FOR.A®
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

OPERATION MANUAL

FA-9100
FA-9100RPS
Frame Synchronizer

FA-90CC
FA-90UD
FA-90DE-D
FA-91DE-ED
FA-90DV
FA-90HDV
FA-91LG
FA-91ALC
FA-91FRC

5th Edition - Rev.1
(Version 4.1.1 - Higher)

FOR-A COMPANY LIMITED

Precautions

Important Safety Warnings

[Power]

 Caution	Operate unit **only** on the specified supply voltage.
	Disconnect power cord by connector only. **Do not** pull on cable portion.
 Stop	**Do not** place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.

[Grounding]

 Caution	**Ensure** unit is properly grounded at all times to prevent electrical shock hazard.
 Hazard	**Do not** ground the unit to gas lines, units, or fixtures of an explosive or dangerous nature.
 Caution	**Ensure** power cord is firmly plugged into AC outlet.

[Operation]

 Hazard	**Do not** operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.
 Hazard	**Do not** allow liquids, metal pieces, or other foreign materials to enter the unit. Doing so could result in fire, other hazards, or unit malfunction.
	If foreign material does enter the unit, turn power off and disconnect power cord **immediately.** Remove material and contact authorized service representative if damage has occurred.

[Transportation]

 Caution	**Handle** with care to avoid shocks in transit. Shocks may cause malfunction. When you need to transport the unit, use the original packing materials or alternate adequate packing.

[Circuitry Access]

	**Do not** remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.
 Stop	**Do not** touch any parts / circuitry with a high heat factor. Capacitors can retain enough electric charge to cause mild to serious shock, even after power is disconnected. Capacitors associated with the power supply are especially hazardous. Avoid contact with any capacitors.
 Hazard	Unit **should not** be operated or stored with cover, panels, and / or casing removed. Operating unit with circuitry exposed could result in electric shock / fire hazards or unit malfunction.

[Potential Hazards]

 Caution	If abnormal smells or noises are noticed coming from the unit, turn power off immediately and disconnect power cord to avoid potentially hazardous conditions. If problems similar to above occur, contact authorized service representative **before** attempting to again operate unit.

[Rack Mount Brackets, Ground Terminal, and Rubber Feet]

 Caution	To rack mount or ground the unit, or to install rubber feet, **do not** use screws or materials other than those supplied. Otherwise, it may cause damage to the internal circuits or components of the unit. If you remove the rubber feet attached on the unit, **do not** reinsert the screws securing the rubber feet.

[Consumables]

 Caution	The consumables used in unit must be replaced periodically. For further details on which parts are consumables and when they should be replaced, refer to the specifications at the end of the Operation Manual. Since the service life of the consumables varies greatly depending on the environment in which they are used, they should be replaced at an early date. For details on replacing the consumables, contact your dealer.

Upon Receipt

Unpacking

FA-9100 / FA-9100RPS units and their accessories are fully inspected and adjusted prior to shipment. Operation can be performed immediately upon completing all required connections and operational settings.

Check your received items against the packing lists below.

FA-9100

ITEM	QTY	REMARKS
FA-9100	1	
Rack Mount Brackets	1	EIA standard type (Including 4 screws.)
AC Cord	1 set	
Operation Manual	1	

FA-9100RPS

ITEM	QTY	REMARKS
FA-9100RPS	1	
Rack Mount Brackets	1	EIA standard type (Including 4 screws.)
AC Cord	2 sets	
Operation Manual	1	

Option

ITEM	REMARKS
FA-90CC	Color Corrector
FA-90UD	Up/down Converter
FA-91FRC	Frame Rate Converter (FA-90UD is required for installing FA-91FRC.)
FA-90DE-D	Dolby E Decoder
FA-91DE-ED	Dolby E Decoder / Encoder
FA-90DV	DV Codec
FA-90HDV	DV/HDV Codec
FA-91LG	Logo Generator (card) Log Control Software, Software manual, CD-ROM
FA-91ALC	Auto Level Controller (card), CD-ROM
FA-90RU	Remote Control Unit
FA-90GUI	Remote Control Software

IMPORTANT
Logo Generator (FA-91LG) and Auto Level Controller can be installed to FA-9100/ FA-9100RPS together, however, both of them cannot be used at the same time. If either of FA-91LG and FA-91ALC was already purchased, the other option can be added by purchasing a passcode. Consult your FOR-A reseller for details.

Check

Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

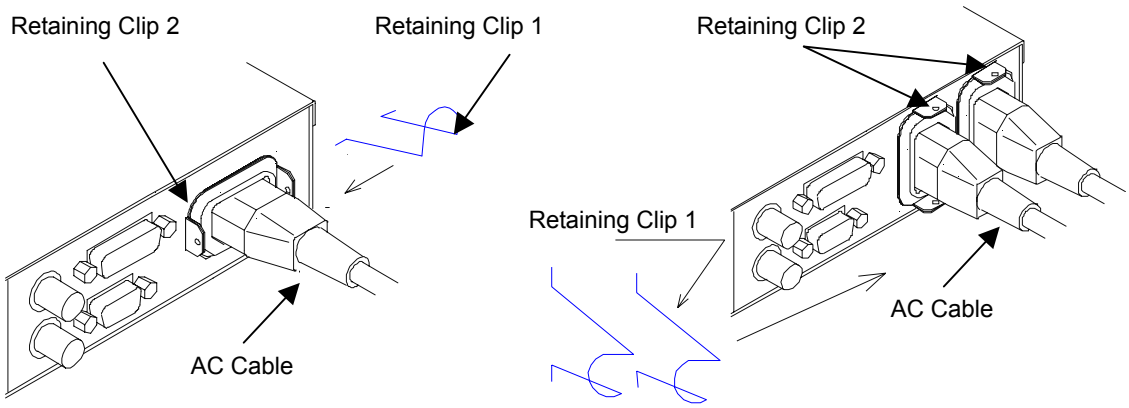
Rack Mounting

FA-9100/RPS can be mounted to EIA standard rack units. When rack mounting a unit, remove the rubber feet and use the accessory rack mount brackets (rack ears).

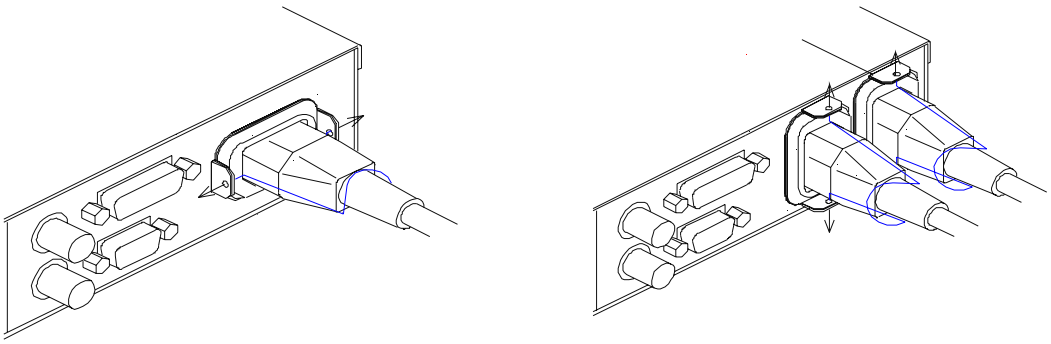
Installing the AC Cord Retaining Clips

1) Securely plug the AC cord into the AC inlet

2) Attach Retaining Clip 1 from the side of the AC cord.



3) Install the both ends of Retaining Clip 1 into the holes of Retaining Clip 2.



The installation is now complete.

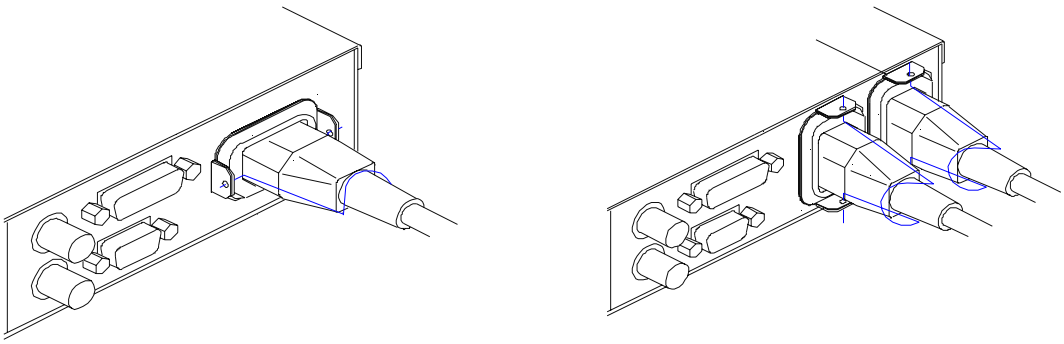


Table of Contents

1. Prior to Starting 1
   1-1. Welcome 1
   1-2. About the FA-9100/FA-9100RPS 1

2. Panel Descriptions 3
   2-1. Front Panel 3
   2-2. Rear Panel 5
   2-3. Connectors 7
      2-3-1. REMOTE (GPI) 7
      2-3-2. REMOTE (RS422) Connectors 9

3. Connection 10
   3-1. Basic Connection 10
   3-2. Connecting to the Remote Unit 11
   3-3. Audio Connection 12
   3-4. Analog Audio Connection 12

4. Front Panel Operations 13
   4-1. Power ON 13
      4-1-1. Fan Alarm 13
   4-2. Releasing Menu Lock 13
   4-3. Accessing Menus 14
      4-3-1. Menu Buttons 14
      4-3-2. Arrow Buttons 16
   4-4. Changing Parameter Values 17
      4-4-1. Resetting to Default 17

5. Menu Description 18
   5-1. PROCESS CONTROL 18
   5-2. Color Correction (FA-90CC/FA-91ALC) 18
      5-2-1. WHITE LEVEL 18
      5-2-2. BLACK LEVEL 19
      5-2-3. GAMMA LEVEL 19
      5-2-4. GAMMA SETTING 20
      5-2-5. CORR MODE SELECT 20
   5-3. Color Gamut Control (FA-90CC/FA-91ALC) 21
      5-3-1. CLIP SETTING 21
   5-4. VIDEO INPUT SELECT 22
   5-5. COMPONENT MODE SEL 22
   5-6. SD SYSTEM PHASE 22
   5-7. SD SYSTEM POSITION 23
   5-8. HD SYSTEM PHASE 23
   5-9. HD SYSTEM POSITION 24
   5-10. FRAME DELAY SETTING 24
   5-11. HD/SD LINE MASK SEL 24

5-12. FREEZE SETTING 24
5-13. VIDEO SYSTEM SET 25
5-14. UP/DOWN/FRAME RATE CONVERTER (FA-90UD / FA-91FRC) 27
5-14-1. MODE SELECT 27
5-14-2. OUTPUT MODE 28
5-14-3. EFFECT 31
5-14-4. H/V ADJUST 31
5-14-5. CROP ADJUST 32
5-14-6. SIDE CUT COLOR 32
5-15. DV/HDV CODEC (FA-90DV / FA-90HDV) 33
5-15-1. DV/HDV OPERATE MODE 33
5-15-2. TIMECODE SELECT 34
5-15-3. TC GENERATE SET 34
5-15-4. DV AUDIO OUTPUT 35
5-15-5. VTR CONTROL 35
5-16. AUTO LEVEL CONTROLLER (FA-91ALC) 36
5-16-1. ALC CONTROL 36
5-16-2. ALC SETUP 37
5-16-3. ALC PORT 38
5-17. LOGO GENERATOR (FA-91LG) 40
5-17-1. LOGO CONTROL 40
5-17-2. LOGO INSERT 40
5-17-3. LOGO SOURCE 41
5-17-4. LOGO PORT 42
5-18. LG/ALC Selection 43
5-19. TEST SIGNAL 44
5-20. SYSTEM SETTING 44
5-21. PANEL SETUP 45
5-22. START UP SETTING 46
5-23. REMOTE MODE 47
5-24. REMOTE CONN PORT 47
5-25. GPI SETTING 48
5-25-1. GPI 1-7 SETTING 48
5-26. AUDIO SETTING 50
5-26-1. ANALOG IN LEVEL 50
5-26-2. ANALOG IN GAIN 50
5-26-3. AES IN GAIN 50
5-26-4. SDI IN GAIN 51
5-26-5. DOLBY IN GAIN 51
5-26-6. DOLBY Downmix GAIN 51
5-26-7. DV/HDV IN GAIN 52
5-26-8. MASTER OUT GAIN 52
5-26-9. ANALOG OUT LEVEL 53
5-26-10. ANALOG OUT GAIN 53
5-26-11. AUDIO OUTPUT SEL 53

5-26-12. ASRC INPUT SEL 55
5-26-13. DOLBY DEC INPUT SEL....55
5-26-14. DOLBY ENC INPUT SEL....56
5-26-15. AES OUTPUT SELECT 56
5-26-16. SDI OUTPUT SELECT 56
5-26-17. AUDIO SYSTEM SET....57
5-26-18. AUDIO EMBED....57
5-26-19. SDI GROUP SELECT....57
5-26-20. AES IN HYST SYNCHRO....58
5-26-21. DIGI AUDIO OUT MODE....59
5-26-22. AUDIO DELAY SETTING 59
5-26-23. AUDIO DELAY UNIT 59
5-26-24. AUDIO DELAY MULTIPLY 60
5-26-25. AUDIO DELAY OFFSET....60
5-26-26. ANALOG INPUT TERM 60
5-26-27. OUTPUT STEREO MODE....61
5-26-28. OUTPUT POLARITY 61
5-26-29. DOLBY DEC SETTINGS 62
5-26-30. DOLBY ENC SETTINGS 62
5-27. USER 1/2....63
5-27-1. Assigning a Menu 63
5-28. Status Information....64

6. Event Operation 65
6-1. EVENT SAVE 65
6-2. EVENT LOAD 65

7. ANALOG/DIGITAL Input/Output Level....66
7-1. Digital Output Level Relative to Analog Input Level 66
7-2. Analog Output Level Relative to the Digital Input Level 67
7-3. Adjusting the Detection Level for Analog Audio Input 68

8. Color Gamut Control 69
8-1. YPbPr Clip 69
8-2. GBR Clip....70
8-3. VBS (Composite) Clip 70

9. Gamma Curve....71

10. Customizing ALC 72
10-1. Customizing User Level 72
10-2. Customizing Sample Area....75
10-3. Manual Level Control 76

11. Format Compatibility between Genlock Input and Video Output....77
11-1. When in Standard Configuration 77
11-2. When FA-90UD Configured 77

12. When System Phase Adjustment is Available or Not Available: 81

13. About Up/Down Converter (FA-90UD) 82

14. About Frame Rate Converter (FA-91FRC) 83
14-1. HD/SD Analog Component OUT and SDI OUT1-3 83
14-2. Composite OUT 83
14-3. Embedded Audio 84

15. Supported Formats of Dolby E 85
15-1. Decoder (FA-90DE-D/FA-91DE-ED) 85
15-2. Encoder (FA-91DE-ED) 86

16. ANALOG AUDIO IN/OUT Configuration 87
16-1. Factory Default Configuration 87
16-2. Changing the IN/OUT Configurations 87

17. Pass/Blank Area in the Blanking Period 89
17-1. Data Areas and Related Menu Items 89
17-2. How To Pass or Blank Data 90

18. Network Settings 91
18-1. Connecting FA-9100/RPS to Computer 91
18-2. Login 92
18-3. Information 94
18-4. Network Setting 95
18-5. SNMP Setting 96
18-6. Network Restart 97
18-7. Resetting IP Address 97

19. Block Diagrams 98
19-1. FA-9100/RPS 98
19-2. FA-9100/RPS Audio 99
19-3. FA-9100/RPS Audio – DELAY 100
19-4. FA-9100/RPS Audio – SAMPLE RATE CONVERTER 101

20. If Problems Occur 102

21. Specifications & Dimensions 103
21-1. Specifications 103
21-2. External Dimensions 106
21-2-1. FA-9100 106
21-2-2. FA-9100RPS 107

Index 108

1. Prior to Starting

1-1. Welcome

Congratulations! By purchasing FA-9100/FA-9100RPS Frame Synchronizer you have entered the world of FOR-A and its many innovative products. Thank you for your patronage and we hope you will turn to FOR-A products again and again to satisfy your video and audio needs.
FOR-A provides a wide range of products, from basic support units to complex system controllers, which have been increasingly joined by products for computer video based systems. Whatever your needs, talk to your FOR-A representative. We will do our best to be of continuing service to you.

1-2. About the FA-9100/FA-9100RPS

We are proud to introduce a new signal processor that supports all formats: HD, SD, analog, digital, plus audio. The FA-9100 uses 12-bit internal processing for high quality images. The FA-9100 goes beyond the realm of a typical signal processor featuring numerous options like an up-converter, down-converter, frame rate converter, color corrector, logo generator, Dolby E encoder/decoder and DV/HDV codec.
The Processor is the next generation multi purpose signal processor.

Input/Output of All HD, SD, Digital, and Analog Formats
The FA-9100/RPS supports all video signal formats, digital HD/SD-SDI or analog component HD/SD or NTSC/PAL analog composite or Y/C.

Digital/Analog Audio Support
The FA-9100/RPS provides digital or analog input/output for audio signals in the same way as it handles video signals. 8-channel support is provided for embedded audio and AES/EBU, and 4-channel support is provided for analog audio. Multi-channel audio signal processing is possible without phase differences between channels. Individual level adjustments can be made for each audio channel, and audio delay adjustment is provided for synchronizing to the video signal.

12-bit Internal Processing for High Image Quality
The FA-9100/RPS uses 12-bit internal processing for dramatically better format conversion and A/D and D/A image quality. FOR-A uses the best elements in image processing technology which enables us to provide image quality that stands out from the competition.

High-quality A/D Converter and D/A Converter
In the FA-9100/RPS, the input signal is converted to all video output signals that are possible. Signal conversion of all output signals by A/D or D/A is constantly performed, allowing an on-air system to have all output signals available.

Powerful Frame Synchronizer Performance
FOR-A's frame synchronizers have always exhibited superior performance when processing video with poor quality signals. The FA-9100/RPS incorporates all of this technical expertise into a single unit, developed with the highest priority on reliable frame synchronization.

Allows Installation of Up/Down-conversion
Up-converter and down-converter are optionally available for enabling conversion of HD signals to SD and SD signals to HD. With the FA-9100/RPS, there's no need to have an external up/down converter.
*No frame rate conversion function is provided.

Allows Installation of Frame rate-conversion
Frame rate conversions between 59.94Hz and 50Hz are available. The frame rate up or down-conversion can be also used.

HD/SD Simulcast Output
The system phase can be set for HDTV and SDTV individually.

2D/3D Comb Filter
2D or 3D comb filter is available for selection during analog composite signal conversion.

Standard Support for SNMP Monitoring
The FA-9100/RPS model has a built-in Ethernet port that provides support for network monitoring using SNMP protocol. This feature allows remote checking of device status, signal errors and other available information.

Wide Range of Remote Interfaces
Multiple FA-9100/RPS and FA-90RU units configuration is possible. FA-9100/RPS can be controlled by single FA-90RU or multiple FA-90RU. Additionally, remote control using GPI is also supported.

Process Control
The standard model allows adjusting video level, chroma level, chroma phase, and setup level. Remote control of these parameters is also possible.
<Main process control functions>
- Adjustment functions in Video level, Chroma level, Setup level and Chroma phase
- Clip functions (Y-white, C-white, Y-black clip)

Color Correction
In addition to the standard process control function, a color correction option is also available. Three available color correction modes (balanced, differential and sepia) with gamma correction and various clip functions are provided to enable easy reproduction of the video's original color space and range.
<Main color correction functions>
- Three color correction functions (balance, differential and sepia)
- Gamma adjustment functions in HIGH, MID and LOW tones
- White level and Black level adjustment functions

Dolby E Decoder/Encoder
Dolby E/Dolby Digital decoder and Dolby E encoder options are available. The Dolby E/Dolby Digital decoder decodes a pair of Dolby E or Dolby Digital up to eight discrete channels and the Dolby E encoder does the conversion vice versa. Decoded audio data is used as internal source as well as various other audio sources, and the channel selection and the gain control can be applied to the Dolby signal in the same manner as other audio sources.

DV/HDV Codec
DV/HDV output or input via IEEE1394 port is available. The DV or HDV stream can be processed in the same way as other video format signals.

Logo Generator
Logo superimposing is available. The computer-generated logo data can be transported to FA-9100/RPS via Ethernet using dedicated control software. (Logo Generator and Auto Level Controller cannot be used at the same time.)

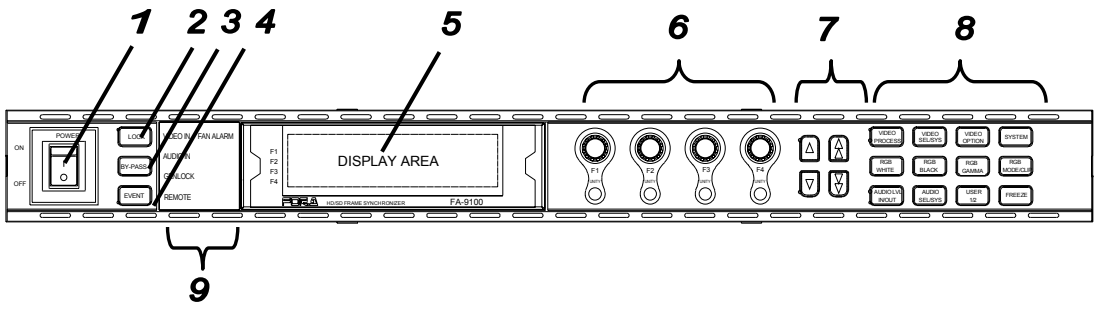
Auto Level Controller
Auto Level Control of Color Corrector is available. White level, Black level and Gamma level are automatically corrected by the ALC to output the optimized signals. Setting ALC mode to OFF also allows you to adjust Color Correction settings manually. (Logo Generator and Auto Level Controller cannot be used at the same time.)

Redundant Power Supply
The redundant power supply model, FA-9100RPS available.

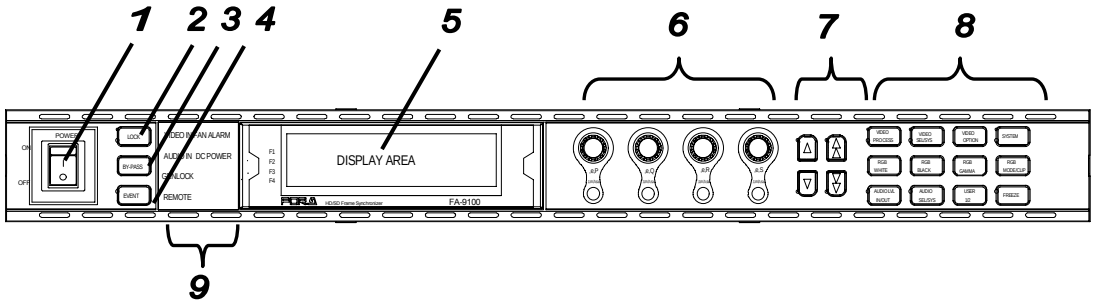
2. Panel Descriptions

2-1. Front Panel

◆ **FA-9100**



◆ **FA-9100RPS**



No	Name	Description	
1	POWER switch	Used to turn unit power ON / OFF. Power is applied when the switch is set to “|” position.	
2	LOCK button	The LOCK button is lit when pressed, and the front panel buttons and controls except the LOCK button are disabled. To enable the front panel buttons and controls, press and hold the LOCK button for several seconds.	
3	BY-PASS button	Bypasses input signals (video and audio). The input signals are directly output when the BY-PASS button is pressed (button lit). During bypass operation, “Bypass” is displayed at “IN FORMAT” on the top screen.	
4	EVENT button	Used to save and load events.	
5	Menu display	Used to display menus and make operational settings (fluorescent display).	
6	Controls (F1-F4) UNITY buttons	Used to select menus and change operational settings. See section 4-4, "Changing Parameter Values" for details. The Unity buttons are used to return the settings to the default values.	
7	Arrow buttons	Single-arrow buttons	Used to move between parameters. (Indicators light up to indicate the movable direction.)
		Double-arrow buttons	Used to move between menus (menu buttons). (Indicators light up to indicate the movable direction.)
8	Menu buttons	Used to select menus.	

No	Name		Description	
9	Status indicator	VIDEO IN	Lit green	A video signal set at the menu is present.
			Unlit	A video signal set at the menu is not present.
		AUDIO IN	Lit green	Audio signal is present.
			Unlit	No audio signal is present.
		GENLOCK	Lit green	FA-9100/RPS operates in synchronized with the genlock input.
			Unlit	No genlock signal is present.
		REMOTE	Lit green	FA-9100/RPS is remotely controlled.
			Unlit	FA-9100/RPS is controlled by the front panel buttons and controls.
			Flashing	FA-9100/RPS is in remote control mode, however, it is not controlled by any remote control unit.
		FAN ALARM	Lit red	A fan failure has occurred. Turn the unit power OFF. Consult your supplier if fan replacement is needed. (See section 4-1-1.)
			Unlit	Cooling fans are working properly.
		DC POWER (FA-9100RPS only)	Lit red	A power failure has occurred on the redundant power supply. Although the unit is working properly, It is recommended to replace the redundant power supply. Consult your supplier if the replacement is needed.
			Unlit	The redundant power supply is working properly.

NOTE

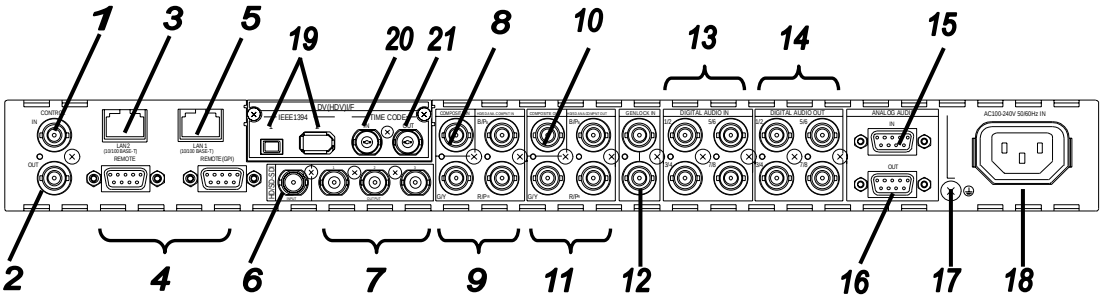
The menu buttons enabled with the options:
- -RGB WHITE
- -RGB GAMMA
- -RGB BLACK
- -RGB MODE/CLIP
- -VIDEO OPTION

See section 4-3-1. "Menu Buttons" for details.

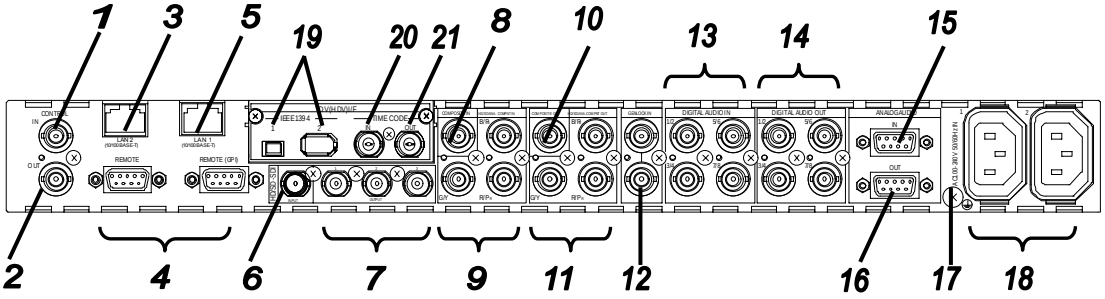
If the REMOTE indicator flashes, check the connection to the remote control unit. See FA-90RU Operation Manual for details.

2-2. Rear Panel

◆ **FA-9100**



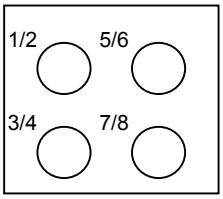
◆ **FA-9100RPS**



No	Name	Description
1	CONTROL IN	Used for remote control of FA-9100/RPS via the optional remote control unit.
2	CONTROL OUT	Used for remote control of other FA-9100/RPS units via the optional remote control unit. Up to 100 units can be connected in cascade.
3	LAN2 (FA-91LG option)	Used for transporting logo data (100BASE-TX / 10BASE-T)
4	REMOTE	External remote control interface. See section 2-3, “Connectors.”
5	LAN1	100BASE-TX/10BASE-T Ethernet LAN connector.
6	HD/SD-SDI IN	Used for HD/SD SDI video input connection.
7	HD/SD-SDI OUT 1-3	Used for HD/SD SDI video output connections. *The input signal is bypassed to only SD/HD-SDI OUT1 when BYPASS is enabled.
8	COMPOSITE IN	Used for analog composite video input connection.
9	HD/SD ANALOG COMPONENT IN	Used for HD/SD analog component video input connection. If using Y/C signals, input C signal to the B/Pb connector.
10	COMPOSITE OUT	Used for analog composite video output connection.
11	HD/SD ANALOG COMPONENT OUT	Used for HD/SD analog component video output connection. If using Y/C signals, C signal is output from the B/Pb connector. If using Composite signals, the same composite video is output from the following connectors: COMPOSITE OUT, G/Y, B/Pb and R/Pr. (See section 5-5, "COMPONENT MODE SEL".)
12	GENLOCK IN	Used for input of external reference signal (black burst or tri-level sync) for system synchronization purposes. See section 11. "Format Compatibility between Genlock Input and Video Output " for information about compatible formats.

No	Name	Description
13	DIGITAL AUDIO IN 1/2-7/8	Used for digital audio input connections. *
14	DIGITAL AUDIO OUT 1/2-7/8	Used for digital audio output connections. *
15	ANALOG AUDIO IN	Used for analog audio input connection. ** The ANALOG AUDIO IN connectors can also be used as output connectors by changing the internal cable connections. See section 16, “ANALOG AUDIO IN/OUT Configuration” for details.
16	ANALOG AUDIO OUT	Used for analog audio output connection.** The ANALOG AUDIO OUT connectors can also be used as input connectors by changing the internal cable connections. See section 16, “ANALOG AUDIO IN/OUT Configuration” for details.
17	Ground Terminal	Used to ground unit and protect operators from electrical shock.
18	AC IN (100-240VAC, 50/60Hz)	Used for connection to AC power source via accessory power cord.
19	DV/HDV I/F (FA-90DV/HDV option)	IEEE1394 connectors (4-pin, 6-pin) for connecting to a DV/HDV device. Two connectors cannot be used at the same time.
20	TIMECODE IN (FA-90DV/HDV option)	Used to input TIMECODE signal.
21	TIMECODE OUT (FA-90DV/HDV option)	Used to output TIMECODE signal.

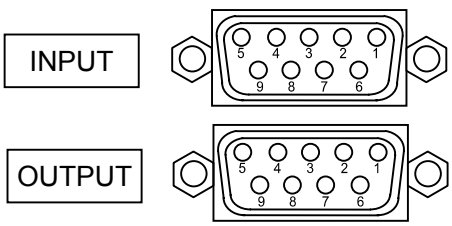
*** DIGITAL AUDIO IN/OUT**



The DIGITAL AUDIO IN/OUT connectors (INPUT CH1/2-7/8, OUTPUT CH1/2-7/8) are arranged as shown at left.

**** ANALOG AUDIO IN/OUT**

The factory default configuration for ANALOG AUDIO IN/OUT (INPUT CH1-4, OUTPUT CH1-4) is as shown below.



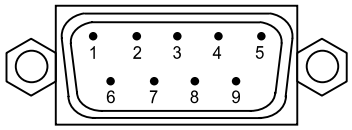
The ANALOG AUDIO IN/OUT connectors can be configured as all inputs, all outputs, or as a combination of inputs and outputs by changing the internal cable connections. See section 16. “ANALOG AUDIO IN/OUT Configuration”” for details.

2-3. Connectors

2-3-1. REMOTE (GPI)

The pin assignments of REMOTE (GPI) connector are shown in the table below. The pin assignments cannot be changed. Up to 7 GPI function can be used for both input and output. The function assignment for GPI 1 to 7 is set in the GPI SETTING menu (see 5-25).

◆ **REMOTE (GPI) Connector**

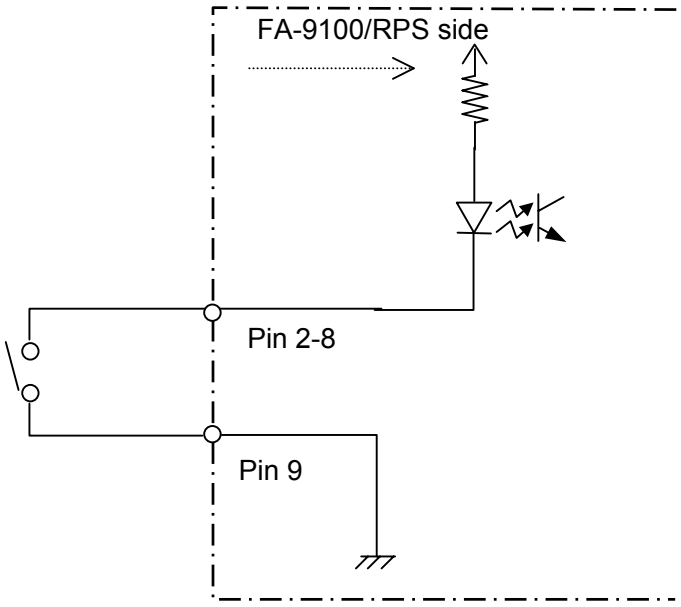


GPI Connector Pin Assignments (9-pin D-sub, male)

Pin No.	Setting
1	DC OUT (Internal power supply +5V)
2	GPI 1 (Input/Output)
3	GPI 2 (Input/Output)
4	GPI 3 (Input/Output)
5	GPI 4 (Input/Output)
6	GPI 5 (Input/Output)
7	GPI 6 (Input/Output)
8	GPI 7 (Input/Output)
9	GND (Signal ground)

The assigned function for GPI input is activated when the corresponding pin is shorted to the ground and the function is not activated when the pin is open.

◆ **GPI Input Circuit**



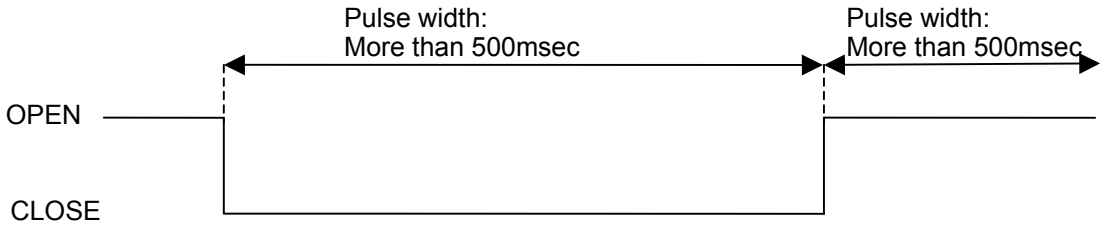
◆ **GPI IN Control**

When externally controlling FA-9100/RPS via the REMOTE (GPI) connector using GPI, two different controls are used depending on functions. (See section 5-25 "GPI SETTING.")

Level Control

The triggers are controlled by the level of the pulse input to a pin.
Pin status

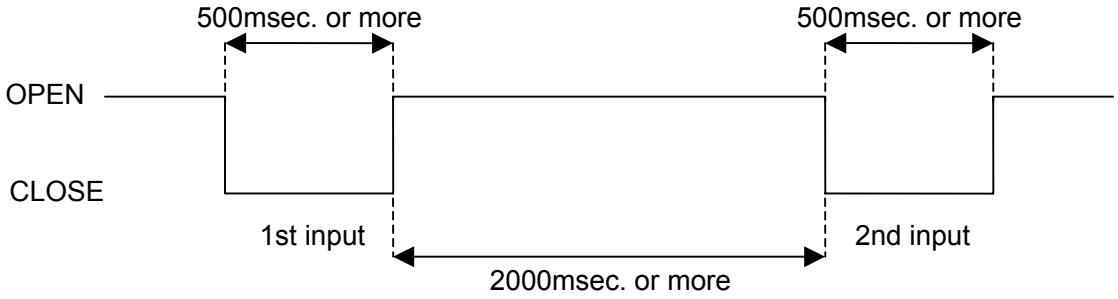
OPEN : Function OFF
CLOSE : Function ON



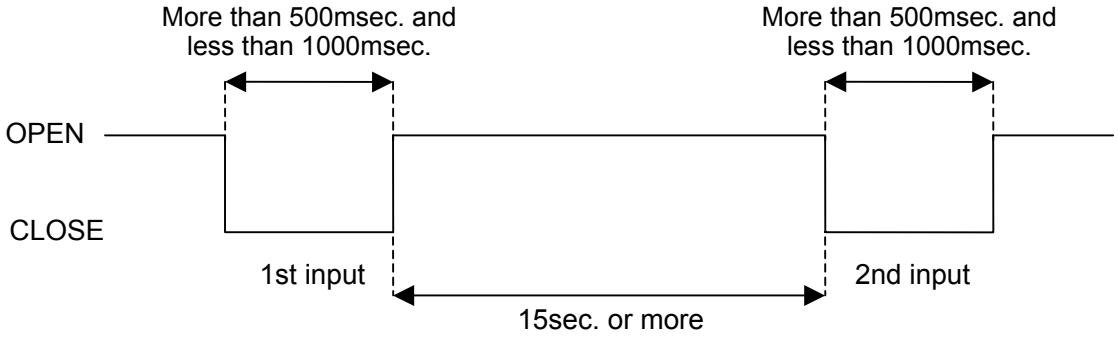
Pulse Control

The triggers are controlled by the transition of the pin status from Open to Close.
Pin status changed from Open to Close: Function ON

◆ **Pulse Width and Interval of GPI Input (Normal)**

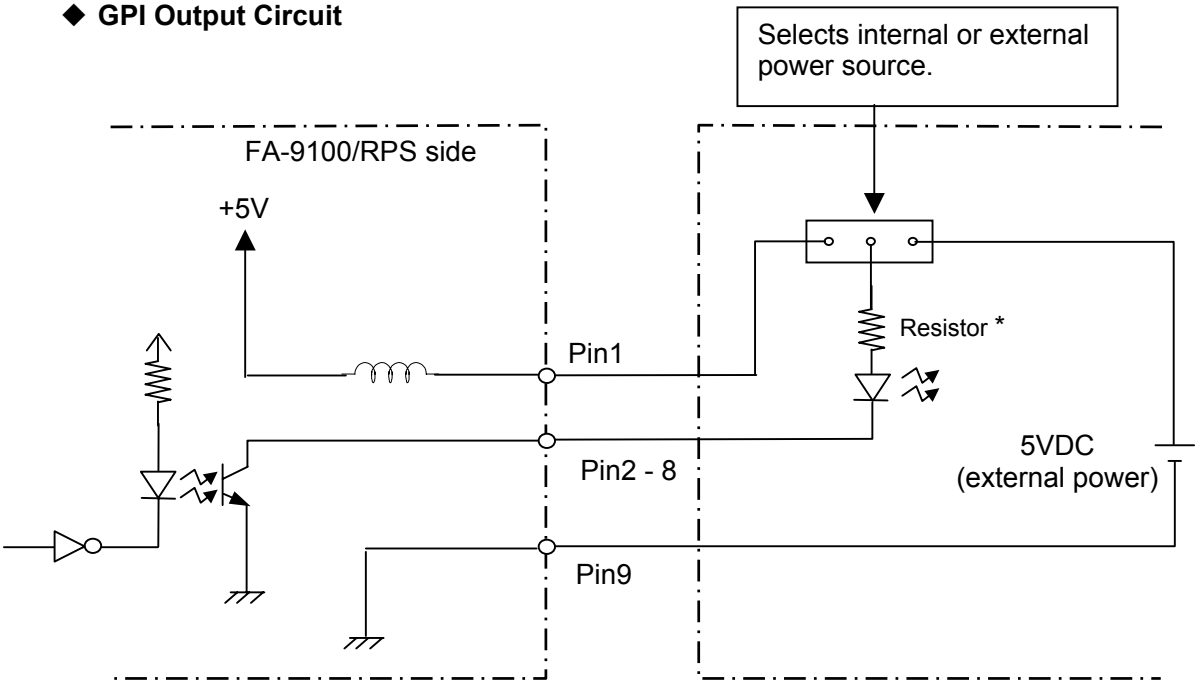


◆ **Pulse Width and Interval of GPI Input (EVENT00-30)**



NOTE
Use the GPI inputs only under the conditions described above. Otherwise, a malfunction may occur.

◆ **GPI Output Circuit**

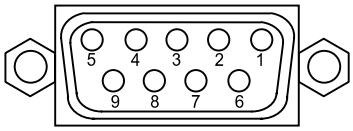


*Determine the resistance value so that the current value of the output pin will not exceed 40mA. In addition, the voltage of external power source should be +5VDC.

2-3-2. REMOTE (RS422) Connectors

The REMOTE connectors are used for FA-9100/RPS remote control via RS-422 interface connection.

◆ **REMOTE Connector**



REMOTE Connectors Pin Assignments (9-pin D-sub, female)

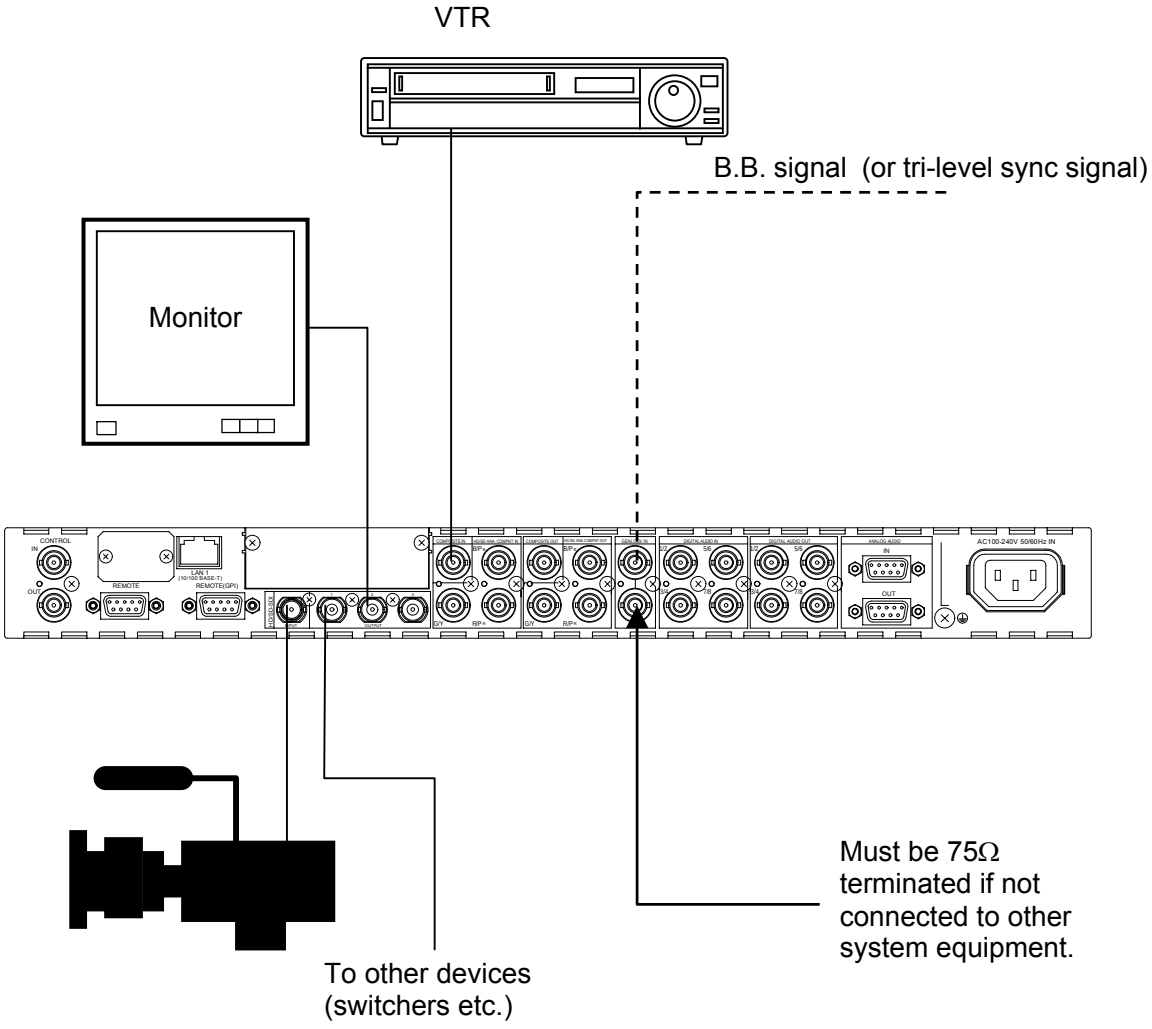
Pin No.	Setting
1	SG
2	RX-
3	TX+
4	
5	
6	
7	RX+
8	TX-
9	

NOTE
FA-9100/RPS cannot be controlled by both FA-90RU and serial interface control at the same time. To use the RS-422 control, set "REMOTE CONN PORT" to RS-422 (see 5-24). Consult your FOR-A reseller for RS-422 commands.

3. Connection

CAUTION	Turn OFF the power of all devices before connection.

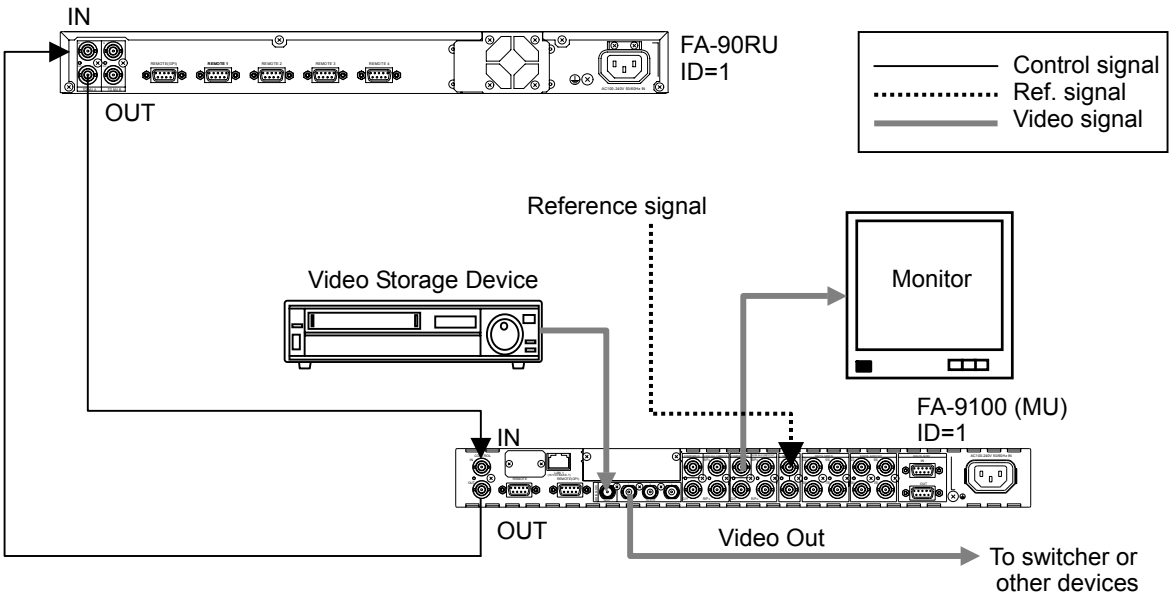
3-1. Basic Connection



NOTE
Whether to process the COMPOSITE, COMPONENT or SDI input signal is selectable in the VIDEO INPUT SELECT menu (see 5-4).

3-2. Connecting to the Remote Unit

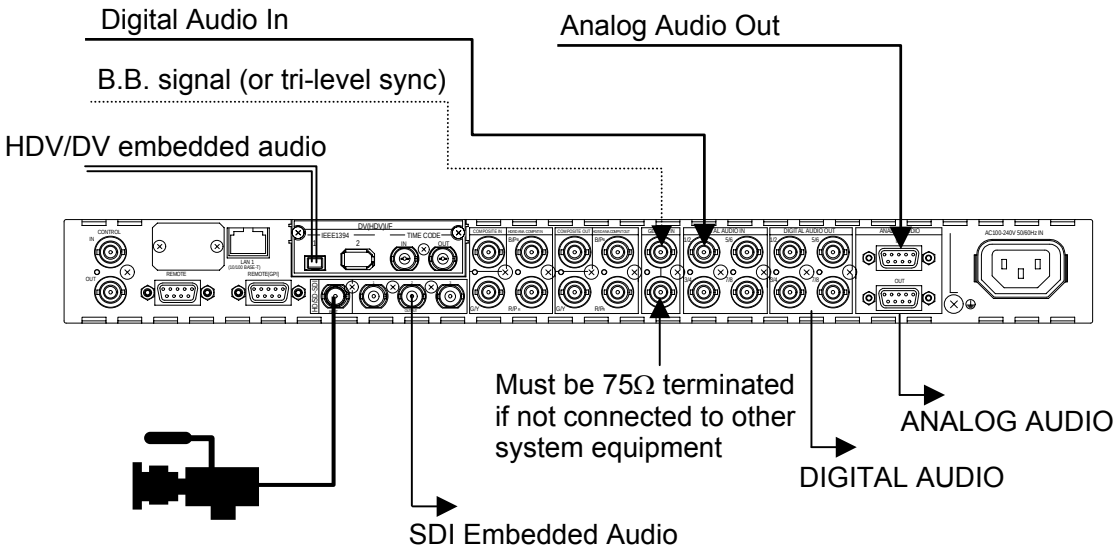
FA-9100/RPS can connected to and remotely controlled by FA-90RU Remote Control Unit. To connect to FA-90RU, use a BNC cable with an impedance of 75 ohm. Power OFF the MU (FA-9100/RPS) and the RU (FA-90RU), use IN and OUT connectors to connect them each other, and then power ON the MU and the RU.



IMPORTANT
The setting range for both MU ID and RU ID is 1-100 respectively. The same ID can be used for both an MU and an RU. Do not use the same ID for two or more MU units and two or more RU units if the multiple MU or RU units are configured. Otherwise, the connection will fail.

3-3. Audio Connection

The audio signals input to FA-9100/RPS are genlock synced with black burst signal or tri-level sync signal and they are output as digital audio signal, analog audio signal, or embedded audio in SDI, HDV and DV streams.

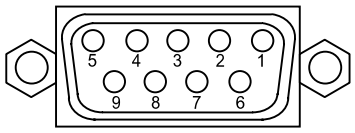


NOTE
The processed and output audio signal in the unit (digital, analog, or embedded audio input) is selected in the AUDIO OUTPUT SEL menu (see 5-26-11).

3-4. Analog Audio Connection

For balanced input and output, connect the hot and cold of the analog audio signal to the plus pin and minus pin respectively.
For unbalanced input, connect the analog audio signal line to the plus pin and split the ground line to the minus pin and ground pin.
For unbalanced output, connect the analog audio signal line to the plus pin and the ground line to the ground pin.

◆ **Analog Audio IN/OUT Connectors**
ANALOG AUDIO IN/OUT Connectors' Pin Assignments (9-pin D-sub, female)

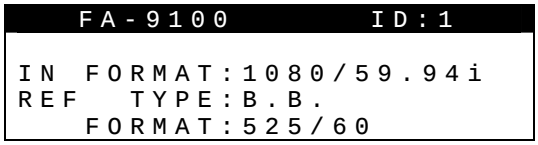


Pin No.	Setting
1	GND
2	CH1+
3	CH2+
4	CH3+
5	CH4+
6	CH1-
7	CH2-
8	CH3-
9	CH4-

4. Front Panel Operations

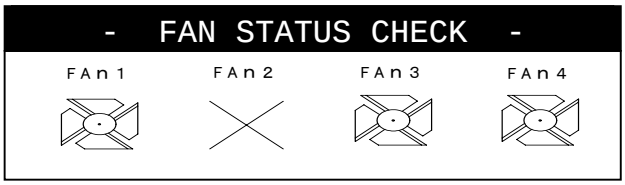
4-1. Power ON

Turn the power switch to ON after all system connections are complete. The indication lamps on the front panel will lights up during startup. When the startup is complete, the lamps will turn off and the menu display will display the currently selected signal format, and type and format of the reference signal as shown in the figure below. Also, the unit ID is displayed at the upper right of the menu display. If a unit name is specified via Ethernet by using the optional FA-90GUI, the unit name is displayed in the first line of the display.



4-1-1. Fan Alarm

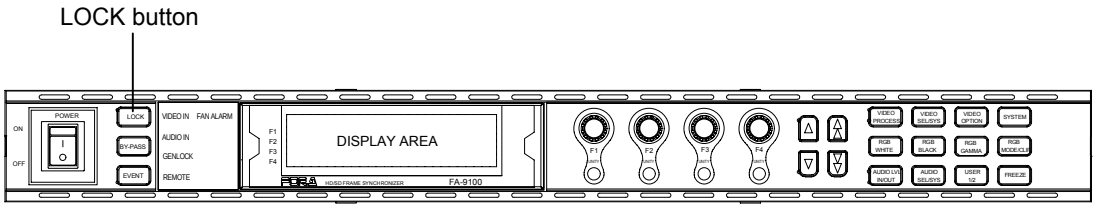
If a fan failure is detected, the FAN ALARM status indicator will light up red. In this case, immediately turn off the unit. Contact your FOR-A supplier for assistance with fan replacement.
To check failed fans, press the single arrow button on the top screen. The failed fans are displayed as an X-symbol as shown below. (Fan2 fails in the figure example below.)



4-2. Releasing Menu Lock

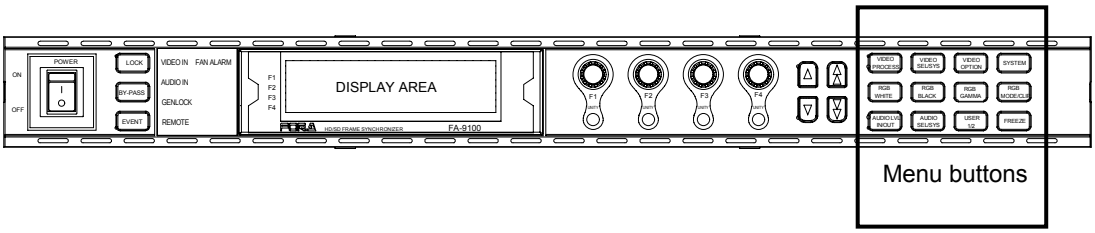
This section explains how to select menus and how to change parameter values.

IMPORTANT
Before starting operations, make sure that the front panel controls are not locked (disabled). The LOCK button is lit when the front panel is disabled. To enable, press and hold the LOCK button for several seconds.



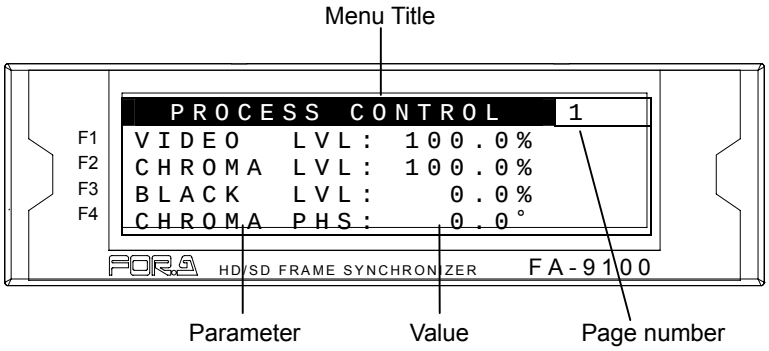
4-3. Accessing Menus

Pressing a menu button displays the menu marked on the button on the menu display. Menus are divided in categories. Each menu button allows you to access corresponding one, two or three categories. Pressing the menu button once will light up the button green and displays the first menu in the first category of the button. Pressing the button twice will light up the button orange and displays the first menu in the second category. Pressing the button three times will light up the button red and displays the first menu in the third category. The double-arrow buttons work in the same manner.
In each category, there are one or more menus. See next section "Menu Buttons" for the details on the categories.

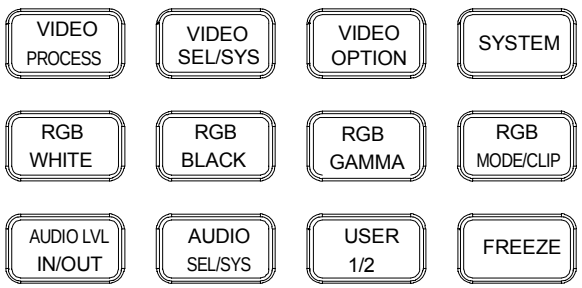


To display menus that are not accessible by the menu buttons or the double-arrow buttons in categories, select the category first by a menu button and then select the menu using single-arrow buttons.

When the menu button is pressed, the button lights up, and the menu is displayed on the screen as shown below. In the example below, the VIDEO PROCESS button is pressed, and the PROCESS CONTROL menu is displayed.



4-3-1. Menu Buttons



Menu Button	Category 1 (lit green)	Category 2(lit orange)	Category 3 (lit red)
VIDEO PROCESS	PROCESS CONTROL	—	—
RGB WHITE	*###(RGB) WHITE LEVEL	—	—
RGB BLACK	*###(RGB) BLACK LEVEL	—	—
RGB GAMMA	*###(RGB) GAMMA LEVEL	*###(RGB) GAMMA SETTING	—
RGB MODE/ CLIP	*###(RGB) CORR MODE SELECT	*###(RGB) CLIP SETTING	—
VIDEO SEL/SYS	VIDEO INPUT SELECT COMPONENT MODE SEL	SD SYSTEM PHASE SD SYSTEM POSITION HD SYSTEM PHASE HD SYSTEM POSITION FRAME DELAY SETTING HD/SD LINE MASK SEL FREEZE SETTING VIDEO SYSTEM SET	—
VIDEO OPTION	** MODE SELECT ** OUTPUT MODE ** EFFECT ** H/V ADJUST ** CROP ADJUST ** SIDE CUT COLOR	# DV/HDV OPERATE MODE # TIMECODE SELECT # TC GENERATE SET # DV AUDIO OUTPUT # VTR CONTROL	## LOGO CONTROL ## LOGO INSERT ## LOGO SOURCE ## LOGO PORT ###ALC CONTROL ###ALC SETUP
SYSTEM	TEST SIGNAL SYSTEM SETTING PANEL SETUP START UP SETTING REMOTE MODE REMOTE CONN PORT GPI SETTING	—	—
AUDIO LVL IN/OUT	ANALOG IN LEVEL ANALOG IN GAIN AES IN GAIN SDI IN GAIN *** DOLBY IN GAIN *** DOLBY Downmix GAIN # DV/HDV IN GAIN	MASTER OUT GAIN ANALOG OUT LEVEL ANALOG OUT GAIN	—
AUDIO SEL/SYS	AUDIO OUTPUT SEL ASRC INPUT SEL *** DOLBY DEC INPUT SEL **** DOLBY ENC INPUT SEL **** AES OUTPUT SELECT **** SDI OUTPUT SELECT	AUDIO SYSTEM SET AUDIO EMBED SDI GROUP SELECT AES IN HYST SYNCHRO DIGI AUDIO OUT MODE AUDIO DELAY SETTING AUD DELAY UNIT AUD DELAY MULTIPLY AUD DELAY OFFSET ANALOG INPUT TERM OUTPUT STEREO MODE OUTPUT POLARITY *** DOLBY DEC SETTINGS **** DOLBY ENC SETTINGS	—
USER 1/2	USER SHORT CUT 1	USER SHORT CUT 2	—

* This menu and menu button are enabled only when the FA-90CC is installed.
** This menu and menu button are enabled only when the FA-90UD (FA-91FRC) is installed.
*** This menu and menu button are enabled only when the FA-90DE-D or FA-91DE-ED is installed.
**** This menu and menu button are enabled only when the FA-91DE-ED is installed.
# This menu and menu button are enabled only when the FA-90DV or FA-90-HDV is installed.
This menu and menu button are enabled only when FA-91LG is installed.
This menu and menu button are enabled only when FA-91ALC is installed.

4-3-2. Arrow Buttons

◆ **Double-arrow buttons (up and down)**
The double-arrow buttons are used to select menu categories (the same as menu buttons). Holding down the double-arrow button displays the menu categories one after another. When it comes to the last menu category, the light goes off.

◆ **Single-arrow buttons (up and down)**
The single-arrow buttons are used to select a menu within categories. Holding down the single-arrow button displays the menus in the category one after another if there are more than one menu.
When it comes to the last menu, the light goes off.

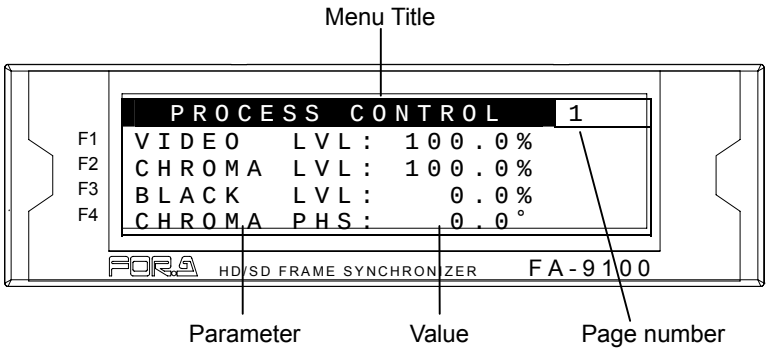
◆ **Single-arrow buttons after using menu buttons**
Pressing the single-arrow buttons after selecting a category using menu buttons enables to select menus in the category.
When it comes to the last menu, the light goes off.

◆ **Single-arrow buttons after using double-arrow buttons**
Pressing the single-arrow button after using the double-arrow buttons enables to select menus in the category and also menus across the categories.
When it comes to the last menu, the light goes off.

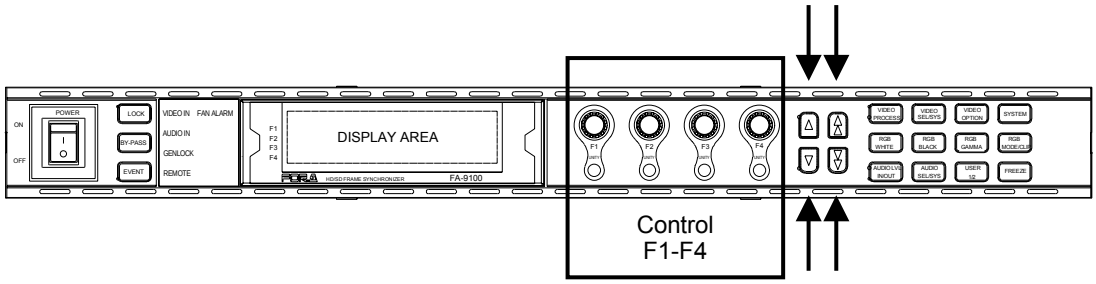
◆ **Sequential setting display**
Press the double-up-arrow button until it stops. The FA-9100/RPS Information (default screen) is displayed. Then hold down the single-down-arrow button. It displays all settings of menus one after another.

4-4. Changing Parameter Values

Once the desired menu is displayed, use the controls (F1-F4) to change the parameter values.



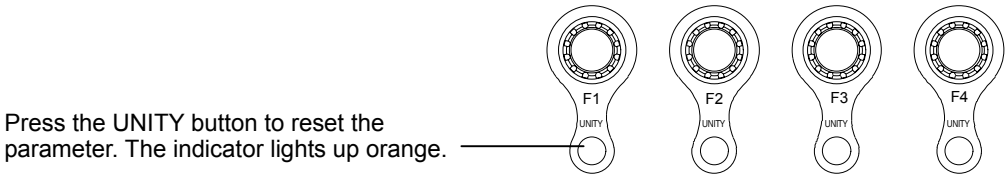
For example, if you wish to change the VIDEO LEVEL parameter value (see the figure above), turn F1 clockwise or counterclockwise (see the figure below). In the same way, turn F2 to change the CHROMA LEVEL parameter value, F3 to change the BLACK LEVEL parameter value, and F4 to change the CHROMA PHASE parameter value.



If there are more than five parameters in the menu, press the single down arrow button on the front panel to scroll through. To return to the top of the menu, press the single up arrow button. If the menu consists of multiple pages, use the double arrow buttons on the front panel to move between pages.

4-4-1. Resetting to Default

Press the UNITY button below each control (F1-F4) to reset the parameter to the default value. The indicator lights up orange. The indicator also lights up when the parameter is reset using the control.



The UNITY buttons work differently from the above mentioned in the following menus: TC GENERATE SET (5-15-3), VTR CONTROL (5-15-5), ALC CONTROL(5-16-1), LOGO CONTROL (5-17-1), LOGO SOURCE (5-17-3) and LOGO PORT (5-17-4), SYSTEM SETTING (5-20), AUDIO DELAY SETTING (5-26-22). See each section for details.

5. Menu Description

5-1. PROCESS CONTROL

```
PROCESS CONTROL  1
VIDEO   LVL: 100.0%
CHROMA  LVL: 100.0%
BLACK   LVL:   0.0%
CHROMA  PHS:   0.0°
```

Menu Button

VIDEO
PROCESS

Parameter	Default	Setting Range (Steps)	Description
VIDEO LVL (Video Level)	100.0%	0.0 to 200.0% (0.1%)	Adjusts the video level.
CHROMA LVL (Chroma Level)	100.0%	0.0 to 200.0% (0.1%)	Adjusts the chrominance level.
BLACK LVL (Black Level)	0.0%	-20.0 to 100.0% (0.1%)	Adjusts the black level.
CHROMA PHS (Chroma Phase)	0.0°	-179.8 to 180.0° (0.2°)	Adjusts the chrominance phase.

The following menu appears when MODE SELECT is set to "SEPIA" (FA-90CC or FA-91ALCoption is required).

```
PROCESS CONTROL  1
VIDEO   LVL: 100.0%

BLACK   LVL:   0.0%
```

Note
When a logo is inserted to video using the FA-91LG option, CHROMA LVL, BLACK LVL and CHROMA PHS settings for the video are also applied to the logo image.

5-2. Color Correction (FA-90CC/FA-91ALC)

IMPORTANT
Before adjusting WHITE LEVEL, BLACK LEVEL and GAMMA LEVEL, select a signal type (mode) at CORR MODE SELECT. (See section 5-2-5.)
When the FA-91ALC option is used, Color Correction menus can be set manually by disabling the ALC. See section 10-3. "Manual Level Control."

5-2-1. WHITE LEVEL

```
WHITE LEVEL  2
RED   :100.0%
GREEN :100.0%
BLUE  :100.0%
GROUP ADJUST
```

Menu Button

RGB
WHITE

Parameter	Default	Setting Range (Steps)	Description
RED, GREEN, BLUE (RGB White Level)	100.0%	0.0 to 200.0% (0.5%)	Adjusts white level of R, G, and B components separately.
GROUP ADJUST (Group Adjustment)	100.0%	0.0 to 200.0% (0.5%)	Adjusts white level of all R, G, and B by the same amount using one control.

Disabled if MODE SELECT is set to SEPIA. (The menu button will not work.)

WHITE LEVEL setting is available in FA-91ALC if OPERATE is set to HOLD or OFF. (See section 5-16. AUTO LEVEL CONTROL (FA-91ALC Option)".)

5-2-2. BLACK LEVEL

Menu Button

RGB
BLACK

Parameter	Default	Setting Range (Steps)	Description
RED, GREEN, BLUE (RGB Black Level)	100.0%	0.0 to 200.0% (0.5%)	Adjusts black level of R, G, and B components separately.
GROUP ADJUST (Group Adjustment)	100.0%	0.0 to 200.0% (0.5%)	Adjusts black level of all R, G, and B by the same amount using one control.

Disabled if MODE SELECT is set to SEPIA. (The button will not work.)

BLACK LEVEL setting is available in FA-91ALC if OPERATE is set to HOLD or OFF. (See section 5-16. AUTO LEVEL CONTROL (FA-91ALC Option)".)

5-2-3. GAMMA LEVEL

Menu Button

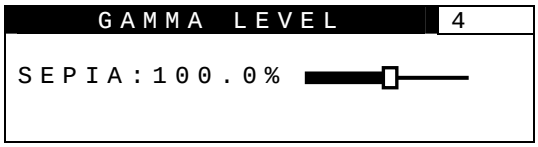
RGB
GAMMA

Parameter	Default	Setting Range (Steps)	Description
RED, GREEN, BLUE (RGB GAMMA)	100.0%	0 to 200% (0.5%)	Adjusts gamma applied for G, B, and R components separately.
GROUP ADJUST (Group Adjustment)	100.0%	0 to 200% (0.5%)	Adjusts gamma applied for all R, G, and B by the same amount using one control.

If CORR MODE SELECT is set to SEPIA, set Y level of Gamma in the MODE SETTING submenu as shown below.

GAMMA LEVEL setting is available in FA-91ALC if OPERATE is set to HOLD or OFF. (See section 5-16. AUTO LEVEL CONTROL (FA-91ALC Option)".)

When SEPIA MODE is selected for CORR MODE SELECT:



Menu Button

RGB
GAMMA

Parameter	Default	Setting Range (Steps)	Description
SEPIA	100.0%	0 to 200% (0.5%)	Sets the sepia color level.

5-2-4. GAMMA SETTING

```
GAMMA SETTING  5
GAMMA CURVE: CENTER
```

Menu Button

RGB
GAMMA

Parameter	Default	Setting Range	Description
GAMMA CURVE (Gamma Curve)	Center	CENTER, BLACK, WHITE	Selects the gamma curve type.

(*1) See section 9, “Gamma Curve.”

GAMMA SETTING is available in FA-91ALC if OPERATE is set to OFF. (See section 5-16. AUTO LEVEL CONTROL (FA-91ALC Option)".)

5-2-5. CORR MODE SELECT

```
CORR MODE SELECT  6
MODE SELECT: BAL
```

Menu Button

RGB
MODE/CLIP

Parameter	Default	Setting Range	Description
MODE SELECT (Correction Mode)	BAL	BAL, DIF, SEPIA	Selects the correction mode from Balanced (RGB), Differential (YPbPr), or Sepia.

If MODE SELECT is set to SEPIA, WHITE LEVEL (see 5-2-1) and BLACK LEVEL (see 5-2-2) cannot be set.

CORR MODE SELECT is available in FA-91ALC if OPERATE is set to OFF. (See section 5-16. AUTO LEVEL CONTROL (FA-91ALC Option)".)

The following submenu is displayed if MODE SETTING is set to SEPIA.

```
CORR MODE SELECT  6
MODE SELECT: SEPIA

SEPIA LEVEL:  25.0%
SEPIA COLOR:-160.0°
```

Parameter	Default	Setting Range (Steps)	Description
SEPIA LEVEL	25.0%	0 to 100% (0.1%)	Adjusts the color level for the SEPIA mode.
SEPIA COLOR	-160.0°	-180° to 179.9° (0.1°)	Adjusts the color for the SEPIA mode.

If MODE SELECT is set to SEPIA, CHROMA LVL and CHROMA PHS under PROCESS CONTROL (see 5-1) cannot be set.

5-3. Color Gamut Control (FA-90CC/FA-91ALC)

5-3-1. CLIP SETTING

First select color space under CLIP MODE, and then enter the submenu to set WHITE LEVEL, BLACK LEVEL, and CHROMA LEVEL parameters individually.

```
    CLIP SETTING        7
CLIP MODE: OFF
```

Menu Button

RGB MODE/CLIP

Parameter	Default	Setting Range	Description
CLIP MODE (Clip Mode)	OFF	OFF, YBRCLIP, GBRCLIP, VBSCLIP	Selects the clip mode from YBRCLIP, GBRCLIP, and VBSCLIP (composite clip).

The settings for YBRCLIP and GBRCLIP are saved separately.

Proc Amp such as VIDEO LEVEL, CHROMA LEVEL and BLACK LEVEL are processed after the gamut correction. For this reason, PROCESS CONTROL should be set before GBR CLIP. See section 8, “Color Gamut Control” for details.

◆ YBR CLIP

```
    CLIP SETTING        7
CLIP   MODE: YBRCLIP
WHITE  LEVEL: 109.0%
BLACK  LEVEL:  -7.5%
CHROMALEVEL: 111.0%
```

Menu Button

RGB MODE/CLIP

Parameter	Default	Setting Range (Steps)	Description
WHITE LEVEL (YPbPr White Clip)	109.0%	50.0 to 109.0% (0.5%)	Sets the upper threshold of Y signal.
BLACK LEVEL (YPbPr Black Clip)	-7.5%	-7.5 to 50.0% (0.5%)	Sets the lower threshold of Y signal.
CHROMA LEVEL (YPbPr Chroma Clip)	111.0%	50.0 to 111.0% (0.5%)	Sets both upper and lower thresholds of PbPr signals simultaneously.

If CLIP SETTING is set to YBRCLIP, the YPbPr clip menu (see 8-1) is displayed.

◆ GBR CLIP

```
    CLIP SETTING        7
CLIP   MODE: GBRCLIP
WHITE  LEVEL: 300.0%
BLACK  LEVEL:-200.0%
```

Menu Button

RGB MODE/CLIP

Parameter	Default	Setting Range (Steps)	Description
WHITE LEVEL (GBR White Clip)	300.0%	50 to 300% (0.5%)	Sets the upper threshold of GBR color space.
BLACK LEVEL (GBR Black Clip)	-200.0%	-200 to 50% (0.5%)	Sets the lower threshold of GBR color space.

If CLIP MODE is set to GBRCLIP, the GBR clip menu (see 8-2) is displayed.

◆ VBS CLIP

```
    CLIP SETTING        7
CLIP   MODE: VBSCLIP
WHITE  LEVEL: 150.0%
BLACK  LEVEL: -50.0%
```

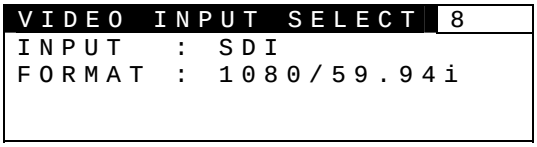
Menu Button

RGB MODE/CLIP

Parameter	Default	Setting Range (Steps)	Description
WHITE LEVEL (VBS White Clip)	150.0%	50 to 150% (0.5%)	Sets the upper threshold of VBS (analog composite) color space.
BLACK LEVEL (VBS Black Clip)	-50.0%	-50 to 50% (0.5%)	Sets the lower threshold of VBS (analog composite) color space.

If CLIP MODE is set to VBS CLIP, the VBS clip menu (see 8-3) is displayed.

5-4. VIDEO INPUT SELECT



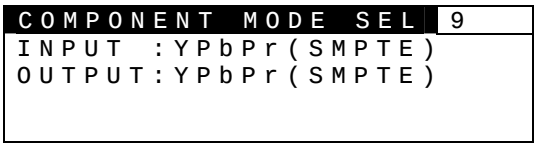
Menu Button

VIDEO
SEL/SYS

Parameter	Default	Setting Range	Description
INPUT (Input Video Signal Select)	SDI	Composite, Component, SDI DV(HDV)(*1)	Selects the format of the video input.
FORMAT (Input video format)	—	—	Displays the input video format. "None" is displayed when no signal is present or undetected.

(*1) Available only when the FA-90DV or FA-90HDV option installed.

5-5. COMPONENT MODE SEL



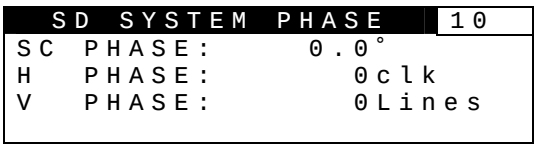
Menu Button

VIDEO
SEL/SYS

Parameter	Default	Setting Range	Description
INPUT (Component Input Select)	YPbPr (SMPTE)	YPbPr (SMPTE), YPbPr (BETACAM), RGB, Y/C	Selects a mode of the signal input to the HD/SD ANALOG COMPONENT IN connectors.
OUTPUT (Component Output Select)	YPbPr (SMPTE)	YPbPr (SMPTE), YPbPr (BETACAM), RGB, Y/C, Composite	Selects a mode of the signal output from the HD/SD ANALOG COMPONENT OUT connectors.

Note that when OUTPUT is set to Composite or Y/C, the composite output setting (COMPST) in section 5-14-2. "OUTPUT MODE" for the up/down converter is applied to this output.

5-6. SD SYSTEM PHASE



Menu Button

VIDEO
SEL/SYS

The system phase parameters cannot be set when no reference signal is present, as well as when the standard is different between video and reference signals and either of them is 1080/23.98PsF(24PsF). In these cases "NOT ADJUST" is displayed. See section 12. "When System Phase Adjustment is Available or Not Available:"

Parameter	Default	Setting Range (Steps)	Description
SC PHASE (Subcarrier Phase)	0.0°	-179.8 to 180.0° (0.2°)	Adjusts the subcarrier phase of the system referring to genlock signal. This setting is applied to SD output video. (Black Burst only)
H PHASE (Horizontal Phase)	0 clk	-1024 to 1023 clk (1 clk)	Adjusts the horizontal phase of the system referring to genlock signal. This setting is applied to SD output video.
V PHASE (Vertical Phase)	0 Lines	-512 to 511 Lines (1 Line)	Adjusts the vertical phase of the system referring to genlock signal. This setting is applied to SD output video.

Available only when a reference signal (Black Burst) is present.

V PHASE cannot be set when SYNCHRO MODE is set to LINE. (See section 5-13.)
All settings above cannot be made when SYNCHRO MODE is set to INPUT. (See section 5-13.)

5-7. SD SYSTEM POSITION

```
SD SYSTEM POSITION  11
H POSITION:      0clk
V POSITION:      0Lines
```

Menu Button

VIDEO
SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
H POSITION (*1) (Horizontal Position)	0 clk	-764 to +764 clk (1 clk)	Adjusts horizontal position of SD output video.
V POSITION (*2) (Vertical Position)	0 Lines	-512 to +511 Lines (1 Line)	Adjusts vertical position of SD output video.

(*1) H POSITION cannot be set when SYNCHRO MODE is set to INPUT. (See section 5-13.)
(*2) V POSITION cannot be set when SYNCHRO MODE is set to LINE or INPUT. (See section 5-13.)

5-8. HD SYSTEM PHASE

```
HD SYSTEM PHASE  12
H   PHASE:       0clk
V   PHASE:       0Lines
```

Menu Button

VIDEO
SEL/SYS

The system phase parameters cannot be set when no reference signal is present, as well as when the standard is different between video and reference signals and either of them is 1080/23.98PsF(24PsF). In these cases "NOT ADJUST" is displayed. See section 12. "When System Phase Adjustment is Available or Not Available:"

Parameter	Default	Setting Range (Steps)	Description
H PHASE (Horizontal Phase)	0 clk	-1024 to +1023 clk (1 clk)	Adjusts the horizontal phase of the system referring to genlock signal. This setting is applied to HD output video
V PHASE (Vertical Phase)	0 Lines	-512 to +511 Lines (1 Line)	Adjusts the vertical phase of the system referring to genlock signal. This setting is applied to HD output video.

Available only when a reference signal is present.

V PHASE cannot be set when SYNCHRO MODE is set to LINE. (See section 5-13.)
All settings above cannot be made when SYNCHRO MODE is set to INPUT. (See section 5-13.)

5-9. HD SYSTEM POSITION

```
HD SYSTEM PHASE  13
H   PHASE:       0clk
V   PHASE:       0Lines
```

Menu Button: VIDEO SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
H POSITION (*1) (Horizontal Position)	0 clk	-764 to +764 clk (1 clk)	Adjusts horizontal position of HD output video.
V POSITION (*2) (Vertical Position)	0 Line	-512 to +511 Lines (1 Line)	Adjusts vertical position of HD output video.

(*1) H POSITION cannot be set when SYNCHRO MODE is set to INPUT. (See section 5-13.)
(*2) V POSITION cannot be set when SYNCHRO MODE is set to LINE or INPUT. (See section 5-13.)

5-10. FRAME DELAY SETTING

```
FRAME DELAY SETTING  14
DELAY:   OFF
```

Menu Button: VIDEO SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
DELAY	OFF	OFF to 4 (1 FRAME)	Sets the frame delay.

5-11. HD/SD LINE MASK SEL

```
HD/SD LINE MASK SEL  15
SD  LINE:    OFF
HD  LINE:    OFF
```

Menu Button: VIDEO SEL/SYS

Parameter	Default	Setting Range	Description
SD LINE (SD LINE Mask)	OFF	OFF, 1, 1-2 to 1-30	Sets to which line the SD-SDI signal is masked.
HD LINE (HD LINE Mask)	OFF	OFF, 1, 1-2 to 1-30	Sets to which line the HD-SDI signal is masked.

IMPORTANT

The video delay is automatically forced to the following values if SCENE CUT DET item is set to ON in the ALC SETUP menu. (See section 5-16-2.)

525/60(NTSC), 625/50(PAL), 1080/59.94i, 50i, 23.98PsF, 24PsF: 2 frames
720/59.94p, 50p: 3 frames

5-12. FREEZE SETTING

```
FREEZE SETTING  16
FREEZE SELECT:  Frame
FIELD  SELECT:  Odd
AUTO   FREEZE:  OFF
STROBE FREEZE:  0
```

Menu Button: VIDEO SEL/SYS

Parameter	Default	Setting Range	Description
FREEZE SELECT (Freeze Select)	Frame	Frame, Field	Selects a mode between frame freeze and field freeze. (*1)(*4)(*5)
FIELD SELECT (Freeze Field Select)	Odd	Odd, Even	Selects a field between odd and even when field freeze is set. (*4)
AUTO FREEZE (Auto Freeze)	OFF	OFF, ON	If set to ON, last received normal field (still image) of video input signal is frozen to compensate for input dropout due to signal loss, noise or low level. (*2)(*4)(*6)
STROBE FREEZE (Strobe Freeze)	0	0 to 255	Sets strobe rate in fields during the field or frame freeze (*3)(*4)

(*1) The FIELD SELECT item determines which field (odd or even) image is frozen.

(*2) Off video random noise is measured as a signal loss. If a video is frozen, set AUTO FREEZE to OFF or input a correct signal to return to normal display.

(*3) If set to 0, STROBE FREEZE is disabled. If set to 1 to 255, the image is strobe-frozen in frame freeze mode. If you wish to freeze the image in field freeze mode, Set FORCE FIELD to "ON" and select a field at FIELD SELECT in the section 5-13. "VIDEO SYSTEM SET."

(*4) If SYNCHRO MODE in section 5-13. "VIDEO SYSTEM SET" is set to "LINE" or "INPUT", FREEZE SELECT and FIELD SELECT cannot be set, AUTO FREEZE is automatically returned to "OFF" and STROBE FREEZE to "0."

(*5) FREEZE SELECT is automatically set to "Frame" when the input video format is 720/59.94p or 720/50p.

(*6) AUTO FREEZE is not applied when the DV/HDV input signal is processed.

5-13. VIDEO SYSTEM SET

```
VIDEO SYSTEM SET  17
FORCE FIELD  : OFF
FIELD SELECT : Odd
B/W          : OFF
VITS         : OFF
```

Menu Button

VIDEO
SEL/SYS

Parameter	Default	Setting Range	Description
FORCE FIELD (Half-field display)	OFF	OFF, ON	Selects display mode between half-field and frame. (*2) **OFF:** Field display **ON:** Half-field display
FIELD SELECT	Odd	Odd, Even	Selects field between even and odd if FORCED FIELD is set to ON.
B/W (Black and White Video Output)	OFF	OFF, ON	Selects output video mode between black and white, and color. **OFF:** Color **ON:** Black and white
VITS (VITS signal)	OFF	OFF, ON	If set to ON, the input VITS signal is passed through. If set to OFF, VITS signal is not passed through and horizontal blanking is applied from 1 to 20H for NTSC and 1 to 23H for PAL.

(*1) Note that VITS may not be passed in some cases even if set to "ON." See section 17, "Pass/Blank Area in the Blanking Period" for details.

(*2) If SYNCHRO MODE in VIDEO SYSTEM SET is set to "LINE" or "INPUT", FORCED FIELD is automatically set to "OFF."

NOTE

When a logo is inserted to video using the FA-91LG option, B/W setting for the video is also applied to the logo image.

```
VIDEO SYSTEM SET  18
SYNCHRO MODE : FRAME
ANCI DATA    : Blank
NR LEVEL     : OFF
```

Menu Button

VIDEO
SEL/SYS

Parameter	Default	Setting Range	Description
SYNCHRO MODE (*1) (Synchro Mode)	FRAME	FRAME, LINE, INPUT	Sets I/O delay mode. **FRAME:** Frame delay, max. 1-frame. **LINE:** If Composite(NTSC) input: max. 6-line If Composite(PAL) input: max. 7-line If Y/C input: max. 5-line If Component input: max. 5-line If HD/SD SDI input: max. 5-line **INPUT:** Minimum delay (Video signal is output regardless of reference signal) (*2)(*3)
ANCI DATA (Ancillary Data)	Blank	Blank, Pass	**Blank:** Deletes the ancillary data area of output signal including embedded audio and adds blanks. **Pass:** Passes through ancillary data including embedded audio. (*4)
NR LEVEL (Noise reduction)	OFF	OFF, 1, 2, 3, 4	Enables or disables noise reduction filter by reducing frame-recursive 3D noise in video and sets its reduction level. (*5)

(*1) SYNCHRO MODE is automatically set to FRAME when FA-91FRC is installed and FRC is set for the MODE SELECT-OUTPUT. (See section 5-14-1.)

(*2) If SYNCHRO MODE is set to INPUT, FA-9100/RPS does not operate as a frame synchronizer.

(*3) If SYNCHRO MODE in section 5-13. "VIDEO SYSTEM SET" is set to "LINE" or "INPUT", FORCE FIELD is automatically set to the default value. If SYNCHRO MODE is changed to "LINE" or "INPUT" during video freeze, the video freeze is cancelled.

(*4) The ancillary data may not be passed in some cases even if ANCI DATA is set to Pass. See section 17. "Pass/Blank Area in the Blanking Period" for details.

(*5) If the input image has noises, set to 1 (low) first and then increase step by step up to 4 (high) while monitoring the processed image. As a rule, the higher the level, the more noises you can reduce, however, the resolution of images becomes degraded, and it can create a blurry trail in the moving images.

IMPORTANT

An external reference signal must be synchronized with the input video when SYNCHRO MODE is set to LINE. Otherwise, the system does not work properly.

```
VIDEO SYSTEM SET  19
NTSC SETUP : OFF
BACK COLOR : OFF
3D COMB : Adaptive 3D
```

Menu Button

VIDEO
SEL/SYS

Parameter	Default	Setting Range	Description
NTSC SETUP (NTSC Setup)	OFF	OFF, ON	Selects between 0IRE setup and 7.5IRE setup depending on the analog signal used. This setting is applied to Composite, Y/C, and SD Analog Component signals.
BACK COLOR (Background Color)	OFF	OFF, BLACK, BLUE, RED, MAGENTA, GREEN, CYAN, YELLOW	Selects a matte to be output if a signal loss occurs. If set to OFF, a black video will appear on the screen.
3D COMB (*1)	Adaptive 3D	Adaptive 3D, Adaptive 2D, Trap Only	Selects the comb filter type. This setting is applied to Composite signal.

(*1) 3D COMB filter mode

Adaptive 3D: Effective for video with less movements such as background images.

Adaptive 2D: Effective for video with movements. The Y/C separation is performed while minimizing image distortions caused by the movements.

Trap Only: Effective for video with quick and large movement. The Y/C separation is performed without line correlation so as to process images with motions properly.

5-14. UP/DOWN/FRAME RATE CONVERTER (FA-90UD / FA-91FRC)

IMPORTANT
The standard settings of converter are made in both MODE SELECT menu and in OUTPUT MODE menu. Note that any conversions are not processed if set to **THROUGH** in OUTPUT MODE menu, because **THROUGH** setting takes precedence over any other converter settings.

5-14-1. MODE SELECT

The items displayed in the MODE SELECT menu vary by the OUTPUT selection as shown below.

```
MODE SELECT          20
OUTPUT          :Up/Down
UP CONV FMT     :1080i
ASPECT RATIO    :4:3
```

(When Up/Down is selected:)

```
MODE SELECT          20
OUTPUT          :FRC
FRC FMT         :1080/23psf
ASPECT RATIO    :4:3
GENLOCK SEL     :THRU OUT
```

(When FRC is selected:)

```
MODE SELECT          20
OUTPUT          :ASPECT
```

(When other is selected:)

Parameter	Default	Setting Range	Description
OUTPUT (Output Setting)	Up/Down	Up/Down ASPECT, IP CONVERT, FRC (*1)	Selects conversion mode. See section 13. "About Up/Down Converter (FA-90UD)" and section 14. "About Frame Rate Converter (FA-91FRC)." **Up/Down**: Performs up/down-conversion. **ASPECT**: Changes only the aspect ratio. **IP CONVERT**: Converts signal between interlaced and progressive. **FRC**: Performs frame rate conversion.

(*1) "FRC" is displayed only when FA-91FRC is installed.

◆ **If OUTPUT is set to Up/Down:**

Parameter	Default	Setting Range	Description
UP CONV FMT	1080i	1080i, 720p, 1080/24PsF	Selects output signal format when up-converting signal from SD SDI to HD SDI. **1080i**: Up-converts signal to 1080/59.94i or 1080/50i. **720p**: Up-converts signal to 720/59.94p or 720/50p. **1080/24PsF**: Up-converts signal to 1080/23.98PsF or 1080/24PsF.
ASPECT RATIO	4:3	4:3, 13:9, 14:9, 16:9, SQUEEZE	Selects aspect ratio of the video output on the monitor. If SQUEEZE is selected, the image is expanded horizontally on the sides to fill the screen.

◆ **If OUTPUT is set to FRC:**

Parameter	Default	Setting Range	Description
FRC FMT	525/60	525/60, 625/50, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 1080/23.98PsF, 1080/24PsF	Selects output signal format in FRC mode. See section 14. "Frame Rate Converter (FA-91FRC) I/O Formats."
ASPECT RATIO	4:3	4:3, 13:9, 14:9, 16:9, SQUEEZE	Selects aspect ratio of the video output on the monitor. If SQUEEZE is selected, the image is expanded horizontally on the sides to fill the screen. In some input/output format combinations, aspect ratio is fixed and cannot be selected displaying the message "NOT ADJUST."
GENLOCK SEL	THRU OUT	THRU OUT, FRC OUT	Selects signal processing type in FRC mode. See section 11. Format Compatibility between Genlock Input and Video Output for video and genlock signals **THRU OUT**: The signal **before** (the same frame rate as input) frame rate conversion is synchronized to reference signal. **FRC OUT**: The signal **after** frame rate conversion is synchronized to reference signal.

◆ **If OUTPUT is set to IP CONVERT:**
Note that the IP conversion cannot be performed when 1080/24PsF (1080/23.98PsF or 1080/24PsF) or SD signal is input.

◆ **If OUTPUT is set to ASPECT:**
Select aspect ratio in H SIZE and V SIZE. See section 5-14-4. "H/V ADJUST."

5-14-2. OUTPUT MODE

```
OUTPUT MODE          21
COMPST  :THROUGH
COMPNT  :THROUGH
SDI1/2  :THROUGH
SDI3    :THROUGH
```

```
OUTPUT MODE          22
DV/HDV  :THROUGH
```

Menu Button

VIDEO
OPTION

See section 13. "About Up/Down Converter (FA-90UD)" and section 14. "About Frame Rate Converter (FA-91FRC)" for setting details. See also section 11. "Format Compatibility between Genlock Input and Video Output " for video and reference signal formats.

Parameter	Default	Setting Range	Description
COMPST (Composite Output Setting) (*1)	THROUGH	THROUGH, DOWN	Sets output mode for the signal output from the COMPOSITE OUT connector.

COMPNT (Component Output Setting)	THROUGH	THROUGH, SDTV, HDTV, UP/DOWN	Sets output mode for the signal output from the HD/SD ANALOG COMPONENT OUT connector.
SDI1/2 (HD/SD-SDI Output Setting [OUT1,2])	THROUGH	THROUGH, SDTV, HDTV, UP/DOWN	Sets output mode for the signals output from the HD/SD-SDI OUT1/2 connectors.
SDI 3 (HD/SD-SDI Output Setting [OUT3])	THROUGH	THROUGH, SDTV, HDTV, UP/DOWN	Sets output mode for the signals output from the HD/SD-SDI OUT3 connector.
DV/HDV (DV/HDV Output Setting) (*2)	THROUGH	THROUGH, SDTV, HDTV, UP/DOWN	Sets output mode for the video output from the DV/HDV (IEEE1394) connectors.

(*1) COMPST is automatically set to DOWN in some cases when FA-91FRC is installed. (See section 14-2. "Composite OUT.")

(*2) Available only when the FA-90DV and/or FA-90HDV option installed. DV/HDV signals cannot be output if 1080/23.98PsF or 1080/24PsF signals are input.

◆ **Converter Settings and Input/Output Signal Formats**

COMPOSITE OUT

Menu	OUTPUT MODE	MODE SELECT	Input signal format	Output signal format
Item	COMPST	OUTPUT		
Setting	Through	---	SDTV	Passes through the input signal.
			HDTV	Outputs Black Burst signal with the same frame rate.
	Down	Up/Down	---	Outputs the SD signal.
		Aspect, IP Convert	SDTV	Outputs the SD signal.
			HDTV	Outputs the Black Burst signal with the same frame rate.
		FRC	---	Output the SD signal if set to SDTV. Outputs the Black Burst signal with the same frame rate as the HDTV if set to HDTV.

HD/SD ANALOG COMPONENT OUT and SDI OUT1-3

Menu	OUTPUT MODE	MODE SELECT	Input signal format	Output signal format
Item	COMPNT, SDI1/2, SDI3	OUTPUT		
Setting	**Through**	---	---	**Passes through the input signal.**
	SDTV	Up/Down	---	**Outputs the SD signal.**
		Aspect	---	Outputs the aspect-ratio-converted signal.
		IP Convert	HDTV	Outputs the IP-converted signal.
			SDTV	Passes through the input signal.
		FRC	---	Outputs the signal of the specified output format.

(Continued to the next page)

Menu	OUTPUT MODE	MODE SELECT	Input signal format	Output signal format
Item	COMPNT	OUTPUT		
Setting	**HDTV**	Up/Down	---	**Outputs the HD signal of the specified output format.**
		Aspect	---	Outputs the aspect-ratio-converted signal.
		IP Convert	HDTV	Outputs the IP-converted signal.
			SDTV	Passes through the input signal.
		FRC	---	Outputs the signal of the specified output format.
	Up/Down	Up/Down	**SDTV**	**Outputs the HD signal of the specified output format.**
			HDTV	**Outputs the SD signal.**
		Aspect	---	Outputs the aspect-ratio-converted signal.
		IP Convert	HDTV	Outputs the IP-converted signal.
			SDTV	Passes through the input signal.
		FRC	---	Outputs the signal of the specified output format.

DV/HDV (If using as output)

Menu	OUTPUT MODE	MODE SELECT	Input signal format	Output signal format
Item	DV/HDV	OUTPUT		
Setting	**Through**	---	---	**Passes through the input signal.**
	SDTV	Up/Down	---	**Outputs the DV signal.**
		Aspect	---	Outputs the aspect-ratio-converted signal.
		IP Convert	HDTV	Outputs the IP-converted HDV signal.
			SDTV	Outputs the DV signal without IP conversion.
		FRC	---	Outputs the signal of the specified output format.
	HDTV	Up/Down	---	**Outputs the HDV signal.**
		Aspect	---	Outputs the aspect-ratio-converted signal.
		IP Convert	HDTV	Outputs the IP-converted HDV signal.
			SDTV	Outputs the DV signal without IP conversion.
		FRC	---	Outputs the signal of the specified output format.
	Up/Down	Up/Down	**SDTV**	**Outputs the HDV signal.**
			HDTV	**Outputs the DV signal.**
		Aspect	---	Outputs the aspect-ratio-converted signal.
		IP Convert	HDTV	Outputs the IP-converted HDV signal.
			SDTV	Outputs the DV signal without IP conversion.
		FRC	---	Outputs the signal of the specified output format.

5-14-3. EFFECT

```
        EFFECT          23
MOTION SENSE    :  OFF
ENHANCE         :  OFF
SUPER BLACK     :  CLIP
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range	Description
MOTION SENSE (*1)	OFF	OFF, ON	Smoothes the motion in the input video image.
ENHANCE	OFF	OFF, 1-4	Sharpens the output video image. **1-4:** low to high
SUPER BLACK	CLIP	CLIP, PASS	Selects the super black to be clipped or passed.

Be sure NOT to set OUTPUT MODE (see 5-14-2) to THROUGH. If set to THROUGH, the signal does not pass through the FA-90UD or FA-91FRC, and the settings here are not applied to the output result.

(*1) The MOTION SENSE setting is automatically set to ON when the frame rates of video input and video output are different by the OUTPUT setting in MODE SELECT menu (See section 5-14-1.)

5-14-4. H/V ADJUST

```
      H/V ADJUST        24
H  SIZE      :  100.0%
V  SIZE      :  100.0%
H  POSITION  :      0Pixel
V  POSITION  :      0Line
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range (Steps)	Description
H SIZE (Horizontal Size)	100.0%	50.0 to 150.0% (0.1%)	Adjusts the width of the video displayed on the monitor. (*1)
V SIZE (Vertical Size)	100.0%	50.0 to 150.0% (0.1%)	Adjusts the height of the video displayed on the monitor. (*1)
H POSITION (Horizontal Position)	0 Pixel	Variable (*2) (1 Pixel)	Adjusts the horizontal position of the video displayed on the monitor.
V POSITION (Vertical Position)	0 Line	Variable (*2) (1 Line)	Adjusts the vertical position of the video displayed on the monitor.

Be sure NOT to set OUTPUT MODE (see 5-14-2) to THROUGH. If set to THROUGH, the signal does not pass through the FA-90UD or FA-91FRC, and the settings here are not applied to the output result.

(*1) If set to smaller than the original size, set the background color under SIDE CUT COLOR (see 5-14-6).

(*2) The following items are related each other. When you change one of them, the setting or the setting range of the other items would be dynamically changed.
-Video input signal format
-OUTPUT and DISPLAY MODE in MODE SELECT (See section 5-14-1.)
-H SIZE and V SIZE in H/V ADJUST (See section 5-14-4.)
-All items in CROP ADJUST (See section 5-14-5.)

5-14-5. CROP ADJUST

```
CROP ADJUST          25
CROP LEFT   :0Pixel
CROP RIGHT  :0Pixel
CROP TOP    :0Line
CROP BOTTOM:0Line
```

Menu Button

VIDEO
OPTION

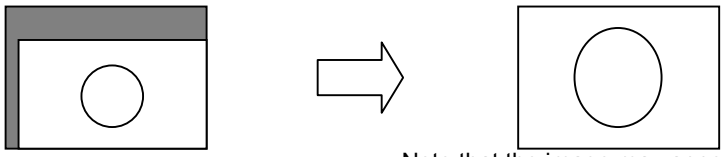
Parameter	Default	Setting Range (Steps)	Description
CROP LEFT	0 Pixel	Variable (*1) (1 Pixel)	Crops the left side of the video.
CROP RIGHT	0 Pixel	Variable (*1) (1 Pixel)	Crops the right side of the video.
CROP TOP	0 Line	Variable (*1) (1 Line)	Crops the top side of the video.
CROP BOTTOM	0 Line	Variable (*1) (1 Line)	Crops the bottom side of the video.

Be sure NOT to set OUTPUT MODE (see 5-14-2) to THROUGH. If set to THROUGH, the signal does not pass through the FA-90UD or FA-91FRC, and the settings here are not applied to the output result.

The CROP ADJUST can only adjust within the range specified by H SIZE and Y SIZE in H/V ADJUST (5-14-4). Moreover, the LEFT and RIGHT settings are related and affect each other, and the TOP and BOTTOM settings are related and affect each other.

(*1) The following items are related each other. When you change one of them, the setting or the setting range of the other items would be dynamically changed.
-Video input signal format
-OUTPUT and DISPLAY MODE in MODE SELECT (See section 5-14-1.)
-H SIZE and V SIZE in H/V ADJUST (See section 5-14-4.)
-All items in CROP ADJUST (See section 5-14-5.)

If the output image is not covering the entire screen after the up/down conversion, follow the method below.



In this case,
adjust CROP LEFT
and CROP TOP

Note that the image may appear slightly different, because the image is expanded or contracted to fit the screen.

5-14-6. SIDE CUT COLOR

```
SIDE CUT COLOR       26
RED    :   0
GREEN  :   0
BLUE   :   0
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range	Description
RED, GREEN, BLUE (Side Cut Color)	0	0 to 255	Sets background color of the side cut area appeared by MODE SELECT setting (see 5-14-1)

5-15. DV/HDV CODEC (FA-90DV / FA-90HDV)

IMPORTANT
DV/HDV OPERATE MODE is available only when the FA-90DV or FA-90HDV option installed.

5-15-1. DV/HDV OPERATE MODE

```
DV/HDV OPERATE MODE 27
MODE   :DV In
IN DET:Auto
MODEL  :None
STATUS:Disconnected
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range		Description
MODE (I/O Setting)	DV In	DV In (*1), HDV In (*1),(*5) DV/HDV Out (*2)		**DV In:** Accepts a video stream from a DV device. **HDV In:** Accepts a video stream from an HDV device. **DV/HDV Out:** Outputs a video stream to a DV/HDV device.
IN DET (Input Format Select) (*3)	Auto	MODE = DV In (*4)	Auto, 525/60, 625/50,	Sets the signal format input from the DV device. **Auto:** Signal format is auto-detected.
		MODE = HDV In	Auto, 1080/59.94i, 1080/50i, 720/59p 720/50p	Selects a signal format input from the HDV device. **Auto:** Signal format is auto-detected.
MODEL (Model Info)	-	-		Displays the model name of the connected DV/HDV device.
STATUS (Status Display)	-	-		Displays the connection status to the DV/HDV device. **Disconnected:** Not connected. **Connected:** Connected properly. **Connection Error:** A connection error occurred. Verify the connection. **Too Many Plugged:** Disconnect other DV/HDV device that is not being used. **Mode Set Error:** The MODE setting has failed. Set the mode again.

If FA-9100/RPS does not connect to the DV/HDV device properly, turn off FA-9100/RPS and turn on again.

(*1) VIDEO INPUT (see 5-4) must be set to DV (HDV).

(*2) If DV/HDV OUT is selected, the IN DET item changes to the FORMAT item and it displays the output signal format. The message "Not Output" is displayed when HDV or DV signal cannot be output due to the settings.

(*3) The video images may not be properly displayed if the input signal is different from that set at IN_DET. In addition, if the input signal is not detected properly with AUTO setting, set a specific signal format to IN_DET.

(*4) Set to 525/60 or 625/50 when connecting to the nonlinear editing device.

(*5) "HDV" is displayed only when FA-90HDV is installed.

5-15-2. TIMECODE SELECT

```
TIMECODE SELECT  28
INPUT        :LTC In
LTC OUT      :Enable
DV/HDV OUT   :Enable
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range	Description
INPUT (Time Code Select)	LTC In	LTC In, DV/HDV In, Internal (*2)	Selects the time code. (*1) **LTC In:** Uses the time code input from the TIMECODE IN connector on the rear panel. **DV/HDV In:** Uses the time code embedded in the DV/HDV input. **Internal:** Uses the time code generated in FA-9100/RPS.
LTC OUT (LTC TC Output)	Enable	Enable, Disable	**Enable:** Outputs the time code signal from the TIMECODE connector on the rear panel. **Disable:** Does not output the time code signal from the TIMECODE connector on the rear panel.
DV/HDV OUT (DV/HDV TC Output)	Enable	Enable, Disable	**Enable:** Embeds the time code data onto the DV/HDV output. **Disable:** Does not embed the time code data onto the DV/HDV output.

(*1) Output video may be distorted when TIMECODE SELECT is changed.

(*2) INPUT is automatically set to "Internal" and the time code input from TIMECODE IN cannot be used when the frame rates of input video and output video setting are different.

5-15-3. TC GENERATE SET

```
TC GENERATE SET  29
RESET      : Off
PRESET     :00:00:00:00
TC FORMAT  :NonDropFrame
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range	Description
RESET (TC Reset)	Off	Off, On	Pressing the F1 UNITY button resets time code to 00:00:00:00.
PRESET (TC Preset)	00:00:00:00	00:00:00:00 to 23:59:59:29	Pressing the F2 UNITY button resets time code to a preset value. Holding down the F2 UNITY button for a while changes the preset value.
TC FORMAT (TC Format Setting)	NonDropFrame	NonDropFrame, DropFrame	Selects the time code format. **NonDropFrame:** Counts every single video frame without any time correction. **DropFrame:** Counts video frames accurately in relationship to real time by performing drop frame correction.

TC GENERATE SET sets up the time code generated in FA-9100/RPS when INPUT is set to "Internal" in the section 5-15-2. "TIMECODE SELECT."

When changing the PRESET value, the display as shown below appears. Use controls F1 to F4 to set hour, minute, second and frame individually. To return to the previous display, press and hold down the F2 UNITY button (flashing) for a while.

```
TC GENERATE SET  29
PRESET     :00:00:00:00
```

5-15-4. DV AUDIO OUTPUT

```
DV AUDIO OUTPUT  30
SAMPLING RATE :48kHz
```

Menu Button

VIDEO
OPTION

Parameter	Default	Setting Range	Description
SAMPLING RATE	48kHz	48kHz, 44.1kHz, 32kHz	Sets the audio sampling frequency for DV output. (*1)

(*1) Output video may be distorted when DV AUDIO OUTPUT is changed.

5-15-5. VTR CONTROL

```
VTR CONTROL  31
STATUS       :PAUSE
```

Menu Button

VIDEO
OPTION

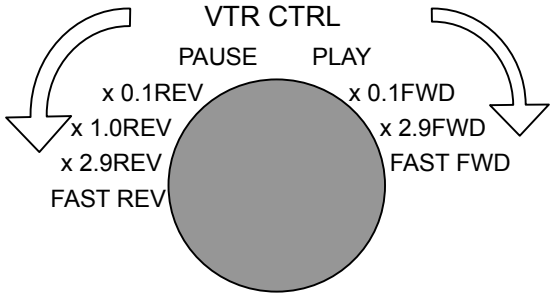
Parameter	Display / Control	Description
STATUS (Control Status)	PAUSE, PLAY, STOP, REC (*1), REC STANDBY(*1), (FAST, 2.9, 1.0, 0.1) REV, (FAST, 2.9, 0.1) FWD, CAN'T CONTROL(*3) CASSETTE OUT(*3)	Controls the connected DV or HDV device or displays the control status. F1 is used for REV, PAUSE, PLAY and FWD operations. F1 UNITY is used for PAUSE and F2 UNITY is used for STOP. (*2)

(*1) Status display only. The REC operation cannot be preformed from FA-9100/RPS.

(*2) In clockwise: PLAY -> FWD (0.1 times) -> FWD (2.9 times) -> FAST FWD

In counter-clockwise: PAUSE -> REV (0.1 times) -> REV (1.0 times) -> REV (2.9 times) -> FAST REV

(*3) This operation is available only when a nonlinear editing device with video cassette tapes is connected.



5-16. AUTO LEVEL CONTROLLER (FA-91ALC)

Auto Level Controller allows you to automatically adjust video signal levels according to input video. Although the ALC performs an auto-adjustment to optimize image quality, it can also be customized to suit for the video material by using menu.

IMPORTANT
Auto Level Controller is available only when the FA-91ALC is installed. FA-91LG and FA-91ALC options cannot be used at the same time. See section 5-18. "LG/ALC SELECT" for details.

5-16-1. ALC CONTROL

Menu Button (Lit red)

VIDEO
OPTION

Parameter	Default	Setting Range	Description
OPERATE	OFF	OFF, AUTO, HOLD	**AUTO**: Enables Auto Level Controller . **HOLD**: Stops Auto Level Controller . The video levels are held at their last set level if changing OPERATE from AUTO to HOLD. **OFF**: Disables Auto Level Controller . The video levels return to the state before ALC is applied if changing OPERATE from AUTO to OFF. Setting to OFF enables the manual level control. See 10-3. "Manual Level Control."
LEVEL	Standard	Darker, Dark, Standard, Bright, Brighter, User1, User2, User3, User4, User5,	Selects a level for automatic control. Available options are 10: Five fixed options and five custom options. Darker < Dark < Standard < Bright < Brighter (Each levels are fixed) User1 to User5: Custom levels To use custom levels, select an option from User1 to User5, press and hold the F2 UNITY button, then select a submenu for setting. (See section 10-1. "Customizing User Level".)
SAMPLE AREA	Full Screen	Full Screen to Bottom Right Area1, Area2	Specifies a sample area for automatic control. The sampling data are used for subsequent calculation of the level control. Available options are 10: Eight fixed options and two custom options. ● Fixed Areas Full Screen, Letter Box, Pillar Box, Center, Top-L, Top-R, Bottom-L, Bottom-R (See "Sample Area (Fixed Type)" in the next page.) ● Custom Areas Area1, Area2 To use custom areas, select an option between Area1 and Area2, press and hold F3 UNITY button, then select a submenu for setting. (See section 10-2."Customizing Sample Area".)

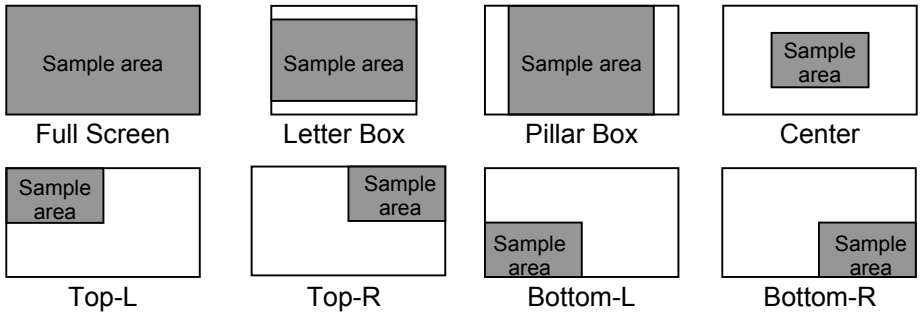
AREA DISPLAY	OFF	OFF, ON	Sets sample area display ON/OFF. If set to ON, the sample area appears as a semi-transparent white rectangle in all output video. To turn the display off, press F4 UNITY. To turn the display on, press and hold F4 UNITY. The sample area is not marked at startup. AREA DISPLAY is automatically set to OFF when changing OPERATE to OFF.

IMPORTANT

The Auto Level Controller will provide optimal results in many cases, but it does not always yield optimal results. Sample Area determines the area where the sample data are obtained and the level adjustments are applied to the whole area of images.

◆ **Sample Area (Fixed Type)**

Eight available sample areas are as shown below. Data are continuously sampled within each area. (See section 10-2. "Customizing Sample Area" for Area1 and Area2.)



5-16-2. ALC SETUP

```
ALC SETUP          32
DULLNESS        :3
SCENE CUT DET   :OFF
GAMMA MODE      :ON
```

Menu Button (Lit red)

VIDEO
OPTION

Parameter	Default	Setting Range	Description
DULLNESS (Filtering strength)	3	1 to 5	Sets the filtering strength for calculating mean distance applied to the histograms created using the sample data. The larger the value, the results are more stable but less subservient to inputs. The lower the value, the results are less stable but more subservient to inputs.
SCENE CUT DET(*1) (Cut detection)	OFF	OFF, ON	When set to ON, the cut transitions are detected and the images around them are adjusted accordingly even if there are sharp luminance changes.
GAMMA MODE	ON	OFF, ON	When set to ON, video levels are adjusted using the GAMMA LEVEL settings. (See section 5-2-3. "GAMMA LEVEL".)

(*1) Two or three frames are delayed with cut detection. The amount of delay depends on the input signal format.

525/60 (NTSC), 625/50(PAL): 2 frames
1080/59.94i, 50i, 23.98PsF, 24PsF: 2 frames
720/59.94p, 50p: 3 frames

A pop-up message appears if the SCENE CUT DET is set to ON and the cut detection delay and the delay set in FRAME DELAY SETTING (See section 5-10.) are different. To apply the cut detection delay to FRAME DELAY SETTING, press F3 (SET). In this case, however, audio I/O delay is not automatically changed. Change the audio delay manually as needed. (See section 5-26-22 "AUDIO DELAY OFFSET.")

5-16-3. ALC PORT

IMPORTANT
The ALC port (LAN2 on the FA-9100/RPS rear panel) is a dedicated LAN (10/100BASE-T) port used for ALC upgrading and other purposes. Normally leave the network settings unchanged and use the port at the factory default settings. Change the network settings only when necessary.

```
        ALC PORT          39
MENU:IP ADDRESS
       192.168.0.1
```

Menu Button

VIDEO
OPTION

Parameter	Default	Item	Description
MENU (Network settings)	IP ADDRESS	IP ADDRESS, SUBNETMASK, GATEWAY, PORT NO.	Configures the network settings for the ALC port (LAN2). After changing the setting, press F3 to confirm the change for each item.

Turn F1 to select the item. Each time you turn F1, the menu display is successively changed in the order of IP ADDRESS, SUBNETMASK, GATEWAY and PORT NO. Display the item you wish to change and press F1 UNITY.

When pressing F1 UNITY at IP ADDRESS menu, the display as shown below appear. Use F1 to F4 to change the numbers. And then press F3 UNITY to confirm the change. To cancel the setting, press F4.

```
        ALC PORT          39
MENU:IP ADDRESS CHANGE
       192.168.0.1

F3:SET  F4:CANCEL
```

The message "Now Restarting" appears when you change the setting. Wait until the message disappears and then start the next setting.

Parameter	Default	Setting Range	Description
IP ADDRESS	192.168.0.1	0.0.0.0 to 255.255.255.255	Changes IP address using F1 to F4.

Subnetmask, Gateway and Port No. can be changed in the same way.

◆ SUBNET MASK, GATEWAY and PORT NO.

```
        ALC PORT          39
MENU:SUBNET MASK
     255.255.255.0
```

```
        ALC PORT          39
MENU:GATEWAY
         0.0.0.0
```

```
        ALC PORT          39
MENU:PORT NO.
           1234
```

Parameter	Default	Setting Range	Description
SUBNET MASK	255.255.255.0	0.0.0.0 to 255.255.255.255	Changes Subnetmask using F1 to F4.
GATEWAY	0.0.0.0	0.0.0.0 to 255.255.255.255	Changes Gateway using F1 to F4.
PORT NO.	1234	1 to 65534	Changes IP address using F1.

5-17. LOGO GENERATOR (FA-91LG)

IMPORTANT

LOGO GENERATOR is available only when the FA-91LG option installed. See the FA-91LG manual in the FA-91LG CD-ROM for more details about logo insertion.

FA-91LG and FA-91ALC options cannot be used at the same time. See section 5-18. "LG/ALC SELECT" for details.

5-17-1. LOGO CONTROL

```
LOGO CONTROL          32
LOGO ID     :1  FORA
KEY LEVEL   :100%
H POSITION:    0Pixel
V POSITION:    0Line
```

Menu Button (Lit red)

VIDEO
OPTION

Parameter	Default	Setting Range	Description
LOGO ID (Logo channel selection)	1	1 to 8	Selects a logo channel used to superimpose over video. Logo source and logo channel assignments are made in the LOGO SOURCE (page 36) menu. Once a logo source is assigned to a logo channel, the title of logo source is displayed to the right of the LOGO ID number.
KEY LEVEL	100%	0 to 100% (1%)	Sets key level of each logo source. 100% represents full opacity. The key level value is saved with logo source.
H POSITION	0Pixel	Varies by format (1Pixel)	Sets horizontal and vertical logo position on video. Specify the upper left corner of logo image. Setting range varies by the video format. The position settings are saved with logo source.
V POSITION	0Line	Varies by format (1Line)	

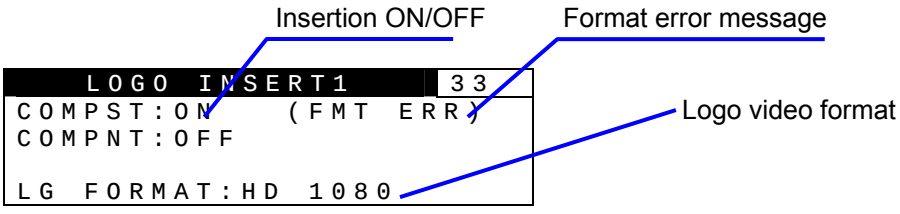
The submenu as shown below appears if you change LOGO ID.

```
LOGO CONTROL          32
LOGO ID     :2


F3:SET  F4:CANCEL
```

To change the LOGO ID, turn F1 to change the number and then press F3.
To cancel the operation, press F4.

5-17-2. LOGO INSERT

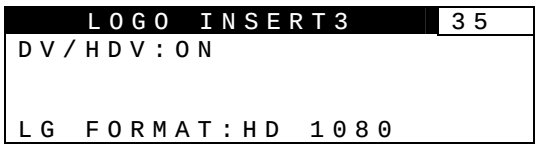



```
LOGO INSERT2          34
SDI1/2:ON
SDI 3  :ON

LG FORMAT:HD 1080
```

Menu Button (Lit red)

VIDEO
OPTION



Parameter	Default	Setting Range	Description
COMPST	OFF	OFF, ON	Sets whether the logo insertion is performed for COMPOSITE OUT.
COMPNT	OFF	OFF, ON	Sets whether the logo insertion is performed for COMPONENT OUT.
SDI1/2	OFF	OFF, ON	Sets whether the logo insertion is performed for HD/SD-SDI OUT1, 2 and 3.
SDI 3	OFF	OFF, ON	
DV/HDV	OFF	OFF, ON	Sets whether the logo insertion is performed for DV/HDV(IEEE1394). (Available only when FA-90DV/HDV option is installed.)
LG FORMAT (Display only)	—	—	Displays logo video format.

IMPORTANT

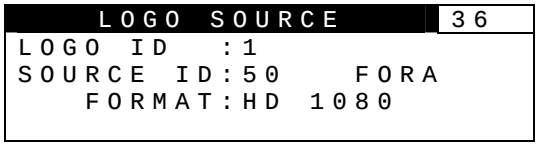
The video formats of logo source and output video are different, the format error message "FMT ERR" will be displayed to the right of the ON/OFF setting. (See LOGO INSERT1 menu in the previous page.) The logo image will not be inserted to the output where "FMT ERR" is displayed.

When the FA-90UD option is installed, a logo cannot be inserted to the outputs where the MODE SELECT is set to ASPECT (See section 5-14-1.) and the OUTPUT MODE item (See section 5-14-2.) is set to THROUGH. However, a logo can be inserted to the aspect-converted outputs.

When the FA-91FRC option is installed, a logo cannot be inserted to outputs if all following conditions are met.

-MODE SELECT setting: FRC (See section 5-14-1.)
-GENLOCK SELECT setting: THRU OUT (See section 5-14-1.)
-OUTPUT MODE setting: any setting other than THROUGH (See section 5-14-2.)

5-17-3. LOGO SOURCE



Menu Button (Lit red)

VIDEO
OPTION

Item	Description
LOGO ID	Selects a logo channel to be assigned to a source.
SOURCE ID (Source selection)	Selects a logo source for the selected logo channel (LOGO ID). The logo source data must be transported before displaying the logo sources in the menu. See the FA-91LG separate manual for how to transport logo data.
FORMAT (Display only)	Displays the video format of the logo source. SD 525 represents 525/60. SD 625 represents 625/50. HD 1080 represents 1080/59.94i, 1080/50i, 1080/24PsF and 1080/23.98PsF. HD 720 represents 720/59.94p and 720/50p.

The submenu as shown below appears if you change SOURCE ID.

```
LOGO SOURCE          36
LOGO ID   :1
SOURCE ID:50    FORA
FORMAT:HD 1080
F3:SET F4:CANCEL
```

To change the SOURCE ID, turn F1 to change the number and then press F3.
To cancel the operation, press F4.

5-17-4. LOGO PORT

IMPORTANT

The logo port (LAN2 on the FA-9100/RPS rear panel) is a dedicated LAN (10/100BASE-T) port for transporting logo data. Normally leave the network settings unchanged and use the port at the factory default settings. Change the network settings only when necessary.

See the FA-91LG manual in the FA-91LG CD-ROM for the network settings in the computer from which the logo data is sent.

```
LOGO PORT            39
MENU:IP ADDRESS
     192.168.0.1
```

Menu Button

VIDEO
OPTION

Parameter	Default	Item	Description
MENU (Network settings)	IP ADDRESS	IP ADDRESS, SUBNETMASK, GATEWAY, PORT NO.	Configures the network settings for the logo port (LAN2). After changing the setting, press F3 to confirm the change for each item.

Turn F1 to select the item. Each time you turn F1, the menu display is successively changed in the order of IP ADDRESS, SUBNETMASK, GATEWAY and PORT NO. Display the item you wish to change and press F1 UNITY.

When pressing F1 UNITY at IP ADDRESS menu, the display as shown below appear. Use F1 to F4 to change the numbers. And then press F3 UNITY to confirm the change. To cancel the setting, press F4.

```
LOGO PORT            39
MENU:IP ADDRESS CHANGE
     192.168.0.1

F3:SET F4:CANCEL
```

The message "Now Restarting" appears when you change the setting. Wait until the message disappears and then start the next setting.

Parameter	Default	Setting Range	Description
IP ADDRESS	192.168.0.1	0.0.0.0 to 255.255.255.255	Changes IP address using F1 to F4.

Subnetmask, Gateway and Port No. can be changed in the same way.

◆ **SUBNET MASK, GATEWAY and PORT NO.**

```
LOGO PORT                39
MENU:SUBNET MASK
     255.255.255.0
```

```
LOGO PORT                39
MENU:GATEWAY
          0.0.0.0
```

```
LOGO PORT                39
MENU:PORT NO.
            1234
```

Parameter	Default	Setting Range	Description
SUBNET MASK	255.255.255.0	0.0.0.0 to 255.255.255.255	Changes Subnetmask using F1 to F4.
GATEWAY	0.0.0.0	0.0.0.0 to 255.255.255.255	Changes Gateway using F1 to F4.
PORT NO.	1234	1 to 65534	Changes IP address using F1. (*1)

(*1) If the PORT NO. is changed, be sure to set the port number used by FA-91LG GUI to the same number. See the FA-91LG manual in the FA-91LG CD-ROM for details.

5-18. LG/ALC Selection

FA-91LG (hereafter called LG) and FA-91ALC (hereafter called ALC) options cannot be used at the same time. Select either of them for use in the LG/ALC SELECT menu below. To display the menu, press and hold down the **VIDEO OPTION** button for a while.

```
-LG/ALC SELECT -          -
SELECT:FA-91LG

F3:SET  F4:CANCEL
```

Menu Button (Press and hold)

VIDEO OPTION

Turn **F1** to select **LG** or **ALC**. Then press **F3 UNITY** to confirm the setting. To cancel the change, press **F4 UNITY**.

IMPORTANT
The message "Now Restarting…" appears in the menu display when changing the LG/ALC selection. Wait until the message disappears before operating. The LG/ALC menu cannot be set when sending or deleting logo image files from the FA-91LG control software on the PC. In these cases, a message appears in the menu display. Wait until the message clears from the menu display.

5-19. TEST SIGNAL

```
TEST SIGNAL          41
VIDEO:OFF
AUDIO:OFF
```

Menu Button

SYSTEM

Parameter	Default	Setting Range	Description
VIDEO (Video Test Signal)	OFF	OFF, COLOR BAR	Uses an internal color bar.
AUDIO (Audio Test Signal)	OFF	OFF, 1kHz Tone	Uses an internally generated signal (1kHz Tone)(*1)

(*1) The settings such as gain, except ANALOG OUT GAIN (see 5-26-10), cannot be changed while using the test signal. To change the settings, set this parameter to OFF and select the test signal in the AUDIO OUTPUT SEL menu (see 5-26-11).

Regardless of this setting, a test signal is not sent to a channel pair that outputs non-audio (such as Dolby or SDI signal), but non-audio data is continued to output. If non-audio is selected while outputting a test signal, the test signal is switched to non-audio output.

NOTE

The SYSTEM menu button flashes green while using any one or both of the video and audio test signals.

5-20. SYSTEM SETTING

```
SYSTEM SETTING       42
 CONTROL: LOCAL
```

```
SYSTEM SETTING       42
 CONTROL: REMOTE
SET:Push F1 Unity
```

```
SYSTEM SETTING       43
ID SELECT:        1
```

Menu Button

SYSTEM

Parameter	Default	Setting Range	Description
CONTROL (Local/Remote)	LOCAL	LOCAL, REMOTE	When controlled locally, set CONTROL to LOCAL. When controlled from the remote control unit (FA-90RU), set to REMOTE. Press the F1 UNITY button to confirm the change.
ID SELECT (Unit ID)	1	1-100	Used to set the ID number to identify the unit when connecting with other units via the CONTROL port. (*1)

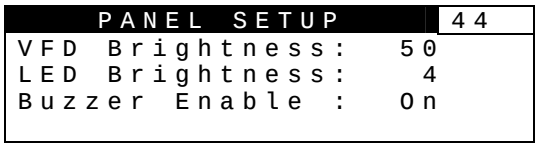
When set to REMOTE, the connection status between FA-9100/RPS and FA-90RU will be displayed as shown below.
(*1) Before changing ID SELECT, set CONTROL to LOCAL..

```
SYSTEM SETTING       42
 CONTROL: REMOTE
Connected
```

Message	Description
Connected	FA-9100/RPS is controlled from the remote control unit.
Disconnected	FA-9100/RPS is not connected to the remote control unit. Check the ID settings for MU and RU.
Not Selected	FA-9100/RPS is not selected from the remote control unit.
Upstream Disconnected	A connection failure occurred at CONTROL IN connector.
Downstream Disconnected	A connection failure occurred at CONTROL OUT connector.

IMPORTANT
If you connecting the multiple FA-9100/RPS units, the ID numbers of the units must be unique from each other. Otherwise the system does not work properly.

5-21. PANEL SETUP

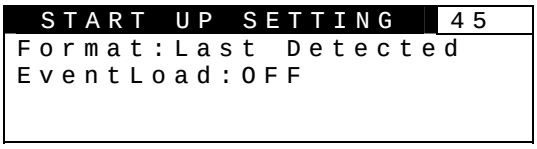


Menu Button

SYSTEM

Parameter	Default	Setting Range	Description
VFD Brightness (VFD Brightness)	50	10-50	Sets brightness of the menu display. **10-50:** dark to bright
LED Brightness (LED Brightness)	4	1-8	Sets the brightness of all LED indicators on the front panel. **1-8:** dark to bright
Buzzer Enable (Buzzer Setting)	On	On, Off	Selects whether the buzzer sounds or not when the buttons are pressed.

5-22. START UP SETTING



Menu Button

SYSTEM

Parameter	Default	Setting Range	Description
Format (Input signal format)	Last Detected	Last Detected, 525/60, 625/50, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 1080/23.98PsF, 1080/24PsF	Specifies an input signal format when starting up the system without input. It determines each output signal format automatically. (*1) When Format setting and SysFormat setting (below) are different, SysFormat is given higher priority. **Last Detected:** Starts in the last detected input signal format.
EventLoad (Loaded event)	OFF	OFF, No.0 (Default), No.1-No.30	Selects a set of settings loaded at startup. **OFF:** Last setting **No.0 (Default):** Default setting **No.1-No.30:** Selected event
SysFormat (System signal format)	Auto	Auto, 525/60, 625/50, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 1080/23.98PsF, 1080/24PsF	**Auto:** The format of the signal input to the port selected at VIDEO INPUT SELECT (Menu No.8) is automatically detected and set it as the system format. Any format specified: If a specific format is set, it is recognized as the system format regardless of the presence of input signal. It automatically determines each output signal format. (*1)

(*1) If FA-90UD (Up-converter/Down-converter) or FA-91FRC(Frame Rate-converter) is used, the Format setting and the converter setting determine each output signal format. (See section 13. "About Up/Down Converter (FA-90UD)" and section 14. "About Frame Rate Converter (FA-91FRC).")

NOTE

The output images will not look correct if SysFormat is not set to Auto but to a specific format and the input signal format is different from it.

5-23. REMOTE MODE

IMPORTANT
REMOTE MODE is used for FA-90RU connection. Refer to the FA-90RU operation manual for system configuration. BNC must be set for REMOTE CONN PORT (see 5-24) when connecting to FA-90RU.

Two modes of connection are possible between FA-9100/RPS and FA-90RU: MULTI or PRIORITY

Menu Button

SYSTEM

◆ **MULTI mode**

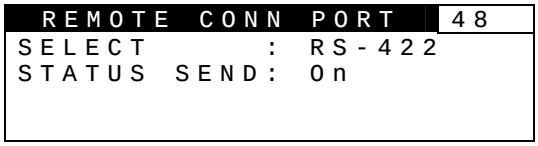
This mode enables to control FA-9100/RPS from the multiple FA-90RU units. The settings that are set on FA-9100/RPS are shared by the connected FA-90RU units.

◆ **PRIORITY mode**

This mode enables to control FA-9100/RPS from the single FA-90RU unit.
This mode gives the highest priority to the FA-90RU of the smallest ID number for connecting with FA-9100/RPS among the multiple FA-90RU units that are connected to the same FA-9100/RPS. Other FA-90RU cannot establish a connection with FA-9100/RPS. When FA-90RU which has the priority is connected to another FA-9100/RPS, the FA-90RU of the next smallest ID number is enabled to establish a connection with FA-9100/RPS.

5-24. REMOTE CONN PORT

REMOTE CONN PORT is used to select the FA-90RU connection port between BNC and RS-422 (REMOTE).



Menu Button

SYSTEM

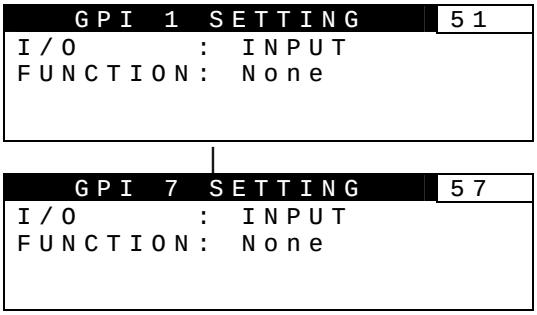
Set to BNC if FA-90RU is used.
Set to RS-422 if REMOTE is used.
Set to ON if the FA-9100/RPS status information needs to be sent regularly to the RS-422 port.
Set to OFF if the status information is not needed for the RS-422 connection.

NOTE
Consult your FOR-A reseller for RS-422 commands.

5-25. GPI SETTING

The REMOTE (GPI) connector is used for GPI input/output. See section 2-3-1, “REMOTE (GPI)” for details.

5-25-1. GPI 1-7 SETTING



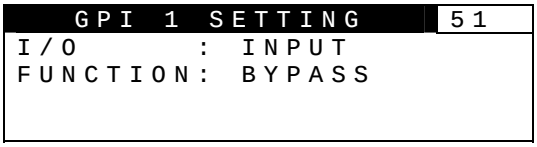
Menu Button

SYSTEM

Parameter	Default	Setting Range	Description
I/O (Input/Output)	INPUT	INPUT OUTPUT	Selects between GPI input and output for GPI1-7 ports individually.

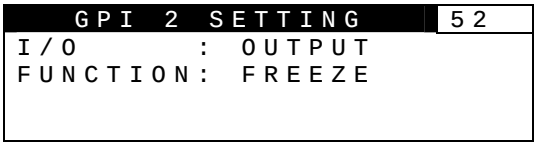
The options of FUNCTION are different between INPUT and OUTPUT set at I/O.

◆ If I/O is set to INPUT



Parameter	Default	Setting Range	Description
FUNCTION	None	None, BYPASS, FRM FRZ, FLD FRZ, TEST CB, LGINSCOMPST (*1), LGINSCOMPNT (*1), LGINSSDI1/2 (*1), LGINSSDI3 (*1) LGINSDV/HDV (*2) LGLOGOID1-8 (*1), EVENT00-30	Assigns a function for the selected port (GPI1-7). (*1) Available when FA-91LG option installed. (*2) Available when FA-91LG option and FA-90DV/HDV option installed.

◆ If I/O is set to OUTPUT



Parameter	Default	Setting Range	Description
FUNCTION	None	None, FREEZE VIDEO IN, AUDIO IN REF IN, FAN ALARM (*1), POWER1 ALARM (*2) POWER2 ALARM (*2)	Assigns a function for the selected port (GPI1-7).

◆ INPUT FUNCTION

Function	Type	Description
None	--	No function
BYPASS	Level	Selects OPERATE/BY-PASS Shorted to GND for BY-PASS OPEN for OPERATE
FRM FRZ	Level	Selects frame freeze ON/OFF. Shorted to GND for FRAME FREEZE ON OPEN for FRAME FREEZE OFF
FLD FRZ	Level	Selects field freeze ON/OFF. Shorted to GND for FIELD FREEZE ON OPEN for FIELD FREEZE OFF
TEST CB	Level	Selects test signal ON/OFF. Shorted to GND for TEST SIGNAL ON OPEN for TEST SIGNAL OFF
LG INS COMPST	Level	Selects logo insert ON/OFF for COMPOSITE OUT Shorted to GND for LOGO INSERT ON OPEN for LOGO INSERT OFF
LG INS COMPNT	Level	Selects logo insert ON/OFF for COMPONENT OUT. Shorted to GND for LOGO INSERT ON OPEN for LOGO INSERT OFF
LG INS SDI1/2	Level	Selects logo insert ON/OFF for SDI1/2 OUT. Shorted to GND for LOGO INSERT ON OPEN for LOGO INSERT OFF
LG INS SDI3	Level	Selects logo insert ON/OFF for SDI 3 OUT. Shorted to GND for LOGO INSERT ON OPEN for LOGO INSERT OFF
LG INS DV/HDV	Level	Selects logo insert ON/OFF for DV/HDV OUT. Shorted to GND for LOGO INSERT ON OPEN for LOGO INSERT OFF
LG LOGO ID1 to LG LOGO ID8	Pulse	Sets LOGO1 (LOGO2 to LOGO8) to the output logo. （It is set to LOGO ID in the LOGO CONTROL menu. See section 5-17-1.） LOGO1 (LOGO2 to LOGO8) is set each time when a pin is shorted to ground.
EVENT00 to EVENT30	Pulse	Loads EVENT00 (EVENT01 to EVENT30). The event is loaded each time when a pin is shorted to ground.

Function ON when shorted and function OFF when open for INPUT. See section 2-3-1. "REMOTE (GPI)" for details about the I/O circuits.

◆ OUTPUT FUNCTION

Function	Description
None	No function
FREEZE	FREEZE ON: Low FREEZE OFF: High (Open Collector)
VIDEO IN	Signal present: Low Signal not present: High (Open Collector)
REF IN	Signal present: Low Signal not present: High (Open Collector)
FAN ALARM (*1)	Fan abnormal: Low Fan normal: High (Open Collector)
POWER1 ALARM (*2) POWER2 ALARM (*2)	Power abnormal: Low Power normal: High (Open Collector)

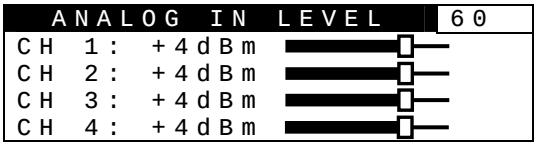
See section 2-3-1. "REMOTE (GPI)" for GPI input/output circuit.

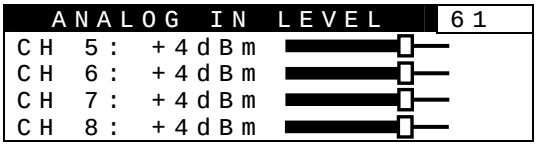
(*1) FAN ALARM goes to low (active), if one or more of four cooling fans fail.

(*2) These alarms are only for FA-9100RPS.

5-26. AUDIO SETTING

5-26-1. ANALOG IN LEVEL





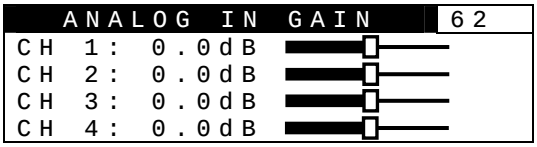
Menu Button

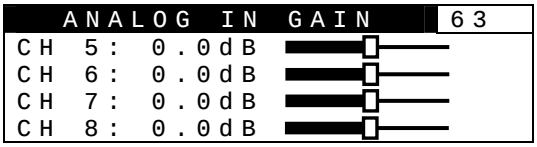
AUDIO LVL
IN/OUT

Parameter	Default	Setting Range	Description
CH 1-8 (Analog Audio Input Level)	+4dBm	-10dBm, 0dBm, +4dBm, +8dBm	Sets the analog audio input level.

This parameter sets the reference level for when performing the A/D conversion, and it corresponds to the DIG REF LVL parameter in the AUDIO SYSTEM SET menu (see 5-26-17). See section 7, ” ANALOG/ DIGITAL Input/Output Level” for details.

5-26-2. ANALOG IN GAIN





Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1-8 (Analog Audio Input Gain)	0.0dB	-20.0 to +20.0 dB (0.1dB)	Sets the analog audio input gain.

5-26-3. AES IN GAIN

Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1-8 (AES/EBU Input Gain)	0.0dB	-20.0 to +20.0 dB (0.1dB)	Sets the AES/EBU input gain.

5-26-4. SDI IN GAIN

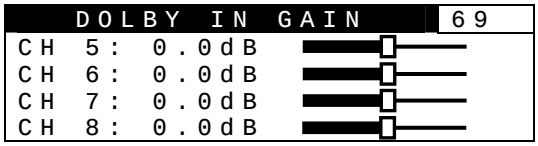
Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1-8 (SDI Embedded Audio Input Gain)	0.0dB	-20.0 to +20.0 dB (0.1dB)	Set the SDI embedded audio input gain.

5-26-5. DOLBY IN GAIN

IMPORTANT
DOLBY INPUT GAIN is available only when the FA-90DE-D or FA-91DE-ED option is installed.



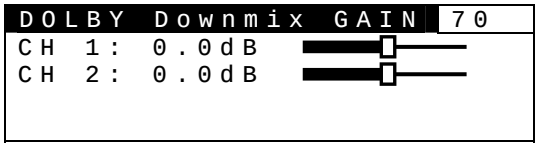
Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1-8 (Dolby Audio Input Gain)	0.0 dB	-20.0 to +20.0 dB (0.1 dB)	Sets the gain for the decoded Dolby input.

5-26-6. DOLBY Downmix GAIN

IMPORTANT
DOLBY DOWNMIX GAIN is available only when the FA-90DE-D or FA-91DE-ED option is installed.



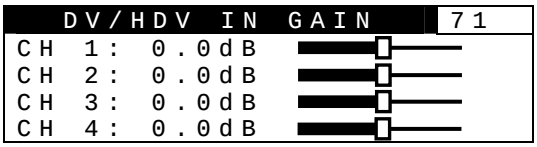
Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1-2 (Dolby Downmix Audio Input Gain)	0.0 dB	-20.0 to +20.0 dB (0.1 dB)	Sets the gain for the downmixed audio of the decoded Dolby input.

5-26-7. DV/HDV IN GAIN

IMPORTANT
DV/HDV IN GAIN is available only when the FA-90DV or FA-90HDV option installed.

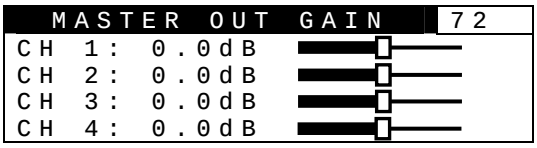


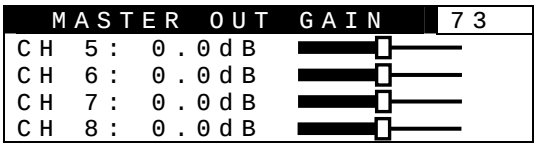
Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1 to 4 (DV/HDV embedded audio input gain)	0.0 dB	-20.0 to +20.0 dB (0.1 dB)	Sets input gain of DV/HDV embedded audio.

5-26-8. MASTER OUT GAIN





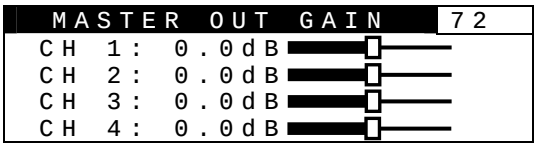
Menu Button

AUDIO LVL
IN/OUT

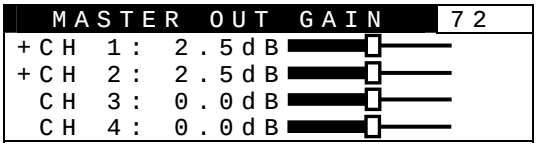
Parameter	Default	Setting Range (Steps)	Description
CH 1-8 (Master Audio Output Gain)	0.0dB	-20.0 to +20.0 dB (0.1dB)	Sets the master audio output gain. This setting is applied to all audio outputs (ANALOG, AES/EBU, and SDI EMBEDDED AUDIO).

The analog audio output gain can be fine adjusted in the ANALOG OUT GAIN menu (see 5-26-10).

The multiple channels can be adjusted simultaneously. Briefly press the UNITY button for the desired channel. A “+” is displayed at the left of the corresponding parameter name. Repeat this step until a “+” is displayed for all desired channels. Any channel with a “+” can be adjusted simultaneously by using one of the corresponding controls.

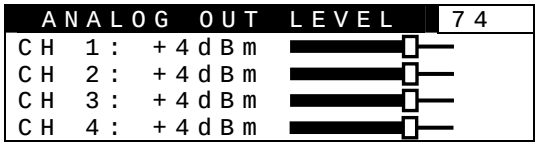


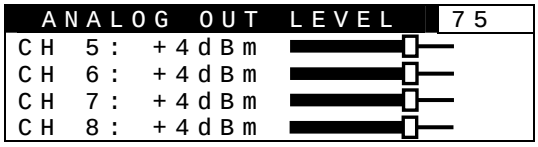
Use F1 or F2 to change both CH1 and CH2 simultaneously



Simultaneous change of multiple channels is allowed only in the same page. So simultaneous change of CH1 to CH4 or CH5 to CH8 is possible, however that of CH1 and CH5 is not possible.

5-26-9. ANALOG OUT LEVEL



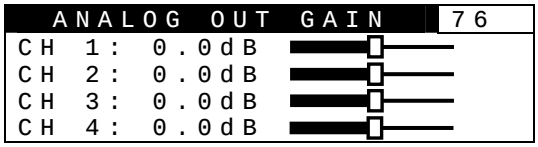


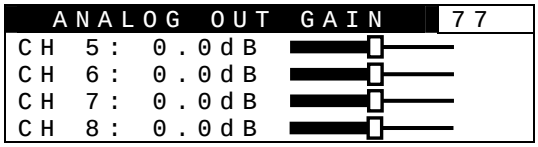
Menu Button

AUDIO LVL
IN/OUT

Parameter	Default	Setting Range	Description
CH 1-8 (Analog Audio Output Level)	+4dBm	-10 dBm, 0 dBm, +4 dBm, +8dBm	Sets the analog audio output level.

5-26-10. ANALOG OUT GAIN





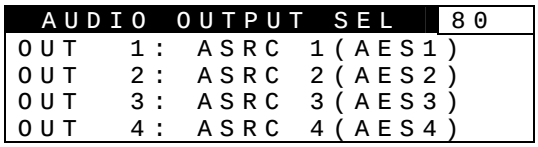
Menu Button

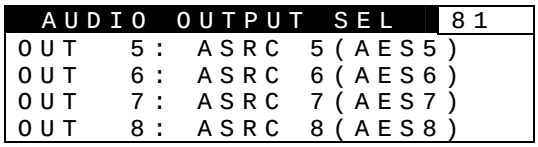
AUDIO LVL
IN/OUT

Parameter	Default	Setting Range (Steps)	Description
CH 1-8 (Analog Audio Output Gain)	0.0dB	-20.0 to +20.0 dB (0.1dB)	Sets the analog audio output gain.

Used for fine adjustment after the MASTER OUTPUT GAIN setting (see 5-26-8).

5-26-11. AUDIO OUTPUT SEL





Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
OUT 1-8 (Audio Output Select)	ASRC 1-8	ASRC 1-8, ANALOG 1-8, AES 1-8, SDI 1-8, DV/HDV1-2, DV3-4, DOLBY1-8, Downmix1-2, 500Hz Tone, 1kHz Tone, SILENCE	Selects source audio for output bus 1 to 8 individually. The internal output bus 1 to 8 supply audio to analog, digital, and embedded audio CH1-8 simultaneously. **ASRC1-8:** Uses the audio signals selected at the ASRC INPUT SEL menu (see 5-26-12). **ANALOG1-8:** Uses the analog audio input. **AES 1-8:** Uses the AES/EBU audio input. **SDI 1-8:** Uses the embedded audio of the SDI input. **DV(HDV)1-4**: Uses the embedded audio of the DV/HDV input. **DOLBY1-8:** Uses the decoded Dolby audio input. **Downmix1-2:** Uses the downmixed audio from the decoded Dolby input. **500Hz Tone:** Uses an internal 500Hz Tone. **1kHz Tone:** Uses an internal 1kHz Tone. **SILENCE:** Outputs silent audio.

NOTE

Note that due to the internal connection, the status of analog channels set for OUT1 to 8 at AUDIO OUTPUT SEL is indicated “N/A”.

DOLBY1-8 and Downmix1-2 are displayed when the Dolby option card (FA-90DE-D or FA-91DE-ED) is installed. DV/HDV1-2 and DV3-4 are displayed when the FA-90DV and/or FA-90HDV option installed.

TIPS

Select ASRC1-8 for AUDIO OUTPUT SEL if following signals are used for audio source.

- Audio signals at the sampling rate of other frequencies than 48kHz.
- Audio signals not synchronized with the external reference.

If a value other than ASRC is selected for AUDIO OUTPUT SEL when using these audio sources, this may result in noise or other audio problems due to sampling errors.

[ASRC Circuit Delay]

The ASRC circuit has a processing delay time. It depends on the audio sampling rate.

Sampling Rate	Delay Time
32kHz	1.17msec
44.1kHz	1.03msec
48kHz	1.00msec

5-26-12. ASRC INPUT SEL

```
ASRC INPUT SEL      82
CH 1/2:      AES 1/2
CH 3/4:      AES 3/4
CH 5/6:      AES 5/6
CH 7/8:      AES 7/8
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
CH 1/2-7/8 (ASRC Input Select)	AES 1/2-7/8	AES 1/2-7/8, SDI 1/2-7/8, DV/HDV 1/2, DV 3/4	Selects source audio for CH1/2 to 7/8 processed in sampling rate converter. Source audio can be selected from both SDI/DV/HDV embedded audio and AES/EBU input (up to 10 channel pairs total).

Up to 4-pair of channels (8 channels total) can be selected for audio source. The mixed selection of AES/EBU and SDI embedded audio is possible.

DV/HDV1-2 and DV3-4 are displayed only when the FA-90DV and FA-90HDV option installed.

5-26-13. DOLBY DEC INPUT SEL

IMPORTANT

DOLBY DEC INPUT SEL is available only when the FA-90DE-D or FA-91DE-ED option is installed.

```
DOLBY DEC INPUT SEL 83
Input   :AES 1/2
Stream  :Dolby E 24bit
Program : 5.1+2
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
Input (Dolby Decoder Input Select)	AES 1/2	AES 1/2-7/8, SDI 1/2-7/8	Selects a signal input to the Dolby decoder option.
Item	Display		Description
Stream (Bitstream)	Dolby D 32Bit, Dolby D 16Bit 1ch, Dolby D 16Bit 2ch, Dolby D 16bit 1/2ch, Dolby E 24bit, Dolby E 20bit, Dolby E 16bit, PCM		Displays the bit width of Dolby Decoder input.
Program (Program configuration)	(When Dolby-E is input:) 5.1+2, 5.1, 5.1+2*1, 4*2, 3*2, 8*1, 6*1, Other (When Dolby Digital is input) 3/2L, 3/2, 3/1, 2/0, 1+1, 1/0, Other		Displays the program configuration of Dolby Decoder input.

IMPORTANT

The Stream and Program items show "PCM" when there is no decoder input.

The Program item shows "5.1" when Dolby E7.1 or Dolby E7.1Screen is input. In this case, however, audio signals are properly decoded.

5-26-14. DOLBY ENC INPUT SEL

IMPORTANT
DOLBY ENC INPUT SEL is available only when the FA-91DE-ED option is installed.

```
DOLBY ENC INPUT SEL 84
CH1(1L)   :Process1
CH2(1R)   :Process2
CH3(1C)   :Process3
CH4(1LFE):Process4
```

```
DOLBY ENC INPUT SEL 85
CH5(1Ls)  :Process5
CH6(1Rs)  :Process6
CH7(2L)   :Process7
CH8(2R)   :Process8
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
CH1-8 (Dolby Encoder Input Select)	Process	Process1-8, 1kHz Tone, SILENCE	Selects a signal input to the Dolby encoder option.

5-26-15. AES OUTPUT SELECT

IMPORTANT
AES OUTPUT SELECT is available only when the FA-91DE-ED option is installed.

```
AES OUTPUT SELECT 86
CH 1/2        :Process
CH 3/4        :Process
CH 5/6        :Process
CH 7/8        :Process
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
AES1/2-7/8 (AES Output Select)	Process	Process, Dolby	Selects for AES OUTPUT whether to output the Dolby encode or audio input signal that is processed.

5-26-16. SDI OUTPUT SELECT

IMPORTANT
SDI OUTPUT SELECT is available only when the FA-91DE-ED option is installed.

```
SDI OUTPUT SELECT 87
CH 1/2        :Process
CH 3/4        :Process
CH 5/6        :Process
CH 7/8        :Process
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
SDI1/2-7/8 (SDI Output Select)	Process	Process, Dolby	Selects for SDI OUTPUT whether to output the Dolby encode or audio input signal that is processed.

5-26-17. AUDIO SYSTEM SET

```
AUDIO SYSTEM SET  90
MASTER MUTE :  OFF
DIGI REF LVL:-20dBFS
```

Menu Button: AUDIO SEL/SYS

Parameter	Default	Setting Range	Description
MASTER MUTE (Muster Mute)	OFF	OFF, ON	Set MASTER MUTE to ON to mute all outputs. (*1)
DIGI REF LVL (Digital Reference Level)	-20dBFS	-20 dBFS, -18dBFS	Used to set the reference level for the digital audio signals. (*2)

(*1) Disabled when outputting an audio test signal (see 5-19. TEST SIGNAL) even if set to ON.

(*2) Sets the reference level for when performing the AD/DA conversion. It corresponds to the parameter values set in the ANALOG IN LEVEL menu (see 5-26-1) and ANALOG OUT LEVEL menu (see 5-26-9). See section 7, “ANALOG/DIGITAL Input/Output Level Table” for details.

5-26-18. AUDIO EMBED

```
AUDIO EMBED       91
SDI 1/2:  OVERWRITE
SDI  3 :  OVERWRITE
```

Menu Button: AUDIO SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
SDI 1/2 (Audio Embed)	OVERWRITE	DELETE, OVERWRITE, THROUGH	Sets embedded audio output for HD/SD-SDI OUT. **DELETE:** Deletes and not passes through the input embedded audio. **OVERWRITE:** Embeds other audio into the SDI bitstream. **THROUGH:** Passes through the embedded audio. (*1)
SDI 3 (Audio Embed)			

The same setting is applied to SDI OUT1 and 2. SDI OUT3 is set separately. DELETE is automatically set in some cases when FA-91FRC is installed. (See section 14-3. "Embedded Audio.")

(*1) If set to THROUGH, be sure to set the ANCI DATA (see section 5-13, “VIDEO SYSTEM SET") to Pass.

5-26-19. SDI GROUP SELECT

```
SDI GROUP SELECT  92
SDI IN      :Group 12--
SDI OUT1/2:Group 12--
SDI OUT 3  :Group 12--
```

Menu Button: AUDIO SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
SDI IN (EMBEDDED AUDIO INPUT GROUP SETTING)	Group 12--	Group 12--, Group --34, Group 1-3-, Group -2-4, Group 1--4, Group -23-	Selects which groups of embedded audio input is used. Up to 2 groups (8 channels total) can be selected.

SDI OUT1/2, 3 (EMBEDDED AUDIO OUTPUT GROUP SETTING)	Group 12--	Group 12--, Group --34, Group 1-3-, Group -2-4, Group 1--4, Group -23-	Selects audio groups in the SDI bitstream to which the audio source is embedded.

Same setting is applied to both SDI OUT1 and 2. SDI OUT3 can be set independently.

5-26-20. AES IN HYST SYNCHRO

```
AES IN HYST SYNCHRO 93
CH 1/2: OFF
CH 3/4: OFF
CH 5/6: OFF
CH 7/8: OFF
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
CH 1/2-7/8 (AES/EBU Input Hysteresis Synchronization Mode)	OFF	OFF, Group A, Group B	If set to Group A or Group B, the input differential hysteresis is set to the same for multiple channel pairs when the synchronized AES/EBU signals are read directly from buffer (not via the ASRC).

A channel-pair of the lowest number in a group becomes a Master, and other pairs become Slaves. If a signal loss occurs in the Master pair, the channel-pair of the second lowest number becomes Master.

Examples)

If all channel-pairs (CH1/2 to 7/8) are set to Group A:
The CH1/2 becomes the master of Group A and other pairs become its slaves and are synchronized with the CH1/2 when reading from buffer.

If CH1/2 and CH3/4 are set to Group A and CH5/6 and CH7/8 are set to Group B:
The CH1/2 becomes the master of Group A and the CH5/6 becomes the master of Group B.

The FA-9100/RPS can reduce ±25% phase difference of AES/EBU audio signals between input and output frame timing of the audio sample. If the AES/EBU phase difference exceeds ±25%, the phase of the AES/EBU output may advance or delay by one sample due to the sampling with hysteresis, even if the phases of pair channels are matched and the signal phase is properly locked to the FA-9100/RPS.

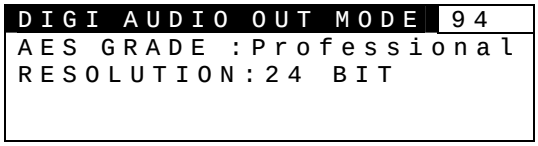
This makes it difficult to match phases of multiple AES/EBU audio pairs. However, with the AES Hysteresis Synchronize function above, you can match the phases of multiple AES/EBU audio pairs, even if the AES/EBU phase difference exceeds ±25%. In this case, the phases of audio signals in the same group are always the same although they may advance or delay by one sample.

Use this function only under the following special conditions:

- The built-in SRC (Sampling Rate Converter) is not used.
- The AES/EBU input pairs are synchronized and phase-locked each other.
- The sample timing phases of these AES/EBU pairs must be matched.
- The AES/EBU phase difference between input and sample timing of audio output exceeds ±25%.

Note that the function does not work if the built-in SRC is used. The SRC is easier for use with the same conditions.

5-26-21. DIGI AUDIO OUT MODE

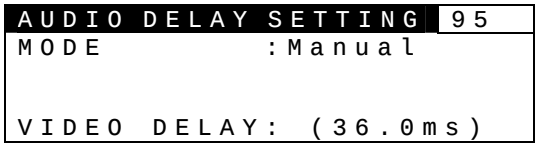


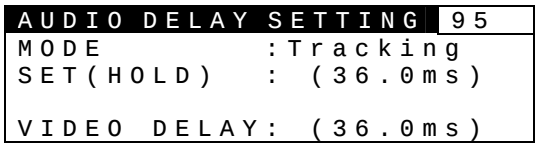
Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
AES GRADE (Grade Setting)	Professional	Professional, Consumer	Selects professional or consumer audio application. **Professional:** Optimized for professional use. **Consumer:** Optimized for consumer use
RESOLUTION (Output Bit Depth)	24BIT	24BIT, 20BIT, 16BIT	Selects output audio resolution.

5-26-22. AUDIO DELAY SETTING



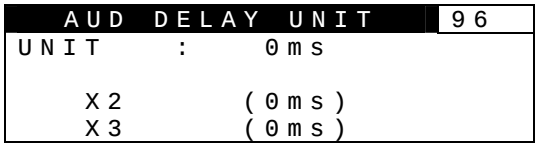


Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
MODE	Manual	Manual, Tracking	Sets the audio delay mode. If F2 Unity button is pressed when set to Tracking, the delay counter is held and it displays the amount of current delay.

5-26-23. AUDIO DELAY UNIT



Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
UNIT (Delay Unit)	0 ms	0-360 ms (1ms)	Sets the delay unit. This setting is common to all channels.

Available only when AUDIO DELAY SETTING (see 5-26-22) is set to Manual.

See section 5-26-24, “AUDIO DELAY MULTIPLY” before setting.

See both section 5-26-24, “AUDIO DELAY MULTIPLY” and section 5-26-25, “AUDIO DELAY OFFSET” if you wish to set delay for each channel individually.

5-26-24. AUDIO DELAY MULTIPLY

```
AUD DELAY MULTIPLY 97
CH  1:  X1   (0ms)
CH  2:  X1   (0ms)
CH  3:  X1   (0ms)
CH  4:  X1   (0ms)
```

```
AUD DELAY MULTIPLY 98
CH  5:  X1   (0ms)
CH  6:  X1   (0ms)
CH  7:  X1   (0ms)
CH  8:  X1   (0ms)
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
CH1-8 (Audio Delay Multiply)	x 0	x 0, x 1, x 2, x 3	Sets the multiply-factor of delay for each channel. The delay for each channel can be set individually by multiplying the value set at section 5-26-22. “AUDIO DELAY SETTING” by 0-3.

Available only when AUDIO DELAY SETTING (see 5-26-22) is set to Manual.

5-26-25. AUDIO DELAY OFFSET

```
AUD DELAY OFFSET 99
CH  1:      0.000ms
CH  2:      0.000ms
CH  3:      0.000ms
CH  4:      0.000ms
```

```
AUD DELAY OFFSET 100
CH  5:      0.000ms
CH  6:      0.000ms
CH  7:      0.000ms
CH  8:      0.000ms
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range (Steps)	Description
CH1-8 (Audio Delay Offset)	0.000 ms	0.000-10.000 ms (0.125 ms)	Adjusts the delay finely.

NOTE

Audio Delay = Delay unit x Delay Multiply + Delay Offset
(See 5-26-22) (See 5-26-24.) (See 5-26-25.)

Total Delay = Audio Delay + ASRC Circuit Delay + Processing Delay
(See above) (See 5-26-12.) (Approx. 1msec)

5-26-26. ANALOG INPUT TERM

```
ANALOG INPUT TERM 101
CH1/2:    600Ω
CH3/4:    600Ω
CH5/6:    600Ω
CH7/8:    600Ω
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
CH 1/2-7/8 (ANALOG INPUT TERMINATION)	600Ω	600Ω, Hi-Z	Sets the impedance for the analog input. **600 Ω:** 600 Ω **Hi-Z:** high impedance

5-26-27. OUTPUT STEREO MODE

```
OUTPUT STEREO MODE 102
CH1/2:   STEREO
CH3/4:   STEREO
CH5/6:   STEREO
CH7/8:   STEREO
```

Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
CH 1/2-7/8 (Output Stereo Mode)	STEREO	STEREO, SWAP, MONO-LEFT, MONO-RIGHT, MONO-SUM	Sets the stereo mode for the audio output CH1/2-7/8 individually. **STEREO:** Outputs the left audio input signal to LEFT and right audio input signal to RIGHT. **SWAP:** Outputs the left audio input signal to RIGHT and right audio input signal to LEFT. **MONO-LEFT:** Outputs the left audio input signal to both LEFT and RIGHT. **MONO-RIGHT:** Outputs the right audio input signal to both LEFT and RIGHT. **MONO-SUM:** Combines the left and right audio input signals, divide the combined signals by two, and then outputs to both LEFT and RIGHT. The level is (LEFT+RIGHT)/2.

This setting is common to all analog and digital outputs.

5-26-28. OUTPUT POLARITY

```
OUTPUT POLARITY 103
CH 1:  NORMAL
CH 2:  NORMAL
CH 3:  NORMAL
CH 4:  NORMAL
```

```
OUTPUT POLARITY 104
CH 5:  NORMAL
CH 6:  NORMAL
CH 7:  NORMAL
CH 8:  NORMAL
```

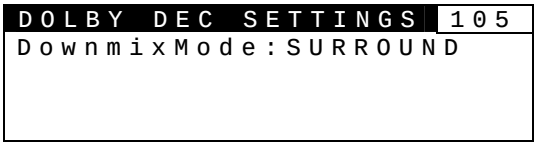
Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
CH 1-8 (Output Polarity)	NORMAL	NORMAL, INVERT	Selects the audio channel output polarity between normal and invert.

5-26-29. DOLBY DEC SETTINGS

IMPORTANT
DOLBY DEC SETTINGS is available only when the FA-90DE-D or FA-91DE-ED option is installed.



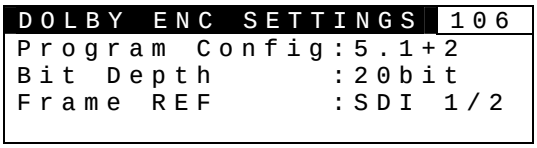
Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
Downmix Mode (Dolby Downmix Mode)	SURROUND	SURROUND, STEREO, MONO	Selects the mode to downmix the decoded Dolby input. **SURROUND:** Converts to two-channel audio. This audio output can be divided to Stereo and Surround (Ls+Rs) afterwards. **STEREO:** Converts to stereo. **MONO:** Converts to monaural.

5-26-30. DOLBY ENC SETTINGS

IMPORTANT
DOLBY ENC SETTINGS is available only when the FA-91DE-ED option is installed.



Menu Button

AUDIO
SEL/SYS

Parameter	Default	Setting Range	Description
Program Config (When Bit Depth is set to 20bit)	5.1+2	5.1+2, 5.1, 5.1+2*1, 4*2, 3*2, 8*1, 6*1	Sets the configuration for Dolby Encode. (The setting range varies depending on the bit depth.)
Program Config (When Bit Depth is set to 16bit)	5.1	5.1, 3*2, 6*1	Sets the configuration for the Dolby encode. (The setting range varies depending on the bit depth.)
Bit Depth	20bit	20bit, 16bit	Sets the bit depth for the Dolby encode output. Enabled if Program Config is set to the value supporting 16bit.
Frame REF	SDI1/2	SDI1/2, SDI3	Selects which video output is synchronized with the Dolby encode output.

5-27. USER 1/2

Two frequently used menus can be assigned to the USER1/2 button. Once a menu is assigned to the button, pressing the button once (lit green) opens the menu assigned to USER1. Pressing the button again (lit orange) opens the menu assigned to USER2.

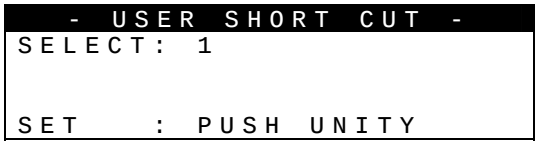
5-27-1. Assigning a Menu

1) Display the menu that you wish to assign to the button.

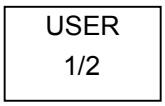
2) Press and hold down the USER1/2 button. The button lights up red and the USER SHORT CUT menu is displayed.

3) Turn F1 to select SELECT1 (USER1, green indication) or SELECT2 (USER2, orange indication)

4) Press the UNITY button below F1 to apply the assignment. To cancel the setting, press the USER1/2 button again.



Menu Button



5-28. Status Information

The states of the hardware and the software versions can be checked in the STATUS menu. Press and hold down the SYSTEM button to display the STATUS menu as shown below.

◆ **Product Information**

```
  - SYSTEM STATUS1 -
UNIT      :FA-9100      ———(Product Name)
S/N       :12310000     ———(Serial Number)
Version   :X.X.X        ———(Version)
Sum       :XXXX         ———(CheckSum)
```

Menu Button
(Press and Hold)

SYSTEM

◆ **Option Cards**

```
  - SYSTEM STATUS2 -
Option    :CC  UD  DE-D/ED
          :DV  HDV  LG  ALC
```

```
CC:          FA-90CC
UD:          FA-90UD
FRC:         FA-91FRC
DE-D:        FA-90DE-D
DE-D/ED:     FA-91DE-ED
DV:          FA-90DV
HDV:         FA-90HDV
LG:          FA-91LG
ALC:         FA-91ALC
```

◆ **FA-9100 System Version**

```
  - SYSTEM VERSION -
MAINCD(FPGA)PM8766-X
MAINCD(CPU) PM8767-X
FRONTCD(CPU)PM8768-X
```

◆ **FA-90UD Version**

```
  - FA-90UD VERSION -
Version :3.0.0
```

◆ **FA-90DE-D/FA-90DE-ED Version**

```
  - FA-90DE VERSION -
(FPGA)PM8418-X
(CPU) PM8419-X
```

◆ **FA-90DV Version**

```
  - FA-90DV VERSION -
(FPGA)Version:1.0.5
(CPU) Version:3.2.0
```

◆ **FA-90HDV Version**

```
  - FA-90HDV VERSION -
(FPGA) PM8560-X
(CPU)  PM8561-X
(FLASH)PM8562-X
```

◆ **FA-91LG/FA-91ALC Version**

```
- FA-91LG/ALC VERSION -
(FPGA)PM8603-X
(CPU) PM8810-X
```

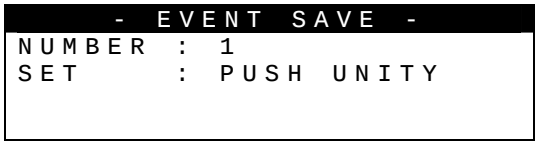
◆ **FA-91FRC Version**

```
  - FA-91FRC VERSION -
Version :4.0.0
```

6. Event Operation

The parameter values of FA-9100/RPS and the optional cards can be saved as events. Up to 30 events can be saved.

6-1. EVENT SAVE



Menu Button

EVENT

Press the EVENT button twice to open the EVENT SAVE menu (The button turns on orange). Use F1 to select an event number. Press the F2 UNITY button to save the current parameter value.

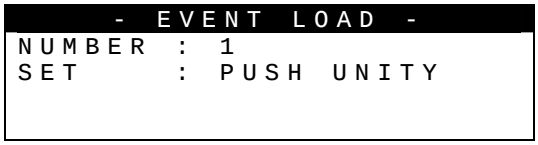
The following **settings** are **not saved to events**.

Button status: BY-PASS, LOCK and FREEZE buttons (See 2-1)

Menu setting:

AREA DISPLAY	(5-16-1. ALC CONTROL)
* ALC PORT	(5-16-3. ALC PORT)
* LOGO PORT	(5-17-4. LOGO PORT)
* SYSTEM SETTING	(5-20. SYSTEM SETTING)
* PANEL SETUP	(5-21. PANEL SETUP)
* START UP SETTING	(5-22. START UP SETTING)
* REMOTE MODE	(5-23. REMOTE MODE)
* REMOTE CONN PORT	(5-24. REMOTE PORT)
* GPI SETTING	(5-25. GPI SETTING)
AUDIO MASTER MUTE	(5-26-17AUDIO SYSTEM SET)

6-2. EVENT LOAD



Menu Button

EVENT

Press the EVENT button once to open the EVENT SAVE menu. (The button turns on green.) Use F1 to select an event number. Press the F2 UNITY button to load the parameter value of the selected event.

Loading NUMBER 0 resets all settings to the factory defaults. Note that, in this case, the items with asterisk (*) in the "**settings not saved to events**" shown above are not returned to the factory default settings.

NOTE

Wait about 15 seconds and **do not change** any settings **until** the loading is complete.

7. ANALOG/DIGITAL Input/Output Level

7-1. Digital Output Level Relative to Analog Input Level

Digital Reference Level Setting: -20dBFS
The value set for DIGI REF LVL in the AUDIO SYSTEM SET menu (see 5-26-17)

Analog Input Level Setting (dBm)
The value set in the ANALOG IN LEVEL menu (see 5-26-1)

ANALOG AUDIO INPUT LEVEL (dBm)	-10	0	+4	+8
-20	-30dBFS	-40dBFS	-44dBFS	-48dBFS
-10	-20dBFS	-30dBFS	-34dBFS	-38dBFS
-4	-14dBFS	-24dBFS	-28dBFS	-32dBFS
0	-10dBFS	-20dBFS	-24dBFS	-28dBFS
+4	-6dBFS	-16dBFS	-20dBFS	-24dBFS
+8	-2dBFS	-12dBFS	-16dBFS	-20dBFS
+10	0dBFS	-10dBFS	-14dBFS	-18dBFS

0dBm≒0.775V(rms)

Digital Reference Level Setting: -18dBFS
The value set for DIGI REF LVL in the AUDIO SYSTEM SET menu (see 5-26-17)

Analog Input Level Setting (dBm)
The value set in the ANALOG IN LEVEL menu (see 5-26-1)

ANALOG AUDIO INPUT LEVEL (dBm)	-10	0	+4	+8
-20	-28dBFS	-38dBFS	-42dBFS	-46dBFS
-10	-18dBFS	-28dBFS	-32dBFS	-36dBFS
-4	-12dBFS	-22dBFS	-26dBFS	-30dBFS
0	-8dBFS	-18dBFS	-22dBFS	-26dBFS
+4	-4dBFS	-14dBFS	-18dBFS	-22dBFS
+8	-0dBFS	-10dBFS	-14dBFS	-18dBFS
+10	CLIP	-8dBFS	-12dBFS	-16dBFS

0dBm≒0.775V(rms)

7-2. Analog Output Level Relative to the Digital Input Level

Analog Output Level Setting: -10dB
The value set in the ANALOG OUT LEVEL menu (see 5-26-9)

Digital Reference Level Setting (dBFS)
The value set for DIGI REF LVL in the AUDIO SYSTEM SET menu (see 5-26-17)

DIGITAL AUDIO INPUT LEVEL (dBFS)	-20	-18
-24	-14dBm	-16dBm
-20	-10dBm	-12dBm
-18	-8dBm	-10dBm
0	+10dBm	+8dBm

0dBm≒0.775V(rms)

Analog Output Level Setting: 0dB
The value set in the ANALOG OUT LEVEL menu (see 5-26-9)

Digital Reference Level Setting (dBFS)
The value set for DIGI REF LVL in the AUDIO SYSTEM SET menu (see 5-26-17)

DIGITAL AUDIO INPUT LEVEL (dBFS)	-20	-18
-24	-4dBm	-6dBm
-20	0dBm	-2dBm
-18	+2dBm	0dBm
0	+20dBm	+18dBm

0dBm≒0.775V(rms)

Analog Output Level Setting: +4dB
The value set in the ANALOG OUT LEVEL menu (see 5-26-9)

Digital Reference Level Setting (dBFS)
The value set for DIGI REF LVL in the AUDIO SYSTEM SET menu (see 5-26-17)

DIGITAL AUDIO INPUT LEVEL (dBFS)	-20	-18
-24	0dBm	-2dBm
-20	+4dBm	+2dBm
-18	+6dBm	+4dBm
0	+24dBm	+22dBm

0dBm≒0.775V(rms)

Analog Output Level Setting: +8dB
The value set in the ANALOG OUT LEVEL menu (see 5-26-9)

Digital Reference Level Setting (dBFS)
The value set for DIGI REF LVL in the AUDIO SYSTEM SET menu (see 5-26-17)

DIGITAL AUDIO INPUT LEVEL (dBFS)	-20	-18
-24	+4dBm	+2dBm
-20	+8dBm	+6dBm
-18	+10dBm	+8dBm
0	CLIP	CLIP

0dBm≒0.775V(rms)

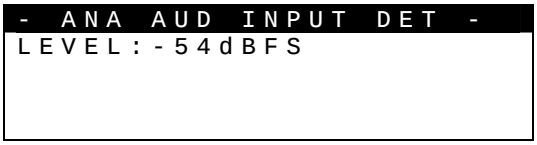
7-3. Adjusting the Detection Level for Analog Audio Input

The detection level for analog audio input can be adjusted in the menu. Adjustable range is from -96BFS to -6dBFS in 6dB increments (16 steps).

◆ To set the Detection Level

Press and hold down the AUDIO SEL/SYS menu button for a while. The button lights up red and the Analog Audio Input Detect menu will appear in the menu display.

IMPORTANT
The single and double arrow buttons cannot be used while the Analog Audio Input Detect menu is displayed. To display another menu, press the relevant menu button.



Menu Button

Parameter	Default	Setting Range	Description
LEVEL	-54dBFS	-96dBFS to -6dBFS (6dB)	Sets detection level of analog audio input (in 16 steps). The lower the level (toward -96dBFS), the more likely the audio input is detected. This level setting is applied to the process after the A/D conversion of the analog audio and in front of the audio gain.

The settings of Analog Input Level (5-26-1) and Digital Reference Level (5-26-17) also affect to decide the detection level of analog audio input. Be sure that if Analog Audio Input Detect Level is too low (in such cases as the shaded cells in the table below), the system may mistakenly determine that the audio input is present because a little noise is recognized as a valid audio signal.

Digital Reference Level setting (dBFS)	-20	-20	-20	-20	-18	-18	-18	-18
Analog Input Level setting (dBm)	-10	0	+4	+8	-10	0	+4	+8
Analog Audio Input Detect Level setting (dBFS)	Detection Level of Analog Audio Input [dBm]							
-6	+4	+14	+18	+22	+2	+12	+16	+20
-12	-2	+8	+12	+16	-4	+6	+10	+14
-18	-8	+2	+6	+10	-10	0	+4	+8
-24	-14	-4	0	+4	-16	-6	-2	+2
-30	-20	-10	-6	-2	-22	-12	-8	-4
-36	-26	-16	-12	-8	-28	-18	-14	-10
-42	-32	-22	-18	-14	-34	-24	-20	-16
-48	-38	-28	-24	-20	-40	-30	-26	-22
-54	-44	-34	-30	-26	-46	-36	-32	-28
-60	-50	-40	-36	-32	-52	-42	-38	-34
-66	-56	-46	-42	-38	-58	-48	-44	-40
-72	-62	-52	-48	-44	-64	-54	-50	-46
-78	-68	-58	-54	-50	-70	-60	-56	-52
-84	-74	-64	-60	-56	-76	-66	-62	-58
-90	-80	-70	-66	-62	-82	-72	-68	-64
-96	-86	-76	-72	-68	-88	-78	-74	-70

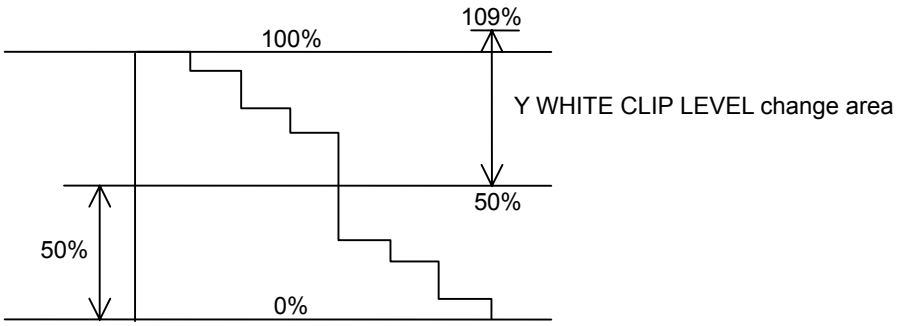
IMPORTANT
The ANALOG AUDIO INPUT DETECTION setting is not saved to the events.

8. Color Gamut Control

Clip settings can be selected in the following three types according to your system format; YBR (YpbPr) clip, GBR clip, and VBS (composite) clip. See section 5-3-1, “CLIP SETTING” for details. The system will clip signals by using factory default values, if CLIP SETTING is set to OFF.

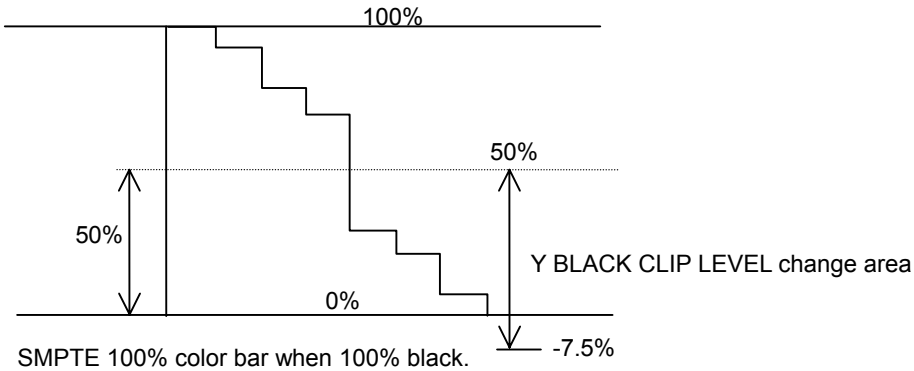
8-1. YPbPr Clip

Y White Clip Level
(Setting range 50 to 109%, initial value 109%.)



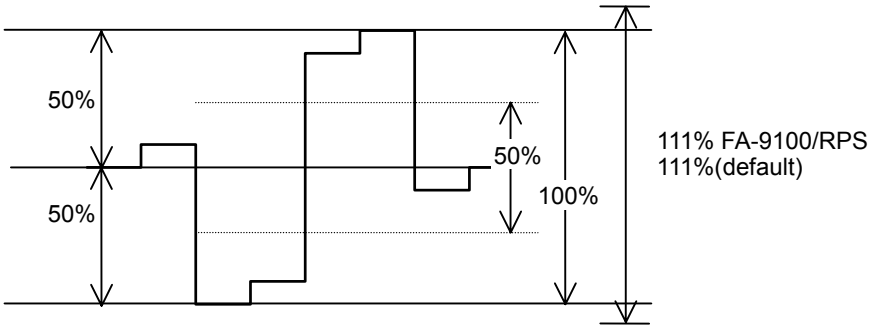
SMPTE 100% color bar when 100% white.

Y Black Clip Level
(Setting range -7.5% to 50%, initial value -7.5%.)



SMPTE 100% color bar when 100% black.

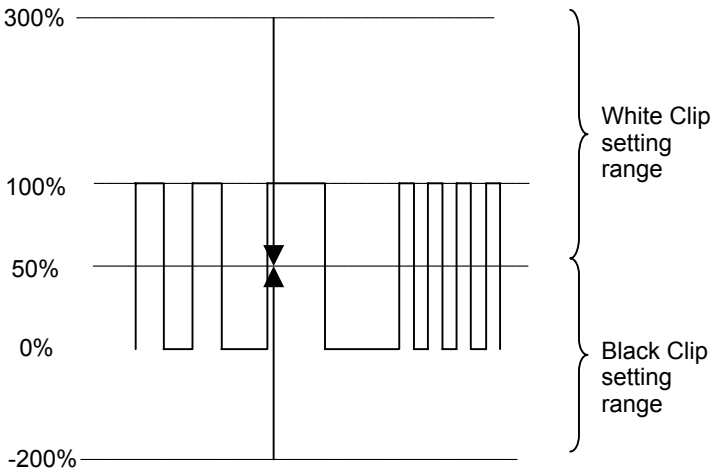
C White Clip Level
(Setting range 50% to 111%, initial value 111%.)



SMPTE 100% color bar when color 700mVp-p.

8-2. GBR Clip

When adjusting the GBR clip, select “GBR CLIP” for the Clip mode, then set GBR White Clip and GBR Black Clip parameters
Once the “GBR clip” is selected, YPbPr input video signal is converted into RGB signal in the unit. The converted RGB signal is processed so as not to exceed the RGB gamut range set at GBR White Clip and GBR Black Clip parameters in the menu.
Then the processed RGB signal is converted again to YPbPr format. This correction is used to eliminate out-of RGB gamut problems.

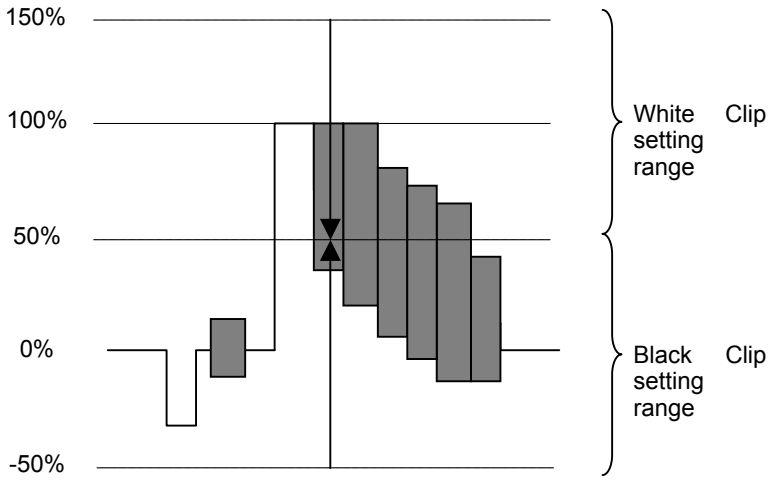


GBR Clip Processing

IMPORTANT
Video process controls for VIDEO LEVEL, CHROMA LEVEL, BLACK LEVEL and CHROMA PHASE are performed after a gamut correction.

8-3. VBS (Composite) Clip

When adjusting the VBS (composite) clip, select “VBSCLIP” for the Clip mode, then set VBS White Clip and VBS Black Clip parameters.
Once the “VBS CLIP” is selected, YPbPr input video signal is converted to composite signal in the unit. The converted composite signal is processed so as not to exceed the composite gamut range set at Composite White Clip and Composite Black Clip parameters in the menu.
Then the processed composite signal is converted again to YPbPr format. This correction is used to eliminate out-of composite gamut problems.

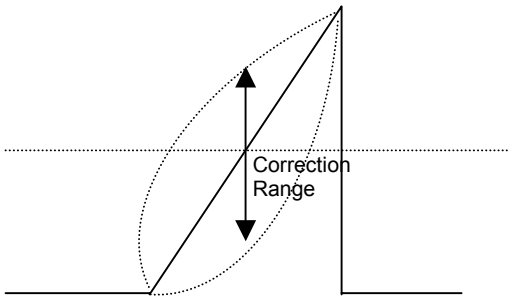


Composite Clip Processing

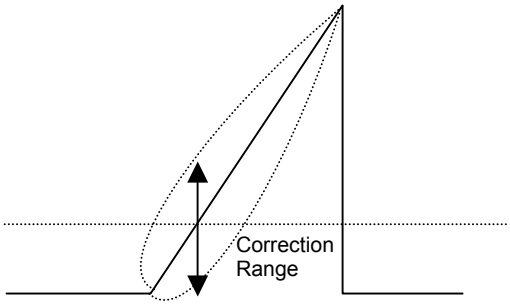
9. Gamma Curve

The Gamma Curve (see section 5-2-4. “GAMMA SETTING”) gives you the possibility to adjust the gamma curve. You can select the suitable type for your system in the menu. When performing the gamma correction in the unit, following three type adjustments are available:

CENTER: Gamma curve is weighted toward the mid tones (near 50%).
BLACK: Gamma curve is weighted toward Shadows (near 25%)
WHITE: Gamma curve is weighted toward Highlights (near 75%).

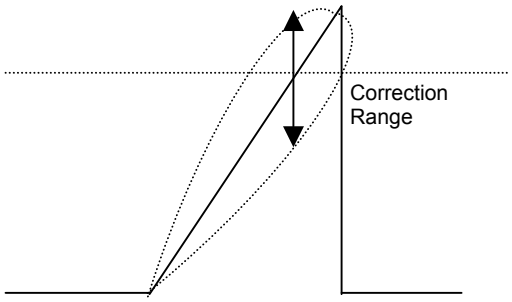


50% If Center is selected (default)



25% If Black is selected

Gamma Correction Curves



75% If White is selected

10. Customizing ALC

10-1. Customizing User Level

There are five custom options (User1 to User5) for the filtering level available in the ALC CONTROL menu. (See section 5-16-1. "ALC CONTROL".)
Select a custom level (User1 to User5) at LEVEL, then press and hold down **F2 Unity** for a while to display the submenu as shown below.

```
ALC CONTROL          32
OPERATE        :AUTO
LEVEL          :User1
SAMPLE AREA :Full Screen
AREA DISPLAY:ON
```

```
USER1 SETUP  (▲:Exit)
IN White LVL:      99.0%
IN Black LVL:       1.0%
Target White LVL: 80.0%
Target Black LVL:  3.0%
```

Menu button (lit red)

VIDEO
OPTION

Each custom level is composed of four level settings: IN White LVL, IN Black LVL, Target White LVL and Target Black LVL.. The default settings for **User1**, **User2**, **User3**, **User4** and **User5** are the same as the settings for **Darker**, **Dark**, **Standard**, **Bright** and **Brighter** respectively. It is convenient to select the custom level close to your target settings. (See the "**Default Settings for User1-5**" below.)

To go back to the ALC CONTROL menu, press the upper single arrow.

◆ **Default Settings for User1-5**

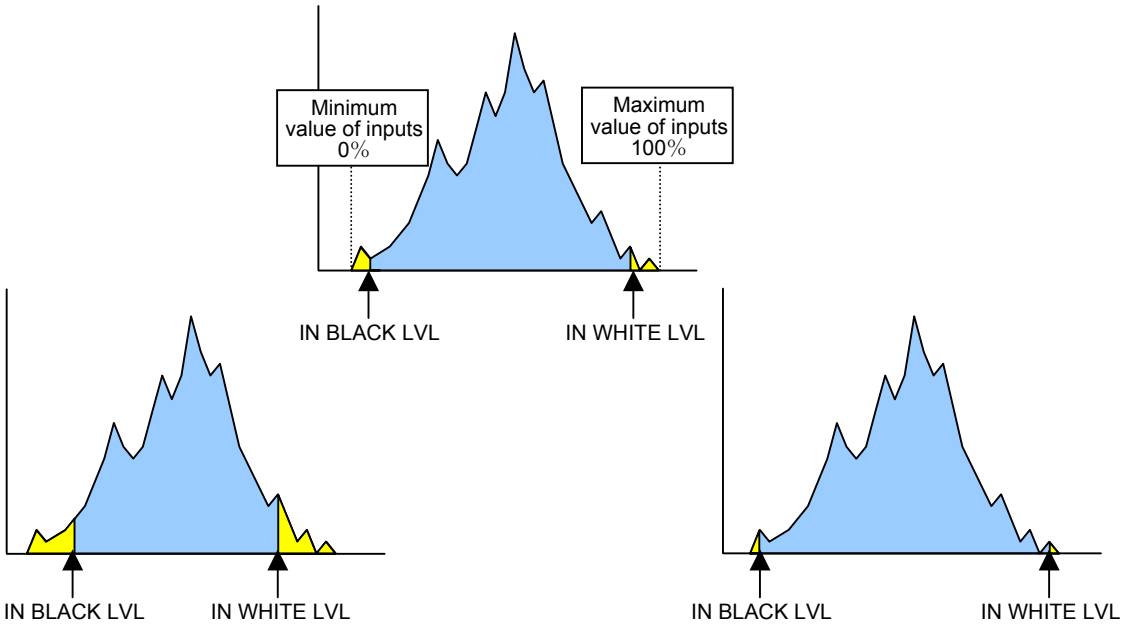
Item	SELECT LEVEL (Correction Level)				
(Custom levels)	User1 default	User 2 default	User 3 default	User 4 default	User 5 default
(Fixed levels)	Darker	Dark	Standard	Bright	Brighter
IN White LVL	99.0%	98.0%	97.0%	95.0%	93.0%
IN Black LVL	1.0%	2.0%	3.0%	5.0%	7.0%
Target White LVL	80.0%	88.0%	93.0%	95.0%	97.0%
Target Black LVL	3.0%	5.0%	7.0%	12.0%	17.0%

◆ **IN White LVL and IN Black LVL**

These two parameters determine the highest and the lowest levels of luminance based on inputs. (See figures in the next page.)

Item	Setting range (step)	Description
IN White LVL	80.0% to 99.0% (0.5%)	The maximum value of luminance in the sample data is defined as 100%. Based on this reference value, this determines the highest level of luminance for level control. If the value is too large, some noises may be picked up and it may cause the results to be unstable. If the value is too small, it increases contrast, but it may cause the images to be overexposed.
IN Black LVL	1.0% to 20.0% (0.5%)	The minimum value of luminance in the sample data is defined as 0%. Based on this reference value, this determines the lowest level of luminance for level control. If the value is too small, some noises may be picked up and it may cause the results to be unstable. If the value is too large, it increases contrast, but it may cause the images to be underexposed.

The figures below are luminance histograms of input.
(X-axis: Luminance level, Y-axis: Number of pixels)

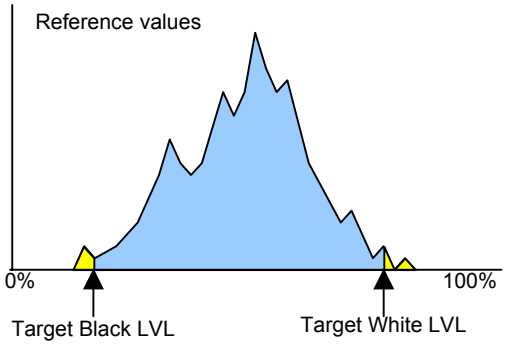


◆ **Target White LVL and Target Black LVL**

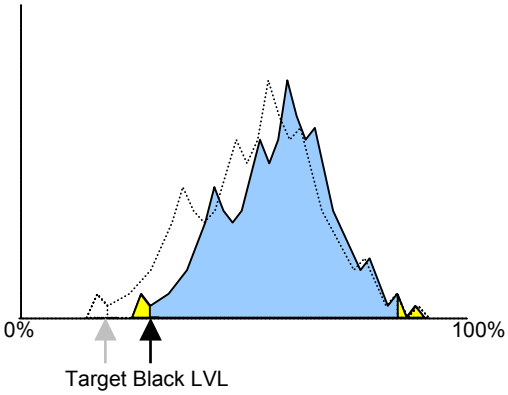
These two parameters determine the highest and lowest levels of luminance for target images (outputs). (See figures below and in the next page.)

Item	Setting range (step)	Description
Target White LVL	60.0 to 100.0% (0.5%)	Determines the maximum value of luminance for outputs. The maximum luminance value of the image after correction should become close to this value. The larger the value, the brighter the image. However, it may cause the image to be overexposed. The smaller the value, the more tones of the bright part are kept. However, the obtained overall image may be dark.
Target Black LVL	0 to 40.0% (0.5%)	Determines the minimum value of luminance for outputs. The minimum luminance value of the image after correction should become close to this value. The larger the value, the more dark area in pictures will appear bright. However, it may lower the contrast and emphasize the noises. The smaller the value, the higher the contrast. However, it may cause the image to be underexposed

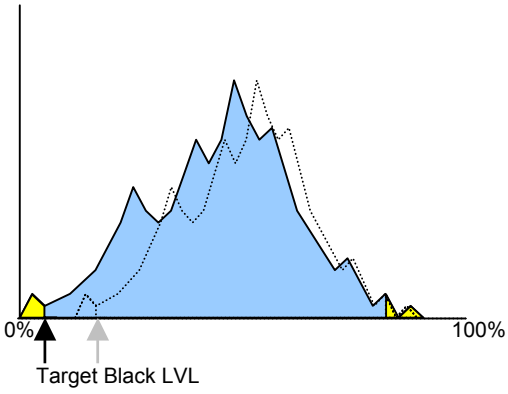
The figure below is a luminance histogram of output.
(X-axis: Luminance level, Y-axis: Number of pixels)



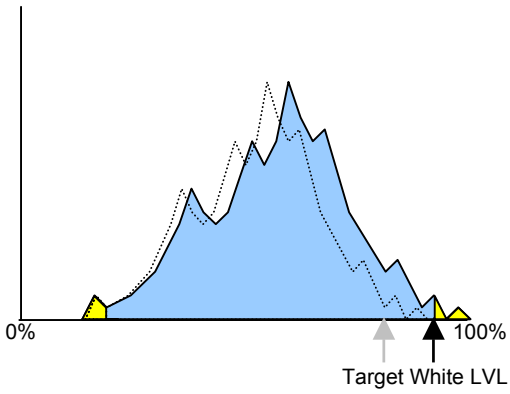
The figures below compare the reference values (dotted line) for output and the actual values after correction (full line).



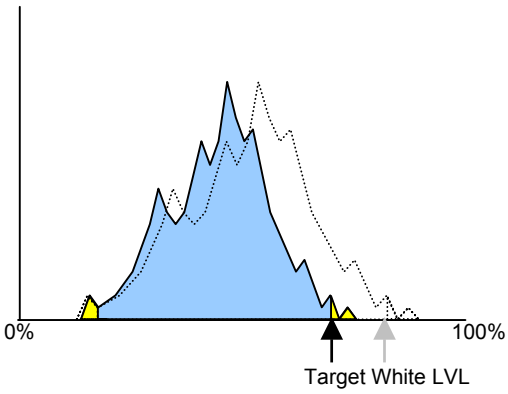
If set Target Black LVL larger.



If set Target Black LVL smaller.

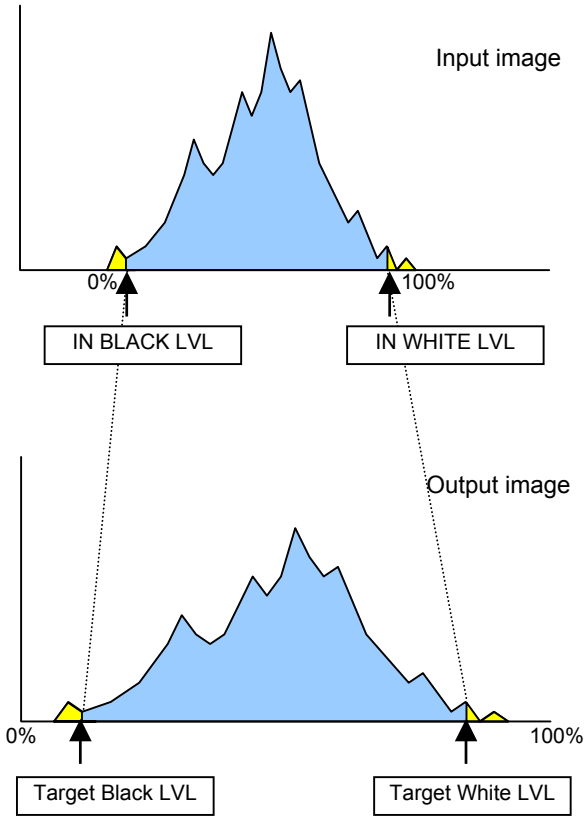


If set Target White LVL larger.



If set Target White LVL smaller.

◆ Relations between IN Black LVL/IN White LVL and Target Black LVL/Target White LVL



10-2. Customizing Sample Area

There are two custom options (**Area1** and **Area2**) for the sample area available in the ALC CONTROL menu. (See section 5-16-1. "ALC CONTROL".)
To set the range of the custom area, select a custom area (**Area1** or **Area2**) at SAMPLE AREA, then press and hold down **F3 Unity** for a while to display the submenu as shown below.

```
ALC CONTROL                32
OPERATE          :AUTO
LEVEL            :User1
SAMPLE AREA      :Area1
AREA DISPLAY     :OFF
```

```
AREA 1 ADJUST (▲:Exit)
START (H):     0 Pixel
START (V):     0 Line
SIZE  (H):   360
SIZE  (V):   360
```

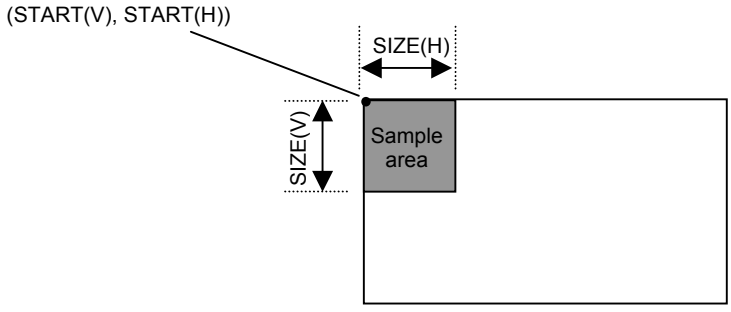
Menu button (lit red)

VIDEO
OPTION

To define the sample area, specify the start point and the size.

To go back to the ALC CONTROL menu, press the upper single arrow.

Item	Default	Setting range	Description
START(H)	0 Pixel	Variable (1Pixel)	Specifies the start point in the horizontal direction.
START(V)	0 Line	Variable (1Line)	Specifies the start point in the vertical direction.
SIZE(H)	360	Variable (1Pixel)	Specifies the horizontal distance from the start point.
SIZE(V)	360	Variable (1Line)	Specifies the vertical distance from the start point.



Default setting of sample area in 1080/59.94i.

IMPORTANT

The sample areas should be set within the effective lines and pixels. Otherwise, the sample areas are automatically returned to their default values. Especially be careful in the following cases.

-When the video format is changed to SDTV after the sample area settings

-When the sample area settings are changed by loading events

10-3. Manual Level Control

The ALC controls video level automatically when **OPERATE** item is set to **ON** in ALC CONTROL menu. (See section 5-16-1.). You can control video level manually using Color Correction menus when **OPERATE** item is set to **HOLD** or **OFF**.

◆ To Fine-Adjust Settings after Executing ALC.

When the OPERATE item is changed from **AUTO** to **HOLD**, you can finely adjust **WHITE LEVEL**, **BLACK LEVEL** and **GAMMA LEVEL** from the values corrected by ALC. (See the table below.) Be careful that the manual correction values are not preserved after restarting the unit. The signal levels return to their previous values (the values corrected by ALC).

◆ To Adjust Settings from the Begining

When the **OPERATE** item is set to **OFF**, you can manually adjust the signal levels using the Color Correction menus without using ALC. When the **OPERATE** item is changed from **AUTO** to **OFF**, the signal levels also return to their previous values before executing ALC.

The adjustable items in the Color Correction menus vary depending on the OPERATE setting. See the table below. For the menu details, see section 5-2. Color Correction (FA-90CC/91ALC Option) and section 5-3. "Color Gamut Control (FA-90CC/91ALC Option)."

OPERATE setting			Color Correction Menu	Menu No.	Refer to
AUTO	HOLD	OFF			
×	○	○	WHITE LEVEL	2	5-2-1
×	○	○	BLACK LEVEL	3	5-2-2
×	○	○	GAMMA LEVEL	4	5-2-3
×	×	○	GAMMA SETTING	5	5-2-4
×	×	○	CORR MODE SELECT	6	5-2-5
○	○	○	CLIP SETTING	7	5-3-1

○ : The related menu can be set .
× : The related menu cannot be set.

The message "NOT ADJUST" appears when the menu cannot be set.

11. Format Compatibility between Genlock Input and Video Output

11-1. When in Standard Configuration

The following table shows the format compatibility (lock/unlock) between genlock input and video output when FA-9100/RPS is in the standard configuration or when FA-90UD is configured but all OUTPUT settings (Menu no.20) are set to THROUGH.

Video input	Genlock input	Video output			Genlock status (Locked/Unlocked to Genlock signal)		
		SDI	Composite	Component	SDI	Composite	Component
SD	BB	SD	SD	SD	Lock	Lock	Lock
	Tri-Level sync (1080i)	SD	SD	SD	Lock	Lock	Lock
	Tri-Level sync (720p)	SD	SD	SD	Lock	Lock	Lock
	Tri-Level sync (23/24PsF)	SD	SD	SD	Unlock	Unlock	Unlock
1080i 720p	BB	1080i/720p	BB	1080i/720p	Lock	Lock	Lock
	Tri-Level sync (1080i)	1080i/720p	BB	1080i/720p	Lock	Lock	Lock
	Tri-Level sync (720p)	1080i/720p	BB	1080i/720p	Lock	Lock	Lock
	Tri-Level sync (23/24PsF)	1080i/720p	BB	1080i/720p	Unlock	Unlock	Unlock
23/24PsF	BB	23/24PsF	BB	23/24PsF	Unlock	Lock	Unlock
	Tri-Level sync (1080i)	23/24PsF	BB	23/24PsF	Unlock	Lock	Unlock
	Tri-Level sync (720p)	23/24PsF	BB	23/24PsF	Unlock	Lock	Unlock
	Tri-Level sync (23/24PsF)	23/24PsF	BB	23/24PsF	Lock	Unlock	Lock

Lock:

The output video is locked to the genlock signal.

Unlock:

The output video displays correctly, however, it is not locked to the genlock signal.

1080/24PsF:

1080/24PsF represents both 1080/24PsF signals and 1080/23.98PsF signals in this table.

11-2. When FA-90UD Configured

The following tables show the format compatibility (lock/unlock) between genlock input and video output based on the input video format when FA-90UD is used.

◆ **When SD signal is input:**

Video input	Genlock input	MODE SELECT-OUTPUT setting (No20)	Video output								
			Composite			SDI			Component		
			OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status
SD	BB, Tri-sync (1080i), Tri-sync (720p)	1080i	THROUGH	SD	Lock	THROUGH	SD	Lock	THROUGH	SD	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	1080i	Lock	HDTV	1080i	Lock
			-	-	-	UP/DOWN	1080i	Lock	UP/DOWN	1080i	Lock
		720p	THROUGH	SD	Lock	THROUGH	SD	Lock	THROUGH	SD	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	720p	Lock	HDTV	720p	Lock
			-	-	-	UP/DOWN	720p	Lock	UP/DOWN	720p	Lock

Video input	Genlock input	MODE SELECT-OUTPUT setting (No20)	Video output								
			Composite			SDI			Component		
			OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status
SD	BB, Tri-sync (1080i), Tri-sync (720p)	1080/24PsF	THROUGH	SD	Lock	THROUGH	SD	Lock	THROUGH	SD	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	1080/24PsF	Unlock	HDTV	1080/24PsF	Unlock
			-	-	-	UP/DOWN	1080/24PsF	Unlock	UP/DOWN	1080/24PsF	Unlock
		ASPECT	THROUGH	SD	Lock	THROUGH	SD	Lock	THROUGH	SD	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	SD	Lock	HDTV	SD	Lock
			-	-	-	UP/DOWN	SD	Lock	UP/DOWN	SD	Lock
		IP CONVERT	THROUGH	SD	Lock	THROUGH	SD	Lock	THROUGH	SD	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	SD	Lock	HDTV	SD	Lock
			-	-	-	UP/DOWN	SD	Lock	UP/DOWN	SD	Lock
SD	Tri-sync (1080/24PsF)	1080i	THROUGH	SD	Unlock	THROUGH	SD	Unlock	THROUGH	SD	Unlock
			DOWN	SD	Unlock	SDTV	SD	Unlock	SDTV	SD	Unlock
			-	-	-	HDTV	1080i	Unlock	HDTV	1080i	Unlock
			-	-	-	UP/DOWN	1080i	Unlock	UP/DOWN	1080i	Unlock
		720p	THROUGH	SD	Unlock	THROUGH	SD	Unlock	THROUGH	SD	Unlock
			DOWN	SD	Unlock	SDTV	SD	Unlock	SDTV	SD	Unlock
			-	-	-	HDTV	720p	Unlock	HDTV	720p	Unlock
			-	-	-	UP/DOWN	720p	Unlock	UP/DOWN	720p	Unlock
		1080/24PsF	THROUGH	SD	Unlock	THROUGH	SD	Unlock	THROUGH	SD	Unlock
			DOWN	SD	Unlock	SDTV	SD	Unlock	SDTV	SD	Unlock
			-	-	-	HDTV	1080/24PsF	Lock	HDTV	1080/24PsF	Lock
			-	-	-	UP/DOWN	1080/24PsF	Lock	UP/DOWN	1080/24PsF	Lock
		ASPECT	THROUGH	SD	Unlock	THROUGH	SD	Unlock	THROUGH	SD	Unlock
			DOWN	SD	Unlock	SDTV	SD	Unlock	SDTV	SD	Unlock
			-	-	-	HDTV	SD	Unlock	HDTV	SD	Unlock
			-	-	-	UP/DOWN	SD	Unlock	UP/DOWN	SD	Unlock
		IP CONVERT	THROUGH	SD	Unlock	THROUGH	SD	Unlock	THROUGH	SD	Unlock
			DOWN	SD	Unlock	SDTV	SD	Unlock	SDTV	SD	Unlock
			-	-	-	HDTV	SD	Unlock	HDTV	SD	Unlock
			-	-	-	UP/DOWN	SD	Unlock	UP/DOWN	SD	Unlock

Lock: The output video is locked to the genlock signal.
Unlock: The output video displays correctly, however, it is not locked to the genlock signal.
1080/24PsF: 1080/24PsF represents both 1080/24PsF signals and 1080/23.98PsF signals in this table.

Do NOT input signals with 59.94Hz or 23.98Hz and signals with 50Hz or 24Hz at the same time. Otherwise, the output video will display incorrectly.
Output video and Genlock status are listed according to MODE SELECT -OUTPUT setting (Menu no.20, see 5-14-1) and OUTPUT MODE setting (Menu no.21, see 5-14-2).

◆ When 1080i or 720p signal is input:

Video input	Genlock input	MODE SELECT-OUTPUT setting (No20)	Video output								
			Composite			SDI			Component		
			OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status
1080i	BB, Tri-sync (1080i), Tri-sync (720p)	1080i, 720p, 1080/24PsF	THROUGH	Black Burst	Lock	THROUGH	1080i	Lock	THROUGH	1080i	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	1080i	Lock	HDTV	1080i	Lock
			-	-	-	UP/DOWN	SD	Lock	UP/DOWN	SD	Lock
		ASPECT	THROUGH	Black Burst	Lock	THROUGH	1080i	Lock	THROUGH	1080i	Lock
			DOWN	Black Burst	Lock	SDTV	1080i	Lock	SDTV	1080i	Lock
			-	-	-	HDTV	1080i	Lock	HDTV	1080i	Lock
			-	-	-	UP/DOWN	1080i	Lock	UP/DOWN	1080i	Lock
		IP CONVERT	THROUGH	Black Burst	Lock	THROUGH	1080i	Lock	THROUGH	1080i	Lock
			DOWN	Black Burst	Lock	SDTV	720p	Lock	SDTV	720p	Lock
			-	-	-	HDTV	720p	Lock	HDTV	720p	Lock
			-	-	-	UP/DOWN	720p	Lock	UP/DOWN	720p	Lock
720p	BB, Tri-sync (1080i), Tri-sync (720p)	1080i, 720p, 1080/24PsF	THROUGH	Black Burst	Lock	THROUGH	720p	Lock	THROUGH	720p	Lock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	720p	Lock	HDTV	720p	Lock
			-	-	-	UP/DOWN	SD	Lock	UP/DOWN	SD	Lock
		ASPECT	THROUGH	Black Burst	Lock	THROUGH	720p	Lock	THROUGH	720p	Lock
			DOWN	Black Burst	Lock	SDTV	720p	Lock	SDTV	720p	Lock
			-	-	-	HDTV	720p	Lock	HDTV	720p	Lock
			-	-	-	UP/DOWN	720p	Lock	UP/DOWN	720p	Lock
		IP CONVERT	THROUGH	Black Burst	Lock	THROUGH	720p	Lock	THROUGH	720p	Lock
			DOWN	Black Burst	Lock	SDTV	1080i	Lock	SDTV	1080i	Lock
			-	-	-	HDTV	1080i	Lock	HDTV	1080i	Lock
			-	-	-	UP/DOWN	1080i	Lock	UP/DOWN	1080i	Lock

Lock: The output video is locked to the genlock signal.
Unlock: The output video displays correctly, however, it is not locked to the genlock signal.
1080/24PsF: 1080/24PsF represents both 1080/24PsF signals and 1080/23.98PsF signals in this table.

Do NOT input signals with 59.94Hz or 23.98Hz and signals with 50Hz or 24Hz at the same time. Otherwise, the output video will display incorrectly.
Output video and Genlock status are listed according to MODE SELECT -OUTPUT setting (Menu no.20, see 5-14-1) and OUTPUT MODE setting (Menu no.21, see 5-14-2).
When Tri-Level sync (1080/24PsF) is input as a genlock signal, the output video displays correctly, however, it is not locked to the genlock signal.

◆ When 1080/24PsF or 1080/23.98PsF is input:

Video input	Genlock input	MODE SELECT-OUTPUT setting (No20)	Video output								
			Composite			SDI			Component		
			OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status	OUTPUT MODE setting (No21)	Video output	Genlock status
1080/ 24PsF	BB, Tri-sync (1080i), Tri-sync (720p)	1080i, 720p, 1080/24PsF	THROUGH	Black Burst	Lock	THROUGH	1080/24PsF	Unlock	THROUGH	1080/24PsF	Unlock
			DOWN	SD	Lock	SDTV	SD	Lock	SDTV	SD	Lock
			-	-	-	HDTV	1080/24PsF	Unlock	HDTV	1080/24PsF	Unlock
			-	-	-	UP/DOWN	SD	Lock	UP/DOWN	SD	Lock
		ASPECT IP CONVERT	THROUGH	Black Burst	Lock	THROUGH	1080/24PsF	Unlock	THROUGH	1080/24PsF	Unlock
			DOWN	Black Burst	Lock	SDTV	1080/24PsF	Unlock	SDTV	1080/24PsF	Unlock
			-	-	-	HDTV	1080/24PsF	Unlock	HDTV	1080/24PsF	Unlock
			-	-	-	UP/DOWN	1080/24PsF	Unlock	UP/DOWN	1080/24PsF	Unlock
	Tri-sync (1080/24PsF)	1080i, 720p, 1080/24PsF	THROUGH	Black Burst	Unlock	THROUGH	1080/24PsF	Lock	THROUGH	1080/24PsF	Lock
			DOWN	SD	Unlock	SDTV	SD	Unlock	SDTV	SD	Unlock
			-	-	-	HDTV	1080/24PsF	Lock	HDTV	1080/24PsF	Lock
			-	-	-	UP/DOWN	SD	Unlock	UP/DOWN	SD	Unlock
		ASPECT, IP CONVERT	THROUGH	Black Burst	Unlock	THROUGH	1080/24PsF	Lock	THROUGH	1080/24PsF	Lock
			DOWN	Black Burst	Unlock	SDTV	1080/24PsF	Lock	SDTV	1080/24PsF	Lock
			-	-	-	HDTV	1080/24PsF	Lock	HDTV	1080/24PsF	Lock
			-	-	-	UP/DOWN	1080/24PsF	Lock	UP/DOWN	1080/24PsF	Lock

Lock: The output video is locked to the genlock signal.
Unlock: The output video displays correctly, however, it is not locked to the genlock signal.
1080/24PsF: 1080/24PsF represents both 1080/24PsF signals and 1080/23.98PsF signals in this table.

Do NOT input signals with 59.94Hz or 23.98Hz and signals with 50Hz or 24Hz at the same time. Otherwise, the output video will display incorrectly.
Output video and Genlock status are listed according to MODE SELECT -OUTPUT setting (Menu no.20, see 5-14-1) and OUTPUT MODE setting (Menu no.21, see 5-14-2).

12. When System Phase Adjustment is Available or Not Available:

◆ When in standard configuration:

Input Signal	525/60				625/50				1080/59.94i, 720/59.94p				1080/50i, 720/50p				1080/23.98PsF				1080/24PsF			
Genlock IN (Frame rate) (Hz)	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24
SD SYSTEM PHASE(No10)	○	×	×	×	×	○	×	×	○	×	×	×	×	○	×	×	○	×	×	×	×	○	×	×
HD SYSTEM PHASE(No12)	×	×	×	×	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○

○ : Adjustable
× : Not adjustable

◆ When the FA-90UD option is installed:

Output setting (No20)	Up/Down																													
UP CONV FMT setting (No20)	1080i, 720p																1080/24PsF													
Input Signal	525/60, 1080/59.94i, 720/59.94p				625/50, 1080/50i, 720/50p				1080/23.98PsF				1080/24PsF				525/60, 1080/23.98PsF				625/50, 1080/24PsF				1080/59.94i, 720/59.94p				1080/50i, 720/50p			
Genlock IN (Frame rate) (Hz)	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24
SD SYSTEM PHASE(No10)	○	×	×	×	×	○	×	×	○	×	×	×	×	○	×	×	○	×	×	×	×	○	×	×	○	×	×	×	×	○	×	×
HD SYSTEM PHASE(No12)	○	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○	×	×	○	×	×	×	×	○	○	×	×	×	×	○	×	×

Output setting (No20)	ASPECT, IP CONVERT															
UP CONV FMT setting (No20)																
Input Signal	525/60, 1080/59.94i, 720/59.94p				625/50, 1080/50i, 720/50p				1080/23.98PsF				1080/24PsF			
Genlock IN (Frame rate) (Hz)	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24
SD SYSTEM PHASE(No10)	○	×	×	×	×	○	×	×	×	×	×	×	×	×	×	×
HD SYSTEM PHASE(No12)	○	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○

◆ When the FA-91FRC option is installed:

Output setting (No20)	FRC																							
FRC OUT FMT setting (No20)	525/60, 625/50, 1080/59.94i, 1080/50i, 1080/23.98PsF, 1080/24PsF, 720/59.94p, 720/50p																							
GENLOCK SEL setting (No20)	THRU OUT																							
Input Signal	525/60				625/50				1080/59.94i, 720/59.94p				1080/50i, 720/50p				1080/23.98PsF				1080/24PsF			
Genlock IN (Frame rate) (Hz)	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24
SD SYSTEM PHASE(No10)	○	×	×	×	×	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
HD SYSTEM PHASE(No12)	×	×	×	×	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○

Output setting (No20)	FRC																							
FRC OUT FMT setting (No20)	525/60				625/50				1080/59.94i, 720/59.94p				1080/50i, 720/50p				1080/23.98PsF				1080/24PsF			
GENLOCK SEL setting (No20)	FRC OUT																							
Input Signal	525/60, 625/50, 1080/59.94i, 1080/50i, 1080/23.98PsF, 1080/24PsF, 720/59.94p, 720/50p																							
Genlock IN (Frame rate) (Hz)	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24	59.94	50	23.98	24
SD SYSTEM PHASE(No10)	○	×	×	×	×	○	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
HD SYSTEM PHASE(No12)	×	×	×	×	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○	×	×	×	×	○

13. About Up/Down Converter (FA-90UD)

The OUTPUT MODE menu (Menu No.21, Sec. 5-14-1) and the MODE SELECT menu (Menu No.20, Sec. 5-14-2) determine the output signal formats as below.

◆ **Up/Down Conversion**

To up-convert or down-convert signals, select **Up/Down** for OUTPUT in MODE SELECT menu.

Input Signal	Output setting (No20)	---	Up/Down							
	OUTPUT MODE setting (No21)	THROUGH	DOWN	SDTV	HDTV			UP/ DOWN		
	Up Conv FMT setting (No20)	---	---	---	1080i	720p	1080/24PsF	1080i	720p	1080/24PsF
525/60	→	525/60	525/60	525/60	1080/ 59.94i	720/ 59.94p	1080/23.98PsF	1080/59.94i	720/59.94p	1080/23.98PsF
625/50	→	625/50	625/50	625/50	1080/50i	720/50p	1080/24PsF	1080/50i	720/50p	1080/24PsF
1080/ 59.94i	→	1080/ 59.94i	525/60	525/60	1080/ 59.94i	1080/ 59.94i	1080/ 59.94i	525/60	525/60	525/60
1080/50i	→	1080/50i	625/50	625/50	1080/50i	1080/50i	1080/50i	625/50	625/50	625/50
720/ 59.94p	→	720/ 59.94p	525/60	525/60	720/ 59.94p	720/ 59.94p	720/ 59.94p	525/60	525/60	525/60
720/50p	→	720/50p	625/50	625/50	720/50p	720/50p	720/50p	625/50	625/50	625/50
1080/ 23.98PsF	→	1080/23.98PsF	525/60	525/60	1080/23.98PsF	1080/ 23.98PsF	1080/23.98PsF	525/60	525/60	525/60
1080/24PsF	→	1080/24PsF	625/50	625/50	1080/24PsF	1080/24PsF	1080/24PsF	625/50	625/50	625/50

◆ **ASPECT Conversion and IP Conversion**

To perform aspect or IP conversion, select **ASPECT** or **IP CONVERT** for OUTPUT in MODE SELECT menu

Output Signal Format for HD/SD Analog Component OUT and SDI OUT1-3

Input Signal	Output setting (No20)	---	ASPECT	IP CONVERT
	OUTPUT MODE setting (No21)	THROUGH	SDTV, HDTV, UP/ DOWN	SDTV, HDTV, UP/ DOWN
525/60	→	525/60	525/60	525/60
625/50	→	625/50	625/50	625/50
1080/ 59.94i	→	1080/ 59.94i	1080/ 59.94i	720/ 59.94p (IP CONV)
1080/50i	→	1080/50i	1080/50i	720/50p (IP CONV)
720/ 59.94p	→	720/ 59.94p	720/ 59.94p	1080/ 59.94i (IP CONV)
720/50p	→	720/50p	720/50p	1080/50i (IP CONV)
1080/ 23.98PsF	→	1080/23.98PsF	1080/23.98PsF	1080/23.98PsF
1080/24PsF	→	1080/24PsF	1080/24PsF	1080/24PsF

Output Signal Format for Composite OUT

Input Signal	Output setting (No20)	---	ASPECT, IP CONVERT
	OUTPUT MODE setting (No21)	THROUGH	DOWN
525/60	→	525/60	525/60
625/50	→	625/50	625/50
1080/ 59.94i	→	1080/ 59.94i	BB (525/60)
1080/50i	→	1080/50i	BB (625/50)
720/ 59.94p	→	720/ 59.94p	BB (525/60)
720/50p	→	720/50p	BB (625/50)
1080/ 23.98PsF	→	1080/23.98PsF	BB (525/60)
1080/24PsF	→	1080/24PsF	BB (625/50)

* The signals in the shaded cells are not processed through the FA-90UD.

14. About Frame Rate Converter (FA-91FRC)

The OUTPUT MODE menu (Menu No.21, Sec. 5-14-1) and the MODE SELECT menu (Menu No.20, Sec. 5-14-2) determine the output signal formats as below. To perform frame rate conversion, select **FRC** for OUTPUT in MODE SELECT menu.

14-1. HD/SD Analog Component OUT and SDI OUT1-3

◆ I/O Signal Format

The signal whose format is specified at FRC OUT FMT is sent and output from Analog Component OUT and SDI OUT1-3 regardless of input signal format.

Input Signal	Output setting (No20)	---	FRC							
	OUTPUT MODE setting (No21)	THROUGH	SDTV, HDTV, UP/ DOWN							
	FRC OUT FMT setting (No20)	---	525/60	625/50	1080/59.94i	1080/50i	720/ 59.94p	720/50p	1080/ 23.98PsF	1080/24PsF
525/60	→	525/60	525/60	625/50	1080/59.94i	1080/50i	720/ 59.94p	720/50p	1080/ 23.98PsF	1080/24PsF
625/50	→	625/50								
1080/ 59.94i	→	1080/ 59.94i								
1080/50i	→	1080/50i								
720/ 59.94p	→	720/ 59.94p								
720/50p	→	720/50p								
1080/ 23.98PsF	→	1080/ 23.98PsF								
1080/24PsF	→	1080/24PsF								

In addition to the above converter setting, the analog component output can be set in the OUTPUT item in the COMPONENT MODE SEL menu (Menu No.9, Sec.5-5).
Be careful to select for the HDTV converter output because Y/C or Composite is set for the HDTV converter output, BLACK signal is output from the Analog Component OUT.

14-2. Composite OUT

◆ I/O Signal Format

The signal whose format is specified at FRC OUT FMT (SDTV only) is sent and output from Composite OUT regardless of input signal format. If HD signal is specified at FRC OUT FMT, SD Black Burst signal with the same frame rate as the HD signal is output from Composite OUT.

Input Signal	Output setting (No20)	---	FRC							
	OUTPUT MODE setting (No21)	THROUGH	DOWN							
	FRC OUT FMT setting (No20)	---	525/60	625/50	1080/59.94i	1080/50i	720/ 59.94p	720/50p	1080/ 23.98PsF	1080/24PsF
525/60	→	525/60	525/60	625/50	BB (525/60)	BB (625/50)	BB (525/60)	BB (625/50)	BB (525/60)	BB (625/50)
625/50	→	625/50								
1080/ 59.94i	→	1080/ 59.94i								
1080/50i	→	1080/50i								
720/ 59.94p	→	720/ 59.94p								
720/50p	→	720/50p								
1080/ 23.98PsF	→	1080/ 23.98PsF								
1080/24PsF	→	1080/24PsF								

* The signals in the shaded cells are not processed through the FA-90UD(FA-91FRC).

◆ **When THROUGH cannot be set:**

Under the conditions described in the table below, **THROUGH** cannot be set for OUTPUT MODE (No21). OUTPUT MODE is automatically set to **DOWN**. Note that when **DOWN** is set, video signals are not sent to Composite OUT in some cases. (See section 5-14-1 and the "I/O Signal Format" table below.

Output setting (No20)	GENLOCK SEL setting (No20)	SDI output setting (No21)	Input Signal	FRC OUT FMT setting (No20)
FRC	THRU OUT	SDTV, HDTV, Up/Down	525/60, 1080/59.94i, 720/59.94p, 1080/23.98PsF	1080/50i, 720/50p, 1080/24PsF
			625/50, 1080/50i, 720/50p, 1080/24PsF	1080/59.94i, 720/59.94p, 1080/23.98PsF
	FRC OUT	THROUGH	525/60, 1080/59.94i, 720/59.94p, 1080/23.98PsF	625/50, 1080/50i, 720/50p, 1080/24PsF
			625/50, 1080/50i, 720/50p, 1080/24PsF	525/60, 1080/59.94i, 720/59.94p, 1080/23.98PsF

14-3. Embedded Audio

Under the conditions described in the table below, embedded audio is masked, AUDIO EMBED (No.91) is automatically set to **DELETE** and **OVERWRITE** or **THROUGH** cannot be set for AUDIO EMBED (No.91). (See section 5-14-1 and 5-26-18.)

Output setting (No20)	GENLOCK SEL setting (No20)	Input signal	FRC OUT FMT setting (No20)
FRC	FRC OUT	1080/59.94i, 20/59.94p, 1080/23.98PsF	1080/50i, 720/50p, 1080/24PsF
		1080/50i, 720/50p, 1080/24PsF	1080/59.94i, 720/59.94p, 1080/23.98PsF

15. Supported Formats of Dolby E

15-1. Decoder (FA-90DE-D/FA-91DE-ED)

Program Configuration	Bit Depth	Dolby E Frame Rate (Corresponding video frame/field rate)							
		29.97 (59.94i)	30 (60i)	23.98 (23.98p)	24 (24p)	25 (50i)	59.94 (59.94p)	60 (60p)	50 (50p)
Dolby E5.1 + 2	20	○	○	○	○	○	×	×	×
Dolby E5.1 + 2 x 1	20	○	○	○	○	○	×	×	×
Dolby E4 + 4	20	○	△	△	△	○	×	×	×
Dolby E4 + 2 x 2	20	○	△	△	△	○	×	×	×
Dolby E4 + 2 + 2 x 1	20	○	△	△	△	○	×	×	×
Dolby E4 + 4 x 1	20	○	△	△	△	○	×	×	×
Dolby E4 x 2	20	○	○	○	○	○	×	×	×
Dolby E3 x 2 + 2 x 1	20	○	△	△	△	○	×	×	×
Dolby E2 x 2 + 4 x 1	20	○	△	△	△	○	×	×	×
Dolby E2 + 6 x 1	20	○	△	△	△	○	×	×	×
Dolby E8 x 1	20	○	○	○	○	○	×	×	×
Dolby E5.1	16 / 20	○	△／○	△／○	△／○	○	×	×	×
Dolby E4 + 2	16 / 20	○	△	△	△	○	×	×	×
Dolby E4 + 2 x 1	16 / 20	○	△	△	△	○	×	×	×
Dolby E3 x 2	16 / 20	○	△／○	△／○	△／○	○	×	×	×
Dolby E2 x 2 + 2 x 1	16 / 20	○	△	△	△	○	×	×	×
Dolby E2 + 4 x 1	16 / 20	○	△	△	△	○	×	×	×
Dolby E6 x 1	16 / 20	○	△／○	△／○	△／○	○	×	×	×
Dolby E4	16 / 20	○	△	△	△	○	×	×	×
Dolby E2 + 2	16 / 20	○	△	△	△	○	×	×	×
Dolby E2 + 2 x 1	16 / 20	○	△	△	△	○	×	×	×
Dolby E4 x 1	16 / 20	○	△	△	△	○	×	×	×
Dolby E7.1	20	○	△	△	△	○	×	×	×
Dolby E7.1 Screen	20	○	△	△	△	○	×	×	×
Dolby Digital 5.1	16	○ (frame-rate independent)							

△: not tested.

15-2. Encoder (FA-91DE-ED)

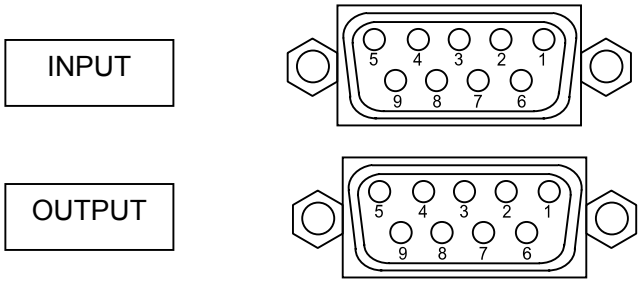
Program Configuration	Bit Depth	Dolby E Frame Rate (Corresponding video frame/field rate)							
		29.97 (59.94i)	30 (60i)	23.98 (23.98p)	24 (24p)	25 (50i)	59.94 (59.94p)	60 (60p)	50 (50p)
Dolby E5.1 + 2	20	○	×	×	×	○	×	×	×
Dolby E5.1 + 2 x 1	20	○	×	×	×	○	×	×	×
Dolby E4 + 4	20	×	×	×	×	×	×	×	×
Dolby E4 + 2 x 2	20	×	×	×	×	×	×	×	×
Dolby E4 + 2 + 2 x 1	20	×	×	×	×	×	×	×	×
Dolby E4 + 4 x 1	20	×	×	×	×	×	×	×	×
Dolby E4 x 2	20	○	×	×	×	○	×	×	×
Dolby E3 x 2 + 2 x 1	20	×	×	×	×	×	×	×	×
Dolby E2 x 2 + 4 x 1	20	×	×	×	×	×	×	×	×
Dolby E2 + 6 x 1	20	×	×	×	×	×	×	×	×
Dolby E8 x 1	20	○	×	×	×	○	×	×	×
Dolby E5.1	16 / 20	○	×	×	×	○	×	×	×
Dolby E4 + 2	16 / 20	×	×	×	×	×	×	×	×
Dolby E4 + 2 x 1	16 / 20	×	×	×	×	×	×	×	×
Dolby E3 x 2	16 / 20	○	×	×	×	○	×	×	×
Dolby E2 x 2 + 2 x 1	16 / 20	×	×	×	×	×	×	×	×
Dolby E2 + 4 x 1	16 / 20	×	×	×	×	×	×	×	×
Dolby E6 x 1	16 / 20	○	×	×	×	○	×	×	×
Dolby E4	16 / 20	×	×	×	×	×	×	×	×
Dolby E2 + 2	16 / 20	×	×	×	×	×	×	×	×
Dolby E2 + 2 x 1	16 / 20	×	×	×	×	×	×	×	×
Dolby E4 x 1	16 / 20	×	×	×	×	×	×	×	×
Dolby E7.1	20	×	×	×	×	×	×	×	×
Dolby E7.1 Screen	20	×	×	×	×	×	×	×	×
Dolby Digital 5.1	16	× (frame-rate independent)							

* Encodes Dolby E at 25fps or 29.97fps when the video output is 50p or 59.94p.

16. ANALOG AUDIO IN/OUT Configuration

16-1. Factory Default Configuration

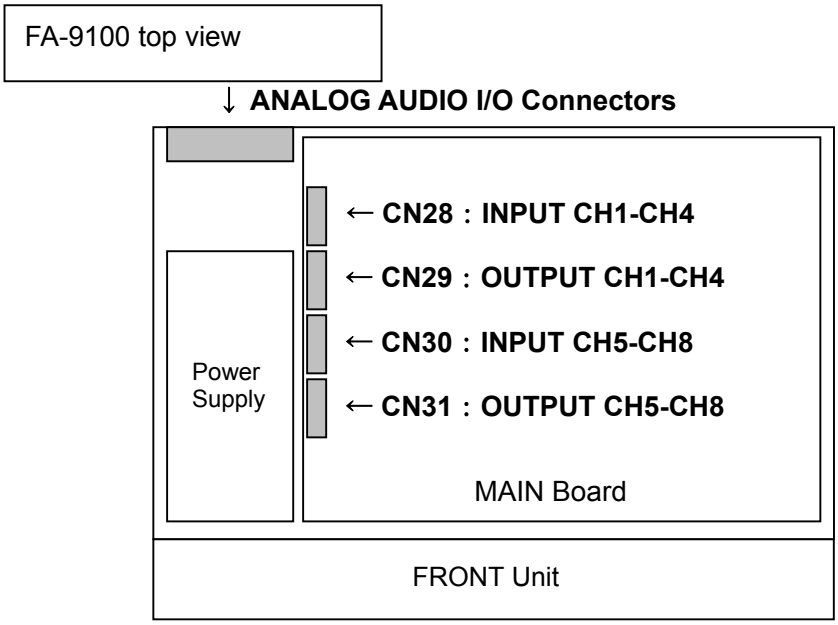
The factory default configurations for ANALOG AUDIO IN/OUT connectors are as shown below.



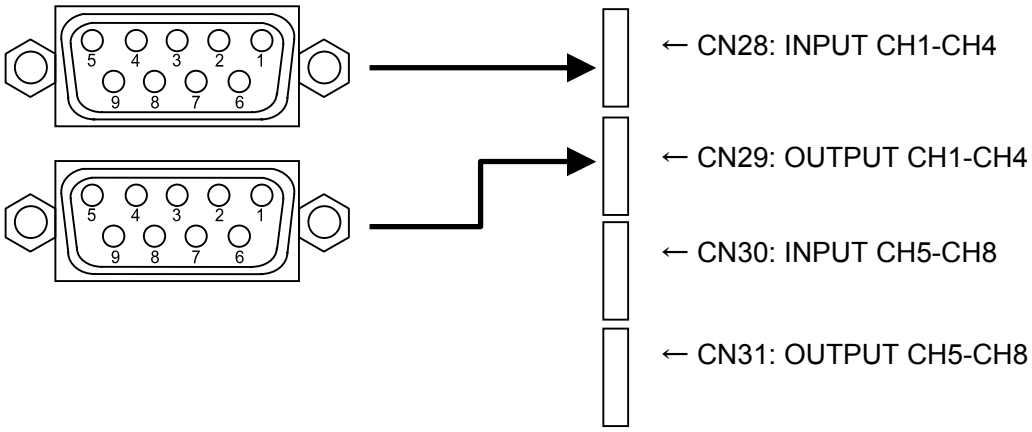
16-2. Changing the IN/OUT Configurations

Follow the procedure below for changing the input/output configurations.

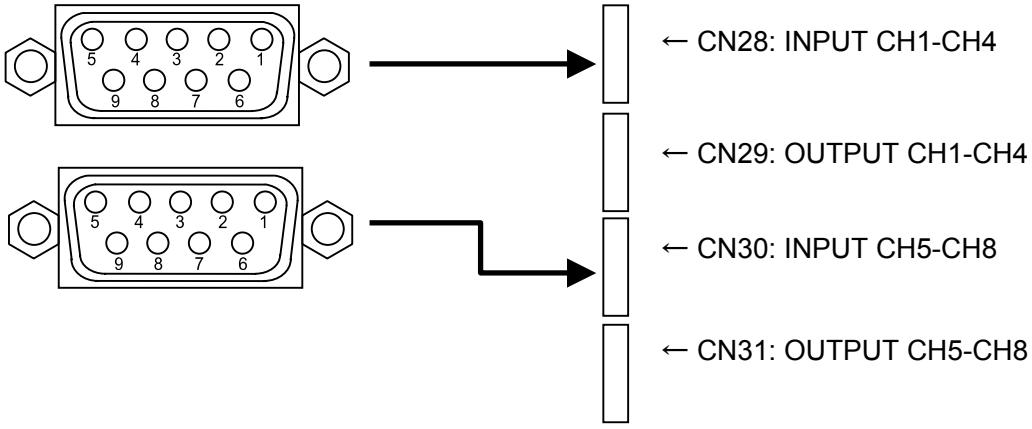
1) Turn off the power of FA-9100/RPS.
2) Open the top panel.
3) The ANALOG AUDIO IN/OUT connectors CN28-CN31 are located on the MAIN board as shown in the figure below. Change the cable connections depending on your needs. (See the figures on the next page.)



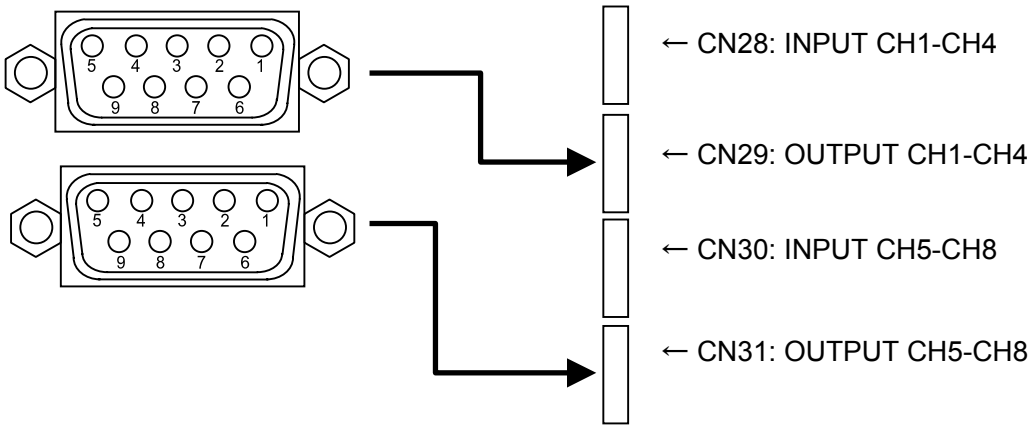
INPUT CH1-CH4 and OUTPUT CH1-CH4



INPUT CH1-CH8



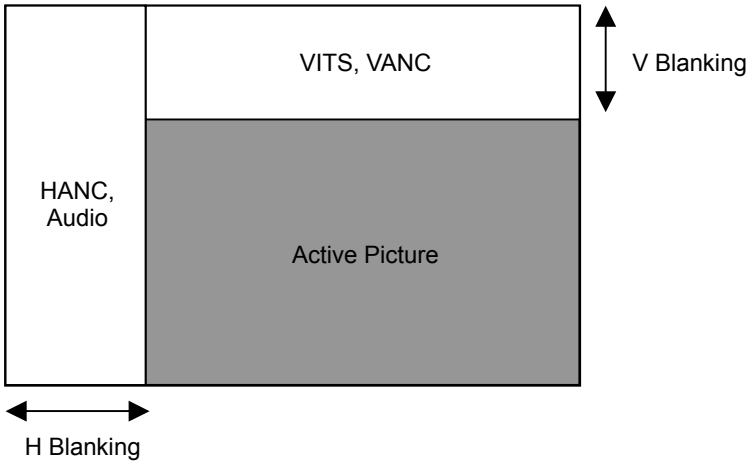
OUTPUT CH1-CH8



17. Pass/Blank Area in the Blanking Period

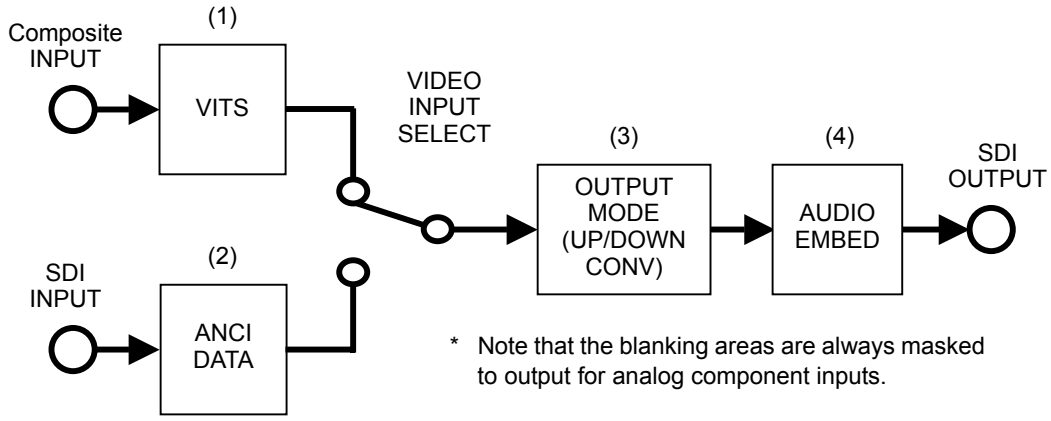
17-1. Data Areas and Related Menu Items

◆ **Data Areas in the Horizontal and Vertical Blanking Periods**



◆ **Data Process and Related Menu Items**

Whether the data (HANC, VANC, VITS embedded audio, etc.) in the vertical blanking period of input video is passed through to output or not is determined by the following menu settings from (1) to (4).



If the FA-90UD (FA-91FRC) option is installed on the unit, input video standard also affects the vertical blanking data processing besides the menus.

17-2. How To Pass or Blank Data

The combinations of settings to pass or blank the data in the HANC and/or VITS area are as shown in the table below.

Menu Item (Refer to)	VITS (5-13)	ANCI DATA (5-13)	OUTPUT MODE (5-14-2)	AUDIO EMBED (5-26-18)
To pass HANC and VITS (for SDI inputs)	-	Pass	Through	Through
To pass VITS (for analog composite inputs)	ON	-	Through	-
To mask HANC and VITS (for SDI inputs)	-	Blank	-	-
To mask VITS (for analog composite inputs)	OFF	-	-	-

The detailed relationships of these menu items are as follows:

(1) **VITS** determines to pass (ON) or blank (OFF) the VITS area.

(2) ANCI DATA determienes to pass (Pass) or blank (Blank) the HANC area.

(3) If **OUTPUT MODE** (see sec. 5-14-2) is set to Through when FA-90UD (FA-91FRC) option is installed, the data in the HANC and VITS areas are always passed through.
If other setting than THROUGH is set for **OUTPUT MODE**, **OUTPUT** in the MODE SELECT menu (see sec. 5-14-1) and input video standard determine the data processing of HANC and VITS areas. The data in both areas are **passed** if the combination of input/output video standard is listed in the **shaded cell** on the I/O format tables (See section 13 for FA-90UD and section 14 for FA-91FRC). The data in both areas are **not passed** if it is listed in the **normal cell** on the tables.

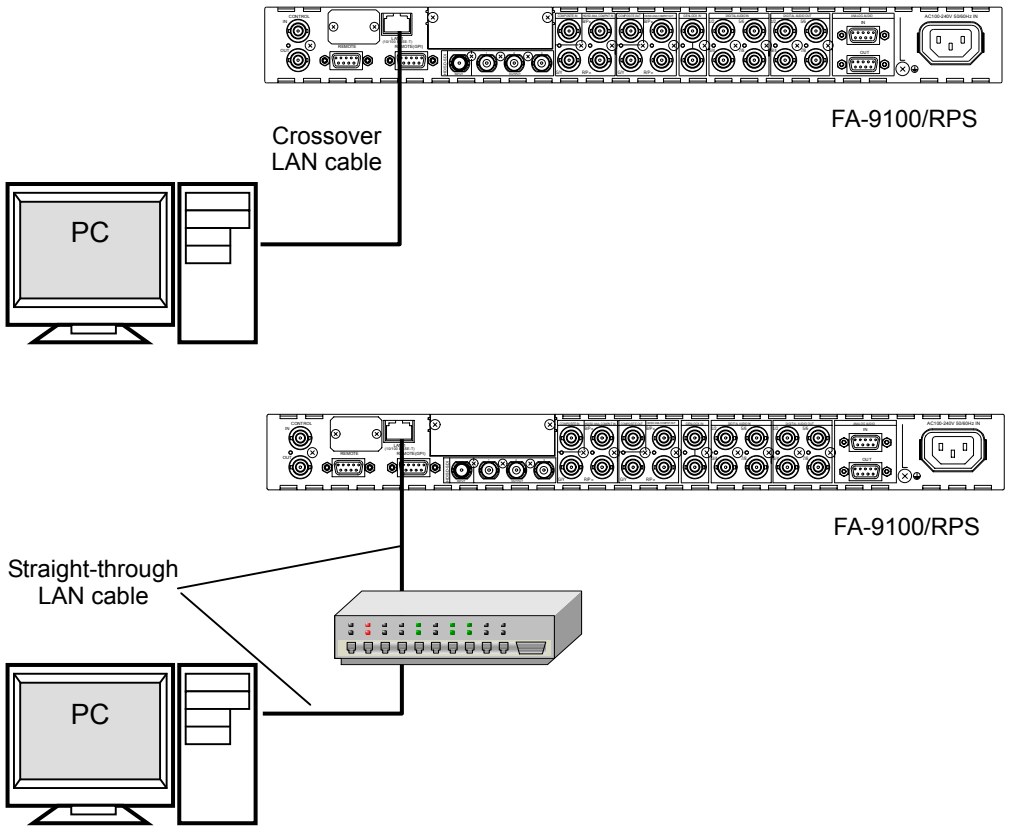
(4) **AUDIO EMBED** affects the HANC area data processing. If set to Delete, input audio data is deleted. If set to Through, all data in HANC area is passed through. If set to Overwrite, the system deletes the input audio and writes the preprocessed audio into this area.

18. Network Settings

By using the SNMP (Simple Network Management Protocol) management tool, FA-9100/RPS can be remotely monitored and controlled via the computer.

18-1. Connecting FA-9100/RPS to Computer

The connection between FA-9100/RPS and the computer should be made separately from the existing LAN, using a crossover cable or a hub.



◆ **Setting the IP Address of the Computer**

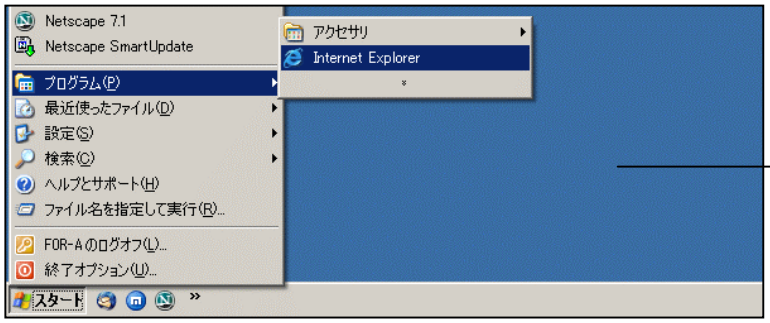
The factory default IP address and subnet mask of the Ethernet port on FA-9100/RPS are as follows.

IP address: 192.168.0.100
Subnet mask: 255.255.255.0

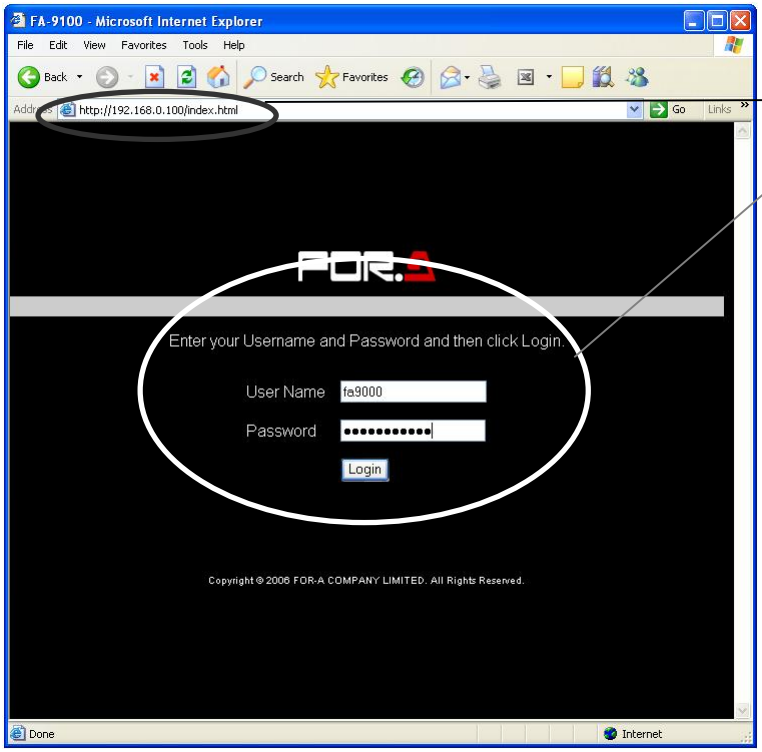
IMPORTANT
Be sure that the IP address of the computer and FA-9100/RPS are unique from each other.

18-2. Login

1) Go to **start > Program (P) > Internet Explorer**. The browser is displayed.

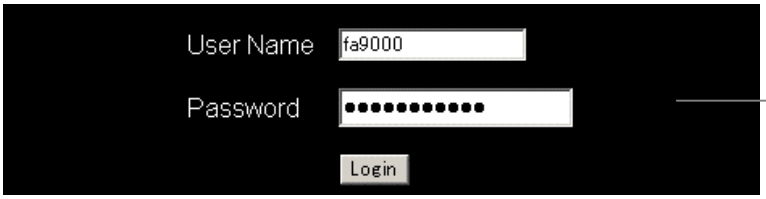


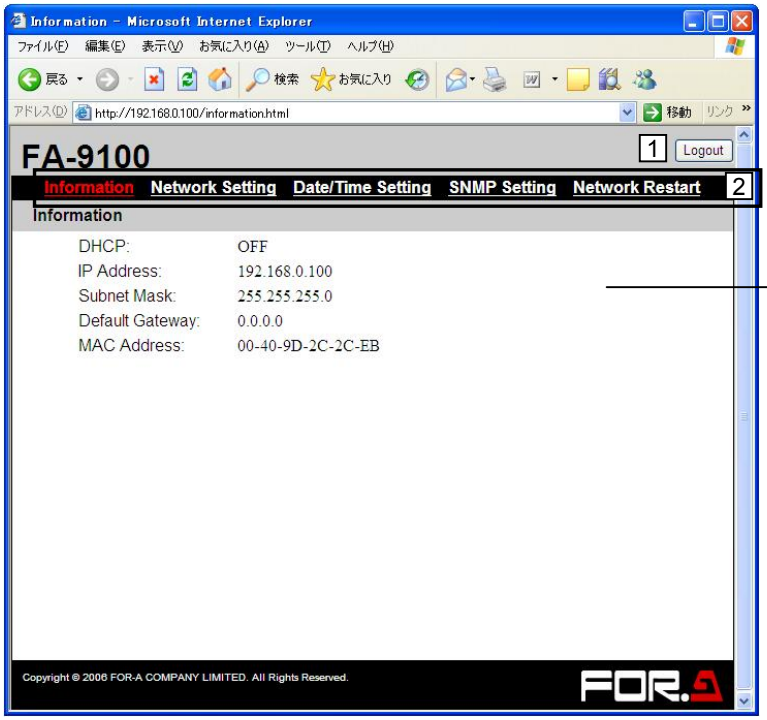
2) Type the IP address in the address bar of the browser, and press **Enter**. The login page is displayed.



NOTE
The default IP address is 192.168.0.100.

3) Type the user name and password, and click **Login**. If login is successful, the Information page is displayed.





If login is successful, the Information page is displayed.

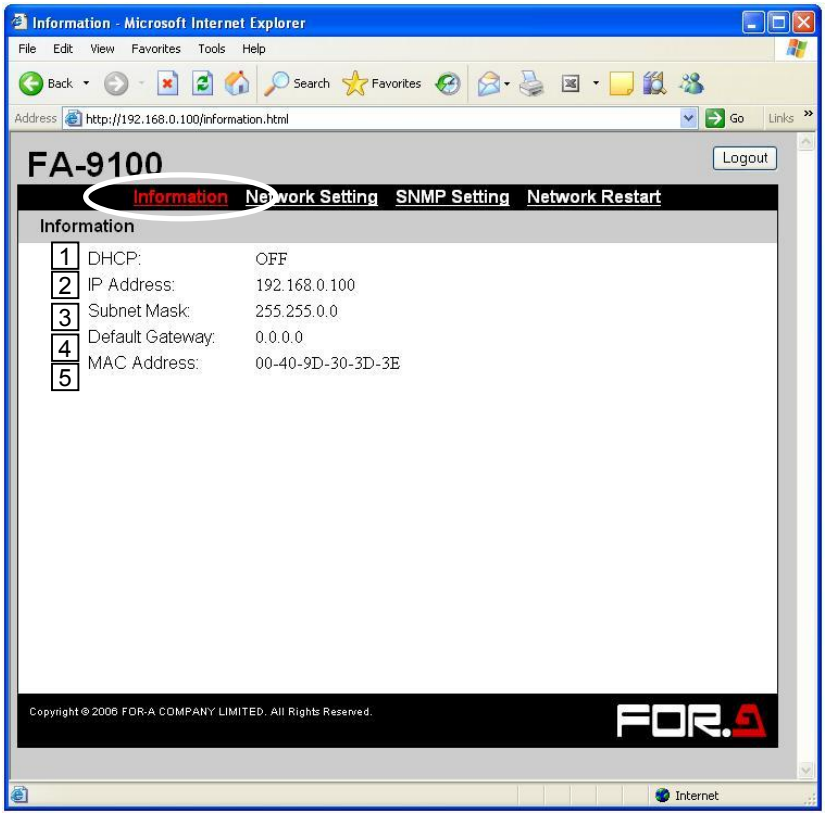
1	Logout	Be sure to click Logout before closing the window.
2	Main Menus	Allows you to move between the Information, Network Setting, Date/Time Setting, SNMP Setting, and Network Restart pages.

IMPORTANT

- The factory default user name and password are as follows.
  User Name: fa9000
  Password: foranetwork
- To change the user name and password, see section 18-4, ”Network Setting, 2 User Setting.”
- Be sure to log out before closing the window, otherwise you will not be able to login for the next 10 minutes. If this happens, wait for 10 minutes and login again on the login page.
- The system automatically logs out after 10 minutes of inactivity. If this happens, login again on the login page.
- Use single-byte alphanumeric characters only.

18-3. Information

Click **Information** to display the Information page. The current network settings are displayed on the page.

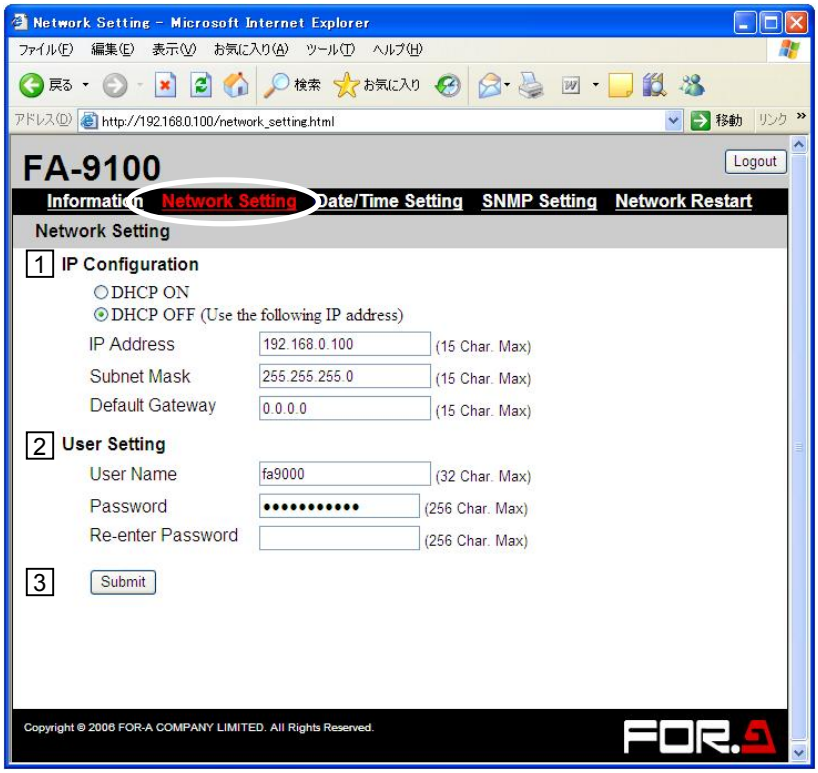


1	DHCP	Displays whether DHCP is enabled/disabled (ON/OFF).
2	IP Address	Displays the IP address.
3	Subnet Mask	Displays the subnet mask.
4	Default Gateway	Displays the default gateway address.
5	MAC Address	Displays the MAC address.

NOTE
The Information page is automatically displayed upon login. The information is not displayed when DHCP is enabled.

18-4. Network Setting

Click **Network Setting** to display the Network Setting page.

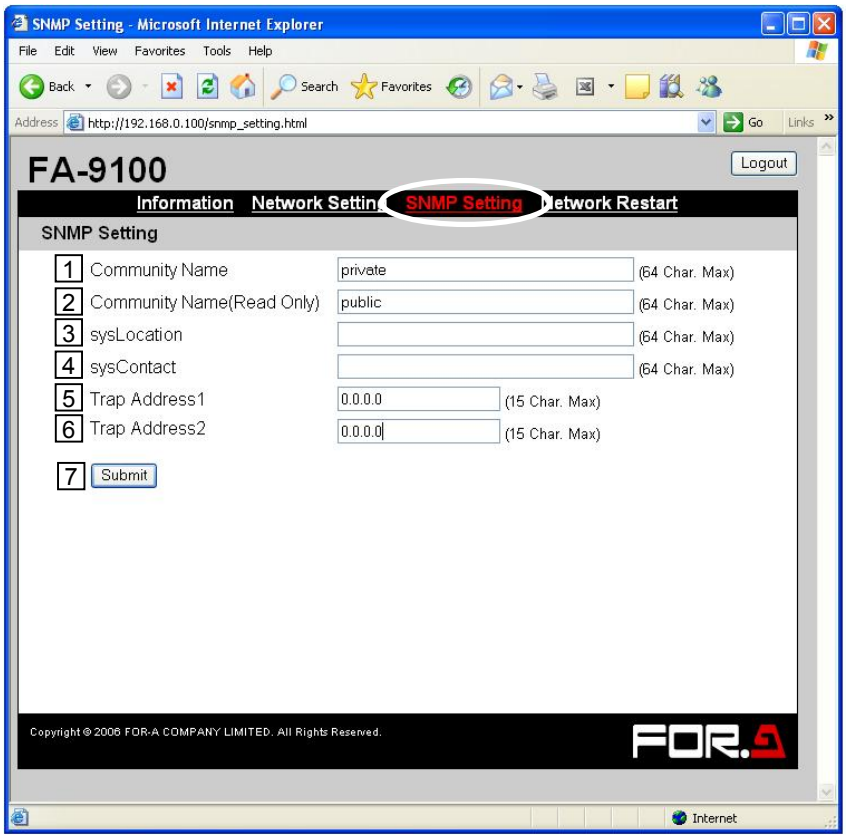


1	IP Configuration	
	DHCP ON/OFF	Determines whether DHCP is enabled or disabled (ON/OFF). If set to ON, FA-9100/RPS can receive its IP address from the DHCP server.
	IP Address	Sets the IP address
	Subnet Mask	Sets the subnet mask
	Default Gateway	Sets the default gateway address
2	User Setting	Changes the user name and password used in the login page. Enter the new user name (32 Char. Max) and password (256 Char. Max), and re-enter the password.
3	Submit	Applies settings 1 and 2 to FA-9100/RPS.

IMPORTANT
When DHCP is set to ON, IP Address, Subnet Mask and Default Gateway cannot be set. And the IP address and other information assigned by the DHCP server are not displayed.

18-5. SNMP Setting

Click **SNMP Setting** to display the SNMP Setting page.



1	Community Name	Sets the read/write SNMP community name. (64 Char. Max)
2	Community Name (Read Only)	Sets the read-only SNMP community name. (64 Char. Max)
3	sysLocation	Type the physical location information of the unit. (64 Char. Max)
4	sysContact	Type the name of the person who administrates the unit. (64 Char. Max)
5	Trap Address 1	Sets the IP address of the SNMP manager sending SNMP traps. (15 Char. Max)
6	Trap Address 2	Sets the IP address of the SNMP manager sending SNMP traps. (15 Char. Max)
7	Submit	Applies settings 1-6 to FA-9100/RPS.

18-6. Network Restart

To apply the settings made on the Network Setting and SNMP Setting pages to FA-9100/RPS, FA-9100/RPS must be restarted. To restart FA-9100/RPS, proceed as follows.

1) Click **Network Restart** to display the Network Restart page.

2) Click [Restart] in the Network Restart page.
3) FA-9100/RPS will reconnect to the network and display the Login page.
4) When the Login page is displayed, wait at least 30 seconds and then restart (turn off and turn on again) FA-9100/RPS.

IMPORTANT
Do not turn off FA-9100/RPS immediately when the Login page is displayed. Wait at least 30 seconds before restarting FA-9100/RPS.

18-7. Resetting IP Address

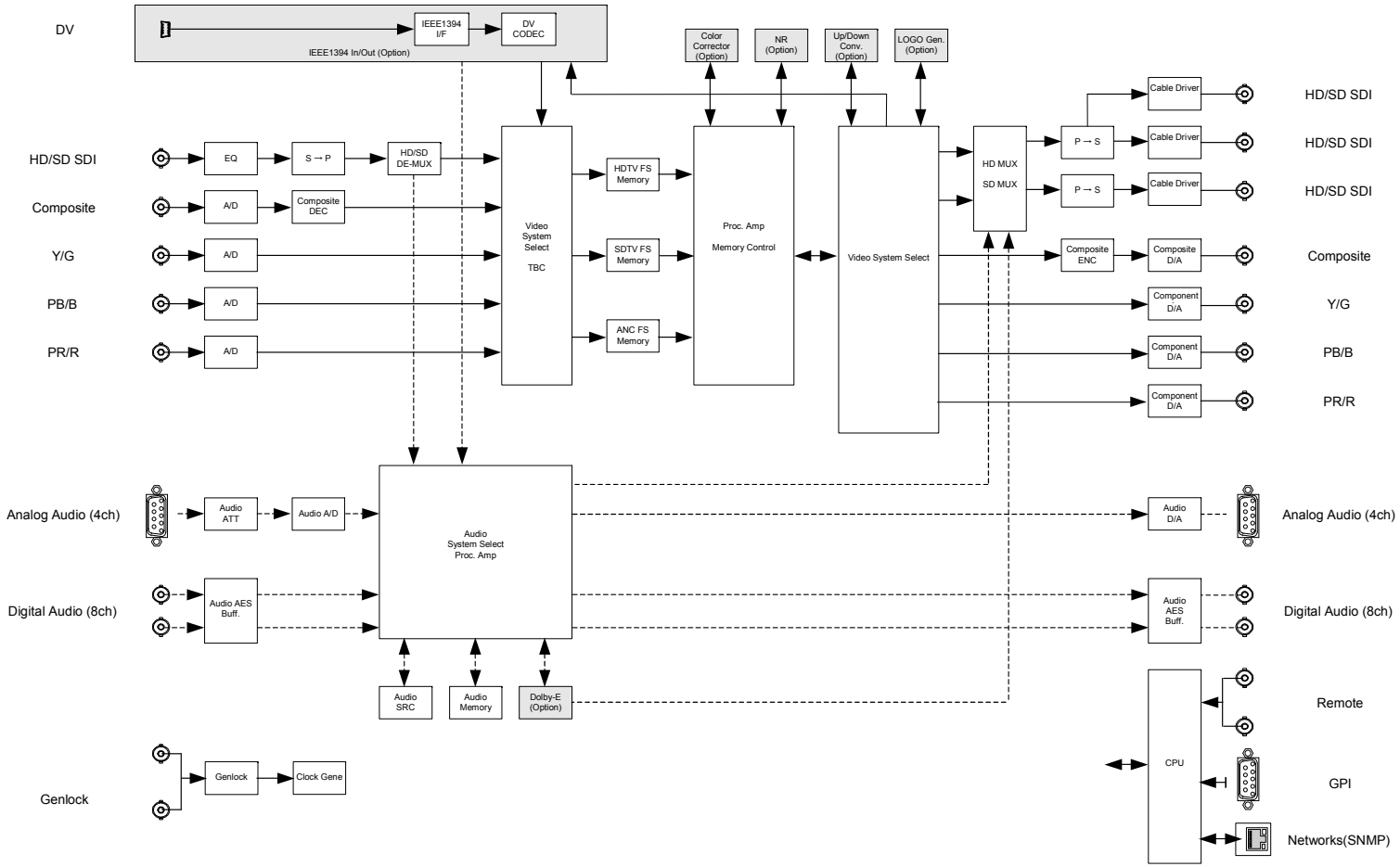
1) Turn off the power of FA-9100/RPS.
2) Open the top panel.
3) Open JP3 on SNMP CARD (JP1 on LOGO CARD if the FA-91LG or FA-91ALC option configured). (Normally shorted.)
4) Turn on the power of FA-9100/RPS.
5) Launch a web browser and go to http://192.168.0.100/.
   (The initialization is complete once connected to the page.)
6) Once connected successfully, turn off the power of FA-9100/RPS.
7) Short JP3 on SNMP CARD (JP1 on LOGO CARD if the FA-91LG or FA-91ALC option configured). (Normally shorted.)
8) Close the top panel.
9) Turn on the power of FA-9100/RPS.
10) Launch a web browser and go to http://192.168.0.100/.
11) Set a new IP address and trap addresses.

See section 18-4. “Network Setting” for details.

NOTE
Consult your FOR-A reseller for details about SNMP control and MIB (Management Information Base) information.

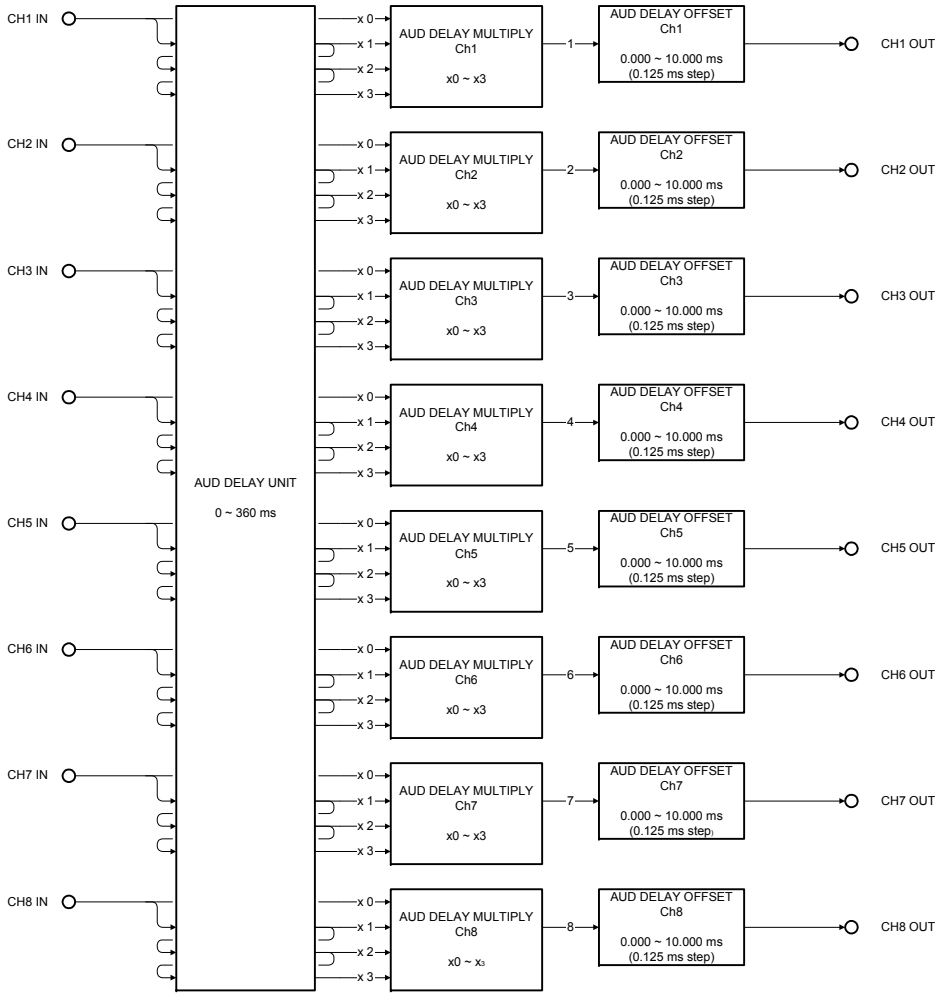
19. Block Diagrams

19-1. FA-9100/RPS

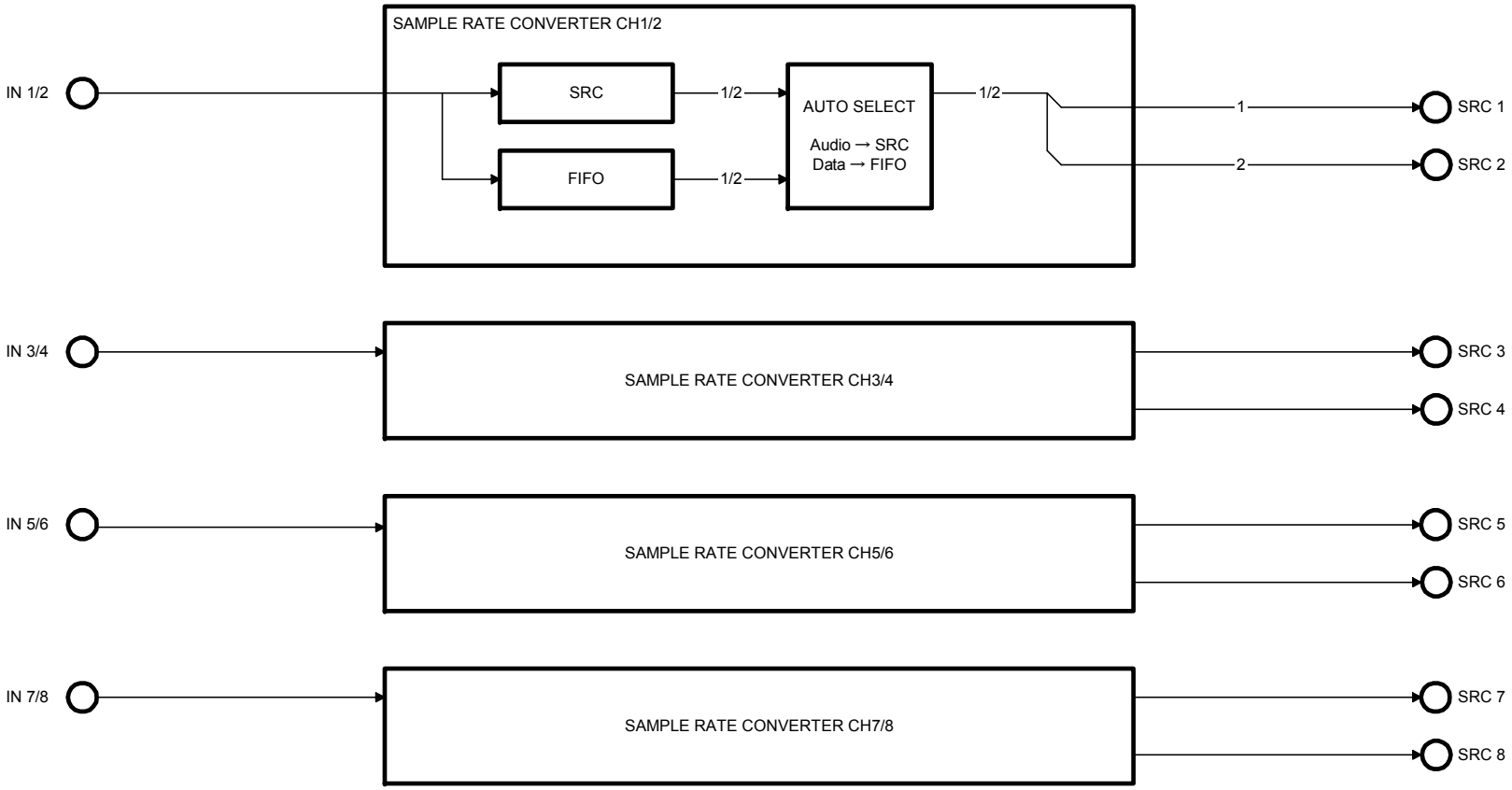


19-2. FA-9100/RPS Audio

19-3. FA-9100/RPS Audio – DELAY



19-4. FA-9100/RPS Audio – SAMPLE RATE CONVERTER



20. If Problems Occur

If any of the following problems occur during operation of your FA-9100/RPS, proceed as indicated below to see if problem can be corrected before assuming a unit malfunction has occurred.

Problem	Check	Action
Cannot control at front panel	LOCK button next to the power switch	Press the LOCK button for several seconds to enable the front panel buttons and controls. See section 2-1, “Front Panel” for details.
Input video signal not bypassed when powered off	VIDEO OUT connectors	BY-PASS is not available for HD/SD-SDI OUT2 and HD/SD-SDI OUT3.
Black and white video output (color signal input)	B/W setting	Verify the B/W parameter is set to OFF. See section 5-13, “VIDEO SYSTEM SET” for details.
Output video frozen, FREEZE button not pressed	Input signal	Verify video signal is input to the VIDEO IN connector.
	AUTO FREEZE setting	Verify if AUTO FREEZE set to ON. If ON, and signal has dropout or has been lost, a still image will be output. See section 5-12, “FREEZE SETTING” for details.
Freeze operation not set when FREEZE button pressed	LOCK button next to the power switch	Press the LOCK button for several seconds to enable the front panel buttons and controls.
	BYPASS button	Verify the BY-PASS button is not turned on.
Parameters cannot be changed	CONTROL setting	Set CONTROL to LOCAL. See 5-20, “SYSTEM SETTING” for more detail.
Audio gain cannot be adjusted	Audio test signal (SYSTEM button lit)	Set AUDIO TEST SIGNAL to OFF. See 5-15, “TEST SIGNAL” for details.
FA-9100/RPS cannot be controlled remotely.	REMOTE MODE and REMOTE CONN PORT settings	Set REMOTE MODE and REMOTE CONN PORT suitable to your system.

21. Specifications & Dimensions

21-1. Specifications

SDTV

Video Standard		525/60 (NTSC) 625/50(PAL)
Processing		4:2:2 component
Correction range		2 fields (field inversion prevented)
Quantization		12-bit, Internal process: 12-bit
Input Signal		
Analog Composite		1.0Vp-p, 75 Ω, BNC, 1 input
Analog Y/C		1.0Vp-p, 75 Ω, BNC, 1 input
Analog Component		Y: 1.0Vp-p PB,PR: 0.525Vp-p (SMPTE) 0.757Vp-p (BETACAM) 75 Ω, BNC, 1 input (SMPTE or BETACAM selectable in the menu)
Digital Component		270Mbps, 75 Ω, BNC, 1 input
Output Signal		
Analog Composite		1.0Vp-p, 75 Ω, BNC, 1 output
Analog Y/C		1.0Vp-p, 75 Ω, BNC, 1 output
Analog Component		Y: 1.0Vp-p, PB,PR: 0.525Vp-p (SMPTE) 0.757Vp-p (BETACAM) 75 Ω, BNC, 1 output (SMPTE or BETACAM selectable in the menu)
Digital Component		270Mbps, 75 Ω, BNC, 3 output

HDTV

Video Standard		HDTV (multi-format) 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 1080/23.98PsF, 1080/24PsF
Processing		4:2:2 component
Correction range		2 fields (field inversion prevented)
Quantization		12-bit, Internal process: 12-bit
Input Signal		
Digital Component		1.5Gbps, 75 Ω, BNC, 1 input
Analog Component		Y: 1.0Vp-p, PB,PR: 0.525Vp-p, 75 Ω, BNC, 1 input
Output Signal		
Digital Component		1.5Gbps, 75 Ω, BNC, 3 outputs
Analog Component		Y: 1.0Vp-p, PB,PR: 0.525Vp-p, 75 Ω, BNC, 1 output

DV/HDV

TV format	DV	525/60, 625/50
	HDV	1080/59.94i, 1080/50i, 720/59.94p, 720/50p
		IEEE1394 (4pin) x 1 IEEE1394 (6pin) x 1 (Input or output, two connectors cannot be used at the same time.)

GENLOCK Input

Genlock Input	B.B. (black burst): 0.429/0.45Vp-p, 75Ω, BNC x1 Tri-level sync: 0.6Vp-p, 75 Ω or loopthrough, BNC x1 (75 Ω termination is needed if the input is not looped through.)
Genlock phase control	
SC phase (BB only)	-179.8 to 180.0°
H phase	-1024 to 1023 clock
V phase	-512 to 511 line

Audio

Audio Standard		
Digital Audio		AES/EBU, Embedded Audio
Analog Audio		24-bit, 48kHz sampling
Input Signal		
Embedded Audio		2 groups (4-ch stereo) Sampling frequency: 48kHz Quantization: 16 to 24-bit
AES/EBU		Unbalanced, 75Ω, BNCx4 (4-ch stereo) Sampling frequency: 32kHz / 44.1kHz / 48kHz Quantization: 16 to 24-bit
Analog Audio		Balanced or unbalanced, x4 (2ch stereo) 9-pin D-sub connector (female), 1 port. Input Impedance: 600 Ω / 10k Ω Sampling frequency: 48kHz Quantization: 24-bit
Output Singal		
Embedded Audio		2 groups (4-ch stereo) Sampling frequency: 48kHz Quantization: 16 to 24-bit
AES/EBU		Unbalanced, 75Ω, BNCx4 (4-ch stereo) Sampling frequency: 48kHz Quantization: 16 to 24-bit
Analog Audio		Balanced or unbalanced, 4 ea. (2ch stereo) 9-pin D-sub connector (female), 1 port. Output Impedance: less than 100Ω Sampling frequency: 48kHz Quantization: 24-bit
IEEE1394	DV	1 ea. (Stereo 1 output or 2 outputs (32kHz)), Sampling frequency: 48kHz / 44.1kHz / 32kHz Quantization: 16-bit or12-bit (32kHz)
	HDV	1ea. (Stereo 1 output), MPEG1 Layer II, 384kbps Sampling frequency: 48kHz Quantization: 16-bit

Capability

Proc Amp

Video level	0.0 to 200.0%
Chroma Level	0.0 to 200.0%
Black Level	-20.0 to100.0%
Chroma Phase	-179.8 to180.0°

Video Phase/Position Adjustment

SD	SC Phase	-179.8 to180.0°
	H Phase	-1024 to 1023 clock
	V Phase	-512 to 511 line

	H Position	-764 to 764 clock
	V Position	-512 to 511 line
HD	H Phase	-1024 to 1023 clock
	V Phase	-512 to 511 line
	H Position	-764 to 764 clock
	V Position	-512 to 511 line

Color Gamut Control (FA-90CC/FA-91ALC)

Clip Mode	YBR clip, GBR clip, VBS clip

Color Correction (FA-90CC/FA-91ALC)

Mode	RGB (Balanced), YPbPr(Differential), Sepia
White Level (RGB)	0.0 to 200.0% (referring to input signal)
Black Level (RGB)	0.0 to 200.0% (referring to input signal)
Gamma Level (RGB)	0.0 to 200.0% (referring to input signal)
Gamma Curve	3 types (Center, Black, White)

Logo Insertion (FA-91LG)

Logo channel	8 channels (only one channel available for output.)
Mix type (Key mode)	Key/Fill. Self, Overlay
Logo source	Bitmap, Targa or PNG format images
Ouput video format	COMPST OUT, COMPONENT OUT, SDI1-3 OUT and DV/HDV (Displayable only when the video formats of logo source and output video are identical.)

Interfaces

CONTROL (IN/OUT)	BNC x 2 (for FA-90RU connection, cascading available)
REMOTE (RS-422)	9-pin D-sub (female) x 1
REMOTE (GPI)	9-pin D-sub (male) x 1, Make contact, 7-input/output
LAN1(10/100BASE-T)	RJ-45, 1 port (for SNMP connection)
LAN 10/100BASE-T)	RJ-45, 1 port (for receiving logo source data)

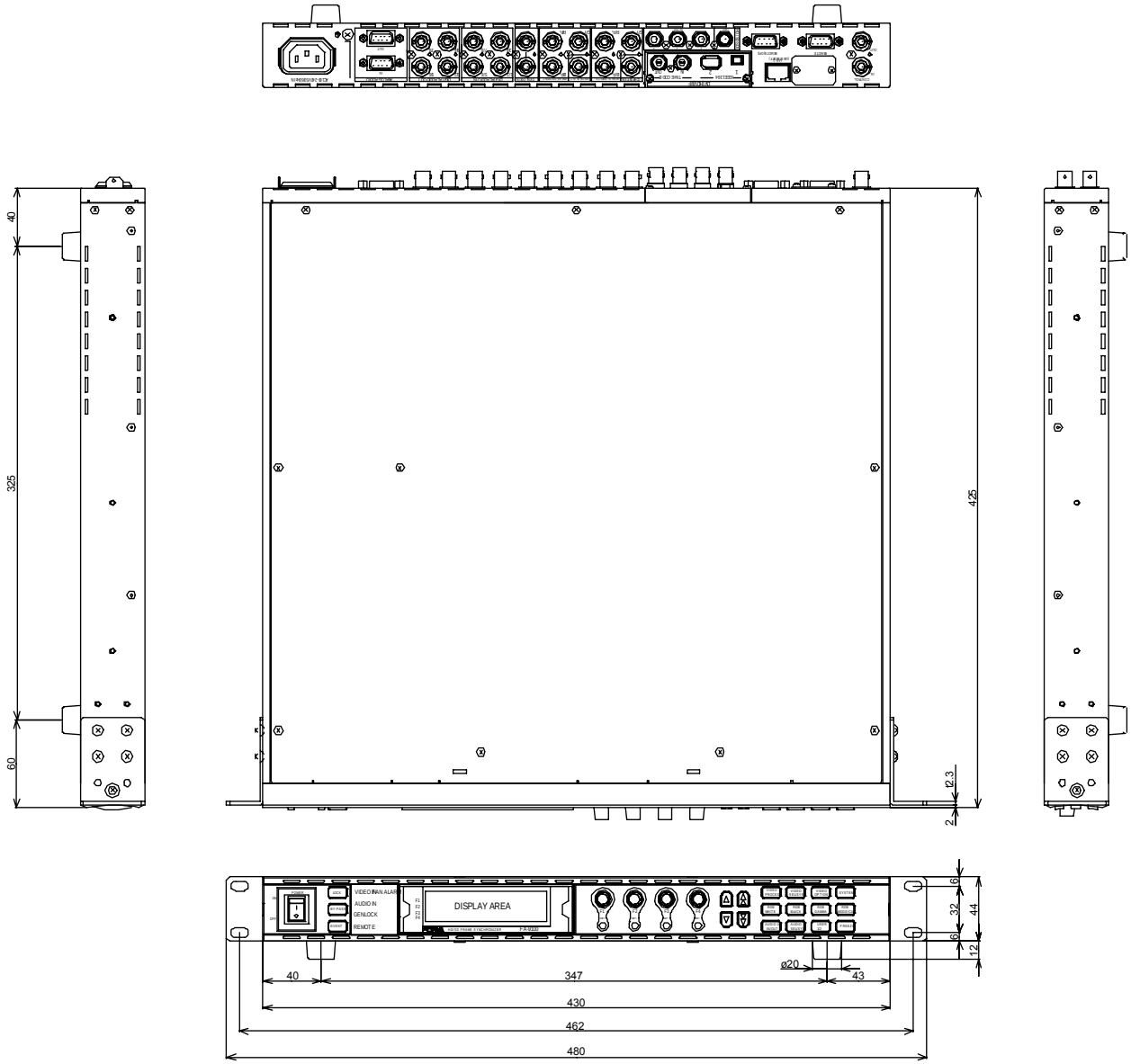
Other

Temperature	0°C - 40°C
Humidity	30% - 90% (no condensation)
Power	100 VAC -240VAC; 50/60 Hz
Power Consumption	
FA-9100	89W (at 100-120VAC) 84W (at 220-240VAC)
FA-9100RPS	88W (at 100-120VAC) 86W (at 220-240VAC)
Dimensions	
FA-9100	430(W)x425(D)x44(H)mm
FA-9100RPS	430(W)x525(D)x44(H)mm
Weight	
FA-9100	6.3 kg
FA-9100RPS	7.5 kg
Consumables	
Power unit:	Change every 8 years at normal temperature.
Cooling fan	Change every 5 years at normal temperature.
Battery	Change every 5 years at normal temperature. (The battery is removed when FA-91LG or FA-91ALC option is installed.)

21-2. External Dimensions

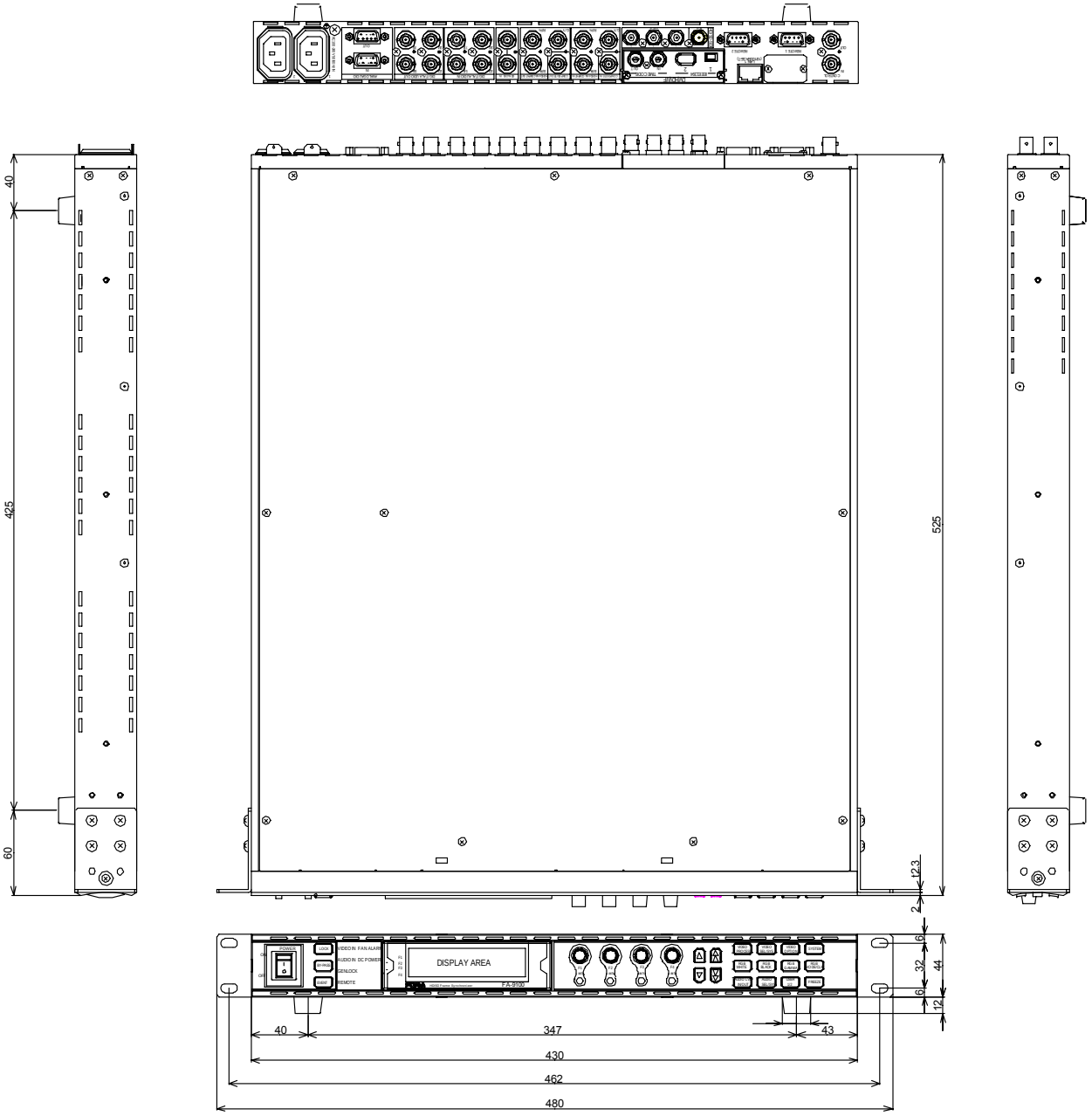
21-2-1. FA-9100

(All dimensions in mm)



21-2-2. FA-9100RPS

(All dimensions in mm)



Index

A

Accessing Menus 14
Adjusting the Detection Level for Analog Audio Input 68
AES IN GAIN 50
AES IN HYST SYNCHRO 58
AES OUTPUT SELECT 56
ALC CONTROL 36
ALC PORT 38
ALC SETUP 37
Analog Audio Connection 12
ANALOG AUDIO IN/OUT Configuration 87
ANALOG IN GAIN 50
ANALOG IN LEVEL 50
ANALOG INPUT TERM 60
ANALOG OUT GAIN 53
ANALOG OUT LEVEL 53
Analog Output Level Relative to the Digital Input Level 67
ANALOG/DIGITAL Input/Output Level 66
Arrow Buttons 16
ASRC INPUT SEL 55
Assigning a Menu 63
Audio Connection 12
AUDIO DELAY MULTIPLY 60
AUDIO DELAY OFFSET 60
AUDIO DELAY SETTING 59
AUDIO DELAY UNIT 59
AUDIO EMBED 57
AUDIO OUTPUT SEL 53
AUDIO SETTING 50
AUDIO SYSTEM SET 57
AUTO LEVEL CONTROLLER (FA-91ALC) 36

B

Basic Connection 10
BLACK LEVEL 19
Block Diagram (FA-9100/RPS Audio – DELAY) 100
Block Diagram (FA-9100/RPS Audio) 99
Block Diagram (FA-9100/RPS) 98
Block Diagrams 98
Block Diagrams (FA-9100/RPS Audio – SAMPLE RATE CONVERTER) 101

C

Changing Parameter Values 17
Changing the IN/OUT Configurations 87
CLIP SETTING 21
Color Correction (FA-90CC/FA-91ALC) 18
Color Gamut Control 69
Color Gamut Control (FA-90CC/FA-91ALC) 21
COMPONENT MODE SEL 22

Composite OUT 83
Connecting FA-9100/RPS to Computer 91
Connecting to the Remote Unit 11
Connection 10
Connectors 7
CORR MODE SELECT 20
CROP ADJUST 32
Customizing ALC 72
Customizing Sample Area 75
Customizing User Level 72

D

Data Areas and Related Menu Items 89
Decoder (FA-90DE-D/FA-91DE-ED) 85
DIGI AUDIO OUT MODE 59
Digital Output Level Relative to Analog Input Level 66
DOLBY DEC INPUT SEL 55
DOLBY DEC SETTINGS 62
DOLBY Downmix GAIN 51
DOLBY ENC INPUT SEL 56
DOLBY ENC SETTINGS 62
DOLBY IN GAIN 51
DV AUDIO OUTPUT 35
DV/HDV CODEC (FA-90DV / FA-90HDV) 33
DV/HDV IN GAIN 52
DV/HDV OPERATE MODE 33

E

EFFECT 31
Embedded Audio 84
Encoder (FA-91DE-ED) 86
EVENT LOAD 65
Event Operation 65
EVENT SAVE 65
External Dimensions 106

F

Factory Default Configuration 87
Fan Alarm 13
Format Compatibility between Genlock Input and Video Output 77
FRAME DELAY SETTING 24
Frame Rate Converter (FA-91FRC) 83
FREEZE SETTING 24
Front Panel 3
Front Panel Operations 13

G

Gamma Curve 71
GAMMA LEVEL 19
GAMMA SETTING 20
GBR Clip 70
GPI 1-7 SETTING 48
GPI SETTING 48

H

H/V ADJUST 31
HD SYSTEM PHASE 23
HD SYSTEM POSITION 24
HD/SD Analog Component OUT and SDI OUT1-3 83
HD/SD LINE MASK SEL 24
How To Pass or Blank Data 90

I

If Problems Occur 102
Information 94

L

LG/ALC Selection 43
Login 92
LOGO CONTROL 40
LOGO GENERATOR (FA-91LG) 40
LOGO INSERT 40
LOGO PORT 42
LOGO SOURCE 41

M

Manual Level Control 76
MASTER OUT GAIN 52
Menu Buttons 14
Menu Description 18
MODE SELECT 27

N

Network Restart 97
Network Setting 95
Network Settings 91

O

OUTPUT MODE 28
OUTPUT POLARITY 61
OUTPUT STEREO MODE 61

P

Panel Descriptions 3
PANEL SETUP 45
Pass/Blank Area in the Blanking Period 89
Power ON 13
PROCESS CONTROL 18

R

Rear Panel 5
Releasing Menu Lock 13
REMOTE (GPI) 7
REMOTE (RS422) Connectors 9
REMOTE CONN PORT 47
REMOTE MODE 47
Resetting IP Address 97
Resetting to Default 17

S

SD SYSTEM PHASE 22
SD SYSTEM POSITION 23

SDI GROUP SELECT 57
SDI IN GAIN 51
SDI OUTPUT SELECT 56
SIDE CUT COLOR 32
SNMP Setting 96
Specifications 103
START UP SETTING 46
Status Information 64
Supported Formats of Dolby E 85
SYSTEM SETTING 44

T

TC GENERATE SET 34
TEST SIGNAL 44
TIMECODE SELECT 34

U

Up/Down Converter (FA-90UD) 82
UP/DOWN/FRAME RATE CONVERTER (FA-90UD / FA-91FRC) 27
USER 1/2 63

V

VBS (Composite) Clip 70
VIDEO INPUT SELECT 22
VIDEO SYSTEM SET 25
VTR CONTROL 35

W

When FA-90UD Configured 77
When in Standard Configuration 77
When System Phase Adjustment is Available or Not Available: 81
WHITE LEVEL 18

Y

YPbPr Clip 69

Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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