp.29	Counter	**R**	○
snmpEnableAuthenTraps	snmp.30	IpAddress	**R/W**	○

17.1.4.2 Enterprise MIB

The enterprise number of LEADER ELECTRONICS CORPORATION is 20111.

iso(1).org(3).dod(6).internet(1).private(4).enterprises(1)**.leader(20111)**

17.1.4.2.1 Retrieving the Enterprise MIB File

Download the file on the LV 5700A/LV 5710A using FTP.
The file name is “lv5700a.my”.

For a description of how to use FTP, see section 14-4-2, “FTP File Transfer” in this Manual.

17.1.4.2.2 Enterprise MIB Structure

The enterprise MIB structure is shown below.

```
Leader      OBJECT IDENTIFIER ::= { enterprises 20111 }
lv5700a     OBJECT IDENTIFIER ::= { leader 1 }
lv5700a_ST1 OBJECT IDENTIFIER ::= { lv5700a 1 }
panel       OBJECT IDENTIFIER ::= { lv5700a_ST1 1 }   <--  PANEL key
wfm         OBJECT IDENTIFIER :=  { lv5700a_ST1 2 }   <--  WFM menu
vector      OBJECT IDENTIFIER ::= { lv5700a_ST1 3 }   <--  VECTOR menu
picture     OBJECT IDENTIFIER ::= { lv5700a_ST1 4 }   <--  PICTURE menu
audio       OBJECT IDENTIFIER ::= { lv5700a_ST1 5 }   <--  AUDIO menu
multi       OBJECT IDENTIFIER ::= { lv5700a_ST1 6 }   <--  MULTI menu
status      OBJECT IDENTIFIER ::= { lv5700a_ST1 7 }   <--  STATUS menu
capture     OBJECT IDENTIFIER ::= { lv5700a_ST1 8 }   <--  CAPTUE menu
files       OBJECT IDENTIFIER ::= { lv5700a_ST1 9 }   <--  FILE creation
system      OBJECT IDENTIFIER ::= { lv5700a_ST1 10 }  <--  SYSTEM menu
trap        OBJECT IDENTIFIER ::= { lv5700a_ST1 11 }  <--  Trap information
eye         OBJECT IDENTIFIER ::= { lv5700a_ST1 13 }  <--  EYE menu (Option70,76)
```

∗On the LV 5700A/LV 5710A that does not have option boards installed, the MIB for the options cannot be controlled.

17.1.4.2.3 Enterprise MIBs

∗ The prefix “l1” in the table is the lowercase of L1.

Tree Structure of the Enterprise MIB is shown below.

leader	OBJECT IDENTIFIER	::= { enterprises 20111 }
lv5700a	OBJECT IDENTIFIER	::= { leader 1 }
lv5700a_ST1	OBJECT IDENTIFIER	::= { lv5700a 1 }
l1panelTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 1 }
l1wfmTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 2 }
l1vectorTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 3 }
l1pictureTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 4 }
l1audioTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 5 }
l1multiTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 6 }
l1statusTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 7 }
l1captureTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 8 }
l1filesTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 9 }
l1systemTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 10 }
l1trapTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 11 }
l1eyeTBL	OBJECT IDENTIFIER	::= { lv5700a_ST1 13 }

l1panelTBL (1) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1pdulMole	l1panelTBL.1	INTEGER	R/W	0 = module1 1 = module2
l1plSDI	l1panelTBL.2	INTEGER	R/W	0 = SDI A 1= SDI B
l1plReference	l1panelTBL.3	INTEGER	R/W	0 = INT 1 = EXT
l1plMode	l1panelTBL.4	INTEGER	R/W	0 = OVERLAY 1 = PARADE 2 = TIMING
l1plAudChTBL	l1panelTBL.5	Aggregate	--	--
l1plCH1	l1plAudChTBL.1	INTEGER	R/W	0 = off 1 = on
l1plCH2	l1plAudChTBL.2	INTEGER	R/W	0 = off 1 = on
l1plCH3	l1plAudChTBL.3	INTEGER	R/W	0 = off 1 = on
l1plDisplay	l1panelTBL.6	INTEGER	R/W	0 = WFM 1 = Vector 2 = Audio 3 = Picture 4 = Eye 5 = Multi 6 = Status 7 = Status-dmp 8 = Status-log 9 = Status-audio 10 = Status-edh

l1wfmTBL (2) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1wfmIntenTBL	l1wfmTBL.1	Aggregate	--	--
l1wfmIntenWfm	l1wfmIntenTBL.1	INTEGER	R/W	-128 to 127
l1wfmIntenSCALE	l1wfmIntenTBL.2	INTEGER	R/W	-8 to 7
l1wfmGainTBL	l1wfmTBL.2	Aggregate	--	--
l1wfmGainVAR	l1wfmGainTBL.1	INTEGER	R/W	0 = Var 1 = Cal
l1wfmGainMAG	l1wfmGainTBL.2	INTEGER	R/W	0 = X1 1 = X5
l1wfmGainFILTER	l1wfmGainTBL.3	INTEGER	R/W	0 = FLAT 1 = LOW-PASS
l1wfmGainCFILTER	l1wfmGainTBL.4	INTEGER	R/W	0 = FLAT 1 = FLAT-LUM
l1wfmSweepTBL	l1wfmTBL.3	Aggregate	--	--
l1wfmSweepSweep	l1wfmSweepTBL.1	INTEGER	R/W	0 = H 1 = V
l1wfmSweepHSweep	l1wfmSweepTBL.2	INTEGER	R/W	0 = 1H 1 = 2H
l1wfmSweepVSweep	l1wfmSweepTBL.3	INTEGER	R/W	0 = 1V 1 = 2V
l1wfmSweepField	l1wfmSweepTBL.4	INTEGER	R/W	0 = field1 1 = field2 2 = frame
l1wfmSweepMAG	l1wfmSweepTBL.5	INTEGER	R/W	0 = X1 1 = X10 2 = X20 3 = Active 4 = Blank
l1wfmLineSelectTBL	l1wfmTBL.4	Aggregate	--	--
l1wfmLineSelect	l1wfmLineSelectTBL.1	INTEGER	R/W	0 = off 1 = on
l1wfmLineSelectNumber	l1wfmLineSelectTBL.2	INTEGER	R/W	1 to 1125
l1wfmLineSelectField	l1wfmLineSelectTBL.3	INTEGER	R/W	0 = FIELD1 1 = FIELD2 2 = FRAME
l1wfmLineSelectExtRef	l1wfmLineSelectTBL.4	INTEGER	R/W	0 = Internal 1 = External
l1wfmColorTBL	l1wfmTBL.5	Aggregate	--	--
l1wfmColorMatrix	l1wfmColorTBL.1	INTEGER	R/W	0 = YCBCR 1 = GBR 2 = RGB 3 = COMPOSITE

MIB	OID	SYNTAX	ACCESS	Value/Range
				4 = YGBR 5 = TRGB
l1wfmColorYGBR	l1wfmColorTBL.2	INTEGER	R/W	0 = off 1 = on
l1wfmColorYRGB	l1wfmColorTBL.3	INTEGER	R/W	0 = off 1 = on
l1wfmColorSetup	l1wfmColorTBL.4	INTEGER	R/W	0 = 0% 1 = 7.5%
l1wfmColorPixMon	l1wfmColorTBL.5	INTEGER	R/W	0 = UPBPR 1 = GBR
l1wfmScaleTBL	l1wfmTBL.6	Aggregate	--	--
l1wfmScaleUnit	l1wfmScaleTBL.1	INTEGER	R/W	0 = HDV SD% 1 = HDV SDV 2 = HD% SD%
l1wfmScaleUnit	l1wfmScaleTBL.2	INTEGER	R/W	0 = 0.7V 1 = 1.0V 2 = 100% 3 = 150%
l1wfmScaleColor	l1wfmScaleTBL.3	INTEGER	R/W	1 = Blue 2 = Green 3 = Cyan 4 = Red 5 = Magenta 6 = Yellow 7 = White
l1wfmScaleColor75P	l1wfmScaleTBL.4	INTEGER	R/W	0 = off 1 = on
l1wfmEavSav	l1wfmTBL.7	INTEGER	R/W	0 = Remove 1 = Pass
l1wfmPersistenceTBL	l1wfmTBL.8	Aggregate	--	--
l1wfmPersistence	l1wfmPersistenceTBL.1	INTEGER	R/WO	0 = Clear
l1wfmTimingMode	l1wfmTBL.9	INTEGER	R/W	0 = Normal 1 = Pass 2 = IQ-MAG

l1vectorTBL (3) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1vecIntenTBL	l1vectorTBL.1	Aggregate	--	--
l1vecIntenVector	l1vecIntenTBL.1	INTEGER	R/W	-128 to 127
l1vecIntenScale	l1vecIntenTBL.2	INTEGER	R/W	-8 to 7
l1vecIntenPersistence	l1vecIntenTBL.3	INTEGER	R/W	0 = off 1 = on 4 = infinit

MIB	OID	SYNTAX	ACCESS	Value/Range
l1vecIntenPersistenceClear	l1vecIntenTBL.4	INTEGER	R/WO	0 = CLEAR
l1vecGainTBL	l1vectorTBL.1	Aggregate	--	--
l1vecGainVar	l1vecGainTBL.1	INTEGER	R/W	0 = Cal 1 = Val
l1vecGainMag	l1vecGainTBL.2	INTEGER	R/W	0 = X1 1 = X5 2 = IQ-MAG
l1vecGainEavSav	l1vecGainTBL.3	INTEGER	R/W	0 = Remove 1 = Pass
l1vecLineSelectTBL	l1vectorTBL.3	Aggregate	--	--
l1vecLineSelect	l1vecLineSelectTBL.1	INTEGER	R/W	0 = off 1 = on
l1vecLineSelectNumber	l1vecLineSelectTBL.2	INTEGER	R/W	1 to 1125
l1vecLineSelectField	l1vecLineSelectTBL.3	INTEGER	R/W	0 = FIELD1 1 = FIELD2 2 = FRAME
l1vecLineSelectExtRef	l1vecLineSelectTBL.4	INTEGER	R/W	0 = Internal 1 = External
l1vecColorSystemTBL	l1vectorTBL.5	Aggregate	--	--
l1vecColorSystemBar	l1vecColorSystemTBL.1	INTEGER	R/W	0 = 100% 1 = 75%
l1vecColorSystem	l1vecColorSystemTBL.2	INTEGER	R/W	0 = off 1 = on
l1vecColorSystemSetup	l1vecColorSystemTBL.3	INTEGER	R/W	0 = 0% 1 = 7.5%
l1vecColSysOpt73TBL (Option73, 73A)	l1vecColorSystemTBL.6	Aggregate	--	--
l1vecColSysOpt73NtscSetup	l1vecColSysOpt73TBL.1	INTEGER	R/W	0 = 0% 1 = 7.5%
l1vecColSysOpt73NtscDisp	l1vecColSysOpt73TBL.2	INTEGER	R/W	0 = off 1 = on
l1vecScaleTBL	l1vectorTBL.5	Aggregate	--	--
l1vecScaleColor	l1vecScaleTBL.1	INTEGER	R/W	1 = Blue 2 = Green 3 = Cyan 4 = Red 5 = Magenta 6 = Yellow 7 = White
l1vecScaleIQAXIS	l1vecScaleTBL.2	INTEGER	R/W	0 = off 1 = on
l1vecOpt73ATBL (Option73A)	l1vectorTBL.6	Aggregate	--	--
l1vecOpt73ASCH	l1vecOpt73ATBL.1	INTEGER	R/W	0 = off 1 = on

l1pictureTBL (4) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1picMarkerTBL	l1pictureTBL.1	Aggregate	--	--
l1picMarker43	l1picMarkerTBL.1	INTEGER	R/W	0 = off 1 = on
l1picMarker169	l1picMarkerTBL.2	INTEGER	R/W	1 to 1125
l1picMarkerSafeAction	l1picMarkerTBL.3	INTEGER	R/W	0 = off 1 = on
l1picMarkerSafeTitle	l1picMarkerTBL.4	INTEGER	R/W	0 = off 1 = on
l1picMarkerCenter	l1picMarkerTBL.5	INTEGER	R/W	0 = off 1 = on
l1picLineSelectTBL	l1pictureTBL.2	Aggregate	--	--
l1picLineSelect	l1picLineSelectTBL.1	INTEGER	R/W	0 = off 1 = on
l1picLineSelectNumber	l1picLineSelectTBL.2	INTEGER	R/W	1 to 1125
l1picLineSelectField	l1picLineSelectTBL.3	INTEGER	R/W	0 = FIELD1 1 = FIELD2 2 = FRAME

l1audioTBL (5) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1audMode	l1audioTBL.1	INTEGER	R/W	0 = Sound 2 = Lissajou 3 = Mltliss 4 = Value
l1audSurround	l1audioTBL.2	INTEGER	R/W	0 = 3-1 1 = 3-2 2 = 3-2-2
l1audGroup	l1audioTBL.3	INTEGER	R/W	0 = EMB1&2 1 = EMB3&4
l1audSoundTBL	l1audioTBL.4	Aggregate	--	--
l1audSoundAudio	l1audSoundTBL.1	INTEGER	R/W	-8 to 7
l1audSoundScale	l1audSoundTBL.2	INTEGER	R/W	-8 to 7
l1audSoundLissajou	l1audSoundTBL.3	INTEGER	R/W	0 = X-Y 1 = Matrix
l1audSoundLissaL	l1audSoundTBL.4	INTEGER	R/W	0 = CH1 or CH9 1 = Ch2 or CH10 2 = Ch3 or CH11 3 = Ch4 or CH12 4 = Ch5 or CH13 5 = Ch6 or CH14 6 = Ch7 or CH15 7 = Ch8 or CH16 8 = LT

MIB	OID	SYNTAX	ACCESS	Value/Range
l1audSoundLissaR	l1audSoundTBL.5	INTEGER	R/W	0 = CH1 or CH9 1 = Ch2 or CH10 2 = Ch3 or CH11 3 = Ch4 or CH12 4 = Ch5 or CH13 5 = Ch6 or CH14 6 = Ch7 or CH15 7 = Ch8 or CH16 8 = RT
l1audSoundGain	l1audSoundTBL.6	INTEGER	R/W	0 = X1 1 = X1.5 2 = X2 3 = X10 8 = Auto
l1audMeterTBL	l1audioTBL.5	Aggregate	--	--
l1audMeterRef	l1audMeterTBL.1	INTEGER	R/W	0 = -12dB 1 = -18dB 2 = -20dB
l1audMeterRange	l1audMeterTBL.2	INTEGER	R/W	0 = 60dB 1 = 90dB 2 = Avarage
l1audMeterScale	l1audMeterTBL.3	INTEGER	R/W	0 = Type A 1 = Type B
l1audMeterPeakHold	l1audMeterTBL.4	OctetString	R/W	"HOLD" "0.5" to "5.0"
l1audCh1Ch9	l1audioTBL.6	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh2Ch10	l1audioTBL.7	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh3Ch11	l1audioTBL.8	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL

MIB	OID	SYNTAX	ACCESS	Value/Range
				4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh4Ch12	l1audioTBL.9	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh5Ch13	l1audioTBL.10	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh6Ch14	l1audioTBL.11	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh7Ch15	l1audioTBL.12	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE
l1audCh8Ch16	l1audioTBL.13	INTEGER	R/W	0 = L 1 = R 2 = C 3 = RL 4 = RR 5 = SL(S) 6 = SLR 7 = LFE

MIB	OID	SYNTAX	ACCESS	Value/Range
l1audMonitorTBL	l1audioTBL.14	Aggregate	--	--
l1audMonOpt74TBL (Option74)	l1audMonitorTBL.1	Aggregate	--	--
l1audMonOpt74Speaker	l1audMonOpt74TBL.1	INTEGER	R/W	0 = off 1 = on
l1audMonOpt74ChSel	l1audMonOpt74TBL.2	INTEGER	R/W	0 = CH1 or CH9 1 = Ch2 or CH10 2 = Ch3 or CH11 3 = Ch4 or CH12 4 = Ch5 or CH13 5 = Ch6 or CH14 6 = Ch7 or CH15 7 = Ch8 or CH16
l1audMonOpt74Volume	l1audMonOpt74TBL.3	INTEGER	R/W	0 to 7
l1audMonOpt75TBL (Option75)	l1audMonitorTBL.2	Aggregate	--	--
l1audMonOpt75Volume	l1audMonOpt75TBL.1	INTEGER	R/W	0 to 255
l1audMonOpt75LCHSel	l1audMonOpt75TBL.2	INTEGER	R/W 1 = Ch2 or 2 = Ch3 or 3 = Ch4 or 4 = Ch5 or 5 = Ch6 or 6 = Ch7 or 7 = Ch8 or	0 = CH1 or CH9 CH10 CH11 CH12 CH13 CH14 CH15 CH16
l1audMonOpt75RCHSel	l1audMonOpt75TBL.3	INTEGER	R/W 1 = Ch2 or 2 = Ch3 or 3 = Ch4 or 4 = Ch5 or 5 = Ch6 or 6 = Ch7 or 7 = Ch8 or	0 = CH1 or CH9 CH10 CH11 CH12 CH13 CH14 CH15 CH16
l1audMonOpt75MonitorOut	l1audMonOpt75TBL.4	INTEGER	R/W 1 = on	0 = off
l1audOpt75TBL (Option75)	l1audioTBL.15	Aggregate	--	--
l1audOpt75GroupInput	l1audOpt75TBL.1	INTEGER	R/W 1 = EMB3&4 2 = EXT	0 = EMB1&2

l1multiTBL (6) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1mulMode	l1multiTBL.1	INTEGER	R/W	0 = 4SCREEN 1 = WFM-VEC 2 = WFM-PIC 3 = WFM-AUD 4 = WFM-EYE
l1mulUpper	l1multiTBL.2	INTEGER	R/W	0 = VECTOR 1 = AUDIO 2 = EYE (Option70,76)
l1mulLower	l1multiTBL.3	INTEGER	R/W	0 = Status 2 = AUD-LVL
l1mulStatus	l1multiTBL.4	INTEGER	R/W	0 = Status 1 = Data

l1statusTBL (7) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1staLogTBL	l1statusTBL.1	Aggregate	--	--
l1staLogLog	l1staLogTBL.1	INTEGER	R/W	0 = Stop 1 = Start
l1staLogClear	l1staLogTBL.2	INTEGER	R/WO	0 = Clear
l1staLogMode	l1staLogTBL.3	INTEGER	R/W	0 = Over WR 1 = Stop
l1staDumpTBL	l1statusTBL.2	Aggregate	--	--
l1staDumpMode	l1staDumpTBL.1	INTEGER	R/W	0 = Run 2 = Hold
l1staDumpDisplay	l1staDumpTBL.2	INTEGER	R/W	0 = Serial 1 = Compo 2 = Binary
l1staDumpLineNumber	l1staDumpTBL.3	INTEGER	R/W	1 to 1125
l1staDumpSample	l1staDumpTBL.4	INTEGER	R/W	0 to 2749
l1staDumpEav	l1vecIntenTBL.5	INTEGER	R/WO	0 = Dump EAV
l1staDumpSav	l1vecIntenTBL.6	INTEGER	R/WO	0 = Dump SAV
l1staAudioTBL	l1statusTBL.3	Aggregate	--	--
l1staAudioChSEL	l1staAudioTBL.1	INTEGER	R/W	0 = CH1 or CH9 1 = Ch2 or CH10 2 = Ch3 or CH11 3 = Ch4 or CH12 4 = Ch5 or CH13 5 = Ch6 or CH14 6 = Ch7 or CH15 7 = Ch8 or CH16

MIB	OID	SYNTAX	ACCESS	Value/Range
l1staErrTBL	l1statusTBL.2	Aggregate	--	--
l1staErrAlarmTBL	l1staErrTBL.1	Aggregate	--	--
l1staErrAlarmBeep	l1staErrAlarmTBL.1	INTEGER	R/W	0 = off 1 = on
l1staErrAlarmPolarity	l1staErrAlarmTBL.2	INTEGER	R/W	0 = Positive 1 = Negative
l1staErrCountRate	l1staErrTBL.2	INTEGER	R/W	0 = 1Sec 1 = V-Rate
l1staErrDetectTBL	l1staErrTBL.3	Aggregate	--	--
l1staErrDetectTrs	l1staErrDetectTBL.1	INTEGER	R/W	0 = off 1 = on
l1staErrDetectLine	l1staErrDetectTBL.2	INTEGER	R/W	0 = off 1 = on
l1staErrDetectCRC	l1staErrDetectTBL.3	INTEGER	R/W	0 = off 1 = on
l1staErrDetectEDH	l1staErrDetectTBL.4	INTEGER	R/W	0 = off 1 = on
l1staErrDetectReserved	l1staErrDetectTBL.5	INTEGER	R/W	0 = off 1 = on
l1staErrDetectParity	l1staErrDetectTBL.6	INTEGER	R/W	0 = off 1 = on
l1staErrDetectCheckSum	l1staErrDetectTBL.7	INTEGER	R/W	0 = off 1 = on
l1staErrDetectLevel	l1staErrDetectTBL.8	INTEGER	R/W	0 = off 1 = on
l1staErrDetectGamut	l1staErrDetectTBL.9	INTEGER	R/W	0 = off 1 = on
l1staErrDetectCGamut	l1staErrDetectTBL.10	INTEGER	R/W	0 = off 1 = on
l1staErrDetectBCH	l1staErrDetectTBL.11	INTEGER	R/W	0 = off 1 = on
l1staErrDetectAudio	l1staErrDetectTBL.12	INTEGER	R/W	0 = off 1 = on
l1staErrDetectREF	l1staErrDetectTBL.13	INTEGER	R/W	0 = off 1 = on
l1staErrDetectCable	l1staErrDetectTBL.14	INTEGER	R/W	0 = off 1 = on
l1staErrLevTBL	l1staErrTBL.4	Aggregate	--	--
l1staErrLevGamutTBL	l1staErrLevTBL.1	Aggregate	--	--
l1staErrLevGamutUpper	l1staErrLevGamutTBL.1	OctetString	R/W	90.8 to 109.4
l1staErrLevGamutLower	l1staErrLevGamutTBL.2	OctetString	R/W	-7.2 to 6.1
l1staErrLevCGamutTBL	l1staErrLevTBL.2	Aggregate	--	--
l1staErrLevCGamutUpper	l1staErrLevCGamutTBL.1	OctetString	R/W	90.0 to 135.0
l1staErrLevCGamutLower	l1staErrLevCGamutTBL.2	OctetString	R/W	-40.0 to -20.0
l1staErrLevVideoTBL	l1staErrLevTBL.3	Aggregate	--	--

MIB	OID	SYNTAX	ACCESS	Value/Range
l1staErrLevVideoLumaUpper	l1staErrLevVideoTBL.1	INTEGER	R/W	-51 to 766
l1staErrLevVideoLumaLower	l1staErrLevVideoTBL.2	INTEGER	R/W	-51 to 766
l1staErrLevVideoChromaPlus	l1staErrLevVideoTBL.3	INTEGER	R/W	-400 to 399
l1staErrLevVideoChromaMinus	l1staErrLevVideoTBL.4	INTEGER	R/W	-400 to 399
l1staErrLevCableTBL	l1staErrLevTBL.4	Aggregate	--	--
l1staErrLevCableHDLen	l1staErrLevCableTBL.1	INTEGER	R/W	5 to 130
l1staErrLevCableHDWar	l1staErrLevCableTBL.2	INTEGER	R/W	5 to 130
l1staErrLevCableSDLen	l1staErrLevCableTBL.3	INTEGER	R/W	50 to 300
l1staErrLevCableSDWar	l1staErrLevCableTBL.4	INTEGER	R/W	50 to 300
l1staErrDisplay	l1staErrTBL.5	INTEGER	R/W	0 = Refresh 1 = Hold
l1staCableTBL	l1statusTBL.5	Aggregate	--	--
l1staCableHDSdi	l1staCableTBL.1	INTEGER	R/W	0 = LS5CFB 1 = 1694A
l1staCableSDSdi	l1staCableTBL.2	INTEGER	R/W	0 = L5C2V 1 = 8281 2 = 1505A
l1staReset	l1statusTBL.6	INTEGER	R/WO	0 = RESET

captureTBL (8) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1capDisplay	l1captureTBL.1	INTEGER	R/W	0 = Real 1 = Hold 2 = Both
l1capFileSelect	l1captureTBL.2	INTEGER	R/W	0 = Bmp Bst 1 = Bmp 2 = Bst

l1filesTBL (9) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1filMakeTBL	l1filesTBL.1	Aggregate	--	--
l1filMakeStatus	l1filMakeTBL.1	INTEGER	R/WO	0 = Make Status
l1filMakeLog	l1filMakeTBL.2	INTEGER	R/WO	0 = Make Log
l1filMakeDump	l1filMakeTBL.3	INTEGER	R/WO	0 = Make Dump
l1filMakeCapture	l1filMakeTBL.4	INTEGER	R/WO	0 = Make Capture
l1filRecall	l1filesTBL.2	INTEGER	R/W	1 to 100

l1systemTBL (10) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1sysFormatTBL	l1systemTBL.1	Aggregate	--	--
l1sysFormatMode	l1sysFormatTBL.1	INTEGER	R/W	0 = Manual 1 = Auto
l1sysFormatFormat	l1sysFormatTBL.2	INTEGER	R/W	0 = 1080I/60 1 = 1080I/59.94 2 = 1080I/50 3 = 1080PSF/30 4 = 1080PSF/29.97 5 = 1080PSF/25 6 = 1080P/30 7 = 1080P/29.97 8 = 1080P/25 9 = 1080SF/24 10 = 1080PSF/24 11 = 1080P/23.98 12 = 1080PSF/23.98 13 = 1035I/60 14 = 1035I/59.94 15 = 720P/60 16 = 720P/59.94 17 = 720P/50 18 = 720P/30 19 = 720P/29.97 20 = 720P/25 21 = 720P/24 22 = 720P/23.98 23 = 525I/59.94 24 = 625I/50
l1sysFormatVBit	l1sysFormatTBL.3	INTEGER	R/W	0 = Noraml 1 = Narrow
l1sysFormatCompositeFormat	l1sysFormatTBL.4	INTEGER	R/W	0 = Auto 1 = NTSC 2 = PAL
l1sysFormatIPSF	l1sysFormatTBL.5	INTEGER	R/W	0 = Interlac 1 = Seg.Fram
l1sysFormatOpt73TBL	l1sysFormatTBL.6	Aggregate	--	--
l1sysFormOpt73AFormat	l1sysFormatOpt73TBL.1	INTEGER	R/W	0 = NTSC 1 = PAL
l1sysDispTBL	l1systemTBL.2	Aggregate	--	--
l1sysDispInfoTBL	l1sysDispTBL.1	Aggregate	--	--
l1sysDispInfoFormat	l1sysDispInfoTBL.1	INTEGER	R/W	0 = off 1 = on
l1sysDispInfoTime	l1sysDispInfoTBL.2	INTEGER	R/W	0 = off 1 = Real

MIB	OID	SYNTAX	ACCESS	Value/Range
				2 = Timecode
l1sysDispInfoDate	l1sysDispInfoTBL.3	INTEGER	R/W	0 = off 1 = Y-M-D 2 = M-D-Y 3 = D-M-Y
l1sysDispInfoColor	l1sysDispInfoTBL.4	INTEGER	R/W	0 = off 1 = on
l1sysDispInfoTimeCode	l1sysDispInfoTBL.5	INTEGER	R/W	0 = LTC 1 = VITC
l1sysDispDisplayBackLight	l1sysDispTBL.2	INTEGER	R/W	0 = Low 1 = High
l1sysDispDisplayAutoOff	l1sysDispTBL.3	INTEGER	R/W	0 = off 1 = 5min 2 = 30min 3 = 60min
l1sysDispDisplay	l1sysDispTBL.4	INTEGER	R/W	0 = off 1 = on
l1sysSCutTBL	l1systemTBL.3	Aggregate	--	--
l1sysSCutShortCutKey	l1sysSCutTBL.1	INTEGER	R/W	0 = KeyLED 1 = DirectK
l1sysIfaceTBL	l1systemTBL.4	Aggregate	--	--
l1sysIfaceRemote	l1sysIfaceTBL.1	INTEGER	R/W	0 = Bit 1 = Binary
l1sysIfaceMonitor	l1sysIfaceTBL.2	INTEGER	R/W	0 = Type A 1 = Type B 2 = Type C
l1sysIfaceBeep	l1sysIfaceTBL.3	INTEGER	R/W	0 = Normal 1 = Mute
l1sysDate	l1systemTBL.5	OctetString	R/W	yyyy/mm/dd HH:MM:SS
l1sysInit	l1systemTBL.6	INTEGER	R/WO	90 = Initial
l1sysOptionTBL	l1systemTBL.7	Aggregate	--	--
l1sysOptionSlot1	l1sysOptionTBL.1	OctetString	R/O	Slot1 Information (40byte)
l1sysOptionSlot2	l1sysOptionTBL.2	OctetString	R/O	Slot2 Information (40byte)
l1sysOptionSlot3	l1sysOptionTBL.3	OctetString	R/O	Slot3 Information (40byte)

l1trapTBL (11) group

MIB	OID	SYNTAX	ACCESS	Value/Range
l1trapStrTBL	l1trapTBL.1	Aggregate	--	-- (Variable Binding List)
l1trapManagerIp	l1trapTBL.2	IpAddress	R/W	Transmission destination of TRAP IP address of Manager
l1trapID	l1trapTBL.3	INTEGER	R/O	0
l1TrapStatusTBL	l1trapTBL.4	Aggregate	--	--
l1TrapStaCableLen	l1TrapStatusTBL.1	INTEGER	R/O	For CABLE ERR -- (Variable Binding List)

l1eyeTBL (13) group (Option 70, 76)

MIB	OID	SYNTAX	ACCESS	Value/Range
l1eyeIntenTBL	l1eyeTBL.1	Aggregate	--	--
l1eyeIntenEye	l1eyeIntenTBL.1	INTEGER	R/W	-8 to 7
l1eyeIntenSCALE	l1eyeIntenTBL.2	INTEGER	R/W	-8 to 7
l1eyeSweep	l1eyeTBL.2	INTEGER	R/W	0 = 2UI 1 = 4UI 2 = 16UI
l1eyeMode (Option70 Only)	l1eyeTBL.3	INTEGER	R/W	0 = EYE 1 = Jitter 2 = Hist
l1eyeRef	l1eyeTBL.4	INTEGER	R/W	0 = INT 1 = EXT
l1eyeAuto	l1eyeTBL.5	INTEGER	R/W	0 = off 1 = on
l1eyeHistSweep (Option70 Only)	l1eyeTBL.6	INTEGER	R/W	0 = Slow 1 = Fast
l1eyeJitGain (Option70 Only)	l1eyeTBL.7	INTEGER	R/W	0 = X1 1 = X2 2 = X8
l1eyeFilter	l1eyeTBL.8	INTEGER	R/W	0 = 10Hz 1 = 100Hz 2 = 1KHz 3 = 10KHz 4 = 100KHz
l1eyeEyeMonTBL	l1eyeTBL.9	Aggregate	--	--
l1eyeAmplitude	l1eyeEyeMonTBL.1	OctetString	R/O	0.0 to 1200.0mV Unable to measure: - - - ∗ Valid during eye pattern display. Sends the displayed measured value.

MIB	OID	SYNTAX	ACCESS	Value/Range
l1eyeTr	l1eyeEyeMonTBL.2	OctetString	R/O	HD: 0 to 674ps SD: 0 to 3700ps Unable to measure: - - - ∗ Valid during eye pattern display. Sends the displayed measured value.
l1eyeTf	l1eyeEyeMonTBL.3	OctetString	R/O	HD: 0 to 674ps SD: 0 to 3700ps Unable to measure: - - - ∗ Valid during eye pattern display. Sends the displayed measured value.
l1eyeJitter	l1eyeEyeMonTBL.4	OctetString	R/O	HD: 0 to 6470ps HD: 0 to 9.600UIp-p SD: 0 to 35520ps SD: 0 to 9.600UIp-p Unable to measure: - - - ∗ Valid during eye pattern display. Sends the displayed measured value.
l1eyeJitterMonTBL (Option70 Only)	l1eyeTBL.10	Aggregate	--	--
l1eyeJittermodeps (Option70 Only)	l1eyeJitterMonTBL.1	OctetString	R/O	HD: 0 to 6470ps HD: 0 to 9.600UIp-p SD: 0 to 35520ps SD: 0 to 9.600UIp-p Unable to measure: - - - ∗ Valid during jitter display. Sends the displayed measured value.
l1eyeJittermodeui (Option70 Only)	l1eyeJitterMonTBL.2	OctetString	R/O	HD: 0 to 6470ps HD: 0 to 9.600UIp-p SD: 0 to 35520ps SD: 0 to 9.600UIp-p Unable to measure: - - - ∗ Valid during jitter display. Sends the displayed measured value.

17.1.5 Enterprise Trap

This section describes the enterprise traps of the LV 5700A/LV 5710A.

17.1.5.1 Trap Community Name

The trap community name is fixed as follows:

Trap Community: LDRUser

17.1.5.2 Setting the IP Address of the SNMP Manager

Assign the IP address of the SNMP manager to the following MIB object.
The number of destinations that can be connected has been expanded from one to four locations.

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp1TBL (1).l1trapManagerIp1(1).0" < - IP address of TRAP transmission destination 1

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp2TBL (2).l1trapManagerIp2(1).0" < - IP address of TRAP transmission destination 2

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp3TBL (3).l1trapManagerIp3(1).0" < - IP address of TRAP transmission destination 3

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp4TBL (4).l1trapManagerIp4(1).0" < - IP address of TRAP transmission destination 4

Enable the desired transmission destinations by setting the following MIB objects.

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp1TBL (1).l1trapManagerIp1Act(2).0" < - Enable (1) or disable (0) TRAP transmission destination 1

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp2TBL (2).l1trapManagerIp2Act(2).0" < - Enable (1) or disable (0) TRAP transmission destination 2

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp3TBL (3).l1trapManagerIp3Act(2).0" < - Enable (1) or disable (0) TRAP transmission destination 3

"1.3.6.1.4.1.leader(20111).lv5700a(1).lv5700a_st(1).l1trapTBL(11).l1trapIpTBL(2).l1trapIp4TBL (4).l1trapManagerIp4Act(2).0" < - Enable (1) or disable (0) TRAP transmission destination 4

Be sure to disable the destinations that are not used.
If you do not, it will cause unnecessary load in the communications.
The default setting is "Disable."

17.1.5.3 Specific Traps

Description	Specific Trap Type
Fan stop detection	1
Fan restart detection	2
NO SIGNAL	3
FORMAT ERROR	4
TRS error detection	5
Line number error detection	6
CRC error detection (LUMA)	7
CRC error detection (CHROMA)	8
Checksum error detection	9
BCH error detection	10
EDH error detection	11
Reserved area error detection	12
Parity error detection	13
Audio packet sequency detection	14
Equivalent cable length meter error detection	19
Equivalent cable length meter warning detection	20
External sync signal error detection	22
Gamut error detection	23
Composite gamut error detection	24
Level error detection (LUMA)	25
Level error detection (CHROMA)	26
No error (at error recovery and startup)	37

17.1.5.4 Description of the Variable Binding List

index 1:

OID: leader(20111).LV5700a(1).lv5700aST1(1).trapTBL(11).trapStrTBL(1).1.0
Syntax: Counter
Range: 1 to 4294967295 (overflow occurs if this range is exceeded)
Description: The total number of enterprise traps sent after starting up.

index 2:

OID: leader(20111).LV5700a(1).lv5700aST1(1).trapTBL(11).trapStrTBL(1).2.0
Syntax: Octet String
Range: Up to 40 characters
Description: Date/Time when the error occurred and line information
YYYY/MM/DD hh:mm:ss ,mod,sdi,ref

YYYY = Yer
MM = Month
DD = Day
hh = Hour
mm = Minute
ss = Second
mod = Module Number (1 or 2)
sdi = SDI INPUT (A or B)
ref = Reference (I (Internal) or E (External))

Example: 2004/07/15 11:30:11 ,1,A,I

index 3:

OID: leader(20111).LV5700a(1).lv5700aST1(1).trapTBL(11).trapStrTBL(1).3.0
Syntax: Octet String
Range: Up to 40 characters
Description: Format information
Example “1080sF/30 ,”

Format information for traps

Syntax	Format
1080sF/30 ,	1080sF/30
1080sF/29.97,	1080sF/29.97
1080sF/25 ,	1080sF/25
1080p/30 ,	1080p/30
1035i/60 ,	1035i/60
1080i/60 ,	1080i/60
1080p/25 ,	1080p/25
1080i/50 ,	1080i/50
1080p/24 ,	1080p/24
1080sF/24 ,	1080sF/24
720p/60 ,	720p/60
720p/50 ,	720p/50
720p/30 ,	720p/30
720p/25 ,	720p/25
720p/24 ,	720p/24
1080p/29.97 ,	1080p/29.97
1035i/59.94 ,	1035i/59.94
1080i/59.94 ,	1080i/59.94
1080p/24.97 ,	1080p/24.97
1080i/50 ,	1080i/50
1080p/23.98 ,	1080p/23.98
1080sF/23.98,	1080sF/23.98
720p/59.94 ,	720p/59.94
720p/50 ,	720p/50
720p/29.97 ,	720p/29.97
720p/25 ,	720p/25
720p/23.98 ,	720p/23.98
FORMAT_ERROR	FORMAT ERROR
NO_SIGNAL	NO SIGNAL

index 4:

OID: leader(20111).LV5700a(1).lv5700aST1(1).trapTBL(11).trapStrTBL(1).4.0
Syntax: Octet String
Range: Up to 40 characters
Description: Error information
Example “TRS_ERR”

Error information for TRAPs

Syntax	Description
TRS_ERR	TRS error detection
LINE_ERR	Line number error detection
CRC_L_ERR	CRC error detection (LUMA)
CRC_C_ERR	CRC error detection (CHROMA)
CHECKSUM_ERR	Checksum error detection
BCH_ERR	BCH error detection
EDH_ERR	EDH error detection
RESERVED_ERR	Reserved area error detection
LVL_L_ERR	Level error detection (LUMA)
LVL_C_ERR	Level error detection (CHROMA)
GAMUT_ERR	Gamut error detection
COMP_GAMUT_ERR	Composite gamut error detection
PARITY_ERR	Parity error detection
AUDIO_ERR	Audio packet sequency detection
EXT_REF_ERR	External sync signal error detection
CABLE_ERR	Equivalent cable length meter error detection
CABLE_WAR	Equivalent cable length meter warning detection
FAN_STOP	Fan stop detection
FAN_RESTART	Fan restart detection

index 5: ∗ Attached only when an equivalent cable length meter error or warning is detected.

OID: leader(20111).LV5700a(1).lv5700aST1(1).trapTBL(11).trapStrTBL(1).4.0
Syntax: INTEGER
Range: 1 to 4294967295 (in unit of meters)
Description: Cable length information when an error is detected.

18. SDI-EXT REF PHASE DISPLAY FUNCTION

18.1 Description

The SDI-EXT REF phase display function shows the phase difference between the SDI signal and the external sync signal (EXT REF).

18.2 Features

• Displays numerically and graphically the phase difference between the SDI signal and external sync signal (EXT REF).

Conventionally, the phase of the SDI signal was adjusted by switching between internal synchronization and external synchronization and monitoring the phase difference in the waveforms on the WFM display. The SDI-EXT REF phase display allows you to easily check and adjust the phase difference.

• Displays the phase difference between SDI signals

The relative phase difference between SDI signals can be displayed by setting the phase difference between an arbitrary SDI signal and EXT REF signal to zero.

• Records up to eight phase differences

Because up to eight phase differences of SDI signals can be stored, the phase data of eight systems of SDI signals from the switcher can be held.

18.3 Specifications

• Supported Formats

1035i/60,59.94
1080i/60,59.94,50
1080p/30,29.97,25,24,23.98
1080PsF/30,29.97,25,24,23.98
720p/60,59.94,50,30,29.97,25,24,23.98
525i/59.94
625i/50

∗ When applying an HD tri-level sync signal to EXT REF, the frame and line frequencies between the EXT REF and SDI signal must be the same.

∗ When applying a B. B signal to EXT REF, the synchronizable formats are as follows:

B. B Format	SDI Format
525i/59.94	1035i/59.94,1080i/59.94,1080p/29.97,1080PsF/29.97,720p/59.94,525i/59.94
625i/50	1080i/50,1080p/25,1080PsF/25,625i/50

• Phase Difference Display Range

The direction of V and H both are expressed with the Delay axis between approx. +1/2 frame and the center, and, similarly, are expressed with the Advance axis between approx. -1/2 frame and the center.

∗ The phase difference display in the H direction may fluctuate in the range of ±1 clock when the signal is switched.

Details of display range of the Delay axis and Advance axis are as follows.

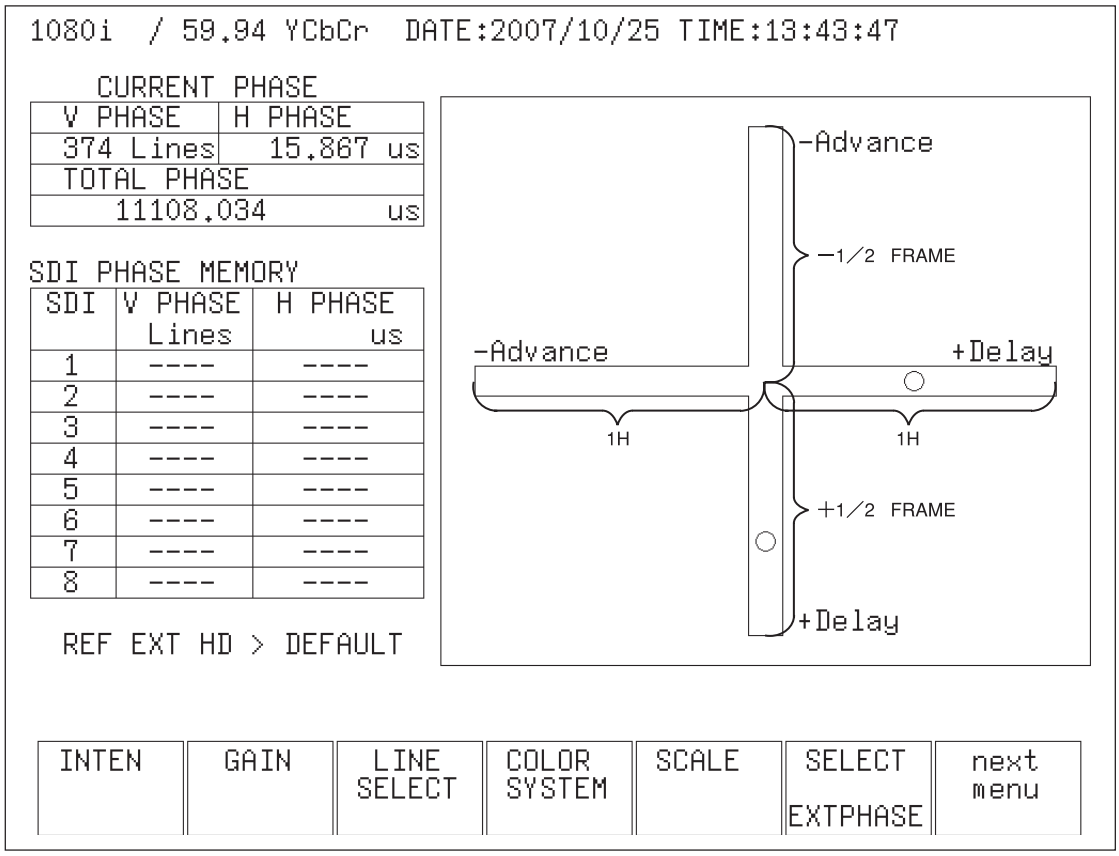
Format	Displayed with an Advance axis			Displayed with a Delay axis				
	V PHASE [Lines]	H PHASE [us]		V PHASE [Lines]	H PHASE [us]		V PHASE [Lines]	H PHASE [us]
1080i/59.94, 1080p/29.97, 1080PsF/29.97, 1035i/59.94	-562	-29.645	~	0	0	~	562	0
1080i/60, 1080p/30, 1080PsF/30, 1035i/60	-562	-29.616	~	0	0	~	562	0
1080i/50, 1080p/25, 1080PsF/25	-562	-35.542	~	0	0	~	562	0
1080p/23.98, 1080PsF/23.98	-562	-37.060	~	0	0	~	562	0
1080p/24, 1080PsF/24	-562	-37.023	~	0	0	~	562	0
720p/59.94	-375	0	~	0	0	~	374	22.230
720p/60	-375	0	~	0	0	~	374	22.208
720p/50	-375	0	~	0	0	~	374	26.653
720p/29.97	-375	0	~	0	0	~	374	44.475
720p/30	-375	0	~	0	0	~	374	44.430
720p/25	-375	0	~	0	0	~	374	53.319
720p/23.98	-375	0	~	0	0	~	374	55.597
720p/24	-375	0	~	0	0	~	374	55.542
525i/59.94	-262	-63.518	~	0	0	~	262	0
625i/50	-312	-63.962	~	0	0	~	312	0

• Graphic Display

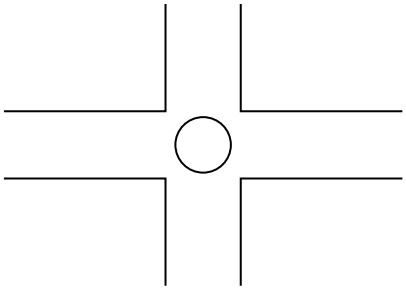
In case of the direction of H, the Delay axis, and the Advance axis, the distance from the center to the edge is equivalent to the time of 1H.

In case of the direction of V, the Delay axis, and the Advance axis, the distance from the center to the edge is equivalent to the time of approx. 1/2 frame.

In the phase difference of approx. ±1/2 frame from the center, the display position of the marker in which phase difference is shown is moved from a Delay axis to an Advance axis (or the contrary).

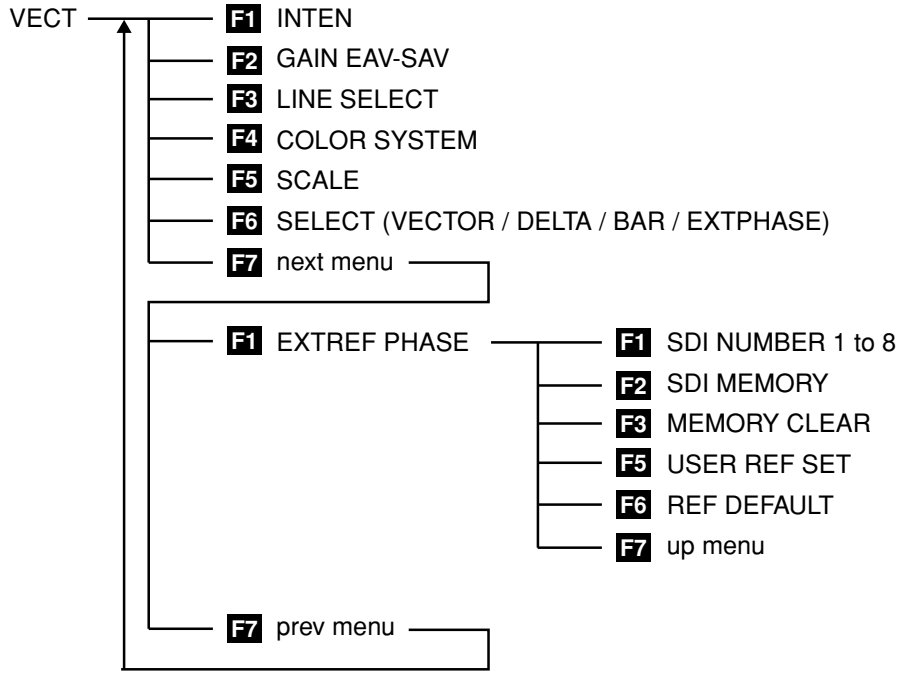


Center section



The marker turns green when the V marker is within ±0 lines of the center and the H marker is within ±3 clocks of the center.

18.4 MENUE Structure



18.5 Operation

Press VECT on the panel, and press F·6 SELECT to choose EXTPHASE.
The SDI-EXT REF phase display of Figure 18.1 appears. This display shows the timing of the SDI signal with respect to the EXT REF signal. If the SDI signal lags the EXT REF signal, Delay (+) is indicated. If the SDI signal is ahead of the EXT REF signal, Advance (-) is indicated.
If you press F·7 next menu then F·1 EXTREF PHASE on the SDI-EXT REF phase display, the EXTREF PHASE function menu appears.

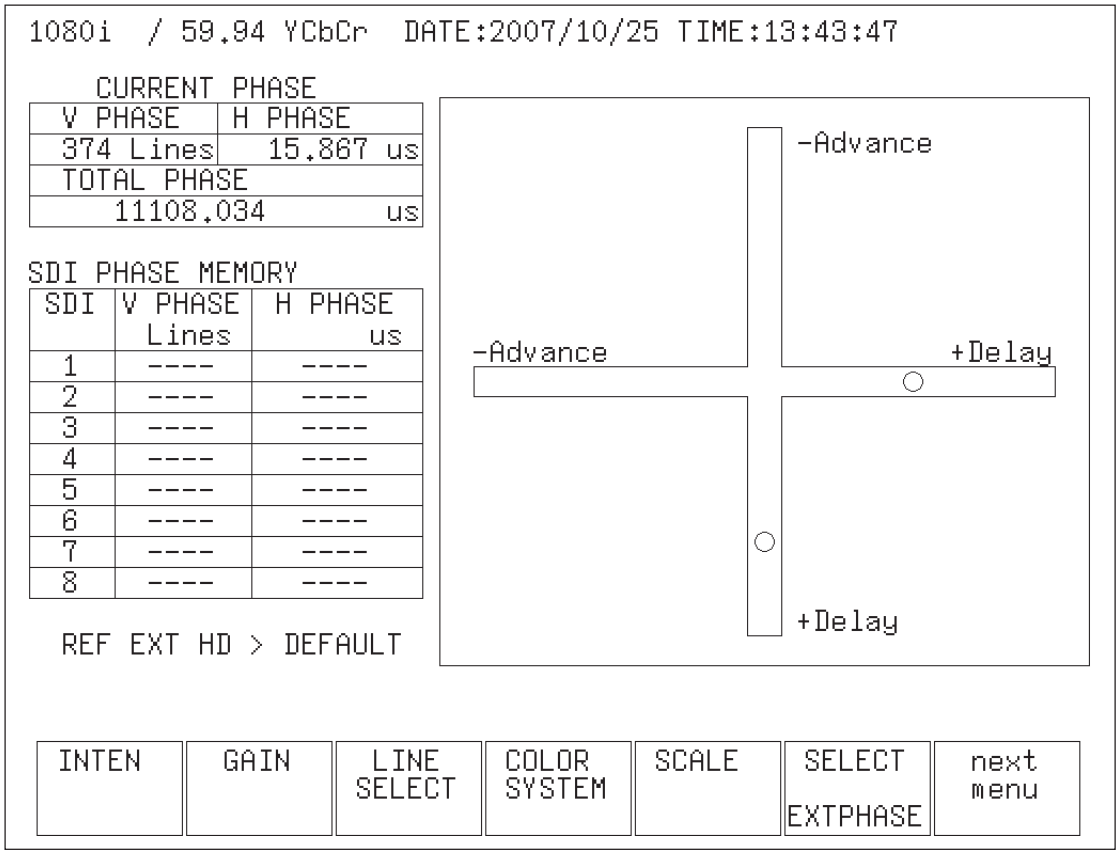


Figure 18.1 SDI-EXT REF phase display and function menu

(1) The phase difference between the SDI and EXT REF signals that are currently applied is shown numerically in the CURRENT PHASE section on the left side of the display shown in Figure 18.1. In the TOTAL PHASE item, the phase difference is displayed as time of total.

(2) The graph on the right shows the line difference in the V direction along the vertical axis, and the time difference in the H direction along the horizontal axis. The phase difference is zero when the two circles that indicate the V and H phase differences overlap at the center.
The marker changes from white to green when the phase between the SDI and EXT REF signals comes within ±3 clocks.
The H marker turns green when it comes within ±3 clocks of the center.
The V marker turns green when it comes within ±0 line of the center.

(3) The default zero reference on the SDI-EXT REF phase display is defined on the condition that the SDI output of the LEADER's LT 443D MULTIFORMAT VIDEO GENERATOR and the REF B. B signal with no timing offset are connected to the LV 5700A/5710A with cables of equal length.

(4) Pressing the USER REF SET key sets the phase difference between the SDI and EXT REF signals that are being applied to zero. This function allows the reference to be set arbitrarily to match your system environment.
This function cannot be set when the phase difference is zero.
Pressing the REF DEFAULT key sets the phase difference to factory default zero reference.
Since it is displayed on the item of the REF display as follows, it can be recognized which standard is chosen.
EXT REF is a B.B signal, and when DEFAULT is set effectively, REF EXT BB > DEFAULT is displayed.
EXT REF is a B.B signal, and when USER REF is set effectively, REF EXT BB > USER REF is displayed.

(5) SDI PHASE MEMORY is a function used to store the phase difference that is being measured in CURRENT PHASE.
Up to eight instantaneous measured values can be stored such as when adjusting the phase by changing systems with a switcher.
Press SDI MEMORY to store the current measured value in the box of the selected SDI NUMBER.

(6) REF Display Description
The REF display at the lower left of the display shown in figure 18.1 automatically indicates the following according to the synchronization (REFERENCE) setting.

In the case of internal sync, the following is shown.
REF INT
If you select external sync and the external sync signal is HD tri-level sink, the following is shown.
REF EXT HD
If you select external sync and the external sync signal is SD bi-level sink, the following is shown.
REF EXT BB
If you select external sync but there is no external sync signal, the following is shown.
REF NO SIGNAL

18.6 Zero Reference

The default zero timing reference of the SDI and EXT REF signals is defined on the condition that the SDI output of the LEADER's LT443D MULTIFORMAT VIDEO GENERATOR and the REF B. B signal with no timing offset are connected with cables of equal length.

- ∗The zero reference measurement may not be exactly zero due to the variation in the delay of the LV 5700A/5710A.
- ∗The phase difference display in the H direction may fluctuate in the range of ±1 clock when the signal is switched.

For other configurations, the zero reference will be offset. Therefore, use USER REF SET.

19. MAINTENANCE

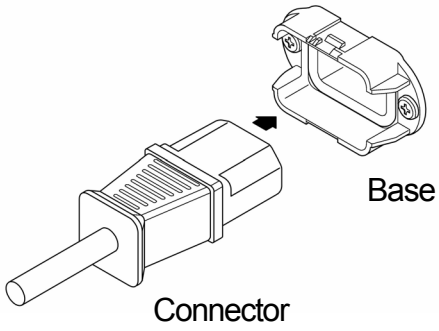
The LV 5700A/LV 5710A is designed to operate stably under normal handling. If you have questions regarding calibration and service, contact your local LEADER agent.

19.1 Preventing Power Cord Disconnection

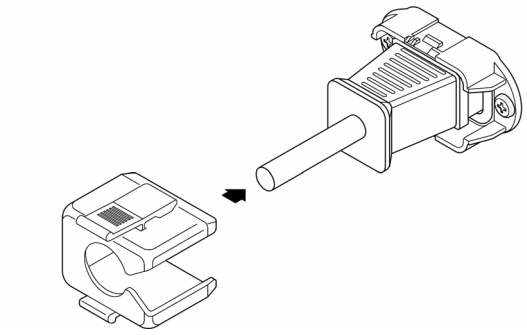
To prevent power cord disconnection from the AC inlet, the Cover/Inlet stopper is supplied with the instrument. Refer to the procedure below.

19.1.1 Connecting the Power Cord

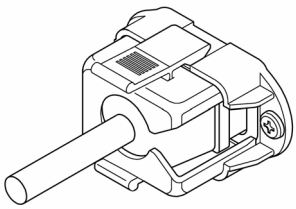
① Insert the power cord connector into the AC inlet.



② Place the Cover/Inlet stopper on top of the connector as shown below.



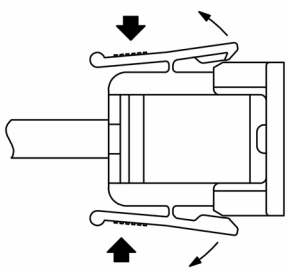
③ Press the cover until it clicks into place.



④ Confirm that the Cover/Inlet stopper is locked to the base.

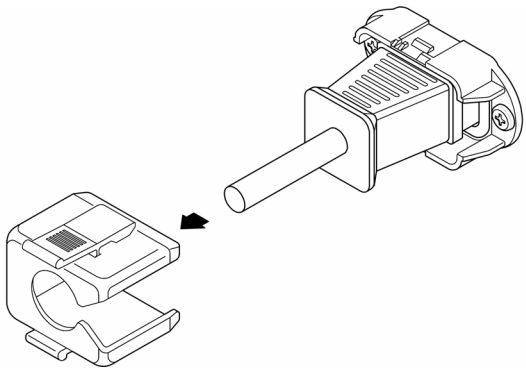
19.1.2 Disconnecting the Power Cord

① Press the levers on the Cover/Inlet stopper with your fingers to release the lock.



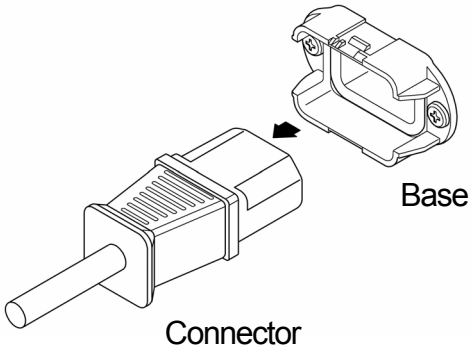
Cover/Inlet stopper (side view)

② Remove the Cover/Inlet stopper from the base.



Cover/Inlet stopper

③ Disconnect the power cord connector from the AC inlet.



Connector